



2011

**NATIONAL MINE RESCUE  
COMPETITION**

**Day 2 Contest Problem**

Greater Columbus Convention Center  
October 3 - 6, 2011

**2011**

**NATIONAL MINE RESCUE CONTEST  
Day 2 Statement**

Hello, I am \_\_\_\_\_, Superintendent of the Cat's Paw Coal Co., Buckeye No. 1 Mine. I thank you for your quick response.

Last night three repairmen, an examiner, and a foreman went to the 1 ½ Right off 2 South Mains Section to repair equipment and finish the weekly examination.

Near the end of the shift, the foreman called outside and said they smelled smoke. The responsible person walked outside his office to see if there was anything burning outside.

Shortly thereafter he heard a blast and saw smoke and flames come out of two of the three drift openings.

He ran back inside the office and called underground but no one has answered the phone.

The blowing mine fan is off but is operable. The fan can be started, stopped, or reversed if needed. The fan is in the No. 1 drift opening and is being guarded.

All electrical circuits going underground have been locked-out and are guarded.

All authorities have been notified.

You are located in the Fresh Air Base. There is a safe haven for the briefing officer in the fresh air base. All outby areas have been explored. The mine map is up-to-date.

There is a trained mine rescue team here as a back-up.

We have a trained life line judge. (Introduce the lifeline judge).

All face-down placards will be turned over by the captain prior to he/she passing the placard.

As you explore, the captain must turn over every face-down placard before he/she passes that placard.

(Introduce the field judges)

Good Luck!

**2011  
NATIONAL MINE RESCUE CONTEST  
DAY 2 PROBLEM**

**EXPLORE ALL OF THE MINE THAT CAN BE DONE SAFELY.**

**ACCOUNT FOR ALL MISSING PERSONS.**

**BRING SURVIVORS TO THE FRESH AIR BASE.**

**CALL OUT THE LOWEST O2 READINGS TO BRIEFING OFFICER WITH 20 MINUTE CHECKS.**

**TEAM CAN ONLY CARRY THREE SETS OF BUILDING MATERIAL AT A TIME.**

**YOU WILL HAVE 70 MINUTES TO COMPLETE THE PROBLEM. AT THAT TIME YOU WILL BE REPLACED BY ANOTHER TEAM.**

## **Note at Team Stop 1**

**“The barometer has started to fall and the low oxygen has migrated from the seal toward the hardened room.**

**I have closed the door. I am safe and have good air from the borehole. Please continue to explore.”**

**Note for Patient Behind Barricade**  
**in No. 1 Heading:**

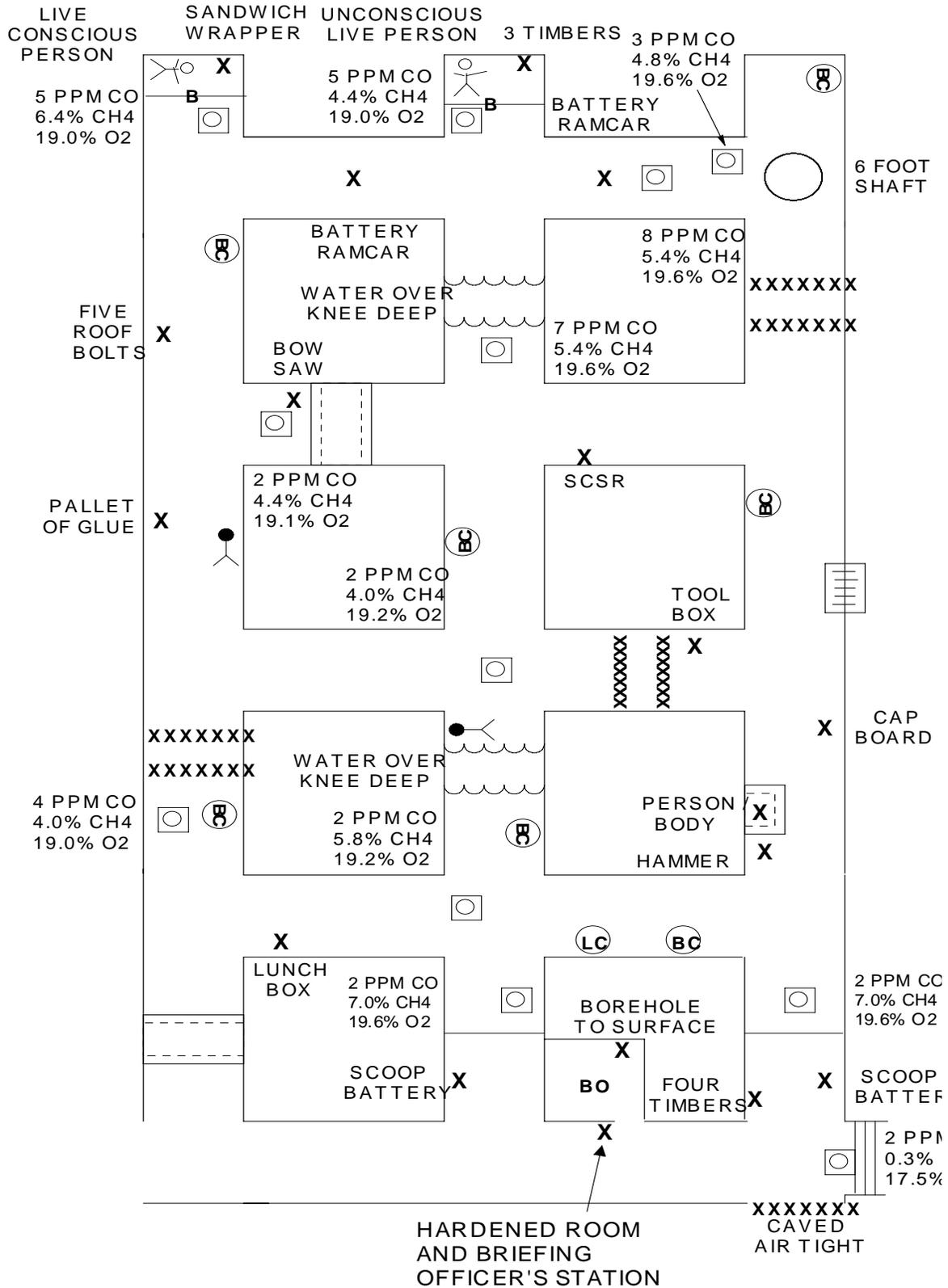
**“HELP, HELP, GET ME OUT OF  
HERE!!!”**

