# Frood-Stobie Geoscience Facility Orientation

**Welcome to the Frood-Stobie Geoscience Facility Orientation Training module!**

This module provides you with an overview of the roles and responsibilities at the Frood-Stobie Geoscience Facility, as well as all relevant site information to perform these responsibilities. It is intended to be completed before participating in an on-site tour of the facility.

The purpose of this modular training program is to provide the trainee with the required knowledge and basic skills for the Frood-Stobie Geoscience Facility safely, efficiently, and competently.

To successfully complete this module, be sure to review all the content and score a minimum of 70% on the final evaluation.

Enjoy the module!
VES ID: ORIENT.37.1
ValeLearning ID:
Module Length: 70 minutes

## INTRODUCTION

Knowledge Check

ASBESTOS

Asbestos Awareness - Handling

Asbestos Awareness - Standard Procedure

Summary

Knowledge Check

OTHER EQUIPMENT OPERATIONS AND SAFETY

Roller Conveyor

ALMONTE Automatic Core Cutting Saw Operating Procedures

Flammable Storage Safety Cabinet

Summary

Knowledge Check

HAZARDS REVIEW

Frood-Stobie Geoscience Facility Hazards

CONCLUSION

Summary of the Module

Final Evaluation

Conclusion

# Introduction

00:14

*Select the play button above to listen to the audio narration and complete this section.*

During this module, we will review the roles and responsibilities of a Frood-Stobie Geoscience Facility worker, along with any relevant site information, protection systems, and hazards.

This module is oriented towards:

- Frood-Stobie Geoscience Facility Workers

## Navigating the Module

Please review the following video to learn how to navigate this module.

*Select the play button to watch the video and complete this section.*


00:22

*Select the play button above to listen to the audio narration and complete this section.*

## Important Considerations

- You must complete all elements in each lesson block (including audio) before advancing to the next section.
- Upon completion of each section of this module, you will be given an opportunity to submit questions to obtain clarification of any content you are not sure of.
- At the end of the module, you will also be required to complete a brief survey designed to support the continual improvement of your Vale

learning experience.

00:10

*Select the play button above to listen to the audio narration and complete this section.*

## Module Outline

This module is broken into several topics. At the end of each topic is a short interactive knowledge check to ensure you are familiar with the content and help you prepare for the module's final evaluation.

00:18

*Select the play button above to listen to the audio narration and complete this section.*

## Learning Objectives

By the end of this module, you will be able to:

- Understand plant entry procedure
- Identify site-specific hazards and methods of controls
- Follow procedures in the event of:
  - Equipment damage
  - Personal injury
  - Process upset/emergency preparedness

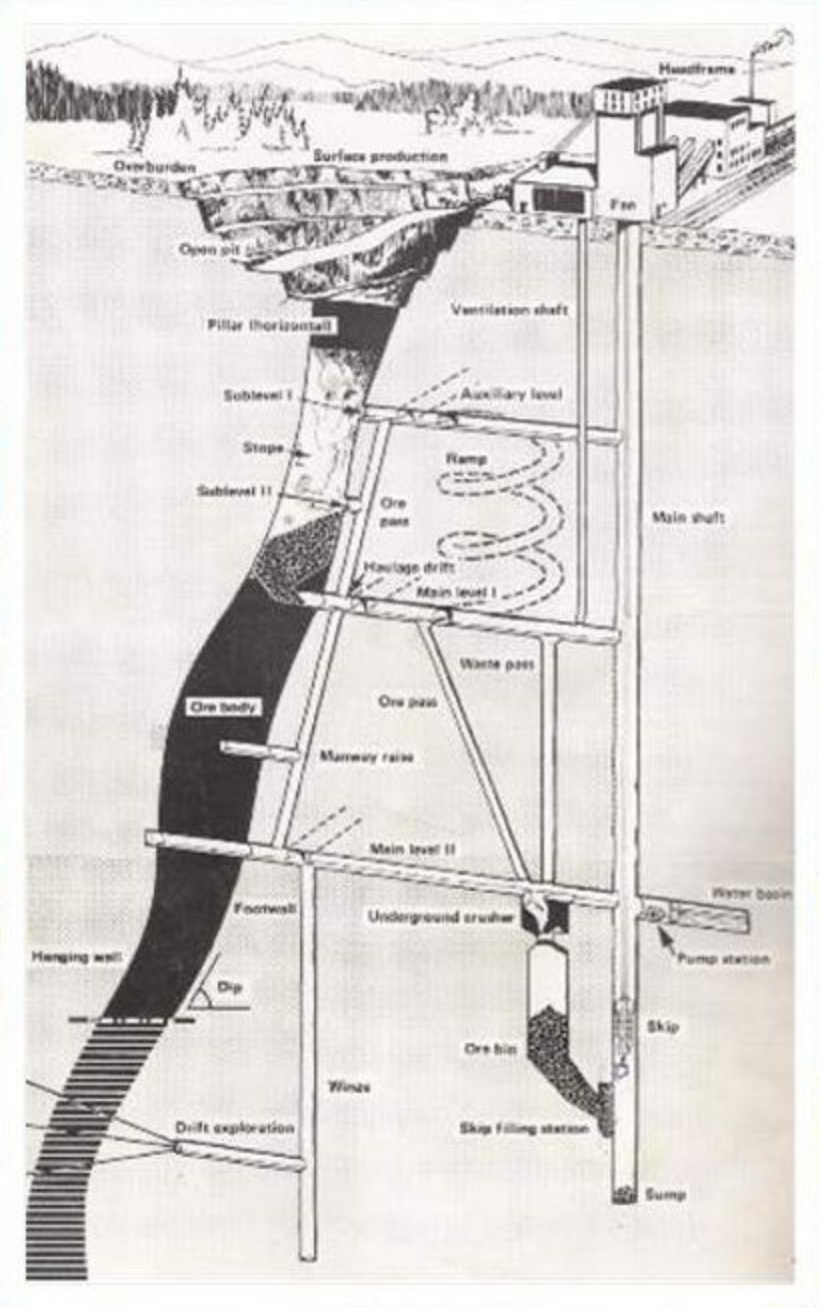
- Complete plant exit procedure checklist

Complete the content above before moving on.

# Frood-Stobie Mine Overview

00:25

*Select the play button above to listen to the audio narration and complete this section.*




**Key Facts**

- Frood-Stobie Mine was the oldest operating Vale mine in the Sudbury basin
- Produces copper, nickel and precious metals
- Four shafts with deepest to 4,075 level
- Frood-Stobie used primarily sublevel cave method of mining with vertical retreat method used mostly below 2,400 level.

- Frood-Stobie is no longer an active underground mine, however, open pit mining operations are scheduled to restart.

Complete the content above before moving on.

# Access to the Property

01:29

*Select the play button above to listen to the audio narration and complete this section.*

All personnel logging core are to park at the Stobie Mill Building. Dry changing facilities are located in this building only. A jitney service using Vale vehicles exists to the Geoscience Facility. Parking at the Frood-Stobie Geoscience Facility is limited to visitors and office personnel.

## Access to the Property Requires :

1. Tiers 1, 2 and 3 training with site specific orientation for Stobie.
2. Full Personal Protective Equipment (PPE) be worn, as listed in the next section.
3. Dry facilities are located at the Stobie Mill Building. Arrangements to be made for a ride to the Geoscience Facility. No personal vehicles are to be used.
4. All visitors are to sign in/out at Stobie First Aid located at the Mill Building Dry as guests and notify the Chief Geologist of In-Mine

Exploration until all orientation training is completed.

5 All workers are to use the primary Tag-In/Out Board at the Frood-Stobie Geoscience Facility to indicate their working location.

6 LENEL access passes: for workers reporting to Frood-Stobie Complex regularly.

7 Report injuries to **Stobie First Aid**

**(705) 682-3282** (Stobie First Aid)
or
**(705) 682-6622** #1 First Aid (Smelter Complex)

8 Report all injuries to the Chief Geologist of In-Mine Exploration and your direct supervisor.

**Start of Shift Safety Meeting attendance required at a time determined by the CMG of In-Mine Exploration at the Frood-Stobie Geoscience Facility, Frood Room.**

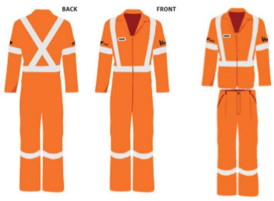
Complete the content above before moving on.

# Mandatory Personal Protective Equipment (PPE)

00:17

*Select the play button above to listen to the audio narration and complete this section.*

## PPE requirements





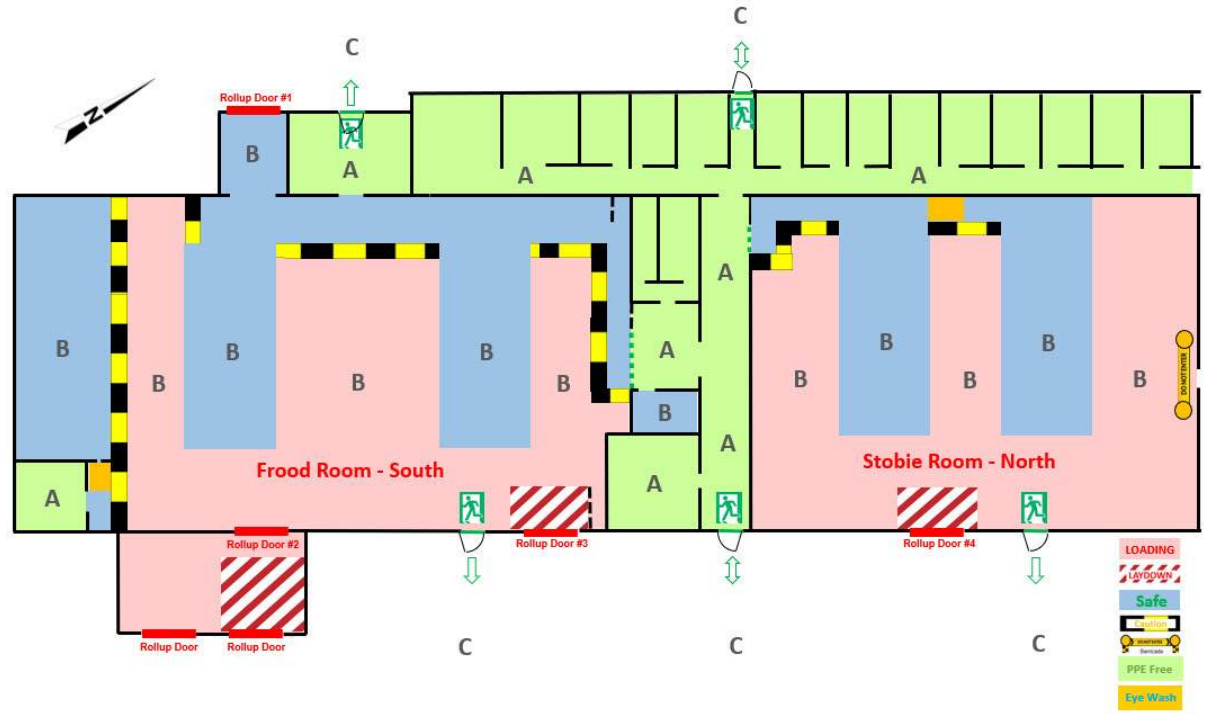
- High visibility orange workwear (as shown above)
- Two pairs of Gloves as illustrated above:
  1. cut resistant
  2. light nitrile coated
- Approved safety glasses

- CSA approved full metatarsal work boots
- Removeable ice cleats (winter use)
- Hard hat and muffs with reflective applique


1

# PPE Requirements for Frood-Stobie Geoscience Facility

00:03

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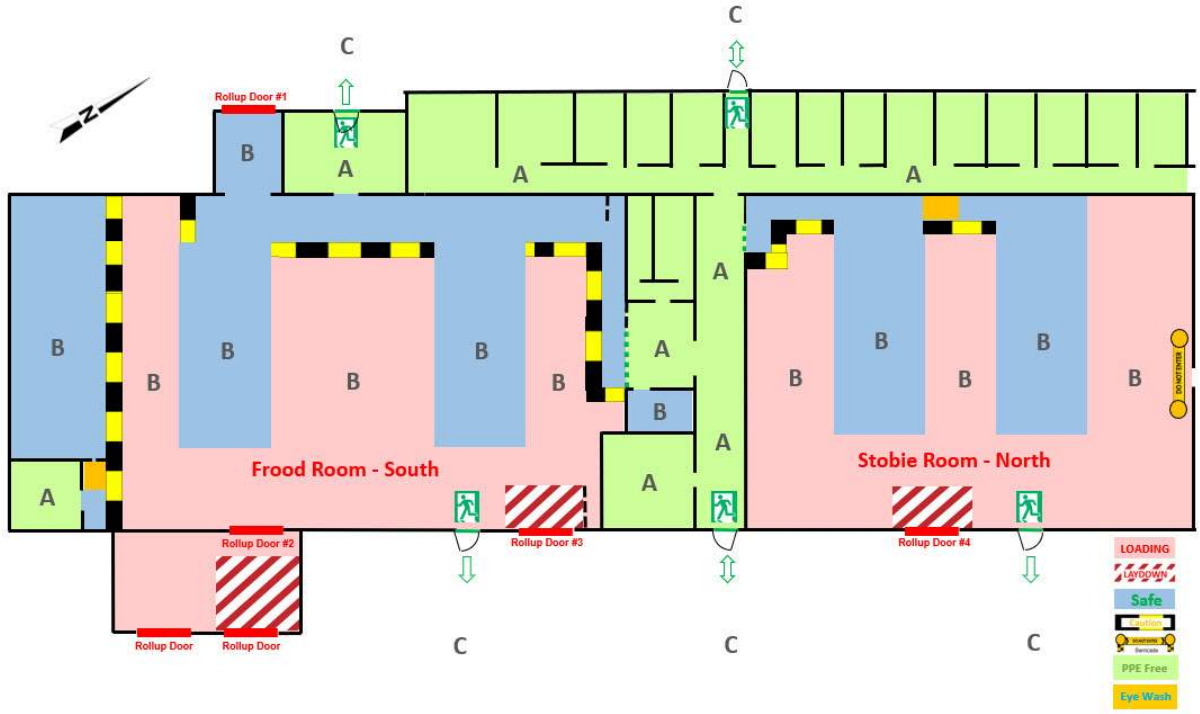
2

# PPE Requirements

00:23




*Select the play button to listen to the audio narration and complete this section.*

## ZONE A: Includes Washroom, Lunchroom and Offices

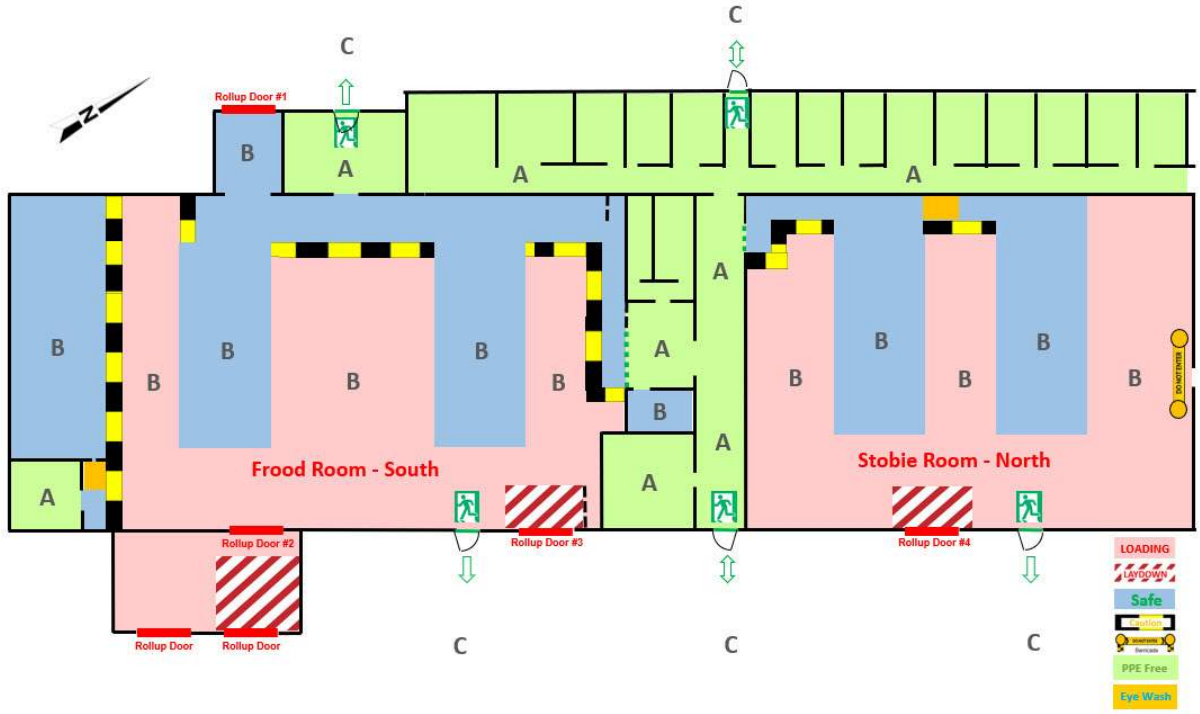
- Anyone logging core requires High Vis Clothing as prerequisite to get to the Geoscience Facility.
- Anyone logging core requires metatarsal boots as prerequisite to get to the Geoscience Facility.
- Anyone logging core requires safety glasses, hard hat, and gloves to get to the Geoscience Facility.

- PPE is not required in Zone A areas.

3

# PPE Requirements

00:15




*Select the play button to listen to the audio narration and complete this section.*

## ZONE B: Includes Core Logging Stations, Core Racks and Main Floor

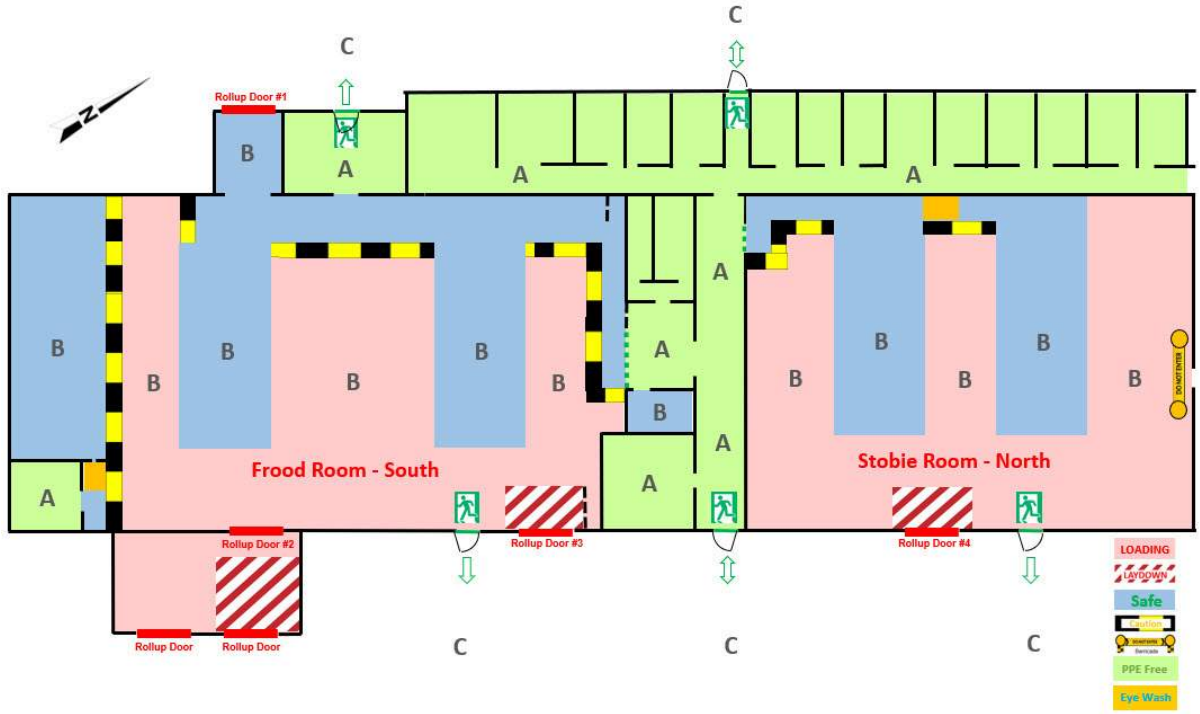
- High Vis Clothing
- Metatarsal boots at all times
- Safety glasses at all times
- Hearing protection when breaking core (high decibel noise)

- Designated Gloves when handling core or core boxes

4

# PPE Requirements

00:11




*Select the play button to listen to the audio narration and complete this section.*

## ZONE C: Includes Yard at Core Facility and Company Vehicle Parking at all sites

- High Vis Clothing

- Hard hat, metatarsal boots, safety glasses and gloves (full PPE)

Complete the content above before moving on.

# Summary

00:07

*Select the play button above to listen to the audio narration and complete this section.*

These are some key takeaways we reviewed during this section.

### Access to the Property

### Mandatory Personal Protective Equipment (PPE)

**Got a Question?**

*Select the button to submit your questions using ValeForms. Be sure to include your first name, last name and contact information.*

CLICK HERE!


**Let's review how much we have learned.**

Answer the following questions related to this section's topics.

CONTINUE

# Knowledge Check

**About Frood-Stobie Geoscience Facility Entry**

Answer the following questions related to this section's topics. You will need to achieve a 100% score to complete this section.

*Question*

**01/02**

As a prerequisite to get to the Core Facility, high vis clothing is required.

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- ◯ True
- ◯ False

*Question*

**02/02**

All visitors are to sign in/out at:

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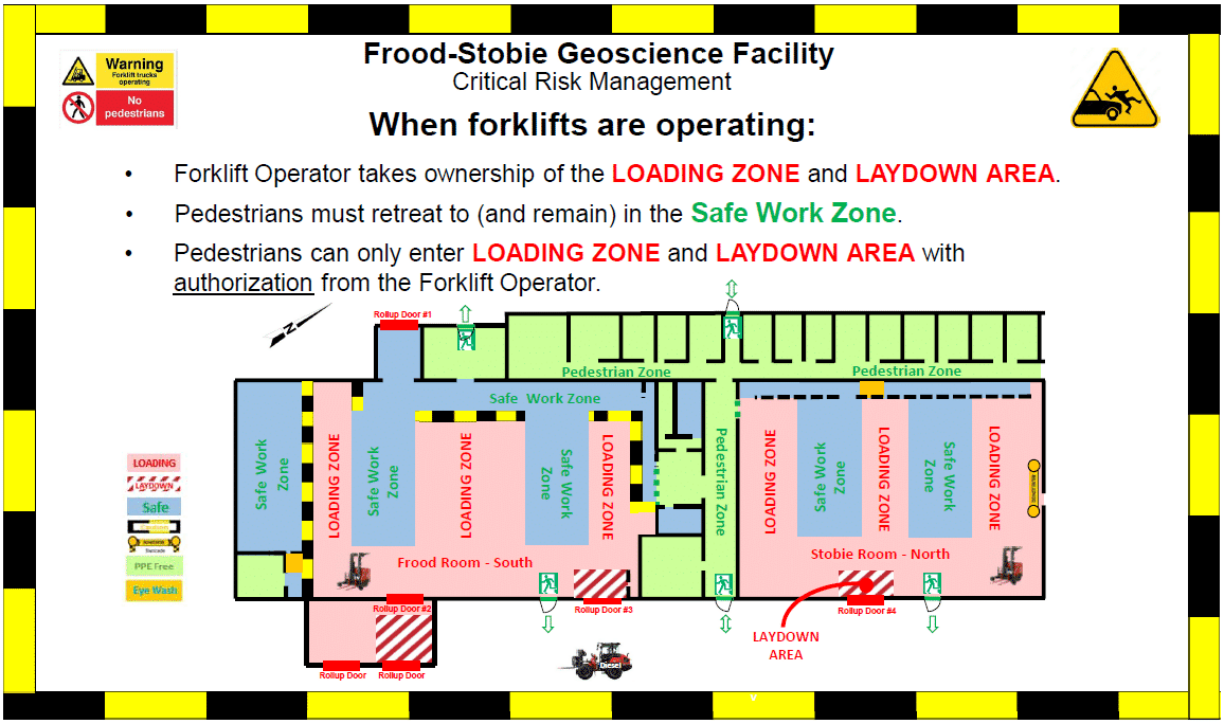
- ◯ The Chief Geologist's office
- ◯ The lunchroom
- ◯ Stobie First Aid
- ◯ The core racks

# Forklift and Mobile Equipment Operations

00:35

*Select the play button above to listen to the audio narration and complete this section.*

## Work Zones – Procedures




There is a requirement to move pallets of core with electric and diesel forklifts within the Frood-Stobie Geoscience Facility. The purpose of this procedure is to safely operate the indicated equipment inside the

facility within a designated area that will have pedestrians out of harm's way such that there are zero people to equipment incidents.

