



Kansas “Shoot-out”

Regional Mine Rescue
Competition

Hutchinson, KS

July 17-20, 2023

Day 2 Problem

Volunteer Mine Escape and Evacuation map

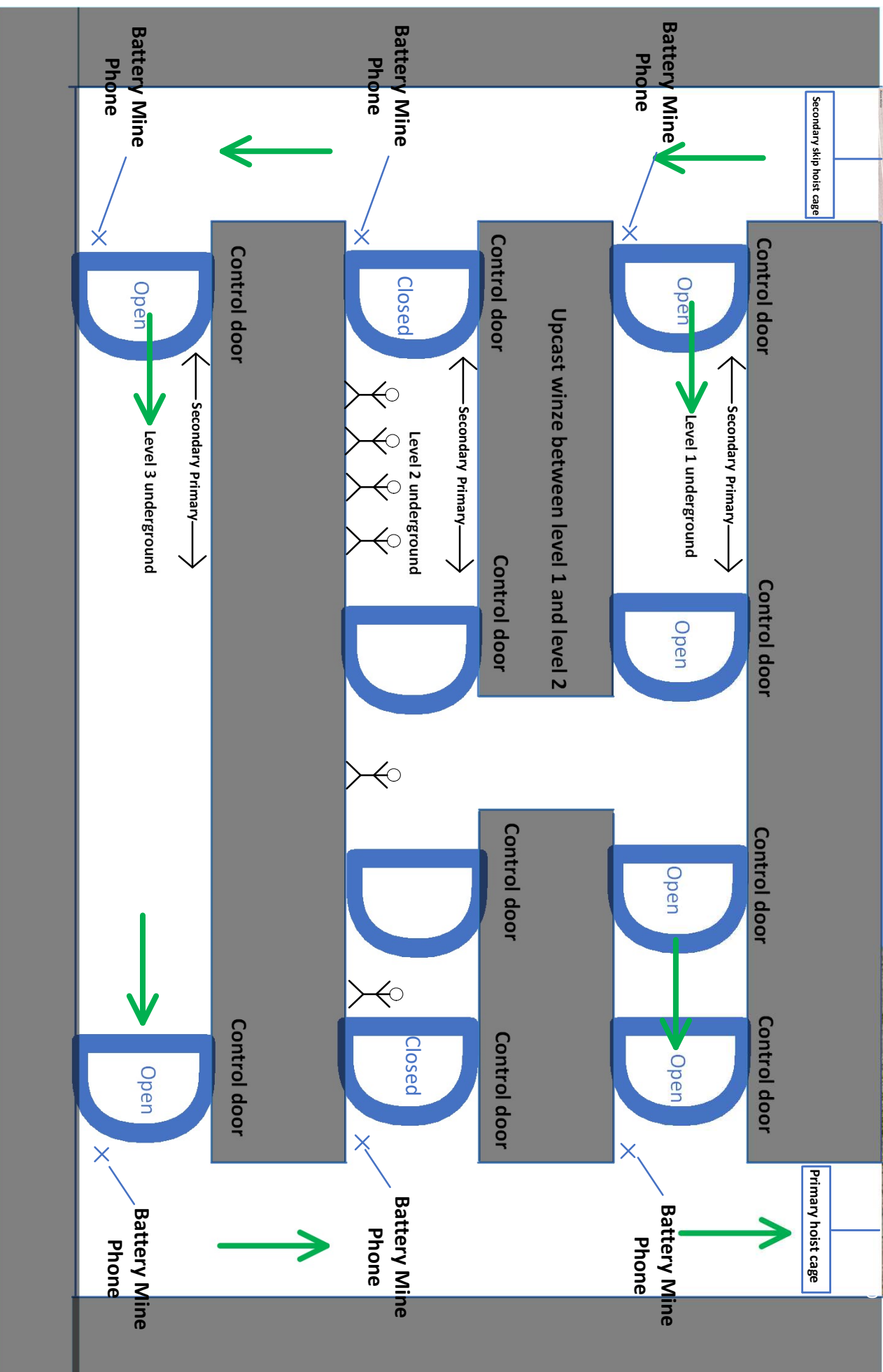


Main intake fan & fan controls +
secondary skip hoist +
Downcast secondary escape shaft

Mine office + primary hoist +
Upcast primary escape shaft



0.0% CH₄
0.0PPM CO
20.7% O₂
0.0PPM NO₂



On behalf of myself, and all employees here at the Volunteer Mine, we would like to say thanks. Your team's work on level 1 has allowed us to account for the 6 employees that were on that level, and your team's work was instrumental in restoring ventilation throughout level 1. The mine rescue team following your teams work on level 1 was able to recover all bodies from level 1 and has ensured all control doors throughout level 1 are open as pre-incident. If your team is willing to help, we have more work for your team to do. We still have 6 employees that are unaccounted for on level 2. We still have had no response from the 6 employees missing on level 2. No one has traveled lower in the primary upcast shaft than the landing of level 1. Currently the secondary skip hoist remains out of service, and no signs of a flare up of flames from the skip hoist cage fire that still rest in the downcast shaft. The main fan is still running and is being guarded and monitored by your backup team here on the surface. Mine gasses are still being monitored at the primary upcast shaft and the readings are 0%CH₄, 0ppmCO, 20.7%O₂, and 0ppmNO₂.

