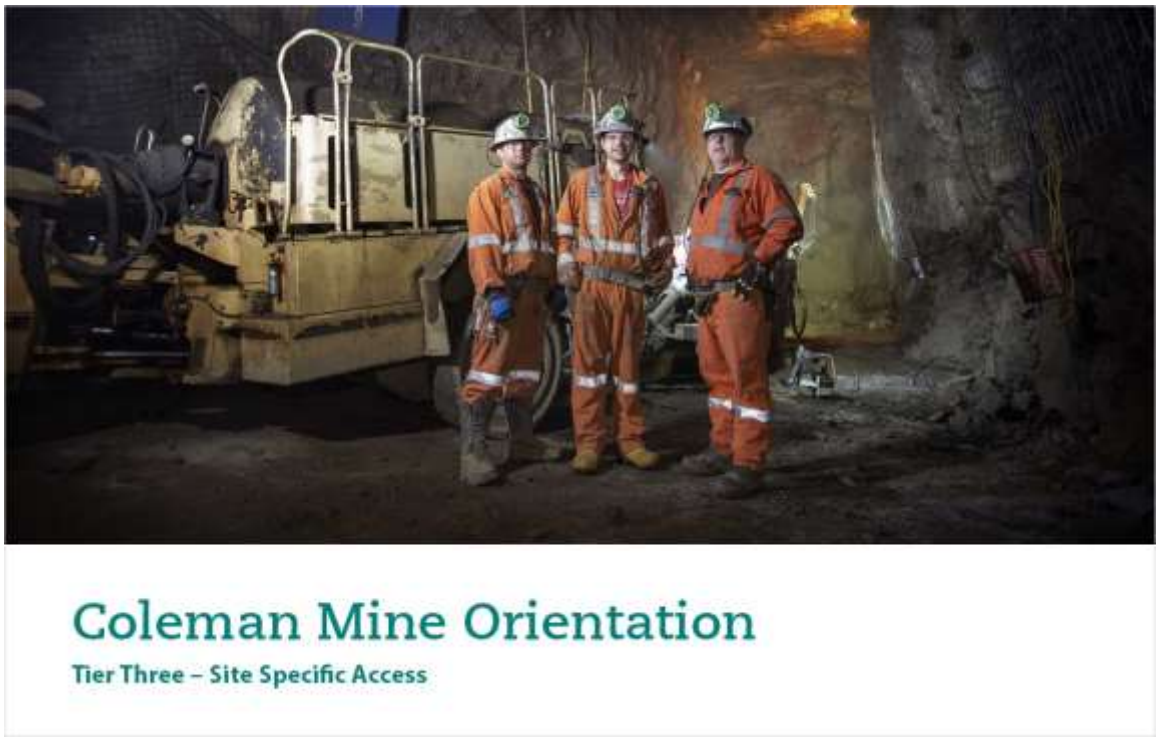
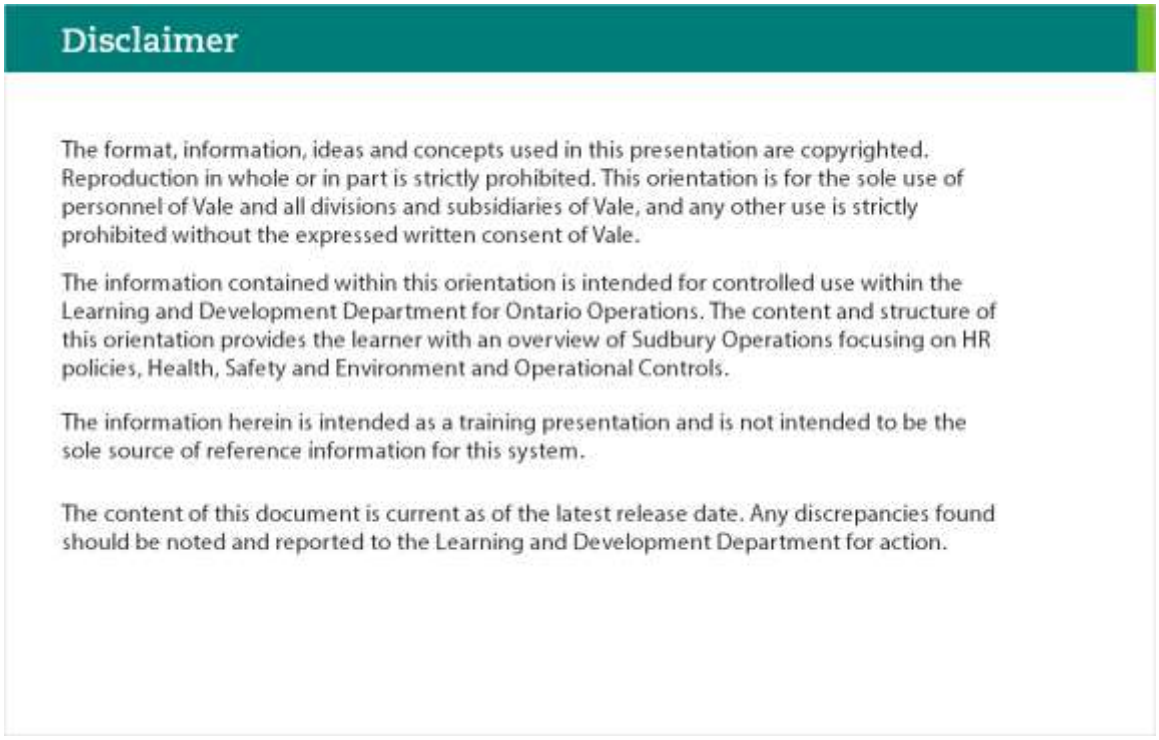
Tier 3: Coleman Orientation

1. Coleman Mine Orientation

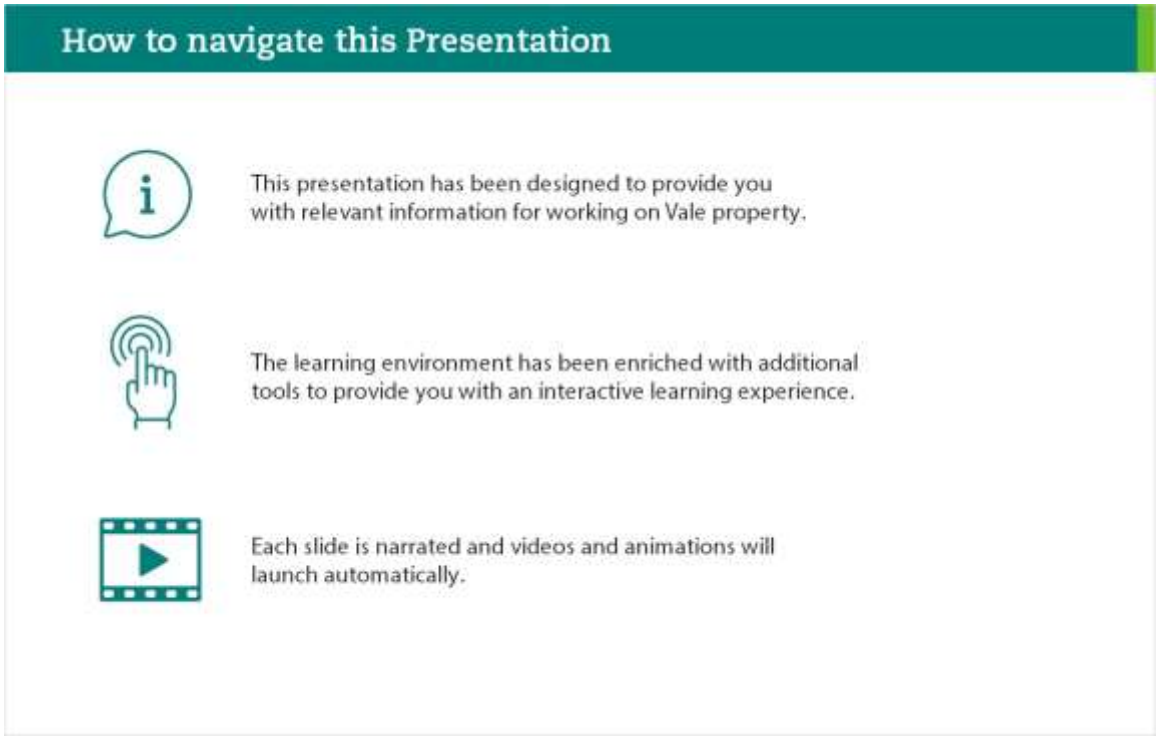
1.1 Coleman Mine Orientation



1.2 Disclaimer



1.3 How to navigate this Presentation



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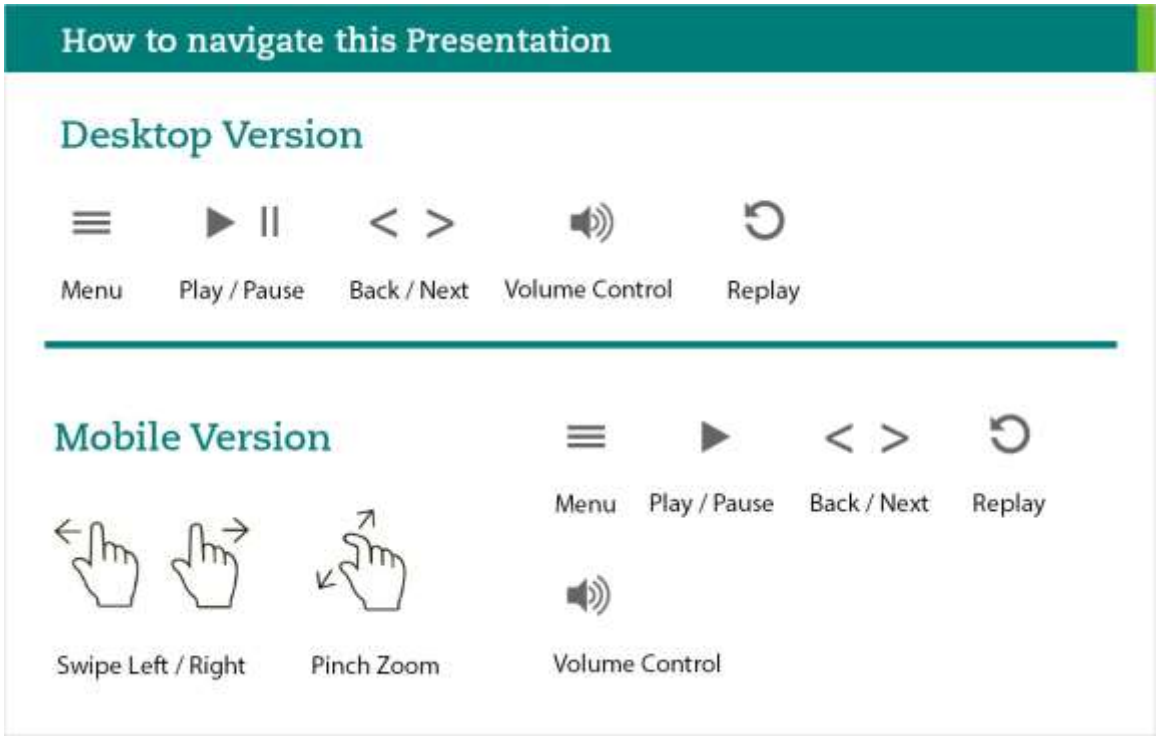

