

Glossary

Terminology in this Application for an Environmental Assessment Certificate/Environmental Impact Statement is defined where it is first used. The following list will assist readers who may choose to review only portions of the document. The italicized terms in definitions are defined elsewhere in this Glossary.

Air quality standards	Objectives for maximum criteria air contaminant concentrations in the atmosphere, developed to ensure long-term protection of public health and the environment.
Acid rock drainage	Acid rock drainage occurs when minerals containing sulphide and elemental sulphur are exposed to oxygen and water, thus oxidizing and increasing their acidity and that of the receiving water body or drainage, depending on conditions (Price and Errington 1998).
Allochthonous	Materials formed elsewhere than in their present place (e.g., terrestrial leaf litter in streams).
Alluvial	Deposited by flowing water.
Ammonium nitrate and fuel oil (ANFO)	A mixture of ammonium nitrate and fuel oil used extensively as a <i>blasting agent</i> in mining and quarrying.
Anemometer	Instrument for measuring air velocity (MBA Training Company n.d.)
Application for an Environmental Assessment Certificate / Environmental Impact Statement (Application / EIS)	Application for an Environmental Assessment Certificate pursuant to BC's <i>Environmental Assessment Act</i> (2002a) and Environmental Impact Statement pursuant to the <i>Canadian Environmental Assessment Act</i> (1992).
Archaeological site	Location where there is evidence of human activity. The <i>Heritage Conservation Act</i> (1996) automatically protects all archaeological sites, whether on provincial Crown or private land, that predate AD 1846. Burial sites and rock art sites are protected regardless of age.
Archaeological Chance Find Procedure	Document detailing the steps that must be followed if an <i>archaeological site</i> is uncovered during ground altering activities.

Aquifer	A porous geological formation that forms the path of least resistance for <i>groundwater</i> to flow.
Baghouse	Air pollution control device that removed dry particulate from a gas stream of air or combustion gas using fabric filters.
Baseline condition	Pre-disturbance or pre-construction environmental setting; dataset used for comparison to assess changes in the environment resulting from Project activities.
Baseline studies	Scientific investigations that determine the present state of an area and establish the basic reference necessary for further studies.
Bedrock	Solid rock that underlies sediments, soils, softer rocks, or other unconsolidated materials (US Geological Survey n.d.).
Belt conveyor	A looped belt on which other materials are carried and which is generally constructed of flame-resistant material or of reinforced rubber or rubber-like substance (MBA Training Company n.d.).
Benthic invertebrate	Assemblage of animals living in or on the bottom sediments of a waterbody and depended upon its decomposition cycle for most, if not all, of its basic food supply.
Berm	A pile or mound of material capable of restraining a vehicle or impounding a fluid.
Bioremediation	Bioremediation involves the use of organisms to help break down or contain contaminants. This may also involve enriching the environment through the addition of substances or selected species to enhance the ability of naturally occurring microbes to break down toxic substances (DFO n.d.).
Blasting agent	Any material consisting of a mixture of a fuel and an oxidizer to create an explosive for blasting purposes.
Blasting cap	A detonator containing a charge of detonating compound, which is ignited by electric current or the spark of a fuse. Used for detonating <i>explosives</i> (MBA Training Company n.d.).