When core pallets are to be moved / brought into the Frood-Stobie Geoscience Facility, everyone but the equipment operator(s) are removed from the "Loading Zone" and / or "Laydown Areas." This will be achieved by identifying a formalized "Safe Work Zone" and "Loading Zone / Laydown Area."

00:15

*Select the play button above to listen to the audio narration and complete this section.*

## Hazards

- Collision with electrical forklift
- Collision with diesel forklift
- Collision between diesel and electric forklift
- Dust (Silica)
- Gases / fumes from diesel exhaust
- Tripping
- MSD/ergonomic

Complete the content above before moving on.

# Operation of Diesel Equipment in Frood(south) and/or Stobie(north) Room LAYDOWN AREA

00:05

*Select the play button to listen to the audio narration and complete this section.*

1

# Workplace and equipment inspection before entry.

00:07

*Select the play button to listen to the audio narration and complete this section.*

- Complete pre-op on equipment.
- Operator to complete a workplace inspection for people and hazards.

2

# Diesel forklift operator communicates with personnel inside the core logging room.

00:12

*Select the play button to listen to the audio narration and complete this section.*

- Forklift operator is to communicate intentions with everyone within this core logging room.
- Forklift operator activates the room's warning lights.

3

# All personnel must leave the LAYDOWN AREA.

00:07

*Select the play button to listen to the audio narration and complete this section.*

- All personnel are to react to mobile equipment as per this procedure **without exception.**

4

# Diesel Operator opens roll-up door.

00:04

*Select the play button to listen to the audio narration and complete this section.*

- Operator has remote for roll-up door.

5

## Diesel Operator sounds horn before entry.

00:08

*Select the play button to listen to the audio narration and complete this section.*

Diesel forklift operates at, or in core room with roll-up door remaining in the open position.

6

# Diesel forklift operates within identified LOADING ZONE with roll-up door remaining in open position.

00:10

*Select the play button to listen to the audio narration and complete this section.*

The area is now an exclusion zone for all personnel while forklift is operating.

7

# Diesel forklift operates within identified Frood Room LOADING ZONE with roll-up door remaining in open position.

00:14

*Select the play button to listen to the audio narration and complete this section.*

Frood Room (south): when pallets are delivered/removed at the Core Scanner, all personnel in that area will retreat to the closest adjacent Safe Work Zone.

8

## Once diesel forklift has left the Geoscience Facility, the operator turns off the room's warning lights.

00:10

*Select the play button to listen to the audio narration and complete this section.*

Once warning lights are turned off, the LOADING ZONE is open to all personnel.

9

## Stobie Room (north): the forklift operator removes barricade at the north access door to Shops. Frood Room (south): remove barricades as required.

00:09

*Select the play button to listen to the audio narration and complete this section.*

10

## Door is closed (operator has remote for roll-up door).

00:03

*Select the play button to listen to the audio narration and complete this section.*

# Electric Forklift operation in Frood(south) and/or Stobie(north) Room LOADING ZONE

00:05

*Select the play button to listen to the audio narration and complete this section.*

1

# Workplace and equipment inspection before entry.

00:07

*Select the play button to listen to the audio narration and complete this section.*

- Complete pre-op on equipment.
- Operator to complete a workplace inspection for people and hazards.

2

# Electric forklift operator communicates with personnel inside the core logging room.

00:12

*Select the play button to listen to the audio narration and complete this section.*

- Forklift operator is to communicate intentions with everyone within this core logging room.
- Forklift operator activates the room's warning lights.

3

# Electric forklift operator installs barricade.

00:11

*Select the play button to listen to the audio narration and complete this section.*

- Stobie Room (north): operator installs barricade at north access door to Shops.
- Frood Room (south): install barricades as required.

4

## All personnel must leave the LOADING ZONE and retreat to the Safe Work Zone.

00:08

*Select the play button to listen to the audio narration and complete this section.*

All personnel are to react to mobile equipment as per this procedure without exception.

5

## When electric forklift is turned on, it will sound horn and start strobe light on top of mast.

00:05

*Select the play button to listen to the audio narration and complete this section.*

6

# Electric Forklift operates within the demarked LOADING ZONE.

00:16

*Select the play button to listen to the audio narration and complete this section.*

- The area is now an exclusion zone for all personnel while forklift is operating.
- Frood Room (south): when pallets are delivered/removed at the Core Scanner, all personnel in that area will retreat to the closest adjacent Safe Work Zone.

7

## Work completed and the electric forklift is shut down, the operator will turn off room's warning lights.

00:09

*Select the play button to listen to the audio narration and complete this section.*

Once warning lights are turned off, the LOADING ZONE is open to all personnel.

8

## Stobie Room (north): the forklift operator removes barricade at the north access door to Shops. Frood Room (south): remove barricades as required.

00:08

*Select the play button to listen to the audio narration and complete this section.*

9

## If two forklifts are required to be in operation at the same time, in the same room:

00:12

*Select the play button to listen to the audio narration and complete this section.*

- The electric forklift must be always within the diesel forklift operator's field of view.
- The diesel forklift has right of way in the work area.

# Preparing a Secure Load – Load Binder Safety

00:40

*Select the play button above to listen to the audio narration and complete this section.*

## Load Binder (Bear Trap) Safety

When using a Load Binder here are a few precautionary safety tips:

- Inspect the binder for wear prior to use.
- Do not operate the load binder with more than one person.
- Position the binder so it is on a flat area of the load, never on a corner.
- Operate the load binder in a way that you are standing to the side and have secure footing. Never stand on the load.
- Be aware of the “line of fire” should you lose your grip.
- Be aware of potential “pinch points” while tightening the binder.
- Never use a cheater bar to tighten or release the load.

- Always tighten by hand in a downward manner. Secure the binder handle.
- Always wear impact/cut resistant gloves for grip and to protect your hands.

00:36

*Select the play button above to listen to the audio narration and complete this section.*

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The Frood-Stobie Geoscience Facility has been receiving pallets at the which are safety compromised relative to the improper storage of materials or improper use of load binders (bear traps). Securing the trap/binder helps secure the load, preventing rolling or tipping of the load and/or holding the core boxes together if the load does tip.

These pallets are handled by many workgroups including the diamond drill department, operations, logistics, external transportation services, geology, etc. This material **MUST** be secure at all times. Check that chains are tensioned and the load is solid & secure before you hand it off.

Complete the content above before moving on.

00:03

*Select the play button above to listen to the audio narration and complete this section.*

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## Properly Secured Loads

00:04

*Select the play button above to listen to the audio narration and complete this section.*

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## Improperly Secured Loads Will Loosen

00:06

*Select the play button above to listen to the audio narration and complete this section.*

## Preparing a Secure Load

*Select each tab to learn more about how to prepare a secure load.*

**Plan**

Ensure the pallet is neatly stacked and securely fastened with two chains (with load binders (bear traps), handle strapped down) and optionally shrink-wrapped for additional protection.

**Accept**

Take ownership/responsibility when you see a hazard. Stop and correct the hazard or contact your supervisor to get the appropriate people to manage the hazard.

**Care**

Don't leave a hazard for someone else. Whether the material is going on a boom truck, on a forklift, on the cage or on a flatbed, refuse to transport unsecured loads. Look at it from another perspective: What if you were following a delivery truck loaded with poorly secured core boxes having core bouncing on the roadway at your vehicle.

**Lead**

Communicate with each other. Establish expectations. Take the time to ensure loads are secure and catch things before they become a hazard for someone else.

CONTINUE

# Core Farm – Pallet Selection

# Pallet Selection at Core Farm

00:03

*Select the play button to listen to the audio narration and complete this section.*

Next, core pallet needs to be selected for logging.

## Step 1

00:07

*Select the play button to listen to the audio narration and complete this section.*

Notify supervisor if going to Core Farm by yourself.  Let forklift operator know you will be identifying a pallet for retrieval.

## Step 2

00:03

*Select the play button to listen to the audio narration and complete this section.*

Ensure the vehicle strobe and flag are operating.

## Step 3

00:06

*Select the play button to listen to the audio narration and complete this section.*

Park vehicle to protect yourself from passing mobile equipment while exiting/entering and while working in the yard.

## Step 4

00:12

*Select the play button to listen to the audio narration and complete this section.*

Watch for and avoid hazards in and around the yard, pallets, and vehicle. Snow/puddles can hide tripping hazards, icy conditions, unstable footing, or debris. Note: Ice cleats are required during winter months.

## Step 5

00:06

*Select the play button to listen to the audio narration and complete this section*

Identify the next pallet needed with a traffic cone placed on the pallet vertical retaining bar for the forklift operator to see.

## Step 6

00:04

*Select the play button to listen to the audio narration and complete this section.*

Return to the logging facility and report back to the supervisor (if working alone).

## Step 7

00:03

*Select the play button to listen to the audio narration and complete this section.*

Advise the forklift operator of pallet location.

Complete the content above before moving on.

# CoreLift Pallet Lifter Operating Procedures

01:30

*Select the play button above to listen to the audio narration and complete this section.*

## Operating Pallet Lifter

### Safety – Operational Knowledge

- Do not operate this equipment unless you have been trained and authorized to do so.
- Do not operate this equipment without having read the operating instructions.
- Operator is required to conduct a Pre-operational Inspection of the equipment before each shift and tag out the unit if there are deficiencies.
- Do not place objects on the Lift Platform more than the rated load capacity of 200lbs. per square foot (9.6 kPa) or maximum 5,000 lbs. (2,268 Kg).
- Do not use this equipment for other than core logging operations.

- Do not make alterations or modifications to the equipment.
- The Pallet Lifter shall be isolated and locked out prior to any maintenance activities (ZES).
- Verify "Zero Energy" state (ZES) has been achieved before commencing any maintenance/repair work.
- Caution must be used when handling and moving core boxes on the Lifter.
- Always keep a minimum **6 feet (2m)** from the Pallet Lifter while it is in motion.
- The standard duty cycle is 8 full cycles (up and down) per hour, 8 hours per day, 5 days a week. Shorter work cycles such as 10 seconds require a 2 minute rest period. Failure can result from excessive movements without rest.
- Pallet Lifters are not to be lifted and moved with a load and must be kept level.
- Do not load/unload with a forklift while Lift Platform is raised.
- The Pallet Lifter uses hydraulic pressure for operation. Be aware of the potential danger of a high-pressure oil leak.
- Do not use this equipment when safety components are missing.
- Do not remove or obscure warning and operating labels.
- At the end of shift, fully lower the Lift Platform.
- Turn off power at main switch.

Complete the content above before moving on.

00:05

*Select the play button above to listen to the audio narration and complete this section.*

## Pre-operational Inspection (Operators Pre-Check)

*Select each tab to learn more and complete this section.*

**FLUIDS** | **VISUAL** | **TESTS**

- Check all moving parts are lubricated and tight. Grease fittings as required.
- Check hydraulic tank fluid level and ensure it is at 75% full only, no more.

**FLUIDS** | **VISUAL** | **TESTS**

- Check all components for damage, cracks, deterioration, looseness, wear, housekeeping.
- Check for signs of leaking hydraulic fluid at hoses, tank and cylinder.
- Ensure all components, guards and labels are properly installed, legible, none missing.

- Electrical cables are coiled, and insulating jackets have no damage, wear or cracks.
- Remove or secure any potential obstructions to the Pallet Lifter operation.

FLUIDS | VISUAL | TESTS

- Remote Foot Control Switch buttons are all functional.
- Ensure the maximum lift height of 3ft (1m) is obtained by cycling through operation.
- Ensure Ground Fault is operating properly by pushing Test button. Reset circuit.
- Fully return Lift Platform to its resting position with zero clearance.

00:07

*Select the play button above to listen to the audio narration and complete this section.*

## Operating Pallet Lifter

*Select each marker to learn more about operation and complete this section.*

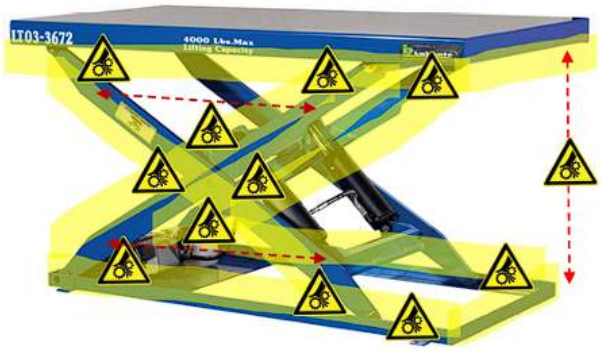
**Foot Control Switch – Height Adjustment**

- The Pallet Lifter is energized and ready for use when the electrical panel switch is on.
- A remote pendant switch with two push buttons is used to control the height of the pallet lifter.
- The right button retracts or lowers the Lift Platform.
- The left button extends or raises the Lift Platform. · The maximum lift height is 3ft (approx. 1m).




## Pinch Points - Height Adjustment

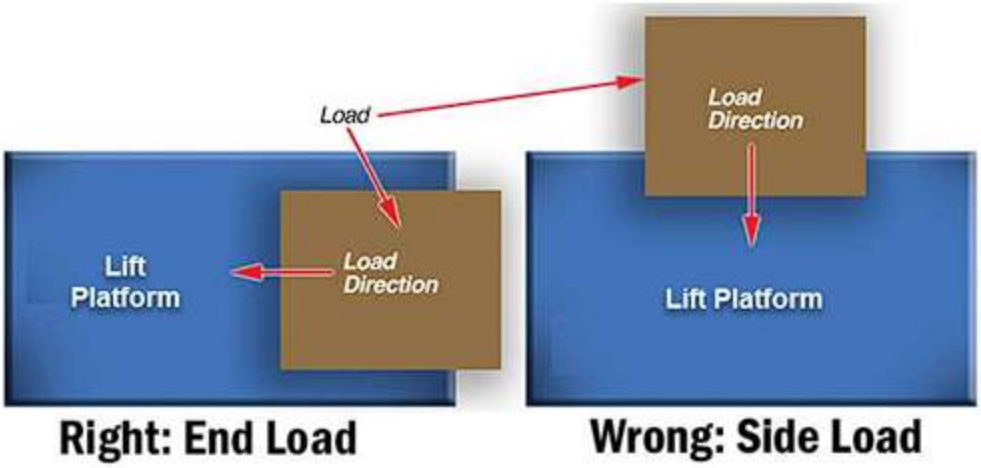
- Operator verifies there are no obstacles that will affect the operation of the Pallet Lifter while adjusting height.
- Operator checks the Protective Curtain for coverage.
- Operator must ensure nobody is near the Pallet Lifter while adjusting height.
- Everyone must be aware of the potential pinch points while adjusting the Lift Platform for height.
- Secure the remote Foot Control Switch to avoid inadvertent movement.





**Loading/Unloading**

- Use approved PPE while handling core boxes.
- Watch for potential pinch-points between the core boxes and pallet, rack or bench.
- Unload/load core boxes at the best ergonomic height for the core logger so the person is working within their power zone. Use the lowest comfortable profile.
- The use of a flag person is recommended when loading and unloading pallets with the forklift. Ensure the Lift Platform is lowered completely for this operation.
- Load pallets only from the ends, not the sides. This reduces stress on the legs.



Complete the content above before moving on.

# Remove Lids from Core Trays

00:06

*Select the play button above to listen to the audio narration and complete this section.*

## Use of Blaster Knife or Ceramic Safety Knife

**NOTE: Risk of laceration due to sharp edged tool.**

00:33

*Select the play button above to listen to the audio narration and complete this section.*

## Precautionary Safety:

- Ensure appropriate PPE including cut resistant gloves are being worn.
- Stand to the side of the core boxes being opened.
- Ensure you have good, stable footing.
- Do not rest on the load being cut.
- Use one stroke on the top of the core lid to sever the fiber tape. The force of cutting is down and away from you.
- Do not expose yourself or others to potential slips of the knife.
- Secure the knife edge after cutting is completed.
- The fiber tape is cohesive, sticking only to itself, not the wooden box lid. The cut ends of the tape are easily removed by peeling away from the lid.

Complete the content above before moving on.

# Racking Core Boxes from Transport Pallet

# Racking Core Boxes (Trays)

00:02

*Select the play button to listen to the audio narration and complete this section.*

## Step 1

00:12

*Select the play button to listen to the audio narration and complete this section.*

Lift open core boxes off pallet by sliding the tray towards yourself and cradling the mid-front of the core box with your forearm and back of tray with the opposite hand. This provides stability in handling the tray and reduces wrist strain.

## Step 2

00:04

*Select the play button to listen to the audio narration and complete this section.*

When changing direction do not twist your body, turn by moving your feet.

## Step 3

00:05

*Select the play button to listen to the audio narration and complete this section.*

Make note of changes in lithologies and ore contacts (quick log) as you rack the hole.

## Step 4

00:10

*Select the play button to listen to the audio narration and complete this section.*

Observe the number of the final core box (end of the hole, EOH) from the marker block and visually find the location for it in the core rack by counting available vertical spaces.

## Step 5

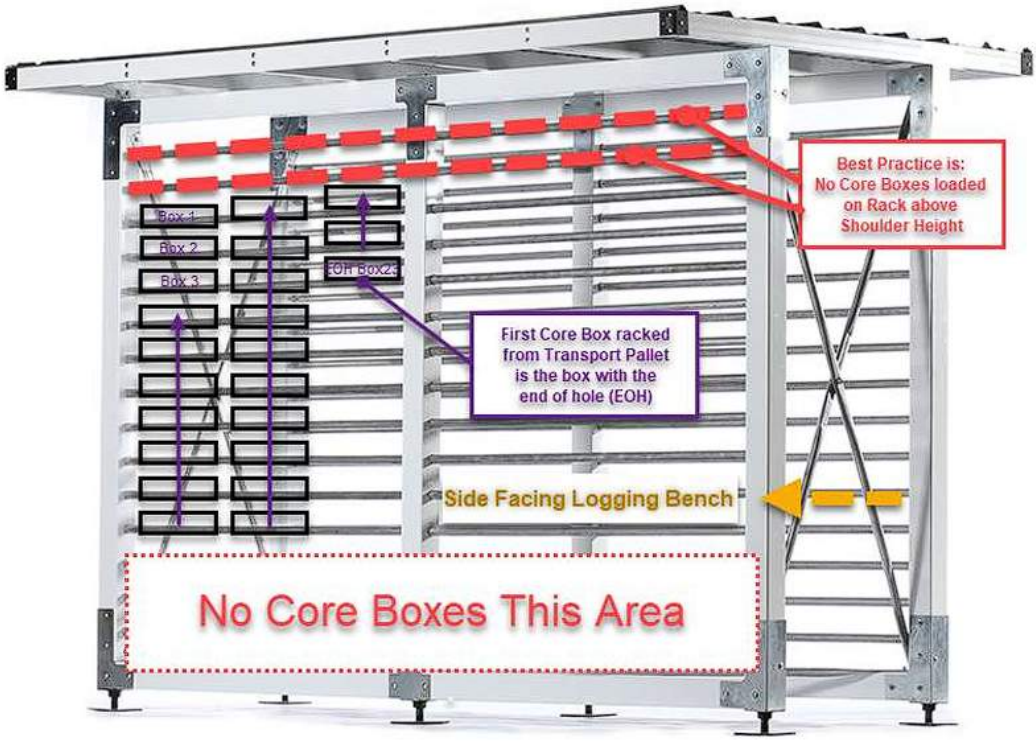
00:06

*Select the play button to listen to the audio narration and complete this section.*

Load the core rack bottom to top in columns, with the lowest hole footage of the core boxes facing the Logging Bench.

## Step 6

00:10




*Select the play button to listen to the audio narration and complete this section.*

The last core box (tray #1) to be racked should be located at the upper left side of the rack as seen from the Logging Bench side, with the next tray #2 directly under it and so on (see diagram).

Step 7

00:04

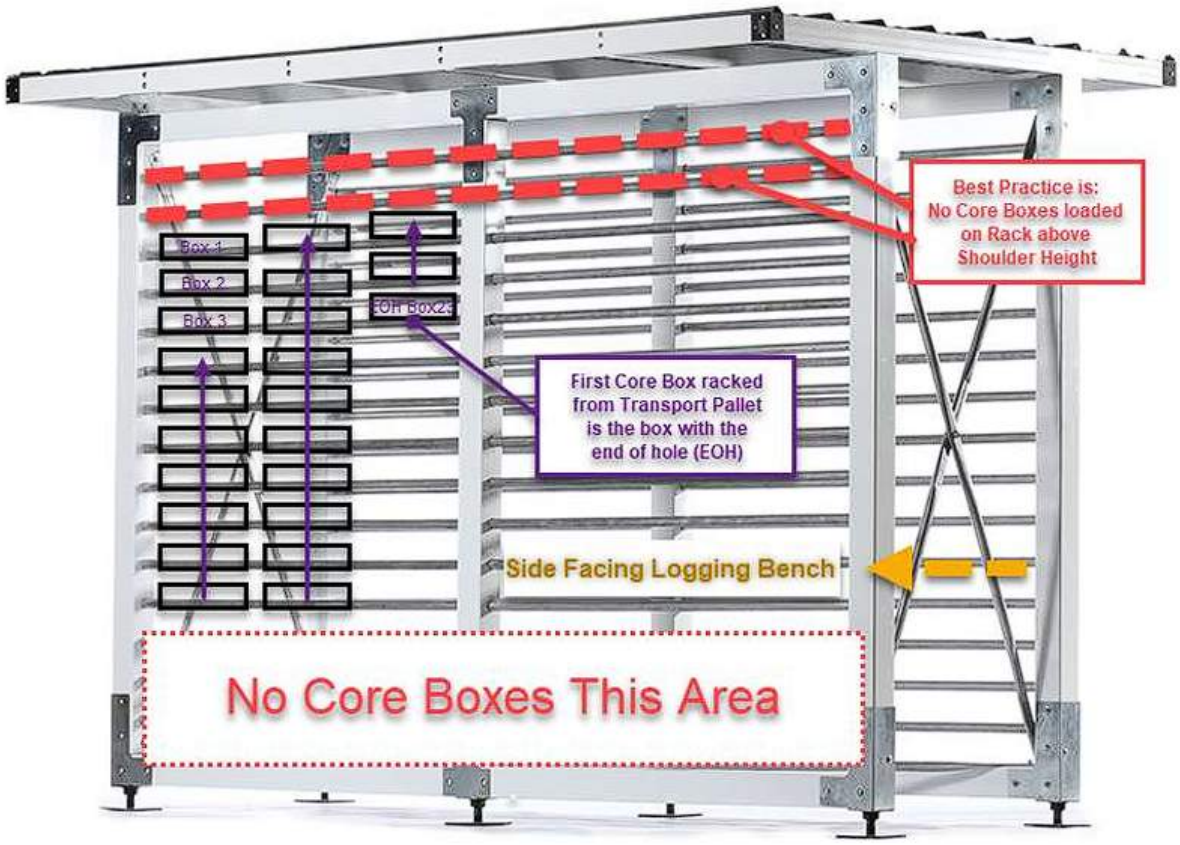
*Select the play button to listen to the audio narration and complete this section.*

Rack the core trays in the reverse numerical order as they are removed from the transport pallet.

