

# Delta Mine Rescue Contest

Delta, Colorado

July 20-22, 2010



First Place - Twentymile Coal - #1  
2010 Price Contest



Second Place - UEI - Blue  
2010 Price Contest

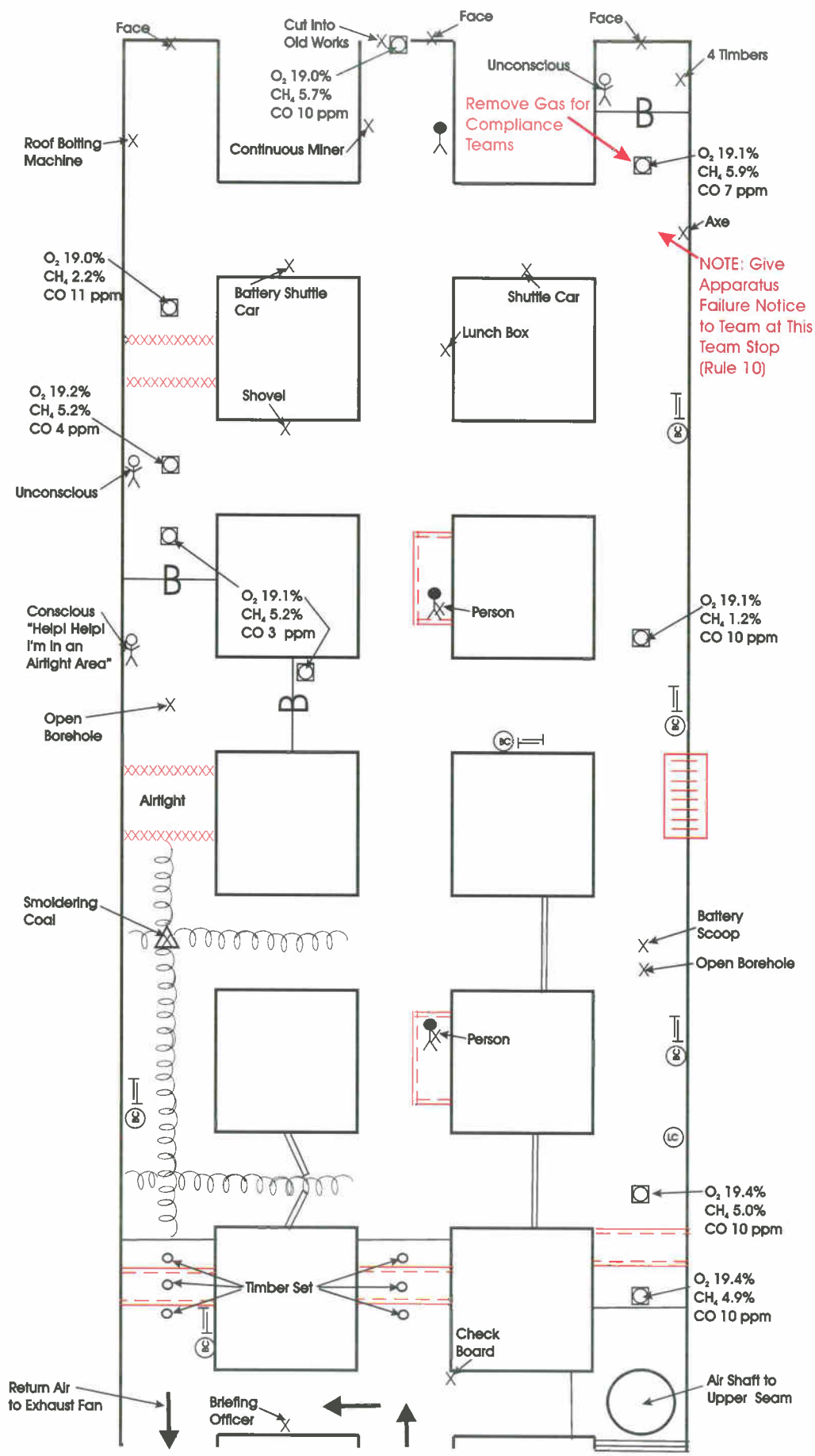


Third Place - Energy West - Black  
2010 Price Contest

# MINE RESCUE

Problem B

# DELTA, CO MINE RESCUE CONTEST - 2010



DELTA, CO MINE RESCUE CONTEST  
PROBLEM B  
JULY 21, 2010

STATEMENT

I am \_\_\_\_\_, Superintendent of the No. 1 Mine. You are located at the fresh air base on the West Mains section and are continuing rescue efforts that were suspended the other day due to adverse conditions. This fresh air base was advanced by other mine rescue teams to the point where you stopped exploration due to unsafe roof in all three entries. Timbers were brought in and set through the unsafe roof. The areas appear safe, but must be retested to be sure.

Rescue efforts were also delayed due to gases fluctuating in and out of the explosive range with indications of fire gases. To further evaluate the conditions, two boreholes were drilled into the section. Gas readings are being taken continuously from these boreholes on the surface. Presently, gas readings from these boreholes are below the explosive range with no evidence of fire. You will be advised if these gas readings change. The exact location of these boreholes has not been surveyed. During exploration, you are asked to locate these boreholes and report their location to me.

There are still six miners missing.

The air shaft where seals were being built prior to the accident is now located in No. 3 entry at the fresh air base. Ventilation controls at the shaft are shown on the map that will be provided. This shaft connects the West Mains section to workings in an upper coal seam that are ventilated by a blowing fan. Conditions at the bottom of the shaft are presently unknown and mine rescue teams have not explored to the top of the shaft in the upper seam.

An exhausting main fan on the surface is used to ventilate the mine. This fan must remain on and cannot be reversed or stalled. The fan is being guarded and sampled. Presently, ventilation has been established only to the fresh air base. Airflow at the fresh air base is shown on the map that will be provided. Temporary stoppings were erected in all three entries in by the fresh air base to control ventilation into the section. The location of these stoppings has not yet been mapped.

