Bureau of Safety and Environmental Enforcement

SAFETY ALERT

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Blackout and Weather-Driven EDS Incidents Underscore the Need for Stronger Operational Discipline

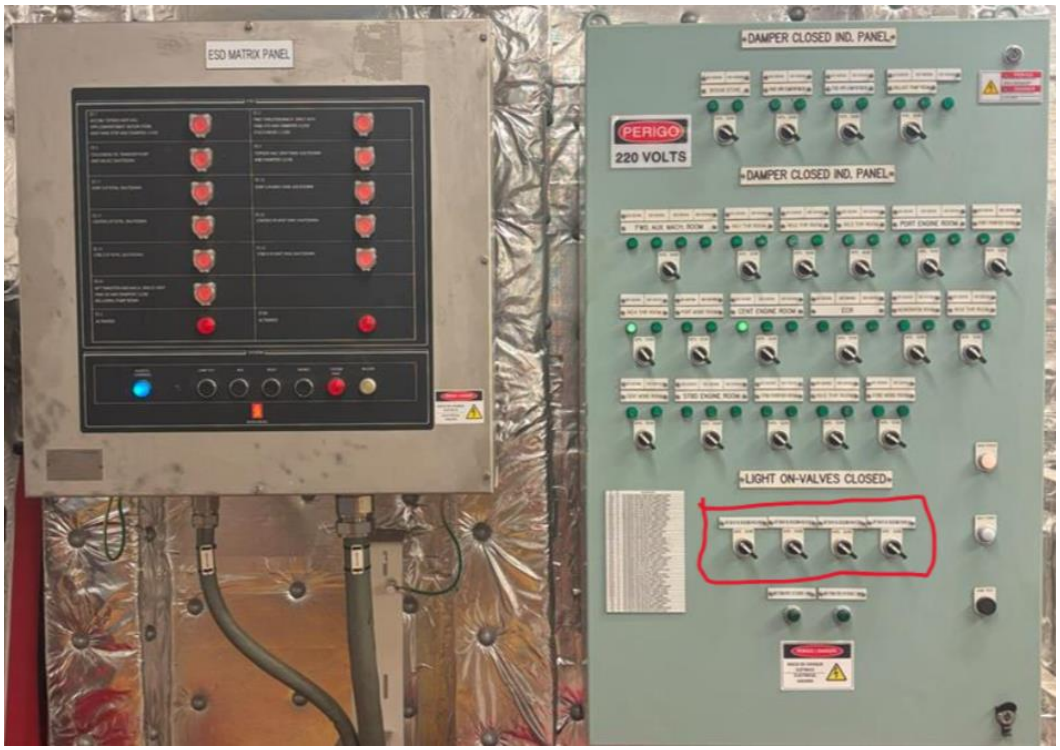

Figure 1: The ESD matrix panel and incorrect control panel/cabinet functioned, contributing to the blackout event. The diesel generator quick-closing valves are highlighted.

Background:

Recently, two separate Emergency Disconnect Sequence (EDS) events occurred on a dynamically positioned drillship. Both incidents resulted in pollution events and required emergency actions to protect personnel, equipment, and subsea infrastructure. The investigations identified significant human factors contributing to the events, underscoring the need for improved operational discipline and procedural compliance across the offshore industry.

Incident 1: Emergency Disconnect Due to Blackout

During scheduled monthly damper maintenance on board a dynamically positioned drillship, an unplanned blackout occurred. The resulting blackout caused a temporary power outage and triggered emergency response procedures, including an EDS to protect subsea infrastructure.

Findings:

- During scheduled monthly damper maintenance, the able seaman inadvertently actuated the diesel generator quick-closing valves on the incorrect control panel (Figure 1), which contributed to the vessel-wide blackout. The correct panel was approximately 10 feet away.
- The control panels involved in the task were neither clearly labeled nor physically protected, increasing the risk of unintended operation.
- The task involved coordination between personnel in the field and in the engine control room, but communication lacked clarity and confirmation, leading to potential misalignment during execution.
- The maintenance activity was treated as routine and was not subject to formal review or authorization before execution.
- There was no structured verification process in place to confirm that personnel assigned to the task had received adequate training or demonstrated competency.
- The team performed the task without direct oversight, and they did not conduct a pre-task briefing to identify potential hazards or ensure a shared understanding of the procedure.

Incident 2: Emergency Disconnect Due to Extreme Weather

While preparing for a cementing operation, a dynamically positioned drillship encountered a sudden and severe weather event. Although weather monitoring tools and radar were in use, the most recent forecast did not indicate the potential for the extreme conditions that developed. The dynamic positioning (DP) system was unable to maintain heading and position as a waterspout contacted the vessel and wind speeds rapidly increased to approximately 60 knots. The vessel began drifting, prompting the crew to initiate an EDS to prevent potential damage to subsea infrastructure. The event emphasized the challenges of real-time weather interpretation, the need for proactive operational adjustments, and the importance of timely decision-making during rapidly evolving offshore conditions.

Findings:

- During preparations for a cementing operation, the vessel encountered a sudden and severe weather event, including high winds and a waterspout, which exceeded the capabilities of the DP system.
- Weather monitoring tools were in use, and radar indicated nearby storm activity; however, the most recent forecast did not predict the severity of the conditions encountered.
- As environmental forces intensified, the vessel experienced increased thruster load, drift, and heading deviation, prompting a transition from yellow to red alert status.
- The team initiated the EDS to protect subsea infrastructure after realizing that the vessel could not maintain its position.
- The event highlighted the challenges of relying solely on forecast data and emphasized the need for real-time weather verification and proactive operational adjustments during unstable conditions.
- The crew's response demonstrated the importance of timely escalation, clear communication, and predefined emergency procedures in mitigating risks in dynamic, high-consequence offshore scenarios.

To help prevent similar incidents in the future, BSEE recommends that operators and their contractors, where appropriate, consider the following:

- Label and safeguard essential system controls to prevent accidental activation.
- Apply rigorous planning, supervision, and briefings to all tasks, routine or not.
- Regularly verify and document that personnel are trained and qualified for specific tasks.
- Apply closed-loop communication between the control room and field teams to avoid errors.
- Use live data alongside forecasts and trained personnel to interpret radar, wind, and sea conditions.
- Encourage proactive changes to vessel heading, thrusters, and posture as conditions shift.
- Train crews to act quickly and confidently when safety is at risk.

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CATEGORY: Equipment Maintenance, Power Outage

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.

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