NvMRA Contest 2017

DAY 1 (3/14/17)

Team Briefing Statement

Welcome to the Shiny Gem mine

Thank you so much for responding, we really need your help. About an hour ago the toplander heard a loud crashing noise from the #1 entry portal and ran into the mine to investigate. About 5 to 10 minutes later (about the same time we noticed smoke coming out of the exhaust fan) we got a call from him that there had been a crash and there was a fire. He told us that he couldn't get out and then the phone went dead.

We dumped stench into the system but none of the miners that were in the mine when this all happened have come out. Luck has it that we're on a down-day, so we don't have a full complement underground.

We're digging around trying to find a mine map to aid you in rescuing our miners.

There were two miners and a nipper working today. The miners were setting a couple of pumps near the back of the mine. We've run into a problem with water lately and we had quite a bit building up in the lower areas.

Our electrician was underground earlier and had taken the booster & auxiliary fans off line to so some wiring. He's taken the starters for both fans to town to have them fixed. The power to the main fan is off and locked.

You are the first team to enter the mine. A back-up team is on site and one other just arrived and will go on standby.

Your objectives are:

Find my missing miners & bring any live miners to the surface

Seal or extinguish any fires

Explore all accessible areas in the mine

GOOD LUCK!

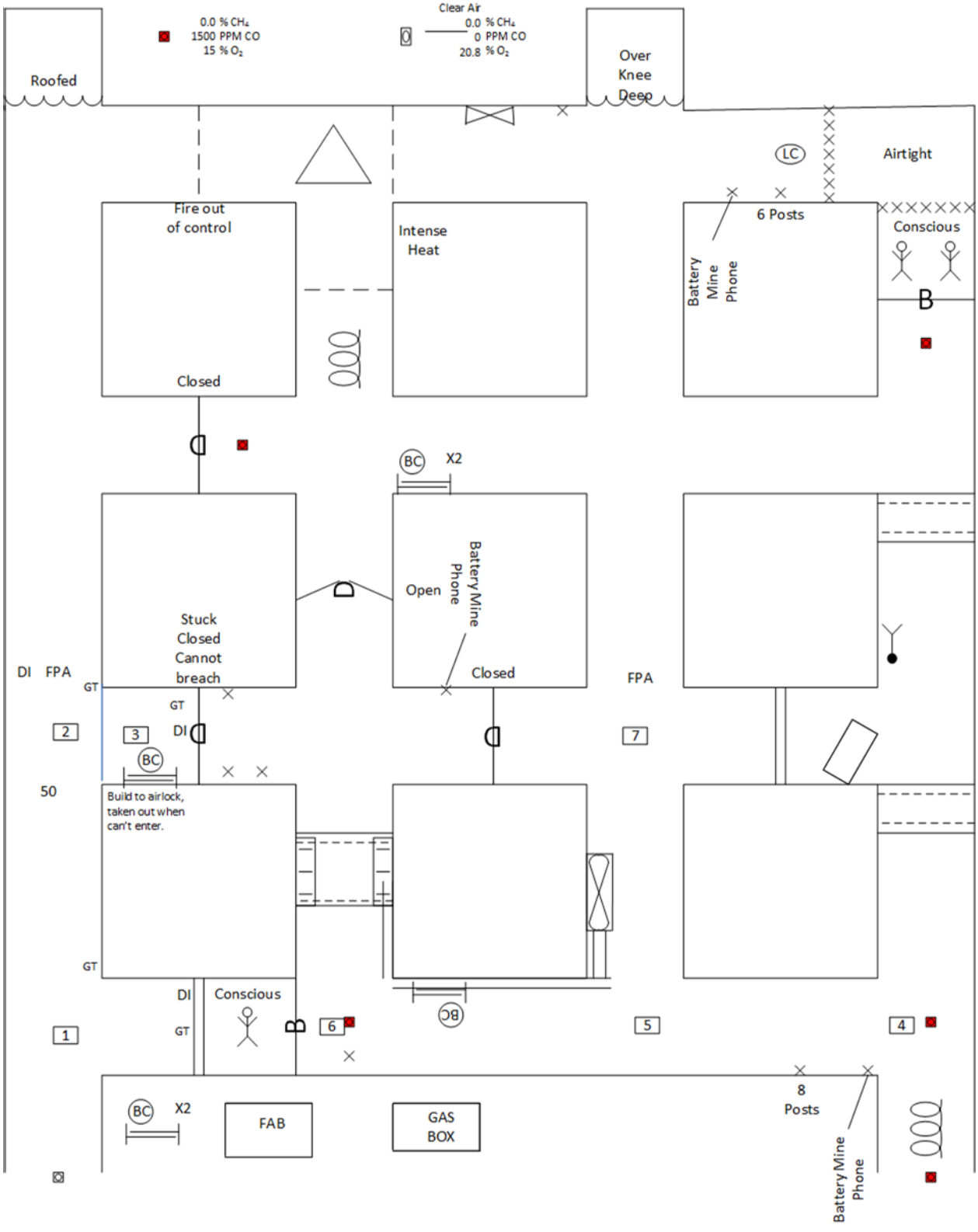
Mine Information

Welcome to the Shiny Gem mine. This is a single-level room & pillar copper mine operated by FBN Mining & Tunneling Services. The mine isn't very old, it's only been in operation for a little over a year. The mine employs 45 people and operates six (6) days a week on 2, 9 hour shifts. Each crew typically consists of 2 miners, a nipper, a toplander, 2 mechanics, one electrician and a foreman. Two crews work on each shift.

