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BC Forest Safety

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Feedback is welcome and may be sent to training@bcforestsafe.org.

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Unit Introduction

What you will learn in this unit

By the end of this unit, you will be able to demonstrate knowledge of:

- Recognize, evaluate, and control hazards related to road building
- Risk

Section 1080-01: Recognize, Evaluate, and Control Hazards

What you will learn in this section

- 1.1 Hazard process
- 1.2 Overhead hazards
- 1.3 Ground hazards
- 1.4 Tree and log hazards
- 1.5 Poor planning hazards
- 1.6 Phase congestion hazards

Key Point 1.1: Hazard Process

The REC Process

When working outdoors on resource roads you will need to continuously recognize the hazards, evaluate the level of risk, then control the hazards. It's called the REC process and it will help you:

- Stay on top of changing hazards
- Remove the element of surprise
- Adjust appropriately to added risk

Failure to recognize, evaluate, and control hazards can contribute to fatalities and serious injuries.

The REC process is a hazard assessment process that can be used to help safely address upset conditions and prevent incidents from occurring. The REC process has three steps:

1. Recognize the hazard
2. Evaluate the situation or hazard
3. Control the hazard

The REC Process

The R-E-C process has three steps:

- 1 Recognize the hazard
- 2 Evaluate the situation/hazard
- 3 Control the hazard





— Recognize the Hazard

To help you recognize the potential hazards of any given situation, ask the following questions:

- What might pose a risk of injury to me or other workers?
- What hazards might my work environment create?



— Evaluate the Situation or Hazard

Use your experience and knowledge, and that of others, to make a sound decision on how to proceed, based on the hazard.

Get qualified assistance if needed. Never feel as though you have to make the decision all on your own.

Remember there is strength in numbers. Learning from your co-worker's knowledge and experience can prevent a serious injury or fatality.



— Control the Hazard

The best way to control a hazard is always to avoid or eliminate it. If this isn't possible, you can minimize the risk with safe work practices, including the following:

- Take the time to do an accurate assessment of the situation
- Take the time to take extra steps or precautions
- Use site-specific procedures
- Use proper personal protective equipment
- Use proper body positions
- Use your tools in a safe way



Reference WorkSafeBC

Review the WorkSafeBC links to health and safety information and resources for work in mechanical harvesting, yarding and skidding.

<https://www.worksafebc.com/en/health-safety/industries/forestry/types/mechanical-harvesting-yarding-skidding>

When you are finished, continue in this section.

Recognize, Evaluate, and Control of Hazard Process—Self-Quiz

1. What does REC stand for?

- ☐ Recognize, Evaluate, Control
- ☐ Review, Engage, Control
- ☐ Recognize, Engage, Capture



Now check your answers on the next page.

Recognize, Evaluate, and Control of Hazard Process— Self-Quiz Answers

1. What does REC stand for?

Answer: **Recognize, Evaluate, Control**

Key Point 1.2: Overhead Hazards



Powerline Right of Way

You should be aware of the following overhead hazards when working on a road building site:

- Power lines - **Look up**, and take every precaution to identify and avoid overhead lines. Fatalities may occur when heavy equipment or its load contacts an overhead power line.
- An operator's own equipment can create an overhead hazard if the boom is left in the up position or attachments or loads are elevated
- Landslides
- Trees falling as a result of damaged roots, decay or wind
- Roadside debris
- Rocks, falling debris

Cranes

Cranes are often used in forestry when installing bridges, removing bridges, and at log sorting sites. The cranes at log sorts are used to re-load the log truck trailers back into the truck for the trip back to the logging area.

Cranes are also used by crews and mechanics while working on forestry equipment in the field and in the shop because the components are so heavy. Cranes are also used to load logs at

sawmills, and bundles of logs onto ships for transporting to mills or exporting.

Hazards include improper inspections, using the crane before it has been inspected, being struck by an overhead load, or being caught within the crane's swing radius.



