



Testing for Absence of Potential

Standard
Operating
Procedure

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1.0 Persons Affected

This Standard Operating Procedure (SOP) affects:

All Power Line Technician(s) required to test for absence of potential.

2.0 Purpose

This SOP provides:

Information that is intended to provide, clarify, and reinforce the safe work procedure when testing for absence of potential.

3.0 Rationale

This SOP ensures the following:

- This SOP will provide workers with direction on how to safely test for absence of potential by complying with the SaskPower Standard Protection Code, the SaskPower Rulebook and the proper application of bonding and grounding.
- This SOP will reduce the risk of serious injury or death due to testing for absence of potential prior to any work performed on electrical apparatus.

4.0 Scope

In-the-Scope of the Procedure

- The procedure includes the following:
 - The procedure for Testing for Absence of Potential

Out-of-the-Scope of the Procedure

- The procedure does not include the following:
 - This procedure does not negate the responsibilities of the end user to perform Hazard and Risk Assessments, identify and implement any safety steps, and required barriers.

5.0 Policies and Regulatory Requirements

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

Policies:

- Personal Protective Equipment Policy
- Job Hazard Assessment Policy
- Hazard Controls Policy



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Regulatory Requirement(s)

The Saskatchewan Employment Act, 2014.

Other

- SaskPower Bonding and Grounding
- SaskPower Safety Rule Book
- SaskPower Standards and Processes in support of Corporate Safety Policies

6.0 Roles, Responsibilities and Prerequisites

In-the-Scope of the Procedure Role(s)	Quantity Required	Responsibilities	Prerequisites
Power Line Technician(s)	1 or more	<ol style="list-style-type: none">1. Inspect tools prior to use2. Use appropriate bonding and grounding application3. Limits of approach	<ol style="list-style-type: none">1. Standard Protection Code Distribution Course2. Bonding and Grounding Course
Issuing Authority	1	<ol style="list-style-type: none">1. Follow standard protection code permit requirements.	<ol style="list-style-type: none">1. Successful completion of Standard Protection Code training.

7.0 Tools and Equipment

Tools and Equipment and Quantity Required:

NOTE: one or more of the following tools may be required as per voltage being worked on.

- FRP (Fiberglass Re-Enforced Plastic) hotstick
- Appropriate rubber gloves
- Proximity type tester
- Probe
- Phasing sticks
- Ground lead

8.0 Planning and Preparation Checklist

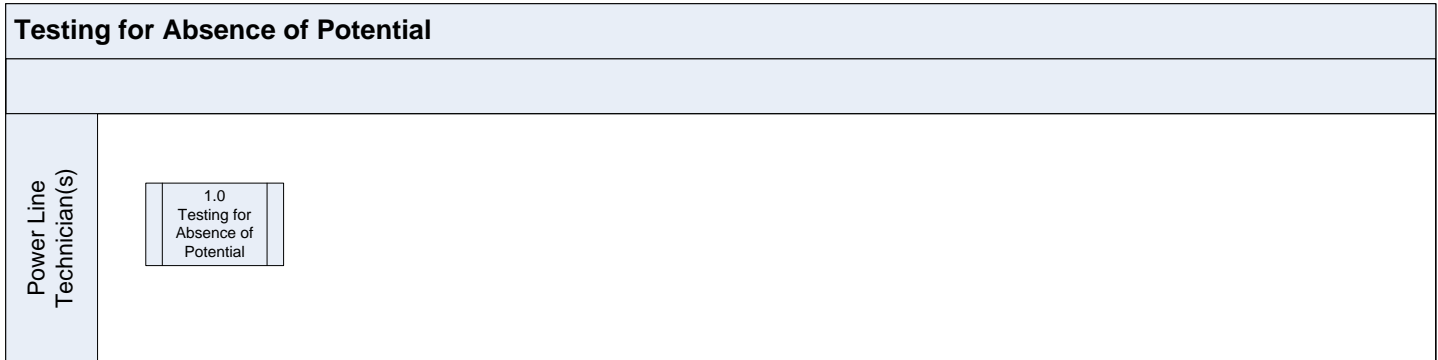
Things to Check Before Starting the Procedure:

Preparation to test for absence of potential will include the following safety absolutes:

- Complete a Hazard and Risk Assessment
- Wear appropriate PPE as determined by the Hazard and Risk assessment
- Ensure test dates on equipment and tools are current
- Obtain SaskPower Standard Protection Code and other related permits

9.0 Procedure

High Level Flowchart



The Procedure

The use of an approved Potential Test Indicator is T&D's primary means of testing for absence of potential on all system voltages. It shall be the responsibility of the Authorized personnel performing the steps in the switching plan or work procedure, to confirm the absence of potential on separated, isolated, or de-energized electrical apparatus.

All electrical apparatus shall be considered alive unless they are confirmed de-energized.

The following is the approved methods of testing for absence of potential.

1.0 Testing for Absence of Potential

NOTE: This procedure is mandatory for all staff to confirm the absence of potential when working on electrical apparatus after a hazard and risk assessment has been completed and communicated. All electrical apparatus shall be treated as alive until confirmed for absence of potential. Testing for absence of potential shall be done in all cases before installing grounds.

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1.1 Principles for Testing Absence of Potential

1.1.1 All Power Line Technician(s) shall ensure when testing for absence of potential that their job step/work procedures include the following:

- *Use only an approved Potential Test Indicator and PPE:*
 - Voltmeter/multimeter for low voltage circuits with appropriate rubber gloves (see rule 402.1 in the Safety Rule Book)
 - Proximity type potential tester with appropriate hot stick- (IE: Modiewark)
- *Caution must be used when interpreting results of the Proximity type test where there are adjacent energized circuits or equipment that can create inductive potential*



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- *For high voltage applications, limits of approach must be observed and the Proximity type tester must be used in conjunction with an approved FRP(fiberglass re-enforced plastic) hot stick*
- *For underground(URD) primary, a Proximity type tester **with a URD** setting can be used to check for absence of potential at the capacitive test point on the underground elbow*
- *If a proximity type tester **without the URD** setting is used on an underground system (14.4 kV to ground) the approved method of testing for potential is to park the isolated cable on a feed through, insert a probe and then use the Proximity type tester to test at the probe*
- *For high voltage applications, use the Phasing Sticks for high voltage applications where large inductive fields are present such as in substations or on multi-circuit structures with both energized and de-energized circuits present. The Proximity type tester may give a false positive reading. A set of Phasing Sticks can be used in this situation to measure the actual line potential*
- *For substation and switching station electrical apparatus. **Work cannot** be performed on any component of that apparatus following separation, isolation, or de-energized without first conducting tests to confirm the absence of potential*

NOTE: Company policies shall apply when the above conditions cannot be met. **APPROVED** alternative work methods ensuring worker safety shall be identified, communicated to all affected workers, implemented and documented as part of the Job Briefing process.

10.0 Acronyms, Definitions and Symbols

Acronyms and Abbreviations

FRP - Fiberglass Re-Enforced Plastic

URD - Underground

Definitions

N/A

Symbols

N/A

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
Testing for Absence of Potential Flowchart	Flowchart	A high level and mid-level flowchart for this procedure	SOP Online - SOP Bundle: Testing for Absence of Potential



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12.0 Owner

Owner

Operations and Maintenance Director - Kevin Schwing

13.0 References

References

- Standard on Electric Utility Workplace Electrical safety for Generation, Transmission, and Distribution

Location of Resource

- Can/ULC - S801-10