SaskPower	Felling Trees Within Fallover Distance of Energized Lines	Standard Operating Procedure

Table of Contents

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1.0 Purpose

This SOP provides:

- This SOP is to ensure a high level of personal safety is maintained when tree felling within fall distance of energized lines

2.0 Roles and Prerequisites

Role(s)	Quantity Required	Prerequisites
Operators	2 or more	1. Relevant Standard Protection Code Distribution Course 2. Qualified in chainsaw use and tree felling techniques 3. Successfully completed Aerial Device or Material Handling Aerial Device Training (MHAD)
Issuing Authority	1	1. Successful completion of Standard Protection Code Training

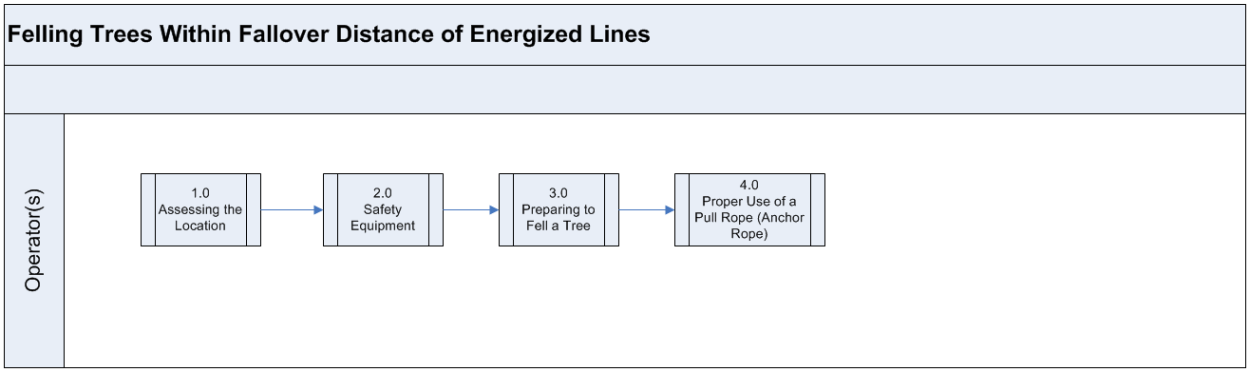
3.0 Tools and Equipment

Minimum Tools and Equipment Required:

- Hand or extendable saws (as required)
- Chainsaws
- Wedges
- Axes
- Block and tackle
- Ropes
- Insulated extendable Hotstick or pike pole (only for placing anchor rope)
- PPE Appropriate for chainsaw use (See Section 2.1.1)

4.0 Procedure

High Level Flowchart



The Procedure

The following requirements shall be met prior to the start of the procedure:

- Complete Hazard/Aspect and Risk Assessment
- Applicable Personal Protective Equipment (PPE) is available and in good condition
- Review Environmental Best Management Practices for Bird nests or other wildlife habitat

CAUTION: Any tree being felled within fall distance of an energized conductor(s) must be attached to an adequate pulling force and pulled over… WITHOUT EXCEPTION!

Note: If there is a concern of falling a certain tree or trees, contact a SaskPower Resource Specialist, Utility Arborist for guidance.

1.0 Assessing the Location

1.1 Assess Work Location

1.1.1 The operator shall complete a hazard/aspect and risk assessment prior to felling a tree considering the following:

- *Determine if the tree can be felled safely; If not, then the line shall be de-energized to fell the tree*
- *Is the use of heavy equipment required?*
- *Is the use of bucket truck required to trim trees prior to felling the tree and/or to tie off the anchor rope?*

2.0 Safety Equipment

2.1 Determine requirements for Safety Equipment and Personal Protective Equipment (PPE)

2.1.1 The Operator(s) shall use the following checklist to identify safety equipment:

- *Chain saw pants or chaps (rated no lower than 3900 with full calf wrap)*
- *Clothing*
  - Outer clothing to be a minimum class 2 high viz
- *Hearing protection (Ear muffs and/or ear plugs)*
- *Eye and Face Protection*
  - A full mesh visor and safety glasses shall be worn at all times while using a chainsaw
- *Head Protection*
  - CSA approved head protection shall be worn by all personnel at the job site, work areas and in posted areas on site
  - Head protection shall be put on prior to entering the work area and not removed until clear of the work area
  - An approved hard hat shall be worn when/where there is danger of being struck by flying objects

