

# Reducing LDAR Costs with Data-Driven Methane Detection

## CASE STUDY AT A GLANCE

### Operator:

Alberta-based, midsize upstream oil & gas producer

### Regulatory/Reporting Frameworks:

Alberta Energy Regulator Directive 060

### Technology:

Bridger Photonics' Gas Mapping LiDAR®

### Value Chain Segment(s):

Upstream production

### Result:

Lower LDAR program costs and improved operational efficiency through targeted methane repairs and reduced field deployments

## CHALLENGE

Across Alberta, operators are under Alberta Energy Regulator (AER) Directive 060 requirements to perform recurring fugitive emissions surveys for fugitive emission management programs (FEMP).

An Alberta operator faced rising leak detection and repair (LDAR) costs for frequent site visits across dispersed assets, and substantial field labor coordination. At the same time, the program identified a large number of small leaks while potentially missing larger emissions from tanks, flares, and compressors.

Traditional ground-based optical gas imaging (OGI) or organic vapour analyzer (OVA) inspections provided component-level leak detection, but the approach was operationally intensive and increasingly expensive.

The operator sought a compliant alternative that could lead to LDAR cost savings while also improving the understanding of its emissions profile, and maximize fugitive emissions mitigation.

## APPROACH

The operator transitioned from a standard OGI-based FEMP program to an alternative FEMP (alt-FEMP) using Bridger's aerial Gas Mapping LiDAR (GML) data and analytics.

## APPROACH CONT.



GML detects and quantifies methane emissions from small aircraft, producing georeferenced emissions measurements localized to the equipment-level within approximately two meters. The aerial scans screened all facilities without requiring ground crews and identified locations with and without emissions in order to prioritize repairs.

Instead of inspecting every site, field crews were deployed only where emissions were present. This enabled comprehensive coverage while reducing operational workload. The data also supported repair prioritization based on emission size, location, and equipment source.



## BENEFITS



- Reduced field deployment and travel (less “windshield time”)



- Maintained full regulatory compliance under AER alt-FEMP



- Improved safety through fewer site visits



- Comprehensive, source-resolved emissions inventory



- Faster repair of larger emission sources



- Rapid screening of 100+ facilities per day



- Targeted OGI verification only where needed



- Rapid data turnaround within 3 days



- Lower leak detection costs

## EMISSIONS INSIGHTS



Aerial measurement data provided a complete view of emissions across the operator's dispersed upstream assets, and insights into persistent versus intermittent emissions aided in differentiation between process emissions and fugitive leaks. The measurement-based dataset improved leak prioritization and allowed LDAR resources to focus on the highest-value repairs and abatement opportunities. The operator gained insight into emissions that are difficult to detect using traditional ground-based inspections, including tanks, compressors, and flares.

## RESULTS



- LDAR detection costs were reduced through fewer inspections and targeted deployments.
- The number of repairs decreased while total emissions reduction improved.
- Field crews were dispatched only to sites with confirmed emissions.
- Operational coordination, labor requirements, and associated costs were reduced.
- The resulting measurement-based inventory now supports improved tracking of emissions performance and mitigation planning over time.

## KEY TAKEAWAY



Using an alt-FEMP program with aerial methane measurement allowed the operator to replace routine site screening with **targeted mitigation**. The program **reduced LDAR costs, improved safety and efficiency**, and provided a more complete **understanding of emissions** across geographically distributed assets, all while maintaining AER compliance.

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