CE 641 FATE AND TRANSPORT MODELING OF ECOSYSTEMS

Outline for Technical Report

Title: BOD Wasteload Allocations for Walnut Creek

Outline:

Introduction and Purpose
- Rationale behind this work. Why the modeling study was performed?

Data Analysis
- Presentation and discussions of data from two water quality surveys
- Ultimate CBOD data (Quantifying CBOD deoxygenation rates)

Modeling Approach
- The STREAM Model
- Theory behind the model
- Derivation of key model coefficients

Model Results
- Tracking Mass Transport: October 1991 and August 1991 Conductivity data
- Time of Travel (both surveys)
- CBOD, NBOD, and DO Model Results

Wasteload Allocations
- Meeting a minimum DO of 5 mg/L
- DO Level in the Effluent
- Varying CBOD Deoxygenation Rate, K_d
- Relationship between K_d and Ratio of $CBOD_u$ to $CBOD_5$
- Plots showing model results: $CBOD_5$ Loading Rate vs. K_d

Summary and Conclusions

References

Style and Format of Report

Use Times Roman font at 11 pt. Double-space your text with at least 1 in margin on all sides. Watch out units for all coefficients, parameters, and constants. Number each page including the figures.

Put figures in the appropriate places (i.e., first appears) in the text. Watch out the size of the figures. Pay special attention to scales in figures. Always start concentrations from 0 in plots. Number the figures. Always use a figure caption at the bottom of the figure. Table titles should be on top of the tables.

In the text, cite publications by listing the last names of the authors and the year, which is called the author-date method of citation; e.g., (Duan et al. 1990; Frater and Packer 1992a). Prepare a list of all references alphabetically by last name of the first author. For anonymous reports and standards, alphabetize by the title of the work, not the issuing institution. Single-space the reference section with a space between references.

Examples of References:

Franco, A.C. and Lung, W.S. (1987). "Comparing Two Estuarine Mass Transport Models," in Hydraulic Engineering, R.M. Ragan, ed., ASCE, New York, NY, pp.612-617. (a conference proceeding paper).

Light, R.N. and Lung, W.S. (1992). "Modeling Heavy Metal Removal in Wetlands," Environmental Engineering Research Report No. 9, Department of Civil Engineering, University of Virginia. (a research report).

Lung, W.S. (2001). Water Quality Modeling for Wasteload Allocations and TMDLs, John Wiley & Sons, New York, NY. (a book).

Lung, W.S. and Nice, A.J. (2007). A Eutrophication Model for the Patuxent Estuary: Advances in Predictive Capabilities. *Journal of Environmental Engineering*, 133(9): 917-930. (a journal article).