Block cave mining	A low cost bulk underground mining method in which the block of ore to be mined is undercut by drilling and blasting. <i>Drawbells</i> excavated beneath the undercut are used to extract the broken ore.
Borden number	In Canada, all archaeological sites are coded by a system that assigns each site a sequence of four letters (e.g., DcRu) and a number, relating to a fixed map code.
B-train	A mode of transporting bulk materials consisting of a truck (or tractor) pulling two interconnected trailers.
Catchment	An extent or area of land where surface water from rain and melting snow or ice converges to a single point.
Clastic	Composed of fragments, or clasts, of pre-existing rock.
Clay	A soil description for extremely fine particles, less than 0.002 mm, exuding little or no water and forming a thread when rolled between the fingers.
Climate	Average weather conditions over a long time period, usually exclusive to one region or area. Climate depicts weather patterns over years, decades, or centuries, whereas meteorology measures day-to-day activities.
Climate change	Statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (i.e., decades or longer) that may be due to natural internal processes/external forcing, or to persistent anthropogenic changes in the composition of the atmosphere or in land use.
Climate variability	Variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all temporal and spatial scales beyond that of individual weather events.
Closure phase	The third phase of the KSM Project, expected to last three years, during which time Project facilities that are no longer required will be <i>decommissioned</i> and reclaimed.
Colluvial	Deposits formed by gravity-transported material.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	Committee that assesses the status of species and recommends to the government those species that should be listed as at risk under the federal <i>Species at Risk Act</i> (2002b).
Concentrate	The product of ore processing.
Confidence	Confidence, which can also be thought of 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.
Construction phase	The first phase of the KSM Project, expected to last approximately five years.
Contact water	Water includes all water that is collected for treatment at the WSF. Contact water includes both anthropogenically altered water and natural water from highly mineralized areas (i.e., Mitchell Valley).
Core sample	A cylindrical sample generally 2.5 to 13 cm in diameter drilled out of an area to determine the geologic conditions and chemical analysis of the overburden and mineral.
Crusher	A machine for crushing rock to create smaller particle sizes for transportation or processing.
Cumulative effect	<p>Cumulative effects occur when multiple human actions combine to affect a <i>valued component</i>. For the purposes of this document, “cumulative effects” (the preferred federal terminology) is used synonymously with “cumulative impacts” (the preferred provincial terminology).</p> <p>The cumulative effects of a project can be viewed as the total effects on a resource, ecosystem, or human community attributable to the project and all other <i>human actions</i>.</p>
Cumulative impact	See <i>cumulative effect</i> .
Cyclonic storm	A storm characterized by an area of closed, circular fluid motion rotating in the same direction as the Earth; characterized by a front of two masses of air of different densities; strong cold fronts can feature thunderstorms and severe weather.

Debris flow	Torrent of sediment, woody material, and mud mobilized by water.
Decommissioning	The process of removing facilities from service and the dismantling of buildings.
Deposit	A deposit is a body of a useful mineral or an ore in sufficient extent and degree of concentration to invite mining.
Drainage	The process of removing surplus ground or surface water either by artificial means or by gravity flow (MBA Training Company n.d.).
Drawbell	The blasted area between the undercut level and the extraction level of a block cave mine. The drawbell guides the broken ore to the individual <i>drawpoints</i> .
Drawcone	Theoretical zone of influence of one <i>drawbell</i> inside the caved material in a block cave mine.
Drawpoint	The drawpoint is located in an extraction drift in a block cave mine and provides access to the caved material to allow for removal with mechanised equipment.
Drift	A linear near horizontal underground excavation intended to provide access for mining, haulage, ventilation or related activities.
Earthquake	The result of a sudden release of energy in the Earth's crust that creates seismic waves.
Ecosystem	A volume of earth-space that is composed of non-living parts and living or biotic parts, which are all constantly in a state of motion, transformation, and development.
Effect	A change to a <i>valued component</i> due to human activities. An effect is not necessarily negative; it may be neutral or positive.
Emissions	Solid or gaseous pollutants released from point sources or fugitive sources, including <i>greenhouse gas</i> generation.

Environment	<p>The environment includes both the natural and socio-economic environments, as defined under Paragraph 2 of the <i>Canadian Environmental Assessment Act</i> (1992).</p> <p>Earth's components, including land, water, air, and all layers of the atmosphere. The environment includes all organic and inorganic matter, other living organisms, and the interaction natural systems of such, including cultural and social components.</p>
Environmental Assessment (EA) process	<p>The process of assessing the environmental, economic, social, heritage and health effects of a proposed development.</p>
Eurythermal	<p>[An organism that is] able to adapt to or tolerate a wide range of temperatures.</p>
Explosive	<p>Any rapidly combustive or expanding substance, the energy release from which can be used to break rock (MBA Training Company n.d.)</p>
Extraction level	<p>The <i>level</i> in a block cave mine where equipment is used to extract ore from the <i>drawpoints</i>.</p>
Face	<p>Exposed area of rock from which minerals are being extracted (MBA Training Company n.d.).</p>
Fault	<p>A slip-surface between two portions of the earth's surface that have moved relative to each other. A fault is a failure surface and is evidence of severe earth stress (MBA Training Company n.d.)</p>
Fissure	<p>An extensive crack, break, or fracture in rocks (MBA Training Company n.d.).</p>
Fluvial	<p>Sediments deposited by flowing water, including <i>glaciofluvial</i> deposits.</p>
Fossil fuel	<p>Any naturally occurring fuel of an organic nature, such as coal, oil, and natural gas (MBA Training Company n.d.).</p>
Freeboard	<p>The height of the dam crest above the tailing, waste rock, water, etc.</p>

