

## Tier 3: CCM South Mine Project Ramp Travel Orientation - 54

### 1. Copper Cliff Mine Project Ramp Travel

#### 1.1 Copper Cliff Mine



## 1.2 Copper Cliff Mine Project

# CCM Phase Phase 1 Project

## Ramp Travel Training

DM# 1271639 – Revision 4.1 date Dec.28, 2018

## 1.3 Course Objectives

### Course Objectives

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

- Follow the Copper Cliff Mine Project Ramp Procedure
- Identify Site Specific Hazards and Controls for Copper Cliff Mine Project Ramp
- Follow Procedures in the event of:
  - Equipment Damage
  - Personal Injury
  - Process Upset (Emergency Preparedness)



## 2. Introduction

### *2.1 Introduction*

# General Ramp Travel

## 2.2 General Ramp Travel

# General Ramp Travel

### Introduction

All personnel driving equipment on the ramp on the CCM Project are to be **reviewed annually** on this training package along with procedure Traveling with mobile equipment at CC Mine Procedure # 22OPTP001.



## 2.3 General Ramp Travel

# General Ramp Travel

### Introduction

Shown below is the location of the Copper Cliff Mine Project portal used for accessing the underground workings.



Be aware that if you do not fit under the yellow banner you *will not fit under the* 500 Level rollup doors.





## 2.4 General Ramp Travel

# General Ramp Travel

### Introduction

The picture below shows the appropriate signage that is posted during blast clearing.



Blast Clearing in Process



## 2.5 Radio Protocol

# General Ramp Travel

### Radio Protocol

**Whenever driving on the ramp underground at CCM Project, the proper radio protocol must be adhered to at all times:**

- CCM Project radio's must be in working order.
- If radios are not in working order, a JHA must be performed.
- English is the only language to be used for radio communication.
- Radio communication has to be clear and concise.
- If there has been any indication of a misunderstanding, repeat the message.
- Outside of Ramp protocols, Channel # 7 is designated for further work conversations.
- *Prior to entering* the ramp, you must announce on the designated radio channel your direction of travel, the equipment type and the locations from where you are departing to where you're going.

## 2.6 Ramp Entry - Hazard Awareness

### General Ramp Travel

#### Ramp Entry – Hazard Awareness

You are likely to encounter excessive fog in some areas of the ramp depending upon temperature and ventilation pressures, as well as very narrow sections. Drivers must regulate their speed accordingly.

The CCM Project Ramp system consists of over 8 miles of ramp, all vehicles traveling the ramp must have good brakes and must be in good operating condition.



## 2.7 Ramp Entry - Hazard Awareness

### General Ramp Travel

#### Ramp Entry – Hazard Awareness

**Any personnel who will be driving must follow the rules for driving underground at Copper Cliff Mine Project:**

- A proper pre-operational inspection must be performed at the start of every shift.
- Follow brake test protocol prior to entering the ramp.
- In cold weather, drag the service brakes for a period of time prior to entering the ramp to eliminate the hazard of “hoar frost”.



## 2.8 Ramp Entry - Hazard Awareness

### General Ramp Travel

#### Ramp Entry – Hazard Awareness

Additional rules that must be followed when traveling the CCM Project ramp include the following:

Follow the *rules for priority* of right of way underground:

- *First* – Emergency Vehicles
- *Second* – Vehicles transporting explosives
- *Third* – *The larger vehicle*

The vehicle with lower priority must pull off to let the higher priority vehicle pass.



## 2.9 Ramp Entry - Hazard Awareness

### General Ramp Travel

#### Ramp Entry – Hazard Awareness

Additional rules that must be followed when traveling the CCM Project ramp include the following:

- Use common courtesy at all times on the ramp.
- If you encounter another vehicle on the ramp, use the pull off areas as indicated by the "P" signage. The pull off areas are also marked with reflective poles.
- All mobile equipment must maintain 100 feet between pieces of mobile equipment.



NO PASSING IS ALLOWED ON THE RAMP AT ANY TIME!!





## 2.10 Ramp Entry - Hazard Awareness

# General Ramp Travel

### Ramp Entry – Hazard Awareness

**Prior to entering the ramp the Ramp Dispatcher will:**

- Communicate with personnel via radio channel 6.
- Monitor ventilation values and inform personnel traveling in restricted ventilation zones.
- Provide information via LED displays at the entry points to the ramp at the Traffic lights.

