

Tier 2: Port Colborne Refinery Orientation

1. Port Colborne Refinery - Contractor Orientation

1.1 Port Colborne Refinery



Port Colborne Refinery

Contractor Orientation

Module Duration: About 38 minutes.

1.2 Introduction

Introduction

1.3 Requirements

Requirements

Welcome to the Vale, Port Colborne Refinery. We hope that your stay here will be a safe and productive one.

All contractors performing work at the refinery must first successfully complete this Contractor Plant Safety Orientation Program.

This Contractor Orientation consists of three Tiers:

- Tier 1, which should be completed already,
- Tier 2, this module,
- Tier 3, Department Specific Orientation and Tour.

Tier 1 – Vale General Orientation

Tier 2 – Port Colborne Refinery Contractor Orientation

Tier 3 – Site Specific Access Orientation

1.4 Contractor Plant Safety Orientation Booklet

Course Objectives

Contractor Plant Safety Orientation Booklet

The "Contractor Plant Safety Orientation Booklet" has been put together to provide you with additional information. Please take time to read it.

This program covers only a portion of the P.C.R. safety program and standard procedure instructions, and is intended as a guideline only.

For additional information and clarification on specific subjects ask your Supervisor or Vale Representative.



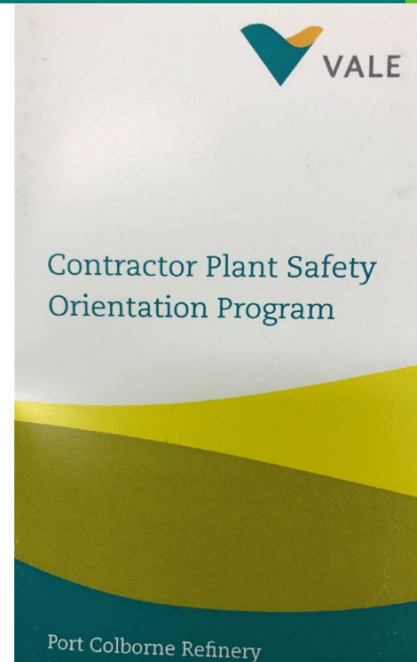
Be Aware

Be aware of your surroundings and the risks around you.



Follow Policies & Procedures

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



1.5 What to Expect

Course Objectives

What to Expect

At the end of each section you will be asked to complete a series of questions that will help reinforce your learning in the related section. You will be shown whether you answered the questions correctly.

If you answer incorrectly on your first try, you will be able to try again until you find the correct response.

Upon completion of this module you will answer questions in a Final Quiz. Corrections to the Final Quiz questions cannot be made once this section is completed. You must review any incorrect questions if you score 80% or more.

If you score less than 80% you will have to repeat this orientation module.



**Thank you for completing the
Vale Online Module Training.**

To start the module Quiz

CLICK HERE

1.6 What We Do

Course Objectives

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

- Follow Plant Entry Procedure
- Identify Site Specific Hazards and Controls for the Port Colborne Refinery
- Follow Procedures in the event of:
 - Equipment Damage
 - Personal Injury
 - Process Upset (Emergency Preparedness)
- Complete Plant Exit Procedure Checklist.



1.7 What We Do

Port Colborne Refinery - What We Do

Raw materials from Vale's Sudbury Operations are shipped to Port Colborne for processing. About 170 people work at the refinery, a vast 360-acre complex that:

- ✓ Produces electrocobalt
- ✓ Makes and distributes finished nickel products
- ✓ Processes precious metals

Finished products are shipped from Port Colborne to destinations around the world.



2. Plant Entry

2.1 Driving in, Walking in



✓ Plant Entry
Requirements
Driving in, Walking in

2.2 Security

Plant Entry Requirements

Security

All personnel who enter the plant, or leave the plant, must submit a picture pass and sign into the visitor's log book, which is located at the Security Gate Area. Any person in unauthorized possession of Vale company property could be discharged, and may be charged under the Criminal Code. All personnel using a picture pass swipe card are to do so at the appropriate kiosk either at the vehicle gate or pedestrian turrets (signing in is not required when using a picture pass swipe card).



Only company vehicles used for transportation of equipment, tools, and material are allowed to enter the plant, and the gate pass must also indicate this.



Front Entrance of the Office Complex

2.3 Plant Vehicle Traffic

Plant Entry Requirements

Plant Vehicle Traffic

Every person who operates a motor vehicle, etc. while driving in a vehicle may only be accepted, by the driver, provided the vehicle is properly parked in a properly adjusted and securely fastened manner.

No vehicle, any part of its load, or any material is to be left within 2.5 meters of any railroad track.

All vehicle operators are responsible to ensure that all loads are adequately secured.

Maximum speed limit on Company property is 25 km/h.

