

2015 McDOWELL MINE RESCUE CONTEST

PROBLEM STATEMENT

You are the fifth mine rescue team to explore in the Shade Tree coal mine for our three missing miners. The three missing miners have been unaccounted for since 4:00 pm yesterday and are believed to be in-by the current fresh air base.

A fire occurred at the belt drive at the mouth of the 4 right section and the three miners were trapped in-by on the section. The first four teams extinguished the fire and recovered the 4 right section to this fresh air base.

All areas outby this fresh air base have been explored and ventilated with all explosive, irrespirable gases and smoke removed from the mine. At this point the number four team found roofed water in numbers 2 and 3 entries and they erected a temporary stopping in number 1 entry.

The 4 Right section is a three entry section with ventilation normally in-taking up number 2 and 3 and returning down number 1 entry to an exhaust fan on the surface. At this time the ventilation is in-taking up number 3 to the fresh air base and returning down number 1. The exhaust fan cannot be stopped or reversed.

The roofed water in 2 and 3 is normally controlled by a stationary pump located in number 3. That pump is de-energized at this time with the control switch located on the surface. The power cable to the pump is in the number 2 entry to the fresh air base. This power can be energized by the briefing officer. The pump must be running at all times to keep the water in number 2 and number 3 entries down.

We believe all the smoke from the fire has been removed from the mine but since this is a gassy mine we expect to see high levels of methane in-by the fresh air base.

The mine map is up to date except for the day shift yesterday. The 4 right section is mining towards an abandoned mine and should have cut into that mine on the second shift yesterday. The map will reflect that we do not know the exact conditions in the number 1 entry.

The number 6 team is backing you up underground but cannot do work at the fresh air base. The number 6 team can do work out-by the fresh air base at the direction of the command center. The number 7 team is your back up on the surface. Good Luck.

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Written Instructions

- 1. Explore all accessible areas of the mine.**
- 2. Account for all three missing miners.**
- 3. Turn all live miners over to the back-up mine rescue team.**

Cut into
Abandoned
mine

5 % CH₄
0 ppm CO
19 % O₂

Face

(BC)

Face

(BC)

4 Timbers

Face

Talking

B

4 % CH₄
10 ppm CO
19 % O₂

(BC) (LC)

Airtight

4 timbers

(BC)

3 Timbers

(BC)

