

DANGEROUS TREE CONTROL

INDUSTRY RECOMMENDED

PRACTICE (IRP)

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Disclaimer

This document provides information to assist members of the upstream and mid-stream sectors of the petroleum industry in Canada working in areas where they may encounter dangerous trees. The document is not intended to be all-inclusive, but only as a guide.

Dangerous Tree Control sets out the general conditions for recognizing actions necessary when working in the vicinity of a dangerous tree. Every effort has been made to ensure the reliability of the information contained in this document and to avoid errors and omissions.

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PREFACE

PURPOSE

The purpose of this document is to ensure the safety of petroleum industry workers engaged in activities near dangerous trees. This purpose will be achieved by increasing worker, employer, prime contractor and facility owner awareness of the hazards, legislated requirements and industry work standards associated with dangerous trees.

Key areas of concern with regard to dangerous trees include but are not limited to:

- Camp sites
- Facilities
- Helicopter drop zones
- Pipelines
- Roads
- Seismic lines
- Well sites

SCOPE

This document is intended for application in Canadian petroleum industry activities where dangerous trees may pose a risk to workers. This document contains guidance notes to assist employers, prime contractors, and owners in developing programs that properly identify dangerous trees and minimize the risks associated with such trees.

The information contained herein is intended for use by a full cross-section of workers in the petroleum industry.

Revision History

Edition	Sanction Date	Scheduled Review Date	Remarks/Changes
1	1998		IRP 11 was initially sanctioned and published in 1998.
2	May 2003		IRP 11 was reviewed then sanctioned and published in May 2003.
2	Nov. 2005		IRP 11 was updated with the new Enform logo
3	Nov. 2007	2011	IRP 11 the Enform Safety Council did not see a need for a review of the document. The document was updated with new IRP style guide

Recommended by:

- Alberta Energy and Utilities Board
- Alberta Employment, Immigration and Industry
- Alberta Workers' Compensation Board
- British Columbia Oil and Gas Commission
- British Columbia Workers Compensation Board (WorkSafeBC)
- Canadian Association of Geophysical Contractors
- Canadian Association of Oilwell Drilling Contractors
- Canadian Association of Petroleum Producers
- Canadian Energy Pipeline Association
- Canadian Gas Association
- Enform
- Human Resources Development Canada
- Manitoba Science, Technology, Energy and Mines
- Manitoba Labour
- Manitoba Workers' Compensation Board
- National Energy Board
- Petroleum Service Association of Canada
- Saskatchewan Industry and Resources
- Saskatchewan Labour
- Saskatchewan Workers' Compensation Board
- Small Explorers and Producers Association of Canada
- Workers' Compensation Board, Northwest Territories and Nunavut
- Yukon Workers' Compensation Health and Safety Board

ACKNOWLEDGEMENTS

The 2003 Dangerous Tree Control review committee consisted of representatives from the following associations. Our thanks to the following individuals, their companies, and associations for contributing the time and energy for the completion of this project.

2003 Dangerous Tree Control Review Committee

Name	Company	Organization Represented
Al Chatenay	Schlumberger Geco-Prakla	CAGC
Budd Phillips	British Columbia Workers' Compensation Board	
Dave Berte	Petroleum Industry Training Services	
Dennis Morgan	Morgan Safety Services	
Eric Thompson	Nabors Drilling	CAODC
Gerry Berent	Alberta Workplace Health and Safety	
Jeremy Barlow	Petro Canada	CAGC
Murray Sunstrum	Canadian Safety Council	
Peter Adams	Active Environmental Services	CAGC
Robert Ross	Saskatchewan Labour	
Rod Loewen	British Columbia Workers' Compensation Board	

The original Dangerous Tree Control review committee (1998) consisted of representatives from the following associations and companies.

1998 Dangerous Tree Control review committee

Name	Company	Organization Represented
Al Chatenay	Schlumberger Geco-Prakla	CAGC
Barry Holland	British Columbia Workers' Compensation Board	
Bruce Dunning	Manitoba Industry, Trade and Resources	
Cliff Seibel	Suncor Energy Inc	CAPP
David Rowe	British Columbia Workers' Compensation Board	
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Doug Van Eden	Petroleum Industry Training Services	
Gary Miltenberger	British Columbia Oil and Gas Commission	
Gordon Jones	British Columbia Oil and Gas Commission	
Lawrence Guenette	Alberta Human Resources and Employment	
Peter Adams	Active Environmental Services	CAGC
Robert Ross	Saskatchewan Labour	
Stacey Kelley	Shell Canada Limited	CAPP
Vern Krause	Talisman Energy Inc	CAPP

11.1 REFERENCE / REGULATIONS

If any of the references / regulations below have changed or been amended, the more recent version shall apply.

