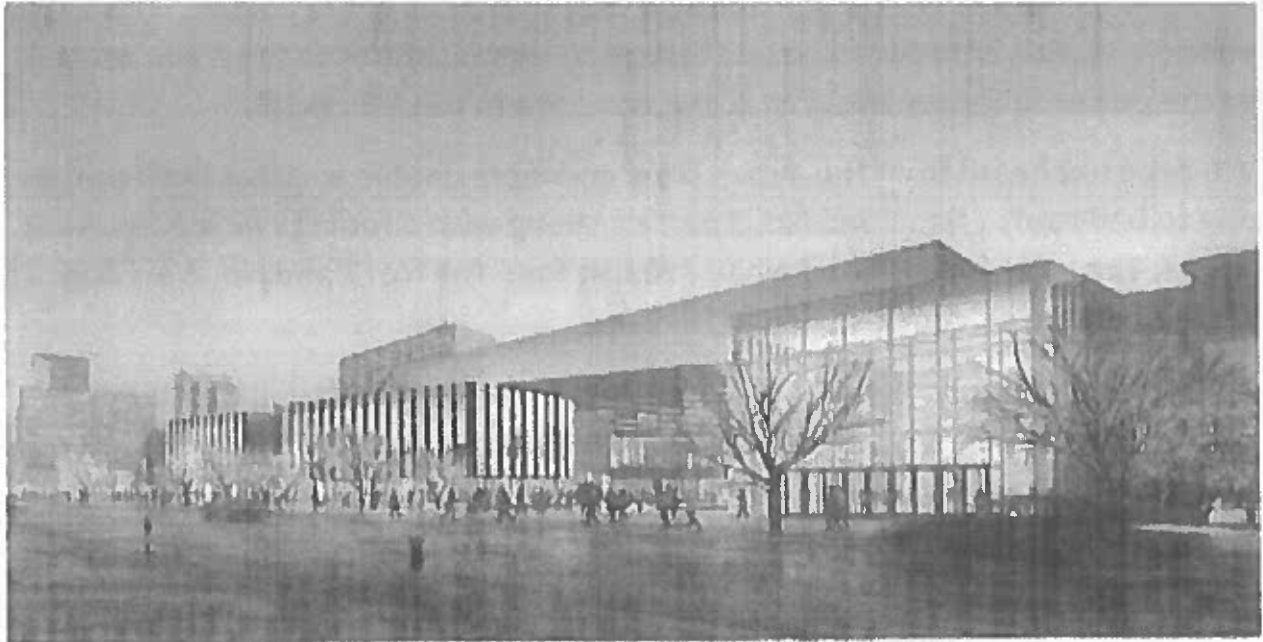


*2022 KMI
Mine Rescue Contest*



*Central Bank Center
Lexington, Kentucky*

COAL Field Problem

DAY1

May 3, 2022

Day 1 Coal Mine Rescue Team Statement

Thanks for responding to our call for help. You are located on the surface of the Big Blue Mine.

We had 4 miners working underground last night on the 3rd shift, cleaning up the section. At approximately 3:00 a.m., our outside loader operator heard a loud sound like a large roof fall and saw dust flying out of the portals. The event knocked all power to the mine and lost all communications to the crew; as well as the power to the exhaust fan at the entrance to the # 3 portal.

We have not heard from the 4 men crew and were unable to enter the 3 portals due to bad roof in No. 1 and No. 3 portals, along with a roof fall inside the No. 2 portal. The mine is ventilated by an exhaust fan. The No. 1 and No. 2 entries serve as intake air courses.

We have just recently completed an intake air shaft in the first intersection in the No. 1 entry and it is safe to travel under as well as ventilate through, if needed.

This mine has a history of bad roof and has been known to liberate a high amount of methane gas. The fan is off and can be started upon your request.

The entries are numbered left to right, 1 through 3. All state and federal agencies have been notified and are on site. We have additional mine rescue teams available as backup if needed.

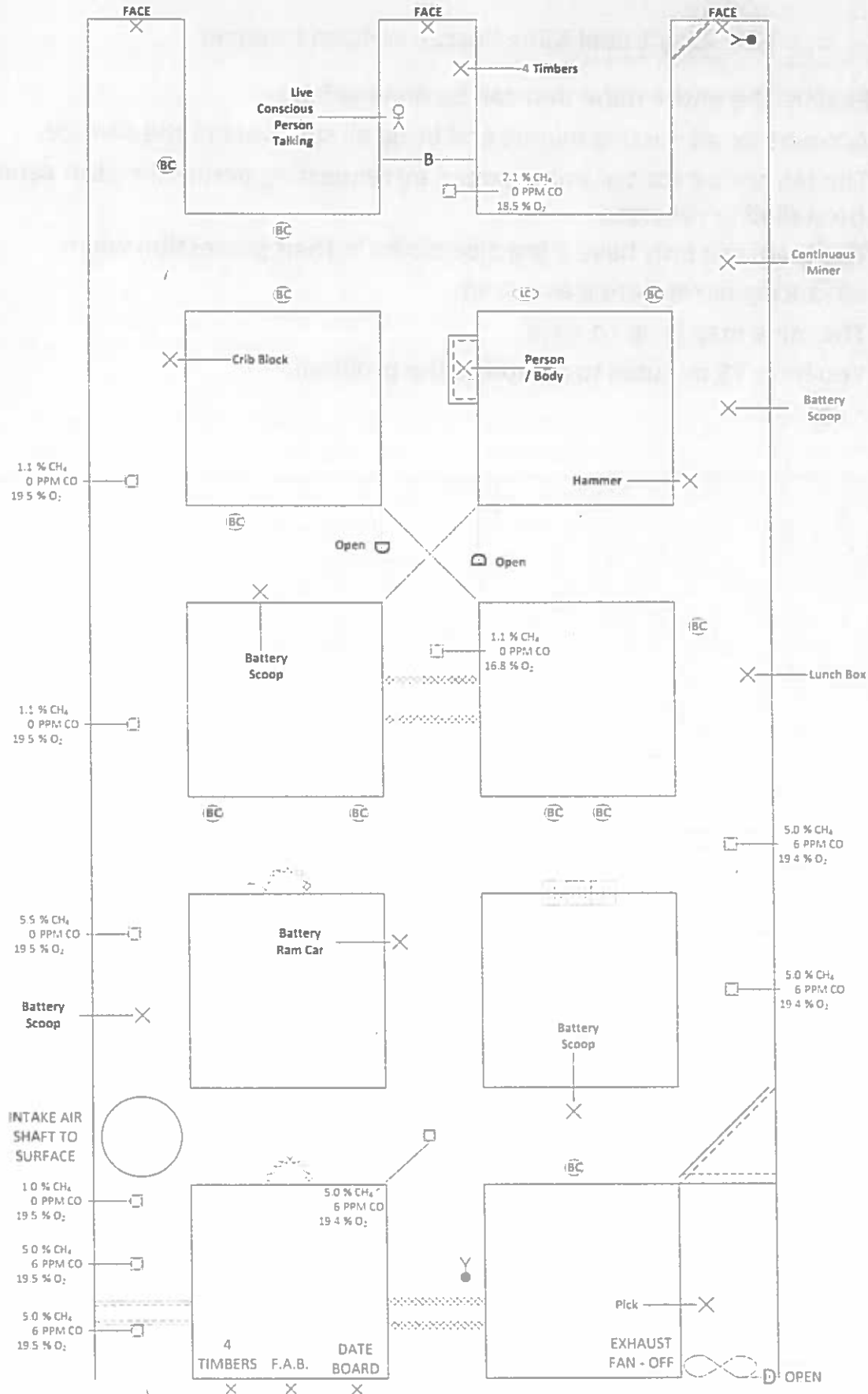
This is all the information I have at this time.

