

# 2016 Nevada Regional Contest



DAY 1  
PROBLEM

**BE  
FEARLESS  
CONFIDENT  
STRONG  
BRAVE**

MINE RESCUE COMPETITION 2016  
WINNEMUCCA, NV



### **General**

The Busted Budget Mine is a multi-level gold mine operated by the Lowest Bidder Mining Company. Bob Harker is the current Superintendent and BJ McCracken is the mine manager this week. The Busted Budget is located south of Winnemucca, NV. Our workforce consists of 65 employees, with 10 miners working underground each shift. The mine is in operation 24/7 and each of the three shifts is eight hours long.

### **Access**

Access into the mine is through 2 steel/concrete lined shafts. Shaft #1 is utilized as the intake and #2 for the exhaust. Although drift width varies because of structure or composition they are generally 10' by 10'.

### **Explosives**

Explosives are used within the mine, but are stored in magazines on the surface.

### **Electricity**

Electrical service is provided to the mine by NV Energy. The primary disconnect for the mine is located on the surface. The main disconnects for each level are also on the surface in close proximity to the primary disconnect. There are power centers in various areas underground and some small switch boxes for smaller portable equipment such as fans and pumps.

## DAY #1 - Mine Information – Page 2

### Gas

This mine is a category VI mine and is typically considered non-gassy. On occasion we run into sulfide ore, so minimal concentrations of SO<sub>2</sub> & H<sub>2</sub>S are possible.

### Communication

The mine uses a leaky feeder radio system. Each piece of mobile equipment has a radio in it and miners on foot carry radios. The first mine rescue team checked the system when they got underground and found that the underground repeater wasn't working.

### Ground Control

Primarily friction stabilizers such as split sets, Swellex and Super Swellex. The pattern, type and length depend on structure. We have steel on site in case it's needed for sets. We have some timber underground placed in caches for immediate use.

### Materials

Everything you need to work the problem is underground at this time. If something outside of what is supplied is needed it may take time to get it (you know what **that** means).

### Mining Methods

Over & Underhand Stopping.

## DAY #1 - Mine Information – Page 3

### Mine Maps

The mine maps are current, but unfortunately we're having quite a bit of trouble with the printer. Please forgive us, but what you have is the best we can do for now.

### Mine Equipment

On the 500 level we should have a Cubex bench drill, Kubota Boss Buggy, 14 ton Elmac truck and a bolter (might be Tamrock, but I'm not sure).

### Ventilation

Ventilation in the mine is downcast. The main fan pushes around 50 kcfm down the intake shaft. The air is coursed through each level using doors and booster or auxiliary fans. In stope areas we typically use auxiliary fans to push a little more air down the slot to reduce recirculation. The main fan is reversible, but it will take some time to do it. Unfortunately someone panicked and turned the main fan off and we've left it off.

### Water

We're in Nevada, the mine doesn't make water & we're too shallow for contact with the aquifer. We do pump water underground for drilling if you need it.

### Notification

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

### Backup Teams

Two teams are resting. Their awesome benchman has their machines ready to go if needed. One additional team just arrived and will serve as your backup.

## DAY #1 - Team Briefing Statement

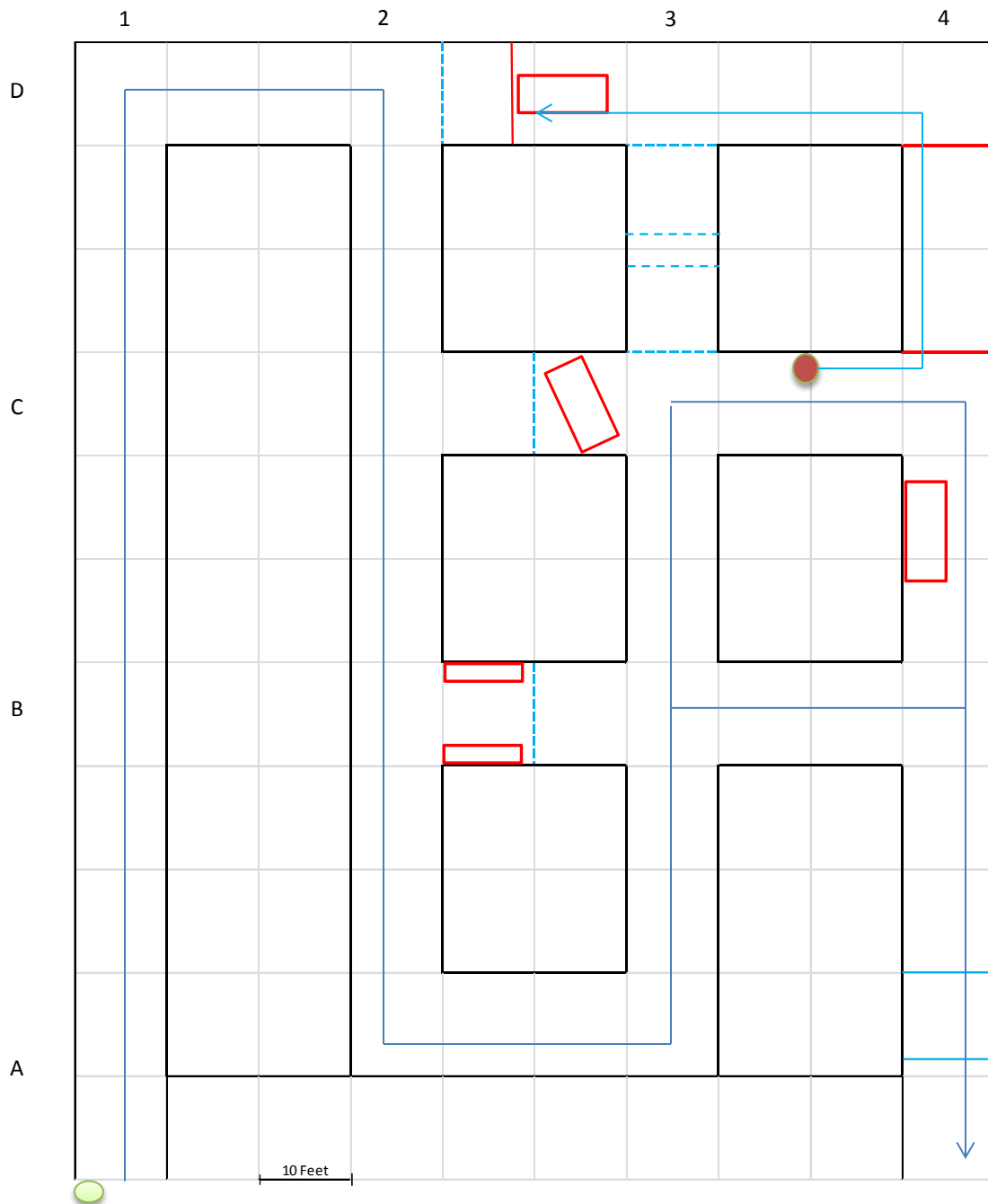
Boy, we're glad you're here and ready to go! It's already been a long day. The first team went underground at 10:00 a.m. this morning & the second team came up just a few minutes ago. It is your turn. Your back-up is here and getting their machines ready to go to the fresh air base.