These traffic lights will be in an amber state in most cases but when there is a red light operators are to read the display to determine the reasoning for the red light (Emergency, ramp closure, etc) Do Not proceed unless first contacting the dispatcher.



## 3. Upper Light System

### *3.1 Upper Light System*

# Upper Light System

### 3.2 Upper Light System

## Upper Light System

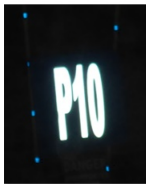


When traveling the ramp at Copper Cliff Mine Project it is important to be aware of and understand the following;

All mobile equipment operators are to use and respect the existing ramp traffic signal lights from the Portal to 250 Level and 250 to 500 level (*there is no requirement to call on radio unless there is an issue with the lights*).

Mobile equipment operators are required to call out their locations as they travel.

The project uses "P" signage to identify locations where vehicles can "Pullover" and wait for other equipment to pass.



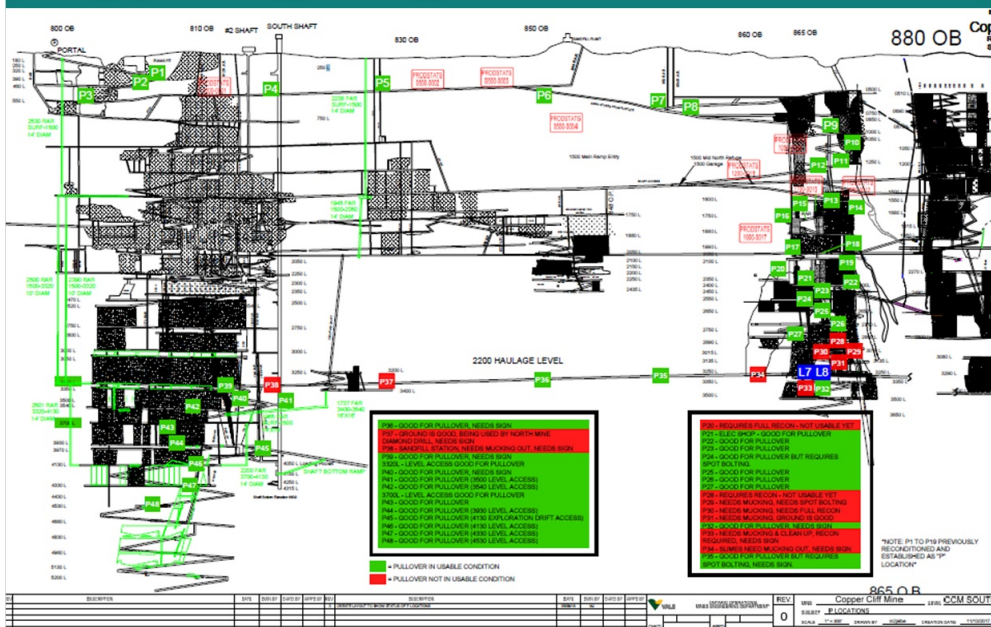
Arrow to Surface



View  
"P" Locations

### Pull Over Locations (Slide Layer)

## Upper Light System





### 3.3 Upper Light System

## Upper Light System



When traveling the ramp at Copper Cliff Mine Project it is important to be aware of and understand the following;

- If you are waiting more than two minutes at the RED light, call the dispatch for direction or before ascending down ramp.
- It is acceptable for a Toyota (or similar personnel - carrier) to follow another vehicle – provided you maintain 100 feet between equipment.
- It is the responsibility of the last vehicle in the chain to change the light signal as they exit that section of ramp.
- If you meet a piece of equipment exiting a section of ramp at the lights, wait 10 seconds before changing the light to red and proceeding to ensure there isn't another vehicle following.



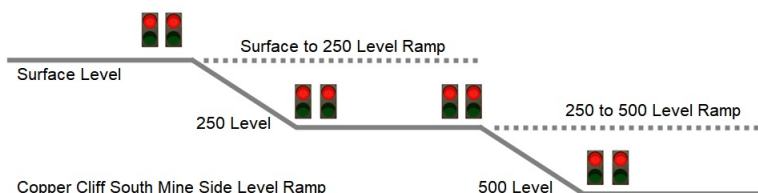
### 3.4 Upper Light System

## Upper Light System



When traveling the ramp at Copper Cliff Mine Project it is important to be aware of and understand the following;

- There are four sets of red and green lights on the Copper Cliff Mine Project Ramp.
- One system services surface level of the ramp to 250 level, and the other services 250 level to 500 level travel route.
- A **green** light means the ramp is clear. This is the **ONLY** time you can pull the cord to switch to red; which in turn restricts the ramp to more traffic from entering.
- A **red** light indicates a vehicle is presently traveling the ramp in the same section. If you encounter a red light, you cannot proceed until it changes to green.



