

Tier 1: General Orientation

1. Tier 1 Surface

1.1 Introduction



1.2 Disclaimer

Disclaimer

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The information contained within this orientation is intended for controlled use within the Learning and Development Department for Ontario Operations. The content and structure of this orientation provides the learner with an overview of Sudbury Operations focusing on HR policies, Health, Safety and Environment and Operational Controls.

The information herein is intended as a training presentation and is not intended to be the sole source of reference information for this system.

The content of this document is current as of the latest release date. Any discrepancies found should be noted and reported to the Learning and Development Department for action.

1.3 How to navigate this Presentation

How to navigate this Presentation



This presentation has been designed to provide you with relevant information for working on Vale property.



The learning environment has been enriched with additional tools to provide you with an interactive learning experience.



Each slide is narrated and videos and animations will launch automatically.

1.4 How to navigate presentation

How to navigate this Presentation

Desktop Version



Menu



Play / Pause



Back / Next



Volume Control



Closed Caption



Replay

Mobile Version



Swipe Left / Right



Pinch Zoom



Menu



Play / Pause



Back / Next



Replay



Volume Control



Closed Caption

1.5 How to navigate presentation

How to navigate this presentation

In addition, the following icons are embedded throughout this presentation to bring your attention to supplementary information or highlight key concepts.



These icons will provide information on Vale's SPIs, programs such as confined space, ZES and access to applicable legislation.

Click on the icon and the information will appear in a window, close the window to return to the presentation.

1.6 Mission Vision Values

**We are
what
we do.**

Mission
To transform natural resources into prosperity and sustainable development.

Vision
To be the number one global natural resources company in creating long term value, through excellence and passion for people and the planet.

Values

1. Life matters most
2. Value our people
3. Prize our planet
4. Do what is right
5. Improve together
6. Make it happen

1.7 Pick One

(Pick One, 10 points, unlimited attempts permitted)

2. Introduction

2.1 Course Requirements



Course Requirements

Tier Two Module

2.2 Course Requirements

Course Requirements

To reinforce the value 'life matters most', Vale has implemented a Contractor Site Entry Orientation, which is a graduated process to gain access to areas within a plant or site where work activity takes place.

Tier 1 – Vale General Orientation

Knowledgeable in fundamental operational controls common to Sudbury Operations.

Tier 2 – Surface or Underground Entry Requirements


Can access a complex property but cannot access specific plants.

Tier 3 – Site Specific Access Orientation

Allows access to specific plants within a complex.

2.3 Course Requirements

Course Requirements

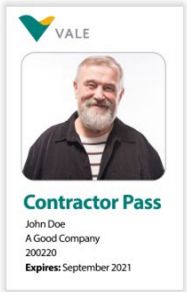


Tier 1

The Tier 1 module provides prerequisite training elements that can be applied across all surface plants.

To take this Tier 1 Module, you will need the following:

Contractor Pass



2.4 Pick One

(Pick One, 10 points, unlimited attempts permitted)

2.5 Contractor Pass Prerequisite Requirements

Contractor Pass Prerequisite Requirements



Over 18,000 contractors take part in Vale Orientations each year.

Making sure that the contractors attend the most appropriate training is of the utmost importance.

To help facilitate this, Vale requires that all workers on the property who either perform work or deliver material have a Contractor Pass in order to access the property.



Contractor Pass

John Doe
A Good Company
200220
Expires: September 2021

2.6 Contractor Pass Prerequisite Requirements

Contractor Pass Prerequisite Requirements

Three types of passes

- 1 Vale Employee Pass
- 2 Contractor Pass
- 3 Delivery Pass

The issuing of a Contractor Pass is through the approval of the Contractor's Vale Contact Person.



2.7 Contractor Pass Prerequisite Requirements

Contractor Pass Prerequisite Requirements

Requirements

- In order for a contractor to attend a Vale Contractor Orientation session, they will need to acquire a Contractor Pass prior to Attending.
- Before beginning Vale Orientations, facilitators will be requesting evidence of training by way of the Contractor Pass.

Having a Pass will qualify that:

- Vale General Orientation has been successfully completed.
- The contractor's employer has been awarded work at Vale.
- The contractor's Vale contact person has provided initial authorization for the worker to access Vale property and has authorized the worker to participate in the applicable Orientation.

Job Awarded

Acquire Pass

Vale Orientation

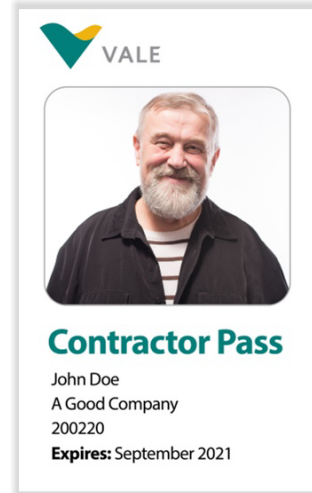
Begin Work

2.8 Contractor Pass Prerequisite Requirements

Contractor Pass Prerequisite Requirements

Requirements

- Contractors who do not have a Contractor Pass prior to attending an Orientation will be assumed to not have the appropriate approvals to participate and will not be allowed to participate in the training session.
- Contractor Pass cards will deactivate when Tier 1 expires. You must submit a form with the Pass office to reactivate old card or get new card. If you complete T2 and T3 you will need to contact Pass office by email and they will update the card for you.



2.9 Contractor Pass Prerequisite Requirements

Contractor Pass Prerequisite Requirements



How do I require a Contractor Pass?

- All contractors requiring a “Contractor Pass” must visit the website valelearning.ca

2.10 Orientation Handbook

Additional Material

If you are looking for handbooks and additional material, please visit valelearning.ca/handbooks.html



Online Catalogue

Full access to all handbooks anytime and anywhere.

2.11 Pick One

(Pick One, 10 points, unlimited attempts permitted)

2.12 Course Objectives

Course Objectives

2.13 Course Objectives

Course Objectives

Operational Controls - What are they?

The measures taken by Ontario Operations to reduce the risk(s) associated with a hazard or environmental aspect. The methods of control may include engineering, administrative (programs and procedures), Personal Protective Equipment, and other measures.

Overall Objective

The overall objective of this orientation is to ensure workers are knowledgeable of Operational Controls so that everyone can conduct themselves safely and within the acceptable boundaries of controlled risk within Vale Operations:

Golden Rules

Safety Procedures

HR Policies

Environment Controls

Health Programs

2.14 Course Objectives

Course Objectives

The Tier 1 Orientation Module covers content common to all surface plants and establishes a core certification for accessing Vale Surface properties and prepares workers for the specifics of Tier 2 and Tier 3 modules according to individual work assignments.

All workers should be committed to reducing or eliminating workplace hazards and injuries.

Whether you are a Vale worker, visitor or contractor, it is important that all sections of this module are reviewed and understood, so that everyone goes **HomeSafe**.



3. Golden Rules

3.1 Golden Rules



3.2 Understanding and Managing Risk

Understanding and Managing Risk

Value:

The value of applying the requirements of the Golden Rules is to sustain a work environment where people's lives are not put at risk.

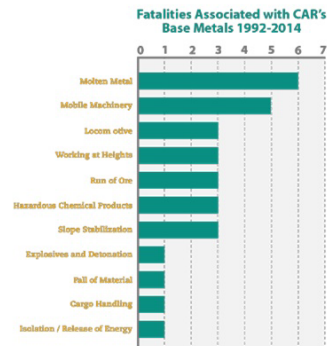
Our Commitment:

Vale is committed to preserving life and expects that each business unit apply a set of Golden Rules as a basis for risk control.

Consequently, every person is expected to know and understand the business unit Golden Rules and, prior to executing any critical task, they are to apply them so that they eliminate the risk of a fatal event occurring.

Our Experience:

Our experience over the last 22 years indicates that the majority of fatal injuries that have occurred within our organization are attributable to critical activities that were not performed as expected.



3.3 Golden Rules




3.4 Golden Rule #1 - Alcohol and Other Drugs



3.5 Golden Rule #2 - Working at Height

02

Working at Height




Never perform work at height ($\geq 1.8\text{m}$) without proper training, authorization and always use a safety harness secured to an appropriate anchor point.

CAR 01

3.6 Golden Rule #3 - Vehicles and Mobile Equipment

03

Vehicles and Mobile Equipment




Never operate motor vehicles or mobile equipment without proper training, authorization and safety devices. Respect the traffic plan.

CARs 02 e 03

3.7 Golden Rule #4 - Lockout, Tagout and Zero Energy

04

Lockout, Tagout and Zero Energy



Never perform maintenance or interventions on installations or equipment without confirming that all sources of energy have been blocked, identified and tested to be in a state of "zero energy".

CAR 04

3.8 Golden Rule #5 - Lifting Loads

05

Lifting Loads

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


An illustration showing a red rectangular load being lifted by a red hook and three red cables. The load is shown in a 3D perspective, with its top and side faces visible. The hook is at the top, and the cables are attached to the corners of the load. The entire illustration is set against a white background within a red-bordered box.

CAR 05

3.9 Golden Rule #6 - Confined Spaces

06

Confined Spaces



Never work in a confined space alone, without training, authorization, an entry permit and appropriate PPE.

CAR 06

3.10 Golden Rule #7 - Restricted Areas

07

Restricted Areas

A blue icon of a door frame with a padlock in the center. The padlock has a keyhole and a small circular detail at the top.

Never enter into production areas, tailings areas, electrical rooms / substations or any other restricted areas without authorization.

Operational Discipline

3.11 Golden Rule #8 - Tools and Equipment



08

Tools and Equipment



Never use improvised or faulty tools, machines or equipment to execute work.

Operational Discipline

3.12 Golden Rule #9 - Risk Analysis

09
Risk
Analysis

Never
perform any
work without
understanding
the risks and
comply with
all required
controls.

Operational
Discipline

3.13 Golden Rule #10 - Electronic Devices



4. Rule #1 Alcohol and Other Drugs

4.1 Golden Rule #1 - Alcohol and Other Drugs

| | | |
|--|---|--|
| | <h1>01</h1> <h2>Alcohol and Other Drugs</h2> | |
| |  <p>Never work under the influence of alcohol, drugs and substances that reduce fitness for work.</p> <p>Fitness-for-work</p> | |

4.2 Alcohol



Alcohol and other Drugs

Alcohol

The use, possession (i.e. on your person or in your vehicle on company property), distribution, offering or sale of beverage alcohol is prohibited when on Company business, premises, and property consistent with any applicable site rules and industry regulations.

In addition, contract workers cannot:

- Report for work or remain at work under the influence of alcohol from any source;
- Consume any product containing alcohol (including beverage alcohol) when on duty including during meals or breaks;
- Return to work or report for work after consuming alcohol at a social event;
- Have a positive test as determined through the testing program;
- Use alcohol after an incident until tested or advised testing is not required.



4.3 Illicit Drugs



Alcohol and other Drugs

Illicit Drugs:

The following are prohibited while on Vale business, premises, and property:

- the use, possession, cultivation, manufacture, distribution, offering or sale of illicit drugs or illicit drug paraphernalia;
- reporting to work or being at work while under the influence of illicit drugs; and
- a positive drug test as determined through the testing program.



4.4 Medications



Alcohol and other Drugs

Medications

- Contract workers are expected to responsibly use prescribed and over the counter medications.
- They should investigate (through their doctor or pharmacist) whether a medication can affect safe operation, and take appropriate steps to minimize associated risk.

The following are prohibited while on Vale business, premises, and property:

- The possession of prescribed medications or narcotic substance without a legally obtained prescription.
- Distribution, offering or sale of prescription medications (trafficking).
- The intentional misuse of medications (e.g. using the medication not as it has been prescribed, using someone else's prescription medication, combining medication and alcohol use against direction).



4.5 Investigations



Alcohol and other Drugs

Investigations

The following situations may result in investigations being carried out.

1. Suspected Possession of Banned substances:

- Supervisors or security will advise senior management of any concern.
- Senior management will determine whether and how to initiate an investigation, including whether to involve law enforcement.
- A contract worker, who refuses to submit to an investigation requested by Vale representative, will be removed from the premises. Confirmed possession of substances or paraphernalia may result in testing.

2. Unfit for Work Investigations:

- Vale reserves the right to require a Contractor to fully investigate a possible Instruction violation, including the requirement for a reasonable cause test.

4.6 Investigations



Alcohol and other Drugs

Investigations

The following situations may result in investigations being carried out.

3. Impaired Driving Situations: (off property resulting in license suspension)

- If required to operate any company vehicle on behalf of Vale, contract workers are expected to report the loss of their drivers license.
- They are required to immediately report receipt of an impaired driving charge to their contract manager or supervisor if it is received while operating a vehicle on behalf of Vale, and to comply with all investigation procedures and consequences.

4. Incident Investigations:

- Vale reserves the right to require a contract worker to be tested for alcohol and drugs as part of an investigation into a serious or potentially serious incident.
- The decision to refer someone for a test will be made by the Vale representative investigating the incident in conjunction with the Contractor supervisor, if available.

4.7 Testing Program



Alcohol and other Drugs

Testing Program

All test decisions involve consultation with the contractor supervisor or management representative (if available) and Vale management.

All persons on premises are subject to testing in the following select circumstances:

1. Reasonable Cause:

Testing will be conducted when there is reasonable grounds to believe alcohol or other drug use is a factor in an unfit for work investigation; Testing is initiated based on direct observations.

2. Post incident:

Testing will be conducted as part of an investigation into a serious or potentially serious work related incident; examples include:

- A fatality or serious injury to any individual;
- A serious environmental incident with adverse effects;
- Significant loss or damage to property, equipment or vehicles;
- Significant loss of Company or client revenues;
- A near miss with significant potential for serious consequences.

