

47th Southern Regional Mine Rescue Classic

JUDGES PACKET

Field Competition



May 3, 2017

New Iberia, Louisiana

Mine Information
New Iberia, LA
May 2-4, 2017

General

The Tostado Mine is an underground Multi-level II-B room and pillar salt mine owned and operated by Charpenyard & Associates Mining Company. Henry Bayard is VP of Operations and Lynn Charpentier is currently the mine manager. The Tostado Mine is located in Southern Louisiana. The mine is active and operating at full capacity. The mine has been classified as gassy and is currently undergoing maintenance in the shaft due to a water issue. The mine operates two 12 hours shifts per day, 6 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 1700' level.

Mine Access

Mine access is provided by two 14 foot diameter concrete-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 occasional low back.

Explosives

All explosives are stored on the 1700' level in an approved storage facility.

Electricity

Electrical service to the mine is provided by a local electric company. The main disconnect for all power to the underground is located on the 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-B mine (meaning that an outburst has not occurred, but which has the potential for an outburst based on the history of the mine or geological area in which the mine is located). The mine generally experiences some nitrogen dioxide and carbon monoxide resulting from blasting and the operation of diesel equipment. Other mines in the area have been known to produce similar gas in addition to methane and hydrogen sulfide.

Communication

This is accomplished by two-way radios that are carried by mine personnel.

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. The mine is currently implementing the use of SCSR's but caches have not been installed underground yet. Miners must carry their units if they remember to take one from 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 April 1, 2017.

Mine Equipment

The mine currently utilizes under-cutters, jumbo drills, haul trucks, loaders, bolters and other smaller transportation equipment.

Ventilation

The mine is ventilated by a non-reversible 100,000 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 constantly via seepage on the 1700' level and accumulates primarily in the central part of the mine. 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 other trained and fully equipped mine rescue teams are on site and are available to you upon your request.

TEAM BRIEFING

New Iberia, LA

May 2-4, 2017

You have arrived at the Tostado Mine, the mine Manager has just arrived and was provided the following information. A total of 7 miners and a shift supervisor entered the mine this morning for day shift on the 1700' level. About mid shift today on the 1700' level the under-cutter operator hit a void while cutting at the face. Immediately he was overcome by an unknown gas and shortly after, large amounts of methane began escaping from the face. The shift supervisor was in the area and saw the operator slumped over in the under-cutter, as he drove up to investigate he was overcome by an unknown gas and his vehicle ran into a transformer causing the methane in the atmosphere to explode. The stench of the unknown gas alarmed the shop area miners and an evacuation of the mine began.

Two miners brought the shift supervisor and under-cutter operator bodies to surface. The two miners had been grouting in the shaft earlier in the morning and are worried that the disruption could create a potential water issue in the mine.

A call to the hoistman came in from an unidentified miner, he stated that he extinguished a fire and was going to attempt to make his way to the surface. The hoistman radio was not able to transmit and they lost communication. The unidentified miner never made it to surface. The mines mine rescue team entered the mine but quickly returned after identifying an issue in the intake shaft, they made the necessary repairs but their breathing apparatuses needed to be replenished with oxygen so they returned to the surface station and never made it back underground.

It is now 6:00 p.m. and you will be the second team to make an attempt to enter the mine. The air reading concentrations at the exhaust shaft have continued to decrease with a light smoke exiting the shaft now. There is power to the mine and the main fan is currently being guarded and in off position. Should you need to turn it on at any time we can communicate to have your request met since you cannot access the fan controls from the FAB.

If you are ready and willing, the service of your mine rescue team is needed. Your objectives are listed below and the mine manager will be available for any questions or requests.

GOOD LUCK!

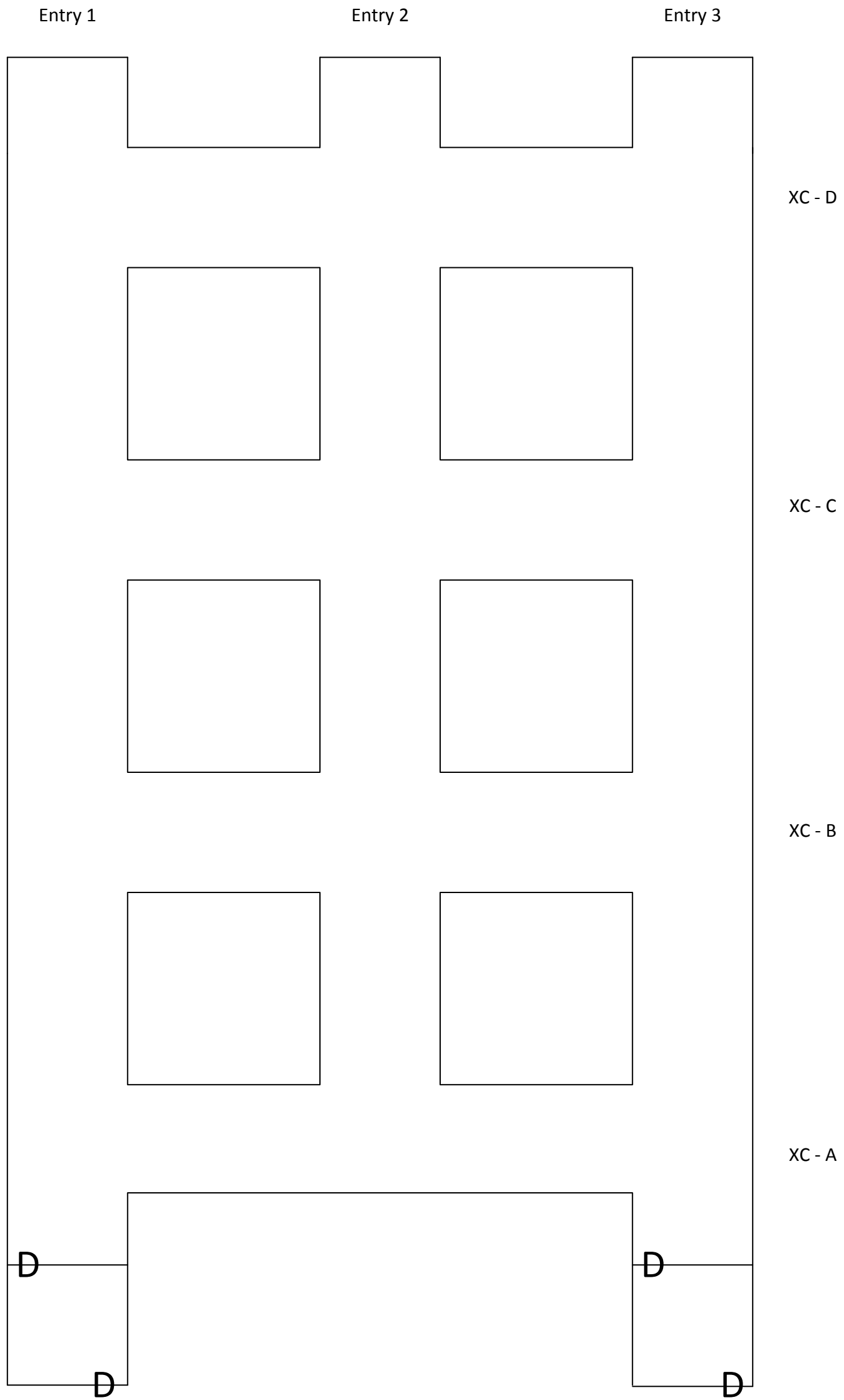
Field Problem Objectives:

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

Team Map Day 1

Team Name: _____

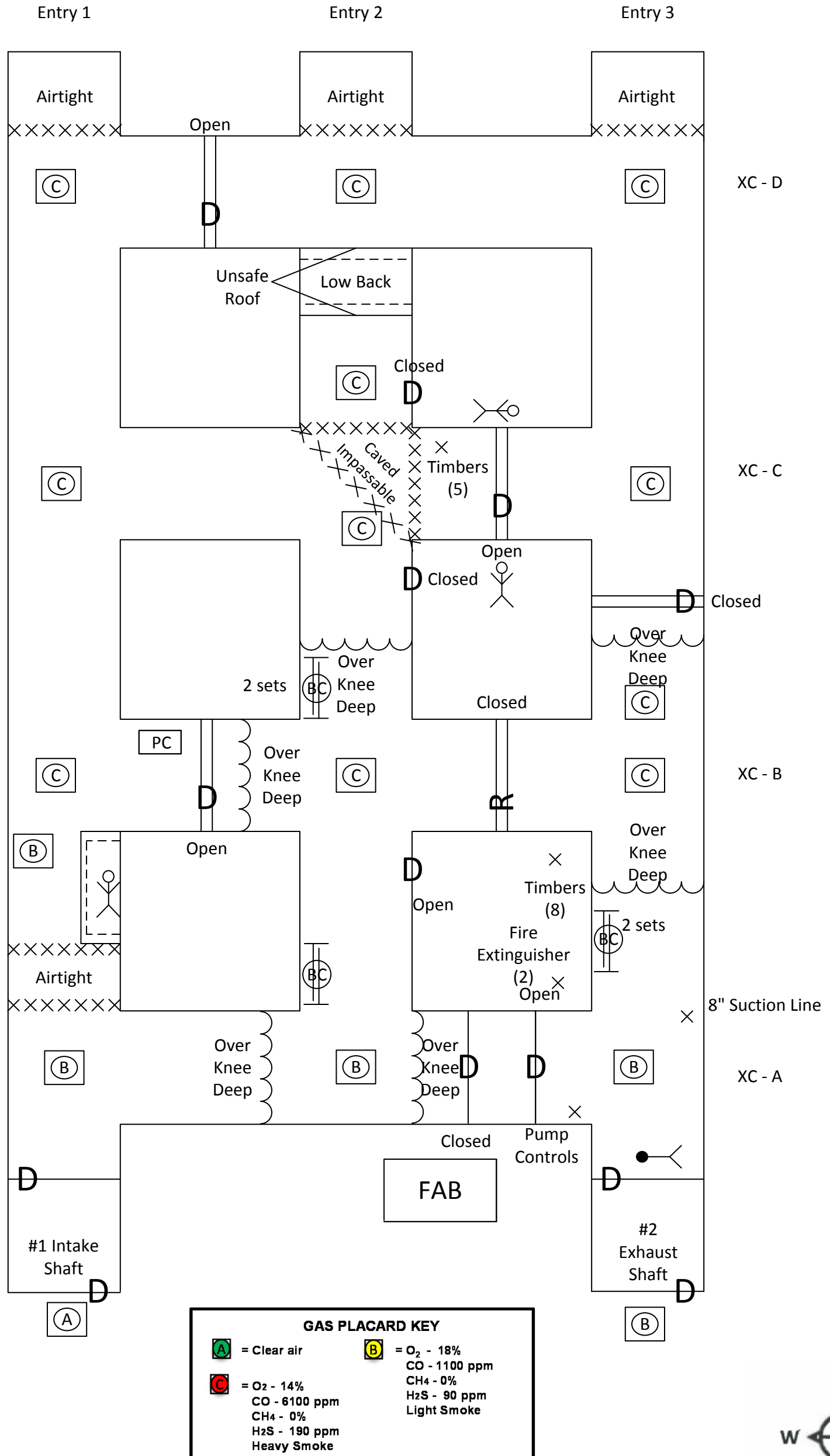
Team Draw # _____



Problem Map Day 1

Team Name: _____

Team Draw # _____



2017 Southern Regional Mine Rescue Contest
Field Problem Solution
(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.

Team Stop #1

Teams will explore the #2 Exhaust Shaft, checking the shaft and cage they find no issues and identify “Light Smoke”.

Team Stop #2

Teams will travel to the “#1 Intake Shaft”, examining this shaft and cage the team will find no issues and identify a “Clear Air” placard. The team will elect to enter the mine through the #1 Intake Shaft.

Team Stop #3

The team will cage down to the 1700’ level. The team will count of entering the mine and continue north in entry #1 until they reach the intersection of XC-A. The team will identify a “Light Smoke” placard and “Caved Airtight” the team will most likely conduct their 50’ check in this location as well. Stretching east the team will identify “Water over Knee Deep” and this will be the team’s furthest point of advance at this point.

Team Stop #4

The team will retreat out of the mine and travel to the #2 exhaust shaft. Team will enter the mine and identify a deceased miner named Ed. Team will make the appropriate notification and continue north in entry #2 until they reach the intersection of XC-A. The team will identify a “Light Smoke” placard and an “8” Suction Line”, stretching west the team will identify “Pump Controls” and a set of air doors with the first open and the second closed. The team will explore north in entry #3 until they reach “Water over Knee Deep”, the team will also identify “Building Materials (2 sets)”. This will be the teams furthest point of advance at this point.

Team Stop #5

The team will elect to utilize the air doors as an air lock to enter west in XC-A. The team will continue exploration west and identify “Water over Knee Deep”; the team will need to pump the water in order to continue exploration.

