

49Th Southern Regional Mine Rescue Classic

JUDGE PACKET

Field Competition Day 1



April 30, 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 1

April 29 - May 2, 2019

You have arrived at the Davis Mine and received the following information. There are currently four miners unaccounted for and we have not established communication with any of the missing miners. Last night the mine experienced a major blowout after a shot. The mine wide monitors indicated that the mine was inundated with methane and power automatically de-activated. The mine has ventilated until gas readings dropped to .1% methane and 21% Oxygen.

A crew of five mine rescue team members entered the mine this morning at approximately 6:00 am. The team was tasked to explore the mine and locate the missing miners. The team explored up to the Maintenance Shop and began reestablishing ventilation up to and in the Maintenance Shop. While pre-shifting a Mantrip for transportation, the Mantrip caught on fire and due to the intense heat the team immediately exited the shop and de-energized the shop fan. The Maintenance Shop has two equipment doors, the team reported that they sealed one door and regulated the second door. Just before they were able to fully seal the second door, they encountered an apparatus issue and were forced to retreat to the fresh air base. The team reported that smoke continued to exit the regulator and will continue to emit smoke until fully sealed.

It is now 1:00 p.m., there is power to the mine and the first team is now on surface, they have reestablished the fresh air base underground and ventilation is established in crosscut A. You will be the second team to enter the mine. We ask that you explore up to the Maintenance Shop and close the regulator in order to completely seal and isolate the fire. Once you have accomplished this, continue exploration for the four missing miners. Your objectives are listed below and the mine manager will be available for any questions or requests. GOOD LUCK!

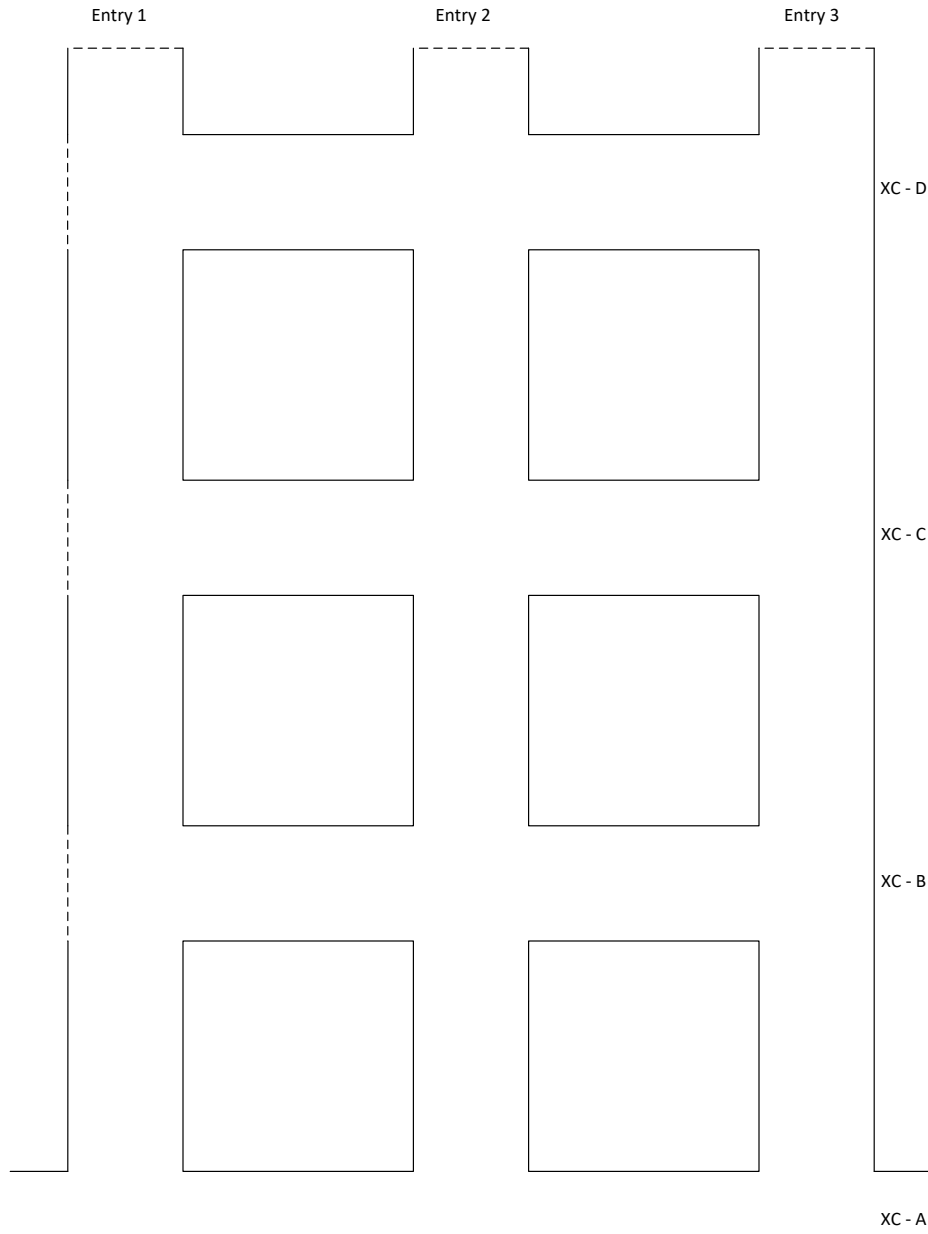
Field Problem Objectives:

- Explore up to the Maintenance Shop and close the regulator to completely seal the fire
- Explore all accessible areas of the mine
- Locate all missing miners
- Bring all survivors to the fresh air base

Team Map Day 1

Team Name: _____

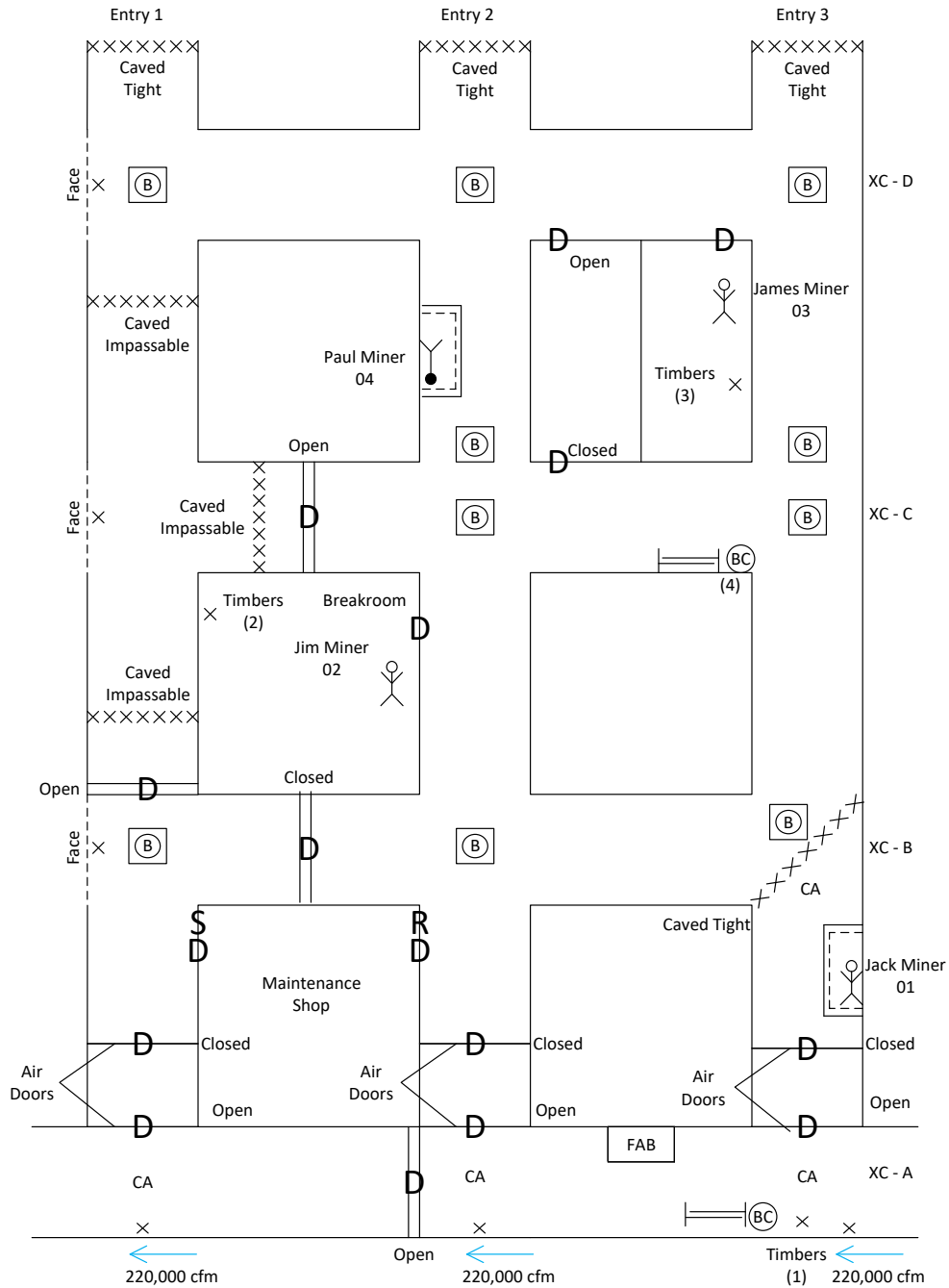
Team Draw # _____



Problem Map Day 1

Team Name: _____

Team Draw # _____



Gas Placard Key	
CA	= Clear Air
⊙	= O ₂ - 15%
⊙	= CO - 0.25%
⊙	= NO ₂ - .0018%
⊙	= CH ₄ - 0%



Southern Regional Mine Rescue Contest 2019

Day #1 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 examine opening to Entry 3 and identify “brattice cloth and brattice frames (1)”, “Timber (1)”, “clear air”, and a placard showing the direction and quantity of airflow “220,000 cfm”. Stretching north the team will identify a set of “air doors” with the first door open and the second door closed.

