

**2016 Missouri Mine Rescue Contest**  
**Rolla, MO.**  
**Problem Solution Day #1**  
**(See Solution Maps)**

**FAB**

The teams will arrive at the FAB and have introductions, the team will also be informed that they will be able to string out their communication line but will not be able to check functionality until they have started the clock. Once the clock has been started the team will receive all of their Maps, Information, and Mine Manager statement.

**Team Stop #1**

Teams will explore and check the portal entry, they will identify Air Clear.

**Team Stop #2**

Teams will explore and check the intersection area, identifying Building Materials (1 Set), Light Smoke Placard and a Haul Truck. Teams will most likely conduct their 50' check also.

**Team Stop #3**

The team will advance into the S. Access drift and explore the intersection identifying a light smoke placard and two separate permanent stoppings.

**Team Stop #4**

The team will retreat and travel into the N. Access drift, identifying that they have now transitioned from light to heavy smoke. They will also explore the backside of the permanent stopping.

**Team Stop #5**

The team will explore the intersection and identify a heavy smoke placard.

**Team Stop #6**

The team will explore into the S. Access drift and check the intersection, identifying a heavy smoke placard. The team may stretch west and identify Unsafe Roof, the team will also explore east and identify 3 Roof jacks and the backside of the permanent stopping.

**Team Stop #7**

The may choose to hold on to the Roof Jacks and explore into the N. Access drift to see if they are able to get around the Unsafe Roof. Exploring they will find Caved Impassable, a Light Smoke Placard, and Unsafe Roof & Rib. The team will realize that they only have 3 Roof jacks and Unsafe Roof & Rib will require dual supports, they will choose to retreat back to the S. Access drift. Utilizing the Ground Support Techniques outlines in the rule book, the teams will support the area of Unsafe Roof.

### **Team Stop #8**

The team will continue exploration up to the next intersection, identifying only a Heavy Smoke gas placard.

### **Team Stop #9**

The team will continue exploration into the N. Access drift and identify that they have now transitioned to Light Smoke.

### **Team Stop #10**

The team will continue up the N. Access drift identifying the #3 Air Shaft, Caved Tight, Unsafe Roof, and Light Smoke. The team will not have the means to support the unsafe roof and will need to retreat.

### **Team Stop #11**

The team will most likely continue exploration in the N. Access drift, identifying Caved Tight, and Unsafe Roof. The team will also identify Wayne #1033 under the unsafe roof but they will not have the means to support the area to access the miner. Team will continue to the intersection and identify a Light Smoke placard, #1 Sump (Full), and a Permanent Stopping W/Door (Closed). The team will knock on the door and they will get no response. Since the team does not know the conditions behind the door, they will retreat to the S. Access drift to continue exploration.

### **Team Stop #12**

The team will identify that they are now again in Heavy Smoke, Caved Tight, and a Partial Bulkhead. The team will enter the bulkhead area and identify Elvis #1079, when the team check Elvis they will identify that he is deceased.

### **Team Stop #13**

The team will identify that they have now entered Heavy Smoke, identify the #2 Air Shaft W/Fan, Caved Tight (Radiating Heat), Building Materials, and a Refuge Chamber. The team will make contact with Burnard #1070 inside and he will describe his burn injuries. The team will continue exploration to tie in the remaining area. They will identify a Foam Generator, Caved Tight, and Caved Tight (Radiating Heat) in the S. Access drift. The team will now have to execute the ventilation change in order to enter the Refuge Chamber.

### **Ventilation Change to enter the Refuge Chamber (See attached map)**

The team will request the ventilation change, once granted the following step will be necessary to enter the refuge chamber. **Note: Teams will need to remember that the #2 Air Shaft Fan is still not functional and the #3 Air Shaft is an Exhausting system.** After entering the Refuge Chamber the teams will find that Burnard is deceased. The Teams will also find (8) Roof Jacks.

### **Team Stop #14**

The team will have the means to support the Unsafe Roof. utilizing techniques outlined in the rule book, the team will support the area. Once the team accesses Wayne, they will discover that he is also deceased.