11.1.1 ENFORM CHAINSAW FALLER COMPETENCY PROGRAM

11.1.2 ALBERTA

General Safety Regulation

[Part 25](#) - Chainsaws

[Part 22](#) - Protection from Falling Objects

[Part 18](#) - Personal Protective Equipment

11.1.3 BRITISH COLUMBIA

Occupational Health and Safety Regulations

[Part 8 – Personal Protective Clothing & Equipment](#)

[8.21 – Leg Protection](#)

[8.24 – High Visibility Apparel](#)

[Part 12 – Tools, Machinery, and Equipment](#)

12.72(1) – Chainsaw Standards

[Part 26 – Forestry Operations](#)

[Wildlife / Danger Tree Assessor’s Course Workbook Revised Sept. 2005](#) and is available on Ministry of Forests website, WDTAC (applicable to all forest – related work activities) – WCB of BC, B.C. Environment, and BC Forestry.

11.1.4 MANITOBA

Forestry, Logging, and Log Hauling Regulation (1988)

Sections 27, 29, and 36

11.1.5 SASKATCHEWAN

[Occupational Health and Safety Regulations \(1996\)](#)

Section 95 - Lower Body Protection

Section 146, Chainsaws

Part XXVIII – Forestry and Mill Operations

11.1.6 YUKON

General Safety Regulations

Personal Protective Equipment (PPE) Sections 5 to 10

Chainsaw Section 4.3

Forestry Operations Sections 11.6 – 11.8

11.2 DEFINITIONS

Dangerous Tree: is any tree that is dangerous to workers because of:

- Location or lean
- Physical damage
- Overhead hazards
- Deterioration of limbs, stem, or root system
- Or any combination of the above

Wildlife Tree is any tree standing dead or alive with special qualities that provide valuable habitat for wildlife.

Whether a tree is valuable as wildlife habitat depends upon:

- The tree's size
- The tree's age
- The trees physical condition
- How many there are
- What kind (species) of tree it is
- Where it is found
- What else is around it

NOTE: In British Columbia, extensive work has been done to examine actions that can be taken with a tree that is a dangerous tree, as well as a wildlife tree (habitat). A multi-stakeholder group has created the "*Wildlife Dangerous Tree Assessors Course*" for this purpose. For further details, <http://www.for.gov.bc.ca/>

Work area is any location where workers carry out their activities and includes but is not limited to: seismic lines, pipelines, leases, camps, wellsites, etc.

11.3 RESPONSIBILITIES

Employers are Responsible for:

- Identifying dangerous trees
- Minimizing risk to workers

Workers are responsible for:

- Assisting their employers in the identification of hazards
- Corresponding minimization of risk

These responsibilities include a continuous reassessment of the workplace for dangerous trees. A full reassessment of the work area should be conducted after events that affect the forest, such as:

- Major seasonal change
- Fire
- Flood
- Wind storm (see [Section 11.3.1](#))
- Heavy rain
- Heavy snow
- Mud or snow slides.
- Erosion or cutting

For further responsibilities, refer to applicable legislation for the jurisdiction in which the work is being carried out.

11.3.1 WIND SPEED

The following scale can be utilized for assessing wind speed and how it impacts dangerous tree control operations:

Wind Speed (KPH)	Beaufort Scale Description	Impact on Operations
Less than 20 kph	Dust and loose paper raised; small branches moved	Normal Work
20 kph or more	Strong breeze, large branches in motion	Work ceases within 2 tree lengths of trees exempted under Section 11.4.2
40 kph or more	Needles and small branches fly in the air	All hand felling of timber and dangerous tree assessment ceases

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Disturbances

Disturbances that have taken place in the worksite can impact the risks associated with dangerous tree control. Dangerous tree control activities must consider any additional risks when these disturbances have taken place, and adjust operations accordingly. If the worksite has been impacted by any of the activities below, workers must recognize that the risk profile has changed, and adjust their behaviors accordingly.

The following table outlines activities at the worksite which can impact the stability of dangerous trees. These activities can potentially increase the risks of dangerous tree failure and, as such, work in these areas must be adjusted as outlined in the table.

- Caution** Supervisory Personnel need to review the stability of any potential dangerous trees in the area. Should their stability appear suspect, remove the tree or workers.
- Alert:** Activities may significantly impact the stability of dangerous trees in the work area. Qualified personnel must reassess the stability of any dangerous tree adjacent to these work areas.
- Alarm:** Extreme caution, outlines activities cease or are suspended until conditions moderate.

