

*2022 KMI
Mine Rescue Contest
May-2-5-2022*



*Central Bank Center
Lexington, Kentucky*

*MNM Field Problem
DAY 2
May 4, 2022*

*KMI would like to thank all who took part
In making this year's contest a success
And a special thanks to all participating teams.*

Day 2 Field Working Order for MNM Teams

1-Vulcan

2-Nystar

3-Central Ky

4-Doerunn Maroon

5-Doerunn Gray

6-Carmeuse Rangers

7-Nuclear Waste-Wipp Red

8-Carmeuse Black River

2022 KMI Day 2 M/NM Team Statement

Thanks for responding to our call for help. You are located on the surface of the #2 mine in the fresh air base. We know at this time we have 4 of our miners missing and unaccounted for. This morning around 5am the 4 employees went into the mine to clean up trash that was left at the newly installed intake shaft located in #1 entry. Around 5:30am our outside man stated a thunderstorm came through the area disrupting the power to the following: to the underground areas, to the underground communication system, to our surface stationary suction pump and to our exhaust fan located in the #3 drift.

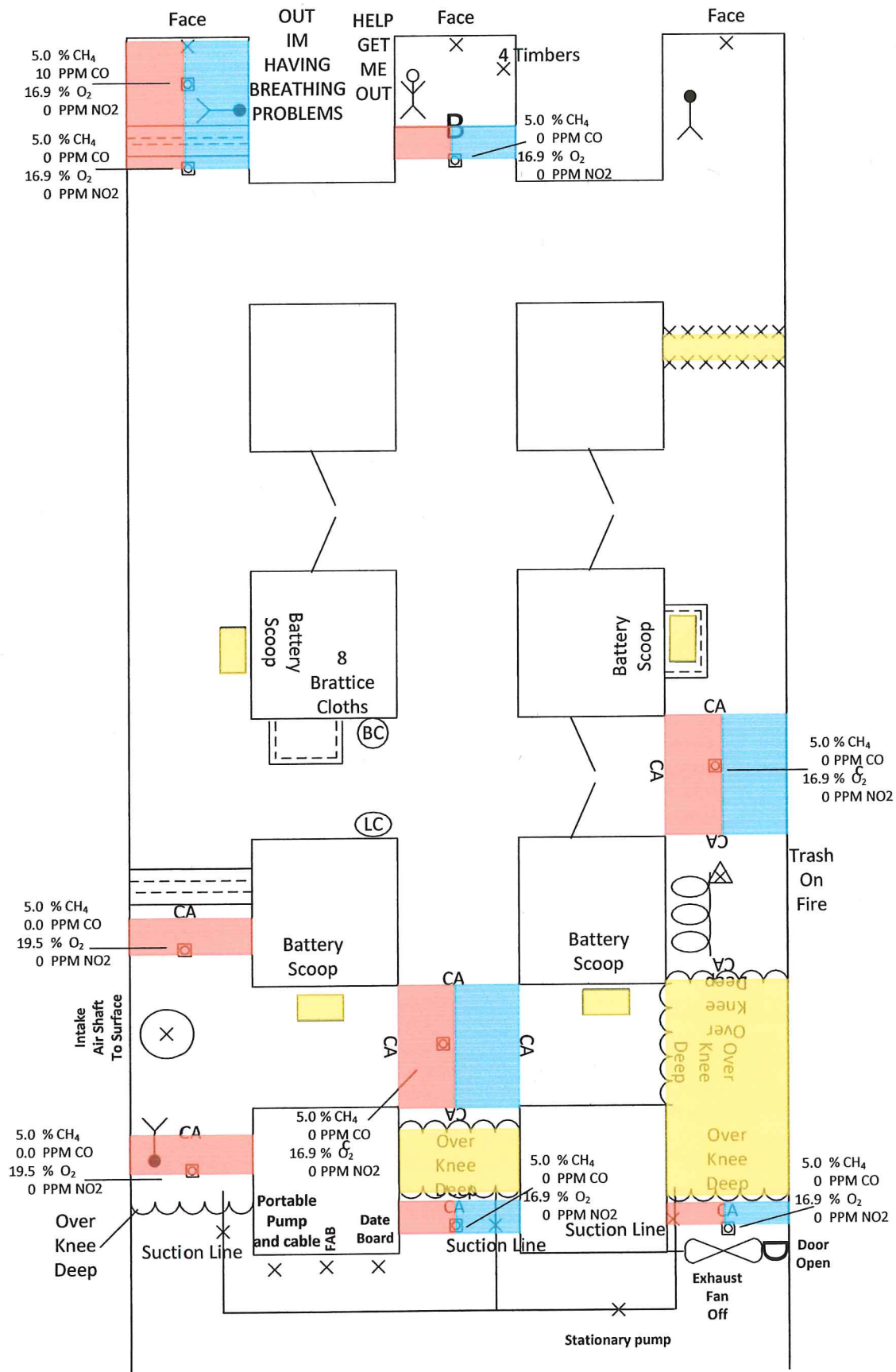
I will tell you a little about our mine, and what is expected of your team while working.