- A backup team is on site
- **Explosives** are used underground and stored on the surface. There shouldn't be any to worry about today.
- **UG power**: 4160 volt & it's run underground through the #4 entry portal. Cable carries the power underground to a load center in 4 entry,, #5 XC. Power to the main fan is separate (the fan's on the surface). All power is off, locked out and guarded.
- **Gas**: Once in a while we end up with SO2, but that hasn't happened in a while.
- Guards have been posted at the borehole (the borehole is way back in #1 entry near #10 XC), main fan and main electrical station.
- **Materials**: Everything available is located in the mine and identified by placards. If you need anything else, ask.
- **Mine Maps**: We're working on it. We canned the engineer when we found out he wasn't one. He did everything on a computer & didn't leave us his password.
- **Mining Method**: Room & pillar. We use Bobcat's to muck and Young Buggies to haul it out.
- **Notification**: All authorities have been notified. MSHA was here when it happened & have issued an order. You HAVE to run everything by them before you do it through the command center.
- **Openings**: #1 entry portal is to the west and #4 entry portal is east. There is a 36'' diameter borehole toward the back of the mine. It's surrounded by a fence on top of the hill & is not accessible from here.
- **Phones**: We have several battery powered mine phones, nobody is answering them when we call.
- **Roof support**: You name it, we have it. Most recently we've been having issues with friction stabilizers & have moved timbers underground for use. Some areas the rock is good and we leave it bald headed.

Mine Information - Continued

- **Fire protection**: We normally have hand-held extinguishers located through-out the mine. The fire extinguisher guy is here today, so we'd pulled a bunch out to get them checked. I don't know how many are underground right now. Each piece of equipment should have something to put out a fire on it.
- **Ventilation**: We have three openings, the #1 entry portal, the 36'' borehole are both intakes. Air is exhausted out the #4 entry portal through a 6' Spendrup axial vane (permissible) fan. It pulls around 45,000 cfm out the #4 and is NOT reversible. The borehole is pretty new. It was drilled to increase air flow in the back on the mine. We have a fan for it to be used for a little downcast help, but we need to find someone to help us get it configured and set into place.
- **Water**: We've had a bit of a problem with it over the past week or two. What's coming in has overwhelmed the pumps that we have in the main sump over on the #1 entry side.


Roofed
0.0 % CH4
1500 PPM CO
15 % O2
Clear Air
0.0 % CH4
0 PPM CO
20.8 % O2
Over
Knee
Deep
LC
Airtight
Fire out
of control
Closed
Intense
Heat
6 Posts
Battery
Mine
Phone
Conscious
B
BC
X2
Stuck
Closed
Cannot
breach
Open
Battery Mine
Phone
Closed
DI
FPA
GT
2
3
DI
BC
50
Build to airlock,
taken out when
can't enter.
GT
DI
Conscious
B
1
GT
6
BC
5
4
BC
X2
FAB
GAS
BOX
8
Posts
Battery Mine
Phone

TEAM STOPS 1-7

Stop #1 – Team enters the mine to the first intersection in clear air. Gas tests intersection on both sides. Captain stretches to the right, placard shows “permanent stopping”.

Stop #2 – Team advances to next x-cut. Gas tests intersection. Captain stretches right, finds placard showing “Door”. Captain feels for heat, there is none. Team cannot advance further up #1 entry without tying back. This intersection is where the team must do the 50 foot team check.

Stop #3 - Team must airlock to see the other side of door. Once airlock is erected & they try the door, Judge #1 flips placard. Side B says “Door Stuck Closed & Cannot be Breached.” Before team leaves the area captain should D&I the FPA in #1 entry.

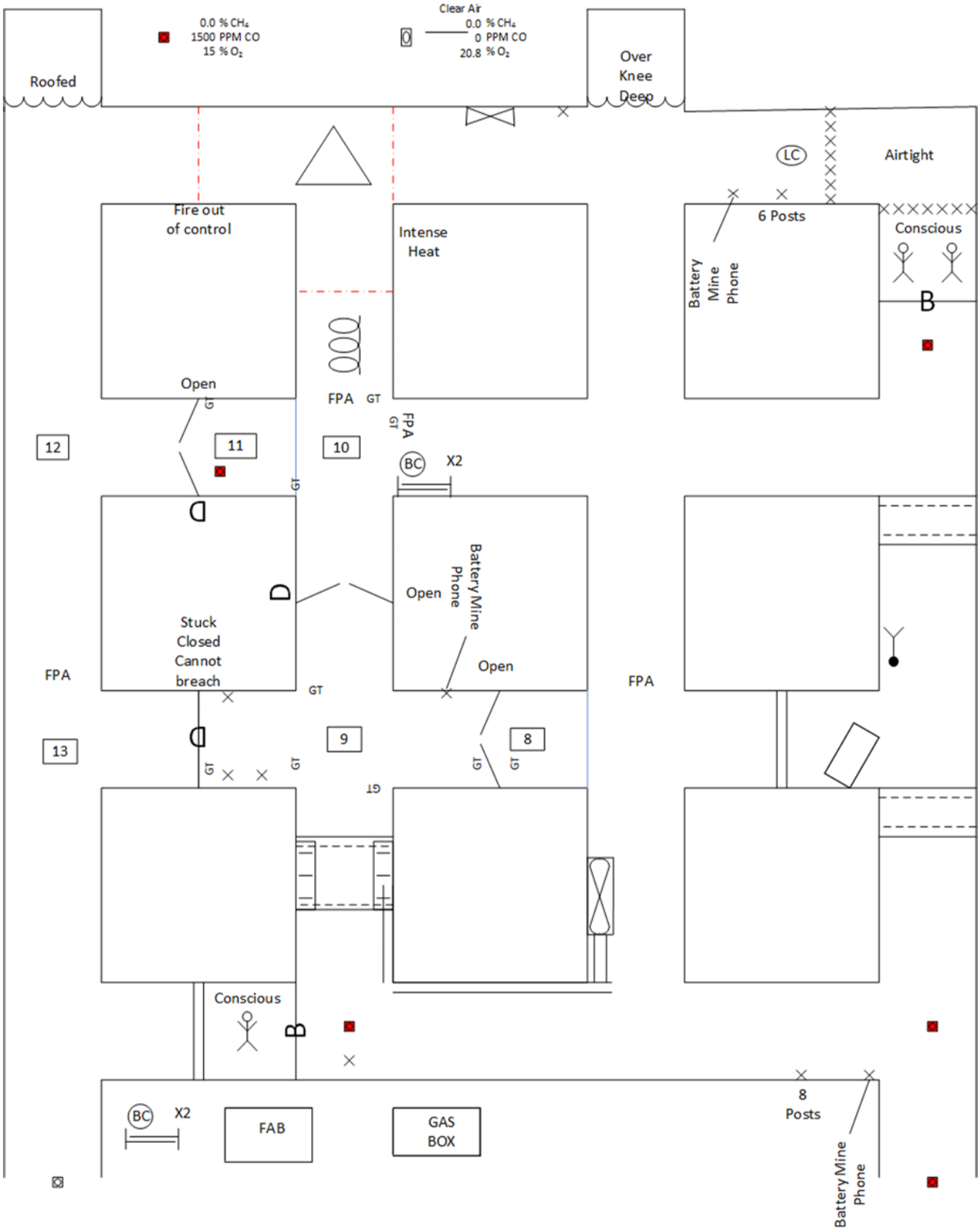
Stop #4 – Team enters mine through entry #4. They will be entering into smoke. A placard outside the mine also shows that the main fan is off. Gas tests across both sides of the intersection at #1 XC. Captain may stretch forward into #4 entry & will find loose roof. Captain will D&I loose roof & retreat.

