

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT
PACIFIC OUTER CONTINENTAL SHELF (OCS) REGION**

NTL No. 2019-P01

Effective Date: March 20, 2019

NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL, GAS, AND SULPHUR
LEASES, OUTER CONTINENTAL SHELF, PACIFIC OCS REGION

Hydrogen Sulfide

Purpose

This Notice to Lessees and Operators (NTL) supersedes NTL No. 2010-P01, Hydrogen Sulfide. This NTL provides guidance and information concerning the Bureau of Safety and Environmental Enforcement (BSEE) regulations pertaining to the protection of personnel from the toxic effects of Hydrogen Sulfide (H₂S), mitigation of property and environmental damage caused by H₂S, classification of areas for the presence of H₂S, and the detection of H₂S. It collects into one location relevant regulatory standards and guidance applicable to H₂S conditions to guide operators in their compliance with submission and operational requirements applicable to such circumstances. A major focus of this NTL is to differentiate between the criteria for using applicable industry standards and the criteria for determining an H₂S classification.

Authority

BSEE regulations incorporate by reference the National Association of Corrosion Engineers (NACE) Standard MR 0175-2003, "Standard Material Requirements, Metals for Sulfide Stress Cracking and Stress Corrosion Cracking Resistance in Sour Oilfield Environments," at 30 CFR 250.198(k)(1) and in § 250.490. Further, 30 CFR 250.490(a)(1) requires you to take all necessary and feasible precautions and measures to protect personnel from the toxic effects of H₂S and to mitigate damage to property and the environment caused by H₂S.

The NACE standards that relate to an H₂S partial pressure of 0.05 pound per square inch absolute (psia) primarily address stress cracking and stress corrosion resistance, while the BSEE definition of "H₂S present" focuses on circumstances where operations have confirmed the presence of H₂S that could result in atmospheric concentrations equal to or exceeding 20 parts per million (ppm). While both thresholds are operationally significant, the criteria for using NACE materials and the BSEE definition of "H₂S present" or "H₂S absent" involve separate evaluations with discretely different parameters. At a pressure greater than 2,500 pounds per square inch gauge (psig), a well could be classified as "H₂S absent" because the atmospheric concentration of H₂S is less than 20 ppm, but still require NACE Standard MR 0175-2003 materials because the partial pressure of H₂S is greater than 0.05 psia.

Regulations and Guidelines

NACE Standard MR0175-2003 is relevant to determining when you must use equipment that is constructed of materials with metallurgical properties that resist or prevent sulfide stress cracking and stress corrosion cracking. The regulations require you to meet incorporated NACE Standard MR 0175-2003 for equipment and components that may encounter a partial pressure of H₂S that equals or exceeds 0.05 psia.

Attachment No. 1 of this NTL is a graph that shows the 0.05 psia threshold with respect to pressure and H₂S concentration. BSEE provides this graph as an aid for understanding, but in no way intends for it to replace the more comprehensive and specific provisions of NACE Standard MR 0175-2003.

- (1) When you have measured H₂S concentrations and the reservoir pressure within a reservoir directly, then NACE Standard MR 0175-2003 will determine the requirements for NACE materials for that reservoir and all other wells drilled within a 5-mile radius to the same formation.
- (2) In the absence of direct measurement of H₂S concentrations and reservoir pressure in a well being drilled, completed, or recompleted, you should implement NACE Standard MR 0175-2003 if any of the following well conditions are present:
 - a) The well is drilled to a depth where the static reservoir temperature exceeds 275° F.
 - b) The well is classified as "H₂S present" or "H₂S unknown."
 - c) A well located within five miles has been drilled to a similar depth and that well has an H₂S partial pressure equal to or greater than 0.05 psia.

1. 30 CFR 250.490(a)(1) and (2) - H₂S Contingency Plans

The cited regulations require you to, among other things, take certain precautions and measures, including submit an H₂S Contingency Plan, as well as follow your H₂S Contingency Plan, when you conduct drilling, well-completion/well-workover, and production operations in zones classified as "H₂S present" and "H₂S unknown." You do not need to submit an H₂S Contingency Plan for operations in zones classified as "H₂S absent."

2. 30 CFR 250.490(d) – H₂S Detection

The cited regulation describes what you must do if you encounter H₂S that could potentially result in atmospheric concentrations of 20 ppm or more while conducting operations. The cited regulations provide the following.

