

Safety Alert

Notice No. 16
July 10, 2000

RUPTURE OF SOUR GAS PIPING

A section of gas piping ruptured on a Pacific OCS Region platform, releasing natural gas containing hydrogen sulfide (H₂S). The platform was immediately shut in, personnel went to their designated safe briefing areas, and no one was injured. However, there were some minor irregularities in the personnel response to the H₂S release. In addition, ultrasonic testing of the process piping had been performed about a week prior to the accident, and the test results had shown serious corrosion in the vicinity of the ruptured elbow; no corrective action was taken by the platform operator.

MMS regulations pertaining to H₂S are at 30 CFR 250.417. The regulatory sections relevant to our accident investigation findings are excerpted below. They are followed by measures that the MMS is recommending in the interest of safety.

According to 30 CFR 250.417(j)(5)(ii), operators of platforms that produce sour gas “...*must have a sensor in buildings where personnel have their living quarters.*” Based on our accident investigation, we recommend that such operators ensure that the air inlet H₂S detection devices for the living quarters are tested regularly.

According to 30 CFR 250.417(h)(1)(i), H₂S drills must be performed “...*for each person at the facility during normal duty hours at least once every 7-day period.*” Based on our accident investigation, we recommend that operators emphasize familiarity with the locations and use of all the breathing equipment on the platform during these drills, in addition to covering the other important aspects of H₂S contingency planning.

Under 30 CFR 250.417(q)(7), Corrosion Mitigation, operators “...*must use effective means of monitoring and controlling corrosion caused by acid gases (H₂S and CO₂) in both the downhole and surface portions of a production system. You must take specific corrosion monitoring and mitigating measures in areas of unusually severe corrosion where accumulation of water and/or higher concentration of H₂S exists.*” Based on our accident investigation, we recommend that operators consider taking the following steps with regard to ultrasonic testing (UT):

1. Perform periodic UT on piping, especially those carrying corrosive and toxic products. The American Petroleum Institute's *API 570, Piping Inspection Code: Inspection, Repair, Alteration, and Rerating of In-Service Piping Systems* contains relevant information.
2. The review of test results should be given a high priority.
3. Minimum allowable wall thicknesses should be determined prior to the UT and conveyed to both the UT inspection technicians and appropriate platform personnel.
4. The platform foreman should have the authority to immediately shut down any equipment and/or the platform if a UT inspection shows that a section of the piping has a wall thickness at or near the minimum allowable.