INTRODUCTION

The RGM HEC 2000 program provides an interactive graphical user interface to the Army Corps of Engineers HEC-1 computer program. The program operates in a Windows™ environment and uses familiar menus, controls and procedures.

The program was written to benefit engineers, hydrologists and students by maintaining the classic features of HEC-1 and providing a user-friendly environment that is compatible with Microsoft Windows. For example, various types of data from RGM HEC 2000 can be copied across applications, such as Excel or Word using the clipboard. Also, graphs produced by the program are presented in a standard graphical format for use in other software, such as word processors.

The software presumes the user has a working knowledge of HEC-1 though the software product is also intended to assist in the education of the user.

The HEC-1 program is distributed herein, in conformance with the Army Corps of Engineers stipulations that permits unlimited distribution. All of the files that are necessary to operate the program are shipped with the RGM HEC 2000 software package.

INSTALLING RGM HEC 2000

The program is installed from the Install CD by executing the Setup.exe file in the root directory. The installation instructions are presented in successive screens and are self-explanatory.

The project files may be set up in separate directories to maintain good file housekeeping. RGM HEC 2000 will operate on the project files from its own application directory.

Each INSTALL CD is coded by Version Number and a unique Serial Number. These numbers can be recalled during program operation using the About Menu.

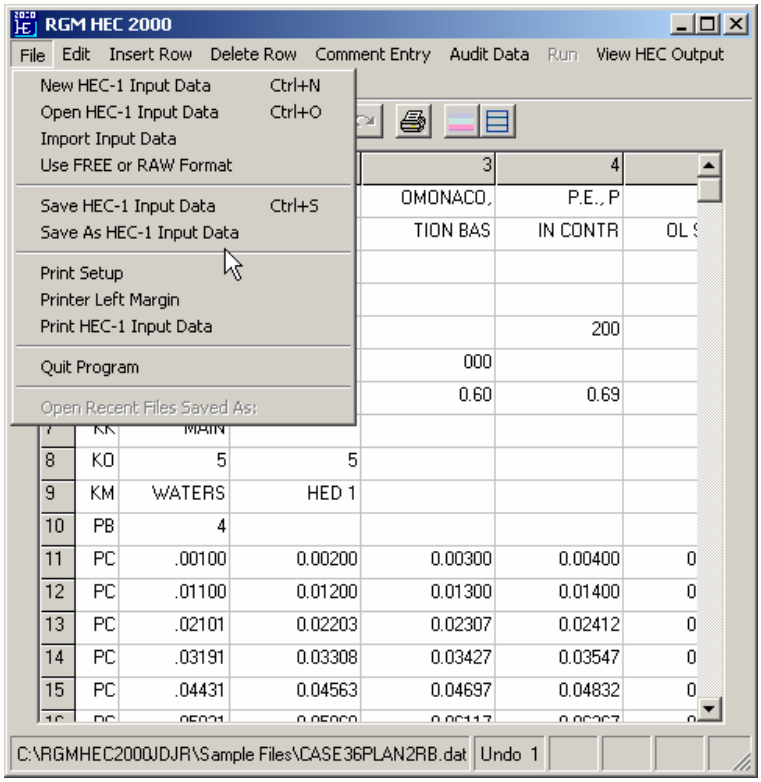
Executing the program file RGMHEC2000.exe or the shortcut starts the program with the start-up information screen. Click the screen to proceed.

AUTHORIZING RGM HEC 2000

Upon first installation the authorization screen will appear. The user must provide a name and the authorization code as found on the CD packaging. The user name and serial number are identified with one computer user and, in that context, the program will operate without interruption.

PROGRAM OPERATION

OPEN an Existing HEC-1 Input File



Use **FILE, OPEN**, and then browse for the appropriate file name. For convenience, some standard HEC-1 sample files are provided on the Install CD.

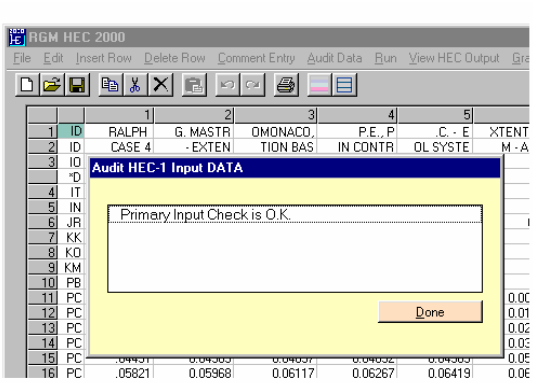
If any files appear in the list at FILE, Open Recent Files Saved As: a file can be opened by clicking the file reference.

The HEC-1 input file is in text format using Fortran type columns. RGM HEC 2000 simplifies data entry using a specialized spreadsheet designed specifically for HEC-1 input.

Create a NEW Input File

Data may be entered directly into the spreadsheet. Navigation Keys are available to speed data entry. The descriptions of the specialized features of the spreadsheet are provided later in this document.

Auditing the Input Data



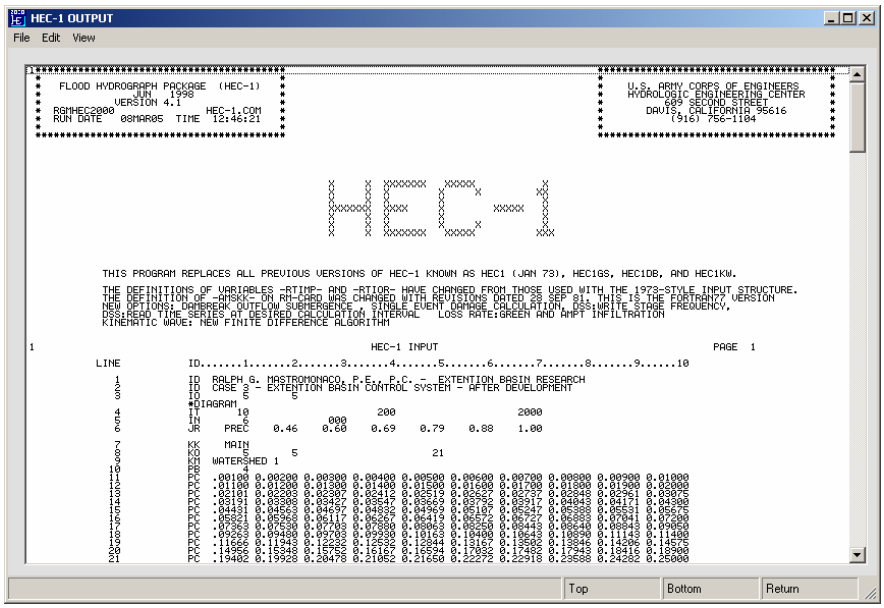
RGM HEC 2000 provides a simple error checker using the AUDIT DATA menu. This routine checks for obvious errors in your data, such as too many characters in a column, or lack of the ZZ card, to name two. The error(s), if any, are reported in a message box.

Run HEC-1

HEC-1 is accessed using the RUN menu. Depending on the computer speed, the results are available almost instantaneously.

The results of a HEC-1 run may be viewed in RGM HEC 2000 in several ways, as follows:

Viewing the HEC-1 Output File



The output of HEC-1 is a text file that may be read directly by RGM HEC 2000 using the VIEW HEC-1 OUTPUT menu. The program knows to read the latest HEC-1 output file.

There are screen action buttons that allow the user to navigate quickly to the bottom and top of the file as well as a right-button menu with the same features. Left printing margins may be set in the File Menu of the main screen and other margins settings are available in the HEC-1 Output File menu.

