

# 49<sup>Th</sup> Southern Regional Mine Rescue Classic

JUDGE PACKET

Field Competition Day 2



May 1, 2019

New Iberia, Louisiana



**Mine Information**  
**New Iberia, LA**  
**April 29 – May 2, 2019**

**General**

The Davis Mine is an underground Multi-level Category II-A room and pillar salt mine. The mine is owned and operated Mike Davis. The mine is located in Southern Louisiana and is active and operating at full capacity. The mine operates two 12-hour shifts per day, 7 days a week. Hours of operation are from 5 am to 5 pm on day shift and 5 pm to 5 am on nights. All production is on the 1950' level. Boudreaux is VP of Operations and Thibodeaux is currently the Mine Manager.

**Mine Access**

Mine access is provided by two 14 foot diameter steel-lined shafts. The two 14 foot shafts are known as the #1 Intake shaft and the #2 Exhaust shaft. Pillar sizes are 16 feet by 16 feet and working areas of the mine are 10 feet by 10 feet with back heights averaging 26 feet.

**Explosives**

All explosives are stored on the 1950' level in an approved storage facility. All shots are performed from surface with no employees underground per the 30 CFR.

**Electricity**

Electrical service to the mine is provided by Bayou Electric with the main disconnects located on surface. All face equipment in the mine is permissible. Power centers are located underground for mining equipment.

**Gas**

The mine is a gas category II-A (Subcategory II-A applies to Domal salt mines where an outburst reportable under 57.22004 (c) (1) has occurred. The mine generally experiences some nitrogen dioxide and carbon monoxide resulting from blasting and the operation of diesel equipment).

**Communication**

This is accomplished by two-way radios that are carried by mine personnel and femco phones are strategically placed in the mine.

**Ground Control**

Ground control is maintained with 8 foot mechanical bolts and timbers are located in the mine for secondary support.

**Materials**

All materials to work the problem are located underground or on the surface.



### **Mining Methods**

Room and pillar method is accomplished by conventional mining techniques. Material is hoisted to surface, screened and loaded to be shipped to the north east part of the country.

### **Mine Maps**

The mine maps were last updated on October 1, 2018.

### **Mine Equipment**

The mine currently utilizes under-cutters, face drills, haul trucks, loaders, bolters, battery operated scoops, and other smaller transportation equipment.

### **Ventilation**

The mine is ventilated by a non-reversible 600,000 cfm fan that is located on surface. The mine utilizes a blowing system; ventilation enters the mine via the #1 Intake shaft and exits the mine via the #2 Exhaust shaft.

### **Water**

Water flows into the mine via seepage on the 1950' level and accumulates primarily in the central part of the mine. There are two sumps in the mine known as Sump A and Sump B with submersible pumps. An 8" suction line runs underground and water is pumped to surface.

### **Notification**

All federal, state and local officials have been notified.

### **Backup Teams**

Two additional trained and fully equipped mine rescue teams are on site and are available for backup support.



# TEAM BRIEFING

New Iberia, LA Day 2

April 29 - May 2, 2019

You have arrived back at the Davis Mine and received the following information. After you left the site yesterday, the mine sent in a crew of five miners into the mine to clear the mine and conduct a hazard assessment of the mine.

We have no communication with any of the crew members. They were supposed to report back on surface two hour ago. We are afraid something has occurred but we have no idea what it might be. There is no smoke or gases exiting the mine at this time. We have no reports of ground movement or any fires. The mine wide monitors indicate no methane in the mine, we just have no idea what might have happened. The mine is still under a k order by MSHA and our plan is to send a mine rescue team in to explore and look for the missing five miners.

It is now 10:00 p.m., there is still power to the mine, we know from the last report that the crew established a fresh air base underground at Ventilation Drift B. We have received approval to execute this plan, if you are ready and willing the services of your team is needed. Two teams are also onsite and are available for backup. Your objectives are listed below and the mine manager will be available for any questions or requests. GOOD LUCK!

