

Dangerous Tree Control

Guideline

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The Safety Association for Canada's Upstream Oil and Gas Industry

By industry, for industry



ENDORSEMENT

This document was developed by industry for industry. Enform gratefully acknowledges the support of the endorsing organizations in the development of this document.

- Canadian Association of Geophysical Contractors (CAGC)
- Canadian Association of Oilwell Drilling Contractors (CAODC)
- Canadian Association of Petroleum Producers (CAPP)
- Canadian Energy Pipeline Association (CEPA)
- Explorers and Producers Association of Canada (EPAC)
- Petroleum Services Association of Canada (PSAC)

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Preface

Purpose

The purpose of this document is to provide a framework to aid in ensuring safe working conditions exist for workers conducting upstream oil and gas activities where workers may be at risk of being exposed to dangerous trees. As well, this document will provide strategies and alternatives to exposing workers to the risk of felling dangerous trees while in the workplace. After identifying dangerous trees, either eliminating or controlling them is appropriate for any upstream oil and gas worksite where there are free-standing trees at the boundaries of the worksite, including but not limited to: camp sites, facilities, pipelines, roads, line of sight/seismic lines, aircraft landing zones, and well sites.

How to Use This Guideline

This document is intended for application in Canadian petroleum industry activities where dangerous trees may pose a risk to workers.

Limitations

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 Process

Example statements for this section:

Enform Guidelines are developed by industry for industry. Enform acts as an administrator and publisher.

Each Enform Guideline is reviewed on a three year cycle. Technical issues or changes may prompt a re-evaluation and review of this Enform Guideline in whole or in part. For details on the Enform Guideline creation and revision process, visit the Enform website at www.enform.ca.

Revision History

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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.
3	November 2005		IRP 11 was updated with the new Enform logo.
4	November 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.
5	July 2015		<p>IRP 11 was transitioned into the Enform Guideline format. Extensive revisions were introduced in the process of revision, including publication of the content into three separate modules:</p> <ul style="list-style-type: none"> • Dangerous Tree Control: Guideline • Hazard Identification, Assessment, and Control • Falling Plan Checklist <p>This edition also sought to provide additional clarity with decision-making examples to illustrate respective client and contractor responsibilities. Furthermore, it more clearly addresses the hierarchy of controls in dealing with dangerous tree issues.</p>

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1.0 Legislated Requirements

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

1.1 Oil & Gas Industry Faller Training Standard

Note: Industry has adopted BC Faller Standard:

- See www.worksafebc.com – resources/health-safety/books-guides/
- BC Faller Training Standard Parts 1 and 2 (Updated April 2012):
 - [Part 1](#)
 - [Part 2](#)

1.2 Alberta (OHS Act, Regulation, & Code)

- Prime Contractor Regulations:
 - AB OHS Act s. 1(x), 3
- AB OHS Reg. 62, 2003
- Part 25 – Tools and Equipment
- Part 22 – Protection from Falling Objects
- Part 18 – Personal Protective Equipment

1.3 British Columbia (Workers Compensation Act & OHS Regulation)

- Prime Contractor Regulations:
 - BC WCA s. 106, 118(1,2,3)
- 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 Aug. 2008; available at

Ministry of Forests website, WDTAC (applicable to all forest-related work activities) –
WCB of BC, BC Environment, and BC Forestry

1.4 Manitoba (Workplace Safety and Health Act & Regulations)

- Prime Contractor Regulations:
 - MB WSHA ch. W210, s. 7
- Forestry, Logging, and Log Hauling Regulation (1988)
- Sections 27, 29, and 36

1.5 Saskatchewan (Occupational Health and Safety Regulations)

- Prime Contractor Regulations:
 - SK OHSD
- Section 95 - Lower Body Protection
- Section 146, Chainsaws
- Part XXVIII - Forestry and Mill Operations

1.6 Yukon (Occupational Health and Safety Act & Regulations)

- Prime Contractor Regulations
- Personal Protective Equipment (PPE) Sections 5 to 10
- Chainsaw Section 4.3
- Forestry Operations Sections 11.6 - 11.8

2.0 Roles and Responsibilities

2.1 Prime Contractor

The prime contractor is responsible for ensuring the applicable Occupational Health and Safety Act and Regulations are complied with at the work site by establishing and maintaining a system or process that will ensure compliance with the regulations.

