



Oil and Gas Activities Act

DRILLING AND PRODUCTION
REGULATION

B.C. Reg. 282/2010

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Consolidated Regulations of British Columbia

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This consolidation includes any amendments deposited and in force as of the currency date at the bottom of each page. See the end of this regulation for any amendments deposited but not in force as of the currency date. Any amendments deposited after the currency date are listed in the B.C. Regulations Bulletins. All amendments to this regulation are listed in the *Index of B.C. Regulations*. Regulations Bulletins and the Index are available online at www.bclaws.ca.

See the User Guide for more information about the *Consolidated Regulations of British Columbia*. The User Guide and the *Consolidated Regulations of British Columbia* are available online at www.bclaws.ca.

Prepared by:
Office of Legislative Counsel
Ministry of Attorney General
Victoria, B.C.

Oil and Gas Activities Act

DRILLING AND PRODUCTION REGULATION

B.C. Reg. 282/2010

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PART 1 – DEFINITIONS

Definitions

1 In this regulation:

“**abandon**”, in relation to a well, means permanently to plug the well in accordance with Part 5;

“**accepted safety training organization**” means either of the following:

- (a) the non-profit organization of Canadian petroleum industry trade associations known as Energy Safety Canada that provides certification, training and health and safety services to the oil and gas industry;
- (b) an organization equivalent to that referred to in paragraph (a) that provides certification, training and health and safety services to the oil and gas industry that are satisfactory to an official;

“**Act**” means the *Oil and Gas Activities Act*;

“**annual gas allowable**” means, for any production period, the volume of natural gas determined by multiplying the daily gas allowable by either

- (a) the number of days from November 1 to October 31 inclusive, or
- (b) in the initial production year, the number of days from the date production began to October 31 inclusive;

“**ASME**” means the American Society of Mechanical Engineers;

“**ASME Standard B31.3**” means ASME Standard B31.3, Process Piping, as amended from time to time;

“**barrier**” means any fluid, plug or seal that prevents gas or oil or any other fluid from flowing unintentionally from a well or from a formation into another formation;

“**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;

“**completed**”, in relation to a well or zone, means a well or zone that is physically able to permit

- (a) the production of fluids from the well or zone,
- (b) the observation of the performance of a reservoir, or
- (c) the injection or disposal of fluids into a zone;

“**concurrent production**” means the controlled, simultaneous production from a pool of petroleum and natural gas at a gas-oil ratio that exceeds the solution gas-oil ratio;

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Part 1 – Definitions

- “**core lab**” means the facility for the storage and examination of well samples and cores;
- “**CSA**” means the Canadian Standards Association;
- “**CSA Standard Z341**” means CSA Standard Z341, Storage of hydrocarbons in underground formations, as amended from time to time;
- “**CSA Standard Z662**” means CSA Standard Z662, Oil and gas pipeline systems, as amended from time to time;
- “**CSA Standard Z741**” means CSA Standard Z741, Geological storage of carbon dioxide, as amended from time to time;
- “**daily gas allowable**” or “**DGA**” means the volume of natural gas determined by multiplying the unadjusted daily gas allowable by any applicable adjustment factors in accordance with section 7 (7) or as otherwise specified in writing in a permit or a designation;
- “**daily oil allowable**” or “**DOA**” means the volume of petroleum determined in accordance with section 54;
- “**daily production limit**” means a volume equal to 125% of the daily oil allowable or daily gas allowable;
- “**deep groundwater**” has the same meaning as in section 51 of the Water Sustainability Regulation;
- “**emergency planning zone**” has the same meaning as in section 1 of the Emergency Management Regulation;
- “**facility**” does not include the following:
- (a) a processing facility within the meaning of the Oil and Gas Processing Facility Regulation;
 - (b) an LNG facility within the meaning of the Liquefied Natural Gas Facility Regulation;
- “**facility permit**” means a permit that includes permission to construct or operate a facility;
- “**facility permit holder**” means a permit holder of a facility permit;
- “**flare stack**” means a vertical pipe in which natural gas or gas derived from petroleum is combusted at the tip;
- “**flaring**” means the disposal by combustion of natural gas or gas derived from petroleum;
- “**groundwater**” has the same meaning as in the *Water Sustainability Act*;
- “**incinerator**” means a device designed to dispose of natural gas or gas derived from petroleum by combusting the gas inside a chamber of the device;
- “**initial oil production**” means the first production after the release of the drilling rig and after the recovery of a volume of petroleum equal to the volume of the completion petroleum;

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Part 1 – Definitions

- “**integrity management program**”, in relation to a facility, means a documented program that specifies the practices used to ensure the safe, environmentally responsible and reliable operation of the facility;
- “**monthly oil allowable**” means, for any month, the volume of petroleum determined by multiplying the daily oil allowable by the number of days in the month;
- “**natural boundary**” has the same meaning as in section 1 of the *Land Act*;
- “**natural gas by-products**” means natural gas liquids, sulphur and substances other than marketable natural gas that are recovered from raw natural gas by processing or normal 2-phase field separation;
- “**observation well**” means a well or a portion of a well designated as an observation well under section 2 (7);
- “**oil and gas road**” has the same meaning as in the Oil and Gas Road Regulation;
- “**overproduction of oil**” means, at the end of the test period, the amount by which petroleum production during the test period exceeds the test period allowable, and on any succeeding day means the amount by which the actual production from the beginning of the production period exceeds the production target;
- “**producing well**” means a completed well that has been placed on regular production;
- “**production period**” means a period beginning on the day following the test period to the following October 31 and thereafter means a 12 month period ending on October 31 each year;
- “**production target**” means, at the end of any day, the sum of the daily oil allowables for each day from the beginning of the production period plus any underproduction or less any overproduction carried forward from the test period or a preceding production period;
- “**proration battery**” means a battery that gathers from more than one well and where the petroleum volume, water volume and natural gas volume produced from the wells are measured at the battery outlet and are then allocated to each well based on test results;
- “**qualified professional**” means a person who is licensed or registered as either a professional engineer or a professional geoscientist under the *Engineers and Geoscientists Act*;
- “**safety equipment**” means equipment that is required for the safe operation and shutdown of a producing well or facility;
- “**test period**” means, commencing with the day of initial oil production, the lesser of either 90 producing days or the time required to produce the test period allowable;
- “**turnaround**”, in relation to a facility, means a planned shutdown to allow for maintenance, cleaning, inspection, repairs or an overhaul;

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Part 2 – Well Permits and Exemptions

“unadjusted daily gas allowable” or “UDGA” means the greater of

- (a) 60 000 m³, and
 - (b) the volume of gas determined from reservoir parameters and approved by an official,
- except in the case of concurrent producers, in which case paragraph (b) applies;

“unadjusted daily oil allowable” or “UDO A” means the volume of oil determined in accordance with section 54 (2);

“underproduction of oil” means, at the end of the test period, the amount by which petroleum production during the test period is less than the test period allowable and, at the end of any succeeding day, means the amount by which the actual production from the beginning of the production period is less than the production target;

“usable groundwater” means groundwater that is not deep groundwater;

“water body” means a natural water course or source of water supply, whether usually containing water or not, but does not include muskeg;

“water production” means the flowing of water from a water source well;

“water supply well” has the same meaning as in the Ground Water Protection Regulation, B.C. Reg. 299/2004;

“well control” means control of the movement of fluids into or from a well;

“well operation” means the operation of drilling, completing, recompleting, intervening, re-entering, carrying out a workover, suspending or abandoning a well;

“well permit” means a permit that includes permission to drill or operate a well;

“wellhead”

- (a) includes the flow control valves and all equipment installed on a well above the uppermost portion of the surface casing, and
- (b) does not include associated flow lines;

“workover” means

- (a) any operation that changes the configuration or producing characteristics of a well or zone,
- (b) the installation or removal of equipment from a wellbore, and
- (c) stimulation operations.
- (d) Repealed. [B.C. Reg. 146/2017, App. 1, s. 1 (b).]

[am. B.C. Regs. 241/2012, s. 1; 204/2013, s. 3 (a); 147/2014, s. (a); 159/2015, s. 1; 146/2017, App. 1, s. 1; 103/2019, s. 1; 286/2018, s. 1; 48/2021, App. 2, s. 1.]

PART 2 – WELL PERMITS AND EXEMPTIONS**Well classifications**

- 2** (1) A well is classified as a development well if, at the time the well permit is issued,

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- (a) it is to be located in a spacing area that is in or contiguous to an oil or gas pool designated under section 49.1 of the Act, and
 - (b) if an objective formation is not in a deeper geological formation than the designated oil or gas pool.
- (2) A well is classified as an exploratory outpost well if, at the time the well permit is issued,
- (a) it is to be located less than 7 km from an oil or gas pool designated under section 49.1 of the Act, and
 - (b) it is not a development well.
- (3) A well is classified as an exploratory wildcat well if,
- (a) at the time the well permit is issued, it is to be located not nearer than 7 km to an oil or gas pool designated under section 49.1 of the Act, or
 - (b) the well has been designated as a discovery well.
- (4) If a well permit is amended to give permission to deepen a well, the new portion of the well is classified in accordance with subsections (1) to (3).
- (5) An official may designate a well or a portion of a well as a discovery well if a new oil or gas pool has been designated as a result of data obtained from the well.
- (6) An official may designate a well or a portion of a well as a special data well if the well permit holder submits to the commission
- (a) a report respecting monitoring of hydraulic fracturing operations in the well, or
 - (b) both of the following:
 - (i) at least 9 metres of full diameter core from the well or 20 rotary sidewall cores from the well;
 - (ii) at least 3 specialty petro-physical logs, run over an interval of not less than 200 metres, that correspond to the interval from which the cores referred to in subparagraph (i) are collected.
- (7) An official may designate a well as an observation well if
- (a) the well is being used to monitor reservoir pressures or to obtain other formation information, and
 - (b) the well is not used to produce from, or inject or dispose of fluids into, a formation being monitored.

[am. B.C. Reg. 241/2012, s. 2.]

Display of well permit

- 3** A well permit holder must keep a copy of the well permit at the well site during drilling operations.

Exemptions for particular sites and installations from specified provisions

- 4** (1) An official may grant to a permit holder an exemption in writing from the application of any or all of the following:
- (a) section 5 (2) (a);
 - (b) section 6 (4);
 - (c) section 7 (3);
 - (c.1) section 15 (3);
 - (d) section 16 (1) (b), (2) and (3);
 - (e) section 18;
 - (f) section 25 (5);
 - (g) section 26 (1) (a) and (d);
 - (h) section 29;
 - (i) section 31;
 - (j) section 33 (1), (2) and (4);
 - (k) section 34 (1), (2.1), (6.1) and (7);
 - (l) section 39;
 - (m) section 41 (4) and (6);
 - (m.1) section 41.1 (2), (3), (5) and (6);
 - (n) section 45 (3) (b);
 - (n.1) section 47 (c);
 - (n.2) section 48;
 - (o) section 51 (3) and (6);
 - (p) section 54 (2) and (6);
 - (q) section 55;
 - (r) section 58 (1);
 - (s) section 59 (2);
 - (t) section 60 (2);
 - (u) section 62 (1);
 - (v) section 63 (1);
 - (w) section 65 (4) and (5);
 - (x) section 67 (1);
 - (y) section 71 (1);
 - (z) section 73 (1) and (2);
 - (z.01) section 78 (2), (3), (4) and (6);
 - (z.1) section 79 (1) (b).

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Part 3 – Well Position, Spacing and Target Areas

- (2) In granting an exemption under subsection (1), an official may impose any conditions on the exemption the official considers necessary.

[am. B.C. Regs. 94/2011; 241/2012, s. 3; 159/2015, s. 2; 146/2017, App. 1, s. 2; 103/2019, s. 2; 286/2018, s. 2.]

PART 3 – WELL POSITION, SPACING AND TARGET AREAS**Position of wells**

- 5** (1) If a well or facility is
- (a) closer than 100 m to the natural boundary of a water body, or
 - (b) 100 m or more from the natural boundary of a water body, but situated so that, given the topography or other relevant factors, it is likely that an uncontrolled flow of oil, gas, brine or another fluid may reach the water body,
- the permit holder must ensure surface-control features are in place, or surface-control measures have been taken, to contain escaping fluids.
- (2) A permit holder must not drill a well within
- (a) 40 m of the right of way or easement of any road allowance or public utility,
 - (b) 100 m of a permanent building, installation or works,
 - (c) 100 m of a place of public concourse, or
 - (d) 100 m of a reservation for national defence.