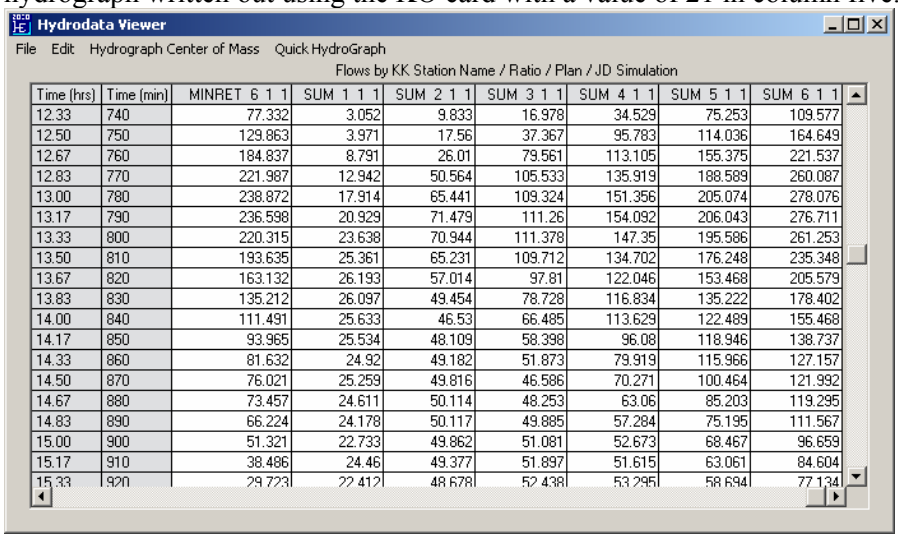
Data from the output file may be copied for use in another program, or the text output may be saved or printed in whole or in multiple selections. A Zoom feature is also provided since fonts are generally small to fit on a standard page width. In Zoom mode a horizontal scroll bar facilitates viewing.

Viewing Tabular Hydrograph Data

To request specific hydrographs be output from HEC-1, the user must provide a KO card with the value 21 in the five column. The KO card is typically entered after the KK card, and RGM HEC 2000 provides automation for this in the TOOLS menu.

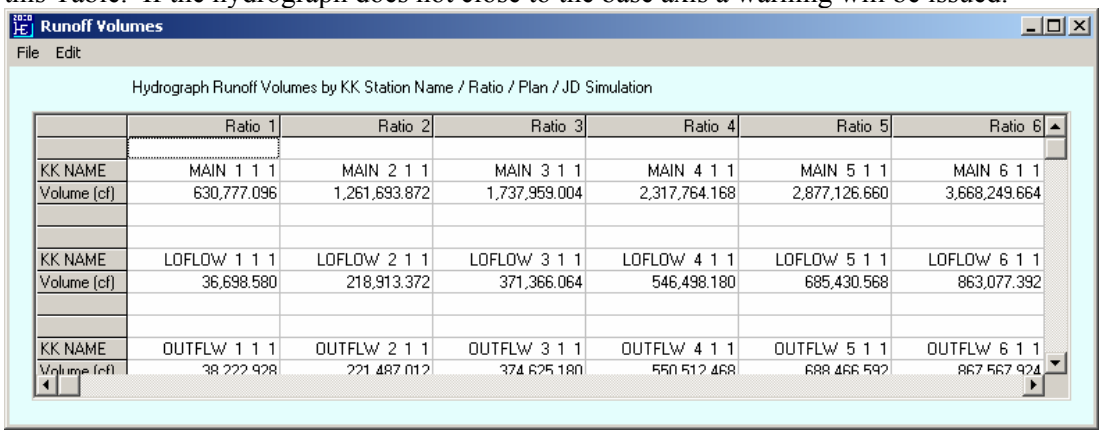
When the program has RUN, and after the GRAPH DATA menu -- then GRAPH menu have been accessed, the user may view tabular hydrograph data in three formats:

Hydrodata - shows three decimal hydrograph ordinates for the runoff duration for each hydrograph written out using the KO card with a value of 21 in column five.



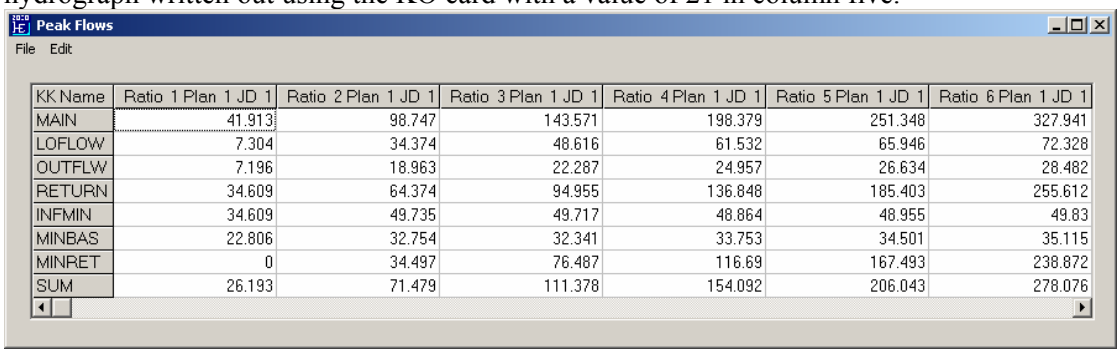
Time (hrs)	Time (min)	MINRET 6 1 1	SUM 1 1 1	SUM 2 1 1	SUM 3 1 1	SUM 4 1 1	SUM 5 1 1	SUM 6 1 1
12.33	740	77.332	3.052	9.833	16.978	34.529	75.253	109.577
12.50	750	129.863	3.971	17.56	37.367	95.783	114.036	164.649
12.67	760	184.837	8.791	26.01	79.561	113.105	155.375	221.537
12.83	770	221.987	12.942	50.564	105.533	135.919	188.589	260.087
13.00	780	238.872	17.914	65.441	109.324	151.356	205.074	278.076
13.17	790	236.598	20.929	71.479	111.26	154.092	206.043	276.711
13.33	800	220.315	23.638	70.944	111.378	147.35	195.586	261.253
13.50	810	193.635	25.361	65.231	109.712	134.702	176.248	235.348
13.67	820	163.132	26.193	57.014	97.81	122.046	153.468	205.579
13.83	830	135.212	26.097	49.454	78.728	116.834	135.222	178.402
14.00	840	111.491	25.633	46.53	66.485	113.629	122.489	155.468
14.17	850	93.965	25.534	48.109	58.398	96.08	118.946	138.737
14.33	860	81.632	24.92	49.182	51.873	79.919	115.966	127.157
14.50	870	76.021	25.259	49.816	46.586	70.271	100.464	121.992
14.67	880	73.457	24.611	50.114	48.253	63.06	85.203	119.295
14.83	890	66.224	24.178	50.117	49.885	57.284	75.195	111.567
15.00	900	51.321	22.733	49.862	51.081	52.673	68.467	96.659
15.17	910	38.486	24.46	49.377	51.897	51.615	63.061	84.604
15.33	920	29.723	22.412	48.678	52.438	53.295	58.694	77.134

Runoff Volumes – the runoff volume of each hydrograph, obtained by directly computing the hydrograph area is written out using the KO card with a value of 21 in column 5 is presented on this Table. If the hydrograph does not close to the base axis a warning will be issued.