Pedestrians always have the right of way.

10 Electronic Devices



Never use cell phones or any other device that can cause loss of focus in non-authorized operational areas, stairs and while crossing streets.

Operational
Discipline

2.4 Warning Devices

Plant Entry Requirements

Warning Devices

All plant vehicles and most contractor vehicles and transport trucks are equipped with backup audible alarms to alert workers of their presence.

All vehicles must sound their horn when entering or leaving buildings.



All cranes and hoists are equipped with warning alarms. Be alert when entering buildings displaying overhead crane symbols and pay special attention when walking near hoist wells.

Never walk under a suspended load.



2.5 Personal Protective Equipment

Plant Entry Requirements

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.

Hard Hats, Safety Eyewear, Hearing protection, Steel Toed Work Boots with Metatarsal protection and Hi Vis clothing are the minimum requirements for working in the Port Colborne Refinery.



2.6 Headwear

Plant Entry Requirements

Personal Protective Equipment - 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.
- Metal, painted or hard hats with holes drilled in them are not permitted.



2.7 Eye Protection

Plant Entry Requirements

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.

Goggles must 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.

Appropriate eye protection must be worn whenever personnel are welding or using burning equipment.



2.8 Hearing Protection

Plant Entry Requirements

Personal Protective Equipment – Hearing Protection

Approved hearing protection must be worn by all personnel in the Cobalt Refinery, Nickel Processing, and the PMR, as well as designated "Hearing Protection Areas" or in any area where the noise level exceeds the Threshold Level Value of 85 Decibels adjusted for an 8 hour exposure. Earplugs are readily available in these areas.

Approved hearing protection can be earplugs, ear muffs or both. Hearing protection must also be worn whenever noisy equipment such as chipping guns, pneumatic hammers, grinders, etc., are being used in the area.

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



2.9 Adornment:

Plant Entry Requirements

Adornment:

Personnel working at the PCR are not permitted to wear exposed jewelry that can become entangled, caught in or pose unnecessary risk to the employee, e.g. dangling chains, hooped earrings or rings, to prevent exposing themselves to the potential for serious injury.

Loose fitting jewelry can create a potential hazard for personnel working around equipment. Jewelry will usually fail at the clasp, if one is present. If an article of jewelry does not have a clasp or the clasp is relatively strong it can become inadvertently caught in or on equipment.

The result will be an injury to an individual. The highest risk occurs where a person can be drawn into the moving parts of a piece of equipment.



2.10 Protective Footwear

Plant Entry Requirements

Protective Footwear

CSA standard CAN/CSA-Z19S

Protective Footwear is mandatory in all work areas of the plant. All protective footwear 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 guards.
- 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.



2.11 Hand Protection

Plant Entry Requirements

Hand Protection

Gloves appropriate to the task must be worn at all times.

If you're not sure what type of glove to wear, check the SDS sheets for the product you're using, or ask your Supervisor.



2.12 Respiratory Protection

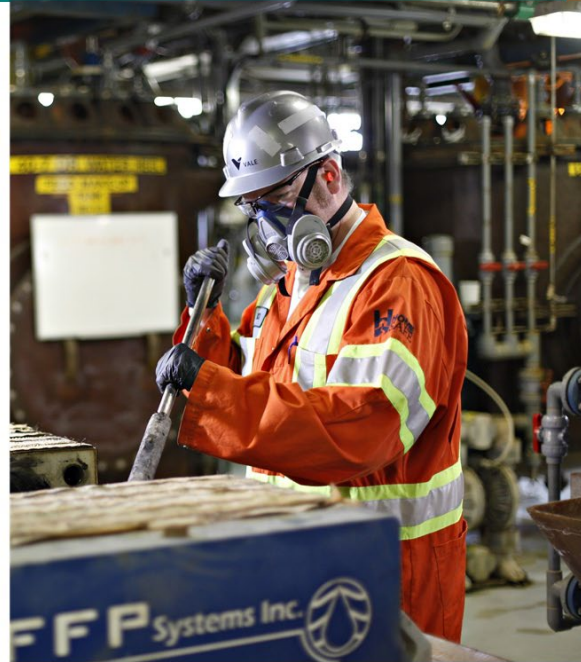
Plant Entry Requirements

Respiratory Protection

When required to work in an atmosphere that contains harmful levels of dusts, mists or gases or in an oxygen deficient area, employees must wear the approved respiratory protective equipment that has been selected to provide adequate protection for the specific hazard involved.

Anyone required to wear a respirator must first receive formal; monitored fit testing and be trained in the use, care, and limitations of the respirator.

The wearing of respiratory equipment is mandatory where posted or so indicated in written task or operating instructions.