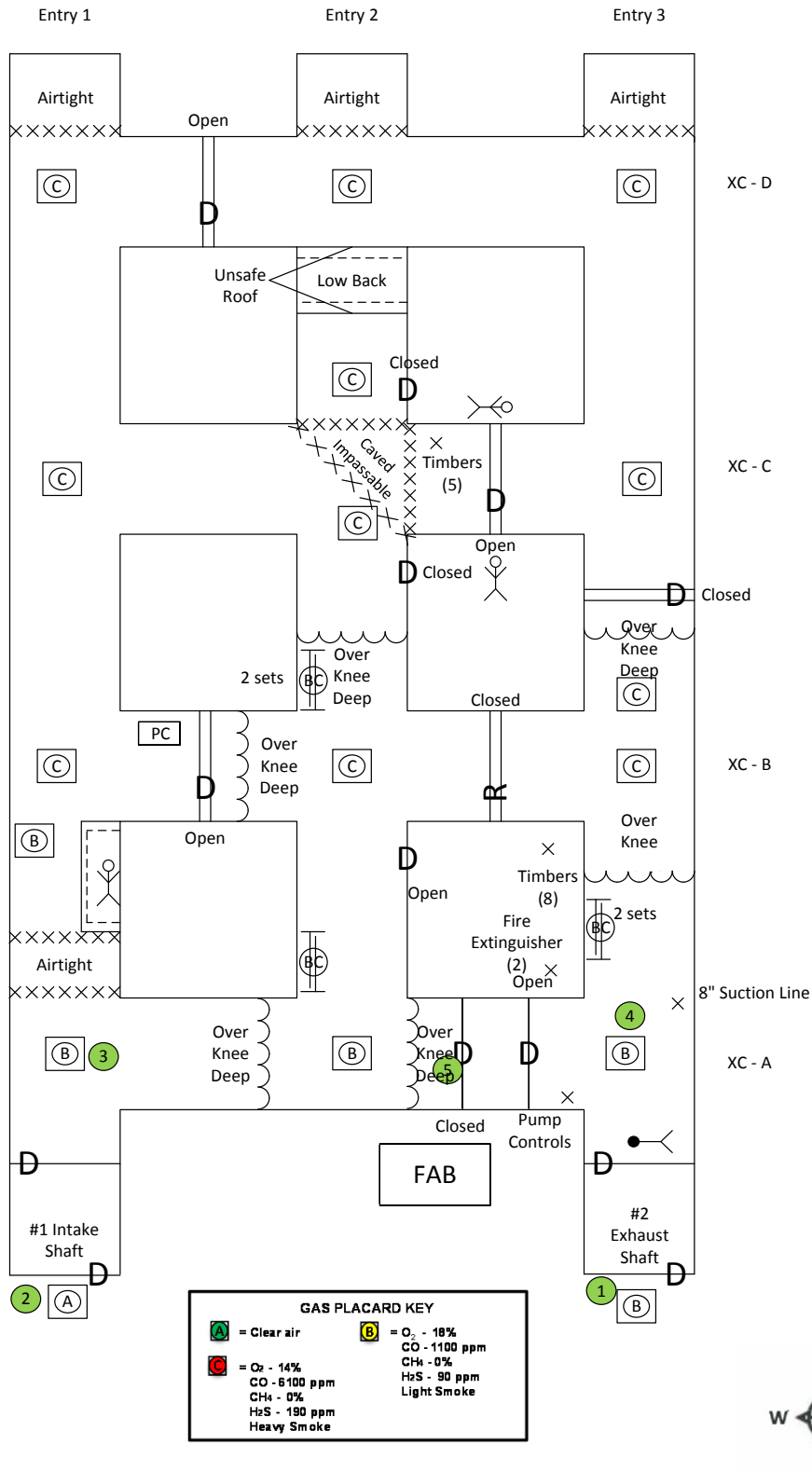
Water Solution

The team will only need to turn the pump controls on and the water will be pumped to surface. Once the team turns the pump on, the water will change to “Water Knee Deep”.

Solution Map Day 1

Team Name: _____

Team Draw # _____



Team Stop #6

The team will continue exploration in XC-A. The team will tie in the crosscut and identify a “Light Smoke” placard.

Team Stop #7

The team will explore north in entry #2, identifying “Building Materials (1set)” and identify the “Timber Storage (door open)”. Entering the storage room the team will find “Timbers (8)” and “Fire Extinguishers (2)”.

Team Stop #8

The team will continue exploration north in entry #2 until they reach the intersection of XC-B. The team will identify that they are now traveling in “Heavy Smoke”. Stretching to the east, the team will identify a “Permanent Stopping (with Regulator closed)”, stretching north they identify “Building Materials (2 Sets)”, and stretching west they identify a “Permanent Stopping (door open)”.

Team Stop #9

The team will continue exploration west in XC-B until they reach the intersection of entry #1. The team will identify a “Heavy Smoke” placard; stretching south the team will identify “Light Smoke” placard and identify an area of “Unsafe Roof” with a miner under the area. The team will also identify the backside of the “Caved Airtight”. The team will have the means to support the area and rescue the survivor.