	Ratio 1	Ratio 2	Ratio 3	Ratio 4	Ratio 5	Ratio 6
KK NAME	MAIN 1 1 1	MAIN 2 1 1	MAIN 3 1 1	MAIN 4 1 1	MAIN 5 1 1	MAIN 6 1 1
Volume (cf)	630,777.096	1,261,693.872	1,737,959.004	2,317,764.168	2,877,126.660	3,668,249.664
KK NAME	LOFLOW 1 1 1	LOFLOW 2 1 1	LOFLOW 3 1 1	LOFLOW 4 1 1	LOFLOW 5 1 1	LOFLOW 6 1 1
Volume (cf)	36,698.580	218,913.372	371,366.064	546,498.180	685,430.568	863,077.392
KK NAME	OUTFLW 1 1 1	OUTFLW 2 1 1	OUTFLW 3 1 1	OUTFLW 4 1 1	OUTFLW 5 1 1	OUTFLW 6 1 1
Volume (cf)	38,222.928	221,487.012	374,625.180	550,512.468	688,466.592	867,567.924

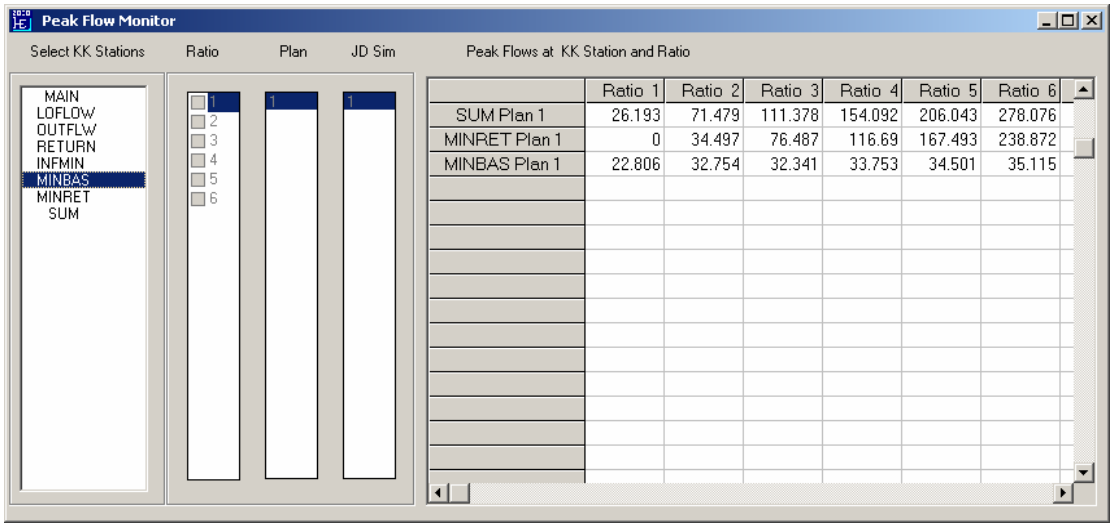
Tabular Peak Flows - a table of the peak hydrograph flows versus the KK station for each hydrograph written out using the KO card with a value of 21 in column five.



KK Name	Ratio 1 Plan 1 JD 1	Ratio 2 Plan 1 JD 1	Ratio 3 Plan 1 JD 1	Ratio 4 Plan 1 JD 1	Ratio 5 Plan 1 JD 1	Ratio 6 Plan 1 JD 1
MAIN	41.913	98.747	143.571	198.379	251.348	327.941
LOFLOW	7.304	34.374	48.616	61.532	65.946	72.328
OUTFLW	7.196	18.963	22.287	24.957	26.634	28.482
RETURN	34.609	64.374	94.955	136.848	185.403	255.612
INFMIN	34.609	49.735	49.717	48.864	48.955	49.83
MINBAS	22.806	32.754	32.341	33.753	34.501	35.115
MINRET	0	34.497	76.487	116.69	167.493	238.872
SUM	26.193	71.479	111.378	154.092	206.043	278.076

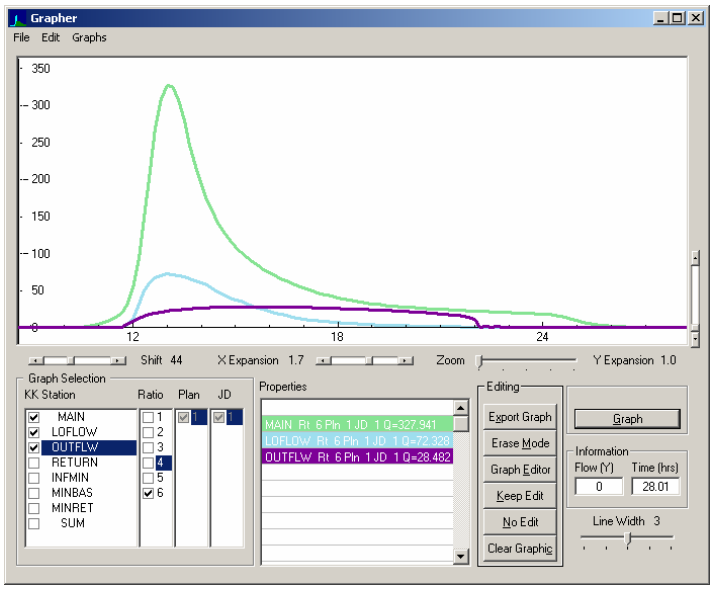
Peak Flow Monitor

The user may select the station and the peak flow values are updated auomatically for the selected station each time HEC-1 is Run.



	Ratio 1	Ratio 2	Ratio 3	Ratio 4	Ratio 5	Ratio 6
SUM Plan 1	26.193	71.479	111.378	154.092	206.043	278.076
MINRET Plan 1	0	34.497	76.487	116.69	167.493	238.872
MINBAS Plan 1	22.806	32.754	32.341	33.753	34.501	35.115

Viewing Hydrographs Graphically



RGM HEC 2000 contains a powerful yet simple graphing routine to allow the user to visualize hydrographs easily with a minimum of user intervention. The hydrographs that are written out are identified by inserting a KO card (with a value of 21 in column 5) after the KK card of the requested station.

To view the hydrographs access the GRAPH DATA menu then GRAPH menu. Select the KK station and Plan. Use the GRAPH menu or GRAPH button and the hydrograph will be displayed.

RGM HEC 2000 selects differing colors each time the screen is redrawn. This feature is provided to assist the user in distinguishing lines on computer monitors. Selecting the GRAPH button additional times will reset to a new palette of colors each time.

Scaling Graphs

There are four (4) sliders to adjust the plot. One may use the Y Expansion scroller along the right side, the X Expansion or the Pan Shift scroller interactively until a good representation of the plot is found. The values near each slider provide a numerical reference of the relative scales.

The Zoom slider widens the plot in increments and centers the plot.

The vertical scale tick marks are automatically adjusted by the Graph routine.

In addition, one may determine roughly the hydrograph values on the plot using the mouse. The Y value (usually cfs) and the Time value are shown on the Information screen as the mouse is moved.

Graphs may be enlarged by resizing the window, creating a higher resolution image for export.

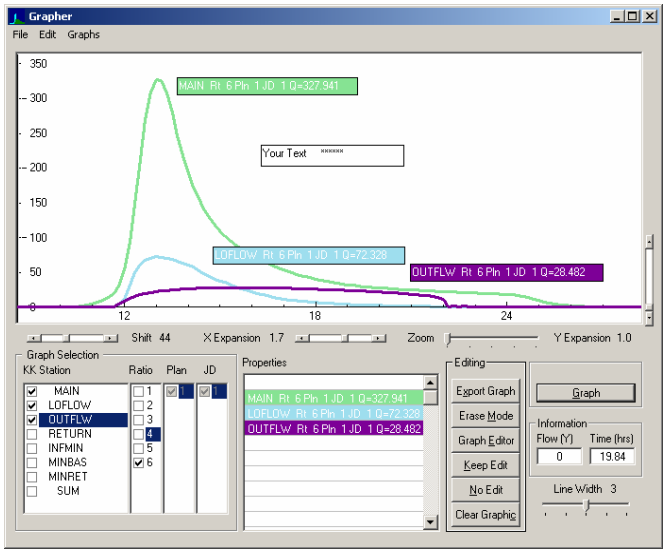
Graph Line Width

Adjust the graphs line width using the slider. The graph will redraw on each change.

