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## 1.0 Persons Affected

This Standard Operating Procedure (SOP) affects all Transmission & Distribution Services employees and contractors who operate, or assist in the operation of, a Digger Derrick.

## 2.0 Purpose

This SOP provides the standard for setting a wood pole in earth in an energized environment with a Digger Derrick.

The purpose of this procedure is:

- To establish a standard for setting a wood pole in earth in an energized environment within the Transmission and Distribution Services
- To provide a detailed job process for employees and contractors who perform this procedure within the course of their job

## 3.0 Rationale

This SOP will support the safety of our personnel by ensuring safe working methods are consistently used for setting a wood pole in earth in an energized environment with a Digger Derrick. This SOP will also ensure optimal use of equipment for the purpose of minimizing wear and tear.

This SOP requires that work performed by Transmission & Distribution Services employees and contractors satisfies all applicable policies and regulations.

## 4.0 Scope

### In-the-Scope of the Procedure

- The procedure includes the following:
  - Set up equipment
  - Set a wood pole in earth
  - Post operational duties

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

- The procedure does not include the following:
  - Digger Derrick - Set Wood Pole - De-Energized or New SOP
  - Digger Derrick - Dig a Hole SOP
  - Digger Derrick or Boom Truck - Make a Lift - SGL Winch Line SOP
  - Bonding and Grounding
  - Lifting Conductors
  - Live Line Procedures

## 5.0 Policies and Regulatory Requirements

This SOP is a result of the following:

### **Policies:**

- SaskPower Hazard Control Policy, 2008
- SaskPower Personal Protective Equipment Policy, 2007

### **Regulatory Requirement(s)**

Saskatchewan Occupational Health and Safety Regulations, 1996

- Part XI: Powered Mobile Equipment
  - 155: Visual Inspection
  - 156: Inspection and Maintenance
  - 164: Dangerous Movements
- Part XIII: Hoists, Cranes and Lifting Devices
  - 199: Interpretation
  - 201(1): General Requirements
  - 203: Load Ratings
  - 204: Designated Operator
  - 206(3): Rated Loads
  - 208: Determining Weight of Load
  - 210(1)(4): Designated Signaler
  - 212: Hoists, cranes with outriggers, etc.
  - 215: Logbook
  - 216: Inspections
- Part XIV: Rigging
- Part XXX: Additional Protection for Electrical Workers
  - 465(2): Proximity to exposed energized high voltage Electrical Conductors
- Table 22: Minimum Distances from Exposed Energized High Voltage Electrical Conductors
- Exemptions:
  - Section 208(1)(2)(3): Load Gauge
  - Section 211(3): Anti-Two Block

### **Other**

American National Standard

- ANSI A10.31 - 2006

Manufacturer's Specifications



# Digger Derrick – Set Wood Pole – Energized

Standard Operating Procedure

## SaskPower Procedures

- SaskPower Bonding and Grounding Procedures
- SaskPower Limits of Approach
- SaskPower Standard Protection Code

## SaskPower Safety Rulebook

## 6.0 Roles, Responsibilities and Prerequisites

In-the-Scope of the Procedure Role(s)	Quantity Required	Responsibilities	Prerequisites
Digger Derrick Operator	1	1. Operate the equipment as per guidelines established in the following procedure.	<ol style="list-style-type: none"> <li>1. An employee must be a Journeyed Powerline Technician, or be under the direct supervision of a Journeyed Powerline Technician.</li> <li>2. An employee must be designated as a qualified Digger Derrick Operator, or to be under the supervision of a qualified Digger Derrick operator.</li> <li>3. Non-Powerline Technicians must take the Awareness to Electrical Facilities</li> </ol>
Digger Derrick Operator Assistant	1 or more	1. Assist the Digger Derrick Operator in setting a wood pole in earth - Energized.	1. An employee must have a minimal Level I Powerline Technician Apprentice in 2nd Six months.
Designated Signaler	1	1. Ensures that it is safe to proceed with a movement before that movement can proceed.	1. Thoroughly understands signals to be used in operation.

## 7.0 Tools and Equipment

### Tools and Equipment and Quantity Required:

- Digger Derrick
- Wood pole
- Shovel
- Temporary ground electrode
- Ground lead
- Hydraulic or hand tamper
- Insulated Pole Handling Devices
- Class 1 Rubber Gloves (Minimum)
- Rigging and associated fittings
- Digger Derrick Operating Manual
- Construction Standards Manual
- IPT's Crane and Rigging Handbook

