

BSEE

**U.S. Department of the Interior
Bureau of Safety and
Environmental Enforcement**

**Safety
Alert**

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Hydraulic Workover Unit Topped by Waterspout

While conducting workover operations, a Hydraulic Workover (HWO) unit was toppled by strong winds caused by a waterspout that touched down near the platform. The result was the entire HWO unit collapsing onto the facility, as well as into offshore waters. The collapse resulted in damage to the lower riser portion of the HWO unit as well as to several other pieces of well servicing equipment located on the platform. The upper riser portion and the BOP stack of the HWO unit fell into the water resulting in total loss of the BOP stack. All personnel had been moved from the platform to the supporting lift boat prior to the collapse, and no fatalities or injuries resulted from the incident.

An investigation by BSEE concluded the following factors contributed to the accident:

- High wind loading was exerted on the unit as a result of the waterspout being so near to the facility. The large surface area presented by the HWO unit, against which the wind could act, and the close proximity of the waterspout resulted in a high wind loading being exerted on the unit.
- The small deck area of the platform caused an increase in the angle(s) of the guy lines used to support the HWO unit. This increase in angle(s) resulted in diminished stability of the HWO unit during the high wind conditions caused by the waterspout.
- Installation of additional guy lines would have helped to compensate for the increased angle(s) in the guy lines, thus increasing stability and support for the HWO unit in the event of increased wind loading due to the storm, or swaying due to high sea state and possible sway in the platform.

BSEE recommends the following when installing guy lines to support HWO or related well servicing equipment:

- Engineering calculations be performed to determine the correct angle(s) for the guy lines when installing HWO, or related well service equipment.

- Installation of additional guy lines when deck space on the host platform is limited and guy line angle(s) increases.
- Seasonal weather patterns be taken into consideration when installing guy lines and other means of support.
- Guidelines for construction, safety factor, and storm load for wire rope guy lines found in API Spec 4F, Section 8.1.2 and 8.1.3 be followed when selecting wire rope used for the purpose of guy lines.

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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.