

Ref. No: HSE002/17 Date of Issue: 13/03/2017

WHAT HAPPENED:

1. On 6 February 2017 an incident involving a Long and Crawford fuse switch occurred in Auckland. No persons were harmed. The switch and the equipment immediately surrounding it was destroyed.
2. An 11kV cable fault between the Long and Crawford switch and the local transformer had resulted in the fuses operating inside the switch.
3. Two experienced fault persons had identified the cable fault and isolated the entire switch remotely, including all incoming feeds into the oil tank. No live operation of the Long and Crawford switch was undertaken.
4. The fuses were then changed on the de-energised switch, and the faulty cable to the local transformer was isolated from the bus bar and earthed at the switch.
5. One of the fault persons left the switch and began restorative switching at remote points on the network to restore power to the Long and Crawford switch.
6. While this was occurring, the second fault person remained on site maintaining an exclusion zone from the Long and Crawford switch while it was being re-energised.
7. The bus bar in the Long and Crawford switch had been energised for approximately 19 minutes.
8. The final switching operation was to re-energise a section of cable from another 11kV feeder into the Long and Crawford switch. This cable physically enters the oil tank of the switch but was not closed onto the live bus bar and was to remain an open point.
9. Shortly after completing this operation the unit exploded and the immediate area suffered fire damage. Oil and internal parts from inside the switch were spread over 25 metres from the switch. The debris was ejected from the fuse access cover towards the rear of the switch as per its vent path.



WHAT IS HAPPENING IN RESPONSE TO THE INCIDENT?

A full investigation is underway. Initial findings have shown:

1. The switch had passed an oil sample test in 2015 and prior to the incident showed no signs of distress. As part of their normal processes the fault persons had confirmed the safe appearance of the switch prior to commencing work, including a visual check on the interior of the tank while changing the fuses, and found no cause for concern.
2. All physical operations affecting the switch were performed correctly.
3. The fault persons were following the oil filled switchgear safe working practices, including keeping an exclusion zone from the switch during the stand-down periods prior, during and post re-livening of the switch from a remote location.
4. Workers did not undertake any live operation of any mechanisms on the Long and Crawford switch following the fuses operating as a result of the initial cable fault.

VECTOR REQUIREMENTS

Pending completion of the full investigation, the requirements contained in Alert No: HSE001/17 are to be reinforced and clarified to all staff. For ease of reference, these requirements are listed below:

The following operational requirements are to be implemented immediately across Vector's network. These requirements apply to all oil-filled distribution fuse-switch and switch units:

- Any activity which requires internal access into the fuse-switch or switch unit including access to the HV fuse compartment, must only be carried out once the unit has been completely isolated from the electricity supply
- Where a fuse has or may have operated, including operation of the switching and earthing mechanism, any activity must only be carried out once the unit has been completely isolated from the electricity supply.
- The minimum time between completion of any internal activity and the re-livening of the equipment shall be 15 minutes.
- Re-livening of the fuse-switch or switch unit shall only be performed using a remotely located (adjacent) switch

WHAT WILL HAPPEN NEXT?

Any potential new risks identified during the investigation will be assessed for appropriate control measures. A safety alert update will be released as appropriate.

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