



**2018 Southern Regional Mine Rescue Contest**  
**Field Problem Solution Day 2**  
**(See Solution Maps)**

**FAB**

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, information and mine manager statement.

**Gas Box Testing Station:**

The teams will use their multi-gas instrument to determine the gas concentrations in the unknown mixture. The team must provide its own calibration cup to report: O<sub>2</sub>, CH<sub>4</sub>, CO, and NO<sub>2</sub>. **This will be the only gas box on the mine rescue field. Judge No. 2 will write down the team's measurements and have the team member initial the documentation. Afterward, Judge No. 2 can compare the team's measurements with the allowable tolerances for each gas and, if warranted, apply appropriate discounts (15 x each incorrect gas measurement) per Judge 2 – UG Rule #4.**

**Team Stop #1**

The team will examine the intersection of the South Main Access and Entry 1; the team will identify an "A" gas placard indicating "Clear Air". Stretching north the team will identify a "Permanent Stopping (door closed)". Stretching east the team will identify a "Permanent stopping (door open)". The team will likely conduct their 50' check at this point.

**Team Stop #2**

The teams will travel east in the South Main Access to examine the Entry 2 access, in the intersection they identify an "A" gas placard. Stretching North the team will identify a set of "Air Doors" with the first door "open" and the second door "closed". Stretching east the team will identify "Caved Tight" and this will be the team's furthest point of advance in this direction.

**Team Stop #3**

The team will not be able to enter Entry 1 due to not knowing the conditions behind the door and they do not have any building material to erect an airlock to enter. The team will utilize the air doors to create an airlock to enter Entry 2. The team will explore up to the intersection of Entry 2/XC-A, identifying a "B" gas placard indicating O<sub>2</sub> – 15%, CO - 0ppm, and CH<sub>4</sub> - 0%. Stretching west the team will identify a "B" gas placard and a "C" gas placard next to each other. The "C" gas placard shows O<sub>2</sub> - 10%, CO – 0ppm, and CH<sub>4</sub> – 7% indicating an explosive range for methane. Stretching east, the team will identify a "Permanent Stopping (door open)".

**Note: The team must notify the FAB that the air/gas mixture for methane has reached its explosive range. Failure to do so will result in a discount per Judge 1 – UG Rule 14.**

