



Otahuhu 220kV Cable Sealing End Failure

WHAT HAPPENED?

Transpower issued a first alert in June 2018 in regards to the 220kV cable sealing end failure on the Otahuhu Tie Line 5 circuit.

Since then, a full investigation of the failure and the subsequent urgent repairs have been completed. Based on the evidence and findings of the investigation, the 220kV cable sealing end failure was caused by moisture ingress. All in-service 220kV cable sealing ends at Otahuhu have now been internally inspected and the oil tested. During the inspection process, two additional cable sealing ends were found with severe moisture ingress. Nine additional cable sealing ends were also found to have significant defects.

All of these cable sealing ends have been repaired and refurbished. New preventive maintenance procedures are being applied and scheduled.

Precautions applied to these Otahuhu cable sealing ends can now be lifted.



IMMEDIATE ACTION TAKEN

- First alert issued.
- A full investigation into the failure has been undertaken.
- Repairs to the Otahuhu Tie Line 5 cable sealing ends have been completed.
- Terminations of a similar design have been internally inspected, oil sampled for moisture and dissolved gas, and all these cable sealing ends have been refurbished.

ROOT CAUSE

Based on the investigation, the cause of the failure is due to moisture ingress. The root cause of the moisture ingress is likely to be a combination of the design and installation workmanship which could accelerate the failure of the moisture seal. This allows moisture ingress into the cable sealing end and lead to the ultimate failure.

LEARNINGS

- Transpower will investigate using cable sealing end designs with a less consequential failure mode for future design solutions.
- Transpower will progressively schedule condition assessments for all other in-service, outdoor, oil filled, XLPE cable sealing ends to reduce the likelihood of similar failures from occurring.

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