- This mine is a new mine and has only been in operation for about 2 months.
- In this short period of time, we have had issues with the roof, controlling water and methane gas.
- The newly completed intake/downcast shaft in the #1 entry is not provided with means to hoist people or supplies.
- The shaft has been checked on the surface and gas readings are clear.
- The shaft can be used for ventilation purpose if needed.
- The only fan we have at the mine is an exhaust fan that is located in the #3 drift. The fan is currently off but is available if needed.
- The fan can be started, stopped, but cannot be reversed or stalled.
- Your team will make ventilation request through the #1 judge such as, start the exhaust fan or stop the exhaust fan. The #1 judge will reply back with the fan is on or off.
- Water has always been controlled inside the 3 drifts by a stationary suction pump located here on the surface. This pump has suction lines that enter all drifts. At this time the suction pump is being repaired, due to the suction lines having holes in it here on the surface. If the pump stays off for any reason, water in the drifts will raise to an impassable level.
- Due to the suction pump being down we have made available a small portable pump if water has raised to an impassable level.
- Your team will also make request through the #1 judge such as, start the portable pump/or start the suction pump and will use the reverse verbiage when wanting them stopped. The #1 judge will reply with which pump is on or off.
- All our mobile equipment is powered by batteries, these batteries are located onboard each piece of equipment and cannot be unhooked or removed.

- The equipment cannot be removed from the location found.
- The mine is walking height.
- The roof/back is being supported with 6ft bolts.
- The mine map is up to date.
- All power to the underground remains de-energized, locked out, and guarded.
- We have called all government agencies, and they are on site.
- All available equipment and materials to work the problem is located here at the mine and identified with placards.
- We have a backup team, here on the surface to serve as your backup.
- Your team has **75 minutes** to complete the problem, before being replaced by another team.
- Your team should explore the entire mine that can be done safely.
- Your team should account for all missing miners.
- Your team should bring all survivors to the surface fresh air base.
- Your team can only carry one line curtain and three brattice cloths with them.
- Your team can carry with them as many post/timbers they encounter.
- If stoppings are built by your team in intersections, you are required to use two.
- **NOTE: beside what is required to be mapped by the rules, the team must show how the mine was left at end of the problem,** the maps should reflect, any team built stopping left intact, if doors are left opened or closed, how barricades were left either up or down, if person are rescued the team should state removed to the fresh air base (FAB), the location of timbers/post set by the team, if the fan is on or off, if pumps are on or off, and location of any pump at end of problem.

“Good Luck”

HELP
GET
ME
OUT
IM
HAVING
BREATHING
PROBLEMS



Team reporting to field

On reporting to the field, the communication cable can be strung out prior to starting the clock, if the team has elected to use a command center attendant, the Visio mapping device will be up and running with the SD card in place during this time.

- S/J1/R9--No other work can be performed before starting the clock.

Afterward, the team captain should have the team line up at the place indicated by the #1 judge. The team captain should introduce his or her team and state "we are here to offer our help".

#1, and #2 judge will introduce themselves to the team. The #1 judge will tell the team they were briefed on the problem and the mine information prior to reporting to the field. The #1 judge will then read the following statement to the team.

#1 Judge prepared statement

I have new information for your team. **the stationary suction pump is still not ready for use at this time, your team will be told when the suction pump is repaired and available.** During working of the problem, I will answer any question that you may have; however, by problem design, my response may be limited in scope. The fresh air base attendant/Briefing Officer, and anyone other member assigned to the FAB must remain at the fresh air base. Only the fresh air base attendant/briefing officer should speak with the team via the communication system to discuss the rescue activities performed or proposed while all others listen in. If your team returns to the fresh air base, only the attendant/briefing or assistant should assist them. However, no one assigned to the FAB can physically go beyond the fresh air base/or underground to assist the team unless he/she becomes a team member if someone drops out. If ventilation changes are requested by your team, the team must inform the #1 judge of their intentions, but this does not relive your team of the responsibility of their decisions.

"Good Luck!"