### 3.5 General Ramp Travel

## General Ramp Travel

Additional rules that must be followed when traveling the CCM Project ramp include the following:



Be aware of areas on the ramp with low height clearance and narrow width.

Prior to entering, fully engage the gearshift in 2nd gear.

Do not change gears while traveling on the ramp.

Ensure all blue, strobe and running lights are functional and on at all times.

There are many areas in the mine where aging infrastructure may exist, (e.g. pipe, screen, etc.) that could cause hazards in the travelway. ALWAYS USE CAUTION!

### 3.6 Ventilation Restricted Area's

## Ventilation Restricted Area's

Additional rules that must be followed when traveling the CCM Project ramp include the following:



This sign will be found before entering location P-3 to P-6 and from P-6 to P-3.

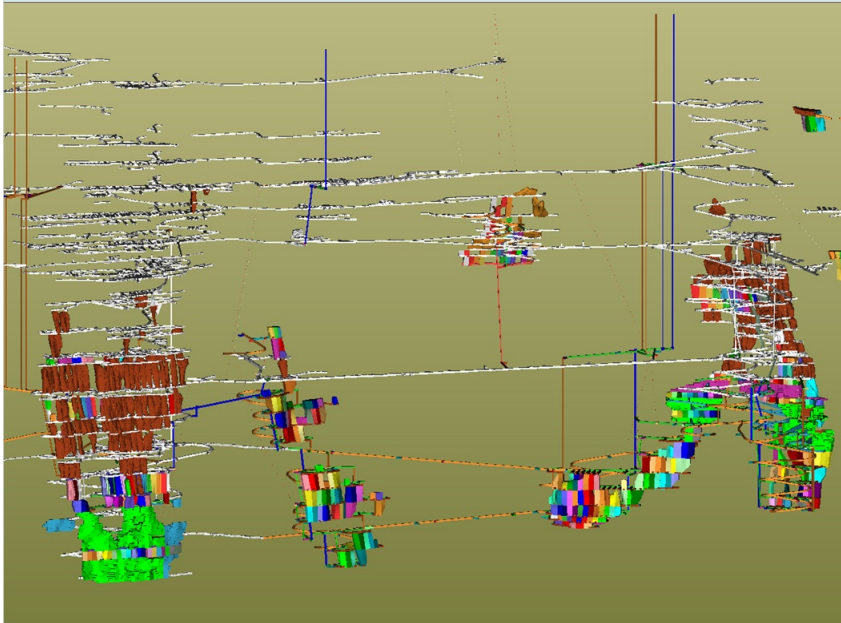
This signage will also be found when going from 1500L to 2050Level (or P18) and from 2050L (P18) to 1500Level.

Before entering you must contact the Dispatcher on channel 6 to get clearance to proceed.

[View  
Main Ramp  
from Surface](#)

## Main Ramp Map (Slide Layer)

### Ventilation Restricted Area's



Hide  
Main Ramp  
from Surface

## 3.7 500 Level Roll-up Door

### 500 Level Roll-up Door

Additional rules that must be followed when traveling the CCM Project ramp include the following:



The 500L rollup door frame is 9.5 ft high and 13.8 ft wide.

DO NOT PROCEED THROUGH THE DOOR WHEN THE LIGHT IS FLASHING AND THE ALARM IS SOUNDING.

When you approach the door the light will begin to flash and the alarm will sound, once it is fully open the light will stop flashing and the alarm will silence.



### 3.8 500 Level Roll-up Door

## 500 Level Roll-up Door

Additional rules that must be followed when traveling the CCM Project ramp include the following:



If no movement of equipment occurs after 15 seconds the door will close again.

To reactivate the door the vehicle must move towards the door.

The motion sensor will not pick you up if you are backing away from the door.

The door will not close if a vehicle is stopped under the door.

