**STATEMENTS OF FACT**

**MINE RESCUE 2013**

**QUESTIONS** (answers follow)

1. Rock dust is most successfully used to fight a fire by applying it by \_\_\_\_ or by

\_\_\_\_\_\_\_\_\_ it onto the fire. (MSHA 3028, p. 5-9)

force, kicking hand, throwing hand, shoveling

2. A member of a \_\_\_\_\_\_ \_\_\_\_ must be examined by a physician at least annually.

recovery, team recue, team EMT, team

3. The purposes of sealing a mine fire are to contain the fire to a specific area and to

\_\_\_\_\_\_\_ oxygen from the fire and \_\_\_\_\_\_\_\_\_\_ smother it. (MSHA 3028, p. 5-6)

exclude, eventually keep, eventually keep, always

4. \_\_\_\_\_\_\_\_\_\_ fires \_\_\_\_ “Class C” fires. (MSHA 3028, p. 5-6)

Electrical, are Chemical, are Oil, are

5. One signal (pull) or “\_\_\_\_\_” means that the rescue team wants to \_\_\_\_.

Stop,quit Stop,stop Halt, stop

6. Two signals (pulls) or “\_\_\_\_\_\_\_” means that the rescue team is going to \_\_\_\_\_\_\_

move toward the captain. (MSHA 3028, p. 4-21 & 4-22)

Advance, advance Retreat, retreat Run,run

7. Three signals (pulls) or “\_\_\_\_\_\_\_” means that the rescue team is going to \_\_\_\_\_\_\_,

move toward the No. 5 person (last Person). (MSHA 3028, pp. 4-21 & 4-22)

Advance, advance Retreat, retreat Stop, stop

8. Four signals (pulls) or “\_\_\_\_\_\_\_\_ or Emergency” means that the rescue team is in

distress or \_\_\_\_\_\_\_\_\_. ( MSHA 3028, pp. 4-21 & 4-22)

Danger, danger Distress, danger Distress, emergency

9. Team members should \_\_\_\_\_\_\_ from drinking alcoholic beverages for at \_\_\_\_\_ 12 to 18

hours before they get under oxygen. (MSHA 3028, p. 4-12)

refrain, least stop, periods resist, least

10. Barefaced exploration should \_\_\_\_ at any point where \_\_\_\_\_\_\_\_\_\_\_ in ventilation are

found. (MSHA 3028, p. 4-6)

begin, flaws stop, disruptions begin, disruptions

11. During \_\_\_\_\_\_\_\_\_\_\_, teams will work according to a \_\_\_\_\_\_\_\_ schedule.

explorations, rotation recovery, rotation exploration,rotation

12. Team members may \_\_\_\_\_\_\_ in pairs (two members) providing the members of each

pair shall not be more than \_\_\_ feet apart and shall be in sight of each other.

search, 50 explore, 50 explore, 25

13. The members of each mine rescue team pair shall be in constant communication with

the \_\_\_\_ \_\_\_\_\_\_\_ who maintains constant communication with the Fresh Air Base.

briefing, officer command, center tail, captain

14. Prior to advancing, the members of each mine rescue team \_\_\_\_ will stop at each

connecting crosscut and communication will be established with all team \_\_\_\_\_\_\_\_

and the fresh air base. (MSHA Merd guidelines , p. 4)

group, members pair, personal pair, members

15. Smoke consists of \_\_\_\_\_ \_\_\_\_\_\_\_\_ of solid and liquid matter suspended in the air.

tiny, particles small, particulates tiny, droplets

16. \_\_\_\_\_\_\_\_ is produced by the incomplete combustion of \_\_\_\_\_\_ materials during

fires and explosions. ( MSHA 3028, p. 2-19)

methane, hot hydrogen, carbon hydrogen, solid

17. The fresh air base should be \_\_\_\_\_\_\_\_ where it can be linked to the \_\_\_\_\_\_\_ center

by means of a communication system. (MSHA 3028, p. 4-7)

located, control located, command situated, command

18. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ must be \_\_\_\_\_\_\_\_\_\_ between the fresh air base and command

center at all times. (MSHA Merd guidelines, p. 4)

communications, maintained radios, maintained lifeline, maintained

19. The first \_\_\_\_\_\_\_\_\_\_ of an \_\_\_\_\_\_\_\_\_ may be reports from miners who felt a sudden

movement of air, notice smoke or dust or heard the sound of the explosion.

