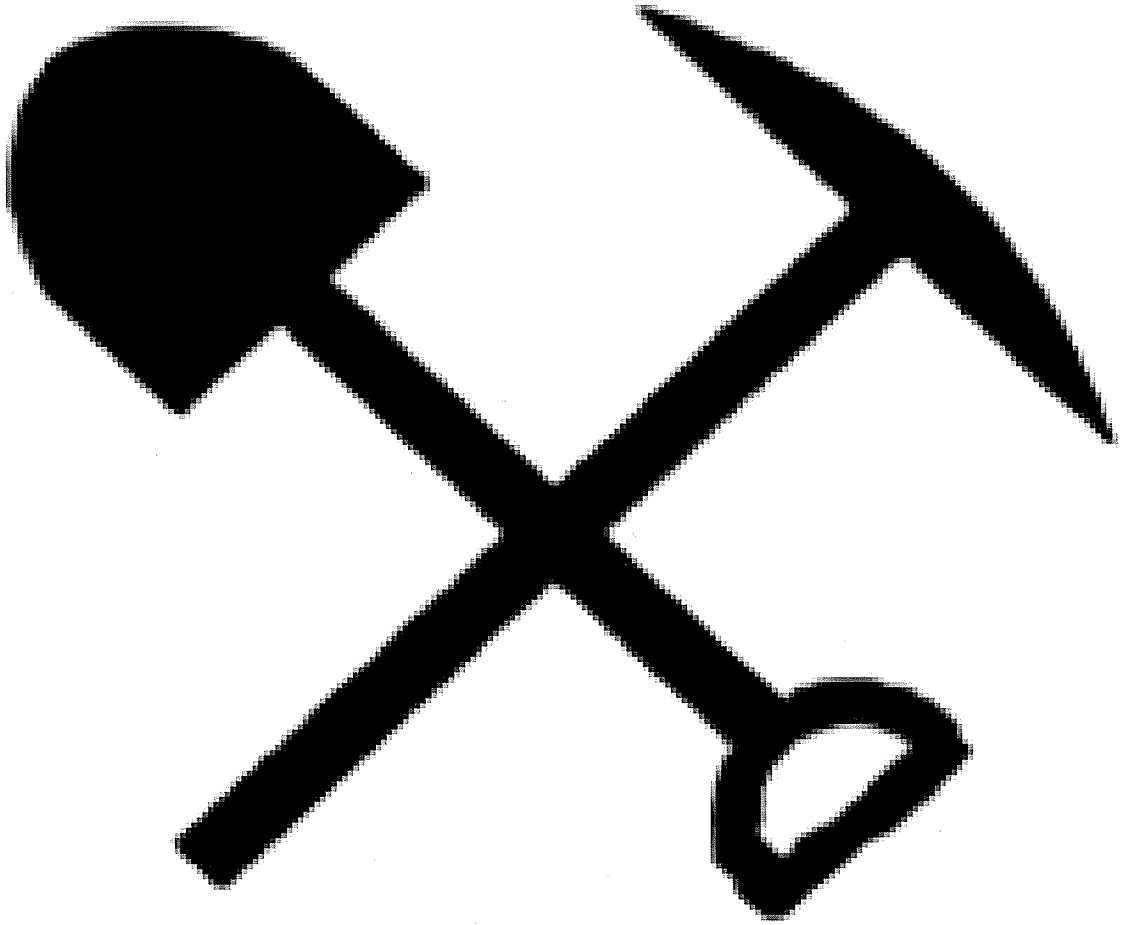
2019
MINE RESCUE DAY 2

KENTUCKY RIVER
MINE RESCUE, PRESHIFT, BENCH
AND FIRST AID CONTEST



Day 2 Statement

Hello, thank you for responding to our call for help at the Hazard-US No. 1 mine. Earlier this shift, a miner working on the section called outside to report that the continuous miner had cut into a pocket of black damp. The mine foreman tried to reach the face, but had to turn back due to high methane and low oxygen. This section recently punched into a previously mined panel to establish a bleeder system. Four miners are still missing. This mine has a history of methane liberation, water, and bad roof. This mine is ventilated by an exhausting fan located in the #3 entry, just outby the fresh air base. The fan is currently off but can be started if necessary. Another mine rescue team arrived at our other portal and explored the inby panel. They were able to establish a clear airway that can be ventilated through. Underground power has been knocked and locked out by our chief electrician. A water pump with 250 feet of power cable is ready for use and located at the FAB. To use the pump, the team must ask the superintendent to turn the pump on or off by using the pump switch at the briefing officer's station.

A back up team and competent lifeline judge are ready to assist you at the fresh air base. Be safe and good luck!

Day 2 Written Instructions

The exhausting fan cannot be reversed.

The fan can be stopped and started as needed.

Do not stall the fan.

The team can only carry 2 timbers per team member. When moving, team members must carry their own timbers.

Brattices and line curtains must be carried by team members, not transported by the stretcher.

The area inby the cut through has been explored and is safe to ventilate through.

Locate the four missing miners and bring all survivors to the fresh air base.

Explore all areas of the mine that can be done safely and finish the problem within the 60 minute time limit.

Day 2 Judges Briefing

Fresh Air Base: The team must check up to the stoppings in the #1, #2 and #3 entries. GT & DI are required at the stoppings in #2. A GT, RR, and DI are required at the caved airtight in the #2 entry. The team may advance into the mine by air locking in the #1 entry or #3 entry. To do this, they have to use the stopping in the #2 entry outby the FAB.

Team Stop 1: GT, DI, RR at unsafe roof in #1. GT in crosscut, DI at the partially destroyed permanent stopping. The patient inby unsafe roof will read statement, "help, I can't move!" when team makes this stop which will verbally tie the team to the patient.

Team Stop 2: GT, DI, RR at unsafe roof inby #2. Then GT, DI, RR at the back side of the caved airtight. GT in the left crosscut and DI at the partially destroyed permanent stopping. No RR is required at the loose rib in 2 Left crosscut.

Team Stop 3: GT & DI at the water over knee deep. GT and DI at the backside of the stopping outby in #3 entry to tie in.

Vent 1: The team cannot go any farther than team stop #3 at this time because of unsafe roof and water over knee deep. They must clear the gasses in the first crosscut so they can use the pump to remove the water in #3 entry. To complete this vent, the team must build stoppings in #1, #2, and #3 entries inby the FAB. Before turning the fan on, the team must move the battery mine phone.

Pump 1: The team will take the pump up the #3 entry and place at the water over knee deep. They will then request permission from the superintendent to turn the pump on.

