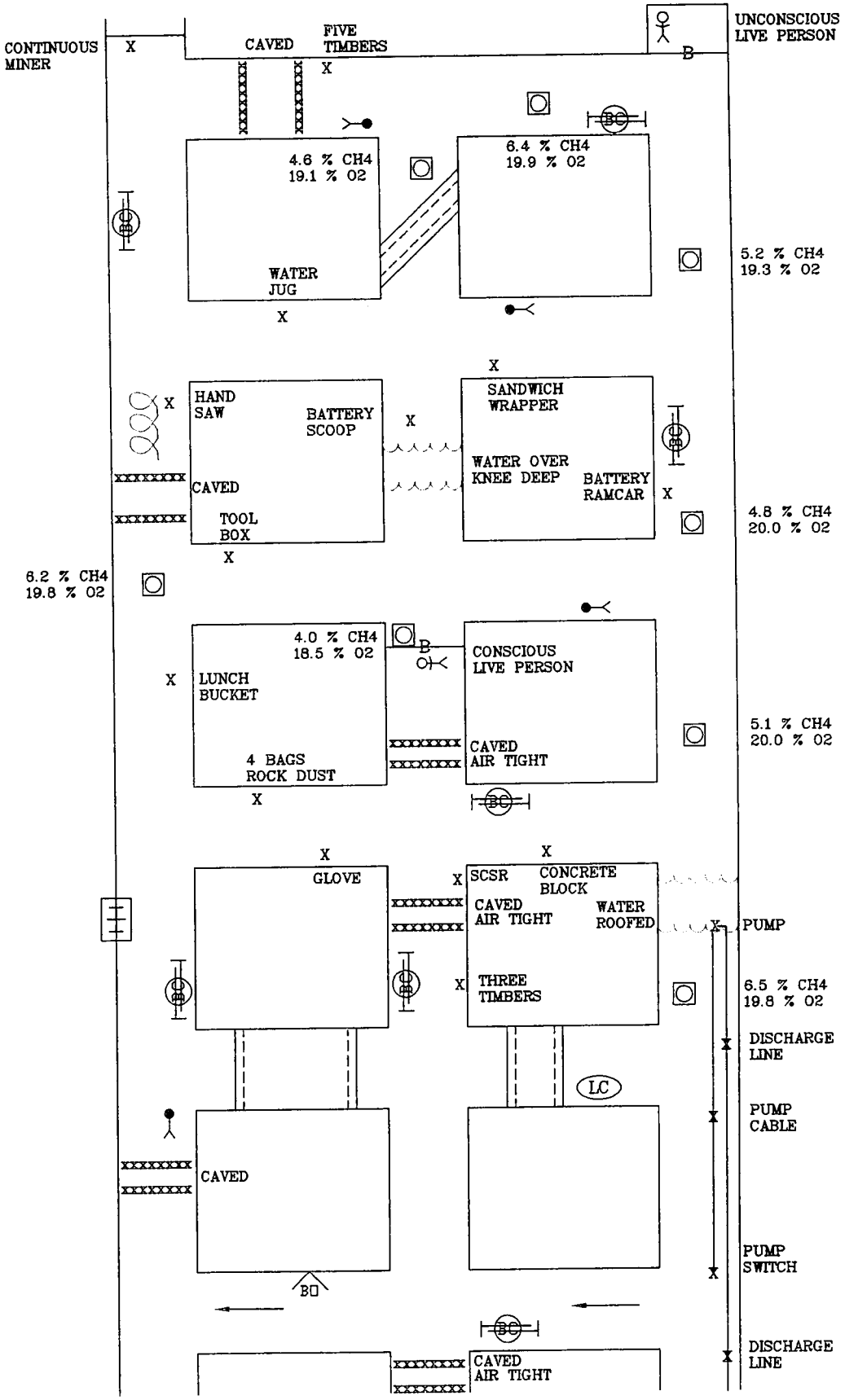
# National Mine Rescue Contest
# Day #2 Problem



**2009 National Mine Rescue Contest**

**September 2, 2009**

**STATEMENT**

Hello, I am _____, Superintendent of the JNR Coal Company, Mine No. 1. Thank you for answering our call for help. This morning, a six man crew went to the Long Haul Mains section for regular production work. Shortly after 8 am, a belt man located at the head drive 25 crosscuts outby the face called outside and told the responsible person that he had just heard a noise and felt a rush of air and dust from the section. He said it was too dusty for him to try to go toward the section, and the responsible person told him to get into the intake and follow the lifeline out of the mine. He arrived outside about 30 minutes later.

Contact could not be established with the miners on the Long Haul Mains section. There is another active section in the mine. All those miners and all outby personnel have been safely evacuated from the mine.

Our mine rescue teams were at our on-site practice field preparing for a mine rescue contest today. As soon as I found out about the incident, I called MSHA and state officials. I then got our mine rescue teams to start exploration toward the affected section. They explored as much of the mine as they could, and have established this fresh air base.

This section was driving toward the old abandoned Deb Coal Company, Mine No. 7. We were intending to cut into it for ventilation purposes and a closer mantrip. The old maps showed that we should be several hundred feet from it. We had opened the old mine portals, but had not explored it, ventilated it, or surveyed it yet. After this incident, we sent one of our mine rescue teams into the No. 7 mine. They found that the No. 1 entry of the Long Haul Mains had cut into the No. 7 mine. They ventilated the old mine up to where it connected to the Long Haul Mains, but could not explore any more because they ran low on oxygen. They built a temporary stopping at the location the mines cut together. Because of roof conditions in the No. 7 mine, we will not be able to travel it until the roof is made safe, but the team had explored all areas of the No. 7 mine before retreating to the surface. The No. 7 mine can be used for ventilation.

The Long Haul Mains has experienced adverse roof conditions, and had problems with water and methane. The mine is walking height.

There is electrical power to a pump switch in the fresh air base. All electrical power inby the fresh air base is off, and the power is being guarded.

The exhaust fan on the surface is on and is being guarded and sampled. The fan can be reversed by asking the superintendent for permission, but it cannot be stopped.

A back-up mine rescue team is available to assist you while you are inby the fresh air base. You may request assistance from them through the superintendent. The back-up team can only build and remove stoppings. Please notify the superintendent as to the work that you want the back-up team to perform. This work shall be marked on a map provided to you. After you turn this map in to the superintendent, it will not be returned to you.

A competent lifeline person is available to assist you when you are ready.

All federal, state, and local officials have been notified and are on-site. The mine maps are up-to-date.

Written instructions and the following maps shall be given to you when you are ready to work:

Two (2) blank maps
Two (2) maps showing the ventilation after the event and the areas explored
Blank maps to show the work of the back-up mine rescue team

You have five minutes to review this statement. Thank you and good luck!

# PROBLEM

ACCOUNT FOR ALL MISSING MINERS AND BRING SURVIVORS TO THE FRESH AIR BASE

EXPLORE ALL AREAS OF THE MINE THAT CAN BE DONE SO SAFELY

YOU HAVE 85 MINUTES TO COMPLETE THE PROBLEM BEFORE THE FAN MUST BE STOPPED FOR REPAIRS

# PATIENT STATEMENT

# HELP! GET ME OUT OF HERE. IT IS CAVED AIRTIGHT BEHIND ME.

# TEAM STATEMENT

THE MINE IS EXPERIENCING PROBLEMS WITH THE PUMP IN THE # 3 ENTRY. THE PUMP CAN ONLY KEEP THE WATER PUMPED DOWN TO WAIST DEEP.

# APPARATUS MALFUNCTION STATEMENT

THE PUMP IN THE # 3 ENTRY HAS BEEN REPAIRED.