At about 8 a.m. this morning the dispatcher received a call from one of our truck drivers that an LHD caught fire in the bottom of the stope cut on the 550 level. We dumped stench and evacuated the mine. When we pulled the last cage up we had 6 miners missing. The first team went underground and found three miners. On their way out the map man encountered problems with his apparatus, so the team stayed on the surface. The second team went down shortly after, explored the 550, found the fire and sealed it.

We still have 3 miners unaccounted for. Their names are Jim Knoes, Barry Impatient and Martin Miner. The last time these three were seen they were all working in the vicinity of the stope.

Your job is to explore the 500 level, seal or extinguish any fires and rescue any survivors. You will have **90** minutes to complete the problem.

Good Luck!



The Day #1 problem this year for Winnemucca involves a fire on the level below, high CO, Low O<sub>2</sub> and miners in refuge.

Intake is through #1 shaft (left) and exhaust is through #2 shaft (right). Normal ventilation is directed using doors placed between the pillars in B and C crosscuts.

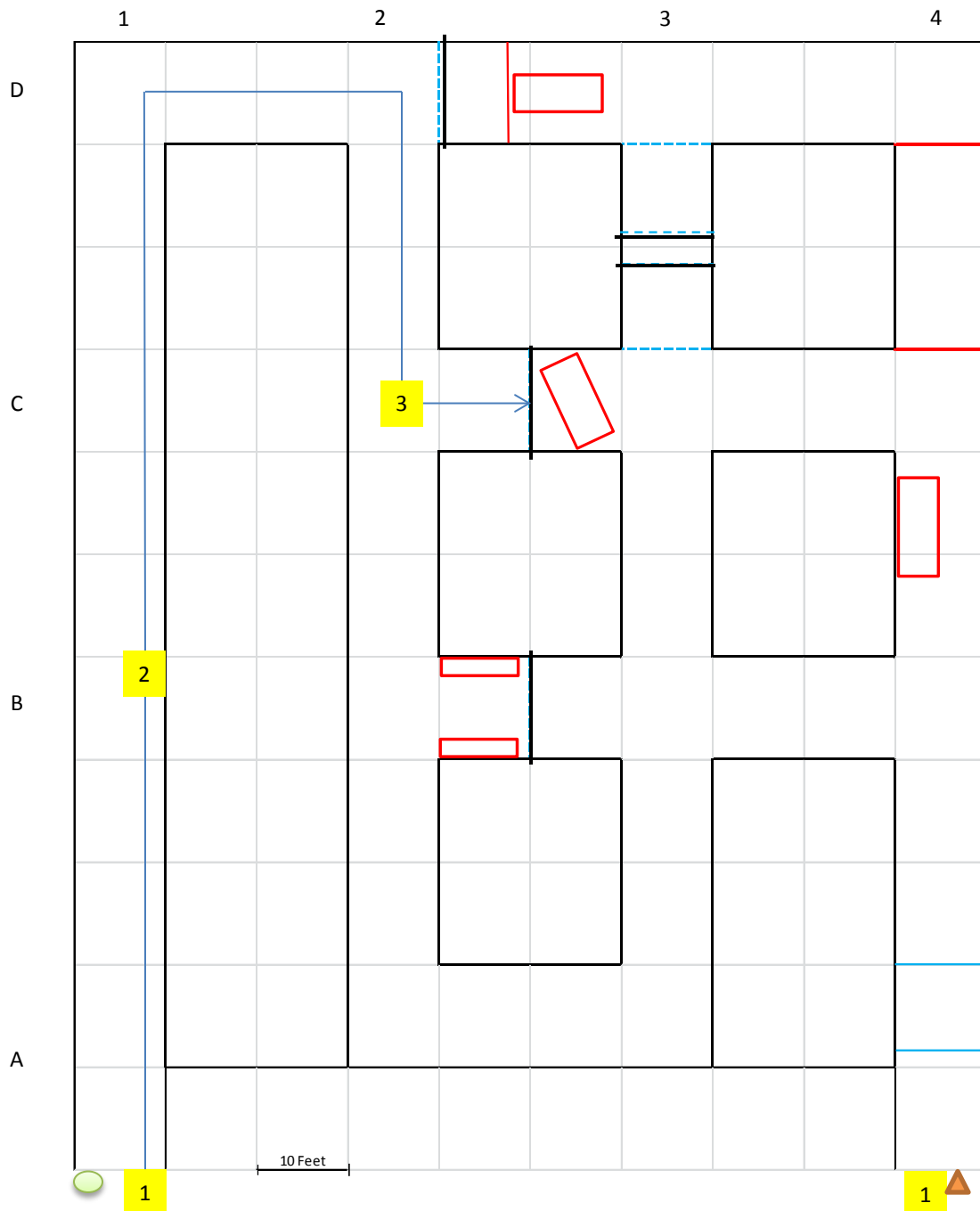
There is a stope slot raise being developed in D cross cut. To provide positive pressure ventilation to the working area an auxiliary fan has been placed outby in 3XC between 3 & 4.