The mine map is a dotted-line map, which is not up-to-date. Mining equipment cannot be moved.

The mine is walking height and supported by resin-grouted roof bolts. All electrical circuits to the West Mains section have been disconnected, locked-out and guarded. The mine has experienced adverse roof conditions and problems with water.

A backup team is on site and another team is on standby. All state, federal, and local officials have been notified and are on site. You will have 90 minutes to work the problem. Mine maps and instructions will be provided.

# **DELTA, CO MINE RESCUE CONTEST PROBLEM B**

JULY 21, 2010

## **PROBLEM**

Account for all missing persons and bring all live persons to the Fresh Air Base.

Explore all areas that can be done safely.

You have 90 minutes to work the problem.



# **Statement of Person In First Barricade**

To be read by Person when team enters intersection  
in front of barricade

**Help! Help!**  
**I'm in an Airtight Area**

When the team rescues the live conscious person  
an initial assessment is required (RULE 12).

# **Apparatus Failure Notice**

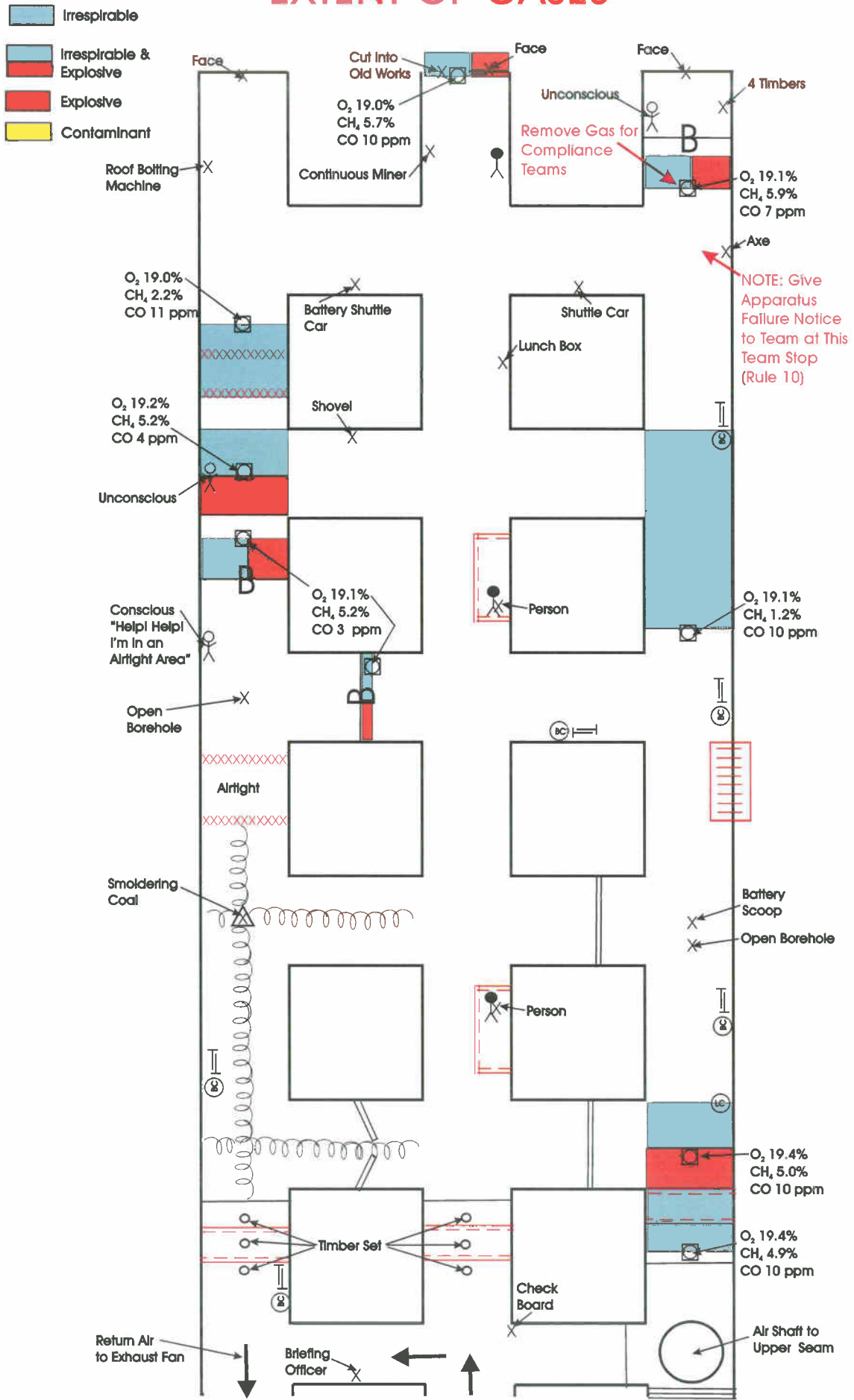
**(RULE 10)**

## **No. 4 Team Member's Apparatus has Failed**

To be given to Team Captain after team makes  
Team Stop in front of Barricade in No. 3 entry