Team Stop 4: GT, DI at barricade – no response. GT in left crosscut.

Team Stop 5: The outby door of overcast will be open and inby door will be closed. Team will step through door GT, DI, RR at back side of unsafe rood in #2 entry, they must also DI the wall of the overcast on the outby side. GT in crosscut, GT & DI at RA door, enter RA, purge valve, then enter RA. There are no patients/bodies in the RA, so the team will exit and continue exploring.

Team Stop 6: GT, DI, RR at caved. GT inby.

Team Stop 7: Zigzag RR in intersection, DI at unsafe roof in intersection. GT in crosscut.

Team Stop 8: GT, DI location of the body and check lunch bucket. GT and DI at wall of overcast. GT & DI at barricade. No response at barricade. Team must now use timbers to get patient in #1 entry before advancing to the next team stop.

Recover Patient: The team must set 4 timbers in the unsafe roof, touch and assess the patient, do a GT, DI, and RR at back side of both the unsafe and the caved, then take patient to FAB.

Team Stop 9: GT, DI, RR at face. GT in both CC. Team must follow contaminant to team stop 10.

Team Stop 10: GT, DI, RR at diagonal unsafe. They will then travel into heading, touch and DI body. GT, DI, RR at face. The team may or may use the timbers to travel through the unsafe roof now or before vent 2.

Team Stop 11: GT, DI at stopping. GT, DI, RR at caved.

Vent 2: Team must set 3 timbers around the corner at the triangular unsafe roof at team stop 7 or timber through the elongated unsafe roof from the other side. GT after they explore past the unsafe roof. RR and DI at the backside of the intersection. RR and DI at the diagonal unsafe roof. This area is now considered explored for ventilation purposes. The team must open the inby door of overcast and build a stopping in #2 to keep air from moving over the battery ram car. They must then build in the #1 entry outby diagonal unsafe roof, left of overcast, #2 entry just outby overcast, and between 1&2 in 2nd crosscut. After turning fan on, the team must wing a line curtain out in front of the barricade to remove the gas in front of it.

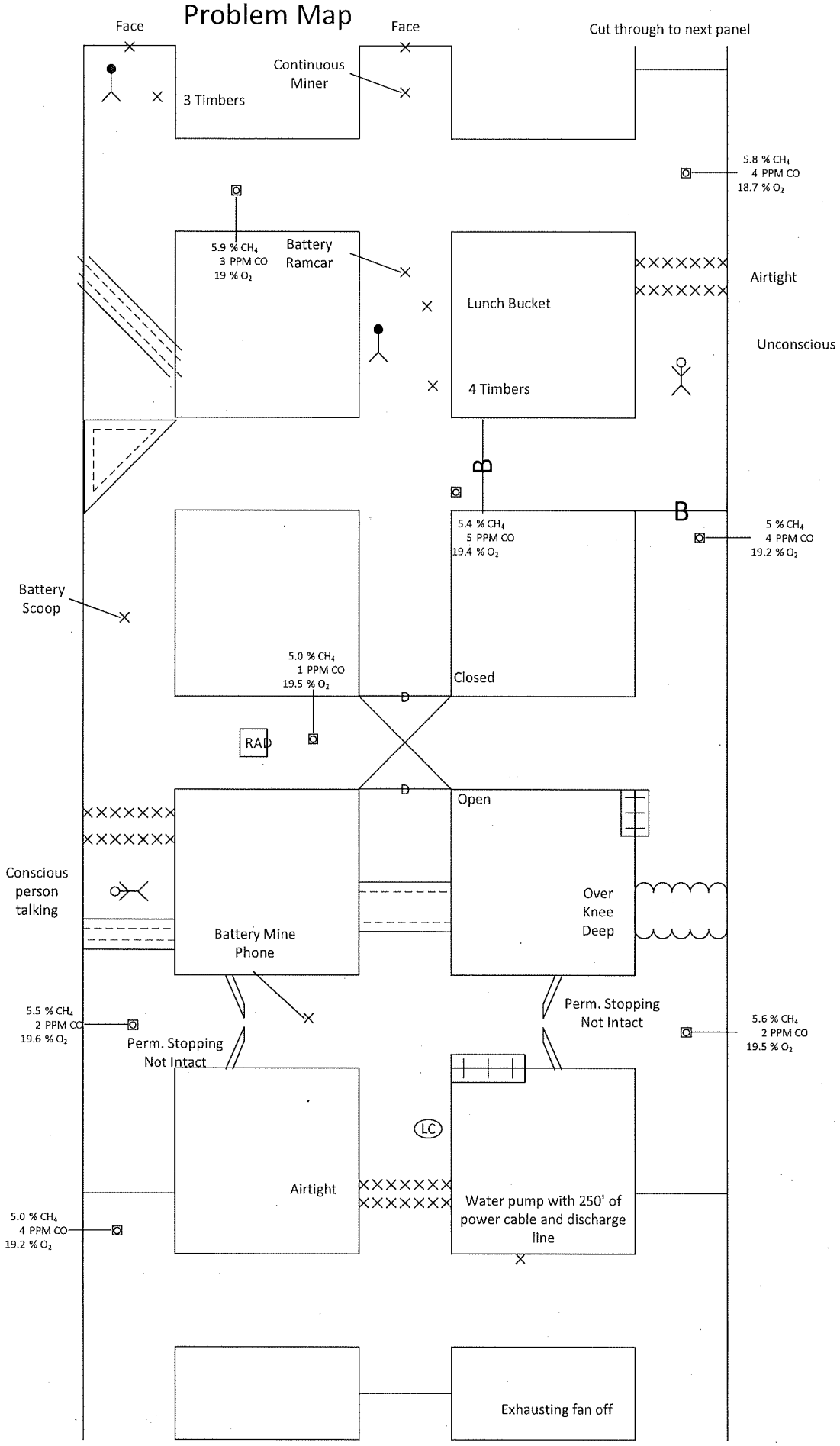
Breach Barricade. Team will airlock into barricade.

Team Stop 12: GT after breaching barricade. GT & DI at backside of outby barricade. GT, touch, assess, and DI patient, GT, DI, RR at caved.

