

# 2010/11 Site Restoration Annual Report





## About the BC Oil and Gas Commission

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The BC Oil and Gas Commission is a single-window regulatory agency with responsibilities for overseeing oil and gas operations in British Columbia, including exploration, development, pipeline transportation and reclamation.

The Commission's core roles include reviewing and assessing applications for industry activity, consulting with First Nations, ensuring industry complies with provincial legislation and cooperating with partner agencies. The public interest is protected through the objectives of ensuring public safety, protecting the environment, conserving petroleum resources and ensuring equitable participation in production.

## Table of Contents

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1. Executive Summary	Page 5
2. Background	Page 5
3. Certificate of Restoration Process	Page 6
4. Effectiveness and Performance Measures	Page 8
5. Conclusion	Page 11
6. Glossary	Page 12

# 1 Executive Summary

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British Columbia's Certificate of Restoration (CoR) program ensures land used for oil and gas development is restored to a safe and productive state. The program is designed to ensure compliance with British Columbia's environmental standards and promote the timely restoration of sites. The BC Oil and Gas Commission (Commission) is responsible for overseeing the restoration activity, ensuring all applications approved are in the public interest with regard to environmental, economic and social effects.

Since 1974, all abandoned wells in British Columbia are required to apply for and obtain a CoR. To obtain a CoR, an operator must submit a two-part application to the Commission. The average number of calendar days to assess new Part I applications increased from 15.2 in 2009/10 to 23 days in 2010/11.

During the 2010/11 fiscal year, the Commission reviewed 103 Part I CoR applications, 93 Part II applications and issued 84 CoRs. The number of Part II applications and approved CoRs more than tripled compared to 2009/10.

The Commission is committed to working with First Nations, other government agencies, industry, landowners and other stakeholders to appropriately manage site restoration activities.

## 2 Background

Oil and gas activities have been taking place in British Columbia since the first wells were drilled in the East Kootenay region circa 1905. These first wells were largely unregulated and little documentation remains concerning their locations, productivity or abandonment status. As such, these wells are currently being investigated by the Commission to establish their locations and current status and to determine if any remedial activities should be undertaken to ensure they have been abandoned in a safe and environmentally responsible manner.

Since 1974, all wells being abandoned within British Columbia have been required to obtain a Certificate of Restoration (CoR) under the Petroleum and Natural Gas Act (PNGA). The CoR ensures operators restore land disturbed by oil and gas activities as near as practical to pre-activity land use and quality. These requirements have been revised over time, most notably following the 1998 introduction of the Contaminated Sites Regulation (CSR) by the Ministry of Environment; the 2004 revisions to the CSR and the Environmental Management Act (EMA), and the 2010 implementation of the Oil and Gas Activities Act.

In 2005, the Commission established a department dedicated to ensuring sites meet the requirements of the EMA prior to issuance of a CoR. The Commission subsequently made changes to the CoR application process and information requirements as detailed in Information Letter 06-14, released in 2006.

## 3 Certificate of Restoration Process

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The CoR process ensures land used for oil and gas development is restored to a safe and productive condition. When an oil and gas site is no longer productive, the operator is required to reclaim the site and receive a CoR before it is allowed to cease payment on surface tenures. In order to obtain a CoR the impacted lands must be returned to a state, as near as is reasonable, to the surface condition which existed before the oil and gas activity was commenced.

### 3.1 Liability for Remediation

Issuance of a CoR does not absolve the operator of any future liability associated with the impacts their operations may have on a restored site. The CoR simply provides assurance to all stakeholders the site has been restored in accordance with current standards and requirements and all known contamination issues or other hazards have been mitigated. Should issues arise in the future requiring additional restoration work at a site that has received a CoR, the operator remains responsible for the full cost of that work.

Provisions pertaining to responsibility for contamination are detailed in the EMA. Should contamination issues be identified subsequent to the issuance of a CoR, the Commission will work with the responsible parties to ensure the issues are rectified. In the rare event no responsible party can be identified, the Commissioner may designate a site as an orphan site and draw funds from the Orphan Site Reclamation Fund (OSRF) to complete the necessary work.