Video 4:10

WorkSafeBC

Review Mobile Crane Failures: Why Maintenance and Inspections Are Critical This video provides an overview of cranes maintenance requirements.

<https://www.worksafebc.com/en/resources/health-safety/slide-shows/mobile-crane-failures-why-maintenance-and-inspections-are-critical?lang=en>

When you are finished, continue in this section.

Powerlines

Review the following safety alert for advice on working safely near powerlines.



Powerline Right of Way



Reference

BC Forest Safety

Read Safety Alert: Working Safely Around Power Lines

<http://www.bcforestsafety.org/node/2845>

When you are finished, continue in this section.

Incidents in BC's forest industry, in which trees being felled have contacted energized transmission lines, have led to the creation of guidance documents from BC Hydro.



Reference

BC Forest Safety

Read Safety Alert: Are you logging near power lines?

<https://www.bcforestsafe.org/node/3009>

When you are finished, continue in this section.

The following video shows a situation of a crane making contact with a high voltage power line with tragic results.



Video 1:50

WorkSafeBC and BC Hydro

Electrical Safety: Crane Truck Contact

<https://youtu.be/OQ1iJeWBuxs>

When you are finished, continue in this section.

REC Process Overhead Hazards—Self-Quiz

1. Which of the following overhead hazards can also be a ground hazard?
 - ☐ A load being carried by a crane
 - ☐ Heavy equipment with boom left up
 - ☐ Power lines
 - ☐ Danger trees
2. What is the minimum distance that equipment has to stay away from powerlines?
 - ☐ 3 m
 - ☐ 6 m
 - ☐ 10 m
 - ☐ It depends on the voltage of the powerline



Now check your answers on the next page.

REC Process Overhead Hazards—Self-Quiz Answers

1. Which of the following overhead hazards can also be a ground hazard?

Answer: **Power lines**

2. What is the minimum distance that equipment has to stay away from powerlines?

Answer: **It depends on the voltage of the powerline**

Key Point 1.3: Ground Hazards



Debris including logs and rocks that could fall onto the site below

You should be aware of the following ground hazards:

- Roadside debris
- Rock drilling and blasting
- Other types of ground hazards

Roadside debris

One type of ground hazard that can occur around a forestry road building site is roadside debris that has accumulated during the road building phase.

This hazard is especially problematic when different groups, or phases, have been working simultaneously and there is a lack of communication among the different phases.

The following video discusses 7 recommendations that have been developed by the Coast Harvesting Advisory Group (CHAG) for preventing hazardous roadside debris.

The 7 recommendations outlined in this video are:

- Supervisors collaborate first
- Road centerline changes are discussed
- Fallers buck right-of-way timber
- Right-of-way wood loaded out prior to falling the setting
- Hazard reports are shared
- Supervisors train workers
- Supervisors evaluate roadside debris



Video 7:55

YouTube—BC Forest Safety Council
Hazardous Roadside Debris

<https://www.youtube.com/watch?v=2rANydlx-aA>

When you are finished, continue in this section.



Learning Point

One of the recommendations for preventing roadside debris is that *“all phases should provide hazard documentation to the following phase.”*

Rock drilling and blasting

Drilling and blasting are the controlled use of explosives and other methods to break rock for excavation. Blasting increases the hazard of slope instability.



Blasting at a rock quarry

Vibration can be a problem in unusually wet soil conditions and may induce falling rocks and overbreak (caving in of material near the edge of an excavation).

Flyrock is the excessive throw of rocks being blasted which can be caused by over-confinement. Over-confinement of the rock at any point within a blast may lead to poor fragmentation and cause flyrock. Hazards include rocks embedded in trees and rocks hung up on slopes.

Blasting signals

Signals are used during the blasting process:

- 12 short whistle signals must be sounded at 1 second intervals prior to the blast
- A wait time of 2 minutes is required before blast proceeds
 - The exception is that 2 minutes is *not required* in congested areas if alternative warning procedures are developed and have been accepted by WorkSafeBC.
- One prolonged whistle signal of 5 seconds must be sounded to signal that permission has been granted to return to the blasting area



Reference

[OHS Regulations – Part 21 – G21.69\(1\)](#)

Blasting Signals Section

<https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-21>

When you are finished, continue in this section.

