

## **Appendix 3**

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### Glossary and Acronyms





## GLOSSARY

<b>Adverse Effect</b>	An undesirable or harmful effect to an organism (human, animal or plant), indicated by some result such as mortality, growth inhibition, reproductive abnormalities, altered food consumption, altered body and organ weights, altered enzyme concentrations, visible pathological changes or carcinogenic effects.
<b>Alkalinity</b>	A measure of water's capacity to neutralize an acid. It indicates the presence of carbonates, bicarbonates and hydroxides, and less significantly, borates, silicates, phosphates and organic substances. It is expressed as an equivalent of calcium carbonate. The composition of alkalinity is affected by pH, mineral composition, temperature and ionic strength. However, alkalinity is normally interpreted as a function of carbonates, bicarbonates and hydroxides. The sum of these three components is called total alkalinity.
<b>Ambient</b>	The conditions surrounding an organism or area.
<b>Ambient Air</b>	The air in the surrounding area.
<b>Ambient Noise Level</b>	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
<b>Ambient Sound Level</b>	All noises that exist in an area and are not related to a facility covered by EUB ID 99-8. Ambient noise includes sound from other industrial noise not subject to this directive, transportation sources, animals and nature.
<b>Aquifer</b>	A body of rock or soil that contains sufficient amounts of saturated permeable material to yield economic quantities of water to wells or springs.
<b>Artifact</b>	Any portable object modified or manufactured by man.
<b>Aspect</b>	Compass orientation of a slope as an inclined element of the ground surface.
<b>Background</b>	An area not influenced by chemicals released from the site under evaluation.
<b>Background Concentration (Environmental)</b>	The concentration of a chemical in a defined control area during a fixed period before, during or after data gathering.
<b>Base Cation</b>	An alkali or alkaline earth metal cation ( $\text{Ca}_2+$ , $\text{Mg}_2+$ , $\text{K}+$ , $\text{Na}+$ ).
<b>Baseline</b>	A surveyed or predicted condition that serves as a reference point on which later surveys are coordinated or correlated.



<b>Basic Sound Level</b>	The allowable sound level at a residential location, as defined by the ERCB Directive, with the inclusion of industrial presence based upon dwelling unit density and proximity to transportation noise sources.
<b>Bedrock</b>	The body of rock which underlies gravel, soil or other superficial material.
<b>Benzene</b>	A colourless, liquid, flammable, aromatic hydrocarbon that boils at 80.1°C and freezes at 5.4-5.5°C.
<b>Bitumen</b>	A highly viscous, tarry, black hydrocarbon material having an API gravity of about 9° (specific gravity about 1.0). It is a complex mixture of organic compounds. Carbon accounts for 80 to 85% of the elemental composition of bitumen, hydrogen - 10%, sulphur - 5%, and nitrogen, oxygen and trace elements the remainder.
<b>Calibration</b>	A procedure used for the adjustment of a sound level meter using a reference source of a known sound pressure level and frequency. Calibration must take place before and after the sound level measurements.
<b>CALMET</b>	California Meteorological Model. Used to process meteorological data for input into the CALPUFF model.
<b>CALPUFF</b>	California Puff model, used to estimate ambient concentrations of substances in air, and deposition of those substances ( <i>e.g.</i> , acid deposition).
<b>Cation</b>	A positively charged ion.
<b>Closure</b>	The point after shutdown of operations when regulatory certification is received and the area is returned to the Crown.
<b>Community</b>	Pertaining to plant or animal species living in close association or interacting as a unit.
<b>Concentration</b>	Quantifiable amount of a chemical in environmental media.
<b>Conductivity</b>	A measure of a waterbody's capacity to conduct an electrical current. It is the reciprocal of resistance. This measurement provides the limnologist with an estimation of the total concentration of dissolved ionic matter in the water. Measurement of conductivity provides a quick check of the alteration of total water quality due to the addition of pollutants to the water.



