

ACTIVATED SLUDGE CALCULATIONS

Sludge Volume Index (SVI):

$$\text{SVI} = (\text{SV}_{30} \times 1000) \div \text{MLSS}$$

Units: mL/g

Mean Cell Residence Time (MCRT):

$$\text{MCRT} = (\text{MLSS} \times \text{Aeration Volume}) \div (\text{WAS SS} \times \text{WAS Flow} + \text{Effluent SS} \times \text{Effluent Flow})$$

Units: days

Sludge Age:

$$\text{Sludge Age} = (\text{MLSS} \times \text{Aeration Volume}) \div (\text{WAS SS} \times \text{WAS Flow})$$

Units: days

Return Activated Sludge (RAS) Rate:

$$\text{RAS Rate} = (\text{MLSS} - \text{Effluent SS}) \div (\text{RAS SS} - \text{MLSS})$$