## Field Problem Objectives:

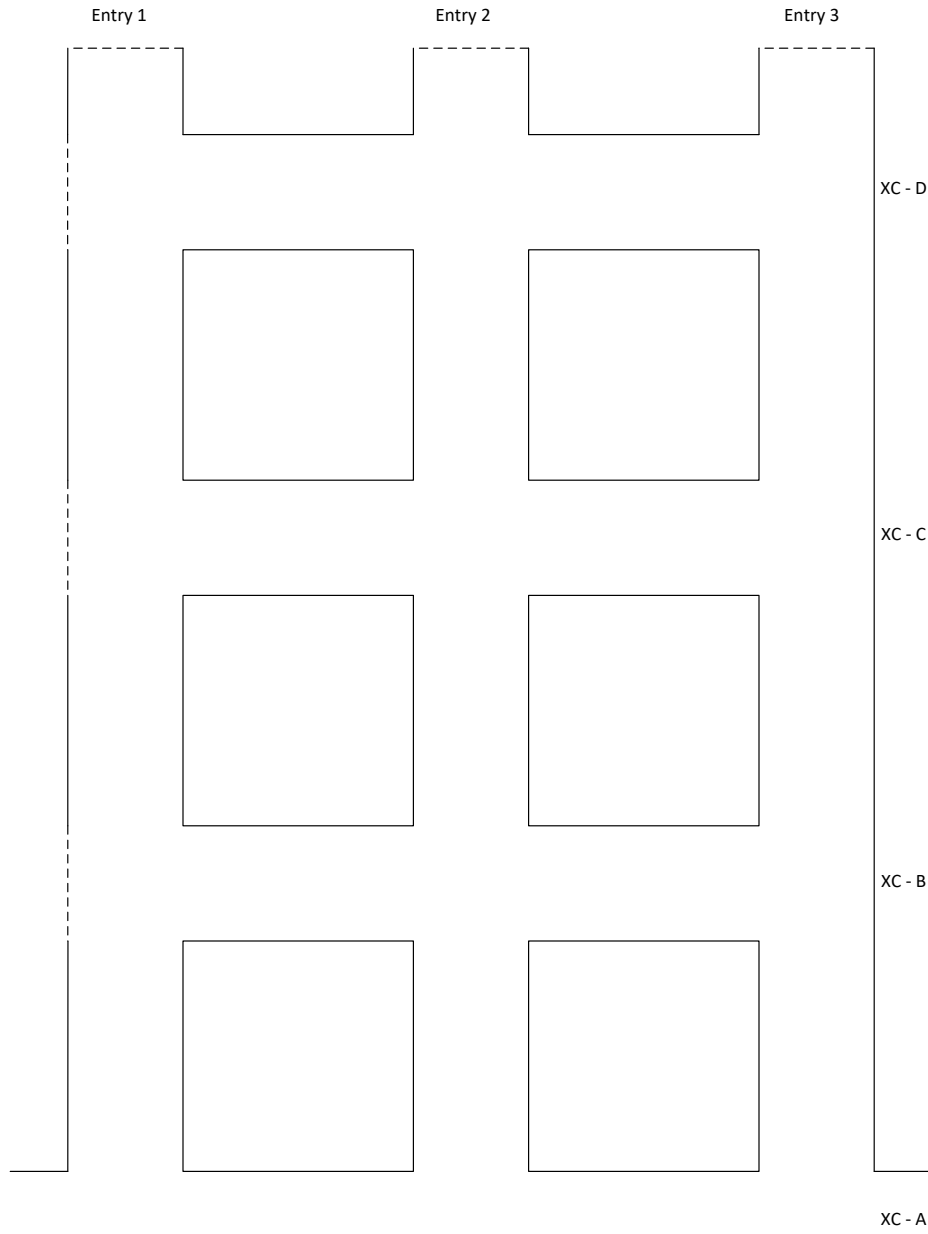
- Explore all accessible areas of the mine
- Extinguish or seal all fires
- Locate all missing miners
- Bring all survivors to the fresh air base



