

Tier 3: Oxygen Plant Orientation - 25

1. Oxygen Plant Site Specific Orientation

1.1 Oxygen Plant Orientation



1.2 Oxygen Plant Orientation

Oxygen Plant Orientation

Tier Three – Site Specific Access

1.3 Course Objectives

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 Oxygen Plant.
- Follow Procedures in the event of:
 - Equipment Damage
 - Personal Injury
 - Process Upset (Emergency Preparedness)
- Complete Plant Exit Procedure Checklist

1.4 Introduction

Introduction

Oxygen Plant Overview

1.5 Oxygen Plant Overview

Oxygen Plant Overview

Vale uses Oxygen as an oxidizer in its smelting and refining processes. The purpose of the Oxygen Plant is to produce the necessary oxygen as well as nitrogen at desired qualities and quantities to satisfy the needs of the Copper Cliff Complex as well as both the Nickel Refinery and the Electrowinning Plant.

The Oxygen Plant consists two main plants:

- #4 Oxygen Plant which operates at approximately 1500 Tons per day.
- #3 Oxygen Plant which operates at approximately 560 Tons per day.



1.6 Oxygen Plant Overview

Oxygen Plant Overview

In between the two plants and the customers they serve, lies a piping network that connects all the associated infrastructure.

Nitrogen is a byproduct of the Oxygen Plant's process. Because Vale operations only consume part of it, Nitrogen is considered a waste product.

That being said the part that is used goes towards:

- Converters
(use low pressure Nitrogen at 30psi)
- Vessel porous plugs
(use high pressure Nitrogen at 75psi)



1.7 Plant Entry

Plant Entry

Driving In, Walking In

1.8 Approaching The Plant

Approaching The Plant

The Oxygen Plants are accessed from Central Gate Road.

Access via the Main Gate is restricted unless you have received authorization and have Lenel access.



1.9 Parking

Parking

The parking lot consists of one main parking area with a small designated area for visitors and emergency response vehicles.



1.10 Approaching Sign in Location

Approaching Sign in Location

In order to sign into the Oxygen Plant, workers need to first gain access to the area through either the person gate or the truck gate. Both are located at the south end of the No.4 Oxygen Plant Complex.

Instructions to enter the person gate are:

- Locate the phone mounted on the outside of the gate.
- Use the direct line to contact the control centre (automatically calls).
- State your name and the reason for your entry into the plant.

To Exit through the Person Gate, push on the Button, located to the left of the Person Gate handle, until the magnetic latch releases.



1.11 Site Specific Entry Procedure

Site Specific Entry Procedure

Instructions to enter the truck gate are:

- Locate the phone mounted on the outside of the gate (you'll need to exit your vehicle).
- Use the direct line to contact the control centre (automatically calls).
- State your name and the reason for your entry into the plant.

To Exit through the Truck Gate, approach the gate slowly until the gate begins to swing open. This applies to both No.3 and No.4 Oxygen Plants.



A Transportation of Dangerous Goods Certificate (TDG) as well as an approved container, must be presented to obtain and transport liquid Oxygen or Nitrogen from the Oxygen Plant.

1.12 Site Specific Entry Procedure

Site Specific Entry Procedure

Once inside the gate, proceed to the sign-in location.

All contractors and visitors must sign in when entering the plant, and must sign out when leaving.

The sign-in book is located in the Control room of the # 4 Oxygen Plant at door # 9-2.

Exception: Visitors are not required to sign in at the Control room if they are only visiting the Oxygen Plant administration portable office.



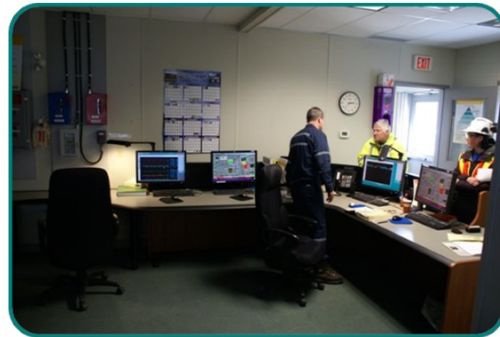
Whether working at No.3 or No.4 Oxygen Plant locations you must initially report to the No.4 Oxygen Plant Control Centre prior to proceeding into the work area.