00:07

*Select the play button above to listen to the audio narration and complete this section.*

## Racking Core Boxes (Trays)




**NOTE: Best practice is not racking trays higher than your shoulders or lower than the level of your knees.**

00:57

*Select the play button above to listen to the audio narration and complete this section.*

## Reduce MSD risk:

## Decrease cycle time lifting trays above shoulders if it is required – rest between racking overhead.

- If the core is contaminated by grease notify the supervisor. It will need to be cleaned/de-greased prior to logging, scanning and photography.
- If there is another hole on the pallet, locate the last core box (EOH) and note the number. Visually locate where this tray should be placed on the rack and load it. Continue loading the remaining trays for this hole.
- Load the empty transport pallet with the tray lids facing up on the first bottom row and facing down on all subsequent rows. This will help keep debris and mud from accumulating in the trays during transport. Set any unusable (damaged or broken) trays to the side for disposal in the Yellow Industrial Waste bins outside.
- Load the transport pallet only to the top of the stabilizer upright bars. Do not stack trays higher than this point. Secure the core trays with the two sets of chain and Load Binders (Bear Traps) as per the Prepare a Secure Load procedure.

Complete the content above before moving on.

# CoreLift Adjustable Logging Table/Bench

01:28

*Select the play button above to listen to the audio narration and complete this section.*

## Operating Adjustable Core Bench

### Safety – Operational Knowledge

- Do not operate this equipment unless you have been trained and authorized to do so.
- Do not operate this equipment without having read the operating instructions.
- Operator is required to conduct a Pre-operational Inspection of the equipment before each shift and tag out the unit if there are deficiencies.
- Do not place objects on the table more than the rated load capacity of 100lbs. per square foot (4.8 kPa) or maximum 2,500 lbs. (1,134 Kg).
- Do not use this equipment for other than core logging operations.

- Do not make alterations or modifications to the equipment.
- The Core Logging Table shall be isolated and locked out prior to any maintenance activities (ZES).
- Verify “Zero Energy” state (ZES) has been achieved before commencing any maintenance/repair work.
- Caution must be used when handling and moving core boxes on the table.
- Proper Personal Protective Equipment (PPE – CSA steel-toe boots with metatarsal guards, cut/impact gloves and safety glasses) must be worn.
- Do not stack boxes (double stacking).
- Do not run the lift/incline actuators continuously for more than two minutes. This can cause failure of the electrical components from undue stress.
- Make sure the End Stops are in the upright (closed) position prior to use.
- Do not use this equipment when safety components are missing.
- Do not remove or obscure warning and operating labels.
- At the end of shift, fully recline (tilt down) the Pivot Frame and lower Bench.
- Use **E-Stop** on Remote to de-energize table. Turn off power at main switch.

*Select the play button above to listen to the audio narration and complete this section.*

## Pre-operational Inspection (Operators Pre-Check)

*Select each tab to learn more and complete this section.*

FLUIDS | VISUAL | TESTS

- Check all moving parts are lubricated and tight. Grease fittings as required.

FLUIDS | VISUAL | TESTS

- Check all components for damage, cracks, deterioration, looseness, wear, housekeeping.
- Ensure all components, guards and labels are properly installed, legible, none missing.
- Electrical cables are coiled, and insulating jackets have no damage, wear or cracks.
- Remove or secure any potential obstructions to the Core Bench operation.

| FLUIDS | VISUAL | TESTS |
| --- | --- | --- |

- Remote Control Switch buttons are all functional.
- Ensure maximum Bench height and angle are obtained by cycling through operation.
- Check the Emergency Stop (E-Stop) switch located on Remote is functioning properly.
- Ensure Ground Fault is operating properly by pushing Test button. Reset circuit.
- Fully return Bench to its resting position with zero clearance.
- Cycle the End Stops through closed-open-closed operation. Ensure pins function properly.
- Check function of lighting for the workstation.

00:03

*Select the play button above to listen to the audio narration and complete this section.*

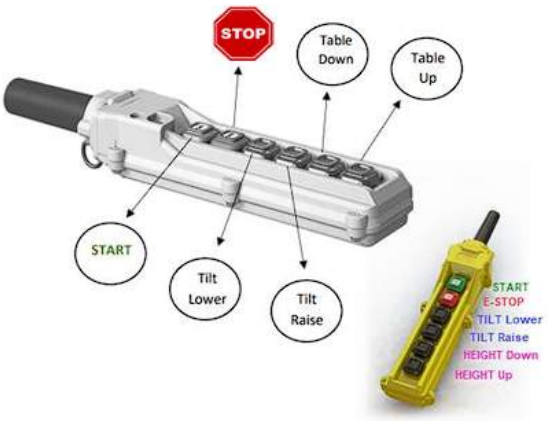
## Operating Adjustable Core Bench

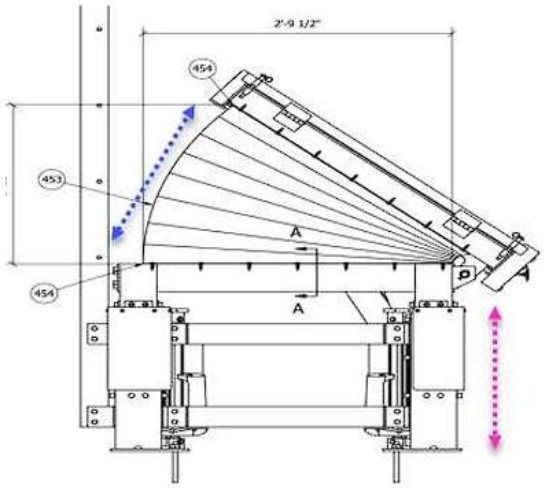
*Select each tab to learn more about operation and complete this section.*

### Remote Control Switch – Height and Angle Adjustment

- A pendant switch with six push buttons is used to control the height and inclination of the logging table including the Start and E-Stop, located at the top of the switch.

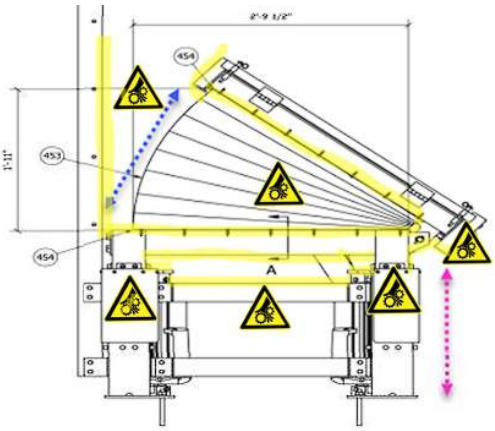
- The middle two buttons are assigned for the Pivot Table angle adjustment. The maximum allowable incline is programmed at 35° from horizontal.
- Height is controlled by the two bottom switches. It can be varied from 2'-6" to 3'-7".



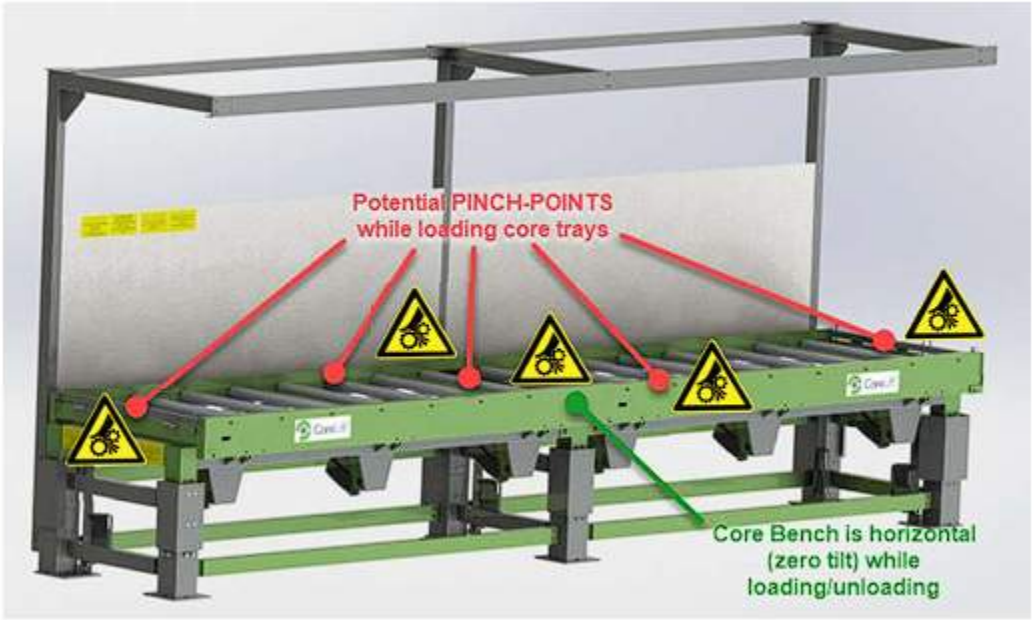

## Pinch Points - Height and Tilt Adjustment

- Operator verifies there are no obstacles that will affect the operation of the Core Bench while adjusting tilt and height.
- Operator must ensure nobody is near the Core Bench while adjusting tilt and height.
- Everyone must be aware of the potential pinch points while adjusting the Bench for height and the Pivot Table for inclination.
- Power off the Core Bench with the E-Stop button to avoid inadvertent movement.



## Core Box Loading/Unloading

- Use approved PPE while handling core boxes.
- Do not load core boxes on the bench while the pivot table is inclined. It must be completely horizontal or flat (zero tilt).
- Make sure core boxes will slide freely on the rollers and roller rail before loading commences.
- Watch for potential pinch-points between the core trays and rollers/roller rails/end stops.



00:04

*Select the play button above to listen to the audio narration and complete this section.*

## How to Safely Load Core on the CoreLift Bench


Complete the content above before moving on.

# Preparing to Log Core

00:37

*Select the play button above to listen to the audio narration and complete this section.*

## Loading Core Bench

- Review the instructional videos for operating and loading the CoreLift Bench found on Teams/Ontario Core Logging Facility/General/Files...
- In preparing to load the Core Bench, ensure it is cleared and you have an unobstructed path to the Core Rack with no tripping or snagging hazards.
- Ensure you are wearing the appropriate PPE including impact resistant gloves.
- Set the CoreLift bench at zero tilt and appropriate height to accept the core boxes.
- Lower the stopper bar closest to the rack.
- Be aware of the floor height change with the anti-fatigue matting at the bench.

- At the Core Rack have good footing and a balanced stance at the first column to extract.

00:09

*Select the play button above to listen to the audio narration and complete this section.*

## Loading Core Bench


**NOTE: MSD awareness – do not twist your body, turn by moving or shuffling your feet. Stretch before lifting. Take breaks as required.**

# Loading Core Bench

00:01

*Select the play button to listen to the audio narration and complete this section.*

## Step 1

00:13

*Select the play button to listen to the audio narration and complete this section.*

Slide the first core box out of the rack approximately ¾ length and place the free end on the CoreLift Bench so it is supported. This provides stability for the load which can vary from 40 to 80lbs depending on lithology.

## Step 2

00:03

*Select the play button to listen to the audio narration and complete this section.*

Continue extracting the box from the rack onto the Core Bench.

## Step 3

00:07

*Select the play button to listen to the audio narration and complete this section.*

Place the first core box at the top of the CoreLift bench (away from you) oriented so the core increases in depth from left to right.

## Step 4

00:07

*Select the play button to listen to the audio narration and complete this section.*

Repeat with the subsequent trays in numerical order. The number of boxes placed can vary depending on your physical size and ability to review the core.

## Step 5

00:06

*Select the play button to listen to the audio narration and complete this section.*

Ensure the core boxes are increasing in numerical order from top to bottom and in footage from left to right in the tray.

Step 6

00:04

*Select the play button to listen to the audio narration and complete this section.*

Align all the core trays evenly at the photography marking for the camera.

00:12

*Select the play button above to listen to the audio narration and complete this section.*

## Logging Core on Bench


**NOTE: MSD awareness – do not twist your body, turn by moving or shuffling your feet. Stretch before lifting. Take breaks as required.**

# Logging Core on Bench

00:01

*Select the play button to listen to the audio narration and complete this section.*

## Step 1

00:09

*Select the play button to listen to the audio narration and complete this section.*

Review the Drill Core Logging-Sampling-QC 2022 document: Geology & In-Mines Exploration and the SCCLF Logging Guidelines PPT file.

## Step 2

00:08

*Select the play button to listen to the audio narration and complete this section.*

If the core is greasy, it will need to be cleaned prior to logging and photography. Clean with available all-purpose cleaner and brush wearing appropriate PPE.

## Step 3

00:06

*Select the play button to listen to the audio narration and complete this section.*

Rotate the core so natural and man-made breaks line up and close the open space reducing the artificial core expansion.

## Step 4

00:16

*Select the play button to listen to the audio narration and complete this section.*

Align all footage and box marker blocks so the information on them is visible from above. Footage marker blocks are placed every 10 feet and typically will be placed in every other row of core with a shift to the right (usually forming a line approximately 30–45$^{o}$ to the core axis) due to “core expansion”.

## Step 5

00:09

*Select the play button to listen to the audio narration and complete this section.*

Check for footage block errors such as duplicated footages or skipped intervals by measuring from marker to marker with the HI stick.  Each tray holds approximately 19 feet of core.

## Step 6

00:03

*Select the play button to listen to the audio narration and complete this section.*

Identify the ore and lithological contacts with a grease pencil.

## Step 7

00:16

*Select the play button to listen to the audio narration and complete this section.*

At ore/rock contacts in exploration holes there needs to be samples of 5ft and then 10ft taken into the rock to check for possible low-sulphide, high precious metals zonation. If there is a separation of ore zones by rock, this rock interval should be sampled entirely from ore zone to ore zone.

## Step 8

00:08

*Select the play button to listen to the audio narration and complete this section.*

High-sulphide samples are limited to 5 feet in length. Rock samples are limited to 10 feet maximum. There is no composite sampling allowed.

## Step 9

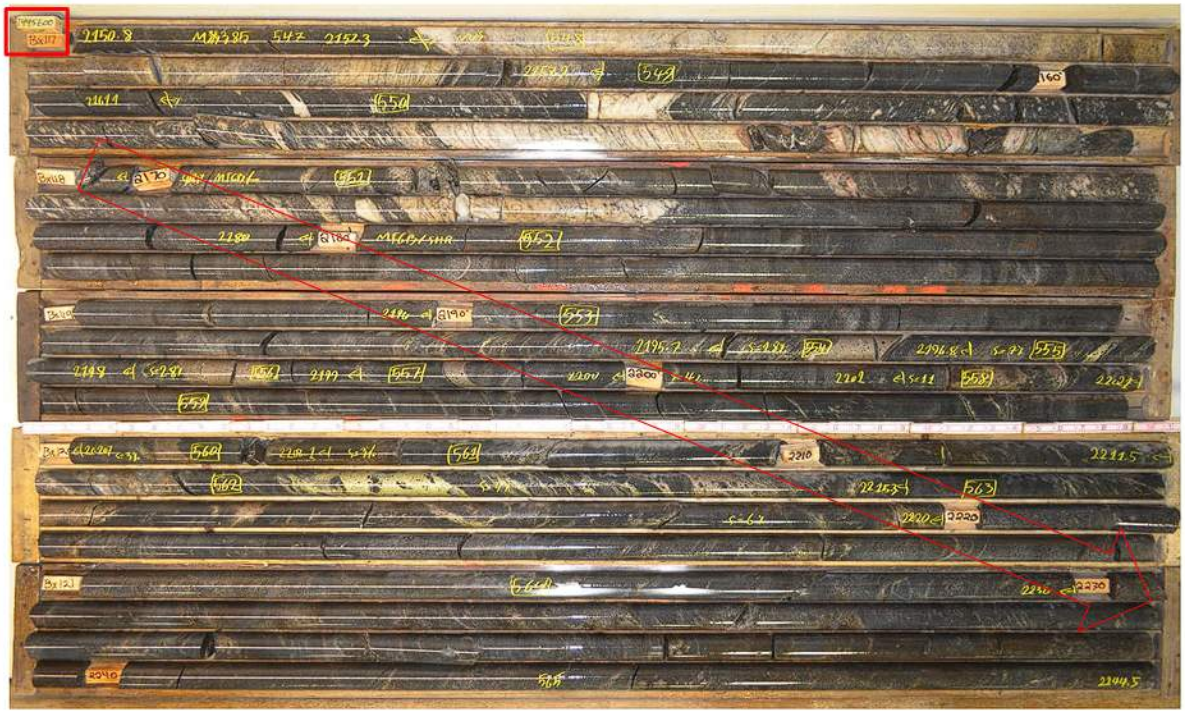
00:05

*Select the play button to listen to the audio narration and complete this section.*

Note estimated Copper/Nickel and sulphide content for each sample on the core with a grease pencil.

## Step 10

00:03



*Select the play button to listen to the audio narration and complete this section.*

Example of core logged prior to photography.

## Step 11

00:06

*Select the play button to listen to the audio narration and complete this section.*

Note the sample from/to footage on the core with a grease pencil. This will be decimal footage (not feet-inches).

## Step 12

00:08

*Select the play button to listen to the audio narration and complete this section.*

Note the entire first sample number on the core and then last 3 digits of the sample numbers on the subsequent samples currently on the bench using a grease pencil.

## Step 13

00:09

*Select the play button to listen to the audio narration and complete this section.*

Enter the logging data into MEBS as per the MEBS Logger User Guide : Geology & In-Mines Exploration and the Logging Guidelines PPT file.

## Step 14

00:06

*Select the play button to listen to the audio narration and complete this section.*

When logging is complete for the trays on the bench, take the dry core photo first and then the wet core photo.

## Step 15

00:05

*Select the play button to listen to the audio narration and complete this section.*

Sample core according to the LIMS Sampling Guidelines: Geology & In Mines Exploration

## Step 16

00:10

*Select the play button to listen to the audio narration and complete this section.*

Leave the CoreLift Bench cleared at the end of shift. Only load what you could reasonably expect to log, photograph and sample. This will reduce potential for unintended sampling errors.

## Step 17

00:04

*Select the play button to listen to the audio narration and complete this section.*

Secure any knives, HI sticks, grease pencils, water bottles, etc.

## Step 18

00:05

*Select the play button to listen to the audio narration and complete this section.*

Sweep the CoreLift Bench and then the floor around your immediate workspace to collect any debris.

Step 19

00:07

*Select the play button to listen to the audio narration and complete this section.*

Trash needs to be disposed of in the yellow industrial waste bins outside. Don't wait until the workstation garbage can is too heavy.

00:04

*Select the play button above to listen to the audio narration and complete this section.*

## How to Operate the CoreLift Bench


Complete the content above before moving on.

# Summary

00:17

*Select the play button above to listen to the audio narration and complete this section.*

These are some key takeaways we reviewed during this section.

## Forklift and Mobile Equipment Operations

## Preparing a Secure Load - Load Binder Safety

## Core Farm – Pallet Selection

## Removing Lids from Core Trays

## Racking Core Boxes from Transport Pallet

## Preparing to Log Core

**Got a Question?**

*Select the button to submit your questions using ValeForms. Be sure to include your first name, last name and contact information.*

CLICK HERE!


**Let's review how much we have learned.**

Answer the following questions related to this section's topics.

CONTINUE

# Knowledge Check

**About Frood-Stobie Geoscience Facility Standard Operating Procedures**

Answer the following questions related to this section's topics. You will need to achieve a 100% score to complete this section.

*Question*

**01/03**

Pre-op on equipment must be completed before diesel equipment is used.

---

- ◯ True
- ◯ False

*Question*

**02/03**

Which of these is NOT something you should do when using a Lever Binder?

---

- Always tighten by hand in a downward manner. Secure the binder handle.
- Routinely inspect the binder for wear, do not use if you see damage like bending and/or cracks.
- Position the binder so it is on a corner.
- Be aware of potential “pinch points” while tightening the binder.

*Question*

**03/03**

When racking core boxes (trays), it is an accepted practice to rack trays higher than your shoulders.

---

- ◯ True
- ◯ False

# Asbestos Awareness – Handling

00:49

*Select the play button above to listen to the audio narration and complete this section.*

## Asbestos Awareness – Standard Procedure

### What is Asbestos?

Asbestos is defined as any of the fibrous silicates (serpentines and amphiboles) in the form of actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite.

Actinolite, tremolite and anthophyllite can occur in both asbestiform (fibrous) and non asbestiform (non-fibrous) habits. Non-asbestiform forms are much more common and widespread than the asbestiform varieties.

Occupational Safety and Health Administration (OSHA) has concluded that there is insufficient evidence that the non-asbestiform form of tremolite, actinolite and anthophyllite will produce adverse health effects, of the same type and severity as those produced by chronic exposure to amphibole asbestos.

Asbestos associated with mining or mining plants falls under Regulation 490/09 Designated Substances.

00:04

*Select the play button above to listen to the audio narration and complete this section.*

## Definitions

*Select each tab to reveal each definition.*

### Asbestos Minerals

Asbestos is defined as any of the fibrous silicates (serpentines and amphiboles) in the form of actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite.

Actinolite, tremolite and anthophyllite minerals **can occur in both asbestiform (fibrous) and non-asbestiform (non-fibrous) habits**. Non-asbestiform mineral form characteristics are much more common and widespread than the asbestiform varieties.

### Friable

Material that is easily crumbled or pulverized by hand pressure.

00:04

*Select the play button above to listen to the audio narration and complete this section.*

## Asbestiform vs. Non-Asbestiform

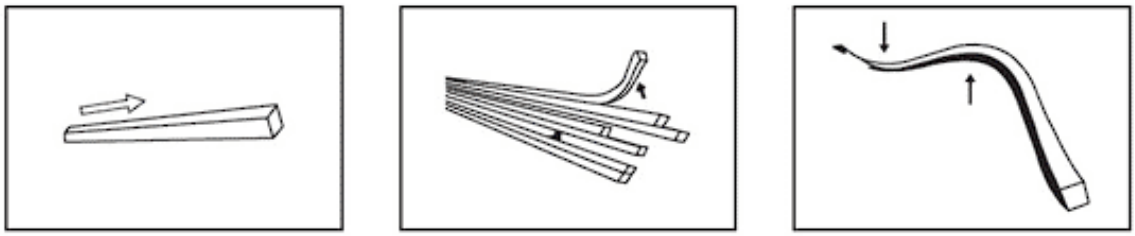
*Select each tab to learn more and complete this section.*

ASBESTIFORM | NON-ASBESTIFORM

The terms asbestiform or 'asbestos' minerals' refer only to those silicate minerals that occur in polyfilamentous bundles, and that are composed of extremely flexible fibers with a relatively small diameter and a large length. These fiber bundles have splaying ends, and the fibers are easily separated from one another.

The vast majority of the occurrences of asbestos are small because, in addition to metamorphic fluids, there must be open spaces into which the fibers can grow, a condition restricted to the upper portions of the earth's crust in structurally specific environments such as faults, joints, the axes of folds, etc. Only rarely are large portions of a rock composed of asbestos.

**ASBESTIFORM**



ASBESTIFORM | NON-ASBESTIFORM

Silicate minerals with crystals that grow in two or three dimensions and that cleave into fragments, rather than breaking into fibrils, are classified as silicate minerals with a non asbestiform habit. Cleavage fragments of the corresponding non-asbestiform varieties consist of short fibers of larger diameter and when pressure is applied, the crystals fracture easily, fragmenting into prismatic particles.

