



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

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Diving Fatality

During a recent well plugging and abandonment operation, a diver was fatally injured when an explosion occurred during the cutting of a section of casing with a torch. The MMS investigation of the accident, conducted in conjunction with the U. S. Coast Guard, revealed, in part, the following:

The operator of the lease gave the diving contractor, who was responsible for the well stub removal, a pre-job schematic of the well stub configuration that differed from the actual configuration. The well casings were fitted with a wellhead adaptor which, although it contained two vent holes, allowed gases produced during burning operations to accumulate in a space above the holes. Further, gas was noted to be coming from the vent holes immediately prior to and during the removal operation. Although the configuration discrepancy and gas venting were observed and raised initial concerns on the part of the contractor prior to the removal operation, subsequent discussion between the operator's onsite representative and the contractor's onsite supervisors resulted in no prescribed procedure to determine if gas could accumulate above the vent holes. It was also revealed that at least one diving crew employee, while recognizing the possibility, not probability, of gas accumulation, believed the torch to be distant enough from any gas accumulation to be a potential ignition source. No Job Safety Analysis (JSA) was conducted for the immediate mechanical aspects of the well removal with respect to cutting and burning.

MMS concluded that hydrogen gas from the burning operation accumulated above the referenced vent holes and was ignited during burning operation by a cinder that floated to the gas in an air bubble. MMS further concluded that multiple causes of the accident ranged from having no JSA for the immediate task of well stub removal to a failure on the part of operator and contract onsite personnel to react appropriately to onsite conditions other than those expected.

Therefore, on the basis of its investigative conclusions, MMS recommends that in the matter of diving operations, especially those involving well head removals, lessees and operators review their policies and procedures regarding

1. The transfer to contractors of technical information pertinent to the contracted tasks (information transfer).
2. The onsite responsibilities of lessee and operator representatives with respect to unexpected conditions and resultant enforced termination or modification of contractor operations (management of change).
3. The required use by contractors of JSA's for any contracted task involving hazards (job planning and hazard avoidance).

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