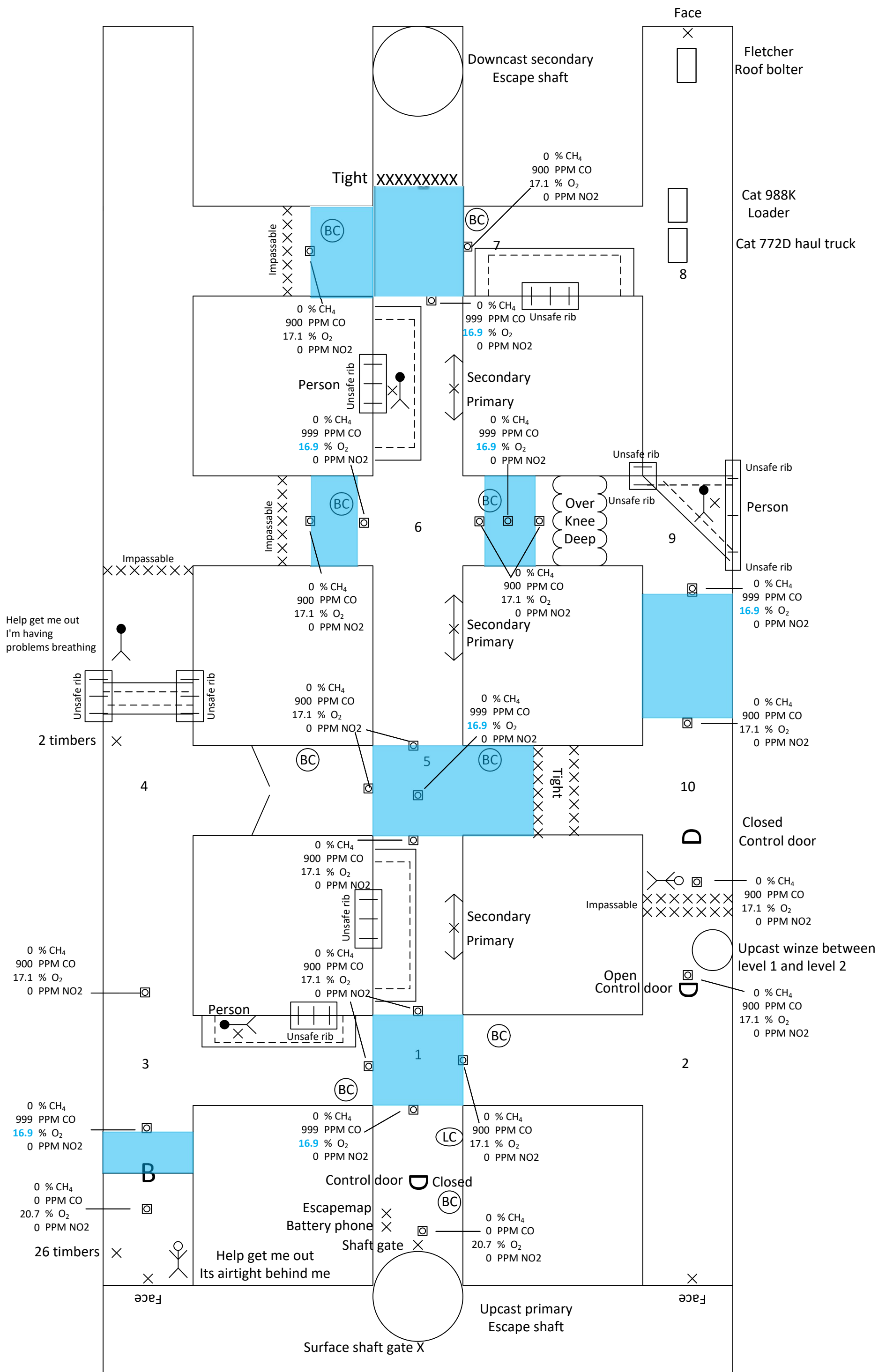
Team instructions

Your team has 75 minutes to complete the following task. Travel into the mine via the primary escape hoist to level 2, explorer the entire level if it can be done safely, account for the six employees on level 2, bring survivors to the fresh air base located here on the surface. The team may carry only 3 brattice cloths, 1 line curtain, and 8 timbers as you travel through the mine. Mobile equipment cannot be moved by your team as found in the mine. If falls are encountered, they cannot be moved. If unsafe roof, unsafe ribs or overhanging brows are encountered they will not be scalable. All materials needed to work the problem will be found in the mine.

