

Public Safety Report

2011 – 2012 | BC Oil and Gas Commission



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About the

BC Oil and Gas Commission

The BC Oil and Gas Commission (Commission) is the single-window regulatory agency with responsibilities for regulating oil and gas activities in British Columbia, including exploration, development, pipeline transportation and reclamation.

The Commission's core services include reviewing and assessing applications for industry activity, consulting with First Nations, cooperating with partner agencies, and ensuring industry complies with provincial legislation and all regulatory requirements. The public interest is protected by ensuring public safety, respecting those affected by oil and gas activities, conserving the environment, and ensuring equitable participation in production.

For general information about the Commission, please visit www.bcogc.ca or phone 250-794-5200.



Mission

We regulate oil and gas activities for the benefit of British Columbians.

We achieve this by:

- Protecting public safety,
- Respecting those affected by oil and gas activities,
- Conserving the environment, and
- Supporting resource development.

Through the active engagement of our stakeholders and partners, we provide fair and timely decisions within our regulatory framework.

We support opportunities for employee growth, recognize individual and group contributions, demonstrate accountability at all levels, and instill pride and confidence in our organization.

We serve with a passion for excellence.

Vision

To be the leading oil and gas regulator in Canada.

Values

| | | |
|-------------|-----------|-------------|
| Respectful | Effective | Responsive |
| Accountable | Efficient | Transparent |

Public Safety Report

A key priority of the BC Oil and Gas Commission (Commission), as detailed in our mandate and expressed in our mission statement, is the protection of public safety. This report provides statistics on public safety and performance measurements in an effort to improve operational practices and ensure the safety of oil and gas operations.

Incidents and complaints related to oil and gas activities regulated by the Commission are recorded and tracked through the Commission's database. Incidents are reported by industry, while complaints are reported primarily by the public and stakeholders.

The Commission maintains a comprehensive Emergency Management Program to ensure permit holders plan for and respond to incidents appropriately and effectively. Complaints are important in helping the Commission reduce the risk of potential incidents. Complaints are received, tracked, and in most situations inspectors are dispatched to the location to determine the cause of the complaint and assist in resolving the situation if necessary.

This report details all incidents and complaints for the 2011 and 2012 calendar years. The data used in the preparation of this report has been obtained from Emergency Management BC (EMBC), previously known as the Provincial Emergency Program (PEP), as well as the Commission's Knowledge, Enterprise, Resource, Management, Information Technology (KERMIT) database. For the purpose of this report, oil and gas activities regulated by the Commission fall into four categories: pipelines, wellsites, facilities and other¹.

¹"Other" incidents for the purpose of this report are incidents that occurred during oil and gas-related activities such as road construction for leases, incidents at camp sites, motor vehicle incidents, or incidents reported to the Commission anonymously by a third party but an investigation could not determine a source.

Incident

Incidents are reported by industry to the Commission through Emergency Management BC. Incidents are classified into four categories reflecting level of risk: Minor, Level 1, Level 2 and Level 3.

Complaint

Complaints are reported by the public and stakeholders (and may also be reported by industry) and received through the Commission's 24-hour emergency telephone number. In this report complaints are classified into the following categories: public health, odours, environment, personal property, agriculture, safety, noise, flaring and other.

Incident and Complaint Management

The Commission maintains an Emergency Management Program to ensure permit holders plan for and respond to incidents appropriately and effectively.