Thanks, and good luck.

Day 1 Coal Mine Rescue Written Problem

- Explore the entire mine that can be done safely.
- Account for all missing miners and bring all survivors to the surface.
- The fan can be started and stopped by requesting permission; but cannot be stalled or reversed.
- The team can only have 2 brattice cloths in their possession when advancing or retreating as a team.
- The mine map is up-to-date.
- You have 75 minutes to complete the problem.

2022 KMI Coal Mine Rescue



DAY #1 – MAP JUDGE

MINE RESCUE DAY #1 WORKING PROCEDURES

F.A.B.

When the team arrives at the Fresh Air Base (FAB), the team will have four (4) minutes to position their equipment, lay-out lifeline across the FAB, distribute radios and have SD card loaded on their computer and ready for use.

Once the clock is started the team will properly don their apparatus. Starting in the #1 entry the captain will find an explosive mixture extending into an area of unsafe roof. A roof and rib test (R&R), the captain's date and initials (D&I), and a gas test (GT) are required at this location.

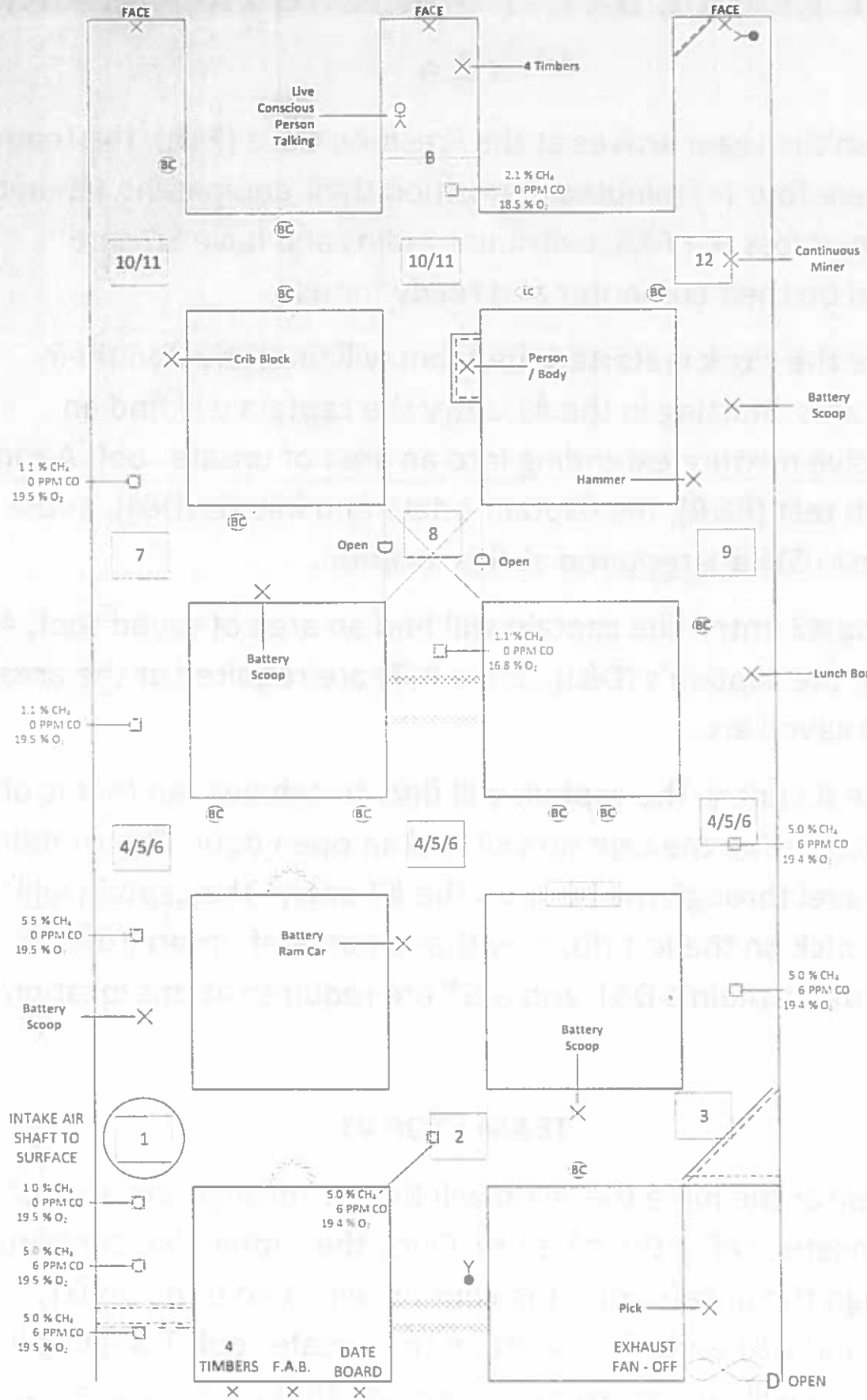
In the #2 entry, the captain will find an area of caved roof. An (R&R), the captain's (D&I), and a (GT) are required at the area of the caved area.

In the #3 entry, the captain will find an exhaust fan that is off, next to the fan the captain will find an open door. The captain will travel through the door up the #3 entry. The captain will find a pick on the left rib, inby that an area of unsafe roof, A R&R, the captain's D&I, and a GT are required at this location.

TEAM STOP #1

To enter the mine the team will timber through the area of the unsafe roof in the #1 entry. Once the captain has timbered through the unsafe roof, the captain will need to do an GT, R&R, and D&I on the backside of the unsafe roof. Traveling inby the team will find an explosive mixture that extends to a non-

2022 KMI Coal Mine Rescue



DAY #1 – TEAM STOP MAP

MINE RESCUE DAY #1 WORKING PROCEDURES

explosive mixture. When the team enters the intersection for team stop #1 they will find the intake air shaft to the surface. At this time they will need to conduct a fifty (50) foot apparatus check. Inby the team will find a battery scoop, just inby the scoop the team will find an explosive mixture extending into the next intersection. A GT is required in this area. To the right, the team will find an moon shaped area of caved roof on the outby rib, a zig-zag R&R, the captain's D&I is required at this location. Then the team will find an explosive and irrespirable atmosphere extending into the intersection of the #2 entry. A GT is required in this area.