30 feet
Suction line

Roofed

5 % CH₄
0 ppm CO
12.2 % O₂

5 % CH₄
0 ppm CO
12 % O₂

Pump with
10 feet
Suction line

Roofed

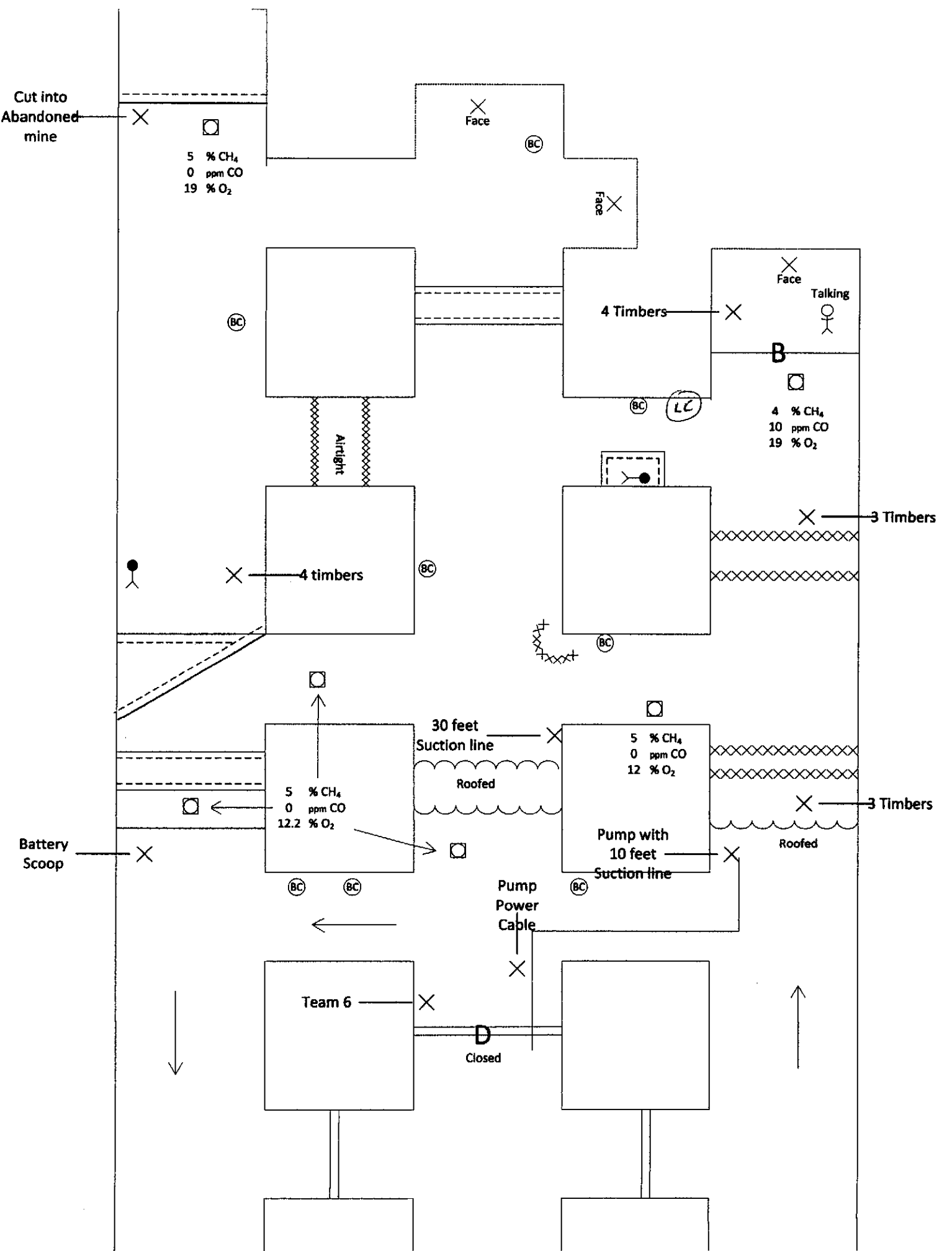
3 Timbers

Battery
Scoop

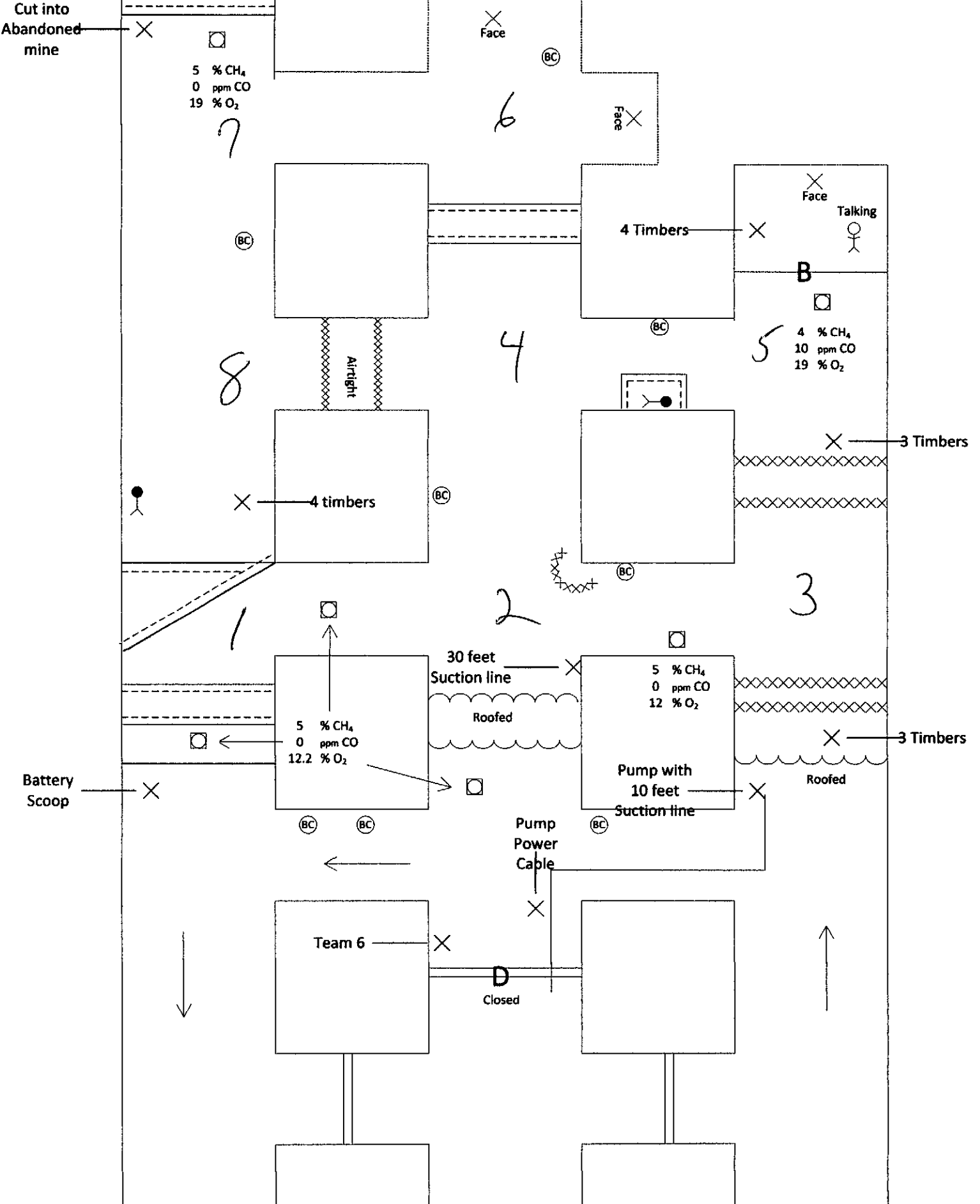
Pump
Power
Cable

Team 6

D
Closed

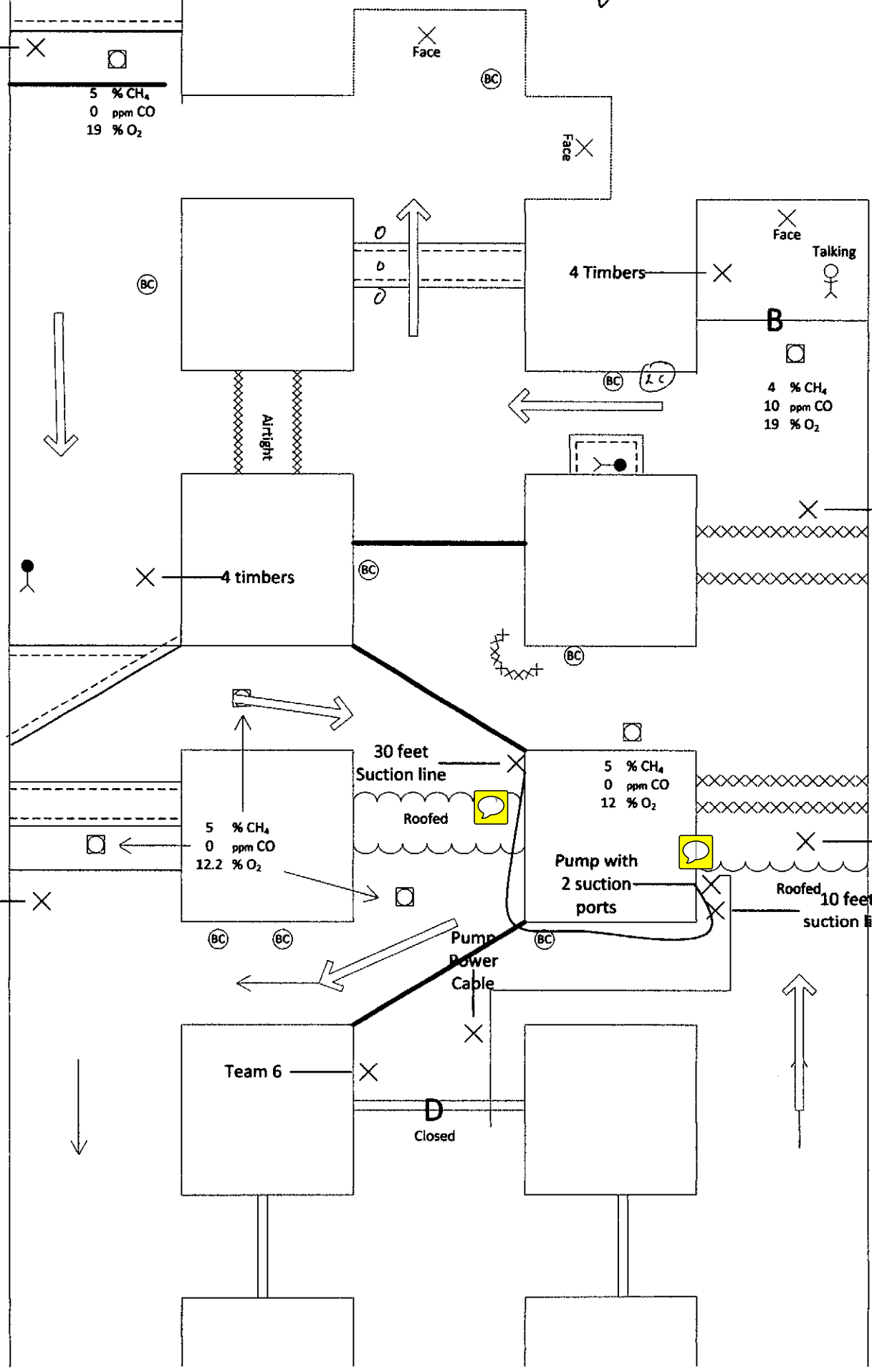


Team Stops



Vent. Map

Cut into Abandoned mine



F.A.B.

Welch Contest 10-1-15

Key Points

TEAM No. 6 can perform any work outby FAB. (Tear down stoppings, change vent, etc.)

1. Team must airlock prior to pumping water in No. 3 3ntry
2. Explosive mixture in 1st. x-cut between No. 1 and No. 2 extends into caved
3. 30 feet suction line will need to be moved to pump to pump water in No. 2
4. After ventilation is changed; If the team brought timbers outside they can timber the unsafe roof in the first intersection in No. 1 entry (If not already done). If they did not bring timbers to the surface, the only way they can get back into the mine is to have Team number 6 open door outby FAB and change ventilation to short circuit through FAB .

***Dropping the 45 curtain in the number 2 intersection will allow air to move the explosive mixture in the unsafe roof on the corner of block. (Fan cannot be stopped)**