<b>CWQG</b>	Canadian Water Quality Guidelines. Numerical concentrations or narrative statements recommended to support and maintain a designated water use in Canada. The guidelines contain recommendations for chemical, physical, radiological and biological parameters necessary to protect and enhance designated uses of water.
<b>Deposit</b>	Material left in a new position by a natural transporting agent such as water, wind, ice or gravity, or by the activity of man.
<b>Detection Limit (DL)</b>	The lowest concentration at which individual measurement results for a specific analyte are statistically different from a blank (that may be zero) with a specified confidence level for a given method and representative matrix.
<b>Discharge</b>	In a stream or river, the volume of water that flows past a given point in a unit of time ( <i>i.e.</i> , m <sup>3</sup> /s).
<b>Diversity</b>	The variety, distribution and abundance of different plant and animal communities and species within an area.
<b>Drainage Basin</b>	The total area that contributes water to a stream.
<b>Drawdown</b>	Lowering of water level caused by pumping. It is measured for a given quantity of water pumped during a specified period, or after the pumping level has become constant.
<b>Ecosite</b>	Ecological units that develop under similar environmental influences (climate, moisture and nutrient regime). Ecosites are groups of one or more ecosite phases that occur within the same portion of the moisture/nutrient grid. Ecosite is a functional unit defined by the moisture and nutrient regime. It is not tied to specific landforms or plant communities, but is based on the combined interaction of biophysical factors that together dictate the availability of moisture and nutrients for plant growth.
<b>Ecosite Phase</b>	A subdivision of the ecosite based on the dominant tree species in the canopy. On some sites where the tree canopy is lacking, the tallest structural vegetation layer determines the ecosite phase.
<b>Ecosystem</b>	An integrated and stable association of living and non-living resources functioning within a defined physical location.
<b>Equivalent Land Capability</b>	Means that the ability of the land to support various land uses after conservation and reclamation is similar to the ability that existed prior to an activity being conducted on the land, but that the individual land uses will not necessarily be identical.
<b>Erosion</b>	The process by which material, such as rock or soil, is worn away or removed by wind or water.



<b>Evaporation</b>	Evaporation is the process by which water is transferred from open water surfaces to the atmosphere.
<b>Exceedance</b>	An emission or ambient concentration whose measured value is more than that allowed by government regulations.
<b>Flare</b>	A device for disposing of combustible gases from refining or chemical processes by burning in the open.
<b>Fluvial</b>	Relating to a stream or river.
<b>Forb</b>	Broad-leaved herb, as distinguished from grasses.
<b>Forest</b>	A collection of stands of trees that occur in similar space and time.
<b>Fragmentation</b>	Fragmentation is the breaking up of contiguous natural areas by areas of human disturbance into smaller and more distinct or isolated patches.
<b>Glacial Till</b>	Unsorted and unstratified glacial drift (generally unconsolidated) deposited directly by a glacier without subsequent reworking by water from the glacier. Consisting of a heterogeneous mixture of clay, silt, sand, gravel and boulders ( <i>i.e.</i> , drift) varying widely in size and shape.
<b>Groundwater</b>	That part of the subsurface water that occurs beneath the water table, in soils and geologic formations that are fully saturated.
<b>Groundwater Level</b>	The level below which the rock and subsoil, to unknown depths, are saturated.
<b>Habitat</b>	The place where an animal or plant naturally or normally lives and grows, for example, a stream habitat or a forest habitat.
<b>Habitat Fragmentation</b>	Occurs when extensive, continuous tracts of habitat are reduced by habitat loss to dispersed and usually smaller patches of habitat. Generally reduces the total amount of available habitat and reduces remaining habitat into smaller, more isolated patches
<b>Hazard</b>	A condition with the potential for causing an undesirable consequence.
<b>Head</b>	The energy, either kinetic or potential, possessed by each unit weight of a liquid; expressed as the vertical height through which a unit weight would have to fall to release the average energy possessed. It is used in various compound terms such as pressure head, velocity head and loss of head.
<b>Hectare</b>	An area measuring the equivalent of 100 m by 100 m or 10,000m <sup>2</sup> , one hectare = 2.4711 acres