All agencies are present, and we have a back-up team here on the surface to serve as your backup.

Good Luck.

Day 2 Problem Map



Welcome to Day 2, mine rescue field problem.

Prior to reporting to the field each day, the team will be given a briefing, therefore reading the team statement to the team is not necessary when they reach the field.

The communication cable can be strung out prior to starting the clock, and if Visio is used the SD card will be given to the command center attendant during this time for loading. If radios are used by the team, the team must provide the #1 judge with a radio.

Each day when the necessary introductions have been made. **The #1 judge will state' I have no new information to provide your team'.**

The captain must start the clock prior to receiving the problem and the maps.

Team will go under oxygen,

The team is now ready to start underground.

Judge 1 surface rule 10

Failure of team to count off the first time in the mine and last time out of the mine.

The cage will always be on the level the team is located on. 20 seconds up or down each trip used by the team. **#1 judge will tell the team after 20 seconds they are up or down.**

Judge 1 underground rule 6

Failure to use posted hoisting signals.

Judge 1 underground rule 10b1

The team must check the shaft for possible damage, or presence of fire or flooding.

The team may place a dry sheet of paper or other dry combustible material on the cage and send down to level 2 to check for presence of fire or flooding. When the material used is brought back to the surface the **#1 judge will tell the team the shaft is clear to level 2.**

The team has reached level 2 landing.

Judge 1 underground rule 7

Failure to close shaft station gate.

Judge 1 underground rule 3

Failure of team to stop at the shaft station landing to perform apparatus checks, team must be off the cage.

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at the shaft station landing.

Judge 2 underground rule 1

Gas test at closed control door.

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the closed door.

Judge 2 underground rule 10

The team would be required to build a temporary stopping before opening the closed control door.

Judge 1 underground rule 8b3

The captain must verbally indicate he or she is checking the back or roof prior to building the temporary stopping.

Judge 2 underground rule 1

Gas test must be made when control door is opened.

Judge 1 underground rule 8b4

The captain must verbally indicate he or she is checking the back or roof upon passing through the control door.

Blue areas on the map show the IDLH, irrespirable gas extent. 16.9% oxygen is an IDLH atmosphere and will be used throughout the mine level as the irrespirable atmosphere.

Stop #1

Judge 2 underground rule 1

Gas test in each opening.

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections.

Judge 1 underground rule 8a

The captain must indicate to the team he or she has recognized bad ground. Elongated unsafe roof with unsafe rib in the crosscut leading to #1 drift and in the #2 drift.

The team will be in visual contact with a person placard located in the elongated unsafe roof in the crosscut between 1 and 2 drifts. The person placard is located with a safe rib directly behind the placard. A minimal of 2 timbers may be set to safely check the person placard. When the team has contacted the person placard by touch, the #1 judge will tell the team it is a body. (No mapping orientation will be required at this body)

Judge 1 underground rule 18i1

team subsequently finds necessary roof support to recover the patient at another team stop, the team must stop (prior to the No. 5 team member passing the roof support), retrieve the roof support and recover the patient.

Judge 1 underground rule 10a5

Team members contacting the patient must have on (BSI)

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the location of body.

Stop #2

The team will find the control door open.

Judge 2 underground rule 1

Gas test in each opening, and at the face.

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections, and at face areas.

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at face and caved impassable.

Judge 1 underground rule 8a

The captain must indicate to the team he or she has recognized bad ground. (Caved impassable).

Stop #3

The team will find a barricade at this stop that has the IDLH 16.9% O₂ in front of it. Inside the barricaded area there will be a live, conscious, walking, talking person.

The person inside will state, "HELP GET ME OUT, ITS AIRTIGHT BEHIND ME". (No mapping orientation required for the live standing person)

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections.

Judge 2 underground rule 1

Gas test in each opening and at barricade.

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at barricade.

After ventilating later, no airlock will be needed to breach the barricade due to the person inside has stated to the team, "it's airtight behind him".

The barricade can be ventilated after the team has made stops 1, 2, 3, 4, and 5. (See vent map with the two timbers set or maps without timbers being set).

If the team continues to explore to team stop 6 prior to ventilating the barricade, the team will be discounted under.

Judge 1 underground rule 18f, Continuing exploration beyond a miner (survivor) who has made verbal contact with the team but is located in an isolated or barricaded area when a means to safely evacuate the miner has been found.

Judge 2 underground rule 1

Gas test must be made after breaching barricade.

Judge 1 underground rule 8b4

The captain must verbally indicate he or she is checking the back or roof upon passing through the barricade.

Judge 1 underground rule 10a5

Team members contacting the patient must have on (BSI)

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the location of person and at the face.

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at face areas.

The team will now take the survivor to the surface.

Stop #4

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections.

Judge 2 underground rule 1

Gas test in each opening

Judge 1 underground rule 8a

The captain must indicate to the team he or she has recognized bad ground. (Unsafe roof with unsafe ribs)

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at unsafe roof.

