

SAFETY ALERT



Safety Alert No. 417

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Inadequate Operation of Circuit Breakers

An incident took place onboard a production facility where a critical circuit breaker was disengaged. During an annual inspection, a maintenance worker was instructed to check the compressor #2 breaker's status in the Motor Control Center (MCC) building. In reviewing the #2 compressor breaker status, the individual pressed the switchboard command buttons that disengage the circuit breaker that supplies power to the compressor. This action resulted in the main circuit breaker losing power, causing the Public /General and Emergency Alarms activation. This incident caused no injuries or equipment damage but resulted in a significant loss in facility downtime and project delays.



Figure 1 - Compressor #2 breaker



Figure 2 - Switchboard open/reset command buttons

Observations/Analysis:

- The individual went beyond checking the status and disengaged the breaker.
- Labels explaining the function of the breaker command buttons (i.e., open/reset) on the switchboard were not self-explanatory and were free to interpretation.
- The indicator lights on the outside of the cabinet showed "yellowish-brown" (see picture) as the normal operating condition. The indicator lights' position could have been potentially confusing due to the lack of a policy/procedure addressing the color scheme for the breaker's operation status.
- There was no procedure or work instruction to control entry to the MCC building or operation of the breakers.

- Changes to the electrical system were not addressed/documented in maintenance procedures or included on the equipment drawings.
- The operator did not follow the company's management of change procedures which identify equipment alterations.
- Indications are the job safety analysis (JSA)^[1] did not reflect the switchboard's labeling/ breaker command buttons.

BSEE recommends that operators and contractors, for those individuals working in or around the MCC building, consider ensuring:

- Personnel (electrical or general) are trained to recognize and understand the equipment's operation within the MCC building and on the switchboards.
- Those working on electrical equipment and on unrelated tasks (e.g., maintenance), but in the proximity to electrical equipment, are trained on electrical safety, and the training is documented.
- Necessary/appropriate personnel are knowledgeable and familiar with the meaning of various indicator lights on electrical equipment.
- Electrical maintenance policies/ procedures are current, dated, and reflect all changes made to the electrical systems.
- Instruction/operation manuals and documentation are current, available, and pertinent (e.g., circuit breaker diagrams) and is clearly posted on circuit breaker cabinets.
- All electrical one-line diagrams are 30 CFR 250.842 compliant and available to personnel working on electrical equipment.
- All personnel who have access to the MCC building (e.g., maintenance) are familiar with the electrical panels.
- An in-depth pre-job safety meeting involving working in, or in the vicinity of, the MCC is conducted and documented, and, if determined appropriate, a field review of the worksite should be included.
- Installation of protective hinged coverings to prevent accidental activation of critical electrical command buttons.

^[1] Job Safety Analysis (JSA) is a safety tool that can be used to define, and control hazards associated with a certain process, job, or procedure. It is a systematic examination and documentation of every task within each job to identify health and safety hazards, and the steps to control each task.

<p>Safety Alert is a tool used by BSEE to inform the offshore oil and gas industry of the circumstances surrounding an accident or near miss. It also contains recommendations that should help prevent the recurrence of such an incident on the Outer Continental Shelf.</p>

Categories: Electrical