Stop #5 - Continue left into #1XC to intersection to #3 entry. Gas tests both sides of intersection. Captain will stretch to right & retreat back into 1XC.

Technically, Stop 7 should be Stop 6…

Stop #7 - The fastest way to check inby is to go up #3 entry to #2XC. Gas tests across three sides.

Stop #6 – Team travels to #2 entry intersection, performs gas tests on both open sides. Placard shows “Barricade” & captain knocks. The #2 judge flips the placard over & it reads “HELP! My name is Ralph. I am okay. I’m in a room with four walls.” The judges must not provide any other information. The gas placard in the intersection shows concentrations that will not allow the team to enter. With the rule change the team is now “tied to that miner” and must focus on getting him out. The captain may stretch up #2 entry toward #2XC but encounters loose roof & ribs.


0.0 % CH4
1500 PPM CO
15 % O2
Clear Air
0.0 % CH4
0 PPM CO
20.8 % O2
Roofed
Over Knee Deep
LC
Airtight
Fire out of control
Intense Heat
6 Posts
Conscious
Battery Mine Phone
B
Open
FPA
GT
12
11
10
BC
X2
D
Stuck Closed Cannot breach
Open
Battery Mine Phone
FPA
13
9
8
Conscious
B
BC
X2
FAB
GAS BOX
8 Posts
Battery Mine Phone

Team Stops 8 - 13

Stop #8 – The team must explore only enough to figure out how to clear the air in front of the barricaded miner. The captain will move the team into #2 XC toward entry 2. The team will erect an airlock and pass through the closed door.

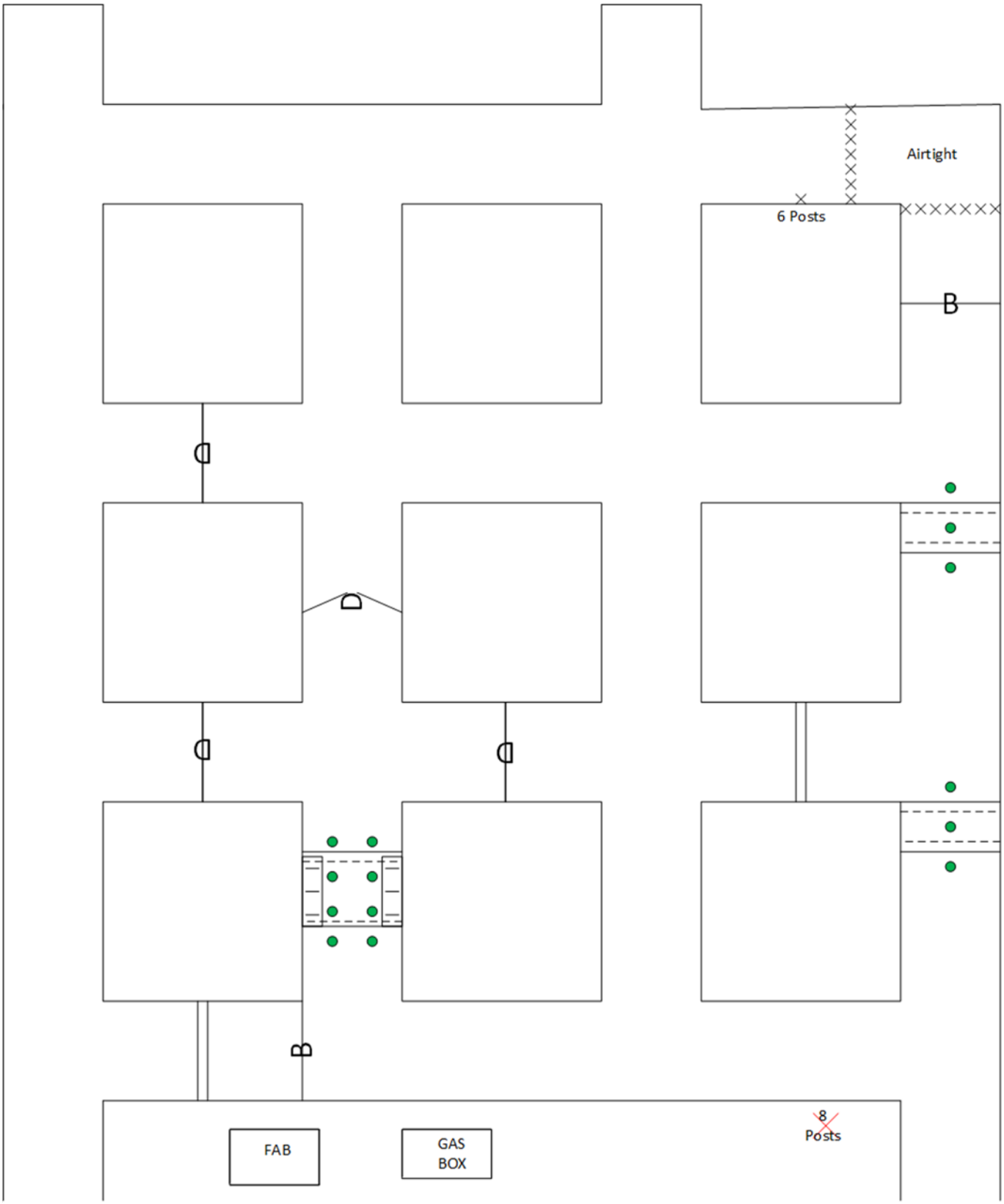
Stop #9 – The team traverses into entry 2. Gas tests are completed across all 3 sides. The captain can stretch in all 3 directions. Straight ahead he will find the other side of the door. Gas test in front of & D&I the door. Toward #1 XC they will find the other side of the loose roof & ribs. They must D&I this. Stretching up, the captain will find an open door. This must be D&I.

