



Gas utility in southern US saves up to 50% of gas network survey time

- *Infrared gas detection has cut network survey time by between one-third and half in Cullman-Jefferson Counties Gas District in Alabama*
- *The IRwin infrared gas detector from INFICON eliminates the need to send gas samples to be analyzed and to drill bar holes*

[Dateline] – A gas utility company in southern United States is saving up to half the time spent on gas network surveys, since introducing infrared gas detectors in its organization.

Cullman-Jefferson Counties Gas District operates a 1000-mile network in central Alabama, based around the Birmingham to Cullman gas pipeline.

“We are making massive savings. We have a legal requirement to undertake periodic gas network surveys to search for leaks. It is one of our most costly operations. Surveying one-fifth of the network used to take us four to six months. Now, this can be achieved in two and a half to three months, saving somewhere between one-third and half the time required,” says Keith Blackwood, director of construction and engineering at the utility.

Using the IRwin® Methane Leak Detector from INFICON, gas samples no longer need to be sent off for analysis, as the built-in gas chromatograph reveals the content of a sample in less than a minute. Additionally, the need to drill bar holes has been eliminated, as the location of the leak can be accurately pinpointed by pulling gas through paved surfaces with a vacuum bell.

“The units have paid for themselves in a very short space of time,” says Blackwood.

The network is divided into five segments. Each year, one of the segments is surveyed on a rotating basis, ensuring that the entire network is surveyed within a five-year period.

Previously, Blackwood and his crew worked with detectors that used catalytic combustion and thermal conductivity to detect gas, as well as flame ionization units. These technologies often operate more slowly and are more cumbersome to use. In addition, they are also sensitive to other gases, frequently triggering false alarms.

“The IRwin unit also takes samples with a greater quantity of air, which makes us more confident that the sample is representative of the atmosphere at the site,” adds Blackwood.

The gas detectors were supplied by Atlanta based industry experts Southern Cross.

“We have supplied many organisations in the United States that are in the same situation as Cullman-Jefferson Counties, still working with outdated gas detection technology when they could make their networks safe in half the time with modern IR technology. There is vast potential to improve the productivity of gas network surveys across the United States,” says Alnoor Ebrahim, who is in charge of advanced technology and strategy at Southern Cross.

The sensor system in the IRwin methane leak detector uses infrared light that is passed through the sample. Gas in the sample will absorb some of the light and the intensity of the light reaching the sensor reveals the gas concentration.

The type of gas is determined using the built-in gas chromatograph, enabling Blackwood and his team to identify whether the sample is natural gas. Alternatively, it could be swamp gas rising from decomposing organic matter in the ground, or propane gas leaking from a nearby private installation. By positively identifying the type of gas, the team can avoid incurring costs for digging in the wrong place.

In the past, the team had to send the sample away for testing, which meant a long wait for the result. Now, the result is delivered straight away, with the gas composition in the sample displayed as a graph on the digital display and a description in plain text, for instance "NG with Ethane Detected".

Additionally, there is no longer any need to drill bar holes around the suspected area to find the location of a leak. Once a leak has been detected, its exact location can normally be pinpointed within 10 minutes, using one of the various pickup devices that come with the unit.

"As the survey work now has become so much quicker, we are thinking about reorganizing the way we operate. We may for instance do two months in the spring and two in the fall. We may also make use of the system's feature to provide surveying documentation with GPS and breadcrumb trails," says Blackwood.

The leakage in the network today is much less than it has been historically, as cast-iron pipelines have largely been replaced with plastic.

"In the past, a survey could show up as many as 200 to 300 leaks. Now, you get maybe five to ten and these will be mainly on the valves. This is another reason that we want to move to more sensitive detection technology. We want to make sure we catch everything and detect leaks while they are still small. Larger leaks can lead to third party damage and it is also costly to send out staff for emergency repairs," Blackwood concludes.