<b>Historic Site</b>	Any location with detectable evidence of past human activity. Historical Resources Works of nature or by humans valued for their palaeontological, archaeological, prehistoric, historic, cultural, natural, scientific or aesthetic interest.
<b>HRIA</b>	Historical Resources Impact Assessment. A review of the effects that a proposed development will have on the local and regional historic and prehistoric heritage of an area.
<b>Hydraulic Conductivity</b>	The permeability of soil or rock to water.
<b>Hydraulic Gradient</b>	A measure of the force of moving groundwater through soil or rock. It is measured as the rate of change in total head per unit distance of flow in a given direction. Hydraulic gradient is commonly shown as being dimensionless, since its units are metres/metre.
<b>Hydraulic Head</b>	The elevation, with respect to a specified reference level, at which water stands in a piezometer connected to the point in question in the soil. Its definition can be extended to soil above the water table if the piezometer is replaced by a tensiometer. The hydraulic head in systems under atmospheric pressure may be identified with a potential expressed in terms of the height of a water column. More specifically, it can be identified with the sum of gravitational and capillary potentials, and may be termed the hydraulic potential.
<b>Hydrogeology</b>	The study of the factors that deal with subsurface water (groundwater), and the related geologic aspects of surface water.
<b>In Situ</b>	Also known as “in place”, refers to methods of extracting deep deposits of oil sands without removing the groundcover. The <i>in-situ</i> technology in oil sands uses underground wells to recover the resources with less impact to the land, air and water than the traditional oil sands extraction methods.
<b>Infiltration</b>	The flow or movement of precipitation or surface water through the ground surface into the ground. Infiltration is the main factor in recharge of groundwater reserves.
<b>Injection Well</b>	A well used for injecting fluids (air, steam, water, natural gas, gas liquids, surfactants, alkalines, polymers, etc.) into an underground formation for the purpose of increasing recovery efficiency.
<b>Invertebrate</b>	An animal without a backbone and internal skeleton.
<b>Land Capability</b>	Means the ability of land to support a given land use, based on an evaluation of the physical, chemical and biological characteristics of the land, including topography, drainage, hydrology, soils and vegetation.



<b>Landform</b>	General term for the configuration of the ground surface as a factor in soil formation; it includes slope steepness and aspect as well as relief. Also, configurations of land surfaces taking distinctive forms and produced by natural processes ( <i>e.g.</i> , hill, valley, plateau).
<b>Landscape</b>	A heterogeneous land area with interacting ecosystems.
<b>Landscape Diversity</b>	The size, shape and connectivity of different ecosystems across a large area.
<b>Linear Corridor</b>	Roads, seismic lines, pipelines and electrical transmission lines, or other long, narrow disturbances.
<b>m<sup>3</sup>/d</b>	Cubic metres per day. A measure of oil production or processing rate.
<b>m<sup>3</sup>/s</b>	Cubic metres per second. The standard measure of water flow in rivers; <i>i.e.</i> , the volume of water in cubic metres that passes a given point in one second.
<b>Media</b>	The physical form of the environmental sample under study ( <i>e.g.</i> , soil, water, air).
<b>Mesic</b>	Pertaining to, or adapted to an area that has an intermediate supply of water; neither wet nor dry.
<b>Microclimate</b>	The temperature, precipitation and wind velocity in a restricted or localized area, site or habitat.
<b>Mineral Soil</b>	Soils containing low levels of organic matter. Soils that have evolved on fluvial, glaciofluvial, lacustrine and morainal parent material.
<b>Modelling</b>	A simplified representation of a relationship or system of relationships. Modelling involves calculation techniques used to make quantitative estimates of an output parameter based on its relationship to input parameters. The input parameters influence the value of the output parameters.
<b>Movement Corridor</b>	Travel way used by wildlife for daily, seasonal, annual and/or dispersal movements from one area or habitat to another.
<b>Muskeg</b>	A soil type comprised primarily of organic matter. Also known as bog or peat.
<b>Noise</b>	Generally understood as unwanted sound.
<b>Noise Impact Assessment (NIA)</b>	Identifies the expected sound level emanating from a facility as measured 15 m from the nearest or most impacted permanently or seasonally occupied dwelling. It also identifies what the permissible sound level is and how it was calculated.