The team will find two timbers at this stop that can be used to check the person placard located in the elongated unsafe with a safe rib the team had located at stop #1, also at this team stop the team will be in verbal contact with a person that is located behind the unsafe roof with unsafe ribs on both sides that will state to the team.

“HELP GET ME OUT I’M HAVING PROBLEM BREATHING”.

To reach this person the team must have a minimal of 6 timbers to travel through this unsafe roof with unsafe ribs on both sides. (See timber map),

Later when the team have enough timbers to enter the area, they will find a body instead of a live person. (Mapping orientation is required for this body)

Judge 1 underground rule 10a5

Team members contacting the patient/body must have on (BSI)

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the location of body and at the caved impassable.

Judge 1 underground rule 8a

The captain must indicate to the team he or she has recognized bad ground. (Caved impassable)

Stop #5

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections.

Judge 2 underground rule 1

Gas test in each opening.

Judge 1 underground rule 8a

The captain must indicate to the team he or she has recognized bad ground. (Caved tight).

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at caved tight.

The team is now ready to ventilate.

If the team has not delayed checking the person/placard found in the elongated unsafe at stop #1 after finding two timbers at stop #4, then one ventilation as shown. If the team has delayed checking the person placard found at stop #1 by not using the two timbers, then it will be a two-step ventilation as shown.

Stop #6

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections.

Judge 2 underground rule 1

Gas test in each opening.

Judge 1 underground rule 8a

The captain must indicate to the team he or she has recognized bad ground. (Caved impassable and elongated unsafe roof with an unsafe rib).

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the cave impassable and water over knee deep.

The team will be in visual contact with a person placard located in the elongated unsafe roof in the #2 drift. The person placard is located with an unsafe rib directly behind the placard. A minimal of 4 timbers must be set to safely check the person placard if direction of travel into the area is from the side of the unsafe roof, if not additional timbers will be needed if travel is down by the rib line. When the team has contacted the person placard by touch, the judge will tell the team it is a body. (No mapping orientation will be required at this body)

Judge 1 underground rule 10a5

Team members contacting the patient must have on (BSI)

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the location of body.

Stop #7

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections.

Judge 2 underground rule 1

Gas test in each opening

Judge 1 underground rule 8a

The captain must indicate to the team he or she has recognized bad ground. (Caved impassable in crosscut, caved tight in drift, and the elongated unsafe roof with an unsafe rib in crosscut).

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the caved impassable and at the caved tight.

Stop #8

Judge 2 underground rule 1

Gas test in each opening and at face.

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections, and at face areas.

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at face and unsafe roof.

Judge 1 underground rule 8a

The captain must indicate to the team he or she has recognized bad ground. (Unsafe roof with unsafe ribs in the #3 drift).

The team will find a body placard when timbering through the unsafe roof. (Mapping orientation will be required at this body)

Judge 1 underground rule 10a5

Team members contacting the patient must have on (BSI)

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the location of body.

Stop #9

The team will find the backside of the water over knee deep at this stop.

Judge 2 underground rule 1

Gas test in each opening

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections.

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the water over knee deep.

Stop #10

The team will find the control door closed with no IDLH in front of the door. The person inside is a walking, but not talking live person. (No mapping orientation will be required at this standing person)

Judge 2 underground rule 1

Gas test in each opening and at closed door

Judge 1 underground rule 8b1

The captain must verbally indicate he or she is checking the back or roof at intersections.

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the closed door and at the caved tight.

Judge 2 underground rule 10

The team would be required to build a temporary stopping before opening the closed control door.

Judge 1 underground rule 8b3

The captain must verbally indicate he or she is checking the back or roof prior to building stopping.

Judge 2 underground rule 1

Gas test must be made when control door is opened.

Judge 1 underground rule 8b4

The captain must verbally indicate he or she is checking the back or roof upon passing through the door.

Judge 1 underground rule 10a5

Team members contacting the patient must have on (BSI)

Judge 1 underground rule 9

The captain must verbally indicate to the judges placing initials and date at the location of person and at the caved impassable.

Judge 1 underground rule 8a

The captain must indicate to the team he or she has recognized bad ground. (Caved impassable)

To get the live, walking, non-talking survivor to the surface the team must walk the survivor through two locations where 16.9%O₂ is present.

The team must place an apparatus on the survivor before traveling through an IDLH atmosphere.