Freshet	Relatively high annual stream discharge period resulting from spring/summer snowpack melt that has accumulated over the winter.
Fugitive dust	Particulate matter, often sand or mineral dust, released to the atmosphere by mechanical disruption of soil or by wind scouring.
Geographic Information System (GIS)	Mapping tool used to depict large amounts of information in a spatial context.
Geohazard	Landslide or snow avalanche process with the potential to result in some type of undesirable outcome.
Geohazard risk	Likelihood of a geohazard scenario occurring and resulting in a particular severity of consequence, defined in terms of economic, environmental, safety, or reputation loss.
Geohazard scenario	Specific undesirable outcome that could result from a geohazard event.
Geotechnical	Related to the soil and bedrock, especially aspects of foundations and earthworks.
Glaciation	The erosive action exercised by land ice upon the land over which it flows.
Glacierization	The inundation of land by ice.
Glaciofluvial	Material moved by glaciers and subsequently deposited by streams flowing from the melting ice. The deposits may be unsorted or sorted.
Global climate change	Usually refers to the gradual warming of the earth due to the <i>greenhouse effect</i> . Many scientists believe this is the result of man-made emissions of <i>greenhouse gases</i> such as carbon dioxide, chlorofluorocarbons and methane (MBA Training Company n.d.).
Greenhouse effect	The natural phenomenon that occurs when atmospheric gases trap radiated heat in the atmosphere. The greenhouse effect keeps the atmosphere warm and makes life on earth possible (MBA Training Company n.d.).

Greenhouse gases (GHGs)	Gases that trap the sun's heat, creating a <i>greenhouse effect</i> that keeps the earth warm and sustains life. However, as GHGs increase in the atmosphere, more heat is trapped, which causes <i>global climate change</i> .
Grizzly	Course screening or scalping device that prevents oversized bulk material from entering a material transfer system (MBA Training Company n.d.).
Groundwater	Water stored in soil or rock.
Habitat	Land and water surface used by wildlife. May include biotic and abiotic aspects such as vegetation, exposed <i>bedrock</i> , water, and topography.
Haulage	The horizontal transport of ore, supplies, and waste (MBA Training Company n.d.).
Hazeltons, the	The communities of Hazelton and New Hazelton, BC.
Heading	Refers to the active face in a tunnel or mine where rock is being excavated in order to extend the tunnel or mine.
Highway 37	A 725-km long two lane hard surface public highway connecting Highway 16 mid-way between Smithers and Terrace near Gitwangaak (Kitwanga) to the Yukon border.
Highway 37A	A two-lane hard surfaced public highway that extends from the Canada/United States boundary at Stewart to the junction with Route 37 at Meziadin Lake.
Hoarfrost	An accumulation of ice crystals formed by direct deposition of water vapour from the air onto an object.
Hoist	A drum on which hoisting rope is wound in the engine house, as the cage or skip is raised in the hoisting shaft (MBA Training Company n.d.).
Horizon	In geology, any given definite position or interval in the stratigraphic column or the scheme of stratigraphic classification; generally used in a relative sense (MBA Training Company n.d.).

Human action	A human action is defined as a project or activity (CEA Agency 1999). Projects are typically some form of commercial or industrial development that is planned, constructed, and operated (e.g., a mine or a resource access road); activities are the other actions of humans in an area, such as public highway traffic, hiking, and hunting.
Hydraulic	Of or pertaining to fluids in motion. Hydraulic cement has a composition that permits it to set quickly under water. Hydraulic jacks lift through the force transmitted to the movable part of the jack by a liquid. Hydraulic control refers to the mechanical control of various parts of machines through the operation or action of hydraulic cylinders (MBA Training Company n.d.).
Hydrocarbon	A class of compounds containing hydrogen and carbon formed by the decomposition of plant and animal remains, including coal, mineral oil, petroleum, natural gas, paraffin, fossil resins, and solid bitumens occurring in rocks (MBA Training Company n.d.).
Hydrology	The movement and distribution of water.
Incline	Any entry to a mine that is not vertical (shaft) or horizontal (adit). Often incline is reserved for those entries that are too steep for a <i>belt conveyor</i> (+17° or -18°). A belt conveyor incline is termed a slope.
Intake	The passage through which fresh air is drawn or forced into a mine or to a section of a mine (MBA Training Company n.d.).
Landslide	A geological phenomenon that includes a wide range of ground movement such as rock falls, slope failures, and debris flows.
Lentic	Standing or relatively still water (e.g., lakes, ponds, and swamps).
Lotic	Moving water (e.g., rivers, creeks, and streams).
Mesic	Water removed somewhat slowly in relation to supply; soil may remain moist for a significant, but sometimes short, period of the year. Available soil moisture reflects climatic inputs.