- U/J1/R10b2 – The team was given information indicating that explosive gas(es) is/are or may be present in the mine, they must have non-sparking tools while they are working the problem so as not to endanger themselves. If teams do not have non-sparking tools, they must ask the official in charge at the fresh air base to provide them with such tools before they go underground. The teams may tell the judges prior to starting the clock or before going underground they have non-sparking tools. **NOTE:** if team does not tell the judges prior to going

underground the judges should ask team at end of the problem if their tools were non-sparking

Starting the clock

- S/J1/R8--The team captain will now start the clock and the judges will also start his or her timing device. The maps and problem statement will be given to the teams at this time by the #2 judge.
- S/J1/R9 – The captain must date & put team working number on date board.
- U/J1/R10a6 – the team must go under oxygen before going underground to check entrances.
- S/J1/R6--The team members will don their apparatus, and the captain will check all apparatuses being worn by each team member having his or her also checked.

#1 Drift

- U/J1/R8c – captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R9 – captain must place initials at the water over knee deep. (Maybe simulated)
- U/J2/R1 – Gas test in the opening. (Must be rib to rib)

#2 Drift

- U/J1/R8c – captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R9 – captain must place initials at the water over knee deep. (Maybe simulated)
- U/J2/R1 – Gas test in the opening. (Must be from rib to rib)
- U/J1/R14 – team must notify the FAB of the explosive mixture.

#3 Drift

- U/J1/R8c—captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R9—captain must place initials at the water over knee deep. (Maybe simulated)
- U/J2/R1—Gas test in the opening. (Must be rib to rib)
- U/J1/R14—team must notify the FAB of the explosive mixture.

NOTE: if the team takes the portable pump to #2 or #3 drifts to pump the over knee-deep water, when they request through the #1 judge to start the pump, the judge will state the portable pump is now on, NOTE due not flip placard, the water will not be dropped, but the team will be discounted 75 points under U/J1/R10b6.

The entire team is now ready to start underground by the #1 drift due to #2 & #3 drifts have an explosive mixture in them and the portable pump cannot be started in either.

- S/J2/R8— all team members must be connected or have hold of the lifeline when traveling.
- S/J1/R10--The team will count off during first entering the mine to be explored and at the end when leaving the mine. (The first count off may have already been done after clock was started).
- U/J1/R3--The captain must perform a 50ft apparatuses check. (Must be done at first team stop).
- U/J1/R5—after 50ft check is completed, the team must make additional apparatus checks at intervals not exceeding 20 minutes.
- S/J2/R5--After the team has completed its 50ft check, they will not be allowed to physically compare the team map with the fresh air base attendant's map or the alternate's map. No side-by-side comparison will be allowed, and no changes (edits) can be made to any map while the team is at the fresh air base.
- U/J1/R10a2—the team must pump the over knee water.
- **The team will set the portable pump in the over knee-deep water in #1 drift, and request through the #1 judge to have it turned on. The judge will tell them the pump is on, and if turned off the water will return to over knee deep. The placard will be turned.**

2nd line of crosscuts in #2 intersection

- U/J1/R11—at this stop the team can only travel no more than 3ft inby the intersection until tying across and behind first.
- U/J1/R8c—captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R8b—captain must verbally state checking for back or roof at the location of the elongated unsafe roof
- U/J2/R1—Gas test in all the openings. (Must be rib to rib)
- The team may elect to travel to #1 or #3

2nd line of crosscuts in #3 intersection

- U/J1/R8c—captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R8b5—captain must immediately verbally state checking for back or roof at the location of the fire.
- U/J1/R9—captain must place initials at the water over knee deep. (Maybe simulated)
- NOTE: When team simulates extinguishing the trash fire with one extinguisher the #1 judge will state the fire is now out.
- U/J1/R12—someone on the team must ask each team member if they are all right and each member must reply they are ok before entering smoke
- U/J1/R10a7—all team members must be online when entering smoke.
- U/J2/R1—Gas test in all the openings. (Must be rib to rib)
- U/J1/R14—team must notify the FAB of the explosive mixture in intersection.
- U/J1/R10a2—the team is block from traveling on outby in #3 due to the water over knee deep.

2nd line of crosscuts in #1 intersection

- U/J1/R8c—captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R8b—captain must verbally state checking for back or roof at the location of the unsafe roof.
- U/J1/R9—captain must place initials at the unsafe roof. (Maybe simulated)
- U/J2/R1—Gas test in all the openings. (Must be rib to rib)

Team now may advance to the 3rd line of crosscuts.