In this problem, a fire involving an LHD has happened. Someone shut off the fan and smoke entered this level from below. Two teams have already entered the mine and one sealed the fire from below. There was enough pressure in the mine to keep the air on the intake side clear.

The instructions to the team is to find missing miners, explore the mine and extinguish or seal any fires. The teams will need to clear CO and replenish O<sub>2</sub> to bring the miners out.

- The teams will report to the field. The mine manager will greet the team and introduce the Judges. The mine manager should provide the Judges with the Team Packet. The Judges will need to remove the score cards and judge's maps.
- The team may opt to stretch out their communication line prior to starting the clock. Stretching the comm (or life) line is the ONLY work that can be performed prior to starting the clock.
  - If the team is using radios to communicate with the Fresh Air Base the person acting as the mine manager must make sure that the radios are sitting on the table at the fresh air base when the team comes out.
- When the team is ready the Captain will start the clock and sign his team in on the board. As soon as the clock has started the #1 judge will hand the Team Packet containing the remaining documents to the Captain. Typically the Captain will hand the packet off to the FAB attendant while the rest of the team preps the equipment for travel.
- Most teams will opt to test their gas detectors prior to going under oxygen. Mike Platek and Reichart will be on the field to assist with the gas box. It would be a good idea for the mine manager to be present & learn the procedure. The #2 judge must observe the process and apply the appropriate discount points for each sensor that doesn't meet muster.
  - IF a sensor fails during the gas box and it (the sensor or detector) is not replaced and retested before the team begins taking gas readings, each test for the sensor that failed will be considered incorrect.
- Before the team goes underground the judges need to do a good visual check of the team members to make sure they have everything and that the equipment is properly worn.

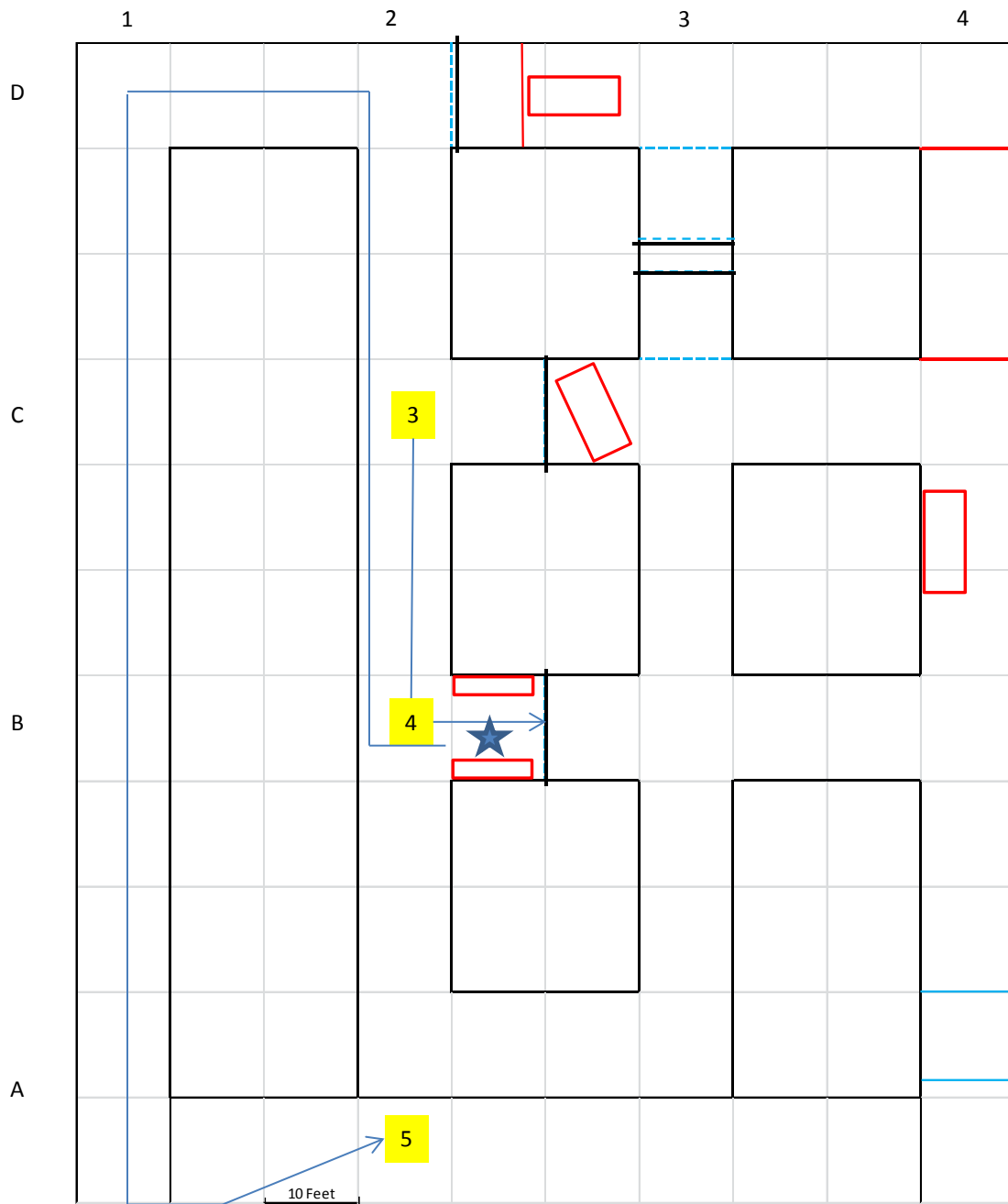
Remember, the only time that surface discounts can be assessed is while the team is outside of the mine.