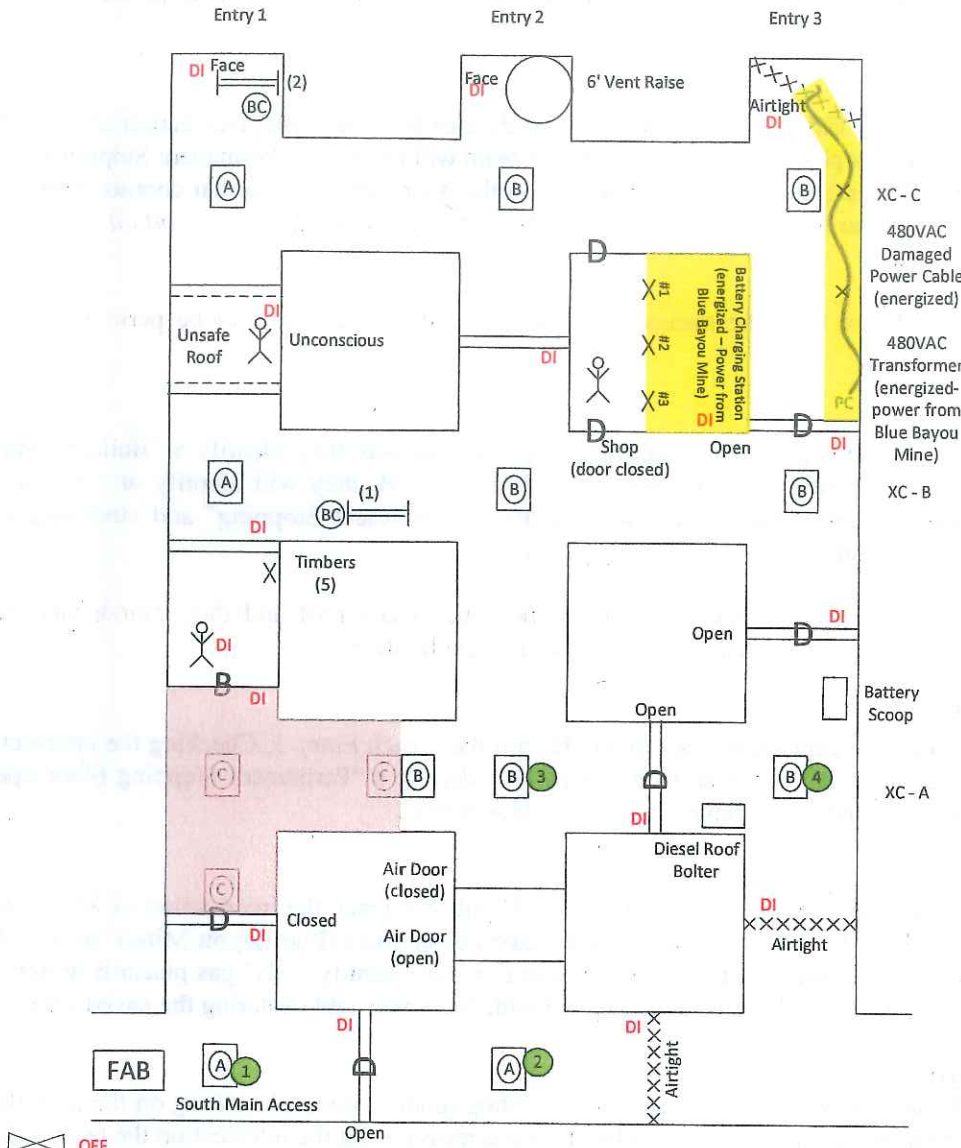
**Team Stop #4**

The team will continue exploration east until they reach the intersection of Entry 3/XC-A, along the way they identify a "Diesel Roof Bolter". At the intersection they identify a "B" gas placard, stretching north the team will identify a "Battery Scoop" and a "Permanent Stopping (door open)". Stretching south they will identify "Caved Tight", this will be the team's furthest point of advance in this direction.

# Solution Map Day 2

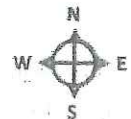
Team Name: \_\_\_\_\_

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



- XC - C
- 480VAC Damaged Power Cable (energized)
- 480VAC Transformer (energized - power from Blue Bayou Mine)
- XC - B
- XC - A

GAS PLACARD KEY	
<span style="border: 1px solid black; padding: 2px;">A</span>	= Clear air
<span style="border: 1px solid black; padding: 2px;">B</span>	= O <sub>2</sub> - 10% CO - 0 ppm CH <sub>4</sub> - 7%
<span style="border: 1px solid black; padding: 2px;">C</span>	= O <sub>2</sub> - 15% CO - 0 ppm CH <sub>4</sub> - 0%



#### Team Stop #5

The team will continue their exploration west in XC-A until they reach the intersection of Entry 1. Stretching south the team will identify the backside of the "Permanent Stopping (door closed)" and stretching north the team will identify a "barricade", knocking on the barricade they make contact with "Norman". The miner relays the following: *Help me! I barricaded myself in here when I overheard on the radio that a large pocket of methane was found in my area. I didn't want to chance trying to escape and being overcome by the gas. My radio is dead and I have not heard from any of the other miners. I'm not injured, I'm in good air, and I'm completely enclosed.*

**Note:** the team will not have the means to safely rescue the miner and will be permitted to continue exploration.

#### Team Stop #6

The team will return to Entry 2/XC-A and travel north until they reach the intersection of Entry 2/XC-B. They identify a "B" gas placard, stretching north the team will identify a "Permanent Stopping". The team will also identify "Shop (door closed)", knocking on the door they make verbal contact with "Murray". The miner will relay the following: *Get me out of here! I'm not injured, I'm in good air, and the shop is completely enclosed.*

**Note:** the team will not have the means to safely rescue the miner and will be permitted to continue exploration.

#### Team Stop #7

The team will continue exploration west in XC-B, along the way they identify a "Building Material (1 set)". The team will examine the intersection of Entry 1/XC-B, they will identify an "A" gas placard indicating "clear air". Stretching south they identify a "Permanent Stopping" and stretching north the team will identify "unsafe roof".