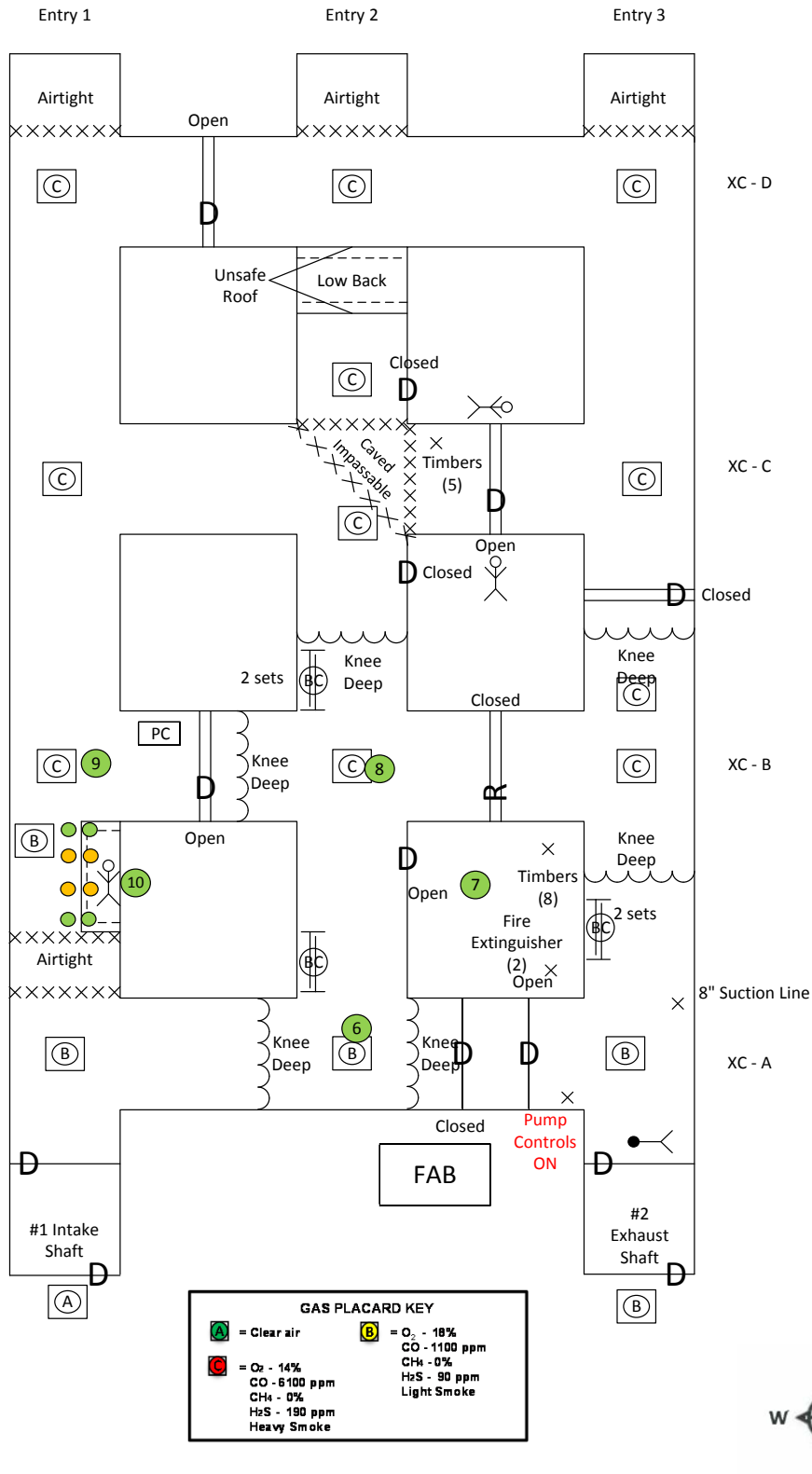
Team Stop #10

The team will utilize the timbers that they found in the storage room and support the unsafe area in accordance with the examples in the national rule book. Once the team accesses the survivor they will identify Edd and once they address him, he will be alert and ask for help to get up. The team will need to support the area to allow other team member to provide assistance to the survivor. Once the team gets Edd up, he mentions that he is just sore and he can walk out with the team. The team should realize that they will be traveling out of the mine through irrespirable atmosphere and they will need to provide respiratory protection for the survivor. Once the team has successfully provided protection for the survivor they can take him out of the mine to the FAB.

Solution Map Day 1

Team Name: _____

Team Draw # _____



Team Stop #11

The team will reenter the mine by way of the #2 Exhaust Shaft and travel north in entry #3 until they reach the intersection of XC-B. The team will identify a “Heavy Smoke” placards in the area. Stretching north, the team will identify a “Permanent Stopping (door closed)”, the team does not know the conditions behind the door and gas concentrations will prevent them from air locking to open the door.

Team Stop #12

The team will retreat to the intersection of XC-B and entry #2. The team continues exploration north, identifying a “Shop (door closed)” addressing the door they will make verbal contact with a survivor inside. Eddy will provide the following statement: “Hey get me out of here, I’m not injured, I’m completely enclosed and the air in here is ok”. The team will continue exploration until they have identified the means and conditions necessary to make a ventilation change too enter the Shop. The team continues north into XC-C and identifies a “Heavy Smoke” placard and “Caved Impassable” that stretches across the entire intersection.

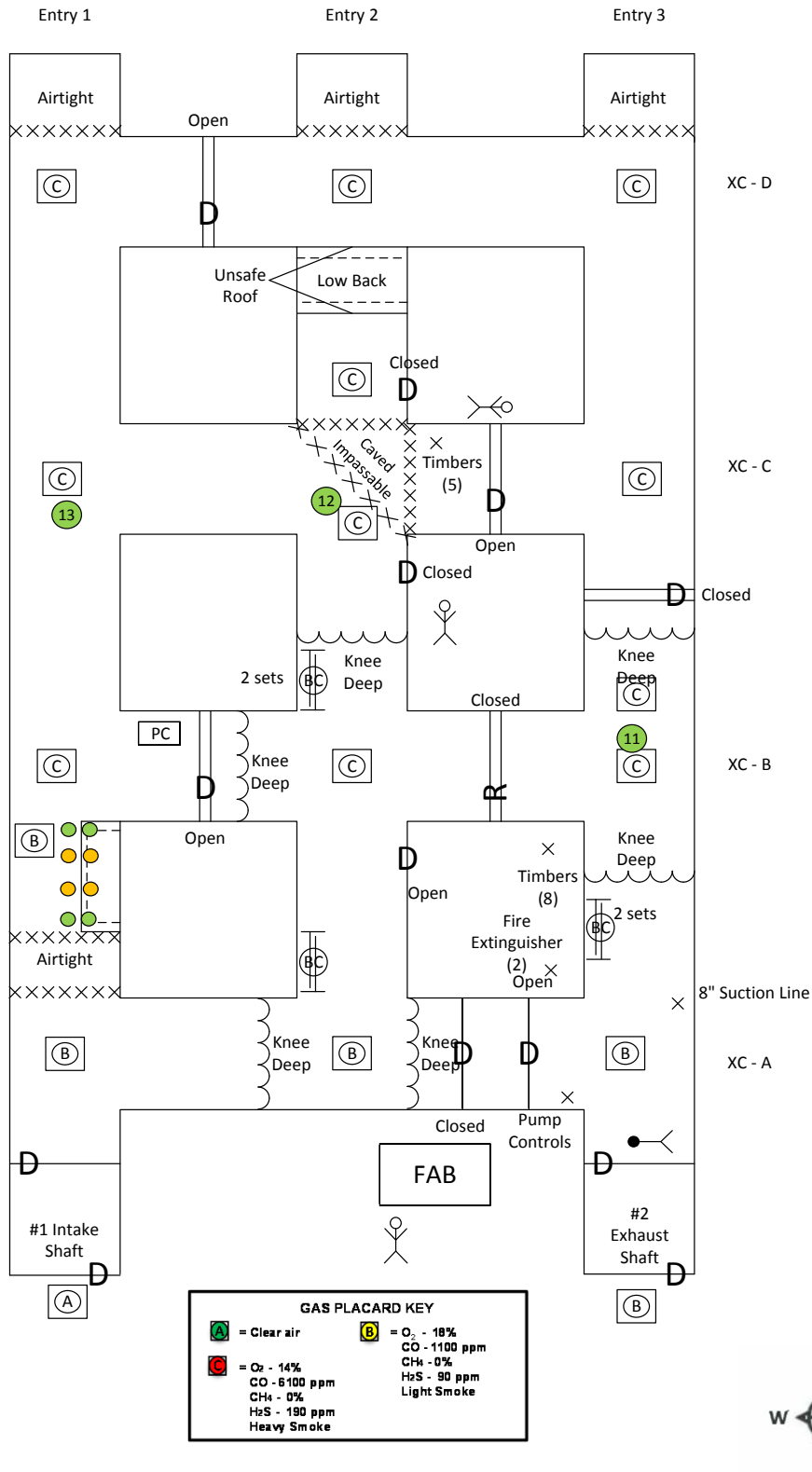
Team Stop #13

The team will continue exploration west in XC-C until the reach entry #1, the team will identify a “Heavy Smoke” placard and tie in south to XC-B.