Editing the Graphs

There are four methods provided to edit the plotted hydrographs.

On-the-Fly Annotation – Left button click and select a hydrograph in the Properties list box. Right-click and drag the text box to a point on the graphing screen. Continue moving the text line using the right mouse button. Double click to "set" the text box on the screen.



Text Mode - Click the empty top line of Properties list and a user text box can be dragged to the screen. Enter text directly in the box or move with a right mouse button to another part of the screen. Final set the text by Double-Clicking the Text Box.

Erase Mode - Click the ERASE MODE button and window a portion of the screen to erase.

Graph Editor - The RGM HEC 2000 program ships with a copy of Windows paint, which is actually provided by windows to all users as a part of the operation system. Click the GRAPH EDITOR button and the hydrograph screen will be presented in Windows Paint for editing. Consult the Windows manual for instructions on the use of MSPaint, however, it is a fairly straightforward program that can be operated using the toolbars and menus. Graphs can be saved during this procedure as well as from the EXPORT GRAPH button. Any registered Windows graph editor will work though it must be OLE compatible (Windows style programs). Apple Quick Time will stall as it is not OLE compliant.

When editing is complete the user can click the FILE, EXIT AND RETURN menus to return to RGM HEC 2000. You are then asked if you want to keep the edit or discard the edit and return to the previous view. Click NO EDIT if you want to discard the changes and click KEEP EDIT if you want to keep the edited version.

Clear Graphic - clears the current screen including any floating text box labels. Generally, you can restore a cleared graphic by clicking KEEP EDIT after the GRAPH EDITOR. Of course, one can redraw the selected graphs by merely clicking GRAPH as many times as needed to achieve the desired color palette.

File operations of the Graph Routine

There are three file operations in the Graph routine.

Exporting or Saving a Graph - use EXPORT GRAPH to save the graph to a disk file. The graph is saved in Windows BMP format in the directory selected. Floating labels must be "set" before an export will proceed.

Saving a KK/Plan Scheme - occasionally the user has developed a group of hydrographs that may need to be saved as a set for future use. Click FILE, SAVE KK/PLAN SCHEME to save the set of KK stations and Plans that are currently checked.

Loading a KK/Plan Scheme - The saved set or schemes can be retrieved using menus FILE, LOAD KK/PLAN SCHEME.

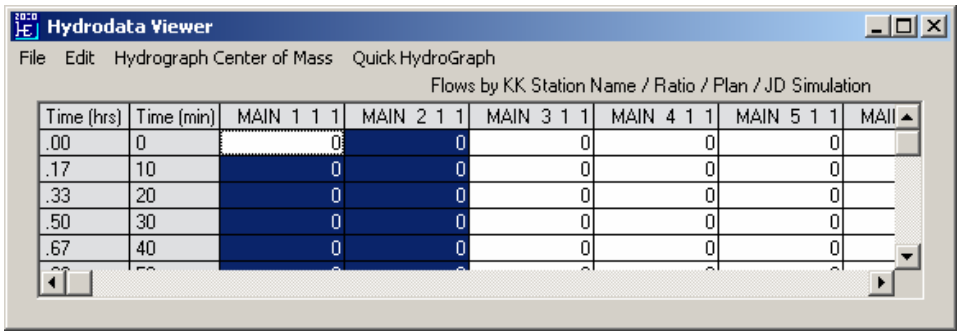
RETURN to the Main screen to continue, or to revise data for another run.

Using the Graph Data

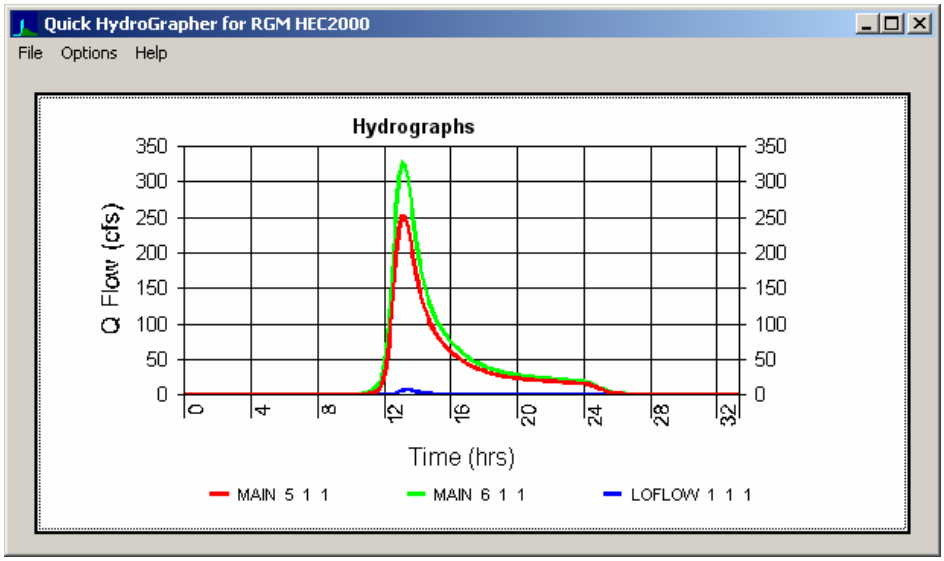
RGM HEC 2000 provides a number of useful routines that evaluate the data produced by HEC-1.

Quick Hydrographs

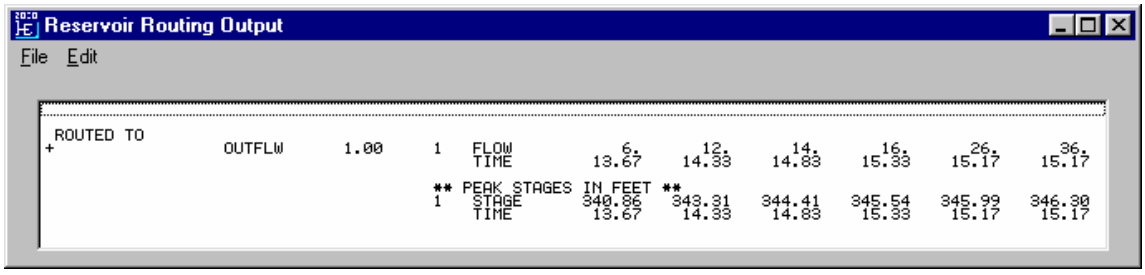
From the Graph Data / Hydrodata (All) / Quick Hydrograph Menus – simple graphs can be plotted using areas selected from the Hydrodata spreadsheet. These graphs may be edited for format by stretching or dragging various elements. These graphs may be exported and pasted into other applications.