2.13 Respiratory Protection

Plant Entry Requirements

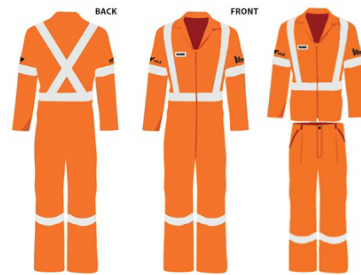
Reflective Striping on Clothing

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
- 2" reflective bands, and
- not loose fitting

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



2.14 Fall Protection

Plant Entry Requirements

Fall Protection

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.

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

2.15 Fall Protection

Plant Entry Requirements

Fall Protection

If the risk of falling is less than 1.8 meters a fall arrest system must be worn if other hazards exist, such as;

- water or other liquids,
- operating machinery,
- onto dangerous substances or objects,
- when operating snorkel lifts or man lifts (MEWPs).



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



2.16 Fall Protection

Plant Entry Requirements

Fall Protection

Where there is any doubt about fall arrest **requirements**, the user must **consult their supervisor**.

A **Fall Arrest System** is defined as a suitable combination of an approved **safety body harness** with shock absorber attached, an approved lanyard, an approved life line, and an approved means of anchoring the lifeline and/or a rope grabbing device.

Written
Rescue Plan



Body Harness



Energy
Absorber

Connecting
Device

A sample of a "Working at Heights Rescue Plan Worksheet" form. It includes sections for "Task Being Done", "At What Elevation Heights is the Work Being Done?", "Type of Work", "Type of Rescue", and "Rescue Method". It also has a section for "Written Rescue Plan" with a warning: "This plan is not to be used as a general guide. It is a general plan. It must be modified to suit the specific circumstances of the job." The form is dated 11/11 and has a version number of 1.0.

3. Policies and Permits

3.1 Driving in, Walking in

✔ Policies and Permits

3.2 Ontario Operations – No Smoking Policy

Policies and Permits

Ontario Operations – No Smoking Policy

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

No smoking is permitted in all Vale 'enclosed workplaces' as defined by the Provincial Act:

- in any surface facility,
- 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.

Disposable lighters are not permitted.



3.3 Coring and Cutting

Policies and Permits

Coring and Cutting

Prior to coring or cutting through any building structure or component all contractors shall:

- Review all the procedures with their assigned Vale Representative.
- Ensure their field representatives have the most up to date drawings indicating all existing services in the area.
- Where applicable, use locating equipment to identify location of services in the area.



Investigate the area where coring or cutting will happen e.g.: look for services that enter the building structure, floors and walls etc, as well as performing a visual inspection of the surrounding area (where applicable look on the other side of where the coring /cutting will occur.)

3.4 Permits

Policies and Permits

Permits

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.

Permits and training are required when performing various jobs on site such as entering into confined spaces, as well as for excavation work, burning and welding, asbestos work, etc.

Your Vale Representative will cover the need for these during the on site orientation.

CONFINED SPACE WORK PERMIT									
Confined Space Program									
Ontario Operations: OO-SAF-CSP-FORM07 Version: 4.2 Effective: Jan. 2018 Internal Use									
(Valid for One Shift Only - Maximum 12 hours)									
Date	Year	Month	Day	Shift:	Requesting Dept.:				
				Plant:	Permit No.:				
					Plan / Procedure No.:				
					Rescue Plan No.:				
Confined Space (Identify as per Confined Space List):									
SPACE Contents when Operating (normal minimum):									
SPACE Contents During Entry:									
Pre-Entry Field Checks									
Air Quality Test Result Readings									
System out-of-service?									
Oxygen (19.5 - 23%)									
Empty?									
Combustibles (<5% of LEL)									
Drained?									
Carbon Monoxide (<25 ppm)									
Pipe & Supply Lines Blanked Off & Locked and Tagged?									
Initial Tester Name:									
Purged?									
Time:									
Vented?									
Monitor Type:									
All Electrical Energy Locked and Tagged?									
Monitor Number:									
Other Hazards:									
Other:									
Permit Issuer:									
Signature:									
Signature:									

3.5 Asbestos

Policies and Permits

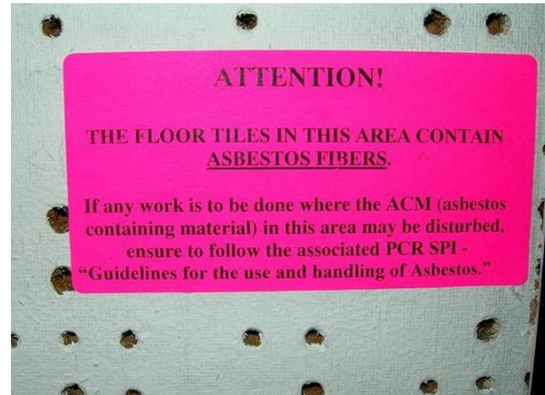
Asbestos

Although the refinery has been actively removing asbestos bearing material it can still be found in most buildings in the refinery, in building siding, piping insulation, floor tiles, etc.