<b>NO<sub>x</sub></b>	A measure of the oxides of nitrogen comprised of nitric oxide (NO) and nitrogen dioxide (NO <sub>2</sub> ).
<b>Nutrients</b>	Environmental substances (elements or compounds) such as nitrogen or phosphorus, which are necessary for the growth and development of plants and animals.
<b>Observation Well</b>	A constructed controlled point of access to an aquifer which allows groundwater observations. Small diameter observation wells are often called piezometers. Also used to describe deep cased wells instrumented with thermocouples and piezometers to monitor steam growth in SAGD patterns.
<b>Oil Sands</b>	A sand deposit containing a heavy hydrocarbon (bitumen) in the intergranular pore space of sands and fine grained particles. Typical oil sands comprise approximately 10 wt% bitumen, 85% coarse sand (>44µm) and a fines (<44µm) fraction, consisting of silts and clays.
<b>Old Growth Forest</b>	Old growth forests are those forested areas where the annual growth equals annual losses, or where mean annual increment of timber volume equals zero. They can also be defined as those stands that are self-regenerating ( <i>i.e.</i> , having a specific structure that is maintained).
<b>Organic Soil</b>	Soils containing high percentages of organic matter (fibrin and humic inclusions).
<b>Organics</b>	Chemical compounds, naturally occurring or otherwise, which contain carbon, with the exception of carbon dioxide (CO <sub>2</sub> ) and carbonates ( <i>e.g.</i> , CaCO <sub>3</sub> ).
<b>Overburden</b>	The soil, sand, silt or clay that overlies bedrock.
<b>Overwintering Habitat</b>	Habitat used during the winter as a refuge and for feeding.
<b>Peat</b>	A material composed almost entirely of organic matter from the partial decomposition of plants growing in wet conditions.
<b>Permeability</b>	Permeability is a measure of the ability of a material (such as rocks) to transmit fluids.
<b>Permissible Sound</b>	The allowable overall A-weighted sound level of noise from energy industry level sources, as specified by the ERCB Noise Control Directive, which may contribute to the sound environment of a residential location.
<b>Permissible Sound Level (PSL)</b>	The maximum sound level that a facility should not exceed at a point 15 m from the nearest or most impacted dwelling unit.



<b>pH</b>	The negative logarithm of hydrogen ion concentration. The pH scale is generally presented from 1 (most acidic) to 14 (most alkaline). A difference of one pH unit represents a ten-fold change in hydrogen ion concentration.
<b>Plant Community</b>	An association of plants of various species found growing together.
<b>PM<sub>2.5</sub></b>	Airborne particulate matter with mean diameter less than 2.5 µm (microns) in diameter. This represents the fraction of airborne particles that can be inhaled deeply into the pulmonary tissue.
<b>Population</b>	A collection of individuals of the same species that potentially interbreed.
<b>Porosity</b>	Porosity is a measure of the void spaces in a material, and is a fraction of the total volume of the voids over the total volume.
<b>Producer well</b>	Well used to produce reservoir fluid to the wellhead.
<b>QA/QC</b>	Quality Assurance/Quality Control refers to a set of practices that ensure the quality of a product or a result. For example, “Good Laboratory Practice” is part of QA/QC in analytical laboratories and involves such things as proper instrument calibration, meticulous glassware cleaning and an accurate sample information system.
<b>Receptor</b>	The person or organism subjected to exposure to chemicals or physical agents.
<b>Reclamation</b>	The restoration of disturbed or wasteland to a state of useful capability. Reclamation is the initiation of the process that leads to a sustainable landscape (see definition), including the construction of stable landforms, drainage systems, wetlands, soil reconstruction, addition of nutrients and revegetation. This provides the basis for natural succession to mature ecosystems suitable for a variety of end uses.
<b>Reclamation Certificate</b>	A certificate issued by an Alberta Environmental Protection, Conservation, and Reclamation Inspector, signifying that the terms and conditions of a conservation and reclamation approval have been complied with.
<b>Regeneration</b>	The natural or artificial process of establishing young trees.
<b>Reproductive Success</b>	The production of healthy offspring which live to reproduce themselves.
<b>Richness</b>	The number of species in a biological community ( <i>e.g.</i> , habitat).
<b>Riparian Area</b>	A geographic area containing an aquatic ecosystem and adjacent upland areas that directly affects it.



