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## 1.0 Persons Affected

This Standard Operating Procedure (SOP) affects:

- All SaskPower personnel and contractors working under the direction or coordination with Transmission Operations and Maintenance.
- All personnel within Transmission Operations and Maintenance involved with:
  - Repair ground grids for SaskPower switching stations or substations.
  - Connect ground grids for SaskPower switching stations or substations.
  - Disconnect ground grids for SaskPower switching stations or substations.

## 2.0 Purpose

This SOP provides:

- The standard when performing any work on the ground grids. Employees must be aware there is a potential for ground grids to contain high currents and voltages, especially near transformers and fault locations.

## 3.0 Rationale

This SOP ensures the following:

- Major safety steps are highlighted that are required, must be performed or considered when repairing, connecting and disconnecting ground grids.

## 4.0 Scope

### In-the-Scope of the Procedure

- The procedure includes the following:
  - Repairing, connecting and disconnecting ground grids when live apparatus is involved.
  - The roles and responsibilities of everyone involved in the process.

### Out-of-the-Scope of the Procedure

- The procedure does not include the following:
  - SaskPower personnel or contractors negating from their responsibility to perform a Hazard and Risk Assessment or identify safety steps that are not covered in this SOP.
  - Procedures or a specific switching plan that is required by the Standard Protection Code for each specific station installation.

## 5.0 Policies and Regulatory Requirements

This SOP is a result of the following policies, regulations, industry standards, and corporate directives and standards:

## Ground Grids Repairing, Connecting & Disconnecting

### Policies:

- Job Hazard Assessment Policy
- Personal Protective Equipment Policy

### Regulatory Requirement(s)

- None

### Other

- SaskPower Standard Protection Code
- Hazard & Risk Assessment Standard

## 6.0 Roles, Responsibilities and Prerequisites

In-the-Scope of the Procedure Role(s)	Quantity Required	Responsibilities	Prerequisites
Out-of-Scope Supervisor	1	<ol style="list-style-type: none"> <li>1. Ensure all SaskPower personnel &amp; contractors are aware of the proper methods to install or remove ground grid connections.</li> <li>2. Ensure all SaskPower personnel &amp; contractors have the proper equipment to fulfill the tasks.</li> <li>3. Provide assistance for any related questions or concerns.</li> <li>4. Coordinate the activities of the SaskPower personnel &amp; contractors.</li> <li>5. Ensure the SaskPower personnel &amp; contractors are able to and understand their roles and responsibilities as outlines in this SOP.</li> </ol>	
In-Scope Supervisor	1	<ol style="list-style-type: none"> <li>1. Ensure all personnel are performing the tasks outline in this SOP.</li> </ol>	
SaskPower Personnel/ Contractor(s)	1 or more	<ol style="list-style-type: none"> <li>1. Understand and follow the procedures as outlines in this SOP.</li> </ol>	<ol style="list-style-type: none"> <li>1. Qualified Electrical Worker</li> </ol>

## 7.0 Tools and Equipment

### Tools and Equipment and Quantity Required:

- Insulated Rubber Gloves
- Hot Stick

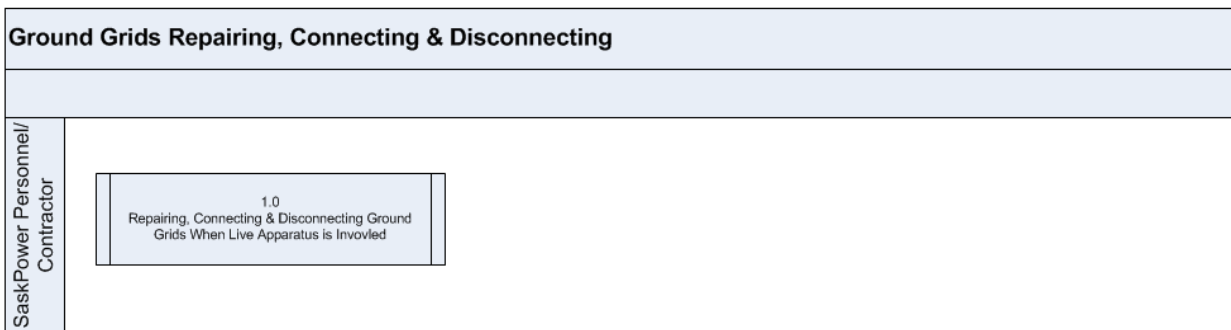
## 8.0 Planning and Preparation Checklist

### Things to Check Before Starting the Procedure:

- Complete Hazard and Risk Assessment
- Applicable Personal Protective Equipment (PPE) is available and in good condition
- Reviewed SaskPower Standard Protection Code and related permits
- Reviewed work practices: limits of approach, testing for absence of potential and proper grounding procedures
- Reviewed and understand how to enter all incidents or near misses

## 9.0 Procedure

### High Level Flowchart



### The Procedure

#### 1.0 Repairing, Connecting and Disconnecting Ground Grids When Live Apparatus is Involved

- 1.1 Repairing, Connecting and Disconnecting Ground Grids When Live Apparatus is Involved
  - 1.1.1 SaskPower personnel/contractor(s) shall be aware of;
    - *The potential of a line voltage and high circulating current due to induction, load, and fault currents in the ground grid,*
    - *The potential for dangerous voltages increasing closer to sources such as transformers and fault locations.*
  - 1.1.2 SaskPower personnel/contractor(s) shall;
    - *Jump a cut ground wire out with a ground lead using a hot stick,*
    - *Never get between both ends of a broken ground grid,*

- *Handle only 1 wire at a time,*
- *Wear insulated rubber gloves when handling existing ground grids or installing new grounds near sources of induced voltages.*

## 10.0 Acronyms, Definitions and Symbols

### Acronyms and Abbreviations

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**None**

### Definitions

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**Apparatus:**

All equipment pertaining to the generation, transmission, distribution, and the use of electrical energy. Some examples are lines, transformers, breakers, pumps, motors, valves, relays, etc.

**Fault Current:**

\insert\definition

**Induced Voltages:**

\insert\definition

**Induction:**

\insert\definition

**Insulated Rubber Gloves:**

\insert\definition

**Load:**

\insert\definition

### Symbols

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None

## 11.0 Components

The following is a list of components for this SOP which can be accessed through the SOP System:

Component Name	Component Type	Component Description	Location of Component
Ground Grids Repairing, Connecting & Disconnecting Flowchart	Flowchart	High level and mid-level flowchart for the procedure	SOP Online - SOP Bundle - Ground Grids Repairing, Connecting & Disconnecting



# Ground Grids Repairing, Connecting & Disconnecting

Standard Operating Procedure

## 12.0 Owner

### Owner

Director, Transmission Services

## 13.0 References

References	Location of Resource
None	