Solution Map Day 1

Team Name: _____

Team Draw # _____



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 the ventilation change, once granted the following steps will be required to clear the shop door.

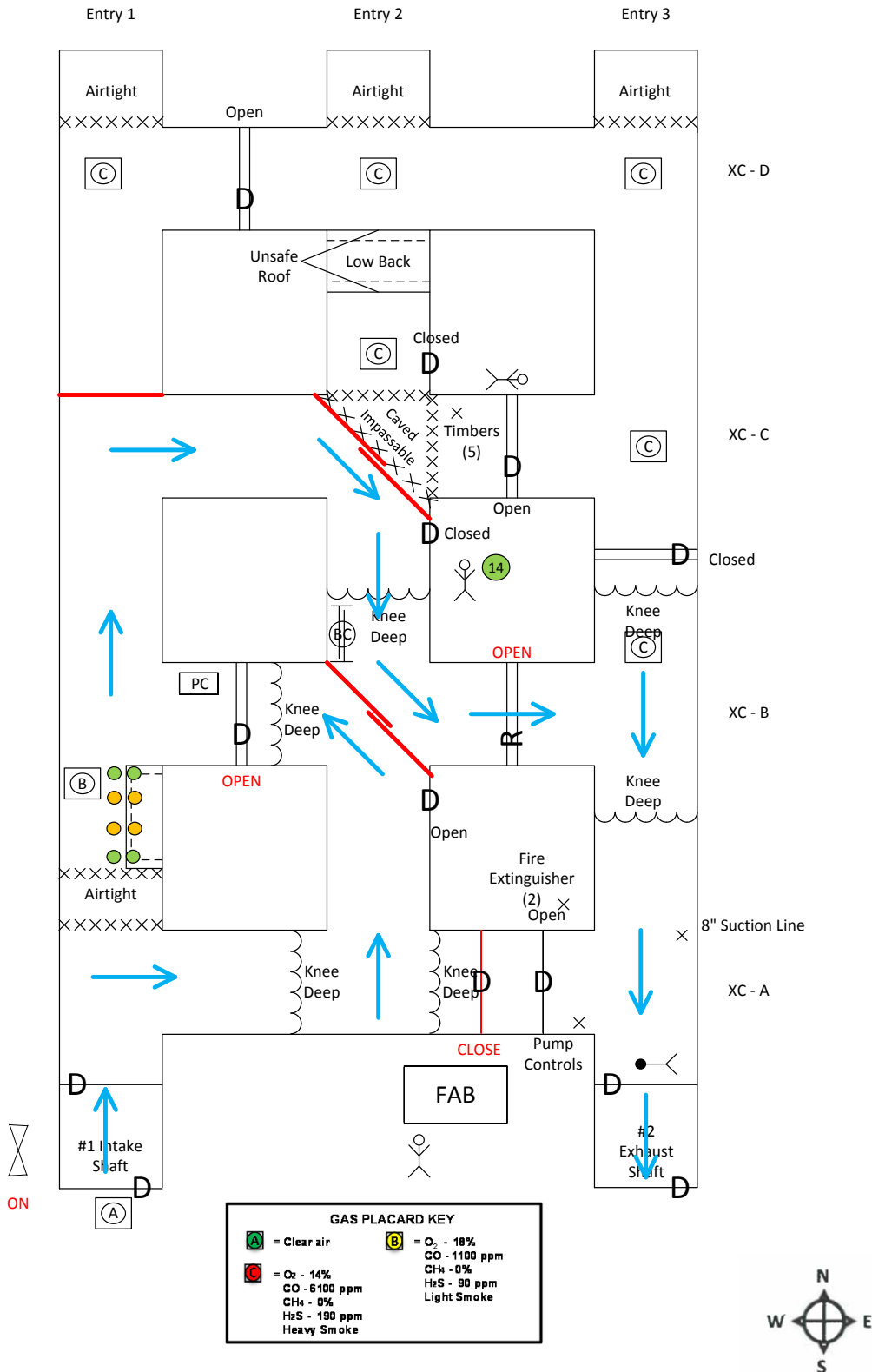
- Close one of the air doors in XC-A
- Build a temp stopping in XC-C at entrance to entry #1
- Build temp stopping in front of the caved impassable in the intersection of entry #2 and XC-C. Due to the width, the team will need 2 sets of building materials.
- Open the regulator and permanent stopping door in XC-B
- Utilize 2 sets of building materials to split the intersection of XC-B and entry #2
- Turn the fan ON

Ventilation will move along the path shown in the ventilation solution map, clearing the shop door.

Team Stop #14

The team will make gas checks along their route of travel to the Shop. The team knows the conditions behind the door so they will be permitted to enter the shop. They identify Eddy inside; Eddy can walk out with the team.

Ventilation Change #1



Team Stop #15

The team will have the mine fan turned OFF and reenter the mine to begin exploration in entry #1 and XC-C. The team will travel north and identify a “Heavy Smoke” placard, they also identify that entry #1 is “Caved Airtight”; this will be the teams furthest point of advance.

Team Stop #16

The team will explore east in XC-D, traveling past a “Permanent Stopping (door open)” until they reach entry #2. The team will identify a “Heavy Smoke” placard, stretching north they identify that entry #2 is “Caved Airtight” and this will be their furthest point of advance. Stretching south the team will identify “Low Back” and “Unsafe Roof”; the team will not have the means at this time to support the area and will continue exploration.

Team Stop #17

The team will continue exploration east in XC-D until they reach the intersection of entry #3, they will identify that entry #3 is also “Caved Airtight” and that they have remained in “Heavy Smoke”.