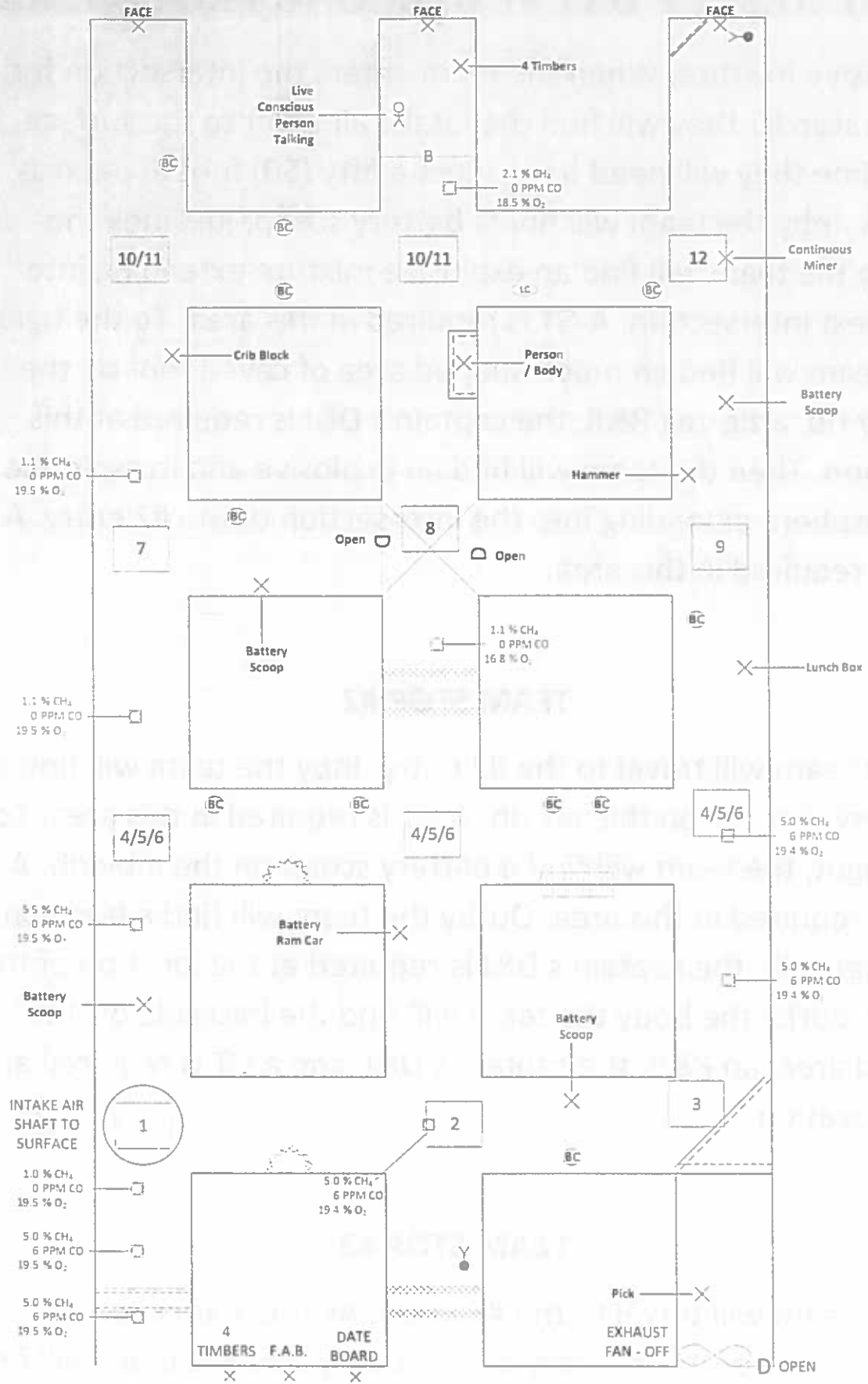
TEAM STOP #2

The team will travel to the #2 entry. Inby the team will find a battery ram car on the left rib. A GT is required in this area. To the right, the team will find a battery scoop on the inby rib. A GT is required in this area. Outby the team will find a body on the right rib, the captain's D&I is required at the location of the body, outby the body the team will find the backside of the caved area, an R&R, the captain's D&I, and a GT is required at this location.

TEAM STOP #3

The team will travel to the #3 entry. As the team enters the intersection of the #3 entry on the outby side the team will find

2022 KMI Coal Mine Rescue



DAY #1 – TEAM STOP MAP

MINE RESCUE DAY #1 WORKING PROCEDURES

a diagonal area of unsafe roof. A zig-zag R&R, the captain's D&I, and a GT are required at this location. Inby the team will find an explosive and irrespirable atmosphere extending into the next intersection. A GT is required in this area.

(Team stops four, five, and six are optional. We will return to the #1 entry and continue our team stops.)