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”, “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. Along the way the team will identify the “maintenance shop door with full seal”. At the intersection of Entry 1 and 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 north the team will identify “permanent stopping with door” the door will be open, just north of the door the team will identify “caved impassable”. The team will likely perform their 50’ check. The team will continue east in XC-B trying to identify the other maintenance shop door to close the regulator. The team will identify a “permanent stopping with door” the door will be closed.

Team Stop #5

The team will retreat to Entry 2 and advance into the mine by creating an airlock with the air doors. The team will continue north, along the way the team will identify “maintenance shop door with open regulator”. The team will need to close the regulator in order to seal the fire. The team will continue north until they reach the intersection of XC-B. the team will identify a “B” gas placard, stretching west the team will identify “permanent stopping with door” the door will be closed.

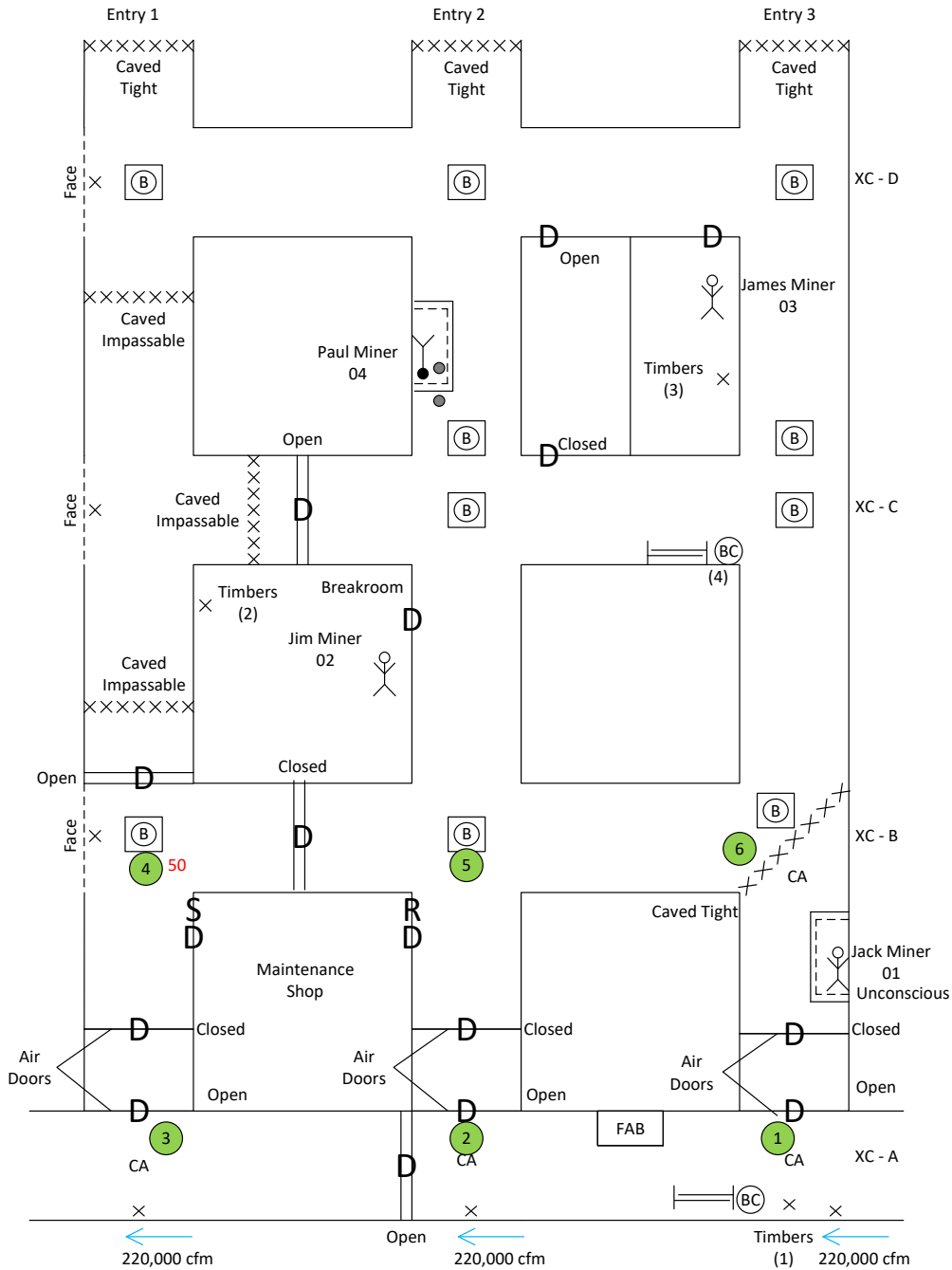
Team Stop #6

The team will continue east in XC-B to Entry 3, the team will identify a “B” gas placard and “caved tight” that extends across the entire intersection. The team will continue exploration north in Entry 3.

Solution Map Day 1

Team Name: _____

Team Draw # _____



Gas Placard Key	
CA	= Clear Air
⊙	= O ₂ - 15%
⊙	= CO - 0.25%
⊙	= NO ₂ - .0018%
⊙	= CH ₄ - 0%



Team Stop #7

The team will retreat to XC-A and Entry 3 to tie in the unexplored area behind the team. Traveling north the team will utilize the air doors to create an airlock. Just beyond the set of air doors the team will identify an area of unsafe roof with a visible miner in the marked area, the team will not have the means to support and assess the miner. The team will continue exploration and identify “clear air” and “caved tight” that extends across the entire crosscut.

Team Stop #8

The team will return to XC-B in Entry 2 and continue exploration north. The team will encounter the “breakroom door”, knocking on the door they will make contact with a missing miner. “Jim Miner 02” will relay the following statement. “help me, I’m not injured, the air in here is ok and I’m completely enclosed.” Due to the gas concentrations, it will be necessary for the team to clear the air in front of the breakroom door in order to enter. The team will not have the means to execute the first ventilation change and will need to continue exploration.

Team Stop #9

The team will continue exploration north until they reach the intersection of XC-C. Examining this intersection the team will identify a “B” gas placard, stretching west the team will identify a “permanent stopping with door” the door will be open. Just beyond the door the team will identify “caved impassable”. Stretching north the team will identify a “B” gas placard and identify another missing miner under “unsafe roof”. The team will not have the means to support the area and will have to continue exploration.