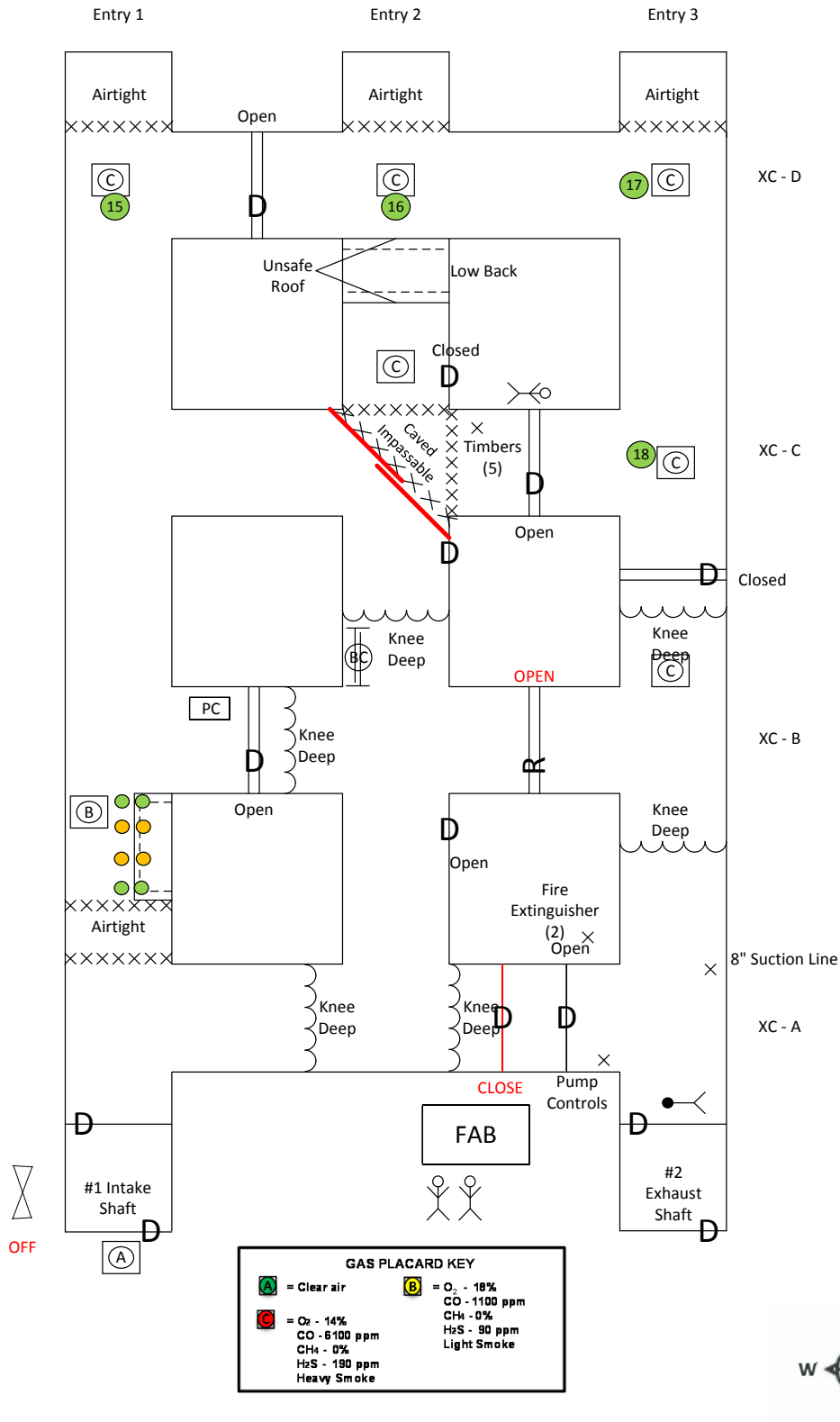
Team Stop #18

The team will travel south in entry #3 until they reach the intersection of XC-C. The team will continue exploration south and identify a “Heavy Smoke” placard, stretching west in XC-C the team will travel passed a “Permanent Stopping (door open)”, identify “Timbers (5)”, and the backside of the “Caved Impassable”.

Solution Map Day 1

Team Name: _____

Team Draw # _____



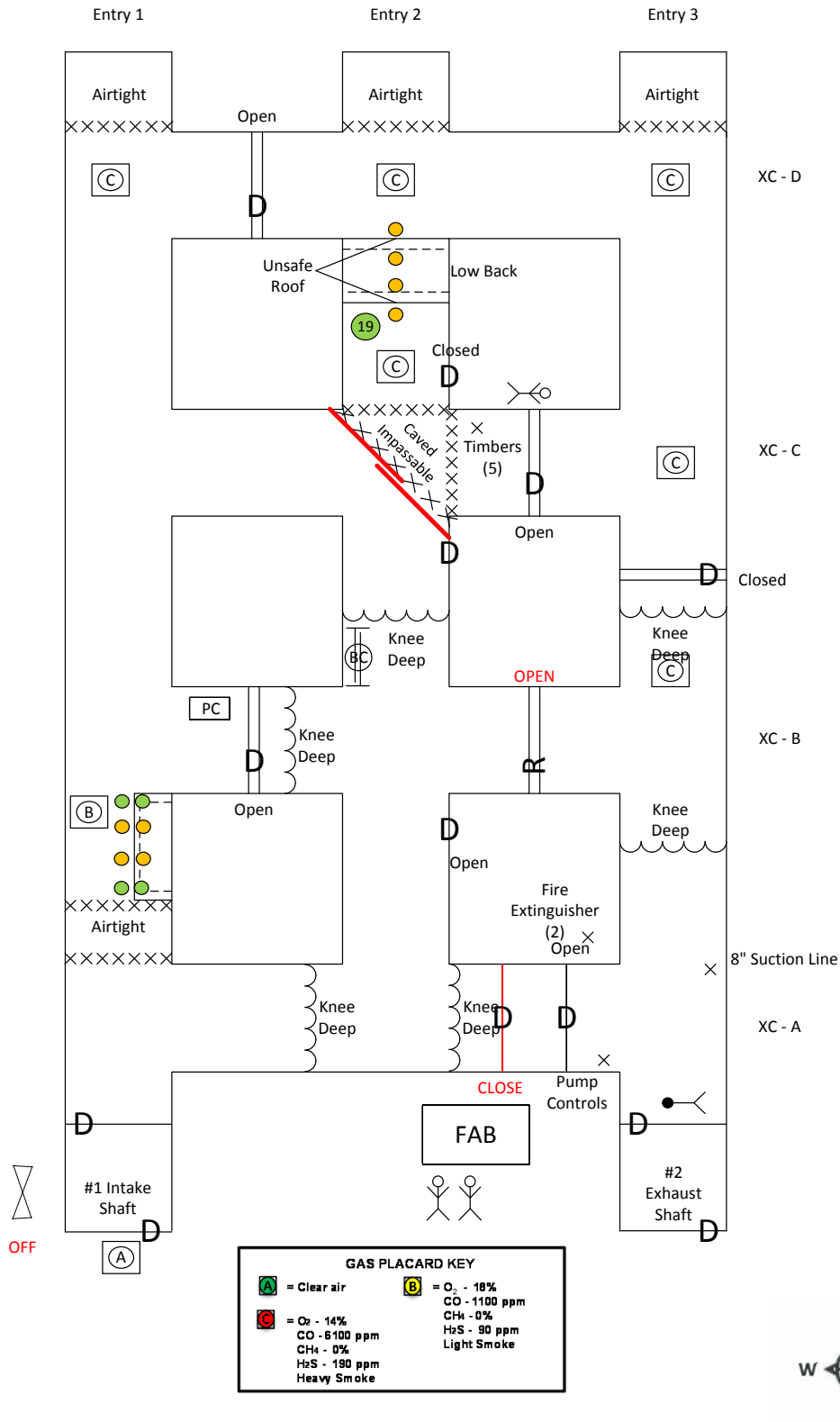
Team Stop #19

The team will pick up the Timbers and retreat to the intersection of entry #2 and XC-D. They now have the means to support the unsafe roof area and will need a minimum of 4 timbers to accomplish this. Once the team has explored beyond the low back, they will identify the backside of the “Caved Impassable” and identify the “Lunchroom (door closed)”. They will knock on the door and make verbal contact with final missing miner “Phil”, he will provide the following statement: “Help Me, I just made it inside, the air in here is ok and the lunchroom is completely enclosed. I feel like I’m going to pass out and my vision is blurry I’m going to don my SCSR and I won’t be able to talk anymore, hurry”. The team will need to ventilate in front of the door in order to enter and since this is the final missing miner, the team will be permitted to ventilate across the caved impassable area.