- a. *During Production Operations.* In areas classified as "H₂S present" or "H₂S unknown," you must implement your approved H₂S contingency plan. In an area previously classified as "H₂S absent," "you must immediately notify BSEE and begin to follow

requirements for areas with H₂S present," including submittal of an H₂S Contingency Plan (as specified in Item 2 above).

b. *During Drilling Operations.* For drilling in areas classified as "H₂S present" or "H₂S unknown," you must implement your approved H₂S Contingency Plan. In an area classified as "H₂S absent," stabilize the situation immediately by taking such measures as evacuating all non-essential personnel, raising the pH of water-based drilling fluids, or adding a scavenger to synthetic based drilling fluid. Once you stabilize the situation, "you must immediately notify BSEE and begin to follow requirements for areas with H₂S present," including submittal of an H₂S Contingency Plan (as specified in Item 2 above).

If you need more time to purchase, modify, or install equipment, contact the Regional Supervisor for Office of Field Operations (OFO). Please note that in the POCSR, the Regional Supervisor, OFO, fills the role of District Manager, as that role is defined in 30 CFR 250.490.

3. 30 CFR 250.490(j)(5) - Sensor Location for Production Operations

On a platform where gas containing H₂S of 20 ppm or greater is produced, processed, or otherwise handled, the cited regulation requires that you have at least one H₂S sensor per 400 square feet of deck area, and a sensor within 10 feet of each vessel, compressor, wellhead, manifold, or pump that could release enough H₂S to result in atmospheric concentrations of 20 ppm, among other locations. You may conduct a design analysis that includes dispersion modeling to determine a more effective or a more efficient placement of sensors. In that case, the BSEE POCSR may approve under 30 CFR 250.141 an alternate placement or choice of sensors if the analysis shows that such a placement or sensor choice provides a level of safety and environmental protection that equals or surpasses that provided by the specified requirements.

4. 30 CFR 250.490(j)(6)(ii) - Calibration of H₂S Sensors

The cited regulation specifies that an H₂S sensor tolerance of 2 ppm or 10 percent during a functional test is acceptable. Alternatively, you may use sensors with a greater test tolerance, provided that you adjust the activation point so that the sensor alarm will activate at an H₂S atmospheric concentration no higher than 22 ppm.

5. 30 CFR 250.490(j)(13)(i) - Respirator Breathing Time

The cited regulation requires that, in areas classified as "H₂S present" or "H₂S unknown," you provide all personnel, including contractors and visitors on the facility, with immediate access to self-contained, pressure-demand-type respirators with hoseline capability and breathing time of at least 15 minutes. Under 30 CFR 250.141, you may submit a request to the POCSR Regional Supervisor OFO for approval for alternate equipment to use self-contained, pressure-demand-type respirators with hoseline capability that have a breathing time less than 15 minutes in those cases where you show that the overall protection equals or surpasses that provided by the specified requirements.

6. 30 CFR 250.490(i) - Signs, Visual Alert Devices, and Audible Warning Devices

The cited regulation provides the requirements for visual and audible warning systems. Based on the regulatory requirements for such warning systems, you should ensure that any visual warning device can be seen from the helideck and from all boat landings, and that any audible warning alert is recognizable at the helideck and at all boat landings.

7. 30 CFR 250.490(q)(9) - Fuel and/or Instrument Gas

The cited regulation prohibits you from using gas containing H₂S for fuel gas without receiving prior approval from the POCSR Regional Supervisor OFO.

Guidance Document Statement

The BSEE issues NTLs as guidance documents in accordance with 30 CFR 250.103 to clarify and provide more detail about certain BSEE regulatory requirements and to outline the information you provide in your various submittals. Under that authority, this NTL sets forth guidance regarding regulatory requirements that provide a clear and consistent approach to complying with those requirements. However, if you wish to use an alternate approach, you may do so, after you receive approval from the appropriate BSEE office under 30 CFR 250.141.

Paperwork Reduction Act of 1995 Statement

The Office of Management and Budget (OMB) has approved the information collection requirements and assigned OMB Control Numbers 1014-0022 for the subpart A regulations and 1014-0018 for the subpart D regulations. This NTL does not impose any additional information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

Contact

If you have any questions or need clarification regarding this NTL, please contact the POCSR OFO at (805) 384-6370 or bseepacaliforniadistrict@bsee.gov.

/S/ Mark Fesmire
Mark E. Fesmire, PE JD
Pacific OCS Region
Regional Director

Attachment No. 1