# Team Map Day 2

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

Team Draw # \_\_\_\_\_

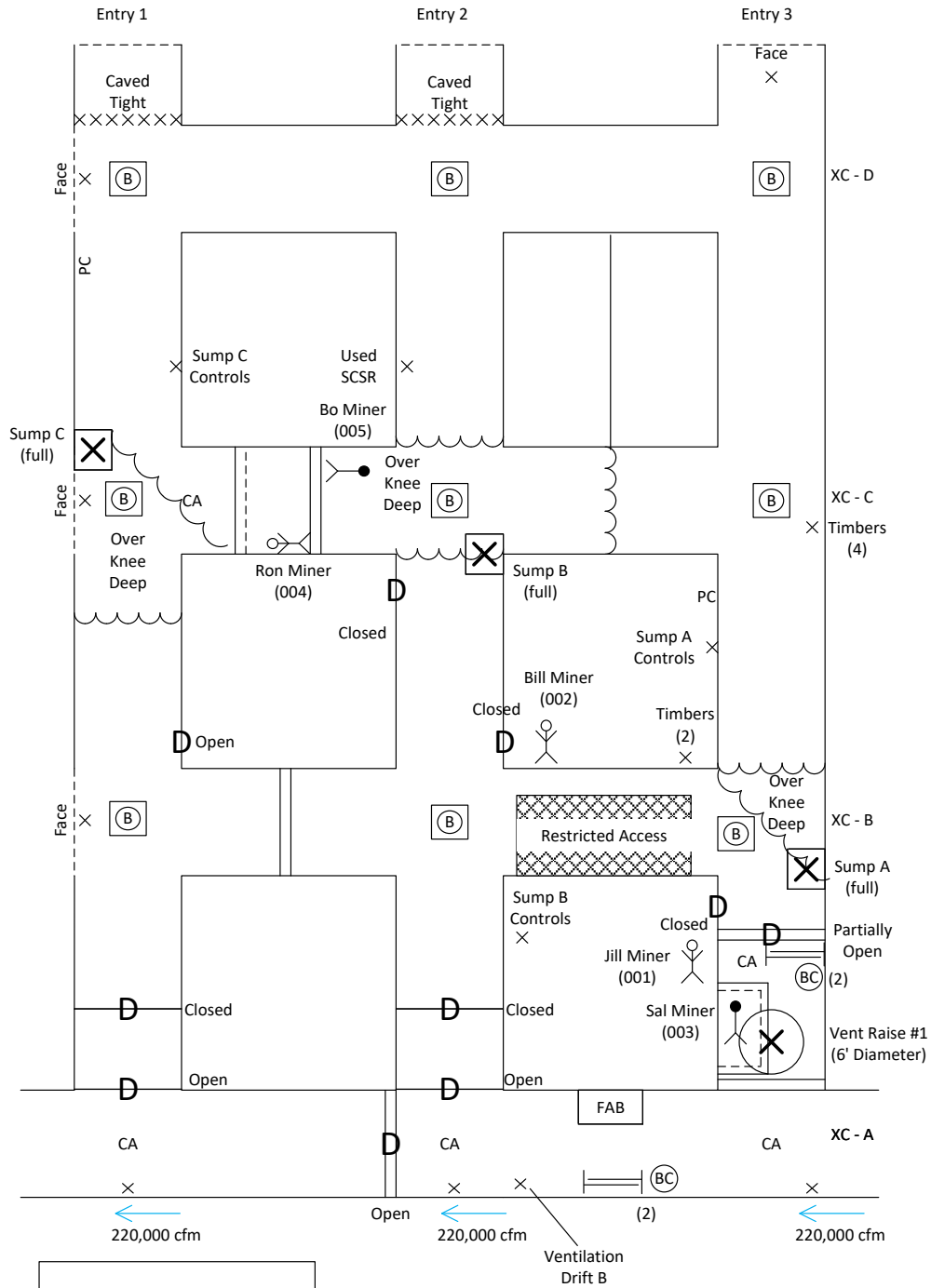




# Problem Map Day 2

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

Team Draw # \_\_\_\_\_



**Gas Placard Key**

CA = Clear Air

Ⓟ = O<sub>2</sub> - 15%  
 CO - 0.25%  
 NO<sub>2</sub> - .0018%  
 CH<sub>4</sub> - 0%



# Southern Regional Mine Rescue Contest 2019

## Day #2 Field Problem Solution

### (See Solution Maps)

#### Fresh Air Base

The teams will arrive at the FAB and have introductions, the team will also be informed that they will be able to string out their communication line but will not be able to check functionality until they have started the clock. Once the clock has been started the team will receive all of their maps and information.

**Note: Throughout the field problem, while advancing and at the intersections the team will check for loose ground (loose roof or rib).**

#### Team Stop #1

Teams will explore the FAB area and all openings. The team will travel to the examine the opening to Entry 3, on their way they will identify “brattice cloth and brattice frames (2)”, “clear air”, a placard indicating the direction and quantity of airflow “220,000 cfm” and a “permanent stopping”.

#### Team Stop #2

The team will travel to the opening of Entry 2 to examine this opening. The team will identify placard showing the direction and quantity of airflow “220,000 cfm”, a placard stating “ventilation drift B”, “clear air” and “permanent stopping with door” the door will be open. Stretching north the team will identify a set of “air doors” with the first door open and the second door closed.

#### Team Stop #3

The team will travel to Entry 1 to examine this opening. The team will identify a placard showing the direction and quantity of airflow “220,000 cfm” and “clear air”. The team will see that the ventilation drift continues but will not examine any further west. Stretching north in entry 1, the team will identify a set of “air doors” with the first door open and the second door closed.

#### Team Stop #4

The team will utilize the air doors to create an airlock to enter the mine. The team will explore north in Entry 1 until they reach the intersection of XC-B, the team will identify a “B” gas placard (see map for gas concentrations). The team will identify “face” to the west and stretching east the team will identify a “permanent stopping”. The team can stretch north in Entry 1 until they reach “water over knee deep”. The team will also identify the Mechanic Shop door, the door will open. The team will likely perform their 50’ check before continuing exploration.

#### Team Stop #5

The team will enter the mechanic shop and explore only identifying that the shop has another entrance. The door will be closed.