<b>Runoff</b>	The portion of water from rain and snow that flows over land to streams, ponds or other surface waterbodies. It is the portion of water from precipitation that does not infiltrate into the ground, or evaporate.
<b>SAGD</b>	Steam Assisted Gravity Drainage is an <i>in-situ</i> oil sands recovery technique that involves drilling two horizontal wells, one to inject steam and a second to produce the bitumen.
<b>Scale</b>	Level of spatial resolution.
<b>Sedimentation</b>	The process of subsidence and deposition of suspended matter carried by water, wastewater or other liquids, by gravity. It is usually accomplished by reducing the velocity of the liquid below the point at which it can transport the suspended material.
<b>Sensory Disturbance</b>	Visual, auditory, or olfactory stimulus that creates a negative response in wildlife species.
<b>Sodium Adsorption Ratio (SAR)</b>	Concentrations of sodium, calcium and magnesium ions in a solution.
<b>Soil Inventory Level (SIL)</b>	The intensity of sampling required in areas to be developed (SIL1; 1 sample per 1 to 5 ha), near developing areas (SIL2; 1 sample per 2 to 30 ha) and in areas distant from the development but within the LSA (SIL3; 1 sample per 30 ha or more).
<b>Sound Level</b>	The contribution of noise from one or more sources to the overall sound level Contribution from all sources affecting a particular location.
<b>Sound Level or Leq Level</b>	Measurements and criteria. It is used to quantify sound which constantly varies over time, such as that commonly occurring in outdoor environments. It is defined as the steady, continuous sound level over the measured time period that has the same acoustic energy as the actual fluctuating sound levels that occurred during the same time period. Measurement periods commonly used for Leq measurements and criteria are the daytime (07:00 - 22:00 hrs) and nighttime (22:00 - 07:00 hrs) periods. EPEA Environmental Protection and Enhancement Act (Alberta) EPM Emissions Production Model Equivalent Sound The steady A-weighted sound level over any specified period (not necessarily 24 hours) that has the same acoustic energy as the fluctuating noise during that period (with no consideration of nighttime weighting). It is a measure of cumulative acoustical energy.
<b>Sound power level</b>	The acoustic power radiated from a given sound source related to a reference power level (typically $10^{-12}$ watts) expressed in decibels.
<b>Sound pressure level</b>	The ratio, expressed in decibels, of sound pressure to a reference pressure equal to the human threshold of hearing.



<b>Species</b>	A group of organisms that actually or potentially interbreed and are reproductively isolated from all other such groups; a taxonomic grouping of genetically and morphologically similar individuals; the category below genus.
<b>Species at Risk Legislation</b>	The <a href="#">Species at Risk Act</a> (SARA), which came into force in June 2003, protects the wildlife found on federal lands as well as their critical habitat.
<b>Species Composition</b>	A term that refers to the species found in the sampling area.
<b>Species Distribution</b>	Where the various species in an ecosystem are found at any given time. Species distribution varies with season.
<b>Species Diversity</b>	A description of a biological community that includes both the number of different species and their relative abundance. Provides a measure of the variation in number of species in a region. This variation depends partly on the variety of habitats and the variety of resources within habitats and, in part, on the degree of specialization to particular habitats and resources.
<b>Species Richness</b>	The number of different species occupying a given area.
<b>Sport/Game Fish</b>	Large fish caught for food or sport ( <i>e.g.</i> , northern pike, Arctic grayling).
<b>Stakeholder</b>	People or organizations with an interest or share in an undertaking, such as a commercial venture.
<b>Stand</b>	An aggregation of trees occupying a specific area and sufficiently uniform in composition, age, arrangement and condition so that it is distinguishable from trees in adjoining areas.
<b>Stratigraphy</b>	The succession and age of strata of rock and unconsolidated material. Also concerns the form, distribution, lithologic composition, fossil content and other properties of the strata.
<b>Strong Acids</b>	Acids with a high tendency to donate protons or to completely dissociate in natural waters, ( <i>e.g.</i> , H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> , HCl).
<b>Structure (Stand Structure)</b>	The various horizontal and vertical physical elements of the forest. The physical appearance of canopy and subcanopy trees and snags, shrub and herbaceous strata and downed woody material.
<b>Succession</b>	A series of dynamic changes by which one group of organisms succeeds another through stages leading to a climax community.



<b>Suspended Sediments</b>	Particles of matter suspended in the water. Measured as the oven dry weight of the solids, in mg/L, after filtration through a standard filter paper. Less than 25 mg/L would be considered clean water, while an extremely muddy river might have 200 mg/L of suspended sediments.
<b>Till</b>	Sediments laid down by glaciers.
<b>TOC</b>	Total Organic Carbon. TOC is composed of both dissolved and particulate forms. TOC is often calculated as the difference between total carbon (TC) and total inorganic carbon (TIC). TOC has a direct relationship with both biochemical and chemical oxygen demands, and varies with the composition of organic matter present in the water. Organic matter in soils, aquatic vegetation and aquatic organisms are major sources of organic carbon.
<b>Total Dissolved Solids (TDS)</b>	The total concentration of all dissolved compounds solids found in a water sample.
<b>Traditional Land Use</b>	Activities involving the harvest of traditional resources such as hunting and trapping, fishing, gathering medicinal plants and traveling to engage in these activities.
<b>Transpiration</b>	Transpiration is the process by which water is transferred from soil and plant surfaces to the atmosphere.
<b>Uncertainty</b>	Imperfect knowledge concerning the present or future state of the system under consideration; a component of risk resulting from imperfect knowledge of the degree of hazard or of its spatial and temporal distribution.
<b>Understory</b>	Those trees or other vegetation in a forest stand below the main canopy level.
<b>Water Table</b>	The shallowest saturated ground below ground level - technically, that surface of a body of unconfined groundwater in which the pressure is equal to atmospheric pressure.
<b>Watershed</b>	The entire surface drainage area that contributes water to a lake or river.
<b>Well Pad</b>	An area of ground surface associated with SAGD operations on which pairs of wells are drilled. The pairs of wells include a steam injection well and a production well.