3rd line of crosscuts in #1 intersection

- U/J1/R8c—captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R8b—captain must verbally state checking for back or roof.
- U/J2/R1—Gas test in all the openings. (Must be rib to rib)

3rd line of crosscuts in #2 intersection

- U/J1/R8c—captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R8b—captain must verbally state checking for back or roof
- U/J2/R1—Gas test in all the openings. (Must be rib to rib).

3rd line of crosscuts in #3 intersection

- U/J1/R8c—captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R8b—captain must verbally state checking for back or roof
- U/J1/R9—captain must place initials at the face. (Maybe simulated)
- U/J2/R1—Gas test in all the openings. (Must be rib to rib)

4th line of crosscuts in #1 intersection

- U/J1/R8c—captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R8b—captain must verbally state checking for back or roof at the location of the face.
- U/J1/R9—captain must place initials at the face. (Maybe simulated)
- U/J2/R1—Gas test in all the opening and at the face. (Must be rib to rib and the gas test at face will suffice for this opening).

4th line of crosscuts in #2 intersection

- U/J1/R8c—captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R8b—captain must verbally state checking for back or roof at the location of the unsafe roof.
- U/J1/R9—captain must place initials at the unsafe roof and on the barricade. (Maybe simulated)
- U/J2/R1—Gas test in all the openings and at the barricade. (Must be rib to rib and the gas test at barricade will suffice for this opening).
- U/J1/R14—team must notify the FAB of the explosive mixture.
- U/J1/R18a—team cannot breach the barricade due to the IDLH atmosphere outside or they have endangered the person inside.
- U/J1/R18f---The person behind the barricade will yell "HELP GET ME OUT" The team must now ventilate before advancing to the #3 intersection if team goes to #3 before ventilating, they have broken this rule)

SEE 1ST VENT MAP

- U/J1/R10B3— explosive mixtures cannot be ventilated over battery equipment or through unexplored areas. All identified on map in yellow. This would mean all battery equipment found in this mine, all unsafe roof areas that extend from rib to rib the team has not timber through, and all caved areas would be an endanger to the entire team if they passed an explosive mixture over them and the team would be accessed 75 points for each.
- U/J1/R18b—the team cannot direct an IDLH atmosphere through a vent change over the person location in the elongate unsafe roof.
- U/J2/R1—after a vent change all areas along the route of travel that have been cleared of toxic or dangerous gases must be rechecked by the team during reentering. (Must be rib to rib)

SEE 2ND VENT MAP

- U/J2/R1—after vent change all areas along the route of travel that have been cleared of toxic or dangerous gases must be rechecked by the team during reentering. (Must be rib to rib)

The team has now ventilated the IDLH atmosphere located in front of the barricade.

- U/J2/R9 – team must airlock to breach the barricade
- U/J1/R8b – captain must verbally state checking for back or roof at the location of the build prior to starting the build.
- U/J2/R10 – must be airtight, (this would be done by hooking all available hooks provided on the cloth to the simulated ribs).
- U/J2/R1 – When breaching a door or barricade a gas check is required on backside. (Must be rib to rib)
- U/J1/R8c – captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R10a5 – The team member tipping the person must have gloves on (BSI).
- U/J1/R9 – captain must place initials at the location of the person. (Maybe simulated)
- U/J1/R8b – captain must verbally state checking back or roof at the location of the face.
- U/J1/R9 – captain must place initials at the face. (Maybe simulated)
- U/J2/R1 – Gas test at face. (Must be rib to rib)
- U/J2/R11 – Team does not need to airlock to get back out of #2 face area with person. If team request the fan to be turned off, they will not need to airlock to go through any doors they make encounter closed to leave the mine. If they don't, they will change ventilation and will be discounted under this rule.
- U/J2/R1 – after all areas along the route of travel that have been cleared of toxic or dangerous gases must be rechecked by the team during reentering. (Must be rib to rib)

U/J1/R18e--The team after taking person to FAB will now have timbers to check person in the elongated unsafe roof.

- The captain will set one timber in good roof and at least one in unsafe if he can reach the placard he can now check.
- U/J1/R10a5--The team member tipping the placard must have gloves on (BSI).
U/J1/R9--captain must place initials at the location of the person placard. (Maybe simulated)
- When the team captain tips the placard the #1 judge will flip the placard and on the backside the word body will be found.
- The team will then put the symbol for body on map alongside the X. No orientation will be discounted for head placement on the maps.

