



Aerial Survey Latest Effort to Better Understand Methane Emissions at Wells

The BC Oil and Gas Commission (Commission) has completed a proactive study to assess technology to detect decommissioned well leaks in northeast British Columbia. Many decommissioned wells are difficult to access and inspect by conventional means. The use of aerial detection methods was piloted to rapidly inspect those sites for methane emissions.

The aerial survey used methane detection equipment mounted on the underside of a helicopter and completed inspections of 105 wells including decommissioned and existing wells with known methane emissions. The known emitting wells were included to evaluate the capabilities of the detection technology. The survey identified one decommissioned well with minor methane emissions. Further evaluation will take place and next steps are to develop a long-term aerial inspection schedule, focusing on wells in remote or winter-access only locations.

The aerial survey is improving the understanding of methane emissions in northeast B.C. wells by the Commission to ensure the protection of public and environmental safety. This includes efforts to further the Commission's approach to evaluating and regulating gas migration.

Gas migration is the flow of gas outside of the surface casing of a well. It may be detected visually, by observing gas bubbling in standing water around the wellhead, by the presence of stressed vegetation near the wellhead, or by conducting a soil vapour survey. Where gas migration is occurring, there is the potential for gas to cause changes to groundwater chemistry and/or migrate upward through the ground surface to the atmosphere.

Some of the steps undertaken by the Commission include:

- The purchase of new equipment to better detect gas migration.
- Tightening regulations to ensure the Commission is immediately notified of any gas migration incidents, and evaluate the cause and source of the gas migration.
- Conducting additional field investigations of wells with gas migration issues.
- Developing additional technical guidance for industry.
- Improvements to internal procedures to ensure instances of gas migration are appropriately tracked and addressed.
- The formation of a working group with industry subject matter experts to improve drilling and cementing practices.
- Conducting a recent helicopter survey of abandoned wells to determine if methane emissions are occurring.

In addition, the Commission has worked to coordinate focussed gas migration research initiatives with academia toward informing ongoing enhancements to the management and regulation of wells with gas

migration. The Commission is involved in gas migration research with several institutions, including UBC, UBC-Okanagan, Queens University, and University of Calgary.

A gas migration investigation project was initiated by the Commission in 2013 to better understand its frequency, causes and impacts. During the summer of 2013, field inspections found 47 confirmed instances of gas migration. None of the gas migration wells inspected or on record to have gas migration are in close proximity to domestic water wells. The [Gas Migration Preliminary Investigation Report](#) also made a number of recommendations and suggestions for follow up, which the Commission has actioned or fulfilled.

The Commission is collaboratively supporting research at the University of British Columbia to revisit the internal review of 2013 to ensure scientific and statistically defensible analysis and interpretation is completed using relevant Commission data, which will provide an updated and scientific basis for continued regulatory and process enhancements related to well integrity.

As of June 2017, gas migration has been reported to be associated with 144 wells in northeast B.C. Ten risk assessment reports have been submitted as per the Commission's new risk assessment guidelines. Further, three well sites have been required to develop and implement a groundwater monitoring program to support the risk assessment

Visit the [Managing Well Integrity](#) page for more information about how the Commission is working to improve its understanding of gas migration in northeast B.C. wells.

For further information regarding this Information Bulletin, please contact:

Phil Rygg
Director, Public and Corporate Relations
BC Oil and Gas Commission
Phil.Rygg@bcogc.ca
250-794-5214