

## Tier 2: Surface Orientation

### 1. Surface Entry Requirements

#### 1.1 Surface Entry Requirements



## Surface Entry Requirements

Tier Two



## 1.2 Disclaimer

### Disclaimer

The format, information, ideas and concepts used in this presentation are copyrighted. Reproduction in whole or in part is strictly prohibited. This orientation is for the sole use of personnel of Vale and all divisions and subsidiaries of Vale, and any other use is strictly prohibited without the expressed written consent of Vale.

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.

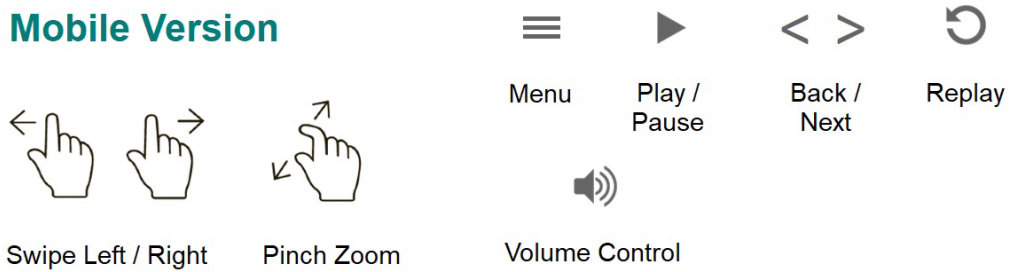
## 1.4 How to Navigate this Presentation

### How to navigate this Presentation

#### Desktop Version



#### Mobile Version



## 1.5 How to navigate this 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 Mission Vision Values

### Life Matters Most

At Vale we believe  
**Life Matters Most** and that  
no job is worth doing if it  
cannot be done safely.



## ***1.8 Course Requirements***



 **Course Requirements**  
Tier Two Module



## 1.9 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.

## 1.10 Course Requirements

### Course Requirements

The Tier 1 module provided the prerequisite training elements that can be applied across all Sudbury Operations.

The Tier 2 module provides general information with regards to plant access and traffic plan requirements to enter a defined area within Sudbury Operations.



**Tier One**  
Knowledgeable in fundamental

To participate in this Tier 2 Module, you will need the following:

- **Vale Swipe Access Card**
- **Tier 1 Vale Operational Controls**

## 1.11 Types of T2 Orientations

### Types of T2 Orientations

Note on what types of Tier 2 Orientations:

#### Surface

Prerequisite training for unescorted plant entry within an operating plant or project.

\* must follow-up with the applicable T3

#### Yard and Administrative

Unescorted property and administrative areas access

For Example:  
delivery, road maintenance,  
sales

#### Underground

Prerequisite training for unescorted underground access into a mine

\* must follow-up with the applicable T3

## 1.12 Examples of T2 Orientations

### Examples of T2 Orientations



#### High Pressure Washers (Labourers)

Needs access to an operating plant  
(i.e. Matte Processing)

**Requires:**

- T1 General Orientation
- T2 Surface
- T3 Plant Specific Orientation(s)
- Yard and Administration Handbook



#### HVAC Technician

Needs access to both operating  
plants and mines

**Requires:**

- T1 General Orientation
- T2 Surface
- T2 Underground
- Applicable T3 Plant and Mines  
Specific Orientation(s)
- Orientation Handbook

## 1.13 Examples of T2 Orientations

### Examples of T2 Orientations



#### Delivery Driver / Road Maintenance

Needs access to property yards  
and administrative areas

**Requires:**

- T1 General Orientation
- T2 Yard & Administrative Orientation
- Yard & Administration Handbook



#### Contract Miner

Needs access to an operating mine  
(i.e. Coleman Mine)

**Requires:**

- T1 General Orientation
- T2 Underground
- T3 Mine Specific Orientation(s)
- Orientation Handbook

## 1.14 General Hazards and Controls

### General Hazards and Controls

#### Orientation Booklet

All workers are required to understand hazards and how to mitigate those hazards within specific sites where they are assigned work.

The site specific hazards are referenced in the Tier 2 Mines and Tier 3 site specific Handbook and must be reviewed prior to entering those sites.



## 1.15 Risk Prevention

### General Hazards and Controls

#### Risk Prevention

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** which include;

- Being aware of our surroundings and the risks around us
- Applying good work practices and using knowledge, skills and experiences to safely complete each task
- Asking for help when required and applying the knowledge, skills and experience of others
- Stopping and correcting when necessary - being our brothers' and sisters' keeper
- Following internal policies and procedures that guide us in doing our work and reducing risk
- Following rules and regulations, which can be internal (such as the Golden Rules); or external (such as government regulations)



BE AWARE



APPLY GOOD WORK PRACTICES



STOP & CORRECT



ASK FOR HELP



FOLLOW POLICIES & PROCEDURES



FOLLOW RULES & REGULATIONS

## ***1.16 Course Objectives***

# **Course Objectives**



## 1.17 General Hazards and Controls

### General Hazards and Controls

#### Upon completion of this module as a worker you will be able to:

- Understand Surface Layout & Boundaries
- Identify key Access Points and Entry Requirements
- Understand high level general Hazards and Controls with regard to:
  - Traffic Plans
  - Occupational Health
  - Process Hazards/Upsets
  - Emergency Preparedness



## Mill (Slide Layer)

### General Hazards and Controls

**Upon completion of this module as a worker you will be able to:**

- Understand Surface Layout & Boundaries
- Identify key Access Points and Entry Requirements
- Understand high level general Hazards and Controls with regard to:
  - Traffic Plans
  - Occupational Health
  - Process Hazards/Upsets
  - Emergency Preparedness



## General Hazards and Controls

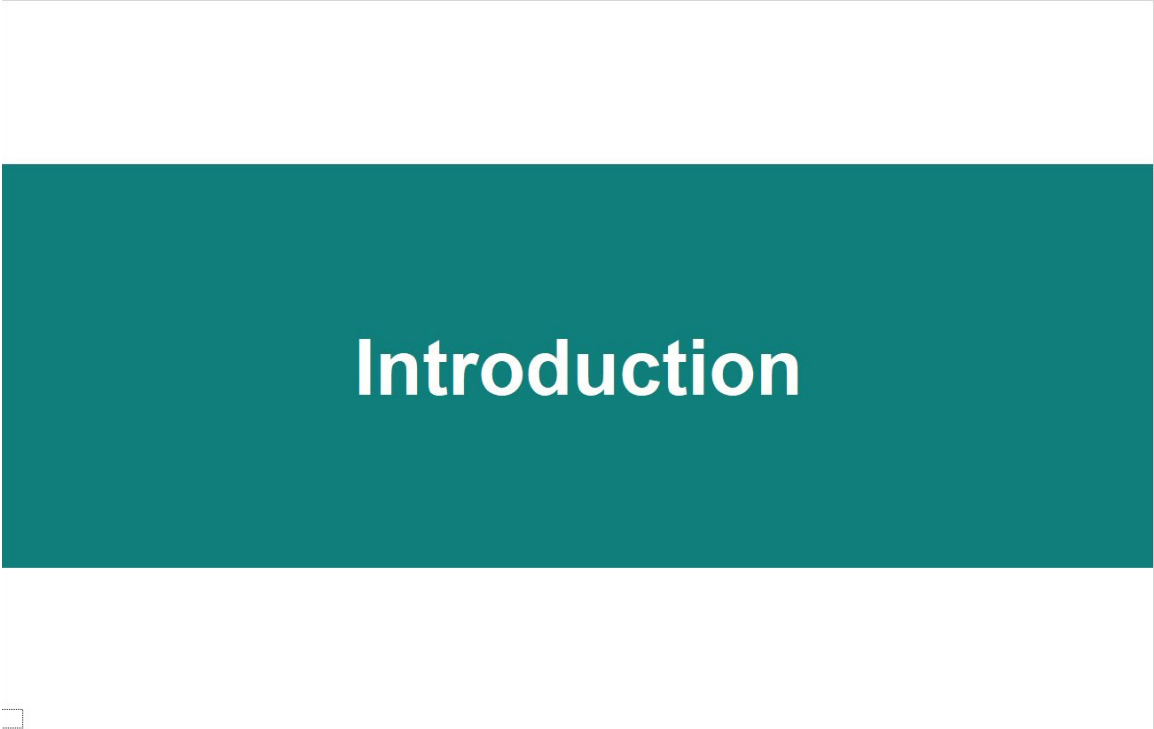
**Upon completion of this module as a worker you will be able to:**