The client or owner is the prime contractor unless the responsibility is assigned, in writing, to another qualified party. As the prime contractor is charged with the overall responsibility for the health and safety of all workers at the worksite, the prime contractor must ensure contractors and employers comply with applicable legislation. Supervisors share the responsibility of complying with legislation in conjunction with any others who may direct workers.

The role of the prime contractor, as it pertains to dangerous tree control, is to initiate the development and implementation of a site-specific falling plan that is communicated to all affected workers at the site. The prime contractor is responsible to plan and design the operation to avoid working in the vicinity of dangerous trees to the greatest extent practicable. Early and proactive engagement with sub-contractors is critical to ensure collaboration in the development of falling plans where stakeholders have unique control over work processes and associated hazards. Where avoidance is not possible, the prime contractor will coordinate dangerous tree control operations using the lowest risk method practicable. If a prime contractor encounters a dangerous tree in the course of operations, the following are the three options available:

- fall the tree (remove the hazard)
- avoid the hazardous area of the dangerous tree by creating a “no work zone” (hazard avoidance)
- assess the tree, and if it is found to be safe, conduct work in the vicinity of the dangerous tree, within the allowable standards of a Wildlife Danger Tree Assessment

If a dangerous tree must be removed, the prime contractor will decide the safest process of removal. The two recognized approaches for dangerous tree removal are:

- mechanical felling with a properly guarded piece of felling equipment
- manual felling by a properly certified Dangerous Tree Faller

When project planning, the prime contractor should give appropriate consideration to worker safety and environmental sustainability when selecting a means of falling dangerous trees.

2.2 Employers

Employers are responsible to develop a work process that will ensure compliance with this guideline, which should include:

- providing adequate supervision
- ensuring active supervision occurs
- ensuring the level of disturbance created on a project does not unnecessarily expose workers to risk from dangerous trees
- conducting a site-specific hazard assessment to identify all dangers associated with the task of cutting trees
- implementing a hierarchy of controls for dangerous tree elimination or control
- collaborating with prime contractors to develop and implement a site-specific falling plan that is communicated to all affected workers at the site
- ensuring fallers meet, and are following, the requirements of the oil and gas faller training standard
- conducting an in-field competency assessment of all fallers employed at the project
- ensuring all hand falling operations are supervised by Qualified Falling Supervisors, and that supervision of all fallers mitigates the risks associated with hand falling
- ensuring all fallers and buckers hold a valid industry and government recognized chainsaw safety training certificate

2.3 Qualified Falling Supervisors (QFS)

Qualified Falling Supervisors are responsible to:

- participate in the site hazard assessment, and in the development of the site-specific falling plan
- ensure safe work procedures are utilized on site
- ensure a hierarchy of controls is implemented for each hazard identified in the hazard assessment
- ensure the competency of every faller on site has been verified
- communicate the contents of the falling plan to affected workers
- ensure that all fallers are inspected on a frequency appropriate to the risk associated with their work assignments and skill level
- keep records of all inspections conducted, with copies available at the worksite