**I CANNOT OPEN THE DOOR.  
YOU WILL HAVE TO CHECK OUTSIDE  
MY LOCATION BEFORE I CAN OPEN IT.**

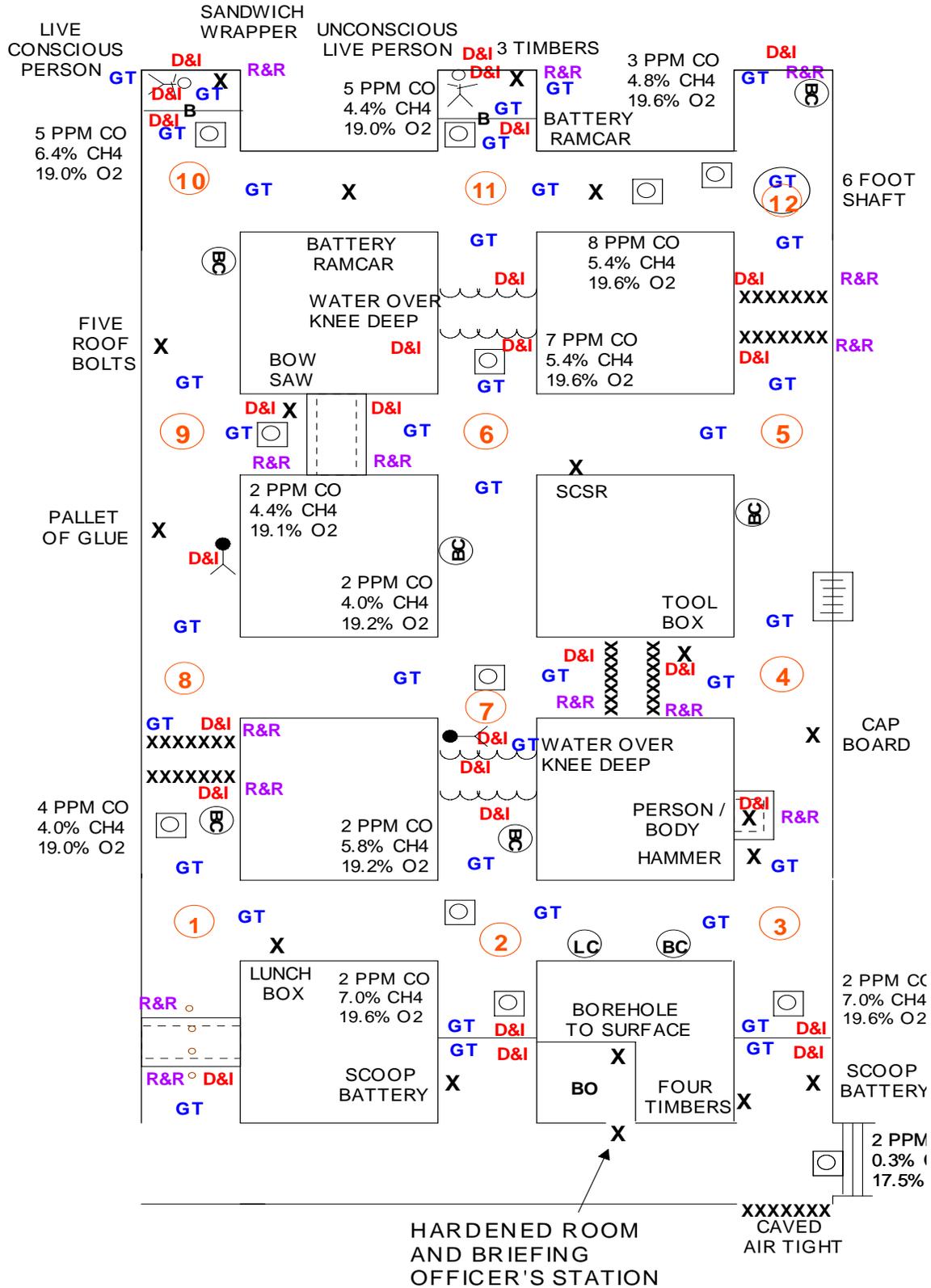
Note when Team Exits Mine at End  
of Problem