Blasting safety

The following are WorkSafeBC blasting safety recommendations:

- Blast must be adequately guarded to ensure danger area is clear of workers and other people.
- Use adequate cover to control blast and contain flyrock.
- Use spotters to keep people and traffic from entering the blast area.
- Properly dispose of empty explosive containers.



Video 1:28

Click on the link below to view a video about a flyrock incident:

<https://www.youtube.com/watch?v=SqNHgzF7oCI>

When you are finished, continue in this section.

Other types of ground hazards

- Buried utilities like natural gas or powerlines
- Karst terrain are sinkholes caused by limestone erosion that creates unstable ground in logging area
- Swampy terrain
- Steep and unstable terrain that could lead to landslides
 - Locations should be noted in logging plan
- Ice on ground can cause slips and falls. The following safety alert describes a situation where a truck driver slipped and fell on ice around trailer loader



Reference

BC Forest Safety

Read Safety Alert: Ground Hazard – snow and ice

<https://www.bcforestsafe.org/node/3076>

When you are finished, continue in this section.

REC Process Ground Hazards—Self-Quiz

1. The accumulation of roadside debris is dangerous because:

- ☐ The road alignment is changed
- ☐ It creates poor road conditions for truck drivers
- ☐ It increases the chance of flyrock incidents
- ☐ Unstable rocks, stumps, or logs may roll down onto workers below



Now check your answers on the next page.

REC Process Ground Hazards—Self-Quiz Answers

1. The accumulation of roadside debris is dangerous because:

- ☐ Answer: **Unstable rocks, stumps, or logs may roll down onto workers below**

Key Point 1.4: Tree and Log Hazards

Dangerous trees

Dangerous trees have specific problems or features associated with them that create an overhead hazard. Forestry work areas must always be assessed for the presence of danger trees and other hazards.



Example of a Dangerous Tree

For an overview of how to recognize and remove different types of danger trees, watch the following video. Here, dangerous tree specialist, Dean McGeough, provides an overview of how to recognize, assess and mark these trees.

The main points covered in this video are:

- Rotting root systems
- Hollow trunks
- Excessive sap
- Excessive lean
- Physical damage
- Deterioration of limbs, stem or root system



Video 7:36

YouTube—SAFER.ca
Danger Tree Assessment

<https://www.youtube.com/watch?v=hZX52D49QBg>

When you are finished, continue in this section.

Removing slash and debris

The following resource includes information on the proper method for removing or scattering slash and debris.



Reference

Government of BC

[Forest Road Engineering Guidebook \(PDF\) pages 64-71](https://www.for.gov.bc.ca/ftp/hfp/external/!publish/FPC_archive/old_web_site/contents/fpc/fpcguide/Road/FRE.pdf)

https://www.for.gov.bc.ca/ftp/hfp/external/!publish/FPC_archive/old_web_site/contents/fpc/fpcguide/Road/FRE.pdf

When you are finished, continue in this section.

Note: A professional Forester is required to create a slash and debris management plan for harvesting operations. This plan addresses the mitigation of fire hazards and may include piling and burning or scattering of slash that is a certain size, among other items.

Slash and debris must be disposed of by burning, burying, scattering, or end-hauling. Disposal sites must:

- Be located on stable terrain to support the resulting pile of debris
- Not fall into or block a stream, roadside ditch, or culvert inlet
- Have little or no impact on other forest resource values
- Be consistent with the Professional Foresters debris management plan for the site
- Not create or contribute to an increased wildfire hazard on the site

Scattering of debris can be done where sidecasting of debris will not increase the likelihood of landslides and where fire and pest hazards are low and aesthetic concerns are not a concern

Tree and log hazards specific to road work

The following two paragraphs describe the requirements for roads and road maintenance in Part 26 of the OHS regulations.