1. The Captain and gas man will make gas tests at the #1 and #2 shafts.
  - #1 Clear Air
  - #2 High CO, Smoke & Low O<sub>2</sub>
  - The team will most likely enter through #1.
  - The cage will be located on the surface.
  - The proper bell signals must be used for the 500 foot level.
  - The gates must be closed when everyone's off the cage
  - The cage must be released.
  - As they enter the mine the team **must** count off.

2. The team will need to perform their 50 foot team check after the initial entry into the mine. The 20 minute clock should begin at this time.
3. The team will travel to the 3<sup>rd</sup> XC in entry 2 and find a closed airdoor. Since they do not know what is on the other side of the door they need to airlock to open it. They have not reached the stopping materials, so they will need to keep going.



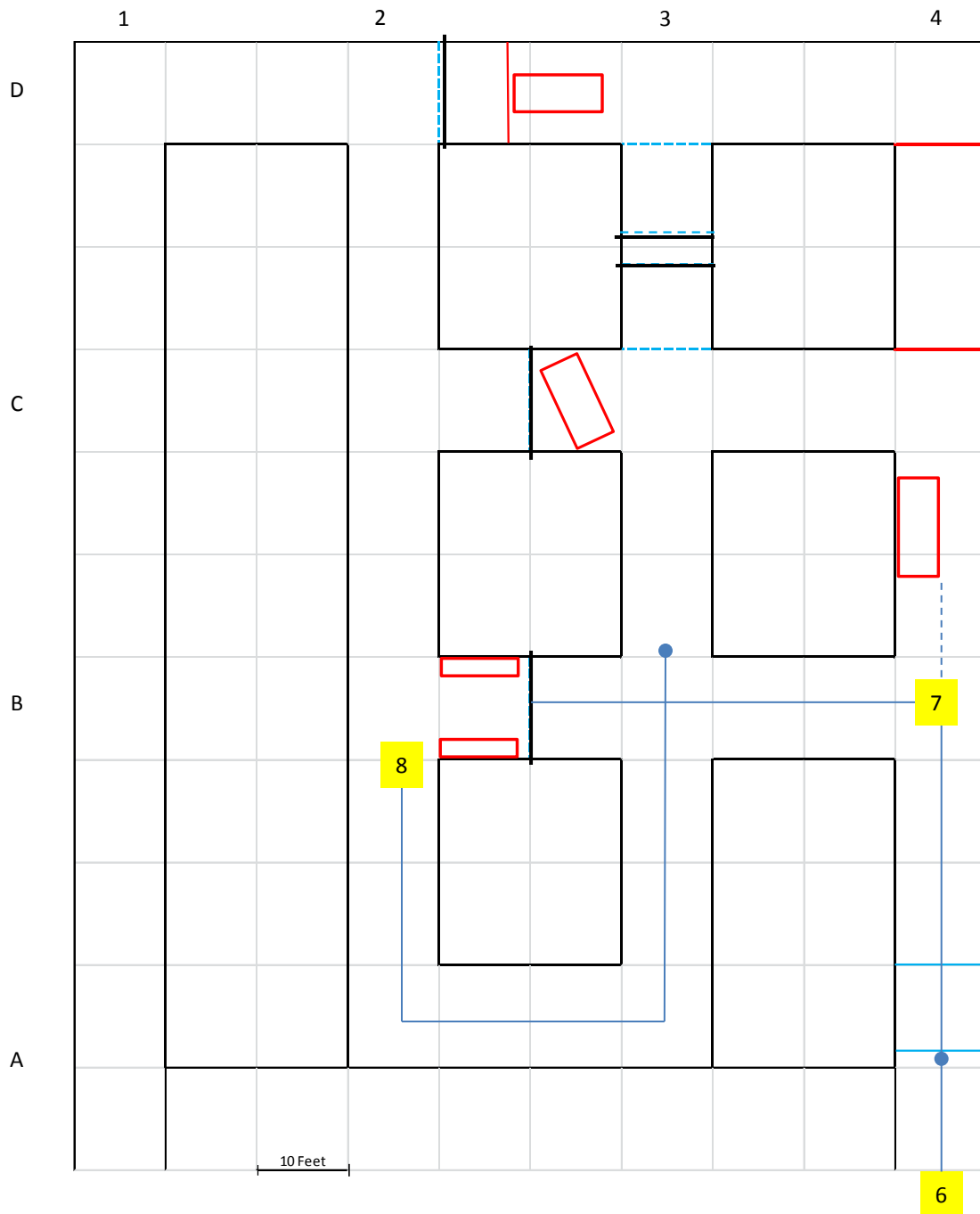


