Oil and Gas Glossary and Definitions

BRITISH COLUMBIA ENERGY REGULATOR

VERSION 1.2 : January 2024



Glossary and Definitions

The Regulator produces manuals, guidelines, forms and additional information to support industry in applying for and operating, oil and gas activities in British Columbia. The Oil and Gas Activity Application Manual and Oil and Gas Activity Operations Manual detail application and regulatory requirements with which applicants and permit holders must comply.

Technical guidance documents detail best practices for operating in the industry.

This Glossary and Definitions is an additional resource to accompany the manuals, guidelines and forms in applying for a permit and adhering to the regulatory and reporting requirements during construction and operations.

The Glossary and Definitions is broken down alphabetically, and also by section relevant to industry activity. An acronym listing provides common abbreviations used by the Regulator, and the Regulations and Legislation page echoes the regulations and legislation applicants and permit holders must comply with depending on the oil and gas activity.

- A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
- Terms Common to Facilities
- Terms Common to LNG Facilities
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A

Abandoned well	A well permanently closed off when no viable hydrocarbons are discovered or it is depleted and no longer capable of producing profitably. The well is permanently plugged downhole, producing subsurface formations have been isolated and permanently plugged and is basically permanently decommissioned.
Abandonment	Converting a drilled well to a condition that can be left indefinitely without further attention and will not damage freshwater supplies, potential petroleum reservoirs, or the environment as per Part 5 of the Drilling and Production Regulation.
Acid Gas	A natural gas or any other gas mixture containing significant quantities of hydrogen sulfide (H_2S), carbon dioxide (CO_2), or similar contaminants.
Activity	An activity includes: Wells, Pipelines, Facilities, Roads, Geophysical Programs, Associated Oil & Gas Activities, CER Related Ancillaries, CER Pipeline Rights of Way, CER Road Rights of Way, Short Term Water Use and Changes In and About a Stream. ERAA Activities include Wells, Roads, Facilities, Pipelines, Geophysical Programs. Related Activities include: AOGA (Associated Oil and Gas Activities), Short Term Water Use and Changes in and about a Stream. CER Activities include CER Roads, CER Pipeline Rights of Way, and CER Related Ancillaries.
Administration boundaries	Administration boundaries established through consultation agreements guide consultation for each First Nations community. Where there is no agreement in place, the boundaries are guided by the Provincial Consultation Boundaries.
Agricultural Land Reserve (ALR)	A provincial zone where agriculture is recognized as the priority use. Farming is encouraged and non-agricultural uses are controlled.
Agricultural Land Commission (ALC)	The B.C. provincial agency responsible for the administration of the ALR.
Aggregate operations	The excavation of clay, gravel, rock, sand or soil used in the construction or maintenance of oil and gas infrastructure, but not sourced from a borrow pit. Aggregate operations are a mining activity to which the Mines Act applies.

	Oil and Gas Aggregate Operation are defined as the excavation or quarrying of aggregate that: produces material solely for the construction and maintenance of oil and gas infrastructure; is not located within a construction corridor; does not produce materials for sale to or use by any party other than for the permit holder, or the holder of an approval referred to in Section 9 of ERAA, with authorization for its use; does not produce sand for use in hydraulic fracturing; and is subject to the requirements of the Health, Safety, and Reclamation Code for Mines in British Columbia.
ALC-OGC Delegation Agreement	A signed agreement between the ALC and the Regulator. It issues limited delegated authority to the Regulator to authorize non-farm use of agricultural lands for oil and gas activities within the Northern Rockies and Peace River Regional Districts.
Amendment	An application to add, modify or change a permissioned activity.
Ancillary aquifer	The underground layer of water-soaked sand and rock acting as a water source for a well.
Anomaly investigation	Investigative excavations in follow-up areas of interest / concern identified by inline tool inspection.
Applicant	A company or operator is referred to as the applicant prior to and during the application phase while seeking an oil and gas and associated activity permit.
Application	A person can apply to the Regulator for an oil and gas permit by submitting an application in the form and manner the Regulator requires. An application can include one (a single activity) or more activities submitted as a bundle (multi-activity). The application must include specific legal locations and detailed technical information with all other required information for all the activities applied in order for the application to be reviewed and a determination made. Regardless of the number of activities applied for within one application; one permit will be issued.
Application Determination Number (AD)	An Application Determination number is assigned to an application upon determination. Only one AD number is assigned per project. Permit holders must reference the original AD number when applying for an amendment.
Application Management System (AMS)	The Regulator's online system applicants use to submit oil and gas and associated activity applications.

Area-Based Analysis (ABA)	A framework for managing the cumulative impacts of oil and gas development. More information available at https://bc-er.ca/how-we-regulate/safeguard-the-environment/cumulative-effects/ .
Archaeological Impact Assessment (AIA)	Archaeological field work conducted prior to any development activity.
As-built documents	Collection of drawings, or other related material that describes the specifications of an asset that has been constructed.

B

BCGS Maps	The name of the complete set of maps and plans illustrating in detail the location and extent of planned activities at an appropriate scale required by applicants.
Barrel (bbl)	A measure of volume for petroleum products. One barrel is the equivalent of 35 imperial gallons or 42 U.S. gallons or 0.15899 cubic metres (9,702 cubic inches). One cubic metre equals 6.2897 barrels.
Battery site	A gas or oil facility with product separation and multiphase delivery point measurement (as defined in the BCER Measurement Requirements for Upstream Oil and Gas Operations Guideline) for one or more wells. Drilling & Production Regulation definition: a battery means a system or arrangement of tanks or other surface equipment receiving the effluents of one or more wells prior to delivery to market or other disposition, and may include equipment or devices for separating the effluents into petroleum, natural gas or water and for measurement. Examples include: • Single oil well with solution gas flared and oil tanked on site. • Multi-well battery with a test and group separator. • Temporary gas well test unit producing marketable hydrocarbons trucked to a TRD (Treatment, Recovery & Disposal) facility. • Water source well installation for oil and gas drilling, completions, or enhanced recovery production operations.
Best practices	The management practices or techniques recognized to be the most effective and practical means to develop an oil and gas resource, while minimizing adverse environmental and other effects.
Biogeoclimatic Ecosystem Classification (BEC)	An ecological framework and language for ecosystem management in British Columbia. BEC provides a multi-scale classification framework to describe broad biogeoclimatic zones used for applications such as protected area and land management planning, forest pest risk and wildlife habitat management. The BEC program, managed by the Ministry of Forests, Lands and Natural Resource Operations (FLNRO), is continually being updated and as such, the biogeoclimatic zones, names and spatial distribution may change from time to time. The EPMR references the BEC zones at the time the Regulation was created; however, the names and distribution of the zones have changed since

	then and the new zones should be used when applying the requirements in the EPMR.
Blowout	An uncontrolled flow of gas, oil, or other fluids from a well.
Blowout preventer (BOP)	Equipment installed on the wellhead to prevent the escape of fluids under pressure from the wellbore during drilling, completion, or workover operations. The BOP stack incorporates different sets of hydraulic rams enabling the well to be sealed with or without pipe in the hole, pumping of fluids into the well under pressure, and controlled release of fluids from the well.
Bog	Wetland with organic soils and a water table at or near the surface. Soils are predominantly poorly to moderately decomposed sphagnum moss peats. The bog surface is usually unaffected by groundwater and thus waters are generally acid and low in nutrients. Bogs are usually carpeted by sphagnum mosses and ericaceous shrubs. They may be treed or treeless. Bogs with an open growth of scrubby trees are commonly referred to as muskeg.
Bore	Trenchless stream crossing method by which a hole is drilled horizontally from bell hole to bell hole (with or without casing) to allow the installation of a pipeline.
Borehole	The wellbore; the hole made by drilling or boring a well.
Borrow pit	An area where clay, gravel, rock, sand or soil has been removed/excavated and used for the construction of oil and gas infrastructure.
Bottom hole assembly	The lower portion of the drillstring, consisting of (from the bottom up in a vertical well) the bit, bit sub, a mud motor (in certain cases), stabilizers, drill collars, heavy-weight drillpipe, jarring devices (“jars”) and crossovers for various threadforms. The bottomhole assembly must provide force for the bit to break the rock (weight on bit), survive a hostile mechanical environment and provide the driller with directional control of the well.
Bottom hole pressure	The pressure in a well at the bottom of the hole, usually measured in pounds per square inch (psi).
Butane	(C4H10) An organic compound found in natural gas. Reported volumes may contain some propane or pentanes plus.

C

CSA Z662	CSA Z662 is the standard developed and maintained by the Canadian Standards Association covering the design, construction, operation and maintenance of oil and gas industry pipeline systems conveying liquid hydrocarbons, oilfield water and/or steam, carbon dioxide, or gas. It is a legal requirement for operators to meet this standard for pipelines operating under ERAA in B.C.
Casing	Pipe or tubing of appropriate material, diameter and weight used to support the sides of a well hole and prevent the walls from caving, to prevent loss of drilling mud into porous formations, or to prevent fluid from entering or leaving the well.
CAS number	A unique identifier for chemical substances. Chemical Abstracts Service (CAS) is a division of the American Chemical Society responsible for the administration, quality assurance and maintenance of the CAS registry. A CAS Number itself has no inherent chemical significance but provides an unambiguous way to identify a chemical substance or molecular structure when there are many possible systematic, generic, proprietary or trivial names.
Cavitation	Creation of a cavity around the wellbore in a coal formation generally using high pressure water jets to increase the area of the coal exposed to the wellbore.
Cementing	Permanently securing the casing to the wellbore or plugging and sealing the wellbore with cement.
Cement plug	A plug of cement slurry placed in the wellbore to seal the well.
Certificate of Restoration (COR)	A document issued by the Regulator certifying abandoned wellsite has been restored to meet regulatory requirements.
Clean snow	Snow free of mineral soil, silt, coarse woody debris, or deleterious substances. When snow is bladed for snowfill construction it is not uncommon for small amounts of grass and other vegetative matter, which may have fallen on the snowpack as it accumulated, are in the gathered material. Grass is often present as it extends well up into the snowpack and may be cut off by the cat blade.
Clearspan bridge	A channel spanning structure requiring no in-stream support abutments, footings or pilings. Clearspan structures include native timber bridges and fabricated wood, metal and concrete construction mediums.

Closed bottom structure	A tunneled drainage structure for the passage of water. Typically constructed of metal or concrete and may be box or cylindrical in shape. Closed bottom structures involve in-stream disturbance of stream channel bed and/or banks.
Coalbed gas (CBG)	The natural gas found in most coal deposits. It is formed during coalification, a process that converts deposits of plant material into coal. It is also referred to as coalbed methane (CBM) or natural gas in coal (NGC).
Competent	Proven qualified, trained, and experienced to perform the required duties.
Completed well	A well with the necessary work done to enable production.
Completion	The process of finishing a well to produce gas or oil.
Compressor	A machine used to boost natural gas pressure to move it through pipelines or other facilities.
Compressor dehydrator	A facility that includes both natural gas compression equipment and dehydration equipment for one or more wells. A facility that includes both a compressor station and a gas dehydrator.
Compressor station	A facility that includes natural gas compression equipment for one or more multiple wells from multiple wellsites. This does not include booster compressors for single wells, or for well pads with more than one well for compressors only servicing wells on the same wellsite.
Condensate	A mixture mainly of pentanes and heavier hydrocarbons (C5+) that may be contaminated with sulphur compounds. It is recovered at a well or facility from an underground reservoir and may be gaseous in its virgin reservoir state but is liquid at the conditions under which its volume is measured.
Construction corridor	An additional mapped area and shown spatially around the application area of the proposed activities that allows a permit holder some flexibility in the movement, placement and construction of permitted oil and gas activity. Using this approach can reduce the need for permit amendments, subject to the terms and conditions of the permit. The width of the construction corridor is left to the discretion of the applicant. A construction corridor on a construction plan should include the proposed location of proposed activities being applied for.
Construction Plan	A plan required for all oil and gas activity. The plan must include all roads, rights of way, public utilities, easements, road allowances and places of public concourse located within 60 metres of storage tanks and production equipment, and/or within 80 metres of flare stacks and incinerators. The plan must also show

	drainages and the proximity to the lease, adjacent surface improvements and surveyed polygons of facilities.
Consultation	The exchange of information regarding proposed oil and gas activities between applicants and recipients within the consultation distance. It begins when a recipient receives an Invitation to Consult from an applicant.
Continuous flaring	Uninterrupted flared volumes with a constant and visible flame under routine operations, and includes fuel gas being burned to maintain a pilot and / or continuous purge in the flare header.
Conventional natural gas	Natural gas consisting of a mixture of hydrocarbon compounds, primarily methane, and small quantities of various non-hydrocarbons.
Core	A cylindrical borehole sample taken from a well or test hole for analysis of various properties of the formation, including porosity, permeability, fluid content, and geological age.
Critical fish habitat	Habitat critical in sustaining subsistence, commercial, or recreational fishery or species at risk because of its relative rareness, productivity and sensitivity. Habitat indicators include the presence of high-value spawning or rearing habitat (for instance; locations with an abundance of suitably sized spawning gravels, deep pools, undercut banks, or stable debris, which are critical to the fish population present).
Crown land	Land and land covered by water owned by the province of B.C.
Crude Oil	Naturally occurring, unrefined petroleum product composed of hydrocarbon deposits and other organic materials.

