

British Columbia

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?

Yes section 39 of the Drilling and Production regulation specifies when detection and alarm is required at wells and facilities. The thresholds are based on the potential for H₂S to exceed 100 ppm at a facility site boundary or within 50 metres of a well head in an uncontrolled flow scenario.

Typically, H₂S detection is set at 5 ppm for alarm and 9ppm for shutdown based on occupational health and safety requirements.

Wells flowing natural gas greater than 30,000 m³/d with H₂S > 5% within 800m of a populated area or 8km of a city, town or village must install a subsurface safety valve within 30 m of surface. Acid gas injection or disposal wells must also install subsurface safety valves.

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

Yes section 15 and 77 of the Drilling and Production regulation specifies H₂S signage is required for wells and facilities, respectively. A poisonous gas sign is required if a well is capable of producing or a facility handles gas with an H₂S content of 10 ppm or greater.

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

The maximum H₂S content of a pipeline or facility is included in the permit and tracked in the Commission database. Well gas analyses are used to track H₂S at well sites.

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

In addition to the thresholds specified in 1, any leak of gas containing H₂S is actionable and any intentional venting of gas containing H₂S that results in offsite odours is actionable. Any well with a sour surface casing vent flow is actionable.

5. Are any additional standards for rules implemented for H₂S other than the following?
 - a. ANSI- American Nation Standards Institute.
 - b. API – American Petroleum Institute.
 - c. EPA – Environmental Protection Agency.

Materials in sour service must meet NACE MR0175 requirements.
CSA Z662 Oil and Gas Pipeline Systems
DACC IRPs (Drilling and Completions Committee Industry Recommended Practices)

6. Does your state have any specific H₂S safety regulations? If so, please list them below.

There are several H₂S safety regulations. The emergency management regulation addresses emergency preparedness and response and includes consideration of hazards associated with H₂S.

The Drilling and Production Regulation contains well suspension requirements in section 25, H₂S detection and alarm and downhole safety valve requirements in section 39, flare performance requirements in section 44, venting limits in section 41, poisonous gas signage in sections 15 and 77, downhole production packer requirements in section 16.

The Pipeline Regulation requires permit holder to follow CSA Z662. Clause 16 of CSA Z662 contains requirements for sour service pipelines.

The Oil and Gas Waste Regulation contains additional limits on the discharge of H₂S.

The regulations are supported by various guidance documents including:

- Oil and Gas Activity Operations Manual
- Emergency Management Manual
- Flaring and Venting Reduction Guideline
- Acid Gas Disposal well summary document

7. What are the purposes of the H₂S regulations?

- a. Public safety
- b. Worker safety
- c. Other: _____

Both worker and public safety and aesthetics (objectionable odours).

Safety Procedures for Field Inspectors

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

H₂S Alive, training on use of gas monitors (Blackline)

9. Are certifications required for Field Inspectors?

Yes, H₂S Alive or equivalent

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

No, we do not have a specialist

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

Yes, they check before entry into any buildings on oil and gas sites, always have H₂S monitor.

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

Building entry procedure where inspector uses handheld H₂S monitor to check levels before entry into a building.

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

Continuous by device while inspector on site.

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

- a. Top of stock tanks
- b. Wellheads
- c. Gas streams
- d. Other: Entire site, passively checked with 4 head monitor as they inspect the site
- e. Not applicable

Anywhere on site.

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.)

Process: Commission contacts permit holder, permit holder is first on site to investigate source of complaint, reports back to Commission. Commission then decides if/when to dispatch an inspector to monitor any emergency response activities by the company.

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

Yes, 4-head monitor built by Blackline. H₂S, Oxygen, LEL, CO