In all cases where it is located it has been labeled as containing asbestos and where appropriate has been sealed.

If the job or task you are performing will bring you in close proximity to asbestos your Vale Representative will inform you of its presence.

Should you encounter asbestos material that has been disturbed, or in the course of your work cause it to be disturbed, stop work immediately and inform your Vale Representative.



3.6 WHMIS

Policies and Permits

WHMIS

All personnel who work on company property must have received WHMIS training and know and follow the requirements of WHMIS. Exceptions to this standard may only be made by the Vale Safety Department.

When using any hazardous material, check that the container is properly labeled and take the time to read the information on the label.

To obtain further or complete information on the material refer to the Safety Data Sheet (SDS).

It is the responsibility of the contractor to have SDS's on site, for hazardous material brought into the refinery.



3.7 Waste Disposal

Policies and Permits

Waste Disposal

PCR has waste disposal programs for:

- Domestic wastes - lunchroom & office garbage,
- Recyclables - cardboard, plastic, glass, metals, paper,
- Solid Non-Hazardous Industrial Waste (including asbestos),
- Hazardous Waste - oil, solvents and grease,

Before disposing of any wastes on Vale property, contact your Vale representative to ensure that appropriate guidelines are followed.

Any wastes disposed of through Vale programs must have originated from projects occurring within PCR.



3.8 Landfill Specific Requirements

Policies and Permits

Landfill Specific Requirements: Condition 40 of ECA

Vales' PCR Landfill operates under strict procedural guidelines to ensure safety, regulatory compliance, and environmental protection. All employees and contract workers involved in site operations must follow these procedures.

Be aware that *Only trained personnel* are permitted to operate site equipment or perform activities under the site's Approval.



Port Colborne Refinery

3.9 Landfill Specific Requirements

Policies and Permits

Landfill Specific Requirements: Condition 40 of ECA

This section covers key topics including;

- Permitted wastes to be disposed.
- Need to bury all industrial waste.
- Removing domestic waste.
- Need to weigh all loads.
- Asbestos Management.



Port Colborne Refinery

3.10 Landfill Specific Requirements

Policies and Permits

Landfill Specific Requirements: Condition 40 of ECA

Permitted Wastes

Only non-hazardous industrial waste generated at the Port Colborne Refinery is accepted for disposal at Vale's Landfill. The following waste types are permitted:

- Roll-off bins.
- Aggregates.
- Demolition waste.
- Asbestos.
- ETP (Effluent Treatment Plant) cake
- Copper/Iron (Cu/Fe) cake from Cobalt processing.



Port Colborne Refinery

3.11 Landfill Specific Requirements

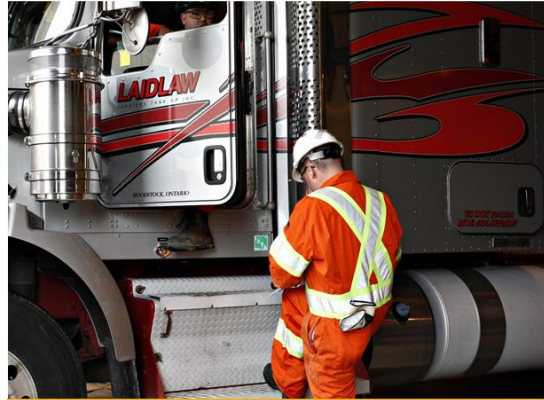
Policies and Permits

Landfill Specific Requirements: Condition 40 of ECA

Waste Burial Procedures – Preventing Wind-Borne Waste

To minimize the risk of waste becoming wind-blown, the following burial requirements must be followed:

- Roll-off bins and demolition waste must be buried as soon as practicable.
- Asbestos waste must be buried on the same day it is placed in the landfill.
- ETP cake and Cu/Fe cake do not require burial.



Port Colborne Refinery

3.12 Landfill Specific Requirements

Policies and Permits

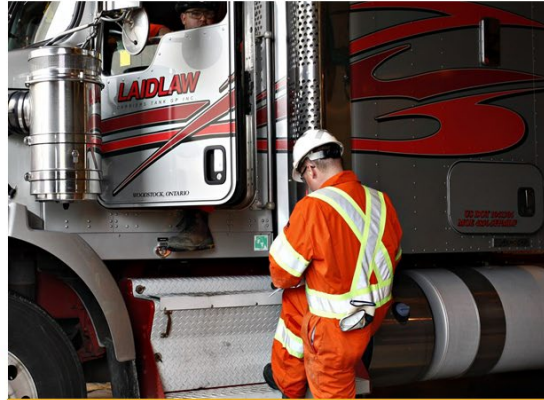
Landfill Specific Requirements: Condition 40 of ECA

Waste Burial Procedures – Preventing Wind-Borne Waste

To minimize the risk of waste becoming wind-blown, the following burial requirements must be followed:

- Aggregates deemed suitable for use as cover material may be stockpiled. All other aggregates must be buried.

