Lesson 6 Calculating DO in a River

Steps to conducting a DO Sag Curve Problem

1. Put Q, BOD, and DO in the same units.

2. If given BOD_t, find BOD_u

3. Determine T and BOD after river and discharge mix.

4. Correct k_d and k_r for the river temperature.

5. Find DO_s (Table A-2)

6. Find D_a (initial deficit)

7. Find t_c

8. Find D

9. Calculate DO

10. Calculate location using river velocity and t_c (or t)

Example Problem 1

Wastewater Treatment Plant Effluent
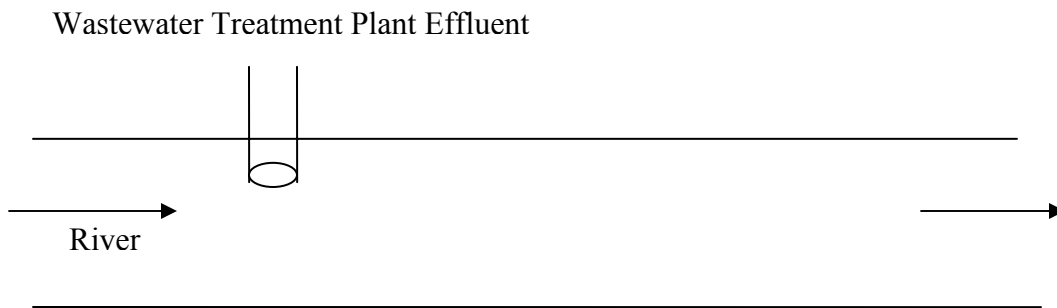
River

Given:

	River	**Wastewater**
Q	20 cfs	4 MGD
DO	7 mg/L	5 mg/L
BOD	BOD_u=3 mg/L	BOD_5=30 mg/L
Temperature	29°C	25°C

Note: $k_r = 0.4$ 1/d at 20°C
$k_d = 0.17$ 1/d at 20°C