### **Team Stop #15**

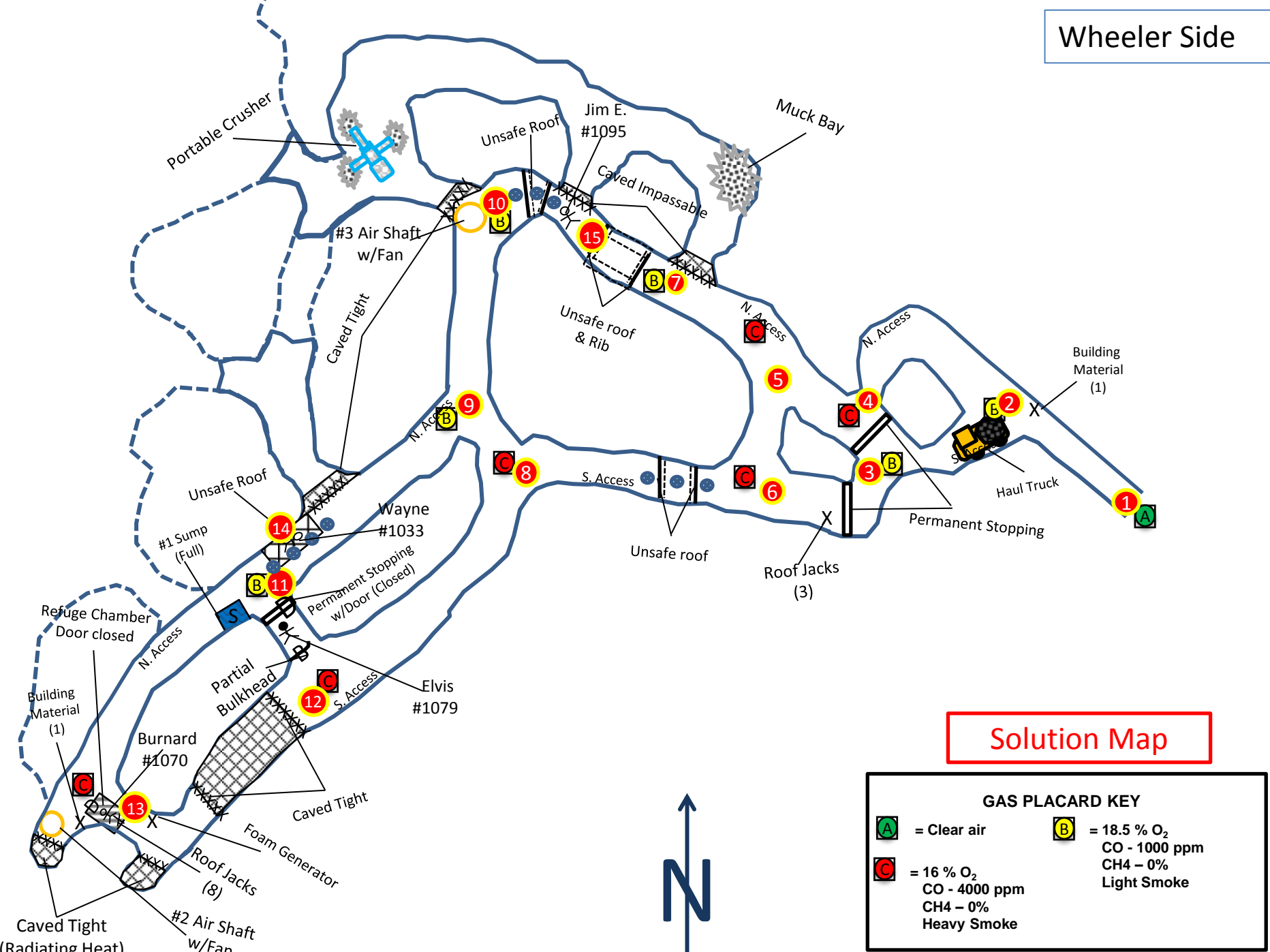
The team travel to the N. Access drift to support the final area of Unsafe Roof. The team will utilize (3) roof jacks to enter the unexplored area, where they find Jim E. #1095. the team will identify that Jim E. is not injured and can walk out with the team. While Jim E. is being examined, the team may stretch to tie in up to the Unsafe Roof & Rib and Caved Impassable. The team will take Jim E. to the FAB and request additional roof jacks, they will be informed that the materials are not available at this time. the team will inform the mine manager that they have accounted for the missing miners, explored all accessible areas of the mine, and do not have the means to support the Unsafe Roof & Rib area. THE END

# Mine Manager Statement




## Day #1

Thank you for coming to assist us. I just received information, there are only two shafts in this section of the mine. The electrician stated that the #3 Air Shaft fan is now operational but it is still in the off position. Do you want me to turn it on at this time? The #2 Air Shaft Fan is not operational at this time, we have yet to figure out the issue. We still have not been able to communicate with anyone inside the mine. I will update your captain as soon as I receive more information. Good Luck!

