

2016 CMR Contest

May 12 – 14, 2016

Mine Information – Page 1

General

The Hard Luck Mine is a multiple level zinc/copper/silver mine operated by Hasty Prep Mining Company. Flint Rock is in charge of the mine. The Hard Luck is located approximately 100 miles south of Kellogg, ID. The workforce consists of 10 people, 7 of which work underground on a regular basis. The mine is in operation 6 days a week, 10 hours a day. The mine was recently reopened by Hasty Prep. It had been inactive/idle for decades.

Access

Access into the mine is gained via two shafts. Shaft #1 (west) is used as an intake and shaft #2 (east) is the exhaust. #2 shaft is equipped with a skip to hoist ore. The drift width/height is fairly consistent through out the mine at 8' x8'.

Explosives

Explosives are used within the mine, but are stored in magazines on the surface. There should be no explosives underground right now.

Power

Power to the mine is on, but we have shut the power going underground off at the main disconnect. It was turned off while under load & something is wrong with it. We will start trying to fix it as soon as you tell us to, but it may take a while to get it reset. The air compressors are still running. Power to the hoists is good to go. The main switch is guarded.

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Gas

This mine is a category VI mine and is typically considered non-gassy.

Communication system

The mine uses a pager/audio system. Phones are going to be installed at the shaft stations and in the shop. We have someone monitoring communications.

Ground Control

We use a wide variety of systems depending on the ground. The haulage is predominantly timbered.

Materials