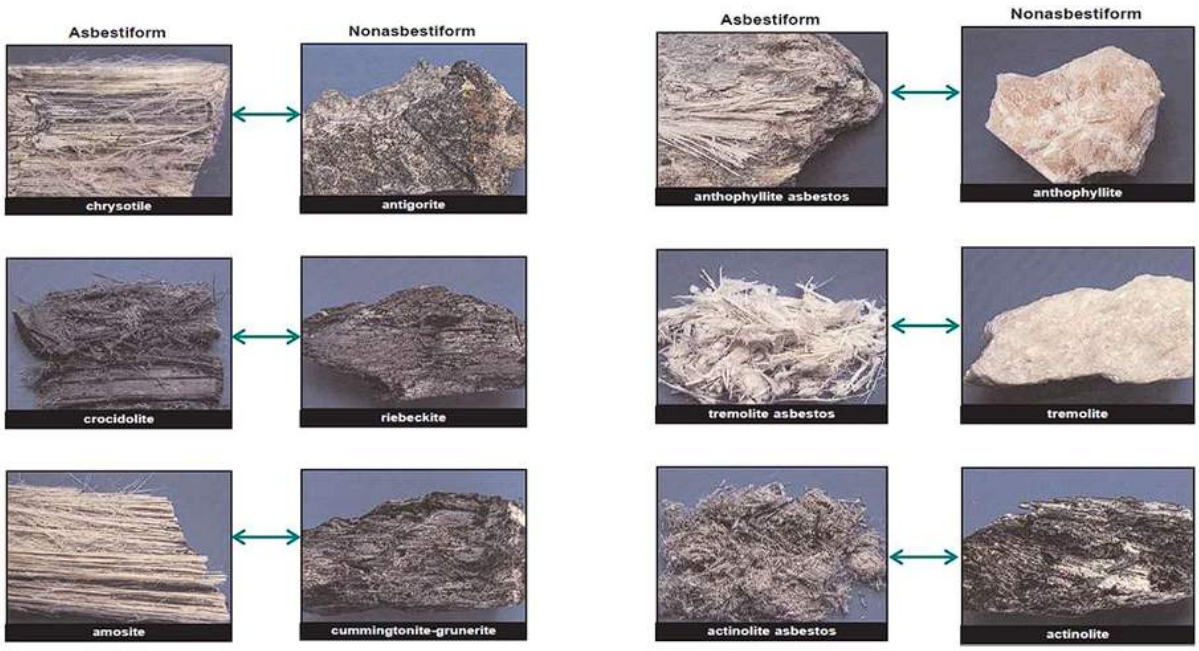
Non-asbestiform amphibole produces particles that, although generally elongated, have widths larger than asbestos fibers of the same length. These wide widths are characteristic of all amphibole cleavage fragments.


Complete the content above before moving on.

00:05

*Select the play button above to listen to the audio narration and complete this section.*

## Distinguishing between Asbestiform and Non-asbestiform Serpentines and Amphiboles




00:03

*Select the play button above to listen to the audio narration and complete this section.*

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## Samples Submitted for Analysis

Totten 4290L Access
Borehole #:
BH1357610

Coleman Mine 3425
Footwall Drift
Asbestiform
Actinolite (100%)

Wollastonite (20 %)
– non-asbestiform

# Logging Core (Standard Procedure TPROC-010801) Summary

00:09

*Select the play button to listen to the audio narration and complete this section.*

Core is identified as having suspected asbestos mineral characteristics.

## Step 1

00:05

*Select the play button to listen to the audio narration and complete this section.*

Advise CMG or supervisor of suspected asbestiform mineral and await instruction.

## Step 2

00:19

*Select the play button to listen to the audio narration and complete this section.*

Ensure the core is wet before additional handling to avoid airborne dust.

Don appropriate PPE prior to handling suspected asbestosform minerals. This includes a fitted face mask, disposable gloves and coveralls. This PPE will need to be collected afterwards and placed in a marked garbage bag as per the Asbestos Awareness – Standard Procedure.

## Step 3

00:04

*Select the play button to listen to the audio narration and complete this section.*

Avoid excessive handling/breaking of the suspected core before inspection.

## Step 4

00:05

*Select the play button to listen to the audio narration and complete this section.*

Proceed to view the sample at magnification to more definitively identify asbestiform characteristics.

## Step 5

00:14

*Select the play button to listen to the audio narration and complete this section.*

If asbestiform characteristics are present or the habit and characteristics of sample cannot be identified with confidence, sample must be bagged and submitted to occupational health to be analyzed to determine sample habit, minerology and to analyze for asbestiform fibers.

## Step 6

00:04

*Select the play button to listen to the audio narration and complete this section.*

Identify if the rock sample is friable (crumbled by hand pressure or powdered material).

## Step 7

00:04

*Select the play button to listen to the audio narration and complete this section.*

If friable, do not disturb the sample and bag the sample immediately.

## Step 8

00:11

*Select the play button to listen to the audio narration and complete this section.*

If not friable, sufficiently wet the material, shield and proceed to break the core sample wearing appropriate PPE for more definitive sample observation. If in doubt, send sample for analysis.

## Step 9

00:02

*Select the play button to listen to the audio narration and complete this section.*

Do not request cutting of the suspected interval.

## Step 10

00:05

*Select the play button to listen to the audio narration and complete this section.*

Do not assign a sample number to the interval but add a description in MEBS log and comments.

## Step 11

00:10

*Select the play button to listen to the audio narration and complete this section.*

Ensure the suspected rock is placed in isolation, double bagged and clearly marked that it may contain asbestiform material/minerals and is intended for testing by the Occupational Health Department.

## Step 12

00:06

*Select the play button to listen to the audio narration and complete this section.*

Request the Occupational Health Department collect the suspected sample. DO NOT deliver or ship the sample, as per their protocol.

## Step 13

00:06

*Select the play button to listen to the audio narration and complete this section.*

Provide Occupational Health with source location information: mine, borehole number, depth interval.

## Step 14

00:05

*Select the play button to listen to the audio narration and complete this section.*

The CMG or supervisor will receive the lab results and forward to the geologist logging the hole.

## Step 15

00:08

*Select the play button to listen to the audio narration and complete this section.*

Attach a digital copy of the lab report in MEBS within the mines server folder designated for "Suspected Fibrous or Asbestiform Minerals" sample results.

## Step 16

00:05

*Select the play button to listen to the audio narration and complete this section.*

If sample results are positive for asbestiform minerals, do not request or receive the sample back.

**Step 17**

00:06

*Select the play button to listen to the audio narration and complete this section.*

The CMG will approve the sample for assay only if the it is NON-asbestiform and an assay is required.

CONTINUE

# Asbestos Awareness – Standard Procedure

00:17

*Select the play button above to listen to the audio narration and complete this section.*

## Asbestos Awareness – Standard Procedure

The purpose of this section is to provide the safe procedure for handling of rocks containing suspected fibrous or asbestiform minerals.

This procedure applies to all logging facilities and underground mines that are operating, under design or in development in Ontario.

02:37

*Select the play button above to listen to the audio narration and complete this section.*

## Accountabilities and Responsibilities

## Geologist

Be observant while logging drillcore or mapping underground rocks. Be familiar with the appearance of amphibole and serpentine minerals and be aware that these minerals can occur in asbestiform character. Any such minerals with friable (easily crumbled) characteristics should be suspect.

> **Note: Reference to core, core interval or rock in the text below can be replaced by "grab sample" if collected within the mine.**

## If the occurrence of asbestiform minerals is suspected in drillcore or underground rocks, the geologist must:

- Assist to lower the risk of potential exposure of all workers to fibrous or asbestiform minerals by careful, consistent observation and familiarity with the appearance of actinolite, tremolite and anthophyllite that can occur in both asbestiform (fibrous) and non-asbestiform (non-fibrous) habits.
- Upon suspicion of fibrous form serpentines or amphibole minerals, (especially such minerals that are friable or easily crumbled) ensure the core is wet before additional handling of the rock to avoid release of airborne dust.
- Avoid excessive handling and breaking of the suspected core interval and surrounding core, especially when dry.
- Not cut or request cutting of the suspected rock/ core interval.
- Not assign a sample number to the core interval in MEBS but add the description and intent for the material for testing in the MEBS log description and comments.

- If the material is an underground grab sample, note the location in Deswik geology drawings.

- **Do not ship a suspect rock** to the Vale assay provider's sample preparation lab without written confirmation from the Occupational Health Department that the rock's minerals are non-asbestiform.

- Ensure the suspected rock is placed in isolation (preferably in a designated site), properly bagged and clearly marked that it **may contain asbestiform material / minerals**, intended for testing by the Occupational Health Department.

- Request the Occupational Health Department collect the suspected rock. **Do not deliver or ship the sample**, as per their department protocol.

- Provide the Occupational Health Department the location information of the rock that can be applied to the final report regarding the final mineralogy report/ lab results. Provide:

    - Mine
    - Borehole number
    - Drillcore depth interval (from and to) or Level location, if collecting the sample for underground mine workings.

- Receive the lab results (positive or negative asbestiform) from the Occupational Health Department and forward to the Chief Mine Geologist (CMG).

- Attach the digital file of the lab report in MEBS database and within the mines server folder designated for "Suspected Fibrous or Asbestiform Minerals" sample results.

- If the sample results indicate positive for asbestiform minerals, do not request or receive the sample back from the Occupational Health Department as per their protocol.

Complete the content above before moving on.

00:17

*Select the play button above to listen to the audio narration and complete this section.*

---

## Chief Mine Geologist (CMG):

- Monitor, track and receive the lab results (positive or negative asbestiform) from the Occupational Health Department or forwarded by the logging geologist.
- Confirm and approve the sample submission for assay if it is non-asbestiform and the assay is required for that interval.

00:41

*Select the play button above to listen to the audio narration and complete this section.*

---

## Occupational Health Department:

- Collect information from the Geologist regarding the location information of the rock that can be applied to the final report regarding the lab results:

    - Mine
    - Borehole number
    - Drillcore depth interval (from and to) or Level location, if collecting the sample for underground mine workings.

- Safely collect and remove **all** of the suspected rock material from the geologist's workplace (core logging area, mine, plant) as per the suspected asbestos material handling protocol.

- Submit sample for asbestiform testing.

- Report results to the geologist and CMG with reference to the location information provided.

- Return material to the geologist only if the rock does not contain Asbestos Minerals.

00:18

*Select the play button above to listen to the audio narration and complete this section.*

---

## Prohibited Handling of Rocks with Fibrous or Asbestiform Minerals:


# ASBESTOS

## MAY CAUSE CANCER
## CAUSES DAMAGE TO LUNGS

## AUTHORIZED PERSONNEL ONLY

## WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

- **Cutting or additional breaking of the rock is prohibited** in order to prevent possible airborne release of asbestiform mineral fibers.
- **Sending / shipping or delivering the suspected rocks to the assay preparation lab is prohibited** until the sample is proven and documented to not contain asbestos minerals.

Complete the content above before moving on.

00:06

*Select the play button above to listen to the audio narration and complete this section.*

## Next Steps

"ASBESTIFORM" RESULTS FROM THE OCCUPATIONAL HEALTH DEPARTMENT

"NON-ASBESTIFORM" RESULTS FROM THE OCCUPATIONAL HEALTH DEPARTMENT

When the Occupational Health Department report is returned and indicates the rock **did** contain Asbestiform minerals:

- In the MEBS drill hole log, update the header comment section indicating and interval description to note the results of the testing were POSITIVE for asbestos bearing minerals and the depth (from, to) location of the interval.
- Attach the final report from the Occupational Health Department to the drill log in MEBS (currently under the "geochem log" file attachment area).

- If the material is an underground grab sample, note the location in Deswik and store the documentation in the mine folder designated for documentation of samples with "Suspected Fibrous or Asbestiform Minerals".
- Not accept return of this material from the Occupational Health Department.

**"ASBESTIFORM" RESULTS FROM THE OCCUPATIONAL HEALTH DEPARTMENT**

**"NON-ASBESTIFORM" RESULTS FROM THE OCCUPATIONAL HEALTH DEPARTMENT**

When the Occupational Health Department report is returned and indicates the rock **did not** contain Asbestiform minerals:

- In the MEBS drill hole log, update the header comment section indicating and interval description to note the results of the testing were NEGATIVE for asbestos bearing minerals and the depth (from, to) location of the interval.
- Attach the final report from the Occupational Health Department to the drill log in MEBS (currently under the "geochem log" file attachment area).
- If the material is an underground grab sample, note the location in Deswik and store the documentation in the mine server designated for samples of "Suspected Fibrous or Asbestiform Minerals".
- Confirm with the CMG and attain I request approval for the sample submission for assay for that material. There must be a justification /requirement for assay. If approval provided the material can be submitted for assay.
- Assign a sample number to the interval in the MEBS log,
- Place sample in a new (unmarked) sample bag. No markings or notes on the bag regarding the sample's "suspected asbestiform" tests etc. are warranted.
- Scan the sample tag into LIMS bin and physically place into a sample shipping bin.

Complete the content above before moving on.

# Summary

00:06

*Select the play button above to listen to the audio narration and complete this section.*

These are some key takeaways we reviewed during this section.

## Asbestos Awareness – Handling and Standard Procedure

**Got a Question?**

*Select the button to submit your questions using ValeForms. Be sure to include your first name, last name and contact information.*

CLICK HERE!


**Let's review how much we have learned.**

Answer the following questions related to this section's topics.

CONTINUE

# Knowledge Check

**About Asbestos Awareness - Standard Procedure**

Answer the following questions related to this section's topics. You will need to achieve a 100% score to complete this section.

*Question*

**01/02**

Asbestos is defined as any of the fibrous silicates (serpentines and amphiboles) in the form of actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite.

---

- ○ True
- ○ False

*Question*

**02/02**

It is OK to continue cutting or breaking rocks with fibrous or asbestiform minerals.

---

- ◯ True
- ◯ False

# Roller Conveyor

02:00

*Select the play button above to listen to the audio narration and complete this section.*

## Operating Roller Conveyor

### Safety – Operational Knowledge

- Do not utilize the roller conveyor unless you have been trained and authorized to do so.
- Operator is required to conduct a Pre-operational Inspection of the equipment before each shift and tag out unit(s) if there are deficiencies.
- Do not place objects on the conveyor more than the rated load capacity of 75lbs. per square foot (3.6 kPa) or maximum 1,500 lbs. (680 Kg).
- Do not make alterations or modifications to the equipment.
- The roller conveyor shall be cleared of load, barricaded and tagged out prior to any maintenance activities (ZES).
- Do not use this equipment for other than core logging operations.

- Rotating parts at pinch points can drag in, crush or entangle the worker.
    - Tie back and tuck in long hair
    - Do not wear loose clothing or jewelry
    - Clear pockets of rags, protruding objects or other snagging hazards
- Area between rollers, frame and load is a pinch point (can shear or crush).
- Confinement or assembly areas (area between fixed and moving objects) can shear or crush.
- Parts under load can break or be ejected from the roller conveyor assembly.
- Do not try to remove stuck objects or debris until the conveyor has been cleared, barricaded and tagged out.
- Objects can fall off the roller conveyor and possibly bounce, potentially striking worker(s) or other equipment. Always use guardrails if provided.
- Do not lean, climb, step, sit or ride on the conveyor.
- Ensure floor area is clear of tripping/slipping hazards. Have good footing.
- Proper Personal Protective Equipment (PPE – CSA steel-toe boots with metatarsal guards, cut/impact gloves and safety glasses) must be worn.
- Caution must be used when loading, handling and moving core boxes on the roller conveyor. **Move loaded core boxes from the top surface only.**

- Guard pinch points at rollers and wheels, and between conveyor and receiving table (transition).
- Do not stack core boxes (double stacking).
- Do not remove guards or safety devices.
- Do not use this equipment when safety components are missing.
- Do not remove or obscure warning and operating labels.

00:04

*Select the play button above to listen to the audio narration and complete this section.*

## Pre-operational Inspection (Operators Pre-Check)

*Select each tab to learn more and complete this section.*

| FLUIDS | VISUAL | TESTS |
| --- | --- | --- |

- Check all moving parts are lubricated and tight. Grease fittings as required.

FLUIDS | VISUAL | TESTS

- Check all components for damage, cracks, deterioration, corrosion, wear, housekeeping.
- Check for lubrication escaping from moving part seals.
- Check the roller conveyor for level, side to side and along length.
- Ensure all components, guards and labels are properly installed, legible, none missing. • Remove or secure any potential obstructions to the roller conveyor operation.

FLUIDS | VISUAL | TESTS

- Rotate all rollers and identify any that are noisy, hard to turn, gritty feel or wobbles.
- Weight the frame and note any flex or looseness in components.

00:03

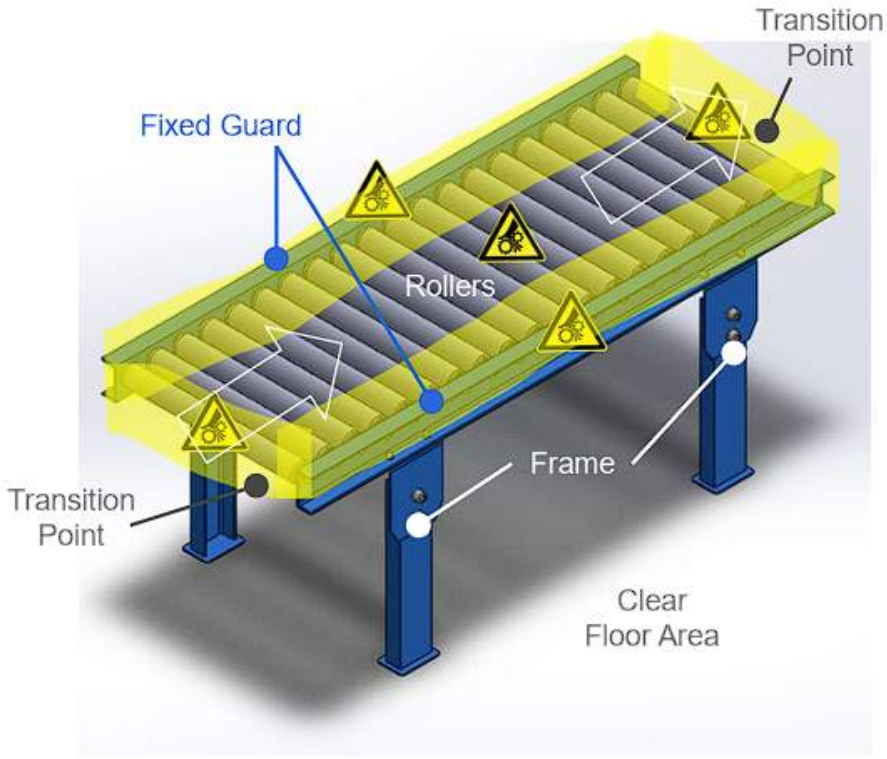
*Select the play button above to listen to the audio narration and complete this section.*

## Operating Roller Conveyor

*Select each tab to learn more about operation and complete this section.*

## Pinch Points

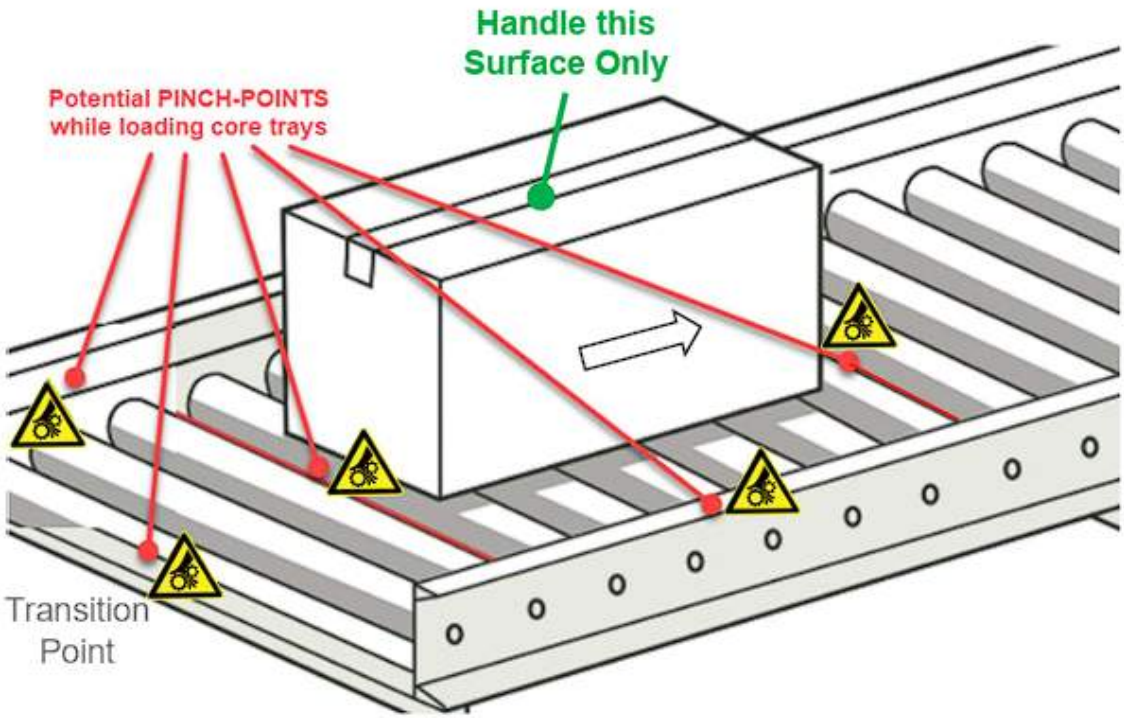
- Operator verifies there are no obstacles that will affect the operation of the roller conveyor.
- All personnel must be aware of the potential pinch points while working at or around the roller conveyors.




## Core Box Loading/Unloading

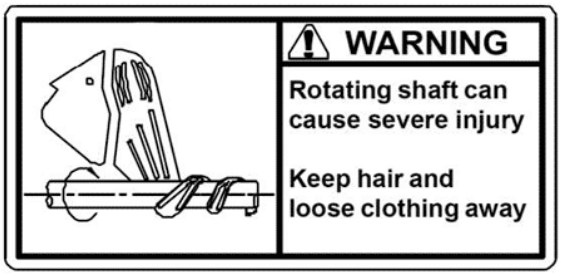
- Use all required and approved PPE while handling core boxes.
- Ensure core boxes will slide freely on the rollers before loading commences. Clear debris (imbedded gravel, fiber tape, mud, etc.) from underside of core boxes.
- Watch for potential pinch points between the core boxes and rollers, guards, frame.

- Load roller conveyor from the transition point preferred to reduce pinch points.




**Warnings**

Please heed these warnings.




Complete the content above before moving on.

# ALMONTE Automatic Core Cutting Saw Operating Procedures

00:58

*Select the play button above to listen to the audio narration and complete this section.*

## Operating Core Cutting Saw

### Safety – Operational Knowledge

- Do not operate core saw unless you are competent, have training, are qualified and authorized to do so.
- Do not operate if you are in an impaired condition.
- Do not operate this equipment without having read the operating and maintenance instructions and procedures.
- Operator will not use the core saw when alone in the Frood-Stobie Geoscience Facility.
- Operator is required to conduct a Pre-operational Inspection of the equipment before each shift and tag out the unit if there are deficiencies.

- Operator ensures all guards and safety sensors are in place before operating saw.
- Match the proper Core Guide tray to the core size being cut.
- Do not make alterations or modifications to the equipment.
- Do not lean, step, sit or climb on the core saw. Do not over-reach.
- Do not use this equipment for other than core cutting operations.
- The core saw must be isolated and checked, tagged and locked-out prior to any maintenance activities (ZES).
- Ensure all required inspections and maintenance are performed and recorded.