1.13 Site Specific Entry Procedure

Site Specific Entry Procedure

While signing in for the Oxygen Plants be aware that the Control Room is essential for efficient and safe operation of the Oxygen Plant Complex; therefore,

- Loitering is not allowed in the Control Room.
- The Control Room Operator, at any given time, has complete authority to ask non-essential personnel to leave the Control Room.



1.14 Work Permit Procedure


Work Permit Procedure

Given the risks and complexity associated with Oxygen Plants, besides signing in, all work must also be accompanied by a work permit.

After proceeding to the Control Room, the person in charge of the work crew must acquire the appropriate work permit for the job.

The remainder of the work crew must not proceed to the job site until the work permit is in place.

- The work permit must be in your possession at all times.
- The permit receiver is responsible for knowing where each person working under this permit is at all times.



The form is titled 'VALE LIMITED Oxygen Plant Work Permit' and includes a date field. It contains several sections: 'SIGNATURES' with fields for 'No. 1 Oxygen Plant', 'No. 2 Oxygen Plant', 'No. 3 Oxygen Plant', and 'No. 4 Oxygen Plant'; 'SAFETY HAZARDS' with a table for 'HAZARD', 'RISK', 'CONTROL', and 'ACTION'; 'SAFETY PRECAUTIONS' with a table for 'PRECAUTION', 'YES', 'NO', and 'NA'; 'DESCRIPTION OF WORK'; and 'PERMIT RECEIPT' with fields for 'Time Permit Issued', 'Time Permit Received', 'Permit Receiver Initials', and 'Permit Receiver Signature'.



1.15 Work Permit Procedure

Work Permit Procedure

Notes on Work Permits:

- If the person responsible for holding the permit must leave the plant, a subsequent permit holder must be assigned. In this case, both must go to the Control Room to acquire a new work permit.
- A new work permit requires a review of any locking and tagging that is in place; including lock boxes, lock box forms, project personal protection and personal protection.
- Work permits must be renewed at the Control Room Operator's shift change.
- The Control Room Operator or his designate will discuss the scope of the work to be performed.
- The Operator will also review with you the safety aspects of your work and will answer any questions you may have about safety related to the work.

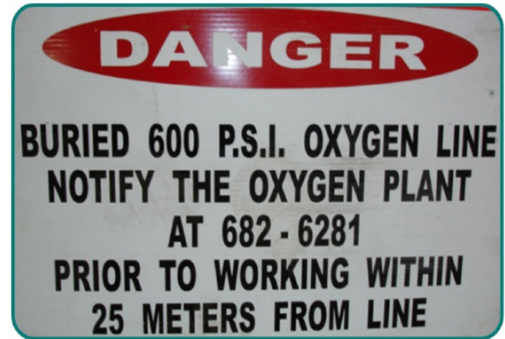


1.16 Work Permit Procedure

Work Permit Procedure

Safe Practices While Working on Oxygen Equipment

- Under no circumstances is anyone allowed to dig at the Oxygen Plant until a Vale Excavation Permit is provided.
- Field Engineering (Survey Group) will be called in to assist and to check for buried service line locations.



1.17 Work Permit Procedure

Work Permit Procedure

Personal Protective Equipment

- When reviewing your work permit be aware that you are required to wear appropriate PPE for the work being completed.
- Due to the nature of the plant, double hearing protection is prevalent so workers must be prepared to wear both ear plugs and ear muffs in identified areas.



1.18 Working On Or Around Oxygen Equipment

Working On or Around Oxygen Equipment

1.19 Working On Or Around Oxygen Equipment

Working On or Around Oxygen Equipment

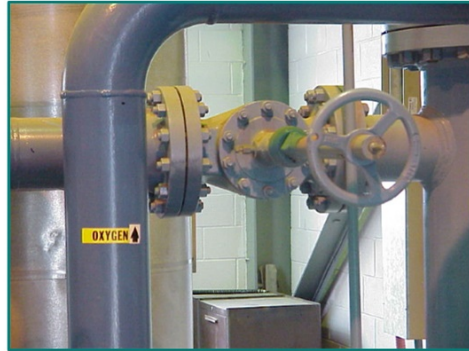
The purpose of the Oxygen plant is to make oxygen for Vale operations but Oxygen is also an essential element to support human life. It is found in the air we breathe and the water we drink. As mentioned earlier, a by-product of the plant is Nitrogen.