Mesotrophic	A body of water with a moderate amount of dissolved nutrients and plants (Merriam-Webster 2013a).
Metal leaching	Metal leaching is associated with <i>acid rock drainage</i> due to high solubility of metals and sulphide weathering rates under acidic conditions (Price and Errington 1998).
Morainal	See <i>Till</i> .
Nitrogen oxide (NO_x)	Formed when nitrogen (N ₂) combines with oxygen (O ₂) in the burning of fossil fuels, from the natural degradation of vegetation, and from the use of chemical fertilizers. It is a significant component of atmospheric acid deposition and photochemical smog. The primary source of nitrogen oxide emissions is automobile exhaust (MBA Training Company n.d.).
Non-contact water	Includes all natural catchment water that is diverted around the surface disturbance.
Oligotrophic	A body of water that is deficient in plant nutrients and usually has an abundance of dissolved oxygen (Merriam-Webster 2013b).
Operation phase	The second phase of the KSM Project, expected to last 51.5 years, during which ore is mined and processed to produce concentrate for sale.
Ore Preparation Complex (OPC)	For the KSM Project, a facility where part of the ore processing process takes place. The Mitchell OPC includes primary crushing, conveying and storage activities, whereas the Treaty OPC includes all the additional activities required to produce concentrates of ore for sale.
Orographic effect	Occurs when an air mass approaches a mountain range and is rapidly forced upward, causing any moisture to cool and create precipitation in the form of rain or snow.
Outcrop	Bedrock that appears at or near the surface.

Overburden	Layers of soil and rock covering a deposit. In surface mining, overburden is removed using large equipment prior to mining. When mining has been completed, it is either used to backfill the mined areas or is hauled to an external disposal or storage site (MBA Training Company n.d.).
Periphyton	Complex matrix of algae, bacteria, microbes, and detritus that attaches to submerged surfaces.
Permafrost	Soil at or below the freezing point of water 0°C for two or more years. Most permafrost is located in high latitudes (i.e., land close to the North and South poles), but alpine permafrost may exist at high altitudes in much lower latitudes.
Permit	A document issued by a regulatory agency that gives approval for specified activities to take place.
Phreatic	Relating to or being an explosion caused by steam derived from groundwater (Merriam-Webster 2013c).
Phytoplankton	Minute, free-floating aquatic plants that play an important role in many aquatic systems as <i>primary producers</i> and prey for creatures a higher levels in the food chain.
Portal	The mouth of an adit or tunnel.
Potential effects	The potential effects of a proposed project are those effects identified without taking any mitigation or management measures into account, with the exception of measures that are integral components of the project design.
Primary producers	Organisms capable of using the energy derived from light or a chemical substance to manufacture energy-rich organic compounds.
Public, the	The public is a broad entity that includes people who are not necessarily affiliated with an interest group, although there is overlap between these groups.
Ramp	An inclined opening, driven to connect levels of a mine, and used for haulage.

Reclamation	The process of restoring land that has been mined to a natural or economically usable purpose. Reclamation operations are usually underway as soon as the deposit has been removed from a mine site. The process includes restoring the land to its approximate original appearance by restoring topsoil and planting native grasses and ground cover (MBA Training Company n.d.).
Residual effects	Residual effects are the effects that remain after mitigation and management measures are implemented. Project-specific effects are differentiated from <i>cumulative effects</i> .
Return period	Time for an event of a given magnitude to statistically re-occur; for example, a 1-in-200 year flood occurs on average at 200-year intervals but may occur at any time.
Sackungen	Slow movement of large rock masses along shear planes or by toppling.
Secondary producers	Organisms that consume <i>primary producers</i> , primarily <i>invertebrates</i> .
Sediment quality	Physical and chemical properties of sediment in streams and lakes within the local study area.
Significance	Significance is a measure of the degree to which an effect of a proposed project will cause changes in the environment or influence a <i>valued component</i> .
Silt	A soil description for fine particles between 0.06 and 0.002 mm.
Snow avalanche	A sudden, drastic flow of snow down a slope.
Spatial boundaries	Spatial boundaries consider the potential geographic or physical extent of change generated by the project, as related to a specific assessment topic or <i>valued component</i> .
Stakeholders	Stakeholders are interest groups whose interests could be affected by the project and its associated activities. Stakeholders do not include treaty and non-treaty First Nations, but generally include land-user groups with interests or tenures in the project area.