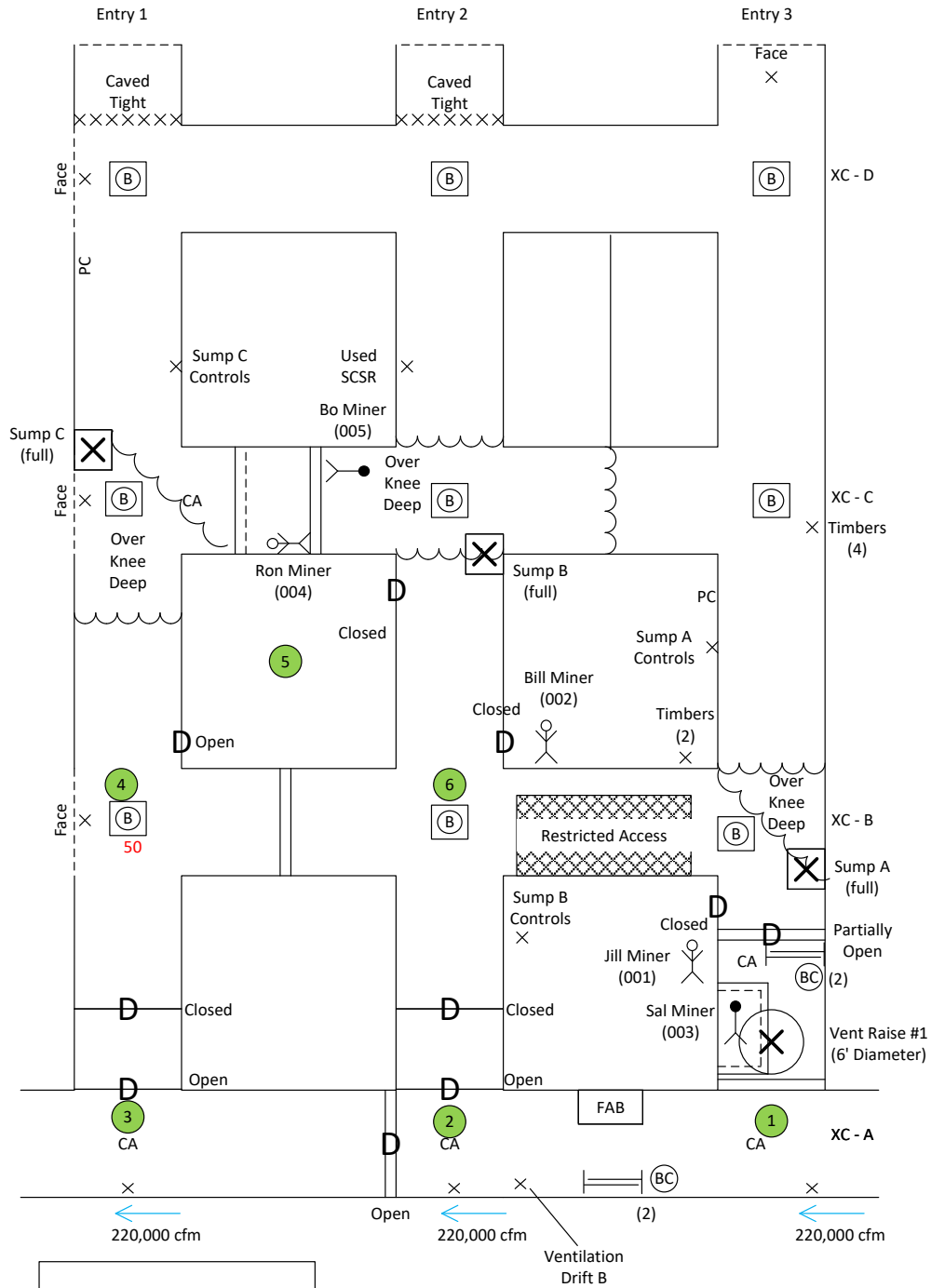
#### Team Stop #6

The team will retreat to XC-A to continue exploration north in Entry 2. The team will need to airlock into Entry 2. The team will continue exploration north until they reach the intersection of XC-B. The team will identify a “B” gas placard, to the east the team will identify “restricted access”, the team will likely explore north and identify the “electric shop door”, the door will be closed. Knocking on the door the team will make contact with a missing miner. “Bill Miner 002” will relay the following information: “Help! Get me out of here, I’m not injured, the air in here is ok and I am completely enclosed”. Due to the concentration of gas, the team will need to ventilate prior to entering. At this time the team will not have the means to do execute the first ventilation change. The team will continue exploration east in XC-B.

