United States
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Soil
Conservation
Service

ECON2

Flood Water Damage
Economic Evaluation

User Manual

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ECON2
Floodwater Damage Economic Evaluation

Revisions of the ECON2 computer applications software and this User Manual are products of the USDA Soil Conservation Service (SCS) South National Technical Center (SNTC) Economics and Social Sciences (ESS) Staff and the SNTC National Information Resources Management (IRM) Staff.

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I Program Description

The ECON2 - Flood Water Damage Economic Evaluation computer application program will compute average annual damages to crops and pasture, other agriculture, road and bridge, urban, etc. The frequency method or historical method of analysis may be used. The evaluations may be based on flood depths or durations. Duration analysis will apply only to the frequency method. Damages and benefits are summarized for each cross section for each reach and alternative.

The listing of damages for each alternate includes the following items:

(a) Damage to crop and pasture by depth or duration increment by frequency of occurrence.
(b) Damage based on acres flooded by flood depth to other agricultural properties by depth increment by frequency of occurrence. Not applicable with duration analysis.
(c) Damage based on acres flooded by flood depth increment by frequency of occurrence. Not applicable with duration analysis.
(d) Damage based on flood stages to non-agricultural properties by depth increment by frequency. Not applicable with duration analysis.
(e) Average annual acres flooded by depth or duration increment and total.
(f) Elevation damage begins. Not applicable with duration analysis.
(g) Discharge in cfs at which damage begins.
(h) Percent chance flooding begins.
(i) Composite acre crop and pasture value for cross section and reach output.
(j) Average annual damages unadjusted for recurrence.
(k) Average annual crop and pasture damage adjusted for recurrent flooding.
(l) Percent average annual damage is of the crop and pasture composite acre value for cross section and reach output.
(m) Average annual damage computations.

Output consists of average annual damages for each cross section in the study. Summaries are given for each reach and alternative. Detail output for each storm, by depth or duration increment, is provided for the cross section, reach and alternate when the detail output is requested on either cross section input record or update header record.

The Personal Computer (PC) version of ECON2 provides a summary file that can be used to make comparisons. This file is identified in the program as a comparison file. It is not labeled so that the information can be transferred to a spreadsheet or word processing program for report writing purposes. The summary output in the comparison file is presented in the following order:

(a) The title of the project.
(b) The land use, other-ag and non-ag per acre damage factors by reach.
(c) The alternate title of the project.
(d) The total acres flooded by the largest storm evaluated for each cross section or reach.
(e) The average annual acres flooded for each cross section or reach.
(f) The percent chance where flooding begins for each cross section.
(g) Percent average annual damage is of the crop and pasture composite acre value for cross section and reach.
(h) The damages adjusted for recurring flooding for crop and pasture, other agriculture, non-agriculture, non-agriculture stage and the total average annual for each reach and cross section.

Sample job run output results are expressed for two examples in Section VI beginning on page 65.

The ECON2 computer application program follows the standard Soil Conservation Service (SCS) procedures for evaluating floodwater damages as described in the SCS Economics Guide and the Water Resources Council Procedures for Evaluation of National Economic Development Benefits and Costs in Water Resources Planning.

Thomas C.G. Hodges, Head, and Ken Tootle, Economist, ESS, SNTC, SCS, are the principal technical advisors for the ECON2 computer software effort.

II Operations—Overview

To operate the ECON2 program successfully you need a minimum of three programs:

(1) The ECON2 Data Entry (DE) program, is used to construct input files for both the mainframe and the personal computer version. There is only one version of the ECON2 DE program which runs on any IBM compatible personal computer.

(2) The ECON2 personal computer program or access to the mainframe ECON2 program which resides on the Kansas City computer system.

(3) The F77PRT print program is used to obtain suitable printouts from output captured in a file.

The installation and use of each of these programs is described in detail in the following sections.

Disk operating system(DOS) commands and filenames, to be entered by the user, are shown in bold type for clarity.

III Input Data Process

All input data are identified by control words so that the order of input data may be as flexible as possible. ECON2 reads the input data line by line, identifies it, and then processes the data as required. (A "line" of data is synonymous with a "card," an "input data record," and other such terms.)

When several lines of data are required to define a table, the control word is used on the first line **only**. This line is known as a "header." The end of the table is signaled by the "END TABLE" control word. An example is the cross section data lines that follow the XSECTN header.

Up to 120 reaches and 200 cross sections may be analyzed in one job pass. A maximum of 10 flood events may be analyzed with the frequency method.

A. ECON2 Data Entry (DE) program

The ECON2 DE program is the preferred method for constructing input files. It assembles data in the suggested order, automatically places data in the correct fields and provides limited error checking on the input data. Other methods of constructing input files using editors, word processors, or spreadsheets exist, but their use should be left to more experienced users. The ECON2 DE program requires three files to be operational. These files are the de.exe, econ2.scr, and econ2.fmt.

The following instructions are provided to guide the user through the installation and use of the ECON2 DE program.

1. Installing ECON2 DE

Before you can begin entering ECON2 data with the ECON2 DE program you must make sure you have the econ2.scr, econ2.fmt, and the de.exe files located together in a subdirectory on your hard disk. These files need to be installed only one time. If these files already reside on your computers hard disk then proceed to "Data entry using ECON2 DE."

Step 1. With your computer on, insert the floppy disk labeled "ECON2 DE Program" in the floppy disk drive a: and shut the drive door.

Step 2. Create a directory called de by typing in **mkdir de** and pressing return.

Step 3. Change your working directory to the de directory you just created by typing in **cd de** and pressing return.

Step 4. Copy the three files from the floppy disk to the hard drive by typing in **copy a:econ2.scr c**: and pressing return; **copy a:econ2.fmt c**: and pressing return; and **copy a:de.exe c**: and pressing return.

Step 5. Now do a directory listing by typing in **dir** and pressing return; you should have the three files you copied in a subdirectory called c:\de on your hard drive. You are now ready to begin entering data. Proceed to the next section on data entry.

2. Data entry using ECON2 DE

It is recommended that you enter your data on copies of the blank forms supplied in this users manual and then transfer the data from these forms to the DE program.

Step 1. With the computer on, change directories to the de directory by typing in **cd C:\de** and pressing return.

Step 2. To begin the ECON2 DE session, type in **de econ2** and press return. This should start the ECON2 DE session by bringing the first data entry screen on your monitor. The ECON2 DE program builds the input file as you move through the various screens entering data in the fields provided. You can begin entering data following the instructions provided on the screen. A complete set of instructions follows for those users who want to use all of the capabilities of DE.

The following keys are used to cursor around the screen and to control editing. When the abbreviation "Ctrl-x" is used, where "x" is a specific key, this means that you should hold down the control key, then press the second key, and release both keys (the same way the shift key works). Please familiarize yourself with each of the following commands so you will be aware of the capabilities of ECON2 DE. For some commands, two keystroke combinations perform the same command. The commands that are separated by a /, such as the Ctrl-w/Ctrl-r, are single commands that are issued by first pressing Ctrl-w and then immediately pressing the Ctrl-r.

Basic Commands

ESC ..... Save fields and exit data entry session
Ctrl-c or PgDn ..... Move down to next screen
Ctrl-r or PgUp ..... Move up to previous screen
Left arrow ..... Move cursor left one character
Right arrow ..... Move cursor right one character
Ctrl-v or Ins ..... Insert a space at cursor
Del ..... Delete character under cursor
Ctrl-a or Home ..... Go to first character in line
Ctrl-f or End ..... Go to last character in line
Ctrl-k ..... Restore line to whatever it was before you began editing it.
Down arrow ..... Down a field (same as <enter>)
Up arrow ..... Up one field
Ctrl-w/Ctrl-a ..... Abort screen (trash whatever you've written on the current screen and give a blank one to start over)
Ctrl-w/Ctrl-r ..... Review last output line
Ctrl-w/Ctrl-h or F2 ..... HELP
Ctrl-w/Ctrl-d ..... Temporarily goes to DOS but saves work Type EXIT to return to DE. DON'T FORGET—YOU ARE STILL IN DE WHILE YOU WORK IN DOS.
Ctrl-u ..... Abort Ctrl-w prefix
Ctrl-p or Ctrl-Home ..... Move to previous table
Ctrl-l ..... Locates a series of characters in unread data in edit mode, and writes skipped data to output file
Ctrl-n or F5 ..... In edit mode, loads next screen from input file

When you complete the ECON2 DE session by entering data on each screen or by using the **PgDn** key, the program will ask you to press **ESC** to exit the data entry session. After you press **ESC**, the program will finish writing the econ2.out file, which is to be used as input for the ECON2 program. This econ2.out file needs to be edited if it has mistakes or if you need to add or delete data. The ECON2 DE program has an editor built in which may be used to edit the econ2.out file, or you may prefer to use another commercial line editing package. See the following section on "Data editing using ECON2 DE." If the file needs no editing you are now ready to run the file on the Personal Computer program version. See the section on "ECON2 Program Execution." You can escape from DE by using **ESC** if you should need to quit with a partly completed data set.

The user is advised to envoke the DE program with care or else the last econ2.out file created, containing the previously keyed data, will be destroyed. Each additional time you invoke the ECON2 DE program, the program asks you whether you want to overwrite or append the existing econ2.out file. To append data to the end of the previously keyed data in the econ2.out file, then enter **a** and press return. To overwrite the existing econ2.out file, enter **o** and press return. **WARNING, entering an o and pressing return will erase the previously keyed econ2.out file**. To save the previously keyed econ2.out file you need to **REN**ame it. The econ2.out file should not be renamed until you have finished using the ECON2 DE program for keying, appending, or editing it. When you finish keying the econ2.out file you may rename the file by typing in **ren econ2.out newname.inp** and pressing return. When renaming the econ2.out file use logical data file names such as your project name and alternate number followed by a .inp or .dat extension, so that the file can be identified as a input file or data file. For example, a filename might be KNalt1.inp, which would identify this file as the Kickapoo Nations alternate one run with the .inp extension indicating this is an input file as opposed to an output file.

If you are going to run the program on the mainframe ECON2 program, then you need to add the Job Control Language (JCL) in front of the input file. See the section on "Mainframe computer runs" for the correct JCL structure. Your local IRM person can provide the correct JCL passwords and logon identification.

3. Data editing using ECON2 DE

Once you have created a econ2.out file using DE, then DE can also be used to edit the file. The DE editor is a line editor that allows editing of one line of data at a time. It only allows for scrolling down in a file. Scrolling up is not possible. If possible use a full screen data editor that allows multi-directional movement in a file. If you edit your econ2.out file with any editor other than the DE editor or if you change the econ2.out filename, you can no longer use the DE editor. To edit the previously keyed econ2.out file, follow these steps.

Step 1. Change to the c:\de subdirectory by typing in cd **c:\de** and pressing return. This directory should have the de.exe, econ2.out, and econ2.trk files present. You can check by typing in **dir** and pressing return.

Step 2. Enter the editing mode of DE by typing in **de econ2 e** and pressing return.

Step 3. You may now use any of the basic commands shown in the section "Data entry using ECON2 DE' to edit the file. Remember that Ctrl-n or F5 will load the next screen from the input file. Edit the file as required to make it run and then exit by pressing **ESC**.

B. Description of input data for ECON2

Each of the input data record groupings in this program has a data control word so the order of input data is not rigid. This permits the ECON2 computer application program to read a data record, identify it, and then use it in accordance with its instructions. This minimizes the confusion that might arise from improper card sequence of the input data. In some cases where a group of input data records must follow in a given order, the data control word appears only on the first or header record. The sequence then usually is ended by a record bearing the data control word END TABLE. An example is the cross section data records following the record headed XSECTN on the input formats.

Record columns 1-10 are used for data control words which direct the operation of the program, record columns 11-70 are for the input data, record columns 71-72 are to be left blank, and record columns 73-79 may be used for record identification. Column 80 is used by the DE Program on all END TABLE records and certain others.

The data entry values requiring decimal points are:
(a) DUR-INCT or DEP-INCT
(b) PCT-CHANCE
(c) FLD-DIST
(d) all DUR-FACTOR or DEP-FACTOR numerical entries
(e) all LAND USE numerical entries
(f) OTHER-AG damages
(g) NON-AG damages
(h) all XSECTN table data
(i) ADD-ACRES
(j) all FLOW-FREQ table data

Data Control Words	Function

Watershed Information

ECON2	This control word starts the operation and must be the first record in the input data deck.
TITLE	This will normally be the watershed name. Sixty spaces are available for watershed identification information in record columns 11-70.
PLOT and NOPLOT	The Plot record calls for the plotting of percent chance-discharge and percent chance-damage curves, and can be used for any alternate or the entire job. The NOPLOT option is used to stop plotting curves (See PLOT). The program assumes NOPLOT if neither PLOT nor NOPLOT are read in. The PLOT option is costly. It is useful for only special cases. We recommend it not be used routinely.
___-INCT	This data control word is used to enter the range of increments for which damages will be computed and are associated with the percent damage factors.

Columns	Data
1-3	Enter DEP for Depth analysis or DUR for Duration analysis. The value entered for the "TO" field should be the same for the "FROM" field in the next higher increment. For the last increment enter the same value for both "TO" and "FROM."
21-60 by 10 column fields	Range of damage increments. Decimal is required.

Data Control Words	Function

Watershed Information—Continued

PCT-CHANCE	Ten floods may be used. They must be listed in descending order of magnitude. They are used for the frequency analysis only. Use record columns 21-70 by 10 column fields. Use a second record if more than 5 floods are specified. Efforts should be directed toward a good definition of the lower end of the frequency curve.

Columns	Data
11, 13, 15, 17 and 19	An option to get printout for selected floods. Use a '1' if desired, otherwise leave blank. Position of option is relative to position of percent chance, i.e. Column 11 is option for flood 1 or 6.
21-70 by 10 column fields	The percent chance of the floods in the evaluation series. Decimal is required.

FLD-DIST	This data control word is used to enter the seasonal distribution in percent, of the floods in the frequency series. Use two records if more than six seasons are used.

Columns	Data
11-70 by 10 column fields	Seasonal percent distribution. Order must correspond with the order in which the percent damage factors are read in for each crop. Decimal is required.

Data Control Words	Function

Crop Damage Factors

_ _ _–FACTOR	This is the data control word for the percent damage factors for a crop. A separate form is required for each crop in the watershed.

Note: The damage factor tables are to be read in ahead of any reach data.

Columns	Data
1-3	Put in DEP for depth-damage factors and DUR for duration-damage factors.
11-15	Crop name. Name can be any alphanumeric designation. Spelling must agree with crop names in 'LAND USE' table for reaches. If price is $0.0 (MISC. for example), the balance of the damage factor table must be deleted. A decimal point is required.

Flood Stage/ Duration time	Flood stage or duration time that damage factors are developed. A flood stage or duration time should fall within each increment as previously entered under 'DEP-INCT' or 'DUR-INCT'.

Columns	Data
1-20	Blank spaces
21-60 by 10 column fields	Flood stage (feet) or duration (time). Decimal points are required.