Spacing and target areas for oil wells

- 6** (1) In each pool, the target area for an oil well in a normal spacing area at any depth is the area inside, but not nearer than 100 m to the sides of, the spacing area.
- (2) If the boundary of a location does not coincide with the side of a normal oil well spacing area, the oil well target area must have sides not nearer than 100 m to the boundary.
- (3) A permit holder may complete one oil well in each normal spacing area on a location that contains more than one normal spacing area if each well is located not nearer than 100 m to the boundary of the location.
- (3.1) Subsections (2) and (3) do not apply to the completed portion of a well producing from an unconventional zone listed in Schedule 2.
- (4) For the purposes of section 54, the off-target penalty factor for an oil well completed outside the oil well target area is:

$$F_{\text{OTP}} = 12 \times \frac{d_1 d_2}{A}$$

where

F_{OTP} = off-target penalty factor;

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Part 3 – Well Position, Spacing and Target Areas

- d_1 = the distance north or south, whichever is closer, from the closest point of the well bore within the productive zone to the side of the spacing area;
- d_2 = the distance east or west, whichever is closer, from the closest point of the well bore within the productive zone to the side of the spacing area;
- A = the area of the spacing area.
- (5) Subsection (4) does not apply to any of the following:
- (a) the discovery well of an oil pool;
 - (b) a well drilled and completed before May 2, 1958;
 - (b.1) the completed portion of a well producing from an unconventional zone listed in Schedule 2;
 - (c) an off-target oil well located not nearer than 100 m to the boundary of the location.
- (6) A well permit holder may not produce from a well in an unconventional zone listed in Schedule 2 if a completed portion of the wellbore is located closer than the distance listed in Schedule 2 for that zone to land with respect to which the well permit holder
- (a) is not the owner of the petroleum and natural gas rights or the holder of the location, or
 - (b) does not have an agreement with the owner or holder respecting the production.

[am. B.C. Regs. 146/2017, App. 1, s. 3; 103/2019, s. 3.]

Spacing and target areas for gas wells

- 7 (1) In each pool, the target area for a gas well in a normal spacing area at any depth is the area inside, but not nearer than 250 m to the sides of, the spacing area.
- (2) A permit holder may complete one gas well in each normal spacing area on a location that contains more than one normal spacing area if each well is located not nearer than 250 m to the boundary of the location.
- (3) For the purposes of section 65, the off-target penalty factor for a gas well completed outside the gas well target area is:

$$F_{\text{OTP}} = 8 \times \frac{d_1 d_2}{A}$$

where

F_{OTP} = off-target penalty factor;

d_1 = the distance north or south, whichever is closer, from the closest point of the well bore within the productive zone to the side of the spacing area;

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Part 4 – Well Operations

d_2 = the distance east or west, whichever is closer, from the closest point of the well bore within the productive zone to the side of the spacing area;

A = the area of the spacing area.

- (4) Subsection (3) does not apply to any of the following:
- (a) the discovery well of a gas pool;
 - (b) a well drilled and completed before May 2, 1958;
 - (c) an off-target gas well located not nearer than 250 m to the boundary of the location.
- (5) Subsections (1) to (3) do not apply to the completed portion of a well producing from an unconventional zone listed in Schedule 2.
- (6) A well permit holder may not produce from a well in an unconventional zone listed in Schedule 2 if a completed portion of the wellbore is located closer than the distance listed in Schedule 2 for that zone to land with respect to which the well permit holder
- (a) is not the owner of the petroleum and natural gas rights or the holder of the location, or
 - (b) does not have an agreement with the owner or holder respecting the production.
- (7) For the purposes of the definition of “daily gas allowable” in section 1, daily gas allowable is:

$$DGA = UDGA \times F_{OTP}$$

where

DGA = daily gas allowable;

UDGA = unadjusted daily gas allowable;

F_{OTP} = off-target penalty factor.

[am. B.C. Regs. 241/2012, s. 4; 159/2015, s. 3.]

PART 4 – WELL OPERATIONS**Division 1 – Notification****Notification of well construction and drilling operations**

- 8** (1) A well permit holder must notify the commission, in electronic form, of the following actions taken by the permit holder:
- (a) beginning the construction of a well;
 - (b) beginning the drilling of a well;

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- (c) releasing a rig, if drilling is completed or temporarily suspended;
 - (d) resuming drilling operations after a temporary suspension.
- (2) The notice under subsection (1) (a) must be sent at least 2 days before construction is to begin, and a notice under subsection (1) (b), (c) or (d) must be sent within 24 hours of the action being taken.

Division 2 – Blowout Prevention**Well control equipment**

- 9** (1) A well permit holder must ensure that, during all well operations, reliably operating well control equipment is installed to control kicks, prevent blow-outs and safely carry out all well operations.
- (2) If a well barrier fails, the well permit holder must ensure that no other activities, other than those intended to restore or replace the barrier, take place in the well.

Testing of well control equipment

- 10** (0.1) This section does not apply with respect to a well drilled to access usable groundwater.
- (1) A well permit holder must ensure that
- (a) pressure-control equipment associated with well operations is pressure-tested on installation and as often as necessary during well operations to ensure the continued safe operation of the equipment, and
 - (b) the rig crew conducting the well operation has an adequate understanding of, and is able to operate, the blowout prevention equipment.
- (2) At the request of an official, a well permit holder's contractor or rig crew, when it is safe to do so, must test the operation and effectiveness of the blowout prevention equipment installed on the permit holder's well in accordance with the Well Control Procedure placard issued by the Canadian Association of Oilwell Drilling Contractors or well control procedures approved by an accepted safety training organization.
- (3) A well permit holder must maintain, for 60 days from the date of rig release, a record of the results of tests required under subsection (1) (a).

[am. B.C. Regs. 146/2017, App. 1, s. 4; 103/2019, s. 4.]

Drilling fluid system

- 11** A well permit holder must ensure that
- (a) the drilling fluid system and associated monitoring equipment is designed, installed, operated and maintained to allow for proper well evaluation, to ensure safe drilling operations and, except when drilling underbalanced, to provide an effective barrier against formation pressure, and

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- (b) the indicators and alarms associated with the monitoring equipment are located at appropriate locations on the drilling rig to alert onsite personnel of well conditions that could lead to a loss of well control.

Well control

- 12**
- (1) A well permit holder must take all reasonable measures to minimize the risk of loss of well control.
 - (2) If well control is lost or compromised, the well permit holder must ensure that all actions necessary to rectify the situation are taken without delay.

Personnel

- 13**
- (1) A well permit holder must ensure that
 - (a) there is a sufficient number of trained and competent individuals carrying out well operations for those operations to be carried out safely and without causing pollution, and
 - (b) any operational procedure that is a hazard to safety or the environment is corrected and all affected persons are informed of the alteration.
 - (2) A driller of a well being drilled or tested during drilling operations, other than a well that is drilled to access usable groundwater, must
 - (a) be trained in blowout prevention,
 - (b) have a valid first line supervisor's blowout certificate or a valid second-line supervisor's well control certificate issued by an accepted safety training organization, and
 - (c) provide evidence of his or her qualifications to an official on the official's request.
 - (3) A rig manager and the permit holder's representative at the well site where a well, other than a well that is used to access usable groundwater, is being drilled or tested during drilling operations must
 - (a) be trained in blowout prevention,
 - (b) have a valid second-line supervisor's certificate issued by an accepted safety training organization, and
 - (c) provide evidence of his or her qualifications to an official on the official's request.
 - (4) The following people must possess, during servicing operations on a well other than a well that is drilled to access usable groundwater, a valid well service blowout prevention certificate issued by an accepted safety training organization and provide evidence of their qualifications to an official on the official's request:
 - (a) the driller on tour;
 - (b) the rig manager;

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(c) the well permit holder's representative.

[am. B.C. Regs. 146/2017, App. 1, s. 5; 103/2019, s. 5.]

Records

- 14** (1) For each well operation, a well permit holder must maintain a record of the well control equipment and an assessment of the adequacy of the well control equipment for 6 months following the completion of the well operation.
- (2) A well permit holder must maintain records of the policies and procedures used to ensure the safe conduct of well operations.

Division 3 – General Well Equipment**Protection from hazards**

- 15** (1) Until the well is abandoned, a well permit holder must ensure that a permanently legible and conspicuous sign is displayed and maintained at each well, and that sign must show all of the following:
- (a) the name of the well permit holder;
 - (b) current emergency notification information, including a telephone number;
 - (c) the location of the surface site of the well as specified in the well permit;
 - (d) if the well may produce flammable gas, a flammable gas symbol from Schedule 1;
 - (e) if the well may produce gas containing 100 ppm or greater of hydrogen sulphide, a poisonous gas symbol from Schedule 1;
 - (f) after March 1, 2011, if the well may produce gas containing 10 ppm or greater of hydrogen sulphide, a poisonous gas symbol from Schedule 1.
- (2) A well permit holder must not post warning symbols where no hazard exists.
- (3) A well permit holder must ensure both of the following:
- (a) that the well site is maintained in a condition so as to minimize hazards, including but not limited to hazards associated with pits, holes, storage of materials and equipment;
 - (b) that the well site is free of garbage, debris and derelict equipment.

[am. B.C. Regs. 241/2012, s. 5; 146/2017, App. 1, s. 6; 103/2019, s. 6.]

Tools, casing, equipment and materials

- 16** (1) A well permit holder must ensure
- (a) that all tools and equipment used in well operations, production, injection or disposal are installed and operated in accordance with the manufacturer's specifications or sound engineering practices,
 - (b) that all production from or injection into a well is through tubing, except during a well operation, the production of fluids containing less than 5 mole percent of hydrogen sulphide or the injection of fresh water, and

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- (c) that any packer set in a well is set as near as is practical above the completed interval.
- (2) Except during a well operation, before injecting a fluid other than fresh water or gas containing less than 5 mole percent of hydrogen sulphide into an injection or disposal well, a well permit holder must
 - (a) set a production packer in the well as near as is practical above the injection interval, and
 - (b) ensure that the space between tubing and the outer steel casing is filled with a corrosion and frost inhibiting fluid.
- (3) If a production packer is set in accordance with subsection (2), a well permit holder must
 - (a) conduct an annual segregation test of any of the holder's wells with a production packer, and, if the test fails, complete repairs without unreasonable delay, and
 - (b) submit a report of the annual segregation test and any repairs completed under paragraph (a) to the commission within 30 days of completing the test.

[am. B.C. Regs. 159/2015, s. 4; 146/2017, App. 1, s. 7; 103/2019, s. 7.]

Wellhead requirements

- 17** A well permit holder must ensure that the wellhead is designed and maintained to operate safely under the conditions anticipated during the life of the well and that the wellhead is not subjected to excessive force.

[am. B.C. Regs. 146/2017, App. 1, s. 8; 103/2019, s. 8.]

Casing requirements

- 18** (1) A well permit holder must ensure that casing is designed so that it will not fail if subjected to the maximum loads and service conditions that can reasonably be anticipated during the expected service life of the well.
- (2) A well permit holder must use non-toxic drilling fluids during the drilling of a well until, in the opinion of a qualified professional, all usable groundwater has been isolated from the drilling fluid.
- (3) A well permit holder must ensure that surface casing for a well conforms to the following requirements:
- (a) surface casing must be set in a competent formation at a depth sufficient to provide a competent anchor for blowout prevention equipment and to ensure control of anticipated well pressures;
 - (b) the annulus must be filled with cement to the surface.
- (4) A well permit holder, with respect to a well drilled after this regulation came into force, must ensure that the next casing string is cemented full length if surface casing for the well is not set below usable groundwater.

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- (5) A well permit holder must ensure that surface casing cement is not drilled out until sufficient compressive strength has been reached to allow the safe conduct of drilling operations.
- (6) A well permit holder must ensure that
 - (a) all reasonable measures are taken to cement all intermediate and production casing to the surface or a minimum of 200 m above the shoe of the previous casing string, and
 - (b) the cement is not drilled out until sufficient compressive strength has been reached to allow the safe conduct of drilling operations.
- (7) If there is any reason to doubt the effectiveness of casing cementation, a well permit holder must evaluate the cement integrity and ensure that remedial measures are taken if necessary.
- (8) On detection of a casing leak or failure, a well permit holder must
 - (a) notify the commission about the leak or failure without delay, and
 - (b) repair the leak without unreasonable delay.
- (9) A well permit holder must ensure that a well is configured such that
 - (a) the surface casing annulus can freely vent,
 - (b) excessive pressure cannot occur at the surface casing shoe, and
 - (c) the surface casing is equipped with an open valve.