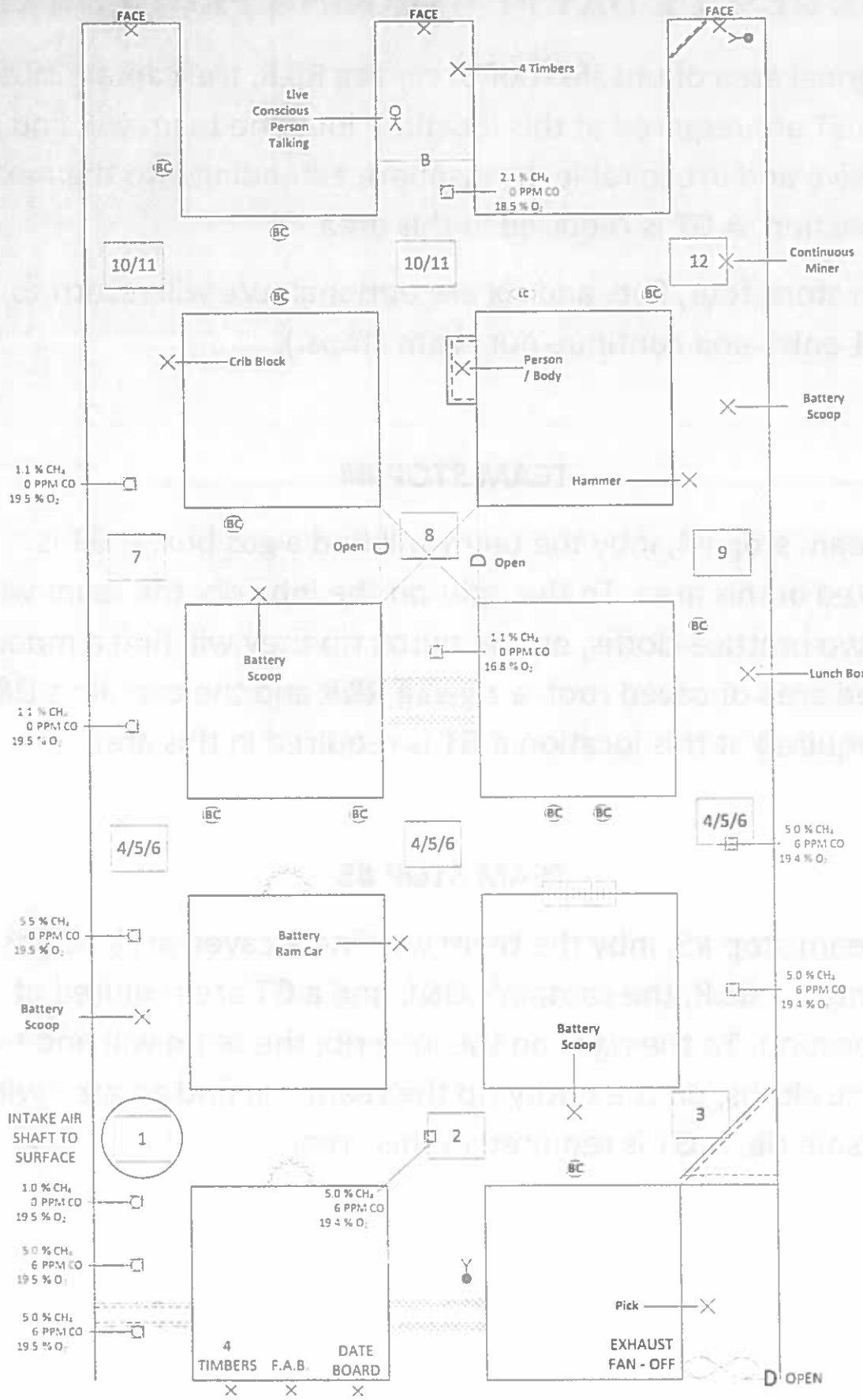
TEAM STOP #4

At team stop #4, inby the team will find a gas box. A GT is required in this area. To the right on the inby rib, the team will find two brattice cloths, on the outby rib they will find a moon shaped area of caved roof, a zig-zag R&R and the captain's D&I are required at this location a GT is required in this area.

TEAM STOP #5

At team stop #5, inby the team will find a caved area across the entry, a R&R, the captain's D&I, and a GT are required at this location. To the right on the inby rib, the team will find two brattice cloths, on the outby rib the team will find an area with an unsafe rib. A GT is required in this area.

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DAY #1 – TEAM STOP MAP

MINE RESCUE DAY #1 WORKING PROCEDURES

TEAM STOP #6

At team stop #6, inby on the right rib the team will find an empty lunch box, on the left rib they will find a brattice cloth. A GT is required in this area.

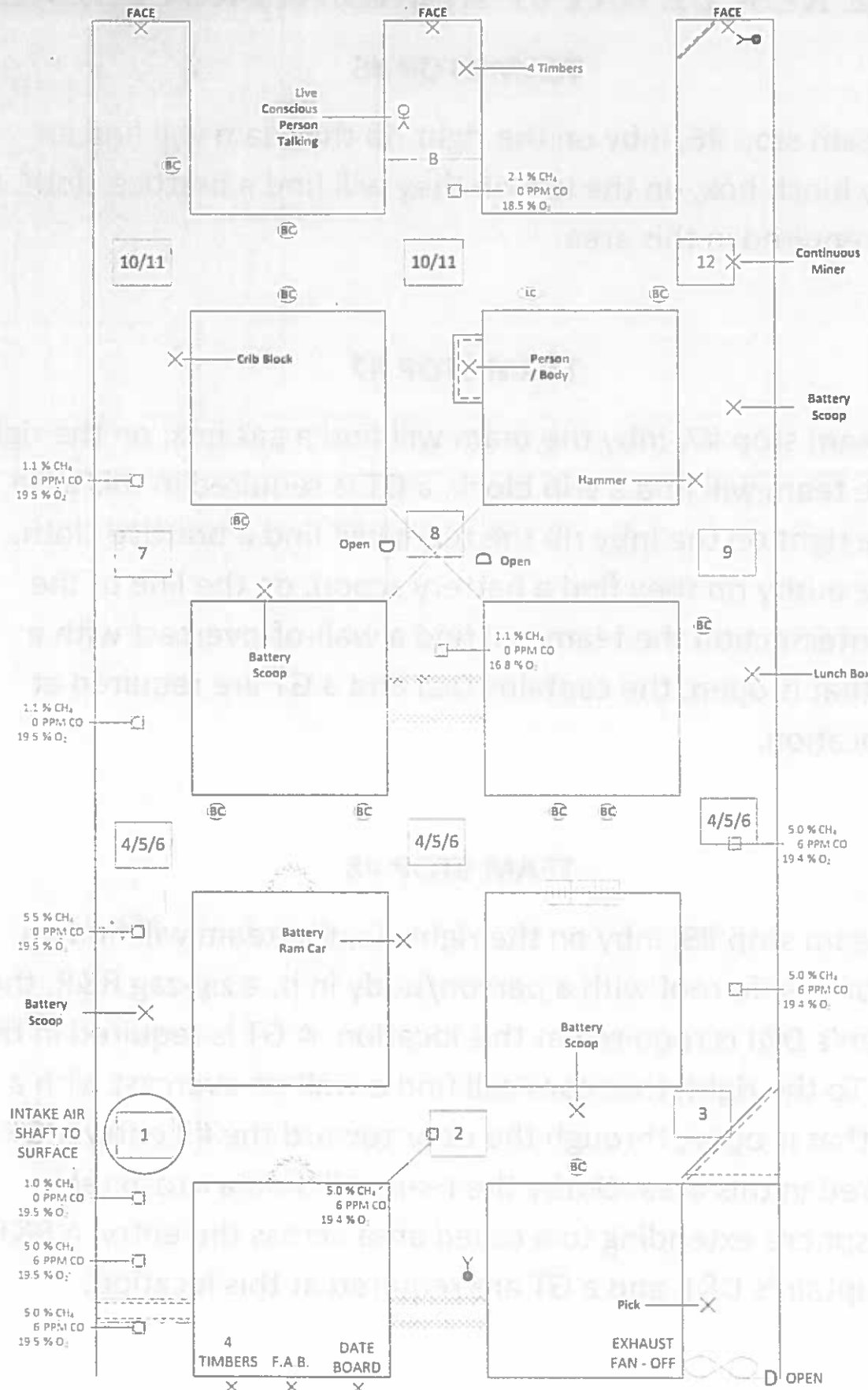
TEAM STOP #7

At team stop #7, inby the team will find a gas box, on the right rib the team will find a crib block, a GT is required in this area. To the right on the inby rib the team will find a brattice cloth, on the outby rib they find a battery scoop, on the line of the next intersection the team will find a wall-of-overcast with a door that is open, the captains D&I and a GT are required at this location.

TEAM STOP #8

At team stop #8, inby on the right rib, the team will find an area of unsafe roof with a person/body in it, a zig-zag R&R, the captain's D&I is required at this location. A GT is required in this area. To the right, the team will find a wall-of-overcast with a door that is open, through the door toward the #3 entry a GT is required in this area. Outby the team will find a irrespirable atmosphere extending to a caved area across the entry, a R&R, the captain's D&I, and a GT are required at this location.

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DAY #1 – TEAM STOP MAP

MINE RESCUE DAY #1 WORKING PROCEDURES

TEAM STOP #9

At team stop #9, inby on the left rib, the team will find a hammer, in the center of the entry the team will find a battery scoop. A GT is required in this area.