**Wetlands**

Term for a broad group of wet habitats. Wetlands are transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands include features that are permanently wet, or intermittently water-covered such as swamps, marshes, bogs, muskegs, potholes, swales, glades, slashes and overflow land of river valleys.

**Worst-Case**

A semi-quantitative term referring to the maximum possible exposure, dose or risk, that can conceivably occur, whether or not this exposure, dose, or risk actually occurs is observed in a specific population. It should refer to a hypothetical situation in which everything that can plausibly happen to maximize exposure, dose, or risk does happen. The worst-case may occur in a given population, but since it is usually a very unlikely set of circumstances in most cases, a worst-case estimate will be somewhat higher than what occurs in a specific population.



## ABBREVIATIONS AND ACRONYMS

<b>%</b>	Percent
<b>&lt;</b>	Less than
<b>&gt;</b>	More than
<b>°</b>	Degree
<b>µg</b>	Micrograms
<b>µg/m<sup>3</sup></b>	Microgram per cubic metre
<b>ABMI</b>	Alberta Biodiversity Monitoring Institute
<b>ACCS</b>	Alberta Culture and Community Spirit
<b>aci</b>	aci Acoustical Consultants Inc.
<b>AENV</b>	Alberta Environment
<b>AER</b>	Alberta Energy Regulator
<b>AESO</b>	Alberta Electrical System Operator
<b>AEW</b>	Alberta Environment and Water
<b>AGCC</b>	Alberta Ground Cover Classification
<b>AGRASID</b>	Agricultural Region of Alberta Soil Inventory Database
<b>Al-Pac</b>	Alberta Pacific Forest Industries Inc.
<b>ANPC</b>	Alberta Native Plant Council
<b>API</b>	American Petroleum Institute
<b>asl</b>	Above Sea Level
<b>ASL</b>	Ambient Sound Level
<b>AQRSA</b>	Air quality regional study area
<b>AVI</b>	Alberta Vegetation Inventory
<b>AVO</b>	Amplitude Versus Offset
<b>AWI</b>	Alberta Wetland Inventory
<b>bbl</b>	Barrel
<b>bbls/d</b>	Barrels per day
<b>b/d</b>	Barrels per day



<b>BFW</b>	Boiler feed water
<b>boed</b>	Barrels of oil equivalent per day
<b>bpd</b>	Barrels per day
<b>BSL</b>	Basic Sound Level
<b>BWS</b>	Basal Water Sands
<b>C</b>	Centigrade or Celsius (metric measures of temperature)
<b>CaSO<sub>3</sub></b>	Calcium Sulphite
<b>CaSO<sub>4</sub></b>	Calcium Sulphate
<b>C&amp;R</b>	Conservation and reclamation
<b>CCME</b>	Canadian Council for Ministers of the Environment
<b>CEAA</b>	Canadian Environmental Assessment Agency
<b>CEMA</b>	Cumulative Environmental Management Association
<b>CIP</b>	Clean in place
<b>CLFN</b>	Cold Lake First Nation
<b>cm</b>	Centimetre
<b>cm<sup>2</sup></b>	Square centimetre
<b>CNRL</b>	Canadian Natural Resources Limited
<b>CNT</b>	Consultative Notation
<b>CO</b>	Carbon monoxide
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>Co-dom</b>	Co-dominant
<b>COPC</b>	Chemicals of potential concern
<b>COSEWIC</b>	Committee on the Status of Endangered Wildlife in Canada
<b>Cp</b>	Centipoises
<b>CPF</b>	Central Processing Facility
<b>CR</b>	Consultant Report





