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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 and a Pole-Puller.

2.0 Purpose

This SOP provides the standard for pulling a wood pole from earth in an energized environment with a Digger Derrick and a Pole-Puller.

The purpose of this procedure is:

- To establish a standard for pulling a wood pole from earth in an energized environment with a Digger Derrick and a Pole-Puller 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 pulling a wood pole from earth in an energized environment with a Digger Derrick and a Pole-Puller. 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 and 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
 - Secure the pole
 - Install the pole puller
 - Pull the pole
 - Complete post operations

Out-of-the-Scope of the Procedure

- The procedure does not include the following:
 - Digger Derrick & Pole Puller - Pull Wood Pole - De-Energized SOP
 - Digger Derrick - Load and Unload a Wood Pole SOP
 - Load and unload a Non-Wood Pole(s)
 - Digger Derrick or Boom Truck - Make a Lift - SGL Winch Line SOP
 - TRNSP Compliance - Secure Loads SOP
 - Bonding and Grounding
 - Pull a pole by excavating
 - 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

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: Log book
 - 216: Inspections
- Part XIV: Rigging
- Part XVII: Excavations, Trenches, Tunnels and Excavated Shafts
 - 260(6): Excavating and Trenching
- 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

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"> 1. An employee must be a Journeyed Powerline Technician, or be under the direct supervision of a Journeyed Powerline Technician. 2. An employee must be designated as a qualified Digger Derrick Operator, or to be under the supervision of a qualified Digger Derrick operator. 3. Non-Powerline Technicians must take the Awareness to Electrical Facilities
Digger Derrick Operator Assistant	1 or more	1. Assist the Digger Derrick Operator in pulling a wood pole - 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
- Pole trailer
- Shovel
- Temporary ground electrode
- Ground lead
- Pole puller and associated accessories
- 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

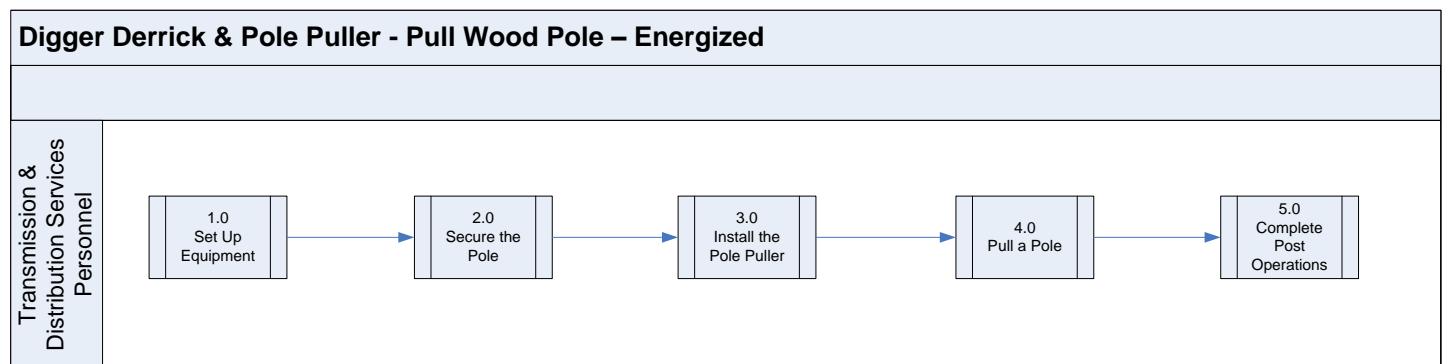
8.0 Planning and Preparation Checklist

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 TRMSP 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 pulling a wood pole in an energized environment with a Digger Derrick and a Pole-Puller.

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 so that the boom will not be near energized lines when the pole is pulled*
- *Apply the parking brake*

- *Engage the Power Take Off (PTO) as per manufacturer's specifications*
- 1.1.2 The Digger Derrick Operator and/or Digger Derrick Operator Assistant(s) shall extend all outriggers.
 - *As per to 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 Secure the Pole

2.1 Secure the pole

- 2.1.1 The Digger Derrick Operator shall lower the winch line.
- 2.1.2 The Digger Derrick Operator Assistant(s) shall attach the winch line to the pole.
 - *Attach the winch line well above the balance point in order to maintain control in the event that the pole breaks at ground level*
 - *The boom tip may be positioned approximately 4 feet above the winch attachment point to allow for take-up as the pull puller operates*