4. The team will travel from c XC to b XC. As the team reaches B XC, a miner will gently surprise the Captain by quickly exiting the cut out. This miner will be carrying placard #12. The miner may answer yes or no to any question asked.

Once the miner is being looked at, the captain may stretch forward toward the door, make appropriate gas tests and D&I the door as FPA. The captain must recognize and warn the team of loose on both sides of the rib. Judges need to keep an eye on the markings to see if team members enter into the area where loose exists.

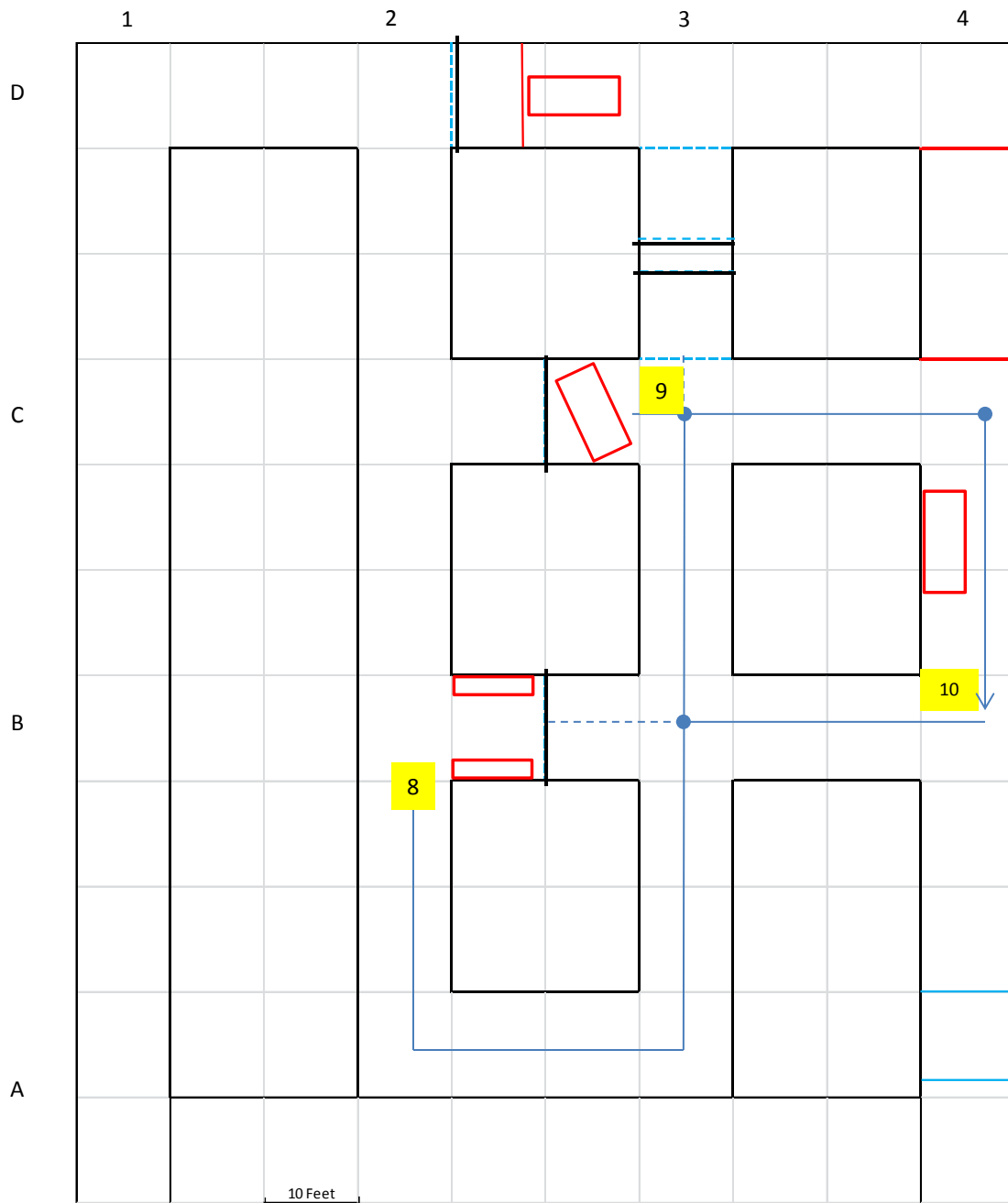
Before leaving the area the captain may swing around and check across the inby side of 2 toward A XC. Gas tests and D&I for FPA must be made.

The team cannot advance with the miner in tow & must bring the miner out of the mine. They will turn the miner over to the authorities on the surface.