Solution Map Day 1

Team Name: _____

Team Draw # _____



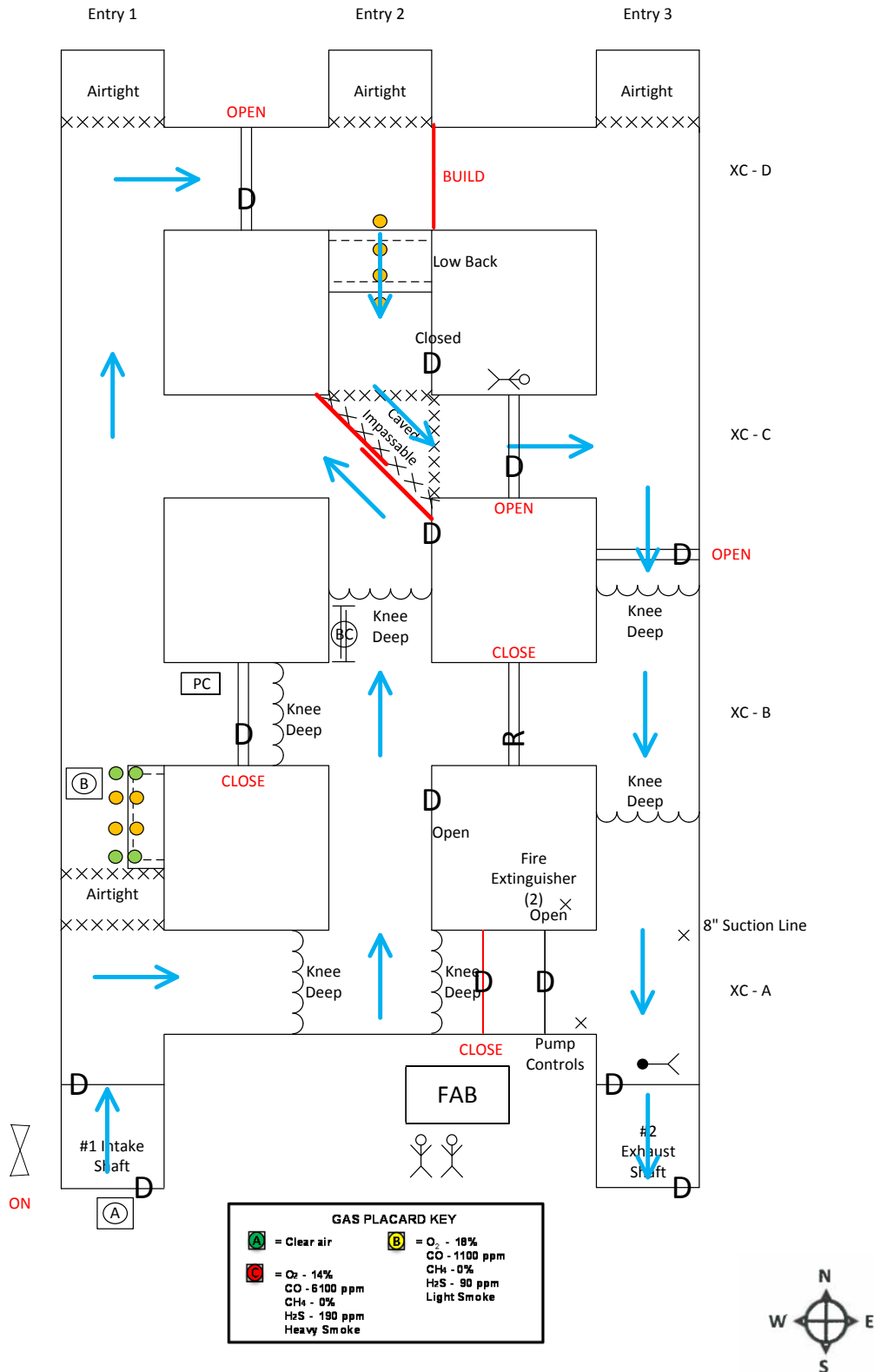
Ventilation Change #2 to enter the Lunchroom (See attached map)

The team will request the ventilation change, once granted the following step will be required to clear Lunchroom.