(The team stops ten and eleven are optional, we will return to the #1 entry)

TEAM STOP #10

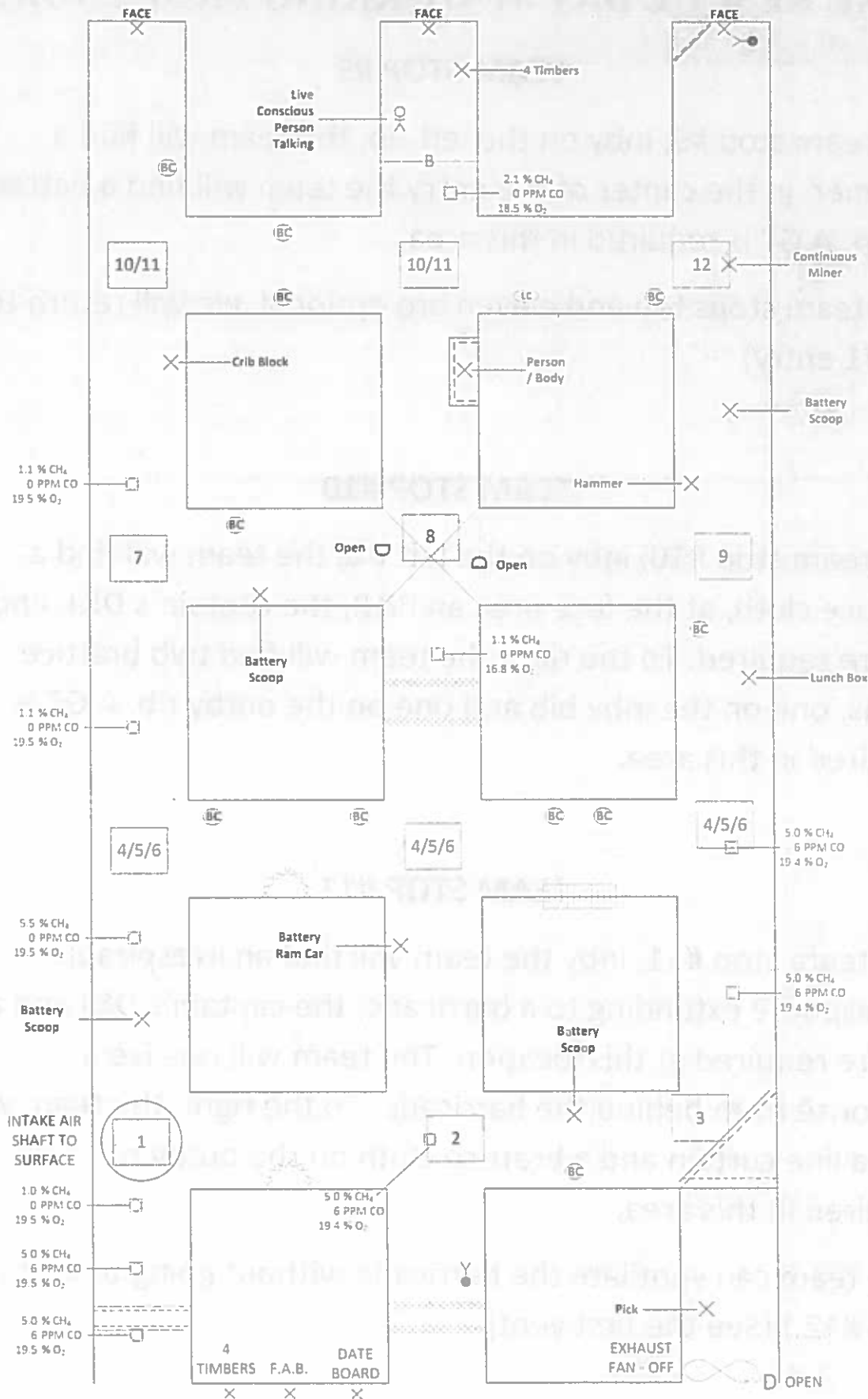
At team stop #10, inby on the left rib, the team will find a brattice cloth, at the face area an R&R, the captain's D&I, and a GT are required. To the right the team will find two brattice cloths, one on the inby rib and one on the outby rib. A GT is required in this area.

TEAM STOP #11

At team stop #11, inby the team will find an irrespirable atmosphere extending to a barricade, the captain's D&I and a GT are required at this location. The team will receive a response from behind the barricade. To the right, the team will find a line curtain and a brattice cloth on the outby rib, a GT is required in this area.

(The team can ventilate the barricade without going to team stop #12.) (See the first vent)

2022 KMI Coal Mine Rescue



DAY #1 – TEAM STOP MAP

MINE RESCUE DAY #1 WORKING PROCEDURES

THE BARRICADE

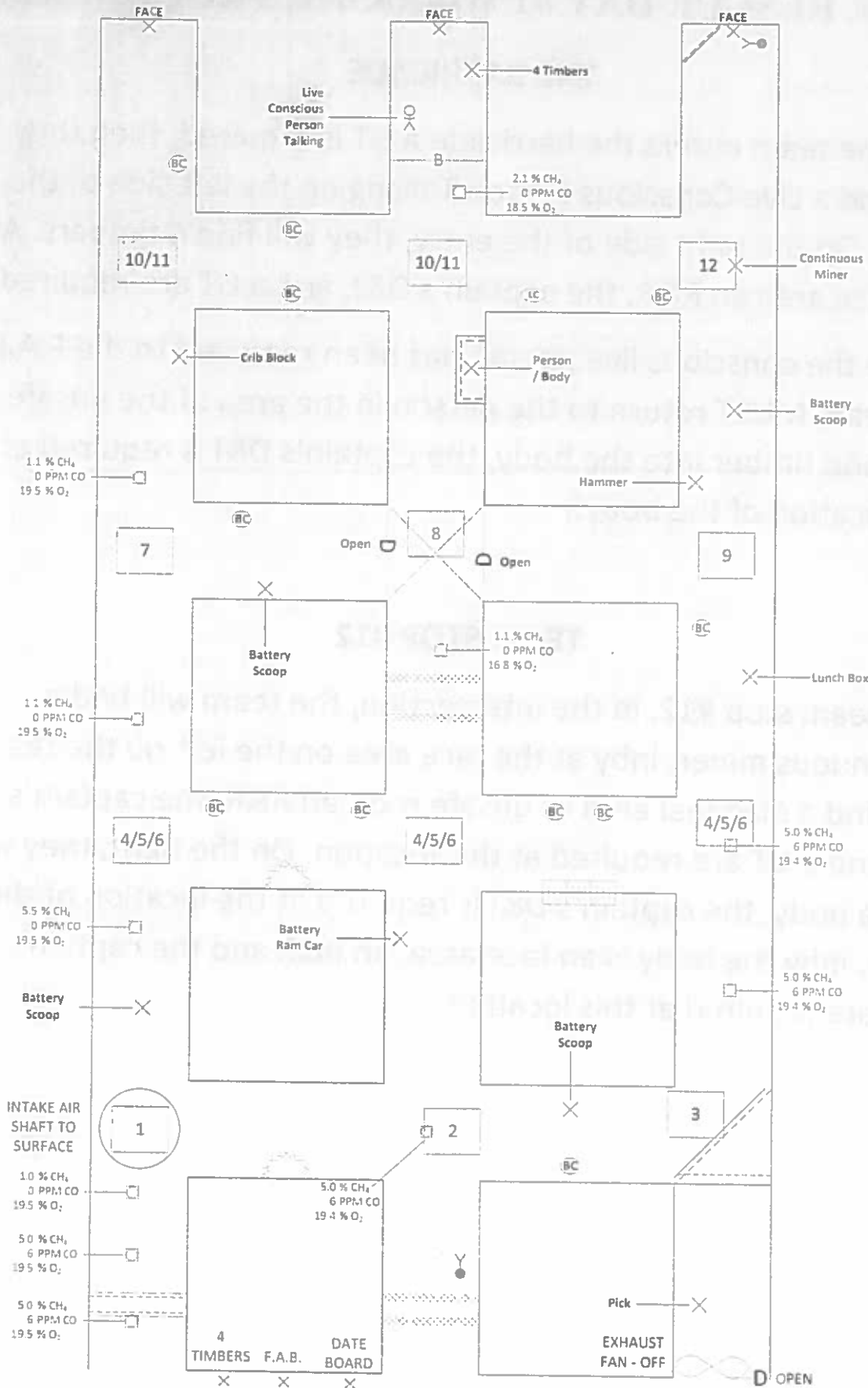
As the team enters the barricade a GT is required, then they will find a Live Conscious Person Talking on the left side of the entry. On the right side of the entry, they will find 4 timbers. At the face area an R&R, the captain's D&I, and a GT are required.