00:41

*Select the play button above to listen to the audio narration and complete this section.*

---

## Safety – PPE and Cautions

- Approved personal protective equipment (PPE) must be worn at all times while operating the core saw. PPE will include the following:

  - CSA steel-toe boots (rubber) with metatarsal guards and non-skid soles
  - Cut/impact resistant gloves

- Double hearing protection (ear plugs and muffs)
- Hard helmet with polycarbonate face shield
- Fitted safety glasses
- Fitted respirator
- High visibility clothing, waterproof apron and sleeve protectors

- Moving parts create pinch points which can drag in, crush or entangle.

- Tie back and tuck in long hair
- Do not wear loose clothing or jewelry
- Clear pockets of rags, protruding objects or other snagging hazards

00:48

*Select the play button above to listen to the audio narration and complete this section.*

---

## Safety – Awareness and Cautions

- Operator is made aware of special core situations (example: occurrence of fibrous minerals)

- Keep work area clean. Clear tools, cuttings and debris before and after operations.

- Do not operate equipment in a careless or unsafe manner.

- Core saw is turned off and **E-Stop** engaged when unattended.
- Ensure saw blade is in good condition and rotating in the correct direction indicated by the manufacturer markings on the blade.
- Ventilation of work area and good ambient/task lighting.
- Pressurized water supply is available and turned on prior to cutting.
- Do not place body parts in any areas identified as pinch points while core saw is in operation.
- Use proper lifting techniques to mitigate musculoskeletal (MSD) strain or injury.
- Sludge and cuttings from core sawing must be captured and properly disposed.

Complete the content above before moving on.

00:06

*Select the play button above to listen to the audio narration and complete this section.*

## Safety – Emergency Situations and Procedures

*Flip each card to learn what to do in these situations.*

| | |
|---|---|
| Jammed Guide Chain or Saw Blade | • Immediately shut off the electric power supply by depressing the E-Stop button on the control panel.<br>• Shut off the supply power at the electrical panel and lock out.<br>• Shut off the water at the |
| Sudden and Intense Vibration | • Immediately shut off the electric power supply by depressing the E-Stop button on the control panel.<br>• Move well away from the equipment until all motion has stopped.<br>• Shut off the supply power |

| | |
|---|---|
| Fire or Smoke | • Immediately shut off the electric power supply by depressing the E-Stop button on the control panel, if it can be done safely.<br>• Shut off the supply power at the electrical panel.<br>• Assess if fire can be |
| Electrical Shock | • Immediately shut off the electric power supply by depressing the E-Stop button on the control panel.<br>• Shut off the supply power at the electrical panel and lock out. |

00:09

*Select the play button above to listen to the audio narration and complete this section.*

# Safety – Hazards, Dangers and Prevention

| Potential Hazards and Dangers | Prevention and Safety Measures |
|---|---|
| Severe injury resulting from incorrect use of the core saw or use of a defective blade. | • Personal protective equipment (PPE)<br>• Training/induction<br>• Pre-start inspection<br>• Instruction manual<br>• Spring safety arm<br>• Usage of warning stickers |
| Cuts from handling core or falling core trays. | Wear personal protective equipment (PPE), e.g. gloves, safety boots, long pants/sleeves. |
| Injury to eyes from particles of core. | Personal protective equipment (PPE), e.g. eye protection, machinery guards. |
| Water coming in contact with electricity. | • Machines are hard-wired into power or use waterproof power points.<br>• Power outlets are above water egress points and are not in contact with water hoses.<br>• In the event of an electrical problem, cease operation immediately and report the fault.<br>• Under no circumstances are unqualified persons to attempt repairs. |
| Entanglement with machinery. | • Training/induction<br>• Trip switches<br>• Procedures<br>• Usage of warning stickers<br>• Personal apparatus consideration for possible entanglement with machinery. |
| Damage to hearing. | Personal protective equipment (PPE) - hearing protection: Plugs and protective ear muffs |

| Potential Hazards and Dangers | Prevention and Safety Measures |
|---|---|
| High speed rotating diamond saw blade (danger of laceration). | Do not lift the primary/secondary/top blade cover while the machine is in operation. Isolate at the main power source before conducting repairs and ensure that you have sufficient training to complete this task. |
| Moving parts (crushing and cutting). | Do not place hands or fingers between cutting block or block pushers and blade housing. Entry flap and guard is in place to prevent an incident. |
| Falling objects (injuries to feet and limbs). | Wear steel cap safety boots and ensure trays and tools are placed on a solid base where they cannot be easily dislodged. |
| Radiation - if cutting core that requires radiation monitoring. | All employees are issued with a radiation monitoring tag (TLD badge), which is collected by the radiation department on a regular basis, and a new tag is issued. |
| Back injury/strains due to incorrect movement of core trays, blade guard lifting. | Ensure correct lifting techniques are used when manual handling, warm up, stretch before conducing activities. Recommend two hand lift when lifting blade guard. |
| Heat/Ventilation/Dehydration/Fatigue/ Fitness for work. | Ensure sufficient ventilation in core shed, maintain fluid levels at all times, fatigue management awareness, practice induction, etc. No personal music listening devices or the like to be used whilst operating machine. Employees to comply with fitness for work requirements |
| Incompetent operator(s). | Employers must provide employees with information, instruction, training and supervision to allow them to work in a safe manner |
| Distraction | Educate personnel regarding communications with operators engaged in core cutting. Wait for operator to complete task, then attempt to gain eye contact before approaching. Possible use of a visual light signal to gain attention.<br>Signage: Do Not Disturb Operator While Core Cutting Operations Underway. |

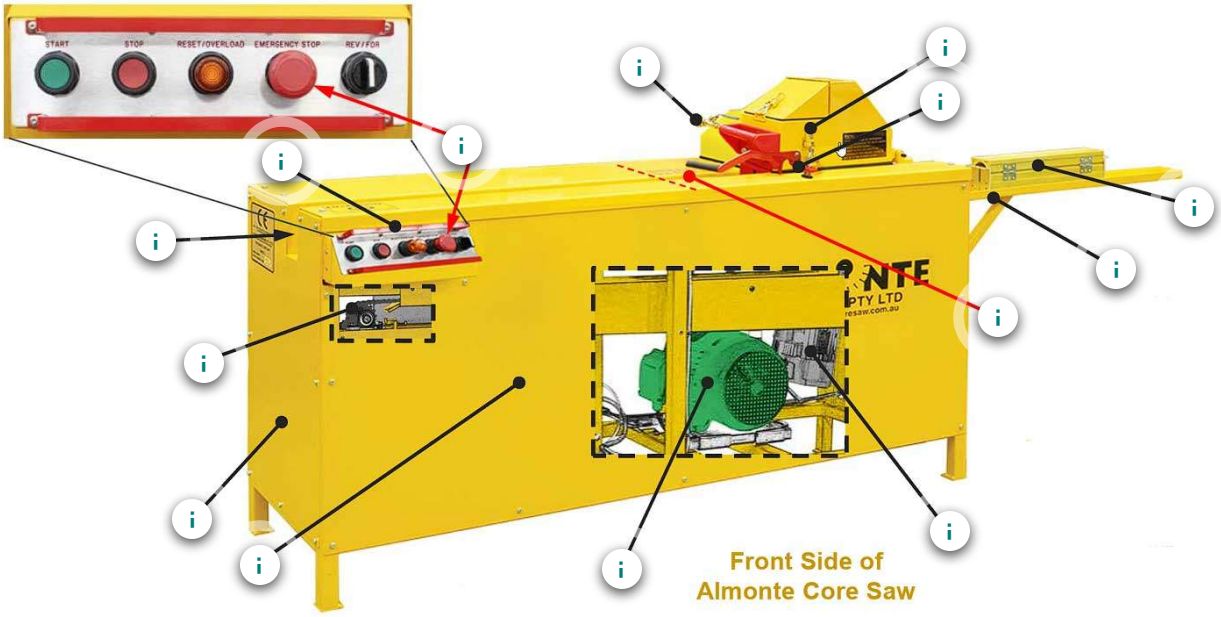
*Select the play button above to listen to the audio narration and complete this section.*

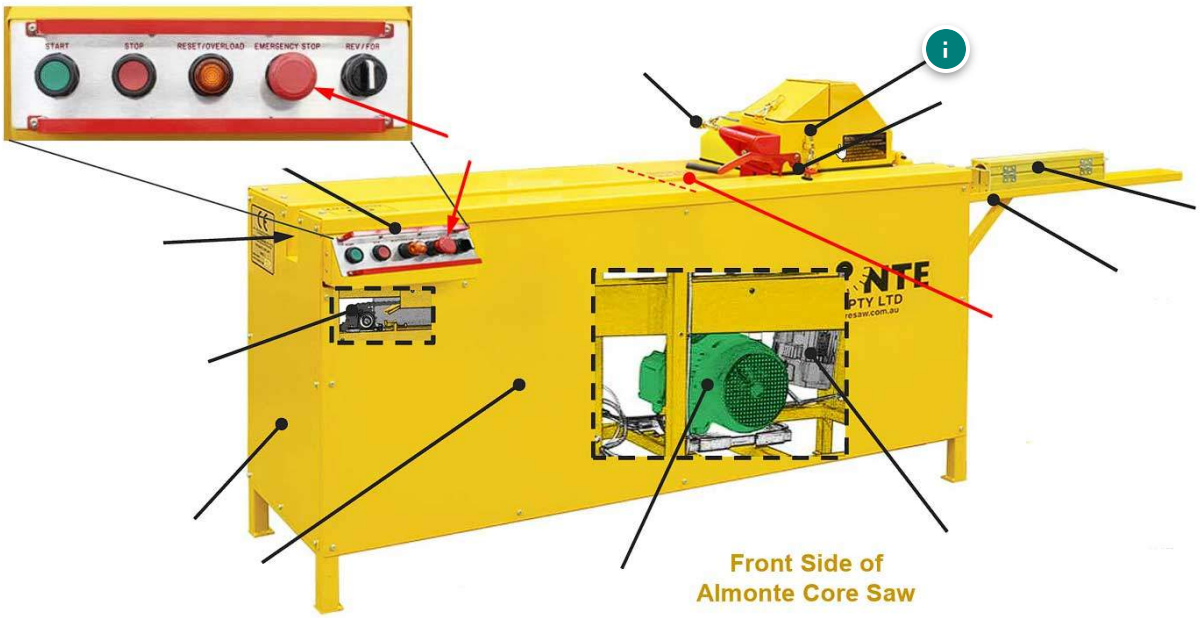
---

## Core Saw Overview

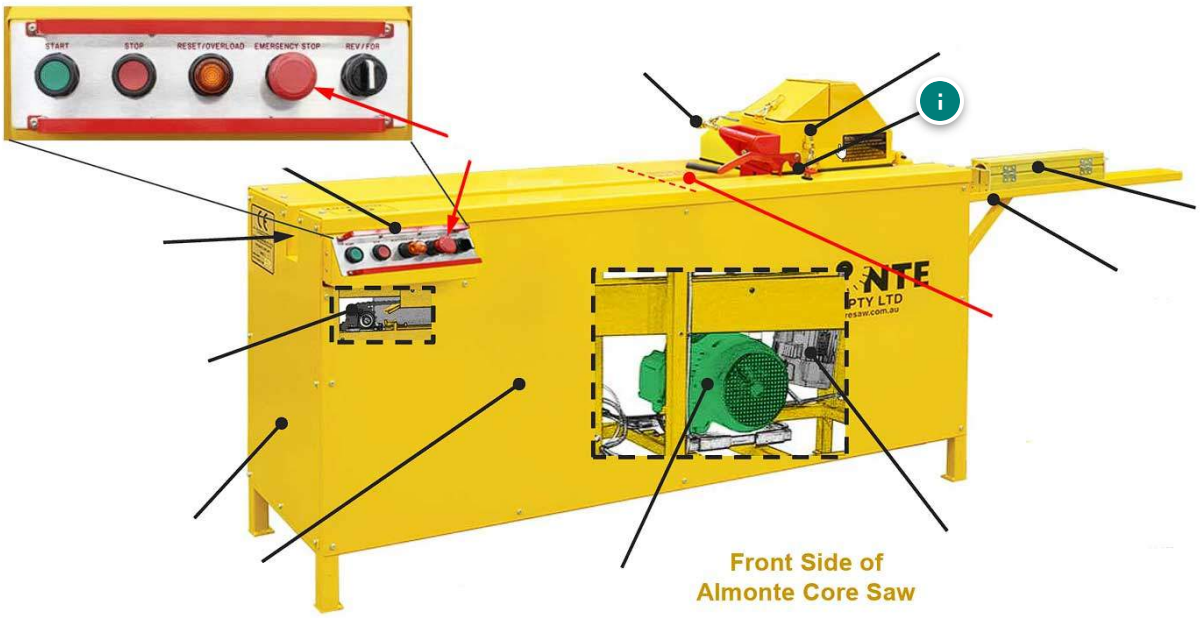
- The Control Panel has five buttons from left to right: Start, Stop, Reset, E-Stop, and Selector Switch (Reverse/Stop/Forward) guarded by two red bars.
- The Core Blade Hood has a locking clamp and Safety Sensor that disables the saw when the hood is raised.
- Pinch Point areas are clearly indicated on the saw body. No body parts in these areas.