Data Control Words	Function

Crop Damage Factors—Continued

Percent Damage Factors	Any alphanumeric designation may be used for each season, but is not used by program. The order must correspond with the order of the seasonal distribution on the 'FLD-DIST' record for the frequency method or columns 31-32 on the storm data records following 'HISTORICAL' for the historical method.

Columns	Data
1-10	Blank spaces.
11-20	Alphanumeric Designator to identify the season representing the damage factors, may be months or growing seasons.
21-60 by 10 column fields	The percent damage factors by increment and season for this crop. Decimal is required.

Note: The data records must be followed by an "END TABLE" data record.

Data Control Words	Function

Reach Data

REACH — This is the data control word that identifies the reach by name or number and lists the cross sections it includes.

Columns	Data
1-5	Reach
11-15	Identifier of the reach. Alphanumeric characters are allowed.
16	An option to have duration, rather than depth, as a parameter for assessing floodwater damage in this reach.
18	An option to have detail printout by storm for this reach.
20	An option to have only summary information printed out for this reach.

Note: For options in Columns 16, 18, and 29, use a '1', otherwise, leave blank.

Columns	Data
21-25	The identifier of the cross sections in the reach.
31-35	Use as many records as necessary.

Data Control Words	Function

Reach Data—Continued

41-45	Use as many records as necessary.
51-55	Use as many records as necessary.
61-65	Use as many records as necessary.

Note: The data records must be followed by an "END TABLE" data record.

LAND USE — This data control word starts the header record for the land use for the reach.

Columns	Data
1-8	LAND USE
11-15	The reach identifier.
21-25	Crop name. Any alphanumeric designation. Record required for only those crops in this reach. The spelling of the crop must be the same as was used for the crops described under "__ __ __–FACTOR".
31-40	The percent of the crop in this reach. Decimal is required.

Data Control Words	Function

Reach Data—Continued

41-50	The yield of the crop in units associated with the price, i.e., bushels per acre and dollars per bushel. Decimal is required. The yield shown must be in the same units as were used under "__ __ __-FACTOR".

Note: The data records must be followed by an "END TABLE" data record.

OTHER-AG	This is the data control word used to enter dollar damage factors by depth or duration increments for other agricultural properties.

Columns	Data
1-8	OTHER-AG
11-15	The reach identifier.
21-60 by 10 column fields	The dollar damage factor by depth or duration increment. Decimal is required.

Data Control Words	Function

Reach Data—Continued

NON-AG	This is the data control word used to enter dollar damage factors by depth or duration increment for non-agricultural properties.

Columns	Data
1-6	NON-AG
11-15	The reach name.
21-60 by 10 column fields	The dollar damage factor by depth or duration increment. Decimal is required.

Data Control Words	Function

REDIRECT (PC version only)

Redirect

The **REDIRECT** permits integrating "stored output" files from WSP2 and TR-20 into the data stream. To illustrate, assume that WSP2 has created an output file named sections.wsp that contains the rating curve information by section by alternate. Assume also, that TR-20 has created a flow frequency file named flowfreq.t20. To incorporate these two files into the ECON2 run stream at the appropriate place within the ECON2 data file (usually just before the COMPUTE record), enter the control word REDIRECT in column 1-10, with XSECTN, 2XSECTN or FLOW-FREQ in column 11-20 and an alternate identifier in column 21-30. The alternate identifier must also appear in columns 71-76 of the XSECTN, FLOW-FREQ, and TIME-FLOW header records and columns 73-78 of the _2_XSECTN header record, for all input which is REDIRECTed from other files. These columns are automatically used for alternate identification when output from the WSP2 or the TR-20 programs are used.

Columns	Data
1-10	REDIRECT
11-20	XSECTN, 2XSECTN or FLOW-FREQ depending upon what type of file you want to incorporate.
21-30	Alt-XXX - The Alternate identifier must correspond with the file you are incorporating into the data stream.

Data Control Words	Function

Cross Section Data

CROSS SECTION

XSECTN — This is the header record for tabular information describing each cross section.

Columns	Data
11-15	Cross section name. Alphanumeric characters are allowed.
16	An option to get detailed printout by storms for this cross section.
18	An option to get only a summary printout for this cross section.
20	An option to read in only this header record (to update the information or when the hydraulic table is read in with the format for the project formulation-hydrology program).

Note: For options in Columns 16, 18, and 20, use a '1', otherwise, leave blank.

Columns	Data
21-50 by 10 column fields	These fields contain information not used by the economics program.

Data Control Words **Function**

Cross Section Data—Continued

Columns	Data
51-60	The elevation, or stage, at which damage begins. A decimal is required.
61-70	Ratio of flood plain area to width. Can be used to modify area flooded values in the table. If left blank, the program assumes 1.0. A decimal is required.

Note: New cross section data must be entered for alternatives where flood plain characteristics are modified by channel work, levees, flood plain filing, etc.

Up to 200 cross section data records are allowed; use only as many as are needed.

Columns	Data
1-20	Blank
21-30	Elevation, or stage, in feet. Decimal is required.
31-40	The discharge in cfs. Decimal is required.
41-50	Cross-sectional area in square feet. This entry is not required for economics program. Decimal is required.

Data Control Words **Function**

Cross Section Data—Continued

Columns	Data
51-60	Acres flooded or flood plain width. May be modified by a constant in columns 61-70 of 'XSECTN' header record or in columns 21–30 of 'ADD ACRES' record. Decimal is required.
61-70	Actual dollar damage values. May be used for urban, road and bridge, and non-agricultural damage evaluations. It is not associated with acres inundated. A decimal is required.

Note: The "XSECTN" data records must be followed by an "END TABLE" record. The "XSECTN" tabular data may be from output files from the Water Surface Profile program. The data is also acceptable in the cross section table format used in the TR-20 program.

Data Control Words	Function

Update Cross Section Data Update Header

XSECTN — This is the update header record used to enter elevation begins and to modify acres flooded.

Columns	Data
1-6	XSECTN
11-15	Cross section identifier. Alphanumeric characters are allowed.
16	An option to get detail printout by storms for this cross section.
18	An option to get only a summary printout for this cross section.
20	Identifies this as an update header record. This must always be entered as a value of '1'.
51-60	The elevation, or stage, at which damage begins. A decimal is required.
61-70	Ratio of flood plain area to width. Can be used to modify area flooded values in the cross section tables. If left blank, the program assumes 1.0. A decimal is required.

Note: For options in columns 16 and 18 enter a '1', otherwise leave blank.

Data Control Words	Function

Substitute Cross Section

XSECTN — This is the update header record used to allow the substitution of one cross section for another. This information is entered on the substitute cross section form.

Columns	Data
1-6	XSECTN
11-15	Cross section identifier. Alphanumeric characters are allowed.
16	An option to get detail printout by storms for this cross section.
18	An option to get only a summary printout for this cross section.
20	Identifies this as an update header record.
28-37	USE XSECTN
43-47	Cross section identifier of the cross section to be used.
51-60	The elevation, or stage at which damage begins. A decimal is required.
61-70	Ratio of flood plain area to width. Can be used to modify area flooded values in the cross section tables. If left blank, the program assumes 1.0. A decimal is required.

Data Control Words	Function

Add Acres

ADD-ACRES

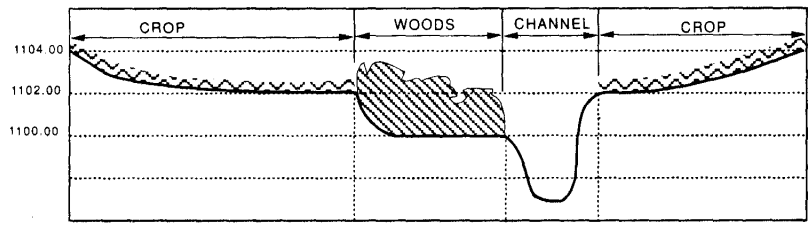
This is the data control word to modify acres in the XSECTN TABLE when elevation of beginning damages is higher than the zero acre elevation on the XSECTN TABLE.

Column	Data
1-9	ADD-ACRES
11-15	Cross section identifier. Alphanumeric characters are allowed.
16-20	Blank spaces.
21-25	Acres to be added or subtracted from the acres flooded listed for a cross section.

Note: Use in conjunction with update header when elevation damage begins is set higher than bankfull elevation. This should not be used with cross section stratification.

Data Control Words	Function

Add Acres—Continued



The area in the flood plain below an elevation may be eliminated from the area flooded calculations by using a negative ADD ACRES.

Another use for ADD ACRES is when the area below elevation 1102 has been omitted from the acres flooded. If this land will be brought into use with project, a positive ADD ACRES would include the area in the elevation.

Data Control Words	Function

Cross Section Stratification

FOR XSECTN

This is the data control word that allows for the evaluation of parts of a flood plain cross section area. This can be done by identifying the elevation damage begins and the elevation damage ends for each part. This may be called flood plain stratification. Each part will need to be set in a different reach identification because the land use (cropping pattern) will be different.

Columns	Data
1-10	FOR XSECTN
12-16	Cross section identifier. Alphanumeric characters are allowed.
18-26	EVAL AREA
31-38	Elevation damage begins. A decimal is required.
41-48	Elevation damage ends. A decimal is required.
49-57	IN XSECTN
61-65	Cross section identifier.

Data Control Words	Function

Flow-Frequency Data

FLOW-FREQ

The data on this record relates the discharges shown in the "XSECTN" data records to their frequencies set up on the "PCT-CHANCE" records. When more than 5 floods are used, 2 records will be needed for each cross section. The order of floods must be the same as in "PCT-CHANCE".

Columns	Data
1-9	FLOW-FREQ
11-15	Identifier of the cross section. Alphanumeric characters are allowed.
21-70 by 10 column fields	Discharges are shown in cfs with decimals.

Note: This input data may be obtained from output files from the TR-20 Hydrology program.

Data Control Words	Function

Flow-Frequency Substitute Cross-Section

FLOW-FREQ

This is the update header record used to allow the substitution of one flow frequency for another. This information is entered on the update header substitute flow frequency form.

Columns	Data
1-9	FLOW-FREQ
11-15	Identifier of the cross section. Alphanumeric characters are allowed.
21-33	USE FLOW-FREQ
36-40	Cross section. Identifier of the cross section to be used.

Note: This input data may be obtained from the TR-20 Hydrology Program.

Data Control Words	Function

Flow-Frequency and Time-Flow Data

FLOW-FREQ
TIME-FLOW

The data on the FLOW-FREQ records is the peak discharge for each flood event. The data on the TIME-FLOW records is the discharge by time of flooding for each flood event. Three TIME–FLOW entries are needed for each FLOW-FREQ.

When more than five floods are used two sets of FLOW-FREQ and TIME-FLOW records are needed. The order of floods must be the same as in "PCT-CHANCE".

Columns	Data
1-9	FLOW-FREQ
11-15	Identifier of the cross section. Alphanumeric characters are allowed.
21-70 by 10 column fields	Discharges are shown in cfs with decimals.

Data Control Words	Function

Flow-Frequency and Time-Flow Data—Continued

Columns	Data
1-9	TIME-FLOW
11-15	Identifier of cross section. Use same identifier as for corresponding FLOW-FREQ.
19-20	Time of flooding. This is the second time shown on the time increments on the DUR-INCT record. If 0-2 is shown on the DUR-INCT record 2 would be shown in column 20. This data is to be right justified.
21-70	Discharges shown in cfs with decimals for the time of flooding in columns 19-20.

Data Control Words	Function

Flow-Historical Data

FLOW-HIST	Contains the cross section discharge data for the historical method.

Columns	Data
1-9	FLOW-HIST
11-15	Identifier of the cross section. Alphanumeric characters are allowed.
21-30	The peak per inch of runoff in cfs. Decimal is required.
31-40	The percent of the watershed upstream from the cross section that is controlled by retarding structures for this alternate. Decimal is required.
41-50	Total accumulated principal spillway discharge in cfs at this cross section for this alternate. Decimal is required.

Data Control Words	Function

Historical Storm Series

HISTORICAL

This is the header record for tabular information describing storms to be evaluated in the historical series. The length of historical series in years is entered in columns 21-22. This is the only data required on the header record for the ECON2 program.

Columns	Data
11-20	Any descriptive alphanumeric designation i.e., 6/18/48 or May 3, 1939.
21-25	Any alphanumeric designation, but normally will be an integer.
31-32	The season is a 2-digit integer that corresponds with the order in which the percent damage factors are read in for each crop.
41	An option to get printout for selected storms. Put in a '1` if desired, otherwise, leave *blank*.
46	An option to compute only other-agricultural and non-agricultural damages for selected storms. Put in a '1' if desired, otherwise, leave blank.

Data Control Words	Function

Historical Storm Series—Continued

Column	Data
51-60	The runoff in inches for this storm (Multiplied by the peak per inch on the "FLOW-HIST' records for cross sections). Decimal is required.
61-70	The percent of total principal spillway flow (as shown on "FLOW-HIST' records) that is considered for this storm. If left blank, 100% is assumed. Normally used only with two-stage inlets. A decimal is required.

Note: The data records must be followed by an "END TABLE" data record.

Data Control Words	Function

Executive Control

IGNORE — This is the control word to enter the identifier of each cross section to be ignored.

Column	Data
1-6	IGNORE
21-25 31-35 41-45 51-55 61-65	Identifier of the cross sections to be ignored for this alternate. Alphanumeric characters are allowed.

DELETE — This is the control word to enter identifiers of cross sections to be deleted for all subsequent alternates.

Column	Data
1-6	DELETE
21-25 31-35 41-45 51-55 61-65	Identifier of the cross sections to be ignored for all subsequent alternates. Alphanumeric characters are allowed.

Data Control Words	Function

Executive Control—Continued

COMMENT — This control word indicates a user comment record.

Column	Data
1-7	COMMENT
11-70	Any type of alphanumeric information to be printed on the output. Use as many records as desired.

GO,FREQ — This data control word signals the ECON2 program software to start processing data read in using the frequency method.

Column	Data
1-7	GO,FREQ
21-25	The first reach to be computed.
31-35	The last reach to be computed.

Note: If columns 21-25 and 31-35 are left blank, the program will compute through all of the reaches for this alternate. The ALT-TITLE input data record, described below, must immediately follow the GO,FREQ input data record.

Data Control Words	Function

Executive Control—Continued

ALT-TITLE

This input data record may be any descriptive title. This input data record is required, and must immediately follow either the GO,FREQ or GO,HIST input data record with which it is paired.

Columns	Data
1-9	ALT-TITLE
11-70	The title will be printed out the same as it is inserted here, up to a maximum of 60 characters.

GO,HIST

This data control word accompanies the ALT-TITLE record as instruction for the machine to start processing data read in using the historical method.

Columns	Data
1-7	GO,HIST
21-25	The first reach to be computed.
31-35	The last reach to be computed.

Note: If columns 21-25 and 31-35 are left blank, the program will compute through all of the reaches for this alternate. The ATL-TITLE input data record, described above, is required and must immediately follow the GO,HIST input data record.

