

NATF Redacted Operating Experience Report

Stored Energy Causes Switch Handle to Strike Employee

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Redacted operating experience reports are posted on the NATF public website to allow the NATF and its members to more broadly share information, especially safety-related alerts and learnings, with contractors and other utilities to benefit the industry at large.

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Topic

Stored Energy Causes Switch Handle to Strike Employee

Description

A substation electrician was injured while executing a switch order to isolate a transmission breaker. During the switch-order step of opening a hand-crank gang-operated switch, the electrician released the locking mechanism but lost control of the switch handle, which began to spin under tension. The rotating switch handle struck the substation electrician on the cheek and nose, causing an injury.

Lessons Learned

This type of injury potential with gang-operated switches has occurred previously. When approaching any switch, personnel must understand that stored energy may be present and use a “questioning attitude” human performance method/tool to ask the following:

1. What could go wrong?
2. Was this switch possibly over-toggled when it was closed the last time?
3. What must be done to remain out of the line of fire?

Actions Taken

Substation electrician crew members recommend the following alternative for switching hand-crank gang-operated switches.

- Using the device currently in place for lifting cable trench covers, personnel operating the hand-crank gang-operated switches are able to stay well away and out of the line of fire.

In addition, a safety bulletin was distributed across the Transmission/Substation Field Operations organization detailing the injury, event details, and recommendations.

Extent of Condition

While there is significant penetration of this traditional type of hand-crank in our service territory, over the past few years the utility has embarked upon a journey to proactively “engineer out” this safety exposure by replacing existing traditional hand-cranks with an “anti-backspin” type hand-crank. New, manually operated gang switches are also specified and procured with this anti-backspin hand-crank. The anti-backspin hand-crank protects the employee by eliminating the possibility of stored energy forcing a runaway of the hand-crank during operation, thus keeping the employee safe.

Pictures Included

See pictures on subsequent pages.



Remove the lock with
the lifting tool



Close-up view of
locking mechanism



Pull tab back to
release gear with
lifting tool



From Switchman's view
using lifting tool