- Understand Surface Layout & Boundaries
- Identify key Access Points and Entry Requirements
- Understand high level general Hazards and Controls with regard to:
  - Traffic Plans
  - Occupational Health
  - Process Hazards/Upsets
  - Emergency Preparedness



## 2. Introduction

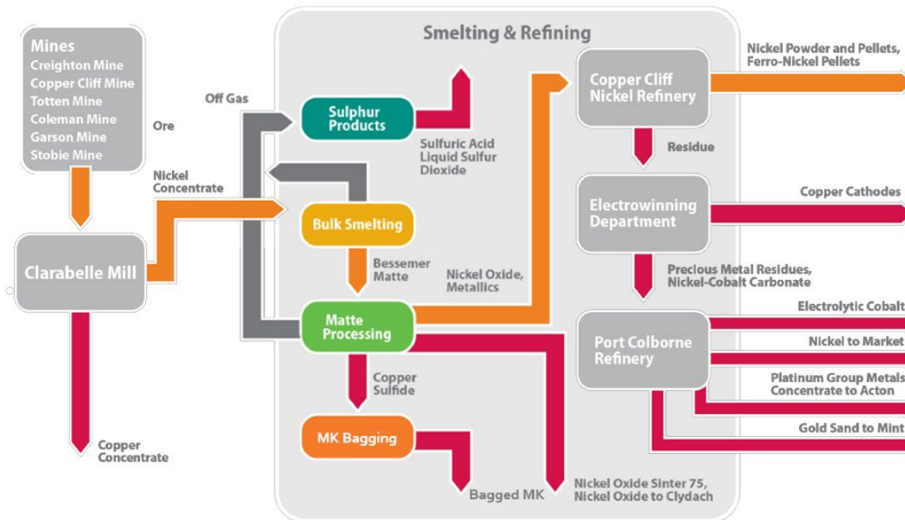
### 2.1 Untitled Slide



## 2.2 Surface Operation Overview

### Surface Operation Overview

Below is a simplified flow diagram of Vale operations throughout the Sudbury Basin, from the mines to the refineries. The overall operation is quite complex, with many additional site services, logistics systems and process support.



## 2.3 Complex Layouts and Boundaries

### Complex Layouts and Boundaries

Vale, relies upon a complex network of processes and equipment, which require routine planned and scheduled maintenance for continuous operation.

There are times when operations may be affected by non-routine and large scale maintenance periods (PMP) or large scale projects which greatly impact the business.

#### PMP:

A PMP is where production is reduced or stopped to complete infrastructure repairs and upgrades. PMP's can take place at scheduled intervals throughout the year, but are usually once a year.

Please contact your Vale Contact Person to see if there are any other requirements that need to be met before beginning work during these planned work periods.

## 3. Complex Layouts and Boundaries

### *3.1 Complex Layouts and Boundaries*



# Complex Layouts and Boundaries

### 3.2 Complex Layout and Boundaries

#### Complex Layout and Boundaries

The following map illustrates the boundaries in which this T2 Module represents in the Surface Operating Area.

This T2 Module is not complete without an additional T3 Module(s) to cover site specific information.

- Copper Cliff Complex
- Engineering Building
- Electrowinning
- CCNR
- Clarabelle Mill
- Copper Cliff Club
- Tailings (area)





### 3.3 Tier 3 Modules

#### Tier 3 Modules

The following are Tier 3 Modules that represent the plants or buildings that are within this Tier 2 Boundary:

- Bulk Smelting
- Matte Processing
- Acid
- Oxygen
- Transportation
- Divisional Shops
- Warehouse
- Central Lab
- General Office
- Electrowinning
- Copper Cliff Nickel Refinery
- Clarabelle
- Tipple
- Central Tailings
- Water Treatment Plants

## 4. Entry Requirements and Access Points

### 4.1 *Entry Requirements and Access Points*



# Entry Requirements and Access Points

## 4.2 Documentation

### Entry Requirements

#### Documentation

To access areas within Sudbury Operations, you must have the following:

- A Vale Swipe Access Card (*approved by the Contractor's Vale Contact Person*)
- Proof of WHMIS training
- Tier 1 (T1) Module accreditation
- Tier 2 (T2) Module accreditation

Where Applicable:

- Tier 3 (T3) Area Specific module(s)
- Proof of the appropriate level of ZES Training (*Core, Tagger or Supervisor*)
- Approved safety equipment appropriate for the work being performed
- Any other training as mandated by your Vale Contact Person



## 4.3 Vale Contact Person

### Entry Requirements

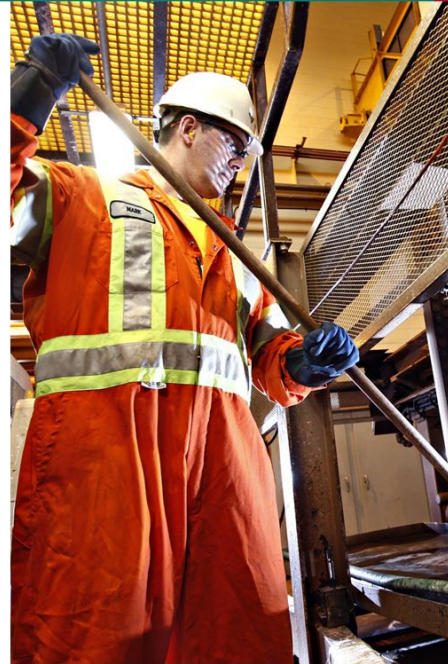
#### Vale Contact Person

All contractors and off-site Vale employees must have an on-site, Vale Contact Person. A Vale Contact Person is somebody who will:

- Communicate area and job hazards
- Monitor work progress
- Coordinate work activities within your work area
- Inspect the work-site to ensure compliance with Vale's work policies, procedures, rules and regulations
- Where required, request your participation in PHR/JHA risk assessments
- Issue required work permits



Contractors must have a Vale contact person responsible for them at each plant and be aware of their contact information.



## 4.4 Vale Contact Person

### Entry Requirements

#### Vale Contact Person

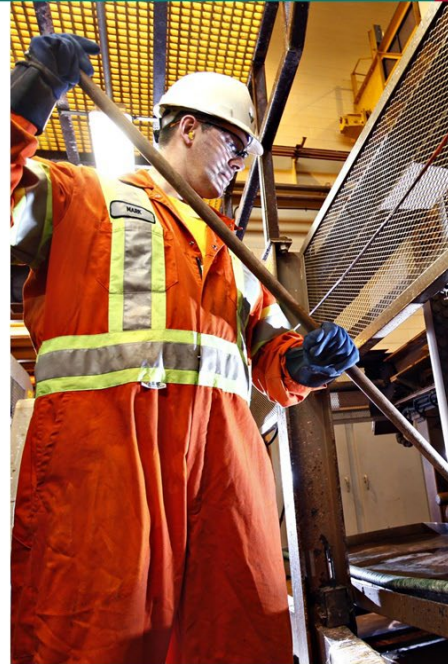
Permission from your Vale Contact Person or designate is required to access areas or buildings within Sudbury Operations.

