

Michigan

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?

Hydrogen sulfide detection and warning equipment is required during the drilling of an “H₂S well” (see #4 below). Such equipment is required to activate a visual alarm if the ambient air H₂S concentration exceeds 10 ppm and audible alarms if the ambient air H₂S concentration exceeds 20 ppm.

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

Wellheads of H₂S wells are required to post specifically worded warning signs. Stock tanks where H₂S concentrations can exceed 500 ppm are required to have gated stairs with specifically worded signage posted on the gate. Flowlines carrying H₂S-bearing gas are required to have signage denoting the presence of H₂S in the transported gas and above ground flowline markers along the length of the line.

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

An in-house database is used to record measurements of H₂S in produced gas for individual wells. There is no specific tracking of central producing facilities served by H₂S wells.

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

Administrative rules applicable to the oil and gas industry in Michigan, administered by the Oil, Gas and Minerals Division (OGMD) of the Department of Environment, Great Lakes, and Energy (EGLE) classify and oil or gas wells as an “H₂S well” if it produces gas with an H₂S content of 300 ppm by volume or greater. Wells are further assigned a class (I through IV) depending on radius of exposure (RoE) calculated by the so-called Pasquill-Gifford equation, Class I wells having the largest RoE. There are specified locations on and around the drill rig for the H₂S sensors.

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.

No, also none of the above standards are directly implemented by OGMD.

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

H₂S related to oil and gas operations is regulated in Michigan by the OGMD under administrative rules promulgated under the authority of umbrella environmental legislation known as the Natural resources and Environmental Protection Act (NREPA), Act 451, Public Acts of 1994, amended.

7. What are the purposes of the H₂S regulations?
- Public safety
 - Worker safety
 - Other: _____

The regulations governing H₂S in the oilfield in Michigan are directed at worker and public safety and nuisance odor control

Safety Procedures for Field Inspectors

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

OGMD field inspectors undergo annual training which includes H₂S properties, toxicology, proper use, care and calibration of safety equipment.

9. Are certifications required for Field Inspectors?

The training described in 8 above results in certification that the training has been successfully completed.

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

OGMD depends on outside contractors to conduct the annual training. There is an individual within OGMD tasked with being a "specialist" in H₂S but not primarily H₂S safety.

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

OGMD inspectors do not have equipment to "check H₂S levels" in gas streams. An EAGLE low level recordable H₂S detector is used to investigate leaks or source of H₂S odors. All staff carry 4 gas (CO, LEL, H₂S, and O₂) personal monitors. Some operators have modern well sites and facilities with real time detection, monitoring and warning for H₂S.

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

NA – equipment instructions only and inspectors do not "check H₂S levels."

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

An initial measurement of H₂S in produced natural gas is required, with a follow-up measurement taken one year later. Both measurements are the responsibility of the well permittee.

14. Where are Field Inspectors most likely to check for H₂S?
- Top of stock tanks
 - Wellheads
 - Gas streams
 - Other: _____
 - Not applicable

E. Field Inspectors do not measure H₂S levels. A FLIR (Forward Looking Infrared) camera is sometimes used to detect leaks. An EAGLE low level recordable H₂S detector is used to investigate some odor complaints. All staff carry 4 gas (CO, LEL, H₂S, and O₂) personal monitors.

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.)

Field Inspectors are not permitted to enter H₂S environments 10 ppm or higher. Inspections attempt to identify the source of the odor, the operator responsible, and whether County Emergency Coordinators need to be contacted. Field Inspectors will contact the operator who would respond to the complaint. Field Inspectors verify the complaint was resolved.

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

Field inspectors are supplied with 4-gas monitors (CO, LEL, H₂S, and O₂), set to alarm at 10 ppm H₂S in ambient air.