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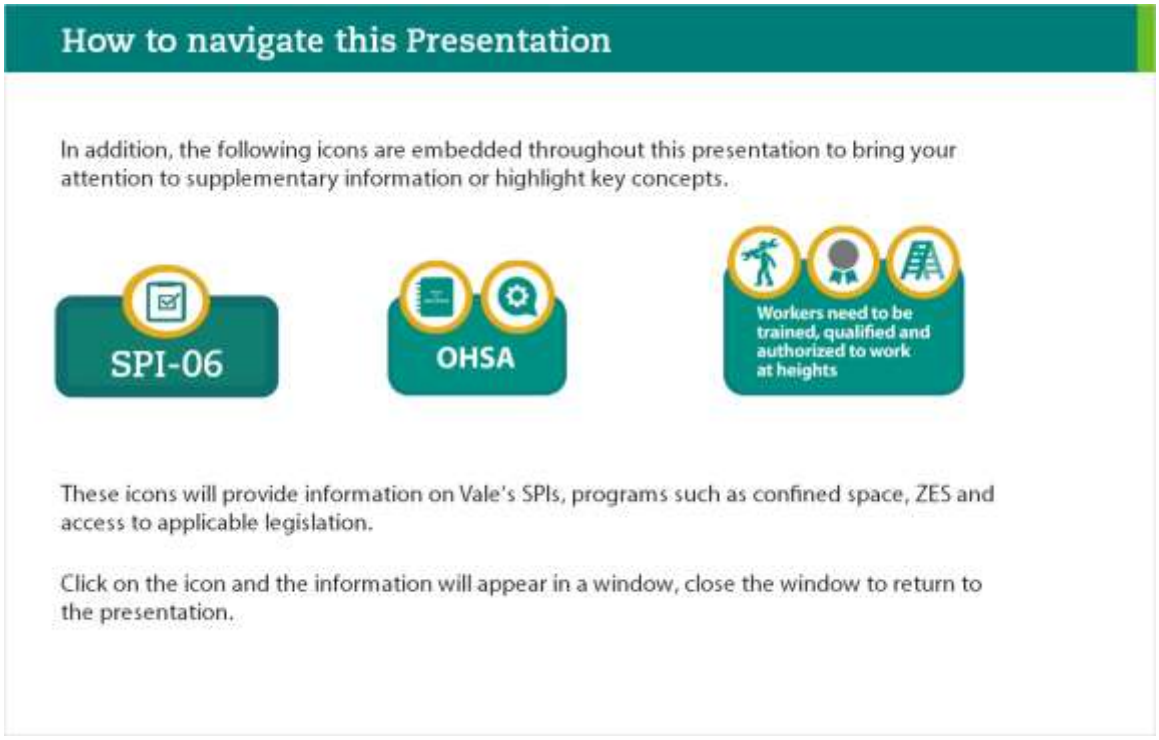
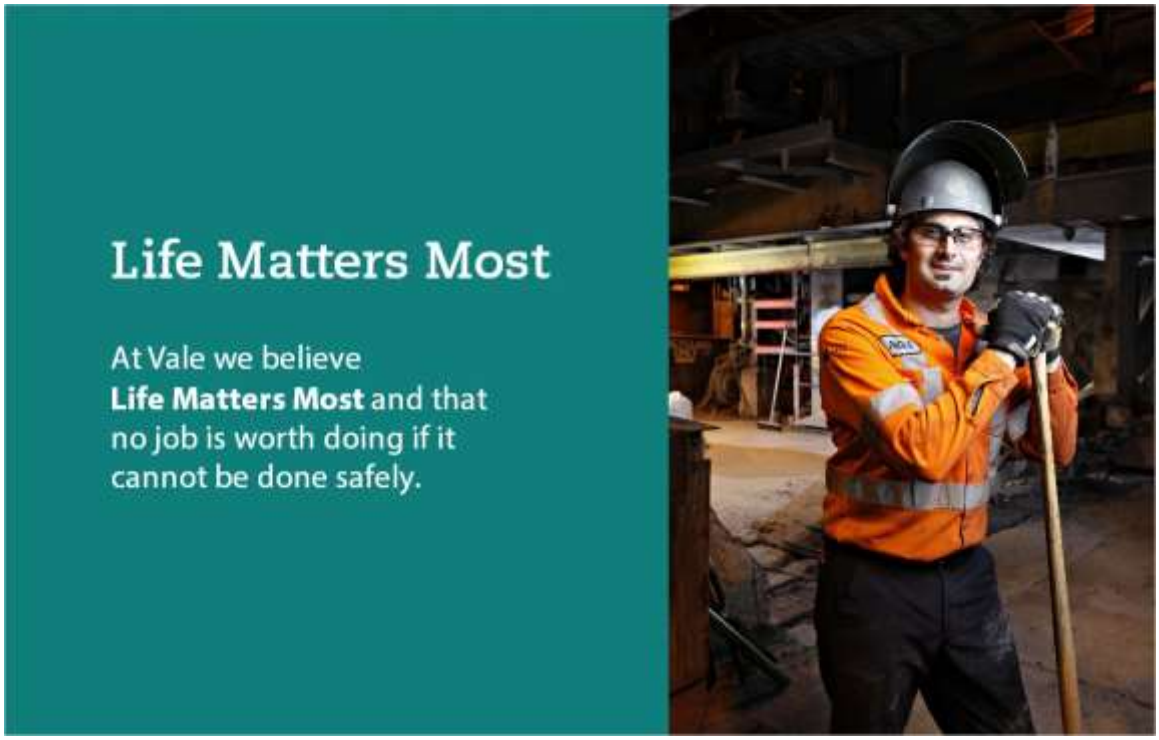


