

**EVE 290**  
**Introduction to Environmental Engineering**

**Homework #1**

1. A wastewater treatment plant receives 10 MGD (millions gallons per day) of flow. This wastewater has solids concentration of 192 mg/L. How many pounds of solids enter the plant every day?
2. A stream flowing at 60 gal/min carries a sediment load of 2000 mg/L. What is the sediment load in kg/day?
3. A power plant emits 120 pounds of flyash per hour up the stack. The flow rate of the hot gases in the stack is 25 cubic feet per second. What is the concentration of the flyash in  $\mu\text{g}/\text{m}^3$ ?
4. A water treatment plant has 6 settling tanks that operate in parallel (the flow gets split into six equal flow streams), and each tank has a volume of 40 m<sup>3</sup>. If the flow to the plant is 10 MGD, what is the retention time in each of the settling tanks? If, instead, the tanks operated in series (the entire flow goes first through one tank, then the second, and so on), what would be the retention time in each tank?