

# SAFETY ALERT



**Safety Alert No. 342**  
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## Failure of Crane Hydraulic Boom Cylinders



*26 March cylinder failure*



*25 April cylinder failure*

During 2018, two identical crane-failure incidents, both occurring while in operation, were reported on a platform in the Gulf of Mexico:

- 26 March 2018: A hydraulic boom cylinder (HBC) installed on 3/24/18 on a platform crane was compromised when the cylinder rod separated from the cylinder rod eye. As a result, the cylinder dropped to the decking below. Because there are two cylinders on the crane, as shown above left, the failure did not cause the boom to collapse.
- 25 April 2018: A replacement for the failed cylinder described above was installed on 4/1/18. On 4/25/18 the replacement cylinder suffered the same exact failure. In this instance, the replacement cylinder fell and hit a handrail, as shown above right.

Both failed cylinders, and the remaining attached cylinder, were sent for inspection to a hydraulics/cylinder specialist. The inspection resulted in the following findings:

- In the instances where the failures occurred, the pin-to-pin lengths of the cylinders involved were different. This was due to different rod lengths.
- This difference between cylinders working in tandem resulted in the shorter length cylinders experiencing stress at the rod pin coupling.
- This stress, in combination with an inferior weld, resulted in a failure of the rod pin coupling and rod connection. This failure resulted in the rod separating from the rod pin coupling, causing the cylinder to fall.

**Therefore, BSEE recommends that operators consider the following:**

- Ensure equivalent eye-to-eye rod length of HBCs when repair of one HBC is necessary.
- Review current crane cylinder configurations.
- Regardless of the manufacturer of the HBCs, BSEE recommends making the OEM of your crane boom aware of these failures, and further recommends that the operators obtain any needed replacement HBCs from the OEM, or a certified manufacturer.

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