Onshore exploration and drilling has shown continuous expansion over the past few years, particularly in the various shale formations throughout the US. One of the dominant hazards associated with drilling in these formations is the prevalence of high concentrations of hydrogen sulphide (H2S), which occurs naturally in crude oil and gas. In high concentrations, H2S is extremely toxic and has an Inherently Dangerous to Life and Health (IDLH) threshold of 100 ppm, posing a clear threat to workers at these sites.

To mitigate this threat, gas-monitoring systems are routinely deployed on site. These have to be versatile, reliable and cost-effective, and Oldham has designed a variety of wired and wireless options.

**Wireless detection**

Exploration and production companies demand systems that can be quickly deployed, monitor many remote areas around a site and report to a central controller. Wireless options are therefore one of the most robust options for the oil and gas industry. These avoid the cost and inflexibility of wired systems, and allow the remote monitoring and control of devices. Difficult or inaccessible areas can be monitored from a central location, allowing wells, lift stations and storage tanks to be easily checked for safety.

Oldham’s OLCT 200 transmitter with a toxic sensor can be powered using a D-Cell Lithium-Ion battery and can transmit readings wirelessly via 900 MHz and 2.4 GHz Modbus, making it more reliable at distances and through obstructions. The transmitters can either be mounted traditionally or with optional magnetic mounts, providing rapid deployment options and the added value of location changeability. They are capable of monitoring for H2S and reporting near real-time readings back to a central controller.

In tandem, Oldham offers a variety of controllers that are wirelessly compatible with the OLCT 200 transmitter. The WX4, WX16 and WX64 controllers can act as both a wireless master and slave and monitor up to 64 points.

A common complaint heard throughout the oil and gas industry is the issue of frequency interference at multiple rig sites that have all employed different gas detection systems. In response to this, Oldham has designed each OLCT 200 with its own unique programmable address which matches that of the controller. This ensures proper communication with the right transmitter and the flexibility allows sites to employ multiple systems in close proximity without cross interference.

Controllers should always have wireless master and slave operation, allowing detectors to be either hard wired or tethered to the detector, up to distances of 350 feet (107 metres). A 16 channel controller powered by a 12-volt battery and solar panel can transmit all the information wirelessly with one radio, thus eliminating the need to manage and maintain multiple radios.
Ensuring safety is not just about how good the equipment is; it is about the knowledge and expertise behind it. Gas detection engineers are frequently asked where to place sensors, and in the past, most manufacturers were hesitant to make this kind of recommendation. Now with the availability of plume modelling software that takes into account potential leak sources and wind direction, gas detection experts like Oldham can help provide real guidance in sensor placement for any operating facility.

There is also increasing demand for systems like the OLCT 200, which provide redundancy and have at least a safety integrity level of 2 (SIL 2). This has had a large influence on how Oldham designs products, shaping the process from concept to design to manufacturing. The net effect has been an increase in reliability and robustness, whilst making maintenance lower and easier.

Contact:
Jane Rudov, Global Director of marketing
Tel: +1 (412) 490-1931
Email: jrudov@oldhamgas.com
Web: www.oldhamgas.com

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CONTACT INFORMATION

NewsBase is headquartered in Edinburgh, Scotland. We have staff elsewhere in Europe as well as Australia.

**InnovOil, NewsBase Ltd.**  
Centrum House, 108 Dundas Street  
Edinburgh, EH3 5DQ, UK  

Phone: +44 (0)131 478 7000  
Fax: +44 (0)131 478 7001  
Email: sales@innovoil.co.uk  

More Contact Information