Data Control Words	Function

Executive Control—Continued

CONTINUE

This control word may be used in the computation for an alternate when the reaches are separated by an unchanged reach. In this case, the GO,FREQ or GO,HIST control word will show the first set of reaches to be computed. The "CONTINUE" record will show the next group. The machine will not recompute the intervening reaches. As many "CONTINUE" records, as needed, may be used for each alternate. This record should not be followed by ALT-TITLE.

Column	Data
1-8	CONTINUE
21-25	The identifier of the beginning reach.
31-35	The identifier of the last reach to compute.

END JOB

This data control word tells the ECON2 program software that the job is finished.

C. Sample input data for ECON2

Two hand coded samples of ECON2 input data follow. It is recommended that you assemble your data on forms, as shown on the following examples, before you begin entering data using the ECON2 DE program.

1. Example No. 1—Flood Depth Analysis

Example number one illustrates the input data, with the REDIRECT feature, required to measure flood damages using the depth analysis technique. This example is also included in the files provided on the ECON2 program disk. The file name is ec2dep.red. The redirected cross section file used for this example is named xs.red and its contents are shown in the data echo listing on page 71 in data lines 105-119. The redirected flow frequency file is named ff.red and its contents are shown in the data echo listing on page 71 in data lines 139-142.

WATERSHED INFORMATION

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Depth Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

Control Word		Card Indentification
ECON2		1

Control Word	Watershed Title Card	Card Indentification
TITLE	*Depth Test Case with Redirect 2-90 Ken Tootle*	2

Control Word		Card Indentification
PLOT		
NOPLOT		3

Control Word		Percent of Duration Increment (feet)									Card Indentification
		From	To	From	To	From	To	From	To		
* DEP-INCT		0.0	1.0	1.0	3.0	3.0	3.0				4

Control Word	Print out This Storm Only	Percent Chance of Floods (Largest Flood First) (Percent)					Card Indentification
		1 or 6	2 or 7	3 or 8	4 or 9	5 or 10	
PCT-CHANCE	1 1 1 1 1	1.	4.	10.	20.	50.	5
PCT-CHANCE	1 1	100.	200.				6

Control Word	Seasonal Distribution of Floods (percent)						Card Indentification
	1 or 7	2 or 8	3 or 9	4 or 10	5 or 11	6 or 12	
FLD-DIST	.3	.3	2.3	11.5	26.	24.	7
FLD-DIST	8.8	5.	8.9	10.4	2.2	.3	8

* DEP for Depth
DUR for Duration

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Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 2/7/90

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word*	Crop Name		Crop Price (Dollars)					Control Ident.
DEP -FACTOR	ALF		25.52					9

* Columns 1–3 are:
DEP for depth damage
DUR for duration damage

	Flood Stage (feet) Or Duration Time					Control Ident.
	* .5	2.0	3.5			
* For Depth ** For Duration	**					10

Control Word	Season	Percent Damage Factor 1	2	3	4		Control Ident.
	JAN	0.	2.	5.			11
	FEB	2.	5.	7.			12
	MAR	7.	10.	20.			13
	APR	14.	20.	30.			14
	MAY	19.	28.	37.			15
	JUNE	26.	30.	38.			16
	JULY	10.	16.	30.			17
	AUG	10.	16.	30.			18
	SEPT	7.	12.	25.			19
	OCT	5.	10.	20.			20
	NOV	0.	8.	11.			21
	DEC	0.	8.	11.			22
END TABLE							23

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Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word*	Crop Name		Crop Price (Dollars)					Control Ident.
DEP-FACTOR	WHEAT		1.31					24

* Columns 1–3 are:
DEP for depth damage
DUR for duration damage

		Flood Stage (feet) Or Duration Time					Control Ident.
	*	0.5	2.	3.5			25
	**						

* For Depth
** For Duration

Control Word	Season	Percent Damage Factor 1	2	3	4		Control Ident.
	JAN	22.	37.	76.			26
	FEB	22.	37.	76.			27
	MAR	22.	37.	76.			28
	APR	28.	43.	76.			29
	MAY	32.	54.	77.			30
	JUNE	45.	68.	84.			31
	JULY	0.	1.	2.			32
	AUG	0.	1.	2.			33
	SEPT	0.	3.	10.			34
	OCT	4.	25.	58.			35
	NOV	6.	29.	64.			36
	DEC	10.	37.	76.			37
END TABLE							38

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Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word*	Crop Name		Crop Price (Dollars)					Control Ident.
DEP-FACTOR	MED		22.					39

* Columns 1–3 are:
DEP for depth damage
DUR for duration damage

		Flood Stage (feet) Or Duration Time					Control Ident.
	*	0.5	2.	3.5			40
	**						

* For Depth
** For Duration

Control Word	Season	Percent Damage Factor 1	2	3	4		Control Ident.
	JAN	0.	0.	3.			41
	FEB	0.	0.	5.			42
	MAR	2.	8.	10.			43
	APR	14.	16.	18.			44
	MAY	14.	17.	21.			45
	JUNE	18.	29.	36.			46
	JULY	16.	25.	32.			47
	AUG	12.	21.	28.			48
	SEPT	12.	21.	28.			49
	OCT	4.	10.	14.			50
	NOV	0.	0.	0.			51
	DEC	0.	0.	0.			52
END TABLE							53

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Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word*	Crop Name		Crop Price (Dollars)					Control Ident.
DEP-FACTOR	PAST		.24					54

* Columns 1–3 are:
DEP for depth damage
DUR for duration damage

	Flood Stage (feet) Or Duration Time					Control Ident.
	* 0.5	2.	3.5			55
	**					

* For Depth
** For Duration

Control Word	Season	Percent Damage Factor 1	2	3	4		Control Ident.
	JAN	0.	1.	4.			56
	FEB	0.	1.	4.			57
	MAR	4.	8.	12.			58
	APR	10.	14.	18.			59
	MAY	10.	14.	18.			60
	JUNE	10.	14.	18.			61
	JULY	10.	14.	18.			62
	AUG	3.	4.	10.			63
	SEPT	6.	10.	20.			64
	OCT	3.	8.	15.			65
	NOV	0.	1.	4.			66
	DEC	0.	1.	4.			67
END TABLE							68

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Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word*	Crop Name		Crop Price (Dollars)								Control Ident.
DEP-FACTOR	MISC		0.0								69
* Columns 1–3 are: DEP for depth damage DUR for duration damage											
			Flood Stage (feet) Or Duration Time								Control Ident.
			*								
	* For Depth ** For Duration		**								
Control Word	Season		Percent Damage Factor 1	2	3	4					Control Ident.
END TABLE											70

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Reach Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Depth Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

Control Word	Reach ID	Options * ** ***	Cross Section ID		Cross Section ID		Cross Section ID			Cross Section ID		Cross Section ID	Card Ident.
REACH	1	1	006B										71
END TABLE													72

* Duration
** Detail Printout
*** Summary Printout

Control Word	Reach ID		Card Ident.
LAND USE	1		73

Control Word		Crop Name		Crop Distribution (Percent)	Yield		Card Ident.
		MISC		100.	0.		74
END TABLE							75

Control Word	Reach ID		Damage Factors for Increment (Dollars) 1	2	3	4		Card Ident.
OTHER-AG	1		.30	3.50	5.00			76
NON-AG	1		.00	12.00	15.00			77

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Reach Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word	Reach ID	Options * ** ***	Cross Section ID		Cross Section ID		Cross Section ID			Cross Section ID		Cross Section ID	Card Ident.
REACH	1A	1	007										78
END TABLE													79

* Duration
** Detail Printout
*** Summary Printout

Control Word	Reach ID		Card Ident.
LAND USE	1A		80

Control Word		Crop Name		Crop Distribution (Percent)	Yield		Card Ident.
		MED		50.	3.5		81
		PAST		50.	200.		82
END TABLE							83

Control Word	Reach ID		Damage Factors for Increment (Dollars) 1	2	3	4		Card Ident.
OTHER-AG	1A		.30	3.50	5.00			84
NON-AG	1A		.00	12.00	15.00			85

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Reach Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word	Reach ID	Options * ** ***	Cross Section ID		Cross Section ID		Cross Section ID			Cross Section ID		Cross Section ID	Card Ident.
REACH	1B	1	008										86
END TABLE													87

* Duration
** Detail Printout
*** Summary Printout

Control Word	Reach ID		Card Ident.
LAND USE	1B		88

Control Word		Crop Name		Crop Distribution (Percent)	Yield		Card Ident.
		ALF		50.	4.		89
		WHEAT		4.	54.		90
		PAST		46.	200.		91
END TABLE							92

Control Word	Reach ID		Damage Factors for Increment (Dollars) 1	2	3	4		Card Ident.
OTHER-AG	1B		.30	3.50	5.00			93
NON-AG	1B		.00	12.00	15.00			94

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Reach Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word	Reach ID	Options * ** ***	Cross Section ID		Cross Section ID		Cross Section ID			Cross Section ID		Cross Section ID	Card Ident.
REACH	2	1	003										95
END TABLE													96

* Duration
** Detail Printout
*** Summary Printout

Control Word	Reach ID		Card Ident.
LAND USE	2		97

Control Word		Crop Name		Crop Distribution (Percent)	Yield		Card Ident.
		ALF		45.	4.		98
		WHEAT		5.	54.		99
		PAST		50.	6.		100
END TABLE							101

Control Word	Reach IID		Damage Factors for Increment (Dollars) 1	2	3	4		Card Ident.
OTHER-AG	2		.30	3.50	4.0			102
NON-AG	2		.00	11.00	14.0			103

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REDIRECT

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Depth Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

Control Word				Card Indentification
REDIRECT	XSECTN	ALT-1		104

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Cross Section Data

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word	Cross Section ID	Options * ** ***				Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
XSECTN	002							105

* Detail Printout
** Summary Printout
*** Update Header Card Only

	Elevation (Feet)	Discharge (cfs)	Cross Sectional Area (Sq Ft)	Acres Flooded or Floodplain Width	Stage Damage (Dollars)	Card Ident.
	802.6	0.0	0.0	0.0		106
	811.5	1011.61	0.	0.		107
	811.89	1116.	4.	0.		108
	812.48	1320.	12.	0.		109
	812.95	1560.	16.	0.		110
	813.35	1800.	18.	7000.		111
	813.84	2100.	20.	13000.		112
	814.5	2520.	21.	20000.		113
	815.99	3800.	23.	50000.		114
END TABLE						115

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Cross Section Stratification

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word	Cross Section ID		Elevations Lower	Elevations Upper		Cross Section ID	Card Ident.
FOR XSECTN	006B	EVAL AREA	822.58	824.76	IN XSECTN	001	116
FOR XSECTN	007	EVAL AREA	824.76	826.19	IN XSECTN	001	117
FOR XSECTN	008	EVAL AREA	826.19	828.	IN XSECTN	001	118
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		

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Update Cross Section Data
Update Header

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word	Cross Section ID	Options *	Options **	Options ***		Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
XSECTN	006B	1		1		822.58		134
XSECTN	007	1		1		824.76		135
XSECTN	008	1		1		826.19		136
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
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XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				
XSECTN				1				

* Detail Printout
** Summary Printout
*** Update Header Card Only

Substitute Cross Section

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word		Cross Section ID	Options *	**	***					Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
XSECTN		003	1	1	1		USE XSECTN		002	811.5		122
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
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XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					
XSECTN					1		USE XSECTN					

* Detail Printout
** Summary Printout
*** Update Header Card Only

REDIRECT

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word			Card Indentification
REDIRECT	FLOW-FREQ	ALT-1	138

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US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Flow–Frequency
Substitute Cross-Section

WATERSHED Depth Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word	Cross Section ID				Cross Section ID		Card Ident.
FLOW-FREQ	006B		USE FLOW -FREQ		001		24
FLOW-FREQ	007		USE FLOW -FREQ		001		25
FLOW-FREQ	008		USE FLOW -FREQ		001		26
FLOW-FREQ	003		USE FLOW -FREQ		002		27
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				

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Executive Control

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Depth Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word		Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Card Ident.
IGNORE												
IGNORE												
IGNORE												
DELETE												
DELETE												
DELETE												

Control Word		Card Ident.
COMMENT		
COMMENT		
COMMENT		

Control Word		Compute From Reach		Compute Thru Reach		Card Ident.
GO,FREQ		1		2		128
ALT-TITLE	KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.					129
GO,HIST						
ALT-TITLE						
CONTINUE						
CONTINUE						
CONTINUE						
END TABLE						130

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2. Example No. 2— Flood Duration Analysis

Example number 2 illustrates the input data, with the REDIRECT feature, required to measure flood damages using the duration analysis technique. This example is also included in the files provided on the ECON2 program disk. The file name is ecdurred.inp. The redirected cross section file used for this example is named durxs.red and its contents are shown in the data echo listing on pages 85-86 in data lines 71-112. The redirected flow frequency file is named durff.red and its contents are shown in the data echo lising on page 86 in data lines 117-140.