Team Stop #10

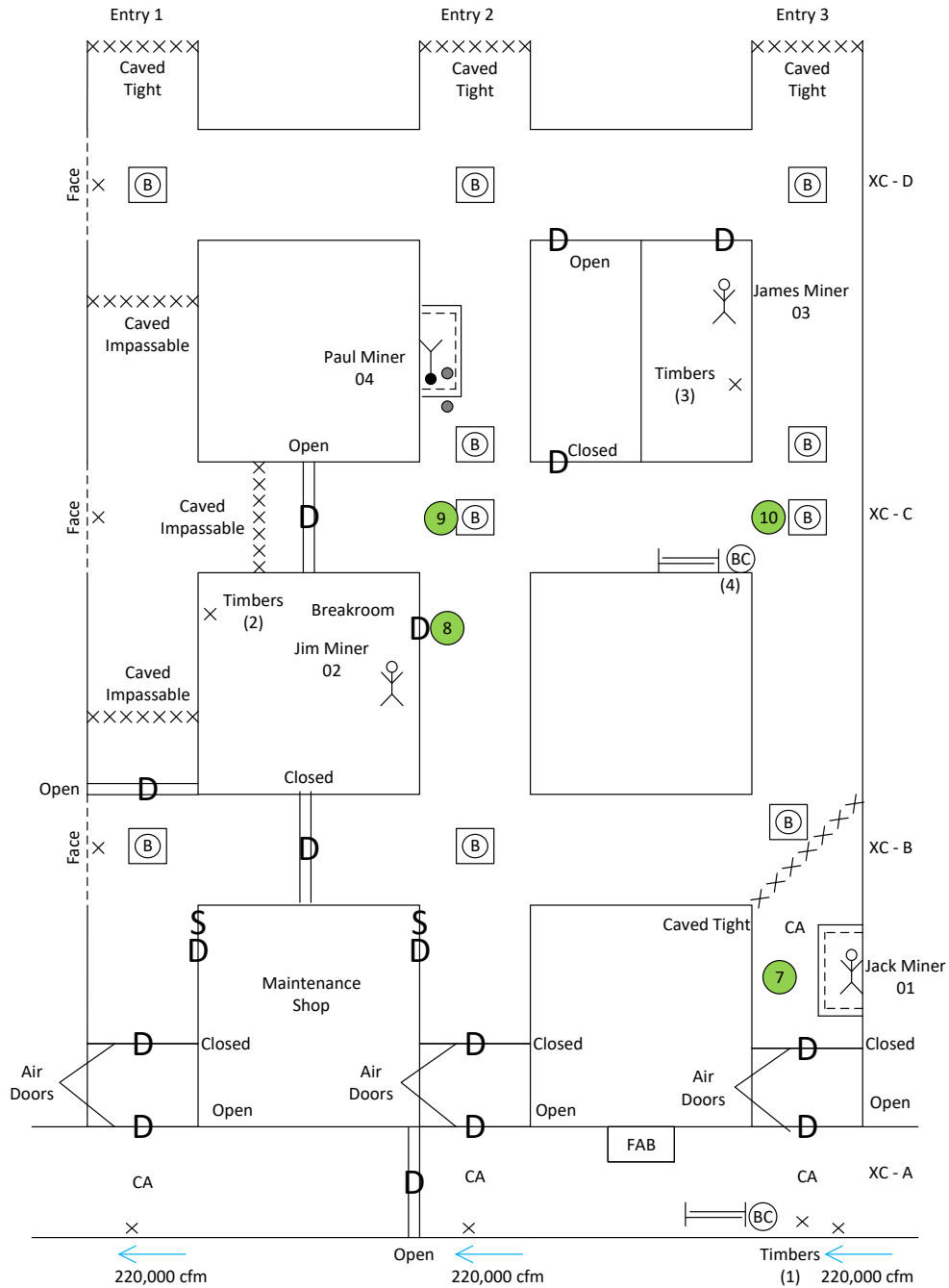
The team will continue east in XC-C, along the way the team will identify “tool crib A door” the door will be closed. Knocking on the door the team will get no response. The team will identify “brattice cloth and brattice frames (4)”. At the intersection the team will identify a “B” gas placard, stretching north the team will identify another “B” gas placard. The team will travel south in Entry 3 in order to tie-in this area.

The team has now found the materials necessary to execute the first ventilation change to enter the breakroom and rescue Jim Miner.

Solution Map Day 1

Team Name: _____

Team Draw # _____



Gas Placard Key	
CA	= Clear Air
Ⓟ	= O ₂ - 15%
Ⓞ	= CO - 0.25%
Ⓝ	= NO ₂ - .0018%
Ⓢ	= CH ₄ - 0%



Ventilation Change to enter the Breakroom (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 Breakroom.

- Close door in Entry 1 between XC-B & XC-C
- Open door XC-B between Entry 1 & Entry 2
- Close door XC-C between Entry 1 & Entry 2
- Build Temp Stopping Entry 2 between XC-C & XC-D
- Build Temp Stopping Entry 3 between XC-C & XC-D
- Utilize 2 sets of material to build diagonally across the intersection of XC-B & Entry 2
- Open both air doors in Entry 1 & Entry 2
- Close door in ventilation drift A to course air

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

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 #11

The team knows the conditions inside of the breakroom and can enter. The team will identify “Jim Miner 02”, he will not be injured and can walk out with the team. The team will also identify “timbers (2)”

The team will transport the miner to the FAB and will also have the means to support the area around the miner located in Entry 3.

Team Stop #12

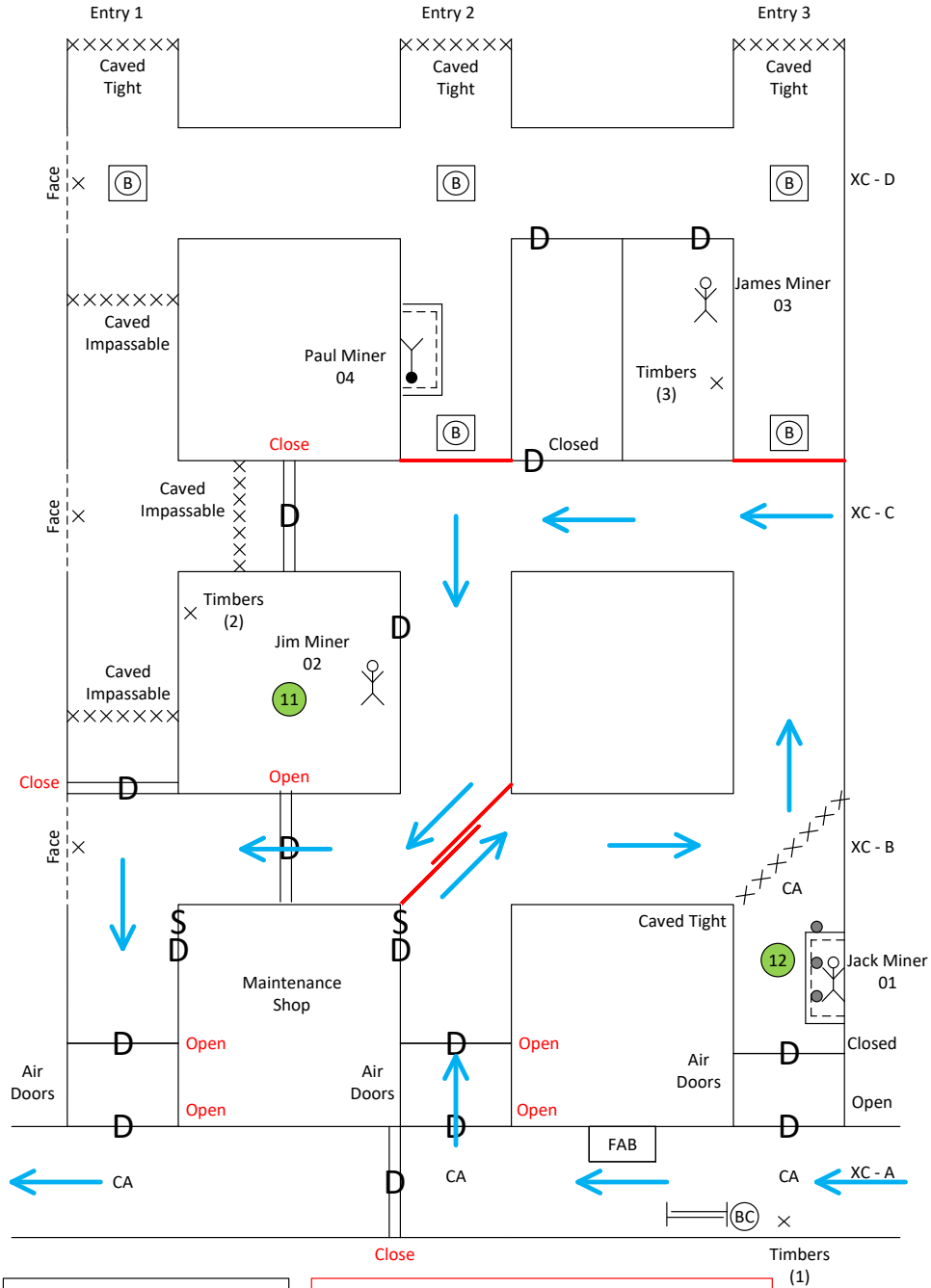
The team will return to Entry 3, utilizing the roof support techniques as outlined in the contest rule book, the team will install three timbers and assess the missing miner. The team will identify that the miner is unconscious and will need to perform an emergency drag move to remove the miner from the unsafe roof. The team will need to provide the miner with full face respiratory protection and transport the miner to FAB.

Note: the team will need to restore ventilation to the original path in order to continue exploration north beyond XC-C. This can be done by closing one of the air doors in Entry 1 and Entry 2 and opening the door in ventilation drift A.