*Select each marker to learn more and complete this section.*

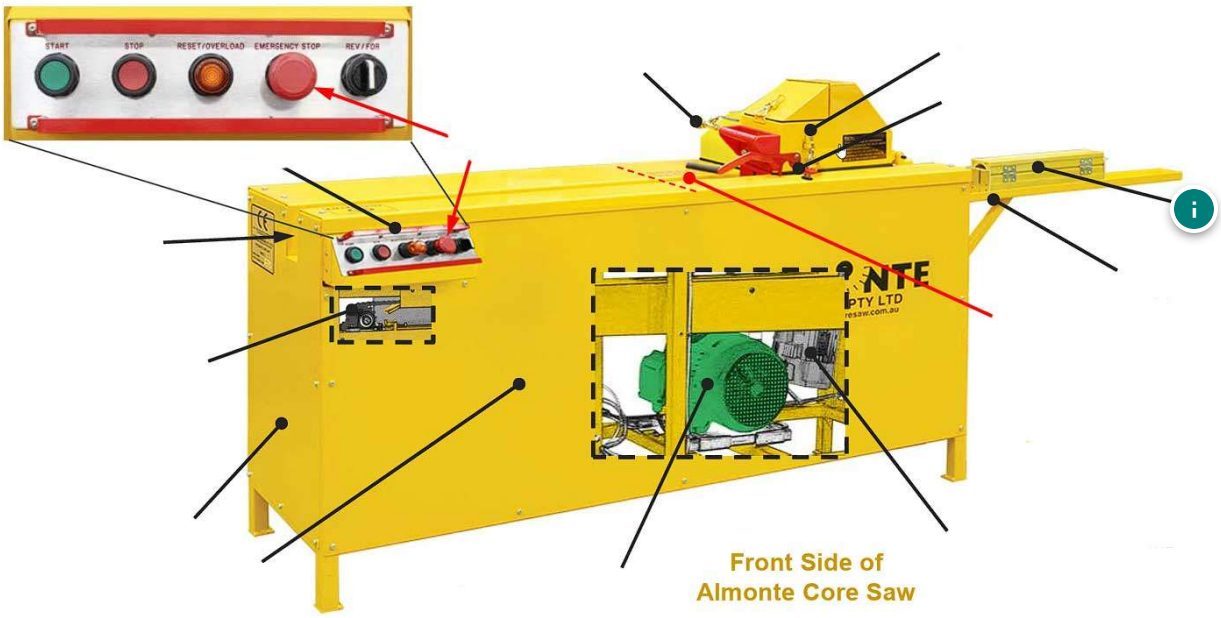




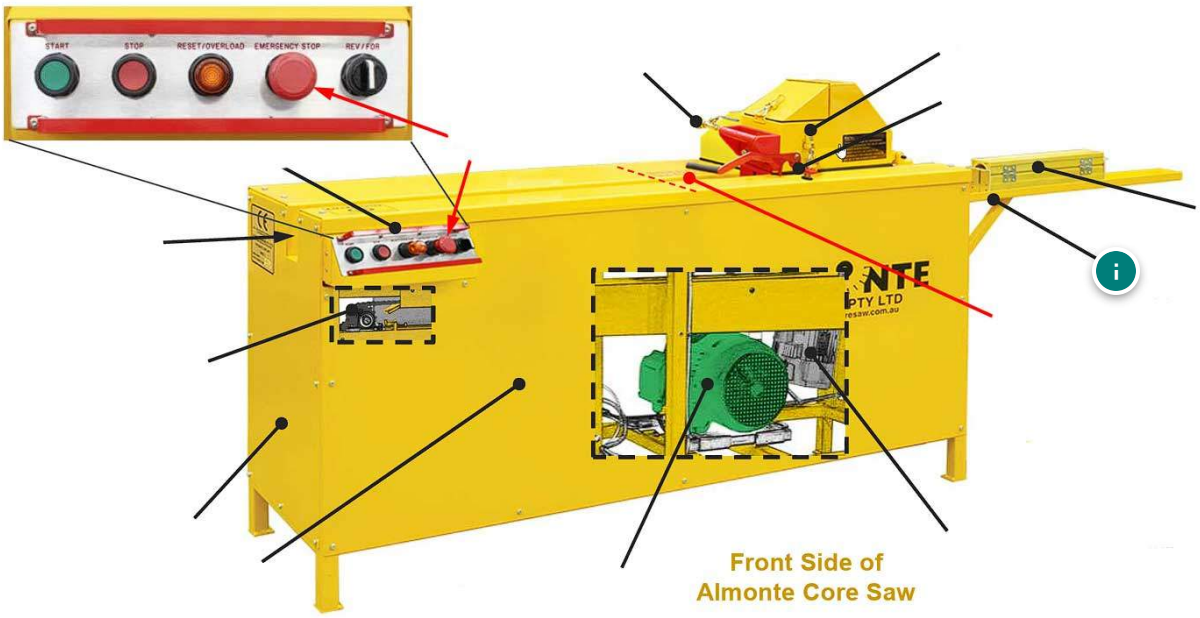

**Core blade hood and locking clamp**



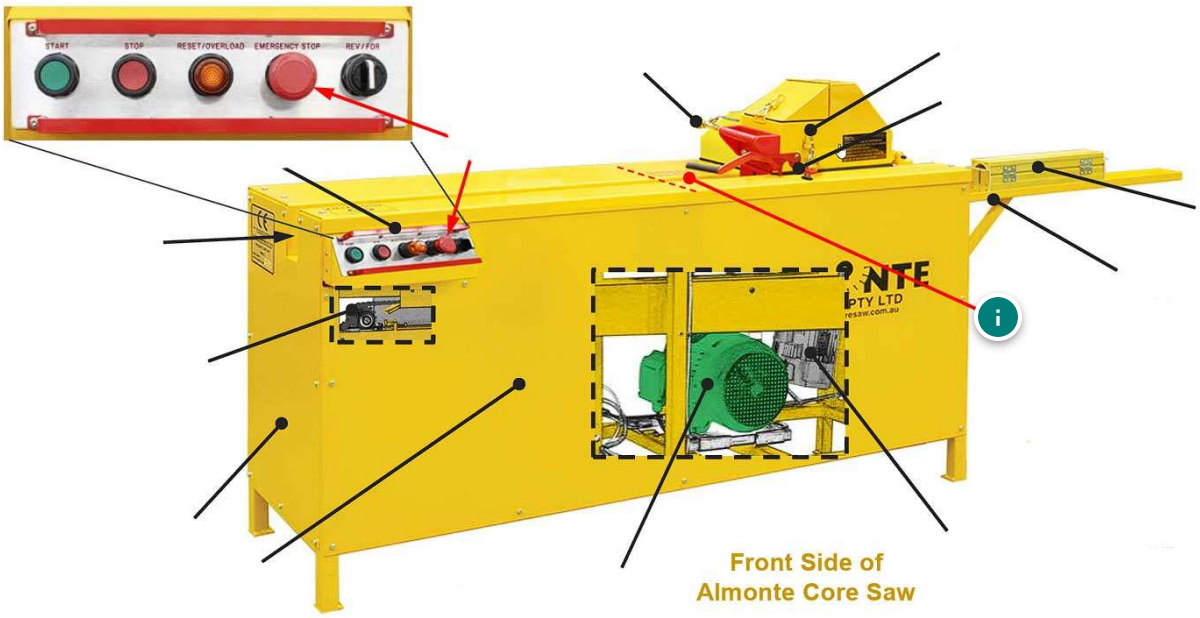

**Safety sensor**


START
STOP
RESET/OVERLOAD
EMERGENCY STOP
REV/FOR
Front Side of
Almonte Core Saw

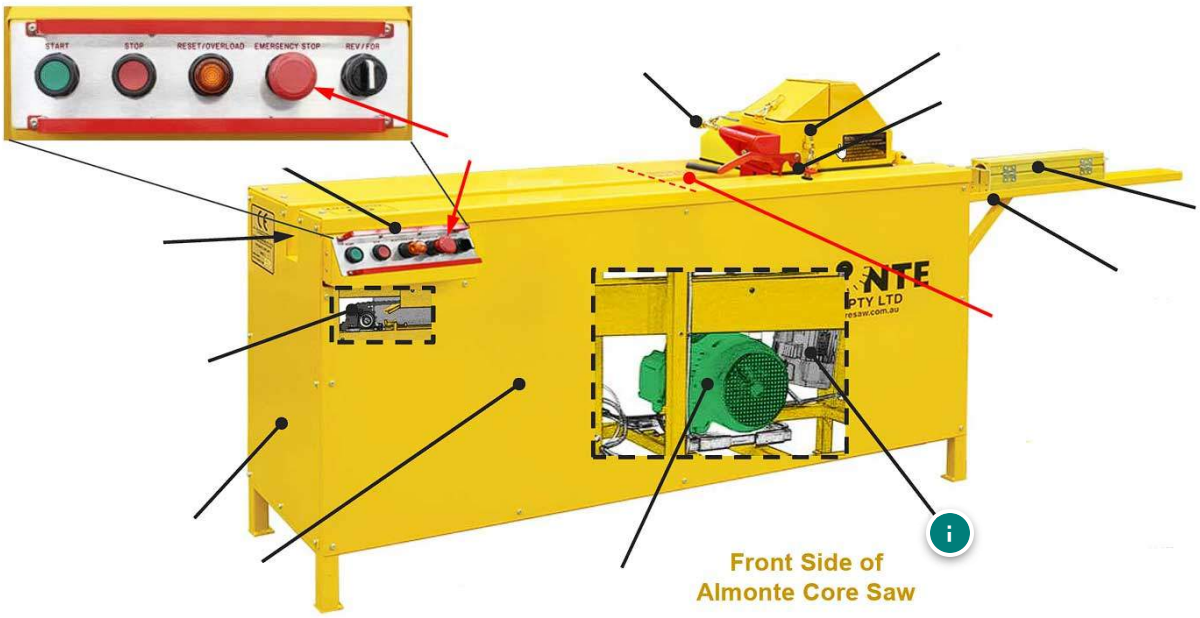
**Core guide**



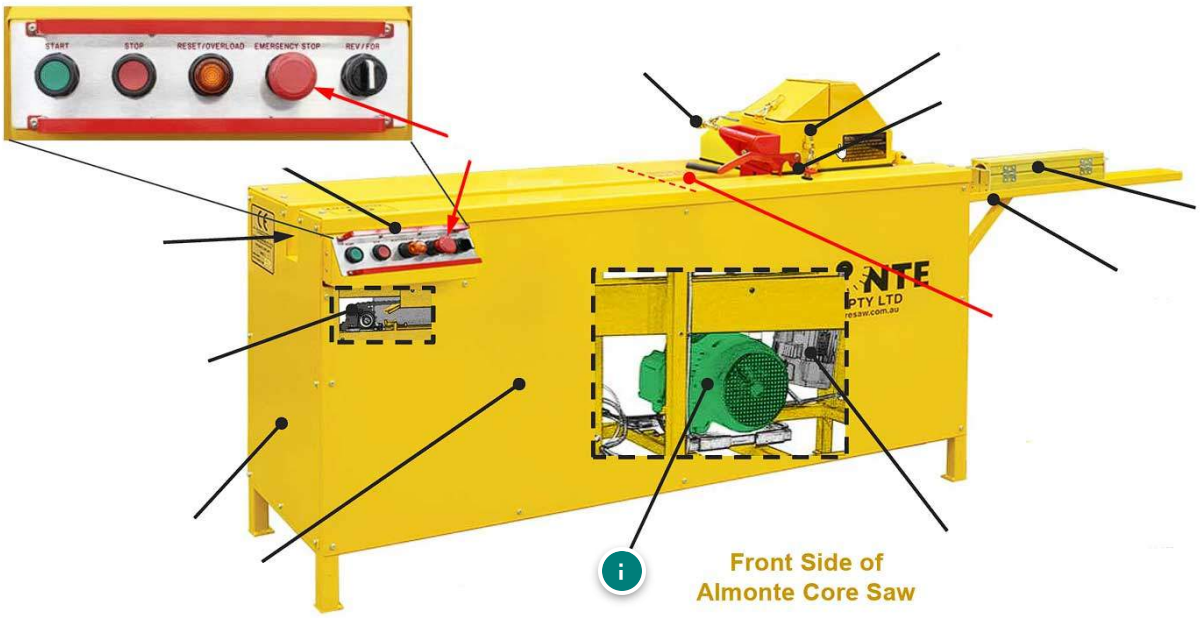

**Core guide exit tray**



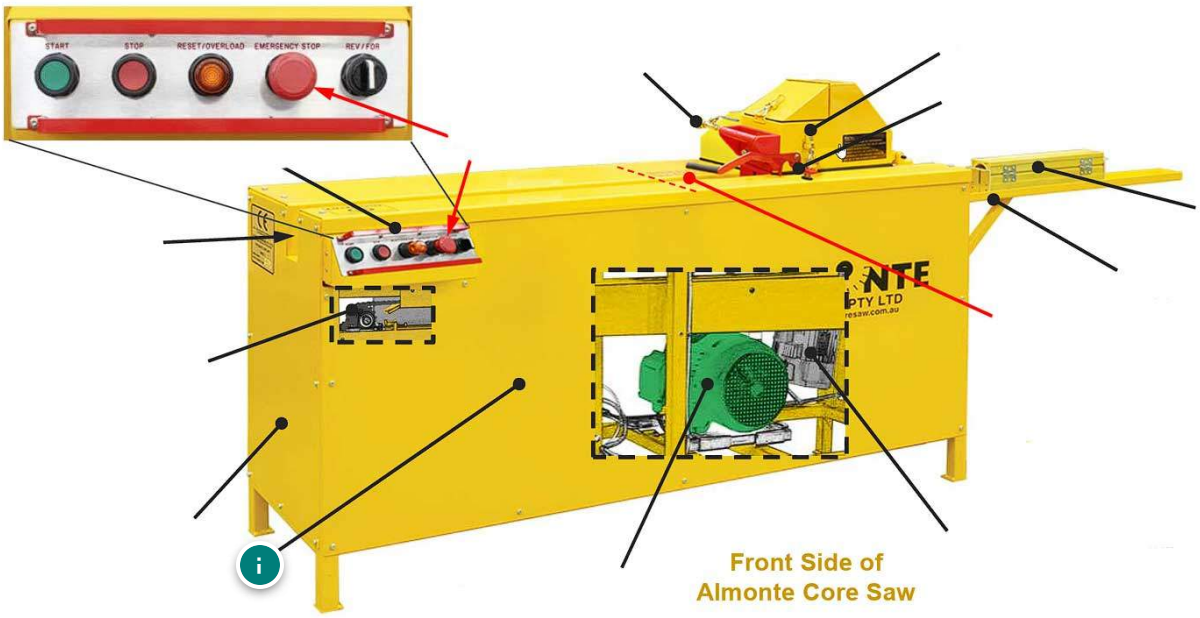

**Pinch point area**



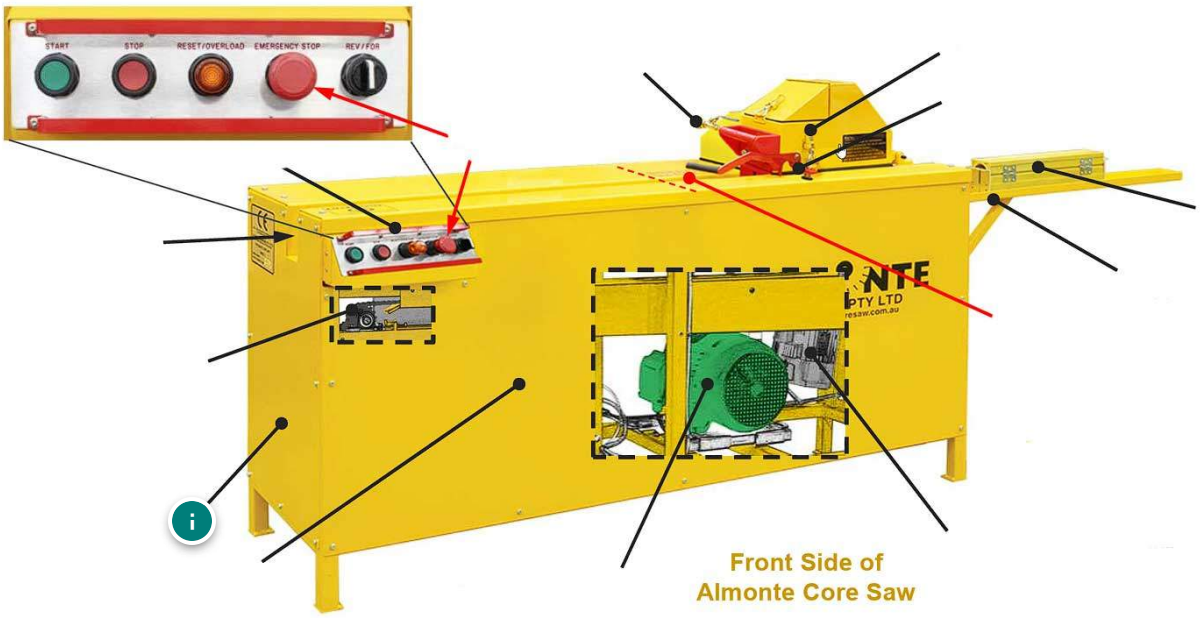

**Gearbox and 0.55kW motor (for guide chain assembly)**



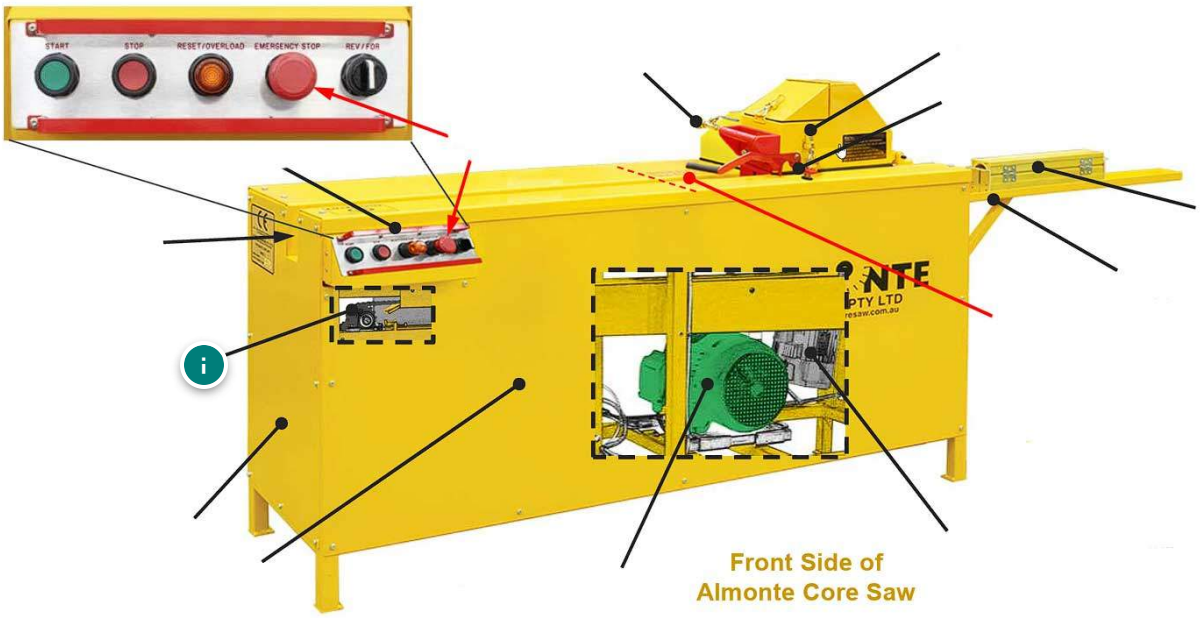

**7.5kW motor (for cutting blade)**



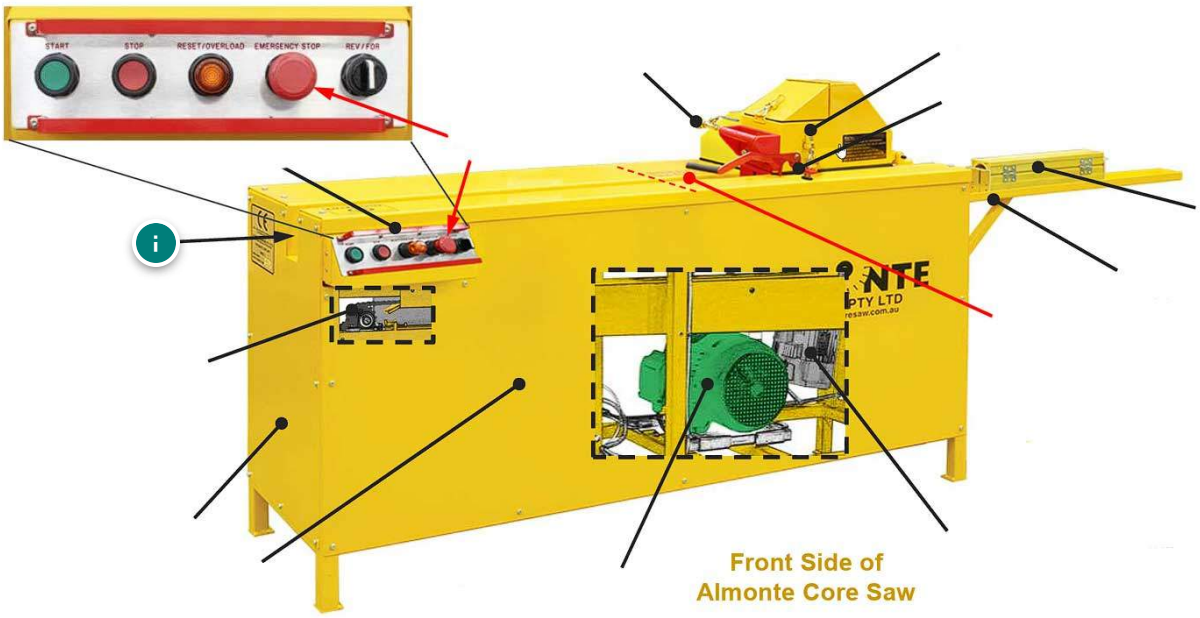

**Front access panel**



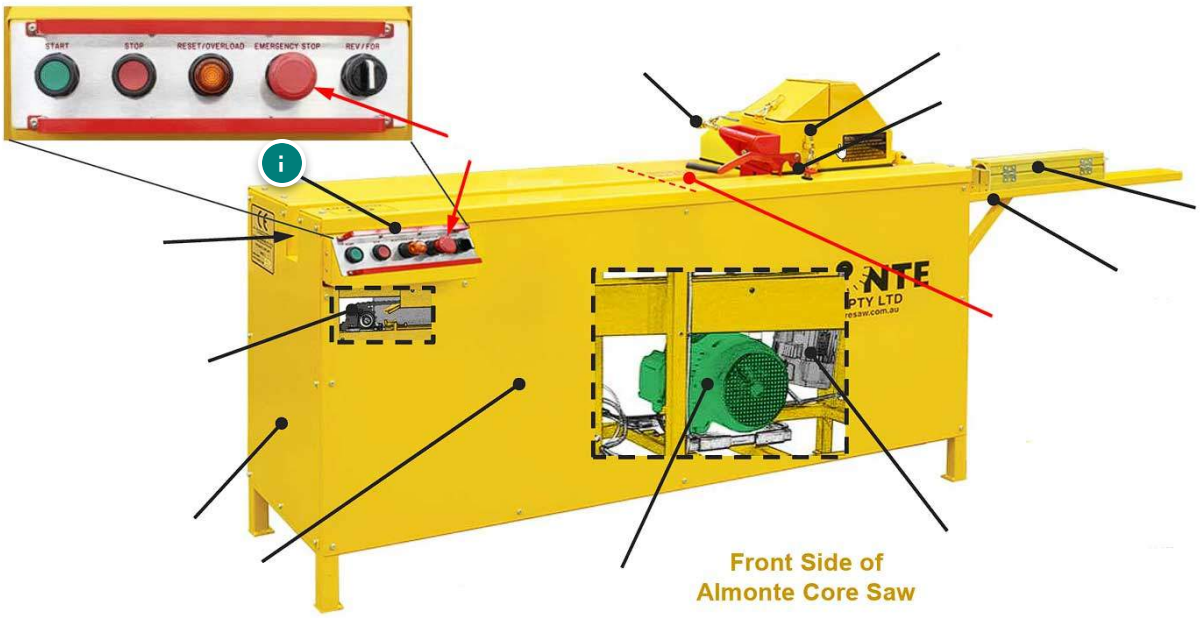

**Left access panel**



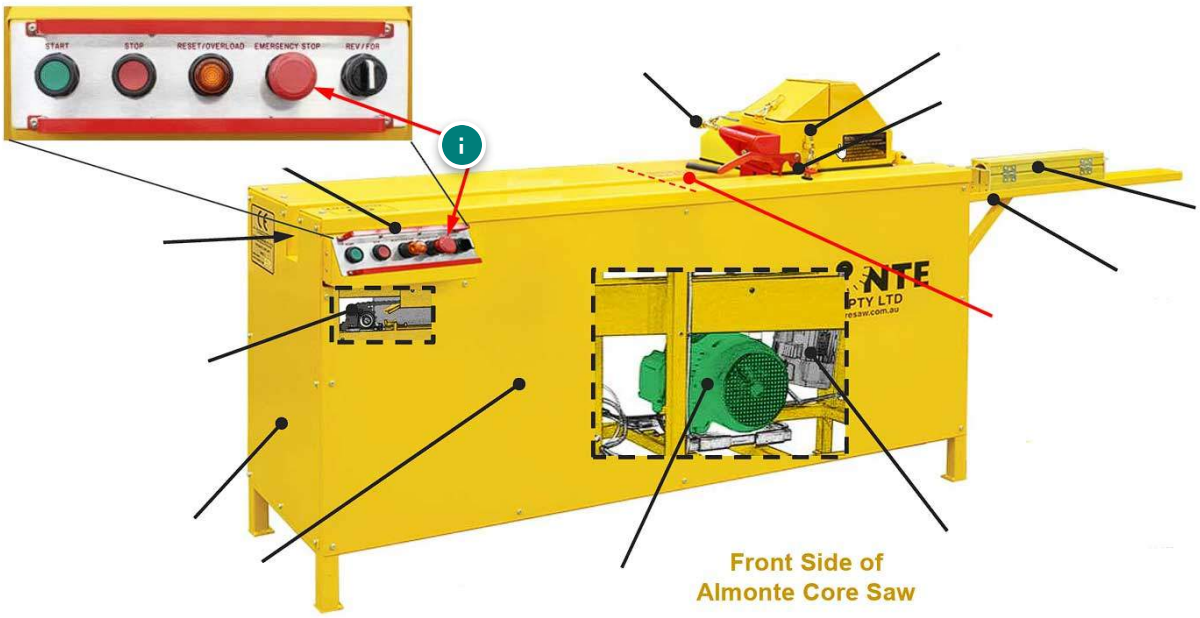

**Chain assembly and tension adjuster**




**Core guide gully (insertion area for loaded core guide)**

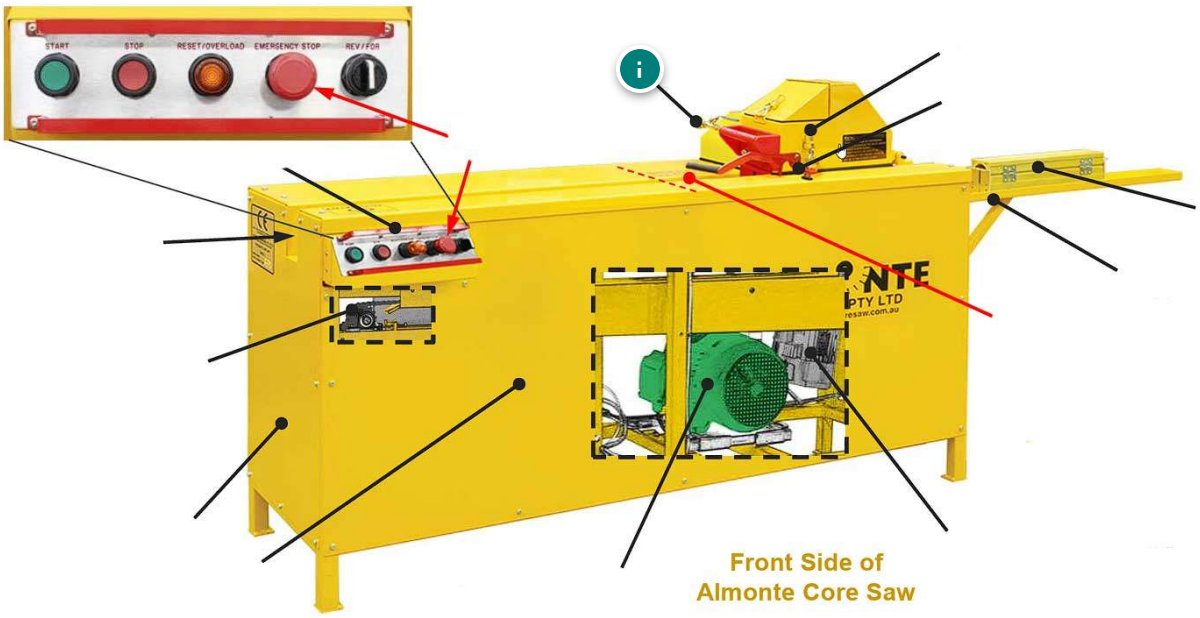



**Control panel**


START
STOP
RESET/OVERLOAD
EMERGENCY STOP
REV/FOR
Front Side of
Almonte Core Saw

**E-Stop**


STOP




**Water intake and valve**

00:03

*Select the play button above to listen to the audio narration and complete this section.*

---

## Blade Hood

*Select each marker to learn more and complete this section.*


## Blade hood

Designed to contain fragments or broken blade at no risk to the operator. Ensure guard is down and secure prior to operation.


### Cut out switch on blade hood


Stops the machine if the primary/main hood is raised while the machine is running. This switch **must** be checked in the daily pre-start inspection.

Complete the content above before moving on.

00:30

*Select the play button above to listen to the audio narration and complete this section.*

# Core Guides


| SKU | DESCRIPTION | SIZE |
|---|---|---|
| 1148-00106 | Almonte Flip Top Core Carrier | B |
| 1148-00104 | Almonte Flip Top Core Carrier | N |
| 1148-00105 | Almonte Flip Top Core Carrier | N2 |
| 1148-00103 | Almonte Flip Top Core Carrier | H |
| 1148-00109 | Almonte V-Core Holder with Lids | P |

- Core Guides are available in several sizes and are identified by colour. The BQ size is Blue, NQ is Red, HQ is Yellow.
- Only use the metal Carry Handles. Never place fingers/hands under the Core Guide when loading the saw (pinch points).
- Ensure core taken from the core box is kept in original orientation when loading the Core Guide
- The Cover Guards must be rotated closed before loading saw.

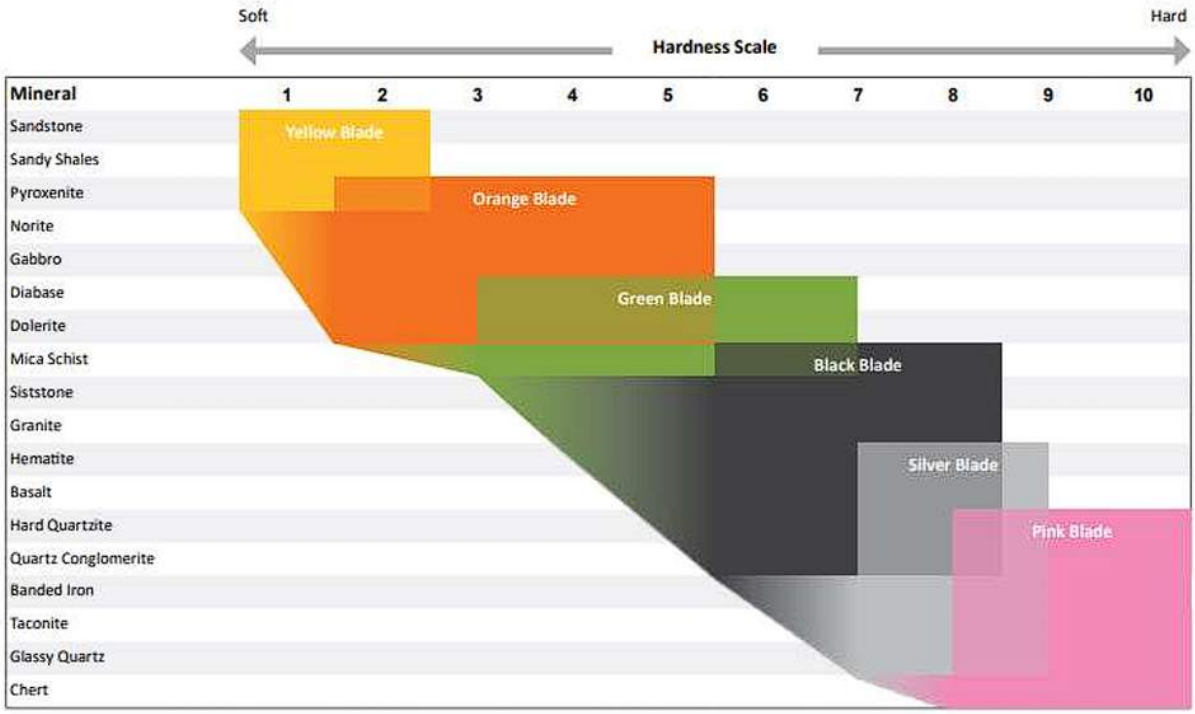
- Maintain the proper orientation of the Core Guide while placing it in the Core Guide Gully on the drive chain ahead of the Pusher.

00:10

*Select the play button above to listen to the audio narration and complete this section.*

## Core Saw Blades

Core saw blades are available in numerous segment matrix hardness for use on various rock types.