Be aware that all wastes being disposed of at the landfill must be weighed. This is to account for all waste for the annual landfill monitoring report required as part of the ECA and for Vale's internal reporting requirements.



Port Colborne Refinery

3.13 Landfill Specific Requirements

Policies and Permits

Landfill Specific Requirements: Condition 40 of ECA

Asbestos Waste Management: Reference Ontario Regulation 347

- Asbestos waste may be deposited only at locations in a landfilling site that has been adapted for the purpose of receiving asbestos waste or are otherwise suitable for that purpose.
- Where asbestos waste is deposited, as set out in paragraph 10, at least 125 centimetres of garbage or cover material must be placed forthwith over the deposited asbestos waste in such a manner that direct contact with compaction equipment or other equipment operating on the site is avoided.



3.14 Landfill Specific Requirements

Policies and Permits

Landfill Specific Requirements: Condition 40 of ECA

Asbestos Waste Management: Reference Ontario Regulation 347

- Every person directly or indirectly involved in the transportation, handling or management of asbestos waste shall take all precautions necessary to prevent asbestos waste from becoming airborne.
- Every person handling asbestos waste or containers of asbestos waste, supervising the unloading of asbestos waste in bulk or cleaning asbestos waste residues from containers, vehicles or equipment shall wear protective clothing and personal respiratory equipment while doing so.



3.15 Landfill Specific Requirements

Policies and Permits

Landfill Specific Requirements: Condition 40 of ECA

Asbestos Waste Management: Reference Ontario Regulation 347

- Protective clothing that has been or is suspected of having been in contact with asbestos waste shall be changed at the site of the exposure and either properly disposed of as asbestos waste or washed at the end of the working day.



3.16 Landfill Specific Requirements

Policies and Permits

Waste Disposal Locations

This map shows the approved zones for waste disposal at the landfill.

All dumping must occur within these designated areas only.



3.17 Environmental Awareness

Policies and Permits

Environmental Awareness

Discharges to air, land, and water on Vale property are regulated by the Ontario Ministry of the Environment, Conservation and Parks (MECP) and sanitary sewer discharges, by the Region of Niagara sewer-use bylaws.

Contractors must not discharge any materials to air, land or sewers without first contacting their Vale Representative to ensure that appropriate Certificates of Approval and/or bylaws are followed.

If your work has the potential to cause dust emissions for example during off loading, handling of material or track-out of material onto paved roads, contact your Vale Contact to review appropriate controls.

Before you disturb any natural environment or trees, review the impact on the natural habitat and/or Species at Risk with your Vale contact. Be mindful that activities do not impact wildlife (deer, beavers, birds) on the property.



3.18 Spill Reporting

Policies and Permits

Spill Reporting

A spill is any abnormal discharge of a solid, liquid, or gas from a structure, vehicle, or other container that may cause physical harm to people or the natural environment.

If a contractor has either caused or found a spill, their Vale Representative must be contacted immediately to ensure that appropriate measures are followed. If your Vale Representative is unavailable, notify Vale Security at (905) 835-6300.



! Report any spills to your Vale representative

3.19 Knowledge Check

✔ Knowledge Check

3.20 Question 1

(Multiple Response, 10 points, unlimited attempts permitted)

PCR Contractor Orientation – Module Quiz

Before using any hazardous material, you must:
Select all that apply.

- ☒ Know and follow the requirements of WHMIS.
- ☒ Check that the container is properly labeled and read the label.
- ☒ If in doubt Refer to the Safety Data Sheet (SDS) for complete information on the material.

Submit



Correct	Choice
X	Know and follow the requirements of WHMIS.
X	Check that the container is properly labeled and read the label.
X	If in doubt Refer to the Safety Data Sheet (SDS) for complete information on the material.

Feedback when correct:

That's right! You selected the correct response.

Feedback when incorrect:

You did not select the correct response.

4. Incident/Accident Reporting

4.1 Divider



✓ Incident/Accident Reporting

4.2 Introduction

Incident/Accident Reporting

An incident is an event that results in loss or harm to personnel (injury/illness), environment, asset, or equipment.



Iris

All injuries, no matter how slight, must be reported.

The contractor is expected to provide their own first aid facilities for injuries of a minor nature.

Get in touch with your Vale Contact Person for any information required on the Incident/Accident Investigation system.

All spills (chemicals/fuel/oil) must be reported to your Vale contact.