Judge 1 underground rule 18d

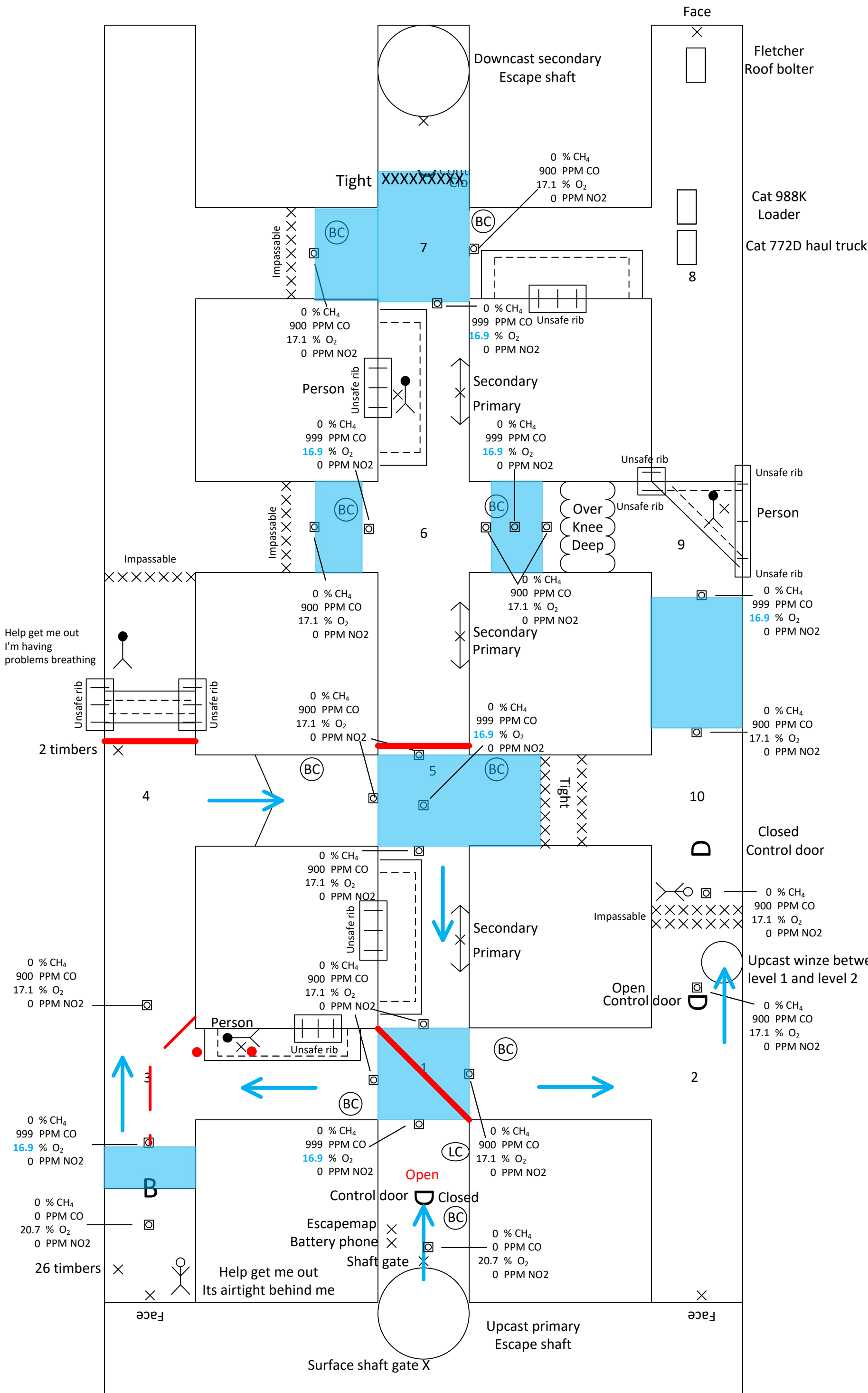
Not properly protecting survivor from an IDLH atmosphere.

The team has now reached the surface with the last survivor and has made all accessible areas and found all missing employees.