Stop #10 – The captain advances the team to #3 XC. Gas tests completed across all 3 openings. Since the team must prepare to ventilate they cannot travel toward #4 XC or back toward #3 entry. The captain should D&I FPA across those sides. The captain will stretch toward entry #1 and find a closed door. Gas test & D&I at the door.

Stop #11 – The team will need to airlock to go through the closed door. Once the airlock is built the captain will need to D&I the build. The team can now travel toward #1 entry.

Stop #12 – The team enters into #1 entry, gas tests are done on both sides. The team cannot advance toward #4 XC, the captain needs to D&I FPA in that direction.

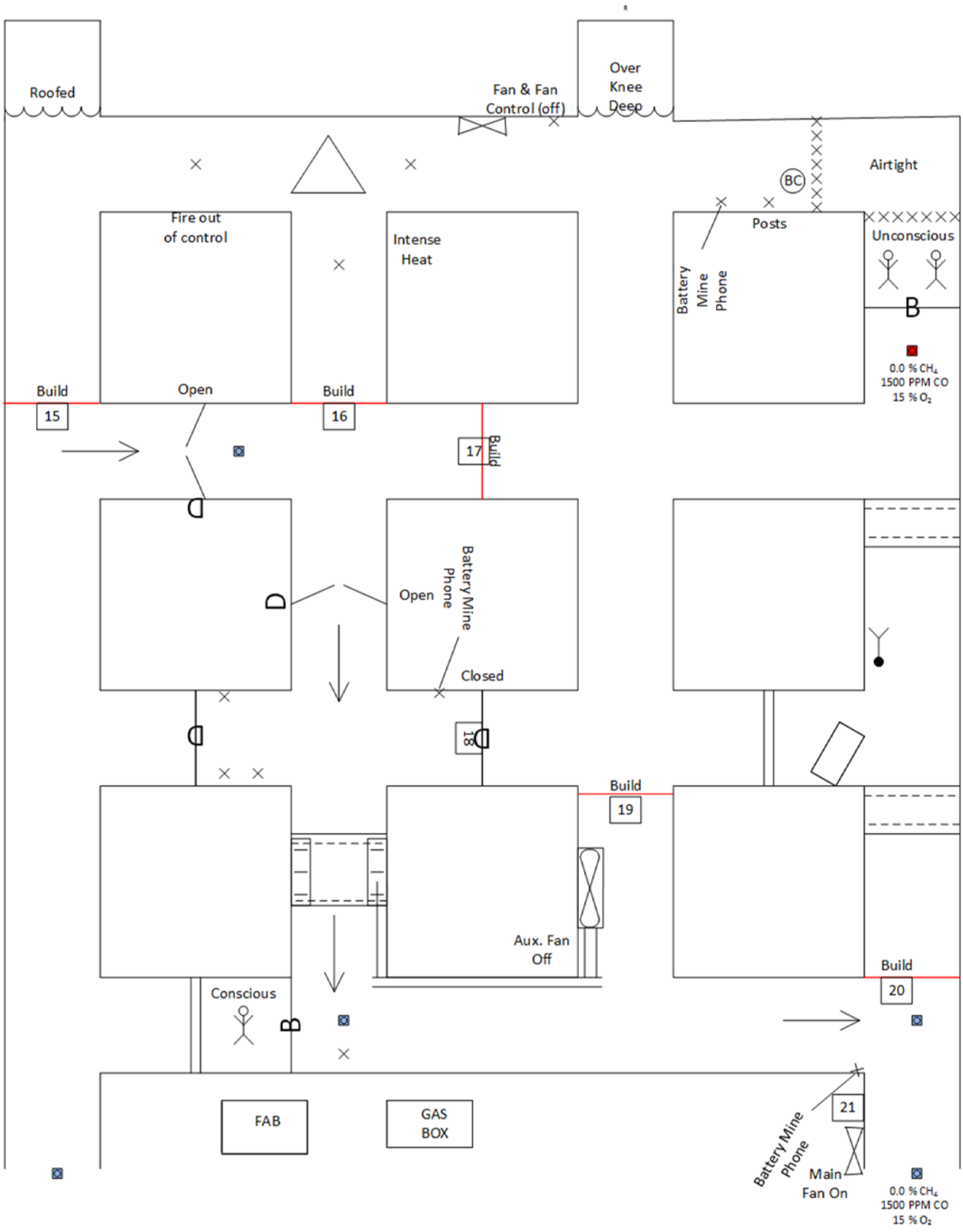
Stop #13 – The team can now tie-in exploration in #1 entry. They cannot ventilate until the area in the bad roof & ribs is explored in #2 entry between #1 & #2 XC. The next slide will show Stop #14 which covers the support needed to explore through this area.


Airtight
6 Posts
B
D
D
D
D
B
FAB
GAS
BOX
8
Posts

Team Stop 14

Stop #14 – In order to explore the area with loose roof & ribs, the team must install roof supports through the area. Eight (8) orange cones will be placed inside the mine in #1 XC next to #4 entry. The team will need all 8 supports. Keep an eye on how these are set. Since the bad ground involves both the roof and ribs, ground support must follow the example shown on page 37 of the new rules book.