- *Footwear*
  - CSA approved, electric shock resistant footwear with minimum six inch (6") leather uppers for ankle support, a defined 1/2 inch heel and a steel or composite toe shall be worn to prevent injury from any hazard that may be encountered in the workplace
- *Leather Gloves*

3.0 Preparing to Fell a Tree

3.1 3.1 Prepare to Fell a Tree

3.1.1 The Operator(s) shall consider the following prior to felling a tree within fall distance of an energized line:

- *Ensure any inadvertent movements will not encroach on the limits of approach*
- *Is the use of a bucket truck required to remove branches that are or may come in contact with the line as the tree falls away?*
- *De-energize line where practical*
- *Use of rope anchor, block and tackle to control of direction of fall*
- *Standard Protection Code Permits are required for felling any trees within fall distance or encroaching on the limits of approach*
- *Are extra personnel required (this should be kept to a minimum in work area) when felling the tree?*

3.2 Identify Hazards Prior to Felling a Tree

3.2.1 The Operator(s) shall use the following checklist to help identify hazards in order to prepare the site:

- *Check the wind for severity and direction*
- *Check for hanging/detached limbs which could be a falling hazard*
- *Check for hung-up tree*
- *Establish the fall path of tree*
- *Establish 2 escape routes which are 45*

  degrees opposite of fall path

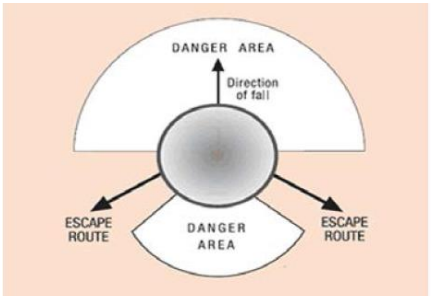


Diagram 1: Establish escape routes 45 degrees opposite of escape path

- *Establish an anchor point to ensure the tree falls away from the energized line*
- *All personnel other than the feller must remain a minimum equivalent to two tree lengths away*

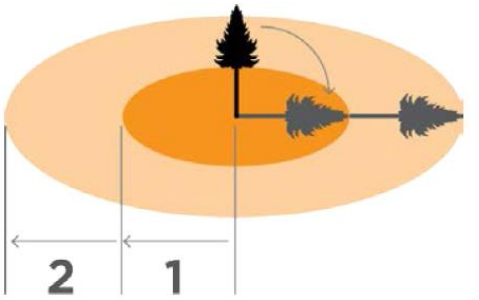


Diagram 2: All Personnel other than feller to remain a minimum on 2 tree lengths away

- ***If a concern of falling a certain tree or trees, contact a SaskPower Utility Arborist for guidance***

4.0 Proper use of a Pull Rope (Anchor Rope)

4.1 Selection of the Pull Rope

4.1.1 The Operator(s) shall inspect the rope:

- *Rope must be of adequate tensile strength for pulling force in relation to the size of the tree*
- *Rope Condition - Rope must not be damaged: No sprung fibers, cuts or abrasions*

4.2 Attaching the Pull Rope

4.2.1 The Operator(s) shall place attachment on tree to be fell

- *To ensure the pulling force is attached for optimum leverage, the Pull Rope should be attached approximately 2/3 of the height of the tree*
- *If there are multiple vertical branches or stems going upward at the 2/3 level, these stems can be tied together at that point for adequate and strong leverage*
- *Where the pull Rope is attached lower than the 2/3 level, a higher and thicker Hinge Wood and greater pulling force will be required*
- *Ensure that the pull rope is at a point where the tree has adequate structural strength*
- *An approved knot (ie: Running Bow-Line) or sling shall be use when attaching the pull rope to the tree*

4.3 Attachment to the Anchor Point

4.3.1 The Operators shall consider the following points when attaching to an anchor point:

- *Attach in a direction that will not allow the falling tree to contact the energized line. At 90 degrees where possible, however never less than 45 degrees from the line*
- *Use approved ropes, slings/shackles*
- *If the base of a tree is used, ensure that it will be of adequate strength to hold the weight of the tree being fell and attach as close to the base of the anchor point as possible*