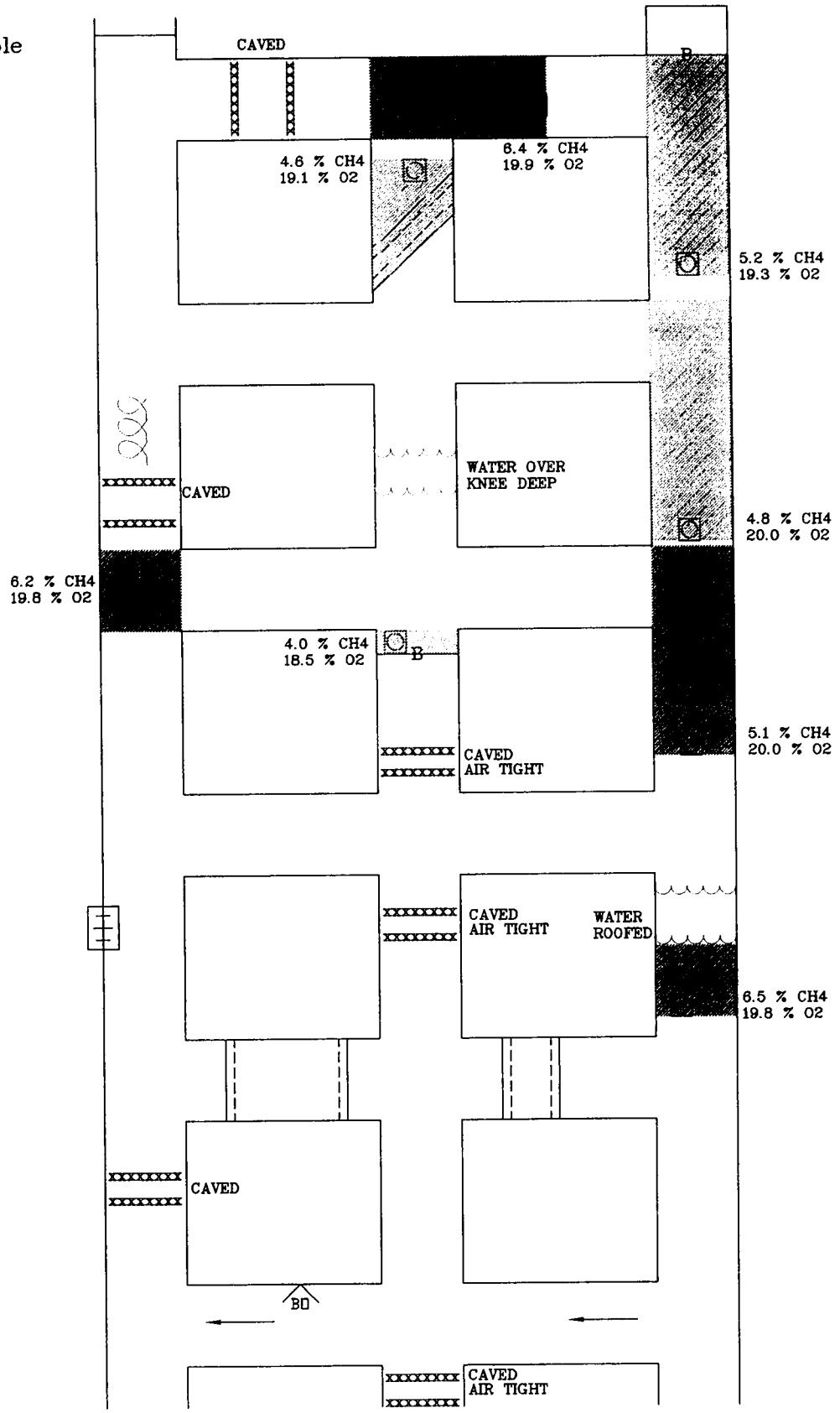
THE WATER HAS BEEN PUMPED DOWN TO KNEE DEEP.

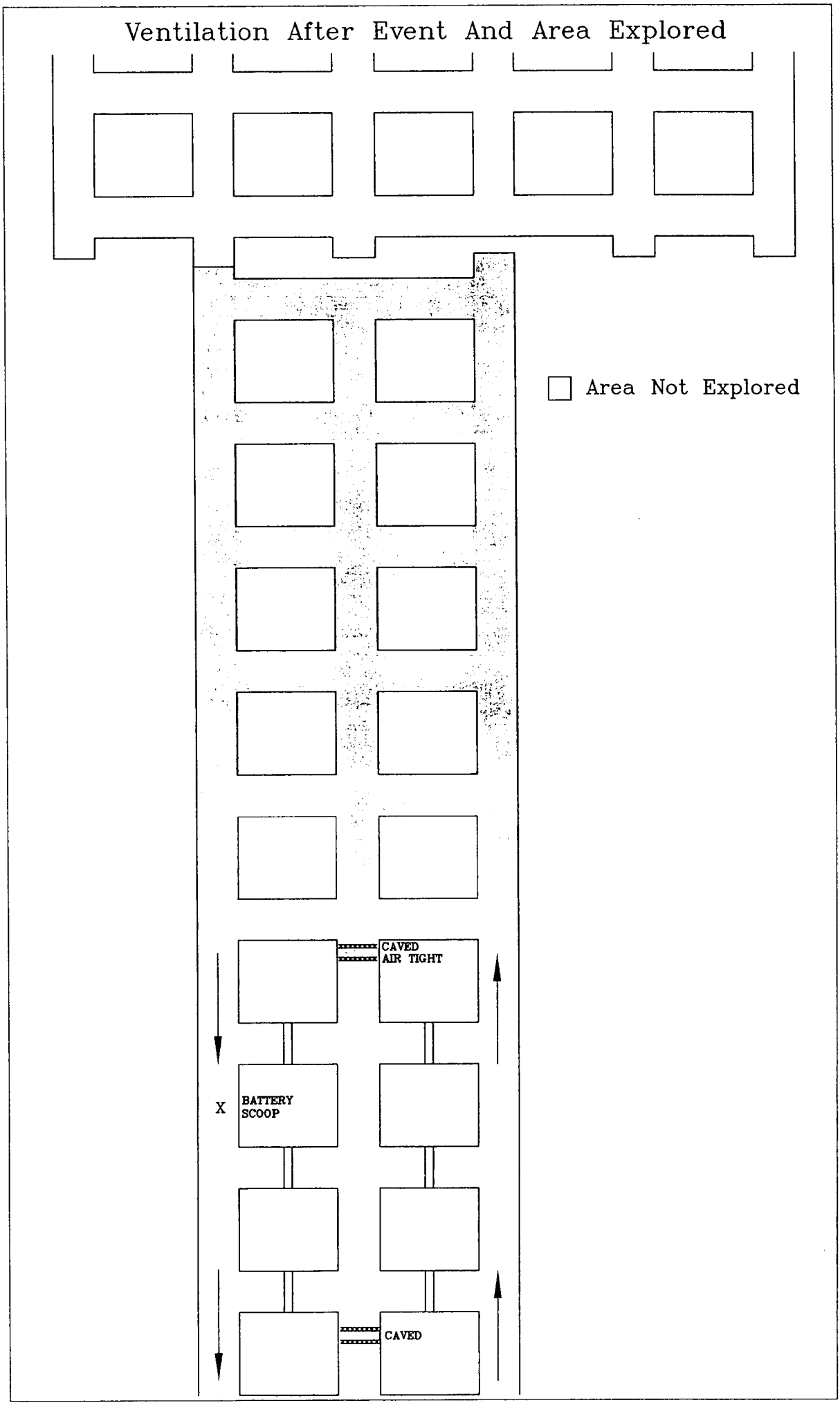
# National Mine Rescue Contest
# Day #2 Problem (Extent of Gases)