Roadside hazards section OHS Regulation (26.82)

- (1) Dangerous trees, loose rocks, stumps, or other unstable materials that are hazardous to road users must be removed from roadsides.
- (2) Brush, foliage or debris which prevents an adequate view at roadway intersections or on sharp curves must be cleared and precautions must be taken to control the hazards created by limited sight distance.
- (3) Warning signs and road km markers that alert drivers of hazards ahead must be posted and properly maintained.



Reference

OHS Regulations – 26.82

Roadside Hazards

When you are finished, continue in this section.

REC Tree and Log Hazards— Self-Quiz

1. It is possible to turn a normal tree into a danger tree by driving heavy equipment over its root system.
 - ☐ True
 - ☐ False
 2. Which one of the following points indicates that a tree is dangerous?
 - ☐ Root rot or disturbed/excavated roots
 - ☐ A dead top or large dead limbs
 - ☐ Hollowed out trunk
 - ☐ High lean angle (especially if lean is towards work site)
 - ☐ All of these answers
-



Now check your answers on the next page.

REC Tree and Log Hazards— Self-Quiz Answers

1. It is possible to turn a normal tree into a danger tree by driving heavy equipment over its root system.

Answer: **True**

2. Which one of the following points indicates that a tree is dangerous?

Answer: **All of these answers**

Key Point 1.5: Poor Planning Hazards

Proper planning and communication between different work phases, including where workers and heavy equipment are located at any point in time, are essential to reducing risks.

Communication is very important for controlling hazards and should be an essential part of the planning process.

It is also important to select an appropriate hazard control for the work being completed. The following video discusses:

- How to select an appropriate hazard control
- Controlling a hazard means doing something that reduces either how serious the injury or damage might be or reducing the likelihood of it happening
- The best control is one that works all the time



Video 2:58

Trucking Safety Council of BC

How to Select an Appropriate Hazard Control

<https://safetydriven.ca/resource/hazard-identification-3/>

When you are finished, continue in this section.

The following video discusses important aspects of planning from a supervisor perspective:

- 1:23 – “planning is second to none”
- Safety concerns include steep slopes, rock bluffs, blow down patches, danger trees, and other hazards
 - Assessing the work site for these types of hazards is part of the planning process
- Be proactive and involve others in pre-work meetings and planning stages



Video 4:03

YouTube—BC Forest Safety

Supervisor Training - Planning

<https://www.youtube.com/watch?v=xZl4YB6c4RM>

When you are finished, continue in this section.

REC Process Poor Planning Hazards—Self-Quiz

1. Which of these statements about hazards and controls is true?

- ☐ The best hazard control is the one that works all the time.
- ☐ The best control is always personal protective equipment (PPE).
- ☐ The best control is always following safe work procedures (SWP).
- ☐ Hazard controls are electronic controls used in heavy equipment to improve safety.