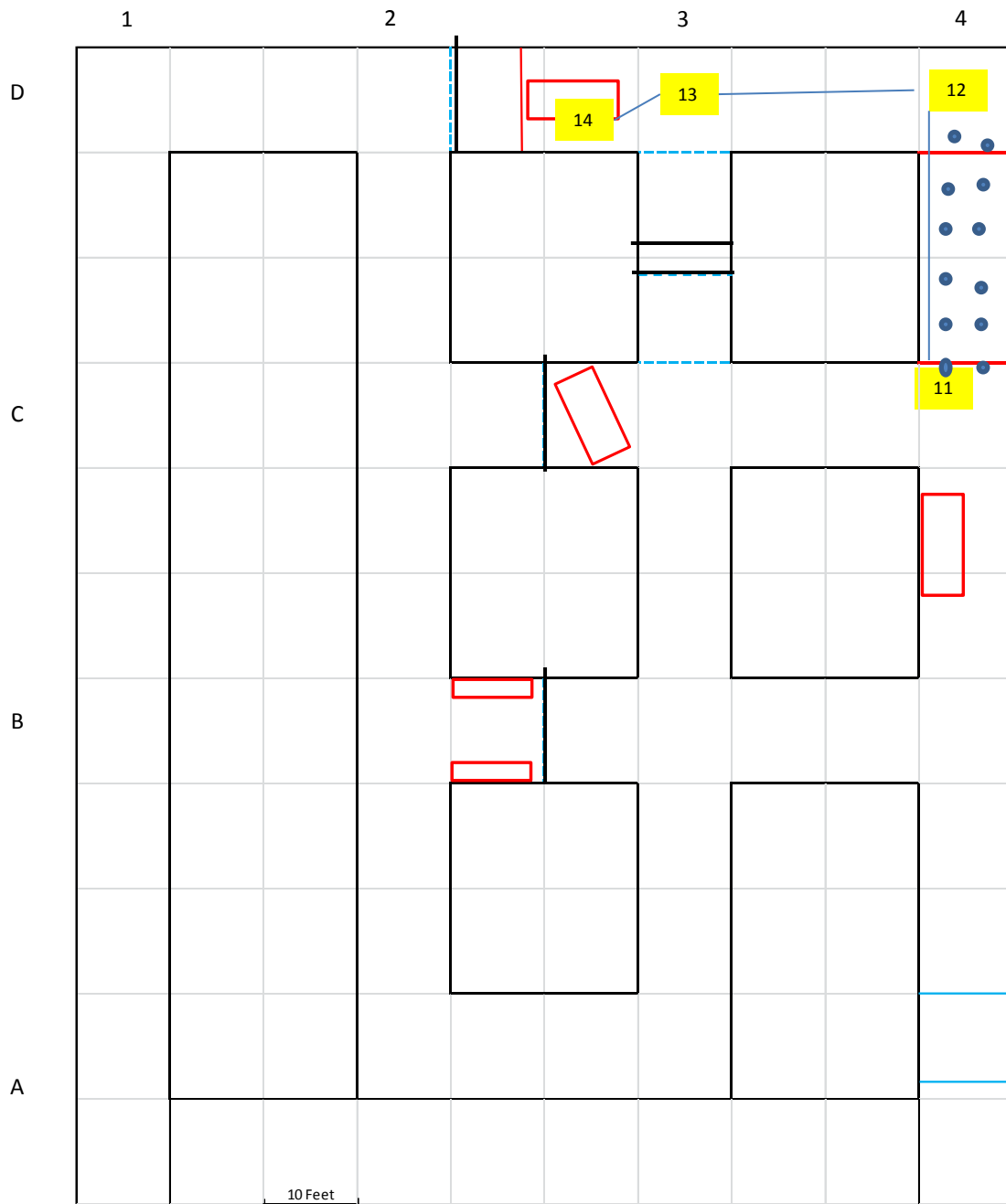


6. Since the team cannot proceed any further than the intersection where they found the first miner without breaking 2 + 3, the team will need to begin exploring from #2 shaft. Since the team will be entering under smoke, the team will need to call out upon entering the cage. As they exit the cage the team will encounter water below knee deep. Since the water is not too deep, the team can continue exploring entry 4.

