

Electric Shock

Description of Incident (June 22, 2024)

Following maintenance on a portable heater on an offshore production facility, an electrician experienced an electric shock. The worker was not injured but reported to the health centre for assessment. No treatment was required and the worker returned to regular duties. The worker was wearing required personal protective equipment at the time of the incident.

It was later determined that there was no fault in the heater, however the ground cable in the 600V temporary power cord had become disconnected, resulting in the electric shock. See related images attached.

Root Causes

Although all three phases of the temporary power cord showed continuity, the ground did not. Internal inspection revealed that the ground wire was disconnected from the pin lug. The detached ground conductor resulted in exposure to voltage from a single phase (approximately 347V). No discrepancies were found in the work management system review. While the inspection program for cords met requirements under the applicable code (CSA Z462) opportunity for improvement was found in the Assured Equipment Grounding Conductor Program to do proactive internal inspections.

The investigation concluded that a more prescriptive inspection, including the requirement for an internal inspection would have potentially identified and addressed the issue.

Corrective Actions & Recommendations

The following corrective actions were recommended and are being implemented:

- Cease all in-progress work utilizing temporary power cables until proper continuity is confirmed in all pins, inclusive of internal inspections.
- Update current temporary power cable inspection guidance to formally implement an Assured Equipment Grounding Conductor Program.
 - Written instructions will be clarified to clearly document internal inspection criteria and continuity and connection test criteria.
 - Temporary power cable inspection guidance will also be revised to ensure all inspections occur on the same frequency.
 - Above and beyond Assured Equipment Grounding Conductor Program guidance and continuing testing will be incorporated into pre-use inspection testing requirements.

Applicable Lifesaving Rule

There is no lifesaving rule applicable to this incident.

Posted on August 28, 2024.

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Related Images



Fig 1: Temporary Cable with disconnected ground (green)



Fig 2: Loose Ground on Temp Power Cord (Internal Inspection)