Note: All tests are conducted through the Vale program at Vale discretion. Tests include both Breath Alcohol and Point of Collection Urine Drug screening

4.8 Pick One

(Pick One, 10 points, unlimited attempts permitted)

5. Rule #2 Working at Height

5.1 Golden Rule #2 - Working at Height

02

Working at Height



Never perform work at height ($\geq 1.8\text{m}$) without proper training, authorization and always use a safety harness secured to an appropriate anchor point.

CAR 01

5.2 Golden Rule #2



Golden Rule #2 – Working at Height

Working at height standards are applied for any height that is equal to or greater than 1.8 meters above the ground or level lower than this where there is risk of injury from falling while performing work.



Workers need to be trained, qualified and authorized to work at heights

5.3 Definitions



Golden Rule #2 – Working at Height

Definitions

Open Hole or Fall Arrest Condition:

An opening or unguarded edge at a work level, that is large enough that an employee could fall through it, or over it to a lower level or obstruction that is 1.8 m or more below the work level.

Fall Hazard:

The fall hazard area begins when a person is within 2m of an open hole or fall arrest condition, or 2m from the point where unsafe footing or ground slope might cause a slip or fall towards the open hole or fall arrest condition.



SPI-06

5.4 Definitions

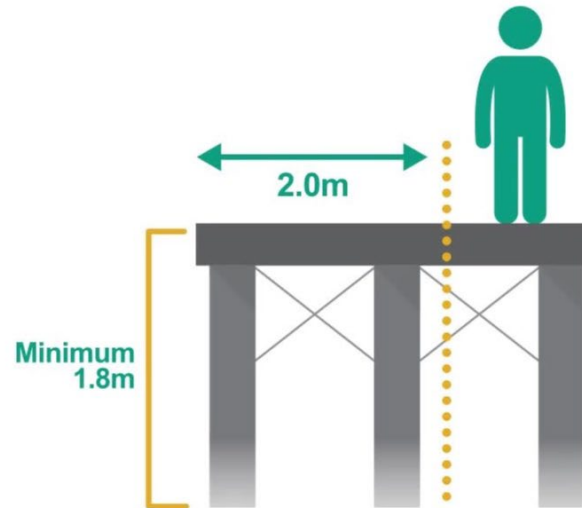


Golden Rule #2 – Working at Height

Definitions

Guardrail:

A proper guardrail will eliminate an open hole condition and typically, not require the worker to use any further Fall Protection Equipment.



5.5 Definitions

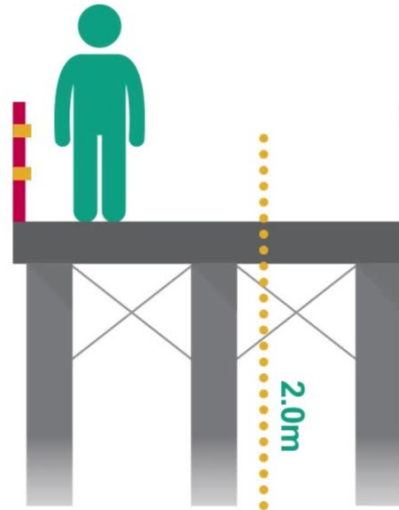


Golden Rule #2 – Working at Height


Definitions

Travel Restraint System:

An assembly of components (lanyard, miners belt or full body harness without energy absorber) that, when properly assembled and used together, and when connected to a suitable anchorage, prevents an employee from reaching an unprotected edge or opening where a fall could occur.



5.6 Definitions



Golden Rule #2 – Working at Height

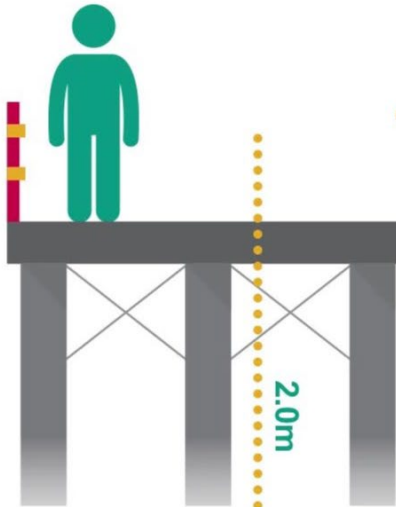
Definitions

Fall Arrest System:

Consists of a full body harness, an energy absorber, a connecting device, a suitable anchor point and a written rescue plan.

This occurs when a worker is in a position that they can reach past the edge or slope leading to an edge of an open hole.

All workers using fall protection equipment must be trained and be able to provide supporting documentation upon request.



5.7 Pick One

(Pick One, 10 points, unlimited attempts permitted)

5.8 What are the components of a Fall Arrest System?



Golden Rule #2 – Working at Height

What are the components of a Fall Arrest System?

A Fall Arrest System consists of a full body harness, an energy absorber, a suitable connecting device, a suitable anchor point and a written rescue plan.

Written
Rescue Plan

Body Harness



Energy
Absorber

Connecting
Device

Anchor Point



5.9 What are the components of a Fall Arrest System?



Golden Rule #2 – Working at Height

What are the components of a Fall Arrest System?

Suitable Anchor Point: Anchorage that will arrest a worker's fall. A anchoring hitch shall be capable of sustaining twice the force it may be subjected to. (Regulation 854 section 14(3)).

An anchorage is generally a structural member such as a beam, girder, column, floor or wall. **For example: Do not tie off to handrails, electrical cable trays or process piping.**



5.10 Definitions



Golden Rule #2 – Working at Height

Definitions

Energy Absorber: A device that dissipates kinetic energy, limits deceleration forces during fall arrest, and does not return energy to the system or into the human body. (Regulation 854 section 14 (3) (b)) In a free fall situation the energy absorber will elongate.



5.11 Definitions



Golden Rule #2 – Working at Height

Definitions

Self Retractable Lanyard (SRL): A device that performs a tethering function while allowing vertical movement (below the device) to the maximum working length of the device, which will arrest a user's fall.

The SRL is designed to arrest a fall while minimizing free fall distance and impact force.



Do not use a full body harness with an attached energy absorber when using a SRL.



5.12 Pick One

(Pick One, 10 points, unlimited attempts permitted)

5.13 Ladder Safety



Golden Rule #2 – Working at Height

Ladder Safety

Rules for safely using ladders:

- Inspect all ladders prior to use for defects or damage.
- Aluminum ladders are not permitted. Non-conducting ladders manufactured to CSA standard, only Grade 1 ladders are allowed.
- Watch for electrical sources when erecting ladders.
- The maximum height of an extension ladder is 7 meters and the maximum height of a step ladder is 6 meters.
- Step ladders may not be used by leaning against a structure. They may only be used with both halves fully deployed and the braces locked in the horizontal position.
- Maintain three point contact when climbing or descending any ladder.
- Work can be done from a step ladder.
- Extension ladders are for accessing work platforms only. Three point contact must be maintained on extension ladders at all times.



5.14 Rules for safely using extension ladders



Golden Rule #2 – Working at Height

Rules for safely using extension ladders:

Extension ladders must be erected such that the horizontal distance from the foot of the ladder to the base of the wall against which it rests is one quarter the length of the ladder.

- 1 foot out at base for every 4 feet up
- 1m overhang to level being accessed
- Lashed at the top
- Sitting square and level
- Extension ladders require 3 point contact always



| LOAD CAPACITY* | DESCRIPTION | CSA CODE | ANSI CODE |
|------------------|--|-----------|-----------|
| 250 lbs. /113 kg | Construction and Industrial - Heavy Duty | Grade 1 | Type I |
| 300 lbs. /136 kg | Construction and Industrial - Heavy Duty | Grade 1A | Type IA |
| 375 lbs. /170 kg | Construction and Industrial - Heavy Duty | Grade 1AA | Type IAA |

5.15 Pick One

(Pick One, 10 points, unlimited attempts permitted)

Incorrect (Slide Layer)

5.16 Scaffold



Golden Rule #2 – Working at Height

Scaffold

Before it is used, inspect the scaffold and look for the Green Tag before using.

Green Tag - Safe to use

Yellow Tag - Safe to use with the listed restrictions

Red Tag - Not safe to use



5.17 Scaffold



Golden Rule #2 – Working at Height

Scaffold

Check for:

- Gaps or open holes in platforms
- Missing handrails or toe-boards
- Loose or damaged bracing or wedges
- Other safety hazards are controlled such as: pinch points, hot surfaces, low overhead access, rotating equipment, or electrical sources

Never use a scaffold that you think is unsafe. Check with your supervisor, and tag out the scaffold if it is unsafe to use.



5.18 Scaffold



Golden Rule #2 – Working at Height

Scaffold

Safety Rules for Scaffolding:

- Good housekeeping is essential. Ensure platforms are free of trip and slip hazards.
- Do not overload platforms with materials.
- Do not alter a scaffold unless you are Qualified and Authorized.
- A Scaffold inspection shall be completed a minimum of once a week by a competent worker or as frequent as deemed necessary by the supervisor, and on each shift by the group using the scaffolding when in use.
- Never straddle, stand on, or work outside the guardrail.
- Do not use unstable objects or makeshift devices to increase the working height of the scaffolds. Only use a ladder on a scaffold if intended for that purpose.
- Only use mobile scaffolds while the castors are locked in place. Never 'ride' a mobile scaffold. Remove all loose objects before mobile scaffolds are moved.

5.19 Scaffold



Golden Rule #2 – Working at Height

Scaffold

Safety Tips for Others:

- Avoid walking under or close to a scaffold that is being built or is in use.
- Watch for hazards when material is being hoisted or work is being done overhead.
- When operating mobile equipment, take extra care near scaffolding, or have solid barricades installed around them.

5.20 Pick One


(Pick One, 10 points, unlimited attempts permitted)

6. Rule #3 - Vehicles and Mobile Equipment

6.1 Golden Rule #3 - Vehicles and Mobile Equipment

03

Vehicles and
Mobile Equipment



Never operate motor vehicles or mobile equipment without proper training, authorization and safety devices. Respect the traffic plan.

CARs 02 e 03

6.2 Mobile Equipment and Light Vehicles



Golden Rule #3 – Vehicles and Mobile Equipment

Mobile Equipment:

Safety Tips for Others:

High Potential Incidents are incidents that had the potential to result in permanently disabling injuries and fatalities.

| RISK MATRIX | | LIKELIHOOD | | | | |
|-------------|---|---|-----------------------------|-------------------------------------|---------------------------|----------------------------------|
| | | RARE ONCE EVERY 100 YEARS OR LONGER | UNLIKELY WITHIN 10 YEARS | OCCASIONAL WITHIN 1 AND 10 YEARS | LIKELY WITHIN ONE YEAR | FREQUENT ONCE OR MORE A MONTH |
| SEVERITY | CATASTROPHIC - (E) MULTIPLE FATALITIES | MODERATE | HIGH | VERY HIGH | VERY HIGH | VERY HIGH |
| | CRITICAL - (D) PERMANENTLY DISABLING/ SINGLE FATALITY | MODERATE | MODERATE | HIGH | VERY HIGH | VERY HIGH |
| | SERIOUS - (C) LOST TIME | LOW | LOW | MODERATE | HIGH | HIGH |
| | MODERATE - (B) MEDICAL TREATMENT/ RESTRICTED WORK | LOW | LOW | LOW | MODERATE | MODERATE |
| | MINOR - (A) FIRST AID/TREATMENT | LOW | LOW | LOW | LOW | MODERATE |



Determine what control methods and work practices you should use in order to avoid mobile equipment incidents.

6.3 Mobile Equipment and Light Vehicles



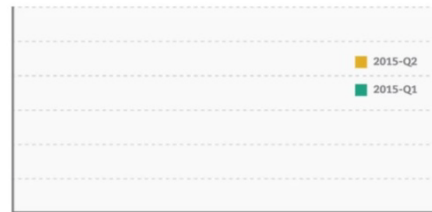
Golden Rule #3 – Vehicles and Mobile Equipment

Mobile Equipment:

Many of the high potential incidents that occur within Vale each year are attributed to Mobile Equipment. Some of the main hazards associated with Mobile Equipment include:

- Equipment Failure
- Vehicle traffic
- Roadway conditions
- Line of sight and overall visibility
- Low clearance areas
- Pedestrians encounters

2015 High Potential Incident
Ontario Division



6.4 Equipment



Golden Rule #3 – Vehicles and Mobile Equipment

Equipment:

The most common locations where equipment may fail include:

- Hydraulic hoses and fittings
- Brakes
- Steering components
- Electrical wiring
- Exhaust systems

Controls of Hazards for Equipment Failure include:

- Preventative maintenance programs
- Effective daily pre-operational inspections of equipment
- Prompt reporting of problems

6.5 Pre-Operational Checks



Golden Rule #3 – Vehicles and Mobile Equipment

Pre-Operational Checks

- Each piece of mobile equipment must have a pre-use checklist on board that covers the critical items for that piece of equipment.
- The equipment must be inspected once per shift prior to use in order to identify any deficiencies that might prevent it from being operated safely and kept with the equipment for the duration of the shift.
- Report any safety concerns about equipment condition to your supervisor immediately.

MOBILE FLEET
OPERATOR'S PRE-OPERATION INSPECTION

SHIFT: _____ ODOMETER READING: _____ VEHICLE # _____

Before moving vehicle check all fluid levels & items listed below:

| CHECK ITEM | ✓ | ✗ | PROBLEM |
|--------------------------|---|---|---------|
| Fluid levels | | | |
| Engine Oil Level | | | |
| Brake Oil Level | | | |
| Transmission Oil Level | | | |
| Battery Level / Charge | | | |
| Fuel Level | | | |
| Seat Belts | | | |
| Lighting / Mirrors | | | |
| Emergency Flashers | | | |
| Wheel Lubes | | | |
| Tires / Pressure / Depth | | | |
| Parking Brake | | | |
| Service Brake | | | |
| Brake pad / drum / wear | | | |
| Steering / Control | | | |
| Windshield | | | |
| Wipers / Wash | | | |
| Service Horn | | | |
| General Condition | | | |

Circle Damaged Area

Comments: _____

Test Drive for Normal Operation only if the above items OK

☐ SATISFACTORY ☐ UNSATISFACTORY

Operator's Signature: _____ Date: _____ Time: _____

White Copy - Supervisor Yellow Copy - Remains in Unit

6.6 Visibility



Golden Rule #3 – Vehicles and Mobile Equipment

Visibility

An operator's poor view of the area ahead of their equipment is a contributing factor in many unfortunate incidents yearly.

