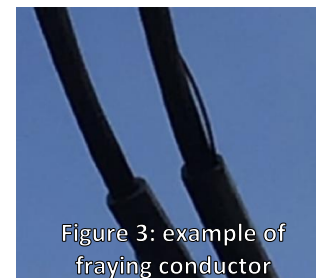


Failure of substation conductor fittings

ISSUE IDENTIFIED:

The failure of jumpers (one at Linton and one at Wilton) occurred due to fatigue resulting from a combination of excessive movement and twisting in the conductor.



CONTRIBUTING FACTORS:

- Jumpers that are loosely constrained experience large displacements due to wind, producing a large oscillating load in the fixed end
- Lugs that are pressed with the conductor slightly misaligned or twisted, producing torsional stresses when they are bolted into position
- Excessive motion and/or twisting results in a loading case that causes fatigue failure in the jumper

Spacers and fittings attached too close together can cause bird caging which in turn places extra stress on the aluminium strands at crimped end, leading to fraying.

ACTIONS TAKEN TO PREVENT REOCCURENCE:

This alert is to raise awareness of:

- Wind causing excessive movement of conductors and fittings, as this can cause failure
- The signs of wear on conductors such as fraying, and build-up of Aluminum oxide
- The need to visually inspect conductors and fittings with binoculars or drone during inspection on assets
- SMP 02.43.004 Task No. 3.3 (soon to be updated/issued) which clarifies unacceptable damage

LEARNINGS FROM THIS:

- All Service Providers and Transpower Service Delivery Managers should report any jumpers/attachment points showing excessive movement or any damage to Operational Engineering
- It is essential that pressed fittings are installed using correct methods and minimal twisting is induced in the conductor as per MCG-02.97-5.1.2.10 and the manufacturer's instructions



**For more information,
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Quality Alert REF No: 2024-002

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