It would be helpful to have the following information with regards to your Vale Contact Person:

- First and last name
- Telephone number
- Job Title
- Cellphone number
- Office location
- Email address



Your Vale contact Person will arrange a tour upon request.



## 4.5 Vehicle Passes

### Entry Requirements

#### Vehicle Passes

If workers are required to bring their vehicle through gates, either business or personal, Contractors must provide the required information to their Vale Contact Person, who will submit the completed forms to the Pass Office.

Once the Manager of the area approves the request, the vehicle pass will be issued.



There are a number of vehicle passes and depending on what site one requires access to, different passes are required.

All vehicles entering going through gates that lead into operational areas are required to have a vehicle pass unless the vehicle is a Company Vehicle that has a Company Logo or sign on the vehicle that makes it identifiable.



## 4.6 Vehicle Passes

### Entry Requirements

#### Inspections

The driver and/or passenger(s) may be subject to inspection by Protection Services upon entry/exit of any plant.

A contractor material list must be completed upon entry to the plant to verify material, tools or equipment.

This authorized form allows the carrier to exit Vale Property carrying items listed on the form.

If a Contractor Material List was not completed upon entry; a pass-out is required from a Vale authorized signer upon exit.



Vale's Protection Services Professionals (PSP's) reserve the right to inspect vehicles and passes before entering or leaving Vale property.

**Vale Protection Services Contractor Material List**

Page 1 of \_\_\_\_  
Contract Company: \_\_\_\_\_

Date: \_\_\_\_\_ Noncat #: \_\_\_\_\_  
Name of Driver: \_\_\_\_\_ Plate Number: \_\_\_\_\_  
Vehicle: \_\_\_\_\_

This authorizes the above carrier to exit Vale properties carrying the material listed below:

Quantity	Description	Serial Number

This authorization must be carried by the contractor while on Vale property. This driver and/or passenger may be subject to inspection by Protection Services upon entry/exit of any plant.

To be completed upon entry:  
Date: \_\_\_\_\_  
Contractor Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_  
Protection Services (Print): \_\_\_\_\_ Contractor Signature: \_\_\_\_\_  
PSP Signature: \_\_\_\_\_ Serial Number: \_\_\_\_\_

To be completed upon exit:  
Date: \_\_\_\_\_  
Contractor Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_  
Protection Services (Print): \_\_\_\_\_ Contractor Signature: \_\_\_\_\_  
PSP Signature: \_\_\_\_\_ Serial Number: \_\_\_\_\_

White - Protection Services  
Form PSP-0088  
Yellow - Carrier Copy  
Rev 4 - 02/20/2012

## 4.7 Vehicle Passes

### Entry Requirements

#### Points of Entry

There are various access points throughout Sudbury Operations.

These include manned gates, unmanned gates, vehicle and pedestrian entry points, and restricted access points.

When approaching these points of entry, permission is granted by the following:





## 4.8 Vehicle Passes

### Entry Requirements

#### Points of Entry

There are various access points throughout Sudbury Operations.

These include manned gates, unmanned gates, vehicle and pedestrian entry points, and restricted access points.

When approaching these points of entry, permission is granted by the following:

#### Permission through PSP

- In order to access Vale property, you MUST complete all required training modules
- If you are unable to access the plant with your swipe card, contact site PS P for access using the intercom or telephone located near the swipe stations. Do not attempt to bpass these locations.

#### Walk in Access (No vehicular access permitted)

- If you are required to walk to your work location, you will need to use your swipe card at the turnstile located at the entry, exit points.
- Adhere to pedestrian walkway locations and posted signage.

## 4.9 Gate Access

### Entry Requirements

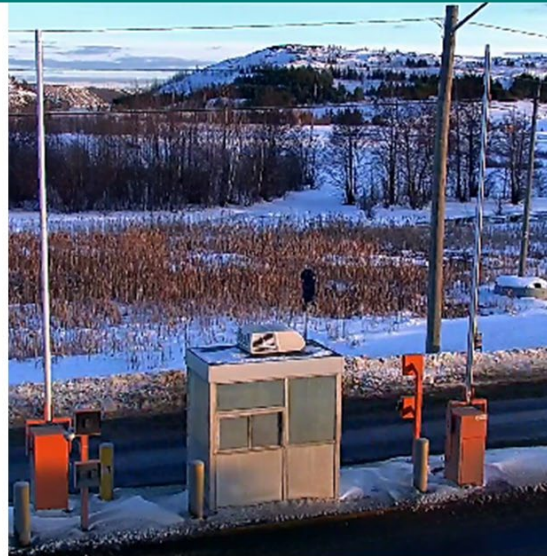


Be Aware: An electronic gate has been installed on Godfrey Drive (Off HWY 144) and will be operational as of March 01, 2021.

**The gate was installed to control access to our property, to help account for personnel working on site and to control unauthorized access to our property.**

All employees, contractors, delivery personnel and visitors who will require access to this gate, must possess a Vale swipe card and request access through their Vale contact.

Vehicles accessing our property are required to swipe their card on the readers upon entry and when exiting the property, all passengers will also be required to swipe their cards on the passenger readers when entering and exiting the property ensure they are accounted for.



## 4.10 Gate Access

### Entry Requirements



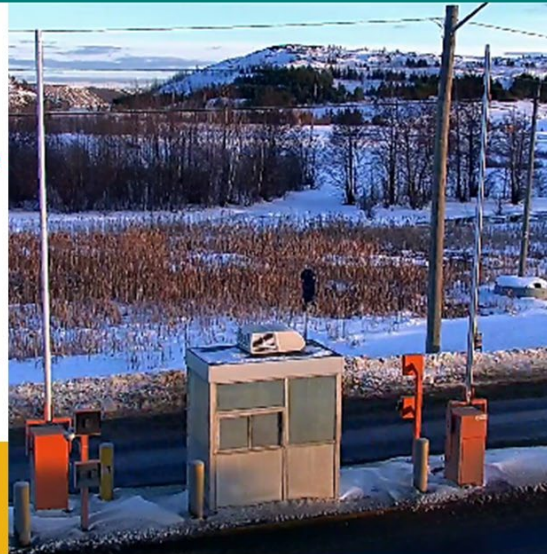
Be Aware: An electronic gate has been installed on Godfrey Drive and will be operational as of March 01, 2021.

**If an individual arrives at the gate and they don't have a card, depending on the circumstances, the vehicle will be turned away by the PSPs and will be permitted to access the property, turn around and leave (u-turn).**

If you are attempting access to this gate and your swipe card isn't working, use the intercom to speak to the site PSP. You will be asked to state your name, provide your contractor number to verify credentials, where you are reporting to work and your site contact.



Access to your card may be revoked if you are found using this roadway as a short cut to or from Copper Cliff. No bicycles are permitted to ride on this road.



## 5. High Level General Hazards

### 5.1 High Level General Hazards



# ✓ High Level General Hazards and Controls

Traffic Management  
Occupational Health  
Process Hazards/Upsets  
Emergency Preparedness

## ***5.2 Traffic Management***

# **Traffic Management**

## 5.3 Introduction

### Traffic Management

**Vehicles & Mobile Equipment states that you must always use mobile equipment and light vehicles for the purpose they were designed for and adhere to site pedestrian/vehicle traffic rules.**

The following section includes general information and standard procedure instructions for the safe interaction with motorized vehicles and workers.