4.3 Telephone System

Incident/Accident Reporting

Telephone System

All employees must familiarize themselves with the telephone system and the number to call in the event of injury, fire or other emergency.

The plant wide emergency number is - 6211.

Precious Metals Refinery (PMR) Security personnel are at this number 24 hours a day and have been trained in the correct emergency response.



4.4 Reports By Phone

Incident/Accident Reporting

Reports By Phone

Trained Vale First Aid attendants and a First Aid Room, located at the PMR Security Office are available 24 hours a day for emergency situations.

At all other times Security at Extension 6300 is to be contacted, where trained Vale first aid attendants are available.

The contractor must ensure that the accident report is delivered to the Vale Representative, or their designate before leaving the plant for the day.

This also applies to incident reports.



4.5 Reports By Phone

Incident/Accident Reporting

Reports By Phone

When reporting a serious injury by telephone to Security, a full account of the accident must be given, including the exact location, nature of the injury, whether a doctor or ambulance is required, name of the injured worker, and whether assistance is required at the accident scene.

An Automatic External Defibrillator (AED) is available through security.

Public Announcements

Public announcements to the news media concerning incident or accident investigations on Company property must only be made by the Vale Public Affairs Department.



5. Site Specific Hazards

5.1 *Plant Hazards*



✓ Plant Hazards & Controls

5.2 Site Specific Hazards

Site Specific Hazards

The nature of our business requires constant attention to health and safety issues and “life matters most” is a non-negotiable value for us.

Ensure you apply the necessary operation controls to mitigate risk associated with the identified hazards.



Be Aware

Be aware of your surroundings and the risks around you.



Follow Policies & Procedures

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

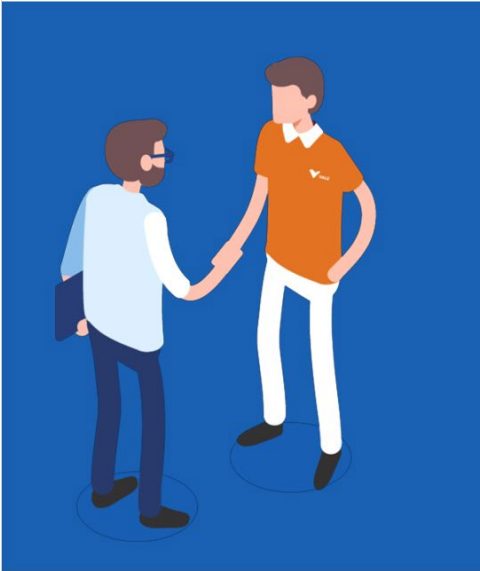
- Vale Contact Person
- SLAM
- PHA/PHR (or other Risk Assessment Tools)



5.3 Introduction

Site Specific Hazards

Introduction



Workers at the Port Colborne Refinery need to be aware of site specific hazards and their related controls.

These include but are not limited to:

- Chlorine Gas
- Sulphur Dioxide Gas
- Corrosive Liquids (Caustics, acids, etc.)
- Emergency Signal Alarms

5.4 Hazard – Chlorine Gas

Site Specific Hazards

Hazard – Chlorine Gas

Chlorine is a greenish yellow gas that is received as a liquid in one ton cylinders.

In very dilute concentrations, chlorine gas is an irritant to the eyes, nose, throat and lungs; however in higher concentrations it is highly toxic and can be fatal.



At PCR, Liquid Chlorine is located in:

- One ton containers at the Precious Metals Refinery (PMR).

5.5 Controls – Chlorine Gas

Site Specific Hazards

To mitigate the hazard of working with Chlorine Gas the following controls have been implemented:

- Chlorine gas lines that have been color coded are painted yellow and/or labeled accordingly.
- Localized or plant wide evacuation procedures are to be followed should a chlorine gas leak occur.



At PCR, Liquid Chlorine is located in:

- One ton containers at the Precious Metals Refinery (PMR).

5.6 Hazard – Sulphur Dioxide Gas

Site Specific Hazards

Hazard – Sulphur Dioxide Gas

Sulphur dioxide (SO_2) is a colorless gas that is received as a liquid in rail cars.

At low concentrations, it has a biting odour. However, at high concentrations, SO_2 is an asphyxiant and will cause choking and blindness.



5.7 Controls – Sulphur Dioxide Gas

Site Specific Hazards

Controls – Sulphur Dioxide Gas

To mitigate the hazard of working with Sulphur Dioxide Gas the following controls have been implemented:

- Sulphur dioxide gas lines that have been color coded are painted yellow with black banding and/or labeled accordingly.
- Localized or plant wide evacuation procedures are to be followed should a Sulphur dioxide gas leak occur.



