

Belt Fire Exercise

Problem Booklet

Instructions

Read the problem situation described on the next page. Next, answer each of the 11 questions. Do them one at a time. Don't jump ahead, but you may look back to earlier questions and answers. Some questions ask you to select all of the answers that you think are correct. Other questions ask you to select only one answer unless you are told to "Try again!" Follow the directions for each question.

After you have selected a choice to a question, look up its number on the answer sheet. Select your answer(s) to each question by rubbing the developing pen between the brackets on the answer sheet. A hidden message will appear and tell you if you are right. When you have finished, you will learn how to score your performance.

Background

You are the section foreman in 2-B section.

There are 8 miners on your section and there are 7 more sections deeper in the mine inby the neck of your section. Eighty miners are at work on these sections.

Seam height is 60 inches.

2-B section is a 4 entry development section for a longwall panel. The face has advanced 5,000 feet from the neck of the section.

The belt is in #1 entry. The #2 entry is the fresh air entry, #3 entry is the track entry with neutral air moving inby toward the face, and #4 is the return air entry. (See Figure 1.)

The neutral belt air is regulated at the neck of the section and travels out the belt away from the face.

The power center is located in the fresh air entry two pillars outby the face.

Twelve SCSRs are located at the power center, and another 12 are located on the portal bus. (See Figure 1.)

The portal bus is parked behind the supply car at the end of the supply track, 5 blocks outby the face. It runs on track and a trolley wire and has a telephone. (See Figure 1.)

A 3 inch aluminum water line runs parallel to the belt. As required by 30 CFR 75.1100-2b, hydrants are located every 300 feet near the manddoors in the permanent stoppings.

A spanner wrench, fire nozzle, and 500 feet of fire hose are located at the belt tailpiece. The section phone is located in the track entry 2 blocks outby the face. (See Figure 1.)

Problem

The crew has just moved the continuous miner from the #3 entry to the #2 entry and is preparing to make a cut. You have just checked the roof conditions in the #3 face area and are proceeding down the track entry to check on supplies.