**Note:** The team will not have the means to support the unsafe roof and they cannot take down the permanent stopping. They will be permitted to continue exploration.

#### Team Stop #8

The team will continue exploration east in XC-B until they reach Entry 3. Checking the intersection they identify a "B" gas placard, to the north the team will identify a "Permanent Stopping (door open)" and stretching south they find a "Permanent Stopping (door open)".

#### Team Stop #9

The team will continue exploration north in Entry 3 until they reach the intersection of XC-C. Along the way they identify a 480VAC Transformer (energized-power from Blue Bayou Mine)" and a "480VAC Damaged Power Cable (energized)". At the intersection they identify a "B" gas placard; stretching north the team will identify "Caved Tight" at a diagonal with the power cable entering the caved area.

#### Team Stop #10

The team will continue west identifying a second "Shop (door closed)", knocking on the door they make contact with "Murray" again and he will relay the same message. At the intersection the team will identify a "B" gas placard. Stretching south the team will identify the backside of the "Permanent Stopping" and stretching north the team will identify that the mine continues to a "Face" and also find a "6' Ventilation Raise".

#### Team Stop #11

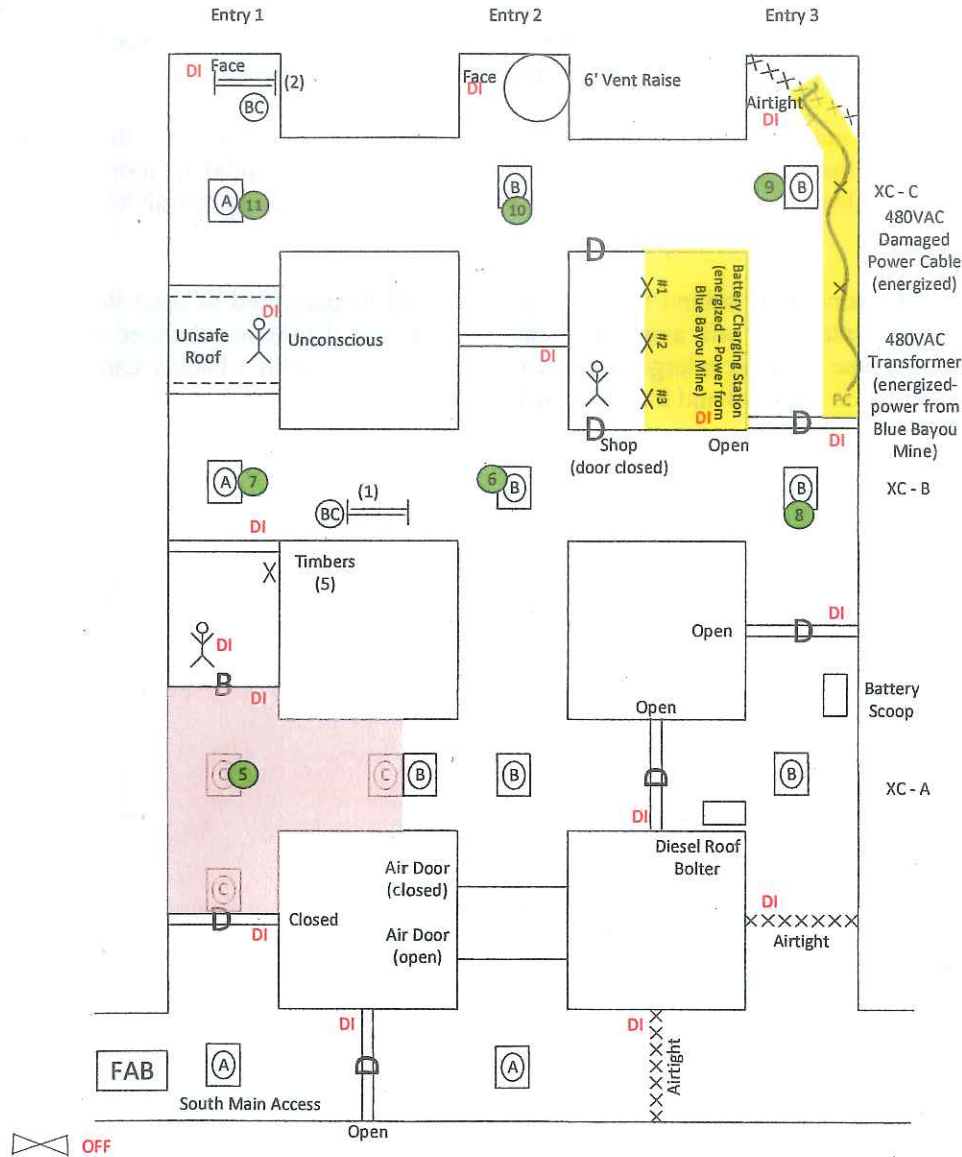
The team will continue west until they reach the intersection of Entry 1/XC-C. They will identify an "A" gas placard indicating "Clear Air". Stretching south the team will identify "Unsafe Roof" and stretching north the team will identify that the mine continues up to a "Face" and find "Building Materials (2 Sets)".