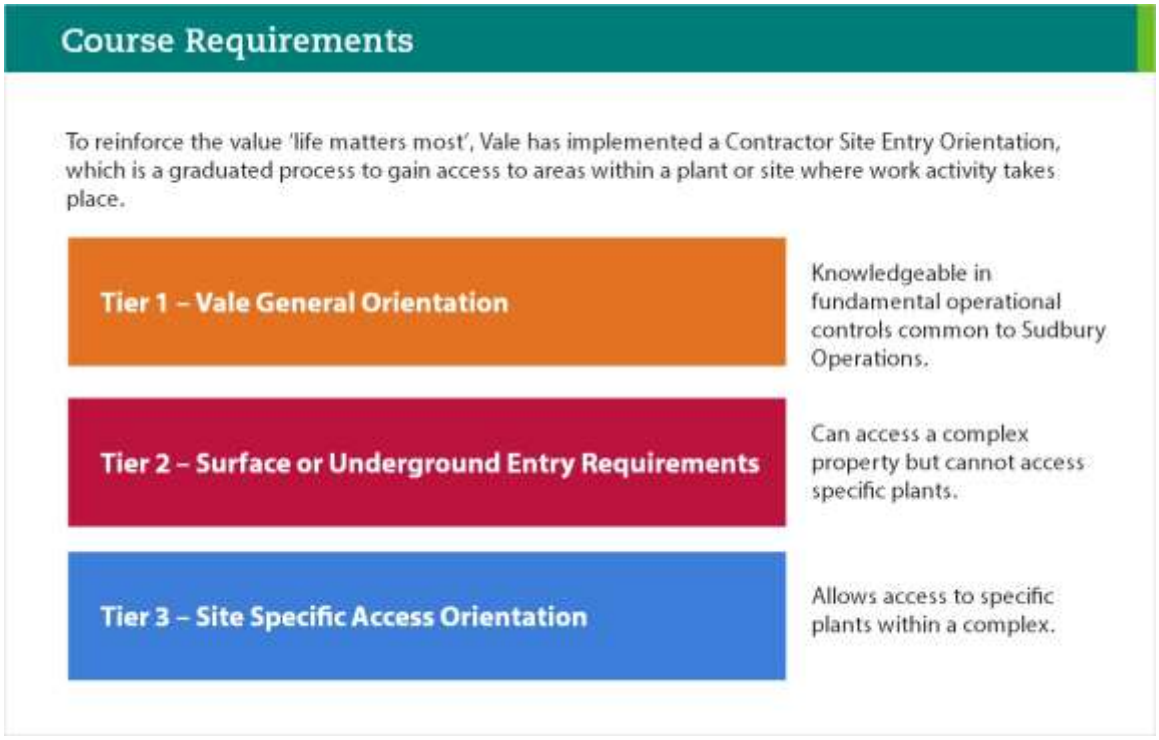
1.6 Untitled Slide

1.7 Life Matters Most



1.8 Course Requirements

1.9 Course Requirements



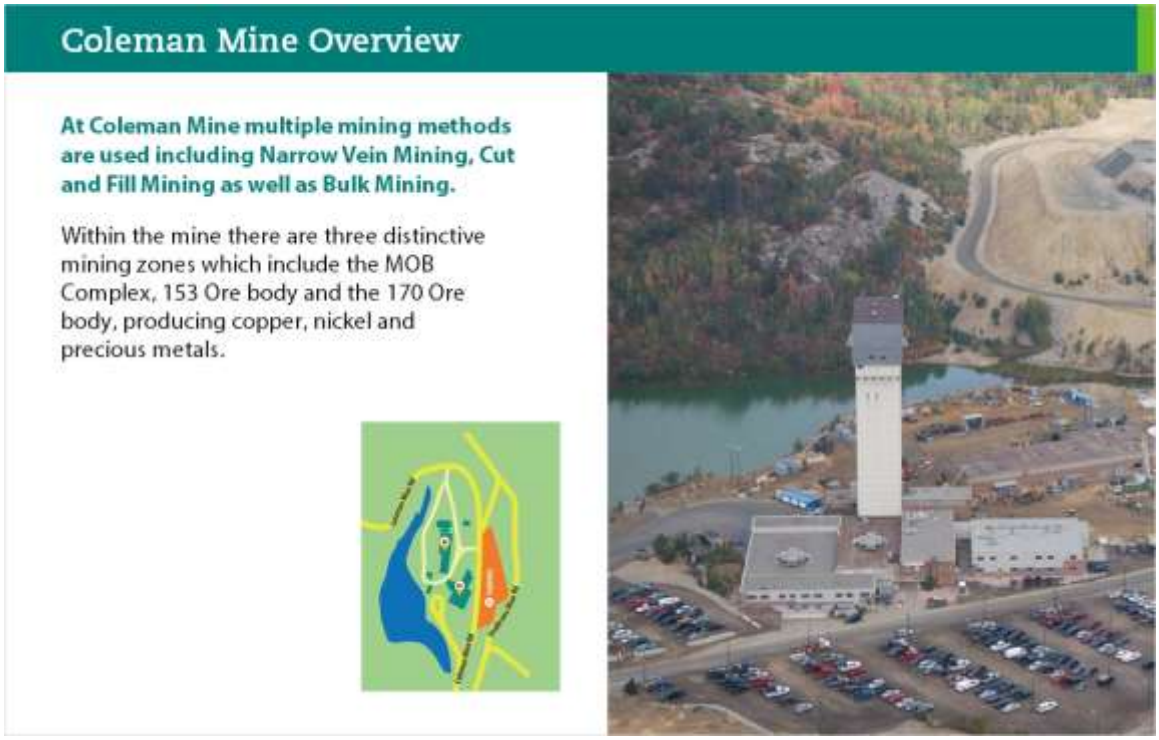
1.10 Untitled Slide

1.11 Course Objectives

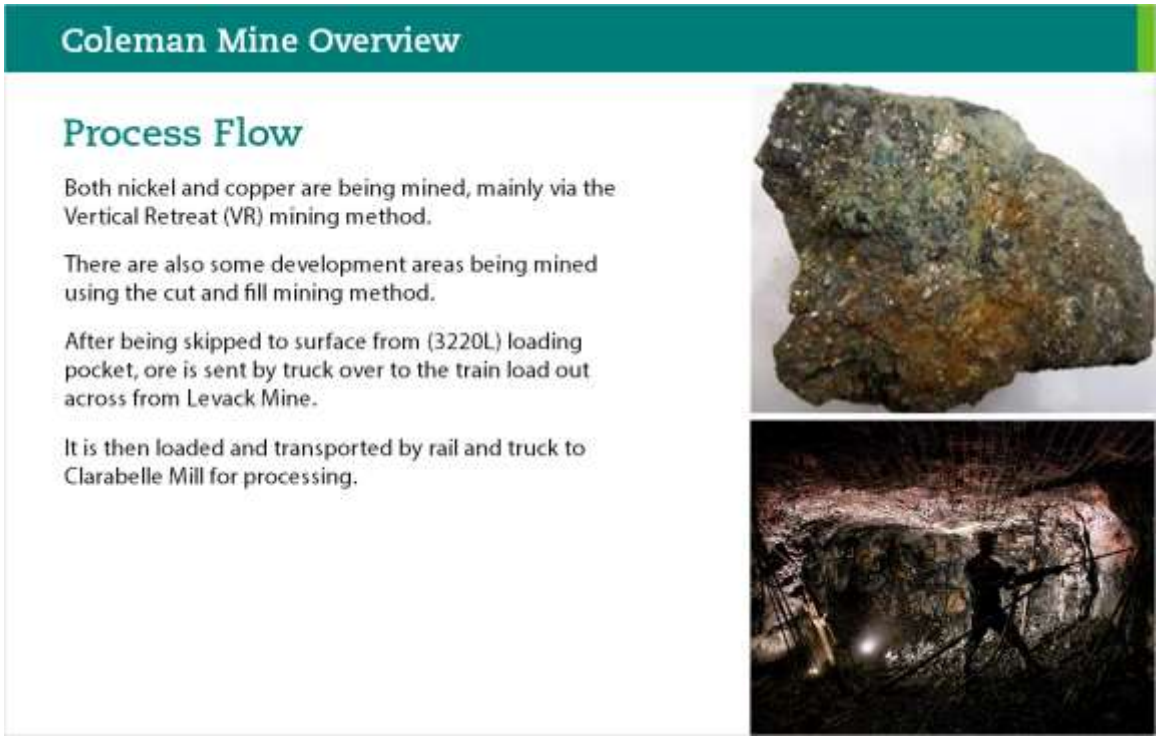
2. Introduction

2.1 Introduction

2.2 Coleman Mine Overview



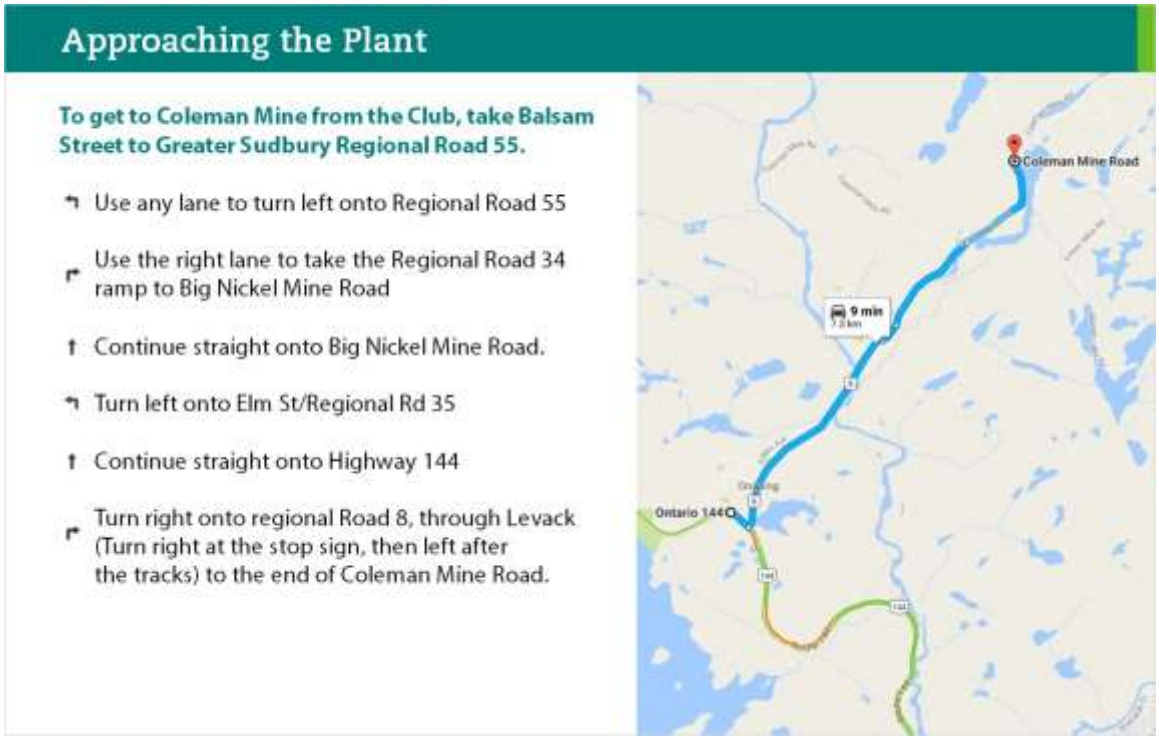
2.3 Coleman Mine Overview



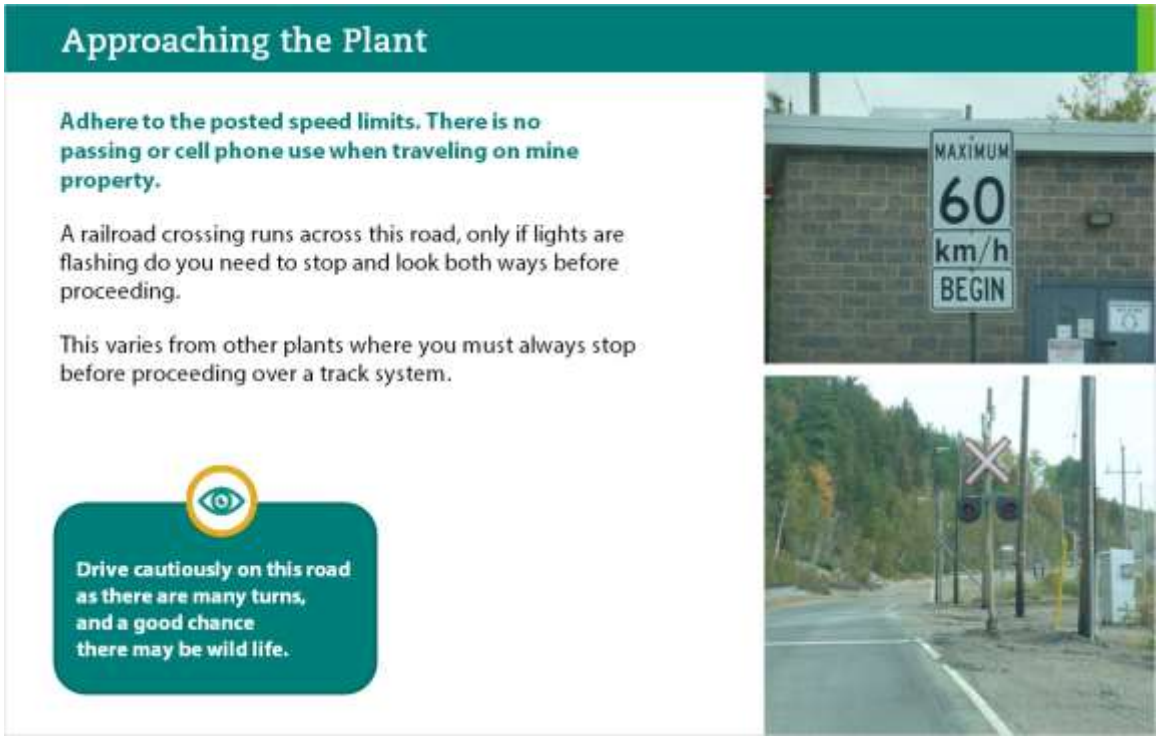
3. Plant Entry

3.1 Plant Entry

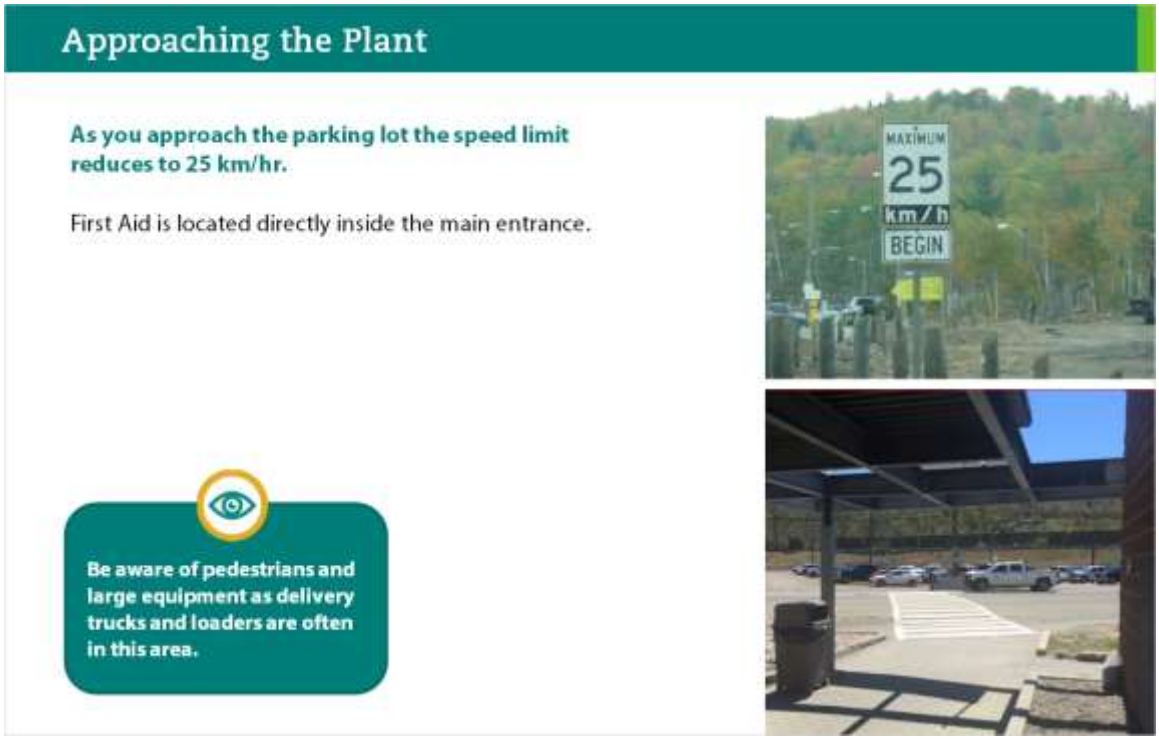
3.2 Approaching The Plant



3.3 Approaching the Plant



3.4 Approaching the Plant



3.5 Surface Sign-in Requirements

Surface Sign-in Requirements

All visitors working on surface must sign into the surface sign-in book when entering the plant, and must sign out when leaving.

The surface sign-in book is located directly inside the main entrance.

Surface Sign-in Book

Designed Smoking Area

Smoking is only permitted in the designated smoking areas on surface.

3.6 Underground Sign-in Requirements

Underground Sign-in Requirements

Every occasional visitor traveling underground at Coleman Mine must sign in to the underground log in book before going underground, and must sign out when arriving on surface.

The underground sign-in book is located inside the First Aid office.

Plant Protection Services Personnel will issue a cap lamp. Cap lamps are to be signed out and returned upon arrival to surface.

If you have been given a locker, the cap lamp # you use will correspond to that locker #. (e.g. locker 456 uses cap lamp 456).

Underground Sign-in Book

First Aid

3.7 Underground Tagging Requirements

Underground Tagging Requirements

Every long term employee coming to Coleman Mine will be issued an identification tag.

These tags will include:

- Photograph
- Full Name
- Employee Number
- Phone Number

For visitors and occasional workers traveling underground, the First Aid Office will issue temporary numbered identification tags.

