Chapter 12 Facility Activity

12. Facility Activity

The facility activity section of this manual provides operating guidelines for regulatory requirements throughout the operations life cycle of the permitted activity. Construction activities are discussed in Section 4 of this manual. Associated oil and gas activities, if required in addition to the oil and gas activity permit, are touched on in Section 3.1 of this manual.

Liquefied Natural Gas (LNG)

Applicants planning to construct and operate a Liquefied Natural Gas facility (LNG facility) in British Columbia should review the Liquefied Natural Gas Facility Application and Operations Manual. Permit holders must be familiar with the requirements and procedures for applying and obtaining a permit to construct and operate an LNG facility.

Please Note:

This manual is written as a whole and provided to industry in sections to allow permit holders to access activity chapters. It is prudent of the permit holder to review the manual in its entirety and be aware of the content in other sections of the manual.

12.1 Facilities Permitted Activities

All permit holders are ultimately responsible for ensuring they understand and meet all legal and regulatory requirements of the permit, including all conditions attached to the permit. If an exemption is requested from regulatory requirements, an exemption must be prepared at the time of application. Permit holders must contact the Commission prior to commencing construction or operations if the adherence to the permitted activity cannot be met. The Commission may be able to provide further guidance and clarification.

12.1.1 Facilities Defined

Facilities are an oil and gas activity, and are defined in OGAA as:

- A system of vessels, piping, valves, tanks and other equipment used to gather, process, measure, store or dispose of petroleum, natural gas, water or a substance referred to in paragraph (d) or (e) of the definition of pipeline.

12.1.2 Regulatory Requirements

Facilities must meet the design and operational requirements outlined in the Oil and Gas Activities Act (OGAA), Oil and Gas Waste Regulation (OGWR), Drilling and Production Regulation (DPR), the Environmental Protection and Management Regulation (EPMR) and the Liquefied Natural Gas Facility Regulation (LNGFR).

12.1.3 Guidance Requirements

Facility activities should meet CSA Z276, CSA Z662 and ASME B31.3 standards, and the guidance recommendations in the following Commission documents:

- Measurement Requirements for Upstream Oil and Gas Operations manual.
- Flaring and Venting Reduction Guideline.
- BC Noise Control Best Practices Guideline.

Contact the following for compliance requirements:

- Technical Safety BC (BCSA) for the registration of all unfired pressure vessels and the Memorandum of Understanding between the Commission and Technical Safety BC.

Additional legislation, regulations and/or standards permit holders should adhere to include:

- Fugitive emissions management program must be in place prior to commencement of operations at a facility. The Commission may request this program at any time in the application, construction or operations phase of a

facility. Refer to the CAPP Best Management Practice for Fugitive Emissions Management document for further guidance.

- Leak detection system with adequate controls must be in place according to Section 39 of the Drilling and Production Regulation. The Commission may require additional levels of detection and control based on the location and specifics of a facility installation. Examples of common leak detection and control include high/low pressure alarms/shutdown, H_2S/LEL/fire detection, ESDV, etc.
- Overpressure protection must be designed and operated according to CSA Z662 and/or ASME B31.3. The Commission may require additional levels of detection and control based on the location and specifics of a facility installation.
- Secondary containment, storage tank design and water storage at a facility must meet standards as described in detail in the Facilities Planning and Design section of the Oil and Gas Activity Application Manual.

12.2 Facility Construction Requirements

Permit holders must complete a Notice of Construction Start and specific construction requirements as detailed in Chapter 4 of this manual.

Prior to beginning construction submit a Notice of Construction Start in KERMIT. Notices must be submitted prior to commencement of land clearing and/or the set-up of equipment on location and at least two days before construction is to begin.

12.2.1 Notice of Pressure Test for Facilities

Section 76 (b) of the Drilling and Production Regulation states:

- A facility permit holder must notify the Commission at least two days before conducting a pressure test on process piping at a facility.

Notice of pressure test may be either a shop or field test as follows:

- Shop tests are pressure tests conducted in the shop, usually used during repairs or modifications of short segments. Generally, shop tests are used for pre-testing pipe.

- Field tests are pressure tests conducted on site during construction or maintenance activities.

Notices of pressure test must be submitted in KERMIT.

12.2.2 As-built Submission Requirements for Facilities

As-built specifications, data and drawings provide the Commission with information about the technical aspects of the constructed facility. This information must be submitted to the Commission as an As-built submission within 90 calendar days of submitting Leave to Open. Submit through KERMIT.