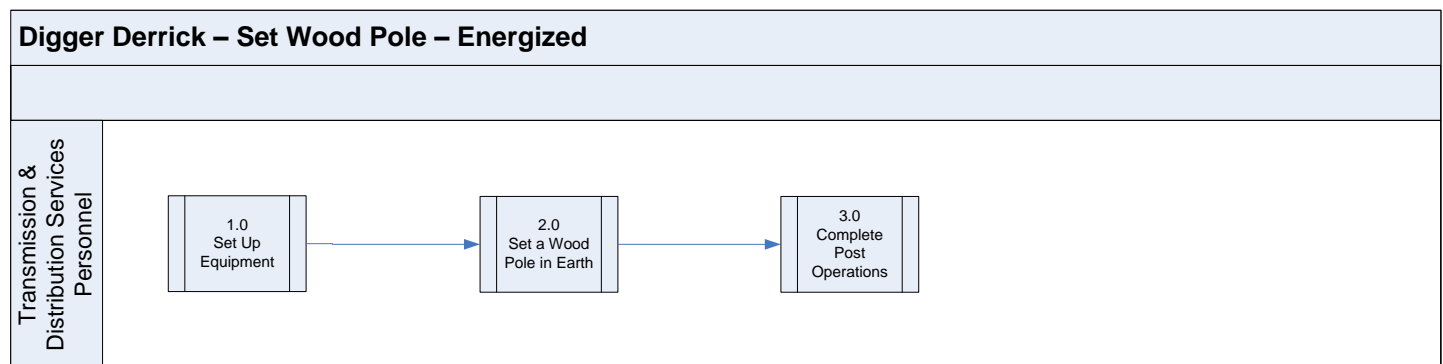
## 8.0 Planning and Preparation Checklist

### Things to Check Before Starting the Procedure:

- Complete Hazard & Risk Assessment and Job Plan
- Complete Fleet Services' Digger Daily Inspection Checklist
- Complete OH&S Compliance - Perform Pre-Operational Equipment Checks SOP
- Complete TRNSP Compliance - Perform Pre-Trip Air Inspections SOP
- Complete TRSNP Compliance - Perform Pre-Trip Chassis Inspections SOP
- Applicable Personal Protective Equipment (PPE) is available and in good condition

## 9.0 Procedure

### High Level Flowchart



### The Procedure

This Standard Operating Procedure (SOP) covers the method for setting a wood pole into the earth in an energized environment.

**Limits of Approach must be maintained by lifting the conductor or using appropriate live line barriers and procedures.**

#### 1.0 Set Up Equipment

##### 1.1 Set Up Digger Derrick

1.1.1 The Digger Derrick Operator shall position the Digger Derrick as outlined within the job plan.

- *Ensure the area is clear*
- *Ensure the capacity of the Digger Derrick is not exceeded throughout the full range of boom motion*
- *Position the unit considering boom length and obstructions*
- *Apply the parking brake*
- *Engage the Power Take Off (PTO) as per manufacturer's specifications*

1.1.2 The Digger Derrick Operator and/or the Digger Derrick Operator Assistant(s) shall extend all outriggers.

- *As per manufacturer's specifications*
- *Ensure the area is clear*
- *Lay out outrigger pads as specified for the Digger Derrick*

**Note:** The use of outrigger pads is **mandatory** at all times.

- *Ensure outriggers are fully visible while extending*
- *Dig out surface area as required if outriggers cannot be fully extended*
- *Block the outriggers as required to stabilize the Digger Derrick*

1.1.3 The Digger Derrick Operator shall level the Digger Derrick.

- *As per manufacturer's specifications*

1.1.4 The Digger Derrick Operator and/or the Digger Derrick Operator Assistant(s) shall ground the Digger Derrick as identified within the Hazard and Risk Assessment.

## 2.0 Set a Wood Pole in Earth

### 2.1 Position Winch Line

2.1.1 The Digger Derrick Operator shall position the winch line slightly above the balance point of the wood pole.

- *Lower the winch line*

2.1.2 The Digger Derrick Operator Assistant(s) shall attach the winch to the pole.

### 2.2 Direct Movements

2.2.1 The Designated Signaler shall direct all movements to ensure that it is safe to proceed.

- *Monitoring location of the pole in relation to the energized line and/or obstructions*

### 2.3 Set a Wood Pole

2.3.1 The Digger Derrick Operator and the Digger Derrick Operator Assistant(s) shall lift and position the wood pole over the hole.

- *Ensure the area is clear*
- *Raise the boom and winch*
- *Best practice dictates to secure the pole in the boom tip before the butt-end of the pole comes off the ground*

**Note:** In situations where the pole can not be secured into the boom tip the Digger Derrick Operator and the Digger Derrick Operator Assistant(s) must ensure full control of the wood pole at all times. Communication is critical by a Designated Signaler.