# Wheeler Side



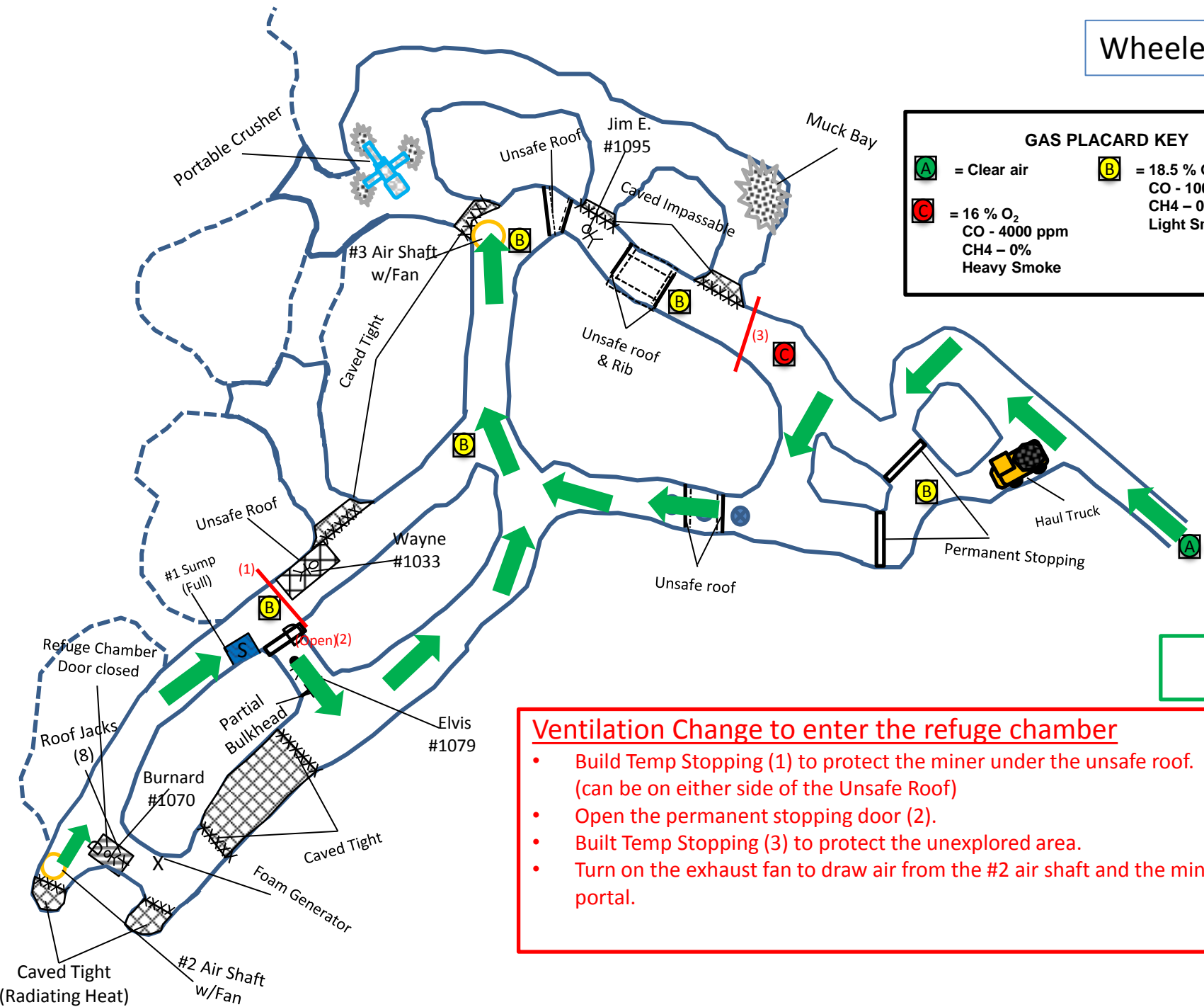
## Solution Map

GAS PLACARD KEY	
	= Clear air
	= 18.5 % O <sub>2</sub> CO - 1000 ppm CH <sub>4</sub> - 0% Light Smoke
	= 16 % O <sub>2</sub> CO - 4000 ppm CH <sub>4</sub> - 0% Heavy Smoke

**GAS PLACARD KEY**

<b>A</b>	= Clear air	<b>B</b>	= 18.5 % O <sub>2</sub> CO - 1000 ppm CH <sub>4</sub> - 0% Light Smoke
<b>C</b>	= 16 % O <sub>2</sub> CO - 4000 ppm CH <sub>4</sub> - 0% Heavy Smoke		

FAB



- Ventilation Change to enter the refuge chamber**
- Build Temp Stopping (1) to protect the miner under the unsafe roof. (can be on either side of the Unsafe Roof)
  - Open the permanent stopping door (2).
  - Built Temp Stopping (3) to protect the unexplored area.
  - Turn on the exhaust fan to draw air from the #2 air shaft and the mine portal.