

Project Profile

Project Name:	B.C. Fugitive Emission Management Program Effectiveness Assessment (FEMP EA)
Project Number:	ER-Meth-2022-01
Proponent:	St. Francis Xavier University (Dr. David Risk)
Funding Envelope:	Environmental Research—Methane
Timeframe:	April 1, 2021, to April 30, 2022

Project objectives

The objectives of this project are to assess the effectiveness of the Fugitive Emission Management Program in B.C. by:

- Assessing the effectiveness of Leak Detection and Repair (LDAR) surveys and screening in reducing fugitive emissions relative to the baseline year (2012, 2014).
- Assessing the effectiveness, efficiency, and cost of the survey methods included in the regulations, using regulatory data collected in 2020.

Project description

The research will assess the efficiency, cost, and effectiveness of equipment fugitive emissions detection and repair that includes specific comprehensive and screening survey frequencies and other pertinent factors on fugitive methane emissions in B.C.

The research will consider the following:

- Knowledge and information gaps related to B.C. oil and gas facility equipment and component performance as it pertains to fugitive releases, and to the effectiveness, cost, and efficiency of comprehensive and screening surveys. Studied fugitive release activity from equipment/components will adhere to both the B.C. provincial and federal methane regulations' definitions of equipment fugitives.
- Relevant factors that make B.C. unique from other jurisdictions that may affect comprehensive and screening survey effectiveness, cost, and efficiency and all relevant factors contributing to equipment fugitive performance.
- Quantification of the magnitude and significance of survey type and frequency in contributing to equipment fugitive leak survey effectiveness and cost.
- Examination how fugitive releases are predicted to change over time as the B.C. provincial methane regulations unfold and indicate how survey effectiveness changes over time for facilities where data from more than one survey is available.

- Provision of B.C. based typical leak detection survey and measurement costs relevant divisions including facility types and whether the survey was conducted in house or by 3rd party contractors.
- Assessment of the impact of repair time on emissions.

The research will aim to answer the following questions:

1. Are leaks random in all equipment component types? Are there causal relations in certain equipment types for their emissions release? If they can be predicted, what are the most important factors to consider? How can they be predicted?
2. What is needed to compare the effectiveness of screening surveys with that of comprehensive surveys?
3. What types of leaks require more than 30 days to repair? How frequently do they occur and what are their contributions to the overall equipment fugitive emissions?
4. What impact does repair time have on effectiveness of LDAR? Has the exemption to repair timing until facility turnarounds affected fugitive or other sources of emissions?

Project approach

The project will involve the following phases:

1. Data collection—from annual permit holder data submissions to the B.C. Oil and Gas Commission; literature review; questionnaires for contractors and industry; and other applicable sources of information, as appropriate.
2. Data analysis and modeling—including quality control and consistency checking of datasets.
3. Reporting and discussion of findings.

Project deliverables

The deliverables from this project include the following:

1. Final report—containing the following:
 - B.C. centric assessment of the effectiveness of comprehensive and screening surveys compared to current understanding.
 - Summary of known comprehensive and screening survey effectiveness knowledge and information gaps and their importance to B.C., and the ability to quantify relative performance.
 - Collection and analysis of available comprehensive and screening survey regulatory data.
 - Uncertainty analysis.
 - Recommendations for managing fugitive emissions.