Time (hrs)	Time (min)	MAIN 1 1 1	MAIN 2 1 1	MAIN 3 1 1	MAIN 4 1 1	MAIN 5 1 1	MAI
.00	0	0	0	0	0	0	
.17	10	0	0	0	0	0	
.33	20	0	0	0	0	0	
.50	30	0	0	0	0	0	
.67	40	0	0	0	0	0	



RESERVOIR ROUTING OUTPUT



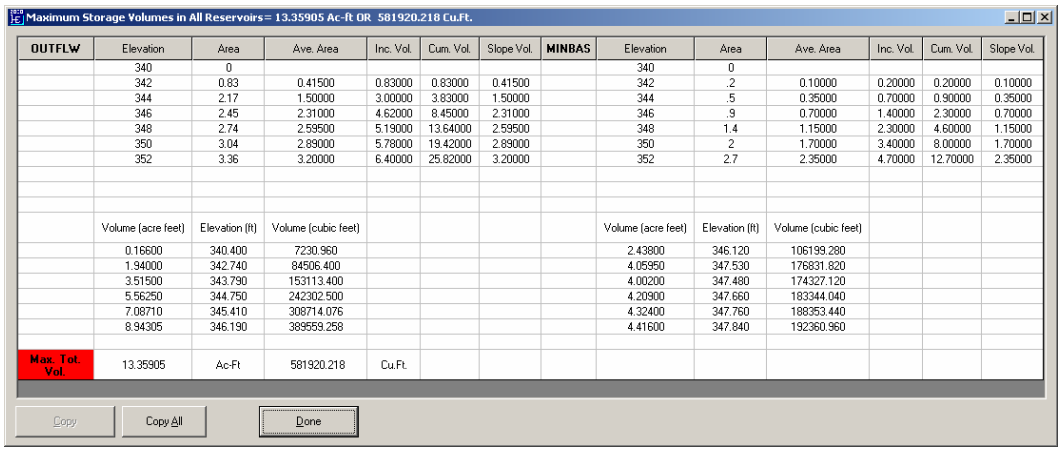
This routine can be used to review all hydraulic routings produced by HEC-1. For example, if there are detention basins in the output, one can review the HEC-1 output screen and scroll to the position of the sought routing. However, the Reservoir Routing Output condenses the output information into one screen. This feature can be used when iterating to a specific flood stage elevation or outflow.

When HEC-1 is run again the output screen is updated, when activated, with the new data.

This form may be kept on top of other windows or returned to a normal position by selecting the appropriate menu.

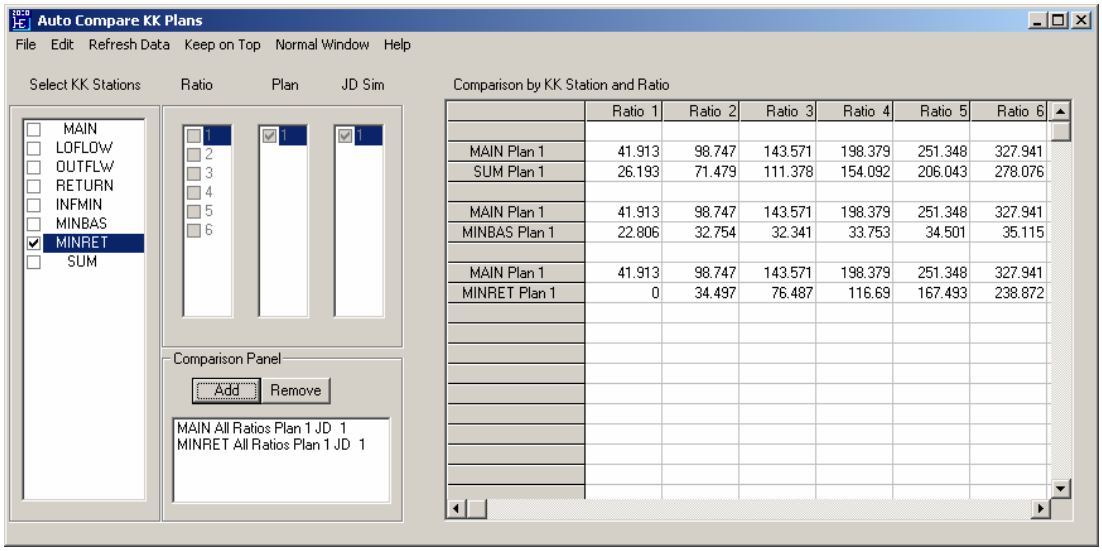
RESERVOIR STORAGE VOLUMES

This routine provides storage data for each stage when the SA SE Card sequence is used in the input data file. It also provides a total of the maximum storage for each routing station.



AUTO COMPARE KK PLANS

Use this feature to compare sets of KK stations. Click the first Station and it will appear on the mid-screen, then click another KK station and it will appear and be compared. If the second line value is greater than the first line value, it will be highlighted. This feature is useful when iterating to a solution between two stations where the second line values of flow must be less than or equal to the first line values, as is often the goal in storm water management when comparing existing and proposed cases.



Click on the Compared pane and the pane will be cleared. Refresh data if necessary. The user may copy data to the Clipboard during this routine, for use in other applications.

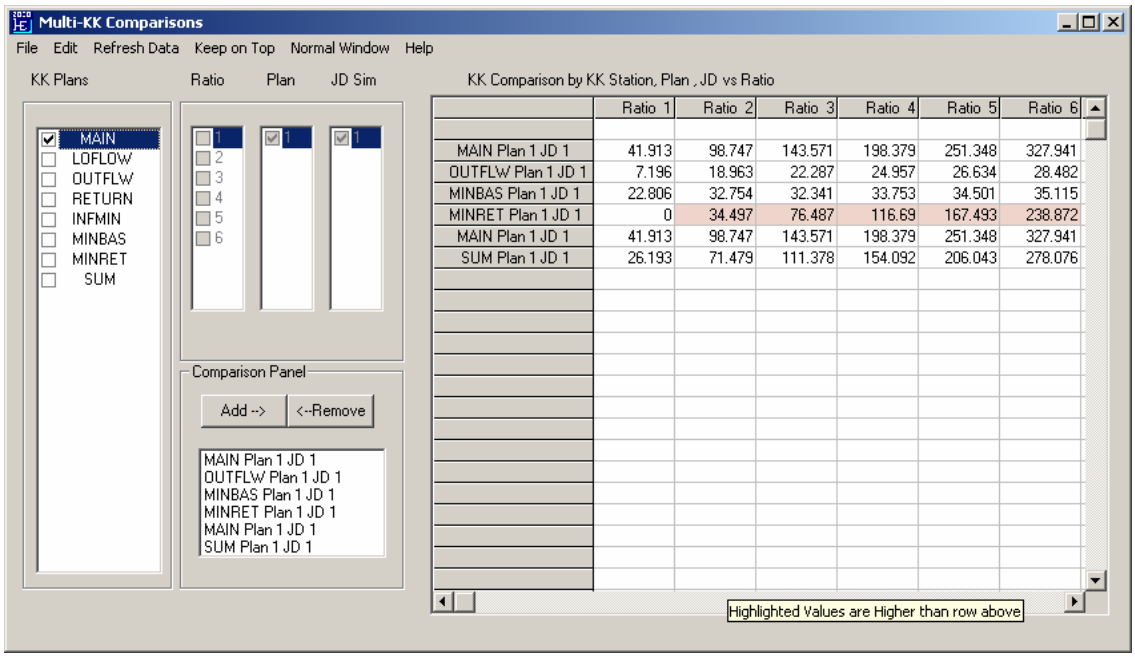
When HEC-1 is run again the screen is updated, when activated, with the new data.

This form may be kept on top of other windows or returned to a normal position by selecting the appropriate menu.

Link Peak File – To extend the ability to compare peak flows, one may Link the chart to data from earlier runs that have been saved (PEK extension) in the Tabular Peak Flow (GRAPH) routine. The linked files are maintained until the AUTO COMPARE KK PLANS routine is ended in any session.

MULTI- KK COMPARE

A series of KK comparison sets can be listed from the left pane. If the second line value is greater than the first line value, it will be highlighted. Item pairs can be removed or added one KK station at a time using the ADD and REMOVE buttons.