# DELTA, CO MINE RESCUE CONTEST - 2010

## EXTENT OF GASES

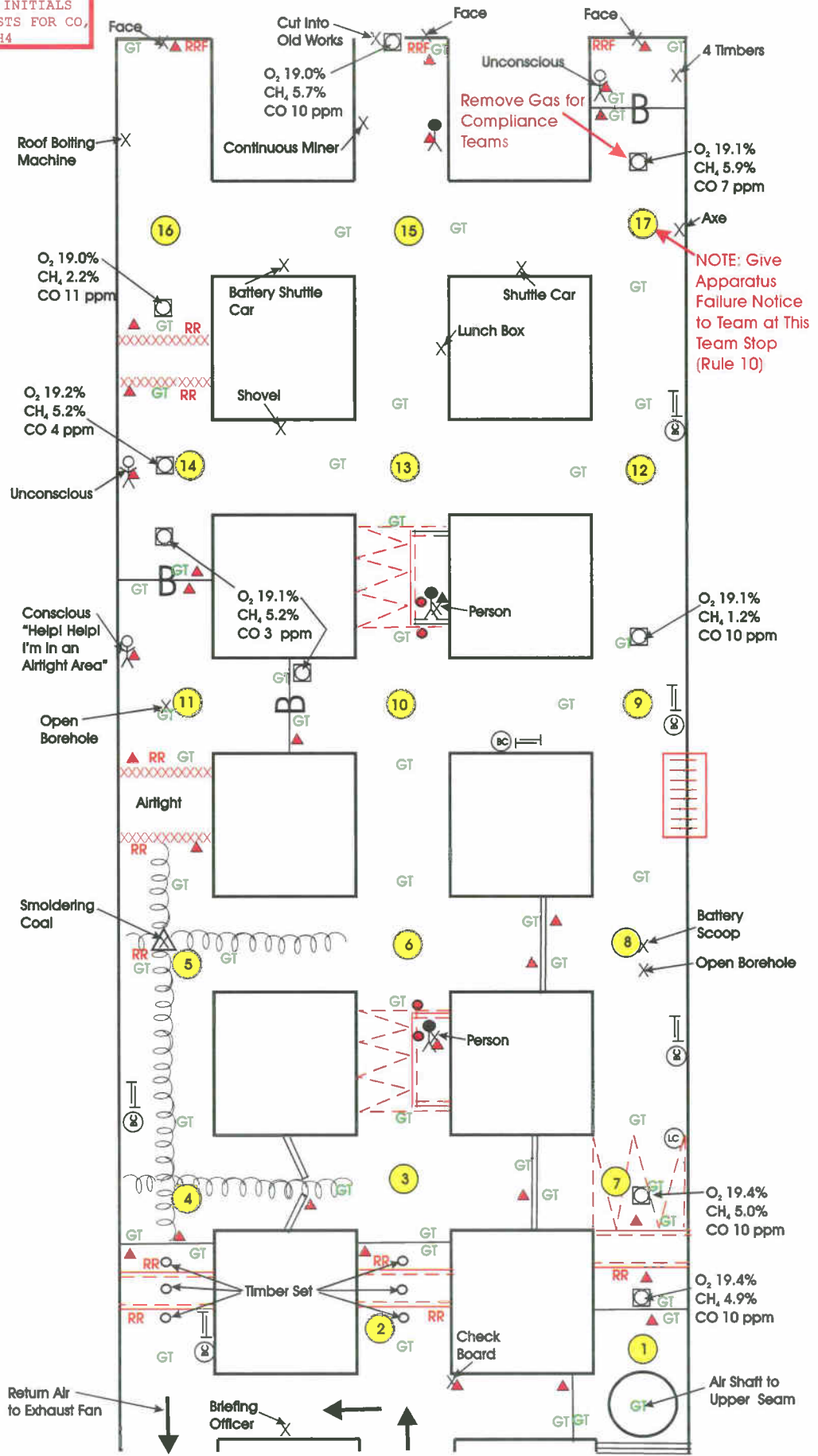


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## TEAM STOPS

### INDEX

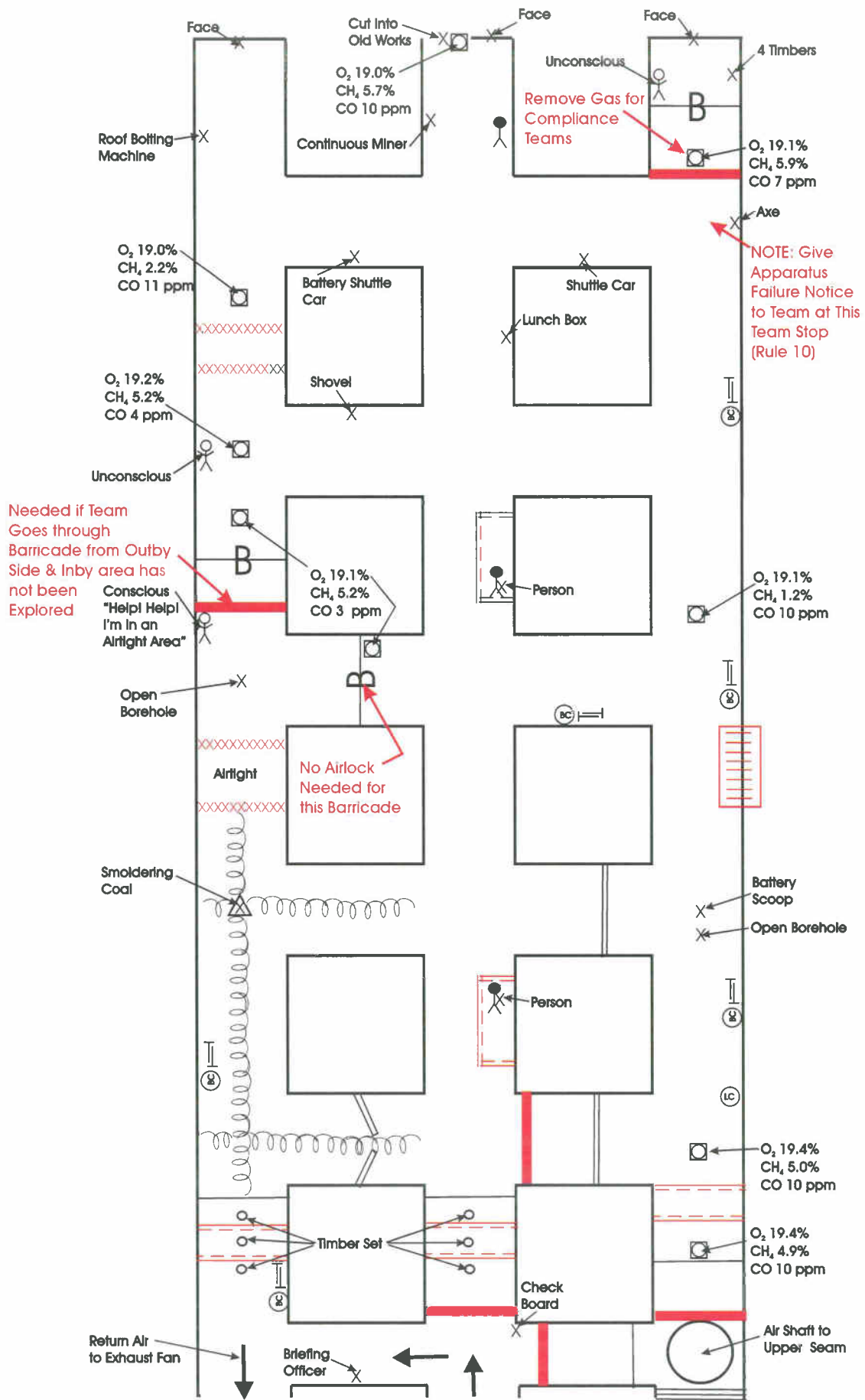