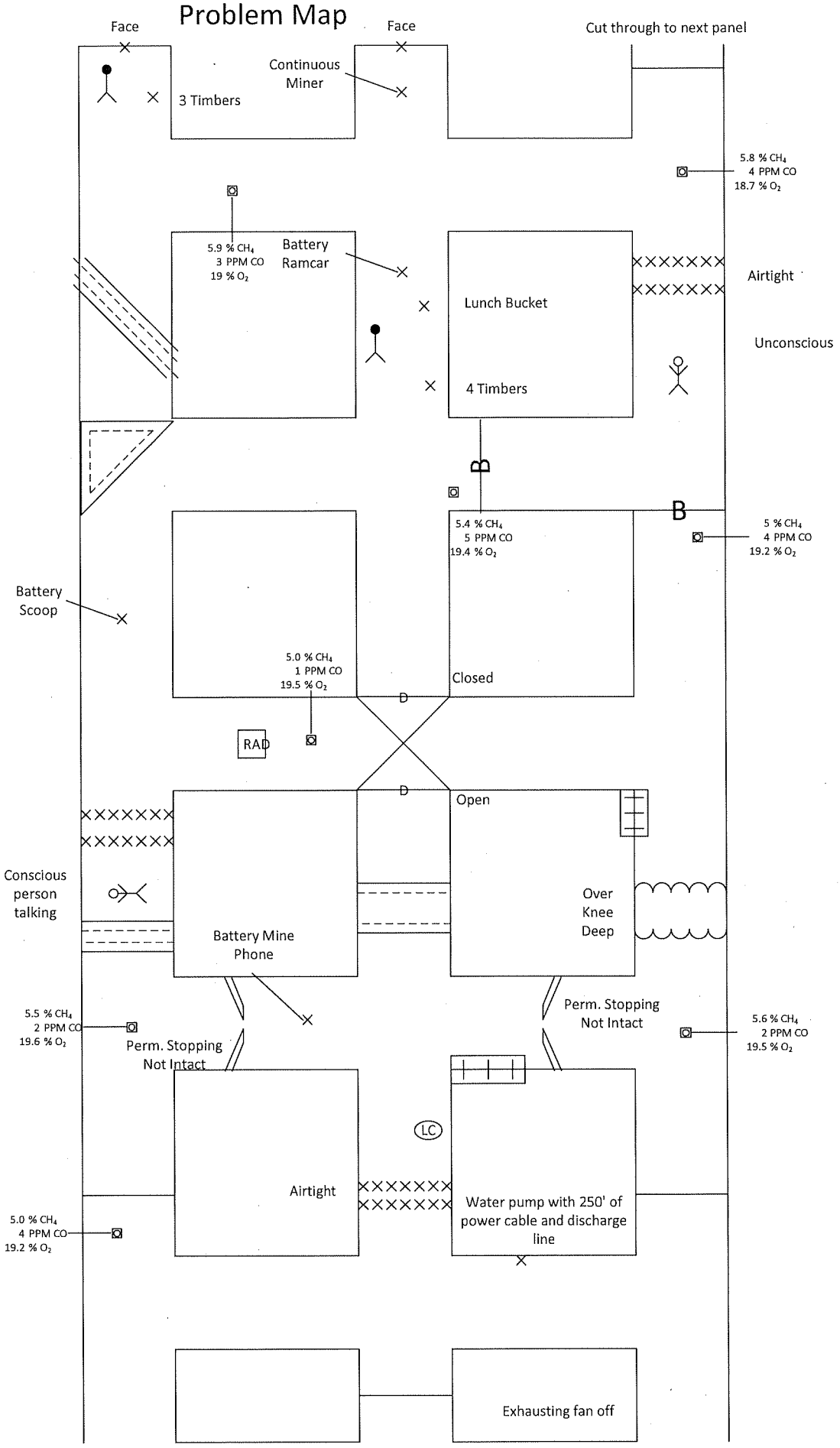
Bring patient to FAB

Stop Clock

Patient Statement in #1 Entry "Help, I can't move!"


Problem Map
Face
Face
Cut through to next panel
Continuous Miner
3 Timbers
5.8 % CH4
4 PPM CO
18.7 % O2
5.9 % CH4
3 PPM CO
19 % O2
Battery Ramcar
Lunch Bucket
Airtight
Unconscious
4 Timbers
B
B
5.4 % CH4
5 PPM CO
19.4 % O2
5 % CH4
4 PPM CO
19.2 % O2
Battery Scoop
5.0 % CH4
1 PPM CO
19.5 % O2
Closed
D
RAD
D
Open
Conscious person talking
Battery Mine Phone
Over Knee Deep
5.5 % CH4
2 PPM CO
19.6 % O2
Perm. Stopping Not Intact
Perm. Stopping Not Intact
5.6 % CH4
2 PPM CO
19.5 % O2
LC
Airtight
Water pump with 250' of power cable and discharge line
5.0 % CH4
4 PPM CO
19.2 % O2
Exhausting fan off

