

## VISIBLE EMISSIONS TRAINING EXAM

Name \_\_\_\_\_ Date \_\_\_\_\_

**Any question may have more than one answer - MARK ALL CORRECT ANSWERS**

1. What are the "3 T's" of combustion?  
\_\_\_\_\_
  
2. In actual field application, an observer should be what distance from a stack that is 33 feet high, relative to the observer?  
A. 25 feet to 50 feet \_\_\_\_\_  
B. 99 feet to 1/4 mile \_\_\_\_\_  
C. 1/4 mile to 1 mile \_\_\_\_\_  
D. 50 feet to 1/2 mile \_\_\_\_\_
  
3. The optimum place to read a plume is:  
A. Looking into the plume toward the stack \_\_\_\_\_  
B. Looking down the length of the plume away from the stack \_\_\_\_\_  
C. Perpendicular (or 90°) to the plume \_\_\_\_\_  
D. 45° to the plume axis \_\_\_\_\_
  
4. An observer should ideally read a plume:  
A. Facing into the sun \_\_\_\_\_  
B. With the sun to his back \_\_\_\_\_  
C. 90° to the sun \_\_\_\_\_  
D. 45° to the sun \_\_\_\_\_
  
5. Gases are commonly controlled by:  
A. Cyclones \_\_\_\_\_  
B. Wet Scrubbers \_\_\_\_\_  
C. Electrostatic Precipitators \_\_\_\_\_  
D. Baghouses \_\_\_\_\_
  
6. Visible emissions can consist of: Check all that apply.  
A. Particles \_\_\_\_\_  
B. Liquid Droplets \_\_\_\_\_  
C. Gases \_\_\_\_\_  
D. None of the above \_\_\_\_\_
  
7. When reading opacity, you should stare continually at the plume and record the average opacity for every 15 second period.  
True \_\_\_\_\_ False \_\_\_\_\_
  
8. The opacity of a plume should be read at what point in a plume?  
A. The point of greatest opacity where water is not present \_\_\_\_\_  
B. At the point of release for a detached dry plume \_\_\_\_\_  
C. At the point of dissipation for an attached dry plume \_\_\_\_\_  
D. 5 stack heights from the end of the stack \_\_\_\_\_
  
9. Stack emissions are never read in the rain.  
True \_\_\_\_\_ False \_\_\_\_\_

10. Good documentation of plume reading should: Check all that apply.
- A. Describe the observer's position relative to the plume \_\_\_\_\_
  - B. Indicate the time of day the observation was made \_\_\_\_\_
  - C. Describe the appearance (e.g. color and shape) of the plume \_\_\_\_\_
  - D. Describe the past opacity problems of the control equipment \_\_\_\_\_
  - E. Allow a review of the observation conditions \_\_\_\_\_
11. An observer remains certified for what period after passing a method 9 field test?
- A. 6 months \_\_\_\_\_
  - B. 1 year \_\_\_\_\_
  - C. 2 years \_\_\_\_\_
12. Which of the following would be the best way to indicate the time of observation?
- A. 6:45 \_\_\_\_\_
  - B. 1845 \_\_\_\_\_
  - C. 6:45 PST (Pacific Standard Time) \_\_\_\_\_
  - D. 1845 PST (Pacific Standard Time) \_\_\_\_\_
13. Which of the following factors influence plume opacity readings? Check all that apply.
- A. Particle Size \_\_\_\_\_
  - B. Plume Background \_\_\_\_\_
  - C. Path Length \_\_\_\_\_
  - D. Sun Angle \_\_\_\_\_
  - E. Lighting conditions \_\_\_\_\_
14. A 20% opacity obscures an observer's vision through the plume by 20%.  
True\_\_\_\_\_ False\_\_\_\_\_
15. Visible emission readings cannot be directly and universally correlated to grain loadings in all stacks.  
True\_\_\_\_\_ False\_\_\_\_\_
16. Combustion is the only source of visible emission.  
True\_\_\_\_\_ False\_\_\_\_\_
17. The size of particles causing the greatest reduction in visibility is:
- A. 0 - 0.1 Micron \_\_\_\_\_
  - B. 0.1 - 1.0 Micron \_\_\_\_\_
  - C. 1 - 50 Micron \_\_\_\_\_
  - D. 50 - 500 Micron \_\_\_\_\_
18. To make valid readings , an observer must use a Ringlemann Chart.  
True\_\_\_\_\_ False\_\_\_\_\_
19. Which observer would have a greater slant angle?
- A. An observer 40 feet away from a 10 foot stack \_\_\_\_\_
  - B. An observer 100 feet away from a 75 foot stack \_\_\_\_\_
20. The concept of visible emission evaluation (opacity) can be applied to any color emission.  
True\_\_\_\_\_ False\_\_\_\_\_

21. The opacity of a plume will appear the highest when the contrast between the plume and the background is the greatest.

True\_\_\_\_\_ False\_\_\_\_\_

22. Which of the following control equipment may be expected to contribute water to a plume? Check all that apply.

- A. Packed Tower \_\_\_\_\_
- B. Cyclone \_\_\_\_\_
- C. Baghouse \_\_\_\_\_
- D. Spray Washer \_\_\_\_\_
- E. Venturi Scrubber \_\_\_\_\_

23. With the same mass emissions (pounds per day), the same volume of emissions, and identical material, a 20 foot diameter stack will give the same opacity as a 5 foot diameter stack.

True\_\_\_\_\_ False\_\_\_\_\_

24. With the same stack diameter and constant mass emissions (pounds per day),:

- A. Opacity would increase if air volume increased \_\_\_\_\_
- B. Opacity would decrease if air volume increased \_\_\_\_\_
- C. Opacity would remain the same regardless of change in air volume \_\_\_\_\_

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