

Safety Alert

MMS

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

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Crane Shock-Loading resulting from Casing Jack's Hydraulic Hose Fitting Failure

During a well Plug and Abandonment (P&A) operation a 3/8-inch Casing Jack's Hydraulic Hose (CJHH) fitting, connecting the CJHH to the main hydraulic box for jack operation, was damaged while setting the jack's lower 30-inch slips. The slips, in making contact with the fitting, damaged the fitting and the hydraulic pressure contained within the hose was released. This allowed the 271 feet (previously cut) of 30-inch x 16-inch x 10-3/4-inch x 7-5/8-inch grouted casing to drop several feet. The platform crane's 5/8-inch auxiliary line that was fastened to the grouted casing could not be lowered in time to prevent shock loading to the crane. The load limit on the crane at its 20 degree angle with 55 feet of radius was approximately 4,000 pounds, with an auxiliary line breaking force of 33,600 pounds. Since the auxiliary line could not be lowered in time, the auxiliary line broke at the wedge socket dropping the headache ball to the deck with shock loading also being applied to the crane.

Subsequent to the incident a protection plate was constructed to protect the CJHH assembly and main hydraulic box from accidental contact. There were no injuries, pollution or other structural damage to the crane resulting from this incident.

A Minerals Management Service (MMS) investigation into this incident revealed that:

- Inadequate 3/8-inch CJHH/fitting protection resulted in failure of the casing jack.
- The weight of the 271 feet of casing was greater than what the 5/8-inch cable could hold.
- The Contractor's Job Safety Analysis (JSA) provided no detailed guidelines and recommendations on the appropriate time to connect the crane and casing string to prevent crane shock-loading (i.e., the crane should have been connected after the casing was cut into smaller sections).
- The Contractor's JSA failed to identify the potential 3/8-inch CJHH/fitting crush point hazard.

Therefore, the MMS recommends the following:

- The Operator and its contractor should consider the installation of a CJHH protection plate / guard to prevent the jack's slip assembly from striking the CJHH / fittings to prevent loss of the casing jack's hydraulic pressure.
- The Operator and/or Contractor's well procedure and JSA should provide detailed guidelines and recommendations on the appropriate time to connect the crane and casing string to prevent this potential hazard.

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