As-Built Submissions

All As-Built submissions for facilities under the Drilling and Production Regulation must include the following attachments:

- Up to date and accurate piping and instrumentation diagrams (P&IDs).
- Up to date and accurate plot plans.
- Up to date and accurate metering schematics.

All record drawing submissions for facilities under the Liquefied Natural Gas Facility Regulation must include the following attachments:

- Up to date and accurate process flow diagrams (PFDs).
- Up to date and accurate metering schematics.
- Up to date and accurate plot plans.

Information on the As-Built P&IDs should include, but not be limited to:

- Design standards and code of construction.
- Specification breaks, code breaks and rating breaks.
- Mechanical line lists and/or P&ID symbology lead sheet.
- Meter design, type and information.

- Pressure vessel CRN, design, size and rating.
- Safety equipment such as LEL, fire and H_2S detection.
- Set points of all control equipment and fail position of control valves and equipment.
- Flow direction and labeling of fluid types.
- Slope direction of piping.
- Indication of the boundary between the facility permit and the pipeline permit (if applicable).

Information on the As-Built Plot Plan should clearly identify the surface area required for the facility and proposed equipment and as a minimum include:

- Lease area.
- Access roads.
- Any fencing, gating, or other access control measures.
- Layout of all equipment and facility piping.
- Wellheads.
- Blackened areas.
- Risers and any pipelines leaving or entering the facility.
- Adjacent ROWs (i.e.: utilities, pipelines, road allowances, easements, etc.).
- A scale (in metres) and legend.
- Any relevant off-lease information.

Information on the As-built metering schematics should include, but not be limited to:

- Design standards and code of construction.
- Meter design, type and information.

Additional Information

- For historical submissions, the P&ID's need to include all metering information.
- Typical drawings (one P&ID for multiple well sites, non-engineering drawings, etc.) are not acceptable for all As-Built submissions.
- The equipment list in KERMIT should be reflected on the P&ID attached.
- In cases where an As-Built has only been done to a section or sections of a large facility site, only applicable drawings need to be stamped and sealed by a Professional Engineer. When an As-Built is submitted for the amended portion of an already As-Built facility, only the amended portion is required to be submitted.

  Note: As-Built documentation for the entire facility must be kept on hand as the Commission may request this information in full at any time.
- In situations where many pages of drawings exist and an index sheet identifying each drawing is included, the Professional Engineer need only sign and seal the index sheet indicating signing and sealing for all subsequent drawings. If an index sheet is not provided, each drawing must be signed and sealed in accordance with Section 20(9) of the Engineers and Geoscientists Act.
- Referenced manufacturer P&IDs must be included in as-built submissions, and a British Columbia Professional Engineer must verify and seal documentation confirming relevant legislation has been met. Refer to the EGBC's Use of Seal document for additional information and clarification.
- If an As-Built includes facility piping, the piping specifications must be shown on the P&ID or can be summarized on the mechanical line list.

As-Built Submissions: Professional Sign Off and Disclaimer

As-Built drawings submitted to the Commission in accordance with the regulatory requirements must be sealed by a professional engineer licensed or registered under the Engineers and Geoscientists Act.

The Commission notes that in applying a professional seal, an engineer is attesting to the fitness for purpose and compliance of the sealed drawings. As such, Engineers and Geoscientists BC has prepared the following advice to members:

- In order to avoid exposing professional engineers to discipline action and potential lack of professional liability coverage, as-constructed drawings should only be signed and sealed by a professional engineer when a certification is included on the drawing.
- Certification includes the disclaimer: The signature and seal of the undersigned on this drawing certifies the design information contained in these drawings accurately reflects the original design and the material design changes made during construction were brought to the undersigned's attention. These drawings are intended to incorporate addenda, change orders and other material design changes, but not necessarily all site instructions.
- The undersigned does not warrant or guarantee, nor accept any responsibility for the accuracy or completeness of the as-constructed information supplied by others contained in these drawings, but does certify the as-constructed information, if accurate and complete, provides an as-constructed system which substantially complies in all material respects with the original design intent.

The Commission accepts drawings sealed with the aforementioned caveat. To assist professional engineers, a copy of the letter in which Engineers and Geoscientists BC relayed this information to the Commission was attached to the Information Bulletin INDB 2010-14.

Once an As-Built has been submitted, it will either be automatically accepted and an email will be generated from the KERMIT database, or the As-Built will be reviewed by the Facilities Engineering group. The applicant will be contacted if more information is required, and/or once the As-Built has been accepted.

12.3 Facility Pre-Operations Requirements

Permit holders must comply with emergency management, start-up inspections and Notice of Pre-operation testing, Leave to Open (for LNG facilities) and Leave to Operate requirements where applicable and as detailed in this section.