[am. B.C. Reg. 146/2017, App. 1, s. 9.]

Surface and subsurface equipment

- 19**
- (1) The well permit holder of a completed oil or gas well must ensure that the surface and subsurface equipment of the well is arranged to permit the ready measurement of the tubing pressure, production casing pressure and surface casing pressure.
 - (2) The well permit holder of a completed well must ensure that the surface equipment at the well site includes
 - (a) the valve connections necessary to sample the oil, gas or water produced, and
 - (b) in the case of a gas well, facilities for determining the wellhead fluid temperature.
 - (2.1) The well permit holder of a cased well must ensure that the well is equipped with a wellhead, or a capping assembly, that permits access to the wellbore for pressure measurement.
 - (3) The well permit holder of a well must keep a detailed record of all subsurface equipment in the well at all times prior to abandonment.

[am. B.C. Reg. 103/2019, s. 9.]

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Division 4 – Procedures**Management of substances**

- 20** Before a well permit holder drills, completes, plugs or begins production from a well, the well permit holder must ensure that adequate provision is made for the management of any oil, gas, formation water, drilling fluid, completion fluid, chemical substances, and waste.

Fracturing operations

- 21** A well permit holder must not conduct a fracturing operation at a depth less than 600 m below ground level unless the operations are permitted by the well permit.

Induced seismicity

- 21.1** (1) During fracturing, injection or disposal operations on a well, the well permit holder must immediately report to the commission any seismic event within a 3 km radius of the drilling pad that is recorded by the well permit holder or reported to the well permit holder by any source available, if
- (a) the seismic event has a magnitude of 4.0 or greater, or
 - (b) a ground motion is felt on the surface by any individual within the 3 km radius.
- (2) If a well is identified by the well permit holder or the commission as being responsible for a seismic event that has a magnitude of 4.0 or greater, the well permit holder must suspend fracturing, injection and disposal operations on the well immediately.
- (3) Fracturing, injection and disposal operations suspended under subsection (2) may continue once the well permit holder has implemented operational changes satisfactory to the commission to reduce or eliminate the initiation of additional induced seismic events.

[en. B.C. Reg. 159/2015, s. 5; am. B.C. Regs. 165/2015; 146/2017, App. 1, s. 10.]

Hydraulic isolation

- 22** A well permit holder must establish and maintain hydraulic isolation between all porous zones in a well, except during production from or disposal into zones in which commingled production or disposal is permitted or authorized as described in section 23.

[am. B.C. Reg. 103/2019, s. 10.]

Multi-zone or commingled wells

- 23** (1) A well permit holder must not commingle production or disposal from a well unless commingling is permitted under the well permit or authorized under section 75 of the Act.
- (2) A well permit holder respecting a multi-zone well who has permission or authorization for commingled production must, within 30 days of beginning

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production from a commingled well, submit to the commission a notification of the commingled well production.

- (3) A well permit holder respecting a multi-zone well, who does not have permission for commingled production for more than one pool or zone, must
- (a) once every calendar year and immediately after a change of subsurface equipment or the completion of any operation that may have disturbed or exerted an abnormal differential pressure on equipment, conduct segregation tests,
 - (b) if the tests referred to in paragraph (a) fail, complete repairs without unreasonable delay, and
 - (c) maintain records of the tests and repairs referred to in paragraphs (a) and (b).

[am. B.C. Reg. 103/2019, s. 11.]

Alterations of wells

- 24** A well permit holder must submit a notice of operations to the commission at least one business day before beginning work to do any of the following:

- (a) complete or recomplete a well;
- (b) perform a workover on a well;
- (c) perform remedial work on a well;
- (d) install, remove or repair wellbore equipment, including plugs, packers, tubing, casing, artificial lift or subsurface safety valves;
- (e) plug a portion of a well;
- (f) perform maintenance operations on a wellbore.

[am. B.C. Reg. 146/2017, App. 1, s. 11.]

Inactive or suspended wells

- 25** (1) In this section:

“**active**” means

- (a) production, injection or disposal of fluids,
- (b) drilling or completion operations, and
- (c) with respect to a well designated under section 2 (7), monitoring reservoir pressure or obtaining other formation information;

“**inactive**”, in relation to a well, means a well that has not been abandoned but

- (a) has not been active for 12 consecutive months, or
- (b) if the well is classified as a special sour well, has not been active for 6 consecutive months.

- (2) The well permit holder of an inactive well must submit a report to the commission within 30 days of the suspension of a well.

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- (3) The well permit holder of a suspended well must establish a program of inspections sufficient to ensure the ongoing integrity of the well.
- (4) The well permit holder of a suspended well must maintain records of the inspections referred to in subsection (3).
- (5) The well permit holder of an inactive well, within 60 days of the well becoming inactive, must do both of the following:
 - (a) suspend the well in a manner that ensures the ongoing integrity of the well;
 - (b) ensure positive isolation between the well and the flowline by disconnecting the well from the flowline or by other means.

[am. B.C. Regs. 241/2012, s. 6; 146/2017, App. 1, s. 12; 103/2019, s. 12.]

PART 5 – ABANDONING, PLUGGING AND RESTORING WELLS**Plugging requirements for wells**

- 26** (0.1) The following persons must comply with the requirements set out in subsection (1):
- (a) for the purposes of section 40 (e) of the Act, a permit holder, former permit holder, authorization holder or former authorization holder with respect to a well permit under which a well has been drilled;
 - (b) for the purposes of plugging a well, a well permit holder.
- (1) The requirements for the purposes of subsection (0.1) are as follows:
- (a) for cased wells, a notice of operations and a plugging program must be submitted to the commission at least 7 days before commencement of operations;
 - (b) the permit holder must plug the well in a manner that ensures
 - (i) adequate hydraulic isolation is established between porous zones,
 - (ii) fluids will not leak from the well,
 - (iii) excessive pressure will not build up within any portion of the well, and
 - (iv) the long-term integrity of the wellbore is maintained;
 - (c) an abandonment report, in chronological format, detailing all significant operations, treatments, tests and resulting well behaviour, and including a downhole schematic diagram, must be submitted to the commission within 30 days of the completion of abandonment operations;
 - (d) Repealed. [B.C. Reg. 48/2021, App. 2, s. 2.]
- (2) For wells drilled to access usable groundwater, an official may exempt, on conditions the official considers advisable, the permit holder from a requirement under subsection (1).

[am. B.C. Regs. 241/2012, s. 7; 159/2015, s. 6; 146/2017, App. 1, s. 13; 103/2019, s. 13; 48/2021, App. 2, s. 2.]

27 Repealed. [B.C. Reg. 103/2019, s. 14.]

Surface restoration of wells and associated sites

28 Immediately after ceasing drilling or workover operations, or as soon after cessation as weather and ground conditions permit, a well permit holder must restore the ground surface of those areas of the well site and associated remote sumps and camp sites that will not be required for future operations to a state that eliminates hazards, enables control of weeds and runoff and prevents erosion.

PART 6 – WELL AND OTHER DATA

Well samples and cores

- 29 (1) A well permit holder must
- (a) unless paragraph (a.1) applies, take a series of drill cuttings samples at depth intervals of 5 m beginning at a point determined by the permit holder to be 50 m measured depth above the shallowest potential reservoir zone expected in the well and continuing to the total depth of the well,
 - (a.1) for horizontal wells drilled from a common drilling pad location and to be completed in a zone listed in Schedule 2, take drilling cutting samples as follows:
 - (i) for a minimum of one horizontal well on the pad location, at 5 m intervals beginning at a point determined by the permit holder to be 50 m measured depth above the shallowest potential reservoir zone expected in the well and continuing to the point at which the drilling of the horizontal portion of the well is begun;
 - (ii) for a minimum of one well on the pad location in each dominant direction of the horizontal portion of the well for each zone listed in Schedule 2, at 10 m intervals beginning at the point at which the drilling of the horizontal portion of the well is begun and continuing to the total depth of the well,
 - (b) collect, wash, dry, sort and preserve 2 complete sets of drill cuttings samples in vials, arranged in trays of adequate construction,
 - (c) clearly and accurately label the vials and trays with the name and location of the well and the sample depths represented and, if the well is a multi-leg well, identify the leg from which the cuttings originated, and
 - (d) deliver 2 sets of the drill cuttings samples, carriage prepaid, to the commission not later than 14 days after the date of rig release.
- (2) A well permit holder must
- (a) as soon as practicable after collecting a core sample, remove the core sample from the core barrel and store it in book fashion in one or more core boxes,

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- (b) accurately label on the end of the box body, but not the box lid, the well permit number, the well name, the surface location of the well, the core number and interval and the length of the core recovered, and identify the top and bottom of the core on the core box,
 - (c) protect boxes containing the cores from theft, misplacement or exposure to the weather, and
 - (d) forward the core to the commission, carriage prepaid, not later than 14 days after the date of rig release.
- (3) A well permit holder must ensure that core boxes are of adequate construction, the sides of the boxes project above the level of the contained cores, lids are securely fixed to ensure safe transit and the boxes have an inside length of 80 cm.
- (4) When submitting a core that has been slabbed, a well permit holder must ensure that the 1/3 slab is either placed in the core box with the corresponding 2/3 slab, or, with the approval of an official, preserved as a viewing slab and submitted in cardboard boxes of adequate construction.

[am. B.C. Regs. 241/2012, s. 8; 146/2017, App. 1, s. 14.]

Submission of core analysis data

- 30** (1) If a well permit holder has submitted core from a well under section 2 (6) and the well has been designated as a special data well, the well permit holder must complete core analysis of the core without unreasonable delay.
- (2) Within 30 days after completion of a core analysis, a well permit holder must submit to the commission a report of the result of the core analysis, including digital core analysis data and photographs, if any.

[am. B.C. Reg. 241/2012, s. 9.]

Examination of cores

- 31** (1) A person must ensure that core declared by an official as being representative of a type section is not broken or chipped.
- (2) A person must ensure that breakage of core during examination at the core lab is minimized and that core is not destroyed, broken or sampled without approval of an official.
- (3) With the approval of an official and subject to subsection (4), a person, on payment of the fees set out in section 19 of the Fee, Levy and Security Regulation, may examine and remove a well core from the core lab for the purpose of laboratory investigations and analysis that cannot be performed at the core lab.
- (4) A person who removes a well core from the core lab must
- (a) return the core within 90 days,
 - (b) take every reasonable precaution to prevent damage to or mixing of the core in core boxes,

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- (c) submit a report, including photographs, if any, of any laboratory analysis conducted on the core to the commission within 30 days of completing the analysis,
 - (d) submit any thin sections cut from core to the commission in adequate boxes labelled with the unique well identifier, well permit number and well name,
 - (e) label individual thin sections with the well permit number and depth,
 - (f) test cores in a manner acceptable to an official, and
 - (g) return the core immediately on the request of an official.
- (5) Repealed. [B.C. Reg. 8/2014, s. 1 (b).]
[am. B.C. Regs. 241/2012, s. 10; 8/2014, s. 1; 146/2017, App. 1, s. 15.]

Daily drilling reports

- 32** (1) A well permit holder of well being drilled or otherwise worked on must
- (a) ensure that a daily drilling report (tour sheet) is kept at the well site,
 - (b) if a kick occurs during drilling operations, notify the commission immediately and submit a written kick report to the commission within one day of the incident,
 - (c) submit a copy of the daily drilling report (tour sheet) to the commission within 30 days of rig release,
 - (d) submit a summary report of drilling operations to the commission within 4 days of the following:
 - (i) the rig is released;
 - (ii) drilling operations have ceased with the intention of resuming drilling at a later date, and
 - (e) maintain all data recorded by the electronic drilling recorder for at least 30 days from the date of rig release.
- (2) A daily drilling report (tour sheet) under subsection (1) (a) must set out complete data on all operations performed during the day, including but not limited to the following:
- (a) the depth at the beginning and end of each tour;
 - (b) all casing data, including size, type, grade, weight, whether new or used and the depth at which the casing is set;
 - (c) particulars of cementing;
 - (d) a report of any tests made, including blowout prevention system function tests;
 - (e) full details of all formation tests, unless the details are submitted on a confidential report form provided by the commission;
 - (f) details of any loss of drilling fluid into the formation;
 - (g) the allocation of time to each operation;

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- (h) the name of the drilling contractor or service company and rig number;
- (i) the spud and rig release dates;
- (j) details of any casing bowl welding;
- (k) the results of all deviation surveys.