## 5.4 Operation of Licensed Vehicles

### Traffic Management

#### Operation of Licensed Vehicles

To operate a licensed vehicle, workers must:

- Have a valid driver's license for the class of vehicle.
- Do a thorough initial check of the vehicle and fill in the appropriate paperwork.
- Ensure that all cargo and luggage is properly stowed or in a fixed position.



## 5.5 Requirements While Operating:

### Traffic Management

#### Operation of Licensed Vehicles

##### To operate a licensed vehicle, workers must:

- Obey the Highway Traffic Act requirements while driving on Vale property such as following posted signs speed limit and warning, use of seat belts.
- Absolutely no cell phone use is allowed while driving on Vale property, including handsfree. Drivers must pull over in a safe location prior to answering or making a call.
- Keep headlights on at all times while your vehicle is in motion.
- Refrain from driving over electrical cables.
- Ensure hazard lights are turned on when stopped at the side of the road.
- No smoking is permitted in company vehicles.
- No watching TV/DVD's or using Personal Electronic Devices while driving.
- Follow all site specific procedures for the safe operation of the vehicle.





## 5.6 Seat Belts

### Traffic Management

#### Seat Belts

**All vehicles operating on Vale property are to be equipped with seat belt assemblies. This includes company and personal vehicles.**

All Operators and passengers of motor vehicles or mobile equipment including employees, visitors and contractors shall wear the complete seatbelt assembly.

The seatbelt assembly for the operator and all passengers shall be properly adjusted and securely fastened before the vehicle is set in motion.



**SPI-14**



## 5.7 Pedestrian Walkways

### Traffic Management

#### Pedestrian Walkways

**Pedestrian walkways are areas that can be found either inside or outside of plant buildings. These areas are PPE free however there are exceptions in some areas.**

If you are a motorist and come across a pedestrian walkway, slow down to ensure you're able to stop in the event a pedestrian crosses your path.

Vehicles are not permitted to drive inside the hash-marked areas.



## 5.8 Pedestrian Crossovers

### Traffic Management

#### Pedestrian Crosswalks

A Pedestrian Crosswalk is any portion of a roadway designated by the mine/plant manager at an intersection or elsewhere, distinctly indicated for pedestrian crossing by signs and markings on the roadway.

Pedestrians are to use designated crosswalk areas whenever possible.

If a pedestrian crosswalk does not exist then proceed with caution to mitigate the risk of encountering any form of mobile equipment.



SPI-32



Pedestrians are not to enter the crosswalk if by doing so, they make it unsafe for the driver to yield the right of way

## 5.9 Pedestrian Crossovers

### Traffic Management

#### Pedestrian Crosswalks

**At a controlled crosswalk, drivers are to yield the right of way to pedestrians by slowing or stopping.**

Drivers can proceed once the pedestrian has cleared the crosswalk area.

When a vehicle is stopped at a pedestrian crosswalk, the driver of any other vehicle overtaking the stopped vehicle shall bring the vehicle to a full stop before entering the crosswalk and shall yield the right of way to the pedestrian.



SPI-32

## 5.10 Multi Way Stops

### Traffic Management

#### Multi Way Stops

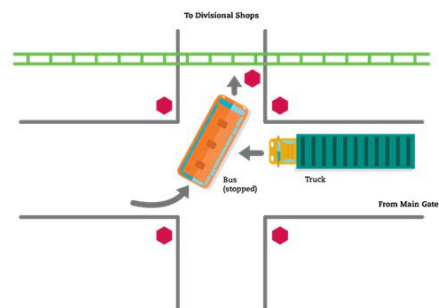
Multi-way stops include three or more approaches to an intersection, all of which are controlled with stop signs.

After a full-stop has been made, vehicles usually have the right-of-way to proceed through the intersection in the order that they arrived at the intersection.

Be sure that the intersection has been cleared of all other vehicles or pedestrians before proceeding.



At the Copper Cliff Complex Property at the Divisional Shops intersection, due to a set of train tracks, there is a history of near miss collisions due to traffic coming from the Main Gate not waiting for the traffic at the stop sign for the tracks to clear.



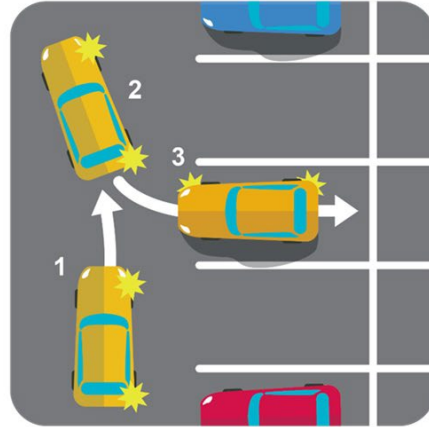
## 5.11 Parking in Designated Lots

### Traffic Management

#### Parking in Designated Lots

There are designated parking lots for vehicles throughout Surface Operations. Where designated, contractors should park in the “Contractor Assigned Area”.

- As a best practice, vehicles should back into parking spots.
- Be aware that some parking lots are divided into dayshift/nightshift sections which help coordinate parking lot maintenance.
- Do not park past lane boundary markers.



## 5.12 Parking in Non-Designated Areas

### Traffic Management

#### Parking in Non-Designated Areas

Aside from designated parking lots, at times workers are required to park their vehicles in non-designated areas. This should not be confused with restricted areas.

- In areas where heavy equipment is operating, make sure your vehicle is visible and that it's not parked in the path or potential path of mobile equipment.
- Although there are some areas to park, there are other areas that are marked as "do not park". These areas have other hazards associated them.
- There are sites that require the use of safety whips (flags). Check with your Vale Contact Person to see if this is a requirement for the area in which you are working.



## 5.13 Train Awareness

### Traffic Management

#### Train Awareness

Vale has an extensive track system for the movement of process materials within the operation. There are many points in which pedestrian paths or roadways intersect with train track and train movement

- Trains can be pushed or pulled. What appears to be a train going away from you may be a train coming towards you.
- Molten metal may splash from slag cars. Allow plenty of room between your vehicle and the train.



Any time is train time!  
Trains always have  
the right of way.





## 5.14 Railway Crossings

### Traffic Management

#### Railway Crossings

All vehicles required to cross over train tracks must use the approved railroad crossings.

- When at a crossing, you must come to a complete stop at the stop sign, look both ways, then proceed only when it is safe to do so.
- Failing to comply with this procedure will result in a suspension of driving privileges on Vale property.



## 5.15 Working Around Rail

### Traffic Management

#### Working Around Rail

Any work performed within 12 feet of Transportation Rail System on Vale Property requires a work permit from the Transportation Department Dispatcher.



All contract employees must attend Transportation Orientation before they can take out a work permit from the Transportation Department.



## 5.16 Mobile Equipment Awareness

### Traffic Management

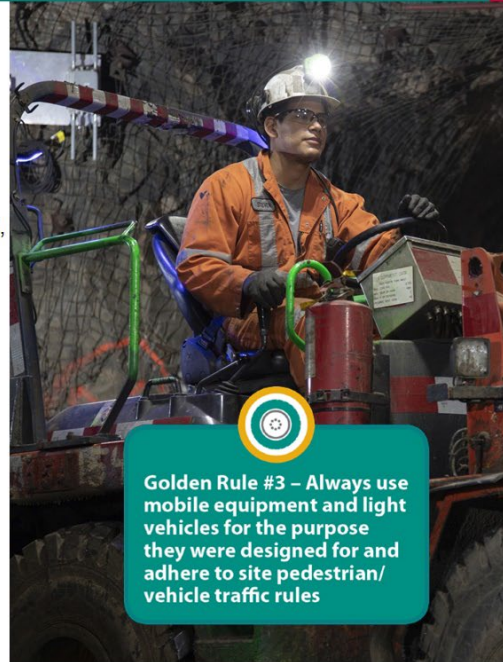
#### Mobile Equipment Awareness

Throughout the surface operations there are tasks that require the use of mobile equipment.