12.3.1 Emergency Management Response Plans

Permit holders must prepare and maintain an emergency management program and a response contingency plan as prescribed in the Emergency Management Regulation (EMR). In addition to the requirements and processes described in the EMR and the Commission's Emergency Management Manual, response plans for facilities should include incident reporting requirements in accordance with the Spill Reporting Regulation and the Commission's Incident Reporting Procedures and Guidelines.

According to the Environmental Management Act, permit holders require a Waste Discharge Permit prior to start-up of facility operation.

12.3.2 Start-up Inspection

OGAA permits and permit amendments may include specific conditions for start-up notifications and inspections taking place prior to the facility being brought into service. The facility types typically requiring start-up inspections are gas processing plants, compressor stations, other large, more complex facilities, and those where there are increased risks to the public and the environment.

12.3.3 Leave to Open

Section 76 (c) and (d) of the Drilling and Production Regulation states:

- A facility permit holder must notify the Commission at least one (1) day before beginning production operations or putting new or modified equipment in service at a facility.

The Leave to Open is the same for both upstream and downstream activity. The Leave to Open may be submitted once the Notice of Pressure Test is accepted and one day or 24 hours before commissioning.

Leave to Open is submitted using KERMIT. Access to KERMIT is found on the Online Services page of the Commission's website. Permit holders should include the following information:

- Proposed date of commissioning, which must be at least 24 hours after the Leave to Open application is submitted in KERMIT.
- Pressure test charts and other construction/testing information is not mandatory for submission, but must be kept by the permit holder for future audit purposes.

12.4 Facility Operational Requirements

Permit holders must comply with the following where applicable and as detailed in this section:

- Notice of Intent
- Emergency and safety reporting
- Notice of Flaring
- Notice of Linkage Change
- Ongoing reporting

12.4.1 Notice of Intent

A Notice of Intent (NOI) is an electronic notice submitted through KERMIT to capture and report on operational changes, modifications and/or repairs to existing facilities requiring no new acquisition of land. The information collected is used by the Commission to track and manage changes. A facility Notice of Intent may include:

- Modifying equipment or facility when:
    - Decreasing H_2S concentration.
    - Decreasing inlet capacity.
    - Leak detection equipment changes.

- Changing a facilities production reporting designation (Reporting / Non-reporting).

- Canceling facility or activity.
- Reactivating a Facility.
- Suspending a Facility.
- Removing a Facility (All equipment to be removed).

Appendix G and H provide a comprehensive list of facility changes requiring a facility permit amendment and changes where no amendment or NOI is needed. Notice of Construction Start, Notice of Pressure Test, Leave to Open and As-Built are not required for Notices of Intent.

A Notice of Intent is submitted using KERMIT. Access to KERMIT is found on the Online Services page of the Commission's website.

Replacement-in-kind

Replacement-in-kind allows a company to repair or replace equipment without the requirement of neither a Notice of Intent nor an application amendment. A replacement-in-kind is considered a maintenance procedure. The following conditions must be met for the equipment to be considered as a replacement-in-kind:

- Equipment replaced and/or repaired has been approved for installation under a previous and valid permit.
- Equipment replaced and/or repaired is essentially the same as the current.
- No change in size, design, capacity or function.
- No significant increase in noise or traffic than would otherwise be required for a maintenance related activity.

All facility piping changes, addition, modifications or deletions meeting all of the above criteria may be completed without a KERMIT Notice of Intent submission or an application amendment.

12.4.2 Facility Design and Operational Controls

In addition to the emergency planning and response programs and incident prevention controls discussed in Sections 12.3.1 and 3.3 of this manual, facilities must adhere to the following programs, controls and guides:

1. Fugitive emissions program
2. Leak detection and control
3. Sand management plan
4. Water management plan
5. Overpressure protection
6. Secondary containment
7. Truck out boxes
8. Storage tank design
9. Measurement at cross border facilities
10. Motor fuel tax and carbon tax requirements
11. Additional considerations for on-site equipment

Fugitive Emissions Program

A Fugitive Emissions Management Program must be in place prior to commencing operations at a facility. The Commission may request this program at any time in the application, construction or operations phase of a facility.

For more information, refer to Section 4.3.3 of the Oil and Gas Activity Application Manual.

Leak Detection and Control

A leak detection system with adequate controls per the Drilling and Production Regulation must be in place. The Commission may require additional levels of detection and control based on the location and specifics of a facility installation.

