



Certification Boulevard

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Test Your Knowledge Of Wastewater Calculations

Answer the questions using the following plant data:

- Influent Flow is 575,000 gpd
- Influent CBOD5 is 250 mg/l
- Influent TSS is 200 mg/l
- Aeration Tank Dimensions are 100 ft. Long, 25 ft. Wide, and 14 ft. Deep
- Aeration MLSS is 3,500 mg/l
- Aeration MLSS is 75% Volatile
- Settleometer @ 30 Minutes is 300 ml/l
- RAS Concentration is 10,000 mg/l
- RAS Rate is 55% of Influent Flow
- WAS Concentration is 1% Total Solids
- WAS Volume is 14,000 gpd
- Secondary Clarifier Diameter is 50 ft. and the Depth is 12 ft.
- Secondary Clarifier has a Single Weir around the Tank's Circumference
- Effluent TSS is 2.5 mg/l
- Effluent CBOD5 is 3.5 mg/l

1. What is the volume in gallons of the aeration tank?
 - a. 7,854 gallons
 - b. 261,800 gallons
 - c. 4,679 gallons
 - d. 291,900 gallons
2. What is the percent BOD₅ removal efficiency in this plant?
 - a. 98.6 percent
 - b. 100 percent
 - c. 89.6 percent
 - d. 82.7 percent
3. What is the F/M ratio of the activated sludge process?
 - a. 0.42
 - b. 0.21
 - c. 2.28
 - d. 0.16
4. What is the surface area of the secondary clarifier?
 - a. 7,850 square feet
 - b. 3,925 square feet
 - c. 491 square feet
 - d. 1,963 square feet
5. What is the SRT of this activated sludge plant?
 - a. 12 days
 - b. 8.5 days
 - c. 6.5 days
 - d. 0.15 days
6. What is the RAS flow rate, in mgd, in this activated sludge process?
 - a. 300,000 gpd
 - b. 0.158 mgd
 - c. 0.316 mgd
 - d. 0.546 mgd
7. How many lbs/day of WAS are removed each day?
 - a. 0.1168 lbs/day
 - b. 116,760 lbs/day
 - c. 2,335 lbs/day
 - d. 1,168 lbs/day
8. What is the solids loading rate on the secondary clarifier?
 - a. 13.2 lbs/day/square foot
 - b. 8.6 lbs/day/square foot
 - c. 4.7 lbs/day/square foot
 - d. 9.9 lbs/day/square foot
9. What is the percent TSS removal efficiency in this plant?
 - a. 98.8 percent
 - b. 100 percent
 - c. 89.6 percent
 - d. 82.7 percent
10. What is the detention time in the aeration tank (not including RAS flow)?
 - a. 15.1 hours
 - b. 10.9 hours
 - c. 2.2 hours
 - d. 9.0 hours
11. What is the total length of weir for the secondary clarifier?
 - a. 262 feet
 - b. 105 feet
 - c. 314 feet
 - d. 157 feet
12. What is the weir overflow rate for the secondary clarifier?
 - a. 5,677 gpd/foot of weir
 - b. 3,662 gpd/foot of weir
 - c. 1,831 gpd/foot of weir
 - d. 7,325 gpd/foot of weir
13. What is the surface settling rate for the secondary clarifier?
 - a. 24,481 gpd/square foot
 - b. 12.1 gpd/square foot
 - c. 293 gpd/square foot
 - d. 73.2 gpd/foot of weir



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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:

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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.