These can include equipment such as loaders, graders, forklifts and aerial lifts that move around the operation.

Be aware that the operator is doing the task they are assigned and you may be entering their work area.

Therefore maintain situational awareness with regards to mobile equipment and the associated hazards such as overhead pipes or structures, operator's line of vision and reaction time, as well as the equipment's route of travel.



## 5.17 Working Around Energized Overhead Transmission Lines

### Traffic Management

#### Working Around Energized Overhead Transmission Lines

Contacting energized power lines can result in fatal electrocutions, if not serious burns or damaged equipment.

Contact with overhead power lines is the most common cause of deaths involving cranes or other high-reaching mobile equipment.



## 5.18 Working Around Energized Overhead Transmission Lines

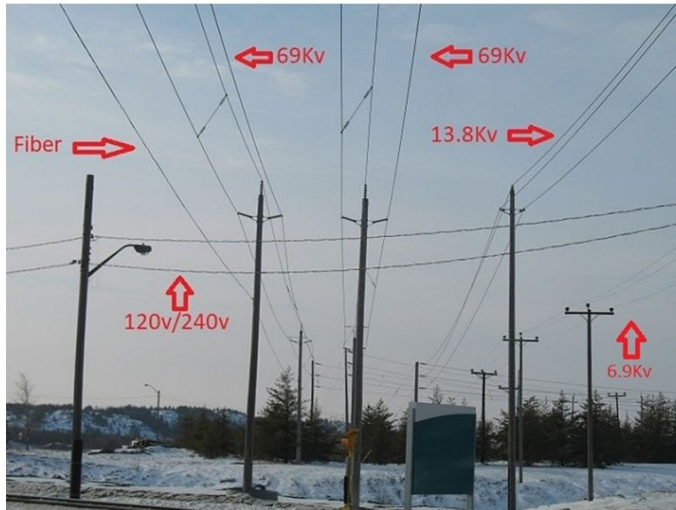
### Traffic Management

#### Working Around Energized Overhead Transmission Lines

Most forms of overhead lines on Vale property are represented in this photo.

The overhead lines of concern in this photo would be the 6.9 Kv, 13.8 Kv and 69 Kv lines. They have bare conductors.

The fiber and 120v/240v are of less concern when it comes to contact but care should be taken not to take them down. They have insulated conductors.



## 5.19 Working Around Energized Overhead Transmission Lines

### Traffic Management

#### Working Around Energized Overhead Transmission Lines

A Health and Safety Guideline from the Ministry of Labour (MOL) issued to the Vale Power Department states that the only way to eliminate the hazard of mobile equipment contacting an energized overhead transmission line is to prohibit the storage or placement of any material under an overhead transmission line.



## 5.20 Working Around Energized Overhead Transmission Lines

### Traffic Management

#### Working Around Energized Overhead Transmission Lines

In order to manage the risks associated with the storage of materials near overhead transmission lines and transmission line rights of way, it is critical that mobile equipment operators *know and follow* minimum distances that workers/objects must keep away from live power lines.

**Controls include;**

[OHSA SECTION 159](#)

[CANADIAN ELECTRICAL CODE](#)

[SECTION 4.3.6 OVERHEAD SUPPLY LINES](#)

Vale Ontario Operations [MSPEC-55003](#)  
["Storage of Materials Under Energized  
Transmission Lines Prohibited"](#)



BE AWARE



APPLY GOOD WORK  
PRACTICES



STOP & CORRECT



ASK FOR HELP



FOLLOW POLICIES  
& PROCEDURES



FOLLOW RULES  
& REGULATIONS

## 5.21 Overhead Supply Line Clearances

### Traffic Management

## Working Around Energized Overhead Transmission Lines

### Overhead Supply Line Clearances

Material storage in yards, and machines used to load or unload material, creates hazards for personnel and machines in the vicinity of bare overhead supply lines.

To maintain safe clearances and reduce the risk of accidental contact, the following should be considered in yard location, layout, material storage, and operation of machinery:

- a) Where possible, and considering the machinery used to load or unload materials, storage yards and product stockpiles should be located a safe distance from supply line rights-of-way.
- b) Procedures for maintaining safe clearances should allow for the types of machinery (boom trucks, cranes, large forklifts, excavators etc.) used to load and unload material.
- c) Operations such as road dressing, grading, and snow clearing can require protecting poles and guy wires to prevent physical damage.
- d) Employees should be trained in procedures for maintaining safe clearances.



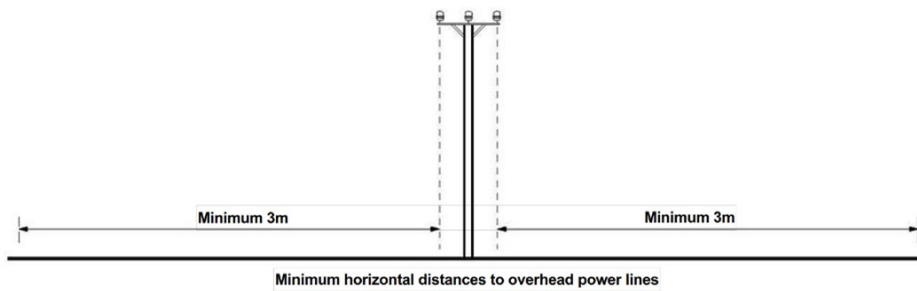
## 5.22 Minimum Horizontal Clearance

### Traffic Management

## Working Around Energized Overhead Transmission Lines

### Minimum Horizontal Clearance

The minimum horizontal clearance for the storage of equipment, aggregates, construction, or any other materials from any overhead transmission line shall be three (3) meters from the closest bare conductor.



## 5.23 Minimum Horizontal Clearance

### Traffic Management

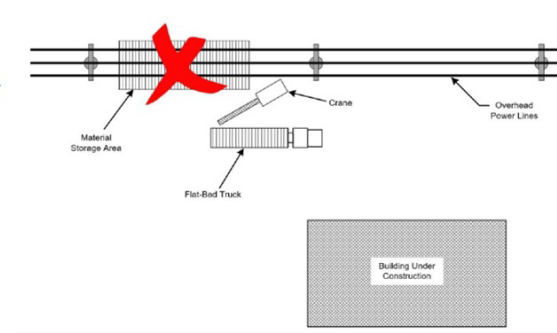
#### Working Around Energized Overhead Transmission Lines

##### Loading / Unloading Scenario

Storing material underneath overhead power lines is a hazard for mobile equipment, cranes and dump trucks.

The only way to eliminate the hazard is to prohibit the storage or placement of any material under an overhead power line.

Refer to MPROC-55002 (Electrical Power Department Authorization to Work Around Energized Overhead Conductors) whenever work around overhead power lines is required.



**5.24 Occupational Health**

# Occupational Health

## 5.25 Identification of Hazards

### Occupational Health

#### Identification of Hazards

Occupational health refers to the identification and control of the risks arising from physical, chemical, and other workplace hazards in order to establish and maintain a safe and healthy working environment.

#### These hazards may include:

- heavy metals such as lead and mercury
- physical agents such as loud noise or vibration
- chemical agents and solvents



Emergency showers and eyewash stations are necessary to minimize the effects of accident exposure to chemicals.

