

FOR IMMEDIATE RELEASE

EUB Completes Groundwork for Future of Sour Gas Development in Alberta

Public Safety and Sour Gas committee helps Alberta maintain world's tightest sour gas rules

Calgary, Alberta (June 7, 2007)

The Alberta Energy and Utilities Board (EUB) has completed a historic seven-year initiative that has changed the way sour gas is regulated and developed in Alberta.

The 87 recommendations of the EUB's Public Safety and Sour Gas (PSSG) independent committee have now been addressed. The PSSG initiative was established in January 2000 to review and assess the province's regulatory regime as it related to health and safety. The committee embarked on a one-year extensive research and information gathering process, including two rounds of meetings in nine towns and 16 Aboriginal communities in Alberta affected by sour gas development.

In December 2000, the committee presented the EUB with 87 recommendations towards a better understanding of sour gas, improving the sour gas regulatory system, reducing the impacts of sour gas on public health and safety, and improving public consultation on sour gas matters. Sour gas is natural gas containing hydrogen sulphide (H₂S) which is toxic to humans and animals.

In implementing the recommendations, the EUB has (among many other actions):

1. toughened rules around compliance and enforcement for sour gas development
2. assisted in the development of comprehensive health effects information around H₂S exposure
3. improved coordinated planning for sour gas development in both rural and urban areas
4. initiated an extensive upfront technical review of all critical sour gas well applications and a 100% inspection rate for critical sour wells while drilling
5. launched a Customer Contact Centre manned by EUB staff to answer public questions
6. tightened regulations around sour gas pipelines regarding inspections and testing
7. created 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
8. upgraded the EUB's 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 (including creation of a landowner's guide with 40 questions the public have the right to have answered).

There are over 6,000 sour gas wells, approximately 250 sour gas processing plants and over 18,000 km of operating sour gas pipelines in Alberta. In 2006, over 33 percent of Alberta's annual natural gas production was sour gas (1.6 trillion cubic feet).

The EUB ensures that the discovery, development, and delivery of Alberta's energy resources and utility services take place in a manner that is fair, responsible, and in the public interest.

This news release, plus more information on the Public Safety and Sour Gas initiative, is available on the EUB Web site at <http://www.eub.ca>.

NOTE TO EDITORS: Background document attached.

For more information, please contact:

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NR 2007-22

Backgrounder

Public Safety And Sour Gas Q & A

What is sour gas?

- Sour gas is natural gas containing hydrogen sulphide (H₂S) and in low concentrations is identifiable by a strong 'rotten eggs' smell.

How many sour gas wells/facilities are there in Alberta?

- Alberta has over 6,000 producing sour gas wells, about 250 operating sour gas processing plants, and 18 000 km of operating sour gas pipelines. There are also over 5 000 sour oil facilities in the province.
- There are about 105 sour gas wells and facilities within or very close to Calgary, mainly located along the eastern edge of the city.

How much sour gas does Alberta produce?

- In 2006, sour gas accounted for about 33 per cent of all natural gas produced in Alberta (or about 1.6 trillion cubic feet of gas). (2006 Alberta Reserves Report)
- About 21 per cent of Alberta's total remaining gas reserves is sour gas (about 8.5 trillion cubic feet of gas). (2006 Alberta Reserves Report)
- Alberta has been producing "sweet" natural gas (natural gas without H₂S) for decades - as these "sweet" reserves decline, sour gas replaces them.

What is the average H₂S concentration of Alberta sour gas?

- The average H₂S concentration of Alberta sour gas in 2006 was 8.9% (2006 Alberta Reserves Report). Concentrations range from a trace to more than 40% H₂S.

How long has sour gas been developed in Alberta?

- The first major sour gas discovery in Western Canada was in 1922 near Turner Valley.

How much did the Public Safety and Sour Gas (PSSG) initiative cost?

- Approximately \$15 million over 6 years.

What is the economic benefit of sour gas to Alberta?

