THE AMERICAN OIL & GAS REPORTER®
AUGUST 2025

The "Better Business" Publication Serving the Exploration / Drilling / Production Industry

Emissions Data Often Reveals Ways To Improve Other Metrics

By Colter Cookson

With a flurry of executive orders, changes in regulatory policy and ongoing litigation undercutting or delaying methane regulations, oil and gas industry outsiders could be forgiven for assuming that the age of emissions mitigation is over.

Yet, such is not the case. Despite welcome regulatory relief, emissions mitigation is increasingly embedded in daily operations. For some companies, the business case for monitoring and mitigation is reinforced by requirements of European and Asian buyers who demand proof that suppliers are meeting low emissions standards. For others, it reflects a desire to attract investors who are environmentally minded. And for some, methane reduction is driven by state regulations or the knowledge that emissions limits tend to go down over time.

However, according to several emissions experts, one of the biggest drivers of emissions mitigation today is the realization that the data collection and other measures companies take to protect the environment can also yield operational insights that sometimes improve the bottom line.

Multifaceted Data

As the industry has become more experienced with emissions data, the focus has broadened, says Scott McCurdy, CEO of Encino Environmental Services. "We used to look primarily at addressing emissions, but there are a lot of other benefits to what we do that we are only beginning to understand," he says. "Some emissions have to happen for safety reasons, but many of them result from something else being wrong upstream."

Operators are not going to let those problems stand, McCurdy says. "I increasingly see companies look at their high-value or high-risk assets and ask themselves what operational issues are causing the emissions," he relates. "They know those issues may cause other problems, such as wear and tear on equipment or reduced efficiency, both of which cost time and money."

Sometimes the link between emissions and revenue is straightforward. "We've had situations where we took cameras to a site and immediately saw that a vapor recovery unit was not working, which meant the operator was losing all the gas that VRU was supposed to capture and send to the sales line," he illustrates.

McCurdy adds that companies increasingly track methane slip from engines, which occurs when fuel that is supposed to be burned inside the engine never gets combusted and escapes. "Checking for methane slip hasn't traditionally been part of a standard emissions test, but for a variety of reasons, including OGMP 2.0, companies want to do spot checks or install permanent monitors," he says. "This can help them pass emissions tests, but it also lets them make sure their engines are operating at peak efficiency and generating power with as little fuel as possible."

Using sensors to watch thief hatches' performance can yield valuable insights. If a hatch opens frequently, it could indicate a stuck dump valve or other issues with the separator, McCurdy explains. He adds that the sensors can issue alerts if someone gets distracted and leaves the hatch open too long.

"Monitoring thief hatches can help companies keep pressures in the tanks at an optimal level and reduce flash losses," McCurdy reports. "It can also quickly indicate problems with other equipment that could cost revenue."

Better Hatches

Worn thief hatches are one of the leading causes of fugitive emissions from upstream facilities, McCurdy says. To extend seal life, Encino has developed a hatch made from a composite material that resists corrosion.

"We have had early prototypes in the field for three and a half years," McCurdy said in late July. "The operator with the first prototype has looked at it every quarter, and more recently every month, but has never found a leak."

In addition to reducing flash losses and emissions, McCurdy says the reliability of the composite hatch should simplify operations. "The biggest maintenance cost for thief hatches is replacing the seals and periodic cleaning," he relates. "Over time, corrosion causes pitting in a traditional metal hatch, which means it needs to be changed out more frequently."

The composite thief hatches cost slightly more than their metal predecessors, but McCurdy says the return on the incremental investment is quick and well worth it. "We have done side-by-side comparisons where we put a brand-new composite hatch next to a brand-new metal hatch, then check how often each opens for 90 days. Even in that period, when both hatches should be at their best, the difference is dramatic, with the composite opening far less frequently. Over the five-ten years a hatch will be on location, the gap between the two will only get bigger."

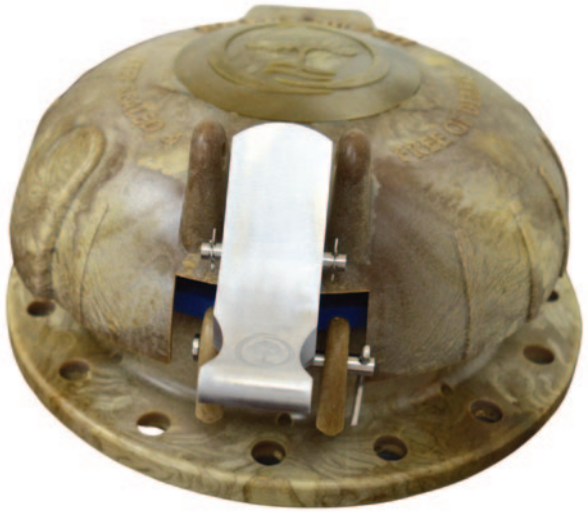
A Maturing Industry

While emissions detection technology and best practices have evolved rapidly over the past five years, McCurdy says many operators have kept pace. "Three or four years ago, some operators would want to try every technology available," he recalls. "Today, when we get inquiries, the operator often knows each technology's strengths and weaknesses, and what makes sense for a given site."

McCurdy attributes that growth partly to the grapevine. "The oil and gas industry is big but small. People talk and share knowledge, especially about the environmental space," he says. "There have also been public studies comparing emissions detection technologies, including work by the Methane Emissions Technology Evaluation Center out of Colorado State University and similar groups in Canada and France."

Optimizing emissions monitoring strategies frequently involves deciding where to rely primarily on highly scalable technologies that can cover a broad area for a low cost, and where to use more sophisticated techniques that require more investment but deliver more actionable information or allow continuous monitoring, McCurdy outlines.

He reports growing adoption of satellites, which pick up major leaks and can revisit the same site frequently, as well as planes and drones, both of which can achieve much lower detection thresholds with the right sensors and flight paths. In most cases, companies use these aerial techniques alongside ground-based continuous monitors and field surveys that check specific components.



Thanks to strong corrosion resistance, this composite thief hatch from Encino Environmental Services is less likely to leak than traditional designs, the company reports.

For continuously monitoring specific sites, blind ground sensors offer an affordable option that can alert operators about a leak but may not be able to pinpoint its location. Cameras that combine emissions detection with visual information can increase repair teams' efficiency by offering more precise source determination, he says.

According to McCurdy, these technologies are improving. He points to OGI cameras as an example.

"We invested in and partnered with Sensia Solutions, an optical gas imaging camera company based out of Madrid," he notes. "We have been utilizing Sensia's technology for four years now. Even in that time frame, we have seen meaningful improvements in the probability of detection and quantification, significantly fewer false positives, and better range. A new offering can observe up to a mile away, and another offering can calculate flare combustion efficiency.

"At the same time, the cameras are adding capabilities beyond emissions that help companies justify the investment," he continues. "We have cameras that not only spot and quantify gas leaks, but also track tank levels, use thermography to track temperatures and detect flames, and issue alerts when someone walks into a zone they are not supposed to be in. As the cameras continue to add functions and their safety and operational benefits grow, they should get easier for companies to deploy." ❐