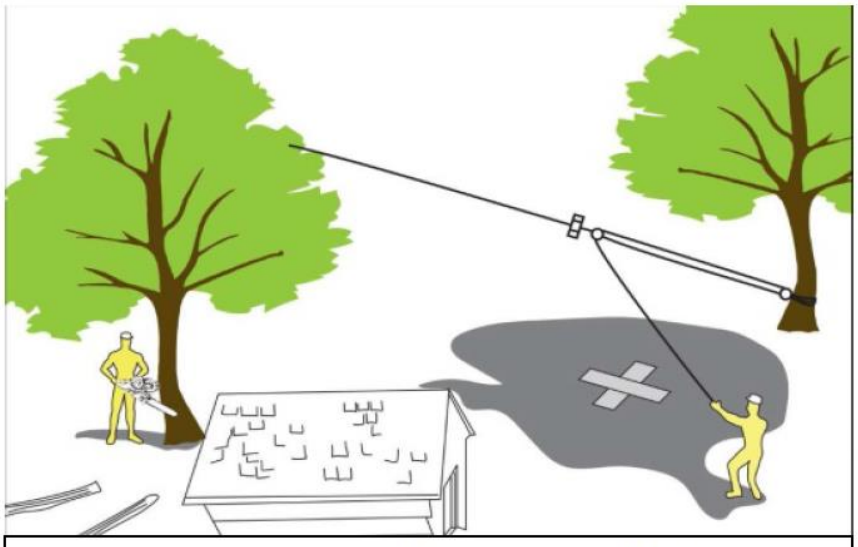


Diagram 3: If tree is used, ensure it is of adequate strength and attach as close to base of anchor point as possible.

If equipment is being used for the anchor point, ensure that is of adequate weight to hold the weight of the tree, or that it is specifically designed for that application

4.4 Make Approved Felling Cut

4.4.1 The Operator(s) shall ensure the following requirements for a successful cut

- *Only operate a chainsaw that is running correctly, and has been properly maintained and sharpened. This ensures safe and accurate cuts*
- *Never Spear Cut trees that are growing within fall distance of energized conductors*
- *Do not fell small trees that "look easy" within fall distance without a pull rope*
- *Determine the amount of Hinge (Holding) wood to be kept before the felling cut is made. Hinge wood must be no less than 1/10 of the tree's diameter for larger trees and no less than 1" on a small tree. The hinge wood must be larger when a greater pulling force is to be applied*
- *Never rock a tree being felled. This may cause the tree to break its hinge wood prematurely on the back-rock and go the wrong way*
- *Never cut through the holding wood because it provides control and direction of the fall*
- *Notch 1/4 - 1/3 depth of tree diameter. Never more or less*
- *The working line of the notch must be horizontal (Level), from front to back as well as side to side*
- *Let all crew members know before making back cut*
- *The two lines of the notch must meet perfectly at its working line, otherwise a "Dutchman" will result as one cut overlaps the other (See Example below)*
- *A "Dutchman" Cut will cause either:*

    A) The worker to cut through the hinge wood

    B) A Barberchair
- *Both result in total loss of control, creating a serious hazard for personnel*

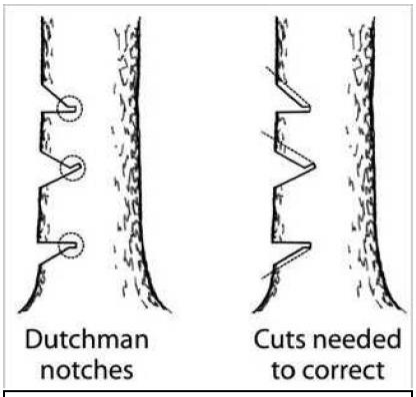


Diagram 4: Dutchman Nodes; Cuts needed to correct

4.5 Retreat

4.5.1 The Operator(s) shall use the following steps to retreat:

- *Set saw down*
- *Retreat on pre-planned escape route*

5.0 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
Felling Trees Within Fallover Distance of Energized Lines	Flowchart	A high level and mid level flow chart for this procedure	SOP Online - SOP Bundle: Felling Trees Within Fallover Distance of Energized Lines

6.0 Acronyms, Definitions and Symbols

Acronyms and Abbreviations

HARA - Hazard/Aspect and Risk Assessment

PPE - Personal Protective Equipment

Definitions

N/A

Symbols

N/A

7.0 Policies and Regulatory Requirements

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

Regulatory Requirement(s)

- Saskatchewan Occupational Health and Safety Regulations 1996
  - *Sections 146, 392-396*
  - *Table 22 - Minimum Approach Distances*

Policies

- Hazard/Aspect and Risk Assessment Policy
- Working Alone Policy

Standards

- Deviation from Safe Work Procedure Standard

Other

- Standard Protection Code
- Safety and Environment Rulebook

8.0 References

References
U.T.T - Utility Tree Trimming guidelines