- RR - ROOF & RIB TEST
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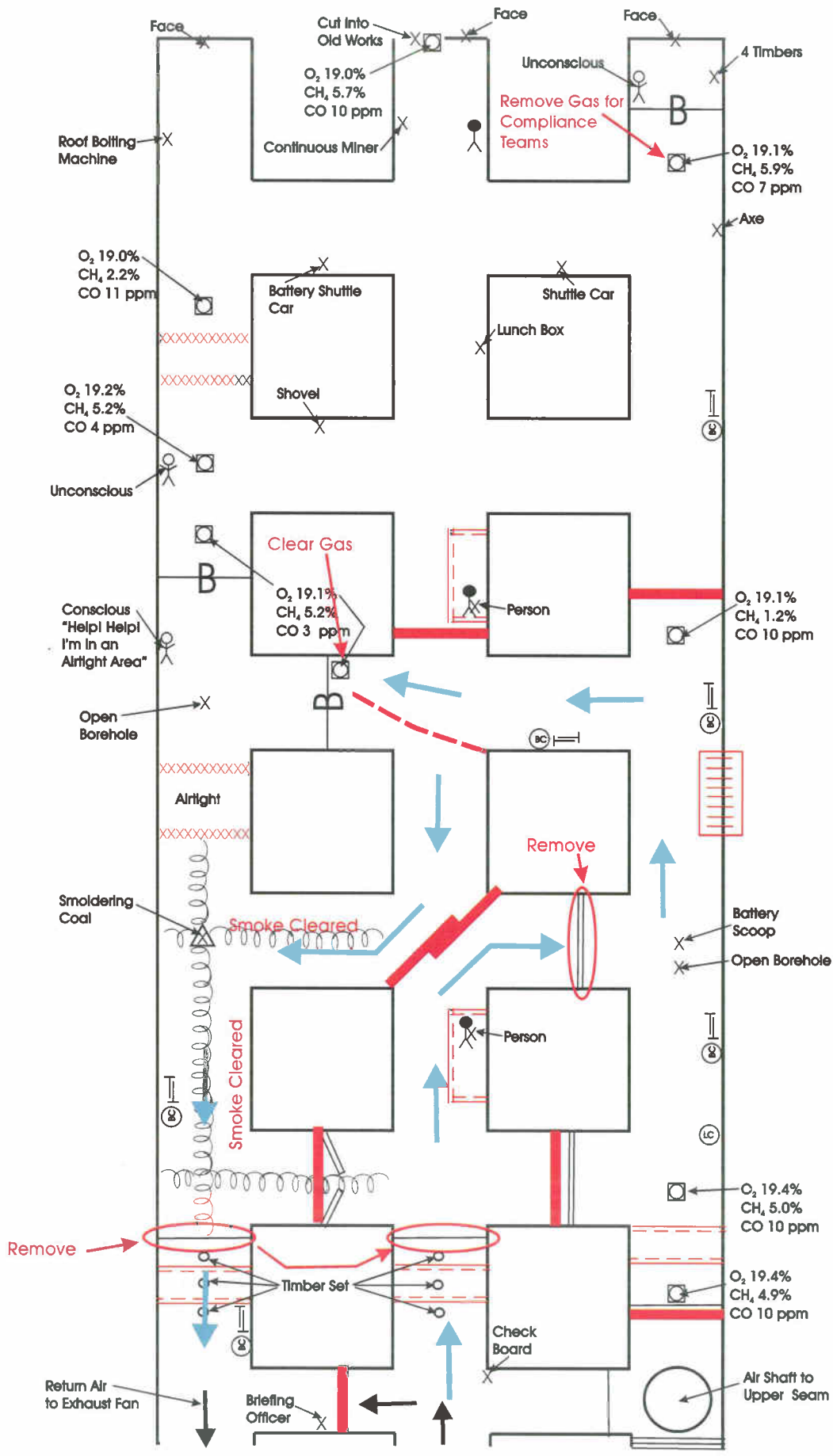


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## Airlocks Required - Rule 43