- If a cable moves the cone, the movement will not count against the team.
- If a team member or a piece of the team's equipment moves a cone more than a couple of inches (or knocks it over), we will consider that roof support dislodged and appropriate discounts applied for personal endangerment.


Roofed
Fan & Fan Control (off)
Over Knee Deep
Airtight
BC
Fire out of control
Intense Heat
Posts
Unconscious
Battery Mine Phone
B
0.0 % CH4
1500 PPM CO
15 % O2
Build
15
Open
Build
16
17
Build
D
Battery Mine Phone
Open
Closed
18
Build
19
Aux. Fan Off
Build
20
Conscious
B
FAB
GAS BOX
21
Battery Mine Phone
Main Fan On
0.0 % CH4
1500 PPM CO
15 % O2

Team Stops 15 – 21 . Ventilation #1

The team may construct these seals in any order, but #21 will be the last (turning on the fan).

Stop #15 – Stopping built in #1 entry, between pillar & rib top of #3 XC.

Stop #16 – Stopping built across #2 entry, between pillars, top of #3 XC.

Stop #17 – Stopping built across #3 XC between #2 & #3 entry.

Stop #18 – Close door in #2 XC between #2 & #3 entry.

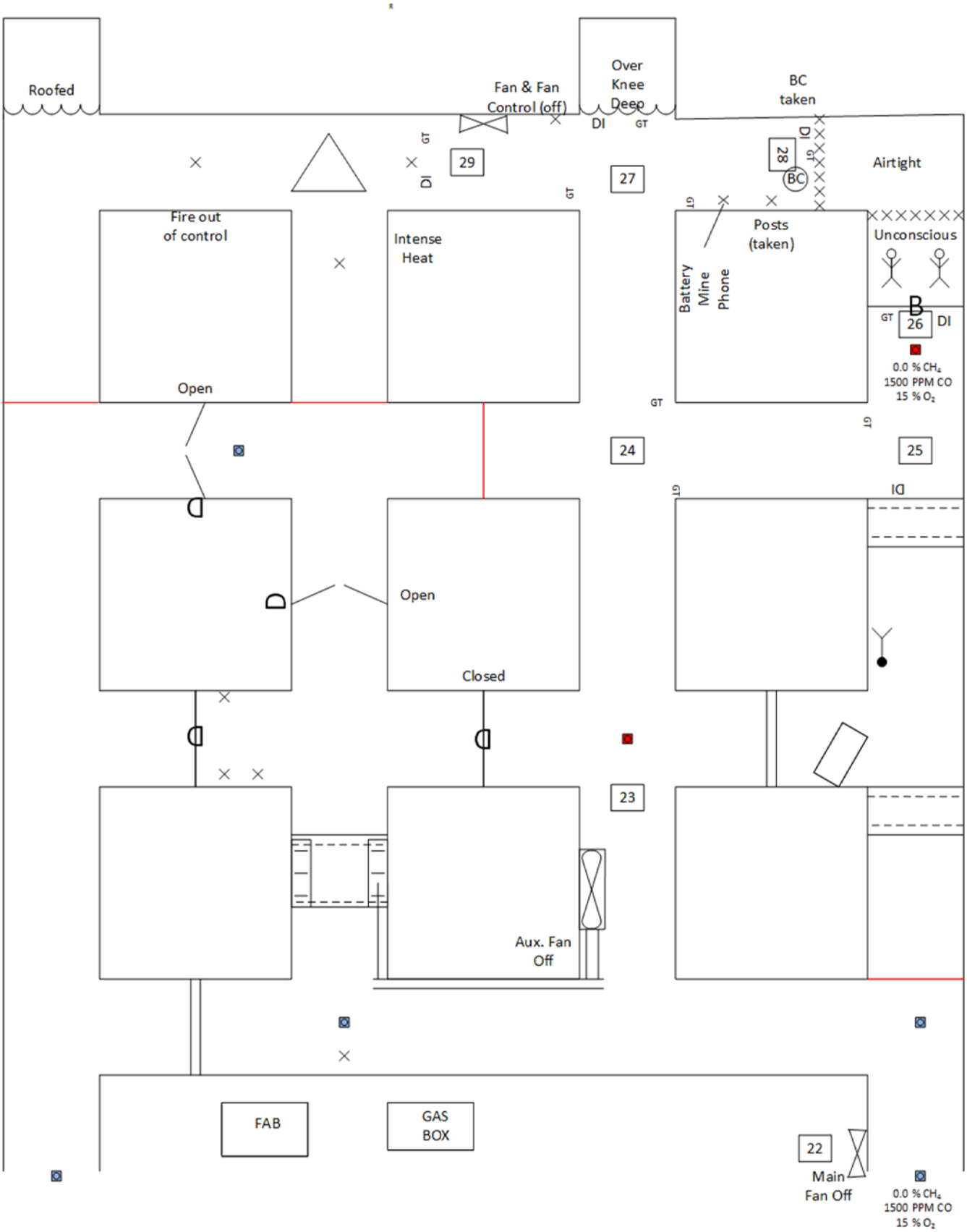
Stop #19 – Stopping built across entry #3 between #1 & #2 XC.

Stop #20 – Stopping built across entry #4, between #1 & #2 XC.

Stop #21 – Turn the fan on. The mine is upcast and the fan will pull the gasses out. Make sure that the gas placards are flipped to the (b) side as quickly as possible.

Since the gas has been cleared the miner behind the barricade can be brought out of the mine bare faced. We'll include this step in Stop #21.

- Airlocks can be taken down as the stoppings are erected. The airlock materials can be used for stoppings elsewhere.
- Watch to make sure that the captain is checking ground conditions before erecting a stopping and that he/she D&I's the build once completed.
- Once the fan is turned on and before they bring the miner through the area the team needs to make gas tests along the path that they will use.