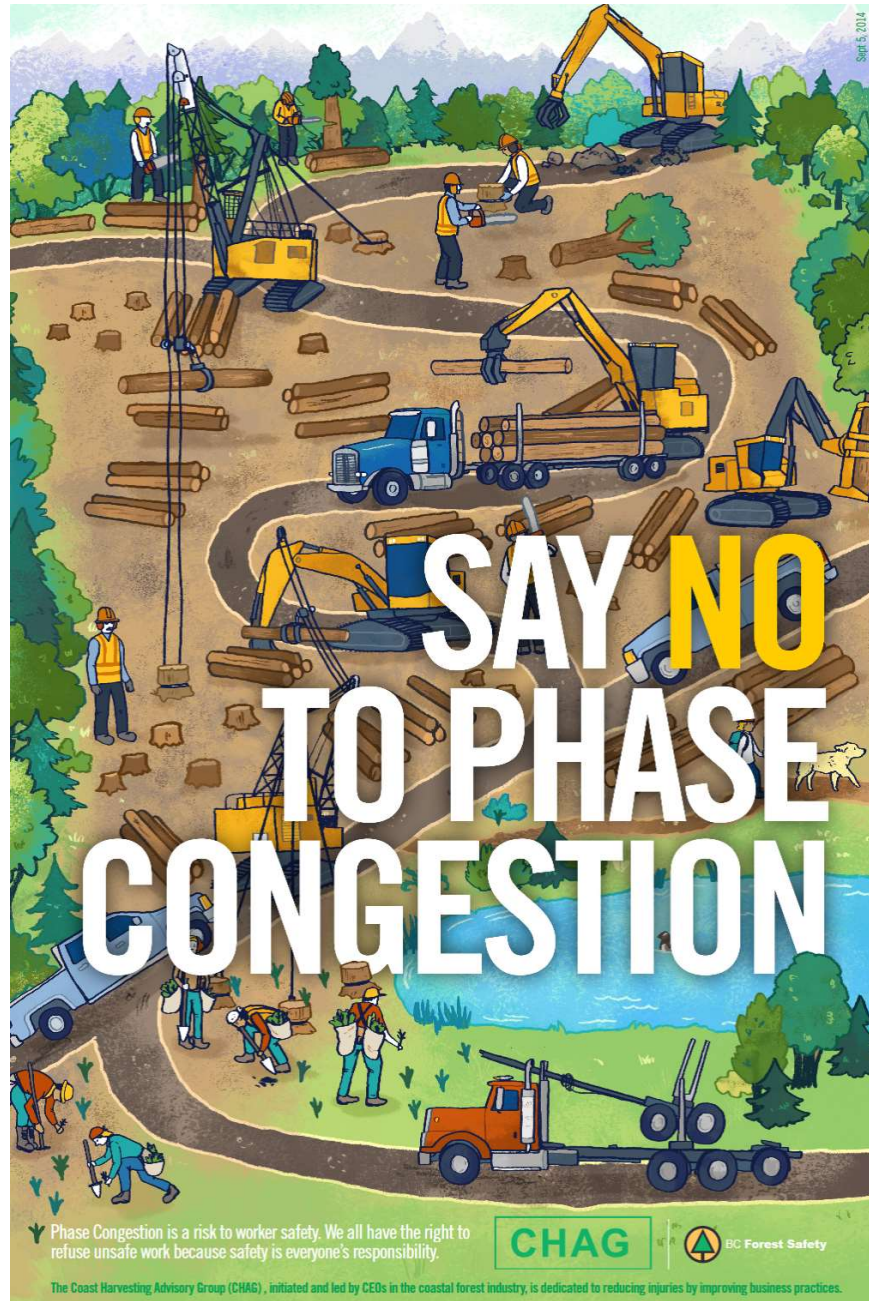
Now check your answers on the next page.

REC Process Poor Planning Hazards—Self-Quiz Answers

1. Which of these statements about hazards and controls is true??

Answer: **The best hazard control is the one that works all the time.**

Key Point 1.6: Phase Congestion Hazards



Phase Congestion resource from CHAG and BCFSC

Please watch the following BC Forest Safety Phase Congestion video. This video outlines:

- How important planning and good communication are for efficiency and preventing incidents
- The importance of pre-work and tailgate meetings are discussed
- The process of “stacking” and the importance of communication are discussed (4:23 – 4:55 and 6:36 – 7:00)
- A summary is provided at 7:01 minutes



Video 7:27

YouTube—BC Forest Safety Phase Congestion

<https://www.youtube.com/watch?v=1Ux13XTRSKU>

When you are finished, continue in this section.

Phase Integration

Phase integration refers to a situation where different phases are organized to operate simultaneously in a worksite as a single "integrated" phase.

Phase integration, while creating efficiencies, increases the complexity of the worksite and requires extra planning and awareness to ensure safety is maintained and desired efficiencies are actually achieved.”

Phase Congestion

Phase congestion refers to phases that are unsuccessfully or poorly integrated. When phase congestion occurs, it can result in conflicting demands of different phases having a negative impact on operations. These negative impacts can create and increase both operational and safety risks.