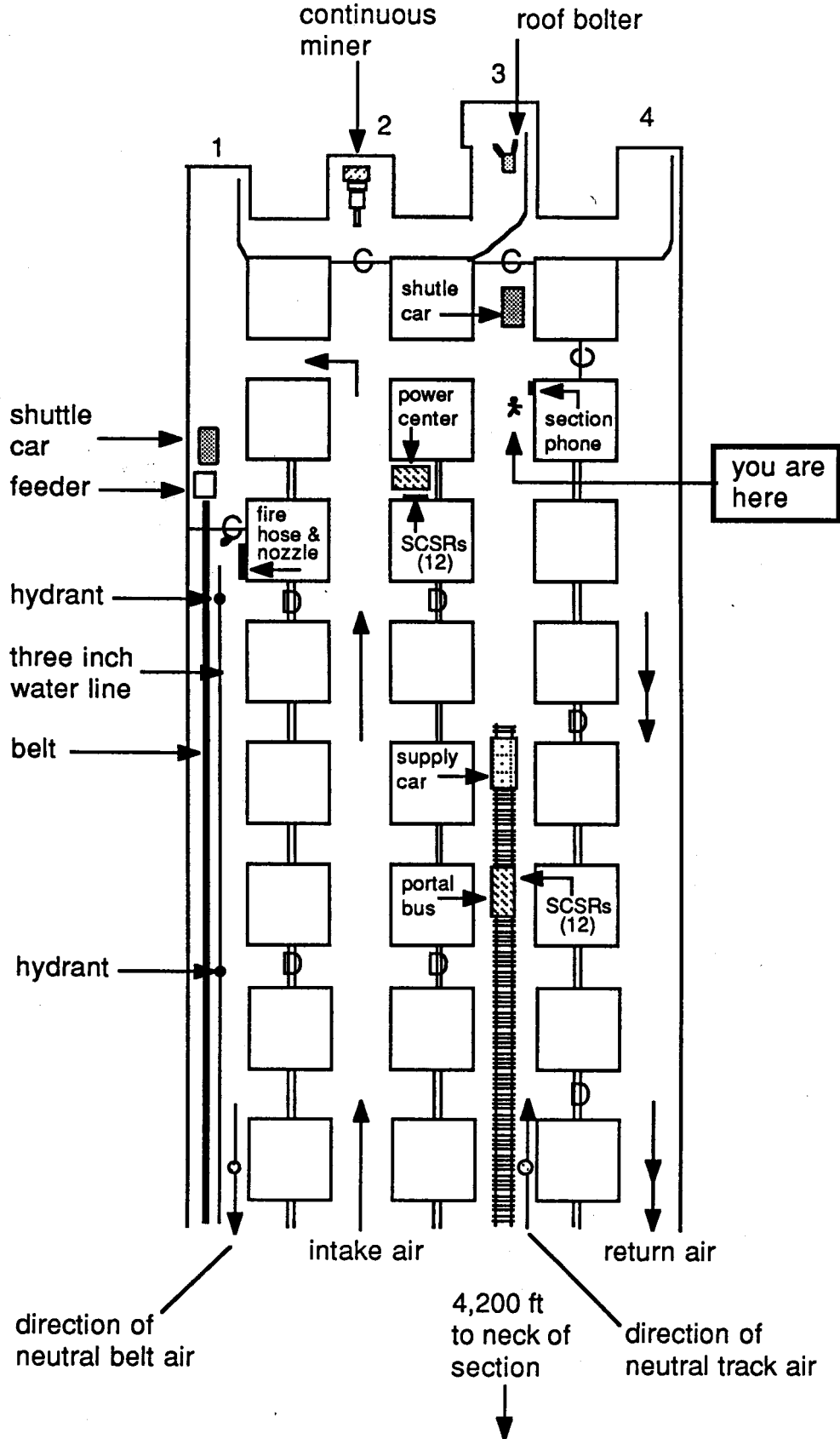


Figure 1: Details of 2-B section at the face.

Question A

As you pass the mine phone it rings. The dispatcher says he received a call from your belt attendant at the neck of the section. The beltman said there was heavy smoke in the belt entry at the neck of the section. What should you do? (Choose only ONE unless you are told to "Try Again!")

1. Don't do anything for awhile. Wait for more information. It's probably just a hot roller.
2. Walk down the belt to find the source of the smoke.
3. Tell the section mechanic to go investigate the problem and then to report back to you.
4. Immediately alert your crew members to the possibility of a fire and have them assemble at the portal bus.

Question B

While alerting your crew, the continuous miner operator tells you he just lost the water pressure on the miner. What should you do now? (Select as MANY as you think are correct.)

5. Tell the miner operator to find the section mechanic and have him check out the problem with the miner's water.
6. Tell the miner operator about the smoke in the belt entry and have him help you alert the other miners and tell them to gather at the portal bus.
7. Tell the miner operator and his helper to hang a line curtain in the #2 entry face to maintain ventilation.
8. After you have warned the crew, have some of the miners help you pick up the wrench, fire nozzle, fire hose, extra SCSRs from the power center, the section telephone, and take these materials to the portal bus.
9. Have someone go to the power center and cut the power to the section.
10. When you get to the assembly point at the portal bus, make a head count.

When you have made your selection(s), do the next question.

Question C

You have everyone assembled at the portal bus with the fire fighting equipment. Twelve additional SCSRs are stored on the portal bus. There is no sign of smoke anywhere on the section. What should you do now? (Choose only ONE unless you are told to "Try Again!")

11. Immediately load the miners and supplies on the portal bus and go out of the mine all the way to the surface if possible.
12. Call the dispatcher and tell him you and the crew are starting to leave.
13. Wait until you get more information from the surface before you leave.
14. Send two miners to walk the belt entry to locate the source of the smoke while you and the other miners wait at the portal bus.

Question D

When you call outside to the dispatcher, what should you say? (Select as MANY as you think are correct.)

15. Tell him you and the entire crew are starting out in the portal bus.
16. Ask for more information about the location and source of the smoke.
17. Tell him that you have fire fighting equipment with you and that you intend to look for the cause of the smoke. If you find a fire, you intend to fight it, if possible.
18. Tell him that the water pressure to the miner on the section failed just before you left the face area.
19. Tell him to be sure to report any fire to the local MSHA authorities.
20. Tell him to have extra miners sent into the 2-B section in the clean air of the track entry to help find the source of the smoke and fight the fire, if one is found.
21. Tell him that the air on the section is clear and there is no sign of smoke.

When you have made your selection(s), do the next question.

Question E

You have reported to the dispatcher and left the section in the portal bus. As you travel outby what things should you do? (Select as MANY as you think are correct.)

- 22. Keep in contact with the surface using the telephone on the portal bus.
- 23. Stop the portal bus at every mandoor (300 feet) and check the #1 and #2 entries for smoke.
- 24. Stop the portal bus at every second mandoor (600 feet) and check the #1 and #2 entries for smoke.
- 25. Walk ahead of the portal bus to check for smoke and fire and to make methane checks as you leave the section.

When you have made your selection(s), do the next question.

