

Alberta

Regulations for Oil and Gas Operations in H₂S Areas

1. Are there any devices/alarms required of operators that have H₂S on location, and if so, at what ppm H₂S are they required to be set?

For critical sour drilling operations, H₂S monitoring (audible and visual alarms) are required under AER Directive 36 and are required to alarm at 10ppm H₂S or greater. AER EPEA approved facilities processing sour gas are required to have CEMS (Continuous Emissions Monitoring System) to measure SO₂ which is a measurement of H₂S that is combusted (no direct H₂S monitors). Alberta Occupational Health and Safety (OHS) Codes have requirements for continuous monitoring for explosives gases which would include H₂S.

2. Are there any postings required of operators that have H₂S on location, and if so, under what circumstances?

Yes, under the AER Oil and Gas Conservation Rules, a warning symbol for Poison Gas must be posted at the primary entrance to all oil and gas well/facilities where the H₂S concentration exceeds .01 moles per kilomole (10 ppm).

3. How are facilities at which H₂S is present tracked?

Oil and Gas Operators are required to identify when H₂S is expected to be encountered through the AER Directive 056 Application process when applying for a well/facility license.

Field Inspectors can also document in the AER Field Inspection System (FIS) the levels of H₂S at a well/facility when conducting Inspections and requesting the H₂S concentrations from the Licensee.

4. What level or levels of H₂S are considered actionable and under what circumstances?

Any amount of H₂S concentration resulting in odours that is encountered off-lease (generally off the energy site boundaries) from an oil and gas facility is actionable under AER Directive 60. Energy sites that have an approved H₂S concentration of greater than 1% are not allowed to vent any gas, all possible vent sources must be captured and flared.

5. Are any additional standards for rules implemented for H₂S other than the following?
- ANSI- American Nation Standards Institute.
 - API – American Petroleum Institute.
 - EPA – Environmental Protection Agency.
 - Alberta Occupational Health and Safety Code,
https://open.alberta.ca/publications/2009_087
 - Canadian Centre for Occupational Health and Safety (Federal)
https://www.ccohs.ca/oshanswers/chemicals/chem_profiles/hydrogen_sulfide.htm
6. Does your state have any specific H₂S safety regulations? If so, please list them below.

Numerous technical requirements for managing H₂S can be found in the following AER published requirements including, but not limited to Directive 71, Directive 60, Directive 13, Directive 20, Directive 36, Directive 37, Directive 51, Directive 58, Directive 77, Oil and Gas Conservation Rules, Pipeline Rules and the Oil Sands Conservation Rules.

7. What are the purposes of the H₂S regulations?
- Public safety
 - Worker safety
 - Other: Environment (eg. hazardous to the aquatic environment, acute toxicity)

The AER's regulations are related to A and C, we do not have a mandate for Worker Safety.

Safety Procedures for Field Inspectors

8. What type of training is required for Field Inspectors?

All Field inspectors are required to have H₂S training every 3 years which is conducted by a third-party service provider with recognized authority. The course typically is 8hrs in length and includes components of H₂S Properties, Hazard Assessment and Controls, Respiratory Protective Equipment (donning and doffing), Detection of H₂S and Initial Response Strategies.

9. Are certifications required for Field Inspectors?

Yes

10. Do you have an H₂S safety specialist, and if so, what is the specialist's level of expertise?

The AER does not have a specific H₂S Safety Specialist. AER safety is governed by the AER Occupational Health and Safety Policy.

11. Do state inspectors check H₂S levels, or do they require operators to check?

Inspectors do not physically conduct H₂S concentration testing. If this information is required, the licensee is asked to conduct the test and submit lab analysis of the gas concentration.

12. If state inspectors check H₂S levels, what are the required procedures/protocols for checking to determine H₂S levels?

Inspectors do not physically conduct H₂S concentration testing. We will request follow up from the approval holder based on any noticeable odour or detected release of H₂S.

13. How often are readings required to be made? By whom? How/who keeps up with those readings?

The licensee is required to know the sour gas content and release rate of their wells, facilities, and pipelines. This is required to be submitted during the application process. An inspector may request recent gas analysis on a well/facility/pipeline when an inspection is conducted or when a situation warrants it.

14. Where are Field Inspectors most likely to check for H₂S?

- a. Top of stock tanks
- b. Wellheads
- c. Gas streams
- d. Other: Field Inspectors generally adopt a hands-off procedure when conducting inspections due to safety concerns as H₂S can potentially be encountered at every oil and gas site and Inspectors are not equipped with SCBA's.
- e. Not applicable

15. How do Field Inspectors respond to an H₂S complaint? (Please include in the response information on any requirements about when the Field Inspector must be accompanied by another person.)

All sour gas (H₂S) odour complaints require an investigation. Information is gathered regarding sour gas locations in the area of the complaint, and H₂S concentrations. The inspector may initiate an immediate response by contacting licensees in the area to assess their locations, the inspector may immediately dispatch to the area to investigate, or a combination of both. Factors such as wind direction, H₂S concentration etc, are considered and guide the inspector on their response to the complaint.

16. Are inspectors required to wear H₂S monitors? If so, what type of equipment?

Yes, inspectors are required to wear a 4 head personal gas detector at all times on oil and gas locations. We are in the process of switch to the Honeywell BW Icon+ monitor