D

Damage Prevention Plans (DPP)	Damage prevention programs are required for all pipeline permit holders. DPP's are intended to reduce the frequency of preventable damage by addressing external/third-party threats to the integrity of pipeline infrastructure.
Dams	Some freshwater storage structures used in the oil and gas industry qualify as damns under the Water Sustainability Act. The Regulator regulated those damns, under B.C.'s Dam Safety Regulation, where live water storage exceeds 10,000 m^3.
Delineation well	A well extending the boundary of a previously discovered pool.
Dehydrator	Equipment used to remove water from the natural gas.
Dehydrator emission source	The location where the still column-vent vapours are released directly to the atmosphere. For still-column vent vapours routed to a control technology, the source would be the release point from the technology. Where more than one technology is in use, the emissions source is the one closest to the surface development (e.g., exit from a flare, incinerator, burner vent, or condenser system).
Deleterious substance	A substance likely to have a negative impact on water. Defined in Section 34 of the Fisheries Act.
Desorption	The process of detaching methane adsorbed onto coal by de-pressuring the coal seam through dewatering and other methods.
Development well	A well drilled in or adjacent to a proven part of a pool to optimize production.
Dewatering	The process of removing water from a coal seam in the vicinity of a producing gas well. Dewatering is required to reduce pressure within the coal seam, which in turn allows the methane gas to be released from the coal.
Directional drill	Trenchless crossing method utilizing a slant drill to install a pipeline under a watercourse.
Directional drilling	Trenchless crossing method utilizing a slant drill to install a pipeline under a watercourse A well drilled at an angle from the vertical. This method can be used when local topography (e.g. river banks or other water bodies) prevents vertical drilling. Under normal conditions, vertical drilling is used (i.e. the bottom of the hole is located beneath the drill rig).

Disposal station	A facility that includes equipment handling oil and gas waste. The equipment may include, but is not limited to the treatment, recovery, storage, or disposal of drilling or completions waste, well fracture returns/flowback, and acid gas from a processing plant. Examples include: Treatment, Recovery & Disposal (TRD) facilities, acid gas disposal facilities, facilities including deep well disposal for oil and gas waste.
Disposal well	A well, commonly a depleted oil or gas well, into which waste fluids can be injected for safe disposal. Disposal wells require regulatory approvals.
Dispute resolution	A process for resolving conflicts between parties. It can include direct negotiations, facilitated sessions, mediations, or arbitration.
Diversion Map	A topographical map must be provided showing the general location of the property and proposed point(s) of diversion in relation to nearby communities, highways, railways and other water sources.
Diverter	A device used to direct fluids flowing from a well away from the drilling rig.
Drill bit	Tools used to crush or cut rock.
Drilling fluid (mud)	The circulating fluid used to bring drilling cuttings out of the well bore, cool the drill bit and provide hole stability and pressure control.
Drill pipe	Steel pipe sections of about nine metres in length screwed together to form a continuous pipe extending from the drilling rig to the drilling bit at the bottom of the hole. Rotation of the drill pipe and bit causes the bit to bore through the rock.
Drill string	Connected sections of drill pipe.
Drilling fluid (mud)	The circulating fluid used to bring drilling cuttings out of the well bore, cool the drill bit and provide hole stability and pressure control.
Drillstem test (DST)	A method of gathering data on the potential productivity of a geological formation before installing casing in a well. A drill stem test records pressure and fluid recovery data from which formation characteristics can be inferred.
Domestic use water	Water intended for direct human contact such as, consumption, food preparation, utensil washing, and hygiene.
Down-hole disposal	The disposal of formation water and drilling and waste fluids down a wellbore in a deep formation not in communication with an aquifer.
Downstream activity	The selling, distributing of natural gas and the refining of petroleum.

Dugout	In some cases, a dugout can defined as a stream and used as a licensed water source. Refer to the Dam Safety Regulation for detail.

E

Easement	Any right over private or Crown land associated with a right to use of the land.
Effluent	A substance that is introduced into water or onto land and that (a) injures or is capable of injuring the health or safety of a person, (b) injures or is capable of injuring property or any life form, (c) interferes with or is capable of interfering with visibility, (d) interferes with or is capable of interfering with the normal conduct of business, (e) causes or is capable of causing material physical discomfort to a person, or (f) damages or is capable of damaging the environment. Defined in Environmental Management Act.
Emergency Response Plan (ERP)	Pre-planned responses to incidents to ensure protection of public health, safety, property and the environment and quick and effective responses.
Emergency planning zone (EPZ)	A geographical area that encompasses all the hazard planning zones for an oil and gas activity that is the subject of a plan. Defined in Emergency Management Regulation.
Emergency awareness zone (EAZ)	see Hazard Planning Zone
Energy Resource Roads	A road or portion of a road constructed or maintained to facilitate the carrying out of an energy resource activity. Defined in ERRR.
Environmental monitor	May be qualified professionals or technologists who have an appropriate background relevant to the species, feature or value being addressed and a comprehensive working knowledge and understanding of the principles and requirements of Provincial and Federal regulatory compliance. The impacts of construction activities can be either continually monitored or periodically inspected, depending on the sensitivity of the site to disturbance and the nature of construction. The environmental monitor should be given authority by the permit holder to stop operations in the case of non-compliance with approved conditions, or where it is anticipated that unforeseen circumstances are likely to cause environmental problems.
eSubmission	eSubmission is an online portal to accept direct submission to the Regulator of data and reports required by permit holders. Access to eSubmission and documentation for using the eSubmission portal is found on the Online Services page of the Regulator's website.
Estimated ultimate recovery (EUR)	Total volume of oil or gas recoverable under current technology and present and

	anticipated economic conditions, specifically proven by drilling, testing, or production; plus contiguous undeveloped reserves interpreted from geological, geophysical, and/or analogous production, with reasonable certainty to exist.
Exemption	If an exemption is requested from regulatory requirements, an exemption request may be requested at the time of application and include: • Specific regulatory provision requiring an exemption. • Rationale for exemption (explanation of why an exemption is required). • Proposed plan showing mitigation strategies to reduce impacts. If exemptions are approved prior to the application, this approval must be attached to the application.
Exploratory well	A well drilled in an unproven area or geological formation where no oil or gas production exists nearby.
Exposed pipeline	Pipeline without sufficient cover to meet safety and / or company requirements.

F

Ministry of Forests, Lands and Natural Resource Operations and Rural Development (FLNRORD)

Facility	A system of vessels, piping, valves, tanks and other equipment used to gather, pump, compress, process, measure, store or dispose of petroleum, natural gas, water or a substance.
Fen	Wetland with organic soils and a water table at or above the surface. Soils are primarily moderately to well-decomposed sedge and non-sphagnum moss peats. Waters are mainly nutrient rich with a near neutral to slightly acid pH. The vegetation consists primarily of sedges, grasses, reeds, mosses, and some shrubs. Scattered trees may be present.
Fish Stream Identification Tool	A risk management tool developed based on existing fish and fish habitat information, which allows a limited number of Peace watersheds to be defaulted to either fish bearing or non-fish bearing. This tool was developed based on the early LAA works undertaken by Diversified Environmental Services.
Fish salvage	Capture of fish species present in an isolated worksite or dewatered area.
Flaring	Disposal by combustion of natural gas or gas derived from petroleum.
Flow line	A pipeline connecting a well head with a scrubbing, processing or storage facility and that precedes the transfer of the conveyed substance to or from a transmission, distribution or transportation line.
Footprint	A company or organization's environmental impact (resource use, waste generation, physical environmental changes, etc.).
Formation	A designated geological subsurface layer composed of substantially the same kind of rock or rock types.
Fracturing (or fraccing)	A method of improving the permeability of a reservoir by pumping fluids such as water into the reservoir at sufficient pressure to crack or fracture the rock. Also see, Hydraulic Fracturing or fraccing definition.
Freehold oil and gas rights	Mineral rights not owned by the Province. The Federal Government, First Nations, corporations, or individuals may own these mineral rights.
Fresh water	Water of up to 4,000 milligrams per litre of total dissolved solids originating in a lake, stream, dugout, water source well, or other surface or subsurface water

	body. Only water intended for Domestic Use will be permitted by the Regulator as a fresh water pipeline. Fresh water not for domestic use shall be considered produced water for all applications.
Fugitive emissions	Unintentional releases of gas or fumes resulting from production, processing, transmission, storage, and delivery of gas. This may occur from breaks or small cracks in seals, tubing, valves and pipelines, or when lids or caps on equipment or tanks have not been properly closed or tightened.
Fuel gas	Sweet natural gas used for the purpose of running equipment and instruments.

G

Gas dehydrator	A facility that includes natural gas dehydration equipment for one or more wells. The molecular sieve and glycol regenerative systems both fit within the scope of this definition.
Gas sales meter	A natural gas metering station. A gas sales meter can be a separate facility located on its own site, or it can be located on an existing facility site such as a gas plant or compressor dehydrator site.
Gas plant or Gas processing plant	A facility for the extraction from natural gas of hydrogen sulphide, carbon dioxide, helium, ethane, natural gas liquids or other substances, but does not include a facility that: • Uses, for the exclusive purpose of processing low-volume fuel gas. • Regenerative system for the removal of hydrogen sulphide or carbon dioxide and emits less than 2 tonnes/day of Sulphur. • Liquid extraction process such as refrigeration to extract hydrocarbon liquids from a gas stream. • Uses a non-regenerative system for the removal of hydrogen sulphide or carbon dioxide.
Gas well	A well in which casing is run and that, in the opinion of the Regulator, is producing or is capable of producing from a natural gas bearing zone.
Gathering system	The pipelines and other infrastructure moving raw gas from the wellhead to processing and transmission facilities.
Gathering System Schematic (Gathering block diagram)	A diagram indicating the flow path of oil and/or gas (including liquids) in pipelines between wells (well site facilities) and central facilities they are physically linked to (connected by pipelines). Identify the route of the primary product from the well to the reporting facility, and include the Well Authorization numbers and Facility Codes that are a part of the new linkage.
Geophysical exploration	The investigation of the subsurface by seismic, gravimetric, magnetic, electric and geochemical operations and by any other method approved by the Regulator, but does not include the use of geophysical well logs, vertical seismic profile surveys or other surveys obtained from a well.

Good Engineering practice (GEP) scheme	A scheme approved by the Regulator under regulation for the exploration, evaluation and development of petroleum and natural gas.
Government's environmental objectives (GEO)	The prescribed objectives of the government respecting the protection and effective management of the environment.
Grounding	With respect to waterbody crossing structures, a structure depressing and making contact with the substrate layer while the structure is in use.
Groundwater	Water occurring below surface, either in unconsolidated materials (ex. sand and gravel) or within bedrock.

H

HADD	An undertaking resulting in the harmful alteration, disruption or destruction of fish habitat, under Section 35 of the Fisheries Act.
Hazard planning zone	A geographical area (a) determined by using the hazard planning distance as a radius, and (b) within which persons, property or the environment may be affected by an emergency. Defined in Emergency Management Regulation.
Heritage Conservation Act (HCA)	Protects heritage property in British Columbia. All archaeological sites are protected under the Heritage Conservation Act whether on private or public lands.
High priority wildlife	Species requiring specific management and/or protection, including species listed as a "Category of Species" under ERAA. High Priority Wildlife are often species not captured under the zones, areas or ranges designated through other sections of the EPMR.
High water mark	Point on a stream bank usually indicated by a clearly visible change in vegetation and sediment texture. This border is sometimes shown by the edges of rooted terrestrial vegetation. Above this border, the soils and terrestrial plants appear undisturbed by recent stream erosion. Below this border, the banks typically show signs of both scouring and sediment deposition.
Horizontal well	A horizontal extension to the bottom hole well location to facilitate production.
Hydraulic fracturing or fraccing	The practice of pumping special fluids down the wellbore under high pressure; hydraulic fracturing causes the formation to crack open, creating passages for the reservoir hydrocarbons to more easily flow into the wellbore. Also see, Fracturing (or fraccing) definition.
Hydrogen sulphide (H_2S)	Commonly known as sour gas. H_2S is colourless and smells like rotten eggs at low concentrations and is not detectable by odour at high concentrations. It is heavier than air and is flammable and may pose a public safety hazard if released at higher concentrations.

I, J

Ice bridge	Stream crossing constructed on the frozen surface of a stream or waterbody, where snow is removed and water added to strengthen and reinforce the ice surface.
Important fish habitat	Habitat used by fish for feeding, growth, and migration, but is not deemed to be critical. This category of habitat usually contains a large amount of similar habitat readily available to the stock. Habitat indicators include: important migration corridors, the presence of suitable spawning habitat, and habitat with moderate rearing potential for fish species present.
Incident	A present or imminent event or circumstance, resulting from an oil and gas activity that is the subject of an emergency contingency plan, that (a) is outside the scope of normal operations, and (b) may or may not be an emergency. Defined in Emergency Management Regulation.
Induced seismicity	an event resulting from human activity, and can be caused by industries such as mining and natural gas development. Induced seismicity is seldom felt at the surface and in British Columbia events have been recorded at low magnitudes.
Injection station	A facility that includes gas compression or fluid pumping equipment to inject the gas or fluid into underground reservoirs for the purpose of enhancing production.
Integrity management programs (IMP)	Pipeline Integrity Management Programs (IMPs) provide a systematic approach for assuring pipeline integrity throughout the entire pipeline lifecycle including design, construction, operation and maintenance. IMPs are a regulatory requirement and must be prepared in compliance with CSA Z662 including Annex N.
Integrity works	All maintenance works undertaken to maintain pipeline integrity. This may include pipeline amendments, changes in and about a stream, additional temporary workspace, or any works not covered by the scope of existing permissions and authorizations related to the operation of the pipeline.
Isolated crossing	Water crossing methods by which stream flow is diverted around a work site. These methods include: dam and flume, dam and pump, coffer dams and pump bypass.