WATERSHED INFORMATION

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Duration Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

Control Word		Card Indentification
ECON2		1

Control Word	Watershed Title Card	Card Indentification
TITLE	*Duration Test Case with Redirect 2-90 Ken Tootle*	2

Control Word		Card Indentification
PLOT		
NOPLOT		3

Control Word		Percent of Duration Increment (feet)									Card Indentification
		From	To	From	To	From	To	From	To		
*DUR–INCT		0.0	2.0	2.0	6.0	6.0	12.0	12.0	12.0		4

Control Word	Print out This Storm Only	Percent Chance of Floods (Largest Flood First) (Percent)					Card Indentification
		1 or 6	2 or 7	3 or 8	4 or 9	5 or 10	
PCT-CHANCE	1 1 1 1	1.	2.	4.	10.	20.	5
PCT-CHANCE	1 1 1	50.	100.	200.	300.		6

Control Word	Seasonal Distribution of Floods (percent)						Card Indentification
	1 or 7	2 or 8	3 or 9	4 or 10	5 or 11	6 or 12	
FLD-DIST	3.	3.	5.	9.	12.	15.	7
FLD-DIST	18.	13.	10.	6.	3.	3.	8

* DEP for Depth
DUR for Duration

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Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED Duration Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word*	Crop Name		Crop Price (Dollars)								Control Ident.
DUR-FACTOR	PAST		10.67								9
* Columns 1–3 are: DEP for depth damage DUR for duration damage											
			Flood Stage (feet) Or Duration Time								Control Ident.
			*								
	* For Depth ** For Duration		** 0.0	2.0	2.0	6.0	6.0	12.0	12.0	12.0	10

Control Word	Season	Percent Damage Factor 1	2	3	4		Control Ident.
	JAN	5.	7.	8.	9.		11
	FEB	7.	10.	11.	12.		12
	MAR	12.	15.	17.	20.		13
	APR	13.	17.	19.	21.		14
	MAY	15.	21.	23.	25.		15
	JUNE	17.	25.	26.	27.		16
	JULY	12.	19.	21.	23.		17
	AUG	8.	10.	14.	16.		18
	SEPT	5.	7.	8.	9.		19
	OCT	3.	5.	6.	7.		20
	NOV	2.	4.	5.	6.		21
	DEC	2.	4.	5.	6.		22
END TABLE							23

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Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Duration Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

Control Word*	Crop Name		Crop Price (Dollars)			Control Ident.
DUR-FACTOR	SG		2.59			24

* Columns 1–3 are:
DEP for depth damage
DUR for duration damage

		Flood Stage (feet) Or Duration Time									Control Ident.
	* For Depth ** For Duration	** 0.0	2.0	2.0	6.0	6.0	12.0	12.0	12.0		25

Control Word	Season	Percent Damage Factor 1	2	3	4		Control Ident.
	JAN	30.	42.	61.	65.		26
	FEB	30.	42.	61.	65.		27
	MAR	32.	45.	65.	70.		28
	APR	32.	45.	65.	70.		29
	MAY	35.	50.	70.	75.		30
	JUNE	20.	25.	35.	40.		31
	JULY	4.	5.	8.	10.		32
	AUG	2.	4.	6.	8.		33
	SEPT	40.	76.	84.	86.		34
	OCT	35.	62.	69.	75.		35
	NOV	30.	55.	64.	67.		36
	DEC	28.	40.	59.	73.		37
END TABLE							38

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Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Duration Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word*	Crop Name		Crop Price (Dollars)								Control Ident.
DUR-FACTOR	COTT		0.63								39
* Columns 1–3 are: DEP for depth damage DUR for duration damage											
			Flood Stage (feet) Or Duration Time								Control Ident.
			*								
	* For Depth ** For Duration		**0.0	2.0	2.0	6.0	6.0	12.0	12.0	12.0	40

Control Word	Season	Percent Damage Factor 1	2	3	4		Control Ident.
	JAN	11.	13.	14.	15.		41
	FEB	16.	21.	26.	29.		42
	MAR	25.	31.	36.	39.		43
	APR	26.	36.	41.	43.		44
	MAY	27.	44.	57.	59.		45
	JUNE	39.	54.	66.	69.		46
	JULY	41.	56.	69.	73.		47
	AUG	36.	46.	61.	65.		48
	SEPT	26.	31.	36.	39.		49
	OCT	11.	13.	14.	15.		50
	NOV	5.	7.	8.	9.		51
	DEC	5.	7.	8.	9.		52
END TABLE							53

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Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Duration Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

Control Word*	Crop Name		Crop Price (Dollars)								Control Ident.
DUR-FACTOR	IDLE		0.0								54

* Columns 1–3 are:
DEP for depth damage
DUR for duration damage

	Flood Stage (feet) Or Duration Time									Control Ident.
	*									
* For Depth ** For Duration	**									

Control Word	Season	Percent Damage Factor 1	2	3	4		Control Ident.
END TABLE							55

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Reach Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Duration Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

Control Word	Reach ID	Options * ** ***	Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Card Ident.
REACH	1	1	1		2								56
END TABLE													

* Duration
** Detail Printout
*** Summary Printout

Control Word	Reach ID		Card Ident.
LAND USE	1		

Control Word		Crop Name		Crop Distribution (Percent)	Yield		Card Ident.
		COTT		36.	500.		57
		PAST		30.	2.		58
		SG		33.	18.		59
		IDLE		1.	0.		60
END TABLE							61

Control Word	Reach ID		Damage Factors for Increment (Dollars) 1	2	3	4		Card Ident.
OTHER-AG								
NON-AG								

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Reach Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Duration Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

Control Word	Reach ID	Options * ** ***	Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Card Ident.
REACH	2	1	3										64
END TABLE													65

* Duration
** Detail Printout
*** Summary Printout

Control Word	Reach ID		Card Ident.
LAND USE	2		66

Control Word		Crop Name		Crop Distribution (Percent)	Yield		Card Ident.
		COTT		50.	500.		67
		PAST		50.	2.		68
END TABLE							69

Control Word	Reach ID		Damage Factors for Increment (Dollars) 1	2	3	4		Card Ident.
OTHER-AG								
NON-AG								

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REDIRECT

U.S. DEPARTMENT OF AGRICULTURE
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WATERSHED Duration Test Case TECHNICIAN Ken Tootle DATE 4/06/90

Control Word				Card Indentification
REDIRECT	XSECTN	ALT-1		70

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Update Cross Section Data
Update Header

U.S. DEPARTMENT OF AGRICULTURE
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WATERSHED *Duration Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Cross Section ID	Options *	**	***	Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
XSECTN	1	1		1	2247.2		71
XSECTIN	2	1		1	2282.2		72
XSECTN	3	1		1	2303.5		73
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			
XSECTN				1			

* Detail Printout
** Summary Printout
*** Update Header Card Only

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REDIRECT

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Duration Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

Control Word				Card Indentification
REDIRECT	*FLOW-FREQ*	*ALT-1*		*74*

Page *10* of *11*

Executive Control

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED *Duration Test Case* TECHNICIAN *Ken Tootle* DATE *4/06/90*

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word		Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Card Ident.
IGNORE												
IGNORE												
IGNORE												
DELETE												
DELETE												
DELETE												

Control Word		Card Ident.
COMMENT		
COMMENT		
COMMENT		

Control Word		Compute From Reach		Compute Thru Reach		Card Ident.
GO,FREQ		1		2		75
ALT-TITLE	AFTON AREA W/S TEXAS WITH PROJECT STR 3, 10					76
GO,HIST						
ALT-TITLE						
CONTINUE						
CONTINUE						
CONTINUE						
END JOB						77

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IV ECON2 Program Execution

The ECON2 computer application program software is operational on a large remote host computer and for IBM compatible personal computers with a minimum of 512K memory. The two versions are almost identical in the results they produce. The slight differences in answers is caused by the differences in the math routines available on the mainframe system versus the math routines available on the personal computer versions. **Because of these differences, programs executed with the mainframe version should not be used to compare with those run on the personal computer version. All results to be compared should be run exclusively on the mainframe or the personal computer version.**

A. Personal Computer (PC) program

There are two versions of the ECON2 personal computer program. The version you need to use on your computer depends upon whether your computer has a math co-processor chip. If your computer has a math co-processor chip, then you should use the PC version that uses the math co-processor and vice-versa. If in doubt as to your computer's hardware, then use the version that does not require the math co-processor.

1. Installing the ECON2 PC program

Step 1. Determine which version of the ECON2 personal computer program your machine needs by carefully observing the screen immediately after you turn it on to see if it has a math co-processor present. Use the version that supports the math co-processor if your machine has this function. If the program has previously been installed and the econ2.exe file already exists on your hard drive, skip to the next section, "Executing the ECON2 PC program."

Step 2. From a c:\ prompt make a directory called c:\econ2 by typing in **mkdir econ2** and pressing return.

Step 3. Copy the program file to the directory you created in step 2 by inserting the appropriate floppy disk (see step 1) in drive a; typing in **copy a:econ2.exe c:\econ2**, and pressing return.

You are now ready to run the program. If you have an input file, go to the next section on "Executing the ECON2 PC program." If you don't have an input file see the section "ECON2 Data Entry(DE) program" for information on creating input files.

2. Executing the ECON2 PC program

Step 1. After installing the ECON2 program in the c:\econ2 directory, change to the c:\econ2 directory by typing in **cd c:\econ2** and pressing return.

Step 2. Type in **econ2** and press return. This will start the ECON2 program and display the first screen. After reading the first screen, press return to continue.

Step 3. When prompted, enter the source input drive\path\ and file name for your input file, (example **c:\de\econ2.inp**), and press return.

Step 4. When asked where the output is to go, enter **prn** if the output is to go to the printer, **con** if it is to go to the screen, or if it is to go to a file, enter the drive, directory, and filename, such as **c:\econ2\econalt1.out.** Then press return.

Step 5. If you are not using the redirect feature because your data file already contains the required cross section rating curves and flow frequencies, then answer **n** and the program will continue.

Answer **y** if you are using the redirect feature because you need to use an existing output file from WSP2 to input your cross section rating curves or an existing flow frequency file from TR-20 to input your flow frequencies. Previously run WSP2 or TR-20 output files are accessible from the floppy drive (A:) or the hard drive. When prompted, enter the correct source input drive and file name for the cross section file or the flow frequency file. For example, if you

want to use an existing rating curve file from WSP2, that is named sections.wsp, enter a **y** when asked if you are using the redirect feature and give the appropriate source path and file name, such as **c:\wsp2\alternate1\sections.wsp**, and press return. If the file resides on a floppy, enter **a:\sections.wsp** and press return. Repeat the procedure for the flow frequency file if you are using the redirect feature to incorporate it. You can use the redirect feature for either the cross section rating curve file, the flow frequency file, or both, or the statements may be batched with additional compute statements. See the following section for information on running multiple alternatives. If you are not using the redirect feature for both the cross section and the flow frequency file, press return at the prompt for the one you will not use. The program will continue.

The redirect feature does not apply to the historical analysis.

Step 6. Enter the drive where the program can write temporary files, such as the **c:** drive. The files are only for the program to use, and the program automatically erases these temporary files. Program run time can be shortened considerable by using a RAM disk designation for temporary files, if available.

The program should now compute the damages and relevant flooding information for each cross section and reach, for each alternate.

3. Executing multiple alternatives

Following is an example of running three alternates in one job where you want to use the redirect operator to read in the flow frequencies which change for each alternate. The computer automatically computes benefits as the difference between the first alternate and subsequent alternates. The flow frequencies for all three alternates would need to reside in a file which could be accessed by the ECON2 program.

```
ECON2
TITLE       DEPTH TEST CASE - KEN TOOTLE
                    :
                    :
                    :
Other required data including cross section data.
                    :
                    :
                    :
REDIRECT  FLOW-FREQ ALT 1
COMMENT  This is with Land Treatment
GO,FREQ                    1        2
ALT-TITLE  Kickapoo Nations without project
REDIRECT  FLOW-FREQ ALT 2
COMMENT  This includes site 2 on Big Creek
GO,FREQ                    1        2
ALT-TITLE  Kickapoo Nations with structure 2
REDIRECT  FLOW-FREQ ALT 3
COMMENT  This includes site 3 on Big Creek
GO,FREQ                    1        2
ALT-TITLE  Kickapoo Nations with structure 3
END JOB
```

B. Mainframe computer runs

The operator performs the task of initiating the ECON2 processing by submitting a Job Control Language (JCL) procedure and inputting data to a large remote host computer. The ECON2 DE program can be used to build input files for the mainframe ECON2 program, except that **the mainframe program does not support the redirect feature**. To incorporate existing cross section rating curve data files or flow frequency data files into ECON2 data files, you may use any file editor to merge the files together at the appropriate places. The instructions for doing this vary depending on the file editor you use. You also must include the appropriate JCL file before the input file. This can be accomplished by using a file editor. The JCL for the mainframe at Kansas City Computer (KCC) center is illustrated to the right.

Once processed, the ECON2 computer generated output results will be transmitted by the host computer back to the remote site from which it came or to some other specified location. The output can then be printed at the remote site and delivered by the operator to the requesting user. Additional instructions for transmitting and receiving jobs using the BLAST communication package are available. These instructions vary depending upon the type of communication package you use.

Job Stream For KCC

```
//SCSCCMMM JOB (accountinfo,RMTrrr), "st-name",TIME=1,class=D,
//PRTY=03,MSGLEVEL=(1,1)
//*LOGONID aaaa
//*PASSWORD aaaa
//*ROUTE PRINT RMTrrr
//PROCLIB DD DSN=SCS03.PROCLIB,DISP=SHR
//STEP1 EXEC SCSECON2
//ECON2.INPUT DD*
************************
*                      *
*    DATA RECORDS      *
*                      *
************************

/*
//
```

TIME/CLASS & PRTY can change
Accountinfo = Account
st = State Code (alpha allowable)
name = Identifying information
cc = User id number
mmm = Optical identifier for uniqueness
rrr = Remote ID number
aaaa = Security information

V Output Data Printing

After executing the personal computer or the mainframe version of ECON2, the F77PRT program can be used to print output results at the desired pitch size. The F77PRT program is supplied on the ECON2 DE Program floppy disk. The program interprets printer control codes such as line skips and page feeds to give the printed output the proper appearance. Follow these steps to install and use the program:

A. Installing the F77PRT program

Step 1. With the computer turned on, insert the "ECON2 DE Program" floppy disk in the a: floppy drive.

Step 2. Change the working directory to the c:\econ2 directory where the ECON2 program and the ECON2 output file reside, by typing in **cd c:\econ2** and pressing return.

Step 3. Check and see if the f77prt.exe file is in the c:\econ2 directory by typing in **dir** and pressing return. If the file is there, proceed to " Printing using the F77PRT program." The f77prt.exe file needs to be installed only one time.

Step 4. Copy the file to the c:\econ2 directory by typing in **copy a:f77prt.exe c:\econ2** and pressing return.

B. Printing using the F77PRT program

Step 1. Change the working directory to the c:\econ2 directory where the ECON2 program, f77prt.exe and the ECON2 output file reside by typing in **cd c:\econ2** and pressing return.

Step 2. Execute the F77PRT program by typing in **f77prt output** and pressing the return key where output is the output filename from the personal computer or mainframe ECON2 program.

Step 3. The F77PRT program will request the desired font size of 10, 12, or 17 characters per inch for printing the output file. Make your selection of **1**, **2**, or **3**, and press return to begin printing. To suspend or quit printing, use the F10 key.

VI Sample Job Run Examples

Following are two example job runs of an ECON2 sample job. For each example, the first four pages of output, within the job-run, express an echo of the input data. The input data is echoed back within the output, preceding the results generated, so that the user can confirm the values actually input for processing.

A. Example NO. 1 - Flood Depth Analysis.....67

This echo of the input data for this example is identical to the hand coded example of input data beginning on page 25, except this echo listing also includes the redirect file data.

B. Example NO. 2 - Flood Duration Analysis.....83

This echo of the input data for this example is identical to the hand coded example of input data beginning on page 45, except this echo listing also includes the redirect file data.