Ventilation Change #1 Enter Breakroom

Team Name: _____

Team Draw # _____



Gas Placard Key	
CA	= Clear Air
⊙	= O ₂ - 15%
⊙	= CO - 0.25%
⊙	= NO ₂ - .0018%
⊙	= CH ₄ - 0%

- Ventilation Change #1
- Close door in Entry 1 between XC-B & XC-C
 - Open door XC-B between Entry 1 & Entry 2
 - Close door XC-C between Entry 1 & Entry 2
 - Build Temp Stopping Entry 2 between XC-C & XC-D
 - Build Temp Stopping Entry 3 between XC-C & XC-D
 - Utilize 2 sets of material to build diagonally across the intersection of XC-B & Entry 2
 - Open both air doors in Entry 1 and Entry 2
 - Close door in ventilation drift A



Team Stop #13

The team will return to the intersection of Entry 2 and XC-C and continue exploration north. The team has already identified the missing miner under the unsafe roof but still does not have the means to support the area. Team will continue until they reach the intersection of XC-D. The team will identify a “B” gas placard. Stretching north the team will identify “caved tight”.

Team Stop #14

The team will continue exploration west in XC-D until they reach Entry 1. The team will identify a “B” gas placard and a “face”. Stretching north the team will identify “caved tight”, stretching south the team will identify a “caved impassable”.

Team Stop #15

The team will continue exploration east in XC-D and identify “tool crib A door” the door will be open and the team will explore up to the opposite door that is closed.

Team Stop #16

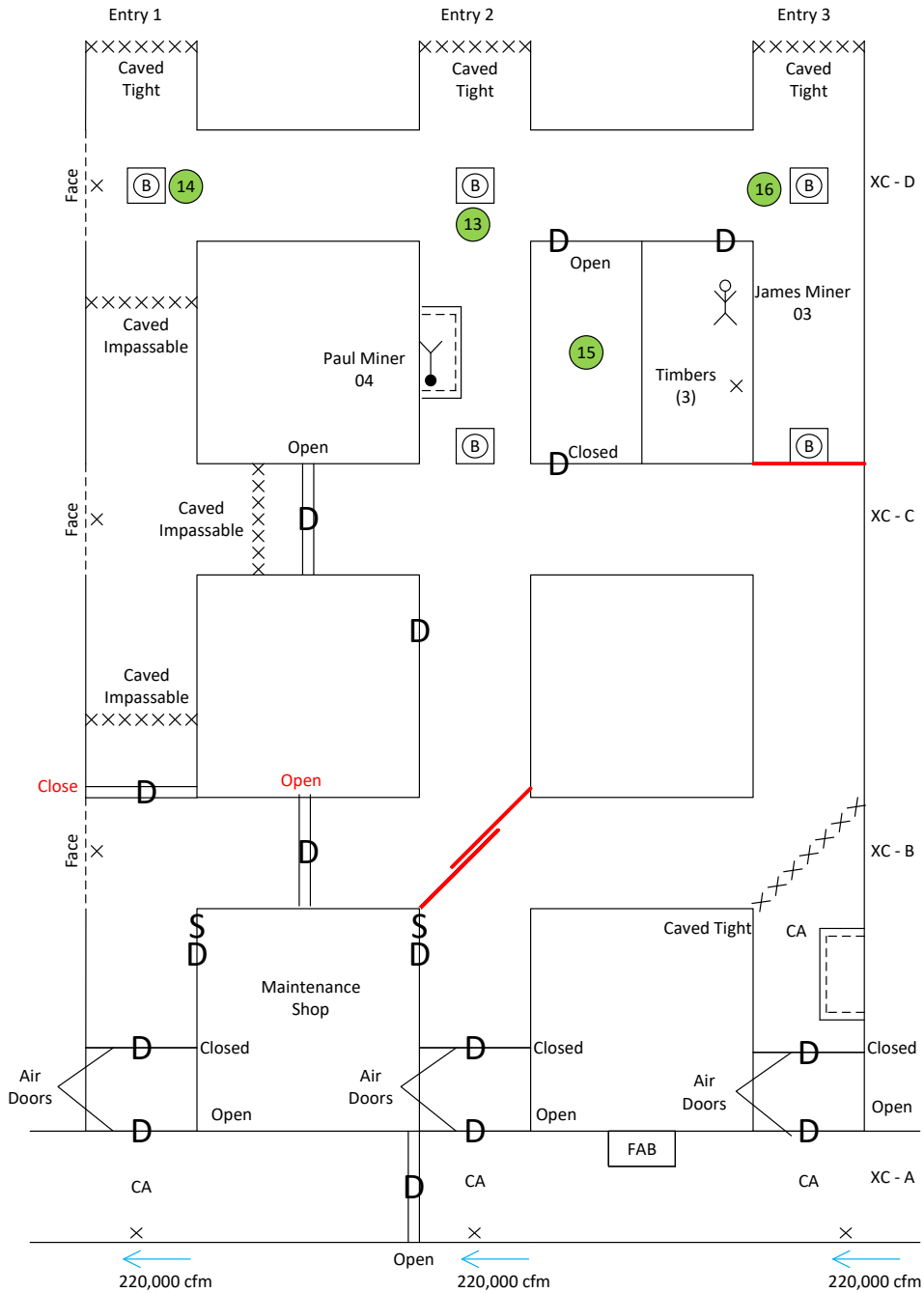
The team will return to XC-D and continue exploration east. The team will identify “tool crib B door” the door will be closed, knocking on the door they will make contact with a missing miner. “James Miner 03” will relay the following statement. “help me, I’m not injured, the air in here is ok and I’m completely enclosed.” Due to the gas concentrations, it will be necessary for the team to clear the air in front of the tool crib door in order to enter. The team will elect to explore the remaining area that is unexplored prior to executing ventilation change #2. the team will identify a “B” gas placard, stretching north the team will identify “caved impassable” and south the team will tie-in the remaining area.

The team has explored all accessible areas of the mine to this point and will need to clear the gas in front of the tool crib B in order to enter and rescue James Miner.

Solution Map Day 1

Team Name: _____

Team Draw # _____



Gas Placard Key	
CA	= Clear Air
⊙	= O ₂ - 15%
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⊙	= CH ₄ - 0%



Ventilation Change to enter the Tool Crib B (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 Tool Crib B.

- Maintain the door closed in Entry 1 between XC-B & XC-C
- Maintain the door open in XC-B between Entry 1 & Entry 2
- Maintain door closed in XC-C between Entry 1 & Entry 2
- Build Temp Stopping Entry 2 between XC-C & XC-D
- Build Temp Stopping XC-D just west of Tool Crib A door
- Build Temp Stopping XC-C just east of Tool Crib A door
- Open tool crib A door
- Utilize 2 sets of material to build diagonally across the intersection of XC-B & Entry 2
- Open both air doors in Entry 1 & Entry 2
- Close door in ventilation drift A to course air

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

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

Team Stop #17

The team knows the conditions inside of the tool crib and can enter. The team will identify “James Miner 03”, he will not be injured and can walk out with the team. The team will also identify “timbers (3)”. The team will transport the survivor to the FAB. the team will also have the means to support the area around the final missing miner.