K

KERMIT	The Regulator's Knowledge, Enterprise, Resource, Management, Information and Technology data system. KERMIT enables electronic submission of performance and/or compliance data and accepts various operational submissions related to oil and gas activities post approval.
Kill	To prevent the threatened blowout of a well or to stop a blowout in progress, usually accomplished by the pumping of heavy fluids under pressure into the wellbore to overbalance (exceed) the formation pressure.

L

Lake/Pond	A lake/pond is a body of relatively still fresh water of considerable size, localized in a basin. Lakes can be contrasted with rivers or streams, which normally flow. Most lakes are filled and drained by rivers and streams.
Land and Resource Management Plan	A strategic approach on how to manage natural resources and maintain sustainable land.
Land owner	A person registered in the land title office as the registered owner of the land surface or as its purchaser under an agreement for sale, and a person to whom a disposition of Crown land has been issued under the Land Act. .
Lease	A legal document conveying the right to drill for oil and gas, or the tract of land on which a lease has been obtained where the producing wells and production equipment are located. PNGA defines as a subsisting lease issued under this Act.
Lease (Land Act)	Is issued where long term tenure is required, where substantial improvements are proposed, and/or where definite boundaries are required in order to avoid conflicts. The holder has the right to modify the land and/or construct improvements as specified in the tenure contract and permit. The holder is granted quiet enjoyment of the area (exclusive use).
Liability Management Rating (LMR)	The LMR is calculated corporately for each permit holder and explained on the Regulator website here.
Licence of Occupation	A legal document that conveys non-exclusive use of Crown land for the purpose described within the document.
Log	A detailed depth-related record of geological, formation attribute, and hydrocarbon potential data obtained by lowering measurement instruments into a well.
Long term all weather road	A road with a continuous raised sub-grade and ditch line (the raised sub-grade and ditch line may be interrupted for short section <100 m in length (e.g., when crossing a short section of rock or at the crest of a hill). In flat terrain the ditch line may simply be the depression created when sub-grade material is excavated to create a raised sub-grade.

M

Marginal well	A well that, for reasons of depletion or natural low productivity, is nearing the limits of viable production and profitability.
Marginal fish habitat	Habitat with low productive capacity and contributes marginally to fish production. Habitat indicators include the absence of suitable spawning habitat, and habitat with low rearing potential (for instance; locations with a distinct absence of deep pools, undercut banks, or stable debris, and with little or no suitably sized spawning gravels for the fish species present). Fisheries and Oceans Canada, Habitat Enhancement Branch, Interior North Office further defines marginal habitat as habitat that is: • Not available to fish due to natural permanent barriers. • Available to fish, but is documented as supporting only very limited fish use, for purposes other than spawning, rearing or overwintering.
Marsh	Wetland with mineral or sometimes well-decomposed peat soils. When peat soils are present they are often enriched with mineral materials. Waters are nutrient rich with near-neutral to basic pH. Surface water levels typically fluctuate seasonally, with declining levels exposing matted vegetation or mudflats. Emergent vegetation includes grasses, cattails, sedges, rushes, and reeds which cover more than 25 per cent of the wetland surface.
Material adverse effect	A change to an environmental value established by Government's Environmental The objectives are both material (i.e. serious, of consequence) and adverse (i.e. injurious, damaging, unfavourable). The consideration of material adverse effect is rooted in what an informed person could reasonably consider based on the available information. A potential effect must be both material and adverse (i.e. injurious or damaging, with an appreciable consequence) to be found inconsistent with Government's Environmental Objectives.
Master Licence to Cut (MLTC)	Required on Crown land where the removal of timber is necessary to conduct an oil and gas activity. A separate agreement is required for each forest district.
Metering schematic	Metering block diagram detailing: • All Meters (production accounting and non-production accounting). • Meter type (i.e.: orfice, turbine, ultrasonic, coriolis). • All production accounting meters on a list of table on the Metering Schematic. This will typically be a subset of all the meters.

- Cross reference this list to the meters shown on the metering schematic by meter number and/or meter description.
- Include types of measuring devices used to determine levels and/or volumes in tanks or production vessels for production accounting purposes (i.e.: level gauge, level transmitter, pressure transmitter, inlet piping header to plant inlet separators).

Methane	The most prevalent and common component of most natural gas produced in British Columbia.
Midstream activity	The processing of natural gas or crude oil including transportation by pipeline of a raw product to a processing facility. The Regulator views the midstream infrastructure as including primarily gas processing plants and major pipelines transporting raw product (crude oil, natural gas, or natural gas by products) to a processing facility.
Mitigate	The action of reducing the severity or seriousness of the impact.
Migration	Movement from one place to another.
Multi-activity application	An approved application that includes more than one activity submitted as a bundle. Approved applications are issued a Permit number comprised of specific authorization numbers for each approved activity. See “Application”.
Muskwa-Kechika Management Area (MKMA)	Designated geographic area.

N

Natural gas	PNGA defines as all fluid hydrocarbons, before and after processing, that are not defined as petroleum, and includes hydrogen sulphide, carbon dioxide and helium produced from a well.
Natural gas liquids	Ethane, propane, butanes, or pentanes plus, or a combination of them, obtained from the processing of raw gas or condensate.
Natural hazard mitigation project	This usually occurs near large streams and involves bank reinforcement (rip-rap) to support the pipeline.
Natural watercourse	Common usage indicates natural watercourse is a natural channel where water flows over a bed between defined banks. The flow of water does not need to be constant, but the channel must be a permanent and distinct feature on the landscape. The watercourse may also, at some point, spread over a level area without defined banks, before flowing again as a defined channel.
Non-classified drainage (NCD)	An ephemeral or intermittent watercourse having a defined channel less than 100m in length, and at some points may spread over a level area without defined banks, before flowing again as a defined channel. These small watercourses often do not fall under the S1-S6 stream classification. They are generally defined as streams but do not meet the criteria for the definition and classification of stream under the EPMR.
North East British Columbia (NEBC)	The geographic region in the northeastern corner of British Columbia consistent with the Western Canadian Sedimentary Basin and Watershed Management Basins for which the Regulator's Area-based Analysis is located and applied. NEBC is frequently used in other Regulator documentation to describe where specific guidance/requirements apply such as the Environmental Protection and Management Guideline.
Notification	Notification provides written information regarding proposed oil and gas activities to recipients within the identified notification distance. Where consultation is conducted with recipients, notification is not required.

O

Observation well	A non-producing well used to monitor pool pressure, usually included in annual pressure testing surveys.
Oil	A mixture mainly of pentanes and heavier hydrocarbons possibly contaminated with sulphur compounds, that is recovered or is recoverable at a well from an underground reservoir, and is liquid at the conditions under which its volume is measured or estimated, and includes all other hydrocarbon mixtures so recovered or recoverable except raw gas or condensate.
Oil battery	A system or arrangement of tanks or other surface equipment or devices receiving the effluent of one or more wells for the purpose of separation and measurement prior to the delivery to market or other disposition. Energy Resource Activities Act (ERAA) Regulatory framework used to regulate resource activities in British Columbia.
Oil and gas activity	Defined in ERAA.
Open bottom structure	Stream crossing structures spanning the entire streambed and minimize impacts to the natural stream channel.
Open cut	Water crossing methods (primarily for pipeline applications) by which an in-stream work site is exposed to stream flow.
Open hole	A wellbore in which casing has not been set.
Operating area	An area, identified in a permit, within which a permit holder is permitted to carry out an oil and gas activity.
Operator	The company or individual responsible for managing an exploration, development or production operation.
Orphan sites	Wells are defined as “Orphan Sites” if the operator is either insolvent or cannot be located.
Overlapping projects	Overlaps exist where two or more projects – whether proposed or completed – cover portions of the same area of land.

P

Perforate	Make holes through the casing and cement opposite the producing formation to allow gas to flow into the well.
Permeability	The capacity of a reservoir rock of coal seam to transmit fluids; how easily fluids can pass through rock.
Permanent crossing	A stream crossing to be constructed and remain in place for longer than one year or over at least one spring freshet period.
Permit condition	A stipulation added to an Application's Authorization or Permission by a Reviewer.
Permit	Defined in ERAA.
Permit Holder	Defined in ERAA.
Pipeline	Those items through which oil or gas industry fluids are conveyed, including pipe, components, and any appurtenances attached thereto, up to and including the isolating valves and/or pig barrels located at stations and other facilities. Defined in ERAA.
Pipeline gathering	A pipeline that conveys gas from a wellhead assembly to a treatment plant, transmission line, distribution line, or service line.
Pipeline segment	A section of pipeline within the pipeline system.
Pipeline system	Pipelines, stations, and other facilities required for the measurement, processing, gathering, transportation, and distribution of oil or gas industry fluids.
Piping and Instrumentation Diagram (P&ID)	A detailed diagram for each facility or skid/building identifying all instrumentation symbols, valves & connections, piping and vessels, line numbering, fuel gas, flare and vent streams. This drawing must include all safety systems such as H_2S detection, flammable gas detection, and fire detection inside and outside of buildings. This information, from the individual drawings, can also be summarized on a separate P&ID. The P&ID must also include the initial high and low set points of all pressure switches proposed at the facility.
Place of public concourse	An area where people can reasonably be expected to gather including, but not limited to, a school, picnic area, church hall, or medical facility.

Plot Plan	A diagram identifying the surface area required for the facility and the proposed equipment, including but not limited to, the lease area, the access road point of entry including proposed fencing and/or access control measures, and how the access continues past the facility site if applicable, the equipment layout with distances shown in meters, (for example all storage tanks, buildings, compressors, flare stacks, flare knock out drums, line heaters, pump jacks, etc), all wellhead positions (clearly labelled by location), where the riser/pipeline starts and ends on a site and how it leaves the site going into the right-of-way. Fencing and/or gates must also be shown on the plot plan.
Pool	A natural underground reservoir containing an accumulation of oil or gas or both, separated or appearing to be separated from any other accumulation.
Porosity	The volume of spaces within rock or coal seam possibly containing oil and gas (like the amount of water a sponge can hold); the open or void space within rock.
Practicable	The Regulator follows the definition of “practicable” as defined under the Forest and Range Practices Act and Regulations.
Practicable	Capable of being effected, done or put into practice; feasible. An applicant or permit holder should review and consider the full range of options available in the context of social, economic and environmental implications. Where it is feasible to use one of the options in the range then the requirements apply; however, if a practicable option does not exist then the requirements may not apply. Where it is not practicable to meet the requirements of the EPMR , it is important for applicants and permit holders to document considerations, rationale, process followed, experts and information consulted to demonstrate due diligence. The Regulator follows the definition of “practicable” as defined under the Forest and Range Practices Act and Regulations.
Preliminary Field Reconnaissance (PFR)	A field inspection where an archaeologist establishes whether or not an area has archaeological potential. An archaeologist may also down grade an AIA report to a PFR report if the field inspection revealed no areas of archaeological potential. Also, see Archaeological Impact Assessment (AIA).
Process Flow Diagram (PFD)	A diagram showing all major equipment, vessels, meters, and interconnecting piping (process, fuel, flare and vent at a minimum) at the facility, or within an identified skid or building.
Processing battery	An oil battery (see battery definition) where additional equipment is added to process the oil or solution gas such as: compression, gas dehydration, injection,

	or disposal, but not gas processing equipment as the term is defined in the Drilling & Production Regulation.
Produced water	Water flowing or is extracted to the surface from a natural gas or oil well, including water injected into the formation, and including any chemicals added during the production/treatment process. This includes flow-back fluids from well completion and stimulation operations. This also includes any fresh water not used for domestic purposes.
Propane (C3H8)	An organic compound found in natural gas. Reported volumes may contain some ethane or butane.
Proponent	The company applying for or holding an oil and gas permit.
Producer cost of service allowance	An allowance against royalties to cover the costs of gathering and processing natural gas for sale, and the costs of conserving conservation gas.
Proppant	Sand (or ceramic beads) suspended in drilling fluid during fracturing job to keep (prop) open the cracks in the rock when the fluid is withdrawn.
Proven reserve	The quantity of oil or gas proven to be technically and economically feasible to recover.

Q

Qualified Specialist	A member in good standing of a profession regulated in British Columbia and who is recognized by the profession as being qualified to work in an area of practice for which an opinion or advice is required. This person possesses an appropriate combination of formal education, knowledge, skills and experience to conduct a technically sound and rational assessment for the area of practice, and is familiar with applicable provincial regulation, policies, protocols and guidelines.

R

Reach	A relatively homogeneous section of a stream having a sequence of repeating structural characteristics (or processes) and fish habitat types. The key physical factors used to determine reaches in the field are channel pattern, channel confinement, gradient, and streambed and bank materials. Stream reaches generally show uniformity in those characteristics and in discharge.
Reclamation	Process of restoring the surface area of a decommissioned wellsite, access road and related facilities to pre-operational conditions as is technically and economically feasible.
Reconnaissance evaluations	Observing field conditions is critical, and reconnaissance evaluations are essential to operational planning and completion of the Geophysical Exploration Permit Application form. Ideally, site evaluations would be assessed through a combination of aerial and ground reconnaissance.
Regionally important wildlife	A category of species considered important to a region of British Columbia, relies on habitat not otherwise protected under legislation, and may be adversely impacted by industrial activity.
Related activity	Defined in ERAA.
Remediation	Action to eliminate, limit, correct, counteract, mitigate or remove any contaminant or the adverse effects on the environment or human health of any contaminant. Further defined in the Environmental Management Act.
Remote access to archaeological data (RAAD)	A web interface used to access archaeological site data maintained by the Archaeology Branch at FLNRO. All recorded archaeological sites within the province of British Columbia are entered into this database. Access to this information is subject to authorization granted by the Archaeology Branch and is limited to government agencies with land or resource management responsibilities, first nation governments, and professional consulting archaeologists. Site information contained within RAAD can be provided to clients, agents etc. by the Archaeology Branch, upon request. Coordinates of sites provided by RAAD should be should be verified using site maps and location descriptions available via RAAD or from the Archaeology Branch
Replacement structures	Proposed stream crossing structures occupying the same riparian management area and crossing location as the original stream crossing structure.