Deviation and directional surveys

- 33**
- (1) A well permit holder must ensure that deviation surveys are made during drilling at intervals not exceeding 150 m in depth, unless there are significant wellbore stability problems, in which case a survey may be omitted.
 - (2) A well permit holder must ensure that a directional survey of a well to total depth is made if
 - (a) the surface position of the well is nearer to the boundary of its target area than 2% of the measured depth of the well,
 - (b) the surface position of the well is outside its target area, or
 - (c) the well is directionally drilled.
 - (3) A well permit holder must submit to the commission within 14 days of rig release the results of the directional survey under subsection (2).
 - (4) A permit holder must not drill a well, other than a relief well, so that it intersects with an existing well.

Tests, analyses, surveys and logs

- 34**
- (1) Subject to subsections (2) and (2.1), before a well is completed, suspended or abandoned, a well permit holder must ensure that
 - (a) a gamma ray log is taken from ground level of the well to total depth,
 - (b) a neutron log is taken from 25 m below ground level to the base of the surface casing, and
 - (c) a resistivity and porosity log is taken from the base of the surface casing to
 - (i) the total depth of the well of a vertical pilot hole, if one exists, or
 - (ii) the lowest point in the vertical portion of one horizontal well beyond which the logging tool cannot be lowered by gravity.
 - (2) Subsection (1) (b) applies only to wells the drilling of which begins after the date this regulation came into force.
 - (2.1) If more than one well has been drilled or has been permitted to be drilled from a common drilling pad location in an unconventional zone listed in Schedule 2, the logs referred to in subsection (1) must be taken in at least one of the wells and, in the case of the other well or wells,
 - (a) subsection (1) does not apply, and
 - (b) a gamma ray log must be taken from the base of the surface casing of each well to the total depth of each well.

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- (3) Within 30 days after the date on which a log was run, the well permit holder must submit a copy of the log to the commission.
- (4) A well permit holder must submit to the commission
- (a) a pressure chart, and
 - (b) a report containing complete details on fluid recoveries for each drill stem test or wire line test taken on a well
- within 30 days of the date on which the test was made.
- (5) A well permit holder must submit the following to the commission within 30 days of analysis completion:
- (a) if tests from a well allow good sampling, a report of all analyses made of any oil, gas, hydrocarbon liquid or formation water recovered from each formation;
 - (b) if performed, a report of all isotopic analyses of mud gas, headspace gas, produced gas, surface casing flow gas, or any other gas associated with a well.
- (6) On obtaining the data and results of a bottom hole sample analysis or other pressure-volume-temperature analysis, the well permit holder must submit the data and results to the commission within 30 days of analysis completion.
- (6.1) A well permit holder of an exploratory outpost well or an exploratory wildcat well must
- (a) capture a minimum of 15 mud gas isotope data samples per 1 000 m interval between the base of the surface casing and either
 - (i) the total depth in a vertical well, or
 - (ii) the point where deviation exceeds 80° from the vertical in a horizontal well, and
 - (b) submit an analysis of the isotope data samples captured under paragraph (a) to the commission within 30 days of analysis completion.
- (7) Repealed. [B.C. Reg. 48/2021, App. 2, s. 2.]

[am. B.C. Regs. 241/2012, s. 11; 159/2015, s. 7; 174/2018, s. 1; 48/2021, App. 2, s. 2.]

Wellsite geology reports

- 35** (1) Within 14 days after the date of rig release of the drilling rig, a well permit holder must submit to the commission the final as-drilled survey plan, showing the surface location and bottom hole location of the well and including the following for each:
- (a) northing and easting coordinates, determined using the North American Datum of 1983, also known as NAD 83;
 - (b) north and east offsets to the nearest corner of the spacing unit in which each is located, and identifying the reference corner.

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- (2) Within 60 days after the date of rig release of the drilling rig, a well permit holder must submit to the commission a wellsite geology report
- (a) for a well or portion of a well classified exploratory outpost or exploratory wildcat, or
 - (b) regardless of the well classification, if a wellsite geological report has been compiled.

[am. B.C. Reg. 103/2019, s. 15.]

Completion and workover reports

- 36** (1) For each separate completion or workover operation on a well, a well permit holder must submit to the commission, within 30 days of the end of each completion or workover operation, a report, in chronological format, detailing all significant operations, treatments and resulting well behaviour, and including a downhole schematic diagram.
- (2) A report under subsection (1) is not required for maintenance operations, including injection of corrosion inhibitors, scale removal or pressure testing operations.

[am. B.C. Regs. 241/2012, s. 12; 146/2017, App. 1, s. 16.]

Fracturing fluids records

- 37** (1) A well permit holder must maintain detailed records of the composition of all fracturing fluids that are used in a well for which the well permit holder is responsible, including, but not limited to
- (a) the well authorization number,
 - (b) the fracture date,
 - (c) an identification of the fluid ingredients and a description of the purpose of each,
 - (d) an identification of the ingredient concentration in the additive and in the hydraulic fracturing fluid,
 - (e) the chemical abstract service number of each ingredient,
 - (f) an identification of the total volume of water injected with the ingredients, and
 - (g) the trade name and supplier of each ingredient.
- (2) A well permit holder must submit to the commission the records referred to in subsection (1) within 30 days after the completion of the well.

[en. B.C. Reg. 249/2011.]

Production data

- 38** (1) A permit holder must keep, for not less than 72 months, complete, correct and accurate records of quantities of petroleum, natural gas, hydrocarbon liquids or natural gas liquids that are produced, sold, purchased, acquired, stored, transported, refined, processed or marketed by the permit holder.

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- (2) A permit holder must keep, for not less than 72 months, records of supporting information, methodologies and data associated with the records referred to in subsection (1).
- (3) The permit holder's accounting methods, practices and record keeping as well as the measurement methods and practices associated with records referred to in subsection (1) must be sufficient to ensure that records of quantities are correct, accurate and complete.
- (4) The records referred to in subsection (1) must be adequate for production accounting purposes and the assessment of royalties under the Petroleum and Natural Gas Royalty and Freehold Production Tax Regulation.

[am. B.C. Reg. 174/2018, s. 2.]

PART 7 – SAFETY, SECURITY AND POLLUTION PREVENTION**Division 1 – General****Safety and pollution prevention**

- 39**
- (1) In this section, “**populated area**” means an occupied dwelling, school, picnic ground or other place of public concourse.
 - (2) A permit holder of a completed well or facility must establish and maintain a system to detect and control leaks as quickly as practicable.
 - (3) A permit holder of a completed well or facility must install and maintain fencing or take other access control measures to prevent unauthorized access to the well or facility if
 - (a) the boundary of the well or facility is located within 800 m of a populated area, or
 - (b) a populated area is within the emergency planning zone for the well or facility.
 - (4) If an uncontrolled flow of oil or gas from a completed well, other than a well suspended in accordance with section 25, could produce a hydrogen sulphide concentration greater than 100 ppm in atmosphere within 50 metres of the well, the permit holder of the well must install and maintain
 - (a) an automated system to isolate the well in the event of an uncontrolled flow of oil or gas, and
 - (b) if the well is located within 1 600 m of a populated area, a hydrogen sulphide detection and alarm system that is continuously monitored and is capable of activating the automated system referred to in paragraph (a).
 - (5) If an uncontrolled flow of oil or gas from a facility could produce a hydrogen sulphide concentration greater than 100 ppm in atmosphere at the facility boundary, the permit holder of the facility must install and maintain

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- (a) an automated system to isolate the facility in the event of an uncontrolled flow of oil or gas, and
 - (b) if the facility is located within 1 600 m of a populated area, a hydrogen sulphide detection and alarm system which is continuously monitored and is capable of activating the automated system referred to in paragraph (a).
- (6) The permit holder of a completed well must do all of the following if the hydrogen sulphide content of the gas exceeds 5 mole percent or a populated area or a numbered highway is within the emergency planning zone for the well:
- (a) for a completed well not produced by artificial lift,
 - (i) equip the well with 2 master valves,
 - (ii) install a production packer set as closely above the producing formation as is practicable and fill the annular space between the tubing and production casing with a suitable corrosion inhibiting liquid,
 - (iii) install wellhead equipment for which the working pressure rating is not less than the bottom hole pressure of the producing formation, but with a minimum rating of 14 000 kPa,
 - (iv) if a hot oil circulating string is used inside the production casing of a well, install a check valve in the injection line and automatic shutoff valve on the return line,
 - (v) if a well is equipped with a production packer as required under subparagraph (ii), conduct annual segregation tests and, if the test fails, complete repairs without unreasonable delay, and
 - (vi) submit within 30 days of completion a record of the tests and repairs referred to in subparagraph (v);
 - (b) for a flowing well that is located within 800 m of a populated area or within 8 km of a city, town or village and that has the potential to produce more than 30 000 m³ of gas per day, install at least 30 m below the surface a downhole safety valve in the tubing that closes automatically in the event of an uncontrolled flow of oil or gas or a failure in the system which operates the valve;
 - (c) for an acid gas injection or disposal well, install a downhole safety valve in the tubing that
 - (i) is at least 30 m below the surface, and
 - (ii) closes automatically in the event of an uncontrolled flow of oil or gas or a failure in the system that operates the valve.
- (7) If a well is equipped with an artificial lift after October 4, 2010, and the hydrogen sulphide content of the gas exceeds 100 ppm, the permit holder must,
- (a) if a pumpjack is the method of artificial lift,
 - (i) install on the stuffing box a device that will

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- (A) shut down the pumping unit in the event of a stuffing box failure, and
 - (B) seal off the well in the event of a polish rod failure, and
 - (ii) install an automatic vibration shutdown system that will safely shut down the pumpjack, or
 - (b) if paragraph (a) does not apply, maintain a system that will shut down the artificial lift if a leak is detected.
- (8) Repealed. [B.C. Reg. 103/2019, s. 16 (d).]
- (9) Repealed. [B.C. Reg. 204/2013, s. 3 (b).]
- (10) Repealed. [B.C. Reg. 282/2010, s. 39 (11).]
- (11) Spent.
[am. B.C. Regs. 241/2012, s. 13; 204/2013, s. 3 (b); 159/2015, s. 8; 146/2017, App. 1, s. 17; 174/2018, s. 3; 103/2019, s. 16.]

Noise and light

- 40** A permit holder must ensure that operations at a well or facility for which the permit holder is responsible do not cause excessive noise or excessive emanation of light.
[am. B.C. Reg. 146/2017, App. 1, s. 18.]

Venting and fugitive emissions

- 41** (1) A permit holder must not vent gas unless the gas heating value, volume or flow rate is insufficient to support stable combustion and
- (a) the venting is conducted in a manner that does not constitute a safety hazard,
 - (b) the venting does not cause off-site odours,
 - (c) the quantity of vented gas is minimized, and
 - (d) the duration of venting is minimized.
- (2) A well permit holder must check each well for evidence of a surface casing vent flow, and submit the results of the check to the commission,
- (a) immediately after initial completion or any recompletion of the well,
 - (b) within one year of rig release,
 - (c) as routine maintenance throughout the life of the well,
 - (d) before suspension of the well,
 - (e) before abandoning the well, and
 - (f) before applying for a transfer of the well permit.
- (3) On discovery of a surface casing vent flow that presents an immediate safety or environmental hazard, a well permit holder must
- (a) immediately take steps to eliminate the hazard,
 - (b) immediately notify the commission of the surface casing vent flow, and

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- (c) submit to the commission without delay a report respecting the surface casing vent flow and the steps taken under paragraph (a).
- (4) On discovery of a surface casing vent flow other than one referred to in subsection (3), a well permit holder must
 - (a) test the flow rate and buildup pressure of the surface casing vent flow, and
 - (b) submit a surface casing vent flow report to the commission within 30 days of the discovery of the surface casing vent flow.
- (4.1) On discovery of an occurrence of gas migration, a permit holder must
 - (a) immediately notify the commission of the gas migration,
 - (b) evaluate the cause and source of the gas migration and complete a risk assessment of the gas migration, and
 - (c) submit to the commission without delay a report respecting the evaluation and risk assessment completed under paragraph (b).
- (5) Repealed. [B.C. Reg. 286/2018, s. 3.]
- (6) A permit holder of a well drilled or facility constructed after the date this regulation came into force may use gas containing hydrogen sulphide for pneumatic instrumentation or to provide motive force to pumps only if the gas contains no more than 20 parts per million of hydrogen sulphide.
[am. B.C. Regs. 241/2012, s. 14; 242/2012; 159/2015, s. 9; 146/2017, App. 1, s. 19; 103/2019, s. 17; 286/2018, s. 3.]