signal, explosion indication, explosion mention, explosion

20. Sometimes what seems like an explosion is actually a major \_\_\_\_\_ \_\_\_\_, or a rock bump

or rock burst. (MSHA 3028, p. 5-31)

rock, fall roof, fall roof, drop

21. Surface arrangements include such tasks as establishing a command center where all

decisions are made, providing an adequate \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_ from which all public

information is released, and obtaining and distributing necessary supplies and equipment.

command, center information, outlet information, center

22. \_\_\_\_\_ gases are produced by burning \_\_\_\_\_\_, neoprene, or polyvinyl chloride (PVC).

noxious, rubber toxic, rubber explosive, paper

23. The recommended \_\_\_\_\_\_\_\_\_\_\_\_ for mine rescue teams is a dry chemical type that

contains monoammonium \_\_\_\_\_\_\_\_\_\_\_. (MSHA 3028, p. 5-7)

extinguisher, powder handheld, powder extinguisher,phosphate

24. A \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ extinguisher is effective in fighting Class A, B, and C fires.

Carbon, dioxide monoammonium, phosphate ammonium, phosphate

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

C, D D,C A, B

26. Permanent seals shall be \_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, and maintained to protect miners

from hazards related to the sealed area. (MSHA 75.335)

hitched, constructed built, designed designed, constructed

27. \_\_\_\_\_\_\_\_\_\_\_ is the term used to describe the process of assessing conditions

underground and locating miners or clues to their \_\_\_\_\_\_\_\_\_\_\_.

Recovery, location Exploration, whereabouts Explorations, location

28. Whenever possible, it is best to enter the mine by way of the safest \_\_\_\_\_\_ \_\_\_\_\_\_\_.

mine, portal air, course intake, airway

29. \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ should be attempted only when a back-up mine rescue team

with apparatus is immediately available. (MSHA 3028, p. 4-6)

openfaced, exploration apparatus, exploration barefaced, exploration

30. The fresh air base is the base of operations from which the \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_

teams can advance into irrespirable atmospheres. (MSHA 3028, p. 4-6)

recovery, rescue first, second rescue, recovery

31. When rescue teams travel in \_\_\_\_\_\_, all team members should hold onto the \_\_\_\_\_\_\_\_

or be linked together by means of a linkline. (MSHA 3028, p. 4-24)

smoke, lifeline linkline, smoke lifeline, smoke

32. Its recommended teams \_\_\_\_\_\_ \_\_\_\_ travel through water that is over knee deep (less

in low coal). (MSHA 3028, p. 4-26, Revised 2008)

will, not should, not always, will

33. \_\_\_\_ \_\_\_\_\_\_\_ 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)

Intake, airways Air, routes Air, courses

34. Before \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ through any stopping inby which conditions are not

definitely known, you should first erect a temporary stopping outby.

opening, stepping erecting, building opening, traveling

35. The \_\_\_\_\_\_\_\_\_ of the mine atmosphere for the presence of oxygen, methane, and

carbon monoxide is an important element of team \_\_\_\_\_\_\_\_\_\_\_. (MSHA 3028 p. 4-28)

monitoring, exploration examining, discovery testing, exploration

36. Dinner \_\_\_\_\_\_\_ encountered during \_\_\_\_\_\_\_\_\_\_\_ are important because they may

contain information about the whereabouts of survivors. (MSHA 3028, p 4-29)