Reserves	Estimated remaining quantities of oil and natural gas and related substances anticipated to be recoverable from known accumulations, as of a given date, based on the analysis of drilling, geological, geophysical, and engineering data; the use of established technology; and specified economic conditions, which are generally accepted as being reasonable. Reserves are further classified according to the level of certainty associated with the estimates and may be sub classified based on development and production status (from COGEH).
Reservoir (pool)	A porous and permeable underground rock formation containing a natural accumulation of crude oil or natural gas confined by impermeable rock or water barriers, and is separate from other reservoirs.
Resistivity	Means of determining the porosity of rock by measuring its electrical resistance to the passage of an electrical current.
Resource	Quantities of hydrocarbons estimated to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective resources have both an associated chance of discovery and a chance of development (adapted from COGEH).
Respondent	A recipient of Consultation or Notification who provides a written response to the applicant within 30 days after the service date
Review corridors	Review corridors are part of a pipeline application and permit and allow flexibility during construction for pipeline placement and associated disturbances.
Rights holder	A person granted non-intensive occupation or use of Crown land by permit, licence, or approval.
Riparian	Relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater.
River/Stream	A river/stream is a natural watercourse of freshwater flowing towards an ocean/sea, lake or other river, sometimes flowing towards the ground and drying up prior to reaching another water body. Small rivers may also be called by several other names, including stream, creek, brook, rivulet, tributary, rill and “crick”.
Road allowance	A portion of Crown land designated or indicated as a road on a plan of survey, on the border of or through a section, lot or block, whether or not a road is constructed on the land.
Royalty	The portion of the value of the oil and gas produced by a company paid to the Crown.

S

Samples	The wellbore drill cuttings obtained at definite depth intervals during drilling. These cuttings can be examined to determine the rock type, the formation being drilled, and indications of gas content.
Salt water	Water of greater than 4,000 milligrams per litre of total dissolved solids originating from a geologic formation.
Satellite battery	A facility for testing oil wells and typically includes a test separator with no oil storage.
Sierra-Yoyo-Desan (SYD)	Geographic applicable area comprising parts of the NTS grid 094J, 094I, 094O and all of 094P. Details are available on Ledcor Groups' webpage.
Seismic line	Linear corridor created to position geophones to facilitate recording geophysical information. As defined in Environmental Protection and Management Regulation: the area within which the trees are removed or the vegetation is modified for the purposes of carrying out geophysical exploration, and includes any associated access trails and equipment staging areas.
Shale gas	Natural gas contained in gas bearing shales.
Shallow open water wetland	Wetland intermittently or permanently flooded with open expanses of standing or moving water up to 2 metres deep. Open water with no emergent vegetation covers 75 per cent or more of the wetland surface. These wetlands are commonly termed ponds or pools.
Short term low grade road	A road with the stumps removed and a bladed running surface. There may be elements of ditching and elevated grade, particularly around wet areas but these features are not continuous.
Snow blown ice bridge	Stream crossing constructed on the frozen surface of a waterbody where water has been added to strengthen and reinforce the ice surface, over top of which man-made snow is blown in or placed until an appropriate bank height is achieved. These crossing structures offer the structural integrity of ice bridges but do not require streambank cutting to construct the approaches.
Snow/ice road	A single lane seasonal winter road including turnouts, with a flat road profile built with a combination of snow, ice and dirt, on a surface that may or may not have been stumped. The driving surface is built up using multiple layers of snow and ice so extra stabilizing material costs are not applicable. A flat road profile means the side slope is less than or equal to 15 per cent and there is minimal side cut. Minimal cuts means: mineral or organic soil must not exceed 0.5 metre in depth

	for distances up to 0.1 km. Seismic lines being used for roads not previously been used as roads, will be considered as new construction and qualify as snow/ice roads provided they fall within the above criteria.
Snowfill	Winter stream crossing constructed by depositing clean snow within the stream channel and compacting it.
Soil	The upper layer of earth in which plants grow. A black or dark brown material typically consisting of a mixture of organic remains, clay, and rock particles.
Solution gas	All gas separated from oil production.
Sour gas	Sour gas is natural gas that contains measurable amounts of hydrogen sulphide (H_2S).
Sour crude oil	Processed and/or dehydrated sales oil for refinery feedstock in which the effective hydrogen sulphide partial pressure exceeds 0.3kPa at the bubble point absolute pressure.
Sour oil well effluent	Produced oil or emulsion in which the effective hydrogen sulphide partial pressure exceeds 0.3kPa at the bubble point absolute pressure.
Species at risk	A category of species representing those species previously listed as Species At Risk under the Forest and Range Practices Act, and are designated as Species at Risk by Order under Section 29 (a) of the EPMR of ERAA.
Spillage	Defined in ERAA.
Spring freshet	The annual spring rise of streams in cold climates as a result of snowmelt; freshet also refers to a flood caused by rain or melting snow.
Statutory Right of Way	A legal document authorizing long term tenure over the land for a specific purpose. It does not confer the right to exclusive use and enjoyment of the area. Issued once a legal survey has been completed.
Stream	A natural watercourse or source of water supply, whether usually containing water or not, and a lake, river, creek, spring, ravine, swamp and gulch.
Streambank	Most streams also have definable, visibly continuous banks. However, the banks of some smaller streams may be discontinuous. In these cases, the banks and channel bed of short segments of stream may not be visible due to the presence of bridging or overhanging vegetation, or the stream has scoured a channel underneath rooted mats of soil. In other cases, segments of the channel might be filled to the crest of the banks with colluvial deposits as a result of debris jams.

	However, in all cases, the channel should be detectable throughout the length of the stream being defined so flow is continuous.
Stream channel width	The horizontal distance between the streambanks on opposite sides of the stream, measured at right angles to the general orientation of the banks. The point on each bank from which width is measured is the high water mark.
Sump	Shallow pond lined with plastic adjacent to the drilling rig, used to store drilling fluid.
Surface agreement	An agreement on private land between the applicant company and a landowner to permit the construction and operation of oil and gas activities.
Surface casing	The first string of casing put into a well; it is cemented into place and serves to shut out shallow water formations and as a foundation for well control.
Surface Development	A permanent dwelling, public facility, or development occupied full time or part time (e.g., a private residence, school, hospital, campground, recreation centre, work camp, or place of work, excluding a neighboring oil and gas site).
Surface lease	An area related to oil and gas activity.
Suspended well	A well previously completed but is now no longer being produced.
Swamp	Wetland with mineral or occasionally peat soils with a water table at or near the surface. There is pronounced internal water movement from adjacent mineral areas, making the waters nutrient-rich. If peat is present, it is mainly well-decomposed wood and occasionally sedges. The vegetation is typically dominated by coniferous or deciduous trees or dense shrubs and herbaceous species.
Sweet gas	Natural gas with no measurable quantities of hydrogen sulphide (H_2S).
Sweet natural gas	Natural gas with a partial pressure of H_2S Less than 0.3 kPa based on MOP.

T

Tank terminal	A facility where produced hydrocarbons and/or produced water is delivered by truck, rail, or pipeline, from or to the facility, and typically includes fluid storage tanks and/or pumping equipment. This type includes all previously identified Pipeline Terminal facilities.
Target area	Predefined area in a gas spacing area where wells can be located without incurring a penalty on production for impacting adjacent spacing areas.
Tenure	Tenure is a time-limited ownership of the subsurface petroleum and natural gas (PNG) rights, and confers the right to apply to access, explore and develop oil and gas according to applicable statutory requirements.
Test facility	A facility established for reporting gas production only when a well is being drilled using the "Gas While Drilling" process.
Test hole	A well drilled to shallow depths for evaluation purposes. It can be drilled deeper in formations with Regulator approval and without the requirement of holding subsurface rights.
Tight gas	Natural gas contained in low permeability sandstones and carbonates.
Timing windows	Periods of time when oil and gas activities can be conducted with reduced risk to fish and wildlife, and fish and wildlife habitat. They are also referred to as "windows of least risk", and define the period of time when activities may be permitted to occur. Timing windows are specific to fish and wildlife species and the geographic area within which the work is conducted.
Temporary crossing	A stream crossing in place for no more than one year and not in place over a spring freshet period.
Trenchless crossing	Stream crossing methods not requiring an open trench in order to lay a pipeline. Examples include bore, directional drill, and others.

U

Unconventional gas	Natural gas contained in difficult to produce formations requiring special completion, stimulation and other techniques to produce economically (coalbed gas, tight gas, shale and hydrates).
Under-balanced drilling	Drilling under conditions where the pressure being exerted inside the wellbore (from the drilling fluids) is less than the pressure of the oil or gas in the formation.
Upstream activity	Recovery, production and gathering of natural gas and petroleum.

V

Venting	The intentional controlled release of un-combusted gases directly to the atmosphere.

W,X,YZ

Water H\hub	A water hub can be a single activity application as a facility, or may exist at the same site as another facility such as a compressor station or gas processing plant. It is established only where the produced fluid is stored separate from a facility used to compress, dehydrate, or process gas or oil. The Regulator assigns a separate water hub facility designation along with the other adjacent facility type at the same site (i.e.: CS – compressor station & WH – water hub). These two facilities can co-exist at the same location, and be permitted under the same facility permit.
Water Management Plan	A Water Management Plan is required for any water licence application with a proposed diversion rate of 200 cubic metres per day or greater, or 10,000 cubic metres per year or greater, or for the purpose of "oilfield injection" (which includes hydraulic fracturing). The specific requirements of the plan may vary depending on the volume of water requested in relation to the volume of water available in the source. Applicants may wish to contact the Regulator's Hydrologist to discuss this detail before developing the plan. All water hub facilities and facilities with excavated ponds and pits or permanent C-rings must include a water management plan (WMP) with the application. The water management plan is intended to be a comprehensive plan outlining the process and inventory of produced and fresh water, as well as preventative designs and procedures
Water Source Dugout	If an area of land previously permitted as a borrow pit is used as a source of water that has naturally accumulated (from snowmelt, rainfall, or groundwater inflow), the applicant must ensure appropriate permits are in place to use as a "water source dugout".
Wells	Wells are an oil and gas activity as defined in the Energy Resource Activities Act and are specifically defined in the Petroleum and Natural Gas Act.
Well density	The concentration of wells on the land surface (per unit area).
Well facility	A facility directly associated with one or more wells that typically includes a simple piping and equipment configuration with equipment such as effluent (orifice) meters, test and / or group separators, sand separators, emergency shut down valves, pressure control valves, and can also include production tanks and flare systems.
Well servicing	The maintenance work performed on a well to maintain or improve production levels. Examples include: repairs to pumps, valves, and tubing.

Well spacing	The distance between wells producing from the same reservoir. Spacing is often expressed in terms of area and is usually established by regulatory agencies.
Wellbore	The hole made by the drilling bit.
Wellhead	The equipment used to maintain surface control of a well.
Wildlife tree retention area (WRTA)	A forest retention area associated with a silvicultural system where forest patches or individual trees are retained to provide habitat, biodiversity, scenic or other values.
Wildcat	Exploratory well several kilometres from any known pool.
Windthrow risk	The risk that standing timber will succumb to damage from wind events.
Workover	Additional work required on a producing well to maintain, restore or improve production. Examples include wellbore flow stimulation by perforating or fracturing, removing sand or wax from the wellbore, and installing water pumps.
Written Reply	A reply in writing from the applicant to the respondent that is in response to a proposed activity. The reply is required to include information outlined in the Requirements for Consultation and Notification Regulation.
Written Response	A response in writing from a respondent about a proposed activity. The response indicates concerns about a proposed a project.
Written Submission	Written correspondence addressed to the Regulator about a proposed activity.

Terms Common to Facilities

Battery site	A gas or oil facility with product separation and multiphase delivery point measurement (as defined in the BCER Measurement Requirements for Upstream Oil and Gas Operations Guideline) for one or more wells. Drilling & Production Regulation definition: a battery means a system or arrangement of tanks or other surface equipment receiving the effluents of one or more wells prior to delivery to market or other disposition, and may include equipment or devices for separating the effluents into petroleum, natural gas or water and for measurement; Examples include: 1. Single oil well with solution gas flared and oil tanked on site. 2. Multi-well battery with a test and group separator. 3. A temporary gas well test unit producing marketable hydrocarbons that are trucked to a TRD (Treatment, Recovery & Disposal) facility. 4. A water source well installation for oil and gas drilling, completions, or enhanced recovery production operations.
Compressor dehydrator	A facility that includes both natural gas compression equipment and dehydration equipment for one or more wells.
Compressor station	A facility that includes natural gas compression equipment for one or more wells. This does not include booster compressors for single wells, or for well pads with more than one well.
Design standard	The P & ID and PFD (flow schematic) drawings must clearly identify the design standard (code) used whether CSA Z662 or CSA B51 (ASME B31.3), and include all code break points. These design codes must also be identified in the field where it is practical to do so.
Disposal station	A facility that includes equipment that handles oil and gas waste. The equipment may include, but is not limited to the treatment, recovery, storage, or disposal of drilling or completions waste, well fracture returns/flowback, and acid gas from a processing plant.