Leak detection and repair**41.1** (1) In this section:

“**comprehensive survey**” means a survey to detect leaks using one or both of the following methods:

- (a) an organic vapour analyzer that is
 - (i) capable of detecting natural gas concentrations of 500 parts per million, and
 - (ii) operated in accordance with United States Environmental Protection Agency Method 21 – Determination of Volatile Organic Compound Leaks;
- (b) a gas imaging camera that is
 - (i) capable under laboratory conditions of detecting, at a distance of 3 metres, pure methane emitted at a rate of 1 gram per hour, and
 - (ii) operated by individuals who are competent in the operation of the camera;

“**screening survey**” means a survey to detect leaks using one or both of the following methods:

- (a) a soap solution bubble test;
- (b) the senses of hearing, sight and smell.

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- (2) A facility permit holder who operates a facility must, in accordance with subsection (4), carry out at least the following surveys of the facility, including, without limitation, any pneumatic devices at the facility:
- (a) three comprehensive surveys per year, if the facility is
 - (i) a gas processing plant,
 - (ii) a compressor station,
 - (iii) a multi-well battery, or
 - (iv) a single-well battery that includes a controlled storage tank;
 - (b) one comprehensive survey per year, if the facility is
 - (i) a custom treating facility,
 - (ii) an injection and disposal facility,
 - (iii) a single-well battery not described in paragraph (a) (iv), or
 - (iv) a facility that includes a storage tank, other than a facility described in paragraph (a);
 - (c) in any other case, one screening survey per year.
- (3) A well permit holder who operates a well must, in accordance with subsection (4), carry out at least the following surveys of the well:
- (a) one comprehensive survey per year, if the well
 - (i) has a storage tank, or
 - (ii) is producing from an unconventional zone listed in Schedule 2;
 - (b) in any other case, one screening survey per year.
- (4) A survey required under this section must be carried out at least the following interval after the previous required survey:
- (a) in the case of a facility described in subsection (2) (a), 60 days;
 - (b) in the case of a facility described in subsection (2) (b) or (c) or a well described in subsection (3) (a) or (b), 9 months.
- (5) If a leak is detected at a facility during a survey required under this section, the facility permit holder who operates the facility must repair the leak
- (a) within 30 days of detection, or
 - (b) if the repair requires the facility to be shut down, at the next turnaround for the facility.
- (6) If a leak is detected at a well during a survey required under this section, the well permit holder who operates the well must repair the leak within 30 days of detection.
- (7) A permit holder who operates a facility or well must maintain a record of the surveys of the facility or well that are carried out to meet a requirement under this section that includes the following information for each survey:
- (a) the date of the survey and the method used;

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- (b) any leaks that are detected and, for each leak detected,
 - (i) the rate of the leak, and
 - (ii) if the leak is repaired, the date of the repair.
- [en. B.C. Reg. 286/2018, s. 4.]

Flaring limits

- 42**
- (1) A permit holder must ensure that the duration of flaring and the quantity of gas that is flared is minimized.
 - (2) Subject to subsections (3) and (5), a permit holder must not flare gas unless flaring is required for emergency purposes or for drilling operations.
 - (3) A well permit holder may flare gas at a well if
 - (a) flaring is required for a workover or maintenance and the cumulative quantity of gas flared does not exceed 50 000 m³ in one year, or
 - (b) permission to flare is included in the well permit.
 - (4) Repealed. [B.C. Reg. 159/2015, s. 10 (b).]
 - (5) A facility permit holder may flare gas at a facility if
 - (a) flaring is required for maintenance purposes, or
 - (b) permission to flare is included in the facility permit.
- [am. B.C. Regs. 241/2012, s. 15; 159/2015, s. 10.]

Flaring notification and reporting

- 43**
- (1) A permit holder must notify the commission at least 24 hours before a planned flaring event if the quantity of gas to be flared exceeds 10 000 m³.
 - (2) If an unplanned flaring event occurs and the quantity of flared gas exceeds 10 000 m³, the permit holder must notify the commission within 24 hours of the flaring event.
 - (3) A permit holder must maintain a log of all flaring that occurs at each facility.
 - (4) When gas is flared at a well, the permit holder with respect to the well must report the quantity of gas flared to the commission no later than 20 days after the end of the month in which the flaring occurred.
- [am. B.C. Reg. 174/2018, s. 4.]

Flaring performance requirements

- 44**
- A permit holder of a well or facility must ensure all of the following:
- (a) that flare stacks are adequately anchored;
 - (b) that unsupervised flare stacks where flaring may occur are equipped with an adequate auto-ignition system;
 - (c) if the hydrogen sulphide content of the gas to be flared exceeds one mole percent, that

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- (i) unsupervised flare stacks where continuous flaring will occur are equipped with a flame-out detection device with operation shut down capability that provides an immediate alarm to the permit holder, and
 - (ii) the minimum height of flare stacks is 12 m;
- (c.1) that a flare pit is constructed only if the construction is specifically authorized in the well or facility permit;
- (d) flare and incinerator systems installed after the date this regulation came into force are designed by and operated within the limits specified by a professional engineer licensed or registered under the *Engineers and Geoscientists Act*;
- (e) flaring does not result in the emission of black smoke.

[am. B.C. Regs. 159/2015, s. 11; 103/2019, s. 18.]

Fire precautions

- 45** (1) A well permit holder must ensure that, if engines are located at a wellsite, suitable safeguards are in place and tested to prevent a fire or explosion in the event of a release of flammable liquids or ignitable vapours.
- (2) Except where gasoline or liquid fuel is held in fuel tanks actually connected to operating equipment, a well permit holder must not store gasoline or liquid fuel within 25 m of a well, and must ensure that drainage of gasoline or liquid fuel from the places where it is stored is in a direction away from a well location.
- (3) If a pressure relieving device is installed on a pressure vessel at a facility, the permit holder must ensure
- (a) that the device is connected by suitable piping to a tank if production is in the liquid phase,
 - (b) that the device is connected to a flare system, if a flare system exists at the facility, or
 - (c) that a system of controls is installed to ensure safe operation and minimize venting.
- (4) A person carrying out an oil and gas activity must not smoke within 25 m of any well or facility.

[am. B.C. Reg. 103/2019, s. 19.]

- 46** Repealed. [B.C. Reg. 103/2019, s. 20.]

Fire prevention

- 47** A permit holder must ensure all of the following:
- (a) fires and fired equipment are located a safe distance from flammable liquids or potential sources of ignitable vapours so that there is no undue risk of fire or explosion;

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- (b) all fires for any purpose are safeguarded by sufficient mechanical or other means so that no hazard to surrounding property is created;
- (c) flares and incinerators are located at least
 - (i) a safe distance from any oil and gas road or resource road,
 - (ii) 80 m from any other public road,
 - (iii) 100 m from any permanent building, installation or works that is not associated with an oil and gas activity, and
 - (iv) 100 m from any place of public concourse;
- (d) all facility piping is arranged and provided with control valves to permit ready shut off of oil or gas in the event of fire at any facility installation;
- (e) a separator is not enclosed within the fire wall, dike or ditch surrounding a storage tank installation, unless the installation is equipped with safety equipment designed to prevent fire, explosions or exposure of personnel to hydrogen sulphide or other toxic or poisonous gases;
- (f) all vessels and equipment from which ignitable vapours may issue are safely vented to the atmosphere;
- (g) explosives of every kind and description are stored only in properly constructed magazines, situated not less than 150 m from any place where any drilling, production or processing operation is being undertaken;
- (h) a sufficient area beneath and around the flare stack is free of combustible materials and vegetation.

[am. B.C. Regs. 241/2012, s. 16; 159/2015, s. 12.]

Position of tanks and production equipment

48 A permit holder must ensure that any petroleum storage tanks and production equipment for a well or facility for which the permit holder is responsible are located at least

- (a) a safe distance from any oil and gas road or resource road,
- (b) 80 m from any other public road,
- (c) 100 m from any permanent building, installation or works that is not associated with an oil and gas activity, and
- (d) 100 m from any place of public concourse.

[en. B.C. Reg. 159/2015, s. 13.]

Emergency shutdown devices

- 49** (1) A permit holder must not bypass or disable safety equipment at a well that is producing, injecting or disposing of fluids, or at a facility, unless
- (a) the purpose of the bypass or disablement is to carry out maintenance or commissioning of the well or facility,
 - (b) the well or facility is continuously monitored,

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- (c) the permit holder has established and documented work procedures sufficient to ensure that the operation can be conducted safely, and
 - (d) the operation is conducted in accordance with the procedures referred to in paragraph (c).
- (2) Subject to subsection (1), a permit holder must lock or cap seal any valve or device that can bypass or disable safety equipment at a well that is producing, injecting or disposing of fluids, or at a facility.

[am. B.C. Regs. 241/2012, s. 17; 159/2015, s. 14; 146/2017, App. 1, s. 20; 103/2019, s. 21.]

Prevention of losses

- 50**
- (1) A permit holder must take every reasonable precaution to prevent loss or waste of oil, gas or water in drilling, producing and processing operations, and, in storing, piping or distributing, oil or gas must not be used wastefully or allowed to leak or escape from natural reservoirs, wells, tanks, containers or pipes.
 - (2) A facility permit holder must ensure that each storage tank or group of tanks at the permit holder's facility has secondary containment in accordance with the current edition of National Fire Protection Association Code 30: Flammable and Combustible Liquids Code, and that any dike or fire wall is maintained in good condition and the area encompassed by it is kept free from grass, weeds or other combustible material.
 - (3) A well permit holder must take every reasonable precaution to protect wells, whether connected to flow lines or not, against damage or interference from unauthorized persons or activities.

Storage and disposal of wastes

- 51**
- (1) A well permit holder must ensure that formation water, oil, drilling fluid, completion fluid, waste, chemical substances or refuse from a well, tank or other facility do not do any of the following:
 - (a) create a hazard to public health or safety;
 - (b) run into or contaminate any water supply well, usable aquifer or water body or remain in a place from which it might contaminate any water supply well, usable aquifer or water body;
 - (c) run over, pollute or damage any land or public road;
 - (d) pass into or, on ice, over any water body that is frequented by fish or wildlife or that flows into any such water body.
 - (2) A well permit holder who deposits into an earthen pit drilling fluids that may be harmful to domestic livestock or big game must maintain the pit so as to prevent, in a manner satisfactory to an official, domestic livestock or big game from ingesting the fluids.
 - (3) A well permit holder who uses an earthen pit to store liquid waste from a well drilling operation must ensure that the pit is

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- (a) not located within 100 m of the natural boundary of a water body,
 - (b) not located within 200 m of a water supply well,
 - (c) constructed of clay or other suitable impermeable material with the bottom of the pit above ground water level,
 - (d) located or ditched so that it will not collect natural run-off water,
 - (e) filled to not more than one metre below the point of overflow at any given time, and
 - (f) completely emptied and any excavation filled without unreasonable delay.
- (4) Within 90 days of completing a drilling waste disposal, a well permit holder must submit to the commission a report of the drilling waste disposal.
- (5) A well permit holder who uses an earthen pit to store water-based fluids that have a concentration of total dissolved solids greater than 4 000 ppm must
- (a) obtain a facility permit that authorizes the earthen pit, and
 - (b) ensure that the earthen pit is designed by and installed under the supervision of a professional engineer licensed or registered under the *Engineers and Geoscientists Act*.
- (6) A well permit holder who uses an above ground structure with a liner as the primary means of containment to store water-based fluids with a concentration of total dissolved solids greater than 4 000 ppm must ensure that
- (a) the fluids have been generated from or are being stored for the purpose of hydraulic fracturing operations,
 - (b) the structure is not located within 100 m of the natural boundary of a water body unless the structure is on a permitted well location,
 - (c) the capacity of each structure is not greater than 6 600 m³,
 - (d) before the structure is used, a qualified professional verifies that contained fluids will not migrate beyond the lease boundary in the event of a complete containment failure,
 - (e) the commission is satisfied that the retaining walls of the structure are capable of withstanding the hydraulic pressure of the contents at full capacity,
 - (f) the installation of the liner system is completed to the satisfaction of the commission,
 - (g) the ground surface has been prepared to the satisfaction of the commission,
 - (h) the structure is filled to not more than 50 cm below the point of overflow at any given time,
 - (i) the structure is equipped with measures to prevent waterfowl from coming in contact with the fluids,
 - (j) when the structure contains fluid, it is inspected daily for leaks and a record of inspection is maintained until the site is decommissioned,

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- (k) any sign of leakage is reported to the commission within 24 hours of discovery, and
- (l) the structure is decommissioned and removed from the site within one year from the date of first use unless there exists an engineered, lined or otherwise impermeable secondary containment system designed and maintained to be capable of holding a minimum of 110% of the fluid in the structure.