The production of these gases in the Oxygen plant produces several hazards to workers.

The following is a section that deals strictly with the safe practices to follow when working on or around this equipment.

This section contains:

- Working on or around Oxygen Equipment
- Monitoring Oxygen Environments



1.20 Authorized Work

Working On or Around Oxygen Equipment

Authorized Work

Under normal circumstances no one other than the Oxygen Plant Operator or their assistant is allowed to stop, start, or operate equipment within the Oxygen Plant Complex.

This includes the opening or closing of valves or attaching hoses to any valves.

The one exception is the E-stop located in #3 Switch Room, in the High Pressure Compressor Station which allows an electrician emergency egress from the switch room through #1 & #2 Compressor Room. There are no other exceptions.



1.21 Equipment Preparation - Cleaning

Working On or Around Oxygen Equipment

Equipment Preparation - Cleaning

All equipment, piping and vessels needing to be replaced or repaired shall be thoroughly cleaned for oxygen service and inspected for proper removal of contaminants.

- Complete removal of all contaminants, such as greases, oils, thread lubricants, dirt, water, filings, scale, weld splatter, paints or other foreign materials, including the cleaning agent itself, is essential.
- Greases and oils can react violently in the presence of oxygen causing fires and explosions. Debris such as metal chips can be propelled by the gas stream with sufficient velocity to promote ignition.
- Materials, once cleaned, must be kept clean until used. This can be accomplished by wrapping exposed piping, gaskets and other parts with plastic or clean rags.



Once the equipment and parts are cleaned, ultra violet black light may be used to detect any areas that may still contain any residual contaminants. (oils, greases, etc.,)

1.22 Equipment Preparation - Cleaning

Working On or Around Oxygen Equipment

Equipment Preparation - Mechanical

When maintenance work is performed on oxygen equipment, precautions need be taken similar to those employed in other hazardous locations:

- Use non-sparking tools. A burning permit is required to govern the use of Electric drills and impact wrenches.
- All pipes and fittings must be installed free of flammable oil and grease.
- Where threaded joints are necessary, no grease or pipe fitting compounds containing oil are to be used.
- Purge oxygen cylinder valves before connecting regulators.

1.23 Equipment Preparation - Cleaning

Working On or Around Oxygen Equipment

Equipment Preparation - Air Monitoring

Strict precautions must be taken before removing any lines or entering any vessels with potentially oxygen-enriched atmospheres. Also, process such as gouging, cutting, scarfing, thermic lancing, can produce excess oxygen which escapes into the atmosphere.

- Atmospheres within all such areas must be checked and purged with air, if necessary, to provide an area that is within the range of 19.5% to 23% oxygen.
- Ventilation in work areas where such processes are undertaken shall be sufficient to ensure that an oxygen-rich atmosphere does not occur.
- Frequent analyses of the atmosphere should be made during the time workers are within the area.
- Adequate fire extinguishers must be on hand.



1.24 Cleaning and Lubricating Materials

Working On or Around Oxygen Equipment

Cleaning and Lubricating Materials

It is important to remember that improper materials must not be used in the Oxygen Plant Complex.

- Flammable Solvents such as Varsol, Gasoline, Turpentine, etc., must not be brought into the Oxygen Plant under any circumstances.
- Hand cream is incompatible with oxygen and must not be used when working on oxygen equipment.
- Oil or grease deposits cannot be allowed to accumulate or remain in the vicinity of any oxygen equipment.
- Small leaks can be detected using a leak detection fluid; leaks in lines can be detected with a portable oxygen analyzer.



If you are unsure if the materials you will be using to perform your task are compatible with oxygen, verify with plant management or the shift operator.

1.25 Cleaning and Lubricating Materials

Working On or Around Oxygen Equipment

Cleaning and Lubricating Materials - List

The Oxygen Plant provides a Safe Materials List of the materials that are safe to use with oxygen.