pails, recovery buckets, exploration pails, explorations

37. A \_\_\_\_\_\_\_\_\_\_ is a session held when a team returns to the surface after completing an

assignment to \_\_\_\_\_\_\_ what they saw and did. (MSHA 3028, p. 4-33)

review, debrief debriefing, review debriefing, discuss

38. The TLV-TWA is the average concentration for a normal 8 hour workday and a 40

\_\_\_\_ \_\_\_\_\_\_\_\_, to which workers may be repeatedly exposed, day after day,

without adverse effect to a gas. (NIOSH Chemical Hazards, pp. x & xi)

hour, workweek day,workperiod hour, session

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

100, ppm 10, ppm 50, ppm

40. The STEL is a \_\_\_ \_\_\_\_\_\_\_ TWA exposure which should not be exceeded at any time

during a work day for a gas. (NIOSH Chemical Hazards, pp. x & xi)

20, minute 15, minute 10, minute

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

IDHL,200 STEL, 50 STEL, 200

42. The IDLH is immediately dangerous to \_\_\_\_\_ or \_\_\_\_\_\_ 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),

health, life miners, patients life, health

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

Carbon, Monoxide Carbon, Dioxide Hydrogen, Sulphide

44. Heat rises and because it is \_\_\_\_\_\_\_ by the mine roof it \_\_\_\_\_\_\_\_\_\_ forces.

starts, regulates stopped, generates forced, generates

45. Every \_\_\_\_\_\_ creates an equal and opposite \_\_\_\_\_\_ (this leads to smoke and fire rollback

and methane layers). (Donald W. Mitchell, MINE FIRES 3rd Edition, p. 3)

action, action force, force explosion, explosion

46. The Universal Gas Law, \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_ are directly related to temperature,

means the hotter the fire the higher the pressures it develops.

volume, pressure pressure, force pressure, volume

47. A fire produces \_\_\_\_\_\_\_\_ like a fan and air always flows from the point of high to

low pressure so the larger the fire the more \_\_\_\_\_\_ and products of combustion that

can be pushed back against the ventilating air towards you and the other firefighters.

heat, force pressure, heat force, heat

48. The \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ is designed to help the Emergency Medical Responder detect

and correct all immediate threats to life. (Brady First Responder, p. 168)

initial, assessment first, response primary, assessment

49. Check for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ by gently \_\_\_\_\_\_\_\_\_ the patient’s shoulder and shouting,

“Are you okay”. (Brady First Responder, p. 170)

breathing, holding breathing, touching responsiveness, squeezing

50. A \_\_\_\_\_ \_\_\_\_\_\_\_\_ patient should be transported immediately, with little time spent on

the scene. (Brady First Responder, p. 175)

low, priority high, priority medium, priority

51. Under no \_\_\_\_\_\_\_\_\_\_\_\_\_\_ will the team ever alter ventilation without \_\_\_\_\_\_ to do so

from the Command Center. (MSHA 3028, p. 3-3)

situations, orders circumstances, directions circumstances, orders

52. High temperatures (or heat) cause \_\_\_\_\_\_ to \_\_\_\_\_\_\_, so they diffuse more quickly.

gases, expand atmospheres, expand gases, explode

53. The \_\_\_\_\_\_\_ \_\_\_\_\_\_\_ 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)

Control, Center Command, Center Information, Center

54. A dangerous and sometimes \_\_\_\_\_\_ \_\_\_\_\_\_\_ that responders make is entering an

unsafe or hazardous scene. (Brady First Responder, p. 165)

costly, mistake fatal, mistake initial, mistake

55. With the \_\_\_\_\_\_ open place your ear over the patient’s nose and mouth, and \_\_\_\_\_\_

for chest movement. (Brady First Responder, p. 172)

mouth, listen airway, check airway, watch

56. If the patient is not \_\_\_\_\_\_\_\_\_, check for a carotid pulse at the neck to determine if

blood is \_\_\_\_\_\_\_\_\_\_\_. (Brady First Responder, p. 174)

breathing, circulating moving, pumping conscious, flowing

57. One of the first \_\_\_\_\_\_\_\_ \_\_\_\_\_ 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)

initial, steps initial, procedures critical, steps

58. Stopping \_\_\_\_\_\_ \_\_\_\_\_\_\_\_ is a must because if you cannot control the rollback you

probably can’t get close enough to fight the fire effectively.

