

SAFETY ALERT



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Additional Catastrophic Incident Attributed to Ejection of Traveling Slips

BSEE completed its investigation of a December 2015 incident involving a hydraulic pulling unit. In considering the findings of this investigation and a 2007 investigation of a similar incident, BSEE determined that the incidents' severity warranted the development of safety measure recommendations.



In two separate incidents, a catastrophic offshore accident was caused in part by the ejection of hydraulic pulling unit (casing jack) traveling slips when a bind on the pipe being pulled was suddenly released.

Incident No. 1 – Shock loading and collapse of 110-ft platform crane boom: Recently, a hydraulic jack system was being used to pull drill collars out of the hole during platform abandonment well operations when the work string became stuck. The hydraulic pulling force was increased which allowed the hydraulic jack to slowly pull the work string with extreme drag. The crane was attached to the work string by elevators so it could be used to lay down the next joint after it was broken out.

The next joint of the work string was slowly pulled approximately 30 ft out of the hole with extensive drag, but the work string again became stuck before the lower slips could be set. The crew then applied a pulling force of 275,000 lbs which suddenly released the bind on the work string causing it to rebound out of the hole, dislodging the traveling slips of the casing jack.

When the work string fell back into the hole, the weight and force of the work string shock loaded the crane because no slips were in place to sustain the weight of the drill collars. This shock loading collapsed the boom causing it to impact the work basket of the hydraulic casing jack. The crane boom then folded in half sending the point of the boom toward the crane operator's cab. The boom point came to rest suspended within 15 ft above the crane operator's cab resting on a single boom stop.

Incident No. 2 – Death of one worker, temporary loss of control of a live well: Some time ago, a hydraulic casing jack was being used to pull tubing during a platform/ well abandonment operation. The tubing was stuck downhole, but the supervisor continued to increase the hydraulic pulling force. This incident took place in February 2006. See corresponding safety alert, *MMS Safety Alert, SA-250, "Plug and Abandonment Operations Lead to Fatality and Brief Loss of Well Control"* at https://www.bsee.gov/sites/bsee_prod.opengov.ibmcloud.com/files/safety-alerts/incident-and-investigations/sa-250-pdf.pdf)

When the tubing parted, the portion of pipe held by the traveling slips of the casing jack ejected out of the hole several feet. The movement of the pipe out of the hole dislodged the traveling slips and hurled them into the air. The slips fell and struck the supervisor causing his death. The well then flowed out of control for a time.

BSEE Recommendations:

In both events, the traveling slips on the hydraulic pulling unit (casing jack) were dislodged when a bind was suddenly released and the pipe was projected out of the hole. The BSEE recommends the following:

- Before using a hydraulic pulling unit (casing jack), operators should review the equipment to see if the traveling slips can be dislodged during certain operations. If so, BSEE recommends all operators work with hydraulic pulling unit contractors to find a way to prevent ejection of the traveling slips, or mitigate the threat of slip-ejection;
- When using a casing jack to attempt to free stuck pipe, Operators should consider using alternative procedures other than straight over-pull if there is a danger of parting the pipe.
- Operator should always determine if the load is free prior to initiating crane operations to lift a work string during a well abandonment. **UNDER NO CIRCUMSTANCES SHOULD OPERATORS ATTEMPT TO USE A CRANE TO PULL/LIFT A WORK STRING OR LOAD NOT FREE TO BE LIFTED.**
- Both Safety Alert No. 250, and Panel Investigation MMS 2007-037 should be reviewed. Panel Report can be viewed at https://www.bsee.gov/sites/bsee_prod.opengov.ibmcloud.com/files/panel-investigation/incident-and-investigations/panel-report-2007-037.pdf

A **Safety Alert** is a tool used by BSEE to inform the offshore oil and gas industry of the circumstances surrounding an accident or a near miss. It also contains recommendations that should help prevent the recurrence of such an incident on the Outer Continental Shelf.