

TIME DEPENDENT MODIFICATIONS FILE

PROGRAM: TDMODS95.EXE

INTRODUCTION: The Time Dependent Modifications (TDMODS) file contains **data changes or additions** to the data in the Time Dependent Data (TDDATA) file for a particular study. The TDMODS file is used in conjunction with the TDDATA file to develop the time dependent input data used by the HYSSR regulator program.

There are three types of data generally found in the TDMODS file. Some of the data may change during the course of a year (varies by period) but is the same each year. This data is referred to as **cyclical** data. Examples of cyclical data include some of the rule curves such as the Assured Rule Curve (ARC) and the four Critical Rule Curves (CRC's). These data have no year in record columns 19-20 on the input record. Other types of data differ for each period and year. Examples of this data are some of the rule curves such as the Variable Refill Curves (VRC's) and project natural flows, project variable minimum releases, and project maximum releases. And finally, the forebay elevations for the run-of-river projects (projects without storage) should generally be included in the TDDATA file, but may be input into the TDMODS file as a change or an addition. Each run-of-river project must have a forebay elevation. If no year and period are specified on record code 25, the forebay elevation in columns 24-32 is used for all periods and years for that project.

INPUT: The program used to build the TDMODS file executes in batch mode, so it requires a control file (confile) named **C:\HYSSR\CONFILES\TDMODS.CON**. This control file defines the names of the input data file, the output file for messages and a list of the input data, the Study Characteristics file, and the resulting TDMODS file. A sample control file follows:

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* C:\HYSSR\CONFILES\TDMODS.CON
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* Unit 5 is the input data
* Unit 6 is the output file for error messages and a list of the input data
* Unit 7 is the Study Characteristics file
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* Unit 10 is the resulting TDMODS file

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* FORMAT T4,I2,T7,A26,T34,A11,T46,A7,T54,A10,T65,I4

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*UNIT	FILE NAME	FORMAT	STATUS	ACCESS	RECL
5	C:\HYSSR\DATA\TDMODS92.IN	FORMATTED	OLD		
6	C:\HYSSR\DATA\TDMODS.PRN	FORMATTED	UNKNOWN		
7	C:\HYSSR\DATA\STCHAR92.STY	UNFORMATTED	OLD		
10	C:\HYSSR\DATA\TDMODS.92	BINARY	UNKNOWN	DIRECT	72

The input file used to create the TDMODS file contains all of the input data in one file. This input file is large since time dependent data for each project has at least fourteen values (one for each period of the year) and may also have up to seventy years of data. Input data uses standard HYSSR record format with 80 columns. Valid record codes and their contents follow:

RECORD	CONTENTS
25	Forebay elevations for run-of-river projects
41	Assured Refill Curves (ARC's)
42	First year Critical Rule Curve (CRC1)
43	Second year Critical Rule Curve (CRC2)
43	Third year Critical Rule Curve (CRC3)
44	Fourth year Critical Rule Curve (CRC4)
48	Lower Limit for VECC
60	Natural flows
62	Mandatory Rule Curve (MRC) (flood control)
63	Variable Refill Curve (VRC)
70	Primary loads

71	Secondary loads
73	Load Decrement
75	Load Adjustment
76	Forced Spill (fish spill)
85	Storage change (delta storage)
86	Target elevations
92	Outflows (depletions, evaporations)
93	Diversions (Grand Coulee irrigation pumping)
94	Inflows at site
95	Variable storage lower bounds
96	Starting elevations
97	Variable maximum releases
98	Variable minimum releases
99	Comments

Please refer to **Appendix A** for a more detailed description of these records. Not all of these records are appropriate to every TDMODS file. For many studies the natural flows and the flood control rule curves will not change from one run to the next during the course of a set of studies. When this is the case these data values should be input to the TDDATA file. The TDMODS file is for data which is a change or addition to the data in the TDDATA file. The TDMODS file is the appropriate file for data which will vary during the course of the studies. Examples of this type of data would be the Assured Refill Curves (ARC's) and the Variable Refill Curves (VRC's) which will change during the course of Refill Studies. These values are being

developed so they change as the Refill Studies progress. To avoid having to rerun a new TDDATA file for each change of one of these refill curves, the ARC's and VRC's belong in TDMODS during Refill Studies.

The Study Characteristics file is the other input to the creation of the TDMODS file. The TDMODS file uses the project order in the Study Characteristics file as its project order. This project order is maintained through the internal project numbers assigned to the projects and passed to the HYSSR programs through the Study Characteristics file. It is important to create a new TDMODS file whenever the Study Characteristics file changes.

OUTPUT: The program creates two output files. One is a file to which error messages and a list of the input are written. The other is the resulting TDMODS file. The format of the TDMODS file is not readable by the user. The TDMODS file is used as input to the HYSSR regulator program.

EXECUTION ON THE PC: The TDMODS95.exe may be found in the directory \$Library\HYSSR\HYSSR 2004. To create the Time Dependent Modifications (TDMODS) file, have a copy of **TDMODS95.EXE** available in the local **C:\HYSSR\PGM** subdirectory. Also since the program executes in batch mode, a control file (confile) named **TDMODS.CON** must be available in the local **C:\HYSSR\CONFILES** subdirectory. Now type **TDMODS95** while in the **C:\HYSSR\PGM** subdirectory and the program will execute using the file names listed in the confile. The resulting TDMODS file is not user readable and becomes input to the HYSSR regulator program.