

Oregon Operator Conference Math Workshop Quiz

1. Convert the following:
 - a. 1,320,000 gpd = _____ mgd
 - b. 3.2 mgd = _____ gpm
 - c. 110 °F = _____ °C
 - d. 5.45 mgd = _____ gpd
 - e. 9,200 mL = _____ L

2. A wastewater plant has a daily average flow of 34.7 mgd and the latest influent BOD concentration is 350 mg/L. Calculate the BOD loading in lbs/day.

3. Your wastewater plant requires 85% removal of ammonia. The influent ammonia concentration is 27.5 mg/L and the final effluent ammonia concentration is 4.5 mg/L. How did you do?

4. Calculate the chlorine feed rate in lbs/day based on the following information:

Flow – 45.2 mgd	Desired Chlorine Residual – 2.5 mg/L
Chlorine Demand – 2.4 mg/L	Chlorination Chemical – Chlorine Gas

5. What is the detention time (in hours) for a clarifier that is 75 feet in diameter, 12 feet deep, and receives a flow of 4.5 mgd?

6. Calculate the filtration rate gpm/ft^2 in a filter that is 75 feet long and 17 feet long when the flow applied to the filter is 2.2 mgd.

7. What is the velocity in ft/sec in a channel that is 4.5 feet wide and 2.0 feet deep and has a flow rate of $12 \text{ ft}^3/\text{sec}$?

8. A chlorine residual of 3.0 is desired in a plant that on average receives a flow rate of 2,225,000 gallons per day. What is the anticipated feed rate lbs/day using a 12.5% sodium hypochlorite solution?

9. You have determined that your polymer feed rate is at 36 gallons/day. Your feed system is designed to feed in mL/min so what is your setting?