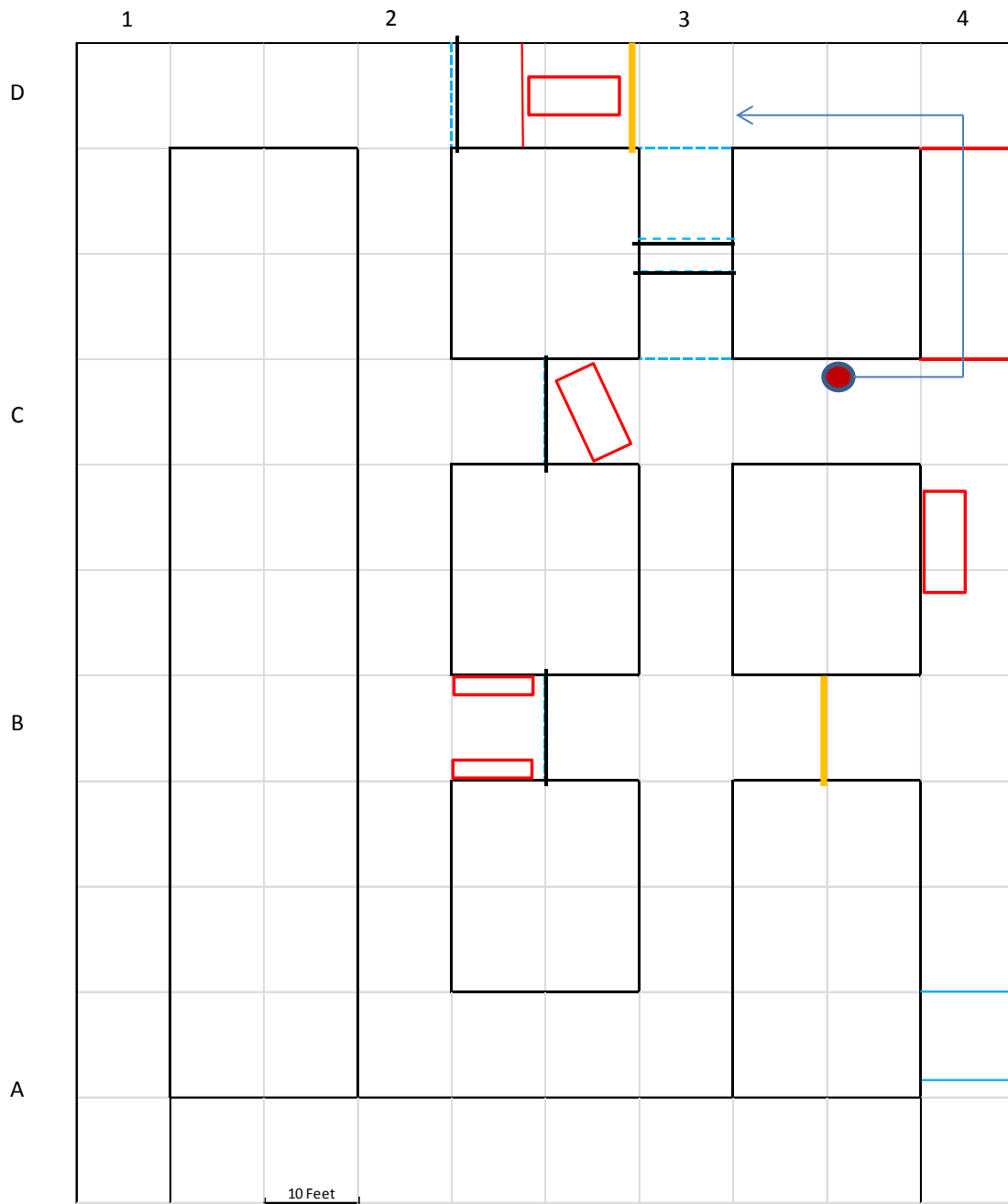
7. Gas tests will be performed when the team reaches B XC. The captain may choose to stretch forward toward C XC. Along the left rib he will find roof supports and a haul truck. Most teams will opt to travel left toward entry 3. As they enter into the intersection, gas tests will need to be made. Once that is completed the team should continue down 3 into A XC and tie back into where they left off in 2. At this point they have tied in behind them and may finish exploring the mine.



Once the team has tied in entry 2, the team will retreat back into 3 and either retreat back into 4 or continue up 3 (we will use the later). 9. When they reach the intersection at C XC gas tests will need to be made. To the left they will find the back side of the door blocked by a Boss Buggy that's wedged rib to rib. They will not be able to get past it to explore the back side of the door. In the back of the Boss Buggy the team will find stopping materials. 10. Directly in front of them the team will find a barricade with a placard. When the team knocks the #2 judge will flip the placard to show them the answer. Since the O2 levels are too low to airlock, the team will continue to explore C XC and tie back behind them into entry 4.



11. In either direction, when the team enters C XC in entry 4 they will encounter a placard indicating unsafe roof and ribs. The team may try to bar this down, but will be unable to. In order to gain access into D XC they team will need to support the ground using roof supports (orange cones) located in caches around the mine. To see how the roof supports must be set, see the example shown on page 35 of the Rules Book. Since the bad roof extends the entire depth of the entry between the two crosscuts, they teams must stand a minimum of 12.
12. Once the timber is properly in place, the team can enter into D XC.
13. The team will travel toward the stope and find a barricade at the top of 3. If they knock on the door they will not receive an answer. Since the gas levels will not allow them to airlock they will continue toward the stope.
14. Going forward, the team will encounter a drill and an open stope. There is a potential for endangerment here, so watch the captain and gas man.



In order to explore behind the barricades for the two missing miners the team will need to ventilate the mine. Ventilation is as simple as sealing the fire, building one stopping and turning on the main, then the auxiliary fan.

