



BACKGROUND

The Colorado Oil and Gas Conservation Commission (COGCC) oversees oil and gas production in Colorado. The COGCC is also responsible for permitting, rule makings, and inspection efforts. The Colorado Department of Public Health and Environment (CDPHE) is responsible for air quality inspections at oil and gas facilities and, in some circumstances, aid in spill remediation. Broomfield Public Health and Environment Division (PHE), which is located within the City and County of Broomfield's (CCOB) Health and Human Services Department, is responsible for ensuring oil and gas industry compliance with the CCOB Oil and Gas Regulations.

The majority of the CCOB's well sites are operated pursuant to Use by Special Review Permits approved under the CCOB's Oil and Gas Regulations adopted in 1993 (Previous Regulations). The Previous Regulations required notice and a public hearing before the Planning and Zoning Commission and a public hearing before the CCOB City Council. The permits granted included, but are not limited to, requirements in landscaping and fencing; noise, dust, and light mitigation; traffic circulation plans; and emergency response plans.

The City Council adopted new Oil and Gas Regulations (New Regulations), Ordinance No.1986, in September 2013. The New Regulations incorporated best management practices to mitigate potential oil and gas hazards. The best management practices targeted air and water quality; chemical disclosure and storage; spill reporting; and coordination of emergency response efforts. The New Regulations left the current Use by Special Review Permit process in place and provided a new alternate path, known as an Administrative Approval by Memorandum of Understanding (MOU). This process contains more robust best management practices than the Use by Special Review Permit process.

It is important to note that CCOB's authority to regulate oil and gas operations is limited. Local governments can regulate oil and gas operations through land use powers, addressing issues such as site plans, surface owner notification, land use coordination, and transportation issues including road impacts. Local governments also have authority to regulate oil and gas operations in areas where the state shares authority, such as air quality; emergency preparedness; and drainage and erosion control.

The process of extracting oil and gas is complex and involves constructing the well pad; drilling; well stimulation and completion; production; transmitting product; and plugging and abandoning of the well. At this point in time, all of the well sites in the CCOB are in the production phase as no wells are currently being drilled in the CCOB. One well site has been plugged and abandoned in the past year.

In February 2015, the CCOB contracted with the Boulder County Public Health Department to inspect CCOB well sites. The inspector assesses leaks, venting, and spills while on the well sites and ensures compliance with CCOB Oil and Gas Regulations. In addition, the inspector coordinates with COGCC and CDPHE on issues pertaining to state rules and regulations.

INSPECTION PROCESS OVERVIEW

The CCOB Oil and Gas Inspection (OGI) Program began by conducting a baseline assessment to gather information, such as the number of active wells and locations; identifying issues that may need to be addressed; and fostering working relationships with oil and gas companies (operator) operating within the CCOB's jurisdiction. This assessment also ensures all companies are operating in a safe and compliant manner. The baseline assessment consisted of four guiding principles, including:

1. **Compliance standards**
Inform, review, and assist companies in being compliant under local regulations.
2. **Transparency**
Communicate and report observations to City Council, oil and gas companies, the public, and other key stakeholders.
3. **Identifying and addressing health issues**
Mitigate health and environmental impacts.
4. **Process and engagement**
Coordinate with COGCC and CDPHE on reporting issues that need attention.

Operators were contacted via email to notify them that an inspector would be visiting active facilities to create a baseline assessment as part of the OGI Program. A Well Site Visit Checklist (Appendix 1) was created by the inspector using the Previous Regulations and applicable items from COGCC and CDPHE inspection forms to document results. The COGCC and CDPHE items were added because a recent COGCC report entitled, *Risk Based Inspections: Strategies to Address Environmental Risk Associated with Oil and Gas Operations*, identified that spills and air releases were the key hazards most likely to occur during the production phase of oil and gas operations.

For a typical well site visit, the inspector wears proper personal protective equipment (fire resistant clothing, hard hat, protective eye wear, steel toed shoes, and a 4 gas monitor). The well site is then visually evaluated for proper signs, access road condition, weed control, proper operation of equipment, closed tank hatches, condition of containment, and signs of spills or releases. An added benefit to the inspection is the availability of an infrared (IR) camera provided by the Regional Air Quality Council. The IR camera has proven to be an immensely useful tool allowing the inspector to identify gas leaks and confirm repairs that would otherwise go unnoticed.