- On mobile equipment, the operator's line of sight is partially obstructed at times by different components on the equipment such as a bucket, headlight brackets or air intakes.

—

6.7 Visibility



Golden Rule #3 – Vehicles and Mobile Equipment

Visibility

Control of Hazards Include:

- Open holes or drop off conditions are identified and marked to keep mobile equipment within boundaries.
- Use barricades or spotters are in place in areas of low clearance areas, or areas with high pedestrian traffic.
- Follow established traffic plans including light signals and signs to maintain a proper flow of traffic in and around permitted areas.
- Inspect unfamiliar areas before entering with mobile equipment
- Follow good communication practices when approaching areas that are using mobile equipment.

6.8 Pick One


(Pick One, 10 points, unlimited attempts permitted)

7. Rule #4 - Lockout, Tagout

7.1 Golden Rule #4 - Lockout, Tagout and Zero Energy

04

Lockout, Tagout
and Zero Energy



Never perform maintenance or interventions on installations or equipment without confirming that all sources of energy have been blocked, identified and tested to be in a state of "zero energy".

CAR 04

7.2 Zero Energy State (ZES)



Golden Rule #4 – Lockout, Tagout and Zero Energy

Zero Energy State (ZES):

Vale has a program for Locking and Tagging called the ZERO Energy State (ZES). Everybody on Vale property must have the appropriate ZES training for the work they are doing and follow the ZES program.

This includes the knowledge and use of Personal Protection Tags, Status Tags, personal locks, project locks, lock boxes and forms.

All contractors who will be tagging must be qualified in the appropriate ZES Module and be authorized to perform the work.



7.3 Zero Energy State (ZES)



Golden Rule #4 – Lockout, Tagout and Zero Energy

Energy and Machinery Isolation - ZES Rules for Locking and Tagging



Rules



The rules of the ZES Program support Ontario Regulations and have one goal: to help ensure the safety of workers by reducing stored energy levels to manage risk.

1. One Person – One Lock
2. A RED Personal Protection Tag is the only tag to be used for personal protection on energy isolating devices.
3. Only a Tagger can install / remove his/her personal protection. (If the Tagger is unable to, or fails to, remove their personal protection, the Supervisor can remove the personal protection.)
4. Taggers shall remove their personal protection by the end of their working shift.
5. DO NOT operate an energy isolating device that has personal protection on it.
6. DO NOT operate an energy isolating device unless qualified and authorized to do so.
7. Verify a Zero Energy State before working on machinery.
8. RED personal protection and BLUE project locks are to have ONLY one key.
9. A RED Personal Protection Lock shall ONLY be used for personal protection. It should not be used for any other purposes.
10. A BLUE project lock shall be used ONLY for securing keys in a Lock Box and not be used for any other purposes.
11. Personnel who require personal protection from electrocution shall have positive isolation from all sources of power.
12. Only qualified personnel can install grounds on electrical equipment.
13. Control power or pilot pressure shall not be used for personal protection.
14. Defective energy isolating devices are to be immediately tagged with a Status Tag.
15. A Status Tag is required to identify the condition of equipment or why it cannot be operated.
16. Do not remove a Status Tag unless authorized to do so.
Authorization to remove a Status Tag can be given by:
A) Any Tagger who is continuing the work as stated on the Status Tag.
B) The Tagger's Supervisor.
C) The Operating Superintendent or his/her designate in charge of the Equipment or process.
17. A variance to a Zero Energy State Locking and Tagging procedure is only valid in the plant/mine that has developed and approved it.

7.4 ZES Rules for Locking and Tagging



Golden Rule #4 – Lockout, Tagout and Zero Energy

ZES Rules for Locking and Tagging

There are specific procedures associated with locking and tagging. Each plant will have resources available to help with tasks. For example:

- Job Procedures
- ZES Tools
- Orientation Handbook
- Vale Contact and Safety Representatives

Installing Personal Protection without a Lock Box

| DO NOT | DON'T |
|---|---|
| <ul style="list-style-type: none">1. Do not use personal protection until you are properly trained.2. Do not use personal protection until you are properly trained.3. Do not use personal protection until you are properly trained. | <ul style="list-style-type: none">1. Do not use personal protection until you are properly trained.2. Do not use personal protection until you are properly trained.3. Do not use personal protection until you are properly trained. |

Installing Personal Protection

| DO NOT | DON'T |
|---|---|
| <ul style="list-style-type: none">1. Do not use personal protection until you are properly trained.2. Do not use personal protection until you are properly trained.3. Do not use personal protection until you are properly trained. | <ul style="list-style-type: none">1. Do not use personal protection until you are properly trained.2. Do not use personal protection until you are properly trained.3. Do not use personal protection until you are properly trained. |

Removing Personal Protection

| DO NOT | DON'T |
|---|---|
| <ul style="list-style-type: none">1. Do not use personal protection until you are properly trained.2. Do not use personal protection until you are properly trained.3. Do not use personal protection until you are properly trained. | <ul style="list-style-type: none">1. Do not use personal protection until you are properly trained.2. Do not use personal protection until you are properly trained.3. Do not use personal protection until you are properly trained. |



7.5 ZES Rules for Locking and Tagging



Golden Rule #4 – Lockout, Tagout and Zero Energy



CAUTION

Other companies use similar tags to establish personal protection and equipment status; however, it is important to note these companies may use different coloured formats for their tags.

It is **IMPORTANT** to **READ ALL INFORMATION** on tags affixed to locks, equipment, process controls, valves etc. to **UNDERSTAND** their purpose and to ensure you **MANAGE RISK**.

If you are unsure of the purpose of a tag, talk to your supervisor.

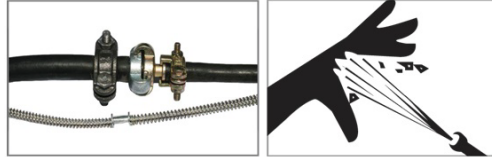
7.6 Pressurized Lines



Golden Rule #4 – Lockout, Tagout and Zero Energy

Pressurized Lines

- Pressurized lines can pose many hazards to personnel working near them.
- Never turn on air, steam or water into a hose unless you are certain that the free end is secured and cannot whip about and strike you or someone else.
- Never clean clothing or skin with compressed air, never direct compressed air towards yourself or another person. Compressed air entering the body can be harmful or fatal.
- Never look for hydraulic leaks using your hands or body. Use cardboard or other method. Hydraulic fluid entering the body can cause serious injury.



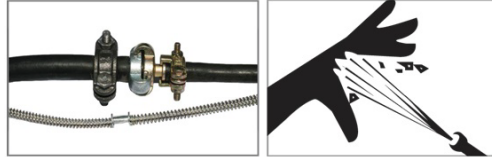
7.7 Pressurized Lines



Golden Rule #4 – Lockout, Tagout and Zero Energy

Pressurized Lines

- When using air tools, whip checks should be used to secure the air hose to the tool.
- Air and water hoses should be de-energized and properly stored when not in use.
- Always ensure that air lines are de-energized, isolated and open-ended before beginning repair work.



7.8 Pressurized Cylinders



Golden Rule #4 – Lockout, Tagout and Zero Energy

Pressurized Cylinders

- Compressed Gas Cylinders can pose an explosion hazard when not handled correctly.
- Compressed gas cylinders should not be stored near sources of heat or in direct sunlight.
- Gas cylinders should be stored in authorized areas only. When transporting gas cylinders they must be supported in the upright position and stored in approved racks.
- Oxygen and acetylene bottles must be stored in an upright position and be properly secured to prevent them from falling over. Hoses and gauges must be removed, and protective caps installed when not in use.
- Oxygen and Acetylene bottles with integrated and shielded gauges are preferred for use where possible.



SPI-15

7.9 Pick One

(Pick One, 10 points, unlimited attempts permitted)

8. Rule #5 - Lifting Loads

8.1 Golden Rule #5 - Lifting Loads

05
Lifting
Loads

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

A red 3D illustration of a rectangular box suspended by a hook and three cables. The hook is at the top, and the cables are attached to the top corners of the box, forming a triangular support structure. The box is shown from a slightly elevated perspective, with its bottom edges visible.

CAR 05

8.2 Golden Rule #5 - Lifting Loads



Golden Rule #5 – Lifting Loads

Operators must be trained and qualified to perform tasks of hoisting and lowering material and supplies.

Equally important is the training and authorization of the person directing the lift or transfer. They both must know the capabilities of the machine they are working with and the loads it can handle safely. This along with a standard set of signals so that they can communicate properly will lead to a safe efficient operation.



8.3 Overhead Work-Guidelines



Golden Rule #5 – Lifting Loads

Overhead Work-Guidelines

Safe lifting practices will require:

- Hoisting equipment that is designed and rated to lift the load.
- Hooks / slings / chains / clamps applied as designed for lifting.
- A balanced load using a controlled lift.
- Restriction of vehicle and pedestrian in the travel of a lift.
- Rigging plan for critical lifts.
- Lifting equipment is to be regularly tested / maintained to ensure its ability to hoist loads safely. It should be inspected prior to use.
- Know the approximate weight of the material or object that is being lifted so that the proper capacity lifting equipment is applied.
- Rigging shall be performed by a person trained and qualified to perform the task. Industry standard rigging principles shall be understood and applied for safe lifting of loads.
- Rigging equipment must have a certified capacity and must be physically inspected for any defects that would compromise its integrity during a lift.

8.4 Overhead Work-Guidelines




Golden Rule #5 – Lifting Loads

Overhead Work-Guidelines

- Defective rigging equipment must be permanently removed from service and properly disposed of. Never use damaged slings or lifting devices. Never work under a suspended load.
- Always ensure that the area under the lift is barricaded to pedestrian and vehicle traffic.
- Loads can shift sideways when they are first lifted off the ground. Never position yourself between the load and another stationary object.
- Ensure that slings are protected from sharp corners at all times.
- If using a signal person to direct the load, standard hand signals for directing a crane shall be used. (See next page)
- If using radios to direct a lift, Critical Lift Radio's must be used to ensure that there is no break in communication. Blind lifts must have radio communication between the signal person and the crane operator.

8.5 Resources Associated with Lifting and Mechanical




Golden Rule #5 – Lifting Loads

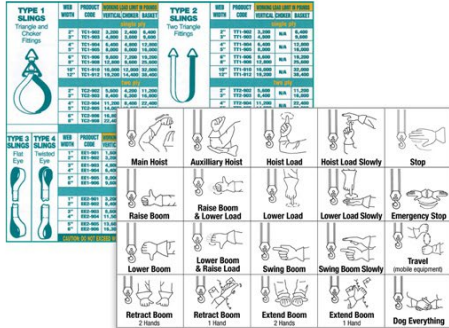
Resources Associated with Lifting and Mechanical

Each plant will have resources available to help with Lifting Operations. For example:

- Job Procedures
- ZES Tools
- Orientation Handbook
- Vale Contact and Safety Representatives



Orientation Handbook




The diagram shows a grid of lifting operations. The top row contains two tables: 'TYPE 1 SLINGS' and 'TYPE 2 SLINGS'. The bottom row contains a grid of 16 icons representing various lifting operations: Main Hoist, Auxiliary Hoist, Hoist Load, Hoist Load Slowly, Stop, Raise Boom, Raise Boom & Lower Load, Lower Load, Lower Load Slowly, Emergency Stop, Lower Boom, Lower Boom & Raise Load, Swing Boom, Swing Boom Slowly, Travel (mobile equipment), Retract Boom, Retract Boom, Extend Boom, Extend Boom, and Do Everything.

8.6 Pick One

(Pick One, 10 points, unlimited attempts permitted)

9. Rule #6 - Confined Spaces

9.1 Golden Rule #6 - Confined Spaces

| | | |
|--|--|--|
| | <h1>06</h1> <h2>Confined Spaces</h2> | |
| |  <p>Never work in a confined space alone, without training, authorization, an entry permit and appropriate PPE.</p> <p>CAR 06</p> | |

9.2 Confined Space Definition;



Golden Rule #6 – Confined Spaces

Confined Space Definition;

A “confined space” is a fully or partially enclosed space:

- A. that is not both designed and constructed for continuous human occupancy, and
- B. in which atmospheric hazards may occur because of its construction, location, or contents or because of the work that is to be done in it.



9.3 Confined Spaces



Golden Rule #6 – Confined Spaces

Vale Ontario Operations has a confined space program.

All personnel entering a confined space, or acting as an attendant or rescuer must have specific confined space training on this program.

Planning for a Confined Space entry is required to ensure that all risks are controlled.



Planning will include:

- Identification of all energy sources and process line entry points requiring isolation.
- Testing and understanding the control of atmospheric conditions prior to and during the work that will be performed.
- Having a tested rescue plan defined.
- Acquiring all necessary rescue equipment and setting it in place.
- Having rescue personnel available.
- Establishing a means of communication between those working in the confined space and those providing rescue.
- Completing the entry procedure and entry work permit.

9.4 Confined Spaces



Golden Rule #6 – Confined Spaces

- Air quality is the primary concern. If in doubt, **Test!** Subsequent air quality testing is required if the job being performed may affect air quality, or if the air quality could change.
- An attendant is to be stationed immediately outside of a confined space at all times to monitor the work that is taking place and mobilize in the event of a rescue situation.
- The entry permit must be in place and approved by plant operations personnel before any entry into the confined space may take place.
- The attendant must never enter the confined space while acting as the attendant. The attendant must never leave their post at the entrance to the confined space, unless it is vacated and barricaded.