Example No. 1—Flood Depth Analysis

```
ECON2—Agricultural Damages by Flooding
Date of Run is 02/08/90 at 09:35:09

Summary of Input/Output Files

                    Input File Name—>EC2DEP.RED
Output File Name (or Device Name)—> EC2DEP.OUT
      Comparitive Data Values File—>EC2DEP.CMP


Cross Section and/or Flow Frequency Input Data are located in:

Cross Sections—>XS.RED
Flow Frequencies—>FF.RED
```

Example No. 1—Flood Depth Analysis
Output Results

```
ECON2  (PC Version)              Xeq 02/08/90                    09:35:09
                                 Rev 09/18/89                                  Page 2
*********************            80-80 Listing of Input Data     *********************
12345678901234567890123456789012345678901234567890123456789012345678901234567890 Line No.


ECON2                                                                          1
TITLE       DEPTH TEST CASE  WITH REDIRECT 2-90 KEN TOOTLE                     2
NOPLOT                                                                         3
DEP-INCT                0.0 1.0 1.0 3.0 3.0 3.0                                4
PCT-CHANCE1 1 1 1 1     1.        4.        10.       20.       50.          5
PCT-CHANCE1  1          100.      200.                                       6
FLD-DIST  .3            .3        2.3       11.5      26.       24.          7
FLD-DIST  8.8           5.        8.9       10.4      2.2       .3           8
DEP-FACTORALF           25.52                                                9
                        .5        2.        3.5                             10
            JAN         0.        2.        5.                              11
            FEB         2.        5.        7.                              12
            MAR         7.        10.       20.                             13
            APR         14.       20.       30.                             14
            MAY         19.       28.       37.                             15
            JUNE        26.       30.       38.                             16
            JULY        10.       16.       30.                             17
            AUG         10.       16.       30.                             18
            SEPT        7.        12.       25.                             19
            OCT         5.        10.       20.                             20
            NOV         0.        8.        11.                             21
            DEC         0.        8.        11.                             22
END TABLE                                                                      23
DEP-FACTORWHEAT         1.31                                                 24
                        .5        2.        3.5                             25
            JAN         22.       37.       76.                             26
            FEB         22.       37.       76.                             27
            MAR         22.       37.       76.                             28
            APR         28.       43.       76.                             29
            MAY         32.       54.       77.                             30
            JUNE        45.       68.       84.                             31
            JULY        0.        1.        2.                              32
            AUG         0.        1.        2.                              33
            SEPT        0.        3.        10.                             34
            OCT         4.        25.       58.                             35
            NOV         6.        29.       64.                             36
            DEC         10.       37.       76.                             37
END TABLE                                                                      38
DEP-FACTORMED           22.                                                  39
                        .5        2.        3.5                             40
            JAN         0.        0.        3.                              41
            FEB         0.        0.        5.                              42
            MAR         2.        8.        10.                             43
            APR         14.       16.       18.                             44
            MAY         14.       17.       21.                             45
            JUNE        18.       29.       36.                             46
            JULY        16.       25.       32.                             47
            AUG         12.       21.       28.                             48
            SEPT        12.       21.       28.                             49
            OCT         4.        10.       14.                             50
1
```

```
ECON2 (PC Version)      Xeq 02/08/90        09:35:09
                        Rev 09/18/89                                          Page 3
********************                80-80 Listing of Input Data                ********************
12345678901234567890123456789012345678901234567890123456789012345678901234567890 Line No.

          NOV     0.      0.      0.                                          51
          DEC     0.      0.      0.                                          52
END TABLE                                                                     53
DEP-FACTORPAST    .24                                                         54
                  .5      2.      3.5                                         55
          JAN     0.      1.      4.                                          56
          FEB     0.      1.      4.                                          57
          MAR     4.      8.      12.                                         58
          APR     10.     14.     18.                                         59
          MAY     10.     14.     18.                                         60
          JUNE    10.     14.     18.                                         61
          JULY    10.     14.     18.                                         62
          AUG     3.      4.      10.                                         63
          SEPT    6.      10.     20.                                         64
          OCT     3.      8.      15.                                         65
          NOV     0.      1.      4.                                          66
          DEC     0.      1.      4.                                          67
END TABLE                                                                     68
DEP-FACTORMISC    0.0                                                         69
END TABLE                                                                     70
REACH     1     1   006B                                                      71
END TABLE                                                                     72
LAND USE  1                                                                   73
                  MISC    100.    0.                                          74
END TABLE                                                                     75
OTHER-AG  1       .30     3.50    5.00                                        76
NON-AG    1       .00     12.00   15.00                                       77
REACH     1A    1   007                                                       78
END TABLE                                                                     79
LAND USE  1A                                                                  80
                  MED     50.     3.5                                         81
                  PAST    50.     200.                                        82
END TABLE                                                                     83
OTHER-AG  1A      .30     3.5     5.0                                         84
NON-AG    1A      .00     12.0    15.0                                        85
REACH     1B    1   008                                                       86
END TABLE                                                                     87
LAND USE 1B                                                                   88
                  ALF     50.     4.                                          89
                  WHEAT   4.      54.                                         90
                  PAST    46.     200.                                        91
END TABLE                                                                     92
OTHER-AG  1B      .30     3.5     5.0                                         93
NON-AG    1B      .00     12.0    15.0                                        94
REACH     2     1   003                                                       95
END TABLE                                                                     96
LAND USE  2                                                                   97
                  ALF     45.     4.                                          98
                  WHEAT   5.      54.                                         99
                  PAST    50.     6.                                          100
1
```

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*********************          80-80 Listing of Input Data          *********************
12345678901234567890123456789012345678901234567890123456789012345678901234567890 Line No.


END TABLE                                                                        101
OTHER-AG 2             .30       3.5       4.0                                   102
NON-AG     2           .00       11.0      14.0                                  103
REDIRECT XSECTN        ALT-1                                                     104
2 XSECTN    001        1.00      822.00    821.82    821.82    ALT-1             105
8                      821.      0.0       0.0       0.0       001 1             106
8                      821.82    200.      150.      0.        001 2             107
8                      822.15    280.      200.      3.18      001 3             108
8                      822.77    390.      300.      7.56      001 4             109
8                      823.52    550.      400.      13.41     001 5             110
8                      824.4     780.      650.      21.28     001 6             111
8                      824.76    930.      800.      24.81     001 7             112
8                      825.14    1100.     900.      28.56     001 8             113
8                      825.41    1300.     1100.     31.22     001 9             114
8                      825.87    1500.     1300.     35.31     001 10            115
8                      826.19    1850.     1600.     36.99     001 11            116
8                      826.52    2900.     2700.     38.73     001 12            117
8                      827.6     3900.     3700.     43.16     001 13            118
9 ENDTBL                                                                         119
XSECTN      002 1                                                                120
                       802.6     0.0                 0.0       0.0               121
                       811.5     1011.61             0.        0.                122
                       811.89    1116.               4.        0.                123
                       812.48    1320.               12.       0.                124
                       812.95    1560.               16.       0.                125
                       813.35    1800.               18.       7000.             126
                       813.84    2100.               20.       13000.            127
                       814.5     2520.               21.       20000.            128
                       815.99    3800.               23.       50000.            129
END TABLE                                                                        130
FOR XSECTN 006B        EVAL AREA 822.58    824.76    IN XSECTN 001               131
FOR XSECTN 007         EVAL AREA 824.76    826.19    IN XSECTN 001               132
FOR XSECTN 008         EVAL AREA 826.19    828.      IN XSECTN 001               133
XSECTN      006B  1 1                                822.58                      134
XSECTN      007   1 1                                824.76                      135
XSECTN      008   1 1                                826.19                      136
XSECTN      003   1 1  USE XSECTN          002       811.5                       137
REDIRECT FLOW-FREQ     ALT-1                                                     138
FLOW-FREQ 001          4000.     3100.     2000.     1300.     700.ALT-1  1      139
FLOW-FREQ 001          400.      200.                                ALT-1  2   140
FLOW-FREQ 002          3800.     2500.     2100.     1900.     1800.ALT-1  3    141
FLOW-FREQ 002          1700.     1000.                                ALT-1  4  142
FLOW-FREQ 006B         USE FLOW-FREQ  001                                        143
FLOW-FREQ 007          USE FLOW-FREQ  001                                        144
FLOW-FREQ 008          USE FLOW-FREQ  001                                        145
FLOW-FREQ 003          USE FLOW-FREQ  002                                        146
GO,FREQ                1         2                                               147
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.                             148
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********************          80-80 Listing of Input Data          ********************
12345678901234567890123456789012345678901234567890123456789012345678901234567890 Line No.