# Solution Map Day 2

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

Team Draw # \_\_\_\_\_



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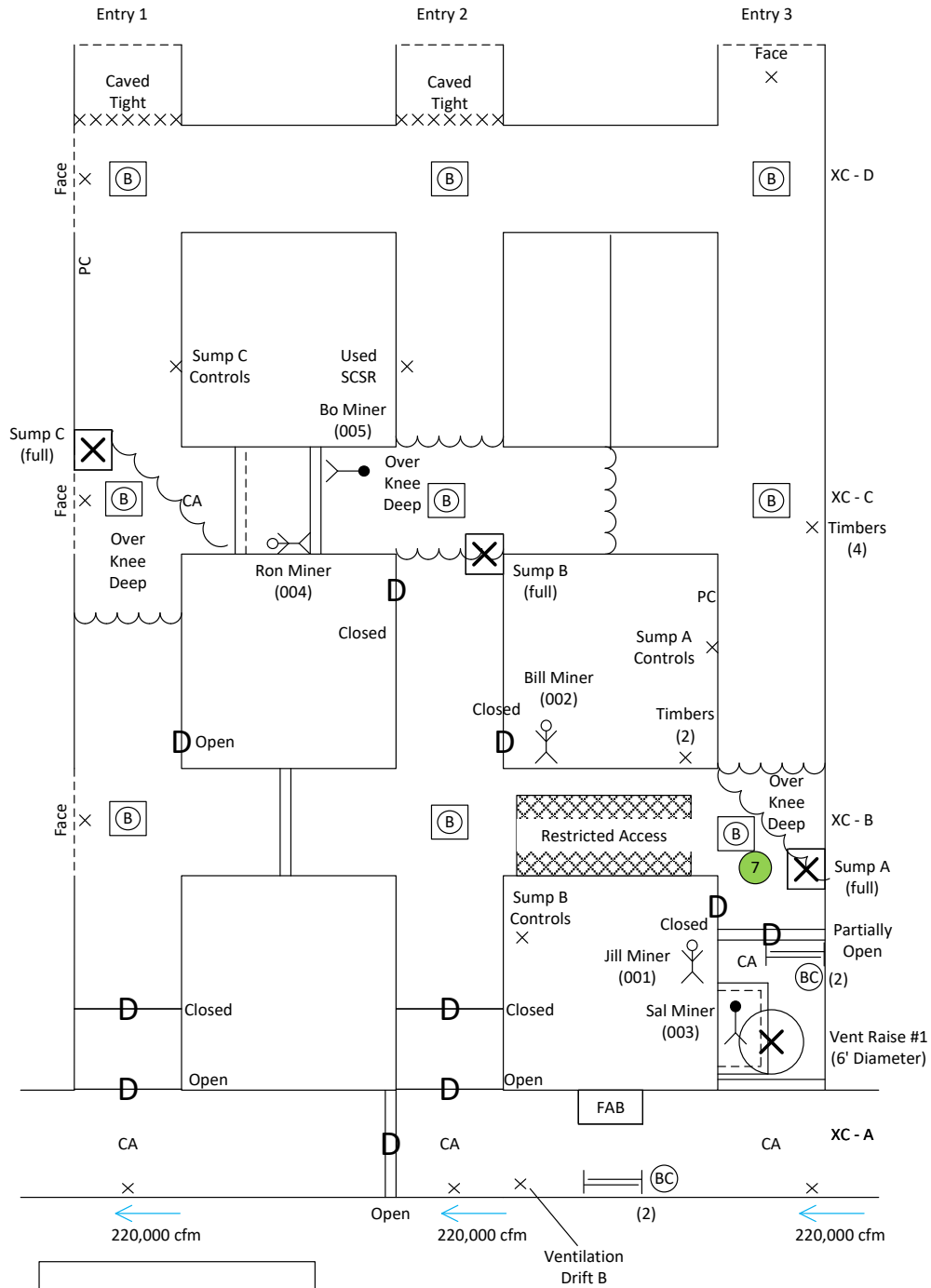
### **Team Stop #7**

The team will explore east through the restricted access, this may require the team members to remove their apparatuses and keep it alongside them to traverse through the 24" width access. Once all of the team members have made it through, they will encounter a "B" gas placard, an area of "water over knee deep" that extends across the entire intersection and "sump A (full)". Exploring south in Entry 3, the team will identify "office shop door" the door will be closed. Knocking on the door the team will make contact with another missing miner. "Jill Miner 001" will relay the following information: "Help! Get me out of here, I'm not injured, the air in here is ok and I am completely enclosed". The team will need to ventilate but will not have the means to do so at this time. The team will continue exploration south and identify a "permanent stopping with door" the door will be partially open and the team can enter the area. The team will enter the door and identify "clear air" and "brattice cloth and brattice frames (2)". The team will also identify a missing miner located under "unsafe roof" and partially under the "vent raise #1(6' diameter)". The team does not have the means to support the area of unsafe roof but they do now have the means to execute ventilation change #1 to enter the Electric Shop.

# Solution Map Day 2

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

Team Draw # \_\_\_\_\_



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### **Ventilation Change #1 to enter the Electric Shop (See attached map)**

The team will request a ventilation change, once granted the following steps will be required to clear the area in front of the Electric Shop.

- Build Temp Stopping in XC-B in front of the Restricted Access
- Build Temp Stopping in Entry 2 in front of Water Over Knee Deep
- Open the Mechanic Shop door
- Build Temp Stopping in Entry 1 between XC-B & XC-C
- Open both sets of air doors in Entry 1 & Entry 2
- Close door in ventilation drift B

**Note:** Ventilation path is indicated by blue arrows on the map and will clear gases in front of the Electric Shop.

**Note:** Upon reentry into areas cleared of smoke and toxic or dangerous gasses, teams shall make gas tests rib to rib at all openings along the route they travel.

### **Team Stop #8**

The team will enter the electric shop and assess “Bill Miner (002)”. The team will also identify “power center”, “sump A controls” and “timbers (2)”. Bill will not be injured and can walk out with the team. The team will transport the survivor to the FAB.