This number is to be recorded in the sign-in book entry.

This tag is to be used on the Coleman Mine underground tag in board.

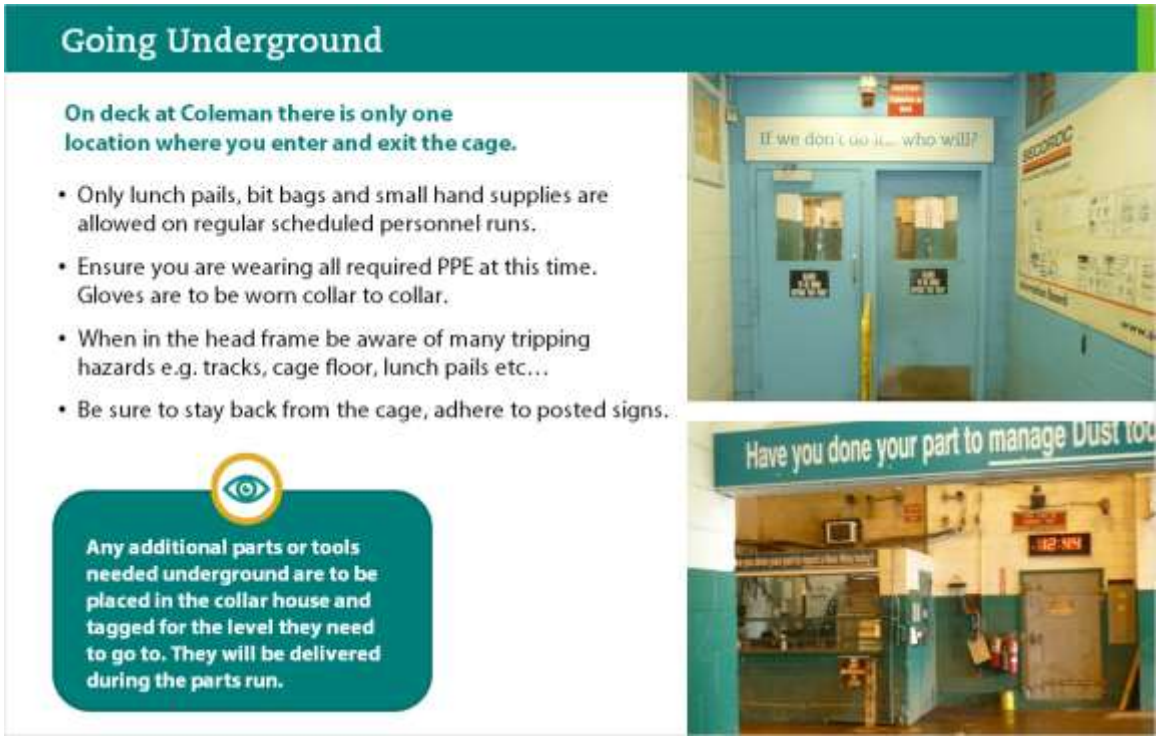
3.8 Underground Tagging Requirements

Underground Tagging Requirements

When tagging in, remember the following:

- You are required to tag in before going underground.
- Do not tag in until it is permitted to do so in the case of the board being blocked for blasting or clearing.
- Tag into the correct area.
- Always remember to remove your tag and sign out when you return to surface.

3.9 Going Underground



4. Plant Hazards and Controls

4.1 Plant Hazards and Controls

4.2 Site Specific Hazards

4.3 Site Specific Hazards

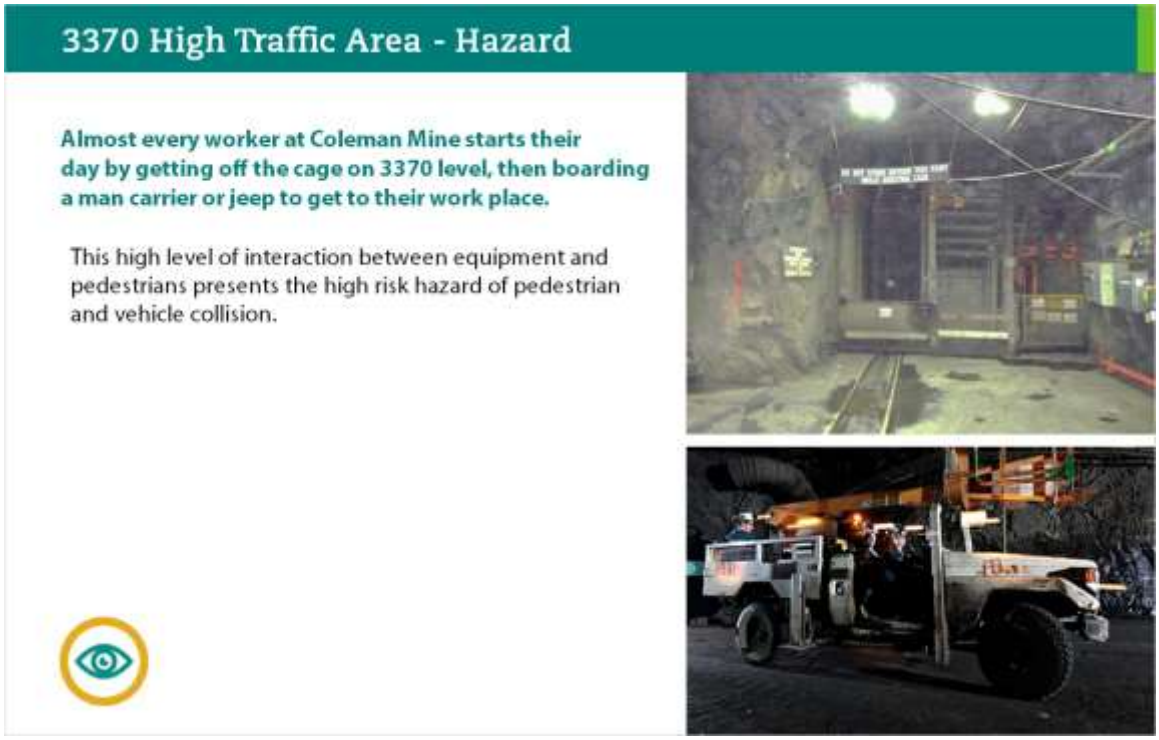
Site Specific Hazards

At Coleman Mine, workers need to be aware of site specific hazards and their related controls.

These include but are not limited to:

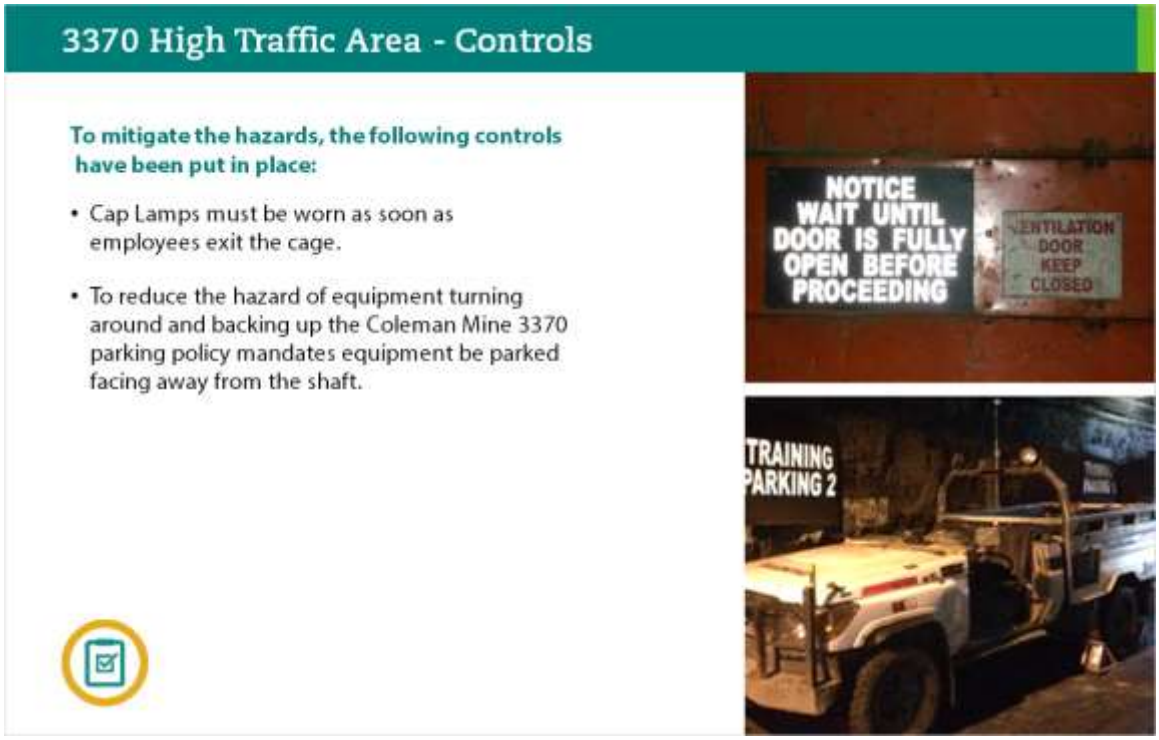
- 3370 High Traffic Area
- Seismicity
- Old Workings (Levack drift)
- Heat Stress
- Mobile Equipment
- Kiruna Ramp Hazards

4.4 3370 High Traffic Area - Hazard

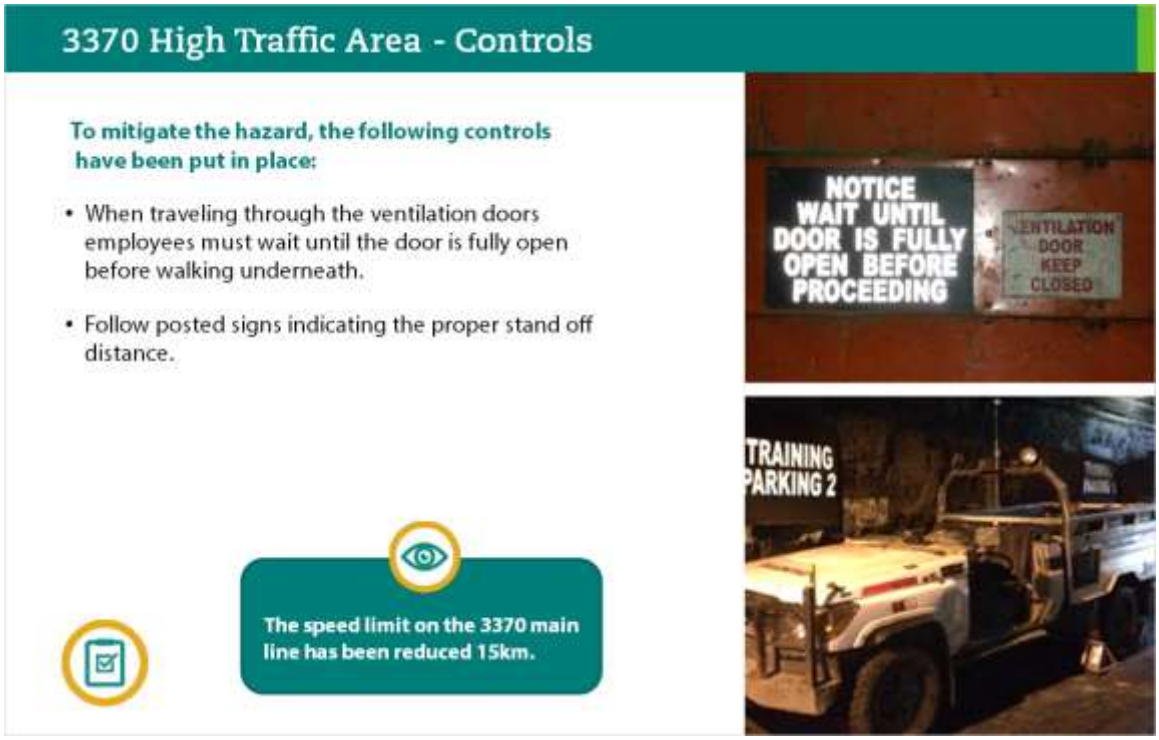


4.5 3370 High Traffic Area - Hazard

4.6 3370 High Traffic Area - Controls



4.7 3370 High Traffic Area - Controls



4.8 Seismicity - Hazard

Seismicity - Hazard

Coleman Mine is operating in deep areas. Mining leaves voids that generally alter the balance of forces in rock, at times causing rock bursts.

