Bureau of Safety and Environmental Enforcement

SAFETY ALERT

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Poorly Maintained Crane Components Result in Multiple Injured During Personnel Transfers

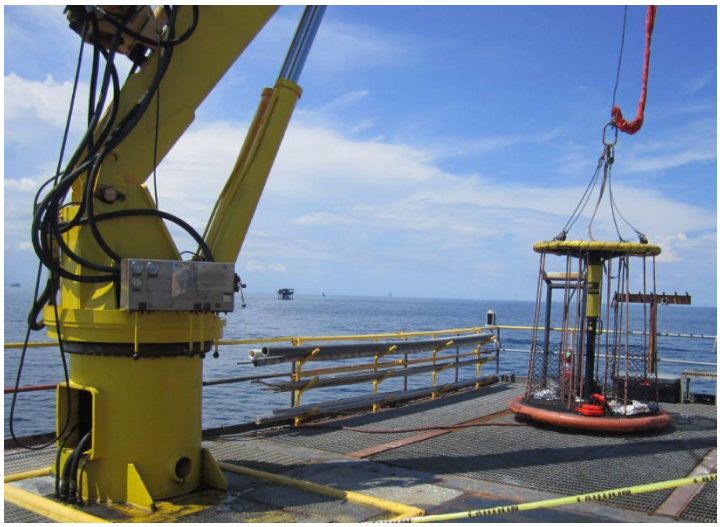

Figure 1: (Incident 1) Crane and personnel basket type involved in incident.

Figure 2: (Incident 1) Scarring observed on the anti-two block.

Background:

The Bureau of Safety and Environmental Enforcement investigated two incidents involving injuries to offshore personnel during basket transfers. In both incidents, a crane's auxiliary line descended unexpectedly while personnel were being transferred between an offshore facility and a motor vessel. The incidents show the importance of timely maintenance, correcting known deficiencies, using stop-work authority, communicating clearly during transfers, and planning for medical evacuations before work begins.

Incident 1: During a personnel transfer, a crane operator was lowering a worker in a rigid-type personnel basket (Figure 1) to the deck of a motor vessel when the crane's auxiliary line suddenly and uncontrollably dropped 6 to15 feet before coming to an abrupt stop approximately 25 feet above the water. The worker remained in the basket but suffered injuries to his back and leg.

The injured worker needed medical evacuation by rescue stretcher/litter. Several attempts to evacuate the worker by helicopter failed because of miscommunication about the type of aircraft operating in the field and whether it could accommodate a stretcher/litter. The injured worker was carried to the platform helideck before personnel determined the helicopter could not accommodate the rescue stretcher/litter. The worker then had to be carried to the boat landing and transferred over water to the motor vessel. Personnel from a nearby facility were transported to assist with the evacuation. The evacuation by motor vessel occurred several hours after the incident.

BSEE's investigation found multiple contributing factors, including improper maintenance of previously identified and uncorrected deficiencies of the auxiliary boom tip sheave and bearing assembly; possible fouling of the auxiliary wire rope's dead-end loop on the anti-two block (ATB) device (Figure 2); failure to properly document and correct previously identified crane deficiencies; and inadequate emergency planning and procedures.

Incident 2: During another personnel transfer using a platform crane and personnel basket, three workers were injured when the crane experienced repeated uncontrolled, rapid descents. As the basket cleared the handrail, it suddenly dropped approximately 1 foot. Personnel inside the basket noticed the abnormal movement, and one passenger lost his footing. Personnel in the basket tried to signal the concern to the crane operator, but the crane operator continued lowering the basket to the motor vessel below.

As the personnel basket approached the deck of the motor vessel, the crane operator could not control the descent. The basket rapidly dropped another 6 to 7 feet and landed abruptly on the motor vessel deck, injuring personnel. After the incident, the crane was not immediately taken out of service. The crane operator later attempted to use the crane's auxiliary line for diesel filling operations. The auxiliary brake slipped again, causing the diesel tote tank to descend uncontrollably. The crane operator then took the crane out of service.

BSEE's investigation found that the uncontrolled descent was caused by a loss of braking control on the auxiliary line because the auxiliary hoist braking system needed adjustment. The loose brake band allowed the hoist drum to rotate under load, resulting in the uncontrolled descent of the personnel basket and diesel tote tank. Facility personnel did not invoke Stop Work Authority (SWA) after the first uncontrolled descent.

To help prevent similar incidents, the Bureau of Safety and Environmental Enforcement recommends that operators and their contractors, as appropriate, consider the following:

- Follow all manufacturers recommended maintenance intervals and complete repairs identified by certified maintenance technicians without delay.

- Correct previously identified crane deficiencies promptly and ensure maintenance and inspection records accurately reflect repair status.

- Increase awareness of aging, worn, or neglected crane components during inspections, especially brake systems, sheaves, bearings, and wire ropes.
- Train personnel to recognize brake band slippage, including early warning signs, periodic maintenance requirements and proper tightening practices.
- Conduct thorough pre-use inspections before personnel transfers, including verification that brakes respond properly under load.
- Verify during pre-use inspections that the auxiliary wire rope's dead-end loop is not fouling on the anti-two-block device. Consider installing a striker plate on the auxiliary line above the dead-end loop to help prevent fouling and damage to the anti-two-block device or wedge socket. Reinforce stop-work authority. Stop operations immediately after any uncontrolled or abnormal crane movement, and resume lifts only after qualified personnel inspect the crane and correct any deficiencies.
- Strengthen communication protocols during personnel transfers by using designated channels, call and response confirmations, and pre-job briefings. Ensure personnel understand the importance of properly responding to signals given by personnel.
- Verify medical evacuation capabilities and transportation resources before operations begin, including aircraft type, availability, landing restrictions, vessel support and stretcher/litter limitations
- Conduct periodic emergency response drills so personnel are prepared for helicopter, vessel, and platform-based evacuations.

A Safety Alert is a tool used by BSEE to inform the offshore oil and gas industry of the circumstances surrounding a potential safety issue. It also contains recommendations that could assist avoiding potential incidents on the Outer Continental Shelf.

Category: Personnel Safey, Personnel Transfers, Cranes/Lifting, Equipment Maintenance