

## Mine 2 Problem Solution

### 2012 Missouri Mine Rescue Problem

1. Teams report to FAB underground. Entry one (intake) is blocked by a temporary stopping. Entry 2 (return) is blocked by an airlock.
2. Teams should advance in entry 2 through airlock. They can go through entry 1 if they build airlock. Stopping material available at FAB.
3. Teams will find irrespirable air inside airlock.
4. Teams will advance north to the first x-cut and find refuge chamber with 2 miners in chamber. One miner is injured and needs medical treatment immediately. Other miner is good. Teams should recognize that they must ventilate before breeching chamber.
5. Teams will advance north to 2<sup>nd</sup> x-cut and will be able to tie back in entry 1. Gas placards leading north of the 2<sup>nd</sup> x-cut indicate higher CO and lower O<sub>2</sub>. Teams must explore back towards the FAB in entry 1 for systematic exploration.
6. Teams will find an auxiliary fan in entry 1 near the temporary stopping. Power is available to the power center in the 1<sup>st</sup> x-cut.
7. At this time teams have the means to ventilate the refuge. Teams will build stopping across FAB between 1 and 2 entries (FAB must be on intake side of stopping); open air lock doors; take down temporary stopping in entry 1; build temporary stoppings, blocking ventilation north of the 2<sup>nd</sup> x-cut; close fan airlock door and turn fan on. (See ventilation map).
8. The contaminated air outside the refuge chamber will be cleared and the victims will be able to be rescued. If teams advance beyond the 2<sup>nd</sup> x-cut before rescuing victims in chamber, they will receive "survivor endangerment" discounts.
9. Once the refuge chamber victims are rescued, teams will continue exploration north. Teams will find "intense" heat in entry 1. Teams must build a seal with regulator out by the intense heat.
10. Teams will explore in entry 1 trying to tie back to the intense heat. Teams will note that posts are set in entry 1.
11. Teams will tie back to the intense heat and will build a seal with regulator. At this time the regulators in both seals can be closed off.
12. Teams will find 3 headings leading west and they are all blocked by water over knee deep. Teams can turn on the pump and the water in the middle and north headings going west will go down below knee deep. Teams will need to find a

suction hose long enough to reach the water in the south heading before it can be pumped.

13. Teams will advance west in the middle or north headings and find a barricade (supply room) in the middle entry. The victim is conscious and calling for help. He is in good health but the barricade will need to be ventilated before opening.
14. Teams will explore the rest of the mine and while exploring to the adit entrance, they will find the end of the water, clear air, and loose roof. The loose roof will not be scalable and must be supported.
15. As teams retreat out of the mine, they will find that the area timbered in entry 1 has experienced a ground fall, stopping their egress. The ground fall will be impassable but ventilation will be able to pass through the area.
16. Teams will need the assistance of the backup team to do the necessary work outside the fall of ground. (Turn on fan, build stoppings, etc). Teams will communicate with the FAB as to what they want done and those requests will be granted.
17. To ventilate the barricade teams will
  - a. Close the airlock in entry 2
  - b. Open the temporary stopping in entry 1
  - c. Close the fan airlock door in entry 1
  - d. Close the regulators in the intense heat.
  - e. Make sure barefaced recovery team working in the adit entry is out of the mine. (if barefaced crew is not asked to leave adit before barricading, teams will be docked for endangering the them)
  - f. Turn on the fan.
18. The barricade will be cleared and the teams will be able to breach without air locking. In the barricade the team will find 6 posts and a suction hose.
19. Teams should take the 6 posts and support the unsafe roof in the adit entry, exploring the entire way out of the mine.
20. Teams will go back to the barricade, get the victim and take him to the surface.
21. Teams should go back in the mine, get the suction hose and pump the water over knee deep. They will find the remaining missing person in the water.
22. At this time all missing miners are accounted for. Problem is over.