

Operator Quiz Winter 2021 – Odors

The following questions are designed for individuals/trainees pursuing certification as they prepare to take the ABC wastewater operator test. It is also designed for existing operators to test their knowledge. Each issue of *Clear Waters* will have more questions from a different process of wastewater treatment. Good luck!

1. The main cause of most odors in wastewater systems is due to:

- a. Hydrogen sulfide
- b. Hydrogen peroxide
- c. Hydrogen gas
- d. Nitrous oxide

2. Chlorination of waste streams is an effective means of odor control because:

- a. Chlorine is very reactive and oxidizes many chemical compounds in water.
- b. Chlorine can destroy bacteria that can convert sulfate to sulfide.
- c. Chlorine can destroy hydrogen sulfide at the point of application.
- d. All of the above.

3. Odor complaints are increasing at the WRRF. The operator finds most odors seem to be coming from the primary clarifiers where bubbles and chunks of solids are found on the tank surface. What should be done to correct the problem?

- a. Cover the secondary clarifiers.
- b. Increase the pretreatment chlorine dosage.
- c. Increase the sludge withdrawal from the primary clarifiers.
- d. Add potassium permanganate or hydrogen peroxide to the upstream lift station.

4. A mechanical ventilation system for the wet well portion of a lift station that operates continuously should be able to exchange the air in the wet well _____ times an hour

- a. 6
- b. 15
- c. 30
- d. 60

5. When wastewater remains in the collection system for an extended period of time it becomes:

- a. Organic
- b. Inorganic
- c. Septic
- d. Toxic

6. One method used to minimize odor generation in sewer lines is to prevent solids deposition by designing a system with a high-flow velocity. What is the recommended design flow velocity to minimize odors?

- a. Greater than 1.0 ft/sec
- b. Greater than 2.0 ft/sec
- c. Greater than 3.0 ft/sec
- d. Greater than 5.0 ft/sec

7. Hydrogen sulfide gas is released most rapidly from wastewater at what pH range?

- a. Greater than 9
- b. 7 to 9
- c. 5 to 7
- d. Less than 5

8. Healthy activated sludge has what type of smell?

- a. Mild, musty
- b. Antiseptic
- c. Sharp, acidic
- d. Rotten egg

9. When odors are emitted to the atmosphere, the area downwind of the release point that contains the odor is called the _____ .

- a. Plume
- b. Eddie
- c. Wake
- d. Wind shear

10. A “rotten egg” odor near a trickling filter generally indicates:

- a. Anaerobic conditions within the filter
- b. The presence of the *Psychoda* fly
- c. A too-high DO level in wastewater being applied to the filter
- d. Too much recirculation



Answers below.

For those who have questions concerning operator certification requirements and scheduling, please contact Carolyn Steinhauer at 315-422-7811 ext. 3, carolyn@nywea.org, or visit www.nywea.org.

Answers: 1. (a) Hydrogen sulfide 2. (d) All of the above 3. (c) Increase the sludge withdrawal from the primary clarifiers 4. (a) 6 times an hour 5. (c) Septic 6. (b) Greater than 2.0 ft/sec 7. (d) Less than 5 8. (a) Mild, musty 9. (a) Plume 10. (a) Anaerobic conditions within the filter