	Ratio 1	Ratio 2	Ratio 3	Ratio 4	Ratio 5	Ratio 6
MAIN Plan 1 JD 1	41.913	98.747	143.571	198.379	251.348	327.941
OUTFLW Plan 1 JD 1	7.196	18.963	22.287	24.957	26.634	28.482
MINBAS Plan 1 JD 1	22.806	32.754	32.341	33.753	34.501	35.115
MINRET Plan 1 JD 1	0	34.497	76.487	116.69	167.493	238.872
MAIN Plan 1 JD 1	41.913	98.747	143.571	198.379	251.348	327.941
SUM Plan 1 JD 1	26.193	71.479	111.378	154.092	206.043	278.076

When HEC-1 is run again the screen is updated, when activated, with the new data.

This form may be kept on top of other windows or returned to a normal position by selecting the appropriate menu.

Link Peak File – To extend the ability to compare peak flows over several design points, one may Link the chart to data from earlier runs that have been saved (PEK extension) in the Tabular Peak Flow (GRAPH) routine. The linked files are maintained until the MULTI KK COMPARE routine is ended in any session. However, the KK comparison List may be saved for future use, and the Linked file will be saved also. The comparison List will be rebuilt on loading the KK comparison List.

PRINTING GRAPHS

Graphs may be printed in three ways:

Simple Print Graph located in the File menu in the Graph Program; permits basic printing to the default printer or selected printer and allows adjustment of the margins, and control over landscape and portrait style. Floating labels must be "set" by double clicking before printing can proceed.

Graph Editor; the users default graph editor (e.g. MS PAINT) can be accessed by the Graph Editor in the Graph Routine.

Export Graph, can be used to save the graph to a disk file for later printing by appropriate software, or inclusion as a picture file in other applications. Floating labels must be "set" to proceed.

Opening Files

FILE, OPEN will open a standard HEC-1 input file in column format.

Drag a file, will **OPEN** the file dragged to the main screen from another Windows application such as Explorer.

FILE, IMPORT INPUT DATA - allows the opening of another HEC-1 input file to examine or copy data.

FILE, USE FREE OR RAW DATA - allows user to open and convert a HEC-1 File that was written in free format (*FREE card was used in the file). RAW input is plain text data that one wishes to convert to HEC-1 Format.

The Free Format screen is used to enter data in free format, OPEN or PASTE a file. From the menu, CONVERT to FIXED FORMAT and review whether the convert worked sufficiently. A properly formatted HEC-1 File in FREE format should convert correctly. If there are extra spaces, tabs or commas in the FREE or RAW file, these can be removed and adjusted in the Free Format screen, then convert again. One may Save or Copy the File from the Free Format Input Screen that shows after CONVERT is pressed.

FILE, Open Recent Files Saved As: - select the file and it will be opened.

Saving Files

FILE, SAVE - saves the HEC-1 input file

FILE, SAVE AS - saves the HEC-1 input file and records the data and time in the recent file list.

Quitting the Program

FILE, QUIT PROGRAM ends the RGM HEC 2000 program and returns the user to Windows™. Appropriate screen safeguards are built in to prevent the accidental loss of data.

The Data Entry Spreadsheet

There are various features of the active spreadsheet that assist the user in important ways. These are enumerated as follows:

Cell Color Modes

Cell Color indicates five modes - the user cannot change these colors:

> **Light Blue** - spreadsheet editing has not yet been started.
>
> **Blue** - Quiet Mode: cell editing is not being performed. Use the TAB key toggle-editing mode.
>
> **Pink** - Edit Mode: indication that an individual cell can be edited. This is the normal mode. Use the TAB key to toggle to quiet mode.
>
> **White** - Inactive Mode: group cell selection can begin on a white cell (or a cell already selected).
>
> **Yellow** - Cell Alert Mode: indicates there are too many characters in the specific cell of a column in violation of the HEC-1 standard. Remove characters in the cell to return to editing mode.

Spreadsheet Editing

Editing Comment Card (KM), ID cards, KK cards, "*" Cards - use COMMENT ENTRY or double click the left, fixed column to enter the comment card edit mode. The Edit Comments screen will appear and allow a more convenient form of text entry than entering data field by field. The user can hit ENTER or SAVE AND EXIT to save the editing line. Use ESC key to exit, or the CANCEL EDIT button.

Editing Cell Text - click into any cell to edit cell text. Editing is complete when the active cell is changed by; arrow keys, mouse moves or ENTERS. Cell editing features are available also on the right mouse button.

For the users convenience, the comment card editor will not edit the station name of the KK card, only the columns beyond that provide descriptive or comment type data.

INSERT ROW inserts a row above the current cursor position.

DELETE ROW deletes the row of the active cell.

DELETE LINES - from the RIGHT BUTTON, DELETE LINES menu or the EDIT, DELETE LINES menu deletes a selection of lines.

EDIT UNDO / REDO – unlimited levels of undo are available. The REDO command will bring the screen back to the last undo one time only. A record of the Undo level is presented on the status bar. A value of 1 indicates the system has undone all edits.

EDIT, COPY will copy a selection.

EDIT, CUT will erase or cut out a selection.

EDIT, PASTE ABOVE / INSERT LINES will insert the number of cells necessary to paste the clipboard to the spreadsheet starting at the active cell position.

EDIT, AREA PASTE OVER will overlay the clipboard contents starting at the active cell position, replacing the current contents of the cells with the pasted data.

EDIT, CLEAR CONTENTS is similar to EDIT, CUT except that the contents are not entered into the Clipboard. It is possible to use UNDO to retrieve data erased by CLEAR CONTENTS.

Spreadsheet Speed Keys

Most commands may be accessed by speed keys using the ALT key or CTRL key.

Use the ALT key and the underlined letter of the respective command to access commands located in the top menu of each screen.

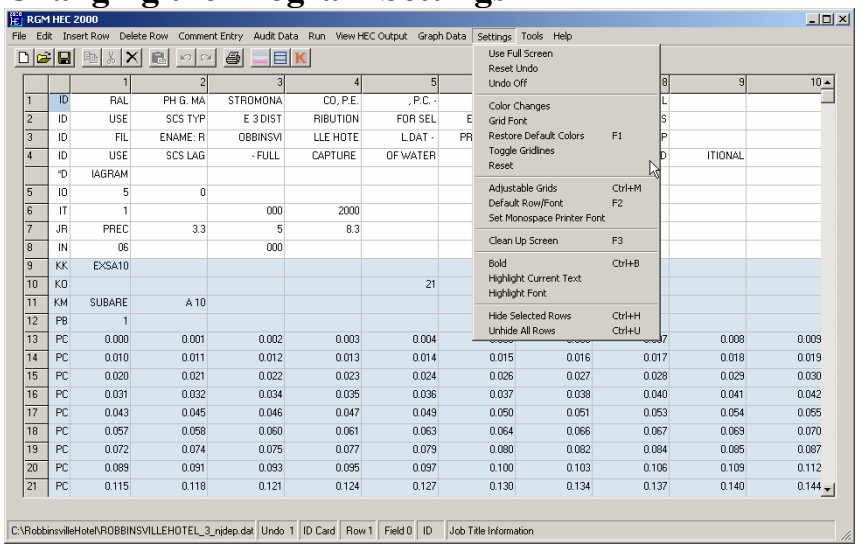
Speed Keys

File Operations	
Start a New HEC-1 File	CTRL N
Open a HEC-1 Input File	CTRL O
Save a HEC-1 Input File	CTRL S
Editing	
Copy	CTRL C
Cut	CTRL X
Paste Above / Insert Lines	CTRL P
Area Paste Over	CTRL V
Clear Contents	CTRL L
Delete Lines	CTRL D
Find and Replace	CTRL R
UNDO Edit	CTRL Z
REDO	CTRL A
UNDO to Last Run File	CTRL W

