



**2023 NMRA
POST 5
MINE RESCUE
CONTEST
DAY 1**



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Post #5 Day 1

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Statement

Welcome to Black Bear Coal Company, Cub Portal and thank you for responding to our call for help. You will begin exploration in the 3 Right Section. A fresh air base has been established about 5 breaks out by the faces, along with the command center which is located on the surface.

Last night on midnight shift a foreman and 5-man crew entered the section to perform regular maintenance and set up production. The crew walked in a few blocks to get the section as track work is being done. Around 5 AM the foreman called out and said they had an inundation of methane and low oxygen levels. He also stated that when they tried to leave the section they ran into even lower levels of O₂. He said they would try to get out and we haven't heard from him or his crew since that call.

We sent rescue teams in and they were able to locate a crew member walking out of the section using a self-rescuer. He told them the rest of the crew headed back into the section and he was taken out to the surface. Rescue teams worked on advancing fresh air and have made it to within 5 blocks of the face.

This area of the mine produces high methane levels and has a history of bad roof and rib conditions. The mine is ventilated by an exhausting fan which is located on the surface and is running. All power in by the fresh air base has been locked and is guarded. A back up mine rescue team is on site. Please find our missing miners.

Good luck and be safe.

Problem

Instructions to the Team

Account for all missing miners and bring all survivors to the Fresh-air base.

Explore all areas of the mine that can be explored safely.

The Exhausting fan is running, the fan cannot be stopped, stalled, or reversed for any reason.

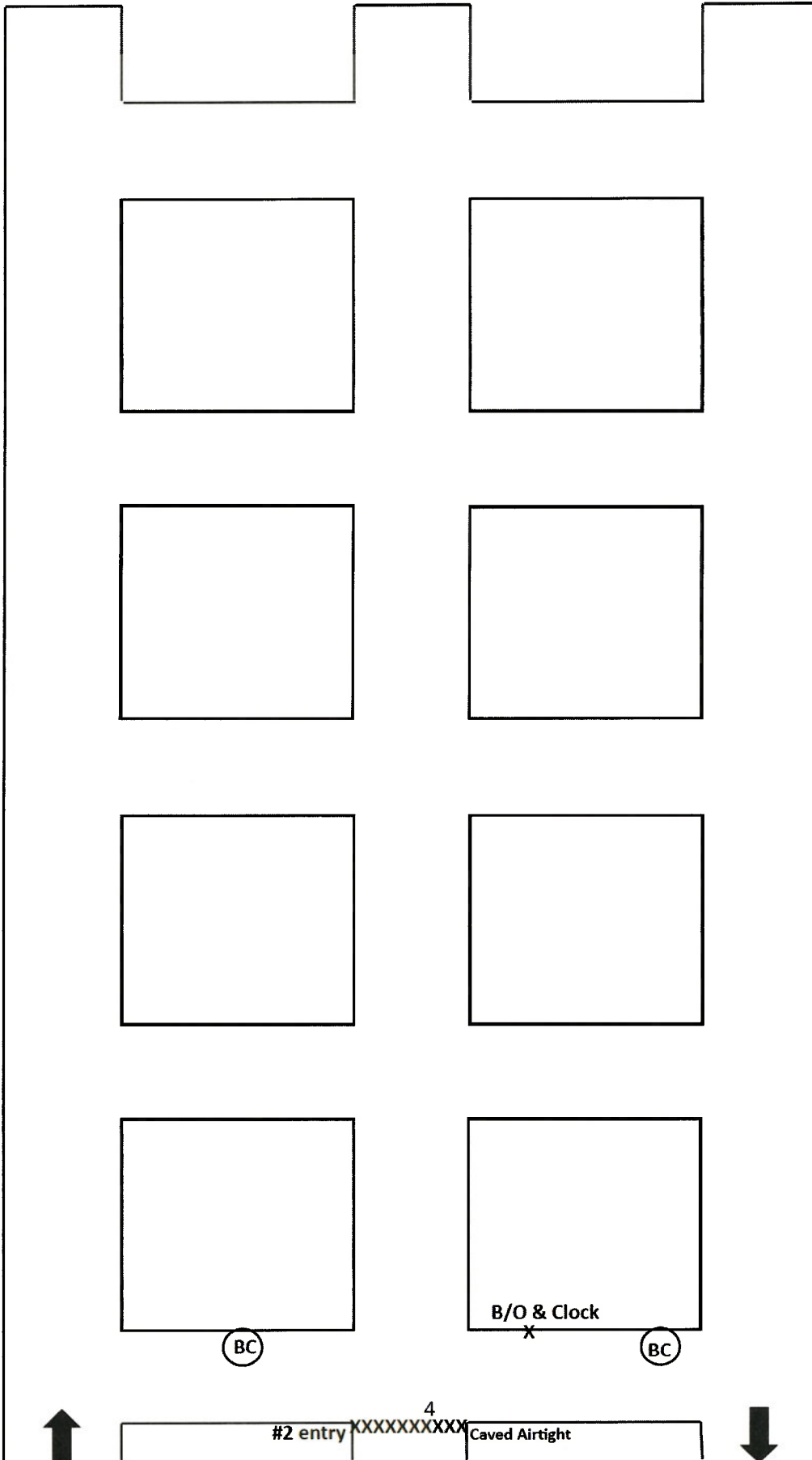
Entries are numbered left to right with the left entry being number 1 entry, the middle number 2 entry, and the right being number 3 entry. Air intakes up the number 1 entry and returns out the number 3 entry.