Everything you need to work the problem is on site. If something outside of what is supplied is needed, it may take quite a while to get it.

Mine Maps

The maps were taken in to town to be scanned & sent to MSHA. All we have is a rough drawing a nipper did on the first day we were here. It's going to be 2 hours before they get back from town. I wish we had better news.

Mine Equipment

We have a jumbo and a loader underground. There are also pumps and fans, but not much else.

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Ventilation

The ventilation system is downcast and the main fan is on the surface. Air is coursed through each level using a variety of doors, curtains, raises (some used as manways), booster and auxiliary fans. With the power to the underground off, all of the fans (including the main fan) are off too.

Water

This mine does make water. We have sumps and pump stations on each level.

Notification

All Federal, State & Local authorities have been notified. EMS is on site to transport casualties.

Backup Teams

Your backup team is on site and ready. Two other teams are on the way. One will be here in 5 minutes.

Team Briefing Statement

Thank God you're here! About an hour ago I overheard one of my people come over the audio shouting "who took the !#*\$ ladder out of the manway"! I got on the radio to find out who was cussing & never got an answer. A few moments later the toplander ran into the lamp room yelling that there is smoke coming out of the #2 shaft. He also told me that he'd shut the power off to the underground.

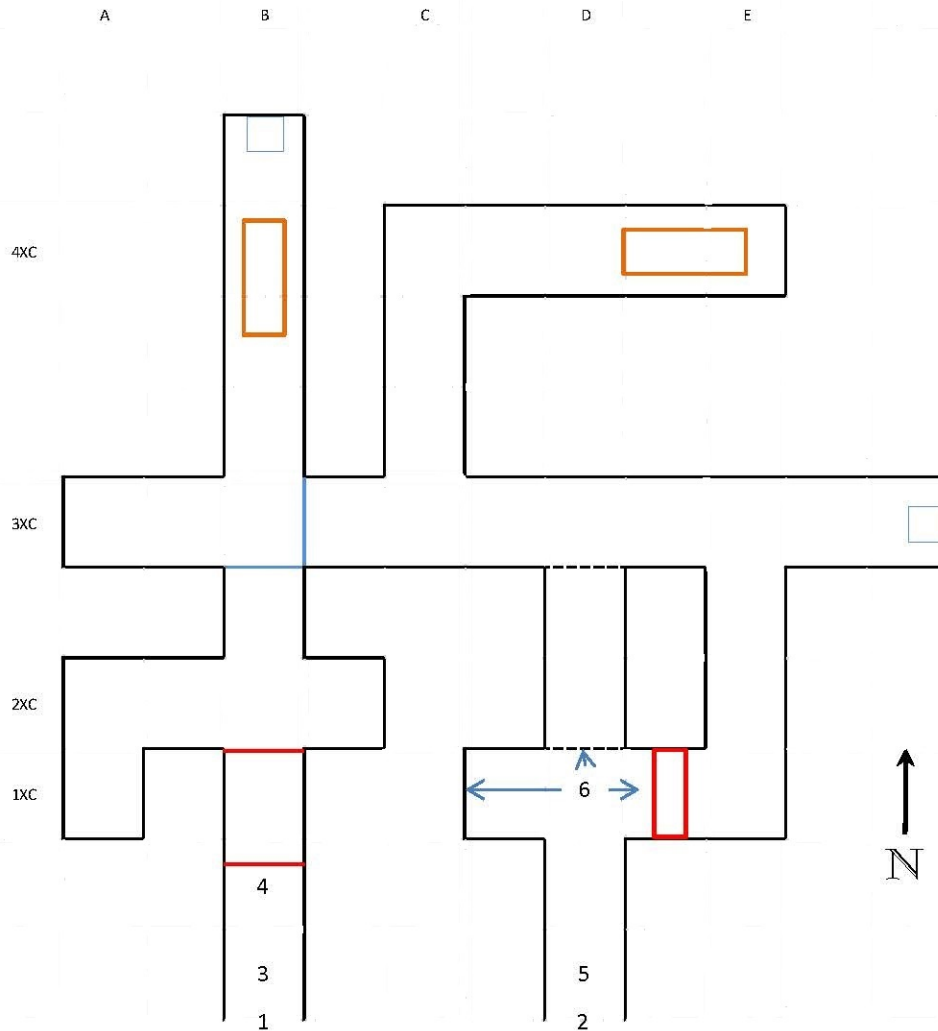
We still can't raise anyone on the audio & none of us have mine rescue experience. We need your help.