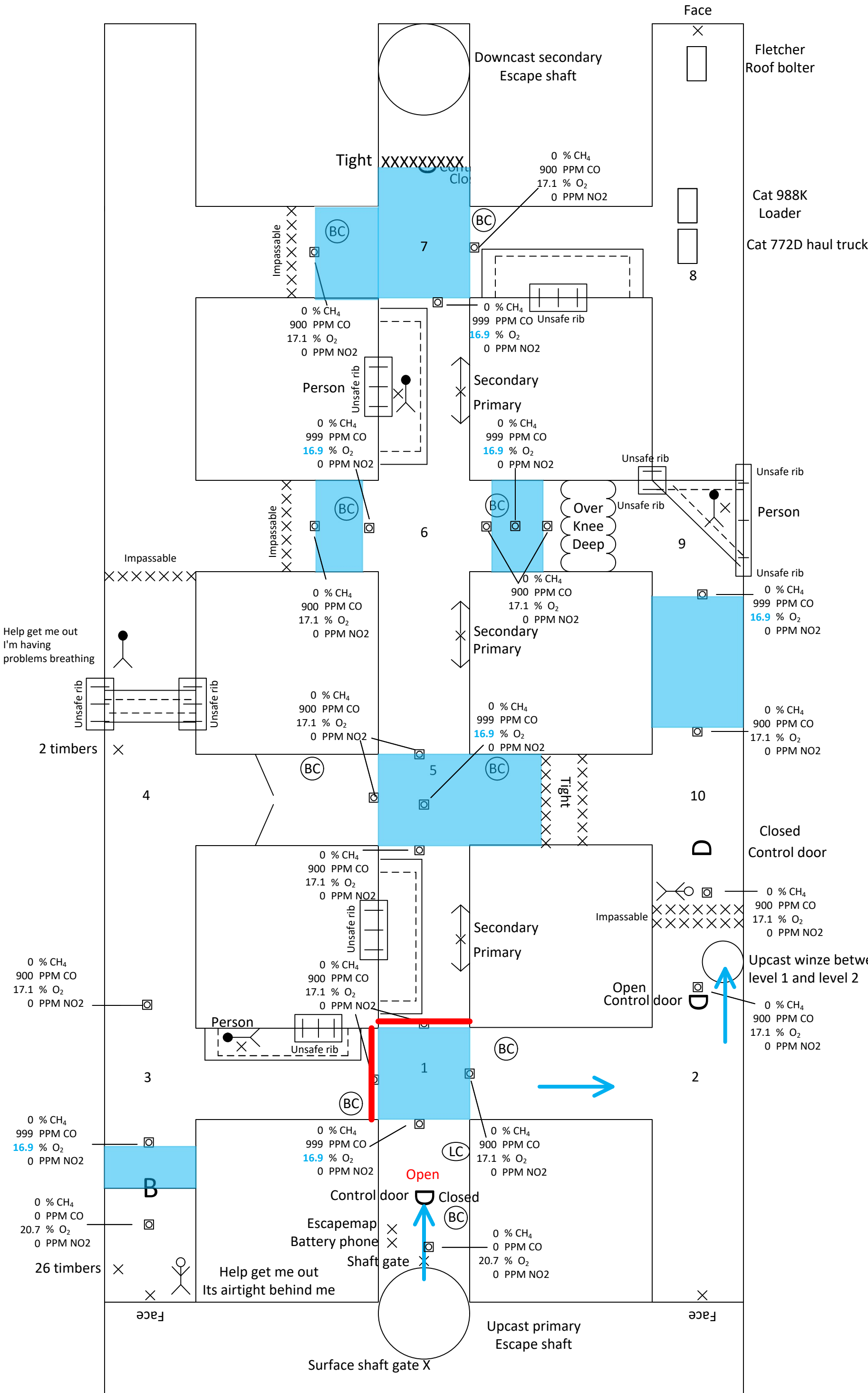
Judge 2 surface rule 6

If the team is still working and has not stopped the timing device at the fresh air base at the 75 minutes time limit, **the #1 judge will state to the team. "Your team's time is up".**