Explosive & Irrespirable

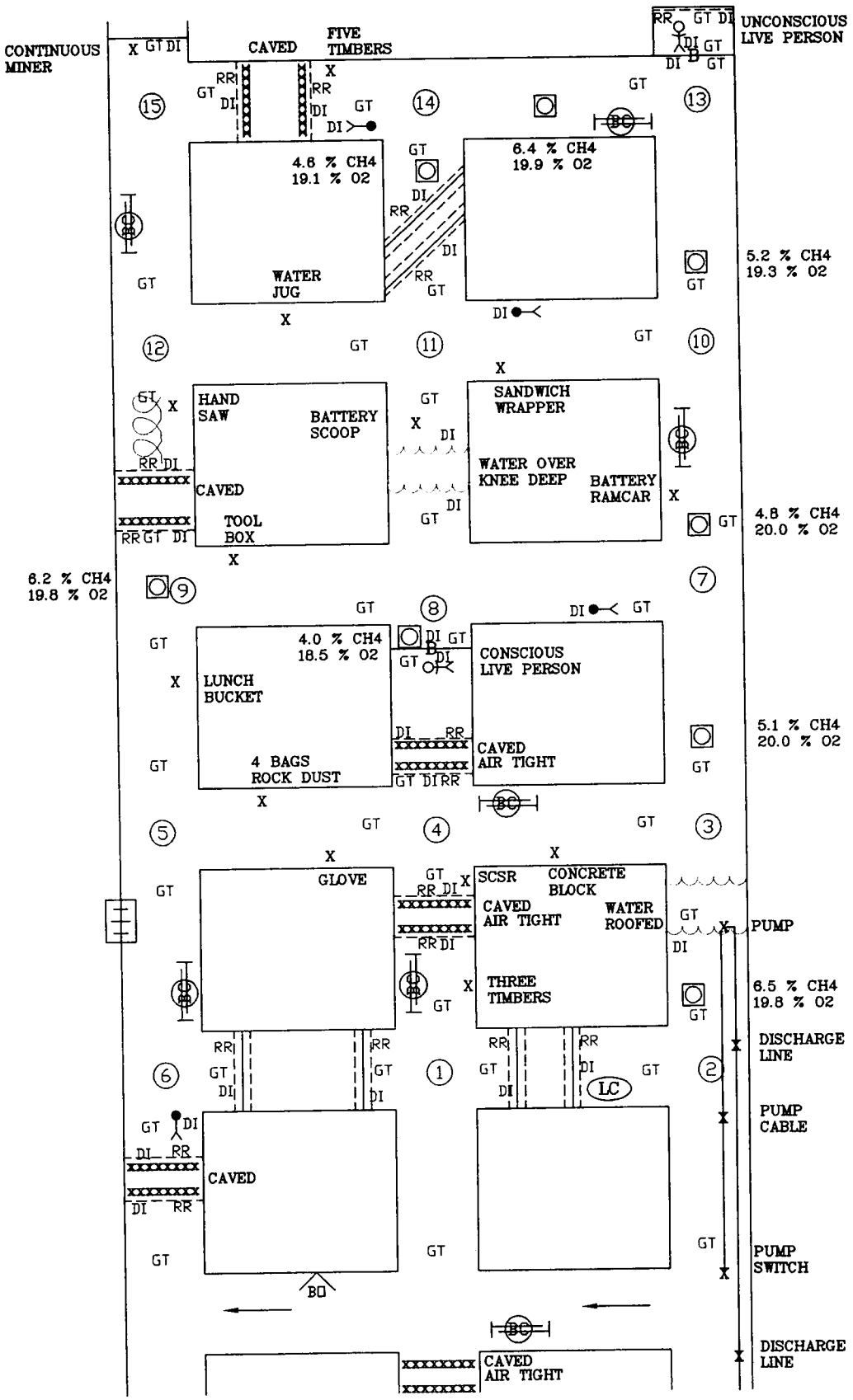
Explosive

Irrespirable




Ventilation After Event And Area Explored
Area Not Explored
CAVED
AIR TIGHT
X
BATTERY
SCOOP
CAVED

# Team Stop


CONTINUOUS MINER
CAVED
FIVE TIMBERS
UNCONSCIOUS LIVE PERSON
4.6 % CH4
19.1 % 02
WATER JUG
6.4 % CH4
19.9 % 02
5.2 % CH4
19.3 % 02
HAND SAW
BATTERY SCOOP
CAVED
TOOL BOX
SANDWICH WRAPPER
WATER OVER KNEE DEEP
BATTERY RAMCAR
4.8 % CH4
20.0 % 02
6.2 % CH4
19.8 % 02
4.0 % CH4
18.5 % 02
LUNCH BUCKET
4 BAGS ROCK DUST
CONSCIOUS LIVE PERSON
CAVED AIR TIGHT
5.1 % CH4
20.0 % 02
GLOVE
SCSR
CONCRETE BLOCK
CAVED AIR TIGHT
WATER ROOFED
PUMP
THREE TIMBERS
6.5 % CH4
19.8 % 02
DISCHARGE LINE
PUMP CABLE
PUMP SWITCH
DISCHARGE LINE
CAVED
CAVED AIR TIGHT
LC
BC
BO

**2009 National Mine Rescue Contest**
**September 2, 2009**

**Judges Exploration Briefing**

Teams will examine all three openings and conduct gas tests, and the captain shall do a roof and rib test and D&I the caved area in the No. 1 entry before the entire team goes underground.

Team stops No. 1 and No. 2 can be interchangeable. All other team stops must be as shown.

## TEAM STOP NO. 1

The team will advance in the No. 2 entry to the A crosscut. The team will find a caved airtight area and three timbers inby the crosscut, and areas of unsafe roof in crosscuts on both sides of the intersection. Required tests and D&Is must be conducted before leaving the team stop. At this team stop, all team members and apparatus must be checked.

## TEAM STOP NO. 2

Team will retreat out of the mine and advance up the No. 3 entry to the A crosscut. Team will find a line curtain and an area of unsafe roof in the crosscut to the left, and an explosive mixture, water roofed, and a pump in the entry inby the intersection. Required tests and D&Is must be conducted before leaving the team stop.

At this time, the team must pump the water to continue exploration. See Ventilation # 1 and Outby Ventilation #1. (Note the energized pump switch outby the opening to the # 3 entry. Explosive mixtures can not pass over it.) Team must airlock before pumping water. When the team pumps the water, wait five seconds then turn over the placard to show the water is now knee deep. If the team turns the pump off, the water will rise back to water roofed immediately. The pump must remain on to keep the water pumped down. The captain must take a gas test inby the water placard before anyone else moves into the area.

## TEAM STOP NO. 3

Team must advance inby in the No. 3 entry to the B crosscut. After the team stops, the Briefing Officer will be given a note stating that the pump in the No. 3 entry is experiencing problems and can only keep the water pumped down to waist deep. The team will not be able to travel back through this water for the remainder of the problem (unless an apparatus malfunctions before the team sets timbers in the unsafe roof between # 1 and # 2 entries in A crosscut - see Apparatus Malfunction Statement). The team will find an explosive mixture in the entry inby the B crosscut. Required tests must be conducted before leaving the team stop.

## TEAM STOP NO. 4

The team must advance to the No. 2 entry, B crosscut. The team will find a caved airtight inby the intersection, and another caved airtight area outby the intersection. Required tests and D&Is must be conducted before leaving the team stop.

## TEAM STOP NO. 5

The team must advance to the No. 1 entry, B crosscut. Team will find an unsafe rib outby the intersection. Required tests must be conducted before leaving the team stop.

## TEAM STOP NO. 6

The team must advance outby in the No. 1 entry to the A crosscut to tie in the entry. The team will find a body and a caved area in the entry outby the intersection, and an area of unsafe roof in the crosscut going toward the No. 2 entry. Required tests and D&Is must be conducted before leaving the team stop.

## TEAM STOP NO. 7

Team must advance up the No. 3 entry to the C crosscut, following the contaminant. Team will find a contaminant and a battery ramcar inby the intersection, and a body in the crosscut to the left. Required tests and DIs must be conducted before leaving the team stop.

## TEAM STOP NO. 8

Team must advance to the No 2 entry, C crosscut. Team will find water over knee deep inby the intersection, and an irrespirable atmosphere and a barricade outby the intersection. The team will make verbal contact with a conscious live person inside the barricade. The team must continue to explore because the barricade cannot be ventilated at this time. Required tests and D&Is must be conducted before leaving the team stop.

## TEAM STOP NO. 9

Team must advance to the No. 1 entry, C crosscut. The team will find an explosive mixture in the intersection and a caved area inby the intersection. Team still can't ventilate so they must continue to explore. Required tests and D&Is must be conducted before leaving the team stop.

## TEAM STOP NO. 10

Team must advance up the No. 3 entry to the D crosscut. Team will find an explosive/irrespirable mixture inby, and a body in the crosscut to the left. Required tests and D&Is must be conducted before leaving the team stop.

## TEAM STOP NO. 11

Team must advance to the No. 2 entry, D crosscut. Team will find a battery scoop and water over knee deep outby the intersection, and an area of diagonal unsafe roof inby the intersection. Required tests and D&Is must be conducted before leaving the team stop.

## TEAM STOP NO. 12

Team must advance across to the No. 1 entry, D crosscut. Team will find smoke and a caved area outby the intersection. All team members must be on the lifeline when any team member is in smoke. Required tests and D&Is must be conducted before leaving the team stop.

## TEAM STOP NO. 13

Team must advance up the No. 3 entry to the E crosscut, following the contaminant. The team will find a barricade on the imaginary rib line inby the intersection and an explosive mixture in the crosscut to the left. There is not any response from behind the barricade. Team must continue to explore. Required tests and D&Is must be conducted before leaving the team stop.

## TEAM STOP NO. 14

Team must advance to the No. 2 entry, E crosscut. The team will find an irrespirable atmosphere and an area of diagonal unsafe roof outby the intersection, and a body, caved area, and five timbers in the crosscut to the left. Required tests and D&Is must be conducted before leaving the team stop.

