MMS Safety Alert

U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region

Notice No. 144

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Uncontrolled Shallow Gas Flow

A shallow gas flow occurred while drilling a surface hole from a semisubmersible drilling rig. The well flow was diverted through the 12-inch port side diverter line while seawater was pumped down the drill pipe, and preparations were being made to switch to drilling mud. Approximately 10 minutes later, the diverter line parted and whipped up onto the main deck. The well was shut in by closing the two subsea annular blowout preventers, and the flow stopped. However, the rig air line to the accumulator regulator had been damaged when the diverter line parted, and the air line control valve was closed to repair the air line leak. Because the accumulator was equipped with only air-operated regulators, the loss of air pressure caused the diverter annular and the subsea annular preventers to open and allow the well to flow up through the diverter annular to the atmosphere. The lower pipe rams were actuated, but with no air supply they could not operate. At this time, the shear rams were also actuated to stop the well flow. Therefore, when the repairs were completed and the air line valve reopened, the drill pipe was sheared, stopping the well flow. Mud was pumped into the well while gas was bled off at the surface, drill pipe was stripped in the hole alongside the fish, and the well was killed. The fish was recovered, and the well was drilled to surface-casing depth.

To prevent a recurrence of this type accident, the operator has modified the diverter system by:

1. Reducing the length of diverter lines and reducing the number of turns in the lines to minimize whipping action.

2. Installing air-operated accumulator regulators equipped with manual overrides to allow hydraulic operation if rig air is lost.