STATEMENTS OF FACT
MINE RESCUE

1. Rock dust is most successfully used to fight a fire by applying it by hand or by shoveling it onto the fire. (MSHA 3028, p. 5-9)

2. A member of a rescue team must be examined by a physician at least annually. (MSHA Part 49.17 of 30 CFR)

3. The purposes of sealing a mine fire are to contain the fire to a specific area and to exclude oxygen from the fire and eventually smother it. (MSHA 3028, p. 5-6)

4. Electrical fires are "Class C" fires. (MSHA 3028, p. 5-6)

5. One signal (pull) or "Stop" means that the rescue team wants to stop. (MSHA 3028, pp. 4-21 & 4-22)

6. Two signals (pulls) or "Advance" means that the rescue team is going to advance move toward the captain. (MSHA 3028, p. 4-21 & 4-22)

7. Three signals (pulls) or "Retreat" means that the rescue team is going to retreat, move toward the No. 5 person (last Person). (MSHA 3028, pp. 4-21 & 4-22)

8. Four signals (pulls) or "Distress or Emergency" means that the rescue team is in distress or emergency. (MSHA 3028, pp. 4-21 & 4-22)

9. Team members should refrain from drinking alcoholic beverages for at least 12 to 18 hours before they get under oxygen. (MSHA 3028, p. 4-12)

10. Barefaced exploration should stop at any point where disruptions in ventilation are found. (MSHA 3028, p. 4-6)

11. During exploration, teams will work according to a rotation schedule. (MSHA 3028, p. 4-11)

12. Team members may explore in pairs (two members) providing the members of each pair shall not be more than 25 feet apart and shall be in sight of each other. (MSHA Merd guidelines , pp. 3 and 4)

13. The members of each mine rescue team pair shall be in constant communication with the tail captain who maintains constant communication with the Fresh Air Base. (MSHA Merd guidelines, p. 4)

14. Prior to advancing, the members of each mine rescue team pair will stop at each connecting crosscut and communication will be established with all team members and the fresh air base. (MSHA Merd guidelines , p. 4)

15. Smoke consists of tiny particles of solid and liquid matter suspended in the air. (MSHA 3028, pp. 2-26)

16. Hydrogen is produced by the incomplete combustion of carbon materials during fires and explosions. (MSHA 3028, p. 2-19)

17. The fresh air base should be situated where it can be linked to the command center by means of a communication system. (MSHA 3028, p. 4-7)

18. Communications must be maintained between the fresh air base and command center at all times. (MSHA Merd guidelines, p. 4)

19. The first indication of an explosion may be reports from miners who felt a sudden movement of air, notice smoke or dust or heard the sound of the explosion. (MSHA 3028, p. 5-31)

20. Sometimes what seems like an explosion is actually a major roof fall, or a rock bump or rock burst. (MSHA 3028, p. 5-31)

21. Surface arrangements include such tasks as establishing a command center where all decisions are made, providing an adequate information center from which all public information is released, and obtaining and distributing necessary supplies and equipment. (MSHA 3028, p. 1-3, Revised 2008)

22. Toxic gases are produced by burning rubber, neoprene, or polyvinyl chloride (PVC). (MSHA 3028, p. 5-17)

23. The recommended extinguisher for mine rescue teams is a dry chemical type that contains monoammonium phosphate. (MSHA 3028, p. 5-7)

24. A monoammonium phosphate extinguisher is effective in fighting Class A, B, and C fires. (MSHA 3028, p. 5-7)

25. Foam is useful only in fighting Class A and B fires. (MSHA 3028, p. 5-11)

26. Permanent seals shall be designed, constructed, and maintained to protect miners from hazards related to the sealed area. (MSHA 75.335)

27. Exploration is the term used to describe the process of assessing conditions underground and locating miners or clues to their whereabouts. (MSHA 3028, p. 4-5)

28. Whenever possible, it is best to enter the mine by way of the safest intake airway. (MSHA 3028, p. 4-5)

29. Barefaced exploration should be attempted only when a back-up mine rescue team with apparatus is immediately available. (MSHA 3028, p. 4-6)

30. The fresh air base is the base of operations from which the rescue and recovery teams can advance into irrespirable atmospheres. (MSHA 3028, p. 4-6)

31. When rescue teams travel in smoke, all team members should hold onto the lifeline or be linked together by means of a linkline. (MSHA 3028, p. 4-24)

32. It's recommended teams should not travel through water that is over knee deep (less in low coal). (MSHA 3028, p. 4-26, Revised 2008)