## 4. Ramp Travel in Haulage Areas

### *4.1 Surface General Hazards*

# Ramp Travel in Haulage Areas

## 4.2 Ramp Travel in Haulage Areas

# Ramp Travel in Haulage Areas

As previously reviewed in the Tier 2 - Underground Entry Requirements module the All Mines Standards provide additional controls to mitigate risk while entering or working in or around haulage areas, which include;

- Only authorized personnel may enter a trackless haulage area. It is the responsibility of such personnel to proceed with caution to their destination without undue delay having due regard for the movements of the haulage equipment.
- No work whatsoever is to be done in the trackless haulage area unless the operators concerned have been fully advised of the nature and location of the work and until adequate measures have been taken to ensure the safety of the workers. The operators concerned are to be advised of the completion of any such work before the workers leave the area.
- Under no circumstances may a person place themselves in the path of travel of a scoop while it is cleaning a face or during any mucking operation without notifying the scoop operator first and receiving approval to do so.



## 4.3 Ramp Travel in Haulage Areas

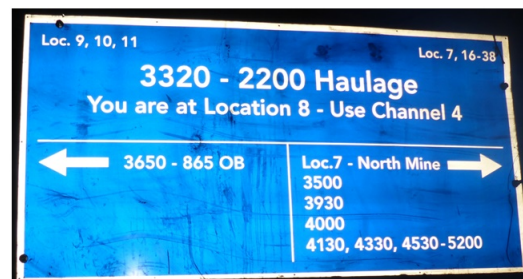
# Ramp Travel in Haulage Areas

Under the CCM Haulage protocol (22OPTP001), the following duties of all mobile equipment operators must be followed when operating in haulage areas:

All operators must assume that there are haulage trucks in operation.

All operators must ensure they do not interfere in any way with the movement of the haulage trucks.

When entering the area, the operator must announce twice on the radio, on the designated channel (4) identifying the type of equipment, current location and destination.





#### 4.4 Ramp Travel in Haulage Areas

## Ramp Travel in Haulage Areas

Under the CCM Haulage protocol (22OPTP001), the following duties of all mobile equipment operators must be followed when operating in haulage areas:

**For example:**

For example: A Toyota wants to go from location 8 to 7, the operator is to switch to channel (4) and announce "Toyota 6999 location 8 to 7 and then repeat "Toyota 6999 location 8 to 7 if there is no reply from truck operators or other mobile operators in the Designated Haulage Areas, then proceed with caution.

Once the Toyota approaches location 7, the Toyota operator is to switch to channel 5 and start announcing (P) locations.

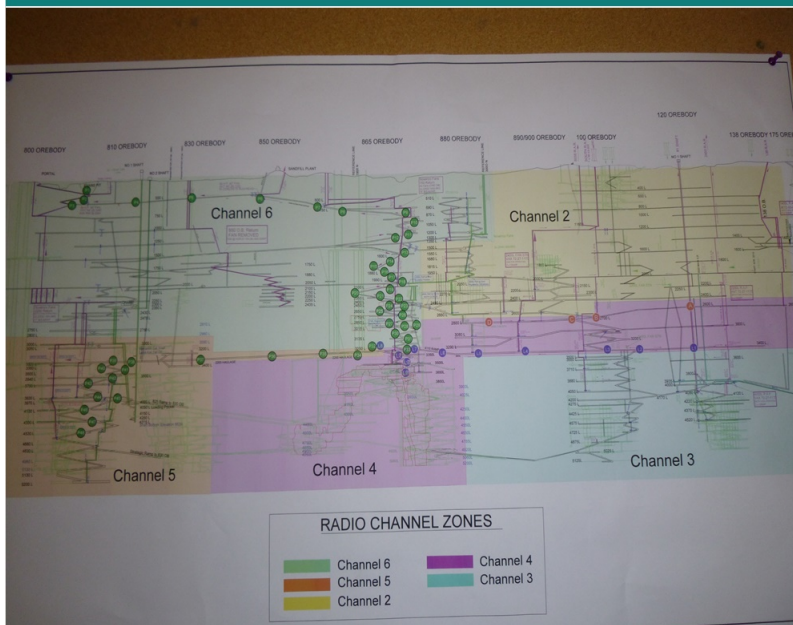
While returning back up ramp this example is reversed and once off the haulage area at Location 8 switch to channel 6 and again announcing P locations.

**Note:** Slow moving equipment, such as Jumbos, Kubotas or Scissor Trucks are to announce only one location at time.

View  
Radio Channel  
Zones

## Radio Zones (Slide Layer)

## Ramp Travel in Haulage Areas



**Hide  
Radio Channel  
Zones**

#### 4.5 Ramp Travel in Haulage Areas

## Ramp Travel in Haulage Areas

Under the CCM Haulage protocol (22OPTP001), the following duties of all mobile equipment operators must be followed when operating in haulage areas:

When following any vehicle, always inform the driver that you are following them across the level or up/down ramp, and maintain a distance of 100'.

