TRANSPOWER

SAFETY ALERT!

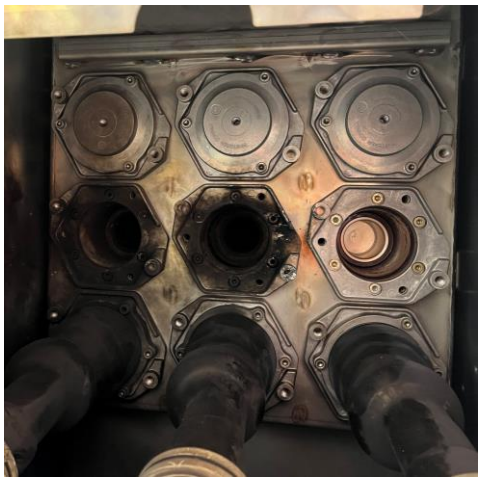
Stoke (STK) 33kV Switchgear Flashover Incident (Rev 2)

WHAT HAPPENED?

On Tuesday 4 March 2025, Transpower's 33kV feeder circuit breaker STK_FDR_2352 tripped at Stoke substation. Two people were injured during an arc-flash in the cable basement and taken to hospital for treatment.

The work planned for that day was a connected party's revenue metering current transformer (CT) calibration of STK_FDR_2232 and STK_FDR_2362. The flashover incident occurred on STK_FDR_2352 (adjacent to the isolated and earthed STK_FDR_2362).

The incident occurred after three dummy plugs were removed live from the inner cone cable termination bushings of Schneider GHA switchgear. The flashover event was initiated by the insertion of a heavy-duty current injection test plug, which caused a blue phase to earth arc flash and then a second concurrent and more intense flashover from the blue phase across to the exposed yellow phase bushing.



IMMEDIATE ACTION TAKEN

At the time of the incident there were multiple parties available onsite who rendered assistance before emergency services arrived at the scene. The incident's reported severity was classified as a Level 2 Incident due to serious injury requiring hospitalization. Subsequently both parties have reported as fully recovered.

Ventia issued a First Alert on the 10 March 2025. A Safety Alert was issued on the 28 July 2025. This Alert is a further revision to include the step of removal of the cable gland plate to assist with identification.

ROOT CAUSE

Transpower's investigation has concluded that the root cause was the misidentification of equipment being worked on with several important contributing causes being identified. The arc flashover event was also found to have been more severe than it may have otherwise been, due to all phases being exposed.

Crucially the location of the approved voltage detection device (IVIS) is in a different location to the testing injection point when injection testing from a cable basement.

This Safety Alert is intended to offer guidance to operators while updates are made to service specifications, procedures and service providers update their primary injection test plans.

Name	John Shann
Position	Principal Engineer - Engineering (Acting Primary Assets Eng Operational Manager)
Mobile	021 345 998
Email	John.Shann@transpower.co.nz
Maximo Ref	177608
Incident Date	4 March 2025

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LEARNINGS

IVIS and removed test access panel.

Positive identification from basement of removed test access panel after removal of cable gland plate.

Unapproved Outdoor VDD not for use with indoor metal-clad switchgear

- **The only approved method for proving that GHA switchgear is de-energised is via the manufacturer installed Intelligent Voltage Information System (IVIS).**
- **A Voltage Detection Device (VDD) is not an approved or safe method of proving de-energised for GHA switchgear.**
- **All primary injection testing must follow a detailed Test Plan, specific to the switchgear being tested**
- **All test plans for GHA switchgear shall clearly identify that the test access panel cover must be removed for the duration of any testing, regardless of testing injection location. If access from the basement is necessary, a positive identification is required by seeing the removed test access panel from the basement after the cable gland plate has been removed.**
- **The Test Plan shall clearly identify and minimise the number of exposed phases requiring removal of dummy plugs and cable terminations, i.e. test single phase then replace before testing next phase**
- **There is a need to develop a standard approach and set of mandatory requirements to positively identify isolated equipment and the adjacent live equipment when accessing switchgear from cable basements.**
  - **For GHA gear the test panel is currently the best location to test from and a removed panel is visible from basement (after removal of cable gland plate)**
  - **Test plans are encouraged to plan for primary injection via the front of switchgear and to discuss with Transpower any scenarios where this is not technically feasible**

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