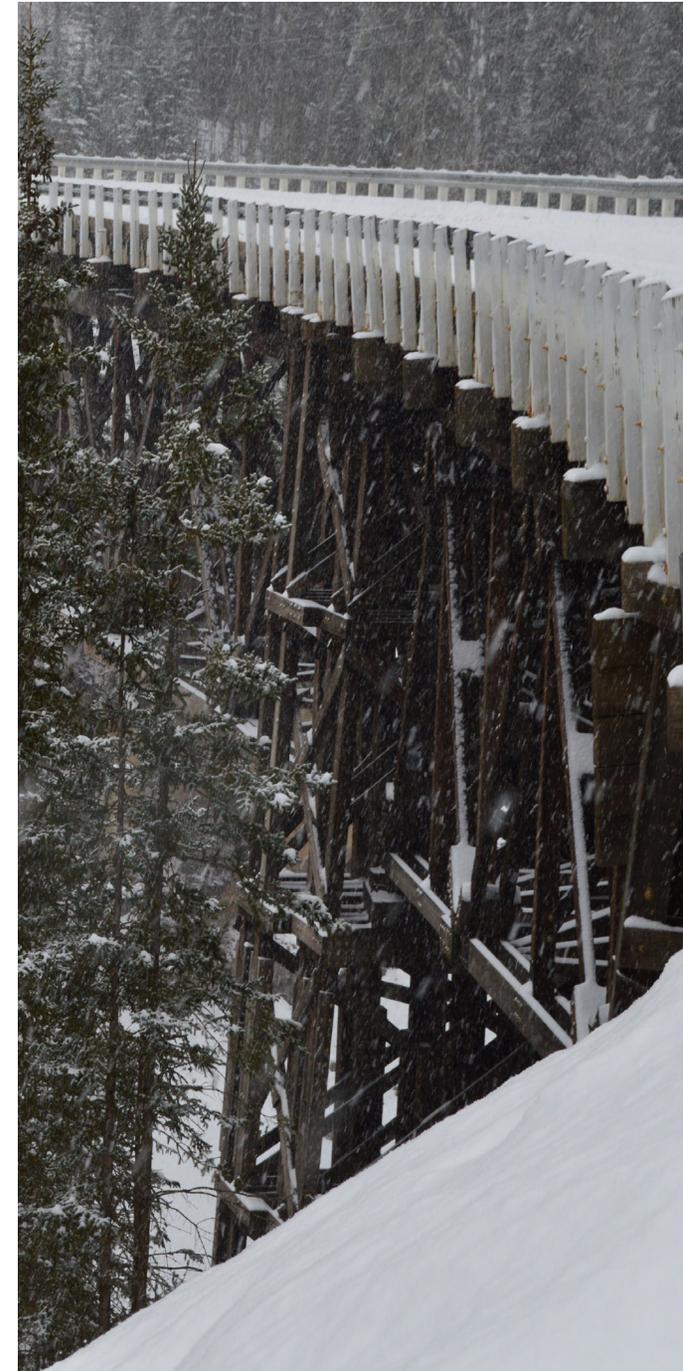
Permit holders are required to respond to all incidents and are responsible for all costs associated with response and remedial actions. Response actions may include, but are not limited to:

- Notification to Commission of all reportable incidents – Level 1, 2 or 3 incidents to be reported within one hour; Minor to be reported within 24 hours.
- Notification to applicable stakeholders and government authorities.
- Control and containment of hazard(s).
- Roadblocks and/or closures to restrict public access.
- Air quality monitoring.
- Evacuating and/or sheltering the public.

Responding to complaints is a priority for the Commission and each complaint is addressed individually and accordingly. In most cases, inspectors are dispatched to the location to determine the cause of the complaint and assist to resolve the situation. Complaints are important in helping reduce the risk of potential incidents, and the Commission commits to responding within two hours.

The Commission plays an integral role in emergency management for oil and gas related activities, and its responsibilities include:

- Receiving reported incidents and complaints through the Commission's 24/7 reporting service.
- Confirming the level of emergency response necessary by assessing potential risks.
- Ensuring permit holders notify appropriate stakeholders and/or agencies.
- Overseeing of permit holders' response actions as per Commission requirements.
- Liaising with and coordinating interagency emergency operations.
- Providing regular situation updates to key stakeholders and response agencies.
- Authorizing official stand down of emergency response.



Incident Summary

Incidents are reported to the Commission directly to an Emergency Officer by industry or through EMBC, and are then entered into the KERMIT database. Upon being reported, incidents are classified into four categories reflecting the level of risk: Minor, Level 1, Level 2 or Level 3:

Minor: Incidents that do not meet the criteria for Levels 1-3. Incident has impact on permit holder only, and no potential impacts to people, property or the environment.

Level 1: Incident has moderate to major impact on permit holder only; no potential impacts to people, property or environment.

Level 2: Incident may pose a risk to the public and/or environment.

Level 3: Incident has serious impacts to the public and/or environment and results in immediate danger.

Cause factors for incidents are classified by the Commission and in KERMIT as (although in some cases factors can be unknown at the time of the incident):

- Third party.
- Corrosion.
- Over-pressurized equipment.
- Geological.
- Manufacturing defect.
- Human error.
- Equipment failure.
- Other factors².

