ERCB Energy Resources Conservation Board
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# News Release

***FOR IMMEDIATE RELEASE***

## ERCB APPROVES HIGHPINE SOUR OIL WELL APPLICATIONS WITH CONDITIONS

***ERCB imposes eight conditions, directs Highpine to fulfill 59 commitments and employ 97 public safety measures***

**Calgary, Alberta (*December 30, 2008)*** The Energy Resources Conservation Board (ERCB) has issued *Decision 2008-135*, which places eight conditions on an approval for Highpine Oil & Gas Ltd. to drill three sour oil wells near the community of Tomahawk. Three conditions were commitments made by the company that the ERCB has converted to conditions of approval.

The ERCB directs the company to:

- update and submit existing emergency response plans prior to drilling.
- sequence drilling to ensure that only one well enters the sour Nisku formation at one time.
- drill the well located 3.3 kilometres north east of Tomahawk first. The Tomahawk School is not in the emergency planning zone for this well.
- have standby busing in place at the Tomahawk School during sour operations at the first well drilled.
- test the first successful well to determine exact $H_2S$ concentrations. The results must be submitted to the ERCB prior to entering the Nisku Formation in either of the two subsequent wells.
- conduct critical sour operations for the wells 3.2 and 5.2 kilometres west of Tomahawk while the Tomahawk School is not in session. The emergency planning zones for both wells include the Tomahawk School and the community of Tomahawk. With drilling and completion of the wells occurring while the Tomahawk School is not in session, staff and students at the Tomahawk School are effectively removed from the emergency planning zones.

The ERCB expects Highpine Oil & Gas to fulfill 59 commitments the company made to address community and individual concerns.

The ERCB is satisfied that the company's applications, together with its commitments, meet or exceed all applicable regulatory requirements and that the three wells can be drilled in a manner that upholds and protects public safety. In its decision, the ERCB noted that the company listed 97 measures it is obligated to employ to ensure public safety.

ERCB *Decision 2008 – 135* follows a hearing that took place in Tomahawk, Alberta, from September 23 to October 3, 2008.

This news release and **Decision 2008-135** are available on the ERCB website at www.ercb.ca.

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## ***BACKGROUND***

**ERCB Decision 2008 -135: Applications for Three Well Licenses, Pembina Field (Tomahawk Area)**

**Tomahawk School**

The ERCB is confident all three wells can be drilled safely when the Tomahawk School is in session. However, to address community concerns, Highpine Oil & Gas Ltd. committed not to conduct drilling and completion operations in the sour Nisku zone when the school is in session for two of the wells, and to provide stand-by busing when in the sour Nisku zone for the remaining well (where the school is not in the emergency planning zone).

To further address community concerns, the ERCB elevated Highpine's commitments to conditions of approval.

**Sour Gas Facts**

There are some common misconceptions about the properties and behaviour of sour gas in areas that produce this resource. The ERCB believes that Albertans deserve to know the facts about sour gas and oil development.

1. On June 7, 2007, the ERCB (then the Alberta Energy and Utilities Board (EUB)) announced the completion of a landmark seven-year initiative that has changed the way sour gas is regulated and developed in Alberta. The 87 recommendations of the Public Safety and Sour Gas (PSSG) independent committee were 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.

2. *In the atmosphere, sour gas is not necessarily heavier than air.* A sour gas mixture can be lighter than air, the same weight as air, or heavier than air, depending on its composition. Pure or 100 per cent $H_2S$ is indeed heavier than air, but when dealing with a sour gas release, the molecular mass of the entire gas mixture must be considered. In some cases, sour gas could be heavier than air, but for the subject wells, the overall composition indicates that the gas will be lighter than air. This is because the major component of the gas is methane (62 per cent), which is much lighter than air. Although H2S is heavier than air, it comprises only about 16 per cent of the sour gas mixture.

3. *Sour gas in a reservoir or in a pipeline is under pressure.* When released to the atmosphere, which is at a lower pressure, it will quickly expand and cool. If the sour gas cools enough relative to the outside temperature, it may initially be heavier than air. As the sour gas mixes with air, it will take on the characteristics of ambient air.

4. *Although H2S itself is heavier than air, it will not separate from the sour gas mixture*. Without getting into a complicated discussion of thermodynamics, a simple analogy is to compare carbon dioxide ($CO_2$), which is heavier than sour gas (even heavier than pure H2S) and air. Carbon dioxide exists in the atmosphere at a concentration of 350 parts per million (ppm), yet it does not separate out of the atmosphere and settle on the ground.

5. *There are limited circumstances under which sour gas may flow downhill.* For these wells, with a 16 per cent $H_2S$ sour gas mixture, if the mixture is initially heavier than air, as discussed above, or there is downslope wind flow, it may move downhill. However, it is important to understand that the gas will continually mix with air, dispersing and diffusing to lower concentrations as it moves.

6. The Board has specific additional safety requirements for drilling critical sour gas wells that are intended to prevent a release. When these are combined with the other commitments and mitigation measures in place, the Board is satisfied that Highpine has taken appropriate steps to minimize the risk to the public associated with the drilling and completion of the proposed wells.

***Overview of ERCB Sour Well Application Process***

The ERCB believes an overview of its sour well application process will help Albertans understand how the ERCB evaluates sour well applications, including those by Highpine Oil & Gas Ltd. in the Tomahawk region.

1. Sour gas is found throughout Alberta and is associated with many oil and gas operations.

2. Sour gas requires specific requirements and attention if it is to be developed safely.

3. All industrial developments, including sour gas, that coexist with other surface uses impose some societal risk, which must be reduced by all practical means possible.

4. The design and implementation of mechanical systems and emergency response plans should account for the reality that mechanical failure or human error cannot be eliminated completely. Therefore, with sour gas developments, a protective design approach and redundancy of safety measures are required to ensure public safety. Notwithstanding that the regulatory requirements result in an extremely low risk of an accidental release of H2S actually occurring, the requirement for well designed and tested emergency response plans to be in place prior to drilling and operations ensures that the public will be protected even if a release were to occur. In addition, the plans are created assuming that extremely conservative combinations of release rates and atmospheric conditions will exist in order to provide a high factor of safety in the plans.

5. Persons who may be directly and adversely affected by a sour gas development should have an opportunity to learn about the development and work with the proponent to resolve concerns whenever possible before approval.

6. If all concerns are not resolved, the Board must provide a fair hearing process to determine if any specific circumstances or flaws in the application merit either revisions to or denial of the application.

***Additional information related to sour gas applications can be found on pages 4 to 7 of ERCB Decision Report 2008-135.***