**Yellow Diamond Blade**
The yellow blade will cut soft to medium hardness material with maximum total meters of core cut to each blade. Also available as a sound-dampened blade.

| SKU | DESCRIPTION | SIZE |
|---|---|---|
| 1148-00023 | Yellow | 12" 300mm |
| 1148-00024 | Yellow Sound Dampened | 12" 300mm |

**Orange Diamond Blade**
The orange blade will cut medium to hard material. Also available as a sound-dampened blade.

| SKU | DESCRIPTION | SIZE |
|---|---|---|
| 1148-00022 | Orange | 12" 300mm |
| 1148-00019 | Orange Sound Dampened | 12" 300mm |

**Green Diamond Blade**
The black blade is the first choice for harder materials, but the green blade is an alternative and is dependent on the composition of the rock. The green blade will cut slightly harder material than the orange blade.
Also available as a sound-dampened blade to special order.

| SKU | DESCRIPTION | SIZE |
|---|---|---|
| 1148-00021 | Green | 12" 300mm |
| 1148-00060 | Green Sound Dampened | 12" 300mm |

**Black Diamond Blade**
The black blade is used for hard to very hard cores e.g. magnetite and banded iron.

| SKU | DESCRIPTION | SIZE |
|---|---|---|
| 1148-00020 | Black Sound Dampened | 12" 300mm |

**Silver Diamond Blade**
Alternative to Black blade to cut very hard material. Mainly for iron ore and other very hard materials. Harder and more abrasive material will generally reduce the life of the blade.

| SKU | DESCRIPTION | SIZE |
|---|---|---|
| 1148-00090 | Silver | 12" 300mm |

**Pink Diamond Blade**
The Pink blade is used for very hard to extremely hard core, complementing the black blade.

| SKU | DESCRIPTION | SIZE |
|---|---|---|
| 1148-00058 | Pink | 12" 300mm |

**Sudbury core will typically require a silver or black blade.**

00:06

*Select the play button above to listen to the audio narration and complete this section.*

## Pre-Operational Inspection Requirements

*Select each tab to learn more and complete this section.*

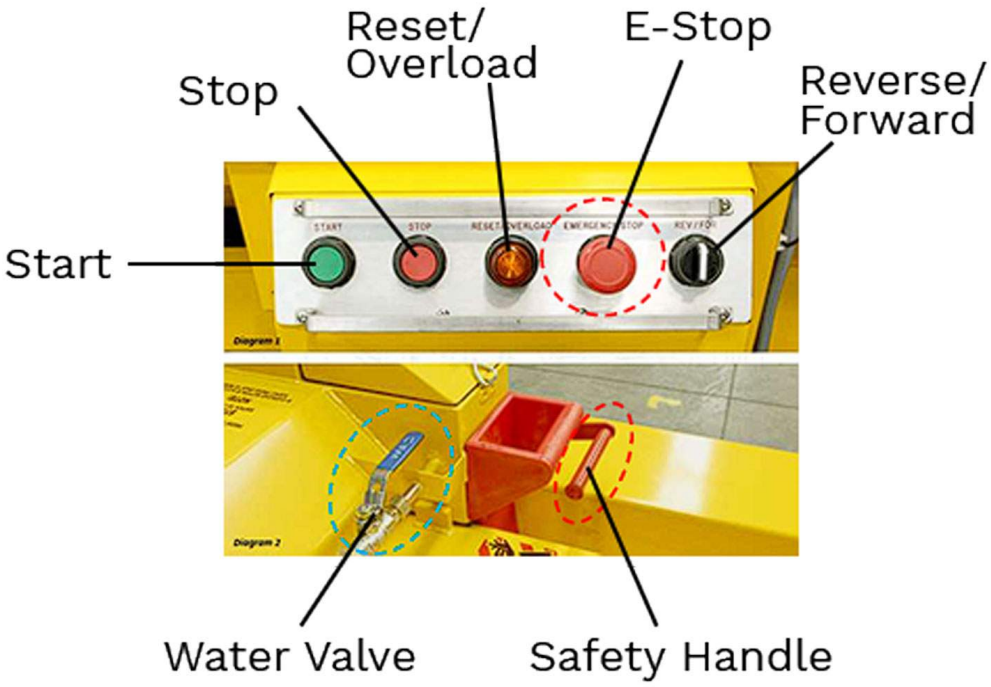
VISUAL | PRE-START TESTS

- Check all components for damage, cracks, deterioration, looseness, wear, housekeeping.
- Ensure all components, guards and labels are properly installed, legible, not missing.
- Water and electrical cables are coiled. Insulating jackets have no damage, wear or cracks.
- Remove or secure any potential obstructions to the core saw operation.

VISUAL | PRE-START TESTS

- Pull out E-Stop button on Control Panel (Fig.1).
- Press Reset button on Control Panel after five seconds.
- Turn Water Valve on, listen for water flow (Fig.2).
- Mandatory Checks

- Press Start button on Control Panel.
- After core saw has started, depress E-Stop button. Ensure saw stops.
- Restart core saw. Lift red Safety Handle (Fig.2) and ensure saw stops.
- **If any test fails, <u>do not use</u>, tag out saw and contact supervisor.**




00:14

*Select the play button above to listen to the audio narration and complete this section.*

---

## Operators Pre-Check List

# VALE

## Operators Pre-Check List

## Almonte Core Saw

**REMEMBER**

**Under NO Circumstances**
**Are You to Operate a**
**Machine Which is**
**Mechanically Unsafe**

Any error must be crossed out (not erased)
and the change initialed

| | |
|---|---|
| **Equip ID Number:** | |
| **Date (dd/mm/yy):** | / / |
| **Inspected by:** | |
| **Emp Serial number:** | |

**Pre-Use Check List**

Check off as completed

| | | O.K. | B.O. |
|---|---|---|---|
| **FLUIDS:** | WATER SUPPLY | | |
| | WASTE WATER (CUTTINGS) DRAINAGE | | |
| | | | |
| **VISUAL:** | CHECK FOR DAMAGE/CRACKS/WEAR | | |
| | MISSING/LOOSE PARTS | | |
| | RUST/CORROSSION | | |
| | HOOD/LOCKING CLAMPS/SAFETY SENSOR | | |
| | BLADE/SEGMENTS/ORIENTATION | | |
| | GUARDS/ATTACHMENTS | | |
| | CHAIN/PUSHERS | | |
| | CONTROL PANEL | | |
| | WARNING LABELS/STICKERS | | |
| | POWER CABLE/WATER LINE | | |
| | CORE GUIDE | | |
| | CLEANLINESS/HOUSEKEEPING | | |
| | SLIPPERY CONDITIONS/SPILLS | | |
| | FIRE EXTINGUISHER | | |
| | PUNCH THE FIRE EXTINGUISHER TAG | | |
| | | | |
| **TESTS:** | LIGHTING | | |
| | VENTILATION FAN | | |
| | TEST START BUTTON | | |
| | TEST EMERGENCY STOP BUTTON | | |
| | TEST RESET/OVERLOAD BUTTON (wait 5 seconds) | | |
| | TEST FEED SWITCH (REV-OFF-FOR) | | |
| | TEST OFF BUTTON | | |
| | TEST SAFETY SENSOR/CUT OUT SWITCH | | |

| | |
|---|---|
| **LOCATION:** | Frood-Stobie Geoscience Facility / |

| | |
|---|---|
| **STATE EQUIPMENT CONDITION:** | |

**Note: Operators Pre-Check List is a Legal Requirement Under OSHA 98-100**

- This Operators Pre-Check List must be completed before use of the core saw.
- The saw must be tagged out if any item is identified as B/O (Bad Order).
- All deficiencies must be addressed before the core saw can be operated.

Complete the content above before moving on.

# Cutting Drill Core

00:01

*Select the play button to listen to the audio narration and complete this section.*

## Step 1

00:04


*Select the play button to listen to the audio narration and complete this section.*

Load properly sized Core Guide maintaining core sequence from the Core Box.

## Step 2

00:13

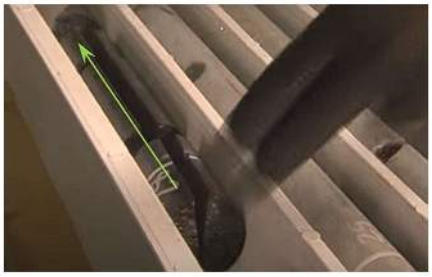


*Select the play button to listen to the audio narration and complete this section.*

Place Core Guides in sequential order on feed chain ahead of Pushers starting at left side of Core Guide Gully (away from pinch-point area). With saw running and water valve on, rotate Feed Switch clockwise to FOR (forward).

## Step 3

00:09

*Select the play button to listen to the audio narration and complete this section.*

After cutting, remove Core Guide from Exit Tray. Drain residual water from tray, then replace cut core in original orientation and position in core box.

## Step 4

00:03

*Select the play button to listen to the audio narration and complete this section.*

Reload Core Guide with the next sequence of core from the Core Box.

## Step 5

00:04

*Select the play button to listen to the audio narration and complete this section.*

Place properly oriented Core Guide on moving feed chain ahead of Pusher.

## Step 6

00:04

*Select the play button to listen to the audio narration and complete this section.*

Repeat Steps 1–5 until all core in Core Box has been cut.

# Core Saw Shut Down and Cleaning

00:02

*Select the play button to listen to the audio narration and complete this section.*

## Step 1

00:03

*Select the play button to listen to the audio narration and complete this section.*

Check that all drill core and Core Guides are removed from the Core Saw.

## Step 2

00:04


*Select the play button to listen to the audio narration and complete this section.*

Turn Feed Switch to the OFF position. Depress the STOP button then E-Stop.

## Step 3

00:06

*Select the play button to listen to the audio narration and complete this section.*

Turn water valve off at supply line, open water valve at saw to relieve pressure (ZES) then close.

## Step 4

00:03

*Select the play button to listen to the audio narration and complete this section.*

Apply cleaner to exterior of the saw body and allow to penetrate.

## Step 5

00:05

*Select the play button to listen to the audio narration and complete this section.*

Wash Core Guides, then the saw exterior including the Core Guide Gully, and finally the work area.

## Step 6

00:03

*Select the play button to listen to the audio narration and complete this section.*

Remove any core fragments from the Core Guide Gully.

## Step 7

00:05

Run chain and spray lubricant through pusher guides entire length. Shut down saw.

**Step 8**

00:06

All cutting debris needs to be captured and disposed in a lugger box. Do not flush cuttings down floor drains.

00:03

*Select the play button above to listen to the audio narration and complete this section.*

## Core Saw Specifications

| ALMONTE CORE SAW SPECIFICATIONS | |
|---|---|
| **Main Blade Motor 208V – 240V** | WEG 7.5Kw, 3 Phase, Rated Amps 23.9 |
| **Main Blade Motor 380V – 480V** | WEG 7.5Kw, 3 Phase, Rated Amps 13.9 |
| **Blade Speed** | 2930 RPM @ 50Hz, 3530 RPM @ 60Hz |
| **Electrical System** | Professionally assembled and Installed by EKKA Group |
| **Diamond Blade** | 300mm (12") With locating pin for security/safety |
| **Maximum Loaded Core Capacity** | 450mm, 3 x core carriers in line with space between each one for safety. |
| **Core Sizes** | BQ up to PQ |
| **Warranty** | 12 Months on all major components |
| **Blade Safety Hood** | Stainless steel, primed and Powder coated |
| **Main Top and Gulley** | Stainless steel, primed and Powder coated |
| **Structure** | HD Steel, Primed and Powder coated |
| **Side/End Panels** | Heavy duty Aluminium, Primed and Powder coated |
| **Fractured core Carriers** | BQ, NQ, NQ2, HQ, PQ and less common sizes (between BQ and PQ) on request. |
| **Safety** | Tamper proof magnetically coded sensors |
| **Approvals** | CE and CSA |

Complete the content above before moving on.

# Flammable Storage Safety Cabinet

00:51

*Select the play button above to listen to the audio narration and complete this section.*

**Flammable storage safety cabinets protect their contents from fire. They also provide people time to evacuate before the contents ignite.**

## Safety Standard

Many workplaces present a high fire risk caused by the storage of flammable and combustible liquids. The risk can be reduced by minimizing the quantities stored in the workplace, also by ensuring that flammable liquids are stored in appropriate storage cabinets. This standard is based on Regulation 851, Clause 22(3)(b), as amended (Regulation for Industrial Establishments) made under the Occupational Health and Safety Act of Ontario, and Regulation 388 (the Fire Code) made under the Fire Protection and Prevention Act. Ontario Fire Code (O. Reg. 213/07) Part 4. NFPA 30.

**All workplaces in which flammable or combustible liquids are not required for immediate use, shall have these items stored.**

00:05

*Select the play button above to listen to the audio narration and complete this section.*

## Definitions

*Select each tab to learn more and complete this section.*

**Fire Compartment**

Fire Compartment is an enclosed space in a building that is separated from all other parts of the building by enclosing construction providing a fire separation having a required fire-resistance rating of at least 2 hours (or 1 hour if sprinklered).

**Flammable Liquids**

Flammable Liquids give off vapour that can easily be ignited at normal working temperatures, a flammable liquid has a flash point under 37.8° C (100 ° F).

**Combustible Liquid**

Combustible Liquid does not catch fire as easily as a flammable liquid. A combustible liquid has a flash point, above normal working temperatures from 37.8 to 93.3° C (100 to 200° F).

00:05

*Select the play button above to listen to the audio narration and complete this section.*

## Responsibilities

*Select each tab to learn more and complete this section.*

MANAGEMENT | WORKERS

Management shall:

- Provide storage cabinets for flammable and combustible liquids located in the workplace.
- Ensure that flammable storage safety cabinets are compliant with all requirements.
- Ensure that workers are informed regarding the proper storage of these liquids.

MANAGEMENT | WORKERS

Workers shall:

- Properly store flammable and combustible liquids in accordance with this standard.

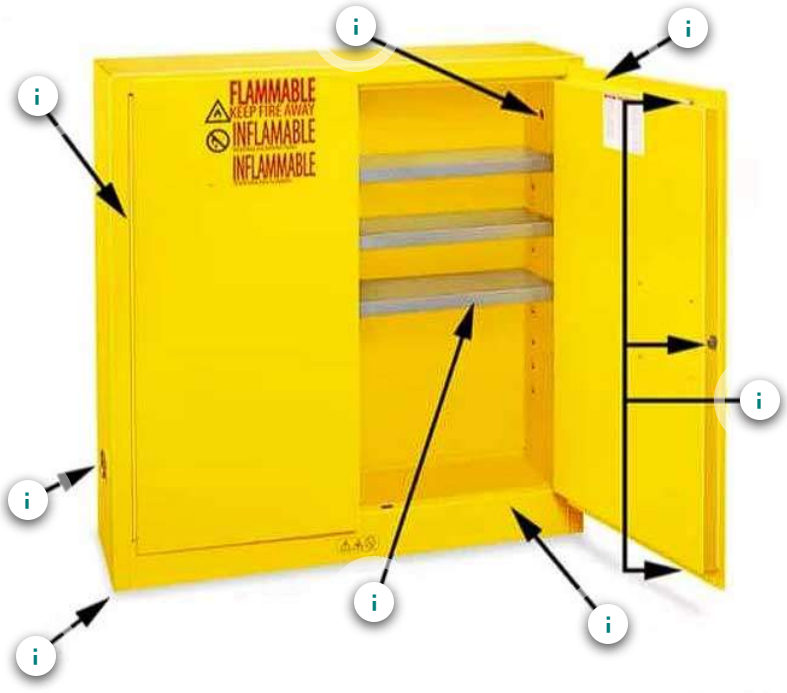
Complete the content above before moving on.

00:04

*Select the play button above to listen to the audio narration and complete this section.*

## Flammable Storage Safety Cabinet

*Select each marker to learn more and complete this section.*




**Full length piano hinge provides smooth closure**


## 2" vent

A cabinet will need to be vented according to the requirements of the local fire code or to good practices when it is used to store:

- Toxic or very toxic chemicals.
- Chemicals that decompose and release flammable or toxic gases.
- Gas cylinders or containers.

  Flammable liquids that are non-toxic are not recommended to be ventilated as it has been shown that it is unnecessary for fire protection. Bungs supplied with the cabinet must be in place as seals.


## Fully welded 18-gauge double wall steel construction

New flammable liquid storage cabinets must conform to ULC or cUL standards, or be listed as meeting NFPA 30. Older cabinets certified only to UL can continue to be used, but cannot be used for new installations. The cabinets must be made of metal having a double wall construction with a 3-point door latch and a liquid tight door sill raised at least 50 millimetres above the floor.


**3-point self-latching system**


**2" liquid-tight containment sump holds leaks**


**SpillSlope™ shelves direct spills to leak-proof sump**

Capacity is dependent on the size of the cabinet which generally ranges from 15L to 500L. In Ontario, a maximum quantity of 235L of flammable liquids may be stored in each approved cabinet. Individual containers may not exceed 23L in volume. At industrial locations up to 50L of flammables and 200L of combustibles may be stored outside of cabinets.

The maximum number of cabinets allowed for storage of flammable liquids per Fire Compartment is three (3) cabinets and the distance between groups of three cabinets must be at least 30 metres.


## Adjustable leveling feet

Cabinet will be placed at a location that meets the local fire code requirements and have the least potential to impact emergency evacuations. Select a level location that is not adjacent to exits, walkways, evacuation routes. Ensure the cabinet is stored away from electrical panels, switches, outlets, and that no cutting, welding or grinding occurs near by. It should not be placed under stairways. Manufacturers typically recommend that flammable storage cabinets be located in well ventilated and low-humidity environments that comply with the local fire code.


**Dual vents**

00:03

*Select the play button above to listen to the audio narration and complete this section.*

## Labelling and Grounding

*Select each tab to learn more and complete this section.*

LABELLING | GROUNDING

Cabinets must be conspicuously labelled indicating that the cabinet contains flammable products, and that open flames and sources of ignition must be kept away: "**FLAMMABLE Keep Fire Away**"

LABELLING

GROUNDING

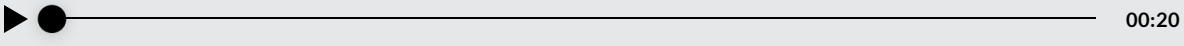
A hazard and risk assessment needs to be conducted by a safety specialist to determine if the flammable storage safety cabinets must be grounded. Generally, if the cabinets are constructed of metal or other conductive material, they may be grounded as a precautionary measure against static electrical charge build-up.

00:59

*Select the play button above to listen to the audio narration and complete this section.*

## Best Practices

- Control ignition sources. Keep sources of ignition away from storages.
- Limit amounts. Always purchase and store the smallest quantity of flammable or combustible liquid necessary for the work to be done.
- Provide proper ventilation to ensure flammable vapours do not accumulate.
- Stored containers shall be kept closed at all times, other than when transferring product.
- Do not exceed the permissible storage capacity for the flammable storage safety cabinet or for the Fire Compartment in which the cabinet(s) is located.
- Do not store flammable and combustible materials with non-compatible products. They must be stored separately at least one (1) metre away from each other.
- Keep cabinets well organized and labelled with differing products on separate shelves.
- Do not keep stored containers in combustible boxes. Boxes are not to be left in or on cabinets.
- Absorbent materials shall be readily available for use in clean-up of spilled flammable or combustible liquids.
- Unauthorized individuals must not be allowed access to workplaces and cabinets containing flammables or combustibles.



*Select the play button above to listen to the audio narration and complete this section.*

---

## Monthly Inspection List

# VALE

## Monthly Inspection List
## Flammable Storage Safety Cabinet

**REMEMBER**
**Under NO Circumstances**
**Are You to Operate a**
**Machine Which is**
**Mechanically Unsafe**

Any error must be crossed out (not erased)
and the change initialed

| | |
|---|---|
| **Equip ID Number:** | |
| **Date (dd/mm/yy):** | / / |
| **Inspected by:** | |
| **Emp Serial number:** | |

**Inspection List**

Check off as completed

| | | O.K. | B.O. |
|---|---|---|---|
| **FLUIDS:** | FIRE COMPT QUANTITY DOES NOT EXCEED 235L | | |
| | CABINET QUANTITY DOES NOT EXCEED 235L | | |
| | | | |
| **VISUAL:** | CONFORMITY LABEL (ULC STANDARD) | | |
| | WARNING LABEL/STICKERS | | |
| | CHECK FOR DAMAGE/CRACKS/WEAR | | |
| | MISSING/LOOSE PARTS | | |
| | RUST/CORROSSION | | |
| | LATCH/HINGES | | |
| | SHELVING/LABELS | | |
| | NO COMBUSTIBLE BOXES/PACKAGING/RAGS | | |
| | STORED CONTENTS IN CLOSED CONTAINERS | | |
| | STORED CONTENTS HAVE WHMIS LABELS | | |
| | NO MIXED CONTENTS ON SAME SHELF | | |
| | UNVENTED-OPENINGS SEALED (fire rated) | | |
| | VENTED TO OUTDOORS WITH PIPING (fire rated) | | |
| | LESS THAN 3 GROUPED CABINETS PER ROOM | | |
| | GROUPED CABINETS >30m SEPARATION | | |
| | CLEANLINESS/HOUSEKEEPING | | |
| | NO SPILLS/SLIPPERY CONDITIONS | | |
| | DOORS CLOSED | | |
| | NO IMPEDIMENT TO EGRESS | | |
| | NO NEARBY IGNITION SOURCES | | |
| | NEARBY FIRE EXTINGUISHER | | |
| | SPRINKLER SYSTEM | | |
| | | | |
| **TESTS:** | LATCH | | |
| | SELF CLOSING HINGES | | |

| | |
|---|---|
| **LOCATION:** | FROOD-STOBIE GEOSCIENCE FACILITY |

| | |
|---|---|
| **STATE EQUIPMENT CONDITION:** | |

- This Monthly Inspection List must be completed within 30 days of the previous inspection.
- The Flammable Storage Safety Cabinet must be tagged out and emptied if any item is identified as B/O (Bad Order). Contents will need to be moved to the outdoor storage.
- All deficiencies must be addressed before the Flammable Storage Safety Cabinet can be used

Complete the content above before moving on.

# Summary

00:17

*Select the play button above to listen to the audio narration and complete this section.*

These are some key takeaways we reviewed during this section.

**CoreLift Adjustable Logging Table and Bench**

**Roller Conveyor**

**ALMONTE Automatic  Core Cutting Saw Operating Procedures**

**Flammable Storage  Safety Cabinet**

**CoreLift Pallet Lifter Operating Procedures**

**Frood-Stobie Geoscience Facility Hazards**

**Got a Question?**

*Select the button to submit your questions using ValeForms. Be sure to include your first name, last name and contact information.*

CLICK HERE!


**Let's review how much we have learned.**

Answer the following questions related to this section's topics.

CONTINUE

# Knowledge Check

**About Other Equipment Operations and Safety**

Answer the following questions related to this section's topics. You will need to achieve a 100% score to complete this section.

*Question*

**01/02**

Provide proper ventilation is required for the flammable storage safety cabinet.

---

- ◯ True
- ◯ False

*Question*

**02/02**

Which of these should you NOT do when loading/unloading core boxes?

---

- Use all required and approved PPE while handling core boxes.
- Ensure core boxes will slide freely on the rollers before loading commences.
- Watch for potential pinch points between the core boxes and rollers, guards, frame.
- Load roller conveyor past the transition point.

# Frood-Stobie Geoscience Facility Hazards

00:07

*Select the play button above to listen to the audio narration and complete this section.*

## Site Specific Hazards

Ensure to use operation controls to mitigate risk associated with the identified hazards.

*Flip each card to learn more and complete this section.*

| | |
|---|---|
| Be Aware | Be aware of any surroundings and risks around you. |

Follow Policies & Procedures

Our internal policies and procedures guide us in doing our work in a manner that reduces risk.