Depending on your area of work or tasks being performed, you should know how to operate eyewash and safety showers and be familiar with their locations prior to commencing work.



## 5.26 Eyewashes

### Occupational Health

## Eyewashes

Emergency eye wash stations are specifically designed to immediately flush contaminants out of the eyes after exposure. Location and familiarization make the difference in how well first aid is performed. The efficiency of emergency eyewash depends on following instructions:

1. Do not panic.
2. Get to the eye wash station and turn the eye wash on.
3. Rinse both eyes with copious amounts of water for a minimum of 15 minutes.
4. Keep your eyelids open by using your hands to ensure adequate flushing of the eyes.

**Please note:**

The emergency eye wash station is only for first aid. It is not medical treatment for chemical exposures. Proceed to First Aid as soon as possible.



Never pull on handles unless you are using the unit as they will activate when the handle is pulled; eyewashes will fully discharge their bladders.  
*Report discharged eyewash stations to Supervision*

## 5.27 Emergency Showers

### Occupational Health

#### Emergency Showers

Vale has two types of emergency showers on the property:

**Plumbed Showers:** An emergency shower permanently connected to a continual source of potable water.

**Self-Contained Showers:** A stand-alone shower that contains its own fluid source.

1. Do not panic.
2. Shout for help so co-workers can assist you.
3. Enter shower and pull down on the triangular handle.
4. Rinse off clothes, face, hands for a minimum 20 minutes.
5. Control Room / First aid will be signaled by shower activation and will send someone to assist you.



***Stay in the shower until you are otherwise instructed.***

## 5.28 Good Practices

### Occupational Health

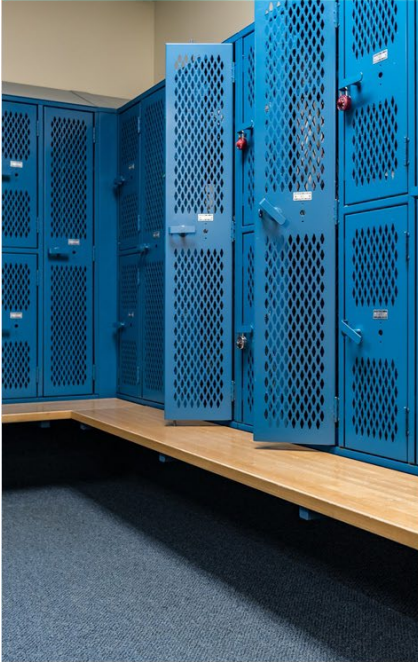
#### Good Practices

- Minimize dust generation by using an appropriate and available method to contain dust (i.e.: vacuum system, dust retardant, water).
- When handling or working around dust, always wear appropriate respiratory protection, protective “long-sleeve” clothing, gloves, and practice proper hygiene.
- Never eat or drink in the immediate work area.
- Wash hands and face thoroughly with soap (10 - 15 seconds to be effective); especially before eating or drinking.
- Keep cuts and abrasions clean and covered.
- Remove contaminated clothing and PPE before entering eating facilities and lunchrooms.
- Where available, launder work clothes at work and if at home, launder work clothes separately.
- Shower before going home by following the Contractor Hygiene Compliance Plan for your area.



## 5.29 Contractor Hygiene Compliance Plan

### Occupational Health



### Contractor Hygiene Compliance Plan

Day use lockers will be left unlocked and will be available for any off site personnel who want to use them for the duration of their shift.

This is effective immediately and includes the following general guidelines:

- Included with the use of a day use locker is the use of the shower and washing facilities in the dry.
- Vale is not responsible for lost or stolen items.
- You will need your own personal toiletries, towel and appropriate lock (Red locks are not permitted).
- All personal belongings and locks are to be removed at the end of the shift (Day use only).
- Locks left on lockers for more than 1 day will result in the locks being cut, and the contents of the locker bagged.
- For unlocked lockers, any items left in the locker will be bagged.



## 5.30 Contractor Hygiene Compliance Plan

### Occupational Health

#### Contractor Hygiene Compliance Plan

To address the application of personal hygiene for all workers at Vale a number of day use only facilities have been established throughout Surface Operations.

#### Clean AER Project

Atmospheric Emissions Reduction

Project Contractors and those associated with the Clean AER project are to use the South Mine Dry.

#### Non AER Project Contractors

Others

All other contractors can use Dry Facilities on their associated properties:

- Copper Cliff Complex #1 Dry
- Clarabelle Mill
- Copper Cliff Nickel Refinery (CCNR)
- Electrowinning (EW)

## 5.31 Occupational Health

### Occupational Health



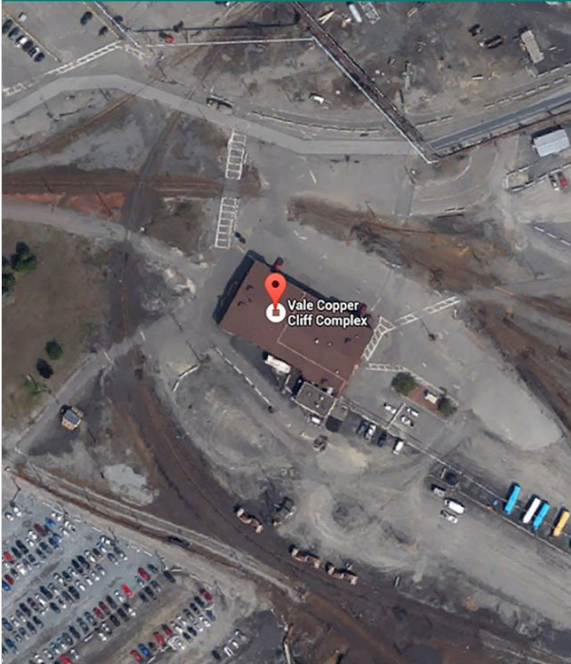
### Contractor Hygiene Compliance Plan

#### South Mine Facility - Using the Dry:

1. Park and proceed through the gate into the Dry. Women are to proceed to the left door marked "Women's Dry" The Pass Code for accessing the women's dry will be provided by the Site PSP.
2. Men are to proceed directly to the door marked "Men's Dry".
3. Baskets are available in the designated section on a First-Come First-Served basis and are only to be used for the shift.

## 5.32 Smelter Facility - Using the Dry:

### Occupational Health



### Contractor Hygiene Compliance Plan

#### Smelter Facility - Using the Dry:

1. Proceed to the second floor where there exists an area designated as a "Visitor Locker Area".
2. In the area, there exists:
  - Shower
  - Washer & Dryer
  - Both clean and dirty colour coded lockers

## 5.33 CCNR Facility- Using the Dry:

### Occupational Health



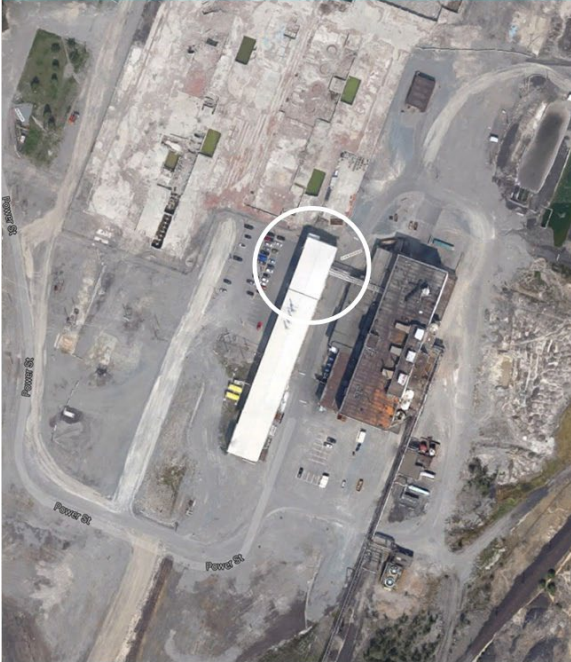
### Contractor Hygiene Compliance Plan

#### CCNR Facility- Using the Dry:

- Off site personnel may use one or two lockers as required. More than two lockers for a single user is not permitted.
- Day use lockers are available in both the Men's and Women's dry in the CCNR admin building.