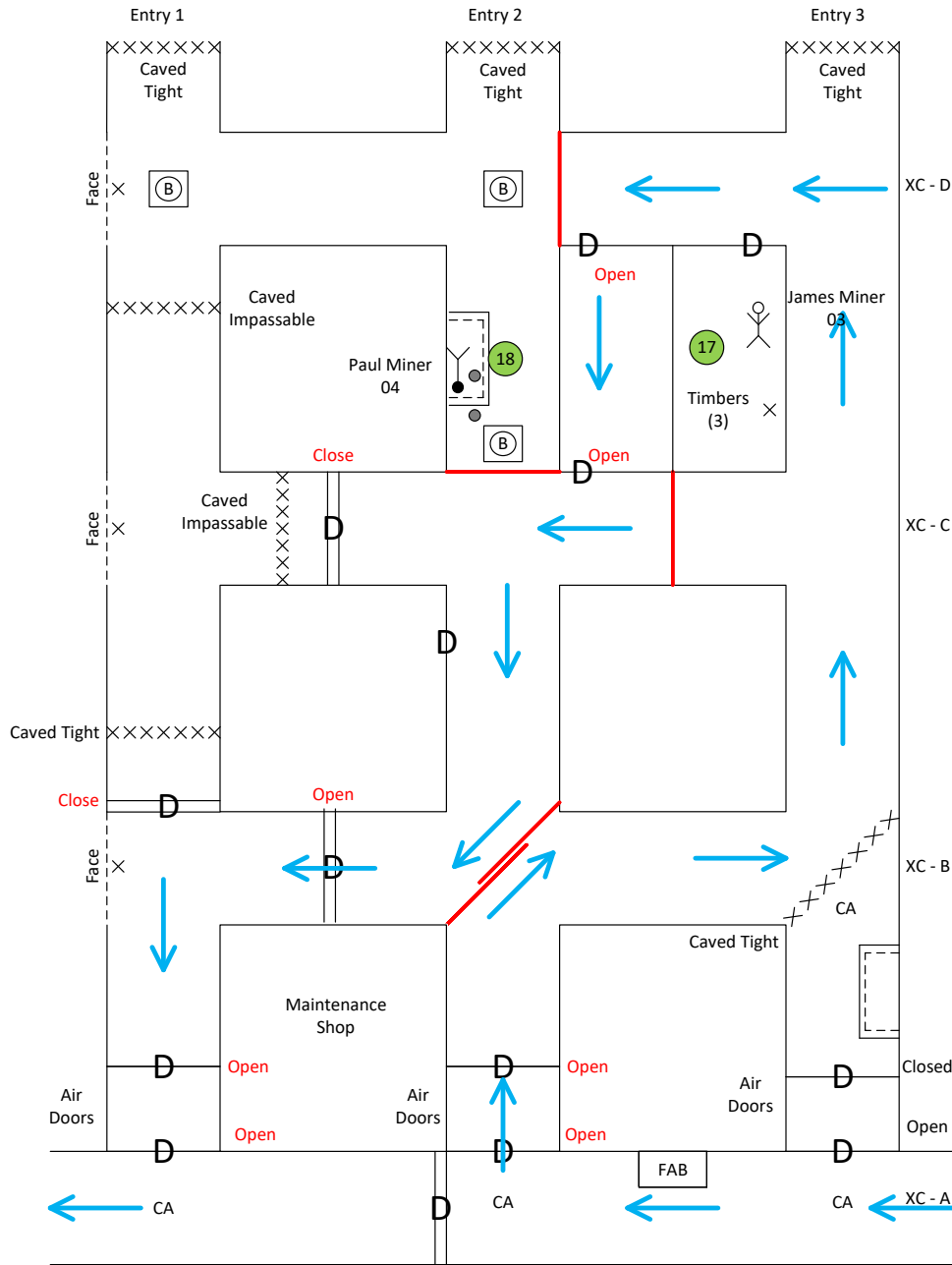
Team Stop #18

The team will return to Entry 2, utilizing the roof support techniques as outlined in the contest rule book, the team will install two timbers and identify “Paul Miner 04”. When they assess the miner, the team will identify that the miner is deceased. The team will return to the FAB, report their finding, turn in all maps and stop the clock. THE END!

Ventilation Change #2 Enter Tool Crib B

Team Name: _____

Team Draw # _____



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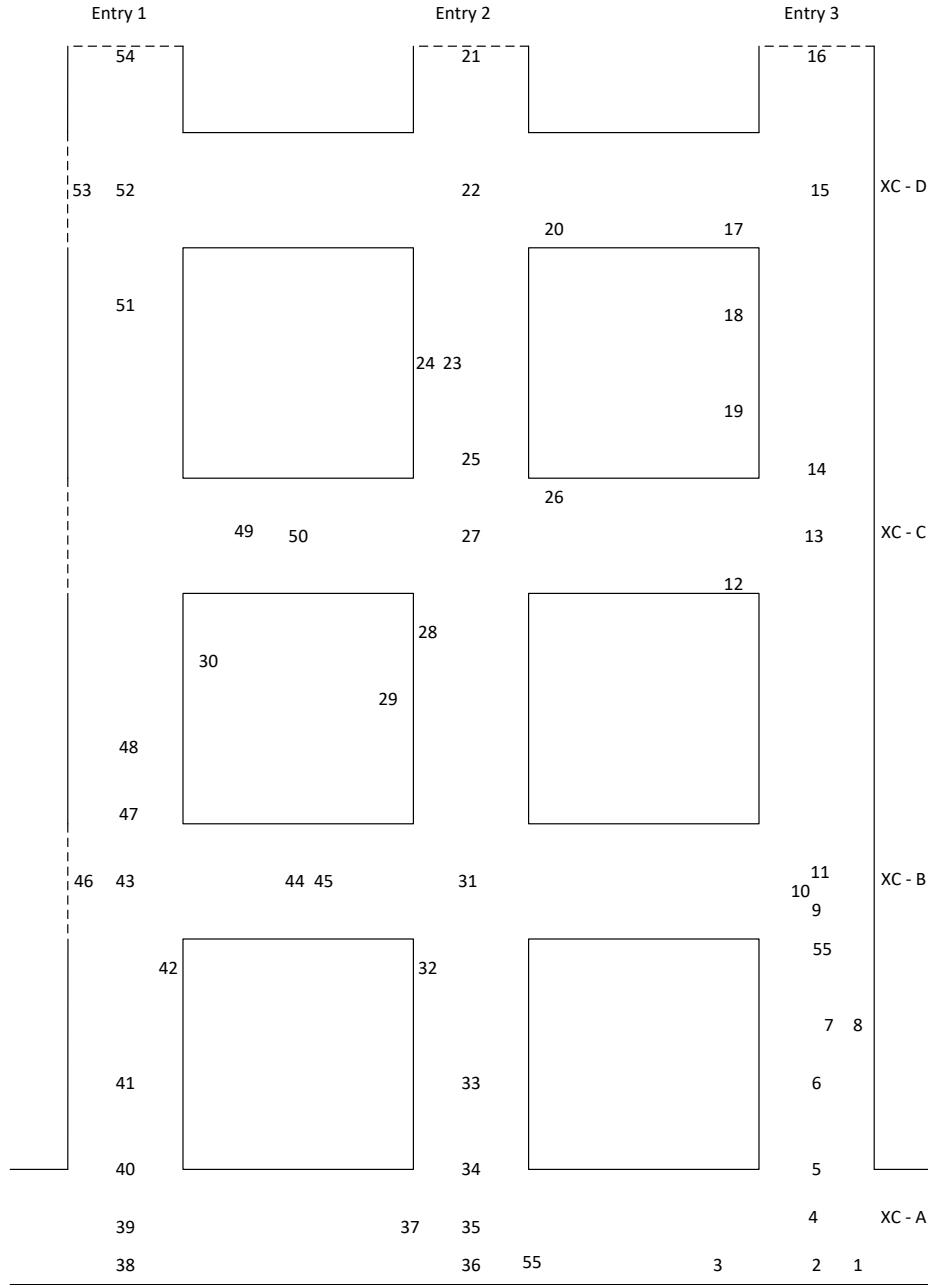
- Close**
- Ventilation Change #2**
- Maintain door closed in Entry 1 between XC-B & XC-C
 - Maintain door open in XC-B between Entry 1 & Entry 2
 - Maintain door closed in XC-C between Entry 1 & Entry 2
 - Build Temp Stopping Entry 2 between XC-C & XC-D
 - Build Temp Stopping in XC-D just west of tool crib A door
 - Build Temp Stopping in XC-C just east of tool crib A door
 - Utilize 2 sets of material to build diagonally across the intersection of XC-B & Entry 2
 - Open both air doors in Entry 1 and Entry 2
 - Close door in ventilation drift A



Placard Map Day 1

Team Name: _____

Team Draw # _____



49Th 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!

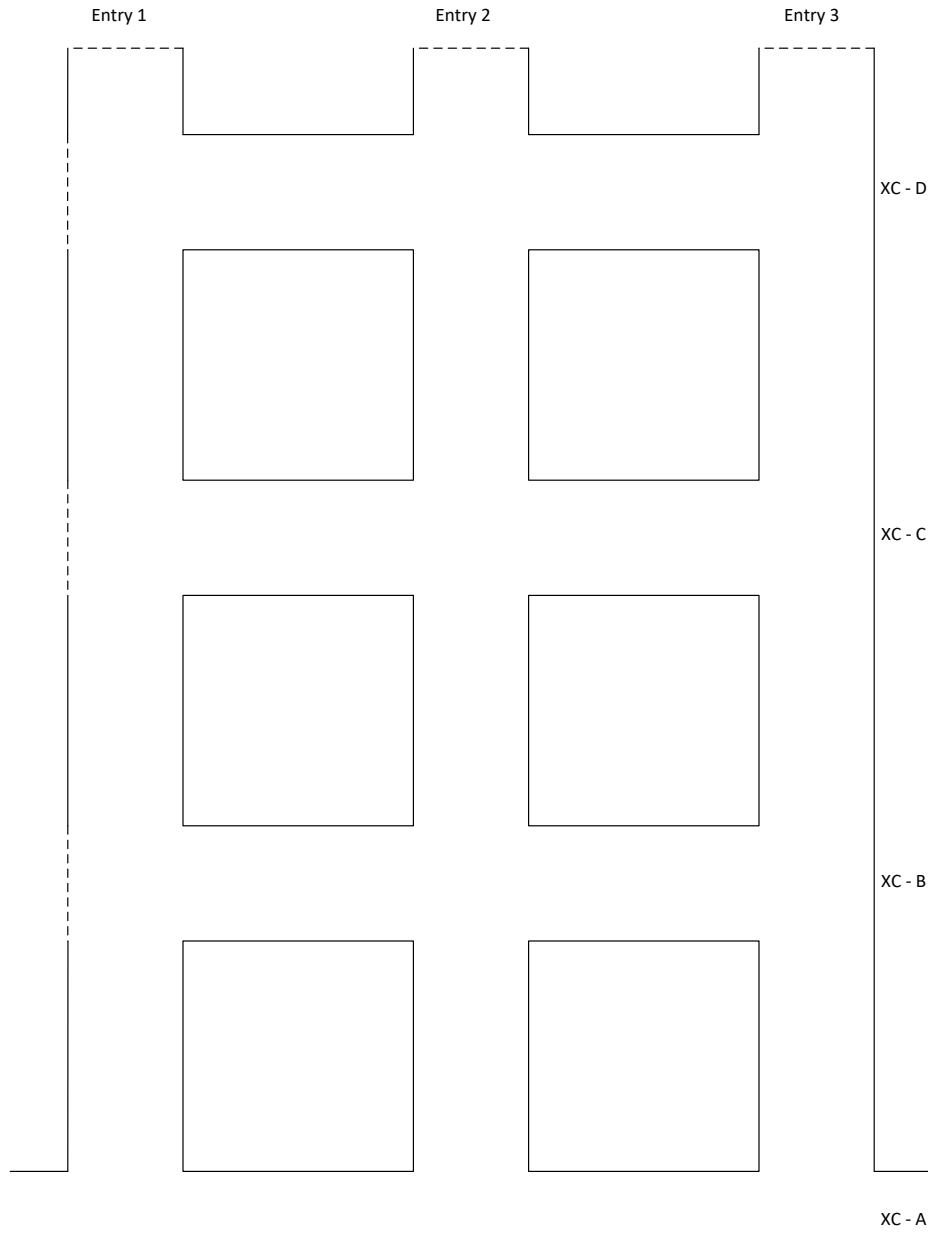
Field Problem Objectives:

- 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: _____

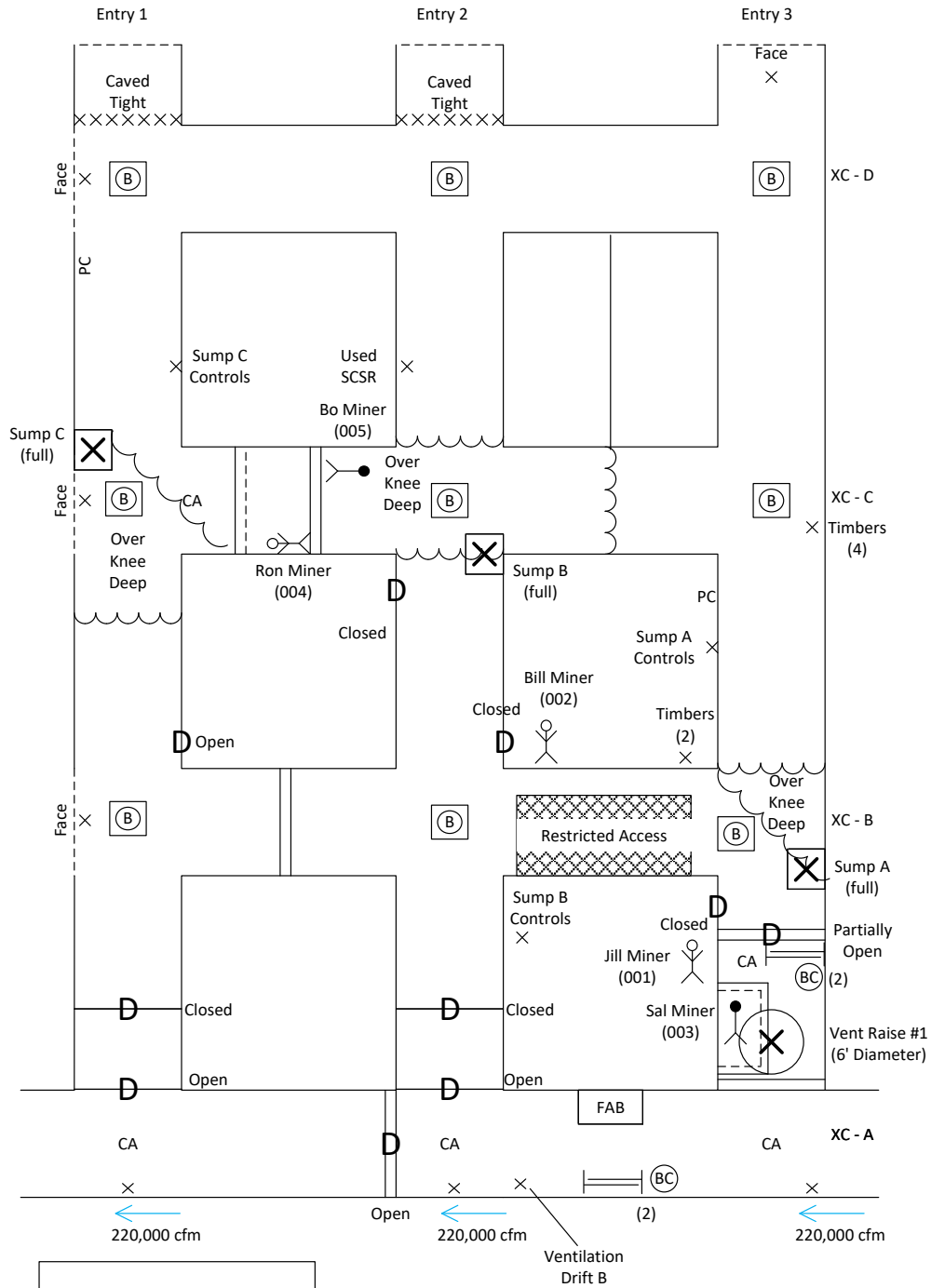
Team Draw # _____



Problem Map Day 2

Team Name: _____

Team Draw # _____



Gas Placard Key

CA = Clear Air

Ⓟ = O₂ - 15%
 CO - 0.25%
 NO₂ - .0018%
 CH₄ - 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.

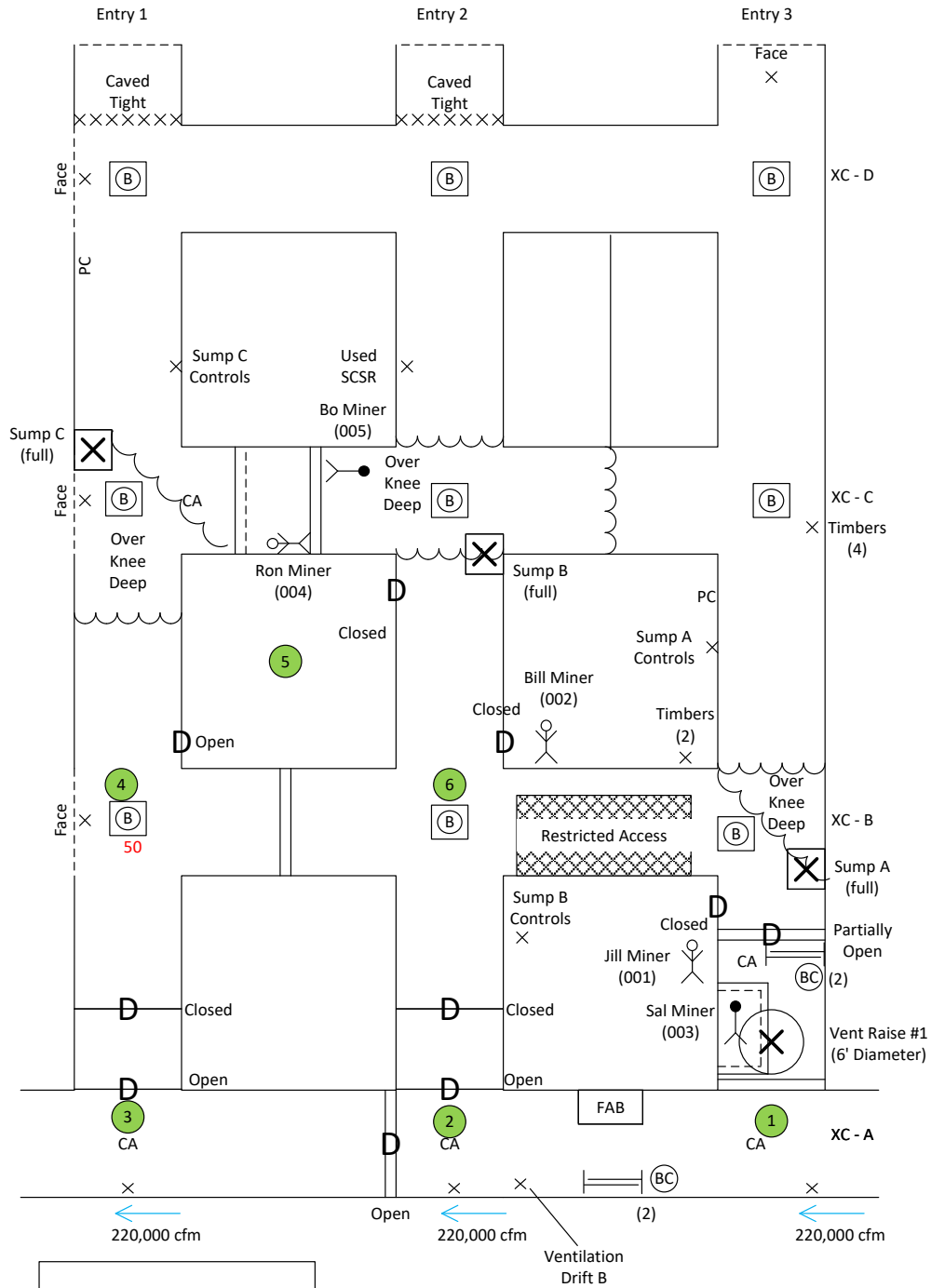
Team Stop #6

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 # _____



Gas Placard Key	
CA	= Clear Air
ⓐ	= O ₂ - 15%
ⓑ	= CO - 0.25%
ⓒ	= NO ₂ - .0018%
ⓓ	= CH ₄ - 0%



