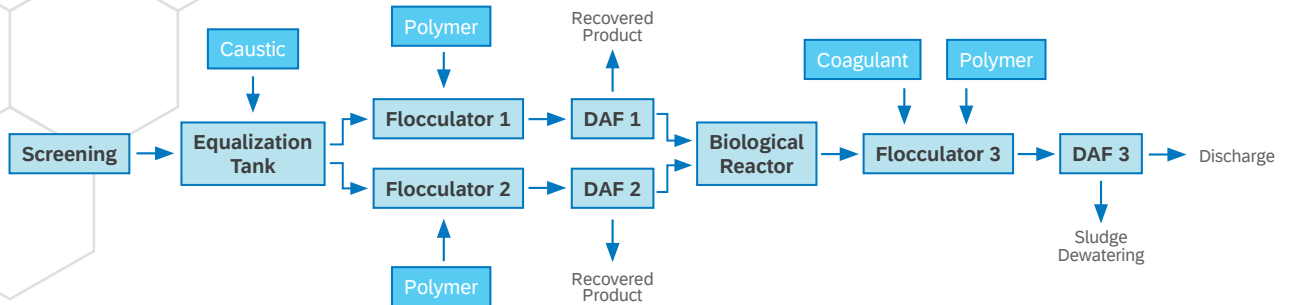


WASTEWATER SOLUTION

Poultry Kill & Processing



The poultry plant processes 400,000 birds per day, generating 2.3 million gallons of wastewater laden with proteins, feathers, offal, and bone.

- » Preliminary screens remove the coarse solids while the rest of the emulsified oils, fats, and proteins are sent to a DAF system for recovery.
- » Two DAF units separate solids from the water and send them to recovered product cookers where they are concentrated into an oily product which is sold to a renderer.
- » DAF effluent is biologically treated in a 1 million gallon aeration basin.
- » A third DAF unit is used to separate biomass and remove TP from the biological treatment system. Effluent from this DAF meets the requirements for discharge to a local waterway.

	Design Parameters	Discharge Requirements
Flow	2,300,000 GPD	
TSS	1500 - 2500 mg/L	30 mg/L
FOG	2500 mg/L	10 mg/L
COD	6800 mg/L	
BOD	4200 mg/L	30 mg/L
TP		0.2 mg/L

Equipment Supplied

PCL-90 DAF (2)
 PCL-180 DAF (1)
 F-12 Flocculator (2)
 F-14 Flocculator (1)
 Recovered Product Tanks (2)

DAF Sizing Calculations

Hydraulic Surface Loading Rate

$$\begin{aligned}
 &= \frac{\text{Feed Flow} + \text{Recycle Flow in gpm}}{\text{Effective Surface Area in sqft}} \\
 &= \frac{1600 + 240 \text{ gpm}}{\text{x sqft}} = 1 \text{ gpm/sqft} \\
 &= 1840 \text{ sqft required}
 \end{aligned}$$

Solids Loading Rate

$$\begin{aligned}
 &= \frac{\text{Weight of TSS in feed in lbs/hr}}{\text{Free Surface Area in sqft}} \\
 &= \frac{2000 \text{ lbs/hr}}{\text{x sqft}} = 15 \text{ lbs/sqft/hr} \\
 &= 133 \text{ sqft required}
 \end{aligned}$$