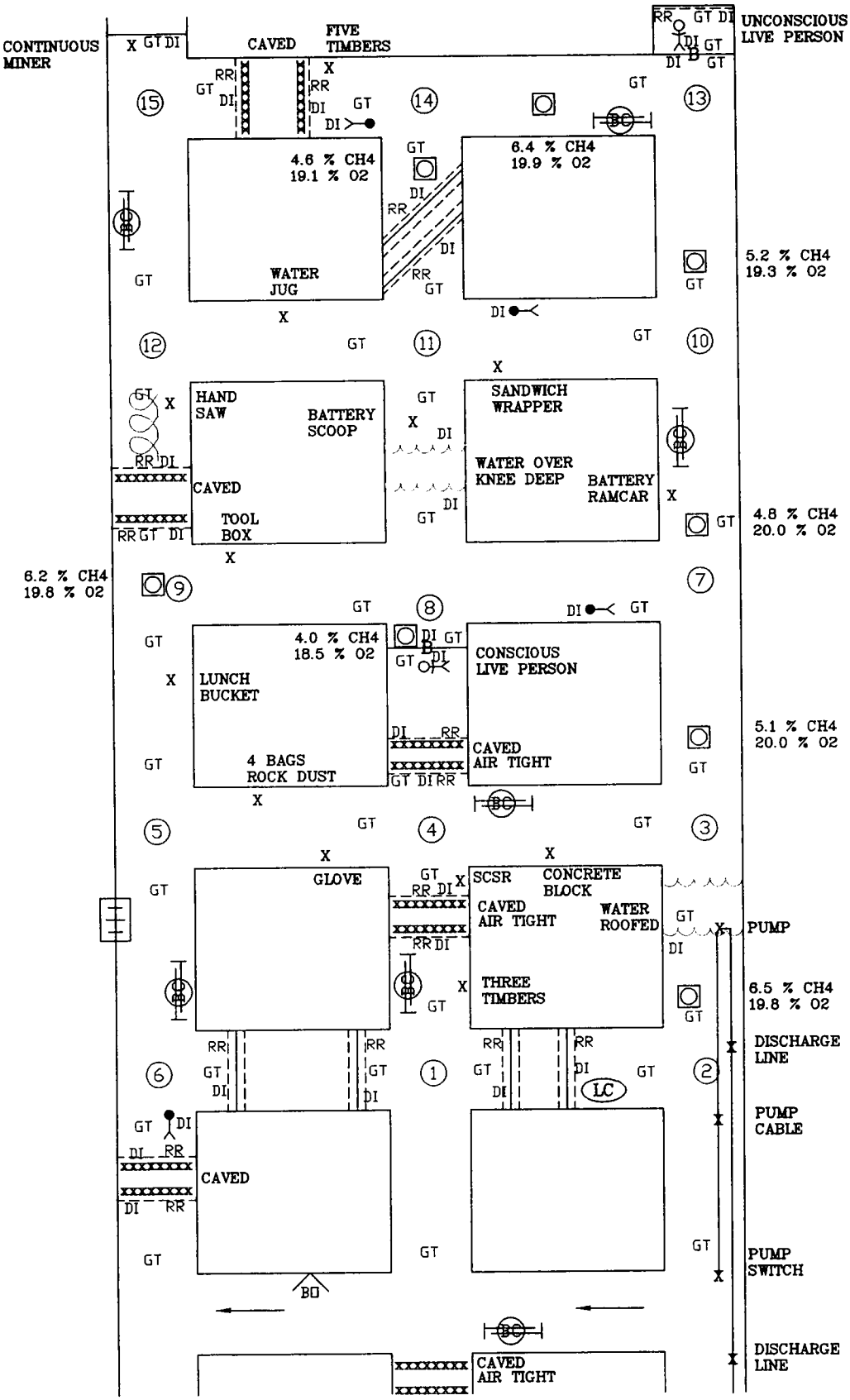
At this time the team has the materials necessary to ventilate the barricade outby C crosscut in the # 2 entry. The team must take the timbers and travel to the No. 1 entry, A crosscut. The team will set the timbers through the unsafe roof between the No. 1 and No. 2 entries, and will then be able to ventilate. See Ventilation #2 and Outby Ventilation #1. This will clear the explosive mixtures in the No 1 entry, C crosscut, and the No. 3 entry between B and C crosscuts. The team must then reverse the fan and clear the barricade. See Ventilation #3. Team can then breach barricade and remove the conscious live person to the fresh air base. Because the patient is conscious, and so as to not delay the patient, the captain will not have time to conduct all tests. The team will have to return to this area to complete the required tests.

## TEAM STOP NO. 15

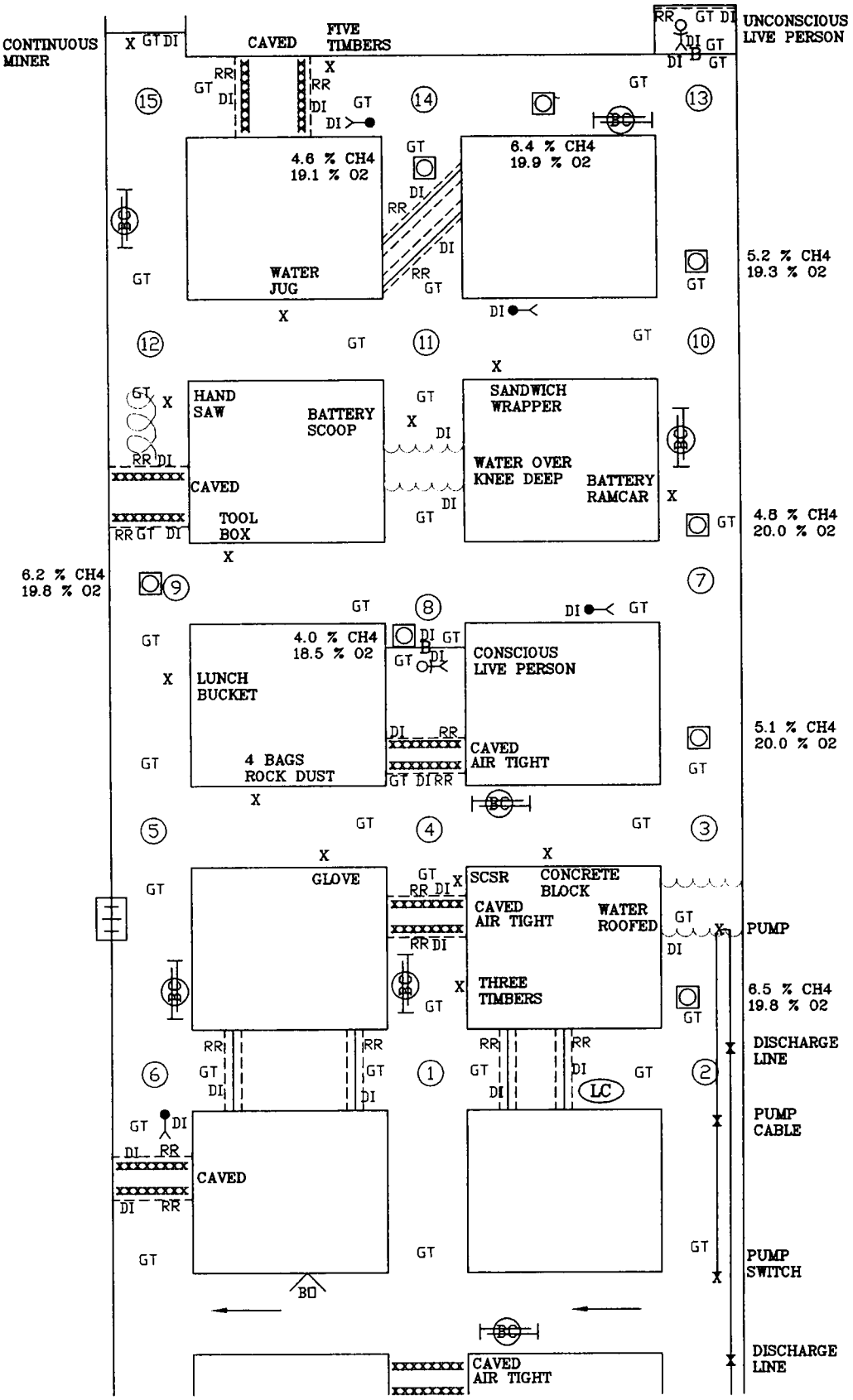
Team must travel back to the D crosscut in the No. 1 entry, then advance in the No. 1 entry to the E crosscut. The team will find the temporary stopping/airlock installed by a prior mine rescue team in the cut through into the No. 7 mine, and a caved area in the crosscut to the right. Required tests and D&Is must be conducted before leaving the team stop.

The team can now ventilate the last barricade. See Ventilation #4. Team must airlock to breach the barricade. Team will find an unconscious live person, the last missing miner. Required tests and D&Is must be conducted before stopping the clock. Because the team must put the patient on a stretcher, the captain will have time to conduct required tests and DI the face if he chooses to do so. Team will then remove the patient on a stretcher to the fresh air base. Team has finished the problem and can then stop the clock.

