

JANUARY, 2020

Case Study

Best Practices for Methane Mitigation

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Continuous. Rugged. Simple. Affordable.



Project Canary®

An independent exploration and production (E&P) company with expanding operations in Wyoming needed an effective method for monitoring fugitive emissions of methane and Volatile Organic Compounds (VOCs) at its oil and gas producing locations.

The company was motivated by several factors:

- Continue drilling and production operations while adhering to air quality regulations.
- A sincere desire to fulfill its corporate commitment to clean and safe operations.
- Rising concerns among stakeholders about the contribution of fugitive emissions from oil and gas operations processes to climate change.
- Evaluate the potential for selling differentiated Responsibly Sourced Gas (RSG) at a premium.

The Situation





The Candidates

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- **Infrared (IR) cameras.** IR cameras are effective at identifying the source of emissions at the well site by LDAR teams, however, the industry standard is one inspection every three months.
- **Satellites.** Orbiting satellites offer only periodic coverage of specific land areas. Additionally, current satellite technology cannot detect methane emissions through cloud cover. Consequently, satellite monitoring methods are expensive and vulnerable to undetected leaks.
- **Surface “sniffer” vans.** Stationing monitoring equipment near drill sites and production facilities eliminates some of the weaknesses of IR and satellite methods, however, mobile detection units typically require personnel on site and are expensive. Moreover, unless more than one mobile unit is deployed, this method typically monitors only one side of the operational perimeter.
- **Aircraft and drones.** Airborne sensors can be effective in monitoring a region, however, airplanes cannot be in the air 24/7 and are impacted by weather.

Project Canary Solution

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After a careful evaluation of the previous candidates, the operator chose the Project Canary solution, based on the following attributes:



Continuous. Every few seconds, 24/7, Project Canary sensors monitor, measure and record emissions of methane and VOCs. Every minute the sensors report the data averages to the Canary Cloud.



Rugged. Unit sensors are rugged, all-weather devices with no moving parts and no required or scheduled maintenance during their projected ten-year service life. They are solar powered, so no batteries required and untethered from the grid.



Simple. The Project Canary solution is easy to deploy, manage and use. With its GPS positioning technology, there is nothing for the operator to configure or adjust. Just place units at the perimeter of the wellsite and the cellular radio begins sending data to the Canary Cloud.



Affordable. The Project Canary solution is less expensive than competing technologies.

Project Canary's scalable approach means no additional investment in infrastructure is required, allowing the Project Canary solution to be installed across a wide geographic area with relative ease and simplicity.

The sensors deployed by Project Canary are of NASA quality and capable of detecting methane and VOCs in the **parts per billion**, significantly more sensitive than other sensors on the market. They are made by a Project Canary strategic partner, Lunar Outpost. Their sensors are being used in emissions detection programs with the State of Colorado, Lockheed Martin, the EPA and other notable organizations.

Incident Report

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Two weeks following deployment, the operator reported it had received an alert indicating higher than average methane and VOC emissions at a well site.

Figure 1 provides an aerial view of the production pad and the locations of three Canary S sensors positioned at the site perimeter.



Figure 1

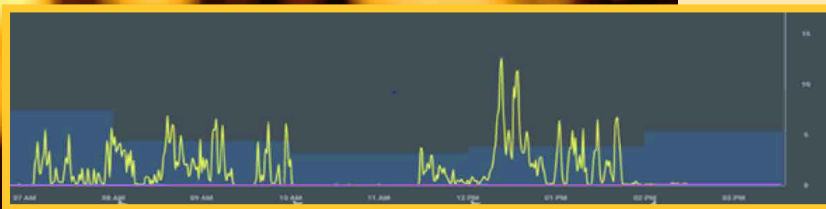


Figure 2

7:00 AM – Unplanned methane leak starts.

In near real-time, the sensors provided notification of a methane emissions event that enabled the operator to send an LDAR team member to the production site and identify the source of the leak.

10:00 AM – LDAR team is dispatched to the well site.

Figure 2 is a live screen shot of the emissions levels detected by the ENE sensor available to the operator through the cloud-based Canary Cloud interface.



Figure 3

1:00 PM – LDAR team arrives on site and deploys an IR camera to conduct a survey and locate the source of emissions.

Figure 3 shows what the operator found. A four-inch cap on a storage tank had not been replaced after routine maintenance.

1:45 PM – Repair completed..

Results

- HSE and Operations managers were alerted to the methane leak in near real-time.
- The leak was repaired quickly by the LDAR team, stopping the release of methane to the atmosphere.
- The typical industry standard for well site inspections using IR cameras is once every three months. If the leak had occurred at a well site lacking the continuous monitoring solution, several weeks or even months could have elapsed before repair, depending on when the next inspection was scheduled. The Project Canary solution enhanced and improved on the operator's already world-class LDAR efforts.
- The continuous monitoring solution significantly limited the scale of the incident and potential damage to the corporate reputation and industry perceptions among stakeholders.
- Rapid repair also prevented waste of a valuable natural gas.

Continuous Monitoring is the Best Practice

- A continuous monitoring solution is the best practice for monitoring air emissions of methane and VOCs.
- Real-time notifications empower Operations and HSE management to respond to potential leaks and events faster than non-continuous options.
- Continuous monitoring by an independent party means E&P operators can assure stakeholders they are using the most effective, advanced technology to reduce methane intensity, enhancing the corporate reputation and brand.
- The Project Canary solution improves the well site safety profile from remote monitoring.
- No changes are required to existing production processes and activities.
- More affordable than other, less reliable methods.
- Independent data allows oil and gas producers to provide assurances that methane intensity levels are being achieved, providing customers a differentiated Responsibly Sourced Gas alternative.

Get In Touch With Us

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Project Canary, based in Denver, Colorado, is a mission-driven B-Corporation accountable to a double bottom line of profit and the social good. We believe it is possible to create a financially successful, self-sustaining business that “does well and does good.”

Our goal is to mitigate climate change by helping the oil and gas industry operate on a cleaner, more efficient, more sustainable basis. Our proven technology monitors emissions of methane and VOCs on a near-real-time basis, enabling energy producers to rapidly and effectively identify and remediate fugitive emissions.

The Project Canary solution is continuous, rugged, simple and affordable.



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Schedule a meeting or call Project Canary today to learn how we can help you implement a continuous methane monitoring solution without slowing down your field development plan.