

**Missouri Mine Rescue Contest**  
**Rolla, MO**  
**September 23-25, 2014**

**Problem Solution**  
**(Solution Map)**

**FAB**

After the clock has been started the teams will be informed by the Mine Manager that the AMS readings are available. The team will also be informed that the only mine opening that they can examine is the slope portal. The exhaust airshaft and downcast airshaft is inaccessible but posted guards are monitoring the openings and taking gas readings.

**Team Stop 1**

The team will advance into the mine, member should count off while entering into the mine. The team will encounter four timbers to the west side of the main entry and travel through a regulator with a door that is open. The team will enter this area and most likely conduct a 50' check shortly after entering the portal.

**Team Stop 2**

The team will travel north in the main drift until they reach the 1L - Drift, where they will find that it is caved tight. The team will continue north until they reach the 1R - Drift, where they will find a placard indicating 5,000 cfm and pointing east into the entry. The team will also identify the first teams D&I/FPA (Entire East Side Explored).

**Team Stop 3**

The team will continue north, identifying five timbers on the east side of the main drift. The team will identify another placard indicating 5,000 cfm and pointing east into the 2R-Drift. The team will also identify the first teams D&I/FPA (Entire East Side Explored).

**Team Stop 4**

The team will travel west in the 2L - Drift where they will encounter "Unsafe Roof" that extends from rib to rib.

**Team Stop 5**

The team will most likely travel south in WXC - 1, where they will find "Caved Tight" east in 1L - Drift. The team will then continue west in 1L-Drift until they reach "Caved Tight".

### **Team Stop 6**

The team will have to timber into the 2L - Drift in order to continue exploration. The team will have acquired nine timbers to this point in the problem. The team will utilize single timber into this drift until they reach an area that's "Unsafe Roof & Rib", and then the teams will have to utilize double timbers due to the unsafe rib for the remainder of the outlined area. After the ground support, the team will identify "Caved Tight" to the right and a light smoke placard.

### **Team Stop 7**

The teams will continue west passed WXC - 2 and most likely continue in 2L - Drift, identifying a "Heavy Smoke" placard (Member's should count off). The teams will also identify "Caved Tight" in areas on the right side of the drift. Team will continue until they reach a "Battery Scoop on Fire". The teams should address the fire with no less than two fire extinguishers, at which time they will extinguish the fire. The team will continue in this drift, identifying "One set of Building Materials" and "Water over Knee Deep" and this will be their furthest point of advance at this time.

### **Team Stop 8**

The team will retreat to WXC - 2 where they will continue exploration in the 1L - Drift identifying "Water over Knee Deep" in the entrance to WXC - 3 and WXC - 4. The team will also identify "Light Smoke" and a "Damaged Battery Phone" that has communication to the surface. The team will continue until they identify "Unsafe Roof" with Victor Won (Miner) inside of the outlined area. The team will only be able get around the outlined area and will not any timber to access the miner. There is clear air just south of the miner.

### **Team Stop 9**

The team will continue until they reach the bottom of the newly installed downcast airshaft. This area is clear air and the teams FPA south. If at any time the team calls for the AMS reading they will be informed that they are the same as reported at the FAB.

### **Team Stop 10**

The team will travel north, encountering "Light Smoke". The team continues in this drift until they reach "Water Over Knee Deep" and identifying the sump "Pump Controls" on the right side of the drift.

### **Team Stop 11**

The team will be forced to pump down the water in order to continue the exploration. In order to pump water the team will only have to turn the pump controls to the "ON" position. After the water drops below knee deep the team will advance north encountering a "Permanent Stopping" in WXC - 4. The team will continue north and encounter "Caved Tight" on the left and enter "Heavy Smoke". The team will also identify the "Tool Crib W/Door Closed", the team should attempt to make communication with anyone inside the tool crib. When the team knocks on the door they will find "Vic Too", but will not be able to enter the tool crib due to the gas concentrations outside. It will be necessary for the team to ventilate in front of the door at a later time. The team will continue north and tie in the remainder of the drift.

### **Ventilation Solution #1**

The team has now explored the entire mine that is accessible to this point and will need to clear the methane build up that in the center of the downcast airshaft. The ventilation is currently entering the mine via the portal and short circuiting to the east side of the mine directly to the exhaust shaft.

### **See Vent Change #1/Clear CH4**

After the team has been given permission to change the ventilation the team will have to perform the following:

- Close the regulator and door
- Move the phone to the opposite drift (Ignition source)
- Build a temporary stopping just north of the airshaft in the 2L - Drift, to keep from moving the CH4 over the battery scoop and phone.
- Request that the guard at the top of the downcast airshaft open the control doors to allow ventilation to enter the mine.

Performing this change successfully will clear the CH4 from the mine and allow the team to ventilate the area to enter the tool crib.

### **See Vent Change #2/ Clear Barricade (Tool Crib)**

After the team has been given permission to change the ventilation the team will have to perform the following:

- Maintain the regulator and door closed
- Maintain the airshaft control doors open (Team may call the Mine Manger and request reading prior to the changes. Team will be informed that the reading indicate CH4 - 0%)
- Remove the temporary stopping in 2L - Drift and rebuild in 1L - Drift.

Note: The team must use all air, requiring the build. If the team attempts to ventilate without coursing all the air the placards at the barricade will not change.

### **Team Stop 12**

Once the team has completed the ventilation changes, they will be able to enter the tool crib (Known Condition Inside), finding "Vic Too". The miner will not be injured and can walk out of the mine with the team. The team will also identify four timbers that will be required to access the other miner they found.

### **Team Stop 13**

Once the team has successfully transferred Vic Too to the FAB, the team will utilize the timbers found in the tool crib to access the miner in the 1L - Drift. The team will utilize the ground control techniques outlined in the 2014 Contest Rule Book, once the team has accessed the miner they will conduct the primary assessment and identify that "Victor Won" exhibits no vital signs and he is dead. The team has now explored all accessible areas, extinguished all fires, accounted for all missing miners, and brought the only surviving miner to surface. The team will travel back to the FAB transfer information to the Mine Manager and stop the clock. THE END