We have 4 miners working underground today. All 4 are working on the 500 level (the only active level). The miner's names are:

- Bill (ID #10)
- Bob (ID #12)
- Brody (ID #3)
- Bart (ID #5)

We need your team to explore/assess the 500 level, seal or extinguish any fires and rescue any survivors. You will have 75 minutes to complete the problem.

GOOD LUCK!



1 & 2 – Gas test & run conveyance. #1 shaft Clear air. #2 Shaft elevated CO, low O₂. Items sent down – no problems.

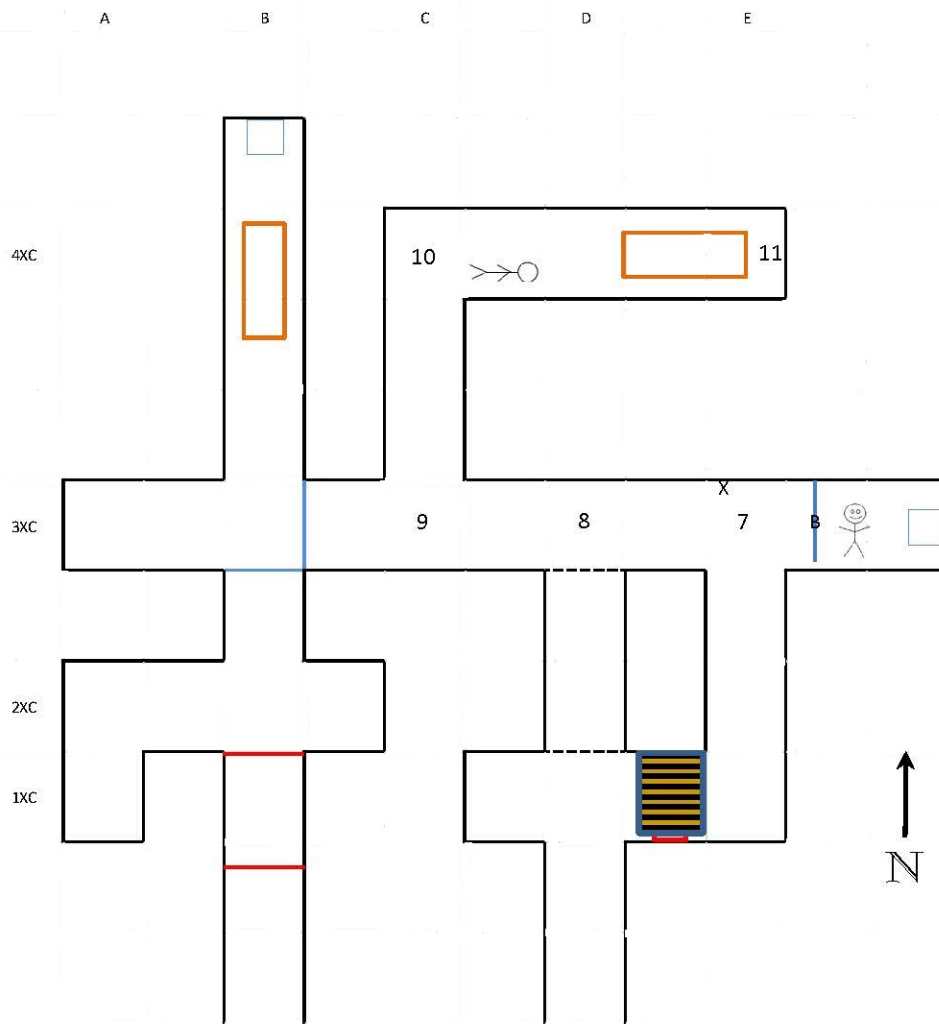
3 – First entry into the mine (smart Captain picks up max roof supports (5). Cage stops at the 500 level. Captain checks back coming off of cage & team counts off going into the mine.

