

5 SCREEN ENTRY PROGRAM

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The Screen Entry (hdrinp) program is an interactive data entry and editing program used to generate the transaction or data input file needed to store data in GWSI. If the data to be entered or modified for a site are repetitive or are limited to only a few data record types, such as water levels, the user can consider using Query Entry ([gwinpnt – Section 4](#)).

5.1 Introduction

Screen Entry (hdrinp) uses a separate screen for each data record and only displays the data record screen selected. All fields within the data record are displayed on the screen. If there are no data to be entered for that field, or no changes to be made, the field can be skipped by pressing <Enter>. If data need to be modified for a field, the editing commands ([see section 5.2](#)) can be used. Mandatory or required fields cannot be skipped.

Entering new data or modifying existing data on the screen does not directly update the GWSI database. The transaction or data input file generated from the entry programs is stored in the directory where the GWSI program was started, unless a different pathname was specified.

The transaction file must be processed using the GWSI error-checking routines ([Section 6](#)) prior to updating the database. All users should use the Edit program (*Option 3--Edit*) to check for errors. If no errors were found and the user has write privileges to GWSI (*Menu Option 4--Update appears as an option on the GWSI Main Menu*), the file needs to be processed through the Update program.

If the user does not have write privileges to GWSI (*Option 4--Update does **not** appear as an option on the GWSI Main Menu*), the file may need to be copied to the Watin directory (*Option 7*) for processing by the Database Administrator (DBA). The procedure for writing data to GWSI varies by WSC.

5.2 Editing Commands

Field-editing control codes function in both GWSI data entry programs: Query and Screen Entry (hdrinp). For Screen Entry (hdrinp), the commands appear on two lines at the bottom of the screen.

Optns	S.Fld	N.Fld	L.Fld	Reprt	In:Ed	Abort	End	Blank	Ins.C	Del.C	No.Ctrl	Ys.Ctrl
?	\$	>	<	%	&	!	*	#	_	\	"	^

These two lines are used to display error messages, warnings, and special prompts. If a detectable error is made, an error message is displayed on the bottom line and a continuation prompt is displayed on the line above the error message. Special messages

and prompts are displayed in the same manner. When the special message or prompt is no longer needed, the control code list is restored.

The following characters have special meaning when used in column one of most input fields:

?	Optns	Display Valid Options	\$	S. Fld	Reset Current Field
>	N. Fld	Next Field	<	L. Fld	Previous Field
%	Repnt	Repaint Screen or use (Ctrl L)	&	In:Ed	Toggle between Input and Edit Mode
!	Abort	Abort the Current Screen or Program-- If ! does not abort the session, type (Ctrl P) to break out of the session.			

The following characters have special meaning when used anywhere in an input field:

space	Space-bar	Advance One Character	<BS>	Back-space	Back Up One Character
*	End	Blank to End of Field and Continue	#	Blank	Blank Current Character
_	Ins. C	Insert a Character	\	Del. C	Delete a Character
"	No. Ctrl	Enter the Next Typed Character	^	Ys. Ctrl	Execute the Next Typed Character

Many of the original EMACS commands are also accepted as control, but these commands may not function the same as commands in more current versions of EMACS. In the list below, <Ctrl> means that the control key is pressed simultaneously with the specified character. <Esc> means that the Escape key is pressed before the specified character or characters. Where applicable, the non-EMACS equivalent has been given.

EMACS Command	Function	Non-EMACS equivalent command
<Ctrl>A	Positions the cursor to the beginning of the field.	B
<Ctrl>B	Positions the cursor backward one character.	<BS>
<Ctrl>C	Re-executes the most recent command.	
<Ctrl>D	Deletes the character under the cursor.	
<Ctrl>E	Positions the cursor to the end of the field.	E
<Ctrl>F	Positions the cursor forward one character.	<right arrow>
<Ctrl>G	Cancels a multiple character command that has been started.	
<Ctrl>H	Does not delete a character as it does in EMACS, but instead positions the cursor backward one character.	<BS> backspace
<Ctrl>I	Positions the cursor to the next subfield.	<Tab>
<Ctrl>K	Kills or clears the field.	<Delete>
<Ctrl>L	Refreshes the screen.	%
<Ctrl>M	Positions the cursor to the next field.	Enter or carriage return <CR>