9.5 Confined Spaces



Golden Rule #6 – Confined Spaces

- Regular communication must be established between the confined space workers and the attendant.
- The attendant must be in communication with site rescue personnel and first aid resources to initiate medical assistance if required.
- All rescue equipment is to be in place at the confined space prior to any entry taking place.
- Lifting rescue devices must be assembled and inspected.
- All personnel entering the confined space will need to wear a full body harness if that is part of the rescue procedure.



9.6 Pick One

(Pick One, 10 points, unlimited attempts permitted)

10. Rule #7 - Restricted Areas

10.1 Golden Rule #7 - Restricted Areas

07

Restricted Areas

A blue icon of a door frame with a padlock in the center. The padlock has a keyhole and a small circular detail at the top.

Never enter into production areas, tailings areas, electrical rooms / substations or any other restricted areas without authorization.

Operational Discipline

10.2 Safe Work Practices - Barricading in Surface Plants



Golden Rule #7 – Restricted Areas

Safe Work Practices - Barricading in Surface Plants

Only enter areas you are authorized to be in.

- Work areas that present hazards should be restricted by being roped-off to prevent inadvertent entry by outside personnel.
- Permission should be obtained from Vale personnel before establishing a roped off area.




SPI-18

10.3 Safe Work Practices - Barricading in Surface Plants



Golden Rule #7 – Restricted Areas

Safe Work Practices – Barricading in Surface Plants

The following situations illustrate where barricading and roping off an area is necessary:

- Personnel working above;
- Unsafe, deteriorating or slippery walkways;
- Unsecured structures;
- Danger of falling process material or other items overhead;
- Temporary removal of existing protection such as guards;
- Any opening in a floor, sump, vessel, bin or other surface that may create a falling hazard to a worker;
- To protect the immediate area where a critical injury has occurred;
- When leaving a Confined Space entrance unattended;
- To limit access to a hazard posed by work being done in the plant.



10.4 Safe Work Practices - Barricading in Surface Plants



Golden Rule #7 – Restricted Areas

Safe Work Practices - Barricading in Surface Plants

Use Yellow Caution Ribbon with Yellow “Roped off Area” Tags completed and affixed on all sides.

- Write your information LEGIBLY on all Tags
- Inform the Area Operator before installing the barricade. Remove when safe to enter.
- **Do not enter a roped off area unless you are authorized to do so!**



10.5 Pick One

(Pick One, 10 points, unlimited attempts permitted)

Which of the following illustrates where barricading and roping off are necessary?

- ☐ When leaving a confined space unattended.
- ☐ Where the temporary removal of existing protection is required.
- ☐ Where there is danger of falling process material or other items overhead
- ☐ To limit access to a hazard posed by work being done in the plant.
- ☐ All answers are correct.

Submit

| Correct | Choice |
|---------|---------|
| | Group 1 |
| | Group 2 |
| | Group 3 |
| | Group 4 |
| X | Group 5 |

Feedback when correct:

That's right! You selected the correct response.

Feedback when incorrect:

You did not select the correct response. Please Try again

10.6 Safe Work Practices - Barricading in Surface Plants



Golden Rule #7 – Restricted Areas

Safe Work Practices - Barricading in Surface Plants

Roped Off Areas

- Restricted areas must be barricaded using caution tape and a yellow barricading tag. If the barricade will be in place for longer than 1 day then a 3/8" yellow nylon rope must be used along with a yellow barricade tag.
- The barricade must prevent entry to the area from all access points.
- The tag should include the reason for the barricade, and describe the hazards in the area beyond the ropes. The tag should also include the contact information including phone number for the person who established the roped off area, and the date it was roped off.
- Entry must never be made to a restricted area without authorization from the group who established the roped off area. Workers must understand the potential hazards and the required controls to protect a person from harm if entry is approved.



10.7 Safe Work Practices - Barricading in Surface Plants



Golden Rule #7 – Restricted Areas

Safe Work Practices - Barricading in Surface Plants

Roped Off Areas

- Depending on the nature of the hazard, additional precautions such as warning lights, signs, guards or permanent barricades may also be required.
- The person in charge of the last group performing work is responsible for the removal of the barricade when work is completed and the area is made safe to enter.



10.8 Safe Work Practices - Barricading in Surface Plants



Golden Rule #7 – Restricted Areas

Safe Work Practices - Barricading in Surface Plants

Open Holes

- A barricade shall be installed a minimum of 3 meters back from an open hole situation.
- The minimum acceptable barricade in an open hole situation will consist of two guardrails or a single guardrail plus a worker who is attending the condition.
- **A single guardrail is a warning only and does not constitute protection from an open hole condition.**
- Note: 1/4" link chain or 3/8" polypropylene rope is the minimum acceptable standard material to be used for guarding open hole situations. This does not preclude the use of other materials on a temporary basis to guardrail a condition while the required materials are found and installed.




10.9 Pick One

(Pick One, 10 points, unlimited attempts permitted)

11. Rule #8 - Tools and Equipment

11.1 Golden Rule #8 - Tools and Equipment

08
Tools and
Equipment



Never use improvised or faulty tools, machines or equipment to execute work.

Operational Discipline

11.2 Equipment Protection & Guarding



Golden Rule #8 – Tools and Equipment

Equipment Protection & Guarding

- Equipment and systems are not to be operated without safeguarding in place and in working order.
- Unless required and authorized to do so under controlled conditions, no one is allowed to remove or disable an equipment safeguard device.
- Where guarding has been removed to maintain a piece of equipment, a final check of all guarding should be made in order to ensure the equipment is safe to operate.
- Any guards that are modified or manufactured must be done with the permission of the operating groups, and be done in accordance with appropriate standards.



11.3 Proper Hand Tool Use



Golden Rule #8 – Tools and Equipment

Proper Hand Tool Use

- Inspect all hand tools and hand held power tools before use.
- All hand tools should be operated with the supplied guards, shields and handles in place.
- Where appropriate both hands should be used to operate a tool.
- Electrical cords should be free of defects, and an electrical cord with a GFI circuit interrupter should be used whenever water or wet conditions are present.
- Face shields are required for cutting and grinding operations.
- Select the right tool for the job. Substitutes increase the chance of having an accident.



11.4 Open Blade Knives



Golden Rule #8 – Tools and Equipment

Open Blade Knives

- Open bladed knives are not permitted at Vale Ontario operations except for designated personnel for designated activities.
 - Electrical Department
 - Employees working with explosives
 - Other trades that have been granted an exemption through General Safety
 - Cutting Snips and Shielded Blades are the preferred cutting tools and should be used whenever possible.
- If these tools cannot be used for the work you are performing, stop and discuss with your supervisor.



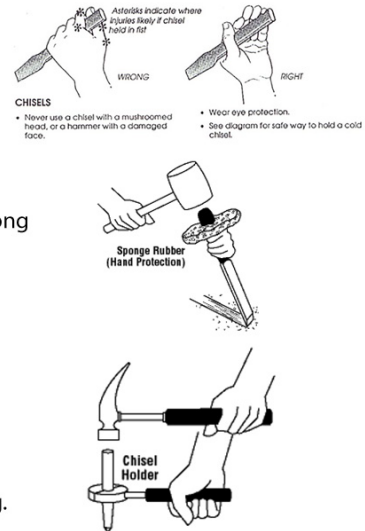
11.5 Struck Tool Safety



Golden Rule #8 – Tools and Equipment

Struck Tool Safety

- Struck Tools include cold chisels, punches, nails sets, and wedges.
- Always use the correct tool for the job and tools in good condition.
Discard broken and damaged tools.
- For chisels and chipping, use an angle that holds the bevel tip flat along the plane.
- Use tools with a rubber hand protector on the shaft of the tool.
- Never use cold chisels to break stone or concrete.
- NEVER hold a struck tool while another employee strikes the tool.
- NEVER use a flat screwdriver as a struck tool.
- ALWAYS wear proper eye protection (glasses or face shield).
- If trained, restore flattened points or mushroomed heads by grinding.
- Use a chisel tip angle of 70° for hard metal, 60° for soft metal.



12. Rule #9 - Risk Analysis

12.1 Golden Rule #9 - Risk Analysis

09
Risk
Analysis

Never
perform any
work without
understanding
the risks and
comply with
all required
controls.

Operational
Discipline



12.2 Risk Analysis



Golden Rule #9 – Risk Analysis

Risk Analysis

Never perform any work without understanding the risks and comply with all of the required controls.

Effective risk management is essential to the achievement of Vale's goal of zero harm.

Managing health and safety risks is an ongoing process. Triggers for a risk assessment include:

- New facility or process
- Change in process, equipment, chemicals, work practices, procedures, etc.
- New hazard or risk is identified; new information about the workplace becomes available
- Responding to a workplace incident or concerns raised
- Required by legislation (ex. designated substances)
- Routine (daily) , prior to starting work



12.3 Risk Management Tools



Golden Rule #9 – Risk Analysis

Risk Management Tools



SLAM: Is a field level risk assessment tool to help employees identify, understand and determine how to manage risk in their tasks. The intent of SLAM is to help employees identify, understand and determine how to manage risk in their tasks. For routine and relatively simple activities, an employee will use SLAM. If a worker is not confident that they can manage risk after completing SLAM, they must ask their supervisor for help.




JHA: A Job Hazard Analysis is a formal risk assessment that is performed by a worker(s), supervisor and joint health and safety representative. It is mandatory when faced with a non-routine task in an abnormal condition.



Management of Change (MOC): A process to identify and assess the hazards and risks related to changes made within the organization. Always conduct a management of change assessment before implementing any temporary or permanent change (to process, equipment or facility).

13. Rule #10 - Electronic Devices

13.1 Golden Rule #10 - Electronic Devices

| | | |
|--|---|--|
| | <h1>10</h1> <p>Electronic Devices</p> | |
| |  <p>Never use cell phones or any other device that can cause loss of focus in non-authorized operational areas, stairs and while crossing streets.</p> <p>Operational Discipline</p> | |

13.2 Electronic Devices



Golden Rule #10 – Electronic Devices



SPI-22

Radio Frequency Devices (RFD)

Any device that emits radio frequencies, including:


Consumer RF Device:

- Laptops/tablets
- Cell phones/mobile Internet devices
- Media players
- Bluetooth keyboards/headsets
- *(that do not exceed 4 Watts)*
- **Underground must not exceed 1 Watt**


Industrial RF Device:

- Two-way radios
- Remote control radios for mobile equipment
- Media players
- Any radio device used for process control

Resume Training (Slide Layer)



Golden Rule #10 – Electronic Devices



Radio Frequency Devices (RFD)
Any device that emits radio frequencies, including:

Consumer RF Device:

- Laptops/tablets
- Cell phones/mobile Internet devices
- Media players
- Bluetooth keyboards/headsets
(that do not exceed 4 Watts)
- **Underground must not exceed 1 Watt**

Industrial RF Device:

- Two-way radios
- Remote control radios for mobile equipment
- Media players
- Any radio device used for process control

13.3 Electronic Devices



Golden Rule #10 – Electronic Devices



Consumer RF Device

Consumer Electronic RF Devices can be used on Vale property, except in Radio Frequency (RF) Restricted Areas (as indicated by signage).

It is the user's responsibility to ensure their device meets the Consumer RF Device definition and is liable for non-compliance and incidents related to misuse.

13.4 Radio Protocol

Safety Procedures – Radio Protocol



Industrial RF Device

Any Industrial RF Device (owned by Vale or a contracting company doing business with Vale) that is to be used on Vale property must be verified for use by the IT RF Department.

Contact the IT RF Department for more information.

13.5 Radio Protocol

Safety Procedures – Radio Protocol

Radio Protocol

Radio Frequency Devices (RFD) General Information

- No hand held RFD's are to be operated while operating a vehicle.
- The use of RFD's is prohibited when fueling vehicles.
- Consumer RF Devices are not permitted for personal use in the workplaces with the exceptions of offices, lunchrooms or meeting rooms.
- When using a consumer RF device for business reasons in the operating environment, you must be stationary and aware of your surroundings to ensure that you are not compromising your own or another person's ability to operate in a safe manner.

14. Management of Change

14.1 Management of Change



Management of Change

14.2 Management of Change

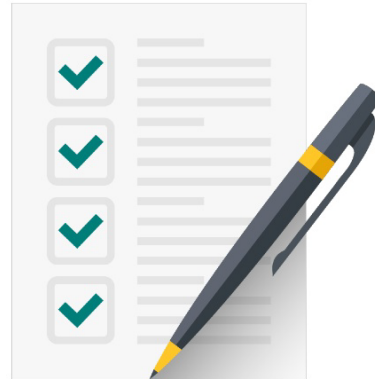
Management of Change

Management of Change

Many changes are made to processes within the Ontario Division on a daily basis. Management of Change is a way of ensuring that those changes do not introduce unacceptable risk.

Management of Change is based on two principles:

- 1 No one individual has authority to change anything other than a replacement-in-kind.
- 2 All changes that are not replacement-in-kind receive review and authorization.



****A “replacement-in-kind” is the replacement of a component of a process or facility with another component that is identical in every way.****

14.3 What does Management of Change do?

Management of Change

What does Management of Change do?

Changes to a process or facility can result in deviations that can lead to operations outside the established safe operating boundaries.

The Management of Change process ensures that:

- All changes, however subtle or major receive appropriate review and authorization before being implemented.
- All authorized changes are documented including the description and purpose of the change, the technical basis for the change and the impact of the change towards health safety and environment.

14.4 What's in it for me?

Management of Change

What's in it for me?

Beneficial Changes

Recognizing a need for beneficial change or improvement is a responsibility of all employees. By using the Management of Change guidelines employees are able to identify different types of changes and take appropriate steps to ensure that all changes are reviewed or implemented.

Continuous Improvement

Continually improving the way we do things means changes are inevitable. "Management of Change" helps us ensure that all changes are properly reviewed and receive the necessary approval before being implemented.