**“The barometric pressure has increased and the irrespirable gas has retreated to the seal.”**

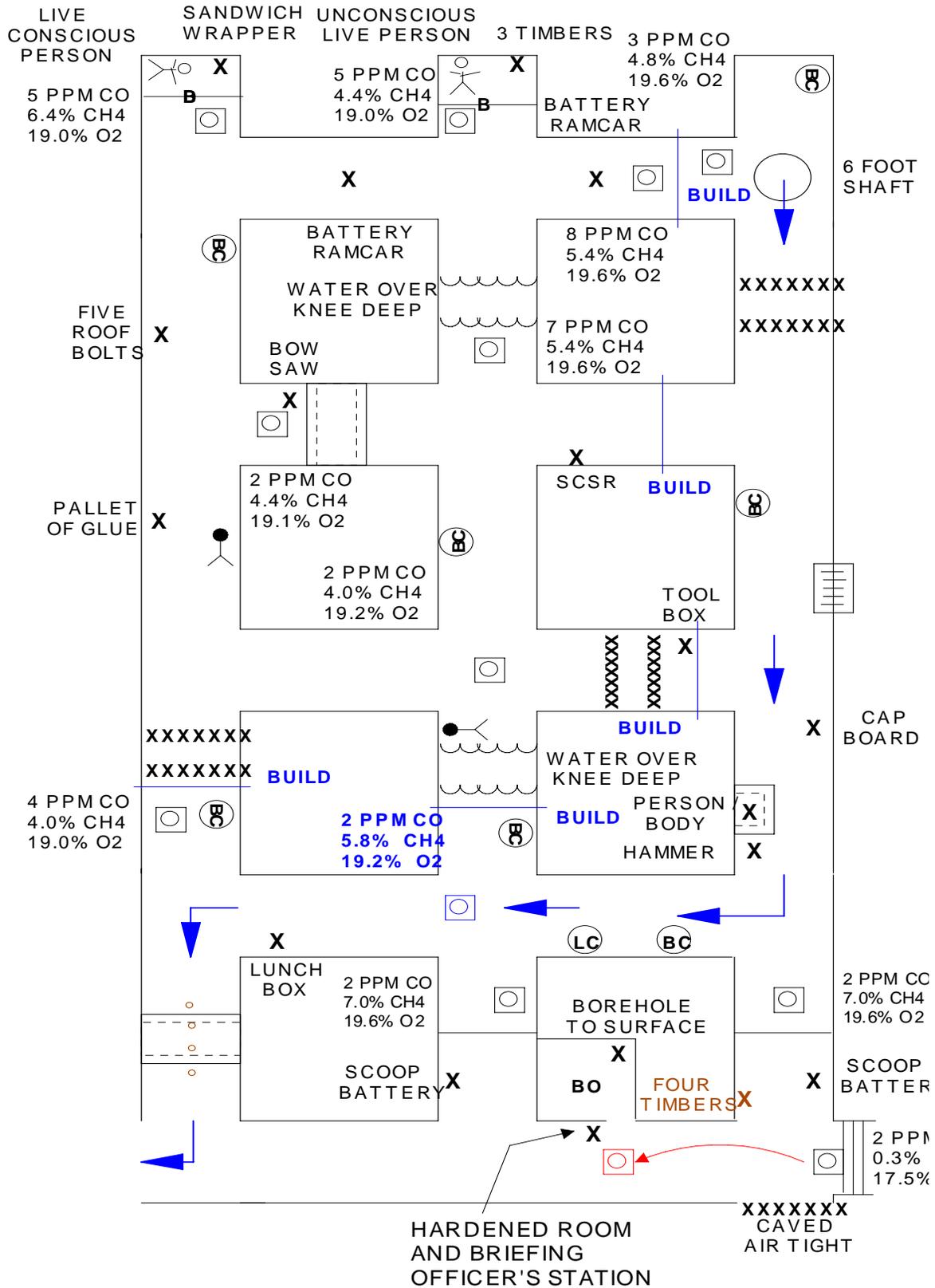