Question F

You have traveled about 2,000 feet outby the face. You have stopped at a mandoor. There is still no sign of smoke in the track entry or in the #1 and #2 entries. Just as you and your crew get ready to board the portal bus and continue outby you see the belt attendant walking inby in the track entry. He tells you there is a large fire in the belt entry about 500 feet outby your position. He says the fire appears to be confined to the belt entry. He also tells you that near the fire the water line is broken and the water is running. What should you do now? (Choose only ONE unless you are told to "Try Again!")

26. Travel to the neck of the section. Cut the power to the section and then take your entire crew out of the mine on the portal bus.
27. Travel to the neck of the section. Report the conditions to the dispatcher, and wait for further instructions.
28. Proceed to the location of the fire and immediately begin fighting the fire.
29. Call the dispatcher and report the location of the fire. Than travel just outby the source of the fire and inspect the situation.
30. Travel out of the section and continue on until you and your crew are completely out of the mine.

Question G

After reporting the beltman's information to the dispatcher, you continue outby toward the fire. Your inspection at the next two mandoor reveals the information shown in Figure 2 on the next page. You decide to fight the fire. You are in the #2 entry at the mandoor just outby the fire. The smoke is moving slowly outby on the belt. Now what should you do? (Select as MANY as you think are correct.)

31. Establish communications to the outside as close as possible to the fire site.
32. Send someone to close the regulator in the belt entry at the neck of the section to reverse the air flow on the belt.
33. Contact the dispatcher to make sure that water cars and fire fighting materials are on the way to the fire site.
34. Send someone inby on the track entry to the next mandoor to hang a curtain across the belt heading to keep smoke from traveling to the face.

When you have made your selection(s), do the next question.