Phase congestion in this context, means any situation where different logging phases, which are integrated together and operating simultaneously in a worksite, become bunched up, overcrowded, or jammed (aka congested) in a manner which compromises the safe and efficient operation of the work being performed.

Stacking

Stacking describes a scenario where phases are physically stacked on a slope. Stacking could refer to phases which are integrated, or phases which are not integrated. Stacking could even refer to the same phase where work is being performed in two locations on the same slope.

Click the link below to read a WorkSafeBC investigation report summary concerning a skidder operator who was fatally struck by a tree:

<https://www.worksafebc.com/en/resources/health-safety/incident-investigation-report-summaries/worker-forestry-operation-fatally-struck-tree?lang=en>

Stacking creates significant safety hazards and phase planning should strive to prevent any kind of stacking which creates safety risks.



Reference

BC Forest Safety

Read Safety Alert: Phase Congestion - CHAG

<https://www.bcforestsafe.org/node/2615>



Reference

BC Forest Safety

Phase Congestion Resource Package

<https://www.bcforestsafe.org/node/3109>



An interactive online phase congestion training course is available from BC Forest Safety at the link below:

<http://www.bcforestsafe.org/node/3558>

Completion of the course is not required as part of the Forest Worker Essentials training program, but is recommended as additional training.

REC Process Phase Congestion Hazards—Self- Quiz

1. True or False? Stacking is a type of phase congestion where an operation is taking place above another and there is a risk of logs, rocks or debris rolling down onto other workers.
 - ☐ True
 - ☐ False
2. What is phase congestion?
 - ☐ When too much electricity flows through a powerline
 - ☐ Occurs when one logging phase is too close to another and this causes problems
 - ☐ When logs get backed up in a sawmill
 - ☐ None of these answers
3. Which of the following indicates that phase congestion may be starting to occur?
 - ☐ Bottlenecks when trying to get logs out of the worksite (for example, log trucks are backed up on the road waiting for loading)
 - ☐ Logging and hauling productivity are lower than expected for the day and rushing is starting to occur
 - ☐ Workers start taking unnecessary risks at the worksite in order to maintain productivity needed for the day
 - ☐ A feller buncher and manual tree faller are working together in same area, and they must wait for each other to move a safe distance away before resuming work.
 - ☐ All of these answers



Now check your answers on the next page.

REC Process Phase Congestion Hazards—Self- Quiz Answers

1. True or False? Stacking is a type of phase congestion where an operation is taking place above another and there is a risk of logs, rocks or debris rolling down onto other workers.

Answer: **True**

2. What is phase congestion?

Answer: **Occurs when one logging phase is too close to another and this causes problems**

3. Which of the following indicates that phase congestion is starting to occur?

Answer: **All of these answers**

Section 1080-02: Risk

What you will learn about this section

- 2.1 Evaluating long term and general risks including frequency and probability
- 2.2 Evaluating immediate risks including frequency and probability
- 2.3 How change or unexpected events affects risk level

Key Point 2.1: Managing Risks

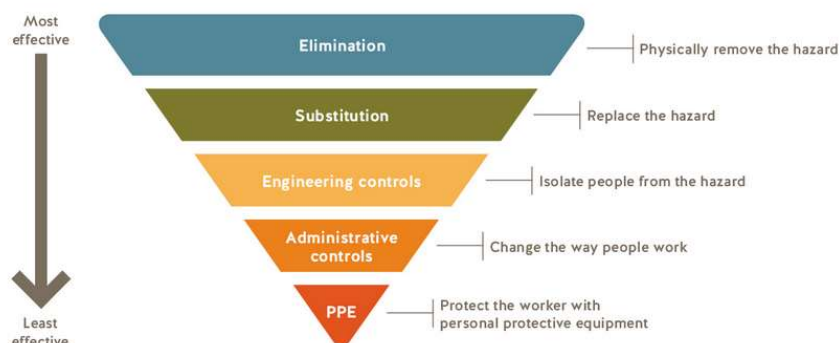
It is important to evaluate the long term and general risks of hazardous events, and to take steps to help prevent or reduce them from occurring on a construction site.

