ERRATA for

PE Environmental Practice Exam

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Revisions are shown in red.

Question 9:

Disinfection is to be added to a wastewater treatment plant with an average daily flow of 16 MGD and an hourly peaking factor of 2.5. The planned facility will use a gas chlorinator. Code requires that a feed rate of 15 mg/L is supplied at average daily flow and an available total free chlorine residual of at least 0.5 mg/L is supplied at all times. At average daily design flow the chlorine demand is 11 mg/L. At peak hour design flow the demand is 7.0 mg/L. The smallest commercially available chlorinator (lb/hr) that can provide the required total dosage is most nearly:

[Figure removed.]

- ○ A. 50
- ○ B. 75
- ○ C. 100
- ○ D. 125

Solution 9:

At average flow, possible doses are 11 mg/L dose + 0.5 mg/L residual for 11.5 mg/L or the regulatory 15 mg/L. 15 mg/L is larger. Flow is:

$$16 \text{ MGD} \times 15 \text{ mg/L} \times \frac{8.34}{24} = 83.4 \text{ lb/hr}$$

At peak hour, dose is 7 mg/L demand + 0.5 mg/L residual = 7.5 mg/L. Flow is:

$$16 \text{ MGD} \times 2.5 = 40 \text{ MGD}$$

$$40 \text{ MGD} \times 7.5 \text{ mg/L} \times \frac{8.34}{24} = 104.25 \text{ lb/hr} \rightarrow \text{Round up to next larger size to meet critical demand}$$

THE CORRECT ANSWER IS: D