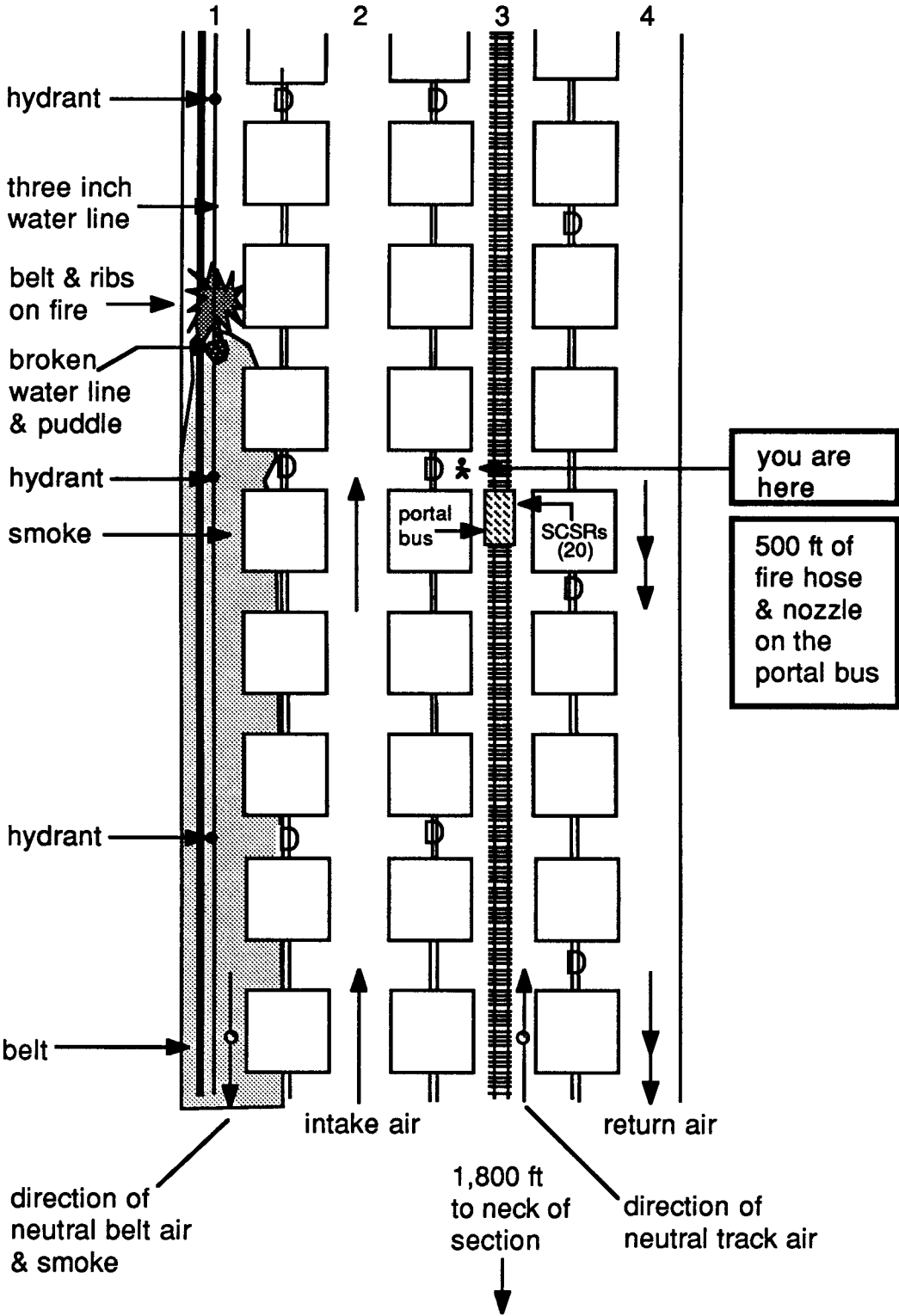


Figure 2: Details on 2-B section 2,500 feet outby the face

Question H

You are now ready to begin fighting the fire. The dispatcher calls and reports that water cars and fire fighting material cars are on the way to the fire site. What should you do next? (Select as MANY as you think are correct.)

35. Just outby the fire, knock a stopping out between the #2 and #3 entries. Then curtain off the #2 entry just inby the open stopping to divert all the air inby and carry the smoke away from the fire, up to the face and into the return air.
36. As close to the fire as possible, but on the outby side, remove one block from the stopping between the belt entry and the intake air entry.
37. After removing one block from the stopping between the belt entry and the intake air entry just outby the fire, hang a partial curtain across the fresh air entry to divert enough fresh air into the belt entry to carry the smoke from the fire toward the face.
38. Call the command center on the surface and have them prepare to seal the section.

When you have made your selection(s), do the next question.

Question I

Only enough air has been reversed in the belt entry to carry the smoke from the fire towards the face, and to also slowly clear the air of smoke outby the fire. Soon a pocket of fresh air extends from the fire to the first hydrant outby the fire. Two water cars and a materials car with fire fighting equipment have arrived on the section. What should you do now? (Select as MANY as you think are correct.)

- 39. Wait for the mine rescue team and mine foreman to arrive to direct the fire fighting activities.
- 40. Send two miners to separate the water line at the hydrant one block outby the fire, and to hook up a fire hose in order to fight the fire.
- 41. Send two miners to hook up a fire hose to the water car in order to direct water onto the fire.
- 42. As close as possible but outby the fire, establish a point in the fresh air entry from which to enter the belt entry and fight the fire.

When you have made your selection(s), do the next question.

Question J

You are now prepared to fight the fire. As you and your crew advance toward the fire, what should you do? (Select as MANY as you think are correct.)

- 43. Keep the command center on the surface informed about your activities and your success in controlling the fire.
- 44. Have miners support the roof in the belt entry as you advance on the fire.
- 45. If necessary, withdraw the fire fighters from the area and bring in a roof bolting machine to bolt the top.
- 46. To prevent the fire from re-kindling, direct two miners to apply a thick coat of rock dust to the mine ribs, top and bottom just behind the fire fighters as they advance up the entry.

When you have made your selection(s), do the next question.

Question K

The quick reaction and effective fire fighting strategies of the foreman (you) and the crew prevented serious damage to the mine, and may have saved many lives. All other miners present in the mine were promptly and safely evacuated. The fire was rapidly controlled and extinguished. The damaged section was soon recovered. In any fire emergency, it is important to provide for the safety of miners involved in fighting the fire, and for the evacuation of all other miners who are or who could become affected by the fire.

Now think about the fire described in this exercise. Then read each of the following statements. Select the statements that you think are true. (Select as MANY as you think are correct.)

47. A hot belt roller won't start a serious fire unless there are a few hundred pounds of coal around or near the roller.
48. If a conveyor belt is MSHA approved as fire resistant, it won't ignite from a small coal fire near a belt roller.
49. A moving conveyor belt rarely catches fire from a small coal fire in spilled coal around a hot roller.
50. Worn conveyor belts are more likely to start fires than belts that are in good condition.
51. A section of burning belt that is only a few feet long in an entry with an air velocity of 200 to 400 linear feet per minute will not generate enough smoke to prevent miners from safely traveling in the entry down wind from the smoke.

End of Problem

Scoring your performance

1. Count the total number of responses you colored in that were marked "correct". Write this number in the first blank on the answer sheet.
2. Count the total number of "incorrect" responses you colored in. Subtract this number from 26. Write the difference in the second blank on the answer sheet.
3. Add the numbers in the first and second blanks on the answer sheet. This is your score.

The best score is 51. The worst score is 0.