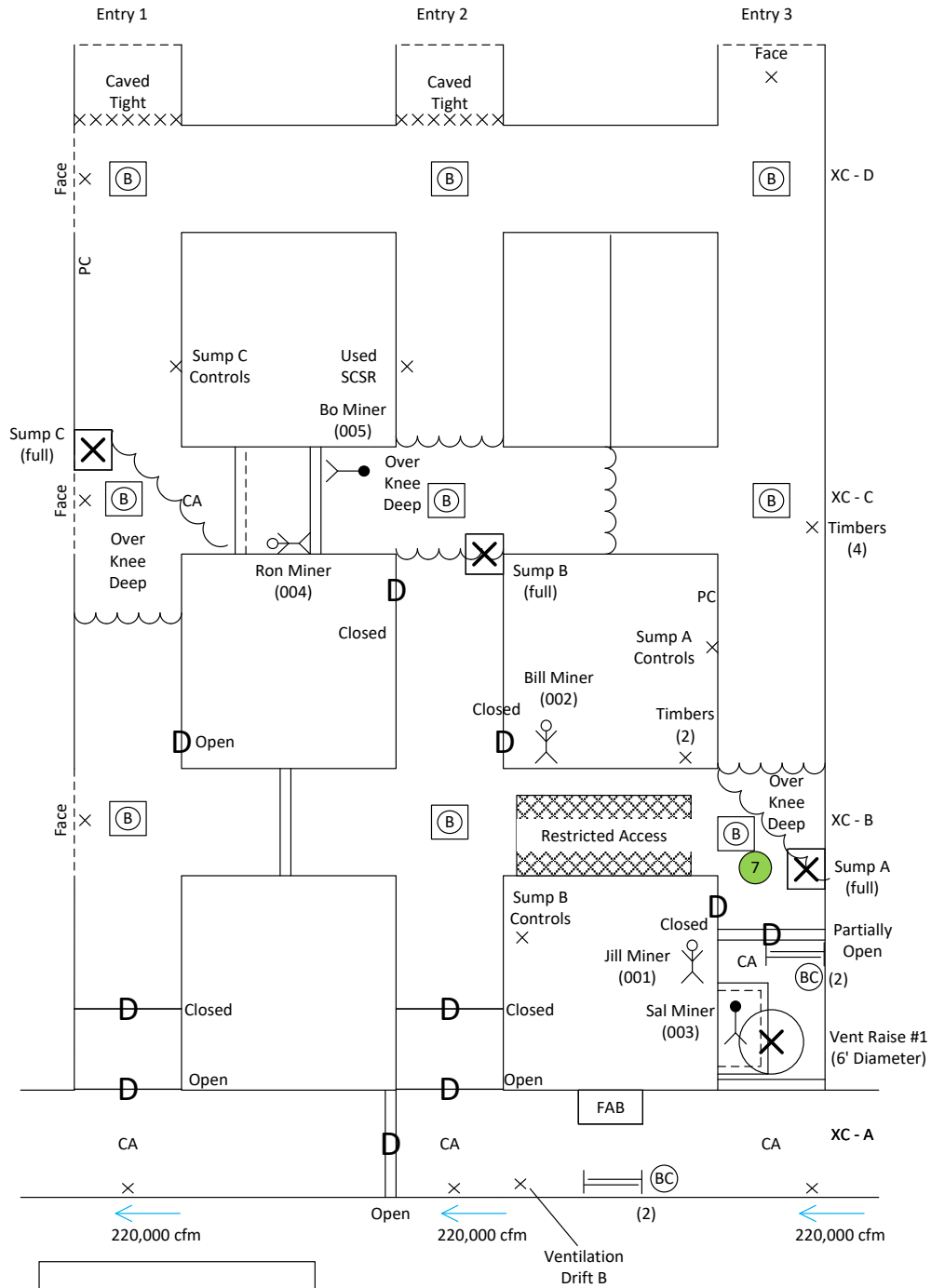
Team Stop #7

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 # _____



Gas Placard Key

CA = Clear Air

ⓐ = O₂ - 15%

ⓑ = CO - 0.25%

ⓒ = NO₂ - .0018%

ⓓ = CH₄ - 0%



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.

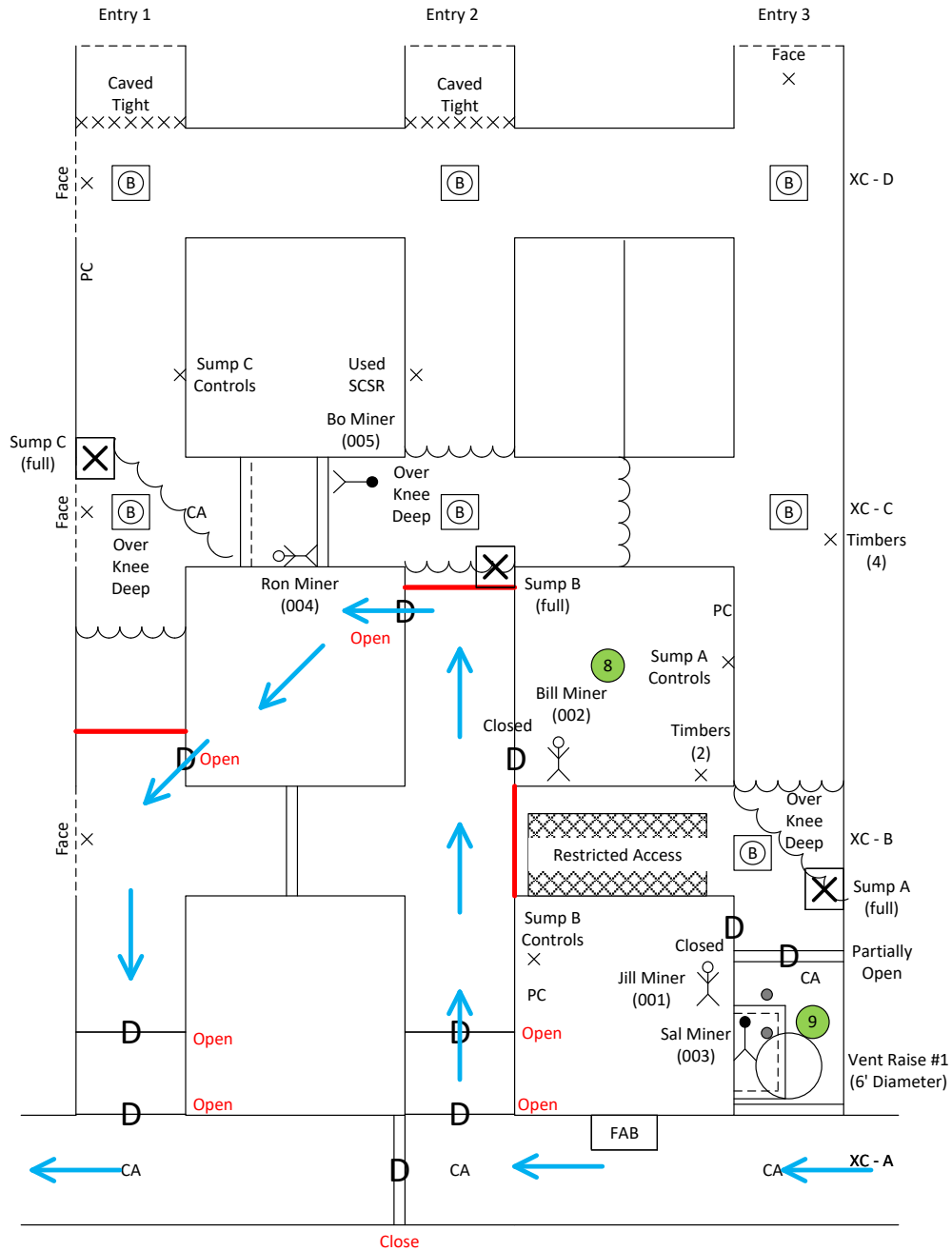
Team Stop #9

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 # _____



Gas Placcard Key	
CA	= Clear Air
Ⓟ	= O ₂ - 15%
Ⓞ	= CO - 0.25%
Ⓝ	= NO ₂ - .0018%
Ⓢ	= CH ₄ - 0%

- 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.

