

Operator Quiz Spring 2022 – Wastewater Characteristics

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!

- Determine the pounds per day of primary solids removed at a plant with a flow rate of 1.5 MGD and the following data:**
Influent TSS = 250 mg/L, Primary Effluent TSS = 150 mg/L, Final Effluent TSS = 12 mg/L
 - 1,101 lbs./day
 - 1,251 lbs./day
 - 982 lbs./day
 - 2,977 lbs./day
- An industrial plant has organic waste discharge that contains 1,450 mg/L of BOD and discharges 5,000 gallons per day into sewers. If the surcharge rate is \$1.00 per lb. of BOD above 250 mg/L then what will be the daily amount to charge this customer for excess BOD discharge?**
 - \$5.00
 - \$25.00
 - \$50.00
 - \$75.00
- Your treatment plant is operating at 50% organic design capacity. The plant is designed to process 2,000 lbs. of BOD per day. A food processing plant wants to bring 6,000 gallons per day of their waste with 12,000 mg/L of BOD for treatment at your plant. To determine if you have the capacity to treat this waste, what is their daily organic loading?**
 - 600 lbs.
 - 60 lbs.
 - 160 lbs.
 - 120 lbs.
- If a large dairy discharges a much higher than normal organic load to the sewer system, the operator's first indicator is:**
 - A decrease in the DO concentration in the aeration tank
 - Floatables in the final clarifier
 - BOD in final effluent has increased
 - Sludge production has increased
- If chlorine costs \$0.21/lb. what is the daily cost to chlorinate a 5 MGD flow rate at a chlorine dosage of 2.6 mg/L?**
 - \$21.34
 - \$18.95
 - \$31.22
 - \$22.77
- Toxic pollutants from industrial wastes must be controlled to prevent all of the following except:**
 - Increased operational costs of the POTW receiving the waste
 - Introduction of pollutants into a POTW that could interfere with its operation
 - Contamination of POTW sludge, which would limit its disposal practices or use
 - Passage of untreated pollutants through a POTW, which could result in NDPEs permit violations
- Which of the following wastewater sources contains the least amount of organic material?**
 - Tannery waste
 - Dairy waste
 - Cooling tower water from fruit and vegetable processing
 - Domestic wastewater
- Which activated sludge process could handle shock loads of dairy waste most effectively?**
 - Tapered aeration
 - High-rate activated sludge
 - Step feed
 - Conventional activated sludge
- Under snow and ice cover, BOD levels in ponds will normally:**
 - Remain the same
 - Increase slowly
 - Decrease rapidly
 - Decrease slowly
- A major characteristic of a metal plating waste is high:**
 - BOD
 - Toxicity
 - Organic matter
 - Suspended solids



Answers below.

For those who have questions concerning operator certification requirements and scheduling, please contact Carolyn Steinhauer at 315-422-7811 ext. 4, carolyn@nywea.org, or visit www.nywea.org.

Answers: 1. (b) 1,251 lbs./day 2. (c) \$50.00 3. (a) 600 lbs. 4. (a) A decrease in the DO concentration in the aeration tank 5. (d) \$22.77 6. (a) Increased operational costs of the POTW receiving the waste 7. (c) Cooling tower water from fruit and vegetable processing 8. (c) Step feed 9. (b) Increase slowly 10. (b) Toxicity