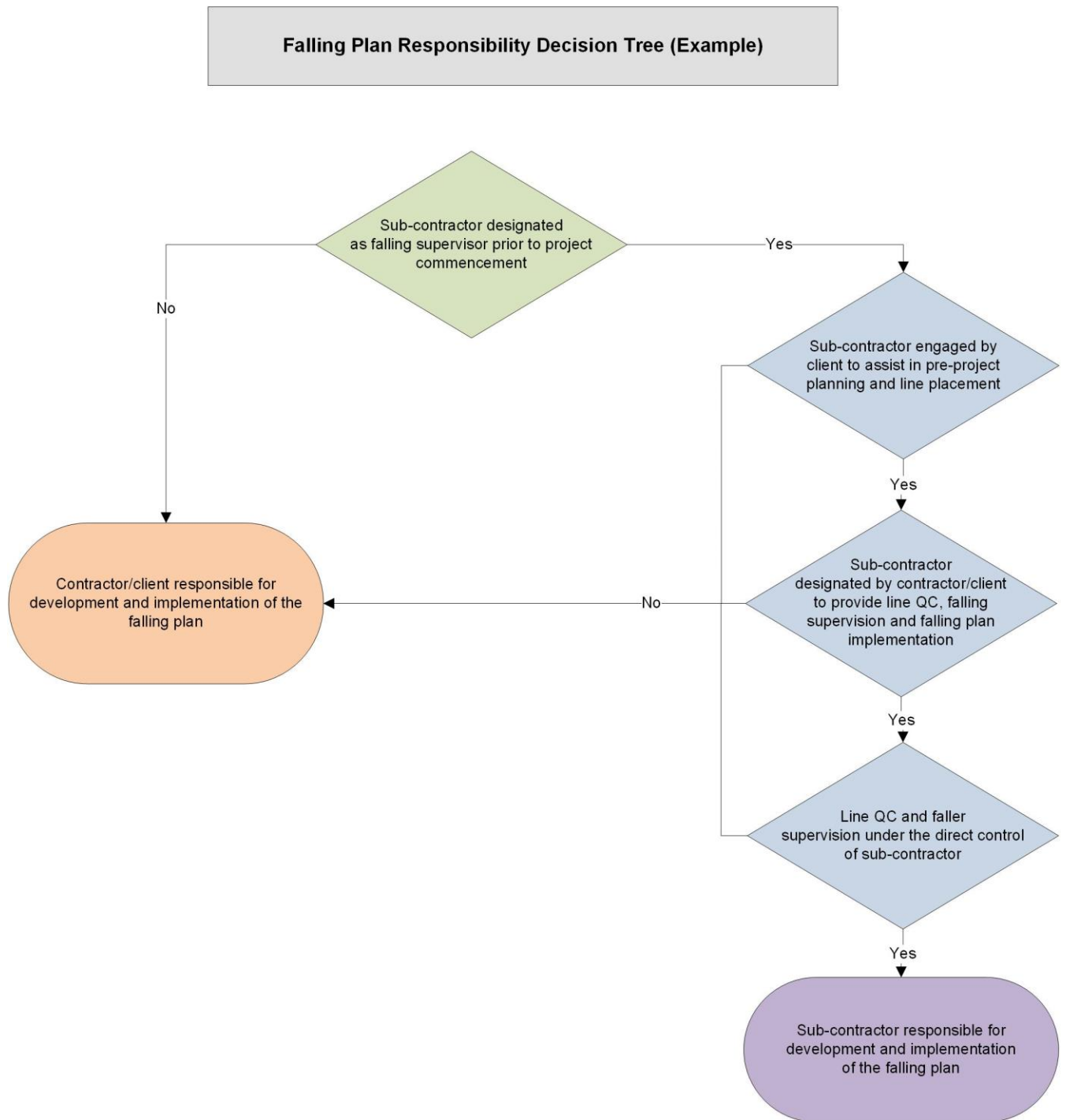
2.4 Workers

Workers are responsible to:

- assist their employers in the identification of hazards, and implementation of hazard controls
- follow safe work procedures
- work in compliance with the dangerous tree guideline and the site-specific falling plan
- perform their work to the level to which they have been trained and certified

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

Although each client/contractor relationship is unique, the following decision tree example may assist organizations to identify and assign elements of the falling plan between client/contractor and clarify responsibilities of each stakeholder.



3.0 Tree Falling Operations in Oil and Gas

The identification and assessment of hazards inherent to dangerous trees requires training and competency that is beyond the scope of this guideline. Should operations require fallers to control dangerous trees, the tasks of hazard identification, hazard assessment, and hazard control need to be carried out in a systematic fashion with supervision by a QFS. Creation and maintenance of a [Falling Plan](#) is required (available under “Resources” at www.enform.ca).

The matter of assessing risk from dangerous trees is a complex process requiring experience and expertise, which includes assessing the forest stand type, age, and condition as they relate to the level of disturbance caused by active operations. The additional factors of wind, rain, and snow load must also be included in any assessment of risk from dangerous trees. Accurate and up-to-date data affecting conditions noted above is required for each particular type of operation. Validating the data is the responsibility of the prime contractor.

3.1 Hazard Identification, Assessment, and Control

Dangerous tree assessment and control must only be undertaken by trained and competent workers. A key element in dangerous tree assessment is understanding and applying the Levels of Disturbance (LOD) criteria to the activities occurring throughout the duration of the project. The overarching goal in dangerous tree assessment is to minimize the risks associated with the unnecessary falling of dangerous trees. Some circumstances will require dangerous tree removal as the most practicable action for worker safety. Where possible dangerous trees should be removed by means other than hand falling.