XSECTN     006B       (EVAL. AREA  822.58  824.76  IN XSECTN 001  )
             6.22       24.81     822.58     824.76
                       821.00        .00        .00
                       821.82     200.00        .00
                       822.15     280.00        .00
                       822.58     356.29        .00
                       823.52     550.00       7.19
                       824.40     780.00      15.06
                       824.76     930.00      18.59
                       825.14    1100.00      18.59
                       825.41    1300.00      18.59
                       825.87    1500.00      18.59
                       826.19    1850.00      18.59
                       826.52    2900.00      18.59
                       827.60    3900.00      18.59
END TABLE
XSECTN     007        (EVAL. AREA  824.76  826.19  IN XSECTN 001  )
            24.81       36.99     824.76     826.19
                       821.00        .00        .00
                       821.82     200.00        .00
                       822.15     280.00        .00
                       822.77     390.00        .00
                       823.52     550.00        .00
                       824.40     780.00        .00
                       824.76     930.00        .00
                       825.14    1100.00       3.75
                       825.41    1300.00       6.41
                       825.87    1500.00      10.50
                       826.19    1850.00      12.18
                       826.52    2900.00      12.18
                       827.60    3900.00      12.18
END TABLE
XSECTN     008        (EVAL. AREA  826.19  828.00  IN XSECTN 001  )
            36.99       44.80     826.19     828.00
                       821.00        .00        .00
                       821.82     200.00        .00
                       822.15     280.00        .00
                       822.77     390.00        .00
                       823.52     550.00        .00
                       824.40     780.00        .00
                       824.76     930.00        .00
                       825.14    1100.00        .00
                       825.41    1300.00        .00
                       825.87    1500.00        .00
                       826.19    1850.00        .00
                       826.52    2900.00       1.74
                       828.00    4270.41       7.81
END TABLE
```

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TITLE DEPTH TEST CASE WITH REDIRECT 2-90 KEN TOOTLE
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.

Cross Section 006B

			Increment 1		Increment 2		Increment 3		Total Storm	
			0	1.0	1.0	3.0	3.0	3.0		
	Freq	Depth	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	5.13	0	0	1	0	18	0	18	0
Other-Ag				0		1		90		92
Non-Ag				0		6		271		277
Crop/Pasture	4.00	4.16	0	0	9	0	9	0	18	0
Other-Ag				0		33		45		78
Non-Ag				0		113		136		250
Crop/Pasture	10.00	3.66	0	0	14	0	5	0	18	0
Other-Ag				0		47		25		72
Non-Ag				0		162		75		238
Crop/Pasture	20.00	2.83	3	0	15	0	0	0	18	0
Other-Ag				1		53		0		54
Non-Ag				0		181		0		181
Crop/Pasture	50.00	1.51	8	0	4	0	0	0	12	0
Other-Ag				2		13		0		16
Non-Ag				0		47		0		47
Crop/Pasture	100.00	.21	2	0	0	0	0	0	1	0
Other-Ag				0		0		0		0
Non-Ag				0		0		0		0
	200.00		No Floodwater Damage for Storm							

Avg. Ann. Acres Flooded	4.55	6.13	1.26	11.94
Elevation Damage Begins		822.58		
Flow(Discharge) Damage Begins		356.29		
Percent Chance Flooding Begins		112.27		
Composite Acre Value		.00		

Average Annual Damage for SECTION 006B is:

		Adjust	% of Comp.		Avg. Ann. Computations				
	Unadjust	Recurrence	Acre Value		Storm	Crop/Pas	Other-Ag	Non-Ag	Non-Ag(Stage)
Crop/Pasture		.00	.00	.00	1.00	.00	.92	2.77	.00
Other-Ag		29.14	29.14		4.00	.00	2.56	7.92	.00
Non-Ag		92.52	92.52		10.00	.00	4.54	14.66	.00
Non-Ag(Stage)		.00	.00		20.00	.00	6.34	21.01	.00
					50.00	.00	10.56	34.36	.00
Total	$	121.66	121.66		100.00	.00	4.19	11.80	.00
					112.27	.00	.03	.00	.00

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TITLE DEPTH TEST CASE WITH REDIRECT 2-90 KEN TOOTLE
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.
Reach 1

		Increment 1		Increment 2		Increment 3		Total Storm	
		.0	1.0	1.0	3.0	3.0	3.0		
	Freq	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	0	0	0	0	18	0	18	0
Other-Ag			0		1		90		92
Non-Ag			0		6		271		277
Crop/Pasture	4.00	0	0	9	0	9	0	18	0
Other-Ag			0		33		45		78
Non-Ag			0		113		136		250
Crop/Pasture	10.00	0	0	13	0	5	0	18	0
Other-Ag			0		47		25		72
Non-Ag			0		162		75		238
Crop/Pasture	20.00	3	0	15	0	0	0	18	0
Other-Ag			1		53		0		54
Non-Ag			0		181		0		181
Crop/Pasture	50.00	8	0	3	0	0	0	12	0
Other-Ag			2		13		0		16
Non-Ag			0		47		0		47
Crop/Pasture	100.00	1	0	0	0	0	0	1	0
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Crop/Pasture	200.00	0	0	0	0	0	0	0	0
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Average Ann. Acres Flooded		4.55		6.13		1.26		11.94	

Composite Acre Value= .00

Average Annual Damage for REACH 1 is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value
Crop/Pasture	.00	.00	.00
Other-Ag	29.14	29.14	
Non-Ag	92.52	92.52	
Non-Ag(Stage)	.00	.00	
Total $	121.66	.00	

Benefits for Reach 1 are $********** dollars.

Avg. Ann. Computations

Storm	Crop/Past	Other-Ag	Non-Ag	Non-Ag(Stage)
1.00	.00	.92	2.77	.00
4.00	.00	2.56	7.92	.00
10.00	.00	4.54	14.66	.00
20.00	.00	6.34	21.01	.00
50.00	.00	10.56	34.36	.00
100.00	.00	4.19	11.80	.00
200.00	.00	.03	.00	.00

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TITLE DEPTH TEST CASE WITH REDIRECT 2-90 KEN TOOTLE
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.

Cross Section 007

			Increment 1		Increment 2		Increment 3		Total Storm .	
			0	1.0	1.0	3.0	3.0	3.0		
	Freq	Depth	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	2.95	0	0	12	134	0	0	12	134
Other-Ag				0		42		0		42
Non-Ag				0		146		0		146
Crop/Pasture	4.00	1.98	3	23	9	91	0	0	12	114
Other-Ag				0		32		0		33
Non-Ag				0		111		0		111
Crop/Pasture	10.00	1.48	7	51	5	44	0	0	12	94
Other-Ag				2		16		0		18
Non-Ag				0		56		0		56
Crop/Pasture	20.00.	.65	6	28	0	0	0	0	6	27
Other-Ag				1		0		0		1
Non-Ag				0		0		0		0
	50.00	No Floodwater Damage for Storm								
	100.00	No Floodwater Damage for Storm								
	200.00	No Floodwater Damage for Storm								
Avg. Ann. Acres Flooded			1.46		1.10		.00		2.56	
Elevation Damage Begins					824.76					
Flow(Discharge) Damage Begins					930.00					
Percent Chance Flooding Begins					32.84					
Composite Acre Value					62.50					

Average Annual Damage for SECTION 007 is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value	Avg. Ann. Computations Storm	Crop/Pas	Other-Ag	Non-Ag	Non-
Ag(Stage)								
Crop/Pasture	19.26	18.78	2.47	1.00	1.34	.43	1.46	.00
Other-Ag	4.29	4.29		4.00	3.73	1.14	3.87	.00
Non-Ag	13.20	13.20		10.00	6.26	1.56	5.05	.00
Non-Ag(Stage)	.00	.00		20.00	6.13	1.03	2.82	.00
				32.84	1.79	.12	.00	.00
Total	$ 36.75	36.27		.00	.00	.00	.00	.00

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TITLE DEPTH TEST CASE WITH REDIRECT 2-90 KEN TOOTLE
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.

Reach 1A

	Increment 1		Increment 2		Increment 3		Total Storm	
	.0	1.0	1.0	3.0	3.0	3.0		
Freq	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture 1.00	0	0	12	134	0	0	12	134
Other-Ag		0		42		0		42
Non-Ag		0		146		0		146
Crop/Pasture 4.00	2	23	9	90	0	0	12	114
Other-Ag		0		32		0		33
Non-Ag		0		111		0		111
Crop/Pasture 10.00	7	50	4	43	0	0	12	94
Other-Ag		2		16		0		18
Non-Ag		0		56		0		56
Crop/Pasture 20.00	6	27	0	0	0	0	6	27
Other-Ag		1		0		0		1
Non-Ag		0		0		0		0
Crop/Pasture 50.00	0	0	0	0	0	0	0	0
Other-Ag		0		0		0		0
Non-Ag		0		0		0		0
Crop/Pasture 100.00	0	0	0	0	0	0	0	0
Other-Ag		0		0		0		0
Non-Ag		0		0		0		0
Crop/Pasture 200.00	0	0	0	0	0	0	0	0
Other-Ag		0		0		0		0
Non-Ag		0		0		0		0
Average Ann. Acres Flooded	1.46		1.10		.00		2.56	

Composite Acre Value= 62.50
Average Annual Damage for REACH 1A is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value
Crop/Pasture	19.26	18.78	2.47
Other-Ag	4.29	4.29	
Non-Ag	13.20	13.20	
Non-Ag(Stage)	.00	.00	
Total $	36.75	36.27	

Avg. Ann. Computations

Storm	Crop/Past	Other-Ag	Non-Ag	Non-Ag(Stage)
1.00	1.34	.43	1.46	.00
4.00	3.73	1.14	3.87	.00
10.00	6.26	1.56	5.05	.00
20.00	6.13	1.03	2.82	.00
50.00	1.79	.12	.00	.00
100.00	.00	.00	.00	.00
200.00	.00	.00	.00	.00

Benefits for Reach 1A are $********** dollars. 1

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TITLE DEPTH TEST CASE WITH REDIRECT 2-90 KEN TOOTLE
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.
Cross Section 008

			Increment 1		Increment 2		Increment 3		Total Storm	
			.0	1.0	1.0	3.0	3.0	3.0		
	Freq	Depth	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	1.52	4	37	3	34	0	0	6	70
Other-Ag				1		8		0		10
Non-Ag				0		30		0		30
Crop/Pasture	4.00	.55	3	16	0	0	0	0	2	15
Other-Ag				0		0		0		0
Non-Ag				0		0		0		0
Crop/Pasture	10.00	.05	0	0	0	0	0	0	0	0
Other-Ag				0		0		0		0
Non-Ag				0		0		0	0	
	20.00			No Floodwater Damage for Storm						
	50.00			No Floodwater Damage for Storm						
	100.00			No Floodwater Damage for Storm						
	200.00			No Floodwater Damage for Storm						

Avg. Ann. Acres Flooded	.23	.06	.00	.29
Elevation Damage Begins		826.19		
Flow(Discharge) Damage Begins		1850.00		
Percent Chance Flooding Begins		11.34		
Composite Acre Value		75.95 0		

Average Annual Damage for SECTION 008 is:

	Unadjust	Adjust Recurrence	% of Comp Acre Value	.Avg. Ann. Computations Storm	Crop/Past	Other-Ag	Non-Ag	Non-Ag(Stage)
Crop/Pasture	2.46	2.45	.49	1.00	.70	.10	.30	.00
Other-Ag	29	.29		4.00	1.29	.16	.45	.00
Non-Ag	.75	.75		10.00	.47	.03	.00	.00
Non-Ag(Stage)	.00	.00		11.34	.00	.00	.00	.00
				.00	.00	.00	.00	.00
Total	$ 3.50	3.49		.00	.00	.00	.00	.00

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TITLE DEPTH TEST CASE WITH REDIRECT 2-90 KEN TOOTLE
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.

Reach 1B

		Increment 1		Increment 2		Increment 3		Total Storm	
		.0	1.0	1.0	3.0	3.0	3.0		
	Freq	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	4	36	2	33	0	0	6	70
Other-Ag			1		8		0		10
Non-Ag			0		30		0		30
Crop/Pasture	4.00	2	15	0	0	0	0	2	15
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Crop/Pasture	10.00	0	0	0	0	0	0	0	0
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Crop/Pasture	20.00	0	0	0	0	0	0	0	0
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Crop/Pasture	50.00	0	0	0	0	0	0	0	0
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Crop/Pasture	100.00	0	0	0	0	0	0	0	0
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Crop/Pasture	200.00	0	0	0	0	0	0	0	0
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Average Ann. Acres Flooded		.23		.06		.00		.29	

Composite Acre Value= 75.95
Average Annual Damage for REACH 1B is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value	Storm	Avg. Ann. Computations Crop/Past	Other-Ag	Non-Ag	Non-Ag(Stage)
Crop/Pasture	2.46	2.45	.49	1.00	.70	.10	.30	.00
Other-Ag	.29	.29		4.00	1.29	.16	.45	.00
Non-Ag	.75	.75		10.00	.47	.03	.00	.00
Non-Ag(Stage)	.00	.00		20.00	.00	.00	.00	.00
				50.00	.00	.00	.00	.00
Total $	3.50	3.49		100.00	.00	.00	.00	.00
				200.00	.00	.00	.00	.00

Benefits for Reach 1B are $********** dollars. 1

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TITLE DEPTH TEST CASE WITH REDIRECT 2-90 KEN TOOTLE
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.

Cross Section 003

			Increment 1		Increment 2		Increment 3		Total Storm	
			.0	1.0	1.0	3.0	3.0	3.0		
	Freq	Depth	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	4.49	1	9	5	68	16	249	23	326
Other-Ag				0		19		64		84
Non-Ag				0		60		226		286
Non-Ag(Stage)										50000
Crop/Pasture	4.00	2.97	2	19	18	224	0	0	20	243
Other-Ag				0		64		0		65
Non-Ag				0		203		0		203
Non-Ag(Stage)										19666
Crop/Pasture	10.00	2.34	5	36	15	167	0	0	20	203
Other-Ag				1		52		0		54
Non-Ag				0		165		0		165
Non-Ag(Stage)										13000
Crop/Pasture	20.00	2.01	6	48	12	131	0	0	18	179
Other-Ag				1		42		0		44
Non-Ag				0		135		0		135
Non-Ag(Stage)										9000
Crop/Pasture	50.00	1.85	8	60	10	108	0	0	18	167
Other-Ag										38
Non-Ag										112
Non-Ag(Stage)										7000
Crop/Pasture	100.00	1.68	9	71	8	83	0	0	17	153
Other-Ag				2		27		0		30
Non-Ag				0		87		0		87
Non-Ag(Stage)										4083
	200.00	No Floodwater Damage for Storm								

Avg. Ann. Acres Flooded	11.68	14.59	.41	26.67
Elevation Damage Begins		811.50		
Flow(Discharge) Damage Begins		1011.61		
Percent Chance Flooding Begins		197.01		
Composite Acre Value		50.19		

Average Annual Damage for SECTION 003is:

Ag(Stage)	Unadjust	Adjust Recurrence	% of Comp. Acre Value	Avg. Ann. Computations Storm	Crop/Pas	Other-Ag	Non-Ag	Non-
Crop/Pasture	251.39	220.74	19.12	1.00	3.26	.84	2.87	500.00
Other-Ag	56.18	56.18		4.00	8.55	2.25	7.35	1045.00
Non-Ag	166.14	166.14		10.00	13.42	3.59	11.07	980.00
Non-Ag(Stage)	10776.39	10776.39		20.00	19.15	4.96	15.04	1100.00
				50.00	52.07	12.46	37.16	2400.00
Total	$ 11250.10	11219.45		100.00	80.35	17.21	50.09	2770.83
				197.01	74.60	14.88	42.56	1980.56

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TITLE DEPTH TEST CASE WITH REDIRECT 2-90 KEN TOOTLE
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.

Reach 2

		Increment 1		Increment 2		Increment 3		Total Storm	
		.0	1.0	1.0	3.0	3.0	3.0		
	Freq	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	1	9	5	68	16	248	23	326
Other-Ag			0		19		64		84
Non-Ag			0	60	226		286		
Non-Ag(Stage)									50000
Crop/Pasture	4.00	2	19	18	224	0	0	20	243
Other-Ag			0		64		0		65
Non-Ag			0		203		0		203
Non-Ag(Stage)									19666
Crop/Pasture	10.00	4	36	15	167	0	0	20	203
Other-Ag			1		52		0		54
Non-Ag			0		165		0		165
Non-Ag(Stage)									13000
Crop/Pasture	20.00	6	48	12	131	0	0	18	179
Other-Ag			1		42		0		44
Non-Ag			0		135		0		135
Non-Ag(Stage)									9000
Crop/Pasture	50.00	7	59	10	108	0	0	18	167
Other-Ag			2		35		0		38
Non-Ag			0		112		0		112
Non-Ag(Stage)									7000
Crop/Pasture	100.00	9	70	7	83	0	0	17	153
Other-Ag			2		27		0		30
Non-Ag			0		87		0		87
Non-Ag(Stage)									4083
Crop/Pasture	200.00	0	0	0	0	0	0	0	0
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Average Ann. Acres Flooded		11.68		14.59		.41		26.67	

Composite Acre Value= 50.19
Average Annual Damage for REACH 2 is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value		Avg. Ann. Computations Storm	Crop/Past	Other-Ag	Non-Ag	Non-Ag(Stage)
Crop/Pasture	251.39	220.74	19.12		1.00	3.26	.84	2.87	500.00
Other-Ag	56.18	56.18			4.00	8.55	2.25	7.35	1045.00
Non-Ag	166.14	166.14			10.00	13.42	3.59	11.07	980.00
Non-Ag(Stage)	10776.39	10776.39			20.00	19.15	4.96	15.04	1100.00
					50.00	52.07	12.46	37.16	2400.00
Total	$ 11250.10	11219.45			100.00	80.35	17.21	50.09	2770.83
					200.00	74.60	14.88	42.56	1980.56

Benefits for Reach 2 are $********** dollars.

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TITLE DEPTH TEST CASE WITH REDIRECT 2-90 KEN TOOTLE
ALT-TITLE KICKAPOO NATIONS PECAN CR. ALT.1 WITH L.T.

Alternate 1

		Increment 1		Increment 2		Increment 3		Total Storm	
		.0	1.0	1.0	3.0	3.0	3.0		
	Freq	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	5	46	20	236	34	248	60	530
Other-Ag			1		72		1	55	229
Non-Ag			0		242		498		740
Non-Ag(Stage)									50000
Crop/Pasture	4.00	7	58	37	314	9	0	54	373
Other-Ag			2		130		45		178
Non-Ag			0		428		136		565
Non-Ag(Stage)									19666
Crop/Pasture	10.00	12	87	33	211	5	0	51	298
Other-Ag			3		116		25		145
Non-Ag			0		384		75		460
Non-Ag(Stage)									13000
Crop/Pasture	20.00	16	76	27	131	0	0	43	207
Other-Ag			4		96		0		100
Non-Ag			0		317		0		317
Non-Ag(Stage)									9000
Crop/Pasture	50.00	16	59	14	108	0	0	30	167
Other-Ag			4		49		0		54
Non-Ag			0		159		0		159
Non-Ag(Stage)									7000
Crop/Pasture	100.00	10	70	7	83	0	0	18	153
Other-Ag			3		27		0		31
Non-Ag			0		87		0		87
Non-Ag(Stage)									4083
Crop/Pasture	200.00	0	0	0	0	0	0	0	0
Other-Ag			0		0		0		0
Non-Ag			0		0		0		0
Average Ann. Acres Flooded		17.91		21.88		1.67		41.46	
Total Average Annual Damage For Alternate			1						

	Unadjust	Adjust Recurrence
Ag(Stage)		
Crop/Pasture	273.11	241.97
Other-Ag	89.90	89.90
Non-Ag	272.61	272.61
Non-Ag(Stage)	10776.39	10776.39
Total	$ 11412.01	11380.87

Avg. Ann. Computations

Storm	Crop/Past	Other-Ag	Non-Ag	Non-
1.00	5.31	2.29	7.40	500.00
4.00	13.56	6.11	19.59	1045.00
10.00	20.14	9.72	30.78	980.00
20.00	25.29	12.32	38.87	1100.00
50.00	53.86	23.14	71.52	2400.00
100.00	80.35	21.40	61.88	2770.83
200.00	74.60	14.91	42.56	1980.56 1

```
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12345678901234567890123456789012345678901234567890123456789012345678901234567890 Line No.

END JOB                                                                          149

End of all Jobs in this Run.
```

Example No. 2 – Flood Duration Analysis

```
ECON2—Agricultural Damages by Flooding
        Date of Run is 02/08/90 at 09:00:04

Summary of Input/Output Files

                Input File Name—>ECDURRED.INP
Output File Name (or Device Name)—>ECDURRED.OUT
     Comparitive Data Values File—>ECDURRED.CMP


Cross Section and/or Flow Frequency Input Data are located in:

          Cross Sections—>DURXS.RED
        Flow Frequencies—>DURFF.RED
```

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*********************80-80 Listing of Input Data*********************
12345678901234567890123456789012345678901234567890123456789012345678901234567890 Line No.


ECON2                                                                            1
TITLE      DURATION TEST WITH REDIRECT 2-7-90                                    2
NOPLOT                                                                           3
DUR-INCT            0.0   2.0   2.0  6.0   6.0   12.0  12.0  12.0                4
PCT-CHANCE          1.         2.        4.         10.        20.             5
PCT-CHANCE          50.        100.      200.       300.                       6
FLD-DIST  3.        3.         5.        9.         12.        15.             7
FLD-DIST 18.        13.        10.       6.         3.         3.              8
DUR-FACTORPAST      10.67                                                        9
                    0.0   2.0   2.0  6.0   6.0   12.0  12.0  12.0                10
          JAN       5.         7.        8.         9.                         11
          FEB       7.         10.       11.        12.                        12
          MAR       12.        15.       17.        20.                        13
          APR       13.        17.       19.        21.                        14
          MAY       15.        21.       23.        25.                        15
          JUNE      17.        25.       26.        27.                        16
          JULY      12.        19.       21.        23.                        17
          AUG       8.         10.       14.        16.                        18
          SEPT      5.         7.        8.         9.                         19
          OCT       3.         5.        6.         7.                         20
          NOV       2.         4.        5.         6.                         21
          DEC       2.         4.        5.         6.                         22
END TABLE                                                                        23
DUR-FACTORSG        2.59                                                         24
                    0.0   2.0   2.0  6.0   6.0   12.0  12.0  12.0                25
          JAN       30.        42.       61.        65.                        26
          FEB       30.        42.       61.        65.                        27
          MAR       32.        45.       65.        70.                        28
          APR       32.        45.       65.        70.                        29
          MAY       35.        50.       70.        75.                        30
          JUNE      20.        25.       35.        40.                        31
          JULY      4.         5.        8.         10.                        32
          AUG       2.         4.        6.         8.                         33
          SEPT      40.        76.       84.        86.                        34
          OCT       35.        62.       69.        75.                        35
          NOV       30.        55.       64.        67.                        36
          DEC       28.        40.       59.        73.                        37
END TABLE                                                                        38
DUR-FACTORCOTT            0.63                                                   39
                    0.0   2.0   2.0  6.0   6.0   12.0  12.0  12.0                40
          JAN       11.        13.       14.        15.                        41
          FEB       16.        21.       26.        29.                        42
          MAR       25.        31.       36.        39.                        43
          APR       26.        36.       41.        43.                        44
          MAY       27.        44.       57.        59.                        45
          JUNE      39.        54.       66.        69.                        46
          JULY      41.        56.       69.        73.                        47
           AUG      36.        46.       61.        65.                        48
          SEPT      26.        31.       36.        39.                        49
          OCT       11.        13.       14.        15.                        50
1
```

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*********************80-80 Listing of Input Data*********************
12345678901234567890123456789012345678901234567890123456789012345678901234567890 Line No.