Coleman has a history of seismic activity, this activity can cause displacement of ground or other structures which could potentially injure workers in those areas.

As a result, workers must be aware of the following hazards;

- Falls of ground resulting in workers being struck or trapped.
- Loss of services such as ventilation, water, or pressurized air, or
- Obstructed or loss of egress via walkways, ramps or cage travel.

4.9 Seismicity - Controls

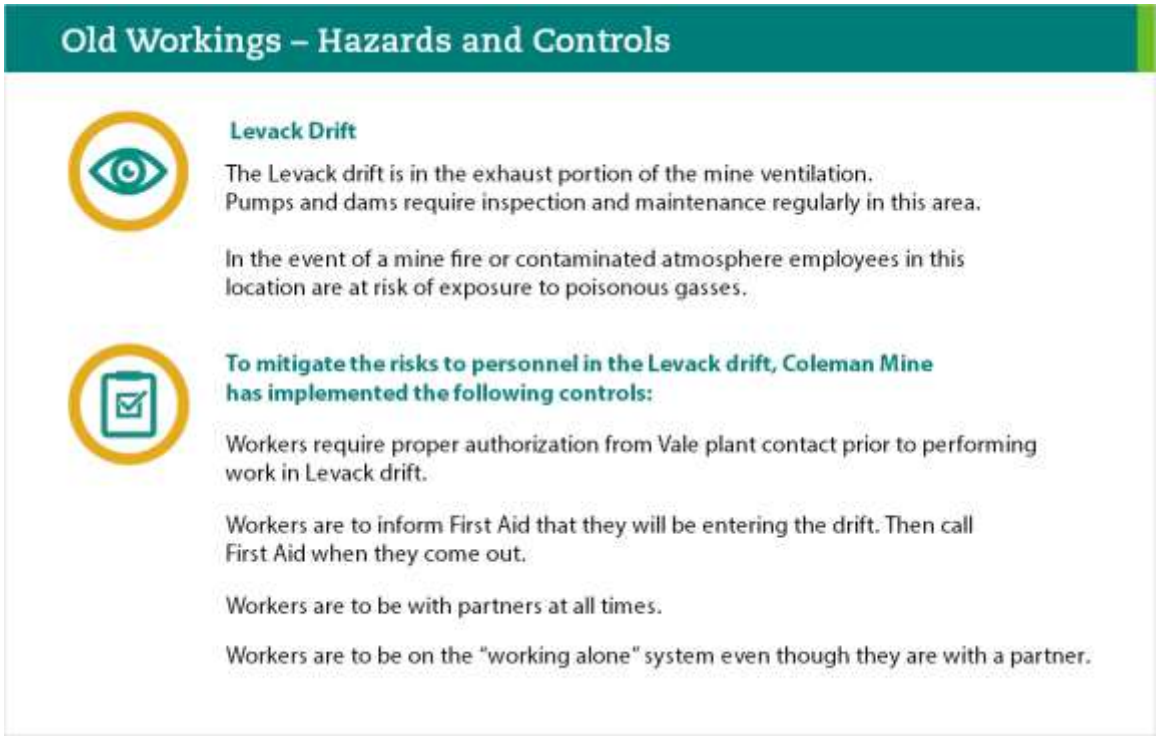
Seismicity - Controls

To mitigate the hazards of associated with seismic events Coleman Mine has ground support systems with key measures taken to eliminate or minimize any problems associated with ground instability.

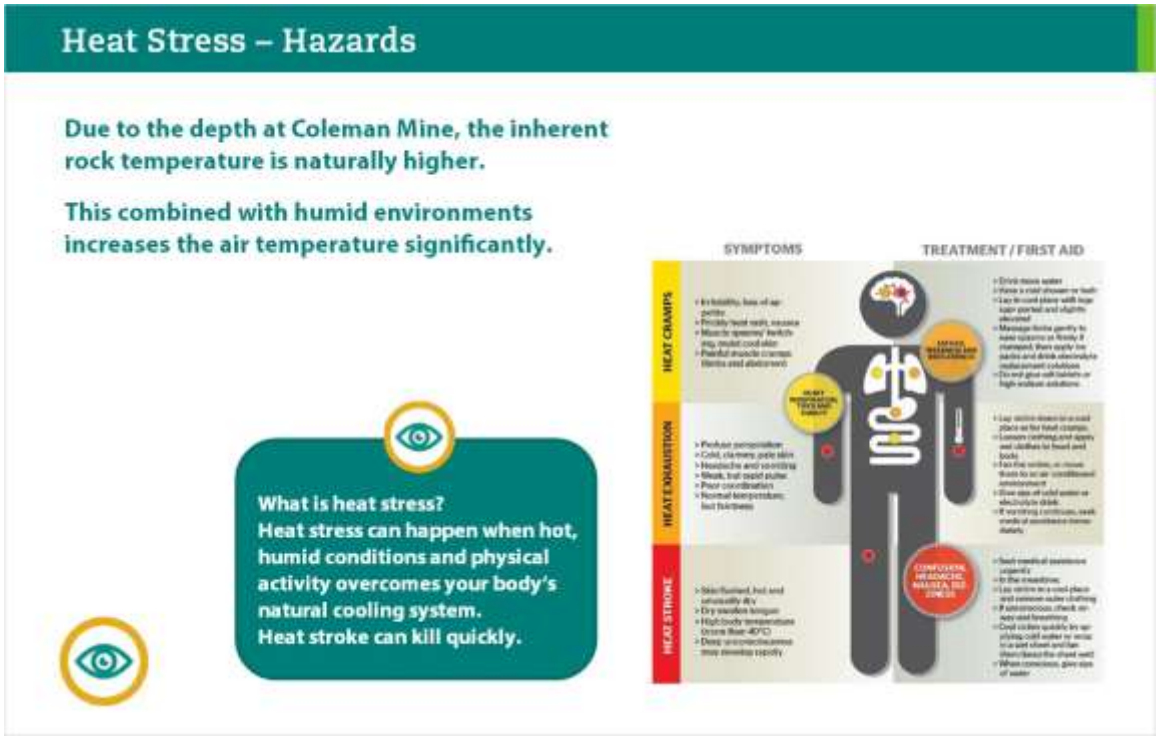
In addition, Coleman Mine has implemented the following:

- There are sensors throughout the mine that record seismic activity, these sensors feed a data base that is available to all supervisors.
- Always be alert for the potential of seismic activity, it is a requirement for workers to report any suspected seismic activity to their supervisor.
- If warranted, there will be instructions broadcast on all channels – follow instructions.

4.10 Old Workings – Hazards and Controls



4.11 Heat Stress – Hazards

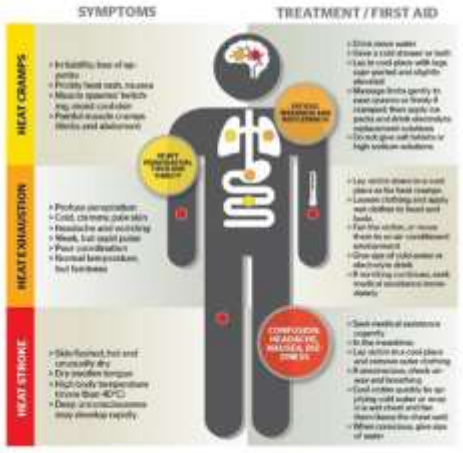


4.12 Heat Stress – Hazards

Heat Stress – Hazards

Working in these conditions creates a hazard of heat stress.
Signs or symptoms of heat stress include;

- Cramps
- Fainting
- Serious heat exhaustion and/or
- Heat stroke



4.13 Heat Stress – Controls

Heat Stress – Controls

To mitigate the hazard of heat stress, Coleman Mine has implemented the following controls:

- Refuge stations are equipped with air conditioning units.
- Supervisors are trained in thermal management to assess workplace conditions.
- Work/rest regimes are in place for areas identified through workplace assessments.
- Drinking water is available to workers and can be found at locations throughout the mine.

4.14 Mobile Equipment – Hazard

Mobile Equipment – Hazard

Mobile equipment presents a high risk hazard of collision with a vehicle or pedestrian.

The mobile equipment hazards at Coleman Mine include the following:

- Large scoops operating on different levels that have very limited visibility.
- Several different ore bodies with different entry protocols.
- One access point for all the mines mobile equipment lending to congested mobile equipment areas.

4.15 Mobile Equipment – Controls

Mobile Equipment – Controls

To mitigate the risk of collision, Coleman Mine has implemented the following controls:

Designated Haulage Ramp Travel Procedure:
All personnel traveling on the designated haulage route must be familiar with the area and it's protocols.

Level entry protocols:
In order to enter any ore body or level, both pedestrians and vehicles must first get permission from the haulage equipment in that area.

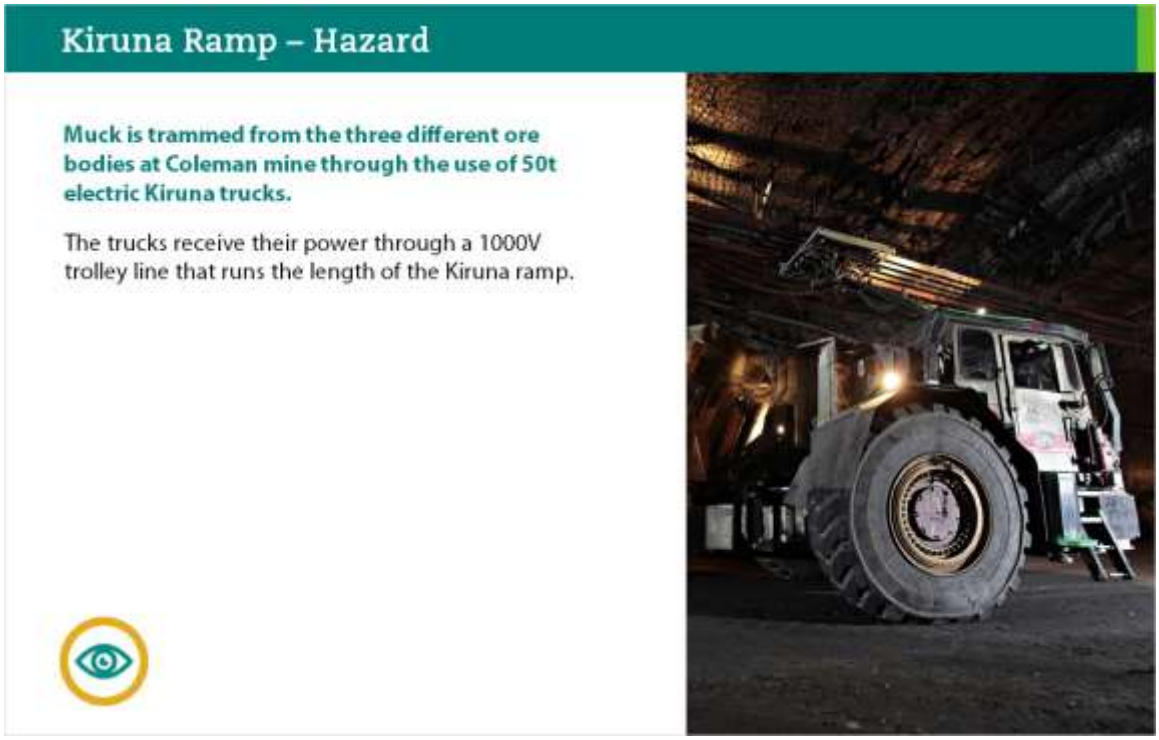
4.16 Mobile Equipment – Controls

Mobile Equipment – Controls

To mitigate this hazard be aware of the following controls:

- Headlights and vehicle blue flashing lights are to remain on at all times when operating mobile equipment.
- All jeeps and small equipment are to have blue flashing lights on the roll bar and have spot lights pointed at a 45º upwards angle, and be on at all times.
- All employees driving underground at Coleman Mine must have a good working knowledge of the mine, and know proper channels for the orebody being entered.