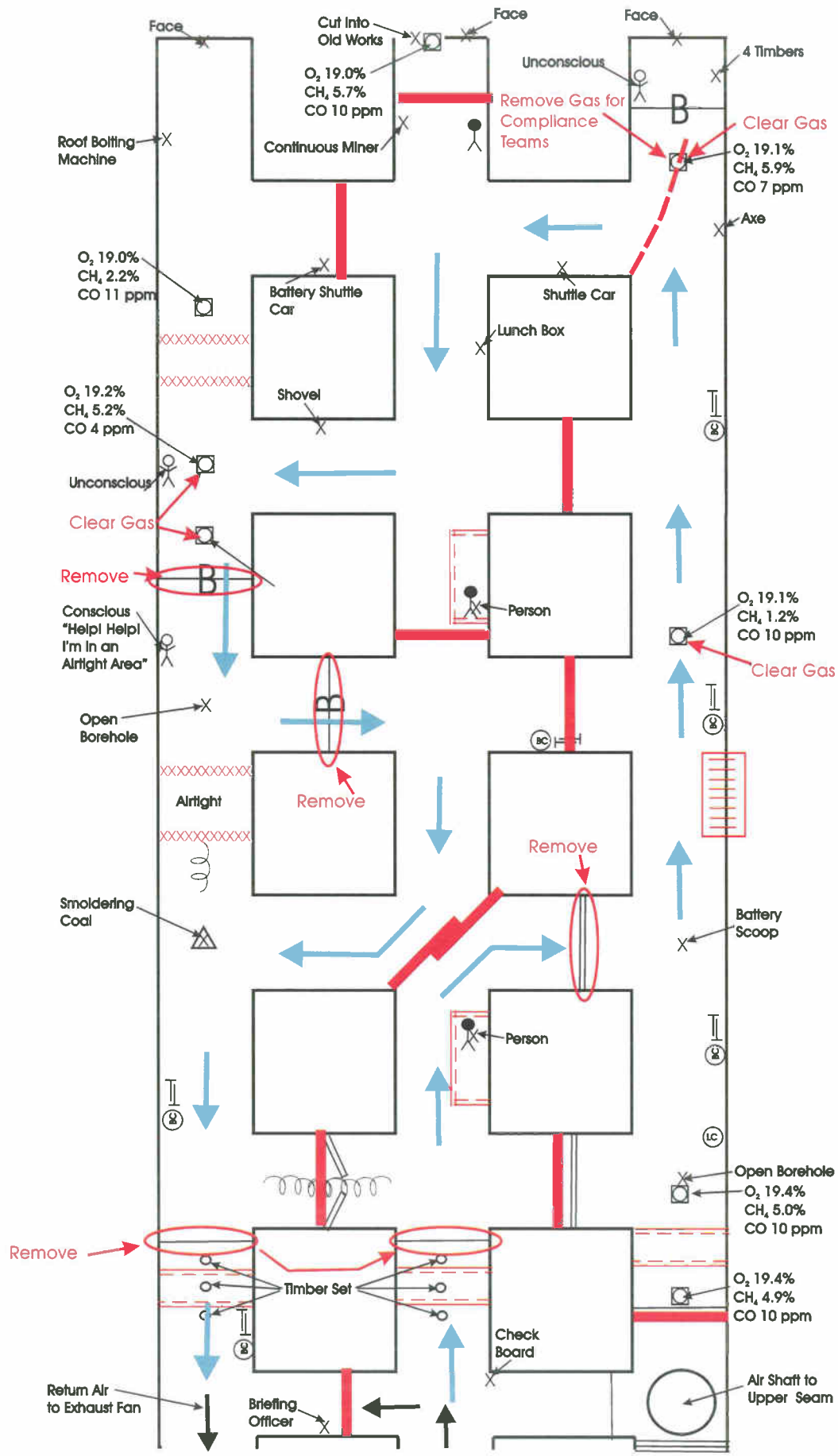


# STEP 1 VENTILATION



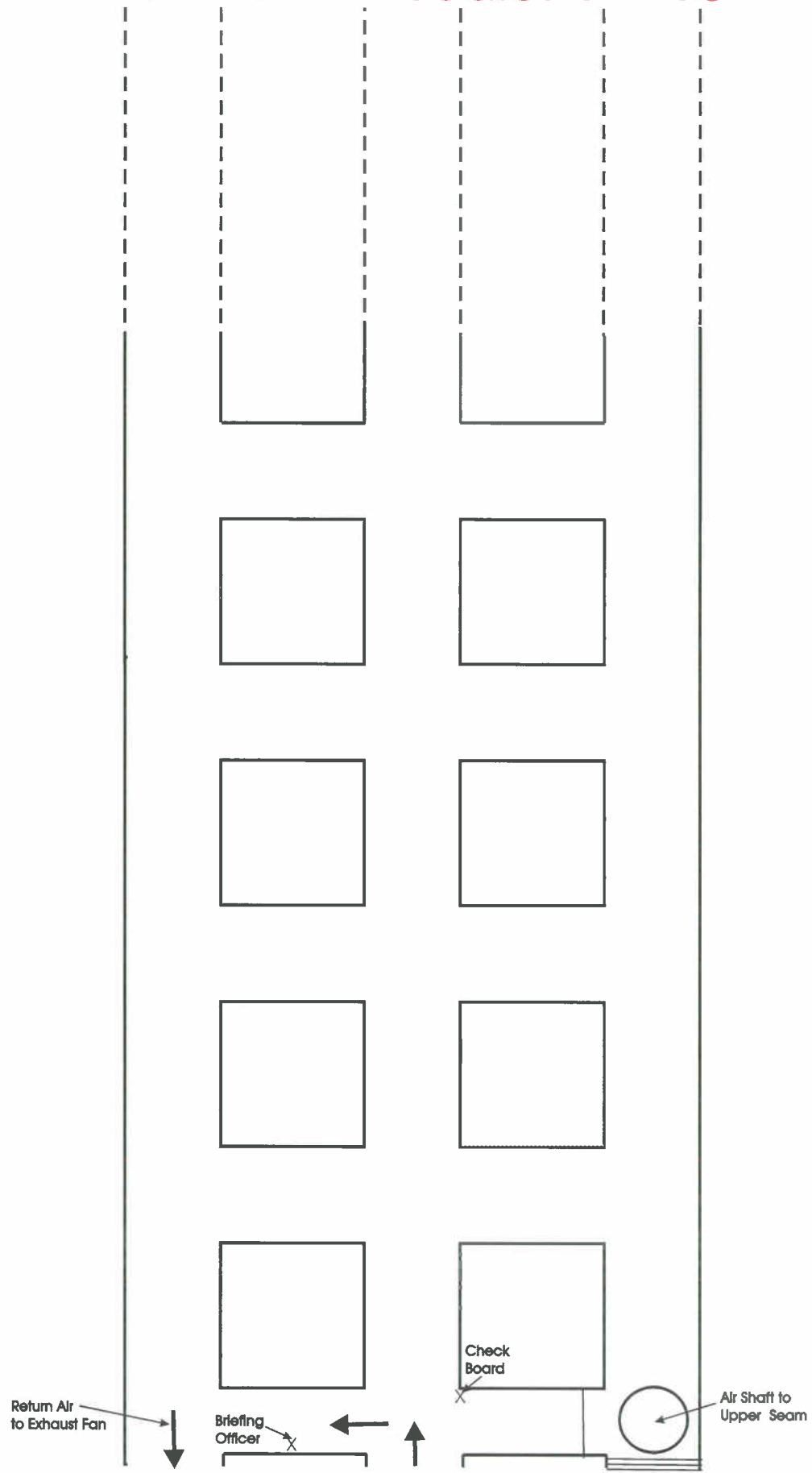
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## STEP 2 VENTILATION



