

Safety Bulletin No. 006  
28 July 2017

Contact: Amber Wyatt  
Phone: (985) 853-5892

## Dropped Moon Pool Flap Poses Threat

In February 2017, the forward moon pool flap of a deep-water drillship operating in the Gulf of Mexico (GOM) separated from the hull structure and sank to the seafloor. During its descent, the moon pool flap contacted the marine riser and gouged a buoyancy module before coming to rest less than 400 feet from well center. Fortunately, no injuries or spills occurred.



Left: moon pool flap on seafloor; Right: damage to riser buoyancy module

The moon pool flap was originally damaged during efforts to raise it in rough seas several months prior to the incident. After multiple efforts to force the flap into the stowed position in rough conditions, the pad on the underside of the flap warped. Because the flap was deformed, it could not lie level, which prevented the locking wedges from fully engaging while deployed. During transit from Trinidad to the GOM, it is likely the hinge pin structures further weakened.

While on location in the GOM, the rig crew raised the moon pool flap to the upright position in preparation for drilling operations. Because the hinge pins were impaired and could not be fully engaged, the only structural support was a chain. Over time, vessel vibrations and weather events created additional stress on the hinge pin brackets, which eventually failed due to fatigue. All brackets sheared, and the forward moon pool flap separated from the hull structure, sinking to the seafloor. The Operator was required to recover the flap from the seafloor.

Design of a moon pool flap system assumes that the structure is secured in either the stowed or deployed positions to avoid undue stress and prevent separation from the vessel. Though the damage done here was reported as superficial, there is potential for greater harm to the BOP system, or other subsea equipment if the subsea field infrastructure was more populated.

### Therefore, the BSEE recommends that operators:

- Evaluate the current condition of moon pool flaps and structural supports and implement any necessary repairs.
- Consider implementing a moon pool flap inspection program on all drillships that use this structural feature.

A **Safety Bulletin** is a tool used by BSEE to share lessons learned from an incident or near miss. It also contains recommendations that should help prevent the recurrence of such an incident on the Outer Continental Shelf.