## 5.34 CCNR Facility- Using the Dry:

### Occupational Health



### Contractor Hygiene Compliance Plan

#### EW Facility- Using the Dry:

- Off site personnel may use one or two lockers as required.
- More than two lockers for a single user is not permitted.

## ***5.35 Key points to remember during an emergency***

### **Occupational Health**

#### **Contractor Hygiene Compliance Plan**

##### **Key points to remember during an emergency**

- Be familiar with the emergency assembly areas, obey all signs, if in any doubt ask your Vale Contact Person.
- In the event of an Intermittent alarm workers are to proceed to the Emergency Assembly Rooms inside the building marked with a circled green "A". Once inside the room, provide your name to the Person in Charge and await instructions.
- In the event of Continuous alarm, exit building and proceed to external assembly area as marked. Be sure to provide your name to Person in Charge and await instructions.

## 5.36 Process Hazards/Upsets



# Process Hazards/Upsets

## 5.37 Introduction

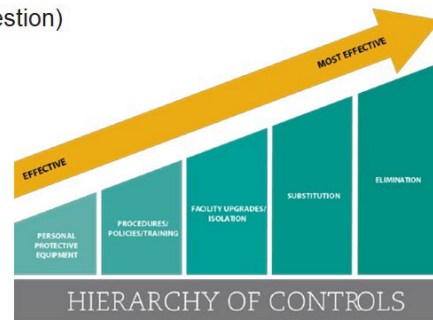
### Process Hazards/Upsets

**Vale's Surface Operations involve many interactions between plants and facilities involving different metal streams and processes.**

**There are hazards associated with these processes such as:**

- Hot metal (burns, fires or explosions)
- Heat sources (radiation or exposure)
- Designated Substances (inhalation, absorption, ingestion)
- Chemical (reactions or release)
- Mechanical (mobile or stationary equipment)
- Physical (musculoskeletal, slips, trips, falls)

**Vale has a hierarchy of controls to manage the exposure to hazards such as process hazard reviews (PHR), PPE, procedures and training.**





## 5.38 Introduction p2

### Process Hazards/Upsets

**Harm is the physical injury or damage to the health of people either directly or indirectly, or damage to property or the environment as a result of a failed operational control or Process Upset.**

**Process upsets can occur in many different situations and can be caused by:**

- Inefficiencies in the process design, organization and control
- Human factors
- Chemical (reactions or release)
- Natural disasters and other emergencies
- Exhaustion or failure of equipment
- Unsafe use of machinery
- Random upsets

**Depending on the type of upset, a response to the emergency may be required.**



## **5.39 Emergency**

### **Preparedness**



# **✔ Emergency Preparedness**

## 5.40 Emergency Preparedness

### Emergency Preparedness

#### Vale's Emergency Policy defines an emergency as:

- a situation or a set of circumstances which, if not promptly eliminated, controlled, or contained, results or could result in significant injury to people (including the community) and/or damage to the plant, property or the environment."
- Vale has developed an Emergency Preparedness plan to provide an appropriate and consistent response to any reasonably foreseeable emergency situation likely to occur at the Company's Sudbury operating facilities.



## 5.41 Emergency Preparedness

### Emergency Preparedness

Each mine surface site has a set of Emergency Procedures that include;

- Emergency Protocols (*e.g knowing where the safe assembly areas are located*).
- Fire Safety
- Emergency Management

Your worksite pre-entry requirements will include an orientation to these area-specific procedures and protocols as they apply to your work area.

*Everyone is to know and understand their role in the event of an emergency.*



## 5.42 Emergency Preparedness

### Emergency Preparedness

Vale's *Emergency Protocols* establish an effective response procedure to help manage risk to **Get HomeSafe**, they include;

- Emergency Activation
- Emergency Classification
- Emergency Notification
- Responding in an Emergency
- General Procedures for Emergency Response



## 5.43 Emergency Preparedness

### Emergency Preparedness

#### Emergency Activation

Once it is recognized that an Emergency has occurred, the following steps must be taken to efficiently activate the emergency procedure process.

- 1. Report the Emergency**  
Everyone has a responsibility to report if an emergency situation is present.
- 2. Control Room**  
Emergencies are to be escalated to the Area Supervisor or the Area Control Room.
- 3. #1 First Aid**  
The Area Control Room is responsible for contacting #1 First Aid.
- 4. Outside Emergency Services**  
#1 First Aid is responsible for contacting Outside Emergency Services.

Emergency  
Activation



Emergency  
Classification



Emergency  
Notification



Responding  
to an Emergency



General  
Procedures for  
Emergency  
Response



Emergency Protocols

## 5.44 Emergency Preparedness

### Emergency Preparedness

#### Emergency Activation

In an emergency, information must be communicated quickly and accurately, be prepared to provide the following information:

- your name and contact information
- your location
- the location of the emergency
- the nearest door number to the emergency, if applicable
- the type of emergency providing as much detail as possible
- any condition that may pose a threat to emergency response

Emergency  
Activation



Emergency  
Classification



Emergency  
Notification



Responding  
to an Emergency



General  
Procedures for  
Emergency  
Response



#### Emergency Protocols

## 5.45 Emergency Preparedness

### Emergency Preparedness

#### Emergency Activation

DO NOT contact #1 First Aid during an emergency UNLESS you are calling to contribute critical emergency information (i.e. injury, escalation of the event, etc.)

Emergency  
Activation



Emergency  
Classification



Emergency  
Notification



Responding  
to an Emergency



General  
Procedures for  
Emergency  
Response



#### Emergency Protocols



## 5.46 Emergency Preparedness

### Emergency Preparedness

#### Emergency Classification

Vale uses three level categories to classify the magnitude of an emergency:

##### Emergency Level 1

A Level 1 emergency is confined to a single building on Vale property and does not pose a threat to the public.

BUILDING

Emergency  
Activation



Emergency  
Classification



Emergency  
Notification



Responding  
to an Emergency



General  
Procedures for  
Emergency  
Response



#### Emergency Protocols

## 5.47 Emergency Preparedness

### Emergency Preparedness

#### Emergency Classification

Vale uses three level categories to classify the magnitude of an emergency:

##### Emergency Level 2

A Level 2 emergency is still confined to a Vale property but affects more than one building on the property and does not pose a threat to the public.



Emergency Activation



Emergency Classification



Emergency Notification



Responding to an Emergency



General Procedures for Emergency Response



#### Emergency Protocols

## 5.48 Emergency Preparedness

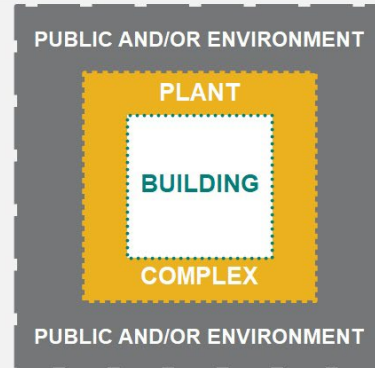
### Emergency Preparedness

#### Emergency Classification

Vale uses three level categories to classify the magnitude of an emergency:

##### Emergency Level 3

A Level 3 emergency has the potential to affect the public and/or environment.



