User Notes and Organizational Explanation of CD entitled: *Entiat River SNTEMP Thermal Modeling Project*

Ross Hendrick and John Monahan
Washington State Department of Ecology
June, 2003

***

NOTE: Due to the enormous amount of space required for all of the files listed below, only the SNTEMP report was included on the WRIA 46 Plan CD. If you wish to obtain copies of all supporting documentation/files, please contact the Conservation District.

***

This "Readme" document summarizes the organization of the compact disc (CD) entitled: Entiat River SNTEMP Thermal Modeling Project, and provides brief descriptions of the data and information included on the CD. The intention of this CD is to provide the Entiat Watershed Planning Unit (EWPU) and other interested parties with information pertaining to development of the Entiat River SNTEMP thermal modeling project. Please note that the data is broken into two CDs. CD1 contains the report, SNTEMP results, and literature folders, while CD2 contains model construction data (raw data, calibration folders, etc…).

The following is a listing of the contents on CD1:

Report*: "An Assessment of Water Temperatures of the Entiat River, Washington Using the Stream Network Temperature Model (SNTEMP")*

MS Word document that explains the purpose, methods, and results of the project.

Folder: *"SNTEMP Results"*

Contains results of each SNTEMP alternative action simulation.

Sub-Folder Name	Sub-Folder Contents
"Alternative Actions"	Contains results of SNTEMP model simulations of alternative watershed management actions, including the input files needed to perform the simulations. Each alternative action folder contains sub-folders that include the results of the action, with subscript titles (alternative action #1 is entitled a1.xls, for example), unaltered (baseline) input files, and sub-folders (according to the amount of adjustment, i.e., 25%) that includes alerted input files and raw results (as they are output by SNTEMP).
"Exceedence Work"	Contains model simulation results used for counting the total number of predicted water quality exceedences and number of predicted water quality exceedences of each feasible alternative action.

Folder*: "Literature"*

Electronically formatted literature that was referenced in the report.

The following is a listing of the contents on CD2:

Folder Name	Folder Contents
"SNTEMP Calibrations"	Contains calibration runs needed to assure that the SNTEMP model was accurately and precisely predicting water temperatures, as compared to observed measurements. Folder includes sub-folders according to calibration run, each of which include input files needed to perform calibration runs, and the results of the calibration run (the calibration runs are named as MET2.xls for calibration #2, for example, because for most calibration runs only the meteorology file was adjusted). The SNTEMP Calibrations folder also contains a "baseline" conditions folder that includes final calibration results that were used for comparisons to alternative action results, and observed water temperature data that was used for comparisons with each calibration run. Sub-folder also contains text files of e-mail communications with Mr. John Bartholow of the USGS. Mr. Bartholow has extensive experience with the SNTEMP thermal model and on numerous occasions he provided guidance and advice that proved useful for calibration of the model. Many of these emails are referenced in the report as personal comm. references.
"SNTEMP Input Files"	Contains input files necessary to run SNTEMP for both calibration and alternative action simulations. Files are organized by file type (hydrology files for example), and then by alternative action/calibration number (alternative action #1 files have the subscript a1, and so on). Folder also includes the *Metadata.xls* file and SNTEMP node location file.
"SNTEMP Files"	Files and programs required to run SNTEMP. These files can be downloaded from the USGS at http://www.fort.usgs.gov/products/software/software.asp.

Folder*: "Raw Data"*

Data necessary to fill input files that are required to run SNTEMP. Subfolders are organized by the source of the data. Reduced Data subfolders indicate data that was modified to fit SNTEMP input requirements (daily mean values, width coefficients, etc…)

Sub-Folder Name	Sub-Folder Contents
"Hydrology Data"	U.S. Geological Survey (USGS): Continuous recording devices at gages 12452990 (Entiat R. near Entiat) and 12452800 (Entiat R. near Ardernvoir) were downloaded from the official USGS web-site. ***http://waterdata.usgs.gov/wa/nwis/uv/?site_no=12452800&agency_cd=USGS (Entiat R. near Ardenvoir).*** ***http://waterdata.usgs.gov/wa/nwis/uv/?site_no=12452990&PARAmeter_cd=00060,00065 (Entiat R. nr. Entiat).*** U.S. Forest Service (USFS) (Rick Edwards and Gran Rhodus): Synthesized hydrology data for Entiat River at Entiat Falls and Mad River at Mill Camp, as well for missing dates at the Entiat R. near Entiat USGS gage site.
"Meteorology Data"	National Oceanographic and Atmospheric Administration (NOAA): Data from Remote Automated Weather Station (RAWS) located at the USFS's Entiat Ranger Station for 2002. http://www.met.utah.edu/cgi-bin/database/meso_table.cgi?stn=TR408

NOAA: Data from the Meteorologic Aviation Routine Weather Report (METAR) station located at the Wenatchee Pangborn Memorial Airport, in Wenatchee, WA. for the years 1993-2002. http://www.wrh.noaa.gov/cgi-bin/Missoula/msoobs?site=KEAT&type=1&src=rgl

U.S. Bureau of Reclamation (USBR): Data from the Agricultural Weather Network (AgriMet) station located in Manson, WA. for the years 1997-2002. http://mac1.pn.usbr.gov/agrimet/agrimetmap/maswda.html

Western Regional Climate Center (WRCC): Data from the Entiat Fish Hatchery located along the Entiat River at ≈RM 7.1. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?waenti

"Stream Geometry Data"

ENTRIX, Inc. Consulting Firm (Tina Gary): Data from stream cross-sections at various locations along the Entiat and Mad Rivers.

WDOE: Data from stream cross-sections at various locations along the Entiat and Mad Rivers.

Chelan County Conservation District (CCCD-Kurt Hosman): Data from stream cross-sections at various locations along the Entiat and Mad Rivers.

USGS (Bill Taylor): Data from stream cross-sections at USGS gage locations in the Entiat and Mad Rivers.

National Resources Conservation Service (NRCS-Joe Lange): Data stream cross-sections at various locations along the Entiat River.

"Water Temperature Data"

USFS (Phil Archibald): For the years 1995-2002.

Folder*: "Report Drafts"*

Draft reports that were created while writing final report. Folder also includes comments/suggestions drafts received from some water quality sub-committee members.