If the team wishes to make a ventilation change, they must verbally inform the superintendent at the Fresh Air Base of the ventilation change.

If the team wishes to use the materials of a barricade for a ventilation structure at a different location, ask the judge for a brattice build. We do not want the barricade materials moved to another location, just show the barricade on your map as you left it.

Maps are up to date

There is a 75 Minute time limit.



#1 entry



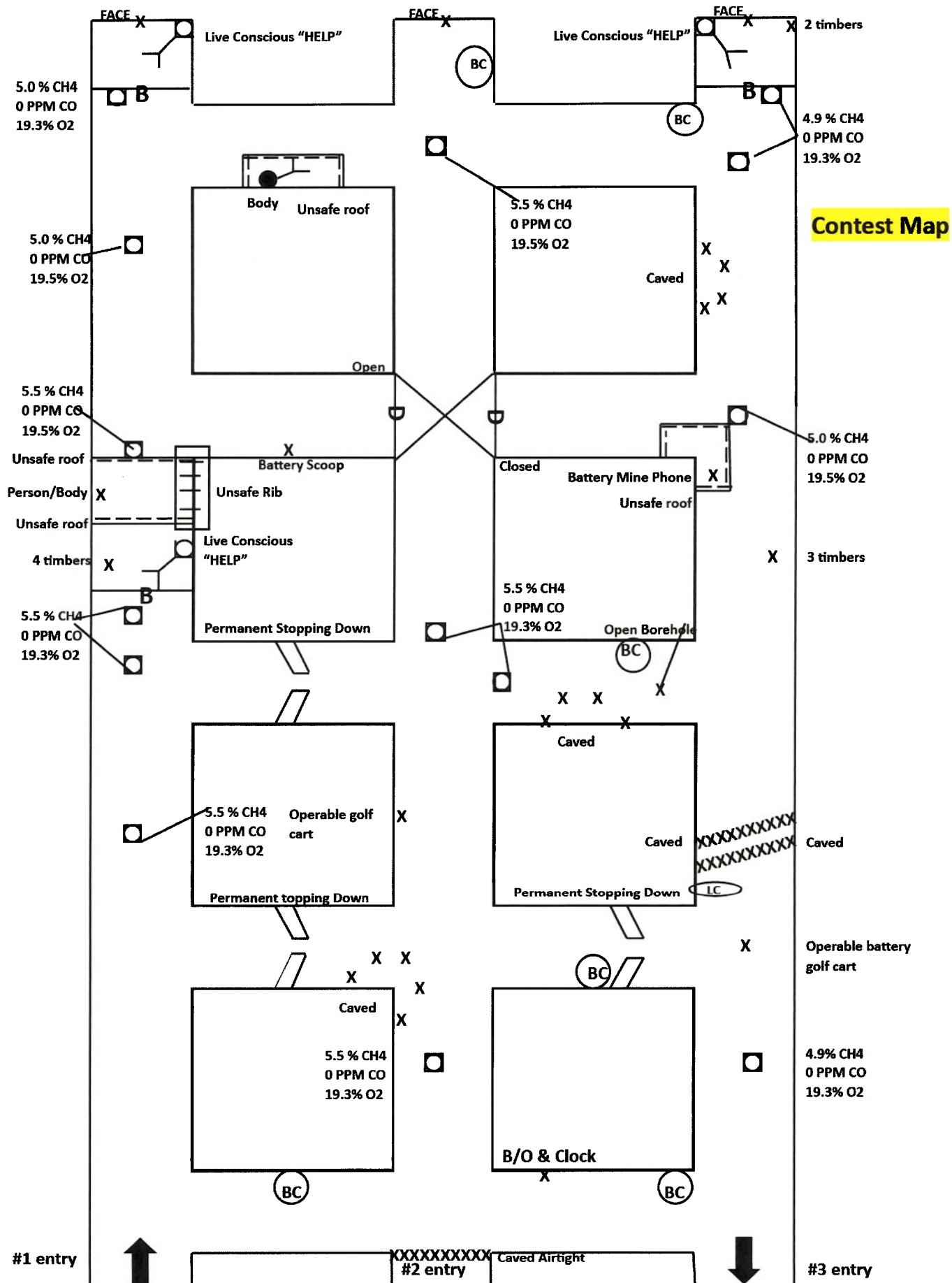
#2 entry

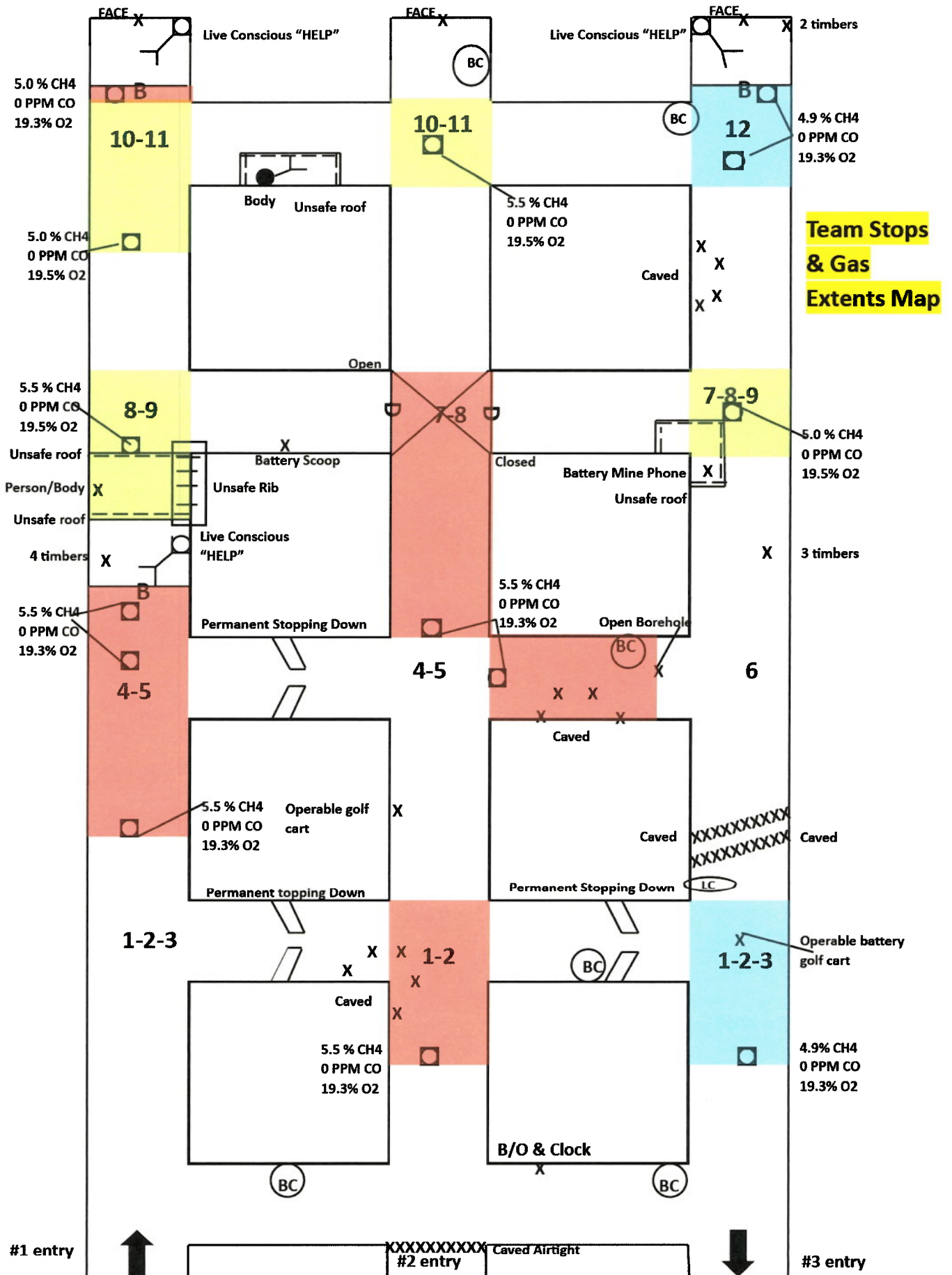
XXXXXXX⁴

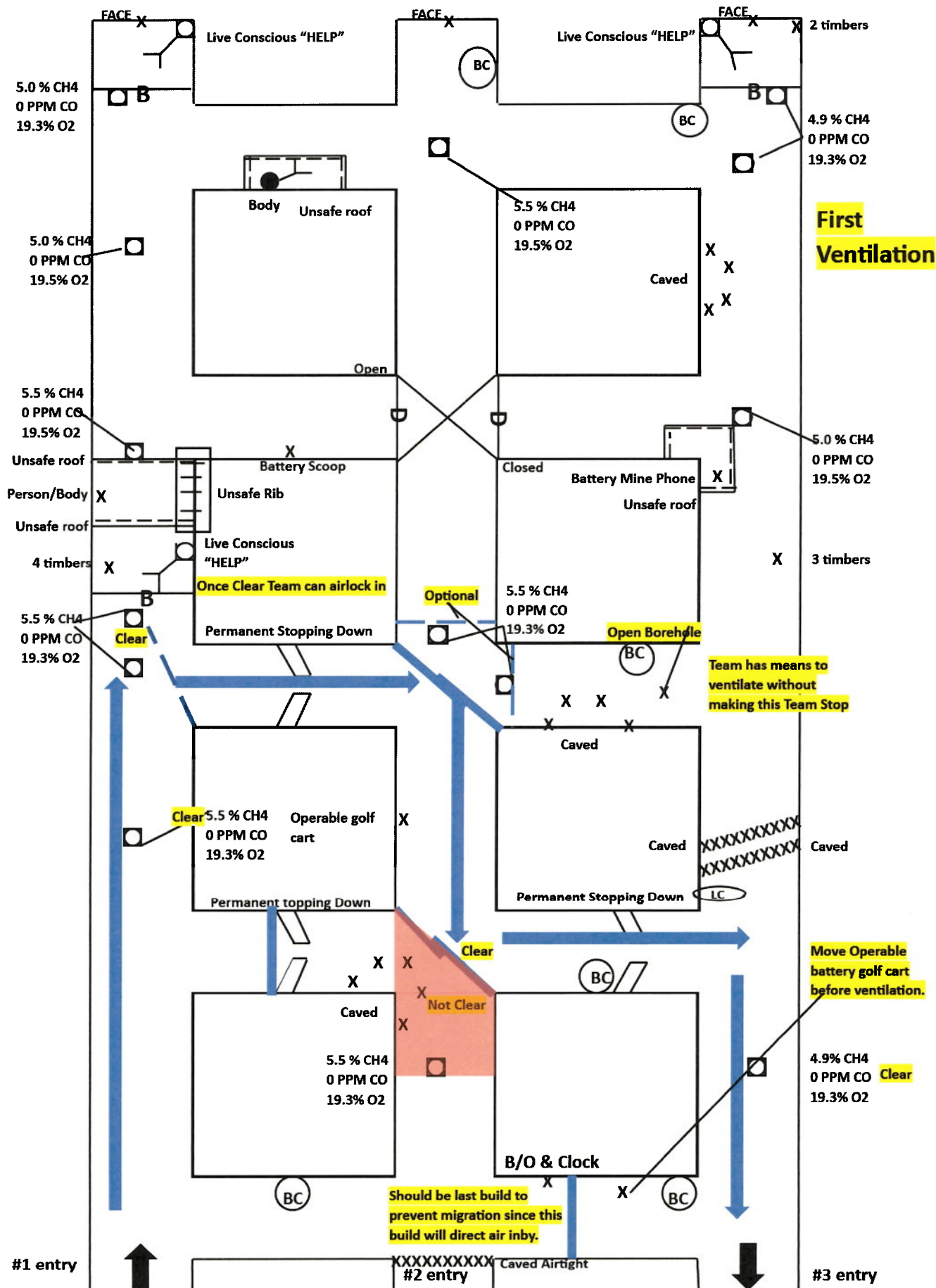
