

Alt-FEMP Executive Summary

Company	Program start	Program end	# of sites
Murphy Oil Company Ltd.	July 25, 2023	December 31, 2024	55

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

Murphy Oil Company Ltd. (Murphy) is an independent oil and natural gas exploration and production company with a portfolio of producing assets primarily located across North America, including the Western Canadian Sedimentary Basin. Murphy owns and operates 67 active facilities in Alberta, located on 40 legal subdivisions (LSDs). Murphy implemented a fugitive emissions management program (FEMP) in accordance with the *Directive 060* in 2020. Murphy will implement an alt-FEMP for all 67 facilities.

A representative control region encompassing 12 facilities (~18% of total facilities) was omitted from the scope of the modelling with alternative technologies. In the control region, optical gas imaging (OGI) surveys in accordance with *Directive 060* will occur, providing data that will be compared with the performance data of the selected alternative program.

The alternative program for this proposal involves completing an OGI survey of all triannual facilities in Q2 2023 and deploying truck-based surveys in Q3 2023, Q4 2023, Q1 2024, Q2 2024, and Q4 2024 throughout the program. Fugitive emissions reductions will occur at a top fraction of sites ranked by emissions, and it is estimated that the selected alternative program will achieve equivalent emissions reductions compared to the *Directive 060* default approach at an equivalent cost.

The proposed alt-FEMP methodology is as follows:

Step 1	Survey	Conduct OGI survey at all triannual facilities (as defined in <i>Directive 060</i> , table 4) in Q2 2023. Fugitive emissions will be differentiated from vented emissions. Fugitive emissions will be tagged and recorded for repair, while vented emissions will be recorded for potential future reduction programs.
Step 2	Screen	Conduct site-level screening. The selected alternative program will deploy five screening campaigns throughout the program: <ol style="list-style-type: none"> 1) Truck-based screening (Q3 2023) 2) Truck-based screening (Q4 2023) 3) Truck-based screening (Q1 2024) 4) Truck-based screening (Q2 2024)

		<p>5) Truck-based screening (Q4 2024)</p> <p>The screening technologies will capture both vented and fugitive emissions. Screening campaigns will occur more than three months apart.</p>
Step 3	Rank	<p>Following each truck-based screening campaign, emissions will be attributed to an LSD and the LSDs will be ranked highest to lowest by their total emissions. The follow-up threshold percentage determines the top number of LSDs to be visited for emissions localization and repair. The selected program has the following follow-up requirements after each designated screening event:</p> <ul style="list-style-type: none"> • Screening campaign 1 (Q3, 2023): 40% follow-up • Screening campaign 2 (Q4, 2023): 40% follow-up • Screening campaign 3 (Q1, 2024): 40% follow-up • Screening campaign 4 (Q2, 2024): 40% follow-up • Screening campaign 5 (Q4, 2024): 40% follow-up
Step 4	Follow-Up	<p>Follow-up emissions localization will occur on the ground at the LSDs outlined in Step 2. Here, fugitive emissions will be differentiated from vented emissions. Fugitive emissions will be tagged and recorded for repair, while vented emissions will be recorded for potential future reduction programs.</p>
Step 5	Repair	<p>At the follow-up sites, all fugitive repairs will be made according to <i>Directive 060</i> timelines once a fugitive leak has been localized.</p>