Problem Map


Face
Face
Cut through to next panel
Continuous Miner
3 Timbers
5.8 % CH4
4 PPM CO
18.7 % O2
5.9 % CH4
3 PPM CO
19 % O2
Battery Ramcar
Lunch Bucket
Airtight
Unconscious
4 Timbers
B
B
5.4 % CH4
5 PPM CO
19.4 % O2
5 % CH4
4 PPM CO
19.2 % O2
Battery Scoop
5.0 % CH4
1 PPM CO
19.5 % O2
Closed
D
RAD
D
Open
Conscious person talking
Battery Mine Phone
Over Knee Deep
5.5 % CH4
2 PPM CO
19.6 % O2
Perm. Stopping Not Intact
Perm. Stopping Not Intact
5.6 % CH4
2 PPM CO
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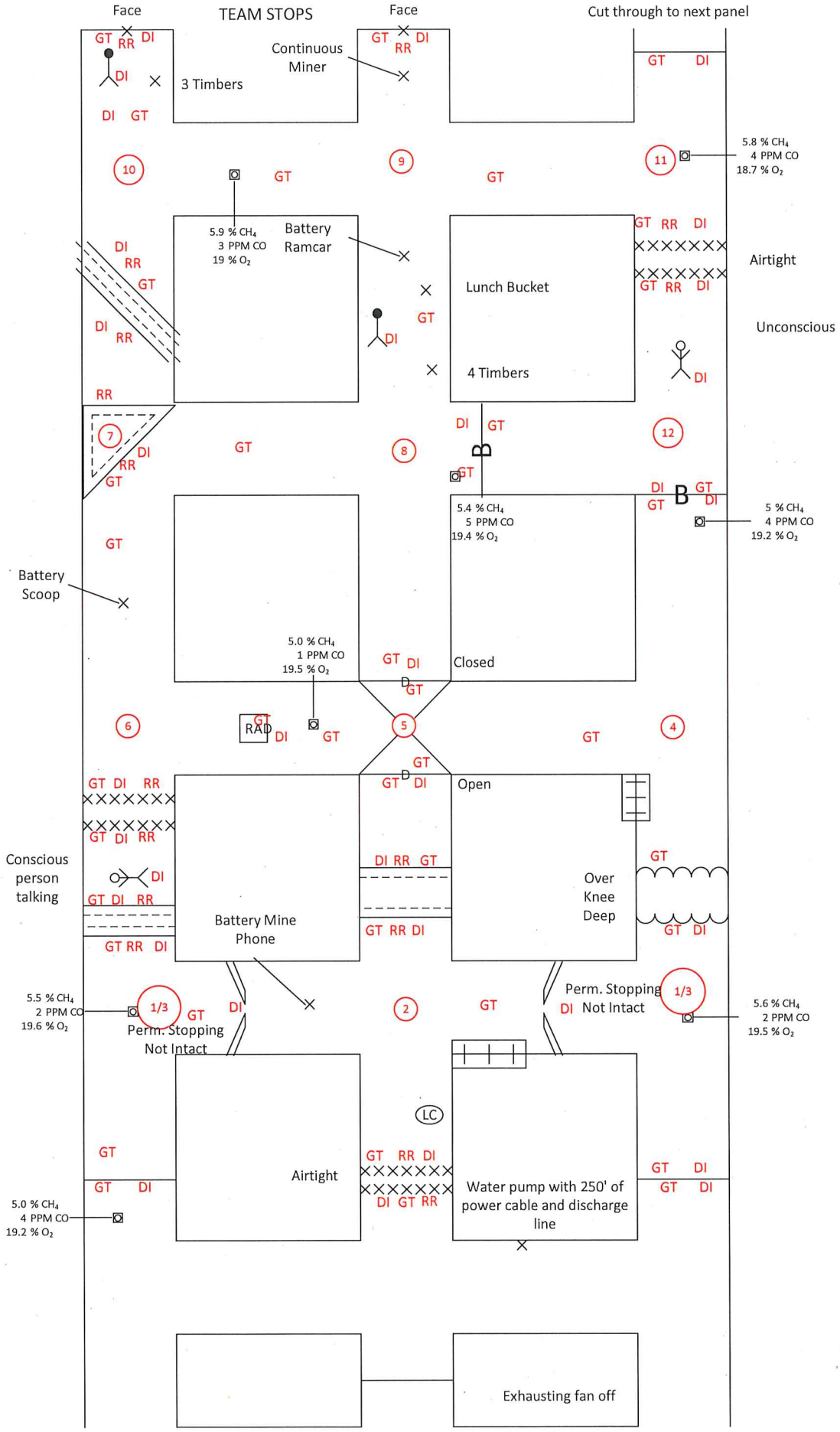
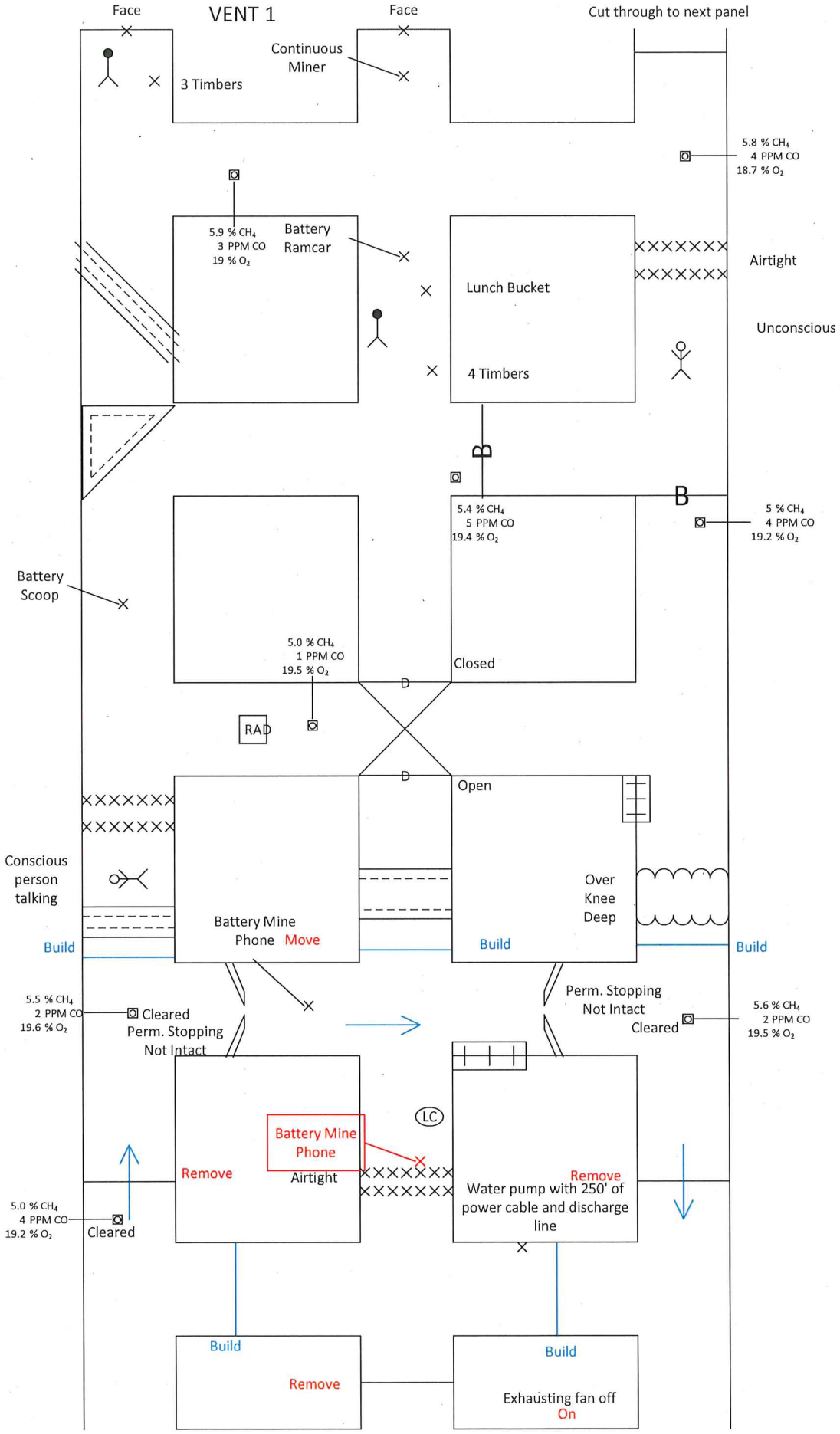
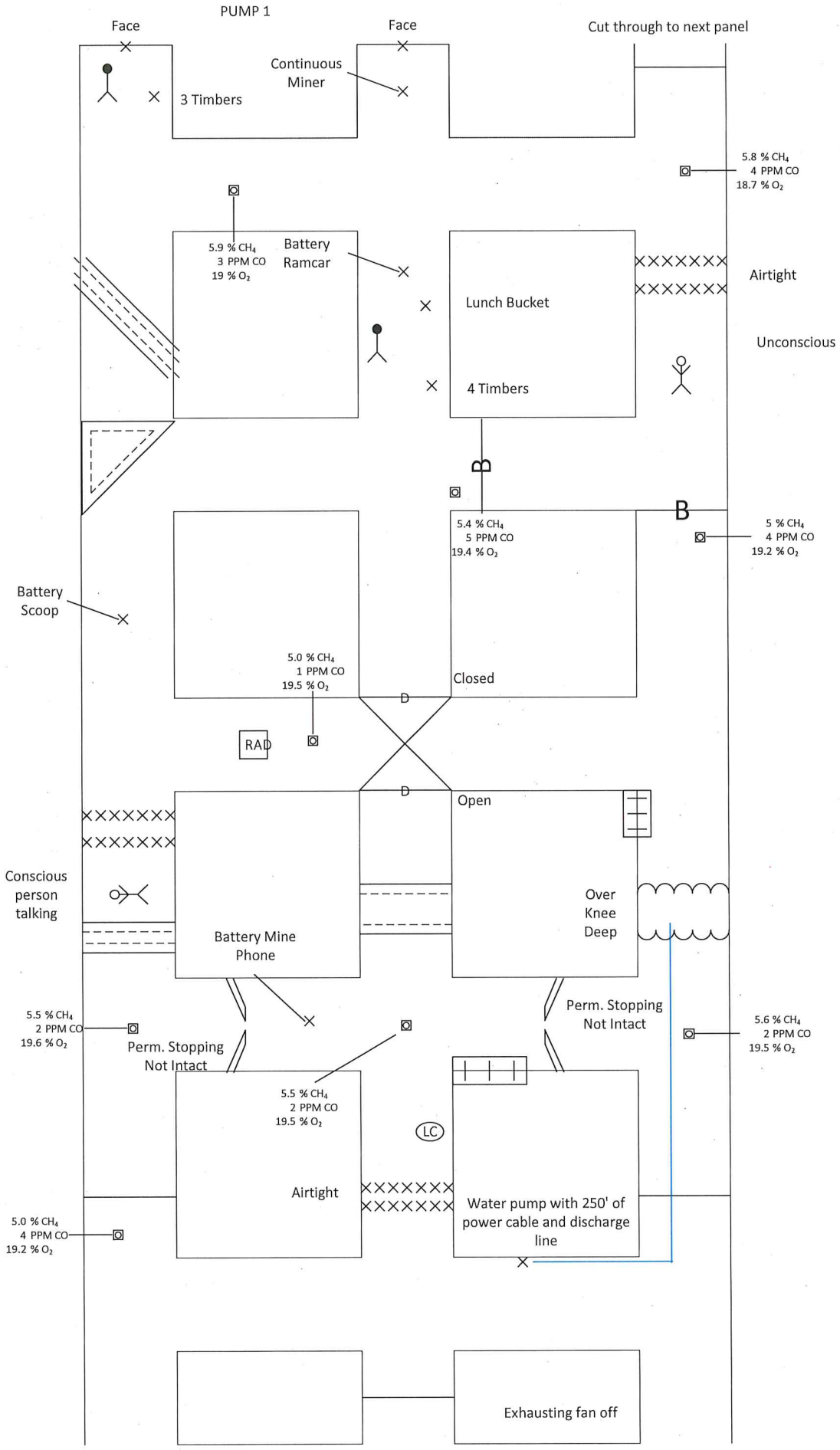
LC
Airtight
Water pump with 250' of power cable and discharge line
5.0 % CH4
4 PPM CO
19.2 % O2
Exhausting fan off