14.5 Pick One

(Pick One, 10 points, unlimited attempts permitted)

15. Human Resource Policies

15.1 *Human Resource Policies*

✓ Human Resource Policies

Workplace Harassment and Discrimination

Alcohol and Drug Instruction

Smoking Policy

15.2 Workplace Violence, Harassment and Discrimination

Workplace Violence, Harassment and Discrimination

Under the Ontario Occupational Health and Safety Act all employers and employees in Ontario have an obligation to ensure our workplaces remain free of workplace violence harassment and discrimination.

Our Policy states...

If you are witness to, or victim of workplace violence, harassment or discrimination, please inform your supervisor immediately. Management will deal with contractor managers on these issues should they arise.

Of course, we do have on-site protection services and we would encourage you to request assistance from them, or from another member of Vale management, if required while you are on company property.



15.3 Pick One

(Pick One, 10 points, unlimited attempts permitted)

15.4 Alcohol and Drug Instruction

Alcohol and Drug Instruction

As stated in golden rule #1 Alcohol and Other Drugs, Vale is committed to be an industry leader and to protect the health and safety of its employees and contractors, and protect the environment of the communities in which the Company operates.

The use of illicit drugs and the inappropriate use of alcohol or medications can adversely affect the safety and well being of employees, the work environment, and job performance.

It can also place the integrity and safety of Company facilities and operations at risk.

The Company has a legislative duty to prevent individuals who are under the influence of drugs, narcotic substances or alcohol from entering a mine or mining plant.

The expectation with this instruction is that no employees report to work under the influence of alcohol or drugs and to not have them on your person or in your personal vehicle while on the property.

15.5 Alcohol and Drug Instruction

Alcohol and Drug Instruction

We expect that contract company employees, and subcontractors, and agents will comply with these minimum requirements when:

- **Engaged in Vale business.**
- **At all times when on Vale premises and property including when operating vehicles and equipment.**
- **Violations will result in removal from site access privileges and up to termination of contract.**



15.6 Contract Employee Responsibilities

Alcohol and Drug Instruction

Contract Employee Responsibilities

- Report fit for duty, and remain fit throughout their work day or shift,
- Adhere to the fitness for duty standards that have been set out by Vale
- Maintain a valid drivers license if it is a condition of work and report any loss of license immediately (no later than 24 hours after losing the license),
- Conduct themselves in an appropriate manner while on Vale business, premises, and property;
- Co-operate with an investigation into an Instruction violation including any testing requirements.

If unexpected circumstances arise where a contract worker is requested to perform services (i.e. unexpected call in) if the individual is under the influence of alcohol or other drugs that could impact safe operations, it is the responsibility of that individual to inform the Contractor or a Vale representative that he or she cannot accept that assignment.

15.7 No Smoking Policy

Alcohol and Drug Instruction

Ontario Operations (Sudbury) – No Smoking Policy

Vale's Ontario Operations is committed to providing a safe, healthy and productive work environment for all employees.

No smoking is prohibited in all Vale 'enclosed workplaces' as defined by the Provincial Act.

- in any surface facility or underground mine.
- within nine meters of building entrances, windows and ventilation intakes.
- in any company vehicle, including rentals used for company business.

This 'No Smoking Policy' applies to all employees, clients, contractors and visitors to any Vale site.

Copies of this policy will be posted at all plants and mines.
Disposable lighters are not permitted.



15.8 Pick One

(Pick One, 10 points, unlimited attempts permitted)

16. Operational Controls for Health Safety & Environment

16.1 *Operational Controls for Health Safety & Environment*

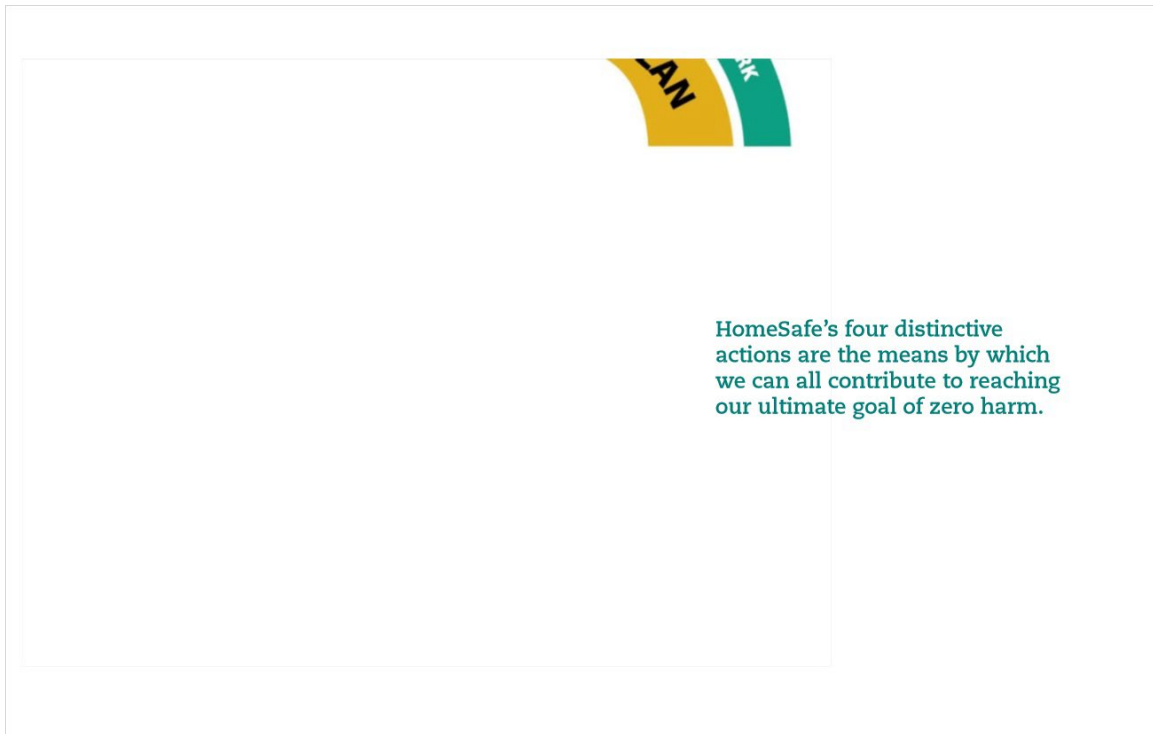


✔ Operational Controls for Health Safety & Environment

16.2 HomeSafe



16.3 HomeSafe's four distinctive actions



16.4 Understanding and Managing Risk

Understanding and Managing Risk

Risk will always be present in our lives – at home and at work.

When we commit to achieving zero harm, we acknowledge that risk exists but that risk can be managed to prevent harm. HomeSafe offers a number of tools to help us understand and manage risk.

Checklists:

Remind us of hazards to look for and the controls we need to put in place to manage risk.

SLAM:

Stop, Look, Assess, Manage.

Hierarchy of Controls:

A guide of minimum to most effective control types.

Risk Matrix:

A guide to assessing the level of risk before and after controls are in place. Level of risk is determined using the likelihood an event will occur and the consequence of that event occurring.

JHA:

A Job Hazard Assessment (sometimes referred to as an SSA) is a formal risk assessment. It is mandatory when faced with a non-routine task in an abnormal condition.

16.5 Understanding and Managing Risk

Understanding and Managing Risk

However, to aid in attaining the goal of “zero harm”, there are numerous risk management methods employed across the organization that help manage Risk to get HomeSafe.



BE AWARE

Be aware of my surroundings and the risks around me.



STOP & CORRECT

Be my brother and sister's keeper and 'stop & correct' when required.



APPLY GOOD WORK PRACTICES

Apply good work practices and my knowledge, skills, and experiences to safely complete each task assigned to me.



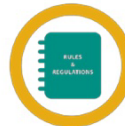
FOLLOW POLICIES & PROCEDURES

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



ASK FOR HELP

Apply others' experiences and ask for help when needed.



FOLLOW RULES & REGULATIONS

Rules and regulations have been established to help us achieve zero harm and can be legislated or internal.

16.6 Getting there Together



Getting there Together

Contractors are expected to have a Safety System in place. If they don't have one, they can use the HomeSafe suite of tools to manage risk. Contact your local plant contact for further instruction and training on using the program.

16.7 Health, Safety & Environment

Health, Safety & Environment

Health, Safety and Environment Policy

Sudbury Operations has a Health, Safety & Environment Policy which highlights seven underlying principles:

- Occupational Health, Safety Excellence is exemplified by the visible actions of leadership.
- Working in a manner that is healthy, safe and environmentally sound is an accountability of everyone.
- People involvement is essential.
- All occupational illness, injuries and environmental impacts related to our activities, products and services are preventable.
- All operating exposures can be safeguarded to zero harm.
- Prevention of occupational illness, personal injuries, process upsets and environmental impacts is good business.
- Respect for the communities, cultures and customs where we operate is the foundation for productive relationships and social responsibility.



16.8 Health Programs

✓ Occupational Health Programs



Respiratory Protection



Hearing Protection



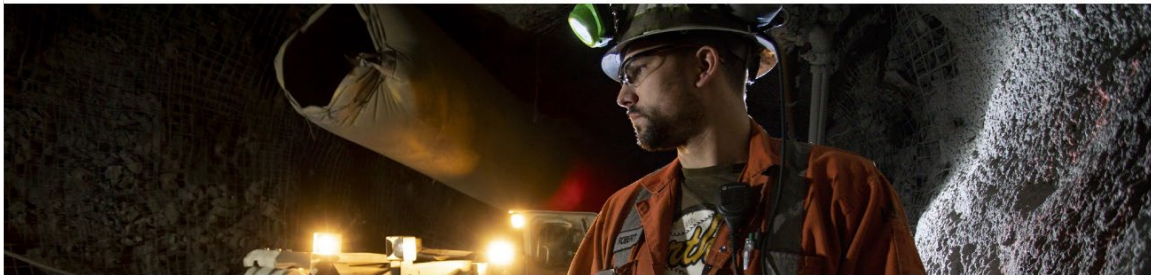
Personal Hygiene

16.9 Occupational Health

Occupational Health

The health and well-being of our employees is central to the success of our business. Understanding our health risks and establishing mitigating measures is an integral part in meeting our goal of zero harm. The four basic tenants of Occupational Health include:

1. **Anticipation** of potential hazardous factors associated with new workplace exposure conditions;
2. **Recognition** of health hazards associated with existing workplace processes, conditions or materials;
3. **Evaluation** of the significance of the risk exposure; and
4. **Control** to reduce or eliminate the health exposure.



16.10 Pick One

(Pick One, 10 points, unlimited attempts permitted)

16.11 Respiratory Protection

Respiratory Protection

At some Vale plant sites you may be required to use specific respiratory protection depending on the area in which you are working and the work which is being performed.



Respiratory Protection



16.12 Respiratory Protection

Respiratory Protection

Respirators protect workers by preventing exposures to harmful levels of airborne hazards (chemical or biological).

Removing contaminants from the air before they are inhaled.



Supplying an independent source of "clean" air.



They work by either



16.13 Respiratory Protection

Respiratory Protection

The type of respirator and filtering media you require is based on:

Type of contaminant (e.g. dust, gas, vapour, combination, etc.) and how much of the contaminant is present (concentration in air).



**Each type of media
protect against
different hazards**



**Each type offers
different levels of
protection**

16.14 Respiratory Protection

Respiratory Protection



The type of respiratory protection required and areas of use will be detailed in your Site Specific Orientation.

Caution:

A Respirator that is not used properly will fail to provide adequate protection and may even cause certain hazardous conditions.

16.15 Respiratory Protection

Respiratory Protection

If you are required to wear a respirator, you have to comply with key requirements from the Vale Respiratory Protection Program:

- Wearer requires a fit test every two years (unless your site specific orientation indicates a one year fit test requirement).
- Your respirator must be in good condition and kept clean.
- The top strap must be worn on your head and not on top of your hard hat.
- You must wear the respirator in posted areas or where there is evidence of a hazard.
- You must be clean shaven.
- Upon donning respirator, you must perform a negative or positive seal check.



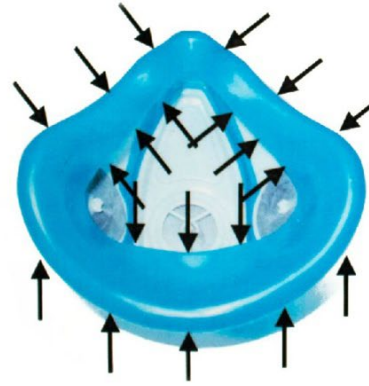
16.16 Respiratory Protection

Respiratory Protection

It is important to remember that you must be clean shaven to ensure a safe respirator seal.

"Clean Shaven" means no hair, stubble, moustache, side-burns, beard, low-hairlines, bangs, that pass between the face and the sealing surface of the face piece.

Sealing surface is from the inside edge of the face piece to outer the edge.



16.17 Pick One

(Pick One, 10 points, unlimited attempts permitted)

16.18 Hearing Protection

Hearing Protection

Noise is unwanted sound – a harmful acoustic energy capable of causing hazardous health and safety effects if not controlled.

Each year, approximately one in every 200 workers in Ontario mining industries suffer from noise-induced hearing loss.

Common sound levels;

| | |
|-------------------|-----------------------|
| 140dbA | Threshold of pain |
| 120dbA | Mobile Equipment Horn |
| 115-120dbA | Diesel Haulage Truck |
| 100 + dbA | Loader Scooping |
| 85dbA | Loader Operating |

16.19 Hearing Protection

Hearing Protection

The use of hearing protection is required in areas which have been evaluated to have continuous noise levels above the Occupational Exposure Limit.

Single can be in the form of
Ear Plugs or Ear Muffs



Single Hearing Protection
noise level >85dbA

Double requires both
Ear Plugs and Ear Muffs



Double Hearing Protection
noise level >105dB

16.20 Hearing Protection

Hearing Protection



dB Blockers
The smartest hearing protection in the world.

dB Com dB Life dB Blocker

dB Blockers offer superior hearing protection especially where interpersonal communication is required.