Settings	
Restore Default Colors	F1
Adjustable Grids	CTRL M
Unhide All ROWS	CTRL U
Default Row/Font	F2
Bold	CTRL B
Hide Selected Rows	CTRL H
Tools	
Identify KK Cards	CTRL K
Identify Cards	CTRL Q
Identify KK groups	CTRL I
Trim to ZZ card	CTRL T
Add KO Print Card	CTRL J
Fit Rows and Columns	CTRL F
Create SCS Watershed	SHFT F1
Create Storage Basin	SHFT F2

Navigation Keys	
HOME	Beginning of Row
CTRL HOME	Start of Page
END	End of Row
CTRL END	End of Page
PGUP	Up 10 Lines
PGDOWN	Down 10 Lines
CTRL PGUP	Top of Page
CTRL PGDOWN	Bottom of Page
ENTER	Right
ARROWS	As Indicated

Changing the Program Settings



SETTINGS, USE FULL SCREEN - major program screens will operate at full screen rather than as a window. Operation will return to windowed screens if unchecked

SETTINGS, RESET UNDO – when the UNDO memory becomes large, the user may recover that memory by discarding past UNDO levels. A warning screen provides the ser with the memory used by UNDO. By resetting UNDO, the user will no longer be able to UNDO back to earlier screens.

SETTINGS, UNDO OFF – using this feature will turn off the undo system and will result in faster operation, especially on very long HEC-1 input files.

SETTINGS, COLOR CHANGES - allows the user to set some of the default colors of RGM HEC 2000. The settings are not saved between each use. Click on the item in the Color Edit pane and a color edit screen will provide a color selection screen.

SETTINGS, GRID FONT – allow or changes the setting of the font used on the Spreadsheet.

SETTINGS, RESTORE COLOR - returns the color changes made to the default.

SETTINGS, TOGGLE GRIDLINES - turns the gridlines on or off.

SETTINGS, RESET - resets the cursor to the top and clears memory.

SETTINGS, ADJUSTABLE GRIDS - allows manual adjustment of rows and columns.

SETTINGS, DEFAULT ROW FONT - restores font to program default.

SETTINGS, PRINTER FONT - used to set the font for printing. The screen shows only monospaced fonts, as other fonts will not line correctly in columns. If no fonts are available the user must load monospaced fonts from the printer software. Windows provides the Courier Font as a default monospaced printer font.

SETTINGS, CLEAN UP SCREEN – Performs several actions to highlight stations and fit rows and columns

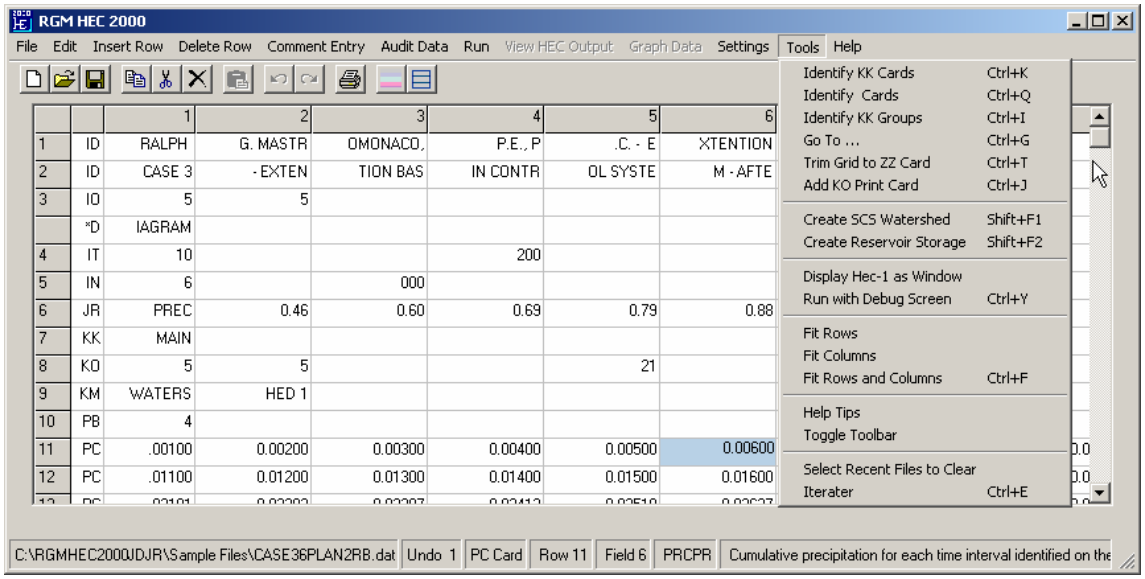
SETTINGS, HIGHLIGHT CURRENT TEXT - a color selection screen allows the text color to be changed for the selected area of the spreadsheet.

SETTINGS, HIGHLIGHT FONT - allows a variety of changes to the selected cells, including color, font, etc.

SETTINGS, HIDE SELECTED ROWS - selected rows or the current row will be hidden, and will appear as a thin, horizontal line. The row numbering is not affected.

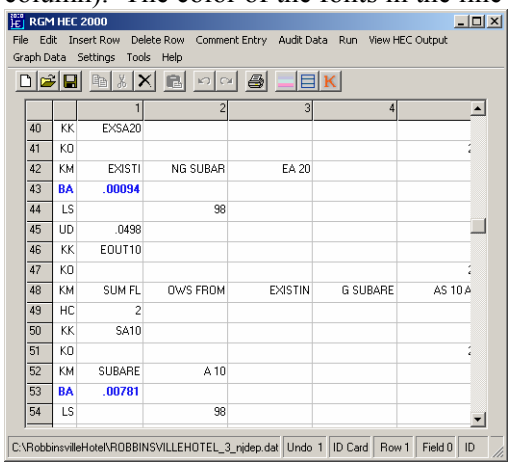
SETTINGS, UNHIDE ALL ROWS - restores visibility to rows that have been hidden.

Tools



TOOLS, IDENTIFY KK CARDS - will color the fonts in all KK cards to the color bold red to distinguish sections in HEC-1

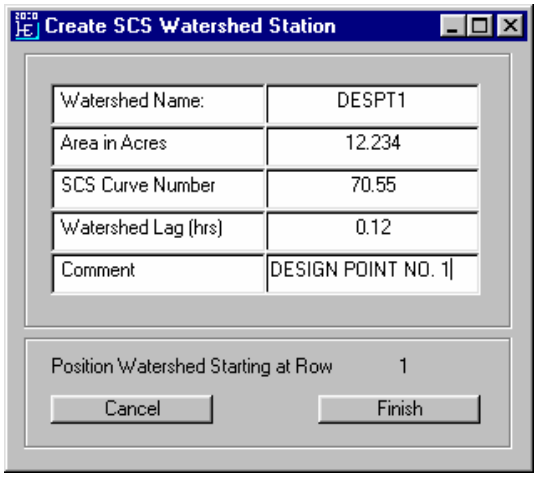
TOOLS, IDENTIFY CARDS - will color any card by entering the card identification code (first column). The color of the fonts in the line containing the identification card will be colored blue.



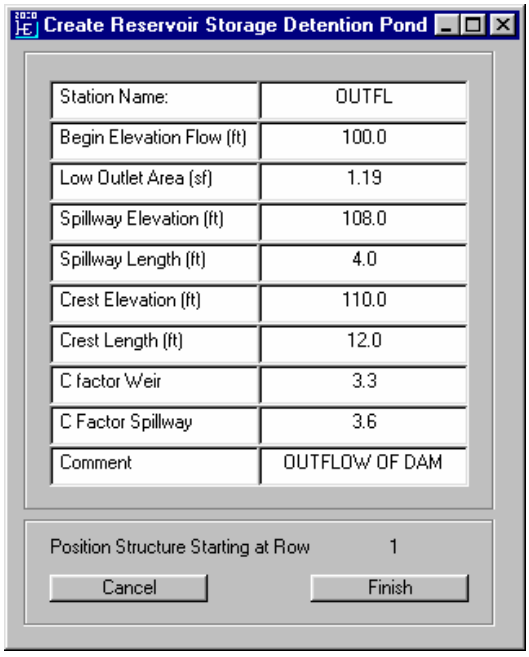
TOOLS, IDENTIFY KK GROUPS – will shade and color the lines representing one station, between KK cards.