For each incident, one or more factors can contribute to the cause of the incident. Types of factors are:

- Hazardous material spill or release.
- Fire or explosion.
- Structural or equipment damage.
- Natural events, such as floods, wildfires or storms.
- Security threats, such as sabotage, vandalism or terrorism.
- Worker fatality or serious injury.
- Other, which are defined by rare or unusual events.

² Other factors include sand erosion, loss of circulation while drilling and well communications.

The Commission strives to ensure incidents are remediated as quickly as practicable to prevent unnecessary escalation. When incidents are reported, the response actions are reported to the Commission and recorded in KERMIT. Depending on the severity of the incident, the Commission is continually updated during an event. This is particularly important for Level 1, 2 and 3 incidents.

Reported Incidents

In 2011, a total of 364 incidents were reported to the Commission. Of the reported incidents, 83 per cent were classified as Minor status, having no potential impact to people, property or the environment.

A total of 62 incidents classified as Level 1, 2 or 3 were reported to the Commission. The site type and number of incidents according to threat level are reflected in Table 1.

In 2012, a total of 311 incidents were reported to the Commission. Of the reported incidents, 85.5 per cent were classified as Minor status, having no potential impact to people, property or the environment.

A total of 45 incidents classified as Level 1, 2 or 3 were reported to the Commission. The site type and number of incidents according to threat level are reflected in Table 2.

Table 1: Summary of reported Level 1, 2 and 3 incidents during 2011

| Activity Type | Threat Level | | | Total number of reported incidents |
|-------------------|--------------|-----------|----------|------------------------------------|
| | Level 1 | Level 2 | Level 3 | |
| Pipelines | 12 | 7 | 0 | 19 |
| Wellsites | 19 | 10 | 2 | 31 |
| Facilities | 10 | 1 | 0 | 11 |
| Oil and Gas Roads | 0 | 0 | 0 | 0 |
| Other | 1 | 0 | 0 | 1 |
| Total | 42 | 18 | 2 | 62 |

Table 2: Summary of reported Level 1, 2 and 3 incidents during 2012

| Activity Type | Threat Level | | | Total number of reported incidents |
|-------------------|--------------|-----------|----------|------------------------------------|
| | Level 1 | Level 2 | Level 3 | |
| Pipelines | 12 | 3 | 1 | 16 |
| Wellsites | 11 | 5 | 1 | 17 |
| Facilities | 8 | 2 | 0 | 10 |
| Oil and Gas Roads | 1 | 0 | 0 | 1 |
| Other | 1 | 0 | 0 | 1 |
| Total | 33 | 10 | 2 | 45 |

Wellsites

Wellsite activities are regulated by the Drilling and Production Regulation. Included in these statistics are wellsites that have been suspended and one disposal well. There were no incidents that involved abandoned wells.

Two Level 3 incidents occurred in 2011. In March 2011, a Level 3 incident occurred at a well that had been put in production the day prior. A sand wash-out occurred at a pipe flange resulting in the release of sour natural gas to the atmosphere. The Emergency Response Plan (ERP) was activated immediately and residents in the area notified. The well was shut in until the newly designed piping was installed and the gas tested for residual sand.

November 2011, a Level 3 incident occurred while a well was being serviced. The bonnet on the casing valve failed due to excessively cold temperatures. Metal fatigue had caused three casing bolts to break with a subsequent release of sour natural gas. The ERP was activated immediately and the area isolated. Air monitoring was done adjacent to the site with no readings of H₂S detected. The incident was stood down approximately four hours later. The casing valve was replaced and the well was back into full production the following day.

Both incidents were assessed for cause and contributing factors. No injuries occurred and in each incident the well remained shut in until all repairs and testing were completed.

One Level 3 incident occurred in March 2012, when a drilling rig crew lost control of a natural gas well causing a large fire. The ERP was activated and Commission personnel responded immediately. The fire destroyed the drilling rig and on-site equipment with no impact to the public. The results of the investigation completed by the Commission are available in the [Well Failure Investigation Report](#).

Drilling

Includes all operations that are continuously attended from spudding-in until production casing is cemented or the well is abandoned.

Producing Well

Wells that have been completed and are currently placed on regular production.