In BC, the Wildlife Danger Tree Assessors (WDTA) Course for Forest Harvesting and Silviculture provides training for workers assessing dangerous trees in oil and gas worksite scenarios, including travelled roadways. Individuals who have completed BCs WDTA Course are not meant to be fallers; their role is to assess dangerous trees in advance of the fallers.

NOTE: There are two additional modules designed for Wildfire Management and Parks that would not be appropriate for use on Oil and Gas applications.

Current OHS regulation in BC requires an employer to ensure that all dangerous trees within one and one half (1.5) tree lengths of a work area are removed, or are assessed as being safe to work near based upon a WDTA assessment process. The number of potential dangerous trees required to be felled can be markedly reduced by advanced planning, and by employing appropriate imaging and mapping technology. If a tree is deemed safe by a WDTA, no action with respect to tree removal is required. However, there are additional considerations in the application of the BC OHS regulation.

Key considerations:

- Level of Disturbance (LOD)
- alternate actions to tree removal (i.e. avoidance, moving the line)
- exceptions to tree removal (critical habitat trees may require additional planning to maintain the dangerous tree, and avoid any high risk exposure to workers)
- slope (the 1.5 tree length danger zone is extended as the slope increases)
- terrain type
- damaged or weakened trees
- wildlife trees

See Technical Documents: [Hazard Identification, Assessment and Control](#) (available under "Resources" at www.enform.ca)

4.0 Education, Training, and Competency

The employer must ensure:

- all workers conducting work in areas where dangerous trees may exist are conversant with dangerous tree awareness, identification, and supervisory notification procedures
- training meets the requirements of the applicable jurisdictions where the work is being conducted

4.1 Faller Training

- See “Legislated Requirements” (Section 1.0 of this guideline)
- See “Oil and Gas Faller Training Standard” (Section 1.1 of this guideline)
- **NOTE:** Industry has adopted BC Faller Standard:
 - See www.worksafebc.com - Publications/Health and Safety/Forestry
 - BC Faller Training Standard Parts 1 and 2 (Updated April 2012):
 - Part 1: (bc_faller_training_standard_1.pdf)
 - Part 2: (bc_faller_training_standard_2.pdf)

4.2 Job Risk Assessment

Prior to falling a tree, complete the Tree Assessment Procedure:

- recognize the hazard
- evaluate the situation/hazard
- fall the tree (remove the hazard)
- avoid the hazardous area of the dangerous tree by creating a “no work zone” (hazard avoidance)
- assess the tree, and if it is found to be safe, conduct work in the vicinity of the dangerous tree, within the allowable standards of a Wildlife Danger Tree Assessment

If it appears a dangerous tree must be felled, then the prime contractor should make every reasonable and practicable effort to modify the particular aspect of the operation impacting the decision to fell a dangerous tree. In order to eliminate the hazard, either the workplace will be redesigned, or the hazard will be controlled. If the dangerous tree still must be felled but there is a concern that the falling work cannot be done safely, the work should be stopped and concerns should be reported to the supervisor of the operation.

5.0 Falling Plan

Communication, planning, and ongoing responsiveness are keys to a successful Falling Plan. The goal of a Falling Plan is to reduce the dangerous levels of high-risk tasks to ensure the safety of workers. The Falling Plan will define the responsibilities of individuals on site to ensure conformance with the Dangerous Tree Guideline. The Falling Plan shall be completed prior to onsite activities to identify potential dangers. The Falling Plan will ensure adequate job preparation, and may be supplemented and supported by existing Safe Operating Procedures and additional guidelines. Continuous reassessment of the workplace and the hazards of dangerous trees is a key component of ensuring compliance. As a minimum, reassessment of the work area should be conducted after events that affect the forest. To ensure continual safety of workers, the Falling Plan should be continually updated. All activities of the forestry operation are to be planned and conducted in a manner that adheres to Safe Work Practices.