3.0 Install the Pole Puller

3.1 Ensure the Ground is Level

- 3.1.1 The Digger Derrick Operator and/or the Digger Derrick Operator Assistant(s) shall level the ground where the pole puller base is to be placed.
 - *The pole puller shall be blocked until it is level, if the ground cannot be leveled*

3.2 Position Pole Puller Equipment

- 3.2.1 The Digger Derrick Operator and/or the Digger Derrick Operator Assistant(s) shall position the base of the pole puller on the leveled ground.
 - *The pole puller should be installed on the opposite side of the pole from the boom so that, as the pole is being pulled, it pushes into the boom rather than away from the boom (or to the side of the boom)*

- *The pole puller must be as close to the pole as possible to prevent the base of the pole puller from kicking out*
- *It may be necessary to install the pole puller at the side or the front of the pole, when it is not possible to install the pole puller on the opposite side from the boom*

Note: There should never be any side load exertion on the boom, or side to side rocking of the pole.

3.2.2 The Digger Derrick Operator and/or the Digger Derrick Operator Assistant(s) shall install the pole puller chain.

- *Place the D-ring of the pole puller chain over the rod end of the cylinder*

Caution: Ensure hands are clear as there is an identified hazard of a pinch point located at the top of the pole puller while the cylinder is being retracted.

- *An approved pole puller chain must be used*
- *Wrap the chain once around the pole*

Note: Do not use more than one wrap of chain around the pole or make a choke chain wrap around the pole.

- *Insert the free end of the chain in the slot of the lug*
- *Install hydraulic hoses onto the pole puller*
- *Ensure hose ends are clean before attaching them*

4.0 Pull a Pole

4.1 Set Up Pole Puller

4.1.1 The Digger Derrick Operator shall select the correct tool circuit (pole puller).

4.1.2 The Digger Derrick Operator shall move the control lever slowly to set the chain tight.

4.1.3 The Digger Derrick Operator shall extend the pole puller cylinder.

- *Ensure the area is clear*
- *A pole puller adapter plate must be used if the pole puller chain does not grip the pole*
- *Observe pole movement and boom reaction to ensure the boom follows the pole up (so it is not pushing the pole and the boom up at the same time)*

Note: If a single cycle doesn't loosen the pole from the ground, recycle the pole puller until the pole has broken free of the ground and is able to be pulled without over exerting the boom.

4.1.4 The Digger Derrick Operator Assistant(s) shall remove the pole puller chain from around the pole and lay the pole puller on the ground.

4.2 Direct Movements

4.2.1 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*

4.3 Pull the Pole

4.3.1 The Digger Derrick Operator Assistant(s) shall guide the pole as the pole clears the hole.

- *Using minimum Class 1 Rubber Gloves and Insulated Pole Handling Device(s)*

4.3.2 The Digger Derrick Operator using the proper boom and winch controls shall raise the pole out of the hole slowly.

- *Use the boom and winch to lay the pole on the ground*

Note: The Operator must stay at the Digger Derrick controls until such time as the pole is completely on the ground.

4.3.3 The Digger Derrick Operator Assistant(s) shall unhook the winch line.

4.3.4 The Digger Derrick Operator shall retract the winch line.

- *Ensure the area is clear*

4.3.5 The Digger Derrick Operator and/or the Digger Derrick Operator Assistant(s) shall fill the hole.

5.0 Complete Post Operations

5.1 Perform Post Operational Duties

5.1.1 The Digger Derrick Operator shall completely retract all boom extensions.

5.1.2 The Digger Derrick Operator shall place the boom in the boom rest.

- *Ensure the area is clear*

5.1.3 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*

5.1.4 The Digger Derrick Operator shall retract outriggers.

- *Ensure the area is clear*

5.1.5 The Digger Derrick Operator shall disengage PTO as per manufacturer's specifications.

5.1.6 The Digger Derrick Operator shall release parking brake.

5.1.7 End of Procedure.

10.0 Acronyms, Definitions and Symbols

Acronyms and Abbreviations

PTO: Power take-off

SOP: Standard Operating Procedure

Definitions

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 wider than the top end.

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).

Pre:

(Prefix) before, earlier

Post:

(Prefix) after, later

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

(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 Digger Derrick Training Program meets the requirements of Regulation 204(iv) (A).

Snipe:

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



Digger Derrick & Pole Puller - Pull Wood Pole - Energized

Standard Operating Procedure

Symbols

N/A

11.0 SOP Components

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

12.0 SOP Owner

SOP Owner

Operations Supervisor

13.0 References

N/A