- Custom fit for each individual wearer for maximum comfort and are made from medical grade silicone.
- Particularly suited for industrial applications where communication between individuals is desired.

16.21 Hearing Protection

Hearing Protection

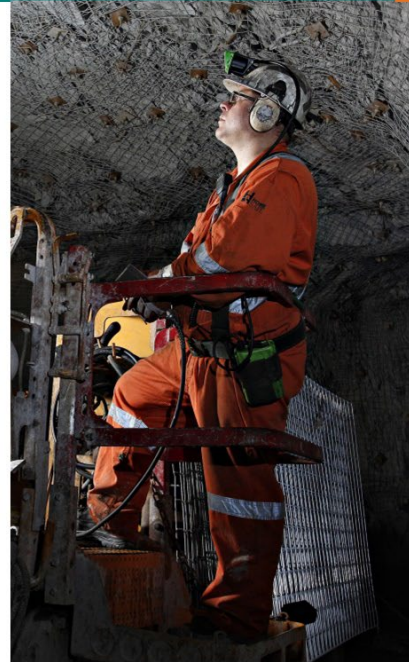
The type of hearing protection required and areas of use will be detailed in your Site Specific Orientation.

Note:

It is important that hearing protection is worn continuously in noisy areas.

Removing protection for even short durations can have a significant impact on hearing.

Find hearing protection that fits comfortably and ensure that it is worn properly.



16.22 Pick One

(Pick One, 10 points, unlimited attempts permitted)

16.23 Personal Hygiene

Personal Hygiene

How can I be Exposed to Hazardous Substances at Work?

Work may expose you to chemical or biological substances that may be hazardous to your health.

There are 3 main ways that you can be exposed.



Inhalation



Skin Contact / Absorption



Ingestion

16.24 Personal Hygiene

Personal Hygiene



Inhalation

- Breathing contaminated air is the main route of exposure in a workplace setting and the route that will often get the most focus.
- Airborne exposures can be estimated by measuring concentrations in the air with sampling devices.
- Controls commonly put in place to reduce airborne exposures include ventilation, work practices to minimize generation of dust and the use of respiratory protection.
- With ongoing focus on minimizing airborne hazards, it is important to also consider other ways in which we can be exposed.



16.25 Personal Hygiene

Personal Hygiene



Skin Contact / Absorption

- Some substances are harmful when they come into contact with the skin or when they are absorbed through the skin.
- The skin is the largest organ in the body and can be effective in protecting the body from exposure to hazards. However, only when it is intact.
- Chemicals or biological materials can enter the body through cuts, scratches, blisters, or burns.



**Always Wear the
Appropriate**

Hand Protection for the
Task

16.26 Personal Hygiene

Personal Hygiene



Ingestion

- Some substances are harmful when they are taken into our body through ingestion.
- Ingestion can occur during eating, drinking, smoking, or by touching your mouth with contaminated hands/gloves.



Lunch
Break



16.27 Pick One

(Pick One, 10 points, unlimited attempts permitted)

16.28 Personal Hygiene

Personal Hygiene

Personal hygiene practices are an effective way to reduce the amounts of hazardous materials absorbed or ingested.

These are some of the things that you can do to minimize your risk from ingestion.

- Eat, drink and smoke only in designated areas. Airborne hazards can settle on food or cigarettes and be ingested or inhaled.
- Where indicated, remove contaminated clothing prior to entering lunch rooms.
- Avoid touching lips, eyes, food, or cigarettes with contaminated hands.
- Wash hands and scrub nails before eating, drinking or smoking.
- Wet your hands, use soap, scrub for 15-20 seconds, rinse and dry.
- Don't forget under your fingernails where dirt can accumulate (keep them short).

**Important in the Prevention
of Health Effects**

16.29 Personal Hygiene

Personal Hygiene

Hygiene practices are an effective way to reduce the amounts of hazardous materials absorbed or ingested.

These are some of the things that you can do to minimize your risk from ingestion.

- Ensure skin is covered and wear appropriate gloves for the task. Review the MSDS to determine what type of gloves are suitable.
- Avoid prolonged contact of wet clothing against skin.
- Cover cuts or scrapes with bandages.

**Important in the Prevention
of Health Effects**

16.30 Personal Hygiene

Personal Hygiene

Are you bringing work hazards home with you?

You can carry hazardous substances home from work on your clothes, skin, hair, facial hair, work boots, tools, and other items. These contaminants can get into your car and your homes (i.e. laundry machines, furniture, carpets) where your family members or pets can be exposed.

Prevent take-home exposures

- Change out of contaminated clothes before leaving work (including work boots).
- Shower before leaving work to remove contamination on your skin and in your hair and facial hair.
- Keep work clothes separate from street clothes.
- Laundering your work clothes in facilities available at work.
- If you take dirty work clothes home with you, have a way of storing and washing them separately from your family's laundry. Thoroughly clean out machines when finished.

16.31 Pick One

(Pick One, 10 points, unlimited attempts permitted)

17. Safety

17.1 Safety Programs



17.2 Fundamentals for work

✔ Fundamentals for work

17.3 Fundamentals for Work

Fundamentals for Work

Fundamentals for Work

A Vale Contact person is an on-site site contact who ensures workers have the appropriate orientation module(s), safety training required (i.e. confined space, working at heights, ZES), define the boundaries of work and ensure that contractors are fit to perform work.

All contractors and off-site employees must have an on-site, Vale Contact Person who will also communicate area specific hazards, monitor work progress and inspect the work-site to maintain compliance with operational controls.

Prior to performing work in Vale operations, all contractors must complete the applicable Orientation Module(s).



17.4 Fundamentals for Work

Fundamentals for Work

Safe Work Practices

The following key questions are suggested for an employee who may have to perform a critical task.

- Do I know the risks associated with executing the critical task?
- Do I have the appropriate training to perform the work?
- Have controls to manage the critical risks been defined, shared with me and put in place?
- Do I have authorization to proceed with the critical task?
- Is there anything that could prevent me from doing the work on the day it is to be performed?



17.5 Fundamentals for Work

Fundamentals for Work

Prime Responsibility

It is the responsibility of both employees and employers to ensure that everybody works in a safe and efficient manner. Be sure to take into account the effects of what you do in the workplace, and how it can affect workers downstream.

Things to Consider:

- Safety rules are in place for everybody to respect because they are designed to guide and protect employees from injury. Disregarding safety rules will endanger the workers and those around them.
- Nobody can give a directive to do unsafe work, including a supervisor. Employees have the right to refuse unsafe work.
- Anytime there is doubt in the worker's mind about the safety of yourself or your fellow workers when you are directed to do a specific task you must consult with your supervisor immediately before undertaking the task.

17.6 Pick One

(Pick One, 10 points, unlimited attempts permitted)

17.7 Fundamentals for Work

Fundamentals for Work

Occupational Health and Safety Act (OHSA)

The most important piece of legislation in Ontario health and safety law is the Occupational Health and Safety Act.



The Act sets the administrative, procedural and legal standards for health and safety in Ontario workplaces.

It describes the intent of the law and assigns general rights and duties to all workplace parties.



17.8 Fundamentals for Work

Fundamentals for Work

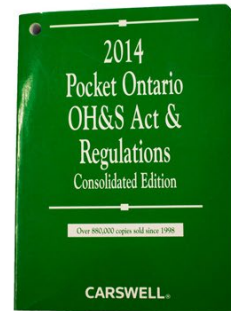
Rights of Workers

The rights of workers as described in the Act, are often called the “3 R’s”

Right to Participate in the identification, assessment and control of workplace hazards that may affect health and safety.

Right to Know about the nature of hazardous substances in the workplace. You will probably recognize these rights from WHMIS.

Right to Refuse work that is perceived to be unsafe.



17.9 Fundamentals for Work

Fundamentals for Work

Duties

Duties of Workers

- Work in compliance with the Act and its regulations
- Do not interfere with protective devices
- Report any violations of the Act and its regulations
- Report the presence of any hazardous conditions or practices
- Never operate equipment that endangers others
- Never engage in horseplay, pranks or boisterous conduct to refuse unsafe work.

Duties of Supervisors

- Take every precaution reasonable to protect workers
- Ensure workers comply with Act and its regulations
- Ensure workers use all safety equipment, devices and clothing

17.10 Fundamentals for Work

Fundamentals for Work

Internal Responsibility System

Everyone is responsible for their own health and safety as well as the health and safety of their fellow workers.

Everyone must ensure that safe practices, procedures and conditions are maintained (as per legislation rules).

Those responsible for the work are responsible for the health and safety.

Everyone has a role to play.

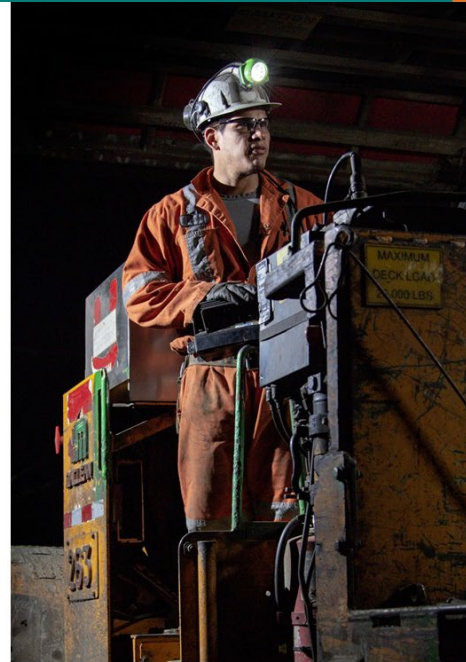


17.11 Fundamentals for Work

Fundamentals for Work

Internal Responsibility System

- All incidents, accidents, injuries must be reported
- All unsafe conditions or practices must be reported
- All accidents involving vehicles must be reported to the nearest First Aid Station



17.12 Incident Reporting

Safety Program – Incident Reporting

A fundamental tool to manage risk is to stop and correct and to recognize when operation controls are not being effective or being followed.

The failure of operation controls can lead to one of three conditions of incident management:

- Unsafe Condition is a situation or circumstance that if combined with an event could result in an incident, or near miss (an incident waiting to happen).
- A near miss is an event with the potential to cause loss or harm (but the loss or harm did not occur).
- An incident is an event that results in loss or harm to personnel (injury/illness), environmental, asset, or equipment.

Any employee involved in an incident or aware of a near miss or unsafe condition is required to promptly report the situation to his or her Supervisor.

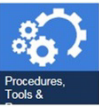


STOP & CORRECT
Be my brother and sister's
keeper and 'stop & correct'
when required.

17.13 Incident Reporting

Safety Program – Incident Reporting

Incident Management



[Report Incident or NM](#) [Report Unsafe Condition](#) [IM Status Reports](#) [Tools](#) [Communications](#)

At Vale, it's mandatory to have an **Incident Management Report (IM)** and follow-up investigation for every reported injury. The investigation team may include the injured party, the Supervisor, a Joint Safety Committee Representative, and any Witnesses.

Even with "near misses", all workers, including Offsite Personnel are encouraged to initiate and/or participate in Investigations. The intent of the investigation is to prevent recurrences and reduce or eliminate further injuries.

Offsite Personnel may get in touch with their Vale Contact Person for any information required on the Incident/Accident Investigation system.

17.14 Pick One

(Pick One, 10 points, unlimited attempts permitted)

17.15 Hot Work

Safety Program – Hot Work

Hot work is any temporary or permanent operation that involves open flames or produces heat and/or sparks. Hot work comes in a variety of applications each with its own heat source severity.

MINING INDUSTRY HOT WORK PERMIT

STOP!

Read hot work on rubber or plastic-faced equipment and equipment components of plastic, glass, spandex and covers.

This Hot Work Permit is required for any temporary equipment repairs, burns or precluding hard end-use objects. This includes, but is not limited to, heating, setting, grinding, welding, soldering, brazing and welding.

Instructions for Fire Safety Supervisor

1. Fill out this permit to authorize hot work.
2. Fill out and post Part I during hot work project.
3. Fill out and post Part II during hot work project.
4. Close Permit on the before removing, including signing permit and return to the Fire Safety Supervisor.
5. Permit must have been completed.

Part I - Before Work

NAME OF JOB

EMPLOYER'S NAME

DATE OF JOB

TIME OF JOB

NAME OF JOB

TIME OF JOB

NAME OF JOB

TIME OF JOB

NAME OF JOB

TIME OF JOB

NAME OF JOB

TIME OF JOB

NAME OF JOB

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NAME OF JOB

Part II

Required Precondition Checklist

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This includes, but is not limited to, brazing, cutting, grinding, flame soldering, torch-applied roofing, and welding.

Hot work should be avoided whenever possible; however if hot work must be performed, you must take every precaution to minimize the hazard by managing this dangerous activity using the *Hot Work Permit System*.



Refer to Issuer and Worker responsibilities under the Hot Work Section in the Orientation Handbook.

17.16 Safety - Standard Procedure Instructions (SPI's)

Safety - Standard Procedure Instructions (SPI's)

The General Safety Office manages SPI's that detail instructions on regularly recurring operations relevant to Vale. The purpose of an SPI is to carry out the instruction consistently and correctly depending on the area of work and the work being performed.

Some plants provide additional instructions in the form of Site Specific Job Procedures or Site Specific Policies. These would be identified either in additional tiers of orientations or through Vale Contact People.

The following SPI's should be followed to help in applying good work practices and define the safety responsibilities of workers in Sudbury Operations.

At times throughout Vale operations, conditions may exist where it is not possible to comply with an SPI. In these cases, exemptions or variances to SPI's can be requested.

Your Vale Contact Person can advise you of any variances in your area or provide you the necessary means to obtain a variance.

All variances will be escalated to a Manager Level for approval.