Roofed
Fan & Fan Control (off)
Over Knee Deep
BC taken
Airtight
Fire out of control
Intense Heat
Posts (taken)
Unconscious
Battery Mine Phone
Open
Open
Closed
Aux. Fan Off
FAB
GAS BOX
Main Fan Off
0.0 % CH4
1500 PPM CO
15 % O2
0.0 % CH4
1500 PPM CO
15 % O2
DI
GT
BC
22
23
24
25
26
27
28
29

Team Stops 22-29

The scenario I'm going with here is that the team chooses to turn off the fan before continuing exploration. If the team is on the ball they can re-enter through #3 entry without air locking if they turn off the fan.

Stop #22 – Turn fan off, re-enter the mine through #3 entry to #2 XC.

Stop #23 – Remove seal (gas test was performed earlier) and continue up to #3 XC.

Stop #24 - Perform gas tests on all three sides. Captain can stretch left to stopping to tie in.

Stop #25 – Team advances to the right down #3 XC toward #4 entry. Gas tests both sides of the entry. Captain will D&I the loose roof on the right.

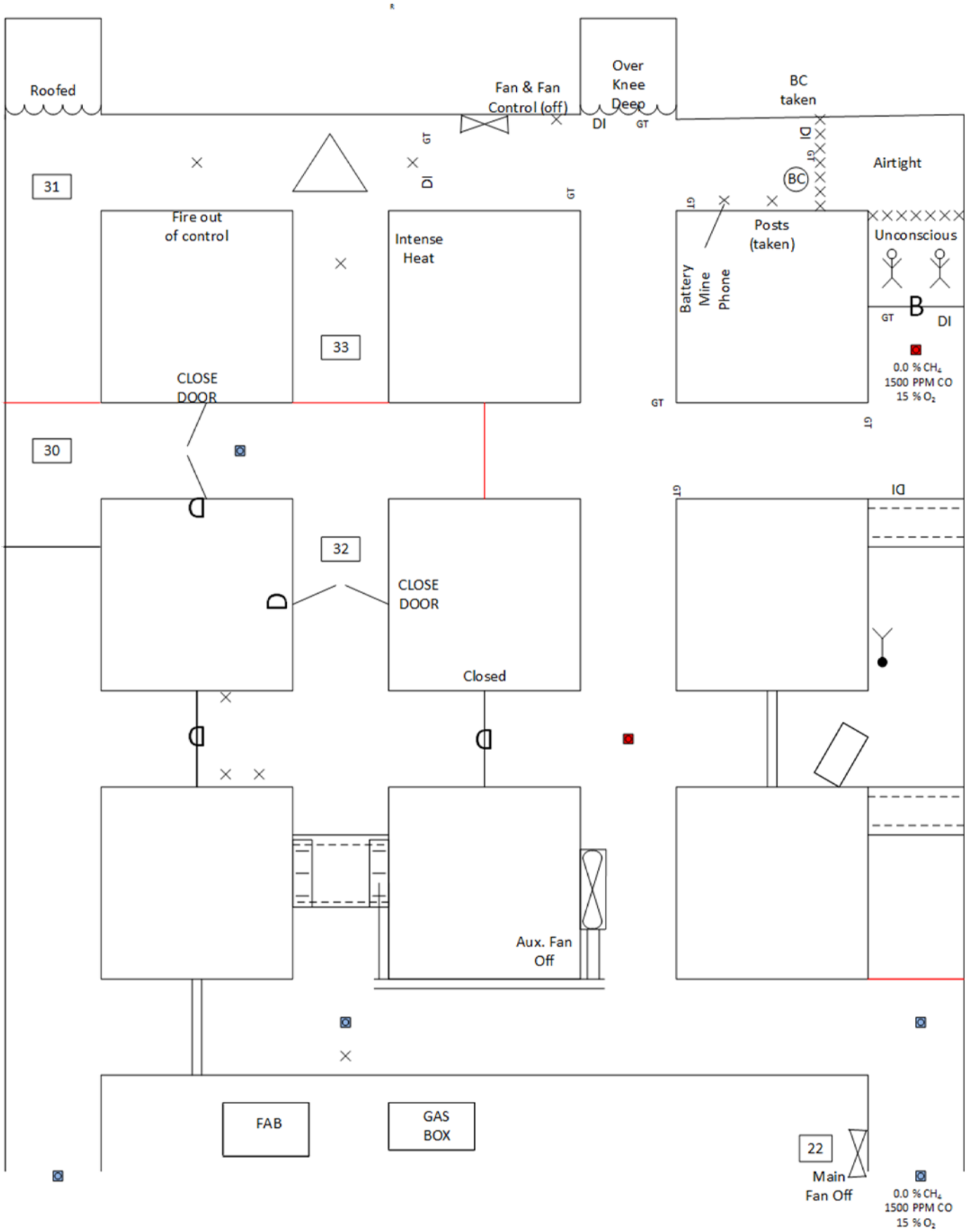
Stop #26 - Captain can now stretch to the left. He finds the barricade, knocks & doesn't get an answer. Captain D&I's the barricade & gas tests.

Stop #27 - Team retreats back to #3 entry and travels up toward #4 XC. Gas tests on all 3 sides. Captain D&I's water over knee deep & stretches to the right. He finds six posts and a line curtain. Team gathers the materials.

Stop #28 - The Captain D&I's the Airtight cave and does gas test.

Stop #29 – The Captain stretches to the left toward #2 entry and encounters a placard showing "Intense Heat". The Captain will D&I the intense heat & perform a gas test. The team will retreat back to #3 XC.

If a team is on-the-ball they will realize that they sealed the intake sides of the fire earlier. Since they have explored all of the accessible areas on this side of the mine the team will need to explore the areas (up to the fire) in #1 & #2 entries.