[am. B.C. Regs. 159/2015, s. 15; 146/2017, App. 1, s. 21; 103/2019, s. 22.]

Seals

- 52**
- (1) An official may seal or cause to be sealed any or all valves or meters installed at a well or on any pipeline, tank or other receptacle used for the storage or transportation of oil or other fluid produced or withdrawn from the well, and may remove or authorize the removal of such seals.
 - (2) An official must notify the permit holder, orally or in writing, of the affixing of a seal under subsection (1) and of the reasons for taking that action.
 - (3) If notice under subsection (2) is given orally, an official, within 48 hours, must provide in writing the notice referred to in subsection (2).
 - (4) A permit holder must not remove or tamper with any seal affixed under subsection (1).
 - (5) Despite subsection (4), a permit holder may remove a seal affixed under subsection (1)
 - (a) in case of emergency, in which case the person must notify the commission of the removal without delay, or
 - (b) if the permit holder has not received notice as required under subsections (2) and (3).

Division 2 – Natural Gas Emissions**Definition**

52.01 In this Division, “**natural gas**” does not include propane.

[en. B.C. Reg. 286/2018, s. 5 (b).]

Hydrocarbon gas conservation equipment

- 52.02**
- (1) A facility permit holder who operates a facility that uses hydrocarbon gas conservation equipment must ensure that
 - (a) the equipment is operated continuously, except during a turnaround for the facility or while being maintained, cleaned, inspected or repaired,
 - (b) the equipment recovers at least 95% of the natural gas routed through the equipment, and
 - (c) the natural gas recovered by the equipment is used for a purpose other than to dispose of that gas as waste.

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- (2) A facility permit holder who operates a facility that uses hydrocarbon gas conservation equipment must maintain a record of the following for each piece of hydrocarbon gas conservation equipment:
- (a) the periods of time when the equipment is in operation;
 - (b) the periods of time when the equipment is not in operation;
 - (c) the following information for each calendar month:
 - (i) the volume of natural gas routed through the equipment;
 - (ii) the volume of natural gas recovered by the equipment.
- [en. B.C. Reg. 286/2018, s. 5 (b).]

Tanks

- 52.03** (1) A facility permit holder who operates a facility that began operations on or after January 1, 2022 must ensure that the emissions of natural gas from tanks at the facility are less than 1 250 m³ per month in total.
- (2) Beginning on January 1, 2023, a facility permit holder who operates a facility that began operations before January 1, 2022 must ensure that the emissions of natural gas from tanks at the facility are less 9 000 m³ per month in total.
- (3) Subject to subsection (4), a facility permit holder who operates a facility that includes an uncontrolled storage tank must maintain a record of the volume of natural gas emitted from the tank in each calendar month.
- (4) Subsection (3) does not apply until January 1, 2023 in relation to a facility that began operations before January 1, 2022.
- [en. B.C. Reg. 286/2018, s. 5 (b).]

Compressors

- 52.04** (1) In this section:
- “**high-output**” means
- (a) rated at 75 kW or more, or
 - (b) operated for 450 hours or more per year;
- “**provincial fleet**”, in relation to a facility permit holder, means all of the type B compressors used at facilities operated by the permit holder, whether or not under the same permit;
- “**type A compressor**” means
- (a) a reciprocating compressor that has 4 or more throws, and
 - (b) a high-output compressor, other than a type B compressor;
- “**type B compressor**” means a high-output reciprocating compressor that
- (a) was installed before January 1, 2021, or
 - (b) has fewer than 4 throws.

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- (2) Subject to subsections (3) to (5), a facility permit holder who operates a facility that uses a type A compressor must ensure that the emissions of natural gas from the compressor are
- (a) routed to hydrocarbon gas conservation equipment, or
 - (b) flared in accordance with sections 42 to 44.
- (3) Subsection (2) does not apply until January 1, 2022 in relation to a centrifugal compressor that was installed before January 1, 2021.
- (4) Subsection (2) does not apply in relation to a centrifugal compressor that was installed before January 1, 2021 if the emissions of natural gas from the compressor
- (a) are routed to a vent, and
 - (b) do not exceed 0.17 m³ per minute.
- (5) Subsection (2) does not apply in relation to a centrifugal compressor that was installed on or after January 1, 2021 if the emissions of natural gas from the compressor
- (a) are routed to a vent, and
 - (b) do not exceed 0.057 m³ per minute.
- (6) A facility permit holder who operates a facility that uses a type B compressor must ensure
- (a) that the emissions of natural gas from the compressor do not exceed 5 m³ per hour per throw on that compressor, and
 - (b) beginning on January 1, 2022, that the emissions of natural gas from the permit holder's provincial fleet do not exceed 0.83 m³ per hour per throw on the compressors in the fleet that are in operation.
- (7) Beginning on January 1, 2022, a facility permit holder who operates a facility that uses a type A compressor or a type B compressor must maintain a record of the following:
- (a) whether the compressor is centrifugal or reciprocating;
 - (b) if applicable, the number of throws the compressor has;
 - (c) for each calendar year, the volume of natural gas emitted from the compressor during a period of 15 minutes that is representative of the normal operating conditions of the compressor.

[en. B.C. Reg. 286/2018, s. 5 (b).]

Pneumatic devices

52.05 (1) In this section:

“large compressor station” means a compressor station at which the total power of all compressors is 3 MW or greater;

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- “**pneumatic device**” does not include a pneumatic pump or a pneumatic compressor starter.
- (2) A facility permit holder who operates a facility that began operations on or after January 1, 2021 must not use at the facility a pneumatic device that emits natural gas.
- (3) Beginning on January 1, 2022, a facility permit holder who operates a gas processing plant, or a large compressor station, that began operations before January 1, 2021 must not use at the facility a pneumatic device that emits natural gas.
- (4) Beginning on January 1, 2022, a facility permit holder who operates a facility that began operations before January 1, 2021, other than a gas processing plant or a large compressor station, must not use at the facility a pneumatic device that emits natural gas unless
- (a) the emissions of natural gas from the device do not exceed 0.17 m³ per hour, or
 - (b) all of the following requirements are met:
 - (i) the facility permit holder has a signed statement, from a professional engineer licensed or registered under the *Engineers and Geoscientists Act*, that
 - (A) the device cannot be operated so as to meet the requirement in paragraph (a) without compromising the safe operation of the facility, and
 - (B) it is not practical to replace the device with a device that can be operated so as to meet those requirements;
 - (ii) the emissions of natural gas from the device are minimized to the extent consistent with efficient operation of the device and safe operation of the facility, and
 - (iii) the device is marked with a weatherproof and readily visible tag.
- (5) Subject to subsection (6), a facility permit holder who operates a facility that uses a pneumatic device that emits natural gas must maintain a record of the following:
- (a) a description of the device;
 - (b) the purposes and operational settings of the device;
 - (c) whether the device is being used under subsection (4) (b);
 - (d) the volume of natural gas emitted from the device in each calendar month.
- (6) Subsection (5) does not apply until January 1, 2022 in relation to a facility that began operations before January 1, 2021.

[en. B.C. Reg. 286/2018, s. 5 (b).]

Pneumatic pumps

- 52.06** (1) A facility permit holder who operates a facility must not use at the facility a pneumatic pump that emits natural gas unless the pump
- (a) was installed before January 1, 2021, or
 - (b) is operated 750 hours or less per year.
- (2) Beginning on January 1, 2021, a facility permit holder who operates a facility that uses a pneumatic pump that emits natural gas must maintain a record that contains
- (a) a description of the pump and the type of fluid pumped, and
 - (b) the following information for each calendar month:
 - (i) the number of hours the pump is operated;
 - (ii) the volume of natural gas emitted from the pump.

[en. B.C. Reg. 286/2018, s. 5 (b).]

Pneumatic compressor starters

- 52.07** (1) Beginning on January 1, 2022, a facility permit holder who operates a facility that uses a pneumatic compressor starter must ensure that the emissions of natural gas from the compressor starter are
- (a) routed to hydrocarbon gas conservation equipment, if the facility includes hydrocarbon gas conservation equipment to which the emissions can be routed, or
 - (b) flared in accordance with sections 42 to 44, if the facility includes a flaring system to which the compressor starter can be connected.
- (2) Beginning on January 1, 2022, a permit holder who operates a facility that uses a pneumatic compressor starter that cannot be routed or flared as set out in subsection (1) must maintain a record that contains
- (a) a description of the compressor starter, and
 - (b) the following information for each calendar month:
 - (i) the volume of natural gas used in start attempts;
 - (ii) the number of hours the compressor starter is operated;
 - (iii) the volume of natural gas emitted from the compressor.

[en. B.C. Reg. 286/2018, s. 5 (b).]

Glycol dehydrators

- 52.08** (1) Subject to subsection (2), a facility permit holder who operates a facility that uses a glycol dehydrator that was installed on or after January 1, 2022 must ensure that the emissions of natural gas from the dehydrator are less than 25 tonnes per year.
- (2) Beginning on January 1, 2023, a facility permit holder who operates a facility that uses a glycol dehydrator that was installed before January 1, 2022 must ensure

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that the emissions of natural gas from the dehydrator are less than 50 tonnes per year.

- (3) A facility permit holder who operates a facility that uses a glycol dehydrator must
- (a) maintain a record of the volume of natural gas emitted from the dehydrator in each calendar year, and
 - (b) submit the record to the commission by July 1 of the calendar year after the calendar year to which the record relates.

[en. B.C. Reg. 286/2018, s. 5 (b).]

Pipes and hatches

52.09 A facility permit holder who operates a facility must ensure that pipes and hatches at the facility are closed whenever an operation does not require them to be open.

[en. B.C. Reg. 286/2018, s. 5 (b).]

Sampling and pressure relief systems

52.10 A facility permit holder who operates a facility must ensure that sampling and pressure relief systems at the facility are installed and operated so that emissions of natural gas are minimized.

[en. B.C. Reg. 286/2018, s. 5 (b).]

Well surface casings

52.11 Beginning on July 1, 2021, a well permit holder who operates a well must ensure that the emissions of natural gas from the surface casing vent flow do not exceed 100 m³ per day.

[en. B.C. Reg. 286/2018, s. 5 (b).]

Measurement equipment

52.12 A permit holder who operates a facility or well must ensure that the equipment and methods used to measure emissions at the facility or well are sufficient to measure

- (a) the actual volumes and rates of emissions referred to in this Division, other than in section 52.04 (7) (c), and
- (b) the volume of emissions referred to in section 52.04 (7) (c) to within 10% of the actual volume.

[en. B.C. Reg. 286/2018, s. 5 (b).]

