



Certification Boulevard

Test Your Knowledge of Conservation and Reuse

1. Given the following data, calculate the volume of flow in gallons that will be delivered through this flume in a 4-hour period:
 - 10 inches long
 - 10 inches wide
 - 8 inches water depth
 - 2 fps flow velocity
 - A. 62,330
 - B. 87,160
 - C. 119,693
 - D. 247,310

2. Which of these 3/4" meters on a test bench is recommended to be tested with the positive displacement meters?
 - A. Turbine Meters
 - B. Multi-jet Meters
 - C. Piston Meters
 - D. Compound Meters

3. What is a typical permit requirement for chlorine residual maintenance of reuse water that is being applied to a Public Access Reuse System in Florida?
 - A. No greater than 1.0 mg/L Total Chlorine Residual
 - B. No less than 1.0 mg/L Total Chlorine Residual
 - C. No greater than 1.0 mg/L Free Chlorine Residual
 - D. No less than 0.1 mg/L Total Chlorine Residual

4. What is a typical permit requirement for chlorine residual maximum of effluent disposal in an open body of water in Florida (other than the ocean)?
 - A. No greater than 0.01 mg/L Total Chlorine Residual
 - B. No less than 0.5 mg/L Total Chlorine Residual
 - C. No greater than 1.0 mg/L Free Chlorine Residual
 - D. No less than 0.1 mg/L Total Chlorine Residual

5. Given the following data, what is the total solids concentration of Primary Sludge and Thickened Waste Activate Sludge (TWAS) after being mixed together?
 - 3,200 gallons of primary sludge
 - Primary sludge concentration is 3.9% total solids
 - 2,800 gallons of TWAS
 - TWAS concentration is 5.5 % total solids

- A. 4.6 %
B. 3.1 %
C. 4.1 %
D. 5.2 %
6. Given the following information, does this reuse water satisfy the FDEP requirements for fecal coliform standards?
- 50% of the sample are below the detection limits per 100 ml of sample
 - The highest day of the month was 30 per 100 ml of sample
- A. Yes, this meets typical requirements in Florida for reuse water fecal coliform
B. No, this fails to meet typical requirements in Florida for reuse water fecal coliform
7. Which statement best describes typical analytical requirements for effluent to be applied as reuse water in Florida?
- A. $\text{CBOD}_5 = 3\text{-}5 \text{ mg/L} \cdot \text{TSS} = 10 \text{ to } 20 \text{ mg/L} \cdot \text{TP} = 1.0 \text{ mg/L} \cdot \text{TN} = 3 \text{ mg/L}$
B. $\text{CBOD}_5 = 20 \text{ - } 30 \text{ mg/L} \cdot \text{TSS} = 1 \text{ to } 2 \text{ mg/L} \cdot \text{TP} = 0.5 \text{ mg/L} \cdot \text{NO}_3 = 15 \text{ mg/L}$
C. $\text{CBOD}_5 = 10 \text{ - } 20 \text{ mg/L} \cdot \text{TSS} = 5 \text{ mg/L} \cdot \text{TP} = 0.5 \text{ mg/L} \cdot \text{TN} = 15 \text{ mg/L}$
D. $\text{CBOD}_5 = 10 \text{ - } 20 \text{ mg/L} \cdot \text{TSS} = 5 \text{ mg/L} \cdot \text{TP} = \text{no limit} \cdot \text{NO}_3 = 10 \text{ - } 12 \text{ mg/L}$
8. How much alkalinity is required to oxidize 0.45 kg of ammonia?
- A. 4.65 kg
B. 6.70 kg
C. 7.14 kg
D. 3.2 kg
9. Given the following data, what is the TSS concentration of a reuse grab sample:
- 100 ml of sample
 - Tare weight of filter is 11.8873 grams
 - Final weight of filter after drying is 11.8877 grams
- A. 10 mg/L
B. 4 mg/L
C. 2 mg/L
D. 8 mg/L
10. Which statement is the most accurate?
- A. A percolation pond usually does not have an overflow
B. A rapid infiltration basin usually does have an overflow
C. A percolation pond usually has a solid bottom liner
D. A rapid infiltration basin usually does not have an overflow

Question No.1 was submitted by Ken Martin, Certified Operator

Question No.2 was submitted by Bud Tomlinson, Water Systems Tech II
Instructor for PTEC for Water Meter Class - City of St. Petersburg, Florida

Questions Nos.5 and 8 were submitted by Jon Meyer, Florida Water Services

Thanks to all for their input.

Please forward your comments and sample questions for publication to:

**Roy Pelletier, Assistant Bureau Chief
City of Orlando Public Works Department
Wastewater Bureau
5100 L.B. McLeod Road
Orlando, Florida 32811**

roy.pelletier@ci.orlando.fl.us (407) 246-2213