Controlling risk

When considering how to reduce the risk, there is a certain order you should follow. This is called the hierarchy of controls. It's important to follow the hierarchy, as shown below, rather than start with the easiest control measures.

- 1. Elimination (most effective)
- 2. Substitution
- 3. Engineering
- 4. Administrative
- 5. PPE (least effective)

Hierarchy of controls



Hierarchy of Controls – WorkSafeBC

If you are unable to eliminate a hazard or implement a safer alternative, then engineering controls are your next best option. This will usually involve some sort of physical change often by making alterations to the work environment. Examples include guardrails, barriers, or machine guards.



Reference – WorkSafeBC

Controlling Risks <https://www.worksafebc.com/en/health-safety/create-manage/managing-risk/controlling-risks>

When you are finished, continue in this section.

Managing risk

For example, on a forestry work site, risks can be managed by:

- Keeping the work area free from buildup of bark and other debris
- Controlling dust
- Providing training for every worker in a forestry operation so they can safely perform their duties
- Holding crew safety meetings to inform workers of any known or reasonably foreseeable risks in a new work location and the actions to be taken to eliminate or minimize those risks (OHS Regulation 26.5 - initial safety meetings)
- Removing danger trees or completing a risk assessment by a person who has completed an acceptable training program

Managing Risks—Self-Quiz

1. What is the most effective control according to the hierarchy of controls?
- ☐ Substitution
 - ☐ PPE
 - ☐ Elimination
 - ☐ Administrative control
-



Now check your answers on the next page.

Managing Risks—Self-Quiz

Answers

1. What is the most effective control according to the hierarchy of controls?

Answer: **Elimination**

Key Point 2.2: General Hazards

There are certain hazards that pose immediate risks on a road building construction site. These hazards include situations such as working in confined spaces, working from heights, silica dust, noise, heat or cold stress, and hot or cold surfaces.

Hazards include the following:

- Confined Spaces
- Falls
- Ladders
- Silica
- Noise
- Cold or heat stress
- Cold or hot surfaces

Confined Spaces

Risk

Confined spaces may contain hazardous atmospheres, including not enough oxygen, toxic air, or an explosive atmosphere. There may also be physical hazards that may result, for example, in workers falling, being crushed or buried, or drowning.

How to reduce risk

- Post warning signs and secure entry
- Determine the hazard for each space
- Communicate with workers
- For more information about confined spaces, refer to:



Reference – WorkSafeBC

Confined Spaces <https://www.worksafebc.com/en/health-safety/hazards-exposures/confined-spaces>

When you are finished, continue in this section.



Video 3:25

YouTube—WorkSafeBC

Confined Spaces: Safe Yesterday, Deadly Today

<https://www.youtube.com/watch?v=rUM7tnYcOjQ&list=PLUyWkHwckhS5Xtr8ZZbqjZXdgKuiTH9jc&index=64&t=0s>

When you are finished, continue in this section.

Falls

Risk

- Falling from a height leading to injury or death



Worksite with fall protection

How to reduce risk

- Install guardrails
- Implement a fall restraint
- Implement a fall arrest system
- For more information about falls, refer to:



Reference – WorkSafeBC

Falls from Elevation

<https://www.worksafebc.com/en/health-safety/hazards-exposures/falls-from-elevation>

When you are finished, continue in this section.



Reference

BC Forest Safety

The link below presents a safety alert related to falling hazards:

https://www.bcforestsafe.org/files/Safety_Alert_Interfor-Coastal_BC-Grapple_Operator_Falls_From_Machine-1-26-2019.pdf



Video 4:33

YouTube—FPInnovations

Safely Entering and Exiting Forest Industry Machines

<https://youtu.be/aJY7XuuT3u0>

When you are finished, continue in this section.