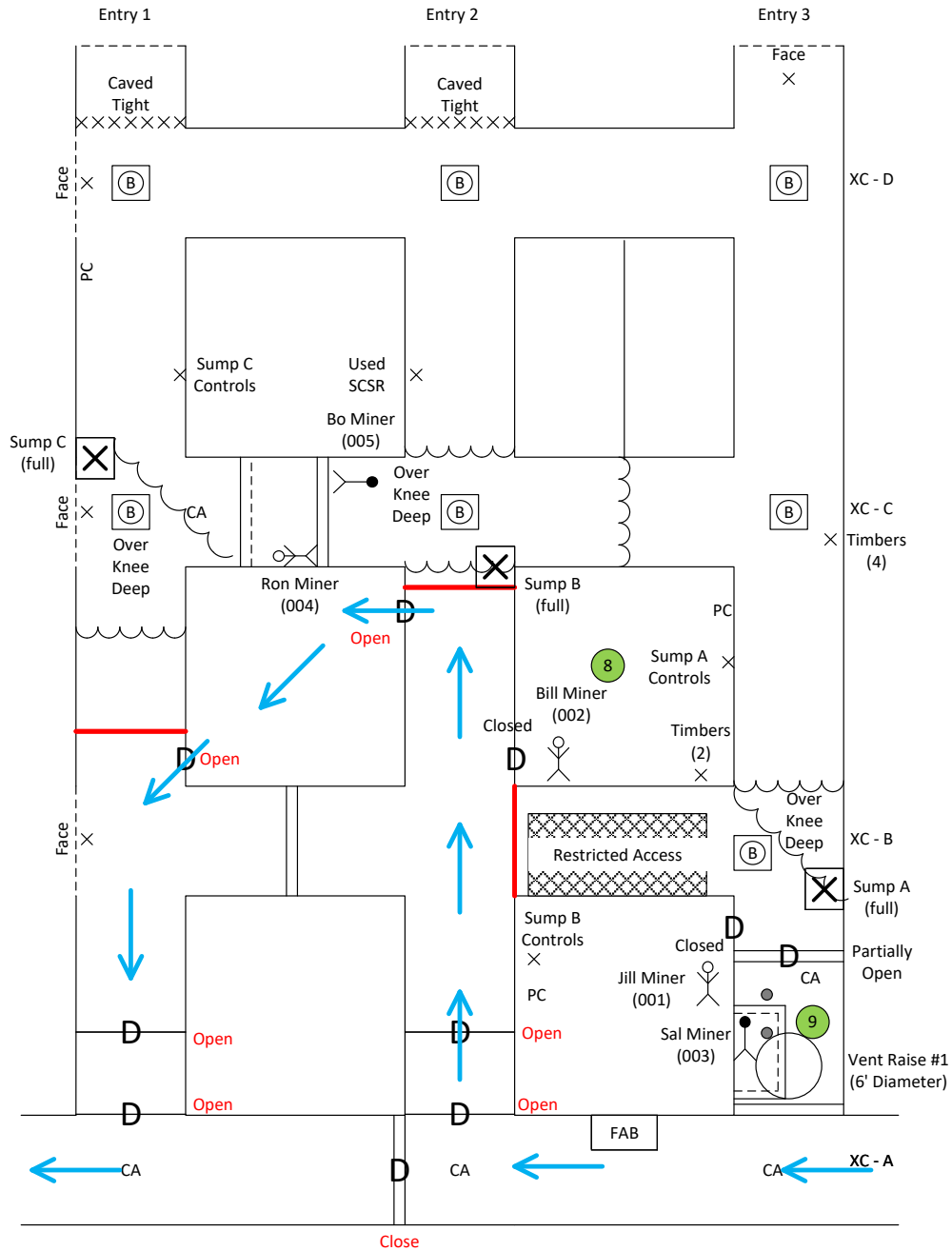
### **Team Stop #9**

The team will likely reenter the electric shop and turn on sump A and grab the timbers. The team will return to the intersection of Entry 3 and XC-B. The team will identify that the water has now dropped to “knee deep”. The team travel to the missing miner under the unsafe roof. Utilizing the roof support techniques as outlined in the contest rule book, the team will install two timbers and identify “Sal Miner (003)”. Assessing the missing miner, the team will identify that the miner is deceased. The team has the means to execute ventilation change #2 to enter the Office.

# Ventilation Change #1 Enter Electrical Shop

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

Team Draw # \_\_\_\_\_



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- Ventilation Change #1**
- Build Temp Stopping in XC-B in front of the Restricted Access
  - Build Temp Stopping Entry 2 in front of the Water Over Knee Deep
  - Open Mechanic Shop door
  - Build Temp Stopping in Entry 1 between XC-B & XC-C
  - Open both sets of air doors in Entry 1 & Entry 2
  - Close door in ventilation drift B



### **Ventilation Change #1 to enter the Office (See attached map)**

The team will request a ventilation change, once granted the following steps will be required to clear the area in front of the Office.

- Build Temp Stopping in Entry 2
- Build Temp Stopping in Entry 3
- Open both air doors in Entry 2
- Close door in ventilation drift B

**Note:** Ventilation path is indicated by blue arrows on the map and will clear gases in front of the Office.

**Note:** Upon reentry into areas cleared of smoke and toxic or dangerous gasses, teams shall make gas tests rib to rib at all openings along the route they travel.

