



EARTH TESTING CASE STUDY

Safearth CS3 Test Prevents HV Outage

During routine integrity testing using Safearth's new CS3 continuity meter, engineers identified an incorrect bond that would have led to an outage if tested by other integrity testing equipment. This discovery allowed the client to make a repair before it resulted in major equipment damage or compromised safety.

In an earth grid integrity test in Wisconsin, USA during December 2015, the CS3 identified a set of 3 line voltage transformers which had their main grid bond severely deteriorated or damaged below grade. The VT's were found to be bonded via the screen of the control wiring only. Left unrepaired, this situation may have led to spurious trips on the line, significant equipment damage in the event of a fault or potentially hazardous conditions for workers on the control wiring.



The use of a comparably low 1A test current in the CS3 enabled this serious defect to be identified accurately without causing any negative impacts, whereas a high current test (10A or greater) may have caused damage to the control wiring, likely resulting in an outage.

Key Points

- Set of 3 line VT's bonded only by control wiring screen – main bond damaged below grade
- Accurately identified problem and prevented potentially serious incident
- No outage needed for testing
- Low-current test provided necessary accuracy without risk of damage to sensitive equipment
- Entire transmission substation tested in < 3hrs

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