(Once the conscious live person has been removed to the F.A.B. the team MUST return to the person in the area of the unsafe roof and timber into the body, the captain's D&I is required at the location of the body.)

TEAM STOP #12

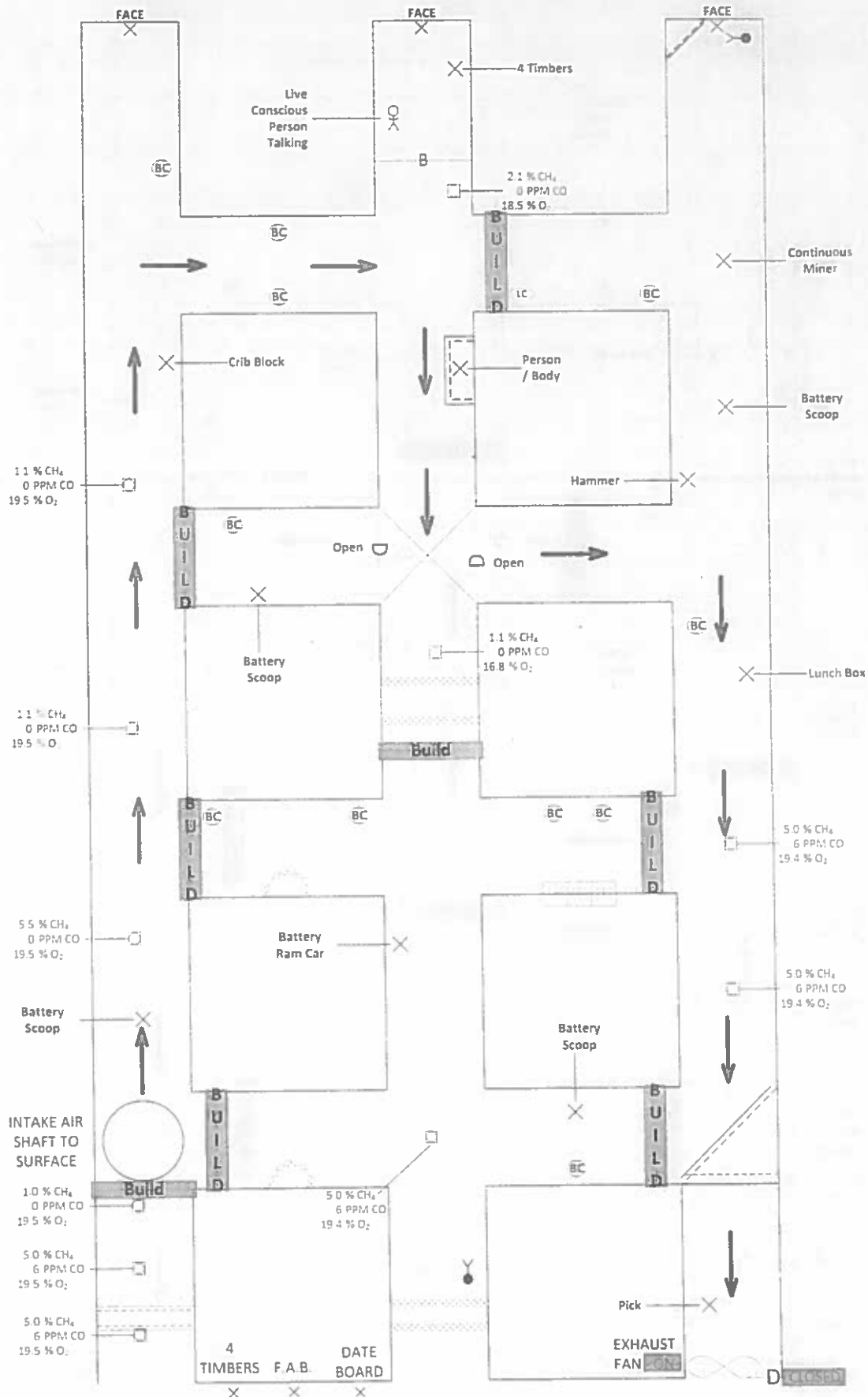
At team stop #12, in the intersection, the team will find a continuous miner, inby at the face area on the left rib the team will find a diagonal area of unsafe roof, an R&R, the captain's DIT and a GT are required at this location. On the right, they will find a body, the captain's D&I is required at the location of the body, inby the body is an face area, an R&R and the captain's D&I are required at this location.