Landowners who enter a surface lease under the PNGA to allow a company access to subsurface resources cannot be held responsible for contamination resulting from activities at oil and gas sites unless the contamination was caused or made worse by their own gross negligence or willful misconduct (per Section 30 of the CSR).

### 3.2 What is involved in Environmental Site Assessment?

Localized soil and groundwater contamination may occasionally be found on oil and gas wellsites and related facilities. Where contamination has occurred it may range from almost undetectable levels of inorganic contaminants such as trace metals to more complex situations involving both inorganic and organic contamination. In all cases, when contamination is found, companies must comply with the provisions of the PNGA and the EMA. All decisions made by the Commission in issuing a CoR are guided by the CSR standards established by the Ministry of Environment. When evaluating applications for CoRs, the Commission relies on the established Ministry of Environment standards with limited allowance for risk-based assessments<sup>1</sup>. For lands within the Agricultural Land Reserve, the surface reclamation requirements of the delegation agreement between the Commission and the Agricultural Land Commission apply in addition to the requirements of the CSR.

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<sup>1</sup> Where numerical standards are exceeded, established Ministry of Environment procedures such as detailed risk assessments and screening level risk assessments provide alternative means for site owners to demonstrate certain sites do not pose a significant risk to human health and the environment. Rationale developed following such procedures may also be used to support a CoR application.

A very small number of sites may be identified as priority sites based on the Site Classification Tool. The Commission refers these sites to the Ministry of Environment and they are not eligible for a CoR until the Ministry of Environment is satisfied all high-risk conditions have been addressed. The Commission will then ensure concerns have been resolved regarding residual contamination at the site prior to issuing a CoR.

### 3.3 CoR Application Process

To obtain a CoR for a site, the operator must submit a two-part application to the Commission. Part I of this application includes a site assessment to identify the presence of contamination. If contamination has been identified, the operator must submit a report detailing how the contamination has been managed and how the site has been remediated. The Commission reviews all CoR Part I submissions and may request additional information, site sampling or other actions where necessary to determine the adequacy of the site assessment and effectiveness of any remedial activities. When a site is classified as a priority site, it is immediately referred to the Ministry of Environment for review. In addition, the Commission may, upon receiving the CoR application, forward any submission to the land remediation section of the Ministry of Environment for oversight of remediation under the CSR site profile process.

Part II of the application requires the operator to complete an effectiveness assessment of surface reclamation activities in restoring site productivity. Upon acceptance of a Part II application, the Commission will issue a CoR. Because of the time necessary for a determination on the success of vegetation reestablishment and other factors, Part II applications are commonly made one or more years after a Part I application is made.

All applications for CoRs (Parts I and II) must be submitted by certified environmental professionals operating under a strict code of conduct, legislated and controlled by the provincial government. For this reporting period, eligible professionals include professional engineers, registered with the Association of Professional Engineers and Geoscientists of British Columbia, professional agrologists, registered with the British Columbia Institute of Agrologists, and applied science technologists registered with the Applied Science Technologists and Technicians of British Columbia.

These applications are reviewed by the Commission's professional staff to verify all requirements have been met, ensure the sites have been restored to an acceptable condition, and, when appropriate issue the CoR.

Table 1 – CoR Application Statistics

Fiscal Year	Part-I Received	Part-I Accepted	Part-II Received	Part-II Accepted (CoR issued)
2006/07	16	15	0	0
2007/08	100	94	11	11
2008/09	98	91	16	16
2009/10	115	88	26	24
2010/11	103	82	93	84

## 4 Effectiveness and Performance Measures

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The Commission has an obligation and duty to stakeholders to ensure wellsites and pipelines are adequately restored in a timely and effective manner.

To gauge the Commission's effectiveness, five key measures have been developed and are reported annually. These measures are liability management, application quality, Commission timeliness, representative sampling of submissions and agricultural pipeline reclamation. These are described below.