- A 2003 Public Safety and Sour Gas (PSSG) report on the benefits of sour gas development (PSSG Recommendation 79) noted that the sour gas industry supported 37,000 jobs (direct plus spin-off) and generated about \$1.3 billion in wages and salaries.
- The royalties collected on natural gas, natural gas liquids, and sulphur from sour gas production in 2000 was \$1.52 billion. The freehold mineral tax collected from sour gas production was \$41 million, and sour gas activities (direct plus spin-off) generated \$225 million in provincial taxes.

What are the risks of sour gas?

- H₂S is toxic to humans and animals at very low concentrations.
- Most people can smell the distinctive 'rotten eggs' odour of the gas at concentrations considerably less than one parts per million (ppm).
- Parks Canada states there are 2 parts per million (ppm) H₂S at the Upper Hot Springs in Banff and 6 ppm at Miette Hot Springs in Jasper.

Parts per million (approximate ranges)	
0.01-0.3	Odour is detectable
1-10	Moderate to strong odour. People may experience nausea, tearing of the eyes, headaches and loss of sleep following prolonged exposure.
10-150	Increasing degree of irritation to eyes and lungs.
150-750	Severe health effects which may lead to death, become more likely as concentration and exposure time increase.
greater than 750	Death may occur in minutes or less.

Where else can sour gas be found?

- In addition to existing in natural gas, H₂S can be found in sour crude oil, sulphur hot springs, sewage, swamps, manure piles in stockyards, landfills, and the holds of fishing ships, as well as in the processing of leather, pulp and paper, and rayon textiles.

How is sour gas formed?

- Hydrogen sulphide occurs naturally in crude petroleum, volcanic gases, and hot springs. It can also form when organic materials, such as plants or human and animal wastes, decompose in an oxygen-free environment, a process known as anaerobic decomposition. This process can occur in sewers, manure piles, swamps, and composts.

What is sour gas used for?

- For sour gas to be marketable, the H₂S must be removed. This is accomplished by removing the sulphur component of the H₂S, leaving only the hydrogen.
- About 98 per cent of the sulphur recovered from western Canadian sour gas is converted into elemental sulphur, which is used to manufacture fertilizers, paper, pharmaceuticals, steel, and other products.

Are all critical sour gas wells inspected?

- The EUB has implemented a 100% inspection rate for critical sour gas wells.

What specific rules must companies follow when drilling for sour gas?

- When drilling for sour gas, companies must use specialized drilling rigs with multiple safety systems, and specialized training is required for drilling crews.
- Blowout preventers must be installed at the surface of the well to reduce the risk of an uncontrolled escape of gas, oil, or other well fluids from the wellbore into the atmosphere.
- Backup equipment also provides a second line of defence to ensure that any well problems are controlled in the early stages to prevent a blowout. For example, there must be twice as much drilling fluid, referred to as mud, in reserve at the site as needed.
- Alberta has the world's toughest, most comprehensive sour gas development rules and regulations. As sweet gas reserves decline in other countries, those nations come to Alberta to review our regulations as they begin to develop their sour gas resources.

Are there specific rules for transporting sour gas?

- All sour gas pipelines in Alberta are clearly identified by warning signs and are inspected regularly from the air and on the ground to make sure they are not disturbed by erosion, agricultural operations, or construction activity.
- Pipelines carrying high concentrations of sour gas with large volumes or near residences must be equipped with automatic valves that shut off the gas flow in the event of an emergency. Regulations also stipulate that sour gas pipelines must operate under reduced pressure levels to help protect against rupturing.
- Cathodic protection is used to prevent pipeline corrosion. Pipeline "pigs" are also used to ensure the strength and safety of the pipes. "Pigs" are small devices that move through the inside of a pipe to check for any internal weakness or corrosion.

Have there been any studies on animal health near sour gas facilities?

- The Caroline Livestock Study began in 1991 and it monitored 1300 cattle in the Caroline area. Results indicate that the average herd health did not change after sour gas plant operations began, and that the average health and productivity of herds in the study is near or above that expected from published benchmarks.
 - In 2006, the Western Inter-Provincial Scientific Studies Association (WISSA) concluded a six year study of 33 000 cattle in 205 herds near oil and gas facilities across western Canada. Few associations between emissions and the overall health of cattle were found. www.wissa.info .
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