Table of Concordance	Provides a cross-reference showing how the issues identified in the Application Information Requirements have been addressed in the Application/EIS.
Tailing	Tailing is a mixture of water and finely ground rock that is left over once the valuable minerals are removed by processing of the ore.
Temporal boundaries	Temporal boundaries are the time periods considered in the assessment, which take into account the phases of the KSM Project and the timelines of other human actions (Chapter 5).
Terrestrial Ecosystem Mapping	Terrestrial Ecosystem Mapping is an approach to stratifying the landscape into map units according to ecological features using a combination of manual air photo interpretation and ground sampling (BC MOE n.d.).
Thunderstorm	Classified as severe when it contains hail larger than ¾ inch (1.9 cm) and winds gusting in excess of 50 knots (92.6 km/h).
Till (morainal material)	A heterogeneous and poorly sorted mixture of silt, sand, and rock deposited by a glacier.
Topography	Surface configuration, including relief and position of natural and man-made features.
Train-echo storm	A series of storms that move repeatedly across the same area.
Tunnel	An excavated horizontal, or near-horizontal, underground passage that is open to the surface at both ends.
Valued components (VCs)	Valued components are environmental, social, economic, health, and heritage components that the public, scientists, government agencies, Aboriginal peoples, and stakeholders consider important. They are identified, in part, through consultation with the above and may be determined on the basis of values including First Nations' or Nisga'a interests, cultural value, scientific and/or regulatory concern, conservation status, biodiversity, and sensitivity to proposed Project effects.

Ventilation	The provision of a directed flow of fresh and return air along all underground roadways, travelling roads, workings, and service parts (MBA Training Company n.d.).
Viewsheds	The natural environment that is visible from one or more viewing points.
Waste	That rock that must be removed from a mine to safely and economically extract the ore, but which has no value.
Wetlands	Wetlands are lowland or depressional features where water saturation is the dominant factor determining the nature of soil development and the resulting vegetation communities.
Wildfire	An unplanned or unwanted natural or anthropogenic fire.
Wilp	The wilp is a basic matrilineal kinship unit among some First Nations in northwestern British Columbia.
Working Group	A committee of representatives of regulatory agencies, stakeholders, First Nations, and Treaty Nations established by the British Columbia Environmental Assessment Office to review and comment on documents produced by an Environmental Assessment proponent during the pre-Application and Application review process.
Zooplankton	Tiny, free-floating organisms consisting of small animals and the immature stages of larger animals in aquatic systems. Unlike <i>phytoplankton</i> , <i>zooplankton</i> cannot produce their own food, and so are consumers. They provide an important food source to creatures at higher levels in the food chain, such as fish.

References

1992. *Canadian Environmental Assessment Act*, SC C. 37.
1996. *Heritage Conservation Act*, RSBC. C. 187.
- 2002a. *Environmental Assessment Act*, SBC C. 43.
- 2002b. *Species at Risk Act*, SC. C. 29.
- BC MOE. n.d. *Terrestrial Ecosystem Mapping*. <http://www.env.gov.bc.ca/fia/terrecomap.htm> (accessed February 2013).
- CEA Agency. 1999. *Cumulative Effects Assessment Practitioners' Guide*. Canadian Environmental Assessment Agency. <http://www.ceaa.gc.ca/default.asp?lang=En&n=43952694-1&printfullpage=true#wsB0972650> (accessed January 2013).
- DFO. n.d. *Frequently Asked Questions*. Fisheries and Oceans Canada. <http://www.dfo-mpo.gc.ca/Science/biotech/abgrds-srdbfa/faq-eng.htm> (accessed January 2013).
- MBA Training Company. n.d. *Mining Industry Glossary*. Terrapin Group: n.p.
- Merriam-Webster. 2013a. *Mesotrophic*. <http://www.merriam-webster.com/dictionary/mesotrophic> (accessed June 2013).
- Merriam-Webster. 2013b. *Oligotrophic*. <http://www.merriam-webster.com/dictionary/oligotrophic> (accessed June 2013).
- Merriam-Webster. 2013c. *Phreatic*. <http://www.merriam-webster.com/dictionary/phreatic> (accessed June 2013).
- Price, W. A. and J. C. Errington. 1998. *Guidelines For Metal Leaching and Acid Rock Drainage at Minesites in British Columbia*. British Columbia Ministry of Energy and Mines. <http://www.empr.gov.bc.ca/Mining/Permitting-Reclamation/ML-ARD/Pages/Guidelines.aspx> (accessed January 2013).
- US Geological Survey. n.d. *Glossary*. <http://water.usgs.gov/nawqa/glos.html> (accessed February 2013).