4th line of crosscuts in #3 intersection

- U/J1/R8c--captain must visually check for ground conditions before other members do work or move into the area. (a team member may travel behind the captain during this check)
- U/J1/R8b--captain must verbally state checking back or roof at the location of the face and cave area.
- U/J1/R9--captain must place initials at body, the face, and cave area. (Maybe simulated)
- U/J1/R10a5--The team member tipping the person must have gloves on (BSI).
- U/J2/R1--Gas test in all the openings and at the face. (Must be rib to rib and the gas test at face will suffice for this opening).

The team has completed the problem and should check their maps before coming to the FAB.

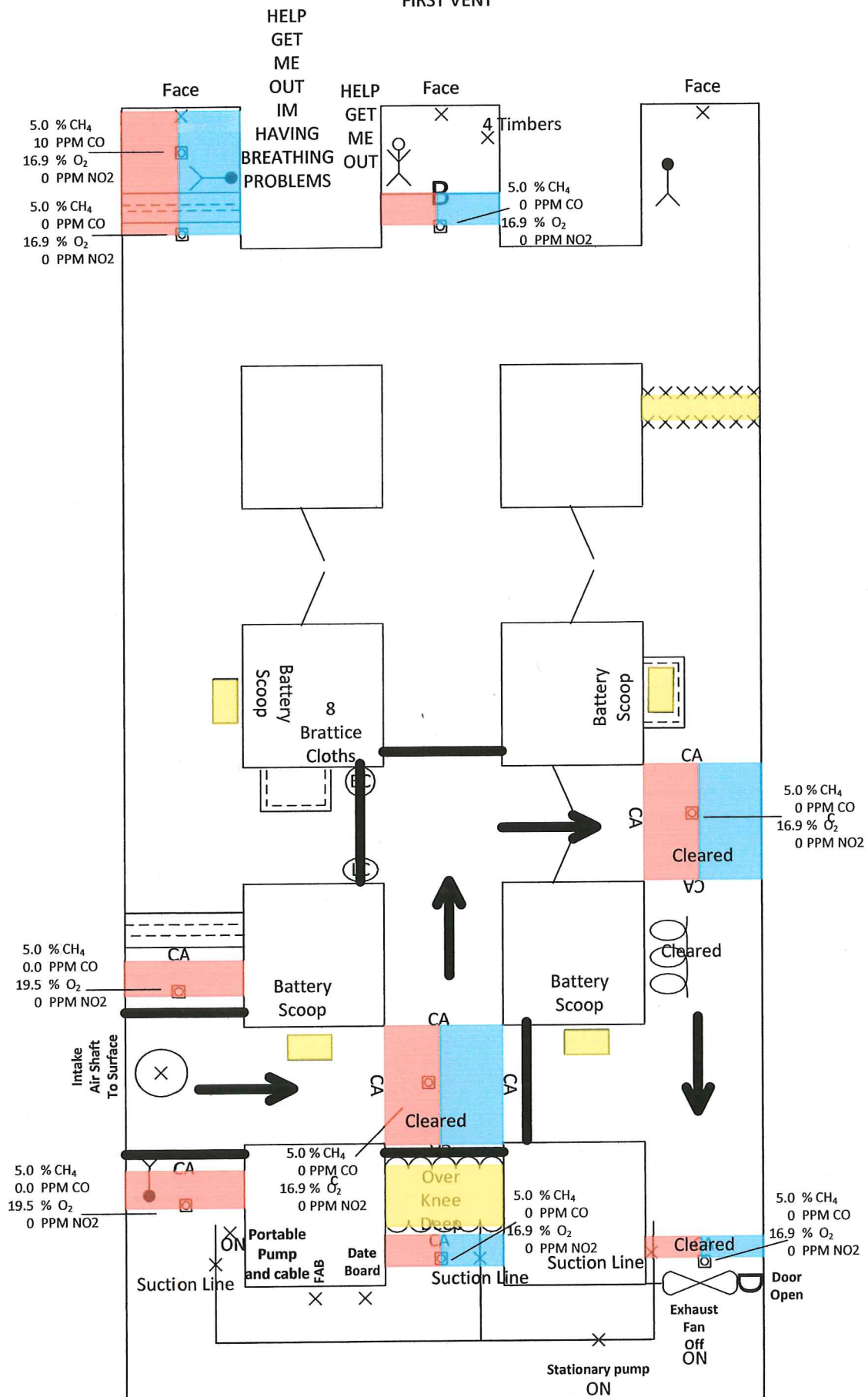
- S/J1/R10--The team will count off during first entering the mine to be explored and at the end when leaving the mine.