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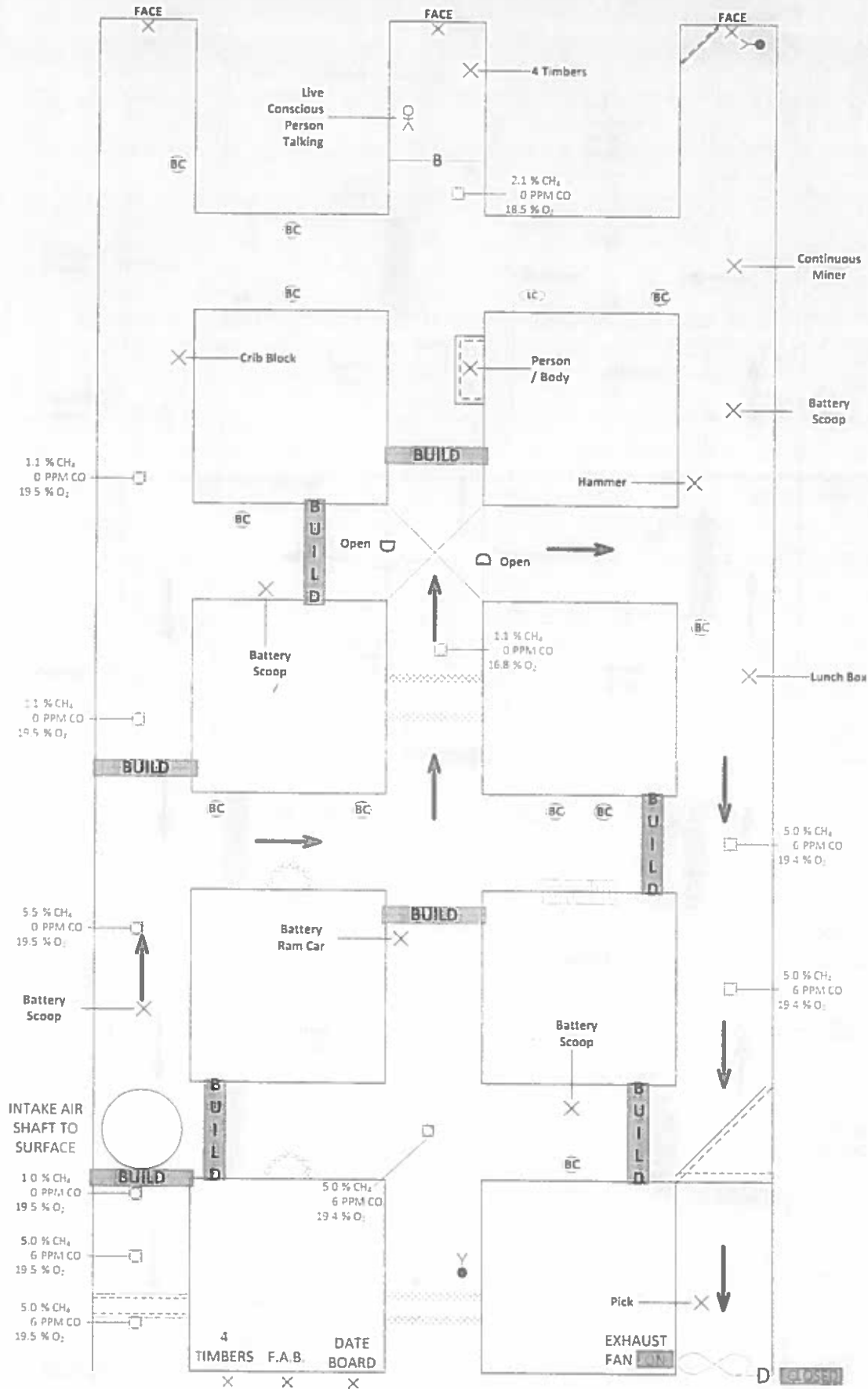
DAY #1 – TEAM STOP MAP

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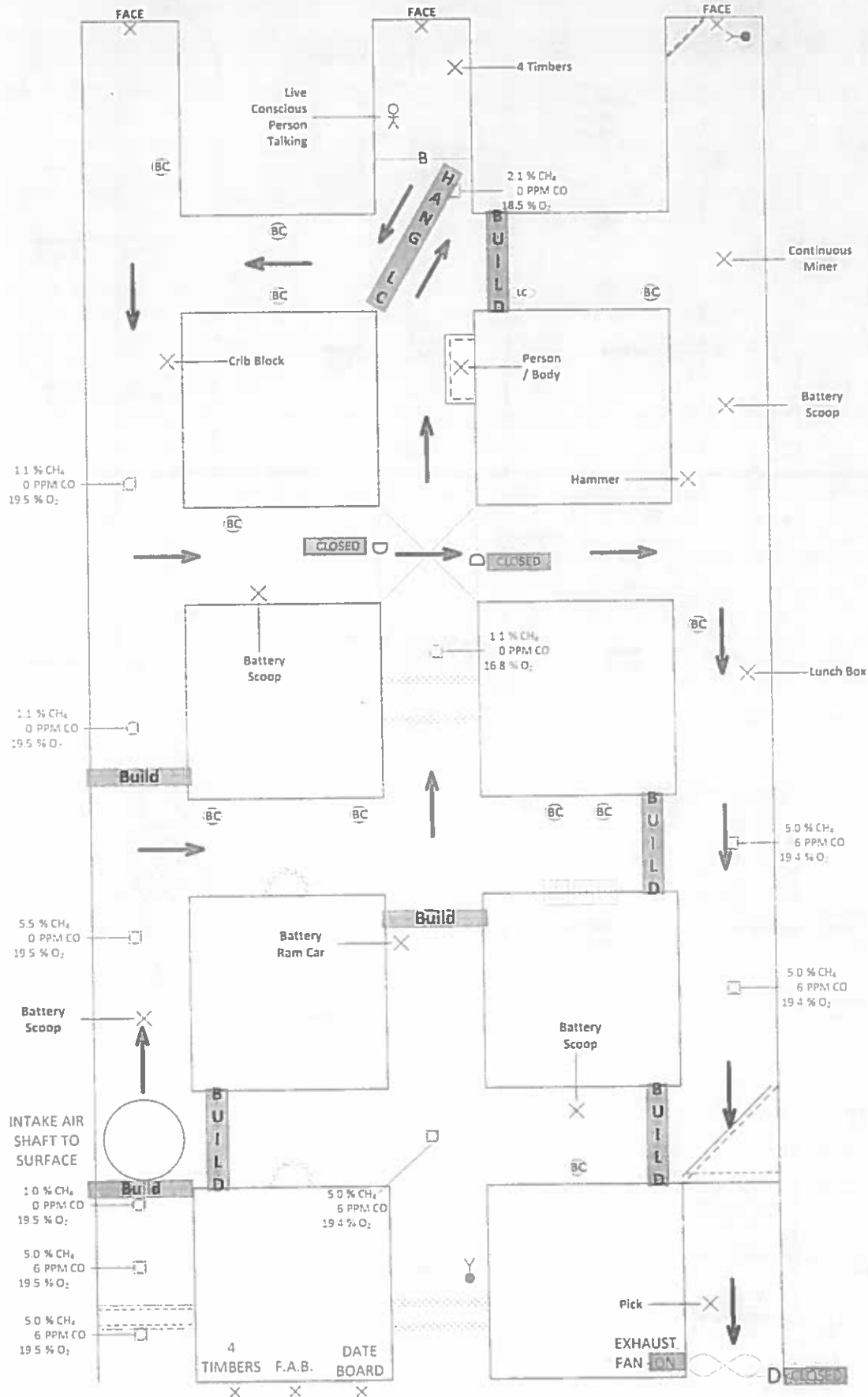
DAY #1 – FIRST VENT

