CE 412 A: Water Supply & Wastewater Disposal Systems

Tutorial – 2019-20 II

TUTORIAL 8

Problem 1: A water-treatment plant is being designed to process 50MLD of water. Jar testing and pilot-plant analysis indicate that an alum dose of 40mg/L with flocculation at a **Gt value of** 4.0×10^6 produces optimal results at the expected water temperatures of $15^{\circ}C$.Determine:

1. The monthly alum requirement
2. The flocculation basin dimensions if three cross-flow horizontal paddles are to be used. The flocculator should be maximum of 12m wide and 5 m deep in order to connect appropriately with the settling basin. Take L:D=3:1
3. The power requirement
4. The paddle configuration

$$\rho = 999.1\ kg/m^3 \mu = 1.139 \times 10^{-3}\ N - s/m^2$$