33. Air courses separated by stoppings must be examined on both sides (tied in) where accessible to assure the safety of the team. (MSHA Merd guidelines, p. 3)

34. Before opening and traveling through any stopping inby which conditions are not definitely known, you should first erect a temporary stopping outby. (MSHA 3028, p. 4-25)

35. The monitoring of the mine atmosphere for the presence of oxygen, methane, and carbon monoxide is an important element of team exploration. (MSHA 3028 p. 4-28)

36. Dinner buckets encountered during exploration are important because they may contain information about the whereabouts of survivors. (MSHA 3028, p 4-29)

37. A debriefing is a session held when a team returns to the surface after completing an assignment to review what they saw and did. (MSHA 3028, p. 4-33)

38. The TLV-TWA is the average concentration for a normal 8 hour workday and a 40 hour workweek, to which workers may be repeatedly exposed, day after day, without adverse effect to a gas. (NIOSH Chemical Hazards, pp. x & xi)

39. The TLV-TWA for Carbon Monoxide is 50 ppm. (NIOSH Chemical Hazards, p. 54)

40. The STEL is a 15 minute TWA exposure which should not be exceeded at any time during a work day for a gas. (NIOSH Chemical Hazards, pp. x & xi)

41. The STEL for Carbon Monoxide is 200 ppm. (NIOSH Chemical Hazards, p. 54)

42. The IDLH is immediately dangerous to life or health in the event of respirator failure and one could escape within 30 minutes without experiencing any escape impairing or irreversible health effects from a gas. (NIOSH Chemical Hazards, pp. x & xi)

43. The IDLH for Carbon Monoxide is 1200 ppm. (NIOSH Chemical Hazards, P. 54)

44. Heat rises and because it is stopped by the mine roof it generates forces. (Donald W. Mitchell, MINE FIRES 3rd Edition, p. 3)

45. Every force creates an equal and opposite force (this leads to smoke and fire rollback and methane layers). (Donald W. Mitchell, MINE FIRES 3rd Edition, p. 3)

46. The Universal Gas Law, pressure and volume are directly related to temperature, means the hotter the fire the higher the pressures it develops. (Donald W. Mitchell, MINE FIRES 3rd Edition p. 3)

47. A fire produces pressure like a fan and air always flows from the point of high to low pressure so the larger the fire the more heat and products of combustion that can be pushed back against the ventilating air towards you and the other firefighters. (Donald W. Mitchell, MINE FIRES 3rd Edition, p. 3)

48. The initial assessment is designed to help the Emergency Medical Responder detect and correct all immediate threats to life. (Brady First Responder, p. 168)

49. Check for responsiveness by gently squeezing the patient's shoulder and shouting, "Are you okay". (Brady First Responder, p. 170)

50. A high priority patient should be transported immediately, with little time spent on the scene. (Brady First Responder, p. 175)

51. Under no circumstances will the team ever alter ventilation without orders to do so from the Command Center. (MSHA 3028, p. 3-3)

52. High temperatures (or heat) cause gases to expand, so they diffuse more quickly. (MSHA 3028, p 2-6)

53. The Command Center considers several factors before it orders a change in ventilation, most importantly; it has to consider how the alterations will affect ventilation into an unexplored area. (MSHA 3028 p.3-16)

54. A dangerous and sometimes fatal mistake that responders make is entering an unsafe or hazardous scene. (Brady First Responder, p. 165)

55. With the airway open place your ear over the patient's nose and mouth, and watch for chest movement. (Brady First Responder, p. 172)

56. If the patient is not breathing, check for a carotid pulse at the neck to determine if blood is circulating. (Brady First Responder, p. 174)

57. One of the first critical steps when fighting fire in a mine is to spray water (preferably as fog) downstream (inby the fire) into the path of (as close as possible to) the oncoming flames. (Donald W. Mitchell Mine Fires, p. 5)

58. Stopping smoke rollback is a must because if you cannot control the rollback you probably can't get close enough to fight the fire effectively. (Donald W. Mitchell Mine Fires, p. 19)

59. Gas layering is like smoke rollback with Methane and Hydrogen the likely gases to form layers during a fire. (Donald W. Mitchell Mine Fires, p. 23)

60. The IDLH of Carbon Dioxide is 40,000 ppm. (NIOSH Chemical Hazards, p. 52)

61. A smoke tube is used to show the direction and velocity of slow moving air. (MSHA 3028, pp. 3-18)

62. When taking a reading with an anemometer, a commonly used method is to traverse the airway. (MSHA 3028, p. 3-17)

63. An airlock consists of two doors or two stoppings with flaps or doors in them which are in close proximity to each other in the same passageway. (MSHA 3028, p. 3-22)