00:14

*Select the play button above to listen to the audio narration and complete this section.*

**The following section lists identified hazards that may be encountered in the work you're doing. Knowing if these hazards apply to your work can be found through:**

- **Vale contact person**
- **PHA/PHR (or other Risk Assessment Tools)**
- **SLAM**

00:13

*Select the play button above to listen to the audio narration and complete this section.*

## Mobile Equipment

Mobile equipment presents a high risk hazard of collision with a vehicle or pedestrian. During travel at Frood-Stobie Geoscience Facility, you'll be required to cross multiple areas where equipment could potentially be operating.

00:20

*Select the play button above to listen to the audio narration and complete this section.*

---

## Speed Limits and Signs

The speed limit for un-posted roadways on the property is 25 km/hr.

**The normal speed limit on the mine road is 60 km/hr.**

- Absolutely no passing of vehicles on the property.
- Remember provincial law regarding the use of cell phones while driving.
- On Vale property, mobile equipment has the right of way.

00:13

*Select the play button above to listen to the audio narration and complete this section.*

---

## Rail Traffic & Crossing

**Be sure to check both ways and make sure it is safe to cross.**

- Whether posted or not, stop at all railway crossings, look both ways, then proceed if safe to do so.
- Do not park within 12 feet of railway track.

Complete the content above before moving on.

00:23

*Select the play button above to listen to the audio narration and complete this section.*

## Confined Spaces

**A confined space is anywhere that is:**

- A fully OR partially enclosed space;
- that is not designed and constructed for continuous human occupancy; and
- in which atmospheric hazards may occur because of its construction, location, contents, or because of work that is done in it.

Vale authorization, a confined space work procedure, and a rescue plan must be followed to work within a confined space.

00:04

*Select the play button above to listen to the audio narration and complete this section.*

---

## Risk and Mitigation Map

# RISK & MITIGATION MAP

## FROOD-STOBIE GEOSCIENCE FACILITY

VALE

## Risk Legend

- PHYSICAL RISK
- VENTILATION RISK
- PATHOGEN RISK
- ERGONOMIC RISK
- ACCIDENT RISK
- OTHER RISK

**RISK INTENSITY (HIGH TO LOW)**

H

## Risk Control


## Site Requirements

- Approved PPE: High Visibility Orange Workwear, Safety Glasses, Metatarsal Work Boots with Removeable Ice Cleats, Gloves (2 pair), Hard Hat and Muffs (with reflectors).
- LENEL Access Pass with permissions for Frood-Stobie Complex.
- Report all injuries to Stobie First Aid
  705-682-3282
  or #1 First Aid (Smelter Complex)
  705-682-6622

### ① OFFICES

### ② LUNCHROOM


### ③ STORAGE ROOM

### ④ WASHROOM

### ⑤ CORE LAYDOWN

### ⑥ STAIRS LADDERS

### ⑦ CORE PROCESSING

### ⑧ MOBILE EQUIPMENT

### ⑨ CORE CUTTING

### ⑩ FLAMMABLE STORAGE

### ⑪ PARKING LOT

### ⑫ VEHICLES

### ⑬ MINE ROAD

### ⑭ ASSEMBLY AREA

- **Approved PPE: High Visibility Orange Workwear, Safety Glasses, Metatarsal Work Boots with Removeable Ice Cleats, Gloves (2 pair), Hard Hat and Muffs (with reflectors).**
- **LENEL Access Pass with permissions for Frood-Stobie Complex.**
- **Report all injuries to Stobie First Aid**

**705-682-3282**

**or #1 First Aid (Smelter Complex)**

**705-682-6622**


# Site Requirements

## Golden Rules for Safety

1- Never work under the influence of **alcohol or drugs**.

2- Never perform **work at height** without authorization/training and always use a safety harness.

3- Never operate motor vehicles or **mobile equipment** without training/safety devices. Respect the traffic plan.

4- Never perform maintenance/interventions without confirming **lockout, tagout and "zero energy"** of installations/equipment.

5- Never place yourself under a **suspended load** or enter an isolated area. Only use certified lifting devices.

6- Never work alone, without training or PPE in **confined spaces**.

7- Never enter **restricted areas** without authorization.

8- Never use **improvised or faulty tools, machines or equipment**.

9- Never work without executing a **risk analysis** and comply with all required controls.

10- Never use **cell phones or similar equipment** in non-authorized operational areas, stairs and while crossing streets.

## CARs

- CAR 01 - Working at heights
- CAR 02 - Light motor vehicles
- CAR 03 - Mobile equipment operation
- CAR 04 - Lockout/Tagout and no Power
- CAR 05 - Lifting of loads
- CAR 06 - Confined spaces
- CAR 07 - Machine guarding
- CAR 08 - Ground stability
- CAR 09 - Explosives
- CAR 10 - Working with electricity
- CAR 11 - Molten metal

## Risk Reduction Strategies

Assessment
Awareness
Avoidance
Isolate
Alternatives
Legislation
Policies and Procedures
Processes
Standards
Planning
Maintenance
Inspections
Follow-up and Monitoring
Investigations
Resources
Technology
Accountability and Responsibility
Behavior
Brothers Keeper
Culture
Leadership
Team
Knowledge
Training and Education
Personal Protective Equipment

# Risk Legend and Control

**PHYSICAL RISK**
HOT, COLD, VIBRATION, NOISE, RADIATION, ABNORMAL CONDITION, TOXICITY, FAILURE, GRAVITY, INERTIA

**ERGONOMIC RISK**
SHIFT WORK, INTENSE PHYSICAL EFFORT, VIBRATION, INADEQUATE POSTURE, MANUALLY LIFTING WEIGHT AND TRANSPORTING, REPETITIVE STRAIN (MSD), EYE STRAIN, MONOTONY AND REPETITION, LIGHTING

**VENTILATION RISK**
DUST, SMOKE, FUMES, MIST, FOG, GASES, VAPOURS, EXCESSIVE TEMPERATURE, HUMIDITY, CHEMICALS

**ACCIDENT RISK**
CUTS, FIRE, ELECTRICITY, TRAPPED, BURIED, CRUSHED, SNAGGED, PINCH POINT FRICTION/HEAT, ABRASION, PERFORATION, SLIPS, TRIPS, FALLS, EXPOSURE TO MOVING PARTS, IMPACTS, FALLING OBJECTS

**PATHOGEN RISK**
VIRUS, BACTERIA, PROTOZOA, PARASITES, FUNGI, BACILLI, MOULD

**OTHER RISK**
INSECTS, ANIMALS, VIOLENCE, THEFT, SPEED, LOSS OF CONTROL

**RISK INTENSITY (HIGH TO LOW)**

H L

---

# 1 OFFICES

A B C D

**RISKS:**

**A) SLIPS, TRIPS, FALLS, CUTS, IMPACTS, ELECTRICAL, FIRE**

**B) POOR POSTURE, REPETITIVE STRAIN (MSD), EYE STRAIN, POOR LIGHTING**

**C) EXCESSIVE TEMPERATURES, HUMIDITY, AIR QUALITY, NOISE, DUST**

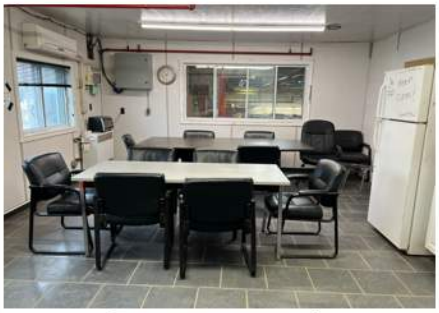
**D) VIRUS, BACTERIA**

**MITIGATION:**

**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE, PLANNING, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

# 2 LUNCHROOM

A B C D




**RISKS:**

**A) SLIPS, TRIPS, FALLS, CUTS, IMPACTS, ELECTRICAL, FIRE, BURNS**

**B) VIRUS, BACTERIA, MOULDS**

**C) POOR LIGHTING, VENTILATION**

**D) FLIES, RODENTS, LARGER ANIMALS**

**MITIGATION:**

**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE, PLANNED MAINTENANCE AND CLEANING, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, KNOWLEDGE, TRAINING AND EDUCATION**

# 3 STORAGE ROOM

A B C

**RISKS:**

**A) SLIPS, TRIPS, FALLS, CUTS, IMPACTS, ELECTRICAL, FIRE, PUNCTURES**

**B) INTENSE PHYSICAL EFFORT, MANUAL LIFTING, INADEQUATE POSTURE, TRANSPORTING WEIGHT, POOR LIGHTING**

**C) OVERLOAD, STACKED, FAILURE, DEBRIS**

**MITIGATION:**

**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE, PLANNING, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, OTHERS KEEPER, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

# 4 WASHROOM

A B C

**RISK:**
**A) SLIPS, TRIPS, FALLS, CUTS, BURNS**

**B) VIRUS, BACTERIA, PROTOZOA, PARASITES,FUNGI, BACILLI, MOULD**

**C) POOR LIGHTING, VENTILATION, CHEMICALS**

**MITIGATION:**
**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE, PLANNED MAINTENANCE AND CLEANING, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

# 5 CORE LAYDOWN

A B C D

**RISK:**
**A) SLIPS, TRIPS, FALLS, CUTS, IMPACTS, TIP OVER, STACKING, FAILURE**

**B) POOR LIGHTING, INTENSE PHYSICAL EFFORT, INADEQUATE POSTURE, MANUAL LIFTING, TRANSPORT HEAVY OBJECTS, REPETITIVE STRAIN (MSD)**

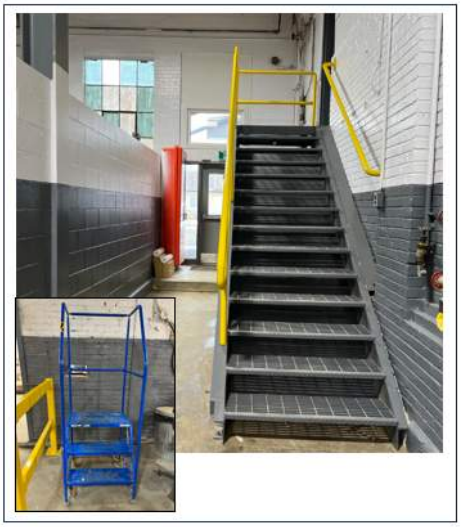
**C) WIND, DUST, TEMPERATURE, INCLEMENT WEATHER**

**D) INSECTS, ANIMALS, TRAFFIC, UNEVEN GROUND**

**MITIGATION:**
**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE, PLANNING, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, OTHERS KEEPER, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**
**Golden Rule #9**

# 6 STAIRS LADDERS

A B C



**RISK:**
**A) SLIPS, TRIPS, FALLS**

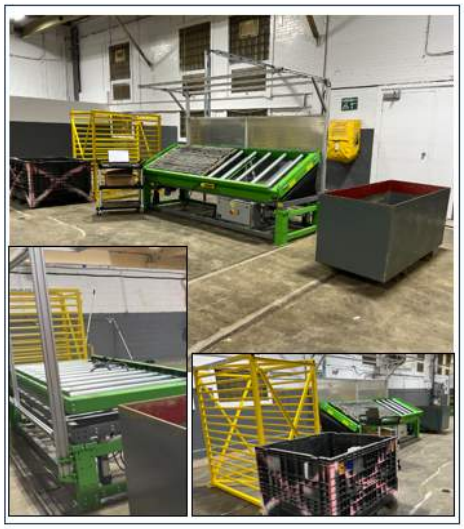
**B) POOR LIGHTING, INTENSE PHYSICAL EFFORT, INAPPROPRIATE POSTURE, UNBALANCED, OVERLOADED**

**C) DISTRACTIONS, TEXTS, CALLS, COLOUR**

**MITIGATION:**
**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE (RAILING), PLANNING, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, OTHERS KEEPER, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**
**Golden Rules #2, # 9, #10**
**CAR 01**

# 7 CORE PROCESSING

A B C



**RISK:**
**A) SLIPS, TRIPS, FALLS, CUTS, IMPACTS, PERFORATION, ENTANGLEMENT, PINCH POINTS, MOVING PARTS FIRE, ELECTRICAL, MOBILE EQUIPMENT**

**B) INTENSE PHYSICAL EFFORT, INADEQUATE POSTURE, MANUAL LIFTING, TRANSPORT HEAVY OBJECTS, REPETITIVE STRAIN (MSD), EYE STRAIN, MONOTONY AND REPETITION**

**C) DUST, WATER, TEMPERATURE, HUMIDITY, NOISE**

**MITIGATION:**
**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE, PLANNING, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, OTHERS KEEPER, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT (SAFETY GLASSES)**
**Golden Rules # 9**
**CAR 04, 07**

# 8 MOBILE EQUIPMENT

A B C D

**RISK:**

**A) SLIPS, FALLS, IMPACTS, CRUSH, PERFORATION, MOVING PARTS, PINCH POINTS, FIRE, ELECTRICAL, GASES, VAPOURS, CORROSIVE, FLAMMABLES**

**B) MSD INJURY, VIBRATION, POSTURE, VISIBILITY, POOR LIGHTING, BLINDSPOTS**

**C) SPEED, POTHOLES, DEBRIS, LEAKS, FAILURE**

**D) DUST, WIND, INCLEMENT WEATHER, NOISE**

**MITIGATION:**

**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE, PLANNING, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

**Golden Rules #1, #3, # 9 CAR 03, 04**

# 9 CORE CUTTING

A B C

**RISK:**

**A) SLIPS, TRIPS, FALLS, CUTS, SNAG, CRUSH, IMPACTS, PERFORATION, MOVING PARTS, PINCH POINTS, ENTANGLEMENT, FRICTION, FIRE, ELECTRICAL**

**B) INTENSE PHYSICAL EFFORT, INADEQUATE POSTURE, MANUAL LIFTING, TRANSPORT HEAVY OBJECTS, REPETITIVE STRAIN (MSD), EYE STRAIN, MONOTONY AND REPETITION**

**C) NOISE, VIBRATION, FAILURE, DUST, MIST, HUMIDITY, WATER**

**MITIGATION:**

**ASSESSMENT, AWARENESS, POLICY & PROCEDURE, PLANNING, MAINTENANCE, INSPECTIONS, OTHERS KEEPER, CULTURE, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

**Golden Rules #1, #4, #8, # 9**

**CAR 04, 07**

# 10 FLAMMABLE STORAGE

A B C


**RISK:**

**A) OVERLOADED, MIXED CONTENTS, VOLATILES, FLAMMABLES, COMBUSTIBLES, VAPOURS, GASES**

**B) CUTS, CRUSH, IMPACTS, FIRE, EXPLOSION**

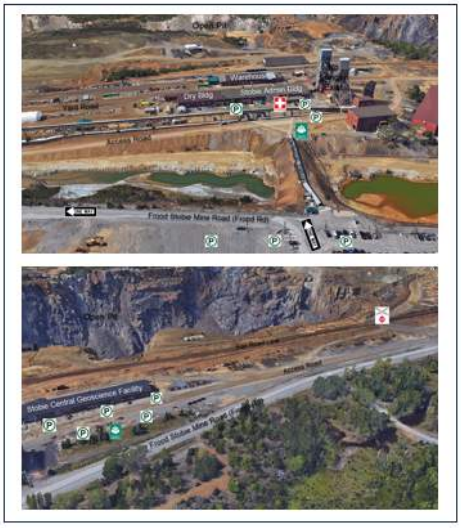
**C) HEAT, TOXIC, FAILURE**

**MITIGATION:**

**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE,PLANNING, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

# 11 PARKING LOT

A B C D



**RISK:**

**A) SLIPS, TRIPS, FALLS, COLLISIONS, IMPACTS, FIRES, ELECTRICAL**

**B) POOR LIGHTING, VISIBILITY**

**C) WIND, DUST, TEMPERATURE, HUMIDITY, NOISE, INCLEMENT WEATHER (RAIN, FOG, SNOW, ICE)**

**C) DISTRACTION, POTHOLES, GRAVEL, TRAFFIC**

**MITIGATION:**

**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE, TRAFFIC MANAGEMENT, PLANNING, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY & RESPONSIBILITY, CULTURE, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

**Golden Rules #1, # 3**

**CAR 02, 03**

# 12 VEHICLES

A B C D

**RISK:**

**A) SLIPS, FALLS, IMPACTS, CRUSH, COLLISION, MOVING PARTS, PINCH POINTS, FIRE, ELECTRICAL, FLAMMABLE LIQUIDS**

**B) MSD INJURY, VIBRATION, POSTURE, VISIBILITY, POOR LIGHTING, BLINDSPOTS**

**C) DUST, TEMPERATURE, INCLEMENT WEATHER, NOISE**

**D) DISTRACTION, TRAFFIC, POTHOLES, LEAKS, DEBRIS**

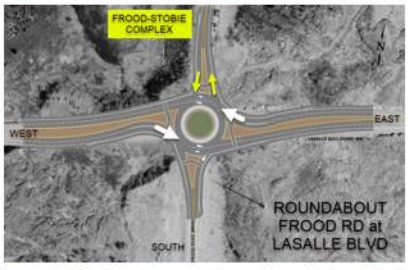
**MITIGATION:**

**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE (PRE-OP), TRAFFIC PLAN, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY AND RESPONSIBILITY, CULTURE, KNOWLEDGE, TRAINING & EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

**Golden Rules #1, #3, # 9 CAR 02**

# 13 MINE ROAD

A B C D




**RISK:**

**A) COLLISIONS, IMPACTS, FIRES**

**B) WIND, DUST, TEMPERATURE, INCLEMENT WEATHER**

**C) ROAD CONDITIONS, POTHOLES, GRAVEL, DEBRIS, HAULAGE TRUCKS, MOBILE EQUIPMENT, SPEED, AGGRESSIVE DRIVING, ROUNDABOUT, ANIMALS**

**D) POOR LIGHTING, VISIBILITY**

**MITIGATION:**

**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE, TRAFFIC MANAGEMENT PLANNING, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY & RESPONSIBILITY, CULTURE, KNOWLEDGE, TRAINING AND EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

**Golden Rules #1, #3, # 9, #10**

**CAR 02, O3**

# 14 ASSEMBLY AREA


**RISKS:**
**A) SLIPS, TRIPS, FALLS, COLLISIONS, IMPACTS**

**B) POOR LIGHTING, VISIBILITY**

**C) WIND, DUST, TEMPERATURE, HUMIDITY, NOISE, INCLEMENT WEATHER (RAIN, FOG, SNOW, ICE)**

**D) INSECTS, ANIMALS, MOBILE EQUIPMENT, VEHICLES**

**MITIGATION:**
**ASSESSMENT, AWARENESS, POLICY AND PROCEDURE,PLANNING, MAINTENANCE, INSPECTIONS, ACCOUNTABILITY & RESPONSIBILITY, CULTURE, KNOWLEDGE, TRAINING & EDUCATION, PERSONAL PROTECTIVE EQUIPMENT**

Complete the content above before moving on.

# Summary of the Module

00:49

*Select the play button above to listen to the audio narration and complete this section.*

During this module, we have covered many important aspects of the Frood-Stobie Geoscience Facility. These are some key takeaways.

*Select each checkbox to review what we have learned.*

- [ ] Frood-Stobie Geoscience Facility property access requirements
- [ ] Mandatory Personal Protective Equipment (PPE)
- [ ] Forklift and mobile equipment operations
- [ ] Preparing a secure load (load binder safety)
- [ ] Core Farm – pallet selection
- [ ] CoreLift adjustable logging table/bench and pallet lifter
- [ ] Removing lids from core boxes

- [ ] Racking core boxes – loading pallets
- [ ] Preparing to log – loading core bench
- [ ] Asbestos awareness
- [ ] Roller conveyor
- [ ] Almonte core cutting saw
- [ ] Flammable storage safety cabinet
- [ ] Safety – hazards/risks/controls

00:06

*Select the play button above to listen to the audio narration and complete this section.*

---

## Well Done!

You have finished the module content. Now it's time to proceed with the final knowledge evaluation.

Complete the content above before moving on.

# Final Evaluation

You have reached the final part of the module, the final evaluation. The evaluation consists of 10 questions. You need to score a minimum of 70% on this evaluation.

*Select "Start Quiz" to begin.*

*Question*

**01/09**

Diesel forklifts have the right-of-way over electric forklifts.

---

- ◯ True
- ◯ False

*Question*

**02/09**

Which of these are required PPE for Frood-Stobie Geoscience Facility?

*Select all that apply and then select Submit.*

---

- [ ] High visibility orange workwear
- [ ] Two pairs of gloves
- [ ] Approved safety glasses
- [ ] CSA approved full metatarsal work boots
- [ ] Removeable ice cleats
- [ ] Hard hat and muffs with reflective applique

*Question*

**03/09**

Which areas must pedestrians get authorization to enter from a forklift operator?

*Select the correct answer, and then select Submit.*

---

- ◯ Loading zone and laydown area
- ◯ Pedestrian zone
- ◯ The parking lot

*Question*

**04/09**

Which of the following are steps in pallet selection at Core Farm?

*Select all that apply, and then select Submit.*

---

- [ ] Notify supervisor if going to Core Farm by yourself.
- [ ] Ensure the vehicle strobe and flag are operating.
- [ ] Park vehicle to protect yourself from passing mobile equipment while exiting/entering and while working in the yard.
- [ ] Watch for and avoid hazards in and around the yard, pallets, and vehicle.

*Question*

**05/09**

You should stand perpendicular to the racks and twist your body to load the core bench.

*Select the correct answer, and then select Submit.*

---

- ◯ True
- ◯ False

*Question*

**06/09**

If the occurrence of asbestiform minerals is suspected in drillcore or underground rocks, the geologist must:

*Select all that apply, and then select Submit.*

---

- [ ] Not cut or request cutting of the suspected rock/ core interval.
- [ ] Not assign a sample number to the core interval in MEBS but add the description and intent for the material for testing in the MEBS log description and comments.
- [ ] Avoid excessive handling and breaking of the suspected core interval and surrounding core, especially when dry.
- [ ] Ship a suspect rock to the Vale assay provider's sample preparation lab

*Question*

**07/09**

If you see fire/smoke when using the ALMONTE Automatic Core Cutting Saw, immediately shut off the electric power supply by depressing the E-Stop button on the control panel, if it can be done safely.

*Select the correct answer, and then select Submit.*

---

- ◯ True
- ◯ False

*Question*

**08/09**

When operating the adjustable core bench, the right button retracts or lowers the Lift Platform.

*Select the correct answer, and then select Submit.*

---

- ◯ True
- ◯ False

*Question*

**09/09**

Which PPE is required when using the Almonte Automatic Core Cutting Saw?

*Select all that apply, and then select Submit.*

---

- [ ] CSA steel-toe boots (rubber) with metatarsal guards and non-skid soles
- [ ] Cut/impact resistant gloves
- [ ] Double hearing protection (ear plugs and muffs)
- [ ] Hard helmet with polycarbonate face shield
- [ ] Fitted safety glasses
- [ ] Fitted respirator
- [ ] High visibility clothing, waterproof apron and sleeve protectors

# Conclusion

00:23

*Select the play button above to listen to the audio narration and complete this section.*

## Congratulations!

You have passed the module.

You should understand how to safely and properly carry out your duties at the **Frood-Stobie Geoscience Facility**.

More importantly, you'll be able to follow all workplace safety rules on site and recognize the risks associated when operating equipment.

Remember that this theoretical and knowledge-based module is the first of two components. Now you can proceed with the practical and skill-based training.

Complete the content above before moving on.

## What do you think about this module?

Your feedback is important to continuously improve the learning program.

**Online Survey**

*Select the button to submit your evaluation using ValeForms. All submissions are anonymous.*

CLICK HERE!

CONTINUE

# Thank you for completing the Vale Online Module Training.

Complete Your Module Validation

PLEASE CLICK HERE