



Certification Boulevard

Roy Pelletier



Test Your Knowledge of Conservation & Reuse

1. What are typical plant permit limitations for reuse water applications?
A. 1-2 CBOD₅, 10 TSS and 25 NO₃
B. 10-12 CBOD₅, 15 TSS and 20 NO₃
C. 20-30 CBOD₅, 5 TSS and 10-12 NO₃
D. 40-50 CBOD₅, 1 TSS and 5 NO₃
2. What is the main difference between a percolation pond (Pond) and a rapid infiltration basin (RIB)?
A. A Pond generally has an overflow discharge, and an RIB infiltrates all of its water into the ground through the bottom.
B. An RIB generally has an overflow discharge, and a Pond infiltrates all of its water through the bottom.
C. Water infiltrates into an RIB and exfiltrates out of a Pond.
D. No difference; they are both the same.
3. What will a pressure gauge read on the suction of a reuse water pump if the pump is located at floor elevation of a storage tank and the tank has a static water level of 20 feet?
A. About 46 psi. B. About 21.6 psi.
C. About 8.7 psi. D. About 15.2 psi.
4. What is the typical permit requirement for total suspended solids (TSS) of reuse water as it leaves the reclamation facility in Florida?
A. No greater than 1.0 mg/l.
B. No greater than 10.0 mg/l.
C. No greater than 5.0 mg/l.
D. No less than 12.0 mg/l.
5. What is a typical permit requirement for chlorine residual maintenance of reuse water that is being applied to a rapid infiltration basin?
A. No greater than 1.0 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.
6. What is a typical permit requirement for chlorine residual maximum of effluent disposal in an open body of water, 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.
7. Given the following information, does this reuse water satisfy the FDEP requirements for fecal coliform standards?
• 75 percent of the sample is below the detection limits per 100 mL of sample.
• The highest day of the month was 20 per 100 mL of sample.
A. Yes, this meets typical requirements for reuse water fecal coliform.
B. No, this fails to meet typical requirements for reuse water fecal coliform.
8. 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 |
9. Given the following data, how much rainwater will enter this open storage pond?
• Rainfall is 4.7 inches.
• The storage pond is 225 feet long and 75 feet wide, with a maximum depth of 5 feet.
A. 126,225 gals B. 49,438 gals
C. 336,600 gals D. 3,506 gals
 10. What type of solids can not be removed with typical effluent filters?
A. Settleable B. Suspended
C. Total D. Dissolved

ANSWERS ON PAGE XX

SEND US YOUR QUESTIONS FOR CERTIFICATION BOULEVARD

Do you have a question or an exercise you would like to feature in "Certification Boulevard?" We'll be glad to publish it. Just send your question (with the answer) or your exercise (with the solution) to:

Roy A. Pelletier
Wastewater Consultant
City of Orlando Public Works Department
Environmental Services Wastewater Division
5100 L.B. McLeod Road
Orlando, Florida 32811
roy.pelletier@cityoforlando.net
Telephone 407-246-2213

There is no limit to the number of questions or exercises you may submit. Please include your name, city, and organization or company so we can give you credit.

Certification Boulevard Answer Key

From page xx

1. C. 20-30 CBOD₅, 5 TSS and 10-12 NO₃
2. A. A Pond generally has an overflow discharge, and an RIB infiltrates all of its water into the ground through the bottom.

3. C. About 8.7 psi.

$$20 \text{ feet} \times 0.433 \text{ psi per foot of head} = 8.66 \text{ psi}$$

Or

$$20 \text{ feet} \div 2.31 \text{ ft of head per psi} = 8.658 \text{ psi}$$

4. C. No greater than 5.0 mg/l.

5. B. No less than 0.5 mg/L Total Chlorine Residual.

6. A. No greater than 0.01 mg/L Total Chlorine Residual.

7. A. Yes, this meets typical requirements for reuse water fecal coliform.

The rule for fecal coliform in reuse water states: "over a 30-day period, 75 percent of the fecal coliform values (the 75% percentile value) shall be below detection limits. Any one sample shall not exceed 25 fecal coliform values per 100 mL of sample."

8. B. 4 mg/L

TSS, mg/L

$$= (\text{final wt., gm} - \text{tare wt., gm}) \times 10,000$$

TSS, mg/L

$$= (11.8877 \text{ gm} - 11.8873 \text{ gm}) \times 10,000$$

$$= 4 \text{ mg/L}$$

9. B. 49,438 gals

Volume of pond per foot

$$= 225 \text{ ft} \times 75 \text{ ft} \times 1 \text{ ft.} \times 7.48 \text{ gals per cu. ft.}$$

$$= 126,225 \text{ gals per foot}$$

Volume of pond per inch

$$= 126,225 \text{ gals per foot divided by 12 in/ft}$$

$$= 10,518.75 \text{ gals per inch}$$

Volume of pond per 3.5 inches

$$= 10,518.75 \text{ gals per inch} \times 4.7 \text{ inches}$$

$$= 49,438 \text{ gals}$$

10. D. Dissolved

Dissolved solids, like sugar in water, are not typically removed with effluent filtration.