Purpose	Material
Leak Detection	Cantesco Formula 365
	Cantesco Formula 300
Thread Compound	(Pink) Teflon Tape
Cleaning Agents	Beyond 2001 (Aqueous Cleaner)
	HFE 71 DE (Solvent Cleaner)
	HFE 412 (Aerosol Can)
Gasket	Gylon 3502 (For O2, N2, and Air)
	Teadit (Quinflex SH) 100% Expanded PTFE Sheet
Lubricants	Krytox
O-Rings	Viton

Refer to your Orientation Handbook for a copy of this complete list of materials.

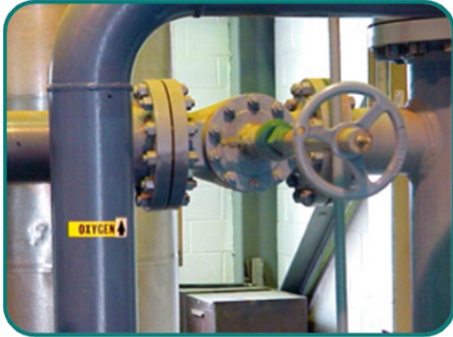
1.26 Temperature Variations and Ranges

Working On or Around Oxygen Equipment

Temperature Variations and Ranges

Temperatures ranging from 190°C (375°F heater temp.) to -195°C (-320°F liquid nitrogen temp.) are part of the production process at the plants.

Care should be taken when working around pipes and vessels that are not insulated and proper PPE should be worn.



1.27 PPE - Clothing Precautions

Working On or Around Oxygen Equipment

PPE – Clothing Precautions

- For your own protection, you must not wear oily or greasy clothing or wear oil stained gloves when working on or near oxygen equipment. These are easily ignited and greatly increase the possibility of injury.
- Rags, which may have been used for wiping up oil spillage, must be kept away from the work areas with exposed oxygen lines and not carried in your pockets.
- Clothing worn in areas subject to possible oxygen rich air should be carefully selected for minimum combustibility. Clothing should be well fitted, yet easy to remove. It must be free from oil and grease.
- If clothing should accidentally become saturated with an oxygen-enriched atmosphere, the clothing must either be changed or the person remain for a period of at least thirty (30) minutes in a well-ventilated area avoiding smoking and all other sources of ignition during this period.



1.28 Monitoring Oxygen Environments

Monitoring Oxygen Environments

There are three buildings in the No.4 Oxygen Plant that are supervised by Personnel Area Monitors (PAM).

These monitors alert personnel prior to entry or while inside the buildings, of an oxygen enriched or oxygen deficient atmosphere, by activating an audible alarm and red flashing light.

The three buildings that are protected by the PAM systems are:

- No.4 Oxygen Plant Main Air Compressor Building
- No.4 Oxygen Plant Digital Acquisition Centre (DAC) Building
- No.4 Oxygen Plant Truckers Shed



1.29 Monitoring Oxygen Environments

Monitoring Oxygen Environments

PAM System

Prior to entry into one of the buildings that are protected by the PAM system; main entrances have red light located outside of the building while secondary entrances have the red light inside the building. Personnel must test the system to ensure that both sets of lights activate during the test.

To test the system:

- Depress and hold the test button on the PAM panel located outside one of the entry doors to the building
- Ensure the audible alarm and flashing red light are activated
- Once the alarm and light activate, release the button
- Only then proceed into the building

**** If the system does not activate do not enter the building and report the condition to the Control Room.**



1.30 Monitoring Oxygen Environments

Monitoring Oxygen Environments

If the Personnel Area Monitoring (PAM) system activates in one of the buildings that you are in, personnel must immediately leave the building and report to the control room operator and advise the operator of the condition.

If personnel approach the entry door of a building protected by a PAM system with the system activated (red flashing light and/or audible alarm), they must not proceed into the building and must report the alarm to the control room operator.



Plant Hazards and Controls

1.32 Site Specific Hazards

Site Specific Hazards

Using the tools that you learned in Tier 1 Orientation, ensure you apply the necessary operation controls to mitigate risk associated to 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.

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

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

1.33 Site Specific Hazards

Site Specific Hazards

In addition to the safe practices of working on or around Oxygen equipment, there are other hazards associated with the Oxygen Plant:

- Fire
- Liquid Oxygen
- Nitrogen Hazards
- Cooling Towers
- High Temperatures
- Equipment Hazards (high pressures)
- Mobile Equipment



1.34 Oxygen Fire / Explosion - Hazards

Oxygen Fire / Explosion - Hazards

Fire is the primary hazard associated with gaseous oxygen and highly concentrated sources of oxygen promote rapid combustion. In general, the area surrounding any oxygen equipment shall be treated as a hazardous location, using the same strict caution observed as with highly flammable organic gases.