**Note:** The team does not have the means to support the unsafe roof, but they do have the means to rescue Murray from the shop and Norman from the barricade in this order.

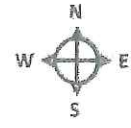
# Solution Map Day 2

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

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



GAS PLACARD KEY			
<span style="background-color: #90EE90; border: 1px solid black; padding: 2px;"> </span>	= Clear air	<span style="background-color: #FFFFE0; border: 1px solid black; padding: 2px;"> </span>	= O <sub>2</sub> - 15% CO - 0 ppm CH <sub>4</sub> - 0%
<span style="background-color: #FFC0CB; border: 1px solid black; padding: 2px;"> </span>	= O <sub>2</sub> - 10% CO - 0 ppm CH <sub>4</sub> - 7%		



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

The team has the means to execute the first ventilation change. The team will request a ventilation change, once granted the following steps will be required to clear the shop door.

- Maintain the "Door Closed" between XC-A and South Main Access in Entry 1
- Open both Air Doors in Entry 2
- Build a temp stopping between Entry 1 and Entry 2 in XC-A, east side of "C" Placard
- Close door between Entry 2 and Entry 3 in XC-A
- Build a temp stopping between Entry 1 and Entry 2 in XC-B
- Turn the fan "ON"

Ventilation will move along the path shown in the ventilation solution map, clearing the Shop door. After they clear gases in front of the shop, the team will request to turn "OFF" the fan.

**Note: If the team does not close the door in XC-A between Entry 2/Entry 3 or close the door in Entry 3 between XC-A/XC-B, the ventilation will split and the gas placard in front of shop door will only change to 16.5% O<sub>2</sub>. Once the team closes one of the doors, the placard will change to "Clear Air".**

**Team Stop #12**

The team knows the conditions behind the shop door and will be permitted to open the door to rescue "Murray". Once they enter, they will assess the miner and discover that he is unharmed and can walk out with the team. They also discover a large "Battery Charging Station" with 3 battery carousels. The team will take the miner out to the FAB and transfer care to EMT's.





**Ventilation Change #2 to enter the Barricade (See attached map)**

The team has the means to execute the second ventilation change. The team will request a ventilation change, once granted the following steps will be required to clear the shop door.

- Close the door in the South Main Access between Entry 1 and Entry 2
- Open the door in Entry 1 between XC-A and South Main Access
- Maintain door closed between Entry 2 and Entry 3 in XC-A
- Maintain the build to protect the unexplored area in XC-B between Entry 1 and Entry 2
- Build a temp stopping inside of the Shop to protect the explosive gas from coming in contact with the ignition source. Based on the length it will require 2 set of materials.
- Turn the fan "ON"

Ventilation will move along the path shown in the ventilation solution map, clearing the barricade. After they clear ventilation at the shop, the team will request to turn "OFF" the fan.