For more information, refer to Section 4.3.3 of the Oil and Gas Activity Application Manual.

Sand Management Plan

The sand management plan is a comprehensive plan outlining the preventative steps to reduce, monitor, and capture sand returns, and incorporate leak detection and piping integrity. All records relating to sand monitoring and testing programs must be maintained and made available to the Commission upon request.

Sand management plan requirements are detailed in the Oil and Gas Activity Application Manual.

Water Management Plan

The water management plan is intended to be a comprehensive plan outlining the design, operations and inventory management of produced and fresh water storage facilities. All water hub facilities and facilities with excavated ponds and pits or permanent C-rings must include a water management plan (WMP) with the application. All records relating to water monitoring and testing programs must be maintained and made available to the Commission upon request.

For more information, refer to Section 4.3.3 of the Oil and Gas Activity Application Manual.

Overpressure Protection

Overpressure protection must be designed and operated according to CSA Z662 and/or ASME B31.3. The Commission may require additional levels of detection and control based on the location and specifics of a facility installation.

For more information, refer to Section 4.3.3 of the Oil and Gas Activity Application Manual.

Secondary Containment

All produced oil, water and condensate storage (production) tanks as outlined in Section 50 of the DPR must meet the specified secondary containment requirements.

For more information, refer to Section 4.3.3 of the Oil and Gas Activity Application Manual.

Truck Out Boxes

Truck-out boxes are considered spill or leak prevention devices, not secondary containment. As a best practice, the Commission recommends the boxes are installed inside the tank's secondary containment boundary. Any deviation from this design must achieve the same results, and is considered on a case by case basis. The design should be configured to enable the truck operator to remain outside the secondary containment area while loading and unloading the fluid.

For more information, refer to Section 4.3.3 of the Oil and Gas Activity Application Manual.

Truck out boxes should be reflected on the drawings relative to the tank's secondary containment boundary as follows:

- By showing the location of the truck out boxes on the Plot Plan, PFD or P&ID, and/or
- By inserting a note on the drawings stating the location of the truck out boxes

Storage Tank Design

The general standards for atmospheric and low-pressure petroleum storage tanks in B.C. are included in the following American Petroleum Institute (API) documents:

API-650	Welded Steel Tanks for Oil Storage: governs the construction of tanks storing products with internal pressures of up to 2.5 psig.
API-651	Cathodic Protection for Above-Ground Petroleum Storage Tanks.
API-652	Lining of Above-Ground Petroleum Storage Tanks.
API-653	Tank Inspection, Repair, Alteration, and Reconstruction.
API-620	Design and Construction of Large Welded Low-Pressure Storage Tanks: construction of tanks with internal pressures of up to 15 psig.
API-2000	Venting Atmospheric and Low-Pressure Storage Tanks.
API-2350	Overfill Protection for Petroleum Storage Tanks.
API-2015	Cleaning Petroleum Storage Tanks.
API-2550	Measurements and Calibration of Petroleum Storage Tanks.

For general requirements on underground tank inspections and abandonment, refer to CSA Z662, API-1604 and NFPA 30. For more information, refer to Section 4.3.3 of the Oil and Gas Activity Application Manual.

Measurement at Cross Border Facilities

For guidance relating to measurement at cross border facilities, refer to the Measurement Requirements for Upstream Oil and Gas Operations Manual.

Motor Fuel Tax and Carbon Tax Requirements in British Columbia

In addition to the Commission's reporting requirements, permit holders, facility owners and operators may have tax reporting and payment obligations under British Columbia's Motor Fuel Tax Act, and/or Carbon Tax Act. Visit the Ministry's website at http://www2.gov.bc.ca/gov/content/taxes/sales-taxes or contact the Ministry of Finance toll free 1-877-388-4440 or by email at CTBTaxQuestions@gov.bc.ca.

Additional Considerations for On-site Equipment

Permit holders must factor in all on-site hazards and ensure all equipment is situated a safe distance from any roads, buildings, installations, works, or places of public concourse. The following list of equipment is generally not considered production equipment as per Section 48 of the Drilling and Production Regulation:

- Generators.
- Heat medium units.
- Instrument air units.
- Pigging equipment (pig senders/receivers).
- Chemical pumps.
- Risers.
- SCADA equipment.
- Chemical tanks.
- Propane tanks.
- Thermoelectric generators.
- MCC buildings.

- Office buildings.
- Storage buildings.
- Communication towers.

Other equipment deemed appropriate by the Commission may be included in this list.

12.4.3 Notice of Flaring and Venting

Review the Flaring and Venting Reduction Guideline for requirements regarding flaring and venting.