Face
TEAM STOPS
Face
Cut through to next panel
GT RR DI
DI
3 Timbers
Continuous Miner
GT RR DI
GT DI
DI GT
10
9
11
GT
GT
5.8 % CH4
4 PPM CO
18.7 % O2
5.9 % CH4
3 PPM CO
19 % O2
Battery Ramcar
DI RR GT
DI RR
Lunch Bucket
GT RR DI
Airtight
GT RR DI
Unconscious
GT
DI
4 Timbers
DI
RR
7
8
12
DI GT
GT
GT
DI
RR
GT
B
DI GT
GT DI
5.4 % CH4
5 PPM CO
19.4 % O2
5 % CH4
4 PPM CO
19.2 % O2
GT
Battery Scoop
5.0 % CH4
1 PPM CO
19.5 % O2
GT DI
Closed
GT
6
RAD
GT
DI
GT
5
GT
4
GT
GT DI RR
Open
GT DI RR
Conscious person talking
DI
GT DI RR
DI RR GT
Over Knee Deep
GT
Battery Mine Phone
GT RR DI
GT DI
GT RR DI
5.5 % CH4
2 PPM CO
19.6 % O2
1/3
GT
DI
Perm. Stopping
Not Intact
2
GT
Perm. Stopping
DI Not Intact
1/3
5.6 % CH4
2 PPM CO
19.5 % O2
LC
GT
GT DI
Airtight
GT RR DI
DI GT RR
Water pump with 250' of power cable and discharge line
GT DI
GT DI
5.0 % CH4
4 PPM CO
19.2 % O2
Exhausting fan off


Face
VENT 1
Face
Cut through to next panel
Continuous Miner
3 Timbers
5.8 % CH4
4 PPM CO
18.7 % O2
5.9 % CH4
3 PPM CO
19 % O2
Battery Ramcar
Lunch Bucket
Airtight
Unconscious
4 Timbers
B
B
5.4 % CH4
5 PPM CO
19.4 % O2
5 % CH4
4 PPM CO
19.2 % O2
Battery Scoop
5.0 % CH4
1 PPM CO
19.5 % O2
Closed
D
RAD
D
Open
Conscious person talking
Battery Mine Phone Move
Over Knee Deep
Build
Build
Build
5.5 % CH4
2 PPM CO
19.6 % O2
Cleared
Perm. Stopping Not Intact
Perm. Stopping Not Intact
Cleared
5.6 % CH4
2 PPM CO
19.5 % O2
LC
Battery Mine Phone
Airtight
Remove
Remove
Water pump with 250' of power cable and discharge line
5.0 % CH4
4 PPM CO
19.2 % O2
Cleared
Build
Remove
Build
Exhausting fan off
On


