

NATF Redacted Operating Experience Report

Human Performance Leads to Accidental Tripping of Breakers

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Open Distribution

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Topic

Human Performance Leads to Accidental Tripping of Breakers

Description

Three Bulk Electric System (BES) breakers tripped open, resulting in the isolation of a BES bus and transformer, T1, from the system. During the investigation it was found that the contractor at the site was performing drilling work with a jig saw on panel 8, which houses T1 protection. As a result of the vibration, the 94 (auxiliary) relay on T1 operated and tripped the three BES breakers.

Lessons Learned

1. A hazard assessment had been conducted that identified vibration as a hazard for the relays installed in panel 8 prior to cutting with a jig saw. However, the mitigation put in place prior to work did not prevent relays from operation. This mitigation was to conduct cutting activities in a manner to reduce vibration.
2. The worker assigned to the task did not have previous experience on this type of work (on in-service panels) and was not a P&C technician. The task should have been assigned to an experienced technician given the hazards associated with vibration.
3. The consideration to take a protection outage was made prior to the work. However, the transformer protection design follows an old standard, which does not include a redundant protection. A transformer outage should have been then considered, which did not occur. Note that the transformer outage requires the load to be transferred via distribution system as there is not a second transformer at this site.

Actions Taken

- A new bulletin was issued stating that cutting holes, drilling, etc. in operational protection panels is prohibited. Alternate methods shall be used that do not involve cutting or drilling in panels containing operational protections, such as taking protection outages or reusing existing cutouts.
- The upgrade on transformer protection to redundant schemes (based on our up-to-date standard) was initiated. The transformer is currently protected by one set of 50/51 (CO8) relays and there is no redundant protection to provide the opportunity for protection outages. Our new protection standard requires fully redundant protection scheme, which provides many benefits including the ability to disable one scheme for maintenance work.

Extent of Condition

N/A