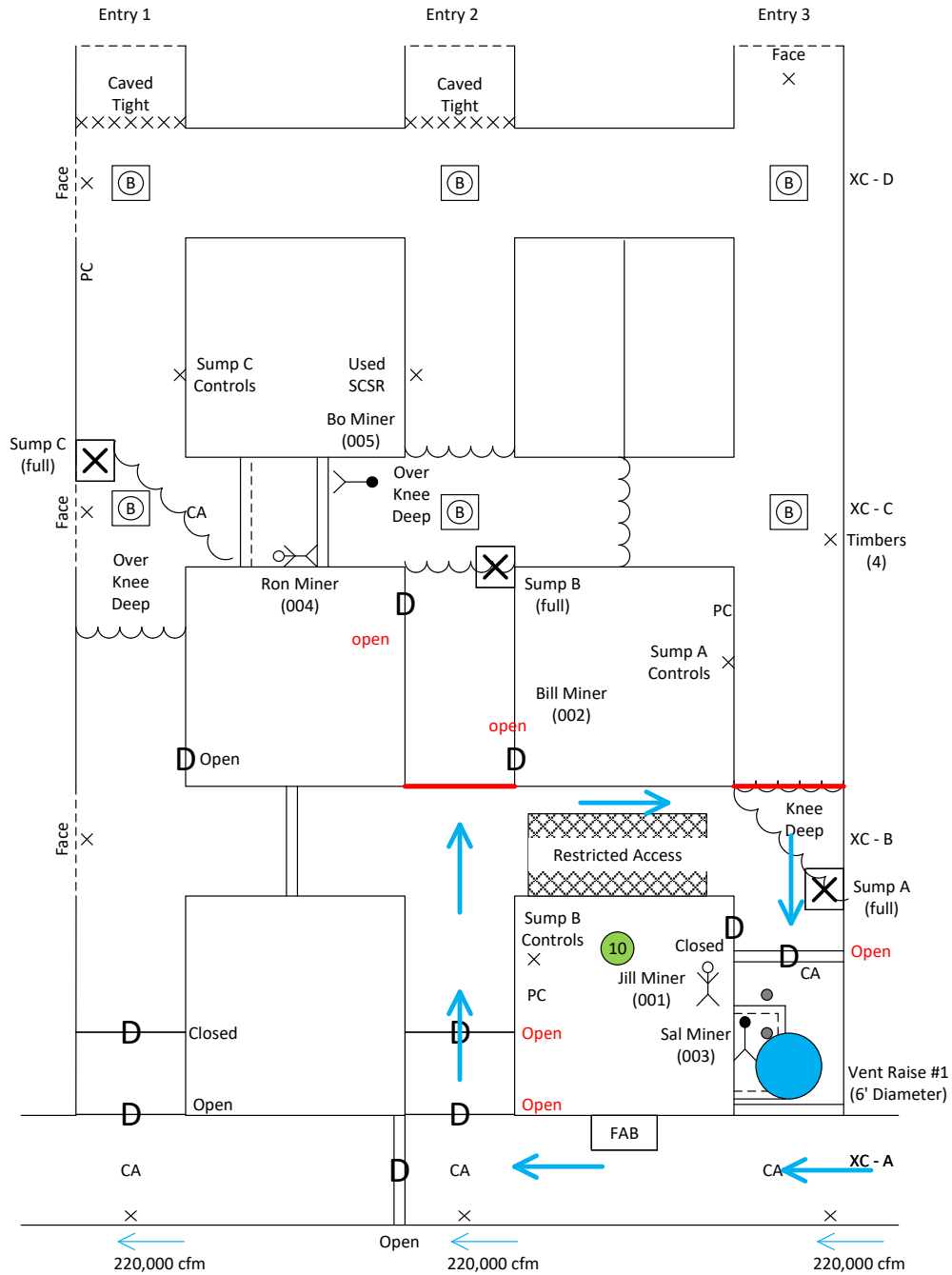
### **Team Stop #10**

The team will return to the shop door and since they are aware of the condition inside, the team can open the door and enter. The team will identify Jill Miner (001)", the team will also identify a "power center" and "sump B controls". Jill will not be injured and can walk out with the team. The team will transport the survivor to FAB.

# Ventilation Change #2 Enter Office

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

Team Draw # \_\_\_\_\_



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- Ventilation Change #1**

  - Build Temp Stopping in Entry 2
  - Build Temp Stopping Entry 3
  - Open both air doors in Entry 2
  - Close door in ventilation drift B



### **Team Stop #11**

If the team did not turn the sump B controls to the “ON” position, they will not be able to access in Entry 2 and will return to the intersection of Entry 3 and XC-B. The team will continue exploration north in Entry 3 until they reach the intersection of XC-C. The team will identify a “B” gas placard and “timbers (4)”. Stretching west, the team will identify “water over knee deep”.

### **Team Stop #12**

The team will continue exploration north in Entry 3 until they reach XC-D. The team will identify a “B” gas placard.

**Note: Since the team elected not to pump the water in Entry 2 and XC-C, the team cannot explore more than three feet north in Entry 3.**

### **Team Stop #13**

The team will continue exploration west in XC-D until they reach the intersection of Entry 2. The team will identify a “B” gas placard and “caved tight”. Stretching south, the team will identify a “used SCSR” and explore up to “water over knee deep”.

### **Team Stop #14**

The team will return to the intersection of Entry 2 and XC-D and continue exploration west until they reach the intersection of Entry 1. The team will identify a “B” gas placard, a “face”, “caved tight” and a “power center”.

