2012 PA Regional Skills Contest

April 18-20, 2012
Problem Statement

You are presently standing at the established fresh air base in the first crosscut of the Cokeburg # 7 mine. This mine is ventilated by an exhaust fan which is off at the present time, but can be started by asking the Superintendent.

Early this morning, a 4 man maintenance crew and their foreman entered the mine to repair a scoop located in the last open crosscut. A call from the section stated that the scoop was on fire, and they needed immediate assistance. Shortly after the call, an explosion was heard and the fan stopped. This was the last communication we had with the crew.

All electrical power inby the fresh air base has been de-energized. Federal and state agencies have been notified and are on site to offer assistance. The mine maps are not up to date. The mine is noted for poor roof, high liberations of methane, and low oxygen levels. Water accumulations are also frequently found because of our constant dipping and rising of the coal seam. We have extra pump cable coming by truck and should arrive shortly should you need it. The Superintendent will inform you and your team when the extra pump cable is available for you to use.
A fully equipped back up mine rescue team is stationed here while you work inby the fresh air base. You may start work when your team is ready. Good luck, and thank you for responding to our emergency.
2012 PA REGIONAL SKILLS CONTEST PROBLEM
DIVISION 2

- Lunch Box
- Continuous Miner
- HIP DEEP
- BATTERY SCOOP ON FIRE
- WATER ROOFED

- 5.4% CH₄
- 10 PPM CO
- 19.1% O₂

- 4.5% CH₄
- 5 PPM CO
- 19.1% O₂

- Conscious
- Inoperative Battery Coal Hauler
- Water Roofed
- HIP DEEP

- Operative Battery Coal Hauler

- CAVED AIRTIGHT

- Pump Cable
- Pump Switch OFF

- 5.4% CH₄
- 3 PPM CO
- 19.1% O₂

- 4.5% CH₄
- 2 PPM CO
- 19.1% O₂

- Portable Pump

- 5.4% CH₄
- 10 PPM CO
- 19.1% O₂

- Exhaust Fan OFF
Written Instructions

BRING ALL SURVIVORS TO THE FRESH AIR BASE

THE EXHAUST FAN CANNOT BE STOPPED OR STALLED AFTER STARTING. THE EXHAUST FAN CAN NEVER BE REVERSED.

PORTABLE PUMPS CAN BE MOVED TO ANY LOCATION THAT THE ATTACHED CABLE CAN REACH. WATER PUMPED BY PORTABLE PUMPS WILL DISCHARGE TO THE SURFACE.

THE BRIEFING OFFICER HAS BEEN ISOLATED AND IS IN A RESPIRABLE ATMOSPHERE.
Teams can explore on top of the overcast at this contest.
Vent 1 for Division 1 & 2

THIS IS THE ONLY VENT FOR DIVISION 1 TEAMS
Give note below to Division 2 team captain after bringing conscious live man to FAB

WE HAVE ADDED POWER CABLE AND DISCHARGE LINE TO THE PORTABLE PUMP. THE PORTABLE PUMP WILL NOW REACH TO THE HIP DEEP WATER IN NO. 1 ENTRY
Airlocking for pumping water

Division 2

Lunch Box

Continuous Miner

Team must have extra brattice cloth with them to build off crosscut with smoke

must be airlock when pumping water

4.5% CH4
5 PPM CO
19.1% O2

BATTERY SCOOP ON FIRE
water roof & hip deep pumps down in 5 sec.

Conscious Help

Operative Battery Coal Hauler

give note to team after bringing five conscious men to FAB

note to team: cable has been added to pump, enough to reach hip deep in no. 1 entry

Pump Cable

Operative Battery Coal Hauler

Portable Pump

BO

4.5% CH4
5 PPM CO
19.1% O2

CAVED AIRTIGHT

CAVED AIRTIGHT

Exhaust Fan

ON
End of Problem

Team must airlock in and FPA on map and then airlock out
PATIENT STATEMENT
IN BOTH BARRICADES
IN NO. 2 ENTRY

HELP! I HAVE A
AIRTIGHT
BARRICADE
BEHIND ME…….
Keys to Problem

• TEAM MUST MOVE PORTABLE PUMP AND CABLE OUT OF AREA WHERE EXPLOSIVE MIXTURE IS LOCATED TO PUMP HIP DEEP WATER IN NO.3 ENTRY
• TEAM MUST BLOCK HIP DEEP WATER IN NO.1 ENTRY BEFORE STARTING FAN
• TEAM MUST MOVE OPERATIVE BATTERY COAL HAULER BEFORE WINGING BARRICADE IN NO.2 ENTRY
• TEAM MUST EITHER TURN OFF PUMP OR MOVE PUMP OUT OF NO.3 ENTRY WHEN VENT 1 IS FLOWING
• FOR DIVISION 2 TEAMS: CABLE WILL BE ADDED TO PUMP AFTER 1ST VENT IS COMPLETE AND PATIENT IS BROUGHT TO FAB FROM BARRICADE IN NO.2 ENTRY
• TEAM MUST BE AIRLOCKED WHILE PUMPING WATER OUTBY LAST OPEN CROSSCUT
• TEAM MUST NOT LET AIR BE PULLED FROM NO.3 ENTRY DURING WORKING OF THE PROBLEM
• TEAM MUST STOP AT EXPLOSIVE MIXTURE PLACARD JUST INBY BARRICADE IN NO.1 ENTRY AFTER 2ND VENT