gas, rollback smoke, rollback thermal, rollback

59. \_\_\_\_ \_\_\_\_\_\_\_ is like smoke rollback with Methane and Hydrogen the likely gases to

form layers during a fire. (Donald W. Mitchell Mine Fires, p. 23)

smoke, layering Heat, layering gas, layering

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

Carbon, Dioxide Carbon, Monoxide Hydrogen, Sulfide

61. A \_\_\_\_\_\_ \_\_\_\_\_ is used to show the direction and velocity of slow moving air.

Pieto, tube smoke, tube anemometer, reading

62. When taking a reading with an anemometer, a commonly used method is to \_\_\_\_\_\_\_\_

the \_\_\_\_\_\_. (MSHA 3028, p. 3-17)

walk, entry cross, crosscut traverse, airway

63. An \_\_\_\_\_\_\_\_ consists of two doors or two stoppings with flaps or doors in them which

are in close proximity to each other in the same \_\_\_\_\_\_\_\_\_\_. (MSHA 3028, p. 3-22)

refuge, enclosure airlock, passageway airlock, entry

64. The purpose of an \_\_\_\_\_\_\_\_ is to separate two different atmospheres while still

permitting miners to enter and exit without mixing the \_\_\_\_\_\_\_\_\_\_\_\_.

airlock, air airlock, gas airlock, atmospheres

65. Temporary stoppings built in a crosscut should be placed at least \_\_\_\_\_ to \_\_\_\_ feet into

the crosscut in order that sufficient space is available to construct a permanent

stopping. (MSHA 3028, p. 3-21)

four, six 4, 6 six, eight

66. “\_\_\_\_\_ \_\_\_\_\_\_” are devices which may be used to erect temporary stoppings.

Temporary, stoppings partial, stoppings Pogo, sticks

67. \_\_\_\_\_\_\_ is a \_\_\_\_\_\_\_\_\_\_ of combustion. (MSHA 3028, p 2-13)

Methane, source Methane, supporter Oxygen, supporter

68. \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_ should include provisions for collecting air samples from within the

sealed area. (MSHA 3028, p 5-24)

Permanent, seals Temporary, seals Portable, seals

69. Progressive ventilation is the re-ventilation of a sealed area in \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ by

means of airlocks. (MSHA 3028, p 7.6)

underground, mines several, blocks successive, blocks

70. Direct ventilation is the re-ventilation of an entire \_\_\_\_\_\_ \_\_\_\_\_ at once.

Coal, mine sealed, area fire, area

71. Sufficient time should be allowed for a fire area to \_\_\_\_\_ before it is \_\_\_\_\_\_\_\_\_\_.

burn, sealed cool, sealed cool, unsealed

72. \_\_\_\_\_\_\_ \_\_\_\_ has a specific gravity of one. (MSHA 3028, p 2.6)

Normal, air Mine, air Enriched, air

73. Besides helping you determine where to \_\_\_\_\_ for a \_\_\_\_, specific gravity also indicates

how quickly the gas will diffuse and how easily it can be dispersed by ventilation.