5.8 Controls – Corrosive Liquids (Caustics, acids, etc.)

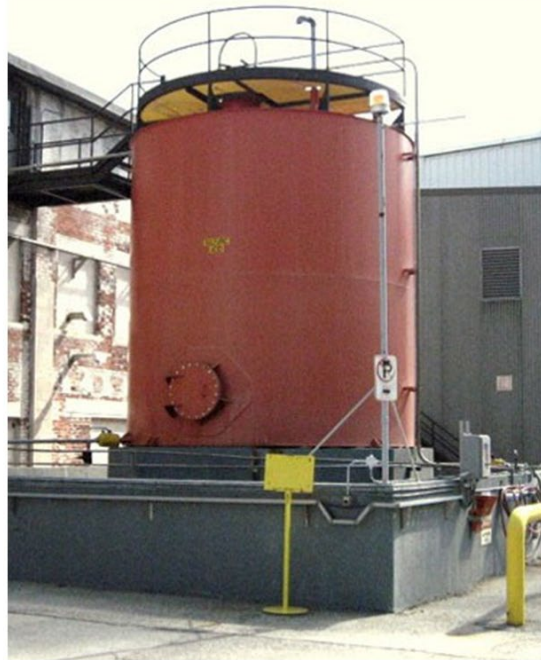
Site Specific Hazards

Hazard – Corrosive Liquids (Caustics, acids, etc.)

Large quantities of sulphuric acid, caustic soda, hydrochloric acid and nitric acid, may be found in the Port Colborne Refinery.

Contact may cause severe destruction of skin and eye tissue. Inhaling fumes may irritate the nose, throat and lungs.

These materials may also ignite combustible materials such as wood, paper, oil or clothing on contact.



5.9 Controls – Corrosive Liquids (Caustics, acids, etc.)

Site Specific Hazards

Controls – Corrosive Liquids (Caustics, acids, etc.)

To mitigate the hazard of working with Corrosive Liquids (Caustics, acids, etc.) the following controls have been implemented:

- Lines containing corrosive acids are painted orange and/or labeled accordingly.
- Caustic soda lines are painted yellow with red bands and/or labeled accordingly.



When working in close proximity to acids or caustic solutions take time to familiarize yourself with the location of nearby safety shower/eyewash stations.

Avoid skin and eye contact. Always wear all required PPE.

6. Emergency Preparedness

6.1 Emergency Preparedness



Emergency Preparedness

6.2 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 Port Colborne operating facilities.



6.3 Emergency Preparedness

Emergency Preparedness

The Port Colborne Refinery 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.***



6.4 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



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



6.5 Emergency Classification Alarms- Level 1

Emergency Preparedness

Emergency Classification / Alarms

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

Emergency Level 1

A **level 1** is an emission of toxic gas confined to a single department area, not likely to affect other areas of the plant, or the public, and which can be controlled and/or contained using the department's facilities and personnel.

This will be a localized audible alarm in the department area. A plant wide announcement may be made by the security department to alert others.

The Cobalt and PMR departments could have a level 1 alarm. Your onsite orientation will cover this in more detail if assigned to these locations.



BUILDING

6.6 Emergency Classification- Level 2

Emergency Preparedness

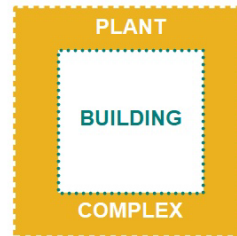
Emergency Classification / Alarms

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

Emergency Level 2

A **level 2** is an emission of toxic gas which exceeds the limitations of one department or building and would affect a larger section of the Plant.

To attract plant-wide attention, two blasts, ten seconds apart on the plant emergency air horns and/or two tones on the plant P.A. system, repeated once after a one minute interval, signals a Level II toxic gas emergency.



6.7 Emergency Classification Alarms- Level 3

Emergency Preparedness

Emergency Classification / Alarms

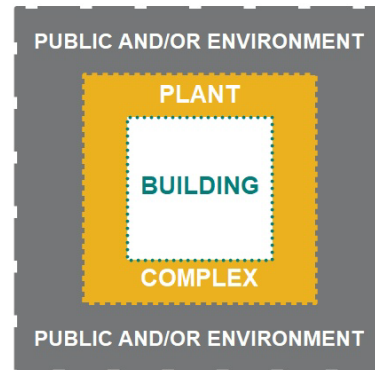
Vale uses three level categories to classify the magnitude of an emergency:

Emergency Level 3

A level III is an emission of toxic gas which will affect the entire plant and possibly the public and/or environment.

In most cases the emergency signals will be accompanied by an announcement on the plant P.A. system.

NOTE: The air horns/tones signal is tested every Friday at 12:30, the only time when no response is required (unless the alarm continues as result of an actual incident).