Completion/Service

Includes all operations that are continuously attended subsequent to the drilling stage which are necessary to prepare the well to produce. It also includes operations to restore the well or to repair the well after a period of production.

Suspended Well

Includes all operations not continuously attended at wells that are not capable of producing.

Pipelines

The Commission regulates pipeline activities ranging from pipeline construction to pipeline operation and maintenance. Pipeline activities are regulated by the Pipeline and Liquefied Natural Gas Facility Regulation, which states that all pipelines must be operated and maintained in accordance with CSA Z662–Oil and Gas Pipeline Systems. Included in the statistics are pipelines that are no longer in service or those that have been appropriately deactivated and abandoned³.

A pipeline is defined as a continuous conduit between two geographical locations through which oil, gas or solids is transported under pressure and includes:

- A company pipeline.
- All gathering and flow lines used in oil and gas fields to transmit oil and gas.
- All water injection pipelines or other pipelines used to transmit water at working pressures in excess of 3,500 kilopascals (kPa) in oil and gas fields.
- All transmission lines used to transmit gas at working pressures in excess of 700 kPa (guage) from a company pipeline to the distribution system of a public utility or a gas utility.
- The majority of pipelines in British Columbia are regulated by the Commission; however, inter-provincial pipelines are regulated by the National Energy Board.

³The [Pipeline Performance and Activity Report](#) provides a detailed analysis of pipelines regulated by the Commission.

In June 2012, a Commission-regulated pipeline ruptured and ignited in a remote area due to exposure to extreme heat generated by an adjacent pipeline failure. An explosion resulted, the ERP was activated and Commission personnel were on location within 12 hours. There was no impact to the public. A joint investigation was completed by the Transportation Safety Board of Canada (TSBC), the National Energy Board and the Commission. It was identified in the investigation report, available on the TSBC [website](#), the Commission-regulated pipeline failed due to the third party cause .

Facilities

Facilities regulated by the Commission are defined by a system, collection or arrangement of equipment situated at a single location used for production, processing or transportation of oil or natural gas. This includes compressor stations, oil pump stations, oil batteries, small tank farms and gas processing plants.

The majority of facilities in British Columbia are permitted and regulated by the Commission, but some are under the National Energy Board's jurisdiction. Construction, operation and maintenance of facilities follow the Drilling and Production Regulation as well as ASME B31.3 standards.

Roads

Roads regulated by the Commission under the Oil and Gas Road Regulation are resource roads permitted and authorized for use for the purpose of oil and gas exploration and development. The permit holder is responsible for the construction, maintenance and safety of such roads.

Other

Incidents reported to the Commission that do not fall under the above categories can occur during oil and gas activities such as road or bridge damage, security related incidents such as vandalism, motor vehicle incidents, or injuries to workers where there was no impact to public safety or environment.

Contributing Causes

Contributing factors or causes for reported incidents include third party, corrosion, over-pressurized equipment, geological factors, human error, equipment failure, other factors and unknown. The breakdown of contributing causes for all reported Level 1, 2 and 3 incidents in 2011 and 2012 are outlined in Tables 3 and 4. The Commission records the type of material(s) released, if any, for incidents which involve releases or spills. In the event of a spill or release, the Commission ensures that ERPs are implemented to mitigate the risk to public safety and the environment.

Table 3. Contributing Causes 2011

| Contributing Cause | Percentage |
|----------------------------|------------|
| Equipment Failure | 32% |
| Geological | 18% |
| Unknown | 16% |
| Human Error | 15% |
| Over-pressurized Equipment | 8% |
| Corrosion | 8% |
| Third Party | 3% |
| Manufacturing Defect | 0% |

Table 4. Contributing Causes 2012

| Contributing Cause | Percentage |
|----------------------------|------------|
| Equipment Failure | 47% |
| Geological | 13% |
| Unknown | 11% |
| Human Error | 11% |
| Over-pressurized Equipment | 7% |
| Other Factors | 5% |
| Corrosion | 2% |
| Third Party | 2% |
| Manufacturing Defect | 2% |