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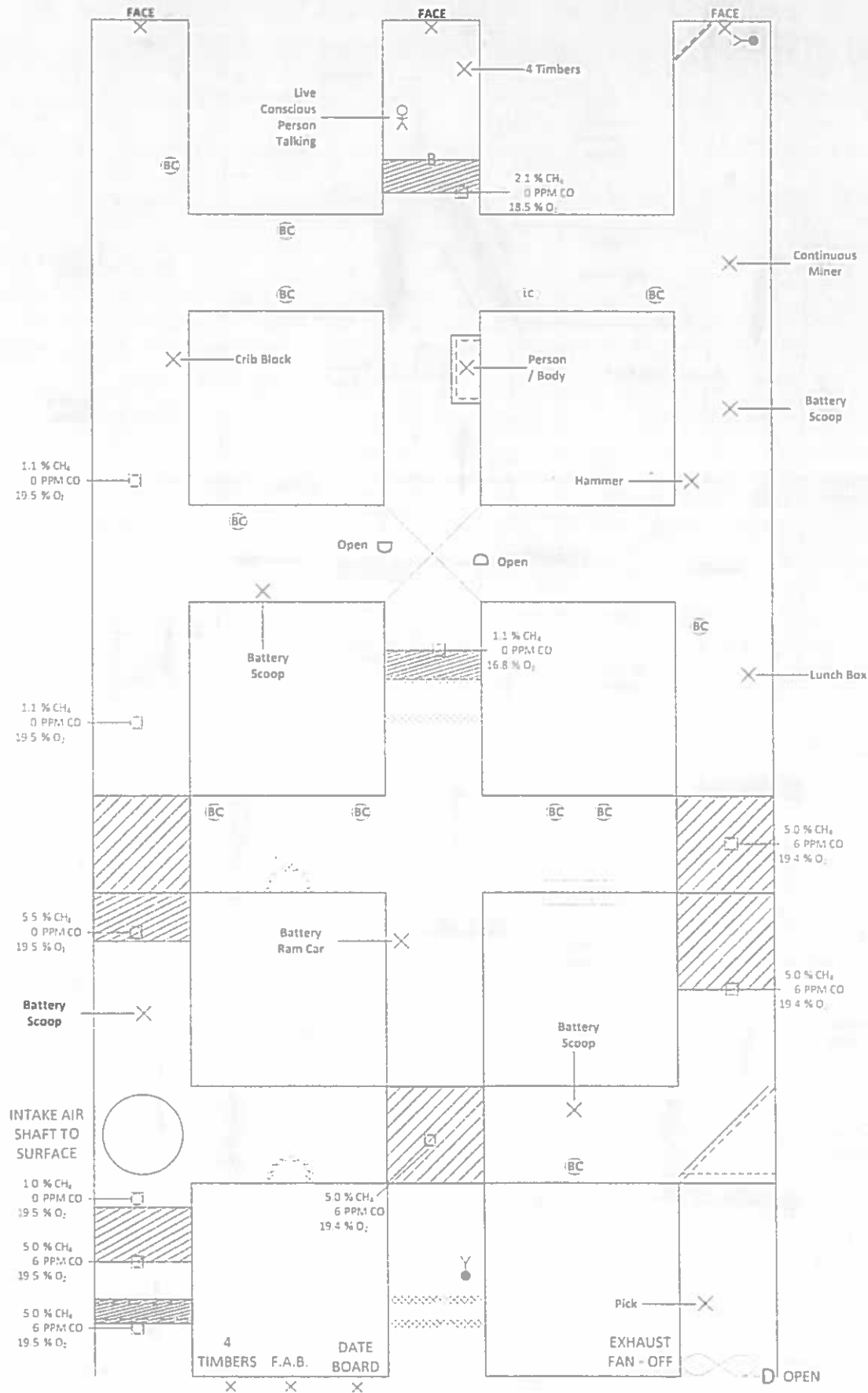
DAY #1 – SECOND VENT

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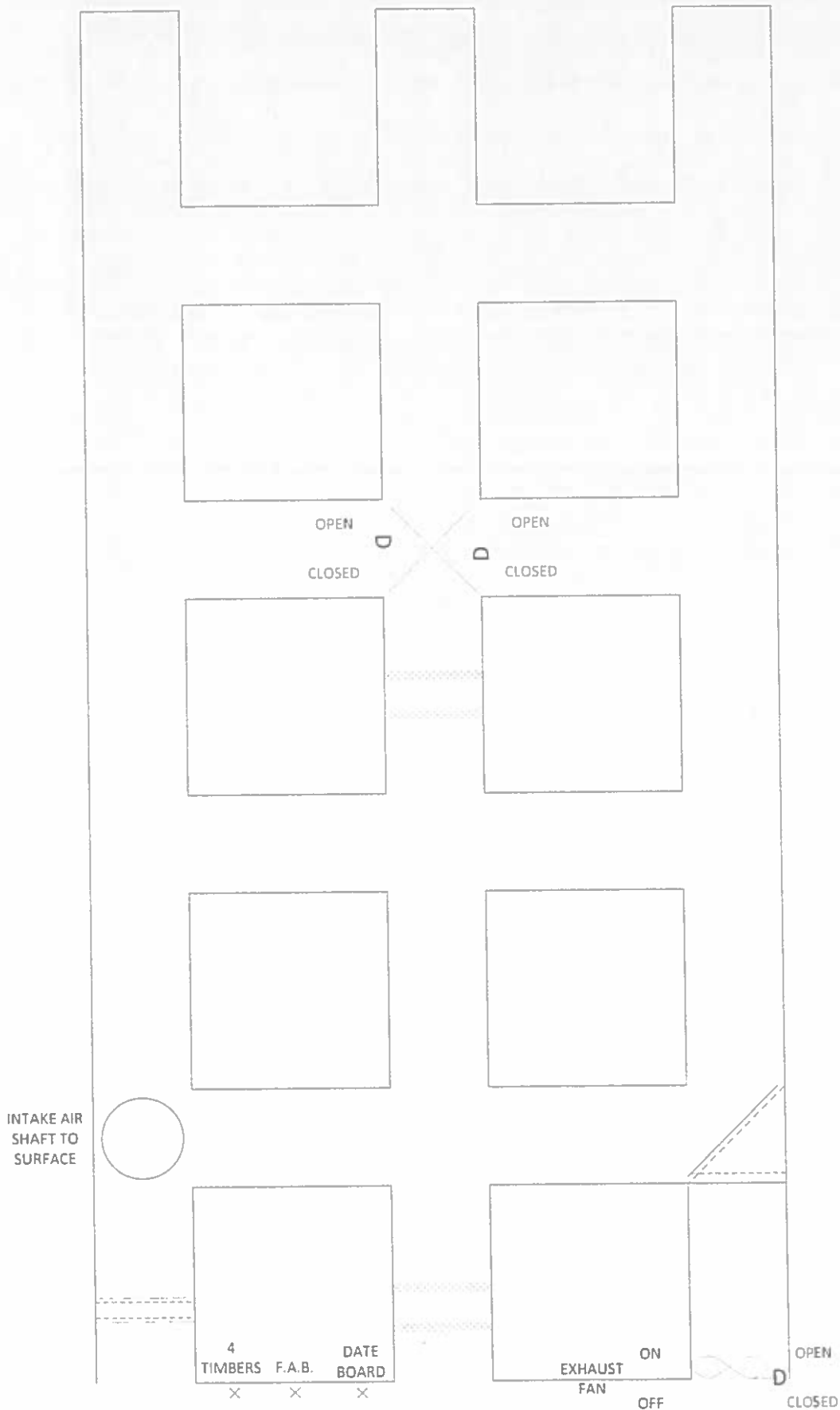
DAY #1 - THIRD VENT

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DAY #1 – EXTENT OF GAS MAP

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DAY #1 – FINAL VENT MAP