**Note: If the team moves the explosive mixture over an ignition source, they will be discounted for team endangerment. (15 points each in fraction, each occurrence) Per Judge 1 – UG Rule 10(b)(3)**

**Team Stop #13**

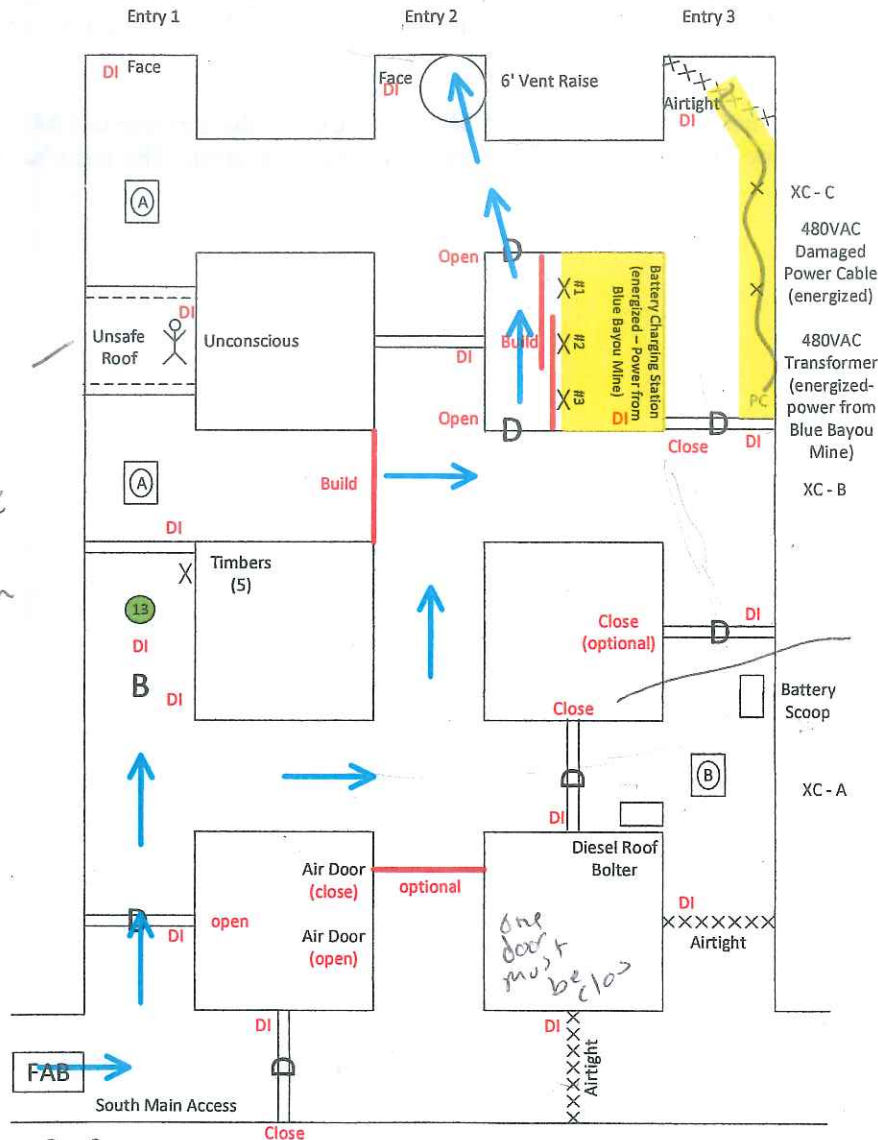
The team knows the conditions inside of the barricade and will be permitted to enter the barricade. The team will assess the miner and discover that he is unharmed and can walk out with the team. They will also identify "Timbers (5)" inside. The team will take the timbers and escort the Miner to the FAB and transfer care to EMT's.

# Ventilation Change #2

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

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

*IF They dont build And Bring Methane across Ignition*



*+ FAB*

*one door must be closed*

75 min.



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<span style="background-color: #FFFFE0; border: 1px solid black; padding: 2px;"> </span>	= O <sub>2</sub> - 15% CO - 0 ppm CH <sub>4</sub> - 0%



