

“Sour” gas sweetens its reputation

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By **Richelle Wiseman**
Reporter
Troy Media

CALGARY, AB, August 10, 2011/ Troy Media/ – Sour gas has an image problem that reflects past experiences more than current realities. When people in Alberta think of sour gas wells, they often remember the 1982 Lodgepole blowout when poisonous gas was released into the air for 67 days.

But over the past almost 30 years, the safety of sour gas wells has been dramatically improved. Thanks to the work of industry players and regulators, employee and public health and safety measures are more stringent than ever. Also, drilling technologies, quality of steel, and operating procedures have dramatically improved the safety records of sour gas wells.

In January 2000, the Alberta Energy Utilities Board (EUB) struck a Public Safety & Sour Gas Advisory Committee asking it to examine Alberta’s sour gas regulatory system and consult with Albertans on issues surrounding sour gas development. The committee came back with 87 recommendations for improvements,

The EUB embraced those recommendations, making the following changes:

- Tougher rules around compliance and enforcement for sour gas development;
- The development of comprehensive health effects information around H₂S exposure;
- Coordinated planning for sour gas development in rural and urban areas;
- An extensive upfront technical review of all critical sour gas well applications and a 100-per-cent inspection rate for critical sour wells while drilling;
- A Customer Contact Centre to answer public questions;
- Tighter regulations around sour gas pipelines regarding inspections and testing;
- A public safety group within the EUB that consists of a community and aboriginal relations section to increase consultation and understanding, and an emergency planning and assessment section dealing with emergency response;
- Upgraded air monitoring unit to state-of-the art specifications and purchased a second unit. These units utilize infrared

cameras that can detect volatile organic compounds.

The EUB has also changed regulations so landowners are consulted earlier and more comprehensively than ever before by companies proposing sour gas development in their area.

Pipeline failure rate falling

Pipeline safety has also been improved. In 2000, there were 3.3 pipeline failures per 1,000 km of pipe, according to Bob Curran, a spokesman for the Energy Resources Conservation Board (ERCB). At the time, there were 285,000km of pipeline in Alberta. By 2009, there were only 1.6 failures per 1,000 km of pipeline and there was 394,000 km of pipeline.

‘In addition, industry compliance in the high risk inspection category was at 98.6 per cent in 2009, up from 96.7 per cent in 2000,’ says Curran. ‘Our ultimate goal is to see industry compliance at 100 per cent.’

From the drilling of the sour gas wells, right through to the production and processing stages, there are strict regulations to protect public health and safety.

Before the well can be drilled, the producer must provide the regulators and surrounding communities with an Emergency Response Plan (ERP) that includes evacuation plans and early warning systems. There are strict blowout prevention measures at the well site and ERPs are developed in consultation with communities. Producers develop ERPs for all sour gas pipelines moving gas to processing facilities. The facilities have their own ERPs. Residents whose properties contain pipelines are consulted.

Wells, pipelines, and facilities have required ‘setbacks’, or distances, they must be located from residences, communities and public facilities.

Maintenance of hundreds of miles of pipelines is a labour intensive and costly enterprise for producers. The pipelines must have emergency shut-down valves and be maintained through air surveillance, ground surveillance, inspections and corrosion surveys. Smart tools are inserted into pipes to measure the thickness of the pipe and to look for signs of corrosion. Weak pipe sections can be replaced before safety issues arise.

Sour gas is called ‘sour’ because of the high sulphur content in the H₂S, producing a rotten egg smell at low concentrations. Some large producers send their sour gas to midstream companies that have plants designed specifically to remove the sulphur and other products and recover sweet gas.

Two possible destinations for ‘acid gas’

Keyera, a large Calgary-based midstream company, strips out the hydrogen sulphide and sends the sweet gas to be processed. The remaining ‘acid gas’ or heavy H₂S gas has two possible destinations.

‘We take the heavy laden H₂S gas we’ve stripped out and send it to a sulphur plant to process it into elemental sulphur,’ says Scott Turner, Community Response Coordinator for Keyera. Alternately, the acid gas is injected back into the ground into a specially licensed well.