

## Review for CTC 450 Final

1. Series versus Parallel Tank Configuration/Cross-Sectional Area
2. Typical Water Treatment Processes
  - a. Mixing
  - b. Flocculation
  - c. Sedimentation
  - d. Filtration
3. Other Water Treatment Processes
  - a. Direct Filtration
  - b. Ballasted Flocculation
  - c. Flocculator-Clarifiers
4. Typical Municipal Wastewater Processes
  - a. Primary (gravity settling)
  - b. Secondary (Trickling Filter/Activated Sludge/RBC)
5. Wastewater Treatment Standards-Clarifier
  - a. Primary Clarifier
  - b. Intermediate Clarifier
  - c. Final Clarifier
6. Wastewater Treatment Standards-Trickling Filter
  - a. Overflow Rate
  - b. Recycle Ratio
  - c. Weir
  - d. BOD Loading
  - e. Hydraulic Loading
7. Activated Sludge
  - a. F/M ratio
  - b. MLSS
  - c. Sludge Volume Index
  - d. Hydraulics
8. Solids Calculations
  - a. Flow, Mass, Concentration
  - b. Calculating Percent Solids Removal
  - c. Regulatory Requirements (40 CFR Part 503; Class A and Class B)
9. Advanced Wastewater Treatment
  - a. Tertiary Treatment (Nitrogen/Phosphorous)
  - b. Water Reuse (Agricultural, Irrigation, Groundwater Rescharge & Potable Supply)
10. Sustainability and Carbon Footprint
  - a. Inventory of US Greenhouse Gas Emissions and Sinks
  - b. Becoming Carbon Neutral