- Fire and explosion hazards exist when concentrated oxygen and fuels are brought into close proximity. Oxygen is the oxidant, not the fuel, but nevertheless the source of most of the chemical energy released in combustion.
- Concentrated Oxygen will allow combustion to proceed rapidly and energetically. Steel pipes and storage vessels used to store and transmit both gaseous and liquid oxygen will act as a fuel; and therefore the design and manufacture of oxygen systems requires special training to ensure that ignition sources are minimized.



1.35 Oxygen Fire / Explosion - Hazards

Oxygen Fire / Explosion - Hazards

- Explosions may occur in locations where a mixture of fuel gas and oxygen can accumulate.
- Materials easily ignited in air not only become more susceptible to ignition, but also burn with added violence.



1.36 Oxygen Fire / Explosion - Hazards

Oxygen Fire / Explosion - Hazards

Oxygen Concentrations can reach up to 99.9% pure Oxygen at the Oxygen Plant complex.

Oxygen gas, being heavier than air, tends to gather in low-lying areas such as ditches, trenches, or on ground level.

Part of the equipment within an Air Separation Unit, contains almost pure oxygen, which may react explosively if it comes in contact with even a small quantity of a flammable substance.



1.37 Oxygen Fire / Explosion - Control

Oxygen Fire / Explosion - Control

Fire Procedure

Although Oxygen will not burn on its own, it does support the combustion of other materials. You should fight an Oxygen fire as you would fight the material that is burning.

Procedure if you discover a fire:

- If the fire is small and can easily be extinguished without causing injury to yourself, you should proceed to extinguish it without delay and then notify the Control Room Operator 705-682-6281.
- Fire fighting action requires shutting off the source of oxygen, if possible, then fighting the fire according to the material involved.



1.38 Oxygen Fire / Explosion - Control

Oxygen Fire / Explosion - Control

Fire Procedure

- If the fire has gained considerable headway such that you cannot extinguish it without help, immediately notify the Control Room.
- Emergency phone numbers are listed on every phone receiver at the Oxygen Plant.
- You should be prepared to give the location, the extent of the fire, and any other information that might be useful.

Note: Smoking is not permitted within the Oxygen Plant Gated Area.



Contractors are responsible for bringing their own extinguishers on Oxygen Plant property.

1.39 Liquid Oxygen - Hazard

Liquid Oxygen - Hazard

Detonation

Liquid oxygen is a very powerful oxidizing agent and contains 4000 times more oxygen by volume than normal air.

If materials become soaked in liquid oxygen, they can detonate unpredictably from sources of ignition such as flames, sparks or impacts from light blows.

Many materials considered as non-combustible can burn in the presence of liquid oxygen.

- Organic materials such as wood or asphalt can react explosively with liquid oxygen.
- Clothing splashed or soaked with liquid oxygen can remain highly flammable for hours.



1.40 Liquid Oxygen - Control

Liquid Oxygen - Control

Detonation

Designated Loading Areas

Liquid Oxygen containers must not be filled or dumped on any surface constructed from oil based products, including asphalt.



The Designated Oxygen loading Area is all Concrete



1.41 Liquid Gases - Hazard

Liquid Gases - Hazard

The cold vapours from cryogenic liquids such as oxygen and nitrogen can produce effects on the skin similar to a thermal burn.

- Brief exposures that would not affect skin on the face or hands can damage delicate tissues such as eyes.
- Prolonged exposure of the skin or contact with cold surfaces can cause frostbite.
- The skin appears waxy yellow, there is no initial pain but there is intense pain when frozen tissues thaw.
- Unprotected skin can stick to metal that is cooled by liquid oxygen and nitrogen. The skin can then tear when pulled away. Even non-metallic materials are dangerous to touch at low temperatures. Prolonged breathing of extremely cold air may damage the lungs.



1.42 Liquid Gases - Control

Liquid Gases - Control

If liquid oxygen or nitrogen comes in contact with skin, rinse with plenty of lukewarm water for at least 20 minutes.

