

# Following the Incus trail

Ultrasonic pressurised gas leak detection technology is now widely recognised in the oil and gas industry.

A leader in this technology is Groveley Detection who recently launched the unique GDU-Incus, which incorporates four independent sensing heads.

Jose Sanchez de Muniain talked to Managing Director Robert Bennet about latest developments in this sector.

## What is special about the GDU-Incus?

It represents the next generation of pressurised gas leak detection. Whilst our previous version was only intrinsically safe, this new version is Ex-d. We are finalising North American UL approval for the GDU-Incus and we launched the detector at the Offshore Technology Conference in Houston a few weeks ago.

The unit features a built-in self-cleaning and calibration check – a small pump in the unit routinely generates a burst of air that blows across each sensor, cleaning the sensor head and providing an accurate gas leak simulation to test the functionality and calibration of the detector. The test can be carried out automatically or on demand, as often as necessary.

## What are the advantages of ultrasonic technology?

The main advantage is that the gas doesn't actually have to reach the unit to be detected, so it doesn't matter if the detector is placed in an open plant where there is wind, mist or snow – a gas leak will still be found.

In open sites with big storage tanks it can be difficult to detect gas with conventional methods because there is nowhere for the gas to accumulate.

This technology effectively works at the speed of sound so a near instantaneous response to gas leaks can be achieved.

## What do people like about the next generation technology used in the GDU-Incus?

Basically the large coverage range and the fact that it doesn't use microphones. Typically if you have a 74Db background noise level you are looking at a 40m diameter coverage area with the detector positioned 3m above the ground. In environments where background ultrasonic noise levels are higher, detection range will be reduced.

Microphones are the traditional form of technology adopted within ultrasonic detectors, these can be prone to requiring frequent re-calibration at different temperatures and can be

susceptible to water ingress. The GDU-Incus doesn't rely on microphones and utilises piezo-electric technology to provide a reliable, minimal maintenance system.

## What is the procedure for installation?

We assist with commissioning and final checks but we don't carry out the actual installation – this is normally done by site electricians. First we would carry out an ultrasonic mapping survey to monitor background ultrasonic noise levels and determine best positioning of the detectors. After the site evaluation we compile a results report that recommends the best detector locations, taking into account factors such as:

- Processing pressure
- Size of potential leak
- Areas to be protected.

## Can you provide an example of how these detectors are used?

One of our customers, now in addition to checking for gas leaks, monitors their pressure relief valves with ultrasonic detection. As they know when the valves are going to release, a time delay can be applied ensuring no false alarms occurring during this period. The pressure relief valve takes under three seconds to work, and a time delay of 15 seconds for the alarm is set – ensuring the detector won't go into alarm before that time. Every time the pressure valves release the detectors will still log the data. Safety personnel can see when the valves have released and that they are working correctly. Because each valve gives off a different sound signature, they can identify clearly each unit in the logged data.

## What is the most common misconception regarding this technology?

Many people think that it would never work in practice because their site is too noisy. But what the detectors are listening for is ultrasonic noise rather than the acoustic/audible noise you and I can hear. For instance, some people for might say it would never work in a compressor house, but actually they have proven to work very well there.

## Does ultrasonic pressurised gas leak detection have any limitations?

A pressure difference must exist between the gas and its surroundings in order for ultrasonic noise to be generated. However the GDU-Incus is so sensitive the pressure difference can be as little as two bar.

The detector won't tell you what type of gas leak is present. It is complimentary technology that provides early warning of a gas release, not a replacement to existing infrared/catalytic detectors.

## What next?

We are now looking at CO<sub>2</sub> cylinder warehousing as another potential sector which could benefit from ultrasonic technology.



*Using an advanced form of piezo-electric sensor technology, the GDU-Incus incorporates four independent sensing heads designed to allow unobstructed sensing and a vast detection range.*