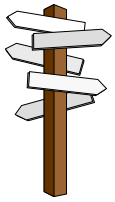
Certification Boulevard



Test Your Knowledge of Advanced Treatment Topics

1. Which chemical can be used as a food source to enhance denitrification in the activated sludge process?

    a. Lime
    b. Methanol
    c. Ferric Chloride
    d. Aluminum Sulfate

2. Given the following Ortho P data for inlet and outlet of a BNR fermentation tank, does this appear to be a problem?

    - Fermentation Inlet Ortho P is 8.5 mg/L
    - Fermentation Outlet Ortho P is 4.2 mg/L

    a. No, the Ortho P removal is acceptable for this zone
    b. Yes, the fermentation outlet Ortho P should be 2 to 3 times the concentration of the inlet
    c. The fermentation tank is designed to uptake and remove phosphorus in this zone
    d. Both "a & c"

3. Given the following data, what is the solids loading rate on the secondary clarifiers?

    - Plant Influent Flow is 5.25 mgd
    - The RAS Rate is 95% of Q
    - There are two (2) 100 ft Diameter Secondary Clarifiers
    - The Aeration MLSS is 2,750 mg/L

    a. 11.8 lbs/day/ft^2
    b. 8.6 lbs/day/ft^2
    c. 13.9 lbs/day/ft^2
    d. 15.0 lbs/day/ft^2

4. Given the following data, and using the data provided in question 3, what is the F/M ratio of this activated sludge process?

    - Influent $CBOD_5$ is 213 mg/L
    - Primary Clarifier Removes 26% of the Influent $CBOD_5$
    - MLVSS is 77% of MLSS
    - Two (2) Aeration Tanks Each 155 Feet Long, 35 Feet Wide and 15 Feet Deep

    a. 0.32
    b. 0.23
    c. 0.64
    d. 0.11

5. What adjustment should be made if solids are rising in the secondary clarifier accompanied by large, smelly gas bubbles, but the RAS rate seems adequate?

    a. Increase aeration D.O.
    b. Decrease the RAS rate
    c. Decrease the WAS rate
    d. Decrease aeration D.O.

6. Given the following data, what is the percent removal of $CBOD_5$ through the activated sludge process?

    - Plant Influent Flow Rate is 256 gpm
    - Influent $CBOD_5$ is 197 mg/L
    - Primary Effluent $CBOD_5$ is 139 mg/L
    - Secondary Effluent $CBOD_5$ is 3.7 mg/L

    a. 98.1%
    b. 98.6%
    c. 97.0%
    d. 97.3%

7. What type of solids cannot be removed on a filter after thoroughly being mixed in liquid?

    a. Settleable
    b. Dissolved
    c. Colloidal
    d. Inert

8. Is an extended aeration process typically overloaded or underloaded by design?

    a. Overloaded
    b. Underloaded
    c. Low MLSS
    d. High F/M Ratio

9. Given the following data, calculate the RR?

    - 27.6 mg/L/hr OUR
    - 2,221 mg/L MLVSS

    a. 80.5 mg/hr/gm
    b. 8.7 mg/hr/gm
    c. 12.4 mg/hr/gm
    d. 61.3 mg/hr/gm

10. What is a typical RAS to Q ratio for a conventional activated sludge process?

    a. 10% to 25%
    b. 20% to 50%
    c. 1% to 2%
    d. 75% to 100%

Please forward your comments and sample questions for publication to:

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