The captain will now turn off the clock. At the end of the problem, (clock stopped), both the team map, the fresh air base attendant's map and command center attendant, SD card will be collected by the #2 judge. All map editing must take place prior to stopping the clock.

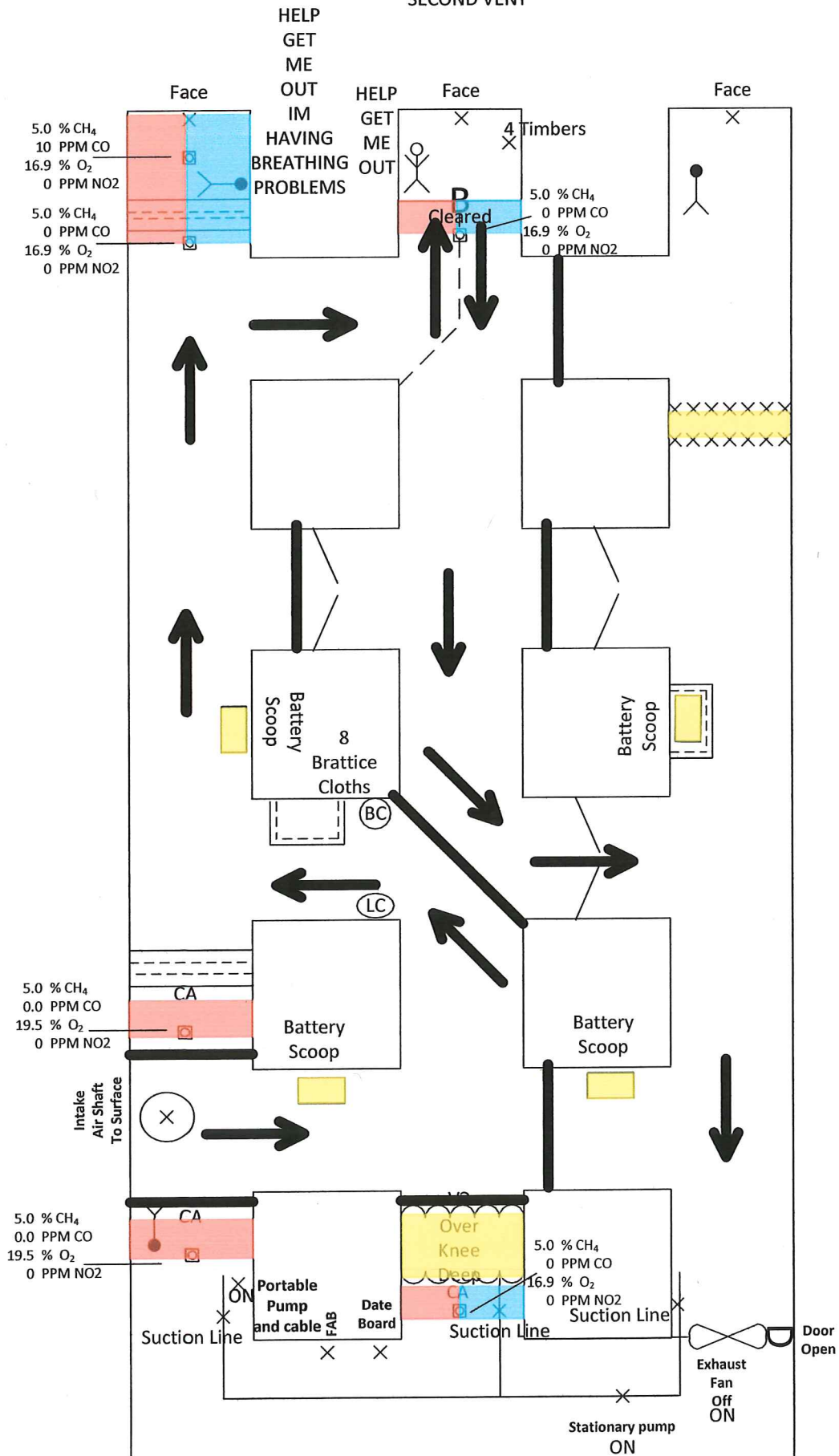
Upon completion of the problem, a 5-minute review will be conducted regarding their working of the problem. At that time, the team will be informed of infractions and will be permitted to verbally appeal these with the field judge or the chief judge. If not resolved, the chief judge will make the final decision until an appeal can be filed by the team. Note: During this process mutual respect for the judges and team members is paramount and civility must be demonstrated by all involved or the review will be stopped before the allotted time. A final map will be completed by the judge walking the field with a team during this time.