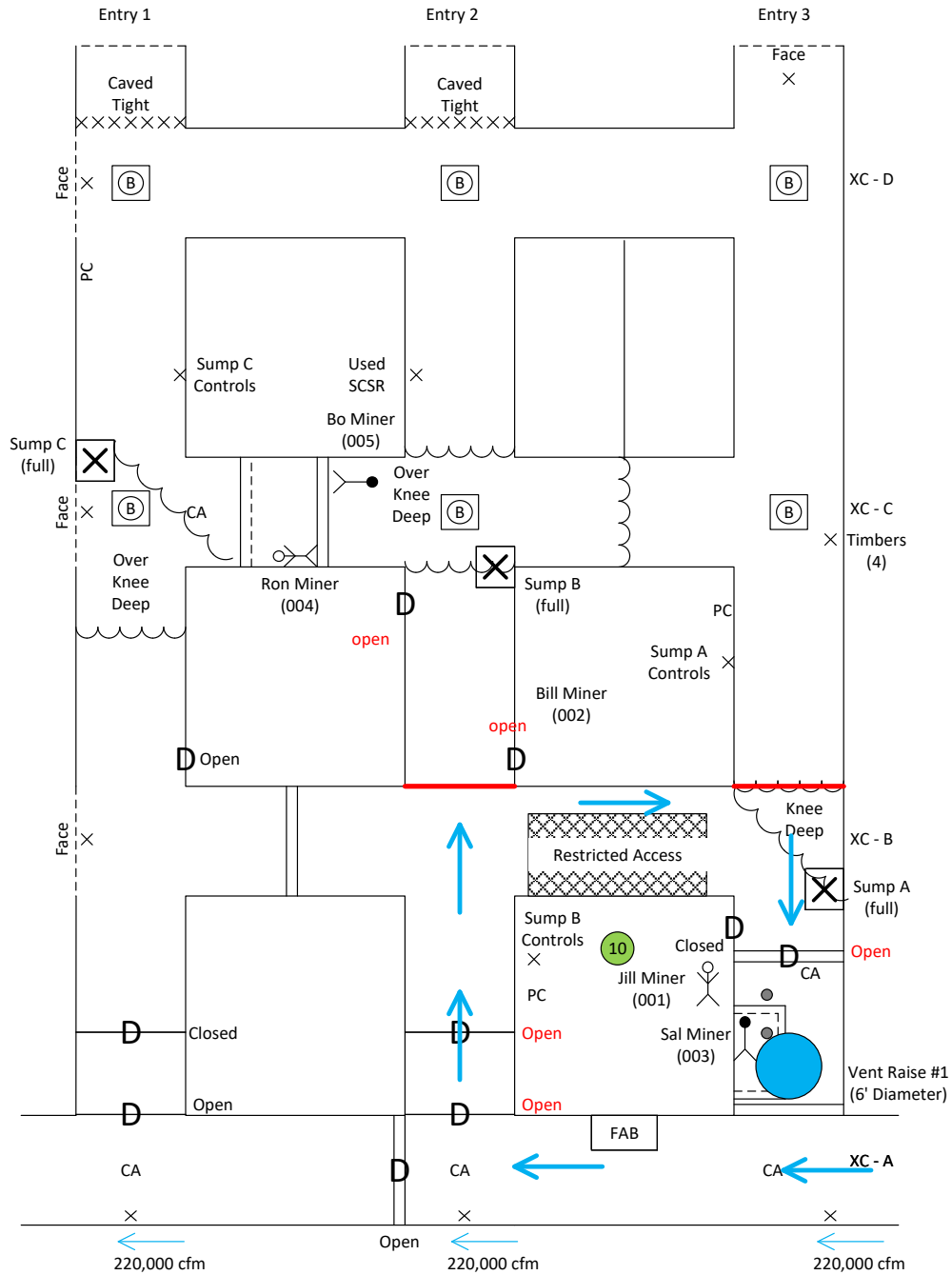
Team Stop #10

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 # _____



Gas Placard Key	
CA	= Clear Air
⊙	= O ₂ - 15%
⊙	= CO - 0.25%
⊙	= NO ₂ - .0018%
⊙	= CH ₄ - 0%

- 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.

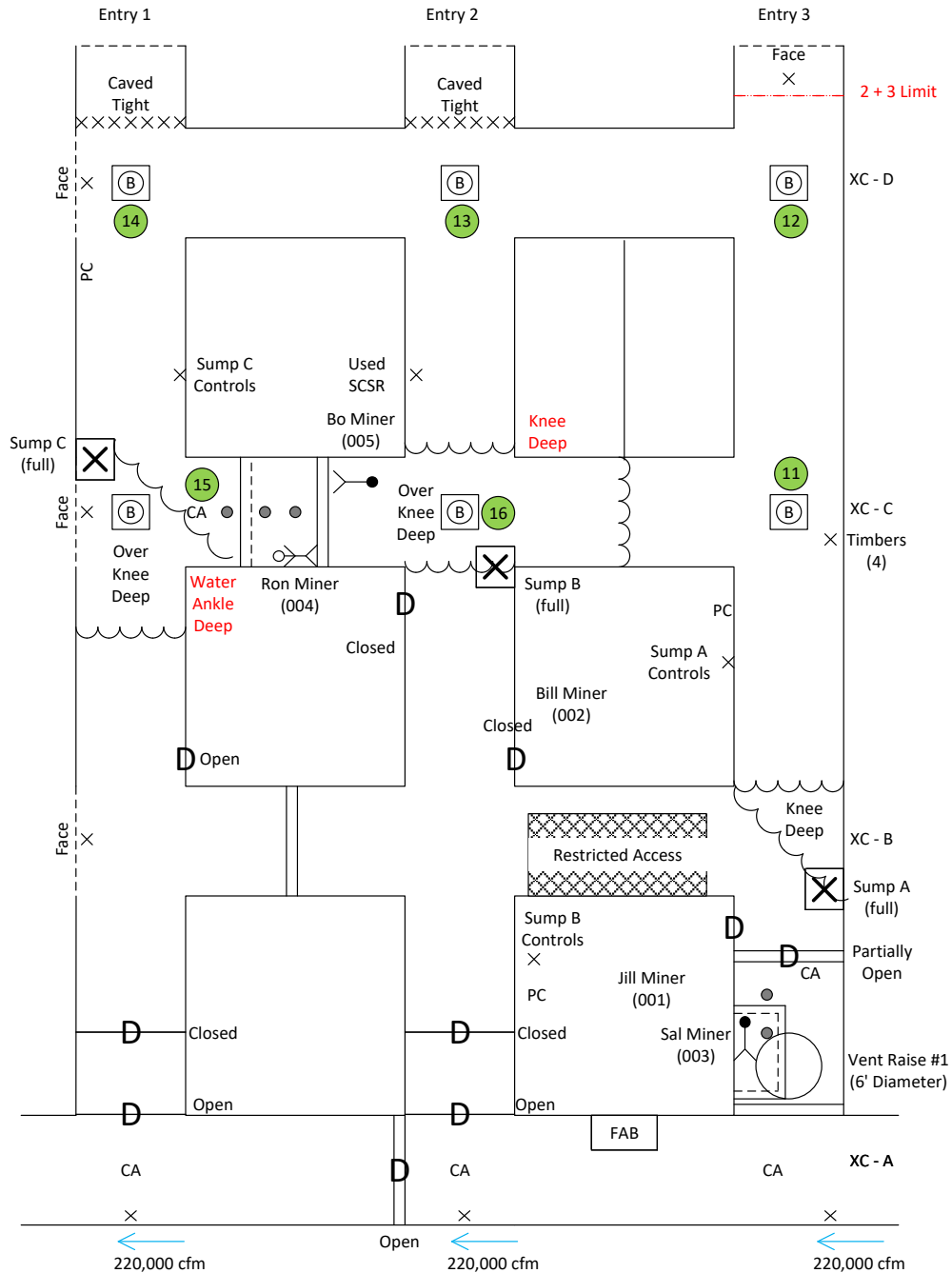
Team Stop #16

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 # _____



Gas Placard Key	
CA	= Clear Air
⊙	= O ₂ - 15%
⊙	= CO - 0.25%
⊙	= NO ₂ - .0018%
⊙	= CH ₄ - 0%



Placard Map Day 2

Team Name: _____

Team Draw # _____