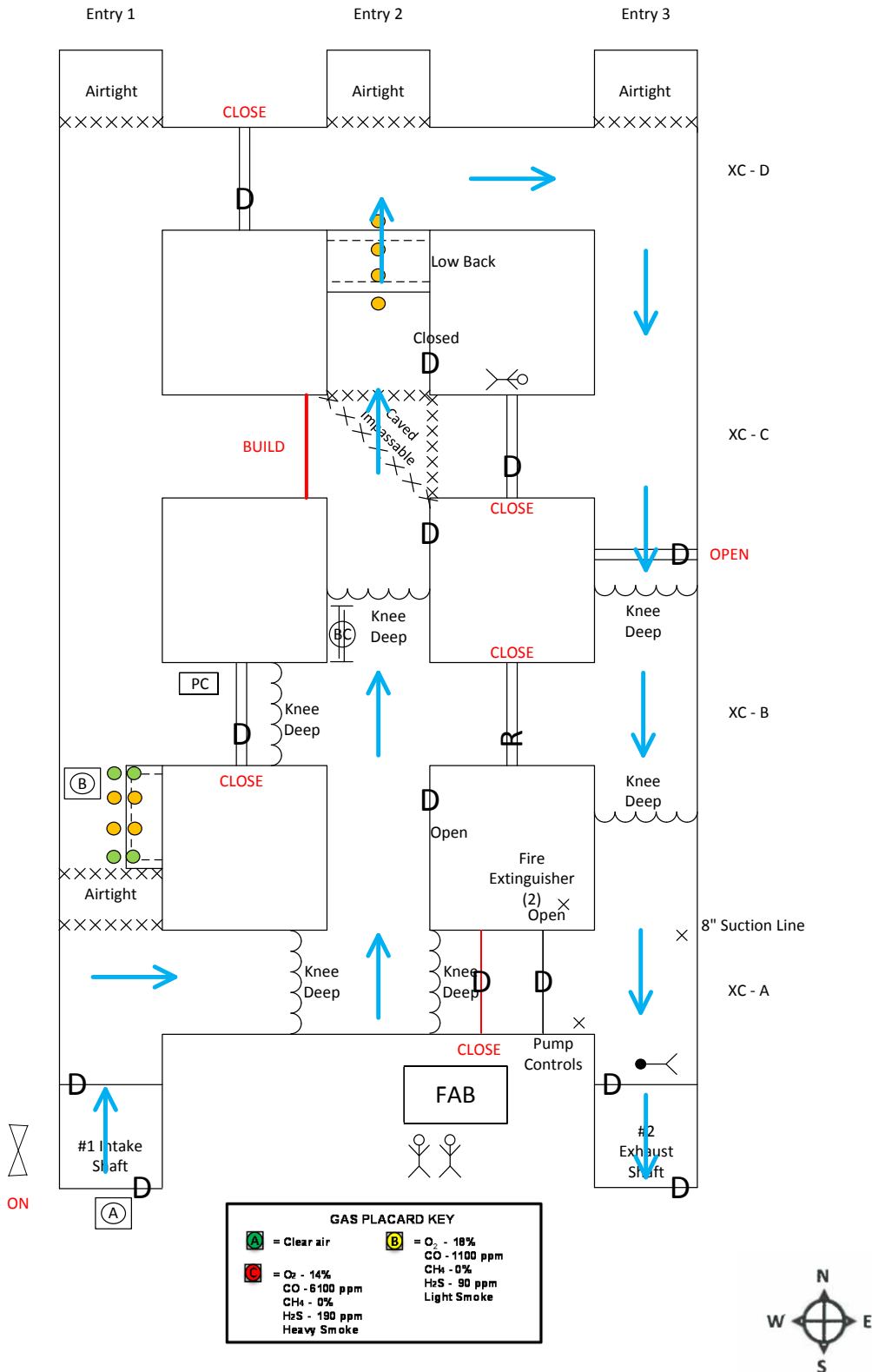
- Maintain the door closed in XC-A
- Close the regulator and door in XC-B
- Maintain the temp stopping in front of the caved impassable in the intersection of entry #2 and XC-C.
- Open the door in between entry #2 and #3 in XC-C
- Open the door in entry #3 between XC-B and XC-C
- Build a temporary stopping in between entry 2 and 3 in XC-D.
- Turn the fan ON

Ventilation will move along the path shown in the ventilation solution map, clearing the door in front of the Lunchroom.

Ventilation Change #2



**Alternative Ventilation
Change #2**



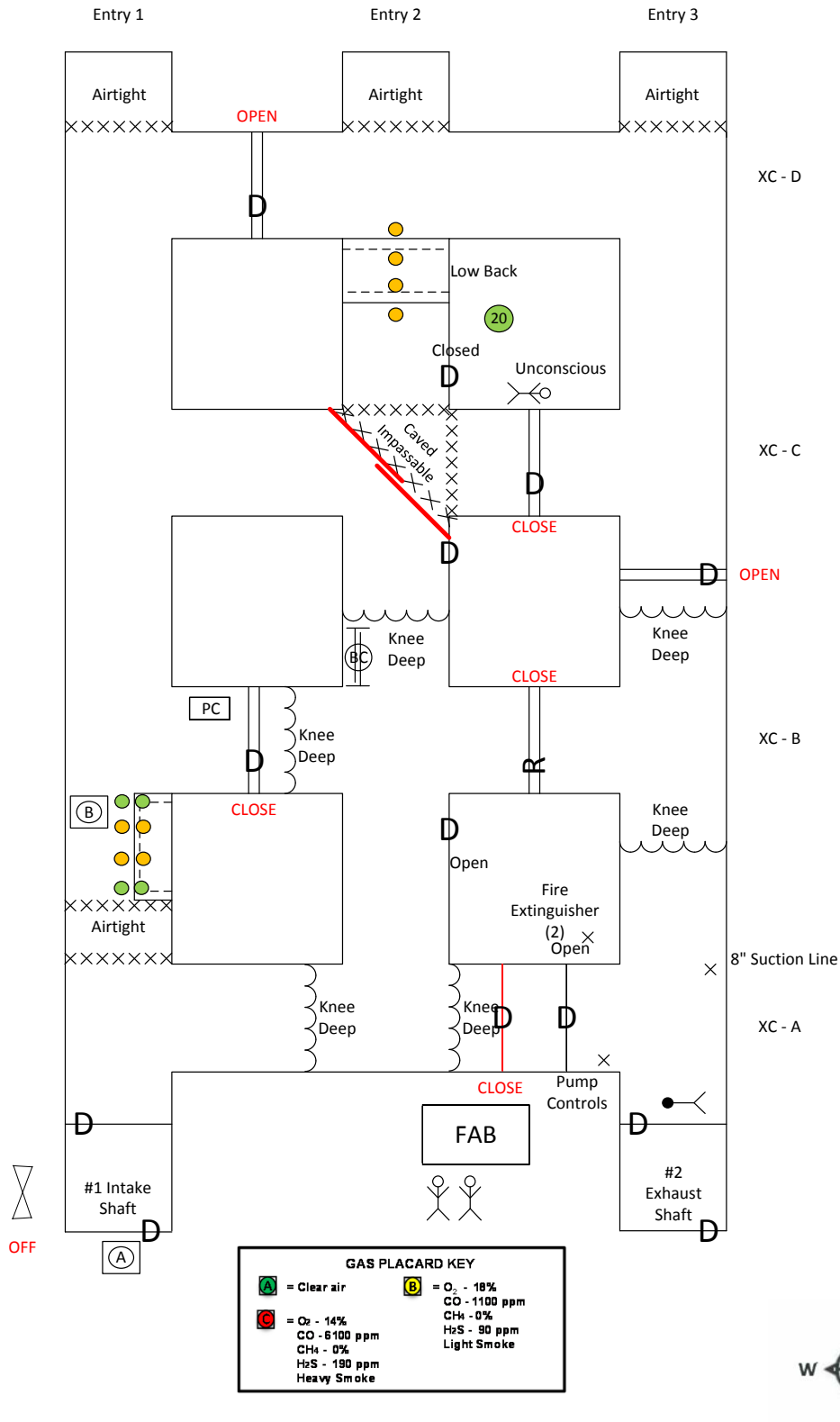
Team Stop #20

The team will only have the Lunchroom remaining to explore and once they enter, they will identify that Phil is unconscious and wearing a 1-hour SCSR. The team will have to remove the SCSR and use an approved 4 hour oxygen breathing apparatus equipped with a full face-piece. Once they have provided proper protection, the team will take Phil the FAB. The team will transfer care of the survivor to EMT's, communicate their finding to the Mine Manger, turn in their maps, and stop the clock. The team has met all of their objectives. THE END

Solution Map Day 1

Team Name: _____

Team Draw # _____



Team Name: _____

Team Draw # _____

Placard Map