Gas dehydrator	A facility that includes natural gas dehydration equipment for one or more wells. The molecular sieve and glycol regenerative systems both fit within the scope of this definition.
Gas plant	gas processing plant means a facility for the extraction from natural gas of hydrogen sulphide, carbon dioxide, helium, ethane, natural gas liquids or other substances, but does not include a facility that: (a) Uses, for the exclusive purpose of processing low-volume fuel gas. (i) A regenerative system for the removal of hydrogen sulphide or carbon dioxide and emits less than 2 tonnes/day of Sulphur. (ii) A liquid extraction process such as refrigeration to extract hydrocarbon liquids from a gas stream. (b) Uses a non-regenerative system for the removal of hydrogen sulphide or carbon dioxide.
Gas sales meter	A natural gas metering station. A gas sales meter can be a separate facility located on its own site, or it can be located on an existing facility site such as a gas plant or compressor dehydrator site.
Gathering System Schematic (Gathering Block Diagram)	A diagram indicating the flow path of oil and/or gas (including liquids) in pipelines between wells (well site facilities) and central facilities they are physically linked to (connected by pipelines). Identify the route of the primary product from the well to the reporting facility, and include the Well Authorization numbers and Facility Codes that are a part of the new linkage.
Injection station	A facility that includes gas compression or fluid pumping equipment to inject the gas or fluid into underground reservoirs for the purpose of enhancing production.
IOGC Agreement	This document is required if an agreement is required from Indian Oil and Gas Canada for the project.
NGL fractionation facility	A processing facility that receives hydrocarbon liquids for the purpose of processing off-spec natural gas liquids (NGL) into one or more spec components such as propane and butane.
Oil sales meter	A facility where oil or hydrocarbon liquid (LVP or HVP) is metered, and typically includes pumping equipment such as a LACT unit transporting the liquid into a pipeline. An oil sales meter can be a separate facility located on its own site, or it

	can be located on an existing facility site such as a gas processing plant or battery.
P&ID	A detailed diagram for each facility or skid/building identifying all instrumentation symbols, valves & connections, piping and vessels, line numbering, fuel gas, flare and vent streams. This drawing must include all safety systems such as H2S detection, flammable gas detection, and fire detection inside and outside of buildings. This information, from the individual drawings, can also be summarized on a separate P&ID. The P&ID must also include the initial high and low set points of all pressure switches proposed at the facility.
Pipeline gathering	A facility created internally by Regulator staff in collaboration with the permit holder for reporting production when one or more wells simultaneously flow to more than one reporting facility.
Plot Plan	A diagram identifying the surface area required for the facility and the proposed equipment, including but not limited to, the lease area, the access road point of entry including proposed fencing and/or access control measures, and how the access continues past the facility site if applicable, the equipment layout with distances shown in meters, (for example all storage tanks, buildings, compressors, flare stacks, flare knock out drums, line heaters, pump jacks, etc), all wellhead positions (clearly labelled by location), where the riser/pipeline starts and ends on a site and how it leaves the site going into the right-of-way. Fencing and/or gates must also be shown on the plot plan.
Process Flow Diagram (PFD)	A diagram showing all major equipment, vessels, meters, and interconnecting piping (process, fuel, flare and vent at a minimum) at the facility, or within an identified skid or building.
Processing battery	An oil battery (see above definition) where additional equipment is added to process the oil or solution gas such as: compression, gas dehydration, injection, or disposal, but not gas processing equipment as the term is defined in the Drilling & Production Regulation. Examples include: Treatment, Recovery & Disposal (TRD) facilities, acid gas disposal facilities, facilities that include deep well disposal for oil and gas waste.
Pump station	A facility that includes pumping equipment used to transport hydrocarbon liquid in a major pipeline, (oil, LVP or HVP), or a facility that is used to pump fresh water from a major water source. (This does not include LACT units at gas processing plants and oil batteries, methanol and chemical pumps, truck loading pumps, and water disposal, transfer, or injection pumps at water hubs and disposal facilities).

Satellite battery	A facility for testing oil wells and typically includes a test separator with no oil storage.
Shared facilities	A facility designated for minor equipment that is shared by more than one well, and that equipment does not constitute the establishment of a larger facility such as a compressor, gas dehydrator, or battery. There are no linkages established between shared facilities and wells, or other facilities. Examples include: test separator at a multi – well (gas) pad, flare stack and /or production tanks at a multi-well pad.
Tank terminal	A facility where produced hydrocarbons and/or produced water is delivered by truck, rail, or pipeline, from or to the facility, and typically includes fluid storage tanks and/or pumping equipment. This type includes all previously identified Pipeline Terminal facilities.
Test facility	A facility established for reporting gas production only when a well is being drilled using the "Gas While Drilling" process.
Water hub	A facility where produced water or well fracture flow back is being stored from one or more well pads, either in above ground tanks, open top containers, or in excavated ponds, and utilized for storage and/or well completions operations on more than one well, or multi-well pad. The associated equipment may include storage tanks, generators, pumps, piping, meters and filters. The installation may be temporary or permanent in nature. A water hub can be a stand-alone facility, or may exist at the same site as another facility such as a compressor station or gas processing plant. It is established only where the produced fluid is stored separate from a facility used to compress, dehydrate, or process gas or oil. Historically, when the water hub was part of one of these facilities it became integral with the facility, and did not require the distinct designation of a water hub. The Regulator now assigns a separate water hub facility designation along with the other adjacent facility type at the same site (i.e.: CS – compressor station & WH – water hub). These two facilities can co-exist at the same location, and be permitted under the same facility permit.
Well facility	A facility directly associated with one or more wells that typically includes a simple piping and equipment configuration with equipment such as effluent (orifice) meters, test and / or group separators, sand separators, emergency shut down valves, pressure control valves, and can also include production tanks and flare systems.

Terms Common to LNG Facilities

Boil off gas (BOG)	LNG vaporizes or "boils off" during transfer from the heavily insulated LNG storage tanks to the LNG tankers and vice-versa. Even during storage LNG is stored at temperatures close to its boiling point, and small quantities will continue to boil off. Boil off gas is recovered and re-liquefied or can be utilized in the facility's low pressure fuel system. On LNG tankers, powered by steam turbines, boil off gas is used as fuel.
Cascade	Feedstock natural gas is cooled in a heat exchanger in three discrete stages using propane, ethylene or ethane and methane. Propane is condensed with cooling water or air, ethylene is condensed with evaporating propane and methane is condensed with evaporating ethylene.
Compressed natural gas (CNG)	CNG is natural gas compressed into gas cylinders, chiefly used as an alternative for liquid fuels in road vehicles. Unlike LNG where temperature is used to reduce the volume occupied by natural gas, CNG relies on pressure as the mechanism to reduce the volume.
Cryogenics	The process of producing, maintaining and utilizing very low temperatures. Although not agreed upon it is suggested the cryogenic temperature begin below -150ºC or -238ºF. Temperatures needed to liquefy natural gas fall into the range of cryogenics.
Deflagration	A combustion mechanism caused by the reaction of a mixture of a reducing material such as a combustible gas and an oxidizer such as air or oxygen transmitting energy in the form of heat to the unreacted medium, this results in the expansion of reaction products and subsequent compression waves propagating at speeds usually less than the speed of sound and up to 300 m/s in gaseous materials.
Deriming (defrosting or de-icing)	The removal from low-temperature process equipment by heating and evaporation, sublimation, or solutions, of accumulated constituents, such as water, carbon dioxide, etc., forming solids at cryogenic temperatures.
Double containment	A single containment container tank system surrounded by, and within 6 m (20 ft) of, an open-to-the-atmosphere wall (secondary container) designed to contain LNG in the event of a spill from the primary or inner container.

Emergency shutdown systems (ESD)	These systems are independent of the main control systems and are utilized to safely shut down operating systems in the event of an emergency.
Engineering, procurement and construction (EPC)	Phases, specifically the design and allocation of resources and building of an LNG project.
Expander cycle	Refrigeration is provided by compression and expansion of a single component gas stream. High pressure gas is cooled in a counter-current heat exchanger with the returning cold gas. The gas is expanded to a low temperature using an expansion turbine.
Front end engineering design (FEED)	Activities defining the design of a facility to a level where it can be developed into EPC phases. This occurs after the conceptual design phase of an LNG project.
Fuel gas	A process stream which is used in providing energy for facility operations.
Full containment	The tank system in which the inner (primary) container is self-standing and is surrounded by a separate self-standing secondary container designed to contain LNG in the event of a spill from the inner container, and where the secondary container is enclosed by a steel or concrete roof designed so excess vapour caused by a spill of LNG from the primary container will discharge through the relief valves.
Flammability limits	The minimum and maximum percentages of gas in air within which the gas will ignite. For natural gas these limits lie between 5 per cent and 15 per cent and are referred to as the lower and upper flammability limits, respectively.
Floating LNG (FLNG)	Water based LNG operations employing technologies enabling the development of offshore natural gas resources.
Gas processing	The separation of oil and gas, and the removal of impurities and natural gas liquids from natural gas to meet the delivery Specification of a gas transportation pipeline.
Heel	The minimum LNG necessary to be retained in the ship or onshore storage tanks to maintain their cryogenic temperatures.
Hydrocarbon	An organic compound containing carbon and hydrogen and includes oil and natural gas.

Impounding area	An area, established by the use of dikes or by site topography, used to contain an accidental spill of LNG or flammable refrigerants.
Liquefaction	The process by which a gas is converted into a liquid.
Liquefied natural gas (LNG)	Natural gas in a liquid state, composed predominantly of methane and possibly containing minor quantities of ethane, propane, nitrogen, or other components normally found in natural gas.
Liquefied natural gas facility or LNG facility	A facility whose components are used to store liquefied natural gas and may also condition, liquefy, transfers or vaporize natural gas.
Liquefied petroleum gas (LPG)	Predominately a mixture of hydrocarbon molecules comprised of 3 and 4 carbon atoms in a liquid state at storage pressures and temperatures.
Mtpa (millions of tonnes per annum)	Units used to expressed the capacity of an LNG facility.
Mercaptans	Chemical compounds of sulphur used as Odorants.
Mixed	This process uses mixed refrigerants instead of multiple pure refrigerants. The liquid refrigerant evaporates over a temperature range. This process had good thermodynamic efficiency, lower power requirements and uses smaller machinery.
Natural gas	Gaseous forms of hydrocarbons, principally methane, with minor amounts of ethane, butanes, pentanes, and hexanes along with non- hydrocarbon impurities such as nitrogen, carbon dioxide and hydrogen sulfide.
Natural gas liquids (NGLs)	Components of natural gas in a liquid state at surface and include propane, butane, pentane and heavier hydrocarbons.
Odorisation	The process of giving odourless natural gas a smell for safety reasons by injecting small quantities of organic sulphur compounds, such as Mercaptans, typically at the rate of 30 ppm.
Peak shaving	The process of drawing gas during peak-use periods from storage or peak-load plants to supplement the normal amounts delivered to customers. Peak shaving may be daily or seasonal and may be handled in a variety of ways including underground storage and peak shaving LNG facilities.
Rapid phase transitions	LNG undergoes a rapid transition to vapor especially when spilled on water. The volume of the LNG instantly expands 600 times resulting in a Rapid Phase Transition (RPT) or physical explosion which poses a hazard for structures and

	people close to the site of the incident. This explosion does not involve combustion. When LNG is spilled on water, heat is transferred from the water to the LNG. This results in a rapid transformation of liquid to gas releasing a large amount of energy.
Regasification	The reconversion of LNG into gas suitable for pipeline transportation.
Refrigerant	Natural gas liquefaction requires refrigeration over a broad range of temperatures requiring the use of refrigerants. The refrigerant is usually a liquid medium used for removing sensible and latent heat from the natural gas stream. It may be part of the natural gas stream in an open-cycle process or a separate fluid continuously re-circulated through the liquefier in a closed-cycle process. The following are three general types of refrigeration cycle.
Single	A single-wall tank system or a double-wall tank system in which only the primary or inner container is designed to contain LNG. An impoundment system is required to serve as a secondary containment system in the event of a spill of LNG from the tank.
Storage tanks	The tanks, vessels and impounding systems used for storing and containing LNG. Based on how the LNG is contained in the event of a breach of the primary container, a storage tank is classified as one of the following three systems.
Tonne, metric	Equals 1000 kilograms or 2204.6 pounds. The capacity of an LNG baseload facility is typically expressed in tonnes.
Train (liquefaction)	An independent unit for gas liquefaction. An LNG facility may comprise one or more trains.
Transfer area	Portion of an LNG facility containing a piping system where LNG, flammable liquids, or flammable refrigerants are introduced into or removed from the facility, such as truck loading, or ship unloading areas, or where piping connections are connected or disconnected routinely.

Terms Common to Oil and Gas Measurement

Absolute density of gas	The gas' mass per unit volume at a specific pressure and temperature. Absolute densities are generally expressed in kg/m³ at 101.325kPa(a) and 15°C.
Absolute density of liquid	The liquid's mass per unit volume at a specific pressure and temperature. Absolute density of a liquid is generally expressed as kg/m³ at 101.325kPa(a) and 15°C.
Accuracy	The ability of a measuring instrument to indicate values closely approximating the true value of the quantity measured.
Acid gas	A natural gas or any other gas mixture containing significant quantities of hydrogen sulfide (H_2S), carbon dioxide (CO_2), or similar contaminants.
Allocation factor	A factor, that is used to correct the fluid receipt volumes (considered estimates) to actual volumes based on inventories and disposition measurements at facilities where only fluids received by truck are handled, such as custom treaters or terminals.
Analog transmitter	A transmitter that utilizes analog circuitry to convert the sensor output to either a 4-20 miliamp or 1-5 volt signal.
Approved	Written acceptance by the Regulator that has jurisdiction.
Associated gas	Gas produced in association with oil production at oil wells. Commonly known as solution gas.
Allowable	Used in connection with a well, means the amount of oil or gas a well is permitted to produce, in accordance with an order of the Regulator Board for this purpose, after application of any applicable penalty factor.
Artificial lift	A method of producing gas and/or liquids from a gas well that involves the use of an on/off controller, plunger lift, pump jack, gas lift, submersible pump, screw pump, or any other method of enhancing production that is a supplement to a completed wellbore's ability to flow.
Authorized Regulator Employee	An employee of the Regulator who is designated in writing by the Regulatorer as an authorized Regulator employee for the purposes of that provision.
Bias	Any influence on a result that produces an incorrect approximation of the true value of the variable being measured. Bias is the result of a predictable systematic error.