The Falling Plan must:

- include identification of any work activities or conditions at the workplace where there is a known risk, or reasonably foreseeable risk to workers
- be completed before work commences on the relevant activity
- be documented at the time of planning

If, after any planning referred to above, there is a change in the workplace circumstances, including the work activities and the conditions of the workplace, and the change poses or creates a known risk, or reasonably foreseeable risk, to workers that was not previously identified, then:

- the Falling Plan must be amended to identify and address the risk and provide for the health and safety of the workers at the workplace
- the amendment must be documented as soon as is practicable.

Please refer to [Falling Plan Checklist](#) available under resources at www.enform.ca. The Falling Plan Checklist has been designed to identify the act, code and regulation that must be adhered to, as well as to provide a checklist to identify requirements that would be applicable to site work area and activities. The Falling Plan Checklist is provided as a framework to develop a Falling Plan that is applicable to the site conditions. On the face page of the Checklist, there is a provision for the user(s) to amend, delete, and change sections of the Falling Plan, as there is an ongoing process for planning and hazard recognition throughout the project. It is understood and expected that the Falling Plan will be reviewed and revised throughout the length of the project, as dictated by changes in site conditions.

6.0 Definitions

6.1 Active Supervision

Active Supervision is defined as providing a physical presence in the work area at intervals suitable to the risks at hand, and to be physically available to give additional guidance as needed. Active Supervision includes taking all reasonable care to prevent the occurrence of an incident or event. Active Supervision includes providing information, instruction, training, supervision, verification of knowledge, and correction of all known hazards.

A designated, competent Qualified Falling Supervisor (QFS) must be assigned to all falling/bucking operations. Additionally, operations involving dangerous tree control may require a higher degree of supervision. It is acceptable for one QFS to be assigned to multiple falling crews, but where the risk to workers is very high, ratios of one QFS per falling crew may be required.

6.2 Buckers

Certified chainsaw operators capable of cutting trees on the ground, and restricted to falling trees under four (4) inches in diameter at breast height (dbh).

6.3 Dangerous Tree Assessor

A person who has completed a Wildlife Danger Tree Assessors (WDTA) Course acceptable to regulators, can complete a risk assessment, and can make recommendations for managing dangerous trees.

6.4 Dangerous Trees

A 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
- “replantation” as a result of mechanical operations
- any combination of the above

6.5 Employer

Any person, business, or organization that employs people in or about an industry, through either a hiring contract, or an apprenticeship contract. The contract can be written, oral, expressed, or implied, as identified by provincial legislation, regulations, and code.

6.6 Fallers

Certified chainsaw operators capable of falling trees over four (4) inches in diameter at breast height (dbh).

6.7 Falling Plan

Refer to Section 5.0 of this guideline.

6.8 Level of Disturbance – LOD

In addition to wind, disturbances that have taken place in the worksite can impact the level of risk presented by dangerous trees. Various types of disturbances that may increase the risk presented by potentially dangerous trees are outlined and classified in [Hazard Identification, Assessment and Control](#) according to the equivalent risk presented by wind (available under “Resources” at www.enform.ca). The cumulative effect of both wind and disturbance should be considered when identifying, assessing, and controlling dangerous tree hazards.

6.9 Prime Contractor

Refer to Section 2.1 of this guideline.

6.10 Qualified Falling Supervisor – QFS

A person who has training and/or experience in the recognition, evaluation and control of hazards associated with falling operations, and is assigned overall responsibility for administration of the falling activities. The QFS is required to ensure competency checks are completed on each member of the falling crew.

6.11 Safe Work Procedure

Provides specific, documented, step-by-step information to workers, recognized as the most effective approach to minimize injuries, incidents, and other negative outcomes.

6.12 Supervisor

A person who instructs, directs and controls workers in the performance of their duties.

(See BC OHSR 1.1)

6.13 Terrain Types

Please refer to the CAGC Terrain Assessment Guideline.

6.14 Wildlife Trees

A 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
- age
- physical condition
- proximity to other wildlife trees
- species
- location
- environment

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 Danger Tree Assessors Course" for this purpose. For further details, go to: <http://www.for.gov.bc.ca/>.

6.15 Work Area

The work area is any upstream oil and gas worksite where there are free-standing trees at the boundaries of the worksite, including but not limited to: camp sites, leases, facilities, pipelines, roads, line of sight/seismic lines, aircraft landing zones, and well sites.

6.16 Worker

Any person who is in a contract of service or apprenticeship, written or oral expressed or implied.

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