Bureau of Safety and Environmental Enforcement

SAFETY ALERT

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Dropped Steel Plate Due to Defective Lifting Device and Inadequate Hazard Analysis

Figure 1: A magnetic lifting device.

Figure 2: Steel sheet and incident area.

The Bureau of Safety and Environmental Enforcement (BSEE) recently investigated an incident involving a dropped steel plate during drilling operations, which injured two personnel. The incident occurred while transferring a partial 3/8-inch steel plate sheet using a magnetic lifting device. During the lift, the steel plate unexpectedly detached from the magnet and fell approximately 47 inches, landing on top of both individuals' left feet. Both personnel reported bruising and swelling and were evacuated for medical evaluation.

The investigation revealed that the magnetic lifting device was ineffective due to wear and tear. Manufacturer tests indicated that wear damage to the lifting device could create air gaps, preventing it from functioning effectively. Additionally, the job safety analysis (JSA) conducted before the operation did not adequately address the specific

hazards associated with the lifting equipment. While the JSA noted general hazards, it failed to identify the risk of the plate prematurely releasing from the lifting device.

A critical factor in this incident was the personnel's failure to stop work and review the JSA before proceeding with the lifting operation. This judgment lapse reflects a safety culture where crew members did not feel empowered to halt operations to reassess potential hazards. Furthermore, there was a perception of haste among the personnel, which may have contributed to their decision to proceed without thoroughly discussing the risks associated with the lifting operation. This urgency to complete tasks underscores the need for improved communication and adherence to safety protocols.

BSEE recommends that operators and their contractors, where appropriate, do the following:

- Revise job plans to ensure that the team adequately addresses specific hazards associated with lifting gear and suspended loads..
- Conduct thorough JSAs that include a comprehensive hazard assessment for all lifting operations.
- Foster a culture of safety that encourages personnel to stop work and discuss potential hazards whenever uncertainties arise.
- Train all personnel on the proper use of lifting equipment and the importance of confirming that all safety mechanisms are engaged before lifting operations commence.
- Implement a robust inspection program for lifting devices to ensure they are maintained in safe working condition and regularly evaluated for wear and tear.
- Establish a reporting mechanism for any observed defects or safety concerns related to lifting equipment.
- Operators should know that even brief power spikes can disable electromagnets, leading to dropped loads. To prevent sudden loss of magnetization, implement procedures to monitor power stability and ensure that backup systems are in

place.

- Set guidelines to prevent coils from burning out by limiting how long operators power on electromagnets. Train operators to turn off the magnets when they are not in use, especially if the magnets are not designed for continuous duty cycles..

- Look into the implementing industry-standard pre-use inspection and load testing procedures for magnetic lifting devices. ASME B.30.20-3 provides guidelines for marking, construction, operation, and specific pre-use protocols, such as thorough inspections to ensure that the lifting surface is clean and free from debris, oil, paint, or rust, which can interfere with the magnet's contact and reduce lifting capacity. Visual inspections should be supplemented with functional tests to verify lifting capabilities.

- Encourage open communication among crew members regarding safety practices and adhering to established protocols.

– BSEE –

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 Safety, Lifting, Component Failures