Vehicles traveling in haulage areas can pull off at the designated locations, or the x-cuts that are marked with reflective poles on the back, to get out of the way of other traffic.



#### 4.6 Ramp Travel in Haulage Areas

## Ramp Travel in Haulage Areas

Under the CCM Haulage protocol (22OPTP001), the following duties of all mobile equipment operators must be followed when operating in haulage areas:

If a piece of mobile equipment breaks down in the designated haulage area:

- Park with the down ramp end turned towards the wall
- Apply the parking brake
- Lower the bucket or blade (if applicable)
- Turn off the engine
- Turn off the master switch
- Place wheel chocks
- Ensure strobe lights are on



#### 4.7 Ramp Travel in Haulage Areas

## Ramp Travel in Haulage Areas

Under the CCM Haulage protocol (22OPTP001), the following duties of all mobile equipment operators must be followed when operating in haulage areas:

If a piece of mobile equipment breaks down in the designated haulage area:

- Make an announcement on the radio indicating location where the vehicle is parked on the ramp
- Notify your supervisor
- Place indicators approximately 100 feet on each side of the vehicle



#### 4.8 Ramp Travel in Haulage Areas

## Ramp Travel in Haulage Areas

Under the CCM Haulage protocol (22OPTP001), the following duties of all mobile equipment operators must be followed when operating in haulage areas:

In designated Haulage Areas there will be no parking of mobile equipment or storage of materials in the marked locations.

Supervisors will communicate in their line-up, all haulage activity that will occur throughout the shift to their personnel.





#### 4.9 Working on Disabled Vehicles on the Ramp

## Ramp Travel in Haulage Areas

### Working on Disabled Vehicles on the Ramp

Prior to performing any maintenance repairs on a disabled piece of equipment that is not turned into the wall you must ensure that;

- Single guardrails are installed to control access from all approaches, 100 feet away from the vehicle.
- A second vehicle of equal or greater weight must be positioned up against the disabled vehicle on the down side to prevent runaway.



#### 4.10 Additional Requirements for MMTS personnel

## Ramp Travel in Haulage Areas

### Additional Requirements for MMTS personnel

- One person per group traveling together is required to carry a large strobe light to be hung on the screen when entering a workplace.
- Reflective striping is to be applied to all MMTS gear used underground for example:
  - Reflective tape on tripod legs.
  - Reflective tape on vent anemometers.
  - Hot dots on survey equipment.
- Reflective material is to be maintained in good working order (i.e. still reflective).



#### 4.11 Additional Requirements for MMTS personnel

## Ramp Travel in Haulage Areas

### Additional Requirements for MMTS personnel

Verbal communication is required to all trucks and scoops in the area, providing the following information:

- Who (geology, survey, ventilation, etc.) and how many you are;
- How you will be traveling (by foot, jeep, other);
- Where you will be working (exact workplaces) and how long you plan to be there;



#### 4.12 Additional Requirements for MMTS personnel

## Ramp Travel in Haulage Areas

### Additional Requirements for MMTS personnel

Verbal communication is required to all trucks and scoops in the area, providing the following information:

- When you leave, follow up communication is required to let operators know you have completed your work and are out of the area;
- Face to Face communication is encouraged, radio is acceptable;
- Mandatory MMTS attendance at Operations morning meetings (by at least one person who will report back to the rest of the MMTS group).



## 4.13 Pedestrian Responsibilities

# Ramp Travel in Haulage Areas

### Pedestrian Responsibilities

**Because of the limited visibility associated with large underground equipment, local traffic plans and entry protocols must be respected.**

Pedestrians are to exercise caution when walking in the main haulage areas;

- All pedestrians will keep his/her radio on the applicable channel while traveling;
- When walking in the Haulage Areas, the pedestrian will announce on radio of their location and their destination;
- Pedestrians are to give the right of way to all mobile equipment and are to be in a safety bay when passed by mobile equipment. Make your presence known to the operator(s) who are operating in the area.





## 5. Refuge Stations

### *5.1 Refuge Stations*

# Refuge Stations

## 5.2 Refuge Stations

### Refuge Stations

Before you head underground on the CCM Project ramp, be sure that you know for sure where your nearest phone and active refuge station are located.

Become familiar with your ventilation flows and escape routes in your work area.