# Team Stop


CONTINUOUS MINER
CAVED
FIVE TIMBERS
UNCONSCIOUS LIVE PERSON
4.6 % CH4
19.1 % 02
WATER JUG
6.4 % CH4
19.9 % 02
5.2 % CH4
19.3 % 02
HAND SAW
BATTERY SCOOP
CAVED
TOOL BOX
SANDWICH WRAPPER
WATER OVER KNEE DEEP
BATTERY RAMCAR
4.8 % CH4
20.0 % 02
6.2 % CH4
19.8 % 02
4.0 % CH4
18.5 % 02
LUNCH BUCKET
4 BAGS ROCK DUST
CONSCIOUS LIVE PERSON
CAVED AIR TIGHT
5.1 % CH4
20.0 % 02
GLOVE
SCSR
CONCRETE BLOCK
CAVED AIR TIGHT
WATER ROOFED
PUMP
THREE TIMBERS
6.5 % CH4
19.8 % 02
DISCHARGE LINE
PUMP CABLE
CAVED
PUMP SWITCH
DISCHARGE LINE
CAVED AIR TIGHT

# Team Stop


CONTINUOUS MINER
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FIVE TIMBERS
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4.6 % CH4
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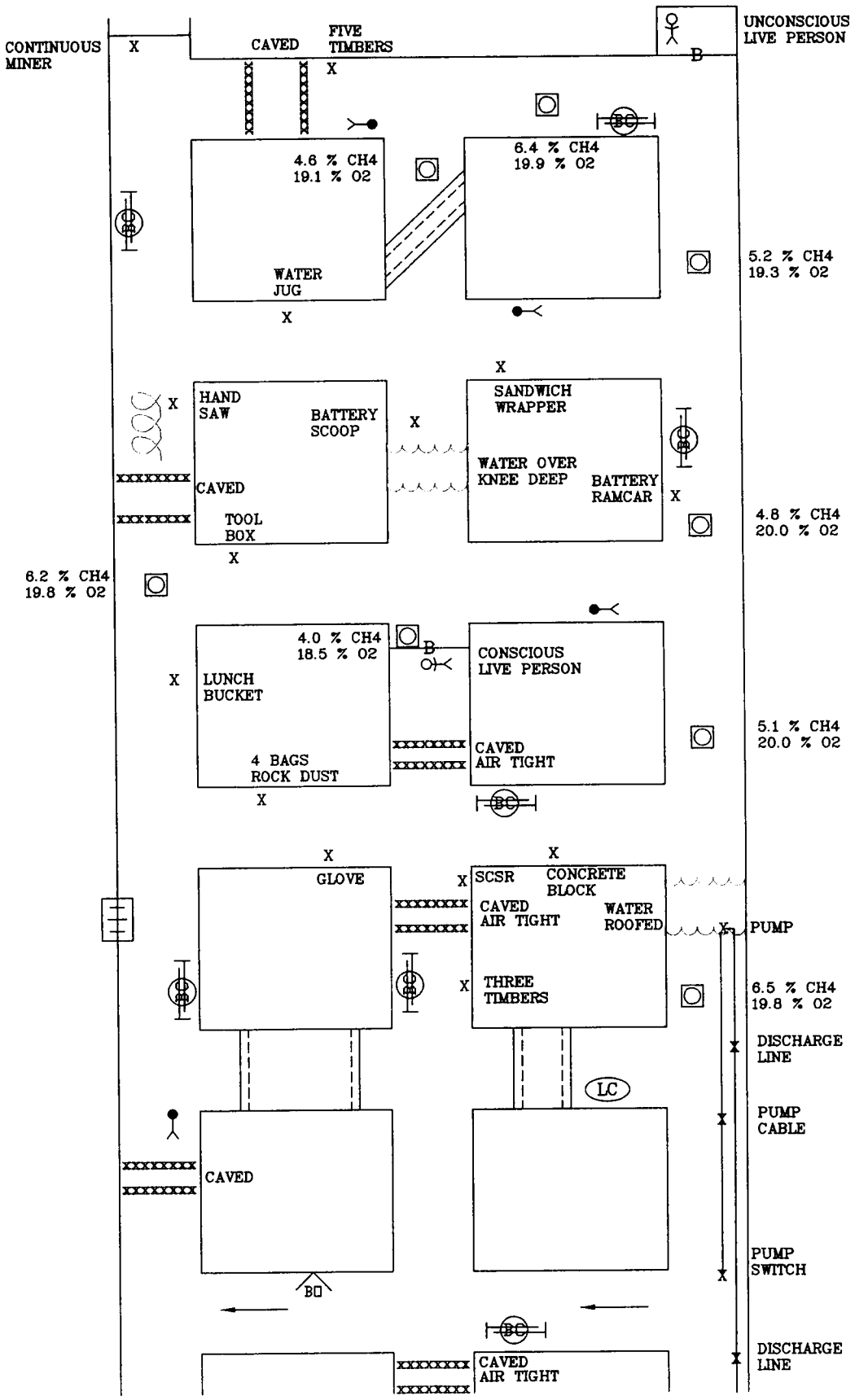
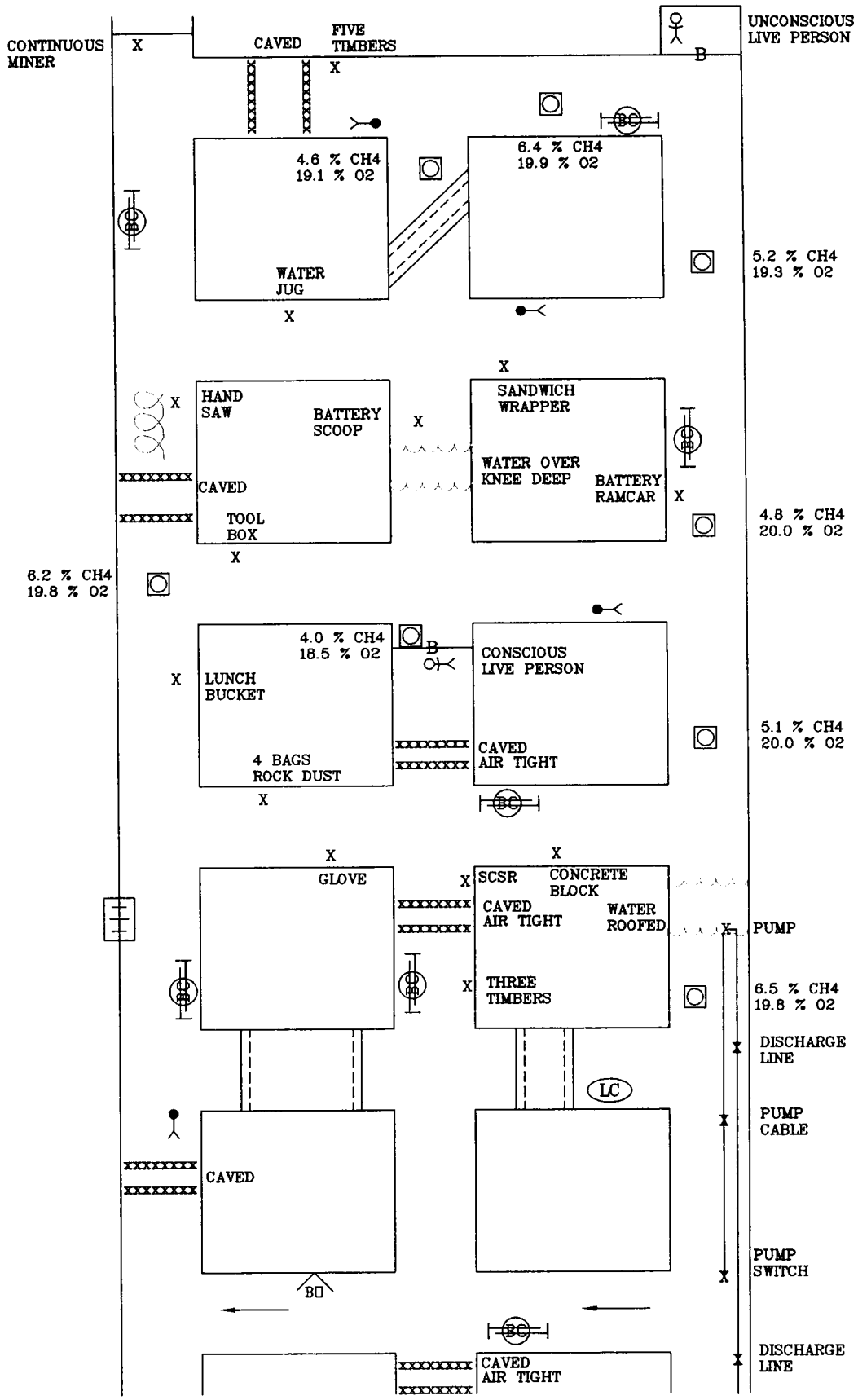
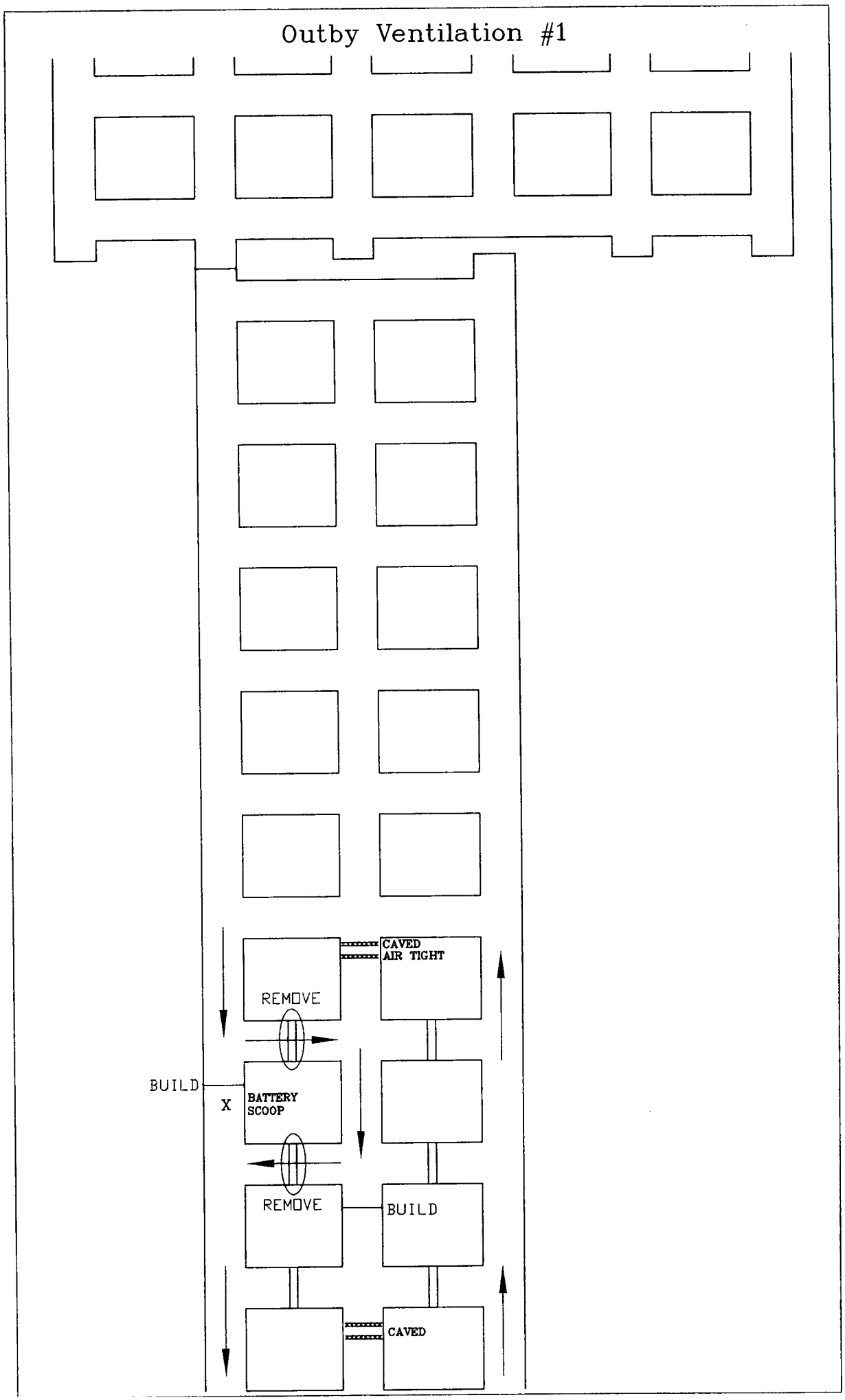
5.1 % CH4
20.0 % 02
GLOVE
SCSR
CONCRETE BLOCK
CAVED
AIR TIGHT
WATER
ROOFED
PUMP
THREE TIMBERS
6.5 % CH4
19.8 % 02
DISCHARGE LINE
PUMP CABLE
CAVED
PUMP SWITCH
DISCHARGE LINE
CAVED
AIR TIGHT