<b>CSL</b>	Comprehensive Sound Level
<b>CSS</b>	Cyclic Steam Stimulation Process
<b>CSSC</b>	Canadian System of Soil Classification
<b>CWD</b>	Coarse woody debris
<b>d</b>	Day
<b>dB</b>	Decibel
<b>DFO</b>	Department of Fisheries and Oceans
<b>DOW</b>	Dangerous oilfield waste
<b>EC</b>	Environment Canada
<b>EIA</b>	Environmental Impact Assessment
<b>EPEA</b>	Environmental Protection and Enhancement Act
<b>ERCB</b>	Energy Resources Conservation Board
<b>ERP</b>	Emergency response plan
<b>ESA</b>	Environmentally sensitive area
<b>ESA</b>	Environmentally Significant Area
<b>ESRD</b>	Alberta Environment and Sustainable Resource Development
<b>EZE</b>	Easements
<b>FLFN</b>	Frog Lake First Nation
<b>FMA</b>	Forestry management area
<b>FMA</b>	Forest management agreement
<b>FONG</b>	Fen, open, non-patterned, graminoid dominated with shrub cover
<b>FTNI</b>	Fen, treed, non-patterned, with internal lawns
<b>ftOR</b>	Final Terms of Reference
<b>FWKO</b>	Free water knockout
<b>FWMIS</b>	Fish and Wildlife Management Information System
<b>g</b>	Gram
<b>GHG</b>	Greenhouse gas
<b>GIS</b>	Geographic Information System



<b>GLC</b>	Ground Level Concentration
<b>GNR</b>	Globally not ranked
<b>GPS</b>	Global Positioning System
<b>h or hr</b>	Hour
<b>H+</b>	Hydrogen ion
<b>ha</b>	Hectare
<b>HCl</b>	Hydrochloric acid
<b>HHRA</b>	Human health risk assessment
<b>HRIA</b>	Historical Resource Impact Assessment
<b>H<sub>2</sub>S</b>	Hydrogen Sulphide
<b>HSE</b>	Health, Safety and Environmental Management System
<b>ILCR</b>	Incremental lifetime cancer risk
<b>ISO</b>	International Standards Organization
<b>Hz</b>	Hertz
<b>KCN</b>	Kehewin Cree Nation
<b>keq</b>	Kiloequivalent – Equal to 1 kmol of hydrogen ion (H+).
<b>kg</b>	Kilogram
<b>km</b>	Kilometre
<b>km/h</b>	Kilometres per hour
<b>km<sup>2</sup></b>	Square kilometre
<b>kWh</b>	Kilowatt hour
<b>L or l</b>	Litre
<b>LCCS</b>	Land capability classification system
<b>LHV</b>	Low heating value
<b>LL</b>	Lower lift
<b>LOC</b>	Licence of Occupation
<b>LSA</b>	Local Study Area
<b>LSD</b>	Legal subdivision



<b>m</b>	Metre
<b>m/s</b>	Metres per second
<b>m<sup>2</sup></b>	Square metre
<b>m<sup>3</sup></b>	Cubic metre
<b>m<sup>3</sup>/day</b>	Cubic metres per day
<b>m<sup>3</sup>/s</b>	Cubic metres per second
<b>MARP</b>	Measurement Accounting and Reporting Plan
<b>m asl</b>	Metres Above Sea Level
<b>MBC</b>	Mix-bury-cover
<b>mD</b>	MilliDarcy
<b>MD</b>	Measured Depth
<b>M.D.</b>	Municipal District
<b>MDP</b>	Municipal development plan
<b>MEMS</b>	Millennium EMS Solutions Ltd
<b>mg</b>	Milligrams
<b>mg/L</b>	Milligrams per litre
<b>min</b>	Minimum
<b>mm</b>	Millimetre
<b>MPa</b>	MegaPascal
<b>MPOI</b>	Maximum Point of Impingement
<b>MSL</b>	Mineral Surface Leases
<b>MSWG</b>	Mapping system working group
<b>MUS</b>	Muskeg
<b>MW</b>	Megawatt
<b>MWD</b>	Measurement while drilling
<b>n</b>	Number of sites
<b>N<sub>2</sub></b>	Nitrogen gas
<b>N/A</b>	Not applicable