Be sure you understand what to do in the event of an emergency. **HAVE A PLAN IN PLACE!**



## 5.3 In the Event of an Emergency

### Ramp Travel in Haulage Areas

#### In the Event of an Emergency

In the event of a underground fire, stench will be injected into the mine and a radio broadcast will be made to each caplamp radio.

If this happens while you are driving underground, report immediately to the nearest Refuge Station.

If you are driving a vehicle, park it in a safe location off the main travel ways, and never on the Ramp! Follow procedure in refuge station.

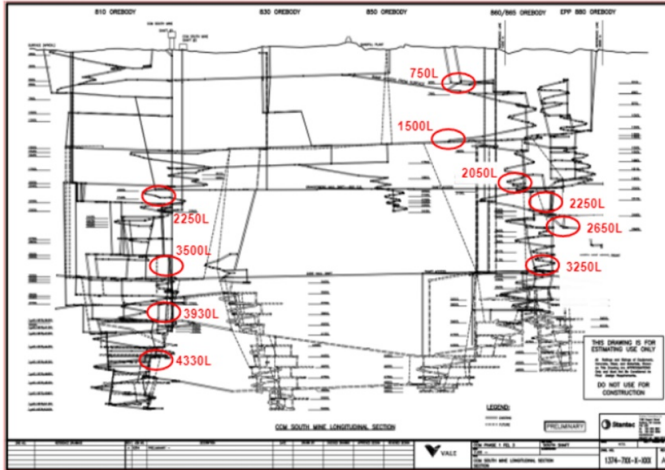
Refuge Station	Ore Body	Distance from Ramp
750L	865	650' from 550 ramp
1500L	810	850' from 1540 ramp
1500L	850	625' from 865 ramp
2050L	865	400' from 1990 ramp
2250L	810	470' from 2160 ramp
2650L	865	50' from 2250 ramp
3250L	865	440' from 3250 ramp
3500L	810	150' from 3320 ramp
3650L	865	350' from 865 ramp
3930L	810	250' from 3700 ramp
4000L	810	1200' from 3930
4330L	810	330' from 4130 ramp

[View  
Refuge Station Locations](#)

## Refuge Station Locations (Slide Layer)

# Ramp Travel in Haulage Areas

### In the Event of an Emergency



Refuge Station	Ore Body	Distance from Ramp
750L	865	650' from 550 ramp
1500L	810	850' from 1540 ramp
1500L	850	625' from 865 ramp
2050L	865	400' from 1990 ramp
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3650L	865	350' from 865 ramp
3930L	810	250' from 3700 ramp
4000L	810	1200' from 3930
4330L	810	330' from 4130 ramp

Hide  
Refuge Station Locations

## 5.4 In the Event of an Emergency

# Ramp Travel in Haulage Areas

### In the Event of an Emergency

In the event of **Level 3 on surface** – Power to the Fresh Air fans will be disconnected.

If this happens while you are driving underground, report immediately to the nearest Refuge Station.

If traveling on the Ramp above 750L to surface, turn around and report to 750L refuge station. 750L is the first active refuge station underground.

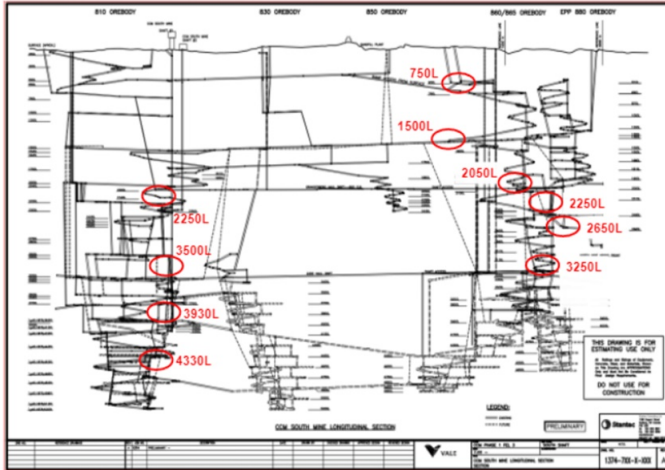
Refuge Station	Ore Body	Distance from Ramp
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4330L	810	330' from 4130 ramp

View  
Refuge Station Locations

## Refuge Station locations (Slide Layer)

# Ramp Travel in Haulage Areas

### In the Event of an Emergency





## 5.6 Start The Module Quiz



Thank you for completing the  
Vale Online Module Training.

To start the module Quiz

[CLICK HERE](#)