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# DRONE METHANE INSPECTIONS SAVE MONEY, SOLVE REGULATORY CONCERNS

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The new administration will be more tightly regulating methane emissions in the future, for both midstream and upstream facilities. This will give greater importance to making regular inspections accurate and complete. As a result, more companies will be relying on the latest drones, loaded with cutting edge imaging equipment, to do those inspections more efficiently.

### BESIDES REGULATORY ISSUES, LEAKS ARE COSTLY.

We might ask if there's anything to worry about—how many methane leaks can there be? In August of 2020, the EPA's National Enforcement Investigations Center Division conducted a Geospatial Measurement of Air Pollution (GMAP) survey of North Dakota's oil and

gas fields. Preliminary findings showed the main areas of concern to be flares and tanks.

The highest concentrations of leaks were found at facilities where air pollution devices were not operating. Often, the flares had gone out or tanks were leaking excessively.

With the three e's of Energy, Engineering and Environment pushing forward today, drone gas systems and data solutions will be key components in meeting these demands.

### DRONE ADVANTAGES

For years, methane leak inspections were done by personnel with an

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## Cutting-Edge Drone-enabled Methane Leak Detection

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optical gas imaging (OGI) camera, aiming it at perceived possible leak generators. Limitations to this include the possibility of overlooking a leak spot and the fact that pointing the camera up toward the brightly lit sky can reduce the visibility of a leak due to backlighting. Both situations can result in a leak being missed.

Instead, a drone-mounted OGI camera shoots from above, giving an enhanced description of any gas plumes. It also efficiently records the entire area, assuring that no leak is missed because of human error. Flight surveys are faster than ground surveys, completely covering an entire facility in minutes instead of hours. Drones improve safety if there is a leak by not exposing humans to hazardous vapors or volatility.

Today's drones—and cameras—are more advanced than those of even three or four years ago. In addition to OGI cameras, current drones can add a TDLAS camera that uses laser imaging, so that one flight can maximize information gathering. It can pinpoint the location and amount of a leak down to a few parts per million. This is significant because even a small leak can lose significant product over time—and small leaks tend to grow bigger.

The newest camera systems improve leak recognition in several ways: they offer much higher resolution than ground cameras, and some can add color to gas plumes. They gather data faster and more accurately than previous cameras—and many are "Made in the USA" instead of in China.

### PIPELINES AND MORE

Covering the miles and miles of pipelines, across rugged and dangerous terrain is very difficult for ground personnel. And while airplanes have been employed in the

past to overcome this, they have mostly been used to visually inspect for liquid leaks or encroachment.

US Code and Federal Regulations stipulate that "each operator shall, at intervals not exceeding 3 weeks, but at least 26 times each calendar year, inspect the surface conditions on or adjacent to each pipeline right of way."

Drones can cover the miles required for those inspections quickly and effectively, regardless of the terrain. Adding laser driven Lidar is a game-changer for detail. Centimeter-level accuracy in recording the topography surrounding an asset can satisfy compliance requirements and reduce maintenance expenditures by pinpointing the leak's exact location.

### DRONES AND THEIR CAMERA PAYLOADS CAN SEARCH FOR MANY THINGS BEYOND METHANE. HERE IS A PARTIAL LIST:

- Fugitive Gas Emissions
- Asset Monitoring
- Security Analysis
- Flare Stack Inspections
- Well Pad Inspection
- Containment Inspection
- Thermal Hot Spot Detection
- Real Time Leak Analysis
- ROW Monitoring, Vegetation Encroachment, Erosion
- Well Pad Site Analysis
- Land/Plot Surveying
- H2S Monitoring
- Line, Route mapping and Construction Monitoring
- GIS and Volumetric Data

### WHY OUTSOURCE TO A DRONE EXPERT

There are three main reasons to outsource drone inspections.

**Cost Efficiency:** Spending tens of thousands of dollars on equipment only used every two weeks can overload today's tight capex budgets. Tying up personnel hired to do other jobs either raises payroll expense or leaves crucial work delayed or undone.

**Expertise:** Drone experts like TCUSA spend hundreds of hours and thousands of dollars continually researching and updating planes and cameras. This makes sure the data gathered is accurate, readable and timely. Most E&P or midstream companies don't have the time or money to devote to this.

**Freedom:** Outsourcing lets companies concentrate on their main business, while trusting experts to efficiently provide accurate, actionable data.

### CONCLUSION

Regulations and production values both recommend themselves to controlling leaks—and drone technology meets both of those demands in ways ground inspections can never approach. Drones also boost safety. This technology could be a stepping stone for oil and gas to dominate the green market, essentially changing the game for oil and gas to become leaders in "carbon footprint" reduction. ■

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