Battery / Facility	A system or arrangement of tanks or other surface equipment receiving the effluents of one or more wells prior to delivery to market or prior to other disposition, and may include equipment or devices for separating the effluents into oil, gas, or water and for measurement.
Butane	(C4H10) An organic compound found in natural gas. Reported volumes may contain some propane or pentanes plus.
Calibration	Procedures or operations that establish the accuracy of the values indicated by a measuring device as compared to the values indicated by a measuring standard by making changes or adjustments to the measuring device.
Calibration Standard	A certified device used in calibration or proving that has a known value traceable to national reference standards maintained by the National Research Council in Ottawa, Ontario.
Central processing facility	A battery / facility system or arrangement of tanks or other surface equipment receiving the effluent of one or more wells or a satellite prior to delivery to market or other disposition; may include equipment or devices for separating the effluents into crude oil, gas, or water for the injection and distribution of air, steam, gas, hydrocarbon, or other materials, for water treatment and recycling, and for measurement but does not include a processing plant.
Clean Oil	Oil with 0.5% S&W or less.
Common Crown or Freehold Royalty	When all the wells in a battery/facility are produced under Crown mineral leases and the Crown receives the same royalty rate for each well, or when under leases granted by one freehold mineral holder, the freehold mineral holder receives the same royalty rate for each well. If there is more than one freehold mineral holder for the wells in a battery/facility, the total royalty rate for each well is the same.
Common ownership	All wells in a battery/facility belong to the same working interest participant, or if there is more than one working interest participant, each working interest participant has the same percentage interest in each well in the battery / facility.
Composite meter factor	A factor that is calculated by dividing the temperature corrected prover volume by the indicated meter volume for a prover run. The final CMF is often averaged from the results of multiple prover runs. The CMF includes corrections for the effects of any combination of temperature, pressure or shrinkage.
Compressor station	A facility that includes natural gas compression equipment for one or more wells. This does not include booster compressors for single wells, or for well pads with more than one well.

Condensate	A mixture mainly of pentanes and heavier hydrocarbons (C5+) that may be contaminated with sulphur compounds. It is recovered at a well or facility from an underground reservoir and may be gaseous in its virgin reservoir state but is liquid at the conditions under which its volume is measured
Condensate, Separator liquids	Separator liquids are a mixture of hydrocarbon components that remain in a liquid state under the equilibrium pressure and temperature conditions established in a two-phase or three-phase separator. The composition and physical properties of separator liquids are highly variable and are a function of separator inlet fluid composition and separator pressure and temperature conditions.
Condensate, Stock tank liquids	Stabilized liquids are a mixture of hydrocarbon components that remain in the liquid state following single-stage flash evaporation. Stabilized condensate is expected to have low concentrations of light ends (C1-C4) components. The composition and physical properties of the stabilized condensate is a function of the equilibrium pressure and temperature conditions of the stabilizer and the composition of the stabilizer feed from which it was derived.
Condensate to gas ratio (CGR)	A ratio calculated by dividing the total condensate test volumes by the measured test gas volume. Referenced in m3/e3m3.
Confidence level	The degree of confidence that may be placed on an estimated range of uncertainty.
Conservation gas	Natural gas produced from an oil well event where the marketable gas is conserved but does not include gas produced from an oil well event granted concurrent production status.
Concurrent production	Gas produced from an oil well event where the oil well event is part of an approved concurrent production scheme.
Continuous measurement	Uninterrupted measurement.
Correction factor	A correction factor is any mathematical adjustment made to take into account deviations in volume related to temperature or pressure in either the sample or the measured volume. It must be determined in accordance with API MPMS.
Critical lift	Gas wells with liquid loading are incapable of removing the liquid associated with produced gas from the wellbore (Lea, 2003). This phenomenon is initiated when the upward gas velocity in the well falls below a critical value, at which point the liquid that was initially entrained in the gas stream begins to fall back. This liquid accumulates down hole where it increases the hydrostatic back-pressure on the

	reservoir, destabilizes the multiphase flow in the well (following flow regime changes), decreases production rate and, in severe cases, kills the well.
Crude oil	A mixture mainly of pentanes and heavier hydrocarbons that may be contaminated with sulphur compounds, that is recovered or is recoverable at a well from an underground reservoir, and that is liquid at the conditions under which its volume is measured or estimated; includes all other hydrocarbon mixtures so recovered or recoverable except raw gas, condensate, or crude oil.
Custom treating plant	A system or arrangement of tanks and other surface equipment receiving oil/water emulsion exclusively by truck for separation prior to delivery to market or prior to other disposition.
Dead oil	Oil containing mainly pentanes and heavier hydrocarbons and is in a stabilized (degassed) form at atmospheric conditions. Dead oil may be at the wellhead or battery/facility.
Dead oil meters	Dead oil meters are typically those used for delivery point or custody transfer point measurement of hydrocarbon liquids that has been degassed to ambient conditions.
Dehydrator	Equipment used to remove water from the natural gas.
Delivery point	The point at which the delivery of oil or gas production from a battery / facility is measured. The volumes determined at this point are typically used in royalty calculations (royalty trigger points), such as sales, cross border, gas plant to battery/facility, or gas plant to gas plant meters.
Delivery point measurement	The level of uncertainty and type of measurement required at a delivery point.
Dew point	The temperature at any given pressure at which liquid initially condenses from a gas or vapour. It is specifically applied to the temperature at which water vapour starts to condense from a gas mixture (water dew points) or at which hydrocarbons start to condense (hydrocarbon dew point). (Source AGA Definitions).
Digital (Smart) Transmitter	A transmitter with a microprocessor that is used for digital signal processing and calculation purposes. The calculations apply factory characterization of the sensor calibration and dynamic compensation for other process and environmental effects to the sensor output.
Dilution gas	Typically, fuel gas used to provide adequate fuel for incineration or flaring of acid gas. Dilution gas is used to maintain a minimum heating value of the flared or incinerated gas, which must report Fuel Gas.

Disqualifying criteria	Criteria that leads to an exception or exemption being revoked.
Dry gas	Natural gas without free liquid as per contract conditions. It consists of little more than methane, producing little condensable heavier hydrocarbon compounds such as propane and butane when brought to the surface.
Effluent correction factor (ECF)	A factor determined from periodic tests conducted at each well whereby a test separator is connected downstream of the effluent meter and the volumes measured by the test separator are compared to the volume measured by the effluent meter.
Electronic flow measurement (EFM)	Any flow measurement and related system that collects data and performs flow calculations electronically.
Emulsion	A combination of two immiscible liquids, or liquids that do not mix together under normal conditions
End device	The tertiary device or equipment that records the various values used to calculate a gas volume. In the case of electronic flow measurement, the end device may also perform the calculations necessary to arrive at the measured gas volume.
Enhanced recovery	The increased recovery from a pool achieved by artificial means or by the application of energy extrinsic to the pool; such artificial means or application includes pressuring, cycling, pressure maintenance, or injection to the pool of a substance or form of energy but does not include the injection in a well of a substance or form of energy for the sole purpose of aiding in the lifting of fluids in the well, or stimulating the reservoir at or near the well by mechanical, chemical, thermal, or explosive means.
Equilibrium vapour pressure (EVP)	The pressure at which a liquid and its vapour are in equilibrium at a given temperature. When a hydrocarbon liquid has an EVP above the standard pressure (101.325kPa at 15°C), the EVP at 15°C is the pressure base.
Error	The difference between true and observed values.
Error (random)	An error that varies in a unpredictable manner when a large number of measurements of the same variable are made under effectively identical conditions.
Error (spurious)	A gross error in procedure for example, human errors or machine malfunctions.
Error (systematic)	An error that in the course of a number of measurements made under the same conditions on material having the same true value of a variable either remains

	constant in absolute value and sign or varies in a predictable manner. Systematic errors result in a bias.
Estimate	The approximation of a value based on documented and traceable methodologies, calculation, based on adequate knowledge of applicable facility processes, metering technology, measurement principles and hydrocarbon and water physical properties.
Ethane	In addition to its normal scientific meaning, a mixture mainly of ethane that ordinarily may contain some methane or propane.
Exception	Circumstances under which if specific criteria are met or approval is granted, measurement devices or procedures are allowed to deviate within specified limits from base measurement requirements.
Exemption	If an exemption is requested from regulatory requirements, an exemption request may be requested at the time of application and include: - Specific regulatory provision requiring an exemption. - Rationale for exemption (explanation of why an exemption is required). - Proposed plan showing mitigation strategies to reduce impacts. If exemptions are approved prior to the application, this approval must be attached to the application.
Facility / Battery	A gas processing plant, production battery/facility, or any other surface equipment deemed to be a battery/facility by an authorized Regulator employee.
Field data capture system	A system collects well and facility data about production activities including: Meter readings and estimates, production and test hours, calculated proration factors and metering differences, pressure and temperature readings, downtime hours and reasons.
Flare gas	Any waste gas stream that is burnt or incinerated. For reporting purposes in BC it also includes purge and pilot gas used to operate a flare system.
Flowmeter primary device	The device mounted internally or externally to the fluid conduit which produces a signal with a defined relationship to the fluid flow in accordance with known physical laws relating the interaction of the fluid to the presence of the primary device. The primary device may consist of one or more elements necessary to produce the primary device signal.
Flowmeter secondary device	The device that responds to the signal from the primary device and converts it to a display or to an output signal that can be translated relative to flow rate or quantity.

Functionality test	Refers to procedures or operations performed to metering equipment where there is no effective means of verifying the equipment using conventional techniques.
Gas	Raw gas or marketable gas or any constituent of raw gas, condensate, or crude oil that is recovered in processing and that is gaseous at the conditions under which its volume is measured or estimated.
Gas battery / Facility	A system or arrangement of surface equipment receiving the effluent from one or more gas wells that might provide compression, separation, dehydration, dew point control, or other gas handling functions prior to the delivery to market or prior to other disposition; does not include gas processing equipment.
Gas chromatograph	An analytical instrument that separates a gas sample into its components and then measures the amount of each separated component. This information is used to determine gas composition for calculating energy content, relative density (specific gravity), compressibility and other related parameters.
Gas equivalent factor (GEF)	A factor based on the composition of a hydrocarbon liquid mixture that is used to convert the same hydrocarbon liquid mixture to its equivalent gas volume. This factor is mixture dependent and not a constant for all mixtures. Referenced in e3m3/m3.
Gas equivalent volume (GEV)	The gas volume equivalent determined from the physical properties of liquid at standard conditions. The volume of gas (e3m3) that would result from converting 1m3 of liquid into a gas by applying a GEF to the liquid volume.
Gas fractionation plant	An arrangement of equipment to reprocess an Natural Gas Liquid (NGL) inlet into one or more in-stream components.
Gas gathering system	A battery/facility consisting of pipelines used to move gas production from oil batteries, gas batteries, and/or other facilities to another battery/facility (usually a gas plant); may include compressors, line heaters, dehydrators, and other equipment.
Gas-in-solution (GIS)	Gas dissolved in an oil volume under pressure.
Gas processing plant (gas plant)	A facility for the extraction from natural gas of hydrogen sulphide, carbon dioxide, helium, ethane, natural gas liquids, or other substances, but does not include a production battery/facility that: (a) uses, for the exclusive purpose of processing low-volume fuel gas; (i) a regenerative system for the removal of hydrogen sulphide or carbon dioxide and emits less than 2 tonnes / day of sulphur, or; (ii) a liquid extraction process such as refrigeration to extract hydrocarbon liquids from

	a gas stream, or; (b) uses a non-regenerative system for the removal of hydrogen sulphide or carbon dioxide.
Gas well	A well in which casing is run and that, in the opinion of the Regulator, is producing or is capable of producing from a natural gas bearing zone.
Good production practice (GPP)	Production of crude oil or raw gas at a rate not governed by a base allowable, but limited to what can be produced without adversely and significantly affecting conservation, the prevention of waste, or the opportunity of each owner in the pool to obtain his share of production.
Group oil	Oil that is grouped and measured at a battery/facility where test oil is produced to, unless at a single well battery/facility where group oil and test oil are one in the same. Group oil represents the total volume of oil.
Heavy oil	Crude oil having a density of 920kg/m^3 or greater at 15°C.
High vapour pressure liquids	Fluids extracted from raw gas that has been processed at a gas battery / facility, such as ethane, propane, butane, NGL, and in some cases pentanes plus.
Hydrocarbon liquid	A fluid in the liquid state that may consist of one or more of the following: oil, bitumen, condensate, ethane, propane, butane, pentane plus, or other heavier hydrocarbon compounds.
Initial qualifying criteria	Criteria that must be met to qualify for an exception, testing frequency reduction, or exemption. If the initial qualifying criteria have been met and the exception, reduction, or exemption is implemented, it may remain in place indefinitely, as long as the wells do not meet any of the disqualifying criteria and there are no physical additions to the battery/facility (e.g., new wells or zones). If additions or changes are made to the battery/facility, the initial qualifying criteria must be met for all the wells or zones added to the battery/facility for the exception, reduction, or exemption to remain in place.
Injection / Disposal facility	A system or arrangement of surface equipment associated with the injection or disposal of any substance through one or more wells.
Innage gauge	The depth of liquid in a tank as measured from the surface of the liquid to the tank bottom or to a fixed datum plate.
K-factor	A term in pulses per unit volume determined during a factory or field proving. The number of pulses generated by a linear meter divided by the k-factor will determine the indicated volume.
Lease automatic custody transfer (LACT)	An arrangement of equipment that measures the net volume and quality of liquid hydrocarbons. This system provides for the automatic measurement,