Caved Airtight

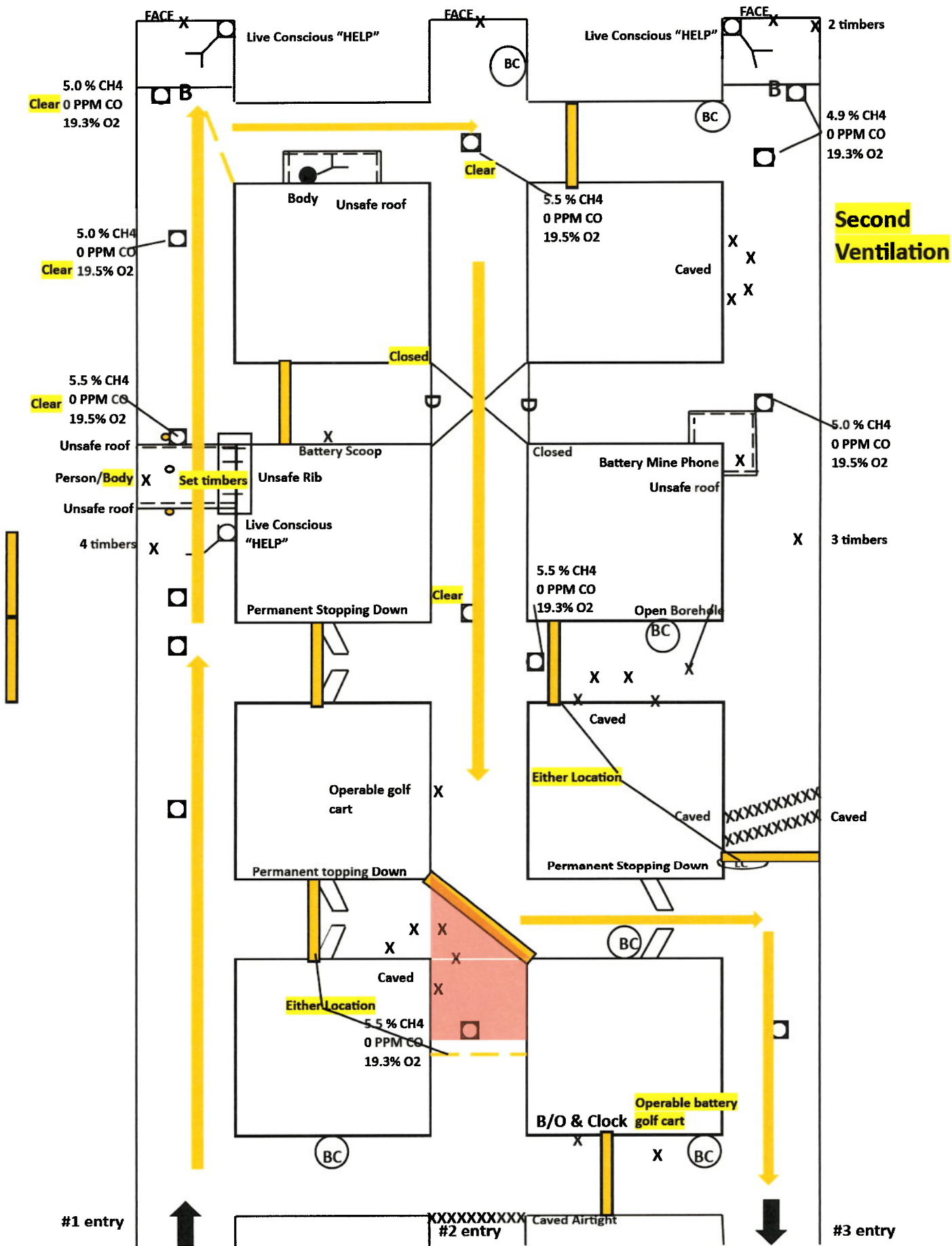


#3 entry









Key Points

A-line Tea Stops #1, #2, #3

The first team stop can be in in A line of #1, #2, or #3 entries, (team stop map).