# PROBLEM MAP



# GAS TESTS, R&R, D&I, TEAM STOPS

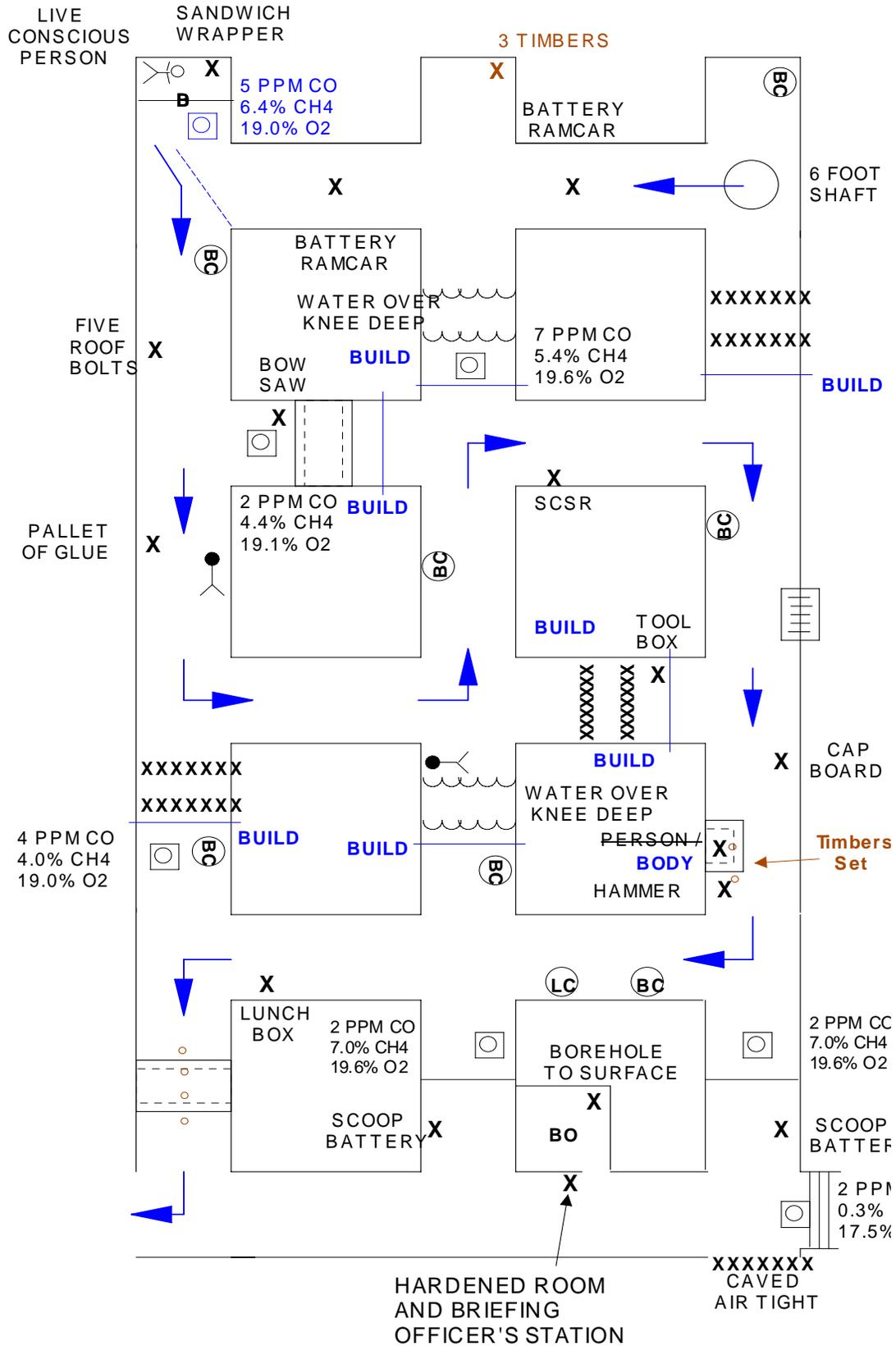


# 1ST VENTILATION

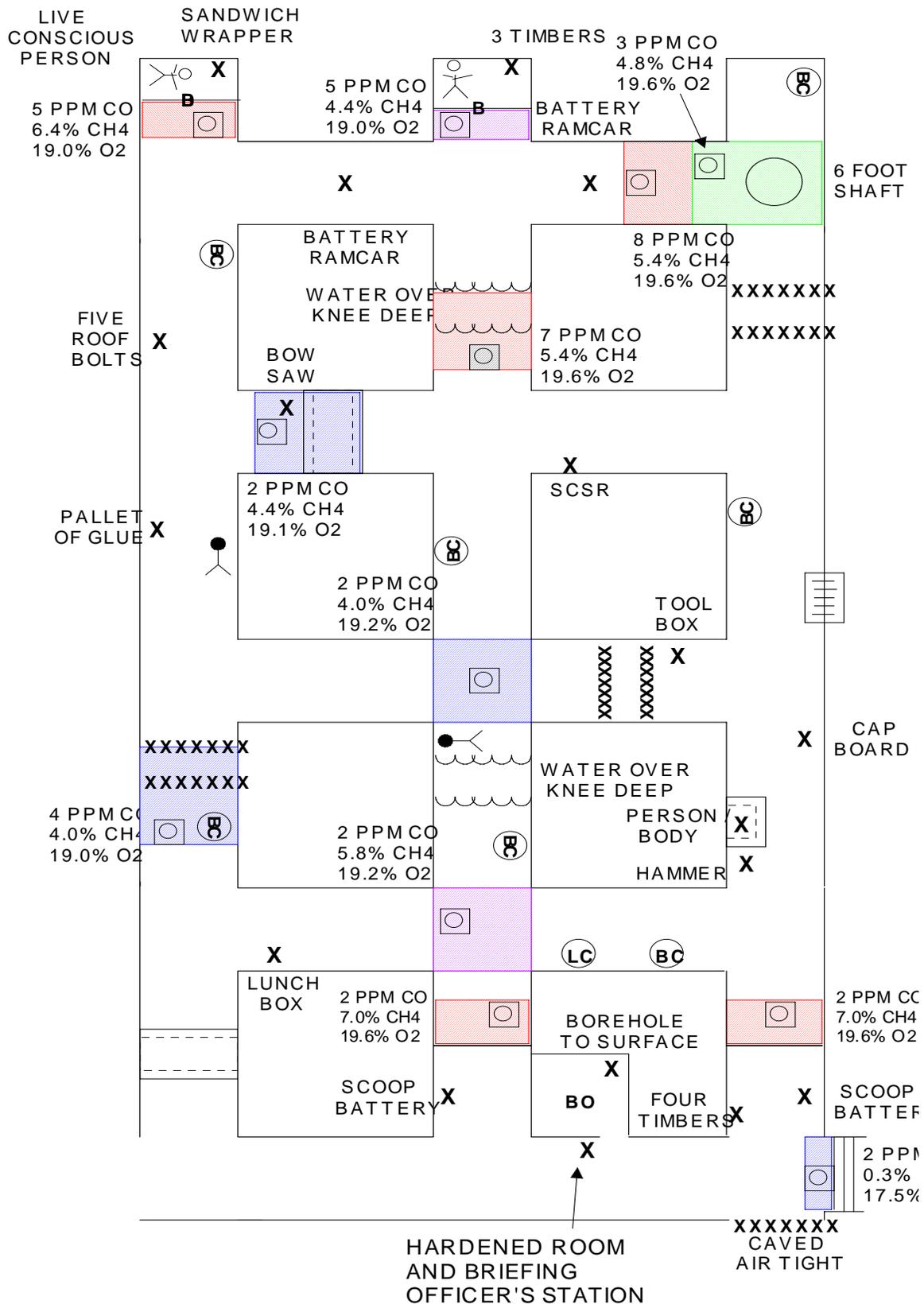