	sampling, and transfer of oil from the lease location into a pipeline. A system of this type is applicable where larger volumes of oil are being produced and must have a pipeline available in which to connect.
Linearity	The ideal accuracy curve of a volume meter is a straight line denoting a constant meter factor. Meter linearity is expressed as the total range of deviation of the accuracy curve from such a straight line between the minimum and maximum recommended flow rates.
Liquid-gas ratio (LGR)	A ratio calculated by dividing the total water and/or condensate test volumes by the measured test gas volume.
Live oil	Oil containing mainly pentanes and heavier hydrocarbons that may also contain lighter hydrocarbons, and is not in a stabilized form. Live oil is commonly measured at the wellhead or battery/facility.
Liquid petroleum gas (LPG)	LPG consists primarily of propane (C3) and butane (C4) in a mixture or essentially pure form, with minor components ranging from ethane (C2) to normal hexane (C6). It is produced either as a by-product of natural gas processing or during refining and processing operations.
Maintenance	Maintenance is any process of conducting a calibration, verification, diagnostic, proving, internal inspection or repair to a meter to ensure it is operating in the correct manner to meet the expected uncertainty requirements.
Master meter	A meter of known accuracy that is connected in series with another meter for the purpose of checking the accuracy of that meter and providing a meter factor.
Maximum uncertainty of monthly volume	Relates to the limits applicable to equipment and/or procedures used to determine the total monthly volume.
Mean	A value in the middle of two extremes (the two values farthest apart in a group of values).
Measured gas source(s)	Single-phase measured gas source(s) downstream of separation and removal of liquids; also includes the gas equivalent volume (GEV) of measured condensate if the condensate is recombined after measurement with the gas downstream of the separator.
Measured oil	Oil measured using equipment and/or procedures meeting delivery point measurement requirements and/or uncertainty limits. For emulsion, the delivery point measurement uncertainty limits apply to the total volume determination only.
Measurement	A method, process, or procedure, for determining a value for a physical variable.

Measurement by difference	Any situation where an unmeasured volume is determined by taking the difference between two or more measured volumes.
Measuring standard	A device used in calibration or proving that has a known value traceable to national reference standards maintained by the National Research Council in Ottawa, Ontario.
Meter element	A meter element refers to any device associated with the meter (e.g., a differential, static, or temperature-sensing element, chart recorder pen, or electronic transmitters). There are three types of meter elements: 1) primary – the internal components of the meter and associated meter tube that establishes the flow variables (e.g. orifice, meter plate, shedder bar, Venturi, etc.). 2) secondary – the part of the meter that senses and records the flow variables, (e.g. chart recorded or transmitter). 3) tertiary – flow computer that calculates the flow and volume.
Meter factor	A dimensionless number used to correct indicated meter volumes to adjusted volumes if the two volumes differ due to operational conditions (e.g., gas entrained in liquids, meter slippage, meter wear). It is not to be confused with the "K Factor," which is used to convert the number of pulses generated by a meter into units of volume (where electronic pulse technology is the basis of the meter operation). The K Factor is typically determined by the meter manufacturer and does not take into consideration all of the specific operational conditions the meter may be subjected to
Metering difference	The volume used to balance, on a monthly basis, any difference that occurs between the measured inlet/receipt volumes and the measured outlet/disposition volumes at a battery/facility.
Methane	In addition to its normal scientific meaning, a mixture mainly of methane that ordinarily may contain some ethane, nitrogen, helium, or carbon dioxide.
Multiwell group gas battery / Facility	Each well must have its own separation and measurement equipment, similar to a single-well battery/facility, and all wells in the battery/facility must be connected by flow line and delivered to the same battery/facility.
Multiwell group oil battery / Facility	Each well must have its own separation and measurement equipment, similar to a single-well battery / facility, and all equipment for the wells in the battery / facility must share a common surface location.
Natural gas	PNGA defines all fluid hydrocarbons, before and after processing, that are not defined as petroleum, and includes hydrogen sulphide, carbon dioxide, and helium produced from a well.

	LNGR defines gaseous forms of hydrocarbons, principally methane, with minor amounts of ethane, butanes, pentanes, and hexanes along with non-hydrocarbon impurities such as nitrogen, carbon dioxide and hydrogen sulfide.
Natural gas liquid (NGL)	Ethane, propane, butanes, or pentanes plus, and any other condensates, or any combination of them, recovered from natural gas.
Non-conservation Gas	Natural gas produced from a well event other than conservation gas.
Oil	A mixture mainly of pentanes and heavier hydrocarbons possibly contaminated with sulphur compounds, that is recovered or is recoverable at a well from an underground reservoir, and is liquid at the conditions under which its volume is measured or estimated, and includes all other hydrocarbon mixtures so recovered or recoverable except raw gas or condensate.
Oilfield waste	A substance unwanted by the generator substance or a mixture of substances that results from the construction, operation, abandonment or reclamation of a well site, oil and gas battery/facility, gas plant, compressor station, crude oil terminal, pipeline, gas gathering system or related battery/facility.
Oil well	Petroleum well (see Petroleum).
Operator	The company or individual responsible for managing an exploration, development or production operation.
Outage gauge	The distance from a reference point at the top of a tank to the surface of the liquid. This “gauge” is then subtracted from the full height gauge (from the same reference point) of the tank to determine the depth of the liquid.
Pentanes plus	A mixture mainly of pentanes and heavier hydrocarbons, which ordinarily may contain some butanes, that is obtained fom the processing of raw gas, condensate, or crude oil.
Petroleum	Crude petroleum and all other hydrocarbons, regardless or gravity, that are or can be recovered in liquid form from a pool through a well by ordinary production methods or that are or can be recovered from oil sand or oil shale.
Pipeline	Those items through which oil or gas industry fluids are conveyed, including pipe, components, and any appurtenances attached thereto, up to and including the isolating valves and/or pig barrels located at stations and other facilities. Defined in ERAA.

Pool	An underground reservoir containing an accumulation of petroleum or natural gas, or both, separated or appearing to be separated from another reservoir or accumulation.
Primary measurement element	A primary measurement element refers to the part of the meter that provides an indication of flow (e.g., an orifice plate, venturi, or vortex shedder bar).
Production battery / Facility	A battery/facility, oil treater, pumping station, compressor station, dehydrator, gas injection station, line heater, waste disposal facility, waste processing facility, water disposal facility, water injection station, or, on designation of an authorized Regulator employee, any other system of vessels and equipment designed to accommodate production or disposal, or both production and disposal, of well effluent products and by-products, but does not include a gas processing plant.
Propane	(C3H8) An organic compound found in natural gas. Reported volumes may contain some ethane or butane.
Proration	An accounting procedure or system in which the total actual monthly battery/facility production is equitably distributed among the wells in the battery/facility.
Proration battery / Facility	A battery/facility for which all well production is commingled prior to the total battery/facility production volumes being separated and measured (or estimated where appropriate) as single phases. Individual monthly well production volumes are estimated based on periodic well tests and are corrected to the actual monthly volumes through the use of proration factors.
Prover	A device used to collect and determine the volume of a sample of fluid that has passed through a meter. Provers typically use volumetric or gravimetric means to determine the quantity of the sample.
Prover run	The operation of a prover or master meter whereby a representative volume is sampled and measured, and that sample volume is compared to the volume indicated by a meter through which the same sample has passed to determine a meter factor.
Proving	The procedures or operations whereby a prover volume is compared to an indicated meter volume (both corrected to applicable pressure and temperature conditions). The prover volume divided by the indicated meter volume yields a meter factor. The meter factor is subsequently applied to indicated meter volumes to determine the adjusted or corrected volume. If the meter is connected to an electronic readout, the meter factor may be incorporated into the software such that the indicated meter volume is already corrected to read the adjusted volume. Care should be taken in such cases not to apply the meter factor again,

	in such cases the meter factor should be indicated on the tag or label as being 1.0000.
Raw gas	A mixture containing methane, other paraffinic hydrocarbons, nitrogen, carbon dioxide, hydrogen sulphide, helium, and minor impurities, or some of these, that is recovered or is recoverable at a well from an underground reservoir and is gaseous at the conditions under which its volume is measured or estimated.
Relative density of gas	The ratio of the mass of the gas to the mass of an equal volume of air. It is also referred to as gas gravity or specific gravity of gas.
Representative flow	When stabilized flow is not achievable, such as for wells with artificial lift systems and wells with slugging characteristics then representative flow is required for testing purposes. The test volumes of gas, condensate, or water must be representative of the well's production capability under normal operating conditions. Wells must be tested for a minimum duration that completes multiple flow cycles to accurately determine a representative volume of gas, condensate, or water. These representative production volumes are then extrapolated to accurately reflect the wells' production over an extended period of time.
Revocation of exemption	Criteria that leads to an exception, testing frequency reduction, or exemption being revoked and baseline requirements reinstated.
Sediments and water (S&W)	Commonly refers to settled solid and / or semi-solid components and water in tanks and other containment vessels. S&W was formerly referred to as BS&W (basic sediments and water).
Sales gas (marketable gas)	Natural gas that is available for sale for direct consumption as a domestic, commercial or industrial fuel, or as an industrial raw material, or is delivered to a storage battery/facility, whether this gas occurs naturally or results from the processing of natural gas. A mixture mainly of methane originating from raw gas, if necessary through the processing of the raw gas for the removal or partial removal of some constituents, and that meets specifications for use as a domestic, commercial, or industrial fuel or as an industrial raw material.
Satellite or Satellite battery / Facility	Surface equipment (located between a number of wells and the main battery/facility) intended to separate and measure the production from each well, after which the fluids are recombined and piped to the main battery/facility for separation/treating, measurement, and storage or delivery.
Segregate	To confine each fluid in a well to its proper pool or flow channel so that it is separate from the fluid in or passing from or to any other pool.

Separator	An unfired apparatus specifically designed and used for separating fluids produced from a well into two or more streams; does not include a dehydrator.
Single point measurement uncertainty	Relates to the limits applicable to equipment and/or procedures used to determine a specific volume at a single measurement point.
Solid	A substance that does not contain free liquids and is not gaseous at standard conditions.
Solution gas	Volatile hydrocarbons that are dissolved in solution with produced oil or bitumen.
Stabilized flow	Indicates a point at which flowing parameters of gas, condensate, or water are producing under normal operating conditions and represent production levels equal to the well's normal average flow rate. Stabilized flow can only be achieved when all testing equipment associated in determining an actual volume has reached equilibrium (i.e., liquid levels in test separator, pressure and temperature stabilization to normal operating conditions).
Stock tank vapours	The solution gas present in the oil/bitumen storage tanks that may be released from the tanks.
Synthetic crude oil	A mixture mainly of pentanes and heavier hydrocarbons, which may also contain sulphur compounds, that is derived from crude bitumen and is liquid at the conditions under which its volume is measured or estimated; includes all other hydrocarbon mixtures so derived.
Tank	A device designed to contain materials produced, generated, and used by the upstream petroleum industry that is constructed of impervious materials to provide structural support; may include such materials as concrete, plastic, fiberglass reinforced plastic, or steel.
Test oil	Oil that is measured at a test separator, treater, or test tank. Test oil is usually measured as live oil. Test oil is an estimate of a well's production based on the test to test method.
Thief	An industry term for a bottom closure, core-type sampling device used to secure samples from storage tanks.
Treater	A fired apparatus specifically designed and used for separating gas and water from crude oil.
Truck terminal	A system or arrangement of tanks and other surface equipment that receives hydrocarbon liquids by truck for the purpose of delivering those liquids into a pipeline.

Verification	Procedures or operations that establish the accuracy of the values indicated by a measuring device as compared to the values indicated by a measuring standard without making any changes or adjustments to the measuring device.
Waste processing and disposal battery / Facility	A system or arrangement of tanks or other surface equipment receiving waste material for processing and disposition from any gas, oilfield, or oil sands operations.
Water to gas ration (WGR)	A ratio calculated by dividing the total water test volumes by the measured test gas volume. Referenced in m3/e3m3.
Well	Wells are an oil and gas activity as defined in the Energy Resource Activities Act and are specifically defined in the Petroleum and Natural Gas Act. A hole in the ground, other than a water source well, that is: a) Made or being made by drilling, boring, or any other method to obtain petroleum or natural gas, b) made or being made by drilling, boring or any other method to explore for, develop or use a storage reservoir for the storage or disposal of petroleum, natural gas, water produced in relation to the production of petroleum or natural gas, waste or any other prescribed substance, c) used, drilled or being drilled to inject natural gas, water produced in relation to the production of petroleum or natural gas or other substances into an underground formation in connection with the production of petroleum or natural gas, d) used to dispose of petroleum, natural gas, water produced in relation to the production of petroleum or natural gas, waste or any other prescribed substance into a storage reservoir, or e) used, drilled or being drilled to obtain geological or geophysical information respecting petroleum or natural gas, and includes a water source well.
Well event	A unique identifier code for an interval, zone, pool, or horizon in a well. A well may be completed in multiple intervals, zones, pools, or horizons, each of which is identified as a well event.