Get medical attention promptly and do not remove clothing or gloves.

Other mitigating controls include:

- Adequate ventilation
- Suitable storage of liquid gas
- Proper transportation of liquid gas
- Training and safe procedures
- Appropriate PPE



1.43 Nitrogen - Hazard

Nitrogen - Hazard

Nitrogen makes up 78% of the air we breathe. Because of this it is often assumed that nitrogen is not hazardous however, nitrogen is safe to breathe only if it is mixed with an appropriate amount of oxygen.

The Oxygen Plant manages Nitrogen in high concentrations, some of which contain as little as 1% Oxygen.

Although this is an inert gas that won't support combustion it does provide the danger of asphyxiation; either by direct inhalation or by displacing oxygen in a work area.



1.44 Nitrogen - Hazard

Nitrogen - Hazard

Some of the signs and symptoms that you are working in an oxygen deficient atmosphere are:

- Breathing and pulse rate increased
- Lack of muscular coordination
- Emotional upset or abnormal fatigue
- Nausea or vomiting
- Convulsive movements



1.45 Nitrogen - Control

Nitrogen - Control

If you feel your breathing or pulse rates have increased, get to fresh air immediately. Do not return to the work site until the area has been ventilated and the oxygen content has been confirmed to be safe, using an Oxygen Meter.



Atmospheric air contains 21% oxygen, however, once the oxygen content has been reduced in the air, large quantities of nitrogen with purities of up to 100% are left.

1.46 Cooling Towers - Hazard

Cooling Towers - Hazard

The cooling water used in the cooling towers is treated with chemicals that aid in their efficiency of operation. These chemicals could be hazardous to humans.

Cooling Tower Reagents: MSDS: 67024, 79649, 77414, 67029

Another hazard associated to the cooling towers pertains to the fog that's emitted, mostly in the winter months from the cooling towers. This heavy fog can cause low visibility when travelling in the area.



1.47 Cooling Towers - Control

Cooling Towers - Control

If working on cooling towers follow necessary precautions identified through discussions with your Vale Contact Person. Use caution, and if you have any questions about the chemicals themselves, refer to the applicable MSDS sheets.

For areas laden with fog from the cooling towers:

- Use caution when working, walking or driving.
- Sound your horn if you are driving through this area when visibility is reduced.
- If you encounter an area where fog is present that is caused by the venting of a gas from a building or pipe, this could be either cold oxygen or nitrogen gas; report this condition to the Control Room.



1.48 Varying Pressures - Hazard & Control

Varying Pressures - Hazard & Control



During the Oxygen Plant's operation, pressures ranging from 0 to 500 kPag (70 psig) for nitrogen and 0 to 2100 kPag (600 psig) for oxygen occur as part of the process.



Caution should be used when working on any valve, pipe, or vessel. It should be treated as if it is a charged line until proven otherwise.



1.49 Mobile Equipment - Hazard

Mobile Equipment - Hazard

The Oxygen Plant utilizes various pieces of mobile equipment to aid in the movement of materials or in the maintenance of equipment.

Mobile equipment presents several hazards including restricted visibility, limited clearance, shifting loads all potentially leading to collisions with pedestrians, machinery or other mobile equipment.

Forklifts: transporting supplies and materials.

Elevated Work Platforms: used to perform various maintenance activities.

Service Vehicles: ½ ton trucks or cube vehicles deliver small quantity goods to the building.

Transport Trucks: Used for the transportation of liquid oxygen and nitrogen.



Diesel equipment running next to compressor air intakes can introduce hydrocarbons being entrained into the airstream, introducing the risk of explosion.



1.50 Mobile Equipment - Control

Mobile Equipment - Control

In addition to the general controls associated with mobile equipment described in the Tier 2 Orientation, the Oxygen Plant has mandated the following controls applicable to mobile equipment in their area:

- The use of overhead doors is restricted to mobile equipment only. Pedestrians are only to use man-doors.
- Walk within designated walkways (hatched yellow lines) where available.
- Mobile equipment shall not enter work area without authorization from the Control Room.



1.51 Equipment Damage

Equipment Damage

1.52 Equipment Damage

Equipment Damage

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

Even with "near misses", all workers, including Offsite Personnel are encouraged to initiate and/or participate.