The judges will now leave the field with the team packet and will go to the assigned area for filling out the score cards. The maps & SD card will be given to the map judges for scoring.

DAY 2 MNM
FIELD PROBLEM
FIRST VENT

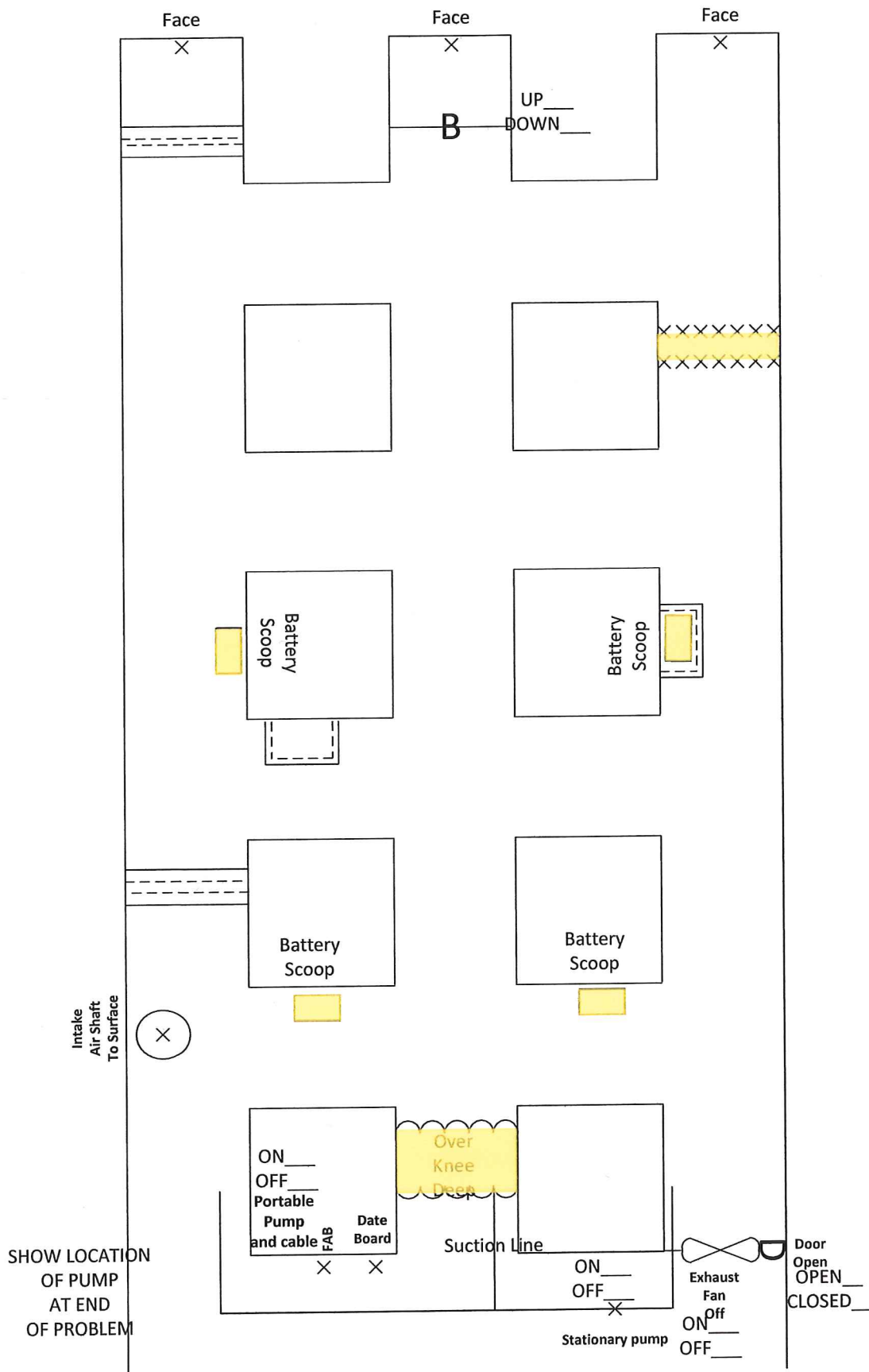


DAY 2 MNM
FIELD PROBLEM
SECOND VENT



SHOW LOCATION
OF ALL STOPPINGS
INTACT AT END
OF PROBLEM

DAY 2 MNM
FIELD PROBLEM
FINAL MAP



SHOW LOCATION
OF PUMP
AT END
OF PROBLEM

DAY 2 MNM

Person statement behind barricade day 2.

Person will continue to yell "HELP GET ME OUT" when the team reaches intersection in front of barricade.