PART 8 – PRODUCTION OPERATIONS**Division 1 – Measurements****Measurements**

53 A permit holder must ensure all of the following:

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- (a) that the measurement equipment for each well, facility or gathering system for which the permit holder is responsible are sufficient to determine the actual production of each product from
 - (i) each zone in a well,
 - (ii) each product stream used for reporting purposes at a facility, and
 - (iii) any fluid injection or pressure measurement required by this Part;
- (b) that the equipment and methods associated with the measurement of fluids are adequate for
 - (i) the management of wells, pipelines, facilities and reservoirs,
 - (ii) the quantification of waste discharges,
 - (iii) production accounting purposes, and
 - (iv) the assessment of royalties under the Petroleum and Natural Gas Royalty and Freehold Production Tax Regulation;
- (c) if quantities of natural gas, petroleum, natural gas liquids or natural gas byproducts are not metered due to the failure of a meter, chart recorder or quantity device, that an engineering estimate of all un-metered production from the well or facility is included in the quantity computation for the reporting period for the meter, chart recorder or other quantity device;
- (d) if a quantity error is apparent or discovered, that the quantity error and the source of the quantity error are rectified immediately and a report of the corrected quantity for the period during which the quantity was incorrect is submitted by the next reporting cycle;
- (e) if natural gas, petroleum, natural gas liquids, natural gas byproducts or water are produced from or injected into a well or facility, that
 - (i) the meter is maintained in good operating condition, and
 - (ii) the meter is suitably safeguarded from weather and from interference by unauthorized persons;
- (f) if natural gas, petroleum, natural gas liquids, natural gas byproducts or water are produced from or injected into a well or facility and there is a bypass around a meter, that valves are installed that, when closed, will effectively stop all flow through the bypass;
- (g) if natural gas, petroleum, natural gas liquids, natural gas byproducts or water are produced from or injected into a well or facility and a bypass around a meter is opened or if, for any other reason, the full production stream does not reach the meter, that a suitable entry is made on the meter chart or on the recordkeeping notations in the electronic flow measurement (EFM) system.

[am. B.C. Regs. 159/2015, s. 16; 146/2017, App. 1, s. 22.]

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Division 2 – Oil**Daily oil allowable**

54 (1) In this section, “**well depth**” means the true vertical depth, in metres, of the lowest producing perforation or open hole section in a zone.

(1.1) This section does not apply to production from wells in unconventional zones listed in Schedule 2.

(2) The UDOA for an oil well, expressed in m³/day and rounded to one decimal place, is

(a) 10.0, if the well depth is less than 1 000 metres,

(b) the well depth of the well divided by 100, if the well depth is equal to or greater than 1 000 metres,

(c) as specified in the well permit, or

(d) as specified by an official.

(3) For oil wells that are part of a special project under section 75 of the Act and have been assigned a project UDOA, the project UDOA may be applied to the entire project area as though it were a single well.

(4) The gas-oil ratio adjustment factor for the purposes of subsection (6) is the factor calculated in accordance with the following formula, rounded to the second decimal place:

$$F_{\text{GOR}} = \frac{177.3}{\text{GOR} + 0.0257 \times S}$$

where

F_{GOR} = the gas-oil ratio adjustment factor;

GOR = net calculated gas-oil ratio (m³/m³);

S = average separator pressure (kPa).

(5) A calculation under subsection (4) must be made in accordance with the following:

(a) the data used to make the calculation must be obtained from the last calendar month during which the oil well produced;

(b) for a gas reinjection project, the net calculated gas-oil ratio must be calculated using the net produced gas;

(c) the average separator pressure is

(i) for a single well, the average separator pressure for the month,

(ii) if stage separation is used, the average separator pressure of the lowest pressure stage for the month,

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- (iii) if a project UDOA has been designated for a group of wells, the average separator pressure for the month for the group of wells, weighted by the volume of oil produced, and
 - (iv) 400 kPa if no separator pressure is reported.
- (6) The DOA of an oil well or a group of oil wells that have been designated a project UDOA under section 75 of the Act is:

$$\text{DOA} = \text{UDOA} \times F_{\text{GOR}} \times F_{\text{OTP}}$$

where

DOA = the daily oil allowable in m³/day;

UDOA = the unadjusted daily oil allowable in m³/day;

F_{GOR} = the gas-oil ratio adjustment factor calculated in accordance with subsection (3);

F_{OTP} = the off-target penalty factor determined under section 6 (4).

[am. B.C. Regs. 241/2012, s. 18; 146/2017, App. 1, s. 23.]

Restriction of oil production

- 55** (1) Subject to section 49.1 (1) (c) of the Act and subsection (2) of this section, the permit holder of
- (a) an oil well, or
 - (b) a group of oil wells that have been designated a project UDOA under section 75 of the Act

must ensure that oil production from the well or group of wells in any one day does not exceed the daily production limit.

- (2) Subsection (1) does not apply to wells completed in unconventional zones listed in Schedule 2.

[am. B.C. Reg. 146/2017, App. 1, s. 24.]

Test period allowable

- 56** (1) During the test period for an oil well, the test period allowable is

$$\text{TPA} = 90 \times \text{UDOA} + 500$$

where

TPA = the volume of oil that may be produced during the test period (m³);

UDOA = the unadjusted daily oil allowable in m³/day.

- (2) Subsection (1) does not apply to a well subject to
- (a) a designation under section 75 of the Act, or
 - (b) a well completed in an unconventional zone listed in Schedule 2.

[am. B.C. Reg. 146/2017, App. 1, s. 25.]

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Report required

- 56.1** A permit holder must submit to the commission, within 60 days of initial oil production, a detailed report of
- (a) any oil well flow test for which temporary flow testing equipment is used to measure pressures and rates of each fluid, and
 - (b) any cleanup flow that results in oil coming to the surface.
- [en. B.C. Reg. 146/2017, App. 1, s. 26; am. B.C. Reg. 103/2019, s. 23.]

Measurement of total oil production

- 57**
- (1) If, during calibration of a meter, a permit holder finds that a consistent meter factor is unattainable, the permit holder must take corrective action without delay.
 - (2) A permit holder must maintain a record of the calibration of the oil meter installation.

Production test of oil wells

- 58**
- (1) A permit holder must conduct at least 2 production quantity tests per month on each oil well whose production quantity is delivered to a proration battery.
 - (2) A production quantity test referred to in subsection (1) must
 - (a) measure the quantities of petroleum, water and natural gas produced,
 - (b) be at least 22 hours in duration,
 - (c) be adequately spaced throughout the month, and
 - (d) allow sufficient purge time before the test to ensure that liquids from a previous quantity test are replaced by the fluids from the new well to be tested.
 - (3) A permit holder must keep records of production quantity tests conducted, and the records must include the following, as applicable:
 - (a) quantity test date;
 - (b) duration of the quantity test in hours;
 - (c) opening and closing meter readings;
 - (d) meter factor;
 - (e) percent of basic sediment and water;
 - (f) quantities of petroleum, water and natural gas produced during the quantity test;
 - (g) average separator pressure over the time duration of the quantity test;
 - (h) net gas oil ratio;
 - (i) petroleum density.
 - (4) To calculate the monthly estimated oil well quantity production that is to be reported for each oil well producing to a proration battery, a permit holder must use the test-to-test method of calculation.

Calculation of oil production

- 59** (1) A well permit holder must determine the overproduction or underproduction of each of the permit holder's wells at the end of every month.
- (2) A permit holder must ensure that
- (a) the production target at the end of the month and the overproduction or underproduction at the beginning of the month for each producing oil well or group of oil wells for which the permit holder is responsible is calculated each month, and
 - (b) a production allowable report is submitted to the commission in time to be received on or before the 16th day of the month.
- (3) Subsections (1) and (2) do not apply to production from unconventional zones listed in Schedule 2.

[am. B.C. Reg. 146/2017, App. 1, s. 27.]

Underproduction of oil

- 60** (1) A permit holder may make up underproduction at any time within a production period at a rate not exceeding the daily production limit.
- (2) A permit holder may not carry forward underproduction to the following production period.
- (3) Subsections (1) and (2) do not apply to production from wells in unconventional zones listed in Schedule 2.

[am. B.C. Reg. 146/2017, App. 1, s. 28.]

Overproduction of oil

- 61** (1) If overproduction at the beginning of any month exceeds the monthly oil allowable, adjusted for any penalties, for that month, the permit holder must shut in the oil well on or before the 16th day of the month, and must keep it shut in until the overproduction is completely retired.
- (2) If overproduction at the end of a production period is greater than 25% of the monthly oil allowable for October, adjusted for any penalties, the permit holder must carry the overproduction forward and must shut in the well on or before November 16 and must keep it shut in until the overproduction is completely retired.
- (3) If a permit holder shuts in a well in accordance with this section, the commission must be notified in writing of the date on which the well is shut in, and the number of days calculated for the shut in period based on the daily oil allowable.
- (4) Subsections (1) to (3) do not apply to production from wells in unconventional zones listed in Schedule 2.

[am. B.C. Reg. 146/2017, App. 1, s. 29.]

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Analysis of oil and hydrocarbon liquid production

- 62** (1) Subject to subsection (3), a well permit holder must take representative oil and hydrocarbon liquid samples from each producing formation from a well within 30 days of the initial production date.
- (2) A well permit holder must submit to the commission a report of the component analyses and physical properties of the oil and hydrocarbon liquids within 60 days of
- (a) the sampling referred to in subsection (1), and
 - (b) any other oil sampling and analysis performed on the well.
- (3) This section applies to hydrocarbon liquids only if the hydrocarbon liquids are produced from
- (a) a zone listed in Schedule 2 and have a specific gravity greater than 0.8063, or
 - (b) a zone not listed in Schedule 2 and have a specific gravity greater than 0.7796.

[en. B.C. Reg. 103/2019, s. 24.]

Division 3 – Gas**Gas well tests**

- 63** (1) Subject to subsection (3), before 6 months have elapsed after a permit holder has first placed a gas well on production, the permit holder must flow test the well and determine the absolute open flow potential if
- (a) the well is producing from a pool with suspected water drive, or
 - (b) the well is classified as an exploratory outpost well or exploratory wildcat well.
- (2) A permit holder must submit to the commission, within 60 days of the date on which the operation concluded, a detailed report of
- (a) any gas well flow test for which temporary flow testing equipment is used to measure pressures and rates of each fluid,
 - (b) any cleanup flow that results in burnable gas to the surface, and
 - (c) any underbalanced drilling that results in burnable gas to the surface.
- (3) Subsection (1) does not apply with respect to a well completed in an unconventional zone listed in Schedule 2.

[am. B.C. Regs. 241/2012, s. 19; 146/2017, App. 1, s. 31.]

Metering and measurement of gas

- 64** (1) A measurement of a volume of gas required by the Act or this regulation must be computed as the number of cubic metres it would occupy at standard conditions of 101.325 kPa and 15°C.

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- (2) A well permit holder must make provision to allow for proving taps to be used in conjunction with wet meter testing of gas wells.

Restriction of gas production

- 65** (1) In this section, “**retrograde condensate**” means any hydrocarbon fluid which exhibits an increased liquid volume fraction at pressures below the dew point, yet will also begin to significantly revapourize on some further reduction of pressure.
- (2) A permit holder may not produce from any of the following types of gas wells unless a DGA for the well has been established by the permit holder’s permit or by a designation made under section 75 of the Act:
- (a) a producing well under a special project for concurrent production designated under section 75 of the Act;
 - (b) a producing well from a retrograde condensate reservoir;
 - (c) a producing well from a pool with suspected water drive;
 - (d) a gas well to which an off-target penalty factor applies as set out in section 7 (3) of this regulation.
- (3) For gas wells that are part of a special project designated under section 75 of the Act and that have been assigned a project DGA, the DGA may be applied to the entire project area as though it were a single well.
- (4) Subject to section 49.1 (1) (c) of the Act, if a DGA has been established for a well by permit or a designation under section 75 of the Act, the well permit holder must ensure that natural gas production from the well
- (a) does not in any one day exceed the daily production limit, and
 - (b) does not exceed the daily gas allowable multiplied by the number of days in the production period, or multiplied by the number of days from the date of initial production to the end of the production period.
- (5) A permit holder must not produce from a gas well that is in a gas cap.

[am. B.C. Reg. 159/2015, s. 17.]

Overproduction of gas

- 66** (1) A permit holder must determine the accumulated overproduction for the period November 1 to October 31 for each gas well or group of wells and, during the subsequent 3 months, the permit holder must ensure that the production rate is adjusted so that all accumulated overproduction is retired by January 31.
- (2) A permit holder must submit to the commission a report of any accumulated overproduction for the period November 1 to October 31, and the submission must be made in time for it to be received on or before December 16 for each gas well or special project under section 75 of the Act.