Intent is to prevent recurrences and reduce or eliminate any further injuries.

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

Incident Management (SAP IM)



Click to log into the SAP IM database to process Incident, Near Miss, and Unsafe Condition reports.



Web-based Search tool
Records are from prior day or earlier



SAP IM Procedures
Tools & Resources

1.53 Personal Injury

Personal Injury

1.54 Personal Injury

Personal Injury

Oxygen Plant Emergency Numbers

In the case of personal injury, contact your Supervisor and report immediately to First Aid.

In the event you cannot physically report to First Aid, contact first aid for emergency response.

Oxygen Plant Emergency Numbers

#1 First Aid 6622

Control Room6281

1.55 Emergency Preparedness

Emergency Preparedness

1.56 Emergency Preparedness

Emergency Preparedness

The Surface Tier 2 Orientation provided guidance on the application of Emergency Preparedness including activating an emergency and how to classify one.

The following is how to respond to an emergency at the Oxygen Plant.



1.57 Notification – Central Tailings Area

Notification – Oxygen Plant



Before you begin work, find out:

- Where the nearest phone is
- Where the emergency numbers are posted
- What the nearest door number is

All roads have signage

All maps have routes identified

When calling the Alert Call Center
(#1 First Aid)

*** Know the door number ***

Report All Injuries/Incidents/Fires
immediately to the Alert Call Center
(#1 First Aid) 705-682-6622

1.58 Fire Evacuation Area

Fire Evacuation Area

The fire evacuation areas for the Oxygen Plant:

All workers, except specific, qualified personnel, will proceed immediately to the Parking Lot to await further instructions. **PLEASE**, do not leave the Parking Lot until instructed to do so, or until the all clear is given.



#4 Plant



#3 Plant

1.59 Fire Evacuation Area

Fire Evacuation Area

If you exit through the Person Gate, south of No. 3 Plant, you must work your way back to the No. 3 Oxygen Plant Parking Lot area.

If you exit through the No.4 Oxygen Plant emergency exit gate, you must also make your way back to the No.4 Oxygen Plant parking lot.

The Control Room Operator will open the Truck and Person Gates and leave them in the open position.

Once gathered in the Parking Lot, Oxygen Plant personnel will conduct a head count, using the Sign-In Log Sheet.



Emergency Exit Number 4 Person Gate



Emergency Exit Number 3 Plant



Person Gate Number 4 Plant



Truck Gate



Sliding Emergency Gate

1.60 Safe Assembly Area

Safe Assembly Area

The safe assembly area, which is located in the No.4 Oxygen Plant Control Centre door # 9-2.

Upon hearing an Intermittent Alarm, proceed to the safe assembly area. This location is equipped with an Emergency Phone and a locker equipped with instructions.

The person in charge will ensure that attendance is taken.

Remain in the Assembly Area until the all clear is given.



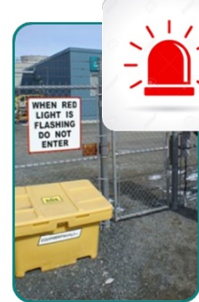
Note that the office building at #3 Oxygen Plant is not a safe assembly area.

1.61 Safe Assembly Area

Site Specific Emergency Procedure

When you see the Red Lights flashing at the Person Gate or at the Truck Gate, respond in the following manner:

- Do not enter the plant.
- Leave the roadways clear for emergency vehicles. Do not block any roadways.
- Remain calm.
- Remain in your vehicle.
- Close windows and doors; shut off the heater, fresh air vents, air conditioner, and ventilation intakes.
- Turn off the ignition, and remove the key.
- Follow the instructions of Emergency Services Personnel.



Person Gate



Truck Gate

1.62 Plant Exit

Plant Exit

1.63 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.

1.64 Conclusion

Conclusion

1.65 Conclusion

Conclusion

This concludes the material for the Oxygen Plant Tier 3 Orientation. You should now have a working knowledge and understanding of:

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

This Orientation provided information to access the Oxygen Plant. 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 the 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.

1.66 Conclusion

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

Thank-you for your participation and your commitment to safety at Vale.



1.67 Start The Module Quiz



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

To start the module Quiz

CLICK HERE