After the evaluation of the well site, all issues or concerns observed are documented and communicated to the operator by email or direct communication on the well site. The inspector also provides follow-up communication with the operator or an additional well site visit to ensure all issues are corrected and resolved.

RESULTS

From February 2015 through December 2015, the inspector conducted at least two visits to each of the 38 active well sites within the CCOB, in addition to any necessary follow-up visits. The well site visits allowed the CCOB to gather data for a baseline assessment and evaluate current conditions in the field.

The baseline assessment indicated that the majority of the facilities are operating in compliance. The items documented have been related to weed control, proper signage, and soil staining issues. An IR camera was also used at all 38 active well sites. The IR camera detected gas releases at 22 of the well sites. The leaks were detected at various points of production, including on storage tank thief hatches, separator valves, pneumatic devices, and wellheads. If a leak was detected, the inspector contacted the operator of the well site and provided follow-up to make certain the issue is resolved. Currently, 21 out of the 22 well sites have addressed and repaired the gas releases. The one well site that has not repaired the gas release requires a shutdown of the facility, and is identified to be plugged and abandoned by the operator.

In 2014, a spill at a plugged and abandoned well site was discovered within the CCOB. PHE has been coordinating with the operator, Noble Energy, to remediate the site in compliance with local and state standards.

For more specifics on inspection results by well site, view the [online Oil and Gas Inspection Report](#).

TECHNOLOGY INNOVATION

The oil and gas industry is constantly evolving and finding new technologies to increase production and efficiency. There are also new technologies looking to lessen the overall impacts of oil and gas development. For instance, IR technology is allowing for better leak detection. Other new technologies are working to quantify the leaks. Leading edge solutions, such as tankless facilities and the creation of central gathering facilities, allow for better monitoring and reduce truck traffic. Technology is also reaching the point where it can pump frack fluid by pipelines to wells from remote fracturing well sites located miles away. As the oil and gas industry develops new technology, new issues will arise. Due to the growth of this sector and the potential impacts on public and environmental health, it is important for the CCOB to maintain a clear and accurate understanding of emerging technology and be equipped to help identify and quantify problems early.

CONCLUSION

The OGI Program's primary findings of the baseline assessment show that there are no major issues present at this time in the CCOB.

The current production in the CCOB is relatively small compared to neighboring counties. For example, Boulder County has over 300 active wells and Weld County has over 22,000. However, Broomfield does sit within the Greater Wattenberg Field and has rich deposits of oil and gas. Although oil and gas development has slowed recently with slumping prices, Colorado, and the CCOB, is still a very attractive place for the oil and gas industry. The Front Range has a large amount of resources that energy companies will continue to extract.

APPENDIX 1: WELL SITE VISIT CHECKLIST



HEALTH AND HUMAN SERVICES

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Oil and Gas Inspection Program: Well Site Visit Checklist

Date: _____ Time: _____

Company: _____

Location Name: _____

Site Location: _____

AIRS ID on/by tanks? _____
(Number)

Access: _____

Site Inventory: _____

Tank Battery	Yes	No	N/A	Comments
Is thief hatch closed?				
Is there air pollution control equipment?				
AIRS ID on equipment?				
Type of control (flare, VRU, other):				
Is flare pilot on?				
Is fuel gas valve position open?				
Is flare enclosed?				
Is flare free of visible emissions?				
Can observer visually observe proper operation?				
Does flare have auto-igniter?				

Site Conditions	Yes	No	N/A	Comments
Are there waterways or surface waters nearby?				
What is the condition and type of containment?				
Is there proper signage?				
Is there unused equipment or debris on site?				
What is the condition of the access road?				
What BMP's are in place for stormwater management?				
Are there signs of spills or leaks?				
Is the site in close proximity to schools, hospitals or residential areas?				
Type of produced water storage?				
Anchoring in place?				
Have baseline water tests been conducted?				
Have there been historical releases?				
Acceptable noise levels?				
Visual impacts?				