### 4.1 Liability Management Measure

The Liability Management Measure (LMM) is calculated as the number of wells that have received a CoR divided by the number of wells that have been plugged<sup>2</sup>. Plugged wells are wells where operators should be in the process of obtaining a CoR.

Recalling that the CoR process consists of two parts, there is almost always a one- or two-year delay from the time a well is plugged to the time it may be eligible to receive a CoR. In addition, there are approximately 3,656 legacy sites that were reclaimed prior to the advent of legislated CoR requirements in 1974 and subsequent changes discussed in the background section of this report. These legacy sites are described in detail in the Assessment of Environmental Liabilities of Historically Reclaimed Sites report published by the Commission.

A consistent LMM ratio indicates that the CoR process is being managed effectively in a manner consistent with the rate at which wells are being plugged. A decrease in the ratio indicates that the Commission should consider taking steps to increase the number of restored wells through multiple means, which may include active follow up with operators of plugged sites that have not received a CoR.

The LMM for 2008 through 2010 demonstrates the overall liability is consistent. However, the LMM has a slightly decreasing trend indicating restoration is not quite keeping pace with plugging operations. The Commission is monitoring this and taking action to promote the timely restoration of sites.

Table 2 – Liability Management Measure

Period	# of Plugged Wells	# Restored	Ratio
To December 2008	5,768	3,814	0.66
To December 2009	5,849	3,827	0.65
To December 2010	6,092	3,911	0.64

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<sup>2</sup> Plugged wells are wells that have been permanently plugged and cemented in accordance with the Drilling and Production Regulation to ensure the safety and integrity of the wellbore.



## 4.2 Application Quality Measure

The Application Quality Measure (AQM) is calculated as the number of Part I applications received that are successful upon first submission, divided by the total number of applications for a given period. A high percentage indicates the applications being received are complete and provide sufficient detail to demonstrate a minimal risk to the public or environment, and the operator may proceed in seeking issuance of a CoR after the submission and successful review and acceptance of a Part II application to the Commission. A low percentage may indicate the submission of incomplete or inadequate applications.

Table 3 – Application Quality Measure

Fiscal Year	Part-I Received	Part-I Accepted	Accepted/Received
2007/08	100	94	94.0%
2008/09	98	91	92.9%
2009/10	115	88	76.6%
2010/11	103	82	79.6%

The AQM for 2009/10 increased slightly in 2010/11, indicating the quality of the information included with applications remained consistent when compared to submissions from the previous year.

## 4.3 Commission Timeliness Measure (CTM)

The CTM is calculated as the average number of days taken by the Commission to review a CoR Part I application during a specified time period.

The number of calendar days to assess a new application of CoR (Part I) is dependent on multiple factors including:

- The completeness of the submission.
- The volume and timing of submissions.
- The Commission's capacity to manage applications.

The average number of calendar days to assess new applications in 2008 was 20.4 calendar days. The average number of calendar days in 2009 was 15.2. That number increased in 2010 to 23.0 days. The CTM increase for 2010 indicates that further increases in application levels may warrant a review of staffing capacity.

## 4.4 Representative Sampling of Submissions Measure (RSSM)

Starting in 2010, the Commission introduced a compliance assurance audit of CoR submissions to assess the level of concurrence between the actual site condition and the information submitted within CoR applications. Under this program, 10 per cent of sites are randomly selected to undergo site investigation by a third party consultant working under the direction of the Commission. The

Representative Sampling of Submissions Measure (SSM) will be calculated as the percentage of sites where all investigated parameters meet the prescribed standards or are within acceptable margins of error from the values reported in the application.

This program was started in 2010 and there is not yet a full year of available data from which to calculate the RSSM for this reporting period.

#### **4.5 Agricultural Pipeline Reclamation Measure (APRM)**

Site reclamation requirements for lands within the Agricultural Land Reserve (ALR) are detailed in Schedule B of the delegation agreement between the ALR and the Commission. These criteria are used to assess if the site has been appropriately reclaimed. Wellsites must be assessed prior to receiving a CoR and pipeline right-of-ways must be assessed within 24 months of construction.