64. The purpose of an airlock is to separate two different atmospheres while still permitting miners to enter and exit without mixing the atmospheres. (MSHA 3028, p. 3-22)

65. Temporary stoppings built in a crosscut should be placed at least four to six feet into the crosscut in order that sufficient space is available to construct a permanent stopping. (MSHA 3028, p. 3-21)

66. "Pogo sticks" are devices which may be used to erect temporary stoppings. (MSHA 3028, p3-21)

67. Oxygen is a supporter of combustion. (MSHA 3028, p 2-13)

68. Temporary seals should include provisions for collecting air samples from within the sealed area. (MSHA 3028, p 5-24)

69. Progressive ventilation is the re-ventilation of a sealed area in successive blocks by means of airlocks. (MSHA 3028, p 7.6)

70. Direct ventilation is the re-ventilation of an entire sealed area at once. (MSHA 3028, p 7-8)

71. Sufficient time should be allowed for a fire area to cool before it is unsealed. (MSHA 3028, p 7-5)

72. Normal air has a specific gravity of one. (MSHA 3028, p 2.6)

73. Besides helping you determine where to test for a gas, specific gravity also indicates how quickly the gas will diffuse and how easily it can be dispersed by ventilation. (MSHA 3028, p. 2-7)

74. Methane is lighter than air. (MSHA 3028, p 2-6)

75. Carbon monoxide is explosive. (MSHA 3028, pp 2-16)

76. The range of concentrations within which a gas will explode is known as its "expensive range." (MSHA 3028, p. 2-7)

77. Nitrogen dioxide has a reddish-brown color in high concentrations. (MSHA 3028, p. 2-18)

78. Color, odor, and taste are physical properties that can help you identify a gas, especially during barefaced exploration. (MSHA 3028 p. 2-8)

79. Clean, dry air at sea level is made up of 78 percent nitrogen and 21 percent oxygen. (MSHA 3028, p 2-11)

80. Oxygen has no odor. (MSHA 2102, pp. 27 & 67)

81. Hydrogen sulfide has an odor similar to rotten eggs. (MSHA 3028, p 2-20)

82. The explosive range of methane in air is 5 to 15 volume percent. (MSHA 3028, p 2-15)

83. When present in high concentrations (2 percent or higher), carbon dioxide causes you to breathe deeper and faster. (MSHA 3028, p 2-14)

84. Carbon monoxide can be detected by means of carbon monoxide detectors, multi-gas detectors, or by chemical analysis. (MSHA 3028, p 2-17)

85. The lower explosive limit of hydrogen is 4.0 percent. (MSHA 3028, p 2-19)

86. Hydrogen sulfide is flammable and explosive in concentrations from 4.3 to 45.5 percent in normal air. (MSHA 3028, p 2-20)

87. Carbon dioxide is non-explosive. (MSHA 3028, p. 2-14)

88. Air containing 4 to 74.2 percent hydrogen will explode even when there is as little as 5 percent oxygen present. (MSHA 3028, p 2-17)

89. A mixture containing as little as 1 ½ to 2 percent methane, together with coal dust, may be explosive. (MSHA 3028, p 2-21)

90. Nitrogen is an asphyxiant in above normal concentrations. (MSHA 3028, p 2-17)

91. The IDLH of Hydrogen sulfide and Sulfur Dioxide is 100 ppm. (NIOSH Chemical Hazards, pp 170 & 288)

92. The IDLH of Nitrogen Dioxide is 20 ppm. (NIOSH Chemical Hazards, p.228)

93. The affinity of carbon monoxide for hemoglobin is 200 to 300 times that of oxygen. (MSHA 3028, p 2-16)

94. Carbon Dioxide is the product of oxidation including the decay of timbers. (MSHA 3028, p 2-14)

95. About 21 percent of normal air is oxygen. (MSHA 3028, p 2-11)

96. Afterdamp is a mixture of carbon monoxide, carbon dioxide, methane, oxygen, nitrogen and hydrogen. (MSHA 3028, p 2-27)

97. Afterdamp is usually found after a mine fire or explosion. (MSHA 3028, p 2-27)

98. Hydrogen can be detected with a multi-gas detector or by chemical analysis. (MSHA 3028, p 2-20)

99. In some mines, carbon dioxide is liberated from the rock strata. (MSHA 3028, p 7-6)

100. To detect oxygen deficient atmospheres teams will use an oxygen indicator. (MSHA 3028 p 2-14)