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Analysis of natural gas and hydrocarbon liquid production

- 67** (1) Subject to subsection (3), a well permit holder must take representative natural gas and hydrocarbon liquid samples from each producing formation from a well within 30 days of the initial production date.
- (2) A well permit holder must submit to the commission a report of the component analyses and physical properties of the natural gas and hydrocarbon liquids within 60 days of
- (a) the sampling referred to in subsection (1), and
 - (b) any other natural gas sampling and analysis performed on the well.
- (3) This section applies to hydrocarbon liquids only if produced from
- (a) a zone listed in Schedule 2 and have a specific gravity of 0.8063 or less, or
 - (b) a zone not listed in Schedule 2 and have a specific gravity of 0.7796 or less.
- [en. B.C. Reg. 103/2019, s. 25.]

Division 4 – Water**Measurement of water production**

- 68** (1) A measurement of a quantity of water required by the Act or this regulation must be computed as the number of cubic metres it would occupy at standard conditions of 15°C.
- (2) A permit holder must meter the quantity and rate of water produced from the permit holder's water source well.

Water produced at oil wells

- 69** (1) If the water production from a permit holder's oil well is 100 m³/1 000 m³ or more of the total liquid production and no test treater facilities are available, the permit holder must ensure that the water content of the oil is determined by
- (a) continuous proportional sampling of the produced liquids and accurate analysis of the sample, or
 - (b) a product analyzer.
- (2) If the water production from a permit holder's oil well is less than 100 m³/1 000 m³ of the total liquid production and no test treater facilities are available, the permit holder must ensure that the water content of the oil is determined by centrifuging 2 samples taken at reasonable intervals during each test and averaging the results or by methods described in subsection (1).
- (3) If the total water production at a permit holder's oil well or battery exceeds 50 m³ per month and the water content exceeds 5 m³/1 000 m³ of the total liquid production, the permit holder must ensure that the water is separated from the oil and accurately gauged or metered at the well, the battery or a central treating facility.

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- (4) If the total water production from a permit holder's multi-well battery is less than 50 m³ per month, the permit holder must ensure that water production is determined by totalling the calculated water production for each well based on its individual test rate.
- (5) If the total water production from a permit holder's oil well not grouped with others in a battery is less than 50 m³ per month, the permit holder must ensure that the water production is determined by centrifuging 3-spot or proportional samples taken at well spaced intervals during the month and averaging the results or by the method described in subsection (1).
- (6) A permit holder must quantify sediment and water production in accordance with chapter 10.4, "Determination of Water and/or Sediment in Crude Oil by the Centrifuge Method", in the American Petroleum Institute's Manual of Petroleum Measurement Standards, as amended from time to time.

Water produced at gas wells

- 70** A permit holder must ensure that water production that is separated at a gas well or central facility is metered to determine production or disposition quantities.

Water analysis

- 71** (1) If a zone in a well has produced sufficient water to allow sampling, the well permit holder of the well must collect a water sample from the zone and have it analyzed for mineral and ion content.
- (2) Within 60 days of the sampling referred to in subsection (1), the well permit holder must submit to the commission a report of the analysis.
- (3) Within 60 days of performing any other well water analysis, the well permit holder must submit to the commission a report of the analysis.

[am. B.C. Reg. 146/2017, App. 1, s. 33.]

Operation of a water source well

- 72** (1) Repealed. [B.C. Reg. 146/2017, App. 1, s. 34.]
- (2) A well permit holder must report the quantity of water production from a water source well to the commission no later than 20 days after the end of the month in which the production occurred.

[am. B.C. Regs. 146/2017, App. 1, s. 34; 174/2018, s. 5.]

Division 5 – Pressure Measurement**Reservoir pressure measurements**

- 73** (1) Subject to subsection (5), a well permit holder must ensure that the static bottom hole pressure of each completed zone of each of the permit holder's oil, gas, disposal or injection wells, and for any water source well accessing deep ground-

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water, is measured before initial oil, gas or water production, disposal or injection.

- (2) Subject to subsection (6), a well permit holder must ensure that the static bottom hole pressure of each of the permit holder's producing pools, observation wells and water source wells accessing deep groundwater is measured once every calendar year.
- (3) A well permit holder must report the following measurements to the commission within 60 days of the date the measurements were taken:
 - (a) all static bottom hole pressures and temperatures and the duration of the resulting shut-in period;
 - (b) all other pressures measured using downhole recorders.
- (4) A well permit holder must ensure that, when static bottom hole pressures and temperatures are measured, the surveyed wells remain shut-in until the reservoir pressure has been attained in the well bore or until sufficient data are available to permit the calculation of the reservoir pressure and, in the latter case, details of the reservoir pressure calculations are included in the report required under subsection (3).
- (5) Subsection (1) does not apply with respect to a well completed in an unconventional zone listed in Schedule 2 if the commission has released, under section 17 of the Oil and Gas Activities Act General Regulation, well reports and well data that include a static bottom hole pressure measurement from the same unconventional zone within a 4 km radius measured from the wellhead of the well.
- (6) Subsection (2) does not apply with respect to a well completed in an unconventional zone listed in Schedule 2.

[am. B.C. Regs. 241/2012, s. 20; 146/2017, App. 1, s. 35; 103/2019, s. 26.]

Division 6 – Injection and Disposal**Measurement of fluids injected**

- 74** A well permit holder must ensure that the quantity and rate of water, gas, air or any other fluid injected through a well to an underground formation is metered and that the injection pressure at the wellhead is measured.

[am. B.C. Reg. 159/2015, s. 19.]

Reporting of injection and disposal

- 75** (1) If a well permit holder injects or disposes of water, gas, air or any other fluid into an underground formation, the well permit holder must submit to the commission a monthly injection or disposal statement indicating all of the following:
- (a) the quantity of fluid injected or disposed of;
 - (b) the maximum wellhead injection or disposal pressure;
 - (c) the total monthly operating hours.

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- (2) A well permit holder must submit the statement required under subsection (1) no later than 20 days after the end of the month in which the activity occurred.
- (3) In addition to the statement required under subsection (1), a well permit holder of an acid gas disposal well must submit to the commission a composition analysis of all disposed fluids, identifying the well location and disposal formation.
- (4) A well permit holder must submit the analysis required under subsection (3) no later than 6 months after the last analysis was submitted.

[en. B.C. Reg. 103/2019, s. 27.]

Division 7 – Facilities**Notification**

- 76** A facility permit holder must notify the commission
- (a) at least 2 days before beginning construction of a facility or beginning permitted modifications to a facility,
 - (b) at least 2 days before conducting a pressure test on process piping at a facility,
 - (c) at least one day before beginning production operations at a facility, and
 - (d) at least one day before putting new or modified equipment in service at a facility.

Signs for facilities

- 77** (1) A facility permit holder must ensure that a permanently legible and conspicuous sign is displayed and maintained at each facility, and the sign must show all of the following:
- (a) the name of the permit holder;
 - (b) current emergency notification information, including a telephone number;
 - (c) the legal description of the site;
 - (d) if the facility handles flammable gas, a flammable gas symbol from Schedule 1;
 - (e) if the facility handles gas containing 100 ppm or greater of hydrogen sulphide, a poisonous gas symbol from Schedule 1;
 - (f) after March 1, 2011, if the facility handles gas containing 10 ppm or greater of hydrogen sulphide, a poisonous gas symbol from Schedule 1.
- (2) A permit holder must not post warning symbols where no hazard exists.

[am. B.C. Regs. 241/2012, s. 21; 146/2017, App. 1, s. 36.]

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Production facilities

- 78** (1) A facility permit holder must maintain up-to-date and detailed flow diagrams, metering schematics and gathering schematics for all wells, groups of wells, facilities and gathering systems.
- (1.1) A facility permit holder must ensure that all tools and equipment used in facility operations are installed and operated in accordance with the manufacturer's specifications or sound engineering practices.
- (2) Repealed. [B.C. Reg. 48/2021, App. 2, s. 3 (a).]
- (3) A facility permit holder must design and construct every portion of the piping system of the facility in accordance with either
- (a) ASME Standard B31.3, or
 - (b) CSA Standard Z662.
- (3.1) A facility permit holder referred to in subsection (3) must operate and maintain in accordance with the standard referred to in subsection (3) (b) any portions of the piping facility designed and constructed in accordance with that standard.
- (4) A facility permit holder must submit to the commission all record drawings including piping and instrumentation diagrams, metering schematics and plot plans, signed and sealed by a professional engineer licensed or registered under the *Engineers and Geoscientists Act*, within 3 months of beginning production or completing permitted modifications, as applicable.
- (5) The permit holder for a facility to which subsection (3) applies must indicate on the record drawings referred to in subsection (4) and on the piping of the facility the points at which the design and construction of the facility changes from one standard to the other, as applicable.
- (6) A facility permit holder must ensure both of the following:
- (a) the facility is maintained in a condition that minimizes hazards, including hazards associated with pits, holes, equipment and storage of materials;
 - (b) the facility site is clean and free of garbage, debris and derelict equipment.
- [am. B.C. Regs. 241/2012, s. 22; 159/2015, s. 21; 146/2017, App. 1, s. 37; 103/2019, s. 29; 48/2021, App. 2, s. 3.]

Integrity management program

- 78.1** A facility permit holder must prepare and maintain an integrity management program and carry out operations in accordance with the integrity management program throughout the life cycle of the facility.
- [en. B.C. Reg. 146/2017, App. 2, s. 1.]

Obligations on cancellation or cessation of operations

- 79** (1) The removal of the facility from the facility site is prescribed with respect to a facility permit for the purposes of section 40 (e) of the Act.

- (2) If a facility permit holder suspends operations at the facility, the facility permit holder must
 - (a) ensure that the suspension is carried out safely, and
 - (b) immediately notify the commission if the suspension continues for more than 12 consecutive months.
- (3) A facility permit holder who has suspended operations at the facility must notify the commission at least 5 days before reactivating the facility.

[am. B.C. Regs. 241/2012, s. 23; 146/2017, App. 2, s. 2; 48/2021, App. 2, s. 4.]

Division 8 – Storage Reservoirs

Storage reservoirs

- 80**
- (1) A well permit holder of a well that is part of a special project for storage reservoirs designated under section 75 of the Act must construct and operate the well in accordance with CSA Standard Z341.
 - (2) A facility permit holder of a facility that is part of a special project for storage reservoirs designated under section 75 of the Act must construct and operate the facility in accordance with CSA Standard Z341.
 - (3) A well permit holder of a well that is part of a special project for carbon dioxide storage designated under section 75 of the Act must construct and operate the well in accordance with CSA Standard Z741.

[am. B.C. Reg. 159/2015, s. 22.]

SCHEDULE 1

[en. B.C. Reg. 48/2021, App. 2, s. 5.]

[Sections 15 and 77]

WARNING SIGNS

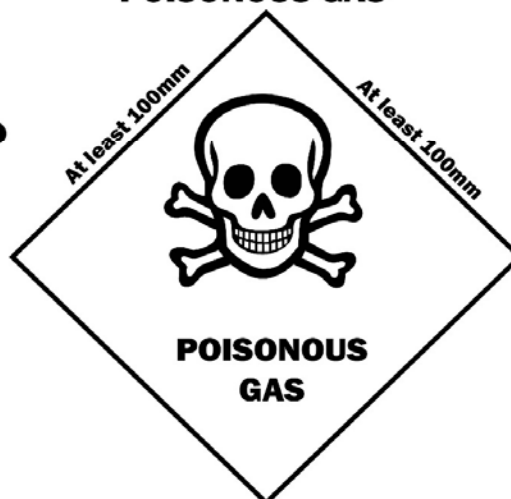
FLAMMABLE



**WHITE SYMBOL AND
LETTERING ON RED
BACKGROUND**

**BLACK LETTERING AND
SYMBOL OUTLINE ON
WHITE BACKGROUND**

POISONOUS GAS



SCHEDULE 2

[en. B.C. Reg. 146/2017, App. 1, s. 38.]

*[Sections 6, 7, 29 and 34]***Unconventional Zones**

Item	Field	Zone Name	Distance (m) Gas	Distance (m) Oil
1	Horn River	Muskwa-Otter Park	100	
2	Horn River	Evie	100	
3	Helmet	Muskwa-Otter Park	100	
4	Helmet	Evie	100	
5	Liard Basin	Besa River	100	
6	Northern Montney	Montney	150	100
7	Northern Montney	Doig Phosphate-Montney	150	100
8	Heritage	Montney	150	100
9	Deep Basin	Cadomin	150	
10	Deep Basin	Nikanassin	150	

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