The team will encounter from the portal checks an explosive irrespirable air gas mixture in #2 entry that will extend into the intersection of #2 in A line.

In #3 entry the team encounters a non-explosive irrespirable air gas mixture that extends into the intersection of A line where they will find an operable battery golf cart, (this is an ignition source) and will need moved before any ventilation is completed. Inby the intersection in #3 they will find a line curtain and caved across the entry blocking their advance up #3 entry.

Inby the intersection in #2 entry the team will lose the contaminate and find an operable golf cart, this is not an ignition source.

B-Line Team stops #4 and #5

If Team Stop #4 is in B-Line of #2 entry then the team an explosive/irrespirable gas mixture inby on the imaginary line of the intersection also the same explosive/irrespirable on the imaginary line of the cross cut toward #3 entry in B-line. As the captain reaches toward #3 entry he will encounter a caved area partially across the entry which requires a roof and rib test, then an open borehole which will require a gas test at it which then will be clear and this will stop the explosive/irrespirable from extending toward #3 entry (see figure #4 of the Rules for gas extent), this means the team loses the contaminate in direction of travel. Then reaching toward #1 entry there is nothing. This will make Team Stop #5 in B-Line of #1 entry.

If Team Stop #4 is in #1 entry of B-Line when the team enters the intersection have the patient start yelling "HELP". In the intersection there is an explosive/irrespirable gas mixture and the same gas mixture extending to the barricade inby the intersection. This will require the irrespirable to be vented away from the barricade under Rule #35 before breaching the barricade. The team reaches toward #2 entry and finds a permanent stopping down. They will need to explore over to #2 entry of B-Line at this time for Team Stop #5. Note that once #1 and #2 entries of B-Line have been explored the team now has means to ventilate the barricade in #1 entry without exploring to B-Line of #3 entry if they do explore to #3 entry before ventilating the barricade this is Delay under Rule #41.

See First Ventilation Map for details to ventilate the barricade. Once the barricade is ventilated the team will need to airlock into the barricade since they do not know the conditions behind the barricade under Rule #42. Once inside the barricade the team will find a conscious person and 4 timbers then unsafe roof across the entry blocking their advance. The patient will not need protected unless the exit the mine by way of #2 entry.

Team Stop #6 should be in B-Line of #3 entry outby the team finds a caved area across the entry and inby they find 3 timbers and the start of a wrap around unsafe roof on the left side outby the intersection. The captain can start the roof and rib test there but cannot exceed the outby side of the intersection, he will be able to see that there is a battery mine phone under the unsafe roof outby the intersection. Note that the timbers should not be used at this time under Rule #32.

Team Stop #7 can be in C-Line of #3 entry or in C-Line of #2 entry under Rule #44. If Team Stop #7 is in C-Line of #3 entry the captain will need to complete his roof and rib test of the entire intersection before any

other team members breaks any of the imaginary lines of the intersection the team will also find that there is an Explosive/Respirable gas mixture in the intersection only! This means since the battery mine phone that is under the unsafe roof is not cause for a withdraw since it is not located in the explosive gas mixture. Inby the intersection the team will encounter a half-moon shaped caved on the left rib looking inby. This will require a roof and rib test. In the crosscut towards #2 entry the team encounters an overcast wall with a door in it that is closed. This will require a gas test and a Date and Initial.

If Team Stop #7 is in C-Line of #2 entry the team will be under an overcast with the door to #3 entry closed and the door to #1 entry open which makes this crosscut toward #1 open and accessible. The overcast walls require D&I's and gas test, inby there is nothing and the #1 entry is the contaminated entry. The team finds a battery scoop in the crosscut toward #1 and on the outby corner of the intersection of #1 there is an unsafe rib. If this is Team Stop #7 then the team needs to tie across to the contaminated entry in #1 for Team Stop #8 before going to Team Stop #9 in C-Line of #3 entry (refer to the first explanation of Team Stop #7 in the preceding paragraph).