17.17 Pick One

(Pick One, 10 points, unlimited attempts permitted)

17.18 Personal Protective Equipment

Safety Procedures

Personal Protective Equipment

There is a minimum level of Personal Protective Equipment that needs to be worn to perform work on Vale plant sites.

You may however be required to use specific PPE depending on the area in which you are working and the work being performed.

The type of PPE required and areas of use will be detailed in your Site Specific Orientation.



17.19 Personal Protective Equipment

Safety Procedures

Personal Protective Equipment

General Requirements

Appropriate clothing must be suited to the task being performed, such as;

- Short sleeves shirts are not permitted in the plant.
- Long sleeves rolled down is the minimum requirement.
- Long legged pants are required.
- No loose clothing.
- Consideration should be given to jewelry in the workplace as it presents an entanglement hazard.



17.20 Personal Protective Equipment

Safety Procedures

Personal Protective Equipment

Eye Protection

Employer supplied safety glasses must be fitted in accordance with the Vale Eye Wear Fit System.

Note: All eye protection should meet the requirements of CSA Standard Z94.3-07 Eye and Face Protectors or ANSI Standard Z87.1-03 and or Z87.1-10.

Goggles should be worn in dusty areas. Non-vented mono-goggles should be worn around chemicals and acid.

Note: Contact lenses may not be worn in the plant!

ALERT!

Photo chromatic safety lenses are not permitted in the workplace.



17.21 Personal Protective Equipment

Safety Procedures

Personal Protective Equipment

Tinted Lenses are:

- not permitted in the workplace unless authorized by the area manager for protection against ultraviolet or infrared rays.
- not to be worn indoors unless being worn at the site of a specific task where there is a need for protection from ultraviolet or infrared rays.

Note: Amber lenses are not permitted, since amber lenses filter out blue light, reducing the amount of available light.

Non Prescription Safety Reader Glasses are not permitted unless prescribed they must be obtained from our contracted providers.

Tip-up face shields do not exempt the need for safety glasses.

17.22 Pick One

(Pick One, 10 points, unlimited attempts permitted)

17.23 Personal Protective Equipment

Safety Procedures

Personal Protective Equipment

Protective Footwear CSA standard CAN/CSA-Z195-09

- Must be CSA approved, construction grade (indicated by a green patch) and have an electric shock resistant sole (indicated by the white tag).
- Must have metatarsal guard.
- Must be in safe condition.
- Lacing of boots to the top will add greatly to the ankle support provided.
- Pants should be over top of the boot.



17.24 Personal Protective Equipment

Safety Procedures

Personal Protective Equipment

Hand Protection

- Gloves appropriate to the task must be worn at all times.
- Hand protection is to be worn at all times underground.
- If you're not sure what type of glove to wear, check the MSDS sheets for the product you're using, or ask your Supervisor.



17.25 Pick One

(Pick One, 10 points, unlimited attempts permitted)

17.26 Personal Protective Equipment

Safety Procedures

Personal Protective Equipment

Protective Headwear

All protective headwear worn in our operations is to meet the applicable test requirements for at least Type 1 Class "C" approval in the Canadian Standards Association Standard Z94.1-05 Industrial protective headwear - or the equivalent American National Standards Institute Standard ANSI Z89.1.

- Shell and liner must be in SAFE condition.
- Long hair must be confined.



17.27 Personal Protective Equipment

Safety Procedures

Personal Protective Equipment

Reflective Striping on Clothing

Reflective striping is mandatory for all clothing and must meet the Vale striping policy or the CSA Standard for High Visibility Clothing Class 3, with Level II striping.

This includes;

- long sleeved shirts and pants
- have 2" reflective bands, and
- are not loose fitting

Visitors Underground: must meet the same requirements.

Visitors Surface: Class 2 Level 2 Full coverage of upper torso (front, back, sides and over the shoulders) is the minimum.



17.28 Personal Protective Equipment

Safety Procedures

Personal Protective Equipment

Reflective Striping on Clothing

Reflective striping is mandatory for all clothing and must meet the Vale striping policy or the CSA Standard for High Visibility Clothing Class 3, with Level II striping.

Reflective Material for Hard Hats;

- Silver coloured retro-reflective hot dots for muffs.
- Silver coloured retro-reflective material applied to the front, back and both sides.



17.29 Personal Protective Equipment

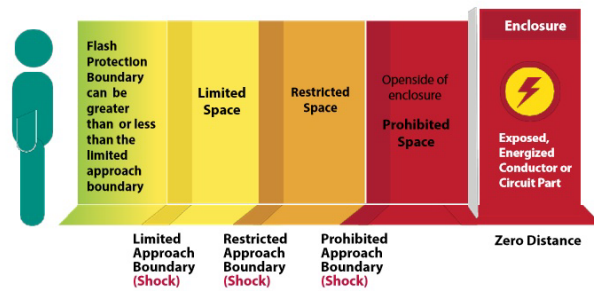
Safety Procedures

Personal Protective Equipment

Arc Flash Protection

An arc flash is the light and heat produced from an electrical arc supplied with sufficient electrical energy to cause substantial damage, harm, fire, or injury.

Arc Flash Protection Boundary: An approach limit at a distance from a potential arc flash source that a person could receive second degree burns if an electrical arc flash were to occur.



When performing electrical work inside the Arc Flash Protection Boundary, workers must wear the appropriate PPE.



17.30 Pick One

(Pick One, 10 points, unlimited attempts permitted)

✔ Chemicals and Hazardous Substances

17.32 Chemicals and Hazardous Substances

Chemicals and Hazardous Substances

WHMIS

Vale provides information for the safe use of hazardous materials with the goal of creating awareness of the hazards associated with the use of hazardous materials and products to prevent illnesses and injuries in the workplace.



17.33 Chemicals and Hazardous Substances

Chemicals and Hazardous Substances

Chemicals and Hazardous Substances

- All personnel working on site must be trained in WHMIS.
- All chemicals brought on site must have an MSDS available.
- Chemicals which are toxic or dangerous should be approved before being brought on site.
- MSDSs for all chemicals on site are available through the IHS (Dolphin system) on the Vale intranet.

Note: Vale will be transitioning to the Global Harmonized System for identifying and managing chemicals in the near future.



17.34 Chemicals and Hazardous Substances

Chemicals and Hazardous Substances

WHMIS symbols under WHMIS 1988



Flammable



Compressed Gas



Oxidizer



Poisonous



Toxic



Biohazard



Corrosive



Reactive

17.35 Disclaimer

Chemicals and Hazardous Substances

WHMIS symbols under WHMIS 2015



Explosion



Gas



Fire



Oxidizer



Less Serious
Effects



Acute Toxicity



Corrosive



Health Hazard



Aquatic
Pollutant

17.36 Pick One

(Pick One, 10 points, unlimited attempts permitted)

17.38 Chemicals and Hazardous Substances

Chemicals and Hazardous Substances

There are 11 designated substances identified in Regulation 490/09:

- Acrylonitrile
- **Arsenic**
- **Asbestos**
- Benzene
- Coal tar pitch volatiles
- Ethylene oxide
- **Isocyanate**
- **Lead**
- **Mercury**
- **Silica crystalline-quartz**
- Vinyl chloride

Be aware of these and other Hazardous Substances in areas of work. Applicable Hazardous Substances will be covered in T2/T3 Orientations



As there is the potential for Asbestos or Asbestos containing material throughout our operations, Vale has a Sudbury Operation wide approach to Asbestos Awareness

17.39 Chemicals and Hazardous Substances

Chemicals and Hazardous Substances

Asbestos - Properties

Asbestos refers to a group of naturally occurring fibrous minerals found in certain rock formations. Was used widely in construction and other industries due to its:

- strength
- durability
- resistance to chemical and thermal degradation and
- electrical resistance

When handled, asbestos can separate into fibers that remain in the air and are easily inhaled.

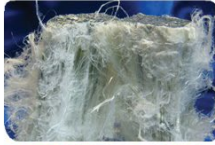
Asbestos has been used for decades in thousands of commercial products, including:

- insulation and fireproofing materials
- automotive brakes and textile products and
- cement and wallboard materials

17.40 Chemicals and Hazardous Substances

Chemicals and Hazardous Substances

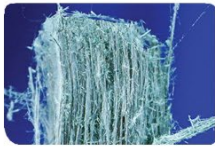
There are 3 main types:



Chrysotile:
White Asbestos



Amosite:
Brown Asbestos



Crocidolite:
Blue Asbestos

Many products or materials containing asbestos do not release significant amounts of fibres under normal use. However, fibres may be released if these products are cut or damaged.

17.41 Chemicals and Hazardous Substances

Chemicals and Hazardous Substances

Asbestos

Check the site Asbestos inventory with your site contact before proceeding with any work that may disturb asbestos or when working on or around potential asbestos containing materials.

High risk areas include:

- Insulating materials on vessels.
 - Pipe/Duct insulation
 - Transite building panels
 - Flooring and floor tiles
 - Ceiling tiles (predominantly office ceiling tiles)
- Do not work on or disturb any materials until you have confirmed that the material does not contain asbestos.
- To confirm the absence or presence of asbestos, contact your supervisor to arrange testing through the Vale Occupational Health site contact. On the off shift this can be arranged through Safety On-Call.

Refer to Orientation Handbook
for flowchart to follow in case
of discovery of suspected ACM

17.42 Pick One

(Pick One, 10 points, unlimited attempts permitted)

18. Environmental General Awareness

18.1 Environmental General Awareness



18.2 Environmental General Awareness

Environmental General Awareness

All external service workers, consultants and companies working on Vale property must ensure they follow Vale's environmental policies, procedures and requirements.

Many of these requirements also apply to work done at the supplier's own facilities.

Vale has global requirements including a Sustainable Development Policy and a Human Rights Policy. Ontario Operations also has a Safety, Health and Environment Policy.



18.3 Environmental General Awareness

Environmental General Awareness

As a large, worldwide company, Vale exercises social, economic and environmental sustainability in all areas where it is present in order to meet its mission of transforming mineral resources into prosperity and sustainable development.

Vale works with Government, other companies and society to help build a sustainable local legacy and contribute to the international promotion of sound sustainability practices.



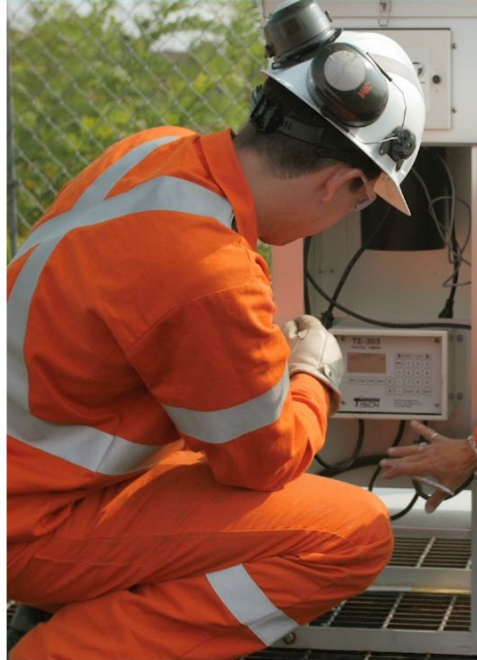
18.4 Environmental General Awareness

Environmental General Awareness

As employees on Vale property, you have a role with respect to environmental matters that will reduce the impact of your work on the environment.

These include the following:

- Prevent losses, spills or releases during material handling and transportation.
- Communicate and report issues.
- Understand and comply with regulations.
- Use energy and resources wisely, i.e. don't idle vehicles for extended periods.
- Manage wastes through reduction, reuse and recycling. Put waste into the proper containers.
- Operate and maintain equipment properly.
- Complete all required inspections.
- Report and correct deficiencies.



18.5 Environmental General Awareness

Environmental General Awareness

Vale's sites are typically large properties containing an abundance of land that has either never been encroached upon by industrial activity, been rendered inactive, or has been rehabilitated to some degree.

In addition, active parts of the property have specific land uses that must be followed. In this context, Vale has certain expectations that must be followed so that activities having a potential impact on the property are managed properly.



18.6 Pick One

(Pick One, 10 points, unlimited attempts permitted)

18.7 Property Use and Management

Environmental General Awareness

Property Use and Management

Proper Disposal of Excavated/Demolition and other Materials.

All site personnel on Vale property must adhere to the best management practices.

There are a wide variety of materials that are generated during project execution that require proper disposal.

Examples of materials include:

- Contaminated aggregates
- Tailings, sludges
- Waste rock
- Brick, concrete, pavement
- Residual concrete/cement dumping
- Vacuumed materials



18.8 Property Use and Management

Environmental General Awareness

Property Use and Management

Unless specified, excavated materials must be transported to the Copper Cliff Tailings Areas Landfill – internal manifest must be completed by the Vale Contact Person.

The image shows a 'Vale' internal manifest form titled 'On-site Operations'. It is a detailed document for tracking material movement. Key sections include: 'Material identified as...' with checkboxes for 'Scrap', 'Transfer', and 'Scrap'; 'Date To Be Returned' with fields for Month, Day, and Year; 'Description of Material' and 'Quantity'; 'F.A. or Reference #', 'F.O.', 'Ref.', 'Serial # or Model #', 'S/N', 'M/VN', 'Drawn By', 'Issued By', 'Comments', and 'Personal Material'; 'On-Site Scrap' with a 'Complete Description Of Material Section'; 'Report Transfer Details/Signatures' with fields for 'Security Contact', 'Phone #', and 'Other'; 'Plant Relaying Material' with a 'Relaying Signature Verified' section; 'Carrier Name', 'Carrier Site', 'Carrier Company', 'Carrier Phone #', 'Driver', 'Date', 'Time', and 'Security'; and a legend at the bottom: 'White - Department', 'Yellow - Security', 'Pink - Carrier', and 'Green - Keep at releasing plant with Security (For Transfer Only)'.