PUMP 1
Face
Face
Cut through to next panel
Continuous Miner
3 Timbers
5.8 % CH4
4 PPM CO
18.7 % O2
5.9 % CH4
3 PPM CO
19 % O2
Battery Ramcar
Lunch Bucket
Airtight
Unconscious
4 Timbers
B
B
5.4 % CH4
5 PPM CO
19.4 % O2
5 % CH4
4 PPM CO
19.2 % O2
Battery Scoop
5.0 % CH4
1 PPM CO
19.5 % O2
Closed
D
RAD
D
Open
Conscious person talking
Battery Mine Phone
Over Knee Deep
5.5 % CH4
2 PPM CO
19.6 % O2
Perm. Stopping Not Intact
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5.6 % CH4
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19.5 % O2
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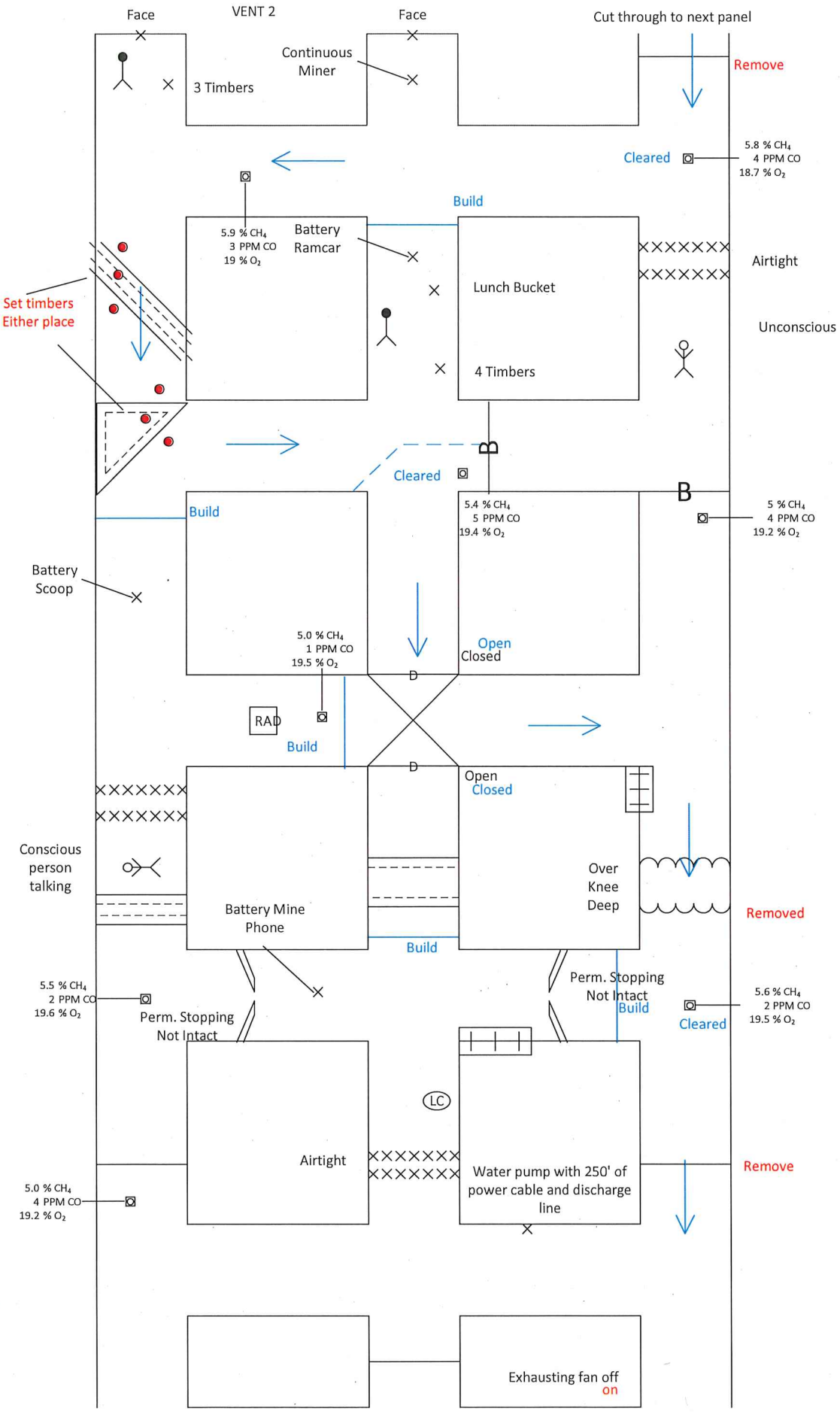
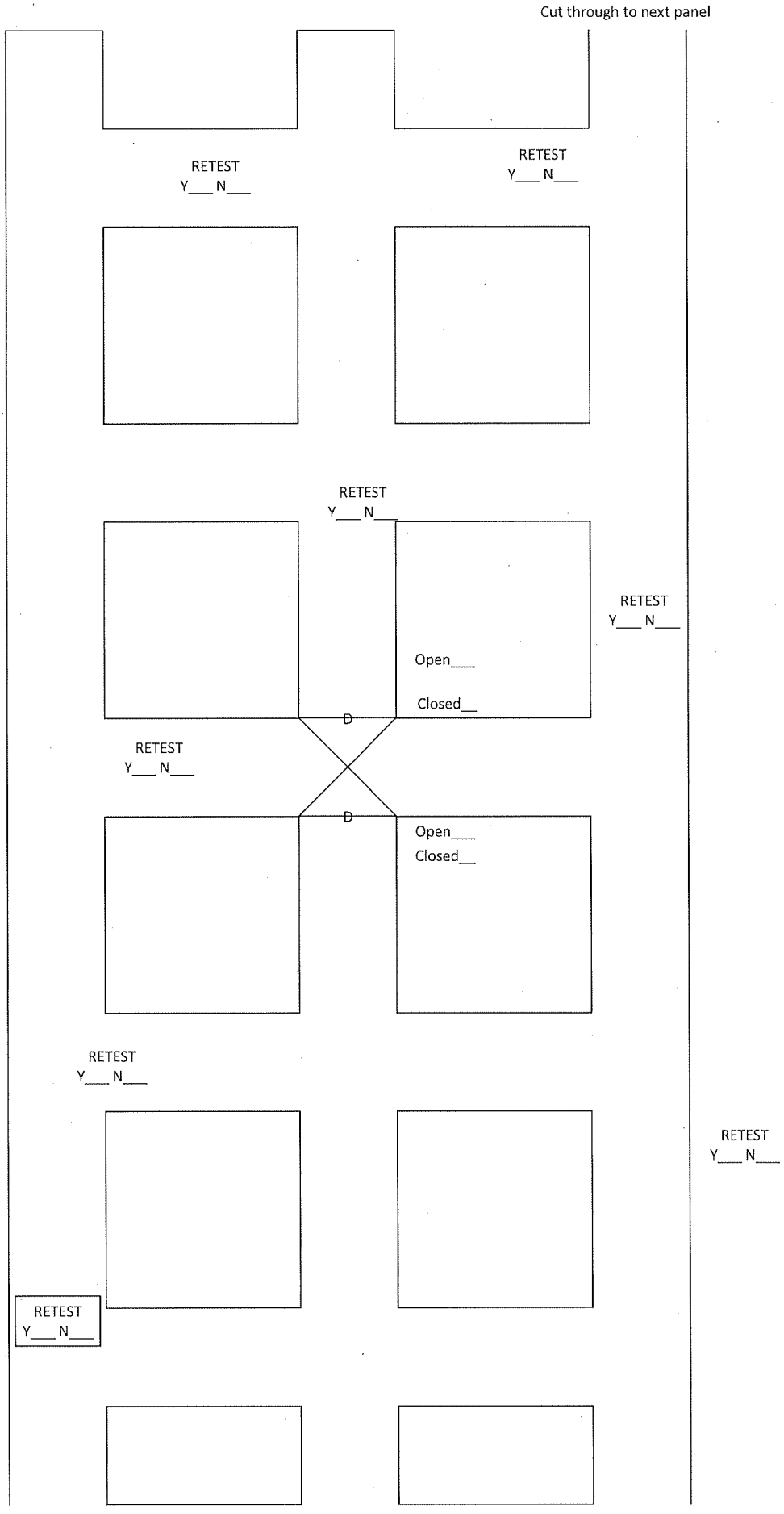
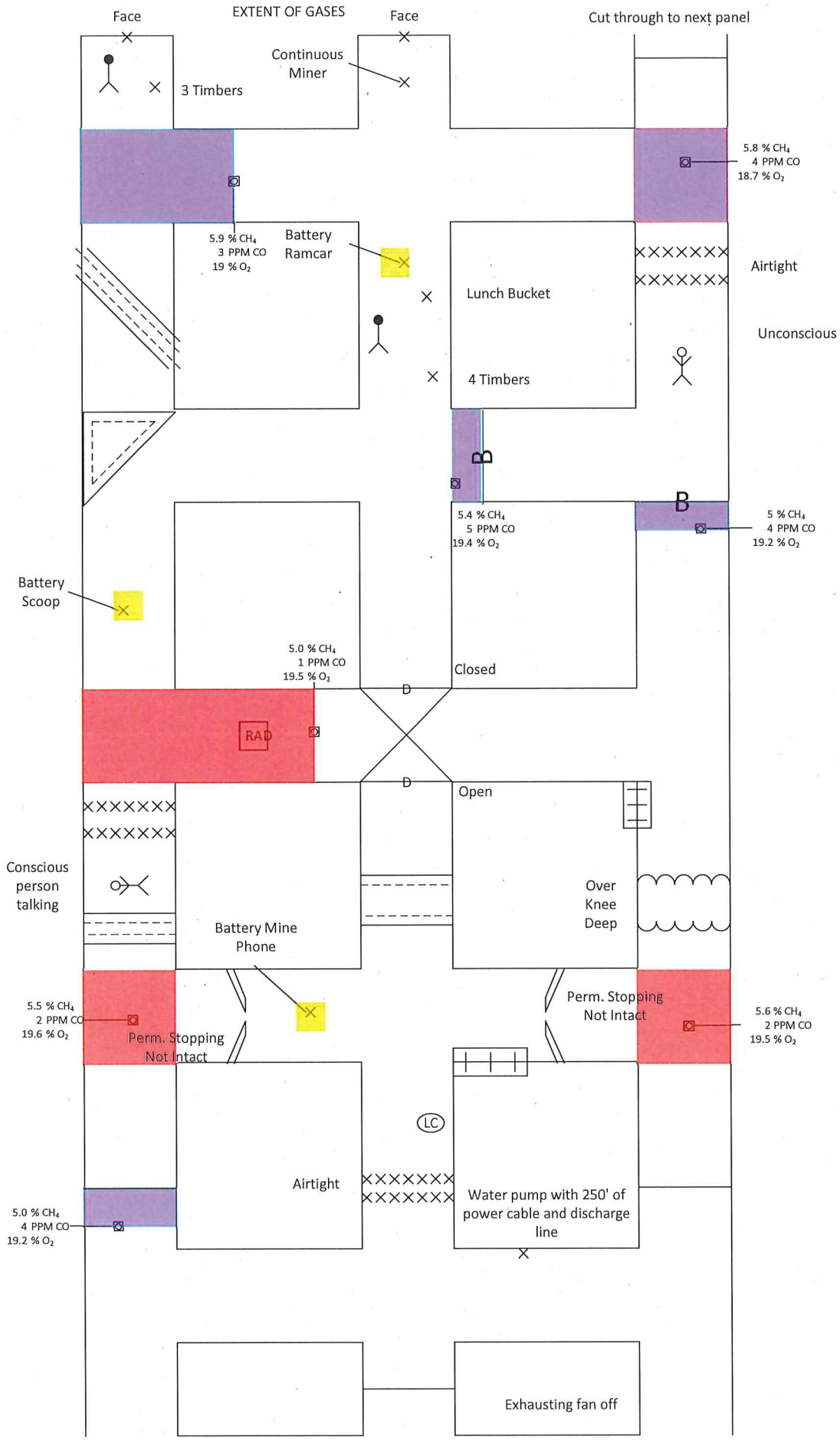
Airtight
Water pump with 250' of power cable and discharge line
5.0 % CH4
4 PPM CO
19.2 % O2
Exhausting fan off