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TEAM MAP - Scale: 1"=10'



## 2010 – DELTA, CO MINE RESCUE CONTEST INFORMATION

- A 90-MINUTE TIME LIMIT WILL APPLY. WARNINGS AT 20, 10, AND 2 MINUTES REMAINING WILL BE PROVIDED TO THE BRIEFING OFFICER BY THE JUDGE.
- THE FOLLOWING DISCOUNTS WILL APPLY IF TEAM FAILS TO COMPLETE PROBLEM IN 90 MINUTES:
  - **RULE 51** - 15 DISCOUNTS WILL BE ASSESSED FOR FAILURE TO FOLLOW WRITTEN INSTRUCTIONS IF PROBLEM IS NOT FINISHED BEFORE THE 90-MINUTE TIME LIMIT.
  - **RULE 5** – 2 POINTS FOR EACH OBJECT/CONDITION THAT SHOULD HAVE BEEN FOUND AND MAPPED IF PROBLEM HAD BEEN COMPLETED.
  - **RULE 32** – 10 DISCOUNTS FOR EACH MISSING PERSON NOT LOCATED.
  - **RULE 33** – 20 DISCOUNTS FOR EACH LIVE PERSON NOT BROUGHT TO THE FRESH AIR BASE.
  - **RULE 45.A.** – 4 DISCOUNTS FOR NOT EXPLORING ALL ACCESSIBLE AREAS OF THE MINE THAT CAN BE EXPLORED SAFELY IF PROBLEM REQUIRES SUCH.
- **RULE 43** – WHEN VENTILATION STRUCTURES ARE MOVED THEY MUST BE COMPLETELY DISMANTLED PRIOR TO MOVING. THE BRATTICE CLOTH MUST BE REMOVED FROM THE PVC PIPING AND THE TOP CROSS MEMBER MUST BE REMOVED FROM THE SIDE UPRIGHTS. THE SIDE UPRIGHTS AND BASES CAN REMAIN TOGETHER.
- **RULE 3** – AVERAGE WORKING TIME AND OVERTIME DISCOUNTS WILL NOT APPLY TO PROBLEMS WITH TIME LIMITS.
- **VELCRO STRAP/STOPPING DESIGNATIONS** – 3 STRAPS ON CROSS MEMBER INDICATE THE STOPPING IS INTACT WITH DOOR (IF APPLICABLE) CLOSED. 2 STRAPS ON CROSS MEMBER INDICATE THE STOPPING IS NOT FINISHED OR THE DOOR (IF APPLICABLE) IS OPEN.
- **MINE RESCUE Q & A'S – RULE 1 – COMPARING MAPS AFTER FINAL VENT.**  
1) CAN COMPARE MAPS VERBALLY. 2) CANNOT COMPARE MAPS EVEN IF NOT LAID BACK TO BACK (SIDE BY SIDE) 3) TEAM MEMBERS CANNOT REVIEW BRIEFING OFFICER'S MAP. 8) CAN DISCUSS MAPS IF NOT LAID SIDE BY SIDE. 12) NO VISUAL COMPARISON OF MAPS. 15) TEAM MEMBER CANNOT BE CLOSE TO BRIEFING OFFICER AND VERBALLY INSTRUCT PLACEMENT OF CARDS(OBJECTS & CONDITIONS)/VENTILATION CONTROL ON BRIEFING OFFICERS MAP.