look, gas test, methane test, gas

74. Methane is \_\_\_\_\_\_\_\_ than \_\_\_\_. (MSHA 3028, p 2-6)

lighter, air heavier, air lighter, hydrogen

75. Carbon \_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_. (MSHA 3028, pp 2-16)

monoxide, explosive dioxide, explosive black, explosive

76. The range of concentrations within which a \_\_\_\_ will \_\_\_\_\_\_\_\_ is known as its

“explosive range.” (MSHA 3028, p. 2-7)

mixture, expand gas, expand gas, explode

77. Nitrogen dioxide has a reddish-brown \_\_\_\_\_\_ in high \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

color, areas look, concentrations color, concentrations

78. Color, odor, and taste are \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ that can help you identify a gas,

especially during barefaced exploration. (MSHA 3028 p. 2-8)

visual, properties physical, properties physical, characteristics

79. Clean, \_\_\_\_ \_\_\_\_ at sea level is made up of 78 percent nitrogen and 21 percent oxygen.

moist, oxygen dry, air dry, atmoshperes

80. \_\_\_\_\_\_\_ has no \_\_\_\_\_. (MSHA 2102, pp. 27 & 67)

Nitrogen, color Hydrogen, odor Oxygen, odor

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

Nitrogen, odor Hydrogen, odor Hydrogen, scent

82. The explosive range of methane in air is 5 to 15 \_\_\_\_\_\_\_ \_\_\_\_\_\_\_.

percent, volume volume, percent percent, reading

83. When present in high concentrations (2 percent or higher), carbon dioxide causes

you to \_\_\_\_\_\_\_\_ deeper and \_\_\_\_\_\_\_\_. (MSHA 3028, p 2-14)

breathe, faster breathe, slower exhale, slower

84. Carbon monoxide can be \_\_\_\_\_\_\_\_\_ by means of carbon monoxide detectors, multi-gas

detectors, or by \_\_\_\_\_\_\_\_\_ analysis. (MSHA 3028, p 2-17)

found, computer displaced, constant detected, chemical

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

explosive, methane explosive, hydrogen detectable, hydrogen

86. \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ is flammable and explosive in concentrations from 4.3 to 45.5

percent in normal air. (MSHA 3028, p 2-20)

Hydrogen, sulphide Sulphur, Dioxide Nitrogen, dioxide

87. Carbon dioxide is \_\_\_\_-\_\_\_\_\_\_\_\_\_. (MSHA 3028, p. 2-14)

non, explosive non, detectable non, traceable

88. Air containing \_\_ to \_\_\_\_\_ percent hydrogen will explode even when there is as little as

5 percent oxygen present. (MSHA 3028, p 2-17)

4.0, 75.0 four, seventyfour 4, 74.2

89. A mixture containing as little as \_\_\_\_\_ to \_\_\_ percent methane, together with coal dust,

may be explosive. (MSHA 3028, p 2-21)

1.5, 2 1 ½, 2 2, 3

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

Methane, asphyxiant Nitrogen, asphyxiant Hydrogen, asphyxiant

91. The IDLH of Hydrogen sulfide and Sulfur Dioxide is \_\_\_\_ \_\_\_\_.

1000,ppm 50, ppm 100, ppm

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

200, ppm 2000, ppm 20, ppm

93. The affinity of carbon monoxide for hemoglobin is \_\_\_\_ to \_\_\_\_ times that of oxygen.

300, 400 200, 300 20, 30

94. Carbon Dioxide is the product of \_\_\_\_\_\_\_\_\_ including the \_\_\_\_\_\_ of timbers.

oxidation. decay rotting, deterioration fire, burning

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

mine, air mine, atmospheres normal, air

96. \_\_\_\_\_\_\_\_\_ is a \_\_\_\_\_\_\_ of carbon monoxide, carbon dioxide, methane, oxygen,

nitrogen and hydrogen. (MSHA 3028, p 2-27)

Blackdamp, mixture Afterdamp, mixture Firedamp, mixture

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

fire, explosion fire, rooffall fire, induction

98. Hydrogen can be detected with a multi-gas detector or by \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_.

chemical, test gas, testing chemical, analysis

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

liberated, rock released, roof liberated, roof

100. To detect oxygen deficient atmospheres teams will use an \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_.

multi, detector oxygen, detector oxygen, indicator



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. Its 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, p. 3-21)

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

“explosive 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