<p>< 40 km/h CAUTION</p>	<p>40-65 km/h ALARM</p>	<p>65+ km/h ALERT</p>
<ul style="list-style-type: none"> • surveying and flagging • cable/geophone layout and pick-up • chain saw cutting of limbs <20 cm dbh • use of light-duty machinery (e.g., weed whips, brush saws) • road travel with heavy vehicles (>5500 kg GVWR) on ballasted and compacted roads • road travel with heavy vehicles (>5500 kg GVWR) on non-ballasted, non-compacted roads • maintenance or construction activities without heavy equipment (e.g., small machines such as "bobcats" or enviro drill rigs) • limbing of steams >20 cm dbh • slashing stems <15 cm dbh) • tree bucking • fire control with hand tools and/or water hoses 	<ul style="list-style-type: none"> • tree falling (any tree >15 cm dbh) • tree clearing using bulldozing equipment/mulchers • ground skidding • mechanical harvesting and forwarding • helicopters (lift <2200 kg) with workers exposed to rotor wash • use of light and intermediate helicopters where workers are exposed to rotor wash (e.g., helipads / drop zones) • mechanical site preparation with heavy machinery (leases, lease roads, pipelines) • maintenance or construction activities with heavy equipment 	<ul style="list-style-type: none"> • tree clearing operations using chain saws, mulchers or bulldozers in structurally damaged stands (e.g. wildlife burns) • blasting • helicopters (lift >2200 kg) with workers exposed to rotor wash • use of medium and heavy helicopters where workers are exposed to rotor wash

NOTE Adapted from the Wildlife Dangerous Tree Assessors Handbook. See <http://www.for.gov.bc.ca/hfp/training/00016/index.htm>

11.4 ACTIONS

11.4.1 FELLING ON SLOPES

When felling on slopes slippery, wet, or icy conditions can greatly affect the risk to workers. Trees felled in these conditions may slide faster and farther than expected.

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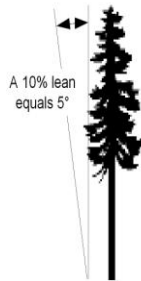
Where slopes are in excess of 30%, the distance must be sufficiently increased to minimize the risk.

Trees defined in the bullets below must be felled unless:

- It meets one of the exceptions in [Section 11.4.2](#), or
- Actions are taken to minimize the risk to workers ([Section 11.4.3](#) and [Section 11.4.4](#)).

The following trees must be felled:

- Every dead or dying tree within 1.5 tree lengths of the work area, providing that the downhill slope to the work area does not exceed 30%.
- Any tree within 1.5 tree lengths of the work area that has a weakness or disturbance to the base that is leaning more than 10% towards the work area.



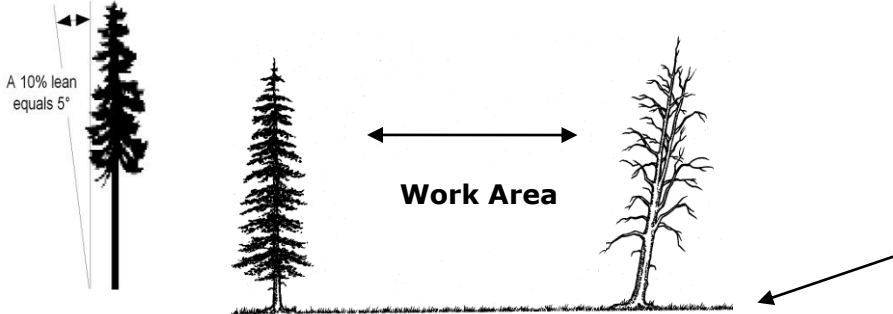
A 10 % lean is the same as 5°

- Any tree within 1.5 tree lengths of the work area which has had 20% or more of its trunk scored by mechanized equipment or which has had more than 50% of its root system damaged by mechanized equipment.
- Any tree within 1.5 tree lengths of the work area that have been significantly weakened by: lightning, deep cracks into the stem, areas of sunken or missing bark (cankers) affecting more than 50% of the tree's trunk circumference, disease or root rot (where more than 50% of the lateral roots are decayed), wind, animals or multiple defects.
- Any tree with a dead top, dead branches or weak branch unions where those tops or branches could fall into the work area.