Roofed
Fan & Fan Control (off)
Over Knee Deep
BC taken
Airtight
31
Fire out of control
Intense Heat
Posts (taken)
Unconscious
Battery Mine Phone
33
CLOSE DOOR
0.0 % CH4
1500 PPM CO
15 % O2
30
32
CLOSE DOOR
Closed
Aux. Fan Off
FAB
GAS BOX
22
Main Fan Off
0.0 % CH4
1500 PPM CO
15 % O2

Team Stops 30 - 33

Stop #30 – Erect an airlock across #1 entry at the pillar between #2 & #3 XC and close the door in #3 XC between #1 & #2 entries.

Stop #31 – Breach the stopping in #1 entry outby the #4 XC and advance team to the intersection. Gas tests are completed on both the stub and to the right. The captain will D&I the water roofed and stretch to the right. At about mid-pillar the captain will encounter a placard indicating a fire out of control. The captain will D&I the fire out of control.

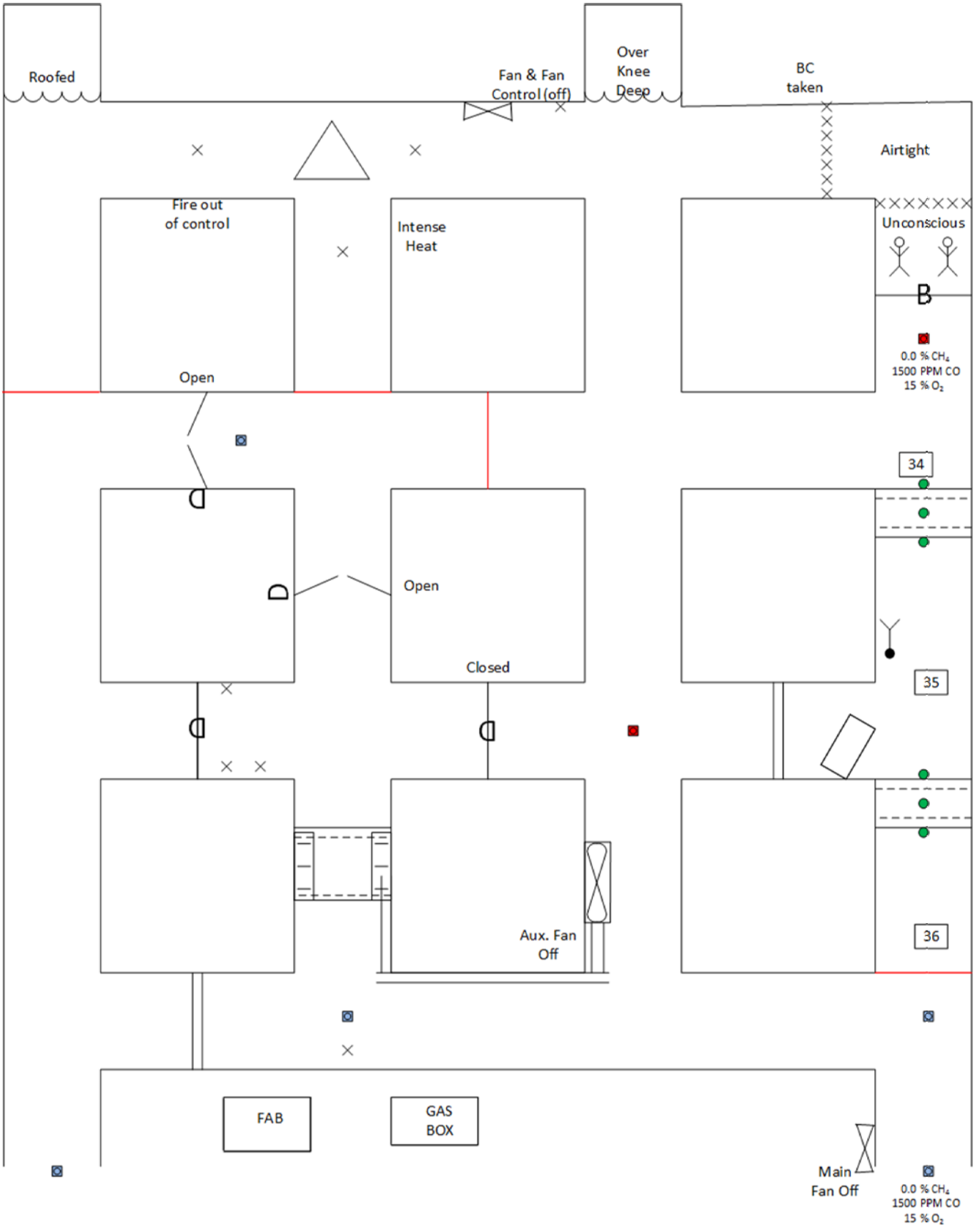
- If the captain tries to put it out, his efforts will NOT succeed.

The team will retreat back into the #3 XC intersection and reseal the entry.

Stop #32 – The team will close the door in #2 entry (closing the door in #2 entry is only necessary if the team took the airlock down in #1 entry).

Stop #33 – The team enter the stopping they erected outby the #4 XC. The team will encounter a placard indicating intense heat. The captain must D&I the intense heat, have the team retreat and reseal the stopping.

At this point the team has explored all but one “accessible” areas (behind the barricade in #4 entry). Before the team can enter that area, and since they do not know what lies behind the barricade, they must clear the air in front of it.


Roofed
Fan & Fan Control (off)
Over Knee Deep
BC taken
Airtight
Fire out of control
Intense Heat
Unconscious
B
0.0 % CH4
1500 PPM CO
15 % O2
Open
34
D
D
Open
Closed
35
D
D
Aux. Fan Off
36
FAB
GAS BOX
Main Fan Off
0.0 % CH4
1500 PPM CO
15 % O2