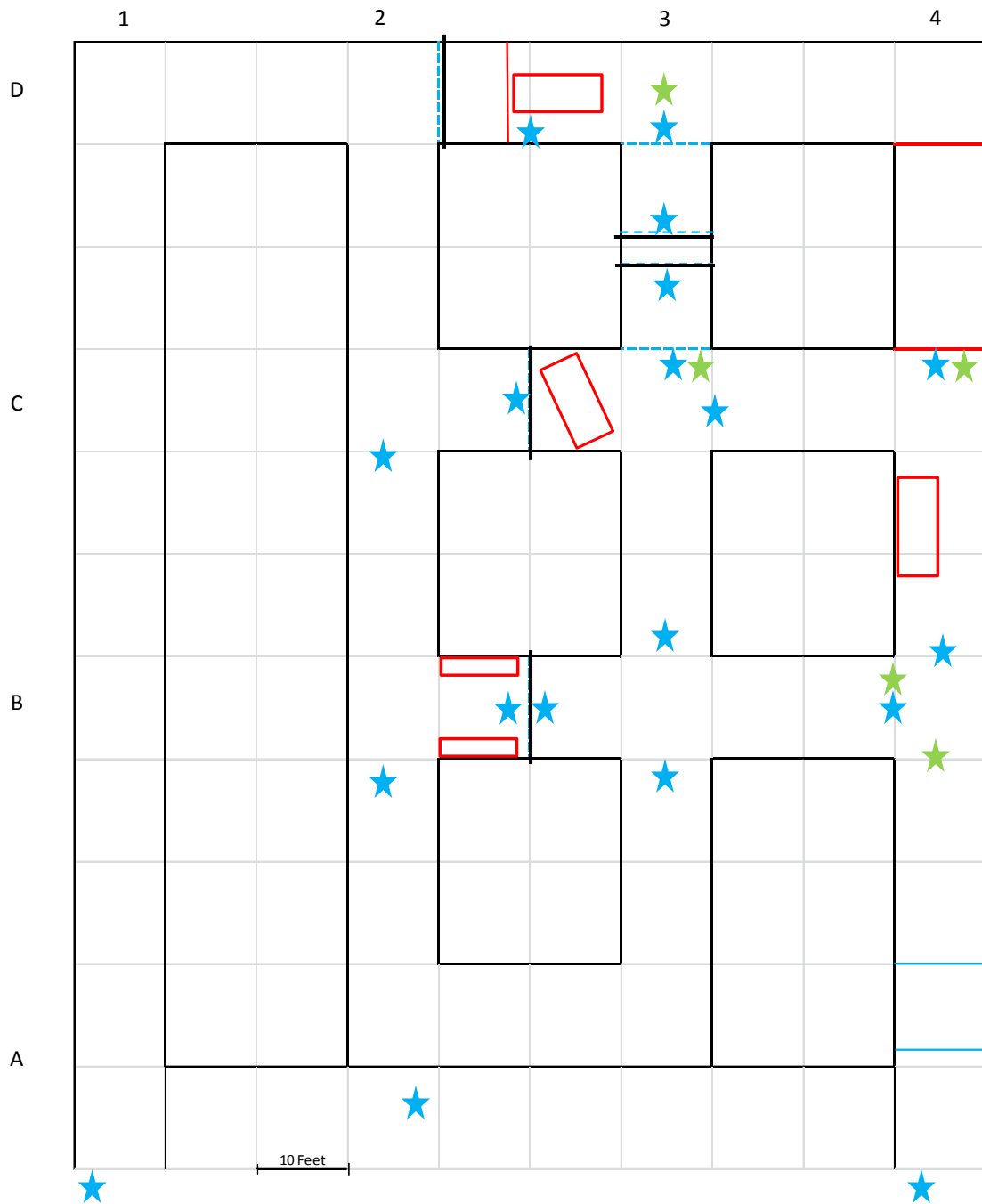
There should be sufficient room behind the drill to erect the seal. The stopping should be built in B XC between 3 & 4.

When the fans are turned on the air in front of both barricades are cleared and they can be opened.

If the team opens the barricade in C XC, they will find a miner more than happy and able to walk out on his own. The team will need to take the miner out before continuing.

Since the team does not know what lays behind the barricade in D XC, The team will have to airlock in. When they breach the barricade the team will find a body & placard that indicates that the miner is not exhibiting any signs of life.

Once all miners have been accounted for the team can exit the mine and stop the clock.



Please open your rule books to page 55.  
Let's discuss where Gas Tests need to be performed.

There should be 22 Gas Tests (minimum)

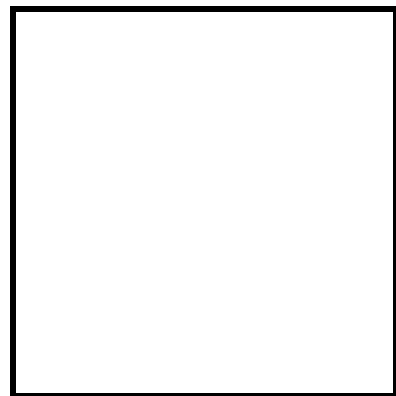
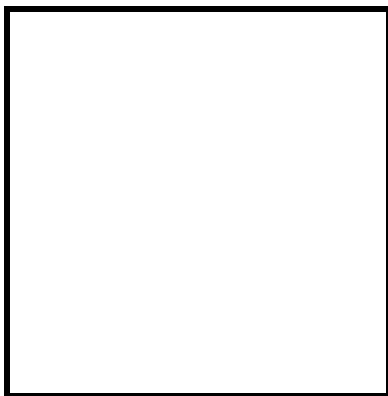
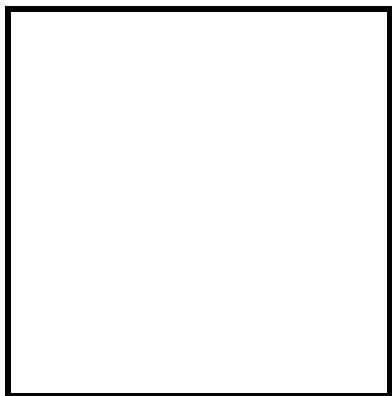
Keep in mind, that all gas tests in the mine must be made from rib to rib and at the appropriate height for each gas tested.

Overhead for CH<sub>4</sub>  
Chest level for O<sub>2</sub> and CO  
Waist level or below for NO<sub>2</sub>

The drawing to the left is not all-inclusive.

Team Name \_\_\_\_\_

# ALT MAP



10 Feet

Busted Budget Mine  
*Lowest Bidder Mining Co. Winnemucca, NV*