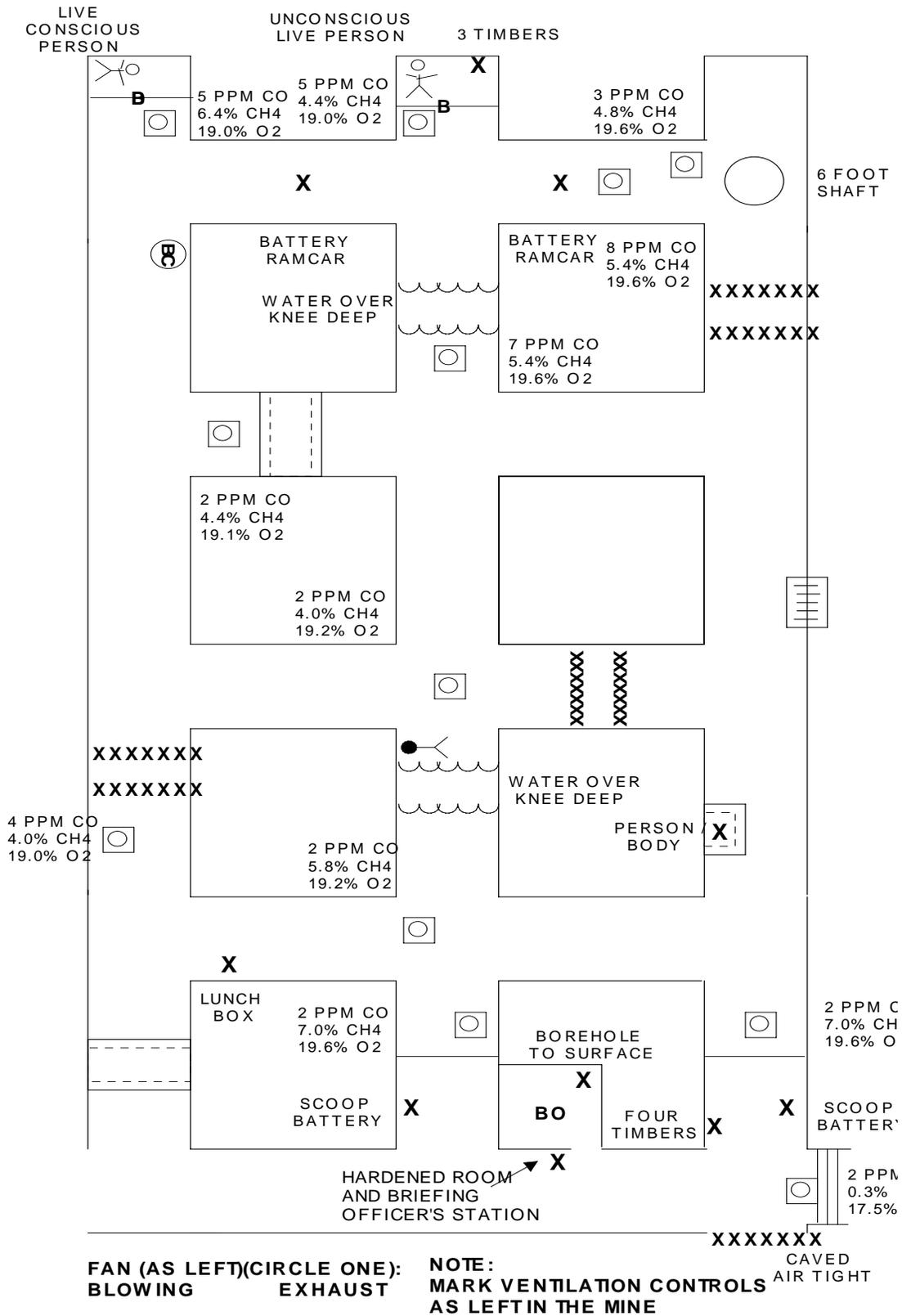
# 3RD VENTILATION



# GAS EXTENT MAP



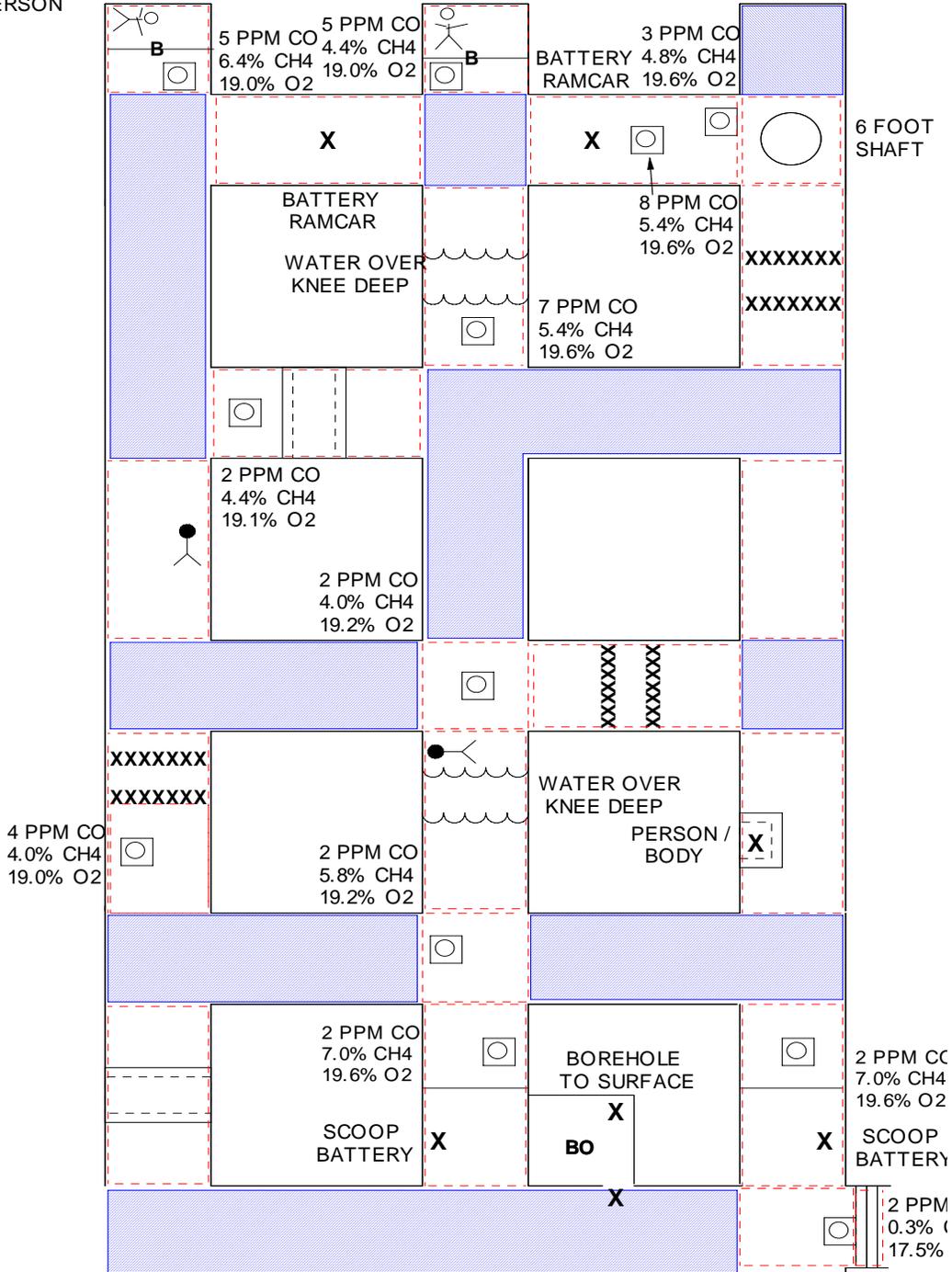
# JUDGE'S MAP



# BRIEFING OFFICER SCORING MAP

LIVE  
CONSCIOUS  
PERSON

UNCONSCIOUS  
LIVE PERSON



Not to Scale

Contains Objects/Conditions:

No Objects/Conditions:

HARDENED ROOM  
AND BRIEFING  
OFFICER'S STATION

CAVED  
AIR TIGI



# 2011

## NATIONAL MINE RESCUE CONTEST

### DAY 2 JUDGE'S INSTRUCTIONS

Note: The captain must turn over all face-down placards before he/she passes them. Discount the team 2 points under Rule 50 for each placard not turned over as described.

#### FRESH AIR BASE

Team will prepare equipment, check stretcher(s) and gas detectors.  
Captain will **D&I** date-board after starting clock.  
Team will **check** all three openings, with **Gas Test** s in the No. 1 entry and at each temporary stopping in Nos. 2 & 3 entries.  
Team will find scoop batteries in the openings of Nos. 2 and 3 entries.  
Fan is **OFF**  
Captain will D&I temporary stoppings in Nos. 2 & 3 entries.  
Team will find four timbers in No. 3 entry.  
Team will travel to the No. 1 entry.  
Captain will **R&R test unsafe roof**.  
Captain will **D&I** outby side unsafe roof.

#### TEAM STOP 1

Team will take timbers from the No. 3 entry to the No. 1 entry.  
Team will **set timbers through the unsafe roof**.  
**R&R test** inby side of loose roof.  
Team will travel to the intersection.  
**Gas Test** all openings.

Team will find **Irrespirable Mixture** inby intersection up to **Caved Area**.  
Team may pick up **Brattice Cloth**.  
Team will make **50 ft. apparatus check**. Team will call out lowest O2 reading.

Team will check lunch box.

At this team stop, the Superintendent will give a note to the Briefing Officer that states, “**The barometer has started to fall and the low oxygen has migrated from the seal toward the hardened room. I have closed the door. I am safe and have good air from the borehole. Please continue to explore.**”

## **TEAM STOP 2**

Team will travel across to the No. 2 entry in the first crosscut.

Team will **Gas Test** all openings.

Captain will examine back to the temporary stopping.

Captain will **D&I** stopping.

**Gas Test** at stopping.

**Water over knee deep** in No. 2 entry.

**D&I** water.

Team may pick up **Brattice Cloth (2)** and **Line Curtain**.

## **TEAM STOP 3**

Team will **travel to first intersection** in No. 3 entry.

**Gas Test** all openings.

**Gas Test** and **D&I** at stopping.

Find **Explosive Mixture**.

**Unsafe roof** ahead in No. 3 entry.

**Roof Test** at unsafe roof.

Find **Person** (1<sup>st</sup>) placard.

## **TEAM STOP 4**

Travel up the No. 3 entry, only one open.

Travel into 2<sup>nd</sup> intersection No. 3 entry.

Find **Caved area** in 2<sup>nd</sup> crosscut, 3 – 2.

Captain will **Roof & Rib Test** and **D&I** the caved area.

**Gas Test** all openings.

Find **Unsafe Brew Rib** along right rib.

## TEAM STOP 5

Team will travel to the 3<sup>rd</sup> intersection No. 3 entry

Team will find the **Brattice Cloth**.

**Gas Test opening** at intersection.

**Captain will travel to the Caved Area** inby in No. 3 entry. **D&I, R&R** at **Caved Area**.

## TEAM STOP 6

Team will travel back across to the 3<sup>rd</sup> crosscut No. 2 entry.

**Gas Test** openings.

Find Unsafe Roof in crosscut 2 – 1.

**D&I, R&R** at **Unsafe Roof** .

**Explosive Mixture** found in No. 2 entry outby water.

Team will find **Water Over Knee Deep** in the No. 2 entry.

Captain will **D&I** at the water.

Find Brattice Cloth in the No. 2 entry.

## TEAM STOP 7

Team will travel outby in the No. 2 entry to attempt to tie-across and behind to the contaminant in the No. 1 entry.

**Gas Test** all openings at No. 2 intersection.

**Irrespirable Gas** found in 2<sup>nd</sup> intersection.

**Body** (2<sup>nd</sup>) found in No. 2 entry.

Captain will **D&I** body.

Back side of **Water Over Knee Deep**.

Captain will **D&I** water.

**D&I, R&R** at **Caved Area** between 2 – 3.

## TEAM STOP 8

Team will travel to the No. 1 entry, 2<sup>nd</sup> crosscut.