- *Position the wood pole in the hole*
- 2.3.2 The Digger Derrick Operator Assistant(s) shall guide the butt-end of the pole into the hole.
  - *Using minimum Class 1 Rubber Gloves and Insulated Pole Handling Device*
- 2.3.3 The Digger Derrick Operator shall lower the pole into the hole.
  - *Keep pole secure in the boom tip*
  - *Center pole in hole*
- 2.3.4 The Digger Derrick Operator and the Digger Derrick Operator Assistant(s) shall sideline and headline the pole.
  - *A plumb line may be used to assist in the sidelining and headlining of the pole*

**Note:** The operator must stay at the Digger Derrick controls until such time the pole is completely tamped.

- 2.3.5 The Digger Derrick Operator and the Digger Derrick Operator Assistant(s) shall hook the pole.
  - *If the pole has to be rotated, slack off slightly on the winch line*
- 2.3.6 The Digger Derrick Operator shall select the proper tool circuit for the tamper.
  - *The hydraulic tamper is only capable of handling an average of 6 Gallons of oil a minute, more than this can cause damage to the tamper*
  - *The pole puller circuit can put out up to 45 gallons a minute*
- 2.3.7 The Digger Derrick Operator and the Digger Derrick Operator Assistant(s) shall fill and tamp the hole with the correct fill.
- 2.3.8 The Digger Derrick Operator Assistant shall unhook the winch line.
- 2.3.9 The Digger Derrick Operator shall retract the winch line.
  - *Ensure the area is clear*

### 3.0 Complete Post Operations

- 3.1 Perform Post Operational Duties
  - 3.1.1 The Digger Derrick Operator shall completely retract all boom extensions.
  - 3.1.2 The Digger Derrick Operator shall place the boom in the boom rest.
    - *Ensure the area is clear*
  - 3.1.3 The Digger Derrick Operator Assistant(s) shall secure the boom in the boom rest.
    - *Using the proper tie-down points as per manufacturer's specifications*

- *Stowing the boom with the winch line through the third stage is not allowed*
- 3.1.4 The Digger Derrick Operator shall retract outriggers.
- *Ensure the area is clear*
- 3.1.5 The Digger Derrick Operator shall disengage the PTO as per manufacturer's specifications.
- 3.1.6 The Digger Derrick Operator shall release the parking brake.
- 3.1.7 End of Procedure.

## 10.0 Acronyms, Definitions and Symbols

### Acronyms and Abbreviations

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**PTO** - Power take-off

**SOP** - Standard Operating Procedure

### Definitions

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#### **Blocking:**

The act of building up materials to stabilize outrigger pads, refer to IPT's Crane and Rigging Handbook

#### **Butt-end:**

The bottom of the pole, is more wide than the top end

#### **Designated Signaler:**

Means a worker designated pursuant to clause 132(1) (a) to give signals;

#### **Hook Pole:**

The act of aligning the cross arm, bolt holes and other line apparatus

#### **Insulated Pole Handling Devices:**

A device that is dielectrically tested and used for securing poles, example; Chance Pole Tong. (cat. #C200T) or Hastings Pole Cant Tool (cat. #6856).

#### **Plumb line:**

A line (as of a cord) that has at one end a weight (as a plumb bob) and is used especially to determine verticality

#### **Qualified Operator (OH&S Regulation 204):**

(i) The holder of a journeyman's certificate in the crane and hoist operator trade issued pursuant to the Apprenticeship and Trade Certification Act;

(ii) The holder of a proficiency certificate in a sub trade of the crane and hoist operator trade issued pursuant to the Apprenticeship and Trade Certification Act;

(iii) an apprentice in the crane and hoist operator trade who is working under the direction of a person described in sub clause (i) or (ii); or



## Digger Derrick – Set Wood Pole – Energized

(iv) Any worker who:

**(A) has received training, and has experience, in the safe operation of a crane that, in the opinion of the director, is equivalent to or superior to the training and experience of a person mentioned in [OH&S] sub clause (i), (ii) or (iii); or**

**(B) is a member of a category of workers whose training and experience in the safe operation of a crane, in the opinion of the director, is equivalent to or superior to the training and experience of a person mentioned in sub clause (i), (ii) or (iii).**

**Note:** The approved SaskPower Unit Digger Derrick Training Program meets the requirements of Regulation 204(iv) (A)

### Snipe:

The top of the pole (narrower than the bottom end)

### Tamp:

To compact the soil around the pole

### Watershed:

A mound of soil roughly a foot above the ground around the base of the pole to deflect water

### Symbols

N/A

## 11.0 SOP Components

SOP Component Name	SOP Component Type	SOP Component Description	Location of SOP Component
Digger Derrick – Set Wood Pole - Energized	Flowchart	The high level and mid-level flowchart for the procedure.	SOP Online – Digger Derrick or Boom Truck – Operations – Set Wood Pole – Energized

## 12.0 SOP Owner

### SOP Owner

Operations Supervisor

## 13.0 References

N/A