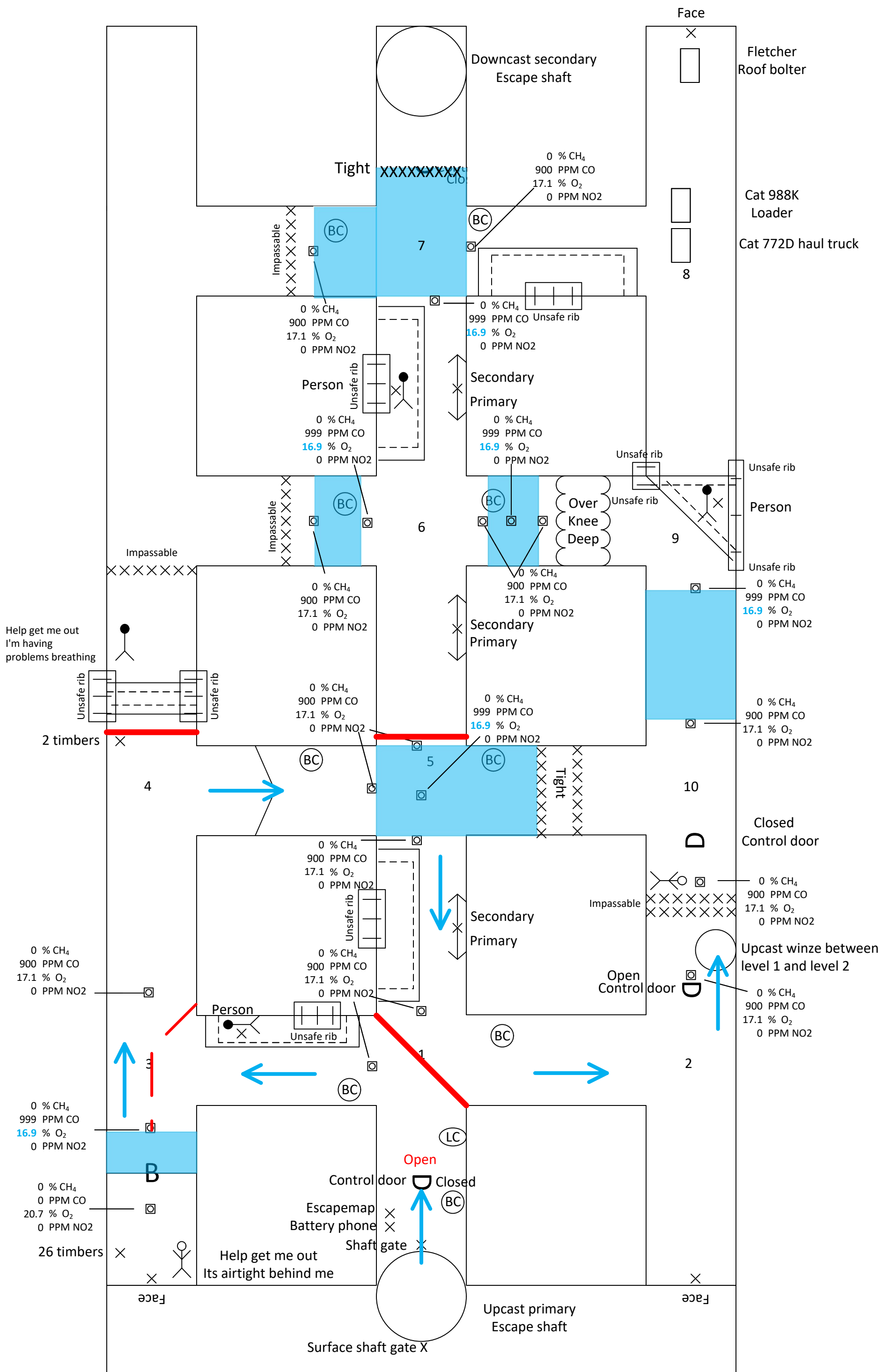
1st vent day 2 with timbers set



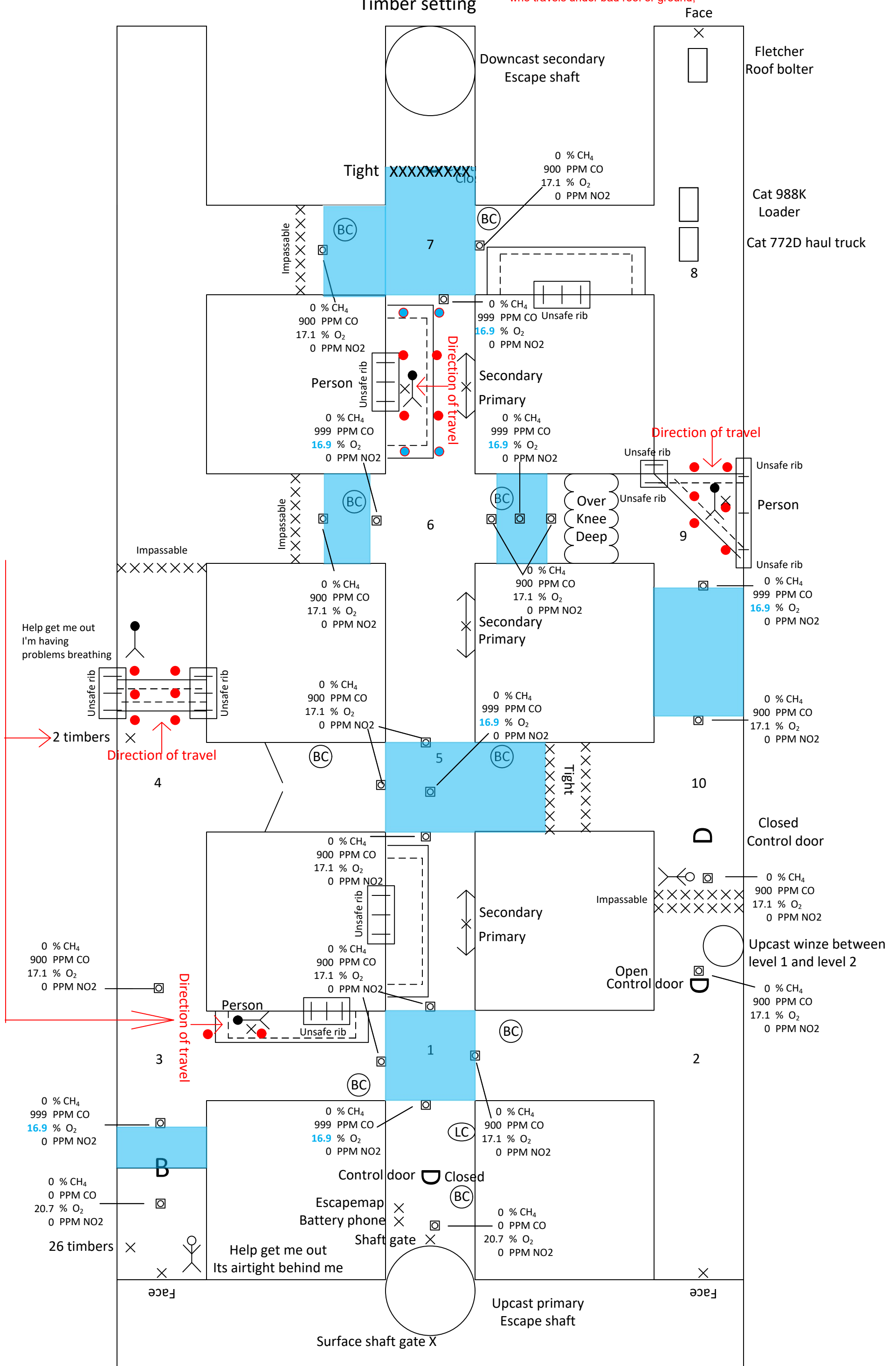
1st vent day 2 without timbers set



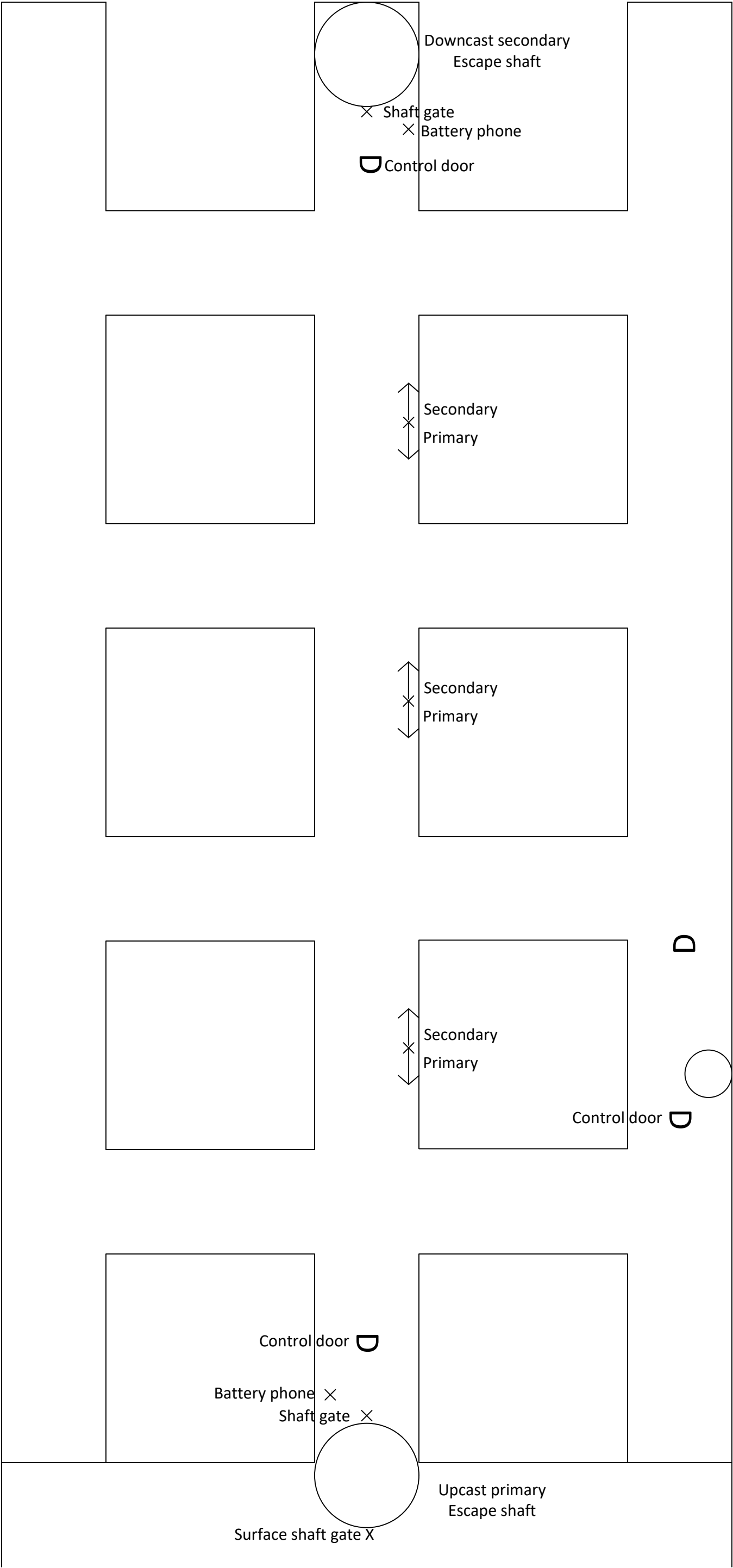
2nd vent day 2 without timbers being set



Judge 1 underground rule 10.a.1. Team endangerment
15 points will be assessed for each team member
who travels under bad roof or ground;



TEAM MAP



Briefing Officer
Map