          NOV     5.      7.      8.      9.                                51
          DEC     5.      7.      8.      9.                                52
END TABLE                                                                   53
DUR-FACTORIDLE    0.0                                                       54
END TABLE                                                                   55
REACH     1   1   1       2                                                 56
END TABLE                                                                   57
LAND USE  1                                                                 58
                  COTT    36.     500.                                      59
                  PAST    30.     2.                                        60
                  SG      33.     18.                                       61
                  IDLE    1.      0.                                        62
END TABLE                                                                   63
REACH     2   1   3                                                         64
END TABLE                                                                   65
LAND USE  2                                                                 66
                  COTT    50.     500.                                      67
                  PAST    50.     2.                                        68
END TABLE                                                                   69
REDIRECT XSECTN   ALT-1                                                     70
2 XSECTN  1                                       ALT-1                     71
8                 2241.4  0.0     0.0     0.0     001     1                 72
8                 2244.2  202.4   77.91   0.      001     2                 73
8                 2245.4  506.    145.61  0.      001     3                 74
8                 2246.7  1012.   236.74  0.      001     4                 75
8                 2247.2  1349.33 275.84  0.      001     5                 76
8                 2248.2  2024.   369.55  11.45   001     6                 77
8                 2249.1  3036.   571.05  42.61   001     7                 78
8                 2250.4  5060.   1029.26 61.10   001     8                 79
8                 2252.3  10120.  1831.25 101.02  001     9                 80
8                 2254.4  20240.  4429.96 338.72  001     10                81
8                 2255.5  30360.  6347.92 367.49  001     11                82
8                 2257.4  50600.  9954.97 404.38  001     12                83
9 ENDTBL                                                                    84
2 XSECTN  2                                       ALT-1                     85
8                 2279.00 0.0     0.0     0.0     002     1                 86
8                 2282.01 200.52  90.14   0.      002     2                 87
8                 2282.2  242.61  100.72  0.      002     3                 88
8                 2283.37 501.29  207.57  21.71   002     4                 89
8                 2284.34 1002.59 518.27  91.4    002     5                 90
8                 2285.21 2005.18 1067.1  148.12  002     6                 91
8                 2285.73 3007.77 1480.58 166.03  002     7                 92
8                 2286.53 5012.95 2193.34 185.37  002     8                 93
8                 2287.88 10025.9 3603.37 232.01  002     9                 94
8                 2289.7  20051.8 5814.03 260.35  002     10                95
8                 2291.05 30077.7 7557.5  269.57  002     11                96
8                 2293.28 50129.5 10548.28 282.22 002     12                97
9 ENDTBL                                                                    98
2 XSECTN  3                                       ALT-1                     99
8                 2296.2  0.0     0.0     0.0     003     1                100
```

```
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*********************80-80 Listing of Input Data**********************
12345678901234567890123456789012345678901234567890123456789012345678901234567890 Line No.

8                   2302.06     196.26     79.88      0.         003  2                101
8                   2303.5      388.69     121.6      0.         003  3                102
8                   2304.26     490.66     157.26     5.43       003  4                103
8                   2306.11     981.32     304.97     15.47      003  5                104
8                   2307.95     1962.64    552.19     26.59      003  6                105
8                   2309.42     2943.97    848.49     82.87      003  7                106
8                   2310.76     4906.61    1912.68    190.43     003  8                107
8                   2312.23     9813.22    3518.37    249.59     003  9                108
8                   2314.21     19626.45   6455.02    342.18     003  10               109
8                   2315.41     29439.67   8567.64    363.8      003  11               110
8                   2317.28     49066.12   12040.85   388.58     003  12               111
9 ENDTBL                                                                               112
XSECTN    1    1    1                     2247.2                                       113
XSECTN    2    1    1                     2282.2                                       114
XSECTN    3    1    1                     2303.5                                       115
REDIRECT    FLOW-FREQ ALT-1                                                            116
FLOW-FREQ 1           18642.14 14779.66 10634.45 8015.84          5247.4    ALT 1  1   117
TIME-FLOW 1       2   10000.      9000.      8000.      6000.      5000.     ALT 1  2   118
TIME-FLOW 1       6   5000.       4500.      4000.      3000.      2700.     ALT 1  3   119
TIME-FLOW 1      12   2000.       1900.      1700.      1650.      1600.     ALT 1  4   120
FLOW-FREQ 1           2449.11  1412.57       428.5      187.07     0.        ALT 1  5   121
TIME-FLOW 1       2   2300.       1300.      400.       180.       0.        ALT 1  6   122
TIME-FLOW 1       6   2100.       1250.      350.       150.       0.        ALT 1  7   123
TIME-FLOW 1      12   1500.       1200.      200.       100.       0.        ALT 1  8   124
FLOW-FREQ 2           18719.6  14818.92   10696.75   8045.52    5263.71   ALT 1  9   125
TIME-FLOW 2       2   10000.      9100.      8010.      6010.      4800.     ALT 1 10   126
TIME-FLOW 2       6   5100.       4600.      4020.      3100.      2500.     ALT 1 11   127
TIME-FLOW 2      12   2100.       2000.      1700.      1600.      1500.     ALT 1 12   128
FLOW-FREQ 2           2449.3      1419.29    428.99     188.60     0.        ALT 1 13   129
TIME-FLOW 2       2   2000.       1300.      400.       100.       0.        ALT 1 14   130
TIME-FLOW 2       6   1500.       1260.      350.       50.        0.        ALT 1 15   131
TIME-FLOW 2      12   1400.       1180.      200.       40.        0.        ALT 1 16   132
FLOW-FREQ 3           18969.87    14991.08   10819.06   8125.45    5326.     ALT 1 17   133
TIME-FLOW 3       2   10100.      9200.      8040.      6050.      4810.     ALT 1 18   134
TIME-FLOW 3       6   5200.       4650.      4050.      3200.      2550.     ALT 1 19   135
TIME-FLOW 3      12   2200.       2050.      1750.      1690.      1510.     ALT 1 20   136
FLOW-FREQ 3           2478.99     1432.4     429.4      189.71     0.        ALT 1 21   137
TIME-FLOW 3       2   2010.       1310.      400.       100.       0.        ALT 1 22   138
TIME-FLOW 3       6   1500.       1275.      350.       50.        0.        ALT 1 23   139
TIME-FLOW 3      12   1440.       1200.      200.       40.        0.        ALT 1 24   140
                                                                                       141
GO,FREQ               1           2                                                    142
ALT-TITLE AFTON AREA W/S TEXAS WITH PROJECT STR 3, 10                                  143
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TITLE DURATION TEST WITH REDIRECT 2-7-90
ALT-TITLE AFTON AREA W/S TEXAS WITH PROJECT STR 3, 10

Cross Section 1

			Increment 1		Increment 2		Increment 3		Increment 4		Total Storm	
			.0	2.0	2.0	6.0	6.0	12.0	12.0	12.0		
	Freq	Depth	Acres	Damages	Acre	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	6.87	241	7648	50	2549	11	697	0	0	301	10894
Crop/Pasture	2.00	6.07	154	4910	47	2402	9	590	0	0	210	7901
Crop/Pasture	4.00	5.21	62	1961	45	2341	6	376	0	0	113	4677
Crop/Pasture	10.00	4.31	43	1364	36	1874	5	322	0	0	84	3560
Crop/Pasture	20.00	3.27	30	963	28	1442	4	269	0	0	62	2674
Crop/Pasture	50.00	1.38	11	342	11	578	3	162	0	0	24	1081
Crop/Pasture	100.00	.09	1	34	0	0	0	0	0	0	1	34
	200.00	No Floodwater Damage for Storm										
	300.00	No Floodwater Damage for Storm										

Avg. Ann. Acres Flooded	22.47	16.27	2.83	.00	41.56
Elevation Damage Begins		2247.20			
Flow(Discharge) Damage Begins		1349.33			
Percent Chance Flooding Begins		102.70			
Composite Acre Value		135.19			

Average Annual Damage for SECTION 1 is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value
Crop/Pasture	1730.41	1701.55	4.18
Other-Ag	.00	.00	
Non-Ag	.00	.00	
Non-Ag(Stage)	.00	.00	
Total	$ 1730.41	1701.55	

Avg. Ann. Computations

Storm	Crop/Pas	Other-Ag	Non-Ag	Non-Ag(Stage)
1.00	108.95	.00	.00	.00
2.00	93.98	.00	.00	.00
4.00	125.79	.00	.00	.00
10.00	247.15	.00	.00	.00
20.00	311.75	.00	.00	.00
50.00	563.40	.00	.00	.00
100.00	278.92	.00	.00	.00
102.70	.46	.00	.00	.00

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TITLE DURATION TEST WITH REDIRECT 2-7-90
ALT-TITLE AFTON AREA W/S TEXAS WITH PROJECT STR 3, 10

Cross Section 2

Total Storm			Increment 1		Increment 2		Increment 3		Increment 4			
			.0	2.0	2.0	6.0	6.0	12.0	12.0		12.0	
	Freq	Depth	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	7.26	70	2238	36	1873	150	9462	0	0	256	13572
Crop/Pasture	2.00	6.55	64	2040	34	1728	148	9337	0	0	245	13104
Crop/Pasture	4.00	5.80	58	1847	45	2314	131	8265	0	0	233	12425
Crop/Pasture	10.00	5.15	47	1483	42	2148	125	7907	0	0	213	11538
Crop/Pasture	20.00	4.40	31	977	37	1927	120	7550	0	0	187	10454
Crop/Pasture	50.00	3.24	37	1161	6	291	114	7193	0	0	156	8644
Crop/Pasture	100.00	2.50	9	286	5	233	101	6407	0	0	114	6926
Crop/Pasture	200.00	.84	7	211	9	464	0	0	0	0	15	674
	300.00	No Floodwater Damage for Storm										

Avg. Ann. Acres Flooded	41.06	26.76	165.25	.00	233.07
Elevation Damage Begins		2282.20			
Flow(Discharge) Damage Begins		242.61			
Percent Chance Flooding Begins		264.95			
Composite Acre Value		135.19			

Average Annual Damage for SECTION 2 is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value
Crop/Pasture	13120.08	11831.95	34.11
Other-Ag	.00	.00	
Non-Ag	.00	.00	
Non-Ag(Stage)	.00	.00	
Total	$ 13120.08	11831.95	

Avg. Ann. Computations

Storm	Crop/Pas	Other-Ag	Non-Ag	Non-Ag(Stage)
1.00	135.72	.00	.00	.00
2.00	133.38	.00	.00	.00
4.00	255.30	.00	.00	.00
10.00	718.94	.00	.00	.00
20.00	1099.65	.00	.00	.00
50.00	2864.79	.00	.00	.00
100.00	3892.69	.00	.00	.00
200.00	3800.48	.00	.00	.00
264.95	219.13	.00	.00	.00

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TITLE DURATION TEST WITH REDIRECT 2-7-90
ALT-TITLE AFTON AREA W/S TEXAS WITH PROJECT STR 3, 10

Reach 1

		Increment 1		Increment 2		Increment 3		Increment 4		Total Storm	
		.0	2.0	2.0	6.0	6.0	12.0	12.0	12.0		
	Freq	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	311	9885	85	4421	160	10159	0	0	557	24467
Crop/Pasture	2.00	218	6949	80	4129	157	9926	0	0	456	21006
Crop/Pasture	4.00	119	3807	90	4655	136	8640	0	0	347	17103
Crop/Pasture	10.00	89	2847	78	4022	130	8229	0	0	298	15099
Crop/Pasture	20.00	61	1940	65	3369	123	7818	0	0	250	13128
Crop/Pasture	50.00	47	1502	16	869	116	7354	0	0	180	9726
Crop/Pasture	100.00	10	320	4	233	101	6406	0	0	116	6960
Crop/Pasture	200.00	6	210	9	464	0	0	0	0	15	674
Crop/Pasture	300.00	0	0	0	0	0	0	0	0	0	0
Average Ann. Acres Flooded		63.52		43.03		168.08		.00		274.63	

Composite Acre Value= 135.19
Average Annual Damage for REACH 1 is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value
Crop/Pasture	14850.49	13533.50	17.95
Other-Ag	.00	.00	
Non-Ag	00	.00	
Non-Ag(Stage)	.00	.00	
Total	$ 14850.49	13533.50	

Avg. Ann. Computations

Storm	Crop/Past	Other-Ag	Non-Ag	Non-Ag(Stage)
1.00	244.67	.00	.00	.00
2.00	227.37	.00	.00	.00
4.00	381.09	.00	.00	.00
10.00	966.08	.00	.00	.00
20.00	1411.40	.00	.00	.00
50.00	3428.20	.00	.00	.00
100.00	4171.61	.00	.00	.00
200.00	3800.94	.00	.00	.00
300.00	219.13	.00	.00	.00

Benefits for Reach 1are $********** dollars. 1

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Rev 09/18/89 Page 8

TITLE DURATION TEST WITH REDIRECT 2-7-90
ALT-TITLE AFTON AREA W/S TEXAS WITH PROJECT STR 3, 10

Cross Section 3

			Increment 1		Increment 2		Increment 3		Increment 4		Total Storm	
			.0	2.0	2.0	6.0	6.0	12.0	12.0	12.0		
	Freq	Depth	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	10.58	142	5697	154	9901	40	3152	0	0	335	18750
Crop/Pasture	2.00	9.77	122	4897	145	9322	32	2478	0	0	298	16696
Crop/Pasture	4.00	8.93	116	4637	119	7682	24	1896	0	0	259	14215
Crop/Pasture	10.00	8.22	132	5308	73	4726	24	1843	0	0	229	11877
Crop/Pasture	20.00	7.39	135	5424	39	2499	21	1683	0	0	195	9605
Crop/Pasture	50.00	5.22	35	1398	1	44	21	1621	0	0	56	3062
Crop/Pasture	100.00	3.46	2	72	1	55	18	1407	0	0	20	1533
Crop/Pasture	200.00	.30	2	87	0	0	0	0	0	0	2	86
	300.00	NoFloodwater Damage for Storm										

