

11kV Earth Event

What happened?

Event - 0359 14 Jun 2024. Loss of electrical supply to Administration building, WAC, Workshop and Bioreactor occurred. The loss of power:

- Shutdown important services in Wairakei power station.
- Threatened the wide area control (WAC) building server operation (potentially causing a loss of centralised control of geo stations) [alternative power supply available]
- Loss of power to Administration building.

Caused traced to - Failure of insulating bushing supplying a 300kVA - 11kV/400V transformer that provided power to workshops. Failure resulted in a flash over to earth and loss of primary electrical containment. Flash was contained within the switchboard, which was damaged. Upstream electrical protection was activated to clear fault. Poorly supported cable increased stress on switchboard bushing causing early failure.

Wairakei Station

What did we learn?

MoC – While the 11kV/400v transformer was relatively modern the change to the distribution systems for the bio reactor and workshop power supplied were undertaken before the current MoC management system. The quality of this installation was below what was expected (no cable supports)

Aged protection. Achieving good discrimination with older equipment, while achievable is harder, especially as settings in the older systems settings can drift. This event highlighted protection studies for WRK A&B are to be included as part of WRK 2031 project to ensure good discrimination is achieved.

Protection. While protection operated higher up the distribution system than desired. It operated to make the plant safe and clear the fault.