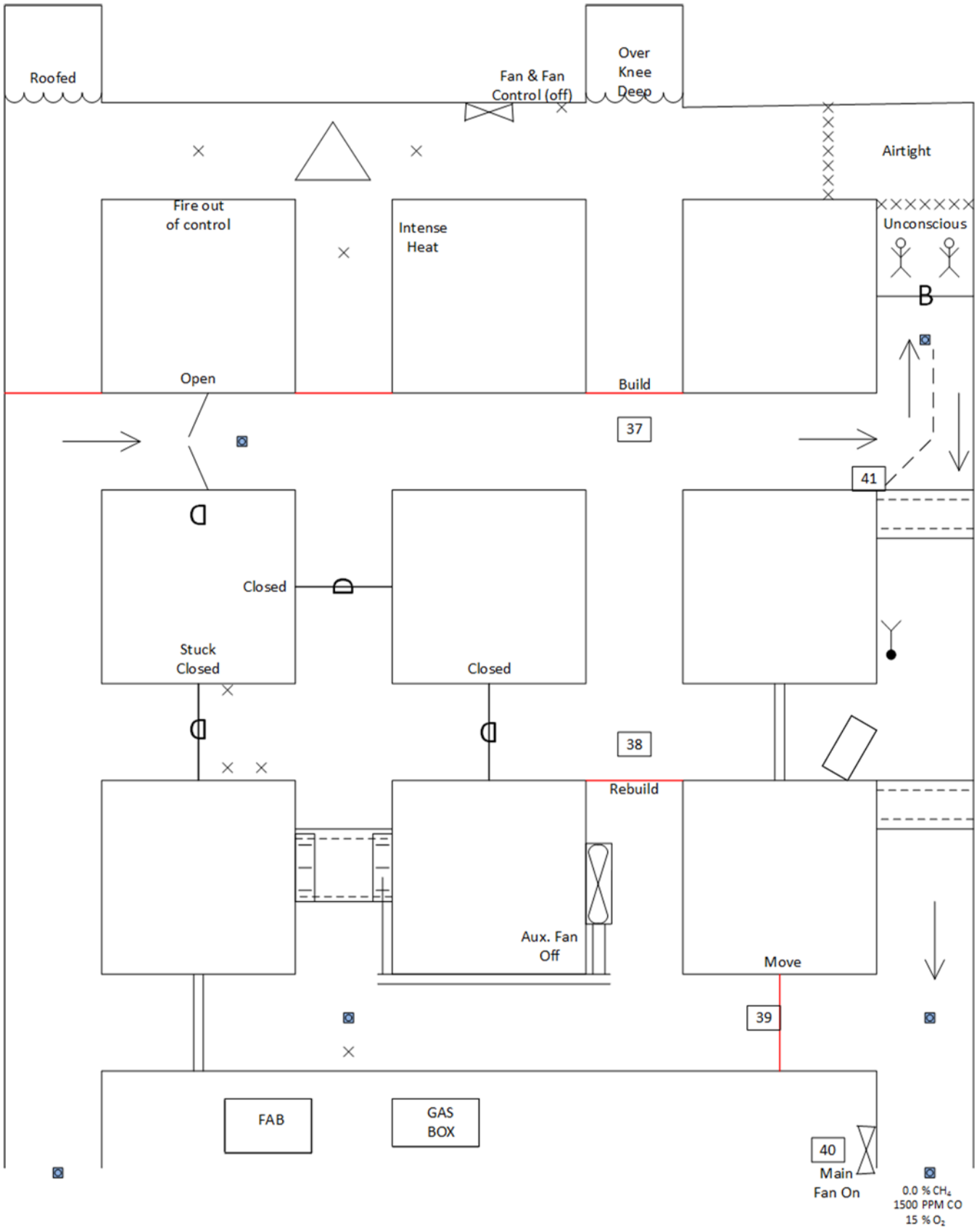
Team Stops 34 - 36

In order for the team to clear the air in front of the barricade in #4 entry they must check the path the smoke and gas is going to travel. To do this they must support that two areas of loose roof between the #2 & #3 XC.

Stop #34 – The area of loose roof is 5 feet deep. To properly support his area the team will need to install a minimum of 3 roof supports following the guidelines on pages 35 & 36 of the rule book.

Stop #35 – As the team advances toward #2 XC they will discover a body. The team will perform a primary assessment. Once they have completed the assessment the #2 Judge will flip the placard. Side (b) will show that the miner is not exhibiting signs of life. The captain must D&I the body.
In the intersection the team will need to tie in at the back side of the permanent stopping and map items they find. The team can now support and explore the last area of loose roof.

Stop #36 – The team will need to remove the temporary stopping they built in #4 XC.


Roofed
Fan & Fan Control (off)
Over Knee Deep
Airtight
Fire out of control
Intense Heat
Unconscious
B
Open
Build
37
41
Closed
Stuck Closed
Closed
38
Rebuild
Aux. Fan Off
Move
39
FAB
GAS BOX
40
Main Fan On
0.0 % CH_4
1500 PPM CO
15 % O_2

Team Stops 37 - 41

If the team has not closed the door in the #2 entry they will need to do so as some point for the final ventilation change to work.

Stop #37 – The team will need to build a stopping across entry #3, outby #4 XC.

Stop #38 – The team will need to rebuild the stopping across entry #3 on the inby side of #2 XC.

Stop #39 – The team will have to take out the stopping in #1 XC, inby the #4 entry. They could actually move that stopping to handle Stop #38.

Stop #40 – Not really a stop, but they have to call the FAB/Mine Manager and ask that the main fan be turned on. Since the gas mixture within the mine is non-explosive the team does not have to leave the mine when the fan is turned on.

Stop #41 – The team found a line brattice when they checked the airtight area in #4 XC. They can use that line brattice to wing air in to the area in front of the barricade. They can string the curtain from the upper corner of the pillar between XC #2 & #3. Once they have the curtain fully extended with the fan on, flip the gas placard in front of the door to side B.

Finishing the Problem

Once the area in front of the barricade is cleared, the team must airlock into the area to retrieve the two miners inside.

Stop #42 – The team breaches the barricade. They find both miners able to answer questions and they can walk out (accompanied by the team). Before leaving the appropriate gas tests and D&I's are completed.

Once out of the mine, critical information provided to the mine manager and team map is provided to the FAB the captain can stop the clock.

JUDGE: _____ TEAM: _____ FIELD # _____

OFFICIAL TIME: _____:_____:_____

DAY 1 JUDGE MAP