<b>NACE</b>	National Association of Corrosion Engineers
<b>NE</b>	Northeast
<b>NIA</b>	Noise Impact Assessment
<b>No.</b>	Number
<b>NO<sub>2</sub></b>	Nitrogen dioxide
<b>NO<sub>x</sub></b>	Nitrogen oxides
<b>OB</b>	Observation well
<b>OBIP</b>	Original bitumen in-place
<b>°C</b>	Degrees Celsius
<b>OH&amp;S</b>	Occupational Health and Safety
<b>OD</b>	Outside diameter
<b>OLFN</b>	Onion Lake First Nation
<b>ORF</b>	Oil Removal Filter
<b>OSCA</b>	Oil Sands Conservation Act
<b>OSL</b>	Oil sands lease
<b>OSVRC</b>	Oil Stands Vegetation Reclamation Committee
<b>OTSG</b>	Once through steam generator
<b>PAI</b>	Potential Acid Input
<b>PDA/C&amp;R Plan</b>	Pre Disturbance Assessment and Conservation and Reclamation Plan
<b>PFD</b>	Process flow diagram
<b>Phase 1</b>	Lindbergh SAGD Project
<b>Phase 2</b>	Lindbergh SAGD Expansion Project
<b>PIL</b>	Pipeline Installation Lease
<b>Pilot</b>	Lindbergh SAGD Pilot Project
<b>PLA</b>	Pipeline Agreements
<b>ppb</b>	Parts per billion
<b>ppm</b>	Parts per million
<b>Project</b>	Lindbergh SAGD Expansion Project



<b>PSL</b>	Permissible sound level
<b>pTOR</b>	Proposed Terms of Reference
<b>Q1 to Q4</b>	First, second, third and fourth quarters of the year
<b>QA</b>	Quality assurance
<b>QA/QC</b>	Quality assurance / quality control
<b>QC</b>	Quality control
<b>R&amp;D</b>	Research and Development
<b>RAMP</b>	Regional Aquatics Monitoring Program
<b>Rge</b>	Range
<b>RM</b>	Regional Municipality
<b>RM</b>	Rural Municipality
<b>RoW</b>	Right-of-way
<b>RQ</b>	Risk quotient
<b>RSA</b>	Regional Study Area
<b>RUSLEFAC</b>	Revised universal soil loss equation for application in Canada
<b>s</b>	Second
<b>SAC</b>	Strong acid cation
<b>SAGD</b>	Steam-assisted gravity drainage
<b>SCA</b>	Soil Correlation Area
<b>SCWG</b>	Soil Classification Working Group
<b>SEIA</b>	Socio-Economic Impact Assessment
<b>SF</b>	Slope factor
<b>SIL</b>	Survey Intensity Level
<b>SiO<sub>2</sub></b>	Silica
<b>SIR</b>	Supplemental information request
<b>SLCN</b>	Saddle Lake Cree Nation
<b>SLM</b>	Soil Landscape Model
<b>SLWRA</b>	Screening level wildlife risk assessment



<b>SM</b>	Soil Model
<b>SME</b>	Surface Material Exploration
<b>SO<sub>2</sub></b>	Sulphur dioxide
<b>SO<sub>3</sub></b>	Sulphur trioxide
<b>SONS</b>	Swamp, open, non-patterned, shrub-covered
<b>SOR</b>	Steam to Oil Ratio
<b>SO<sub>x</sub></b>	Sulphur oxides
<b>sq. ft.</b>	Square Foot
<b>SRD</b>	Sustainable Resource Development
<b>SW</b>	Southwest
<b>SWL</b>	Sound power level
<b>t</b>	Tonne
<b>t/d</b>	Tonnes per day
<b>TD</b>	Total depth
<b>TDS</b>	Total dissolved solids
<b>TEK</b>	Traditional ecological knowledge
<b>Temp</b>	Temperature
<b>TLU</b>	Traditional land use
<b>TMD</b>	Total measured depth
<b>TOC</b>	Total Organic Carbon
<b>TOR</b>	Terms of Reference
<b>TPA</b>	Trapping Area
<b>TPR</b>	Timber productivity ratings
<b>TS</b>	Topsoil
<b>TSS</b>	Total suspended solids
<b>TVD</b>	True Vertical Depth
<b>Twp</b>	Township
<b>UL</b>	Upper lift



<b>US</b>	Upper subsoil
<b>UTM</b>	Universal transverse mercator
<b>V</b>	Volt
<b>VEC</b>	Valued Environmental Component
<b>VOC</b>	Volatile organic compounds
<b>Vol</b>	Volume
<b>VRU</b>	Vapour recovery unit
<b>W4M</b>	West of the 4th Meridian
<b>% (wt)</b>	Percent by weight
<b>ZDL</b>	Disturbed lands