# National Mine Rescue Contest
# Day #2 Problem

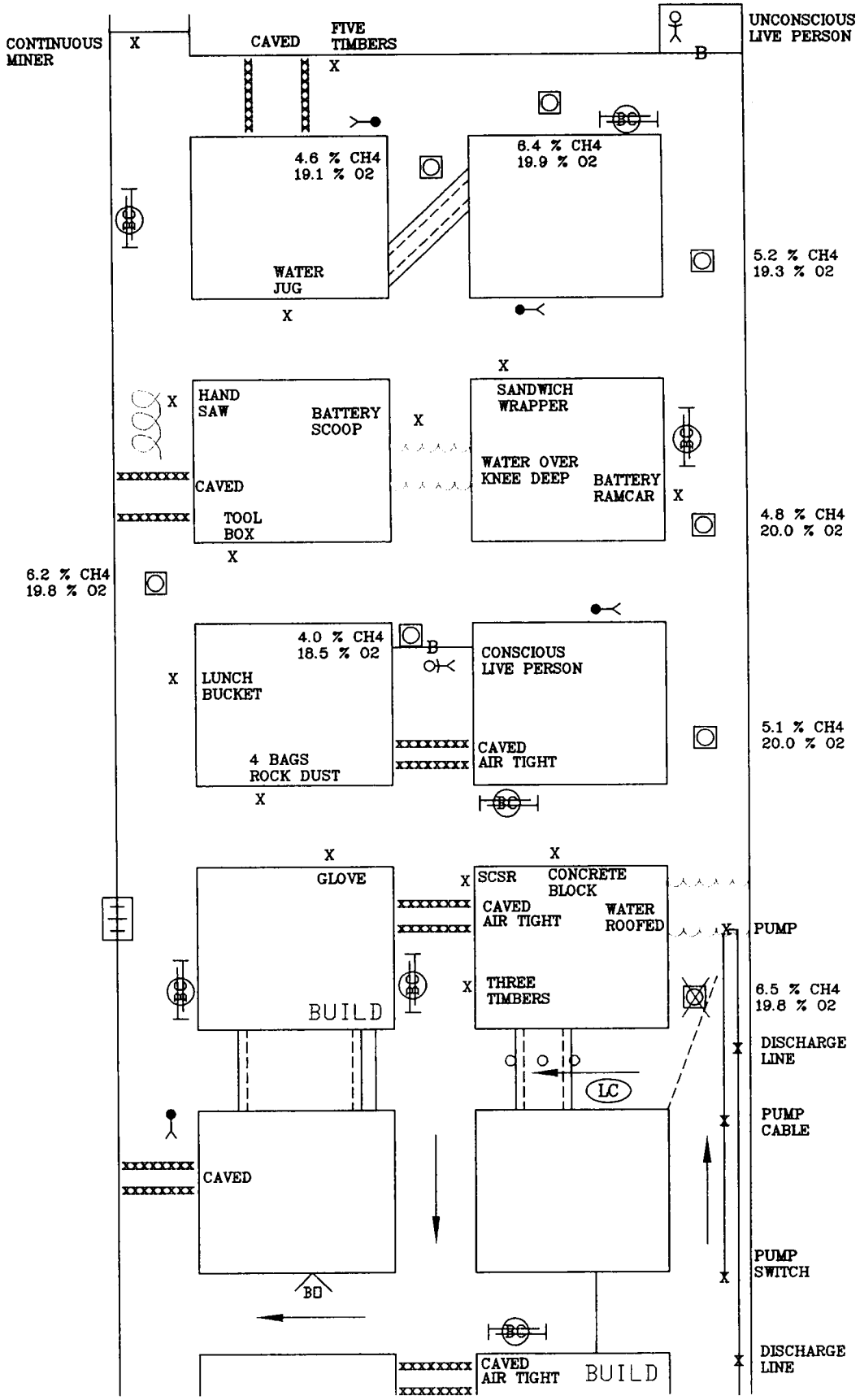


# National Mine Rescue Contest
# Day #2 Problem

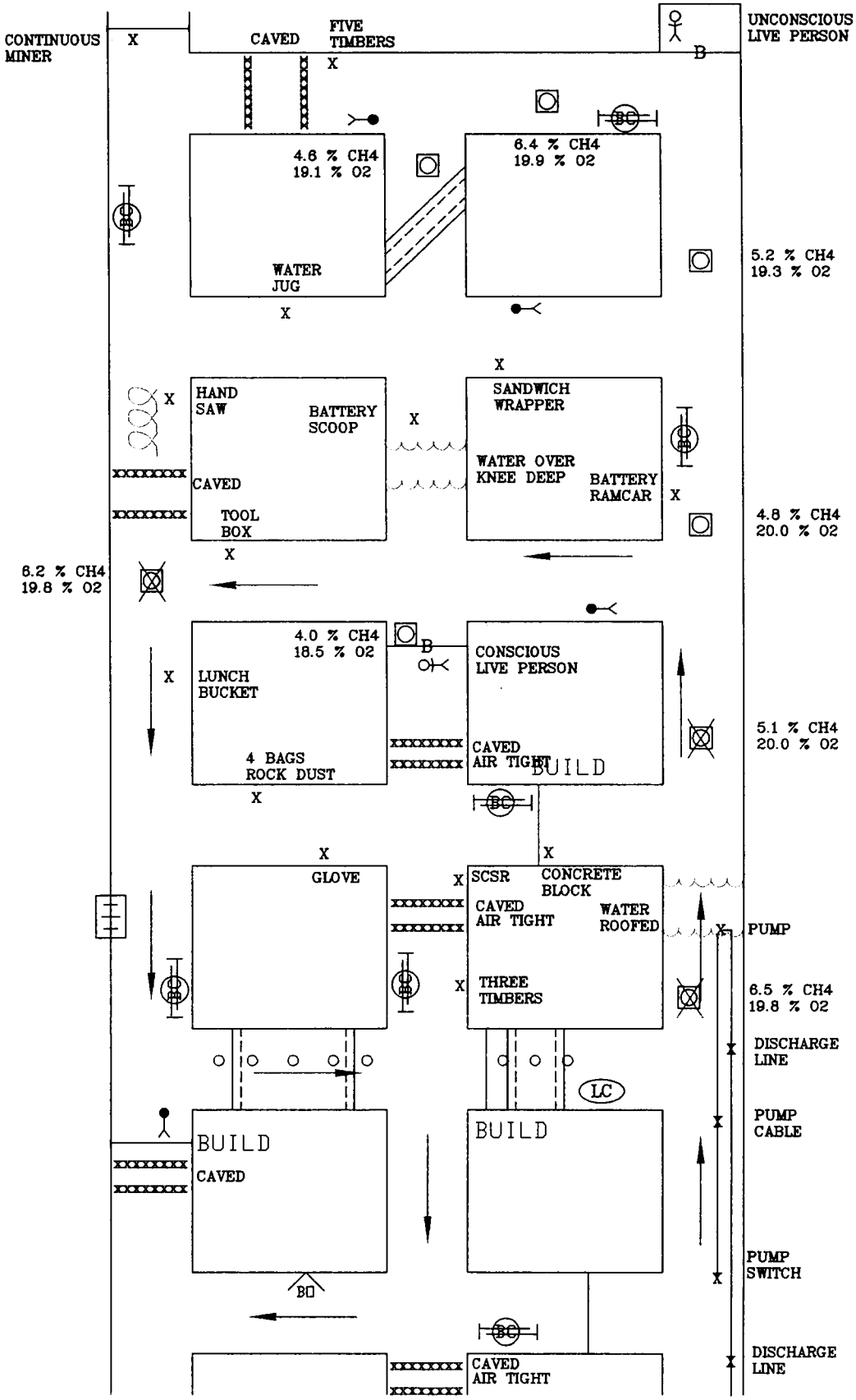


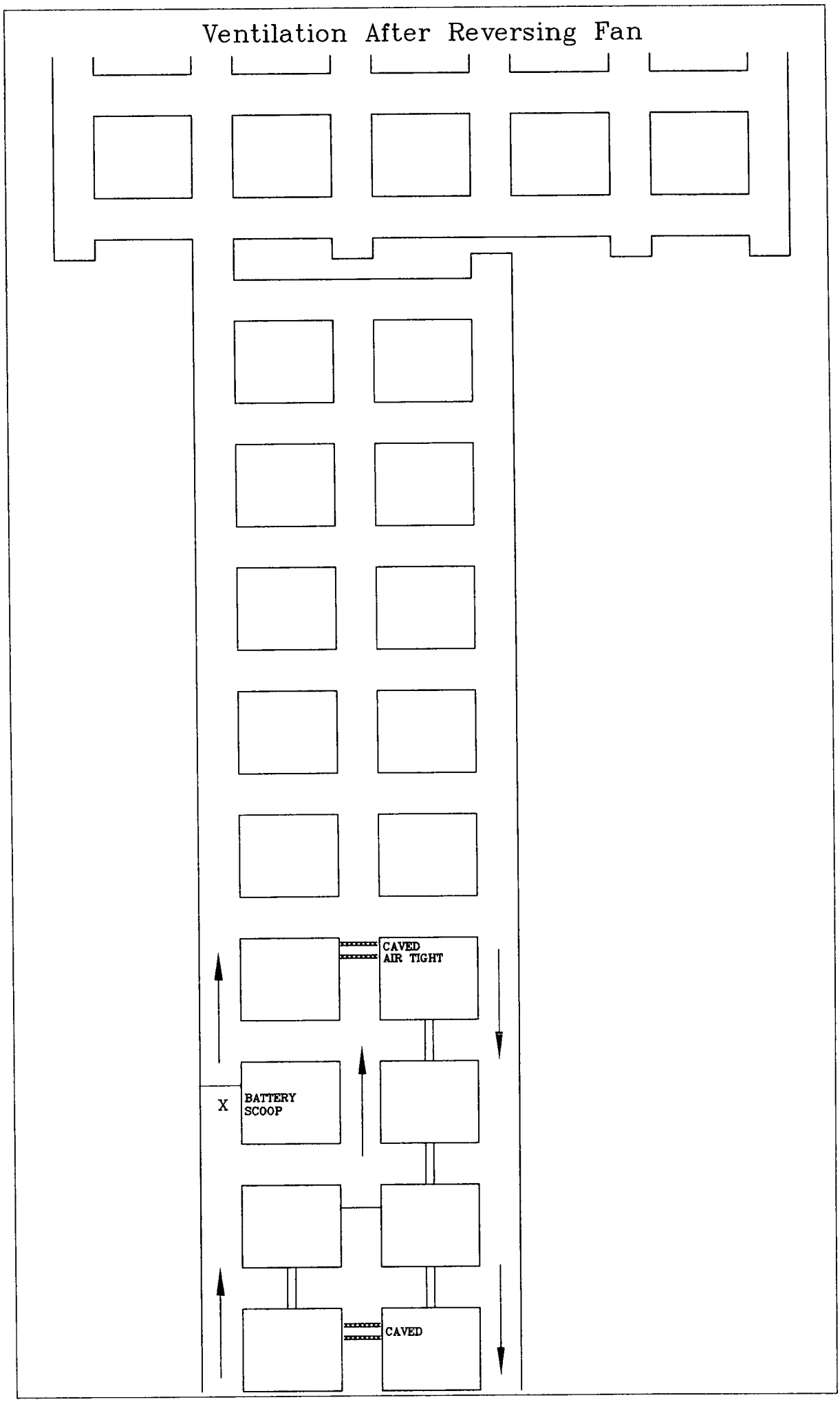

Outby Ventilation #1
CAVED
AIR TIGHT
REMOVE
BUILD
X
BATTERY
SCOOP
REMOVE
BUILD
CAVED