Ladders

Risk

- Falling off ladder; ladder fails



How to reduce risk

- Risk assessment checklist for ladder safety
- Evaluate all hazards associated with the environment before choosing a ladder to work with



Reference - WorkSafeBC

Click the link to download a risk assessment checklist for ladder safety

<https://www.worksafebc.com/en/resources/health-safety/checklist/risk-assessment-checklist-for-ladder-safety?lang=en>

When you are finished, continue in this section.

Silica

Risk

- Often created by rock drilling operations
- Respiratory condition and other illness

How to reduce risk

- Eliminate the source of exposure
- Look at other risk controls



[Rock drill creating dust containing silica](#)



Reference - WorkSafeBC

For more information about silica, refer to:

<https://www.worksafebc.com/en/health-safety/hazards-exposures/silica>

When you are finished, continue in this section.

Noise

Risk

- Hearing loss

How to reduce risk

- Wear hearing protection
- For more information about noise, refer to:



Worker wearing appropriate hearing protection



Reference - WorkSafeBC

Noise

<https://www.worksafebc.com/en/health-safety/hazards-exposures/noise>

When you are finished, continue in this section.

Cold or Heat Stress

Risk

- Hypothermia and heat stroke

How to reduce risk

- Eliminate the source of exposure
- Be aware of the stages of hypothermia and heat stroke



Reference - WorkSafeBC

For more information about cold or heat stress, refer to:
<https://www.worksafebc.com/en/health-safety/hazards-exposures/cold-stress>

When you are finished, continue in this section.

Cold or Hot Surfaces

Risk

- Burns to skin (from cold or heat)



How to reduce risk

- Be aware of surfaces and parts that can get hot or cold (such as radiator fluid)

General Hazards—Self-Quiz

1. Nothing can be done to control risks, instead they just have to be avoided.
- ☐ True
- ☐ False
-



Now check your answers on the next page.

General Risks—Self-Quiz

Answers

1. Nothing can be done to control risks, instead they just have to be avoided.

Answer: **False**

Key Point 2.3: How Change or Unexpected Events Affects Risk Level

Upset conditions are interruptions to the regular running of the work process, equipment, or other planned activity. They can affect the level of risk. Examples of upset conditions include:

- A breakdown occurs requiring unscheduled maintenance
- An unidentified hazard is encountered
- Anything that distracts you from the task at hand

Upset conditions greatly increase the risk of harm or injury while doing your work. Incident reviews suggest that you are up to 35 times more likely to be injured while working during an upset condition than during normal operating conditions.

A process called RADAR has been developed to respond to upset conditions, and reduce the risks involved when these types of conditions occur.

RADAR stands for:

- **R**ecognize the risk
- **A**ssess the situation
- **D**evelop a safe solution
- **A**ct safely to fix the problem
- **R**eport and record the upset condition



Reference

BC Forest Safety

This website provides information on the RADAR process.

http://www.bcforestsafety.org/Introduction_to_RADAR

When you are finished, continue in this section.

This video discusses the uncertainty that can arise from tree falling activities.



Video 4:21

YouTube—SAFER.ca

Unexpected Events

<https://www.youtube.com/watch?v=0Vh9Qkx-A7U>

When you are finished, continue in this section.

Change and Unexpected Events—Self-Quiz

1. Upset conditions include the following:

- ☐ Frustrated or tired workers
- ☐ Sudden changes to weather conditions
- ☐ Interruptions leading to lost focus
- ☐ All of these answers

2. Is the following statement true or false? Unexpected events cannot be eliminated entirely; however, it is possible to change how situations are reacted to. Therefore, the number of injuries and fatal accidents resulting from unexpected events can be significantly reduced or avoided.

- ☐ True
- ☐ False



Now check your answers on the next page.

Change and Unexpected Events—Self-Quiz Answers

1. Upset conditions include the following:

Answer: **All of these answers**

2. True or false

Unexpected events cannot be eliminated entirely; however, it is possible to change how situations are reacted to. Therefore, the number of injuries and fatal accidents resulting from unexpected events can be significantly reduced or avoided.

Answer: **True**