4 – Team advances (may do 50' team check) & encounters unsafe roof & ribs. Team cannot proceed w/o proper support. Area is 10' long & will need a minimum of 8 supports (see pg. 35). Team cannot carry >5 roof supports. **!Since the team can't travel up B without support, most teams will come out & travel shaft #2.** Captain will D&I furthest point of advance.

5 – Team must count off entering into smoke. On arrival at the station the Captain checks the back leaving the cage.

6 - Team advances to 1XC-D intersection. Gas tests across openings, no change in gas concentrations. Captain stretches to the door (ahead) and knocks. No answer. If Captain asks, door is cool to the touch. Captain will D&I the door. Stretching to the left, the Captain finds placards for 7 lagging. Further in he will find the face placard. He will D&I the face. Stretching to the right he will find a placard for a grizzly with muck on it. **!! Potential for endangerment here!!** [If the Captain sets a foot on the grizzly without first covering it with all 7 lagging, #1 Judge will have the Captain go to the ground. The Judge will notify the team that the Captain has broken his right leg from falling through bridged material. The Captain must be immobilized and removed from the mine]

- Judges watch for proper bell use including releasing the cage and closing the cage door.
- Due to the CO and O₂ levels the team cannot airlock into or pass through the airdoor. They will need to ventilate the mine.
- The 20 minute team check clock begins as soon as the 50 foot team check is completed.



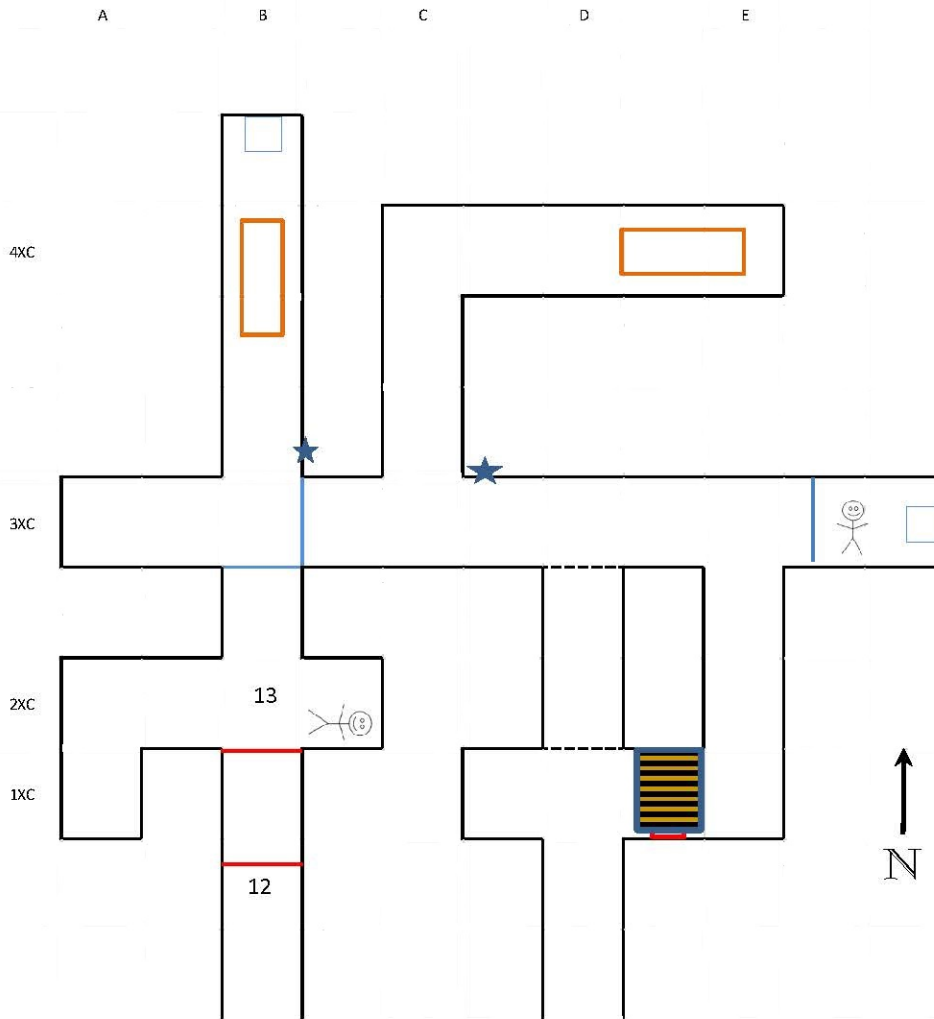
7 - Once the lagging is in place, the team will advance up E to 3XC. The team will make gas tests across entries east & west. [Note: exploration will be slowed a bit so the Map man can do his job] Directly ahead along the north rib the team will find a piecan with a note in it [note is from miner behind the barricade]. The Captain will stretch to the right & knock. Somebody should answer using the script of this miner. Gas conditions will not allow the team to airlock in. Gas test should be made at the barricade & the Captain must D&I the barricade.