### **Team Stop #15**

The team will continue exploration south in Entry 1. Along the way the team will identify “sump C controls”, the team will explore the intersection of XC-C and identify “sump C (full)”, “water over knee deep”, “clear air”, and “unsafe roof”. The team will turn “ON” the sump C controls and the water will reduce to “water ankle deep”. The team will explore the remaining area of the intersection. Utilizing the roof support techniques as outlined in the contest rule book, the team will install three timbers and identify “Ron Miner (004)”. Assessing the missing miner, the team will identify that the miner is unconscious. The team will also identify a “permanent stopping”. The team will need to provide full face respiratory protection, backboard and transport the miner to the FAB.

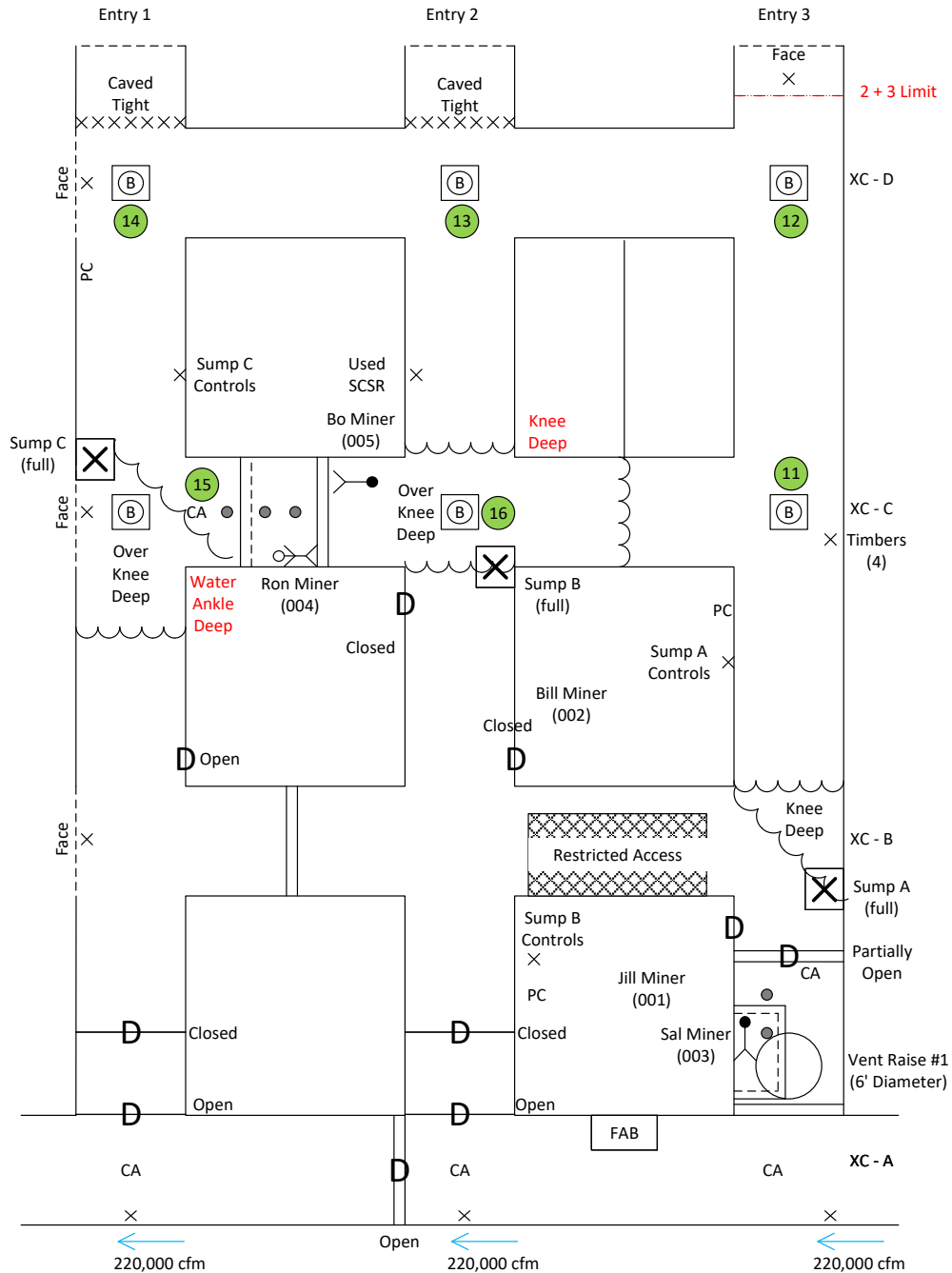
### **Team Stop #16**

The team will return to the Office and turn “ON” the sump B controls. The team will travel to the intersection of XC-C and Entry 2 to continue exploration for the final missing miner. When the team arrives they will see that the water is now “knee deep”, exploring the intersection the team will identify a “B” gas placard and stretching west the team will find “Bo Miner (005)”. When the team assesses the miner, they will identify that the miner is deceased. The team will explore until they reach a “permanent stopping”. The team will need to return to Entry 3 and explore the remaining area that they could not access. The team will identify a “face”. The team has explored all accessible areas of the mine and located all missing miners. The team will return to the FAB, report their finding, turn in all maps and stop the clock. THE END!

# Solution Map Day 2

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

Team Draw # \_\_\_\_\_



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# Placard Map Day 2

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

Team Draw # \_\_\_\_\_