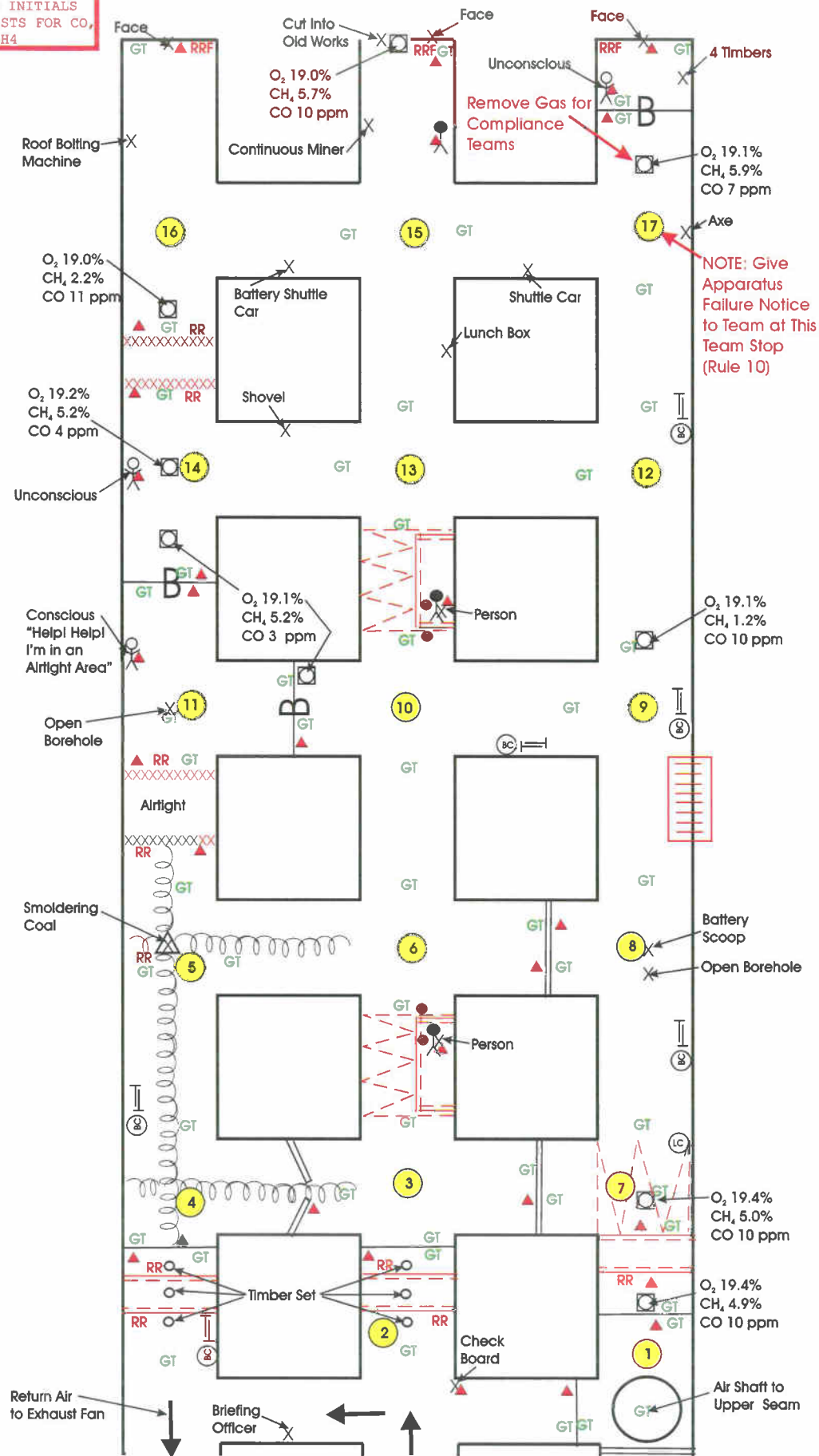


- **RULE 22** TEAMS USING RADIOS SHALL SECURE THEIR LIFELINE IN A LOCATION THAT IS CLEAR OF SMOKE AND CONTINUE WITH THAT LIFELINE TRAVELING INTO OR THROUGH THE SMOKE TO AIR CLEAR OF SMOKE, AND RETREAT THROUGH THE SMOKE USING THE REVERSE PROCEDURE.
- **RULE 30 B.** TRAVEL INTO OR THROUGH WATER OVER KNEE DEEP. WHEN WATER IS ENCOUNTERED, THE EXTENT OF THE WATER WILL BE DENOTED BY PLACARDS.
- **RULE 34. FAILURE TO PROPERLY PROTECT A LIVE OR POTENTIALLY LIVE PERSON(S), EACH OMISSION\_\_\_ 10** - PROPER PROTECTION MUST BE USED ON PERSONS EXPOSED TO OR FOUND IN IRRESPIRABLE ATMOSPHERES. ATMOSPHERES CONTAINING LESS THAN 19.5 PERCENT OXYGEN, CONCENTRATIONS OF CARBON MONOXIDE IN EXCESS OF 50 PPM OR SMOKE ARE IRRESPIRABLE ATMOSPHERES. IN AN IRRESPIRABLE ATMOSPHERE, UNCONSCIOUS PATIENTS MUST BE PROTECTED BY AN APPROVED BREATHING APPARATUS OR DEVICE WITH FULL FACE PIECE. ON A CONSCIOUS PERSON, IF CONDITIONS PERMIT, AN APPROVED SELF-RESCUER MAY BE USED. TRAINING MODELS MAY BE USED IF STERILIZED AND PROPERLY ASSEMBLED. SIMULATION OF PROPER DONNING OF APPROVED RESPIRATORY APPARATUS SHALL NOT BE PERMITTED.
- **RULE 42.A. FAILURE TO REMOVE PATIENT(S) PROMPTLY TO THE FRESH-AIR BASE, EACH INFRACTION\_\_\_ 6** - WHEN A TEAM FINDS A PATIENT(S), EITHER BY VISUAL OR VERBAL CONTACT, EVERY EFFORT MUST BE MADE TO REMOVE THEM SAFELY AND PROMPTLY TO THE FRESH-AIR BASE. VISUAL CONTACT WILL REQUIRE THE CAPTAIN'S PRESENCE IN THE AREA. VERBAL CONTACT IS ANY VOICE COMMUNICATION FROM THE PATIENT(S) THAT CAN REASONABLY BE EXPECTED TO BE HEARD BY THE TEAM. PATIENT(S) FOUND IN REFUGE ALTERNATIVE(S) ARE TO BE ALIVE, UNINJURED AND CONSCIOUS. ONLY ONE (1) PERSON MAY BE FOUND IN EACH REFUGE ALTERNATIVE.