# Ventilation #1

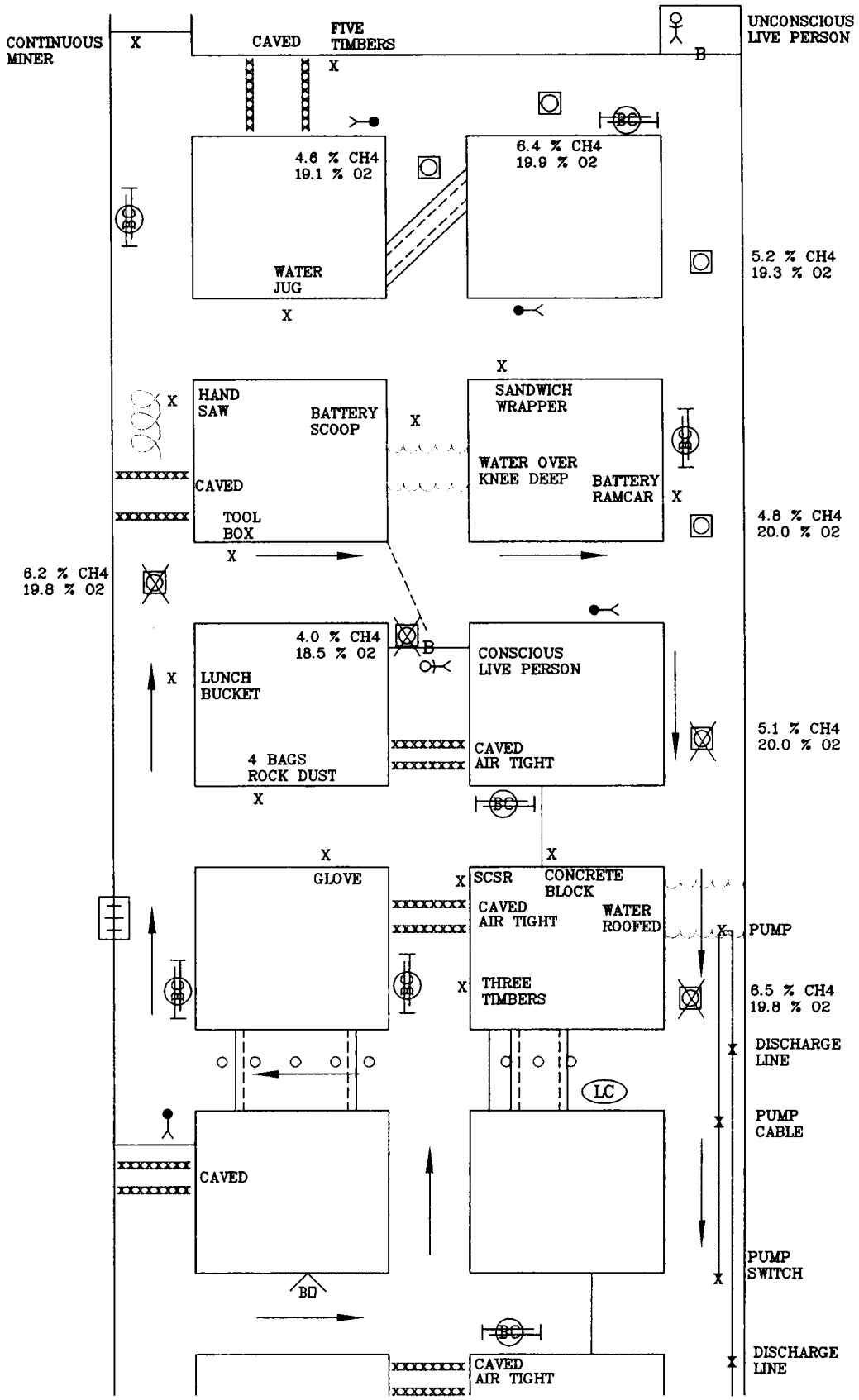


# Ventilation #2

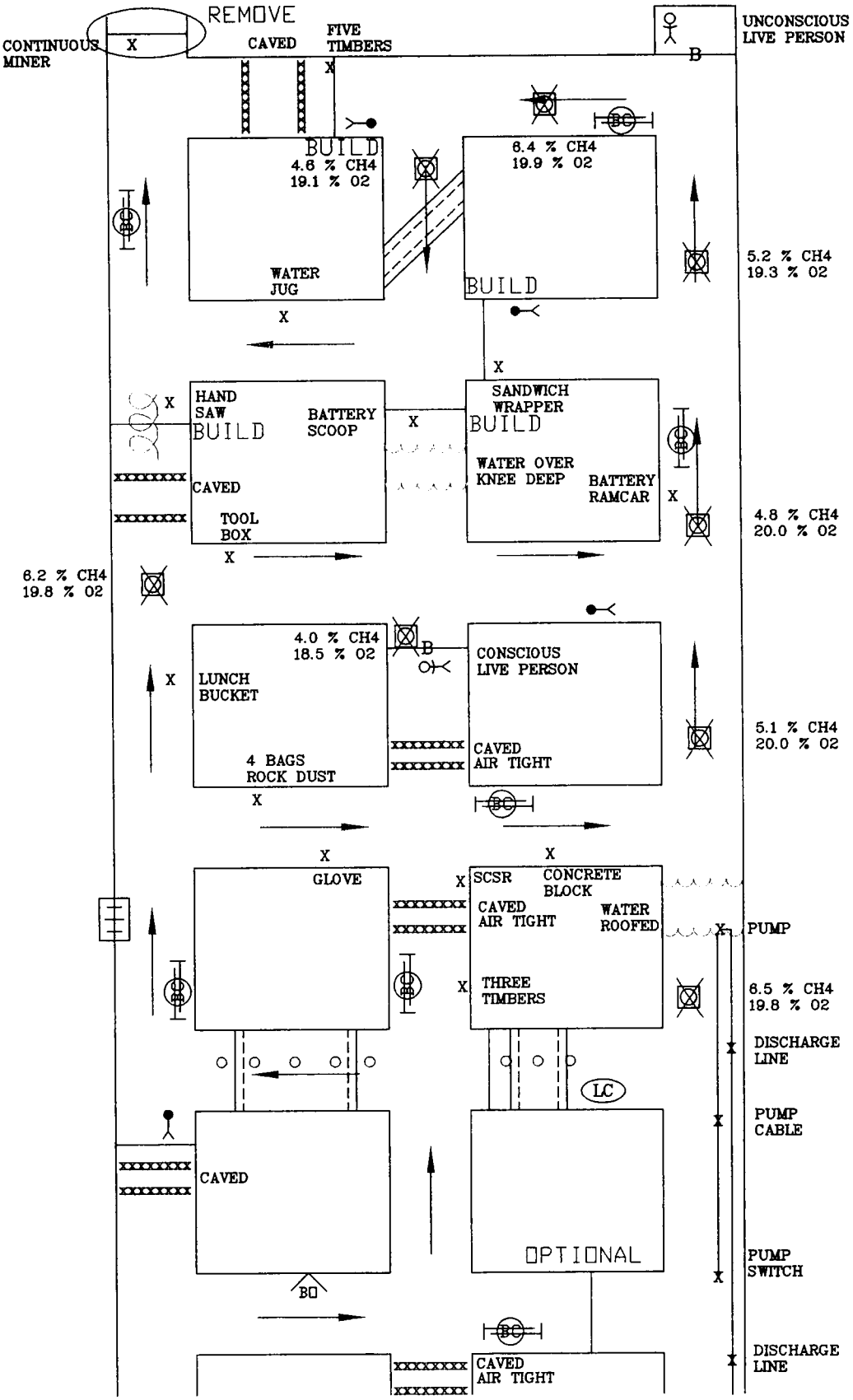


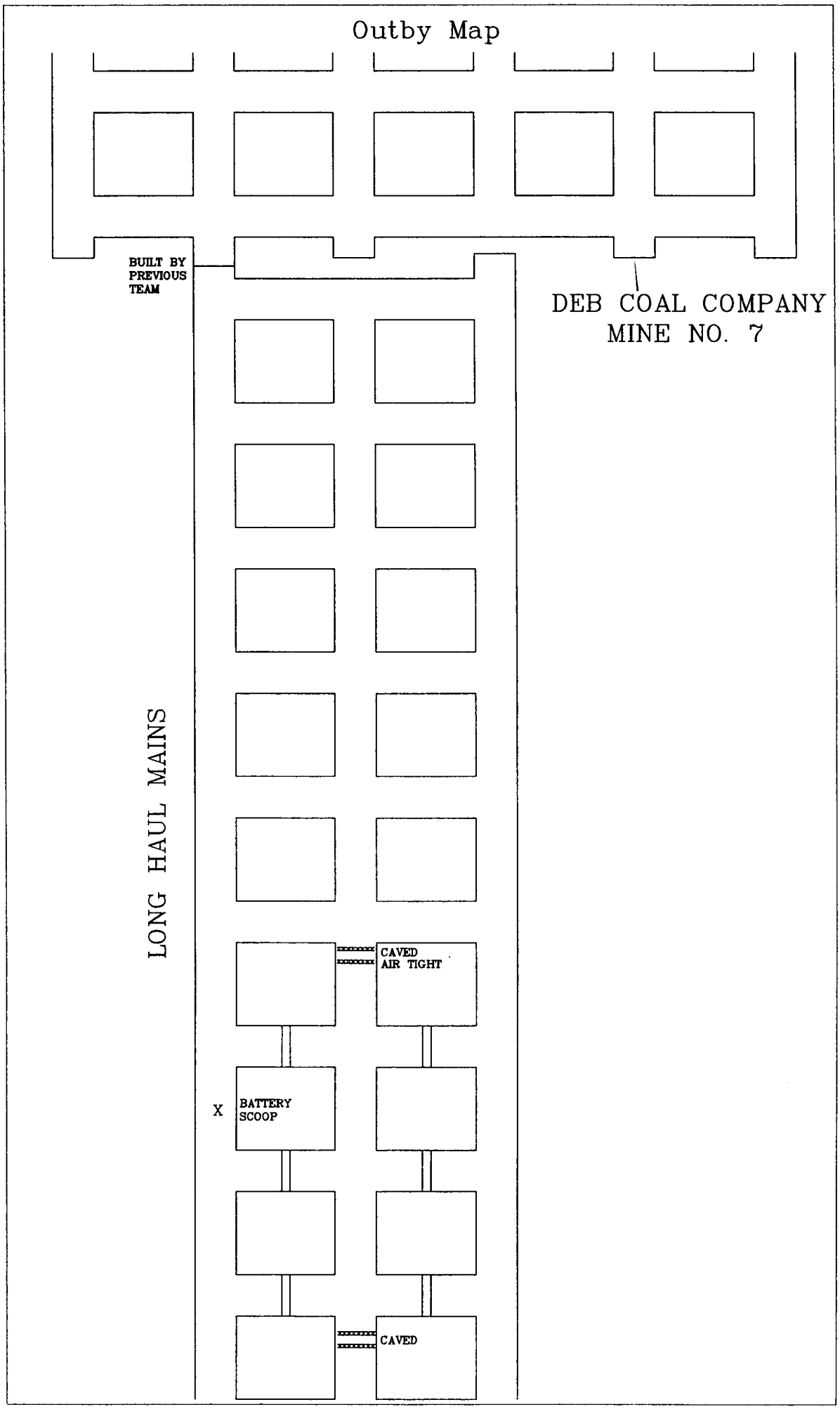

Ventilation After Reversing Fan
CAVED
AIR TIGHT
X
BATTERY
SCOOP
CAVED

# Ventilation #3



# Ventilation #4




Outby Map
BUILT BY PREVIOUS TEAM
DEB COAL COMPANY
MINE NO. 7
LONG HAUL MAINS
CAVED
AIR TIGHT
X
BATTERY
SCOOP
CAVED

# Final Ventilation