**Caved area** outby across No. 1 entry

Captain will **R&R Test** and **D&I** the caved area.

**Gas Test** the openings.

## **TEAM STOP 9**

Team will travel up the No.1 entry to the 3<sup>rd</sup> intersection.

**Gas Test** at openings.

**Irrespirable Gas** in 3<sup>rd</sup> crosscut, 1 – 2.

Captain will find other side of unsafe roof.

**R&R Test and D&I** unsafe roof.

Will find **Body** (3rd) in the No. 1 entry.

Captain will **D&I** at the body.

## **TEAM STOP 10**

Team will travel up No. 1 entry to LOCC.

**Gas Test** opening.

Team will find **Barricade** inby in the No. 1 entry.

Captain will **D&I** the barricade.

**Gas Test** at barricade.

Team will find **Irrespirable/Explosive Gas** from LOCC to barricade.

Response from the barricade when team enters intersection in front of barricade.

Team cannot ventilate, must continue to explore.

## **TEAM STOP 11**

Team will continue across the LOCC to the No. 2 entry.

**Gas Test** opening to right and outby.

Will find inby side of **Water Over Knee Deep**.

**D&I** at water.

Will find **Irrespirable Gas** inby corner in No. 2 entry to **Barricade**.

**D&I Barricade**.

**Gas Test** at barricade.

No response from inside.

## **TEAM STOP 12**

Team will continue across the LOCC to the No. 3 entry.

**Gas Test** opening outby.

Will find **Battery Ramcar** (cannot be moved) and **Explosive Mixture** in crosscut 2 – 3.

Will find **Clear Atmosphere** going into intersection.

Will find open **6 Foot Shaft**.

Team will travel to the face of the No. 3 entry.

**D&I, R&R test and Gas Test.**

**Explosive/Irrespirable Gas** at the **Barricade in No. 1** cannot be moved across the **Battery Ramcar** in the LOCC, or outby across the **Unsafe Roof** in No. 3 entry, where the **Person** was found.

## **VENTILATION**

### **First Ventilation**

Team will need to remove the **explosive/respirable** mixture from the 1<sup>st</sup> intersection of the No. 2 entry.

### **Builds**

Across Nos. 1 & 2 entries inby 1<sup>st</sup> crosscut.

Across 2<sup>nd</sup>, 3<sup>rd</sup>, and LOCC, 2 – 3.

Any four of these builds will suffice in directing the air from the shaft.

Team can turn fan on **Exhausting**.

The air will clear the explosive mixture from 1<sup>st</sup> intersection No. 2 entry.

### **Second Ventilation**

Team can now ventilate the No. 2 barricade to continue to explore for timbers needed to ventilate the No. 1 barricade.

Team will need to clear the **Irrespirable Gas** from the **Barricade** in No. 2 and the **Explosive Mixture** from the **LOCC 2 – 3**.

The timbers are needed to access the person placard in the unsupported roof between crosscut 1 – 2 in the No. 3 entry as the contaminant outside the No. 1 barricade is irrespirable and explosive.

### **Builds**

Across Nos. 1 & 2 entries in by 1<sup>st</sup> crosscut.

Across 2<sup>nd</sup> crosscut, 2 – 3.

Across No. 3 entry, 3<sup>rd</sup> – 4<sup>th</sup> crosscut.

Across No. 2 entry, 3<sup>rd</sup> – 4<sup>th</sup> crosscut.

Across 3<sup>rd</sup> crosscut, 1 – 2.

Reverse the fan.

Turn the fan on **Blowing**.

Hold line curtain to within five feet of the barricade.

The air will clear the irrespirable mixtures from the barricade in No. 2 and LOCC, 2 – 3, out the fan shaft.

Team can now **enter** the **Barricade** in the **No. 2 entry**.

Captain will **Gas Test** immediately inside the barricade.

Captain will D&I patient.

Captain or Team member will check patient.

Captain will R&R, Gas Test and D&I the Face.

Team will put apparatus on patient, pick up the timers and travel to the FAB.

### **Third Ventilation**

Team will **Re-enter** the mine and travel to the **Unsafe Roof** in the No. 3 entry.

Captain will **Set Timbers** to touch and **Identify Person** as a **Body**.

Captain will **D&I body**.

Team can now clear the **Explosive/Irrespirable Mixture** from the **Barricade in the No. 1 entry**.

Team will leave stoppings as installed for previous ventilation.

Hang line curtain to within 5 feet of the **Barricade**.

Turn fan on **Exhausting**.

Will clear the **explosive/respirable gas** from the **Barricade**.

Captain will **Gas Test** immediately inside the barricade.

Captain will D&I patient.

Captain or Team member will check patient.

Captain will R&R, Gas Test and D&I the Face

The patient can be taken to the FAB open-faced.

Note: The team cannot compare the Team Map with the BO Map after the 3<sup>rd</sup> Vent was completed.

Upon arrival at the FAB the captain will be given note stating, "**The barometric pressure has increased and the irrespirable gas has retreated to the seal.**"

The problem is now complete and the captain can stop the clock.