4.17 Kiruna Ramp – Hazard



4.18 Kiruna Ramp – Hazard

Kiruna Ramp – Hazard

The high risk hazard of collision or electrocution is ever present, the following contribute to this hazard;

- The Kiruna trucks travel 20km an hour both up ramp and down ramp, these speeds are much greater than their diesel counterparts.
- Being electric these trucks are very quiet, the lights will come into view before you hear a sound.
- The 1000V trolley line is always live creating the hazard of electrocution if contacted.
- Kiruna truck drivers need to be focused on many things, maintaining contact with the trolley line, managing the radio calls looking for truck locations

4.19 Kiruna Ramp – Controls

Kiruna Ramp – Controls

To mitigate the hazards associated to Kiruna Ramp Travel, Coleman Mine has implemented the following;

- All personnel preparing to travel on the Kiruna truck ramp must have a working radio. If you are in an enclosed cab you must have a working base radio. Personal radios are not sufficient.
- All personnel traveling the ramp must have their radio tuned in to channel #3 for the duration of their ramp travel.
- Pedestrians walking on ramp must follow procedure as well.

4.20 Kiruna Ramp – Controls

Kiruna Ramp – Controls

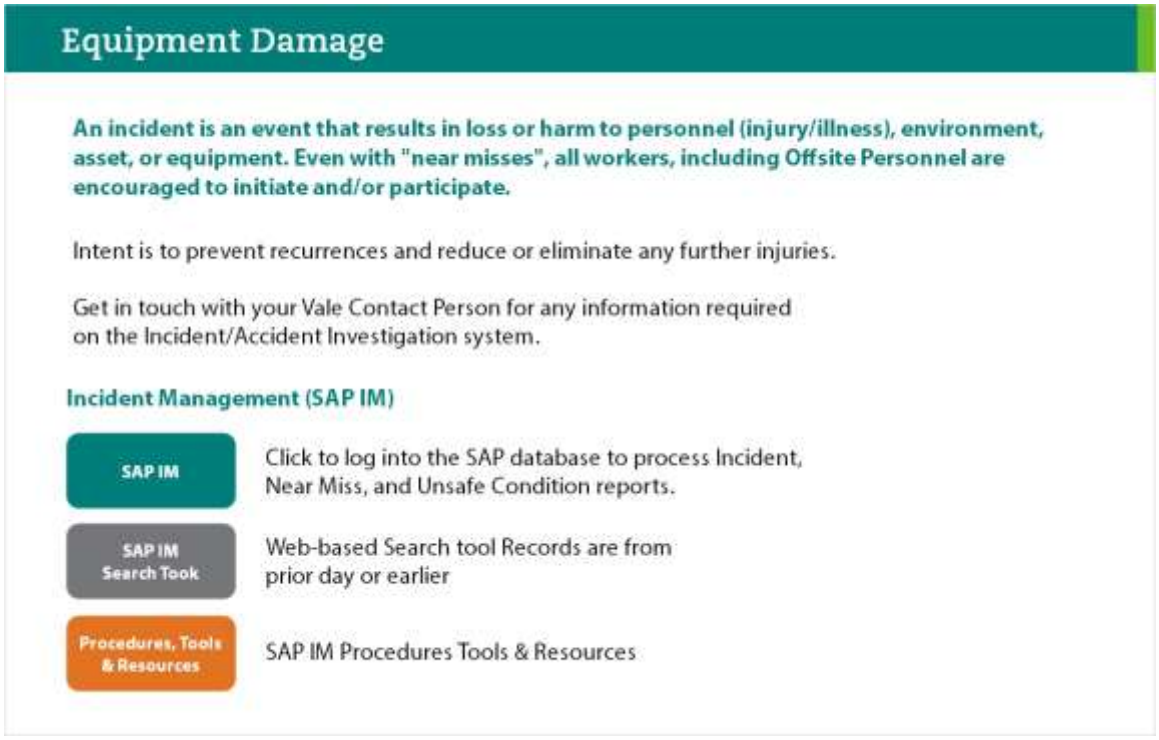
To mitigate the hazard of associated to Kiruna Ramp Travel, Coleman Mine has implemented the following;

- Do not work within 10 feet of trolley line unless authorized by your supervisor and the trolley line has been locked, tagged and grounded out by a Vale electrician.
- If mobile equipment comes into contact with the energized trolley line, occupants are to remain inside vehicle until directed by authorized personnel.
- Do not drive on kiruna ramp unless you feel comfortable, and have reviewed procedures with your supervisor.

5. Equipment Damage

5.1 Equipment Damage

5.2 Equipment Damage



6. Personal Injury

6.1 Personal Injury

6.2 Personal Injury

Personal Injury

Coleman Mine 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.

First Aid (PSP) 705-966-4111/4555

SSL.....705-966-4333

Note: If you are calling any Vale number from a Vale phone only the last 4 digits are required to be dialed.

7. Emergency Preparedness

7.1 Emergency Preparedness

7.2 Emergency Preparedness

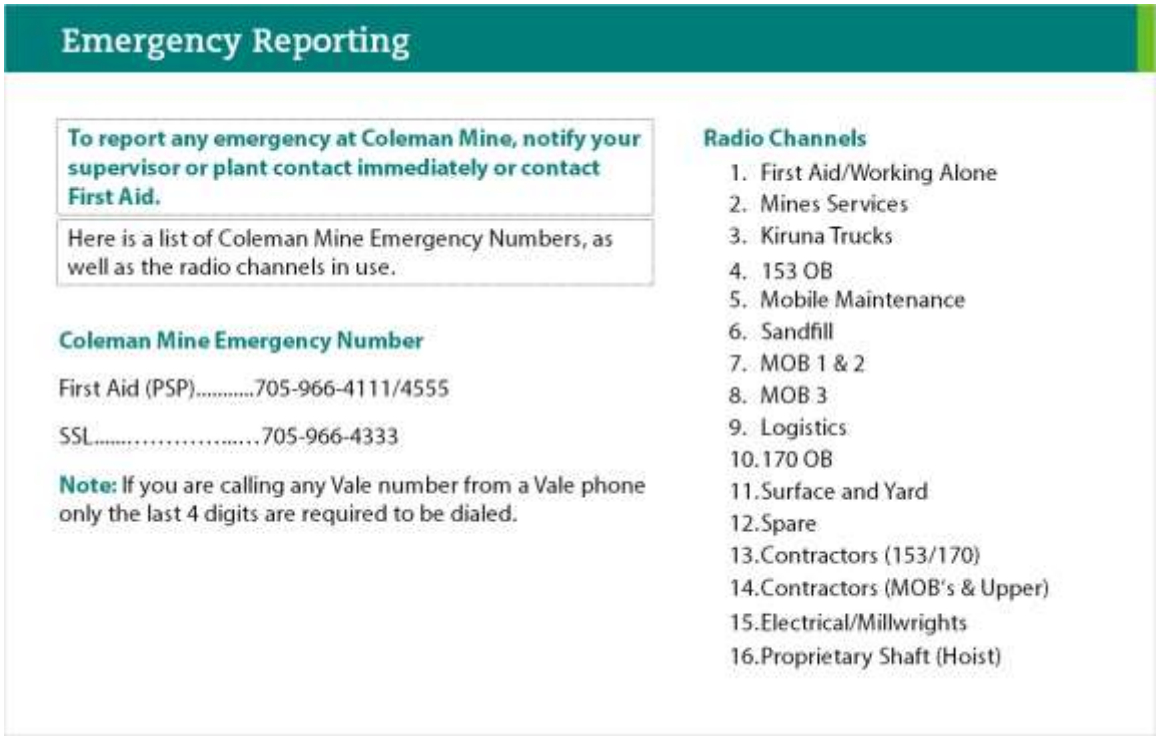
Emergency Preparedness

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

The following is a general overview of how to respond to an emergency at Coleman Mine.

It is necessary that you familiarize yourself with the fire procedure(s) that apply to your specific area(s) of work at Coleman Mine. Your Supervisor or plant contact should review this with you.

7.3 Emergency Reporting



7.4 Notification – Copper Cliff Mine

Surface Alarms – Emergency Notification

INVAC

Intermittent Alarm (High-Low)

All personnel are to stay inside and immediately report to the designated containment assembly area which is in the Amphitheatre.

Go to the nearest Safe Assembly Area.

OUTVAC

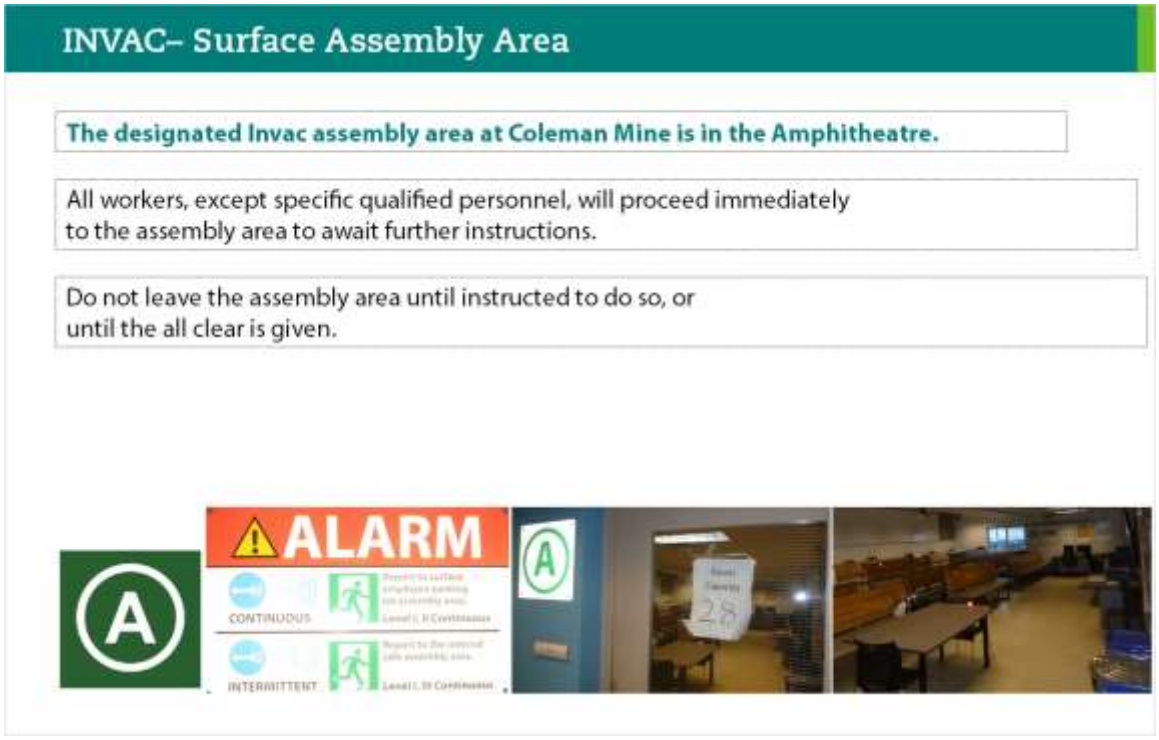
Fire Alarm (Continuous Bells)

All personnel are to leave the building by the closest route of exit and assemble together as a group in the designated evacuation assembly area.

