



Can I identify a flare with a performance issue: Optical Gas Imaging

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Summary

cameras are used to observe gas emitted from a flare stack. Where combustion efficiency is low the gas can be seen as a visible 'black' plume dispersing from the stack. The method utilises the same technology as used for leak detection and repair activities (LDAR) but is non quantitative.

How it works

- Technician observes flares with a forward looking infrared camera from the ground and qualitatively assesses flare performance.

- Methane and other hydrocarbons from unlit, venting flares appear as black plumes.
- Poorly combusting flares have visible hydrocarbon slip.
- OGI flare surveys can be incorporated into leak detection and repair programs.
- Technician training and survey protocols are critical because the height and radiative heat of flares increase the difficulty of detecting emissions.

Advantages



Can be conducted concurrently with leak detection and repair (LDAR) surveys

Limitations



Cannot measure methane directly or distinguish between gases



Non quantitative



Requires close access to the flare



Observations are dependent upon the skill of the operator

Go Deeper

- [Academic Research: Detection Limits of Optical Gas Imaging for Natural Gas Leak Detection in Realistic Controlled Conditions](#)
- [Uintah Basin OGI survey](#)
- [Vendor website: FLIR](#)
- [Vendor website: Opgal](#)

Case study

Uintah Basin survey

- OGI detection limits were assessed with controlled release testing at the Methane Emissions Technology Evaluation Center. Detection limits increased with technician experience but decreased with distance.
- Over 3,000 well pads in the Uintah Basin (U.S.) were surveyed with ground-based and helicopter-based OGI. Emissions were detected at 31% of sites with ground surveys, but only 0.5% with aerial surveys due to the higher detection limit.

Can I identify a flare with a performance issue?



Can I identify a flare with a performance issue: Satellite monitoring – Wide area methane emissions monitoring



Can I identify a flare with a performance issue: Helicopter Optical Gas Imaging



Can I identify a flare with a performance issue: Point Sensors and Arrays



Can I identify a flare with a performance issue: Alarm systems – Image Processing



Can I identify a flare with a performance issue: Alarm systems – Acoustic Alarms