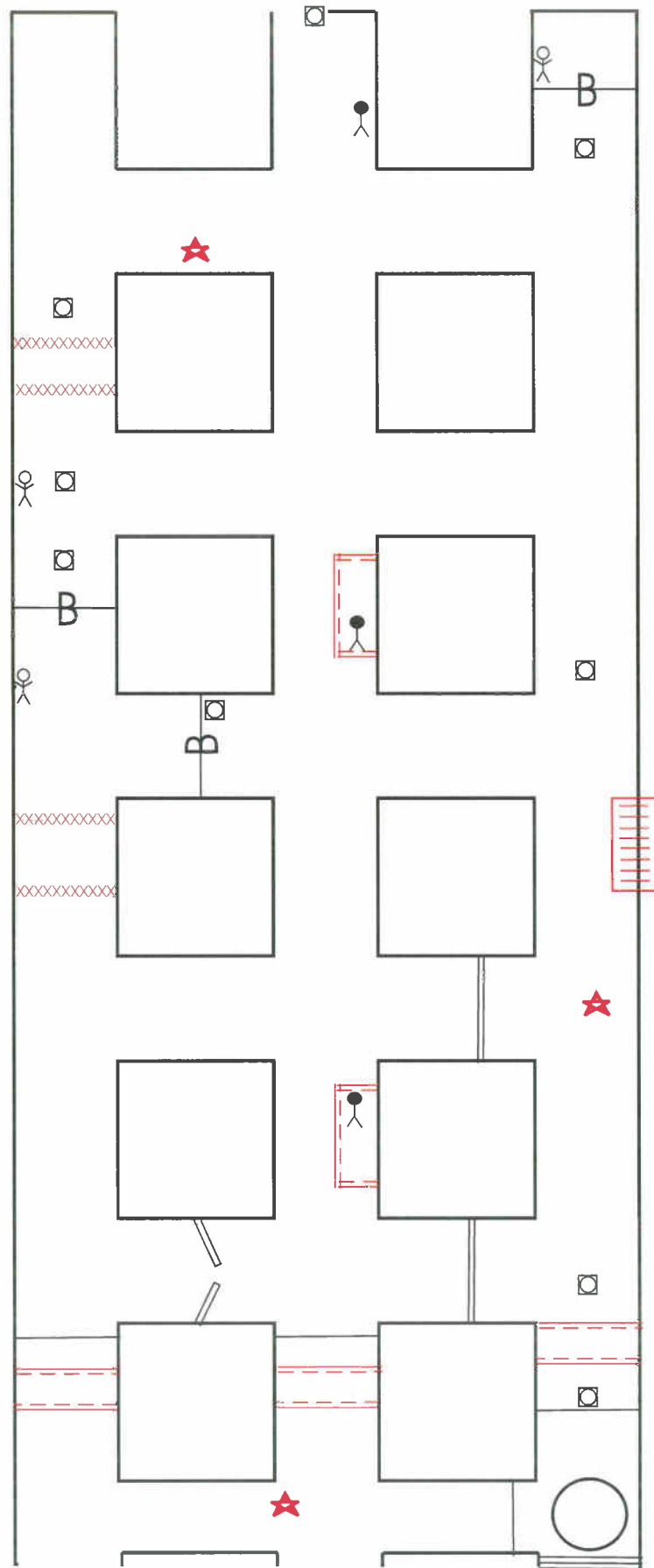
# DELTA, CO MINE RESCUE CONTEST - 2010

## JUDGES MAP

| INDEX |  |
|-------|--|
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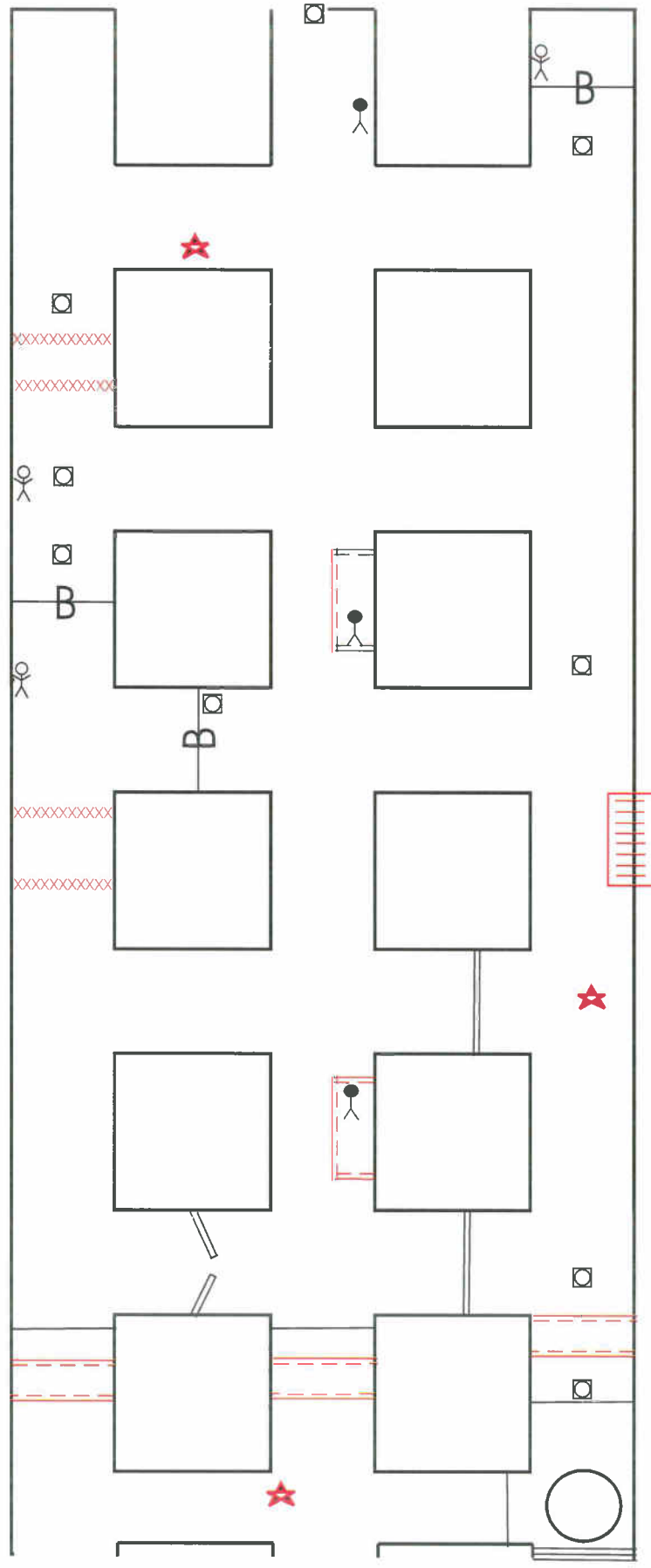
★ = Ignition Source



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## JUDGE'S VENT/FINAL MAP

★ = Ignition  
Source



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## PLACARD MAP

