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## Portable Ground Set and Portable Bond Mat Standard

### 1.0 PURPOSE

This standard supports the Hazard/Aspect Controls Policy and establishes requirements for assembly, maintenance and testing of portable ground sets (assemblies) and portable bond mats.

### 2.0 DEFINITIONS

#### 2.1 De-energized

The state that exists when electrical apparatus is isolated from all sources of dynamic energy and grounded.

#### 2.2 Dynamic Energy

The energy available when electrical, mechanical, or nuclear apparatus is connected to a substantial source of energy.

#### 2.3 Electrically Safe Zone

The zone of the specified apparatus which is isolated or de-energized and all charged energy hazards have been controlled with the use of approved Bonding and Grounding Procedures.

#### 2.4 Grounded

Intentionally connected to earth through a conducting connection of sufficiently low impedance and having sufficient current carrying capacity to prevent a build-up of voltages that may result in undue hazards to personnel and/or connected equipment.

### 3.0 METHOD / PRACTICE

#### 3.1 Hazard Identification and Use

The purpose of portable ground sets is to ensure that the apparatus to be worked-on is de-energized. De-energization is a requirement for an Electrically Safe Zone. The purpose of portable bond mats is to create an equipotential zone for workers on the ground should the apparatus they are working on become inadvertently energized (alive).

The Hazard/Aspect and Risk Assessment process supported by directives, procedures, guidelines, training and apparatus specific procedures shall be used to determine:

- The type and size of portable grounds and portable bond mats.
- The location(s) and connections of portable grounds and portable bond mats. More than one portable ground set or portable bond mat may be required to establish an Electrically Safe Zone.

Any portable ground set or portable bonding mat that has been subjected to a fault shall be removed from service. Due to potential damage to the stranding it could fail in service if reused.

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### 3.2 Portable Ground Assemblies

- Portable ground assemblies shall be in compliance with the following standards:
  - CAN/ULC 61230, Live Working- Portable Equipment for Grounding (Earthing) and Bonding or
  - ASTM F 855, Standard Specifications for Temporary Protective Grounds To Be Used on De-energized Electric Power Line and Equipment
- Portable ground assemblies shall be inspected, tested and maintained in compliance with the following standards:
  - ASTM F 2249 Standard Specification for In-service Test Methods for Temporary Grounding Jumper Assemblies Used on De-energized Electric Power Lines and Equipment.

### 3.3 Portable Bond Mats

- Portable bond mats shall be in compliance with the following standards:
  - ASTM F2715, Standard Specification for Temporary Protective Equipotential Bond Mat to be Used on De-Energized Equipment.

### 3.4 Testing

- When protective Grounding and Bonding equipment is tested, it shall have a Test Due Date indicated on the tag that is 2 years after the date of the test.
- Effective January 1, 2020 no ground set or bond mat will be used that is untested or beyond the Test Due date.

### 4.0 REFERENCES

- Saskatchewan
  - The Occupational Health and Safety Regulations, 1996
- SaskPower (located on SafetyNet)
  - Hazard/Aspect Controls Policy
  - Standard Protection Code
  - Power Production, Plant Grounding and Bonding Manual
  - Electrical Safe Work Directive
  - Transmission and Distribution Grounding and Bonding Traccess folders
- Third Party Standards
  - CAN/ULC-S801-10 Standard On Electric Utility Workplace Electrical Safety for Generation, Transmission and Distribution
  - IEEE 1048 IEEE Guide for Protective Grounding of Power Lines
  - IEEE 1246 IEEE Guide for Temporary Protective Grounding Systems Used in Substations
  - ASTM F855
  - ULC CAN 61230
  - ASTM F2249
  - ASTM F2715