6.8 Gas Emergency Safe Rooms

Emergency Preparedness

Gas Emergency Safe Rooms

Safe Rooms for personnel assembly are located in each department throughout the plant.

You will be shown the location of the safe room(s) in the area you will be working by Your Vale Representative.

A handout sheet showing refinery safe room locations is also available following this orientation.

These Safe Rooms have been selected to provide maximum safety for personnel considering possible gas emission sources and prevailing wind directions.



6.9 Course of Action

Emergency Preparedness

Course of Action

Upon hearing the emergency alarm, as quickly and safely as possible proceed to the nearest Safe Room. This will normally be the safe room identified to you by your Vale Representative during the on-site orientation.

In transit alert everyone that a gas emergency is in progress and direct them to the Safe Room.



Once in the Safe Room, ensure that your name is logged in on the form provided, and after having allowed for sufficient time for others in the area to report, seal the room shut according to the instructions posted in the area using the kit provided in the Safe Room.

Listen for instructions and/or situation updates over the plant P.A. system.

6.10 Course of Action

Emergency Preparedness

Course of Action

A gas emergency leak repair team will be dispatched to correct the alarm situation.

Once it has been verified that a risk is no longer present, the "all clear" signal will be given by Plant Security "ONLY" over the plant P.A. System. Only then can you leave the Safe Room.

Contractors using the card-in system must report to their designated post-emergency assembly areas and or their Vale Representative.

Contractors using the Security Gate sign-in system must report to the Main Gate for a head count. Only then can you return to your work area.



6.11 Course of Action

Emergency Preparedness

No Plant Entry During Gas Emergency

There are red strobe lights on top of the posts on either side of the gate at the main entrance to the plant. When they are flashing, they alert vehicles of a Level 2 Gas Emergency.

There is a sign located on the right side of the roadway at the entrance to the plant alerting vehicles of a gas emergency.

When lights on the sign are flashing and the alarm is sounding it alerts vehicles about to enter the plant of a Level 3 Gas Emergency.



6.12 Course of Action

Emergency Preparedness

No Plant Entry During Gas Emergency

If either of these alarms are active, leave the area immediately - do not enter the plant.

After allowing for sufficient time to pass, call your Vale Representative to verify that the emergency is over and it is safe to enter the plant.



No Plant Entry During Gas Emergency

6.13 Responding to a Fire

Responding to a Fire

Reporting a Fire

In the event of a fire, early detection and immediate reporting are essential. The procedures to follow are posted in conspicuous places throughout the plant. The telephone extension to call is - 6211.



6.14 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 their 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.

If a Vale fire extinguisher or fire hose is used for any reason, it must be reported to the Vale Representative.



6.15 Small Fire Response Procedure

Responding to a Fire

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.



PULL THE PIN



AIM AT THE BASE



SQUEEZE TRIGGER



SWEEP

6.16 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.

Go to the department assembly area for a head count. This area will be identified during the On Site Orientation.

Call the plant emergency number - 6211 and clearly identify the location of the fire using the nearest building door number and then arrange for someone to meet the Fire Department outside of the building.



7. Plant Exit

7.1 *Plant Exit*



7.2 Plant Exit

Plant Exit

Good work practices dictate that you close the loop on work you were doing to avoid creating risks or hazards for other work groups, cross shifts, or other work in the area. Here are some tasks to consider when getting ready to exit the plant to ensure your safety and that of those around you:

- ✓ **Housekeeping** - Is your worksite cleaned up after your job?
- ✓ **Personal Lock and Tag** - Has your personal protection been removed at the end of the shift?
- ✓ **Status Tagging** - Is there ongoing work that needs a status tag placed or is there equipment in Bad Order that needs to be identified?
- ✓ **End States** - Have you left the process in the proper state?
- ✓ **Waste Segregation** - Have you disposed of materials in the appropriate waste receptacles/bin/area?
- ✓ **Control room** - Do I need to let the control room know that I'm clear of an area?
- ✓ **Vale Contact Person** - Do they need an end of shift report from me?
- ✓ **Permits** - Do I need to close or hand in any permits?
- ✓ **Sign out** - At the gate or other designated areas.

8. Conclusion

8.1 Conclusion



8.2 Conclusion

Conclusion

This concludes the material for the Port Colborne Contractor Orientation. You should now have a working knowledge and understanding of:

- Plant Entry
- Site Specific Hazards and Controls for PCR.
- Procedures in the event of:
 - Equipment Damage
 - Personal Injury
 - Process Upset (Emergency Preparedness)
- Plant Exit Procedure

This Orientation provided information to access the PCR. In order to feel comfortable with the area, you may arrange a field visit with your Vale Contact Person to specifically identify procedures provided in this Orientation.

Additionally, depending on the site or work you're doing, you may require task-specific information through either the local Learning & Development Group or your Vale Contact Person.