TOOLS, TRIM GRID TO ZZ CARD - will remove all empty lines past the ZZ card.

TOOLS, ADD KO PRINT CARD - will add the line with the minimum information necessary to use the GRAPH DATA menu items (a "21" in Field 5).



TOOLS, CREATE SCS WATERSHED – A template that allows simplified entry of SCS style watershed data. Complete the information and the standard SCS block will be added (inserted) to the main screen at the position noted. The details can be completed or modified on the main screen.



TOOLS, CREATE RESERVOIR STORAGE (Detention Pond) – A template that allows simplified entry of a basic reservoir storage basin. Complete the information and the standard storage block will be added (inserted) to the main screen. The structure details can be completed or modified on the main screen.

The user would provide storage data cards (i.e. SA, SQ, SE, SV) on the main screen.

TOOLS, RUN HEC-1 AS WINDOW – Use to view the operation of HEC-1. If the user resets the "Close on Exit" property of the executable file, HEC1E.EXE (by right clicking the file in Explorer) the HEC-1 window can be set to remain open until terminated by the user. Better functionality is obtained using the DEBUG screen, below.

TOOLS, RUN DEBUG SCREEN – This screen follows the execution of the HEC-1 program and provides native HEC-1 error messages, thus it may be used to debug HEC-1 problems. This operation is the same as the RUN menu command. The file F7713.EER must be present in the application directory to decode the HEC-1 error messages.

TOOLS, FIT ROWS - will minimize the spreadsheet row heights.

TOOLS, FIT COLUMNS - will minimize the column widths.

TOOLS, FIT ROWS AND COLUMNS – will minimize both the row heights and the column widths to create a more compact viewing area.

TOOLS - HELP TIPS - click into a new cell to obtain information about the field, Toggle help tips so when the user hovers over a cell when the cell is in the no-edit (blue) mode info is given. The same help tips are also always available on the status bar.

TOOLS, TOGGLE TOOLBAR – will toggle the Toolbar on and off as needed.

TOOLS, CLEAR RECENT FILES - clears the list of files on the FILE menu. Recent files are added to the FILE menu whenever the user saves a file using FILE, SAVE AS.

Help Availability

The program provides help in a variety of ways:

Status Bar

The status bar will provide information on the active card, from left to right, as follows:

1. Current File, including path. Also, whether Last File Run option was used.

2. The status of the Undo level. Undo 1 is the original file state meaning all Undos have been made.

3. The Identification of the Card, PC, ID, KK, etc.

4. The HEC-1 Row in accordance with the output file. The program will track cards that HEC-1 does not number and will adjust accordingly.

5. The Field number - fields are in accordance with HEC-1 numbering system.

6. The HEC-1 program variable - as identified by HEC-1.

7. The HEC-1 description of the variable.

Note: Clicking the Status Bar (rightmost panel) returns the Available Memory.

HELP menu

The HELP menu provides two methods to find help:

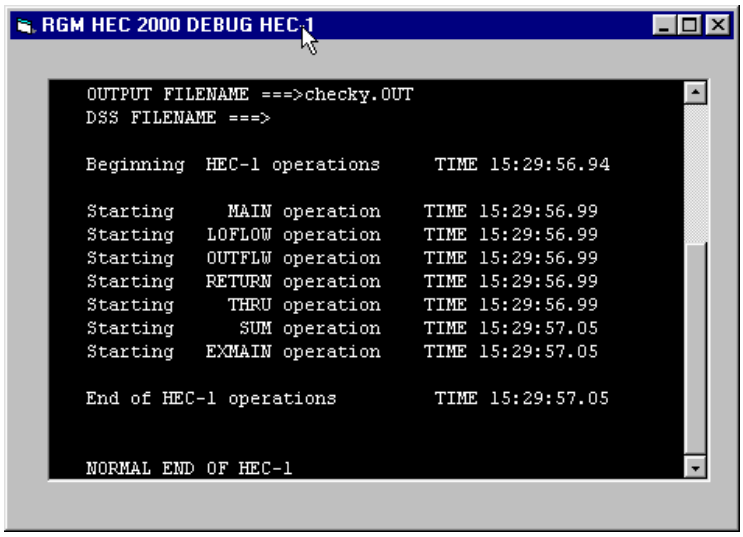
HELP, BROWSE HELP FILES - uses a mini-browser that navigates using BACK, FORWARD and jumps as in a web browser. The HEC-1 Manual or the HEC-1 Appendix may be selected

HELP, SEARCH HELP FILES - allows the user to search the HEC-1 Manual, the HEC-1 Appendix or this Operation manual may be searched.

HEC-1.COM – provides prompt email and telephone assistance (9-5) (M-F).

HELP, ABOUT - provides information about the RGM HEC 2000 computer program including author, support website, and copyright.

DEBUG Screen (TOOLS) – follows the HEC-1 run in native mode and reports HEC-1 errors



Printing HEC-1 Input Files

FILE, PRINT SETUP - allows the user to set up the printer. Generally, the best print method is to use a 6-point monospaced font that will print the entire card line on a standard 8-1/2 inch wide sheet.

FILE, PRINT - will print the HEC-1 input data.

FILE, PRINTER LEFT MARGIN – adjust left margin for printing native HEC-1 output

Note: This version of RGM HEC 2000 prints only to letter size paper (8-1/2”x11”).

Troubleshooting

The RGM HEC 2000 program provides error messages that generally describe common problems during use. Typical trouble or errors are as described follows:

Error Type 1 Improper HEC-1 Data - HEC-1 will report the error in the VIEW HEC-1 OUTPUT menu (Bottom).

Error Type 2 RGM HEC 2000 can't find a file - the application and support files must be in the program's application directory.

The file HEC1E.EXE is the executable file that must be in the program directory, as well. The properties of this file, obtained by right clicking the file in Windows Explorer **must** include checking **Close on Exit**, otherwise HEC-1 **may not close** each time you RUN the program causing **slowdowns**.

Running the program using the Debug Screen (TOOLS) will provide access to the native HEC-1 operation and will allow a review of the HEC-1 error messages.

The GRAPH data routines will only be accessible if the **KO** card at each KK station contains a value of **21** in column **5** (HEC-1 field 5)

Note: To prevent improper data from being reported, portions of the menu will be temporarily disabled when RGM HEC 2000 detects new data has been entered into the spreadsheet.

Note: The Graph routine **must** be closed before a new RUN is attempted.

Error Type 3 Recoverable Errors - RGM HEC 2000 will report the cause in plain language and the user can correct the error. These errors are generally caused by the user through inadvertent use. You should first attempt to correct any serious error by closing and restarting the application.

Attempts to paste data that is the wrong format or is too wide for the spreadsheet can lead to these types of minor errors.

Always review the time and date stamp at the head of the HEC-1 output.

Error Type 4 – Unrecoverable Error. Improper Installation of the program can be rectified by re-installing the software from the APPLICATION or INSTALL CD.

SUPPORT

This program has been severely tested in actual production and should operate flawlessly. Nevertheless, in the event additional assistance is needed, email:

support@hec-1.com

with your question or description of problem. Comments will be sent to the return email address subject to conditions of purchase.

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