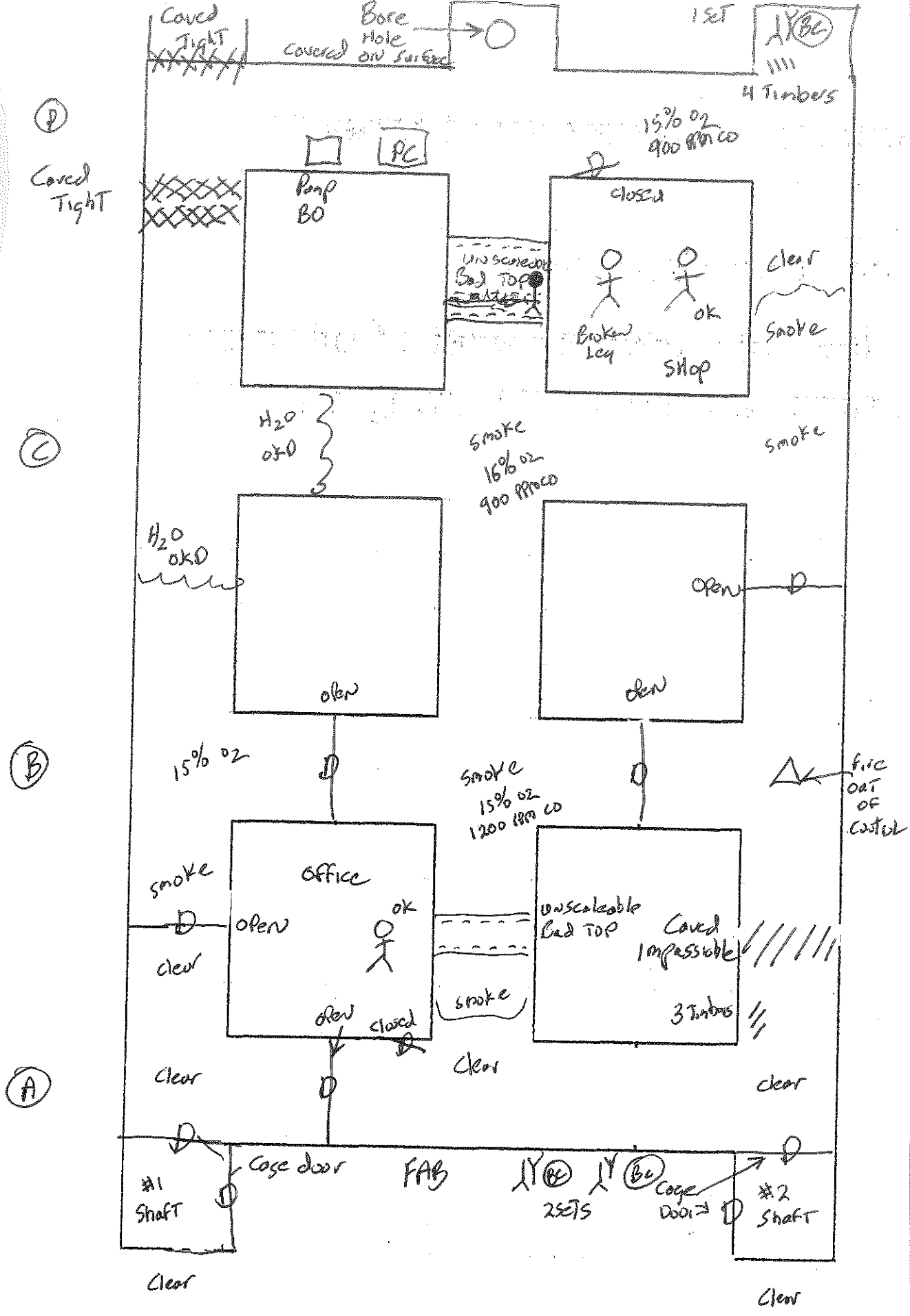
#### Team Stop #14

The team will travel up Entry 2 until they reach the intersection of XC-B; the team will take down the temporary stopping and travel to the unsafe roof in Entry 1. The team will have the means to support the unsafe roof; utilizing the ground control techniques outlined in the rule book the team will utilize four timbers to support the area. While supporting the roof, they discover the final missing miner. When they asses the miner, they discover that he is unconscious. The team will have to provide full face respiratory protection and backboard the miner to transport him to the FAB.

**Note: The team will have to go through the complete donning procedures when placing the unconscious miner under air. Once ready for transport, judge #2 will acknowledge and inform the team that they can turn off the oxygen and remove the hoses. The mask must remain on the miner and the apparatus must be kept close by during the transport.**

When the team arrived back at the FAB, they will transfer care of the survivor to EMT's, communicate their finding to the Mine Manager, turn in their maps, and stop the clock. The team has met all of their objectives. THE END





(1) (2) (3)

Day 1 New Iberia AIS MAO