11.4.2 EXCEPTIONS

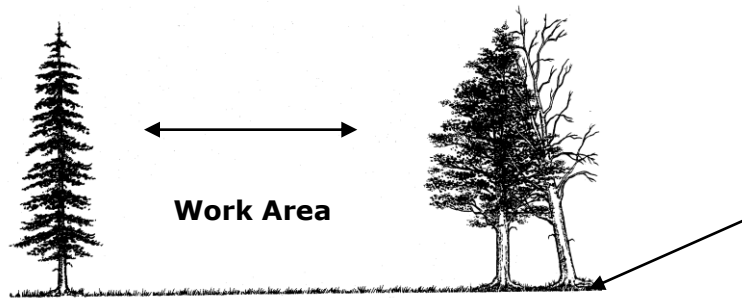
Exceptions to [Section 11.4.1](#) which require no further action to be taken are as follows:

No further action is required if the tree is leaning more than 10% away from the work area.

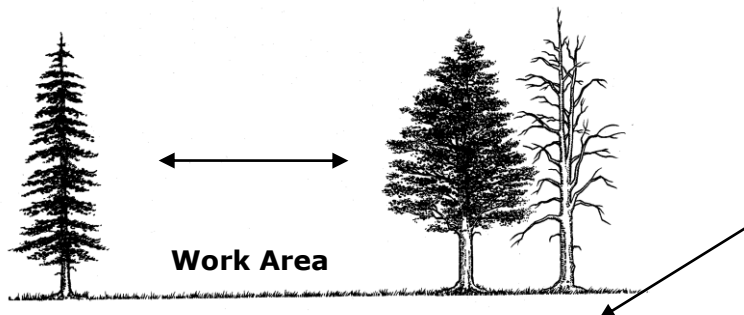


A 10 % lean is the same as 5

No further action is required if the tree is limb-tied in a manner that would prevent the fall of the tree into the work area.



No further action is required if the tree is buffered by green standing timber similar in height that would prevent the clear fall of the tree into the work area.



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No further action is required if the tree is less than 10 centimetres in diameter at the base of the tree, and:

- It is not in the work area
- It is not in the debris/wood berm adjacent to the work area
- It is not overhanging the work area, and
- There is no risk of significant injury to workers passing within 1 tree length of it.

No further action is required if the tree is adjacent to an existing seismic line, and:

- It is not within the seismic line right-of-way
- It is not in the debris/wood berm adjacent to the seismic line
- The tree has definitely not been touched by another tree
- It is not leaning toward the line; regardless of the angle
- No work is permitted within 2 tree lengths of that tree when the wind exceeds 20 kph (see [Section 11.3.1](#))
- Adequate safe work procedures are developed for deploying equipment with helicopters.

No further action is required if the tree is deemed safe by qualified field personnel prior to allowing workers not associated with removal operations to enter those areas and is more than one full tree length away from the boundary of the work area on ground that is level or that slopes away from the work area.

11.4.3 EXCEPTIONS

Exceptions to [Section 11.4.1](#) that require alternate actions to falling as described In [Section 11.4.4](#)

Alternative actions to minimize risk can be used if the tree is a significant wildlife tree (i.e., contains a raptor's nest, bear den, etc.) and must be preserved.

Alternative actions to minimize risk can be used if it is deemed to pose an unacceptable level of risk if falling is attempted.

11.4.4 ALTERNATE ACTIONS

Alternate actions to falling include:

Restrict activity/access within two tree lengths of the dangerous tree by:

- Relocating the work area.
- Modifying the work area by clearly identifying the hazardous area via flagging, signage or other means.

- Other actions as deemed appropriate by qualified field personnel.

11.5 TRAINING

The employer must ensure:

- All fallers and buckers hold a valid industry and government recognized chainsaw safety training certificate and employees can demonstrate competency.
- All personnel working in areas where dangerous trees may exist are properly briefed concerning dangerous tree awareness, identification, and supervisory notification procedures

11.6 FALLERS

All fallers associated with dangerous tree removal operations must be experienced and competent dangerous tree fallers.

11.7 SUPERVISION

The supervisor must be familiar with specific dangerous tree falling requirements as they pertain to the current job. It is the supervisor's responsibility to ensure that these procedures and references / regulations are known and adhered to.

A dangerous tree removal crew must always have competent supervision

Prior to working in an area where dangerous trees may exist, all personnel must be given a documented briefing concerning dangerous tree awareness, identification, and supervisory notification procedures.

The dangerous tree removal crew must understand this Industry Recommended Practice, the procedures detailed in chainsaw safety training, and the applicable references / regulations.

11.8 REAFFIRMATION

It is recommended that the Dangerous Tree Control document be reviewed in 2011.

It is appropriate that subsequent reviews should be conducted every five years or more frequently as recommended by the review committee.