8 - The team can continue west in 3XC. At D the team will find a closed airdoor. The team may do a gas test here. The Captain must D&I the airdoor. As with the other side, gas conditions will not allow an airlock to be built.

9 - The team will advance to C. Gas test will be made across both sides of the intersection. Per rule, since B is impassible due to bad roof & rib 2+3 does NOT apply. However a few teams may not realize this & come out of the mine to support in & explore B. If that happens, it's fine. From 3XC-C intersection the Captain can stretch west, but must stop at the placard before B. The placard will show water over knee deep. The Captain must D&I the water over knee deep and furthest point of advance.

10 - Since 2+3 does not apply the team may head north in C. When they reach the turn the team will find a miner laying on his back face up. The Captain will check the condition of the back over the miner and a primary assessment will be conducted. Once complete, the #2 Judge will flip the placard to show the team that the miner is not showing signs of life. The Captain must D&I the body.

11 - The team will find a set of stopping materials along the north rib opposite the body. The team should explore the rest of 4XC. Before they reach the face, they will find a Jumbo drill. Gas tests should be conducted at the face and the Captain will D&I the furthest point of advance. The team cannot explore further without pumping the water or ventilating the mine & must come out of the mine.

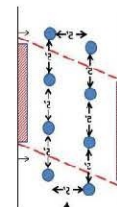


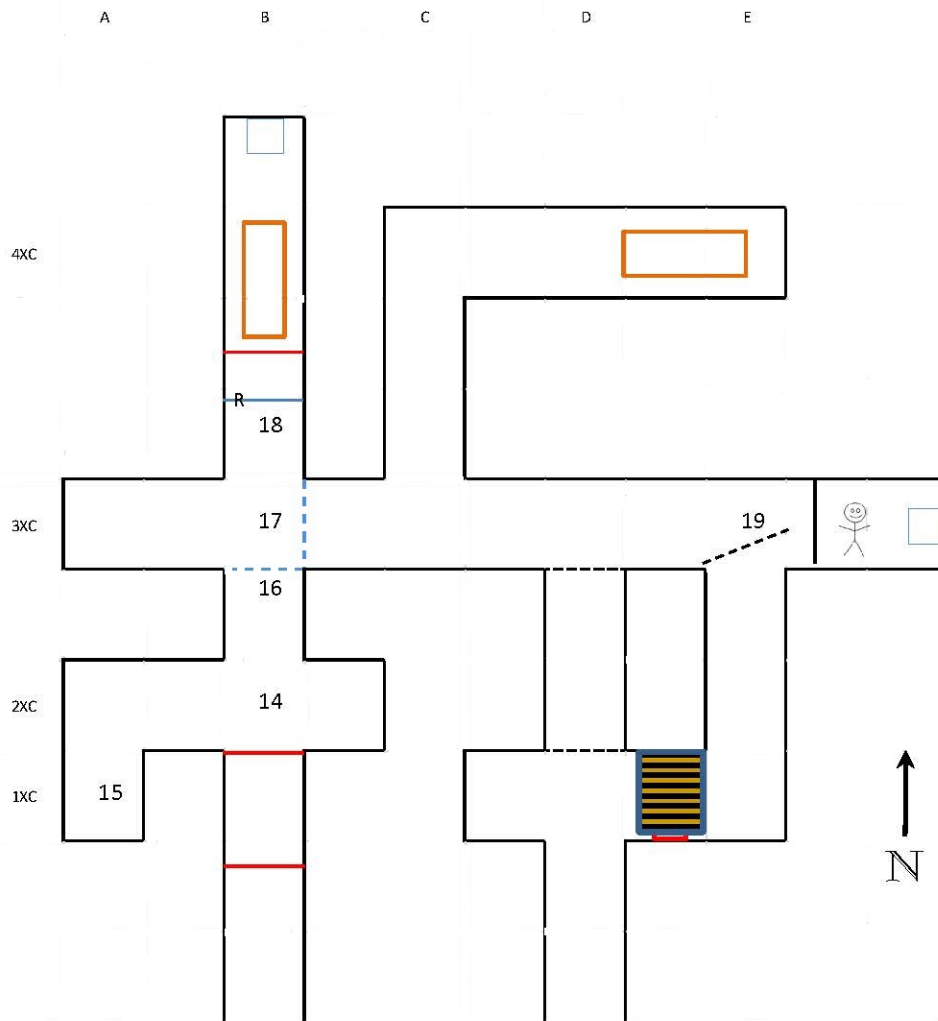
12 - The team will need to have 8 roof supports to properly support the unsafe roof & ribs. If they did not carry 5 in during the initial exploration they will need to make two trips. When setting the roof supports the team must follow the example shown in the rule book on page 35. Be watchful of the placing of the supports & remember that they cannot be more than 5' apart.

13 - When the team enters the intersection gas tests need to be made across all three sides. The team will undoubtedly notice a miner laying face up with a hat over his face. When the team begins the primary assessment the miner will "wake up" and read from the script on the back of the placard. The team must bring the miner out of the mine.

We'll use this opportunity to discuss a second scenario for entry & the potential pitfalls.

It is possible that a team may decide to support and continue up entry B instead of coming out of the mine and exploring D as mentioned earlier. It is possible, but doing so exposes a team to violation(s) of the 2+3 rule in two places in 3XC and B (see the stars). Judges may need to be ready to rearrange people on the field rapidly to cover this eventuality. As always, we will not stop a team from breaking a rule or doing something contrary to the original scenario. Instead we will use the discount point system.





14 – After the miner is removed from the mine the team can reenter and complete the exploration of the intersection. From the intersection the Captain can stretch forward in B to the water over knee deep placard and to the left into 2XC