HELP GET ME OUT

DAY 2 MNM

Person in #1 entry statement behind unsafe roof.

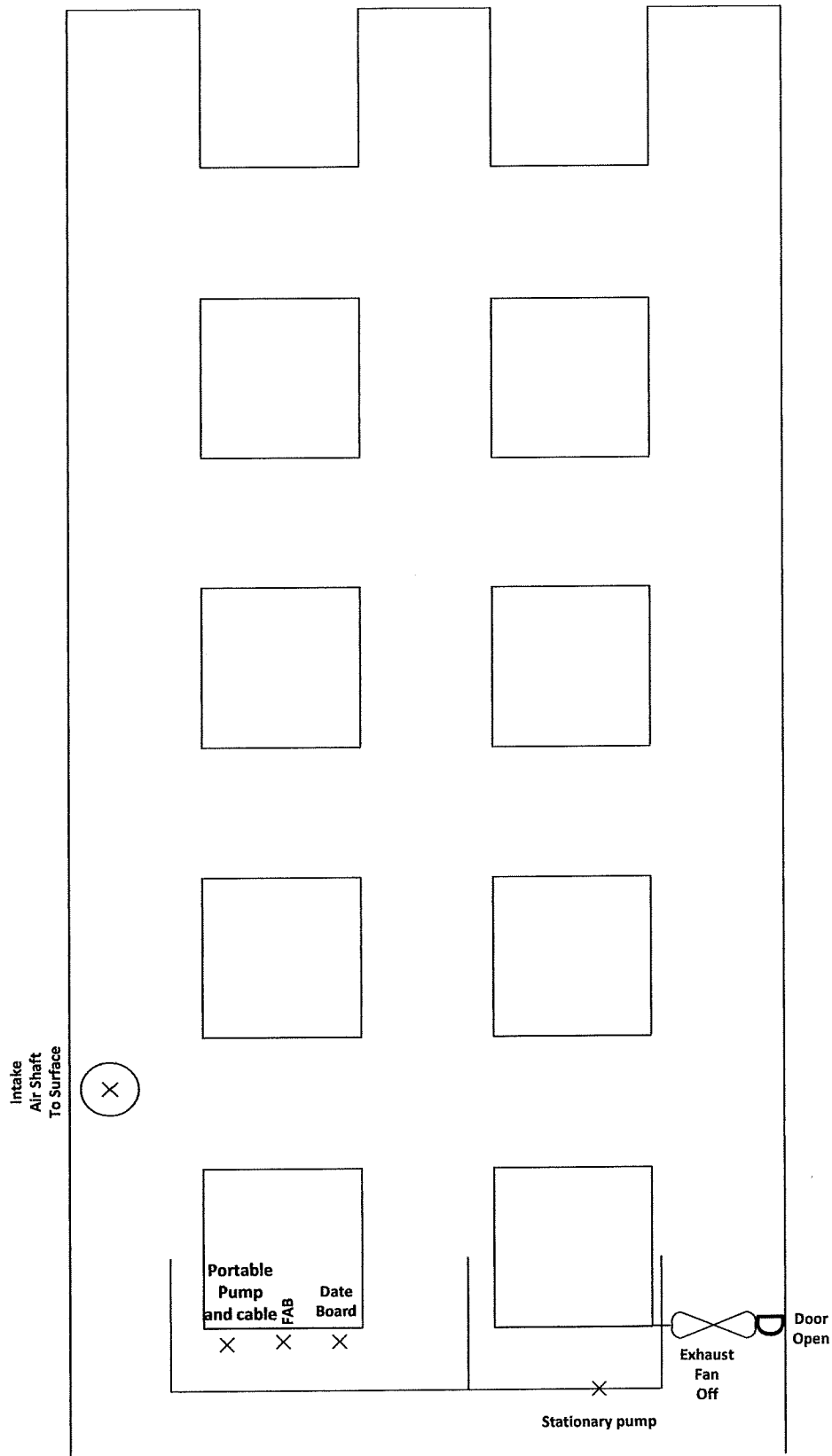
Person will continue to yell "HELP GET ME OUT IM
HAVING BREATHING PROBLEMS" when the team reaches
intersection in front of unsafe roof.

HELP GET ME OUT
IM HAVING
BREATHING
PROBLEMS

TEAM # _____

DAY 2 MNM
TEAM MAP

TEAM NAME: _____



TEAM # _____

DAY 2 MNM
BRIEFING OFFICER
MAP

TEAM NAME: _____

SCORE BO MAP _____

SCORE VISIO MAP _____