The Oil and Gas Waste Regulation includes parameters for air discharges from facilities and should be reviewed.

Planned Flaring Events

Planned flaring events are those occurring during operations where, in planning and carrying out the operations, the permit holder has a reasonable expectation flaring is needed. For these operations, provide notice to the Commission and the public of flaring 24 hours in advance of flaring events as per the requirements stated in the Flaring & Venting Reduction Guideline. Examples of these operations include, but are not limited to:

- Underbalanced drilling.
- Planned de-pressuring of process equipment and gas pipelines for maintenance.
- Commissioning and start-up of a new facility.

Unplanned Flaring Events

Unplanned flaring events are those occurring during operations where, in planning and carrying out the operations, the permit holder does not have a reasonable expectation flaring is needed. For these operations, provide notice of flaring within 24 hours of flaring events. Examples of these operations include:

- Drill stem testing.
- Managed pressure drilling.

- Drilling kicks.
- Unplanned de-pressuring of process equipment and gas pipelines due to process upsets or emergency.

Flared and Vented Gas Reporting

Report flared gas volumes to the Commission with 60 days of a flaring event. The process through which permit holders must report volumes of flared and vented gas is dependent on the oil and gas activity and operations associated with the flaring or venting event. The Flaring and Venting Reduction Guideline provides detailed reporting requirements.

In addition to providing notice to the Commission, permit holders must provide notice to all residents and administrators of incorporated centres within a specified radius of planned and unplanned flaring or venting events. The Flaring and Venting Reduction Guideline provides detailed reporting requirements.

Flared and vented gas volumes must be reported via Petrinex.

12.5 Historical Facility Entry

The historical facility entry enables permit holders to update any inaccuracies or absent data currently detailed in an ongoing facility permit. This includes equipment and compressor details that were approved prior to October 4, 2010. Specific details for historical facility entries can be found in the Oil and Gas Activity Application Manual.

12.6 Suspending a Facility for More Than Twelve Consecutive Months

Section 79(2) of the Drilling & Production Regulation states that all suspensions are carried out safely and that permit holders must immediately notify the Commission if a suspension continues for more than twelve (12) consecutive months.

If a compressor station, battery, tank terminal, gas dehydrator, disposal / injection station, or gas plant will be suspended for more than twelve (12) consecutive months, a suspend facility Notice of Intent is required.

The suspend facility Notice of Intent must be submitted to the Commission before or within twelve (12) months of suspending the facility.

A partial facility suspension, such as shutting down a compressor or dehydrator at a facility with multiple compressors or dehydrator packages, does not require a permit amendment or notification to the Commission.

Long-term facility piping deactivation must follow the requirements found in CSA Z662, common industry practices, and / or good engineering practices. A short-term suspension will include similar requirements to a long-term suspension with the exception of less stringent isolation requirements. For example, compressor unit or well facility isolation can include closed and locked valves vs. installing blinds or blanking plates.

Suspending a gas plant or facility requires both a project description and updated schematics uploaded as attachments in KERMIT along with the Notice of Intent.

Submit a project description for the safety and security of the facility. The Project description must show provisions have been made to:

- Empty all fluid from vessels, storage tanks, underground tanks, chemical tanks, etc.
- De-pressure the facility.
- Dispose of corrosive, combustible or explosive fluids.
- Minimize or prevent degradation of the plant or facility equipment, vessels and piping.
- Maintain cathodic protection, if applicable.
- Secure the plant or facility against unauthorized entry and vandalism, and monitor as appropriate.
- Periodically have the plant or facility and site inspected by qualified persons.
- Address any other concerns the Commission has identified.

The project description must include a list of wells from the schematic, rationale for shut-in, plan and duration of shut-in, and if / how the associated wells, pipelines and facilitates will also be suspended or deactivated in conjunction with the suspension.

Updated Schematics

Updated gathering system schematic showing where the wells (if any are effective) and facilities will be redirected to, as well as pipelines coming in or out of the facility.

12.7 Facility Removal and Remediation

Notice of Intent to Cancel a Facility: No Equipment Installed

All previously approved equipment listed on the permit and intended to be cancelled must never have been installed. A Cancel Facility or Activity Notice of Intent must be submitted when a project will no longer be constructed and the details should be cancelled.

Notice of Intent to Remove a Facility: All Equipment Removed

All constructed equipment must be removed or in the process of being removed.

A Notice of Intent (NOI) is an electronic notice submitted through KERMIT to capture and report on operational changes, modifications and/or repairs to existing facilities requiring no new acquisition of land