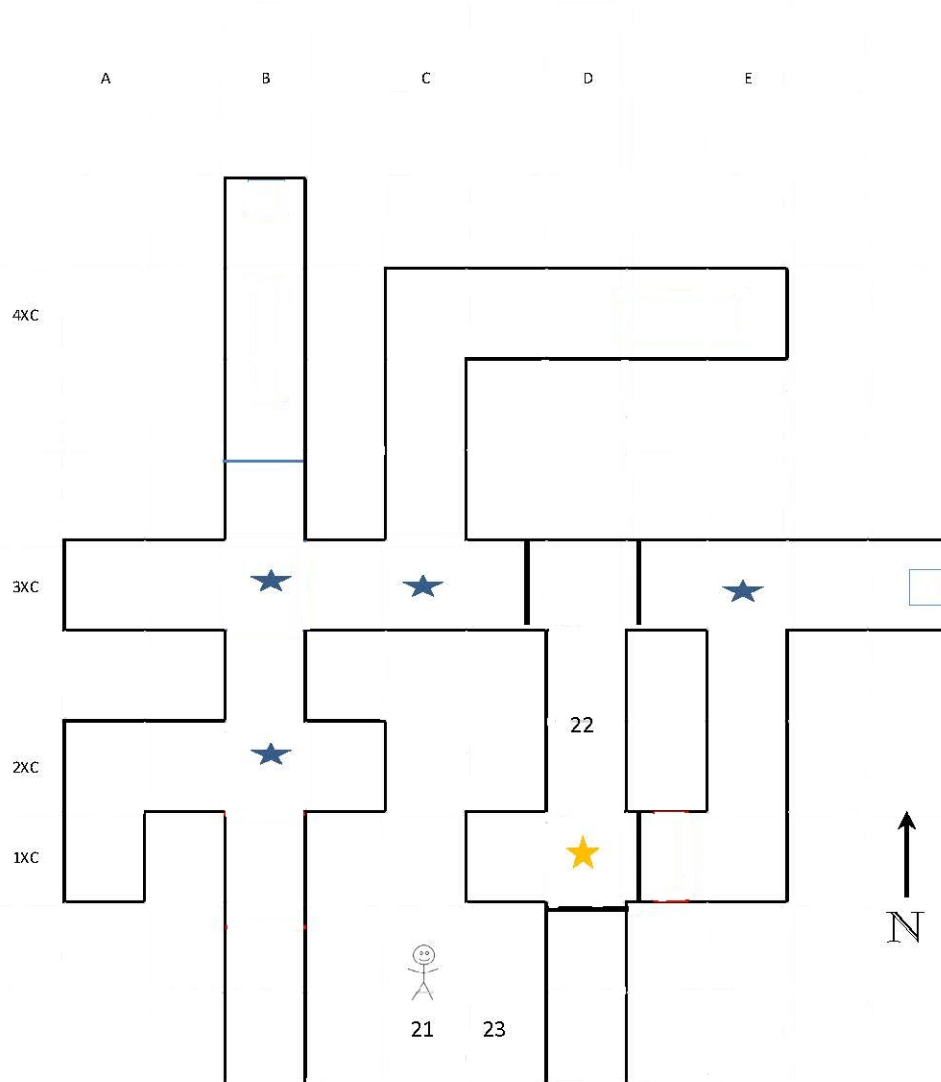
15 – In 2XC the team will find a pump, pipe, stopping material and bag. The Captain will find a placard at the face & must D&I the face before coming out.

16 – The team will advance up B toward 3XC. The Captain will discover a placard indicating water over knee deep. He/she will also find a placard showing smoke, elevated CO and low O₂. The team will have to go back to 2XC & gather the supplies needed to connect the pump. Once the team has indicated that they have put the items together and turned the pump on, the #1 judge will tell the team that the water is gone and flip the placard over.

17 – Once the water is pumped the team can tie-in what has already been explored to the east. They can also explore the previously flooded area. The team must call out going into smoke as they move into the intersection. Gas tests must be conducted across all 3 sides and at the face in 3XC.

18 – As the team advances in B, they will encounter a placard indicating intense heat and just beyond that one for a “truck on fire”. If the team attempts to put the fire out it does not work. The team must retreat and build a temporary stopping across B. Unless the team calls in for a ventilation change, the stopping must have a regulator Watch to see if the team checks the back.

19 – The team should start to devise a plan for ventilating the mine. Ventilation is as easy as it gets; turn on the min fan and the haulage is cleared. The team will need to erect a wing curtain at 3XC-D to direct air in front of the barricade to clear the air. The #2 judge will need to be alert and flip the placards over at the appropriate time.



20 – The team can enter into the barricaded area without building an airlock (the script will contain info on the room beyond). They will need to assess and provide any necessary treatment to the miner behind the barricade before removing him from the mine. If the Captain is on the ball, he will pass the miner off to his first-aider for care & explore the inside of the room.

21 – The direction the team took to get to the barricade will dictate where gas tests need to be made as the team retreats with miner #3. Gas tests must be made at each intersection on the way out (see the stars).

22 – All 4 miners have not been found & there is one area where the team has not explored. The team does not know the conditions that exist behind the airdoors. This will require the team to airlock in to complete exploration of the accessible areas of the mine. The airlock can be built in 3XC on both sides of the door or in 2XC between the shaft station and door and across the entry to the right.

23 - With entry into the area between the doors, the team has explored all accessible areas within the mine. The team will undoubtedly be a little perplexed over the one missing miner. The team will withdraw from the mine back to the FAB. The Captain must inform the Judges of their findings and the one missing miner. The team can then stop the clock.