

Alt-FEMP Executive Summary

Company	Program start	Program end	# of sites
Sundre Petroleum Operators Group	April 1, 2021	April 1, 2023	1200

Once an alternative fugitive emissions management program is approved, AER staff draft this executive summary. This is a summary only, published to help interested stakeholders understand what has been approved. These summaries are found on our website, www.aer.ca > Protecting What Matters > Holding Industry Accountable > Industry Performance > Methane Performance > [Alternative Fugitive Emission Management Program Approvals](#). For additional information on these approvals, contact [methane.reduction@aer.ca](mailto:methane.reduction@ aer.ca).

Summary

The Sundre Petroleum Operators Group (SPOG) has been approved for a two-year alternative fugitive emissions management program (alt-FEMP) that involves the systematic evaluation of alternative methane detection and quantification technologies. A primary objective of the alt-FEMP is to implement an area-based alt-FEMP for producers operating in the Sundre region of Alberta.

In the Sundre region, 32 producers operate approximately 1500 facilities. The program will include 13 participating producers, which account for 85% of all sites in the area. Beginning in 2020, truck-based mobile and aerial-based emissions detection technologies were trialed across the SPOG region. Releases of methane were detected and quantified, and a comprehensive baseline of methane releases and source inventory equipment was created. Over 1580 individual methane measurements have been collected as a baseline effort using a combination of alternative and default (i.e., optical gas imaging [OGI] camera, high-flow sampler) technologies. These measurements enabled SPOG to quantify baseline methane emissions, become familiar with available alternative technologies, learn how to implement them, and collect data that can supplement the modelling assessment to support a pilot alt-FEMP application.

The program design for this proposal involves deploying one aerial-based survey and one truck-based survey each year over the course of the two-year pilot. Fugitive emission repairs will occur at the prescribed percentage of highest-emitting sites belonging to each participating producer.

A third-party analytics company conducted methane emissions modelling to support this objective. A proprietary methane emissions and repair simulation model was used to estimate methane reductions that result from implementing numerous leak detection and repair (LDAR) programs. The model incorporated attributes of oil and gas production infrastructure in the Sundre area, company-specific information regarding methane leaks and repair practices, and SPOG data collected from OGI and alternative technologies.

The selected alternative program is estimated to achieve greater emissions reductions than the *Directive 060* default approach. The program is estimated to reduce fugitive emissions 50.4% from the baseline scenario (no LDAR) over the pilot, and an additional 8.29% in addition to what the default OGI program is estimated to reduce.

For performance evaluation, several data elements will be collected:

- Site and equipment level emission rates
- A breakdown of fugitive and vented emissions at follow-up sites (based on OGI measurements)
- The number of sites emitting, as detected by each technology
- The number of sites with reoccurring leaks following repair
- The number of repairs required

Additionally, the following key performance indicators will be evaluated:

- Estimated emissions reductions and a comparison to modelled emission reductions
- Analysis of characteristics of the top portion of emitting sites
- Technology performance, including minimum detection limit observed in the field, identification of limitations, and assessment of performance under the conditions in which the technology was operational
- Mean time between detection of fugitive and repair of leak
- Cost of alternative program versus anticipated cost in model
- Analysis to determine discrepancy between modelled results and real outcomes
- Identification of trends in emitting site types

For additional mitigation efforts, SPOG will conduct a vent reduction opportunity assessment to determine opportunities for potential implementation of vent mitigation projects, and field operators are trained to conduct regular audio, visual, and olfactory testing while on site and take necessary corrective and reporting actions if an abnormality is detected.

Finally, SPOG will continue to consider and trial new alternative technologies to assess their suitability for alt-FEMP. As a result, additional emissions detection methods may be implemented outside the scope of this proposal, including fixed sensors, additional metering, and screening with alternative technologies.