Face
VENT 2
Face
Cut through to next panel
Continuous Miner
3 Timbers
Remove
Cleared
5.8 % CH4
4 PPM CO
18.7 % O2
Build
5.9 % CH4
3 PPM CO
19 % O2
Battery Ramcar
Lunch Bucket
Airtight
Set timbers Either place
Unconscious
4 Timbers
Cleared
B
Build
5.4 % CH4
5 PPM CO
19.4 % O2
5 % CH4
4 PPM CO
19.2 % O2
Battery Scoop
5.0 % CH4
1 PPM CO
19.5 % O2
Open
Closed
D
RAD
Build
Open
Closed
Conscious person talking
Battery Mine Phone
Over Knee Deep
Removed
Build
5.5 % CH4
2 PPM CO
19.6 % O2
Perm. Stopping Not Intact
Perm. Stopping Not Intact
Build
Cleared
5.6 % CH4
2 PPM CO
19.5 % O2
LC
Airtight
Water pump with 250' of power cable and discharge line
Remove
5.0 % CH4
4 PPM CO
19.2 % O2
Exhausting fan off
on

FINAL MAP


Cut through to next panel
RETEST
Y___ N___
RETEST
Y___ N___
RETEST
Y___ N___
RETEST
Y___ N___
Open___
Closed__
D
RETEST
Y___ N___
D
Open___
Closed__
RETEST
Y___ N___
RETEST
Y___ N___
RETEST
Y___ N___


Face
EXTENT OF GASES
Face
Cut through to next panel
Continuous Miner
3 Timbers
5.8 % CH4
4 PPM CO
18.7 % O2
5.9 % CH4
3 PPM CO
19 % O2
Battery Ramcar
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D
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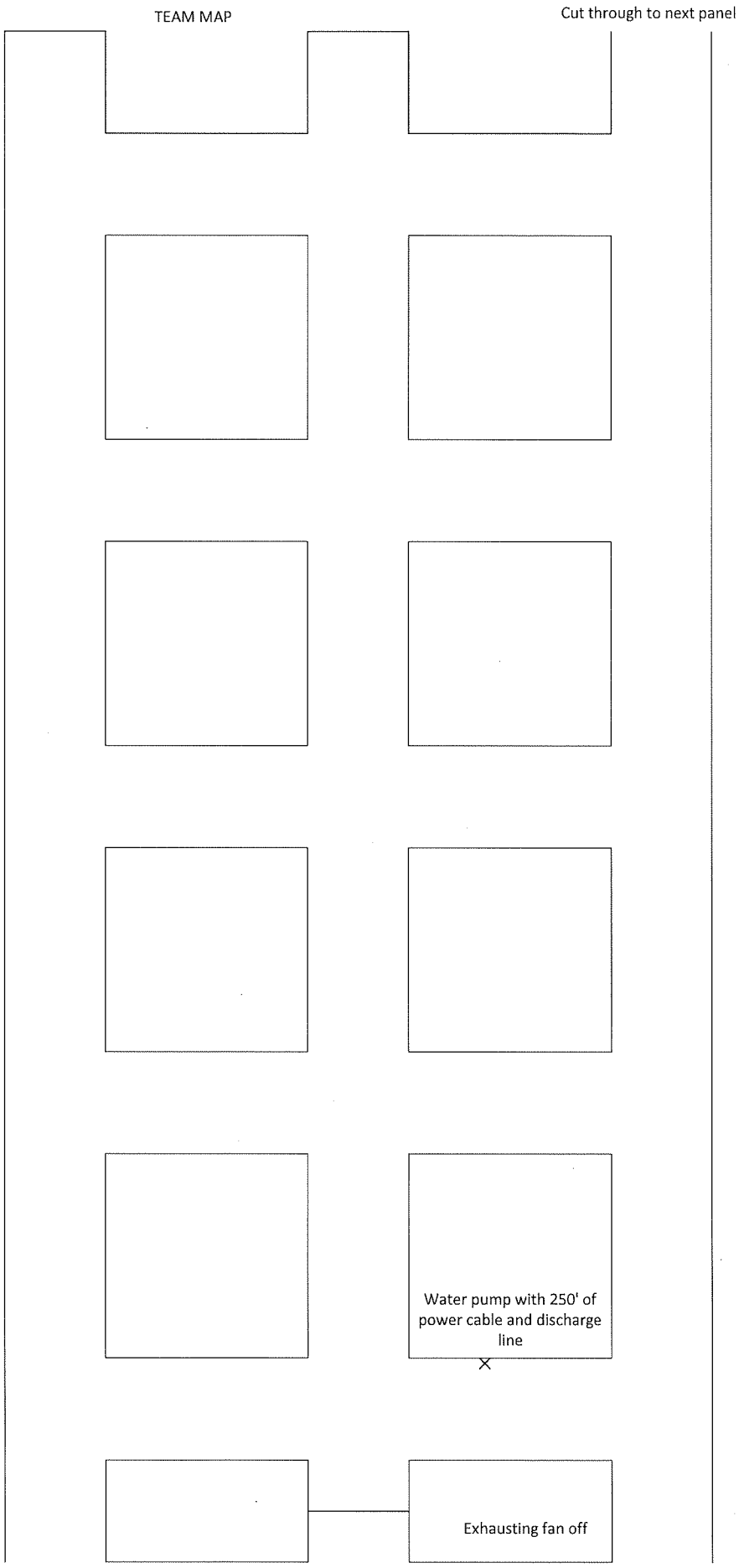
TEAM MAP
Cut through to next panel
Water pump with 250' of power cable and discharge line
Exhausting fan off

2019 Kentucky River Mine Rescue Contest

Day 2

Working Number: _____

Contestant Name: _____

1. One and one-half to _____ percent methane together with coal dust in air may be explosive. (5)

   a) Five

   b) Two

   c) Three

2. If the fresh air base is underground, it should be located where it's _____ a fresh air travelway to the surface. (63)

   a) Assured

   b) Permitted

   c) Given

3. Monitoring _____ and gases helps determine the effectiveness of firefighting and the potential danger of an explosion. (50)

   a) Pressures

   b) Levels

   c) Temperatures

4. Rescue teams are responsible for assessing damage to the _____ system. (20)

   a) Communication

   b) Electrical

   c) Ventilation

5. Ventilation controls are used underground to properly _____ air to all sections of the mine. (58)

   a) Disburse

   b) Dilute

c) Distribute

6. Mine rescue teams may find it necessary to use line brattice to sweep noxious or explosive gases from a _____ area. (18)

   a) Caved

   b) Face

   c) Sealed

7. Team captains should _____ roof and ribs before the team members advance into the area. (70)

   a) Inspect

   b) Test

   c) Sound

8. When survivors are _____, they should be transported to safety and fresh air as quickly as possible. (79)

   a) Found

   b) Located

   c) Conscious

9. After a fire has been sealed, it is recommended to wait _____ hours before making the initial visit to the seals. (96)

   a) 24

   b) 72

   c) 48

10. Firefighters force inert gases into areas where they are trying to remove the oxygen _____ of the fire triangle. (99)

    a) Side

    b) Content

    c) Leg

Answer Key

1. B
2. A
3. A
4. C
5. C
6. B
7. A
8. B
9. B
10. C