

Water Treatment Math

System	Key Equations/Notes
Boiler	$\text{Blowdown} = \frac{\text{Steam Production}}{\text{COC} - 1}$
	$\text{Feedwater} = \text{Steam Production} + \text{Blowdown}$
	<p>Steam Production = Pounds/Hr</p> <p>Steam Production = HP X 34.5 #/Hr</p> <p>COC = Cycles of Concentration</p>
Cooling Tower	$\text{Bleed} = \frac{\text{Evaporation}}{\text{COC} - 1}$
	$\text{Makeup} = \text{Evaporation} + \text{Bleed}$
	<p>Evaporation = Recirculation X $\frac{\text{Delta T}}{10}$ X 1% X EF</p> <p>Evaporation = Tons Per Hr X 3 GPM/100</p> <p>COC = Cycles of Concentration</p>
	$\text{Concentrate} = \frac{\text{Permeate}}{\text{CR} - 1}$
Reverse Osmosis	$\text{Feedwater} = \text{Permeate} + \text{Concentrate}$
	<p>CR = Concentration Ratio</p> $\% \text{ Recovery} = \frac{\text{Permeate}}{\text{Feedwater}} \times 100$

