

## **Addendum to Comments on BC Oil and Gas Commission’s Methane Regulatory Review of the efficiency and effectiveness of the methane reduction requirements prescribed in British Columbia’s Drilling and Production Regulation**

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**Submitted by: Pembina Institute**

We are thankful for the continued opportunity to submit comments to the BC Oil and Gas Commission’s (BCOGC) review of the efficiency and effectiveness of the methane reduction requirements, prescribed in British Columbia’s Drilling and Production Regulation (DPR).

This document provides additional detail on select recommendations made in our original submission of February 1, 2022.

These select recommendations include: improving flare efficiency; improving measurements for tank vent emissions; requiring comprehensive leak detection and repair (LDAR) surveys for conventional wells; and improvements in LDAR programs. We have further elaborated on our recommendations on these issues in response to engagement with BCOGC representatives.

### [Improve tank measurement methodologies](#)

We suggest adopting the following recommendations, which were made in the [Clearstone Engineering Ltd 2020 tank and compressor study](#), prepared for the BC Methane Emissions Research Collaborative (MERC):

- The accuracy of BC’s GHG Reporting Program could be improved by refining the Western Climate Initiative methodology (WCI.363(h)) to follow BCOGC measurement guidelines, and restricting the use of correlations for sites producing less than 2 m<sup>3</sup>/day. This is particularly relevant to GORs determined using the Vasquez and Beggs correlation for liquids with API gravity less than 56.8°.
- When using process simulation to determine the gas-to-oil ratio, confirm the integrity of pressurized liquid samples by comparing the calculated bubble point to the field sample pressure (as described in [PS Memo 17-01](#), CAPCD 2017).
- When the gas-to-oil ratio is determined by direct measurement, require flash gas sampling and laboratory analysis to determine methane concentrations.

### [Conventional wells need comprehensive LDAR surveys](#)

In the 2020 well LDAR data released by the BCOGC, 912 leaks were identified in 4535 optical gas imaging (OGI) surveys. While a significant proportion of unconventional wells recorded leaks (794 leaks were detected in 3826 surveys; about 21%), a similar proportion of conventional wells recorded leaks (118 leaks were detected in 709 conventional well surveys; about 17%). Nevertheless, according to measurements conducted with a high flow sampler (or QOGI), leak rates recorded at unconventional wells were significantly higher (averaging 1.35 m<sup>3</sup>/hr) as compared with leak rates at conventional wells (0.54 m<sup>3</sup>/hr).

In terms of survey methods, AVO screening surveys only found 70 leaks out of a total of 1858 surveys, which demonstrates that AVO screening is not an effective leak mitigation measure.

The LDAR data shows that conventional wells are a significant source of leaks, with leaks detected as often at conventional wells as at unconventional wells. **Conventional wells should therefore be required to conduct at least one comprehensive LDAR survey per year.** Currently, most conventional wells are only required to undergo annual AVO screening, which recent analysis of LDAR data in BC has shown to be ineffective at addressing leaks.

### Integrated methane measurement and monitoring program

Studies consistently show that actual emissions could be twice as high as current estimates. There is momentum in Canada and in the US to gather better data to inform policy and actions to address methane emissions. In Canada, a [landmark study](#) was conducted by the BC MERC that has provided insight into the scale and source of methane emissions.

The BC government has committed funding for the CleanBC Program for Industry, which aims to fund GHG emissions reductions measures as part of Budget 2022. The Ministry of Energy, Mines and Low Carbon Innovation has also committed to working with the BCOGC and the BC Ministry of Environment's Climate Action Secretariat to develop an integrated methane measurement and monitoring program.

**We recommend creating a multi-year program to continue the field measurements** that were conducted by the BC MERC in 2019 and 2021. This program could serve the needs of a wide variety of stakeholders:

- Government: updating inventories to account for underreporting
- Government: accurately assessing effectiveness of regulations over time
- Regulators: evaluating regulatory compliance
- Industry: addressing equity issues with access to new technologies by helping small producers better understand and address their emissions.
- Public: ensuring transparency and providing assurance of action on methane by making measurement data publicly available through a digital platform

### Improving flare efficiency

Survey data from the BC MERC [aerial study](#) shows that malfunctioning and unlit flares persist as a significant source of emissions. We suggest that all pollution control equipment, including flares, should be subject to regular LDAR inspections. Additionally, we suggest efficiency improvements and equipment requirements:

- To improve combustion in manned steam-assisted or air-assisted flares: Flare operations that achieve near complete (>98%) combustion while minimizing smoke formation require very careful control of assist rates. As such, while skilled operation can result in improved combustion efficiency, **some flare upgrades may still be required.**
- To improve combustion in small flares at unmanned sites: If any flare experiences flame-out (where the flame goes out and combustion is not taking place), the flare acts as a vent stack and so is not efficient. Many small flares prevent flame-out by having a pilot light, or a spark ignitor with a flame monitor. Some jurisdictions, such as Canada and the US, now require a pilot light or spark ignitor for some or all wells and production sites. **Auto-ignitors should also be required at all flares.**



We appreciate the opportunity to continue engagement with the BCOGC during this review.

Signed,

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