Leave the building by the nearest exit.

Alarm testing is conducted each Wednesday morning. Report any malfunctions immediately to your Supervisor to ensure that it is corrected in a timely manner.

7.5 INVAC– Surface Assembly Area



7.6 OUTVAC – Surface Evacuation Area

OUTVAC – Surface Evacuation Area

The Surface Evacuation Area is located across from First Aid in the parking lot.

All workers, except specific qualified personnel, will proceed immediately to the evacuation area to await further instructions.

Do not leave the evacuation area until instructed to do so, or until the all clear is given.

7.7 Underground Fire

Underground Fire

In the event of a fire underground at Coleman Mine, stench will be injected into the fresh air system, as well as a message broadcast on all channels "There is a fire underground. Report to the nearest refuge station."

Report to the nearest refuge station and follow the underground fire procedure.

In remote areas, Emergency Fresh Air Stations (EFAS) have been installed to protect workers.

- Hard style emergency fresh air station (EFAS).
- Tent style emergency fresh air station (EFAS) and
- Mine Arc station.

If you are on the upper levels (anything above 3090) proceed to the shaft station and call First Aid.

7.8 Emergency Fresh Air Station – Hard Style

Emergency Fresh Air Station – Hard Style

Emergency fresh air stations (EFAS) are located in more remote areas that do not house standard refuge stations.

They are intended for use only if you are unable to reach a refuge station. They are equipped with compressed breathing air cylinders.

- For the EFAS containing cylinders outside, turn on the bottle valves before entering.
- Remove the door seal and crack open the compressed air valve inside the EFAS.
- If the compressed air line fails, follow the steps that are posted inside the EFAS to use the cascade system.

- Follow the procedure for the hard style EFASs as described in the underground fire procedure book.

7.9 Emergency Fresh Air Station – Tent Style

Emergency Fresh Air Station – Tent Style

The Emergency Fresh Air Stations are temporary shelters offering breathable air in the event of an emergency.

They are intended for use in the event of a fire, ONLY if you are unable to reach a refuge station or are trapped in the workplace due to smoke.

Proceed to Emergency Fresh Air Station (EFAS).

- Turn on compressed air valve (main line) to EFAS.
- Un-zip the access door and step inside.
- Watch footing on tubing floor as it is slippery.
- Re-zip the door shut.

7.10 Emergency Fresh Air Station – Tent Style

Emergency Fresh Air Station – Tent Style

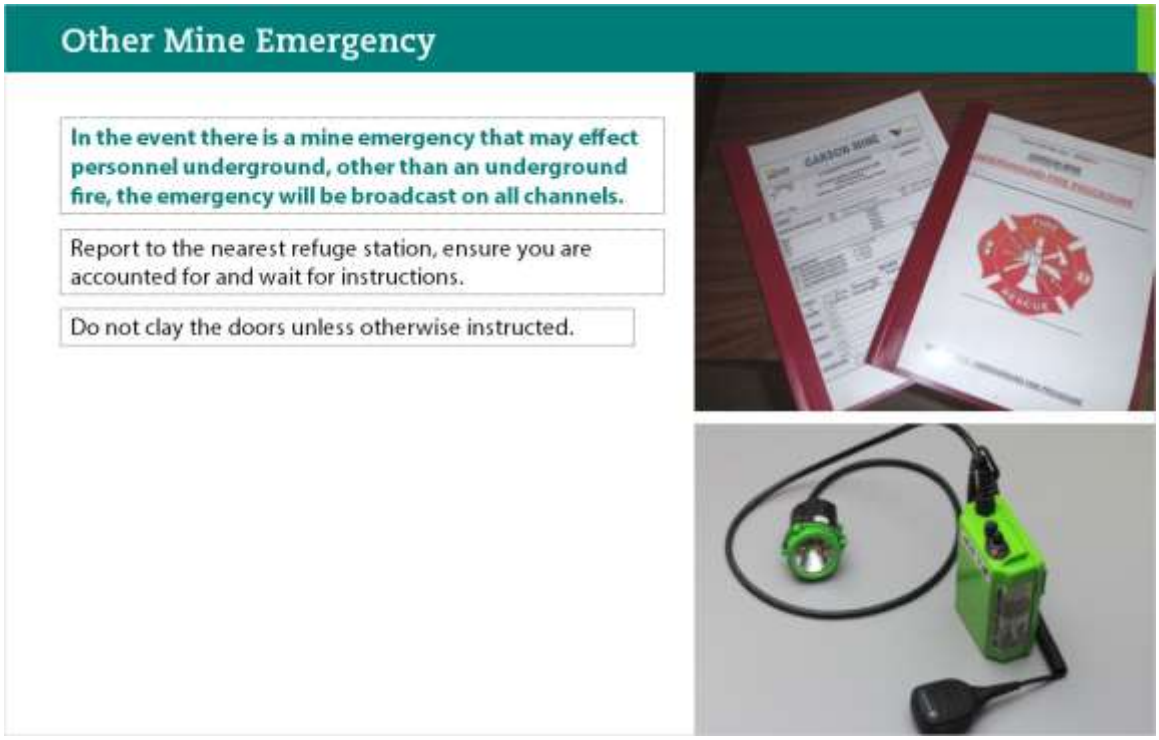
The Emergency Fresh Air Stations are temporary shelters offering breathable air in the event of an emergency.

They are intended for use in the event of a fire, ONLY if you are unable to reach a refuge station or are trapped in the workplace due to smoke.

Proceed to Emergency Fresh Air Station (EFAS).

- Ensure that the compressed air valve (inside roof) is open to pressurize the enclosure.
- Contact First Aid via radio, give the location, name and numbers of persons inside and verification the compressed air is on.
- Remain inside of enclosure until rescued or released by Control Group.

7.11 Other Mine Emergency



7.12 Underground Evacuation

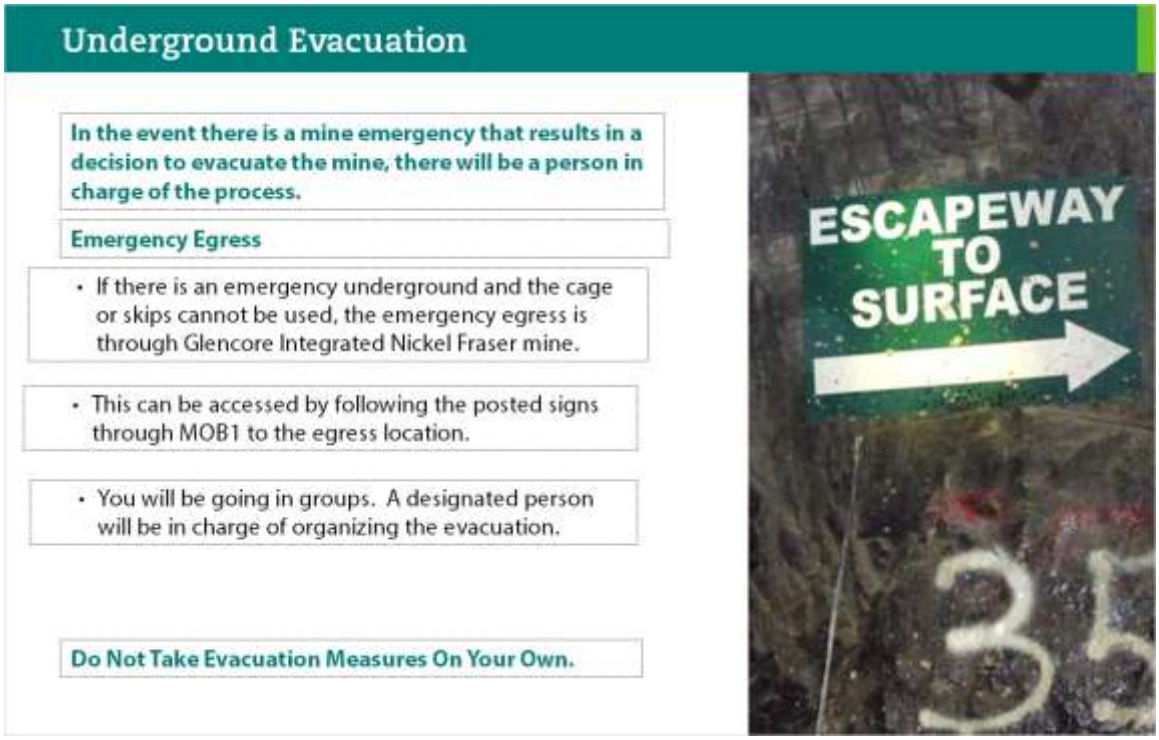
Underground Evacuation

In the event there is a mine emergency that results in a decision to evacuate the mine, there will be a person in charge of the process.

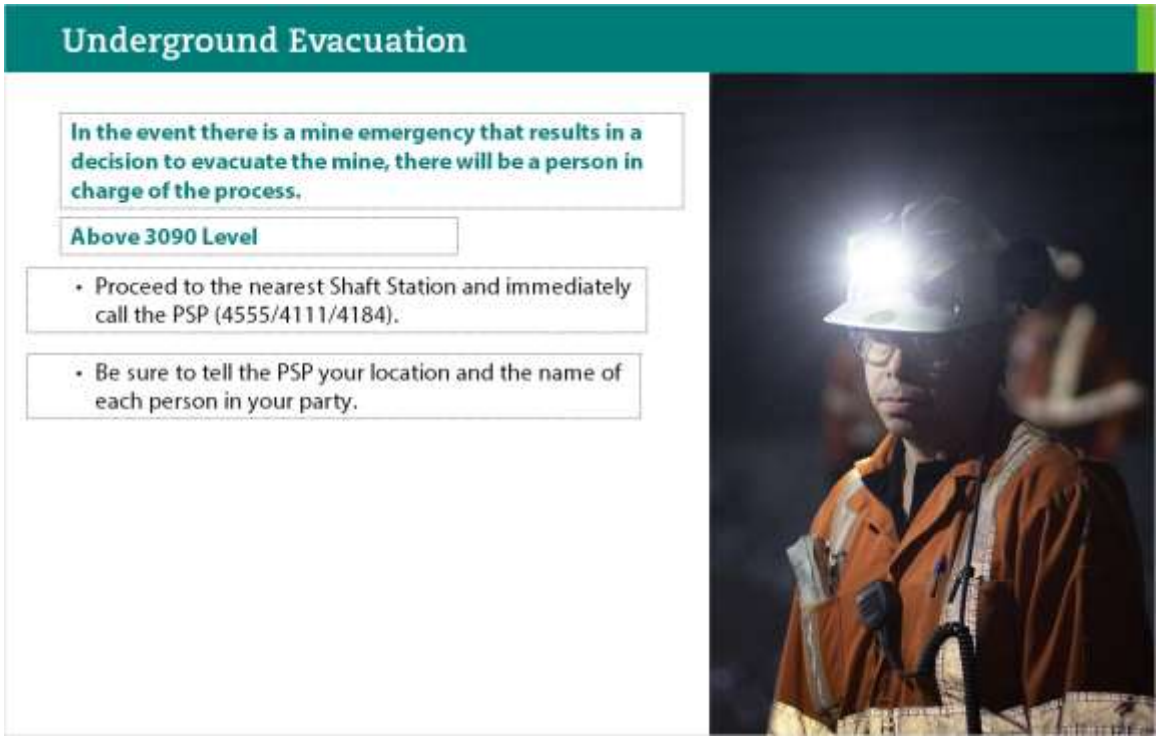
Do not take evacuation measures on your own.