Team Stop #8 or #9 can be in C-Line of #1 entry entering the intersection the captain will see the unsafe roof on the imaginary outby line of the intersection making the entire intersection unsafe which requires the entire intersection to have a zig-zag roof and rib test made. The explosive respirable gas mixture in the intersection is also touching the unsafe roof which then means that there is explosive gas in the unsafe roof. Under Rule #29 all require actions in the intersection (such as the roof and rib test) must be completed before leaving the intersection). Inby the intersection the team has another explosive/respirable gas mixture extending toward D-Line.

If Team Stop #9 is in C-line of #3 entry then the captain will need to complete his roof and rib test of the entire intersection before any other team members breaks any of the imaginary lines of the intersection the team will also find that there is an Explosive/Respirable gas mixture in the intersection only! This means since the battery mine phone that is under the unsafe roof is not cause for a withdraw since it is not located in the explosive gas mixture. Inby the intersection the team will encounter a half-moon shaped caved on the left rib looking inby. This will require a roof and rib test. In the crosscut towards #2 entry the team encounters an overcast wall with a door in it that is closed. This will require a gas test and a Date and Initial.

Team Stop #10 or #11 can be in D-Line of #1 or #2 entry if Team Stop #10 is in D-Line of #1 entry the patient will need to start yelling when the captain enters the intersection "HELP". In the crosscut toward #2 entry the team finds an area of elongated unsafe roof on the outby rib that will require a roof and rib test. As the captain performs his roof and rib test he will pass and see the body that is under the unsafe roof. The team may have timbers with them, but they should not use them yet under Rule #32 since they still have missing people.

If Team Stop #10 is in D-Line of #2 entry the team will find an explosive respirable gas mixture in the intersection inby a brattice build, and a face. In the crosscut toward #3 entry they find another brattice build.

Since Team Stops #10 are interchangeable likewise is Team Stop #11.

By Team Stop #11 the team has means to ventilate the barricade in #1 entry of D-Line without advancing over to D-Line of #3 entry. See Ventilation Map #2 and note that the team will need to send air through the unsafe roof in #1 entry and since the explosive is touching the unsafe the explosive gas is in the unexplored area of unsafe roof. This means that the team will need to timber through that area before ventilation is sent through there. The unsafe rib is on the right rib looking inby so the team must timber off

of the safe rib on the left side (the left right side will change if the team timbers from the inby side to the outby side). As the timber through the unsafe roof area they will find a person which becomes a body when

the captain touches the placard and D&I the location.

After timbering the unsafe roof area the team can set up the 2nd ventilation and sweep the irrespirable from the barricade and airlock into the barricade. Once inside the barricade the team finds a conscious person who will need to be assessed, touch by hand by the captain and D&I by the captain before being taken out they will also find a face.

Team Stop # 12 will be in D-Line of #3 entry where the patient should yell, "HELP, when the captain enters the intersection. In the intersection the team will find a non-explosive/irrespirable gas as well as the same gas up to the barricade. See Ventilation Map #3 to see how the air must flow. Note that with the response from inside the barricade under Rule #41 the verbal response lets the team know the location of the 5th missing person so the non-explosive/Respirable gas can be sent through the caved area outby the intersection. Also note that the explosive gas that is in the intersection of C-Line in #3 is in the intersection only so it (if properly set up for builds) will not move over the battery mine phone so using the timbers here is not require, but since every person has been accounted for the team may timber here to move the battery Mine Phone.

Once the ventilation has been set up and the barricade swept the team will need to airlock into the barricade and find the conscious person perform an assessment Touch by hand and D&I. Then examine the face and pick up the 2 timbers. The person will need to be taken out and the team must return to post to the body under the unsafe roof in D-Line before clocking out under Rule #32.

Note that at any time if the team wishes to short circuit the air in may do so by asking the superintendent at the FAB for a ventilation change and physically taking down the brattice build there.

Note that it is possible to allow air to migrate in the FAB and through the caved area in A line of #2 entry if airlocking is not properly maintained and may send irrespirable over the B/O,(Rule 30 H) and move an explosive gas through and unexplored area,(Rule 31 C).

Note that in A-Line of #3 entry there is an operable battery golf cart, (this is an ignition source) and will need moved before any ventilation is completed.

Note that under Rule #32 if the team has timbers and has missing people the timbers should not be used unless for ventilation purposes. See Paragraph #4. However, if the team has timbers left over and they have a body under unsafe roof they are require to timber to that body under Rule #32 paragraph #3.