18.9 Property Use and Management

Environmental General Awareness

Property Use and Management

Disturbing Reclaimed Areas

A reclaimed area is an area of the property that no longer sustains industrial activity and has been re-vegetated. Unless absolutely necessary, reclaimed areas are NOT to be disturbed or used as laydown areas, or to store contaminated materials (such as slag, waste rock, etc.) or clean materials (such as concrete, etc.).



18.10 Property Use and Management

Environmental General Awareness

Property Use and Management

Disturbing Reclaimed Areas

In cases where it is unavoidable to disturb the reclaimed area, i.e.; a temporary access road is required to get through, the disturbed area must be repaired as part of the contract. If trees are removed, the equivalent number of trees shall be replaced. Grassy areas must be repaired by replacing the growing media.



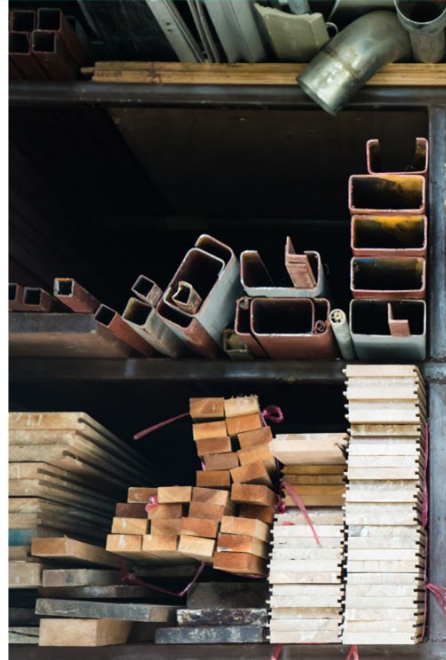
18.11 Property Use and Management

Environmental General Awareness

Laydown Areas

The following measures must be adhered to when creating a new laydown area:

- Above all else, have your Contact Person verify that Vale stakeholders that may be impacted by the construction of a new laydown area have been consulted.
- Not to be constructed in a facility's greenfield area (if applicable).
- Avoid brownfield areas unless absolutely necessary.
- Use clean aggregate (not waste rock, slag).
- Depending on the circumstances, use clean aggregate to construct the access road into/out of the laydown area to avoid tracking metal bearing materials that create fugitive dust and the creation of contaminated seepage.



18.12 Pick One

(Pick One, 10 points, unlimited attempts permitted)

18.13 Housekeeping

Environmental General Awareness

Housekeeping

From time to time, repairs are required to equipment such as pipelines, flues, and other operating equipment. As part of the contract, any leftover materials must be disposed of according to Vale's Waste Management Protocols.

The external service provider will be held to account to clean up their worksite which will include having to return to the site even after demobilization has taken place to clean the area up to Vale's satisfaction.



18.14 Spills Management

Environmental General Awareness

Spills Management

Spills are one of the primary environmental considerations of all employees working on Vale property.

External service workers working on Vale property can cause environmental impacts and expose Vale and the external service provider to legal enforcement as a result of spills on our property.



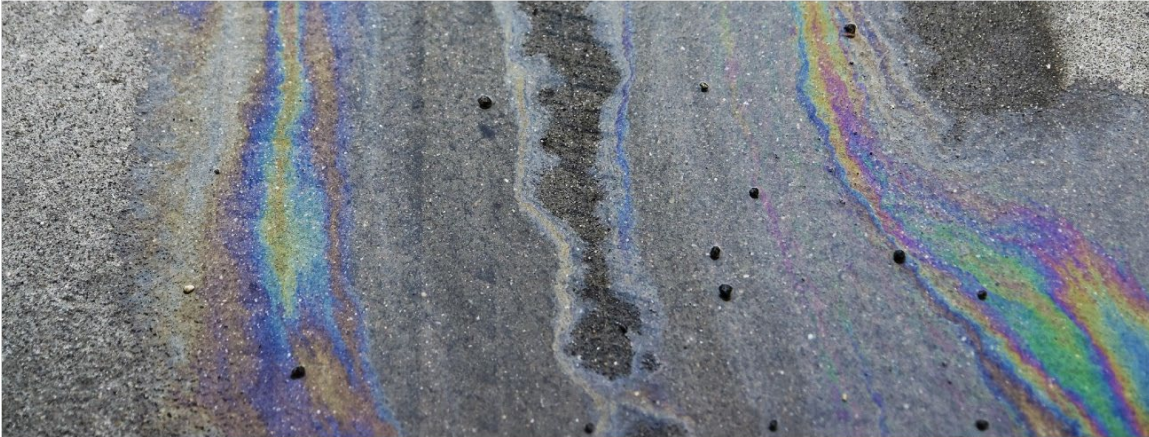
18.15 Spills Management

Environmental General Awareness

Spills Management

Common Materials Spilled or Released at Vale include the following:

Diesel Fuel, gasoline, antifreeze, lime, hydraulic oil, dust, nickel ore, sulphur dioxide, concentrate, tailings, noise (to the community), smells and odours, sewage, water, wastewater.



18.16 Spills Management

Environmental General Awareness

Spills Management

There are legal requirements related to spills. Failure to meet these requirements can lead to charges for contracting companies and their employees in some circumstances.

There are three key legal requirements:

First, certain spills must be reported to Ministry of the Environment and the City of Greater Sudbury. This reporting is carried out by the external service provider if they are in charge of management and control of material spilled.

Second, all spills must be cleaned whether they are large or small. All waste material must be disposed of properly.

Third, Vale must be notified as soon as possible if the spill occurs on Vale property or if the material spilled is owned by Vale. Notification is made to the Vale contact person and/or contract manager. In turn, they will contact Vale environmental personnel.

Legal Requirements:

- Notify Ministry of Environment and City of Greater Sudbury
- Clean up spill
- Notify Vale

18.17 Spills Management

Environmental General Awareness

Spills Management

When responding to any spill, whether it is large or small, the external service provider should follow the principles of the SLAM process - Stop, Look, Assess, Manage. Carefully review the situation before acting.

In general, spills can be addressed by first understanding the situation and then stopping the spill from continuing if it is safe to do so. Then begin to contain the spill.

Notify your supervisor as soon as you can manage this safely. Your supervisor will contact the Vale contract manager for the project. Management will carry out notifications to the authorities as required.

When the spill is cleaned up, a follow-up investigation will occur to determine what steps can be followed to prevent something similar in the future.

18.18 Spills Management

Environmental General Awareness

Spills Management

In order to respond to a spill and conduct the clean-up, external service providers and workers should have equipment and materials readily available to allow for prompt action.

For small spills, prepackaged spill kits are available that contain absorbent materials, tools such as non-sparking shovels, disposable coveralls and personal protective equipment.

These kits can come prepackaged in a drum which itself can be used to store the waste obtained from the cleanup. For larger spills, the external service workers may need access to heavy equipment.



18.19 Pick One

(Pick One, 10 points, unlimited attempts permitted)

18.21 Environmental General Awareness

Environmental General Awareness

Fugitive Dust Management

Vale is required to manage fugitive dust emissions at all of its Ontario Operations sites. Controlling air emissions is the right way to conduct business and is aligned with the values of Vale.

Vale is legally required to develop and follow facility specific dust emission management plans for all sites according to the conditions of the site permits to operate.



18.22 Fugitive Dust Management

Environmental General Awareness

Fugitive Dust Management

All site personnel and external service workers must adhere to the best management practices.

All site personnel must also report to their supervisor if they observe a condition or action that may cause a nonconformance event with the plan.

The supervisor shall advise on controls to reduce the dust or stop work if required.



18.23 Fugitive Dust Management

Environmental General Awareness

Fugitive Dust Management

Fugitive dust sources can occur from different activities such as:

- Material handling (Crushing, screening, stockpiling, loading & unloading and truck haulage).
- Roads and areas (both paved and unpaved).
- Material storage (Stockpiles).
- Construction, demolition and road work projects.



18.24 Fugitive Dust Management

Environmental General Awareness

Fugitive Dust Management

There are many different ways to control dust emissions. Some of the common ones utilized around our sites include:

- Pre-wet material if possible (Water sprays).
- Minimize drop height of material.
- High pressure washing, vacuum sweeping, application of dust control products (i.e. Calcium chloride) and more.



18.25 Pick One

(Pick One, 10 points, unlimited attempts permitted)

18.26 Waste Management

Environmental General Awareness

Waste Management

Vale's 3R's Program applies and promotes the principles of the 3R's Program.

The waste hierarchy referred to in the 3 R's program are reduce, reuse and recycle.

Reduce Strategies include;

Buying less, using less and purchasing durable product with less packaging.

Reuse Strategies include;

Using products more than once, donating equipment or repairing items.

Recycling;

Conserves resources, saves energy, supplies valuable raw materials to industry, creates jobs and reduces the need to landfill.



18.27 Waste Management

Environmental General Awareness

Waste Management

- Measure the types of waste being generated.
- Implement strategies to continuously improve waste management practices and systems.
- Minimize the number of wastes going to landfill.
- Reduce environmental impact.

Vale's source segregation program includes the implementation of color coded waste collection containers located where waste is generated.

Do not move a bin from the waste stations and do not overfill a bin... it may not be safe to pick up.



18.28 Pick One

(Pick One, 10 points, unlimited attempts permitted)

18.29 Waste Management

Environmental General Awareness

Waste Management

The domestic waste containers are color coded red and are located near office buildings, lunch rooms and washrooms.

The following are examples of domestic waste; clothing, paper towels, non-recyclable paper and janitorial debris.

Domestic waste is disposed of at the City of Greater Sudbury's Landfill.



18.30 Waste Management

Environmental General Awareness

Waste Management

The industrial waste containers are color coded yellow and located near industrial plants, maintenance shops and where demolition and renovation projects take place.

The following are examples of industrial waste; solid non-hazardous industrial waste including non-asbestos insulation, wood pallets, brick, block, non-hazardous empty containers and floor sweepings.

Industrial waste is disposed at Vale's Landfill site.



18.31 Waste Management

Environmental General Awareness

Waste Management

The recyclable material containers are color coded blue and are located near office buildings, lunchrooms, warehouses and receiving areas.

The following are examples of recyclable material; clear and colored glass containers, food and beverage steel and aluminum cans, paper, cardboard boxboard and plastics.



18.32 Waste Management

Environmental General Awareness

Waste Management

The steel recycling containers are color coded grey and are located near maintenance, fabricating shop, industrial plants and demolition projects.

The following are examples of steel recyclable material; brass, copper, tin, aluminum and stainless steel.

The steel recyclable material is brought to a marshalling yard located at Vale's Landfill site.



18.33 Pick One

(Pick One, 10 points, unlimited attempts permitted)

18.35 Waste Management

Environmental General Awareness

Waste Management

The following are examples of hazardous waste: waste oil, parts washer fluid, paints, fluorescent tubes, and batteries. Hazardous wastes could have leachate with toxic, corrosive and/or flammable characteristics.

Hazardous waste is not permitted in any of the waste or recycling containers, nor is it allowed at the Vale non-hazardous industrial landfill. Hazardous wastes shall be stored in designated storage facilities located at each Vale facility.

Hazardous wastes must be stored within the secondary containment of these facilities to prevent potential spills.



18.36 Waste Management

Environmental General Awareness

Waste Management

Containers and drums that are placed inside the storage area shall be labeled.

If you're unsure whether or not a waste is hazardous, do not dispose of it in a waste container; contact your supervisor and/or Vale's Environment Department for more information.

Hazardous waste shall be disposed off site to a licensed receiver.



18.37 Pick One

(Pick One, 10 points, unlimited attempts permitted)

18.38 Waste Management

Environmental General Awareness

Waste Management

Process waste is generated from Vale's mining, mineral extraction and processing plants. Process waste include vacuumed materials (Process sump clean-out) and excavated materials.

Process waste may be a liquid or a solid. Only Vale approved waste streams are allowed to be disposed of in designated locations within the Copper Cliff Tailings Area.

An internal manifest must accompany the waste to Vale's designated disposal area. Contact your Vale contact person and/or Vale's Environment Department for more information.



18.39 Waste Management

Environmental General Awareness

Water Management

Vale's Sudbury operations process large quantities of water for storm water management, dewatering of mine workings, ore processing, domestic uses and power generation, that must be managed appropriately.

Water handling systems are designed in accordance with legislation. Hazards associated with water management can include lack of water for processing, fire control, etc., water toxicity due to contamination, or flooding.



18.40 Waste Management

Environmental General Awareness

Water Management

Contractors should:

- Not alter (including connecting to) water systems, equipment or structures unless specifically authorized to do so.
- Prevent contaminants from entering water systems by observing proper storage and waste disposal procedures and having spill kits on hand.
- When working with water systems, know the potential impacts of your work on downstream processes and environments and manage them.
- Report any incidents that have the potential to impact on water systems or quality.



18.41 Pick One

(Pick One, 10 points, unlimited attempts permitted)

19. Conclusion

19.1 Conclusion



19.2 Conclusion

Conclusion

This concludes the material for Tier 1 Vale Orientation. You should now have a working knowledge of Operational Controls to conduct yourself safely and within the acceptable boundaries of controlled risk within Vale Operations:

- Golden Rules
- HR Policies
- Health Programs
- Safety Programs & Procedures
- Environment Controls

You can request further training in Tier 2 as per instructions from your Vale Contact Person.

19.3 Conclusion

Conclusion

Tier 2 Module applies to those who will need to:

- Understand the general layout and boundaries of the Tier 2 area
- Identify key access points
- Understand high level general hazards and controls with regards to traffic plans and occupational health
- Be able to identify and respond to an emergency by following the emergency plan for the T2 boundary
- Drive on the property within the set boundaries
- Access administrative buildings, warehouse docking facilities
- Work in Tier 2 areas that do not fall under any Tier 3 boundaries. (i.e. roadway maintenance, utilities work)



Orientation Map:
Sudbury Operations