Table 5. Number of Complaints by Type and Percentage 2011

| Type of Complaint | Number of Complaints | Type of Complaint by percentage |
|-------------------|----------------------|---------------------------------|
| Odours | 59 | 33.9% |
| Spills | 9 | 5.2% |
| Noise | 29 | 16.7% |
| Land | 36 | 20.7% |
| Flaring | 6 | 3.4% |
| Other | 35 | 20.1% |
| Total | 174 | |

Table 6. Number of Complaints by Type and Percentage 2012

| Type of Complaint | Number of Complaints | Type of Complaint by percentage |
|-------------------|----------------------|---------------------------------|
| Odours | 51 | 36.4% |
| Spills | 7 | 5.0% |
| Noise | 10 | 7.1% |
| Land | 33 | 23.6% |
| Flaring | 10 | 7.1% |
| Other | 29 | 20.7% |
| Total | 140 | |

Complaint Summary

The Commission tracks all reported complaints received through the 24-hour emergency phone number. A reported complaint is categorized by the primary type but may include secondary complaint types. The total number of complaints by primary reported type for 2011 and 2012 are outlined in Tables 5 and 6 respectively.

Complaint Response

The Commission prioritizes complaints and is committed to responding to each one within two hours. Inspectors are sent out to each location to determine the cause of the complaint and assist to resolve the situation. Complaints help to reduce the risk of potential incidents.

Complaint type and description

| Type | Description |
|---------|--|
| Odours | Complaints involving petroleum/hydrocarbon based odours directly related to the oil and gas activities. |
| Spills | A complaint involving evidence of a chemical/hydrocarbon spill such as ground staining. Typically these are spills that have not been reported to the Commission by a permit holder. |
| Noise | Potentially excessive noise from oil and gas activity that is bothersome to residents. Such complaints are investigated by the Commission to determine if acceptable thresholds are exceeded. |
| Land | Land complaints may include: potential trespass issues, unsecured fences and gates, dust from roads impacting crops, soil erosion or contamination, invasive weeds, land usage or access through land. |
| Flaring | May include perceived excessive flaring and/or emissions from flaring. |
| Other | Any complaints not outlined in the above categories are considered as other. This may include complaints regarding roads, water, weeds, animals, environment or damage to phone lines. |

Public Protection and Safety

The Public Protection and Safety department oversees emergency preparedness and response for oil and gas operations and activities in British Columbia regulated by the Commission (a portion of operations are regulated by the National Energy Board). This includes management of a 24/7 emergency service that enables the Commission to receive emergency complaint calls and respond accordingly. The service includes 24-hour standby of a designated Emergency Officer who answers all calls and determines how the Commission responds to the complaint or emergency. This may include dispatching operations inspector(s) to the site for immediate investigation.

For serious emergencies, the Emergency Operations Centre (EOC) is activated. In this situation the Emergency Officer hands responsibility of incident management to the Director of the EOC. Activation of the Commission's EOC is based on specific risk criteria and its purpose is to support any field based emergency operations.

The Public Protection and Safety department is responsible for ensuring emergency response plans meet the requirements and standards for the province. This responsibility includes the review of permit holder ERPs. If deficiencies are identified in the plans, they are corrected prior to the commencement of any new

activities. All permit holders owning and/or operating petroleum and natural gas assets in British Columbia are required to develop and maintain ERPs.

Permit holder emergency exercises are also audited by the Commission to determine the adequacy of emergency response systems and processes. Based on these audits, recommendations are made for improvement in terms of response capacity, training, and procedures.

The Commission attends drilling and initial completion ERP meetings with permit holders to review the ERP prior to drilling and initial completion activities. These meetings are for audit purposes and attendance is based on specific risk criteria. The meeting is held to review the ERP and assign roles and responsibilities or to ensure the permit holder is prepared for an emergency should one occur.

Table 7. Public Protection and Safety Department Activities 2011

| ERPs and Exercises | Total for 2011 |
|---|----------------|
| ERPs reviewed by the Commission | 351 |
| Permit holder emergency exercises attended by the Commission | 60 |
| Drilling and Completion ERP meetings attended by the Commission | 14 |

Table 8. Public Protection and Safety Department Activities 2012

| ERPs and Exercises | Total for 2012 |
|---|----------------|
| ERPs reviewed by the Commission | 240 |
| Permit holder emergency exercises attended by the Commission | 63 |
| Drilling and Completion ERP meetings attended by the Commission | 13 |

More information

www.bcogc.ca

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