Avg. Ann. Acres Flooded	62.69	23.79	29.94	.00	116.43
Elevation Damage Begins		2303.50			
Flow(Discharge) Damage Begins		388.69			
Percent Chance Flooding Begins		210.14			
Composite Acre Value		168.17			

Average Annual Damage for SECTION 3 is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value
Crop/Pasture	6394.84	6138.01	10.86
Other-Ag	.00	.00	
Non-Ag	.00	.00	
Non-Ag(Stage)	.00	.00	
Total	$ 6394.84	6138.01	

Avg. Ann. Computations

Storm	Crop/Pas	Other-Ag	Non-Ag	Non-Ag(Stage)
1.00	187.50	.00	.00	.00
2.00	177.23	.00	.00	.00
4.00	309.12	.00	.00	.00
10.00	782.78	.00	.00	.00
20.00	1074.17	.00	.00	.00
50.00	1900.26	.00	.00	.00
100.00	1149.06	.00	.00	.00
200.00	810.31	.00	.00	.00
210.14	4.41	.00	.00	.00 1

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Rev 09/18/89 Page 9

TITLE DURATION TEST WITH REDIRECT 2-7-90
ALT-TITLE AFTON AREA W/S TEXAS WITH PROJECT STR 3, 10

Reach 2

		Increment 1		Increment 2		Increment 3		Increment 4		Total Storm	
		.0	2.0	2.0	6.0	6.0	12.0	12.0	12.0		
	Freq	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	142	5696	153	9901	40	3152	0	0	335	18750
Crop/Pasture	2.00	122	4896	144	9321	31	2477	0	0	298	16696
Crop/Pasture	4.00	115	4636	119	7682	24	1896	0	0	259	14215
Crop/Pasture	10.00	132	5308	73	4726	23	1842	0	0	229	11877
Crop/Pasture	20.00	135	5423	38	2499	21	1682	0	0	195	9605
Crop/Pasture	50.00	34	1398	0	43	20	1620	0	0	56	3062
Crop/Pasture	100.00	1	71	0	54	17	1407	0	0	20	1533
Crop/Pasture	200.00	2	86	0	0	0	0	0	0	2	86
Crop/Pasture	300.00	0	0	0	0	0	0	0	0	0	0 0
Average Ann. Acres Flooded		62.69		23.79		29.94		.00		116.43	

Composite Acre Value= 168.17
Average Annual Damage for REACH 2 is:

	Unadjust	Adjust Recurrence	% of Comp. Acre Value	
Crop/Pasture	6394.84		6138.01	10.86
Other-Ag	.00		.00	
Non-Ag	.00		.00	
Non-Ag(Stage)	.00		.00	
Total	$ 6394.84		6138.01	

Avg. Ann. Computations

Storm	Crop/Past	Other-Ag	Non-Ag	Non-Ag(Stage)
1.00	187.50	.00	.00	.00
2.00	177.23	.00	.00	.00
4.00	309.12	.00	.00	.00
10.00	782.78	.00	.00	.00
20.00	1074.17	.00	.00	.00
50.00	1900.26	.00	.00	.00
100.00	1149.06	.00	.00	.00
200.00	810.31	.00	.00	.00
300.00	4.41	.00	.00	.00

Benefits for Reach 2 are $********** dollars. 1

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Rev 09/18/89 Page 10

TITLE DURATION TEST WITH REDIRECT 2-7-90
ALT-TITLE AFTON AREA W/S TEXAS WITH PROJECT STR 3, 10

Alternate 1

		Increment 1		Increment 2		Increment 3		Increment 4		Total Storm	
		.0	2.0	2.0	6.0	6.0	12.0	12.0	12.0		
	Freq	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages	Acres	Damages
Crop/Pasture	1.00	453	15582	239	14323	201	13312	0	0	893	43217
Crop/Pasture	2.00	340	11846	224	13451	188	12404	0	0	754	37702
Crop/Pasture	4.00	235	8444	209	12337	160	10536	0	0	606	31318
Crop/Pasture	10.00	221	8155	151	8749	153	10072	0	0	527	26977
Crop/Pasture	20.00	196	7364	104	5868	145	9501	0	0	445	22734
Crop/Pasture	50.00	82	2900	17	913	137	8974	0	0	236	12788
Crop/Pasture	100.00	11	392	5	287	119	7814	0	0	136	8493
Crop/Pasture	200.00	8	297	9	464	0	0	0	0	17	761
Crop/Pasture	300.00	0	0	0	0	0	0	0	0	0	0 0

Average Ann. Acres Flooded 126.22 66.82 198.02 .00 391.06
Total Average Annual Damage For Alternate 1

	Unadjust	Adjust Recurrence
Crop/Pasture	21245.33	19671.51
Other-Ag	.00	.00
Non-Ag	.00	.00
Non-Ag(Stage)	.00	.00
Total	$21245.33	19671.51

Avg. Ann. Computations

Storm	Crop/Past	Other-Ag	Non-Ag	Non-Ag(Stage)
1.00	432.18	.00	.00	.00
2.00	404.60	.00	.00	.00
4.00	690.21	.00	.00	.00
10.00	1748.87	.00	.00	.00
20.00	2485.57	.00	.00	.00
50.00	5328.46	.00	.00	.00
100.00	5320.66	.00	.00	.00
200.00	4611.25	.00	.00	.00
300.00	223.54	.00	.00	.00 1

```
ECON2 (PC Version)     Xeq 02/08/90          09:00:04
                       Rev 09/18/89                                                    Page 11
********************                80-80 Listing of Input Data                ********************
12345678901234567890123456789012345678901234567890123456789012345678901234567890 Line No.

END JOB                                                                                144
                                                                                       145
End of all Jobs in this  Run.
```

VII Blank Input Data Forms

The ECON2 input data forms are provided to organize your input data and represent the input format used by the program.

The purpose of these control formats is to insure that the input data, upon being keyed, is properly formatted within the input data records. For a discussion of the input data record formats refer to the "Description of Input Data for ECON2" section beginning on page 8. Also see the "Sample of input data for ECON2" beginning on page 23.

The forms are:

1) Watershed Information
2) Crop Damage Factors
3) Reach Data
4) Cross Section Data
5) Update Cross Section Data
6) Substitute Cross Section
7) Add Acres
8) Cross Section Stratification
9) Flow-Frequency Data
10) Flow-Frequency Substitute Cross-Section
11) Flow-Frequency and Time-Flow Data
12) Flow-Historical Data
13) Historical Storm Series
14) Executive Control
15) Redirect

Watershed Information

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word		Card Indentification
ECON2		

Control Word	Watershed Title Card	Card Indentification
TITLE		

Control Word		Card Indentification
PLOT		
NOPLOT		

Control Word											Card Indentification
		Percent of Duration Increment (feet)									
		From	To	From	To	From	To	From	To		
*DEP–INCT		0.0									

Control Word	Print out This Storm Only	Percent Chance of Floods (Largest Flood First) (Percent)					Card Indentification
		1 or 6	2 or 7	3 or 8	4 or 9	5 or 10	
PCT-CHANCE							
PCT-CHANCE							

Control Word	Seasional Distribution of Floods (percent)						Card Indentification
	1 or 7	2 or 8	3 or 9	4 or 10	5 or 11	6 or 12	
FLD-DIST							
FLD-DIST							

* DEP for Depth
DUR for Duration

Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

ATERSHED _____ TECHNICIAN _____ DATE _____

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word*	Crop Name		Crop Price (Dollars)								Control Ident.
–FACTOR											
* Columns 1–3 are: DEP for depth damage DUR for duration damage											
			Flood Stage (feet) 0r Duration Time								Control Ident.
			*								
	* For Depth ** For Duration		**								
Control Word	Season		Percent Damage Factor								Control Ident.
			1	2	3	4					
D TABLE											

Page _____ of _____

Reach Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Reach ID	Options * ** ***	Cross Section ID		Cross Section ID		Cross Section ID			Cross Section ID		Cross Section ID	Card Ident.
REACH													
END TABLE													

* Duration
** Detail Printout
*** Summary Printout

Control Word	Reach ID		Card Ident.
LAND USE			

Control Word		Crop Name		Crop Distribution (Percent)	Yield		Card Ident.
END TABLE							

Control Word	Reach ID		Damage Factors for Increment (Dollars)					Card Ident.
			1	2	3	4		
OTHER–AG								
NON–AG								

Page _____ of _____

Cross Section Data

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

ATERSHED _____ TECHNICIAN _____ DATE _____

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Cross Section ID	Options * ** ***				Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
SECTN								

* Detail Printout
* Summary Printout
* Update Header Card Only

	Elevation (Feet)	Discharge (cfs)	Cross Sectional Area (Sq Ft)	Acres Flooded or Floodplain Width	Stage Damage (Dollars)	Card Ident.
		0.0	0.0	0.0	0.0	
D TABLE						

Page _____ of _____

Update Cross Section Data
Update Header

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word		Cross Section ID	Options *	**	***		Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
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XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				

* Detail Printout
** Summary Printout
*** Update Header Card Only

Page _____ of _____

Substitute Cross Section

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

ERSHED _____ TECHNICIAN _____ DATE _____

3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

ontrol Word		Cross Section Name	Options *	**	***					Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
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CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
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CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					
CTN					1		USE XSECTN					

ail Printout
mary Printout
late Header Card Only

Page _____ of _____

Add Acres

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Cross Section ID		Acres		Card Ident.
ADD ACRES					
ADD ACRES					
ADD ACRES					
ADD ACRES					
ADD ACRES					
ADD ACRES					
ADD ACRES					
ADD ACRES					
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ADD ACRES					
ADD ACRES					
ADD ACRES					
ADD ACRES					
ADD ACRES					
ADD ACRES					
ADD ACRES					

Cross Section Stratification

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHED _____ TECHNICIAN _____ DATE _____

ol Word	Cross Section ID		Elevations Lower	Elevations Upper		Cross Section ID	Card Ident.
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			N XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			N XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			N XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		
XSECTN		EVAL AREA			IN XSECTN		

Flow–Frequency Data

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Cross Section ID		Discharge (cfs)					Card Ident.
			Q_1 or Q_6	Q_2 or Q_7	Q_3 or Q_8	Q_4 or Q_9	Q_5 or Q_{10}	
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
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FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								
FLOW-FREQ								

Flow–Frequency
Substitute Cross-Section

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHED _____ TECHNICIAN _____ DATE _____

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

trol Word	Cross Section ID				Cross Section ID		Card Ident.
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
V-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				
-FREQ			USE FLOW -FREQ				

Flow–Frequency and Time–Flow Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED ______________ TECHNICIAN ______________ DATE ______________

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Control Word	Cross Section ID		TIME	Discharge (cfs) Q_1 or Q_6	Q_2 or Q_7	Q_3 or Q_8	Q_4 or Q_9	Q_5 or Q_{10}	Card Ident.
FLOW-FREQ									
TIME-FLOW									
TIME-FLOW									
TIME-FLOW									
FLOW-FREQ									
TIME-FLOW									
TIME-FLOW									
TIME-FLOW									
FLOW-FREQ									
TIME-LOW									
TIME-FLOW									
TIME-FLOW									
FLOW-FREQ									
TIME-FLOW									
TIME-FLOW									
TIME-FLOW									
FLOW-FREQ									
TIME-FLOW									
TIME-FLOW									
TIME-FLOW									
FLOW-FREQ									
TIME-FLOW									
TIME-FLOW									
TIME-FLOW									
FLOW-FREQ									
TIME-FLOW									
TIME-FLOW									
TIME-FLOW									

Flow–Historical Data

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

ERSHED _____ TECHNICIAN _____ DATE _____

3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

ontrol Word	Cross Section ID		Peak/Inch Runoff (cfs)	Percent Control (Percent)	Principal Spliiway Flow (cfs)		Card Ident.
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							
OW-HIST							

Historical Storm Series

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word		Length of Series (Years)						Card Ident.
HISTORICAL								
	Storm Date	Storm Name		Season	Print Out This Storm Only	Compute Other–AG Non–AG	Runoff (Inches)	Percent of Total Principal Spillway Flow (Percent)
END TABLE								

Page _____ of _____

REDIRECT

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED ______________ TECHNICIAN ______________ DATE ______________

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Control Word				Card Indentification
REDIRECT				

Page ______ of ______

Cross Section Data

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Cross Section ID	Options * ** ***				Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
XSECTN								

* Detail Printout
** Summary Printout
*** Update Header Card Only

	Elevation (Feet)	Discharge (cfs)	Cross Sectional Area (Sq Ft)	Acres Flooded or Floodplain Width	Stage Damage (Dollars)	Card Ident.
		0.0	0.0	0.0	0.0	
END TABLE						

Page _____ of _____

Crop Damage Factors

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word*	Crop Name		Crop Price (Dollars)							Control Ident.
–FACTOR										
* Columns 1–3 are: DEP for depth damage DUR for duration damage										
			Flood Stage (feet) Or Duration Time							Control Ident.
			*							
	* For Depth ** For Duration		**							

Control Word	Season	Percent Damage Factor					Control Ident.
		1	2	3	4		
END TABLE							

Page _____ of _____

Update Cross Section Data
Update Header

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word		Cross Section ID	Options *	**	***		Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				
XSECTN					1				

* Detail Printout
** Summary Printout
*** Update Header Card Only

Page _____ of _____

Substitute Cross Section

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word		Cross Section Name	Options *		**	***					Elev. Damage Begins (Ft)	Ratio FP Area/Width	Card Ident.
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					
XSECTN						1		USE XSECTN					

* Detail Printout
** Summary Printout
*** Update Header Card Only

Cross Section Stratification

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Cross Section ID		Elevations			Cross Section ID	Card Ident.
			Lower		Upper		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			N XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			N XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			N XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		
FOR XSECTN		EVAL AREA			IN XSECTN		

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US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Flow–Frequency
Substitute Cross-Section

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Cross Section ID				Cross Section ID		Card Ident.
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				
FLOW-FREQ			USE FLOW -FREQ				

Page _____ of _____

Executive Control

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATERSHED _____ TECHNICIAN _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word		Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Cross Section ID		Card Ident.
IGNORE												
IGNORE												
IGNORE												
DELETE												
DELETE												
DELETE												

Control Word		Card Ident.
COMMENT		
COMMENT		
COMMENT		

Control Word		Compute				Card Ident.
		From Reach		Thru Reach		
GO,FREQ						
ALT-TITLE						
GO,HIST						
ALT-TITLE						
CONTINUE						
CONTINUE						
CONTINUE						
END JOB						