Terms Common to Pipeline Activities

Cathodic protection	A technique to prevent the corrosion of a metal surface by making the surface the cathode of an electrochemical cell.
Class location	A geographical area classified according to its approximate population density and other characteristics are considered when designing and operating a pipeline.
Design pressure	The maximum pressure to which the pipeline and its appurtenances were designed to, including all safety factors.
Engineering assessment	A documented assessment of the effect of relevant variables upon fitness for service or integrity of a pipeline system, using engineering principles, conducted by, or under the direct supervision of, a competent person with demonstrated understanding and experience in the application of the engineering and risk management principles related to the issue being assessed. Note: General requirements for engineering assessment are specified in CSA Z662.
High vapour pressure	Hydrocarbons or hydrocarbon mixtures in the liquid or quasi-liquid state with a vapour pressure greater than 110 kPa absolute at 38 °C, as determined using the Reid method (see ASTM D323).
Isolating valve	A valve for isolating laterals, stations, pressure-relieving installations, and other pipeline segments or facilities.
Low-pressure distribution system	A pipeline system operating at less than 700kPa for the distribution of sweet natural gas. These pipelines are currently regulated by the Technical Safety BC.
Low vapour pressure	Hydrocarbons or hydrocarbon mixtures in the liquid or quasi-liquid state with a vapour pressure of 110 kPa absolute or less at 38 °C, as determined using the Reid method (see ASTM D323).
Maximum operating pressure (MOP)	The maximum pressure at which piping pipeline is licensed to be operated.
Miscellaneous gases	Air, ammonia, carbon dioxide, ethane, helium, hydrogen, H_2S, nitrogen, and steam.
Miscellaneous liquids	Produced water and sulphur slurry.
Multiphase fluid	Oil, gas, and water in any combination produced from one or more oil wells, or recombined oil well fluids possibly separated in passing through surface facilities.

Oil well effluent	Produced oil or emulsion in which the effective hydrogen sulphide partial pressure is less than 0.3kPa at the bubble.
Product	The substance contained within the pipeline.

Terms Common to Roads

Road permit	Is a permit that includes permission to construct or maintain an energy resource road.
Road Permit Holder	Is a permit holder of a road permit and a person who is otherwise required to maintain an energy resource road or was required, immediately before the coming into force of this regulation, to maintain an energy resource road.
Road prism	In relation to a road, means an area consisting of the road surface and any cut slope, ditch and road fill.
Road right of way	In relation to an energy resource road, means: (a) the area that is shown or described in the permit as the road corridor within which the energy resource road may be constructed or modified, or (b) if the permit does not show or describe the area within which the energy resource road may be constructed or modified, the area 17.5 m of either side of the center line of the energy resource road.
Roadwork area	In relation to an energy resource road, means any of the following: (a) the road right of way; (b) an area that is adjacent to the road right of way and has been used for construction, operation or maintenance of the road under a permit or authorization held by the road permit holder.
Maintain	In relation to an energy resource road, means maintain in accordance with Part 4 of the ERRR.
Modification	In relation to an energy resource road, means the widening of the running surface of the road, the realigning of a portion of the road or the reconstructing of a portion of a road, and includes the installing or replacing of a bridge or

	major culvert associated with the road.
Major culvert	Is a culvert crossing a stream or wetland that (a) is one of the following: (i) A pipe having a diameter of 2000 mm or greater, (ii) A pipe arch having a span greater than 2130 mm, (iii) An open bottom arch having a span greater than 2130 mm, or (b) has a design discharge rate of 6 m3 per second or greater.
Temporary access	Is a trail, shoe-fly or a means of accessing a related activity that is required during the construction of that related ERAA or related CER activity. Temporary access cannot be constructed to the standards identified within Part 3 of ERRR, otherwise the applicant should be advised to apply for an road permit under ERAA or a CER road..

CER Related Road Right of Way

A 'Road' applied for as an CER Related Road Right of Way, must be related to an CER project as per s.9 of the ERAA under a specified enactment.

Acronyms

AAIF	Archaeology Assessment Information Form
AAP	Archaeology Audit Program
ABA	Area-based Analysis
ADR	Appropriate Dispute Resolution
AER	Alberta Energy Regulator
AEUB	Alberta Energy and Utilities Board
AIA	Archaeological Impact Assessment
ALC	Agricultural Land Commission
ALR	Agricultural Land Reserve
AMS	Application Management System

ANSI	American National Standards Institute
AOA	Archaeological Overview Assessment
AOF	All Open Flow Test or Absolute Open Flow
AOFP	Absolute Open Flow Potential
APEGBC	Association of Professional Engineers and Geoscientists of BC (now EGBC)
API	American Petroleum Institute
APR	Petroleum Access Roads
ARD	Average Replacement Depth
ASME	American Society of Mechanical Engineers
AWS	Acoustic Well Sounder
AWSBU	Acoustic Well Sounder Build-up
BBL	Barrel
BCAA	British Columbia Assessment Authority
BCER	BC Energy Regulator
BCGS	BC Geographic System
BEC	Biogeoclimatic Ecosystem Classification
BHL	Bottom Hole Location
BHT	Bottom Hole Temperature
BMP	Best Management Practices
BOP	Blowout Prevention
BTU	British Thermal Unit
C	Celsius (temperature)
C&E	Compliance and Enforcement
CAGC	Canadian Association of Geophysical Contractors
CAODC	Canadian Association of Oilwell Drilling Contractors
CAPP	Canadian Association of Petroleum Producers
CAS	Chemical Abstracts Service
CBG	Coal Bed Gas
CBM	Coal Bed Methane

CBS	Closed Bottom Structure
CDC	British Columbia Conservation Data Centre
CEA	Cumulative Effects Assessment
CEAA	Canadian Environmental Assessment Act
CER	Canada Energy Regulator
CERPPA	Canada Energy Regulator Pipeline Provincial Authorization
CIAS	Changes In and About a Stream
CNG	Compressed Natural Gas
CNR	Consultation and Notification Regulation
CO2	Carbon Dioxide
COR	Certificate of Restoration
CP	Cutting Permit
CPA	Consultation Process Agreements
CPSC	Canadian Petroleum Safety Council
CSA	Canadian Standards Association
CSR	Contaminated Sites Regulation
DDP	Damage Prevention Plan
DEOS	Dehydrator Engineering & Operations Sheet
DFO	Fisheries and Oceans Canada
DGA	Daily Gas Allowance
DLS	Dominion Land Survey
DPR	Drilling and Production Regulation
DOA	Daily Oil Allowable
DVI	District Value Index
DST	Drillstem Test
EAA	Environmental Assessment Act (Government of Canada statute)
EAO	Environmental Assessment Office
EAZ	Emergency Awareness Zone
EC	Environment Canada or Electrical Conductivity

ECD	Equivalent Circulating Density
EGBC	Engineers and Geoscientists BC
EMA	Environmental Management Act
EMLI	Ministry of Energy, Mines and Low Carbon Innovation
EPMR	Environmental Protection and Management Regulation
EMR	Emergency Management Regulation
EMS	Electromagnetic Survey
EPC	Engineering, Procurement and Construction
EPMG	Environmental Protection and Management Guideline
EPZ	Emergency Planning Zone
ERAA	Energy Resource Activities Act
ERRR	Energy Resource Road Regulation
ESD	Emergency Shutdown systems
ESDV	Emergency shutdown valve
FACID	Facility Identification Code
FEED	Front End Engineering Design
FLNG	Floating LNG
FLNRORD	Ministry of Forests, Lands and Natural Resource Operations and Rural Development
FN	First Nations
FOI	Freedom of Information
FOIPPA	Freedom of Information and Protection of Privacy Act
FPC	Forest Practices Code
FSR	Forest Service Road
FTD	Final Total Depth
GEP	Good Engineering Practice
GER	Geophysical Exploration Regulation ()
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GOR	Gas to Oil Ratio

ha	hectares (unit of area = 10,000 m2, or roughly 2.48 ac
H_2S	Hydrogen Sulphide
HCA	Heritage Conservation Act
HLSD	High-level Shutdown
HP	Hydrostatic Pressure
HWR	Hazardous Waste Regulation
IMP	Integrity Management Programs
IMS	Integrity Management System
INDB	Industry Bulletin
IOGC	Indian Oil and Gas Canada
IOP	Individual Ownership Plan
IRP	Industry Recommended Practice
IUP	Investigative Use Permit
km	kilometre (unit of lineal measure = 1,000 m, or roughly 0.6 miles)
kPa	kilopascals
kW	kilowatt
LiDAR	Light Detection and Ranging
LIS	Low Impact Seismic
LL	Liquid Level (in a reservoir)
LMR	Liability Management Rating
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LRMP	Land and Resource Management Plan
LSD	Legal Subdivision (one sixteenth of a section)
LTO	Leave to Open
m	metres
MD	Measured Depth
mm	millimetres
MIRR	Ministry of Indigenous Relations and Reconciliation

MAWP	Maximum Allowable Working Pressure (components, including valves and well heads)
MEM	Ministry of Energy and Mines
MEMPR	Ministry of Energy, Mines and Petroleum Resources
MJ	Megajoule
MJ/m^3	Megajoule per cubic metre
MKMA	Muskwa-Kechika Management Area
MLTC	Master Licence to Cut
MOA	Ministry of Agriculture
MOE	Ministry of Environment
MOF	Ministry of Finance
MOP	Maximum Operating Pressure
Mol%	Mole Per Cent
MOTI	Ministry of Transportation and Infrastructure
MOU	Memorandum of Understanding
MPD	Managed pressure drilling
MPP	Midpoint of Perforations
Mtpa	Millions of tonnes per annum
MW	Megawatt
MWD-Gr	Measurement While Drilling Gamma Ray
NCS	Notice of Construction Start
NCD	Non-Classified Drainages
NEBC	North East British Columbia
NFPA	National Fire Protection Association
NGLs	Natural Gas Liquids
NOI	Notice of Intent
NPT	Notice of Pressure Test
NTS	National Topographic Survey
OGMA	Old Grown (grown or growth?) Management Areas
OGWR	Oil and Gas Waste Regulation

OHSReg	Occupational Health and Safety Regulation
PA	Production Accounting
PDR	Petroleum Development Road
PFR	Preliminary Field Reconnaissance
P&ID	Piping and Instrumentation Diagram
PIPA	Personal Information Protection Act
PNGA	Petroleum and Natural Gas Act
P.Eng	Professional Engineer
PEP	Provincial Emergency Program
PFD	Process Flow Diagram
PFR	Preliminary Field reconnaissance
PG	Bottom Hole Pressure Gauge
PGBU	Bottom Hole Pressure Gauge Build-up
PGFU	Bottom Hole Pressure Gauge Fall-off
PIT	Packer Isolation Tests
PPM	Parts Per Million
PRRD	Peace River Regional District
PSI	Preliminary Site Investigation (Environmental Management Act- Contaminated Sites Regulation)
PST	Pressure Survey Test
PSV	Pressure Safety Valve
PTP	Pre-Tenure Plan
PVT	Pressure Volume Temperature
RMA	Resource Management Area (sometimes refers to a Riparian Management Area)
RMZ	Riparian Management Zone * (this is also stated as Resource Management Zone)
ROW	Right of Way
RPT	Rapid Phase Transition
RRA	Riparian Reserve Area
RRD	Required Replacement Depth
RUP	Road Use Permit

SMP	Sand Management Plan
SMZ	Special Management Zone
SO^2	Sulphur Dioxide
SRDO	Summary Report of Drilling Operations
SRR	Spill Reporting Regulation
SRW	Statutory Right of Way
SYD	Sierra-Yoyo-Desan
t/d	total per day
TCF	Trillion Standard Cubic Feet
TDS	Totally Dissolved Solids
TRD	Treatment, Recovery & Disposal
TSR	Timber Supply Review
TVD	True Vertical Depth (of a well)
UBD	Underbalanced Drilling
UDGA	Unadjusted Daily Gas Allowable
UDOA	Unadjusted Daily Oil Allowable
USMP	Upper Sikanni Management Plan (see under Pre-Tenure Plan)
UWI	Unique Well Identifier
UTM	Universal Transverse Mercator
UWR	Ungulate Winter Range
WA	Well Authorization
WSBC	Work Safe B.C. (formerly Workers' Compensation Board)
WHA	Wildlife Habitat Area
WTRAA	Wildlife Tree Retention Area
WHMIS	Workplace Hazardous Materials Information System
WHP	Wellhead Pressure
WMA	Wildlife Management Area
WTP	Wildlife Tree Patch
XREF	Cross Reference

Regulations and Legislation

All oil and gas and related activities require permits applied for and approved by the Regulator. Some activities may require additional applications, approvals from other regulators or create obligations under other statutes and it is the applicants' and permit holder's responsibility to know and uphold all legal obligations.

BC Laws provides free public access to the current laws of British Columbia mentioned in manuals, documents, directives and other pieces produced by the Regulator. Applicants and permit holders can access any of the listed Acts and Regulations listed below from the Regulator website and/or www.bclaws.ca. This list includes commonly used acronyms for each.

Acts

- Agricultural Land Regulator Act (ALCA)
- Canada Energy Regulator Act (CERA)
- Energy Resource Activities Act (ERAA)
- Environmental Management Act (EMA)
- Forest Act
- Heritage Conservation Act (HCA)
- Land Act
- Petroleum and Natural Gas Act (PNGA)
- Water Sustainability Act (WSA)

Regulations

- Administrative Penalties Regulation
- Drilling and Production Regulation (DPR)
- Emergency Management Regulation (EMR)
- Energy Resource Activities General Regulation
- Energy Resource Road Regulation (ERRR)
- Environmental Protection and Management Regulation (EPMR)
- Fee, Levy and Security Regulation
- Geophysical Exploration Regulation (GER)

Hazardous Waste Regulation (HWR)

Liquefied Natural Gas Facility Regulation (LNGFR)

Oil and Gas Waste Regulation (OGWR)

Pipeline Crossings Regulation

Pipeline Regulation

Requirements for Consultation and Notification Regulation (RCNR)

Service Regulation