The Commission has implemented a procedure to track those pipelines for which Schedule B reports have not been submitted within the required 24 months of construction. In March 2010, operators were notified regarding sites for which the reporting had not been submitted.

The Agricultural Pipeline Reclamation Measure (APRM) is defined as the cumulative number of pipelines to submit Schedule B assessments divided by the cumulative number of pipelines in the ALR that have been in operation for greater than 24 months.

The APRM calculated on March 31, 2010 is 0.295, compared to 0.175 as of March 31, 2009. This increase indicates the notifications issued to operators have had a significant effect on report submissions. The Commission will continue to actively pursue those operators who have not submitted the required Schedule B reports in its efforts to ensure future compliance.

Table 4 – Agricultural Pipeline Reclamation Measure

Fiscal Year	ALR Pipelines operating for greater than 24 months	Schedule B Submitted	APRM
2008	608	97	0.159
2009	816	143	0.175
2010	977	288	0.295

## 5 Conclusion

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The third annual Site Restoration Report provides comparisons and benchmarks to detail the Commission's reporting procedures and increase efficiency in oil and gas site restoration.

Next year, the report will be enhanced to include a section on the RSSM. This initiative, started in 2010, is a compliance assurance audit of CoR submissions to assess the level of concurrence between the actual site condition and the information submitted within CoR applications. Under the program, 10 per cent of sites are randomly selected to undergo site investigation by a third party consultant working under direction of the Commission.

The Commission is responsible for overseeing the restoration activity, ensuring all applications approved are in the public interest with regard to environmental, economic and social effects. The Commission is committed to working with First Nations, other government agencies, industry, landowners and other stakeholders to appropriately manage site restoration activities.

## 6 Glossary

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### **Agricultural Land Commission (ALC)**

The ALC is an independent Crown agency whose mandate is to preserve agricultural land.

### **Agricultural Land Reserve (ALR)**

The ALR is a provincial zone where agriculture is recognized as the priority use and farming is encouraged and where non-farm uses are regulated; agricultural lands are designated under the Agricultural Land Commission Act.

### **ALC-OGC Delegation Agreement**

An agreement between the ALC and the Commission to further one window regulation of the oil and gas industry and to seek ways to streamline and improve the review and approval process for applications for oil and gas activities and pipelines on ALR lands while preserving agricultural lands and encouraging the farming of agricultural lands. Under the agreement, the Commission is able to exercise the powers of the ALC to decide applications for oil and gas activities and pipelines on ALR lands.

### **Certificate of Restoration (CoR)**

A document issued by the Commission certifying a wellsite has been restored to meet regulatory requirements. Reclamation is the process of restoring the surface environment to acceptable pre-existing conditions. Wellsites and facilities no longer used for oil and gas production must be reclaimed in order to receive a Certificate of Restoration. Reclamation on ALR land means returning the land to an equivalent agricultural capability to what existed prior to the oil and gas development.

### **Contaminated Sites Regulation (CSR)**

The Land Remediation Section of the Ministry of Environment is charged with the regulatory role related to all contaminated sites under the CSR. This Section facilitates the remediation of sites and provides operational and procedural guidance. The full CSR can be viewed at: [www.env.gov.bc.ca/epd/remediation/leg\\_regs/csr.htm](http://www.env.gov.bc.ca/epd/remediation/leg_regs/csr.htm).

### **Environmental Management Act (EMA)**

The Land Remediation Section of the Ministry of Environment administers the provisions for the investigation and remediation of contaminated sites in British Columbia under the EMA. The EMA can be viewed at: [www.bclaws.ca](http://www.bclaws.ca).

### **Petroleum and Natural Gas Act (PNGA)**

The PNGA regulates the steps and approvals throughout the stages of oil and gas development. The PNGA can be viewed in its entirety at: [www.bclaws.ca](http://www.bclaws.ca).

### **Plugged Well**

A well where the borehole has been filled with mud and cement to prevent the flow of water or oil from one strata to another or to the surface.

### **Suspended Well**

A well that was previously completed but is now no longer being produced.