Emergency Activation



Emergency Classification



Emergency Notification



Responding to an Emergency



General Procedures for Emergency Response



#### Emergency Protocols

## 5.49 Emergency Preparedness

### Emergency Preparedness

#### Emergency Notification

Each site has a set of emergency procedures that include:

- INVAC
- OUTVAC
- Fire procedures
- Identification of assembly areas
- Communication protocols

Your worksite pre-entry requirements will include an orientation to these area specific procedures and protocols as they apply to your work area.



Emergency  
Activation



Emergency  
Classification



Emergency  
Notification



Responding  
to an Emergency



General  
Procedures for  
Emergency  
Response



#### Emergency Protocols

## 5.50 Emergency Preparedness

### Emergency Preparedness

#### Emergency Notification

Emergency levels 1 through 3 are notified through a combination of site specific emergency response procedures such as:

- PA Announcements
- Lights
- Alarms
- Tone Alerts
- Horns
- Radios
- Perimeter Warning Signs



Emergency  
Activation



Emergency  
Classification



Emergency  
Notification



Responding  
to an Emergency



General  
Procedures for  
Emergency  
Response



#### Emergency Protocols

## 5.51 Emergency Preparedness

### Emergency Preparedness

#### Emergency Notification

Notifications are specific to each site. These will be identified during each site specific orientation package.

Level 3 emergencies are further communicated through Air Horns located in the Copper Cliff and Nickel Refinery Complexes.



Emergency  
Activation



Emergency  
Classification



Emergency  
Notification



Responding  
to an Emergency



General  
Procedures for  
Emergency  
Response



#### Emergency Protocols

## 5.52 Emergency Preparedness

### Emergency Preparedness

#### Responding in an Emergency

##### **INVAC** - (*Sheltering in Place*)

Upon receiving notification to INVAC, proceed to the nearest Safe Assembly Area.

Safe Assembly Areas are clearly marked with a standard sign:



Emergency Activation



Emergency Classification



Emergency Notification



Responding to an Emergency



General Procedures for Emergency Response



#### Emergency Protocols

## 5.53 Emergency Preparedness

### Emergency Preparedness

#### Responding in an Emergency

##### **INVAC** - (*Sheltering in Place*)

Upon receiving notification to INVAC, proceed to the nearest Safe Assembly Area.

Safe Assembly Areas are clearly marked with a standard sign:



##### **OUTVAC** - (*Building Evacuation*)

Upon receiving notification to OUTVAC, leave the building via the nearest exit and proceed to the Evacuation Area.

Evacuation areas are clearly marked with a standard sign:



Emergency Activation



Emergency Classification



Emergency Notification



Responding to an Emergency



General Procedures for Emergency Response



#### Emergency Protocols



## 5.54 Emergency Preparedness

### Emergency Preparedness

#### General Procedures for Emergency Response

Whether in an **INVAC** or **OUTVAC**, there are some general instructions to follow.

- Upon hearing a notification, personnel will immediately report to the appropriate assembly location.
- When arriving at the location, ensure you are accounted for and report any known missing personnel.
- When in the Assembly Area, proper behavior is required - everyone must remain calm and follow instructions.
- Personnel must remain in the assembly location until the emergency is over and the "All Clear" message has been given.



Emergency  
Activation



Emergency  
Classification



Emergency  
Notification



Responding  
to an Emergency



General  
Procedures for  
Emergency  
Response



#### Emergency Protocols

## 5.55 Emergency Preparedness

### Emergency Preparedness

#### General Procedures for Emergency Response

**PLEASE NOTE:**

These are general procedures that are followed in every area.  
Ensure that you are familiar with the site specific procedures for the area in which you are working.  
Area specific material is located in each Emergency Response Site.



Emergency Activation



Emergency Classification



Emergency Notification



Responding to an Emergency



General Procedures for Emergency Response



#### Emergency Protocols

## 5.56 Emergency Notification

### Emergency Preparedness

#### Approaching an area during an Emergency

**Perimeter warning lights are activated during a plant emergency. If you are approaching an area during a plant emergency you must comply with the following instructions:**

- Do not enter the plant or property and keep entry routes clear for Emergency Response vehicles.
- Remain in vehicle, with the windows closed and shut off ventilation.
- Follow any instruction from Vale Emergency Response or PSP.
- If safe to do so, drive off the site until the emergency condition is controlled (if unable to do so, remain parked in vehicle).
- Notify your supervisor of the emergency, your current location due to entry restrictions and remain in contact until the emergency is resolved.
- Return to site once emergency has been declared "all clear".

Emergency  
Activation



Emergency  
Classification



Emergency  
Notification



Responding  
to an Emergency



General  
Procedures for  
Emergency  
Response



#### Emergency Protocols

## 5.57 Small Fire Response Procedure

### Fire Safety

#### Small Fire Response Procedure

Fire extinguishers are to be used only on fires which appear to be manageable.

At no time shall an employee put his or her safety, or the safety of others, at risk to extinguish a fire.

A person discovering a fire may attempt to extinguish it, if it is small and only if they are knowledgeable in the use a fire extinguisher and it is safe to do so.

If more than two extinguishers are used and the fire is still not out, follow the Large Fire Response procedures.



## 5.58 Small Fire Response Procedure

### Fire Safety

#### Small Fire Response Procedure

A fire extinguisher which has been used, or does not work, should be laid on its side to indicate to other responders not to use that fire extinguisher.

Test extinguisher before approaching the fire.

Keep low and approach with the wind at your back.

Back away, watching for rekindle



**P**ULL THE PIN



**A**IM AT THE BASE



**S**QUEEZE TRIGGER



**S**WEEP

## 5.59 Large Fire Response Procedure

### Fire Safety

#### Large Fire Response Procedure

When a fire is too large to extinguish, leave the area immediately, closing doors behind you. Notify others as you leave the building.

Activate the nearest Fire Alarm system pull station, located at exit doors or contact the area control room.

Leave the building via the nearest exit and assemble at your designated assembly location.

Contact No.1 First Aid 682-6622 for emergency response. Be prepared to provide your name, contact number and location of the fire.

Notify Number 1 First Aid if there are any, injuries, potential risks or threats.



## 5.60 Additional Emergency Resources

### Emergency Management

Additional emergency resources are available through your Vale Contact person.

**These include:**

- Emergency Maps
- Emergency Response Plans
- Fire Safety Presentation
- Specific Plant Hazards
- General Information regarding Emergency Preparedness



## 6. Conclusion

### 6.1 Conclusion



✔ Conclusion



## 6.2 Conclusion

### Conclusion

**This concludes the material for Tier 2 Vale Mine Orientation.**

**You should now have a working knowledge and understanding of:**

- The surface layout and boundaries
- The key access points and entry requirements
- The high level general hazards and controls with regard to:
  - Traffic plans
  - Occupational health
  - Process Hazards/Upsets
  - Emergency Preparedness

This module only serves as a prerequisite to a Tier 3 Plant Specific Orientation and is not an isolated module. You can request further training in Tier 3 as per instructions from your Vale Contact Person.

## 6.3 Conclusion

### Conclusion

#### Tier 3 Modules apply to those who will need to:

- Work inside an operating plant
- Have knowledge and understanding of the following site specific information:



Area overview (Map)



Specific emergency preparedness instructions



Specific plant rules and policies



Specific occupational hazards



Additional PPE requirements



Sign in requirements



Plant specific phone numbers and radio channels