- If the cage is not in use the skips will be put on standby.
- This means that if there is an underground emergency persons will be able to go to the 3090 shaft station and be brought to surface in a skip (holds approx. 4 people).
- 3090 shaft station can be accessed through the conveyor ramp off the main line. It is mandatory to get permission from the conveyor operator before entering the ramp.

7.13 Underground Evacuation



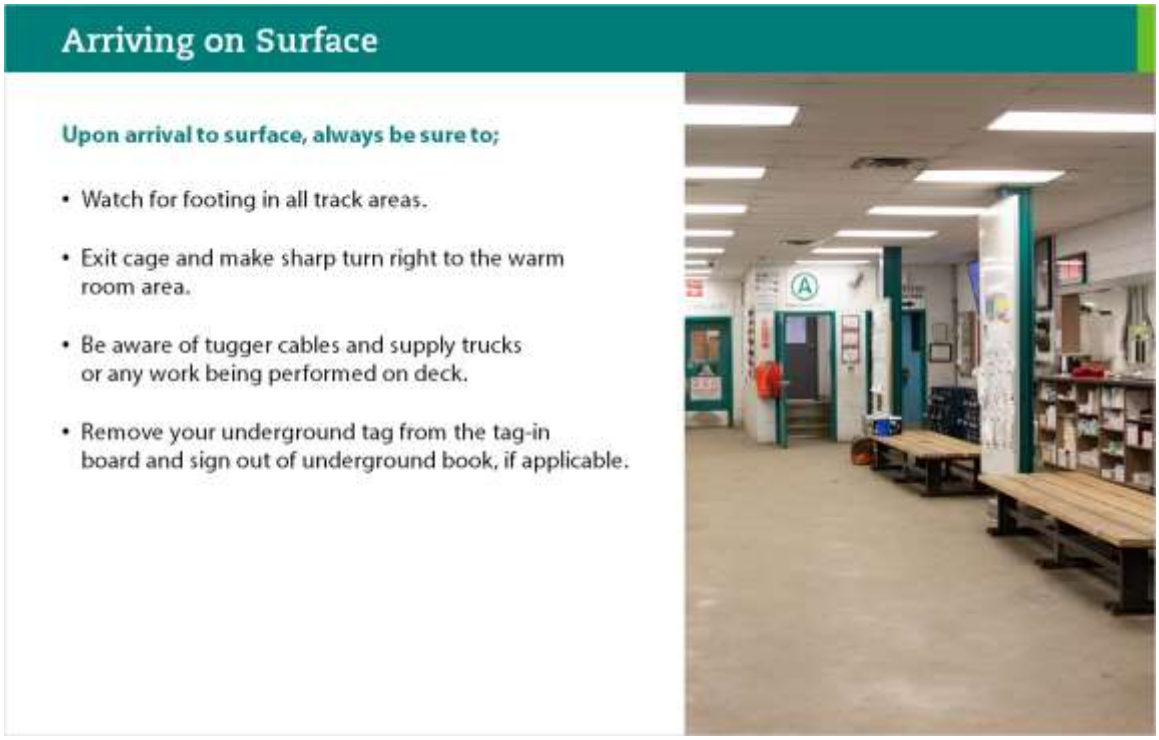
7.14 Underground Evacuation



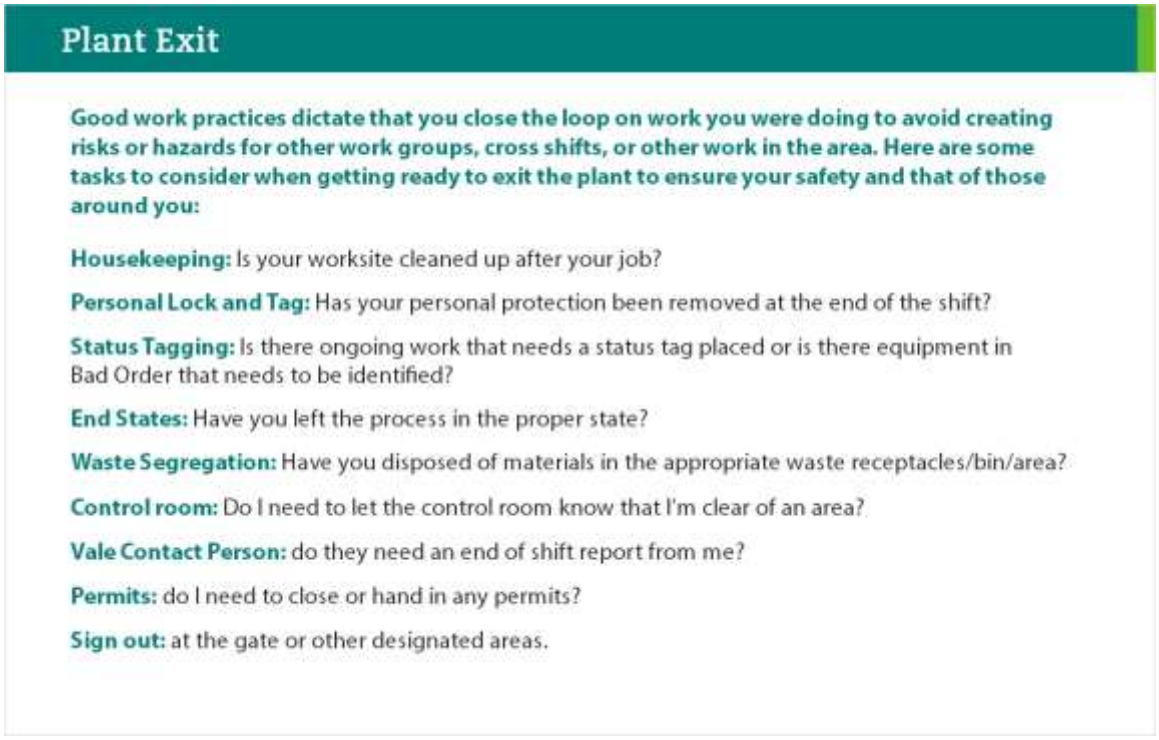
8. Plant Exit

8.1 Plant Exit

8.2 Arriving on Surface



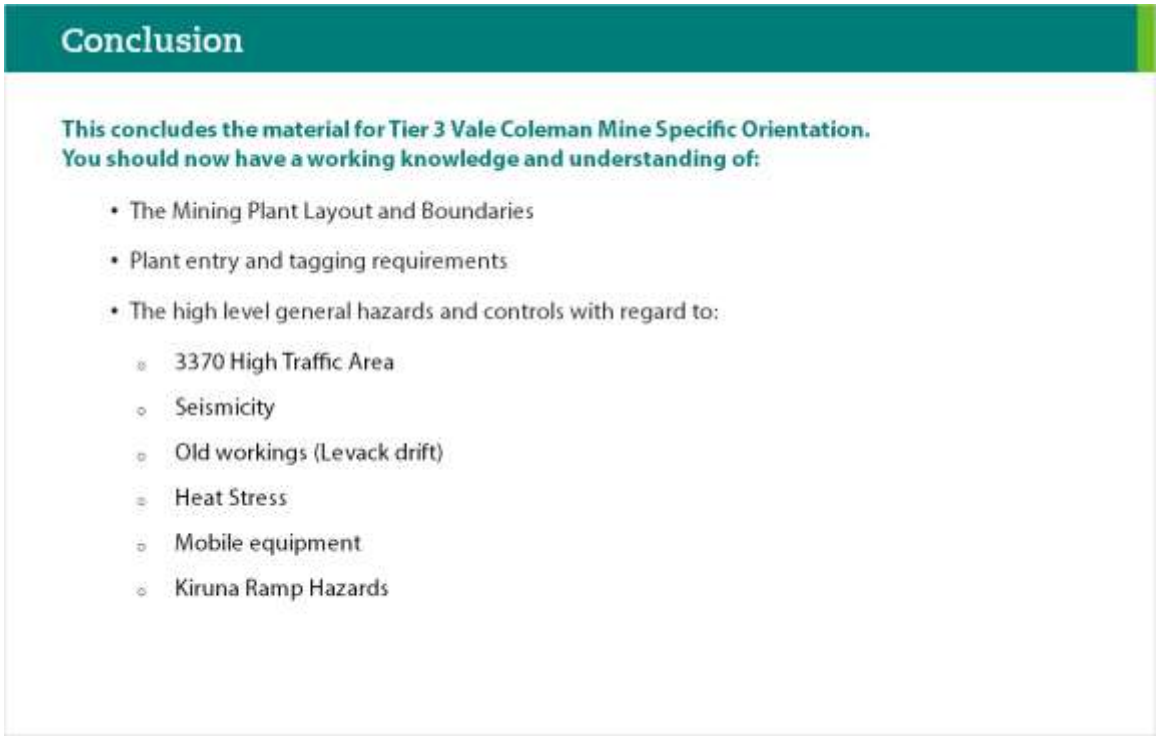
8.3 Plant Exit



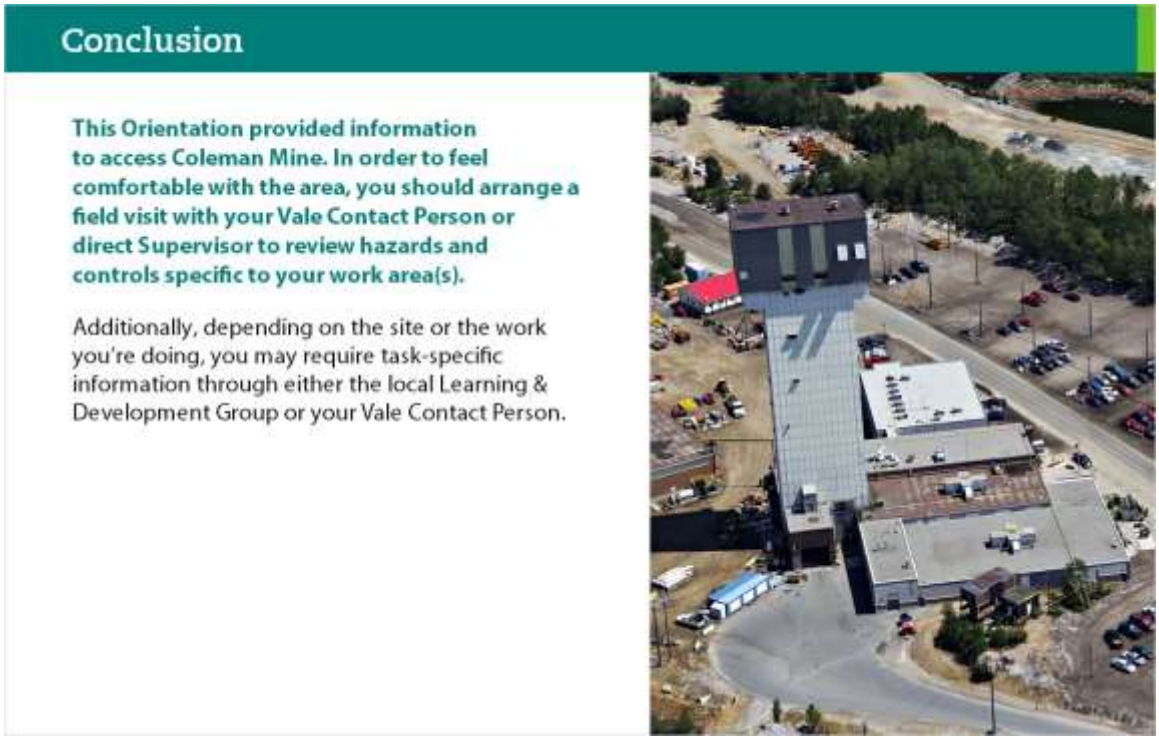
9. Conclusion

9.1 Conclusion

9.2 Conclusion



9.3 Conclusion



9.4 Start The Module Quiz