



SPRING 2024 – BIOSOLIDS

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) What is a typical ORP for an anaerobic digester?
 - A) 200 – 300 mV
 - B) 50 – 150 mV
 - C) -50 – -150 mV
 - D) -200 – -400 mV
- 2) What is the primary function of polymer in the dewatering process?
 - A) To decrease solids content
 - B) To disinfect the sludge particles
 - C) To adjust PH
 - D) To make water easier to separate
- 3) Calculate the pounds of polymer per dry ton of solids if a properly operated centrifuge is being fed 190 GPM of sludge at 3.2% TS and 40 GPM of polymer at a concentration of 0.4%.
 - A) 47 lbs/DT
 - B) 50 lbs/DT
 - C) 53 lbs/DT
 - D) 58 lbs/DT
- 4) What is the cause of a “sour” digester?
 - A) Sludge temperature swings less than 1°F per day
 - B) Sludge feed rate too high
 - C) Sludge feed rate too low
 - D) High alkalinity in the sludge
- 5) To meet the biosolids requirement for reducing vector attraction you must meet ____ % reduction in volatile reduction.
 - A) 26%
 - B) 38%
 - C) 44%
 - D) 58%
- 6) What are two of the reaction-forming stages of anaerobic digestion?
 - A) Volatile solids and total solids
 - B) Foam and oxygen
 - C) Acid and methane
 - D) Nitrogen and methanol
- 7) Feed solids to an anaerobic digester contain 80% volatile solids and the digested solids contain 55% volatile solids. What is the volatile solids reduction?
 - A) 58%
 - B) 25%
 - C) 69%
 - D) 31%
- 8) Which digester, in a two-stage anaerobic digestion process, is normally not mixed and/or heated?
 - A) Primary digester
 - B) Secondary digester
 - C) Neither is normally mixed or heated
 - D) Both are normally mixed and heated
- 9) What is a typical range for gas production in a properly operated anaerobic digestion process?
 - A) 1 to 2 ft³ per lb VS reduced
 - B) 5 to 7 ft³ per lb VS reduced
 - C) 11 to 20 ft³ per lb VS reduced
 - D) 40 to 60 ft³ per lb VS reduced
- 10) The density of fecal coliform in Class A biosolids must be less than?
 - A) 1,000 MPM per gram TS
 - B) 1,000 Colonies/100ml
 - C) 10,000 MPM per gram TS
 - D) 100 Colonies/100ml

Answers:

- 1) D: -200 – -400 mV
 2) D: To make water easier to separate
 3) C: 53 lbs/DT
 4) B: Sludge feed rate too high
 5) B: 38%
 6) C: Acid and methane
 7) C: 69%
 8) B: Secondary digester
 9) C: 11 to 20 ft³ per lb VS reduced
 10) A: 1,000 MPM per gram TS