EMACS Command	Function	Non-EMACS equivalent command
<Ctrl>N	Positions the cursor to the next field.	>
<Ctrl>O	Opens the line and inserts one character.	_
<Ctrl>P	Breaks to UNIX.	<Break>
<Ctrl>Q	Inserts the next character as data.	" (Ignored on most terminals)
<Ctrl>R	Positions the cursor to the previous field.	<
<Ctrl>S	Positions the cursor to the next field.	> (X-OFF on most terminals should not be used)
<Ctrl>V	Skips to mandatory fields. After all the mandatory fields are input, toggles between input and edit mode.	&
<Ctrl>W	Kills or clears the field after moving the field contents to the kill buffer.	
<Ctrl>X	Used as a prefix to other commands, which are listed below.	
<Ctrl>Y	Replaces the field with the contents of the kill buffer.	
<Ctrl>Z	Positions the cursor to the previous field.	<
<Ctrl>-	Lists any valid values for field.	? (Ignored on most terminals)
<Ctrl>X<Ctrl>C	Aborts the screen.	!
<Ctrl>X<Ctrl>G	Ignores the <Ctrl>X prefix.	
<Ctrl>X<Ctrl>H	Kills or clears the field left of the cursor.	
<Ctrl>X<Ctrl>I	Inserts one blank character.	_
<Ctrl>X<Ctrl>K	Kills or clears the field left of the cursor.	
<Ctrl>X<Ctrl>L	Converts entire field to lowercase characters.	
<Ctrl>X<Ctrl>S	Toggles between input and edit mode.	& (X-OFF on most terminals should not be used.)
<Ctrl>X<Ctrl>U	Converts entire field to uppercase characters.	
<Ctrl>X<Ctrl>W	Toggles between input and edit mode.	&
<Ctrl>X<Ctrl>Z	Used as a prefix to other commands, which are listed below.	
<Ctrl>XQ	Inserts the next character as data.	"
<Ctrl>XR	Refreshes the screen.	%
<Ctrl>XS	Toggles between input and edit mode.	&
<Ctrl>XV	Positions the cursor to the previous field.	<
<Ctrl>X[Positions the cursor to the previous field.	<
<Ctrl>X]	Positions the cursor to the next field.	>
<Ctrl>X<Ctrl>Z<Ctrl>A	Positions the cursor to the previous field.	<
<Ctrl>X<Ctrl>Z<Ctrl>E	Positions the cursor to the next field.	>
<Ctrl>X<Ctrl>Z<Ctrl>G	Ignores the <Ctrl>X<Ctrl>Z prefix.	
<Ctrl>X<Ctrl>Z<Ctrl>H	Kills or clears the field left of the cursor.	
<Ctrl>X<Ctrl>Z<Ctrl>K	Kills or clears the field right of the cursor. The character in the position of the cursor is also deleted.	
<Ctrl>X<Ctrl>Z<Ctrl>Y	Replaces the field with the contents of the kill buffer.	
<Esc><Ctrl>D	Kills or clears the field right of the cursor. The character in the position of the cursor is also deleted.	
<Esc><Ctrl>G	Ignores the <Esc> prefix.	

EMACS Command	Function	Non-EMACS equivalent command
<Esc><Ctrl>O	Opens the line and inserts one character.	–
<Esc><Ctrl>V	Positions the cursor to the next field.	>
<Esc><Ctrl>Y	Replaces the field with the contents of the kill buffer.	
<Esc><Space>	Deletes a character.	\
<Esc><	Positions the cursor to the previous field.	<
<Esc>>	Toggles between input and edit mode.	&
<Esc>?	Lists any valid values for field.	?
<Esc>@	Terminates the field at the cursor position.	*
<Esc>A	Positions the cursor to the previous field.	<
<Esc>B	Positions the cursor to the previous subfield.	
<Esc>D	Kills or clears the field.	<Delete>
<Esc>E	Positions the cursor to the next field.	>
<Esc>F	Positions the cursor to the next subfield.	<Tab>
<Esc>G	Toggles between input and edit mode.	&
<Esc>K	Kills or clears the field right of the cursor. The character in the position of the cursor is also deleted.	
<Esc>L	Converts entire field to lowercase characters.	
<Esc>M	Positions the cursor to the first nonblank character.	F
<Esc>N	Positions the cursor to the next field.	>
<Esc>P	Positions the cursor to the previous field.	<
<Esc>R	Positions the cursor to the previous field.	<
<Esc>S	Positions the cursor to the next field.	>
<Esc>U	Converts entire field to uppercase characters.	
<Esc>V	Positions the cursor to the previous field.	<
<Esc>W	Copies or writes field into kill buffer.	
<Esc>Y	Replaces (yanks) the field with the contents of the kill buffer.	
<Esc>~	Unmodifies the field.	\$
<Esc><Delete>	Kills or clears the field.	<Delete>
<Delete>	Does not delete a character as it does in EMACS, but kills or clears the field.	<Delete>

5.3 Program Operation

Screen Entry can be used with or without a prompt list file. A prompt list file is a user-defined file that specifies which fields the cursor will move to (or prompt the user for) when entering data using GWSI input programs.

If after selecting Screen Entry (*Option 2*) the two-line description of control codes do not appear on the screen, lengthen the window by dragging the bottom of the window down. Use Ctrl L to refresh the screen. If the two-line description of control codes still does not appear, repeat the process until they do.

The user needs to specify whether a prompt list file will be used. Instructions for creating and using a prompt list file are in [section 5.3.9](#). The following instructions assume the user is not using a prompt list file.

Do You Want to Use a Prompt List? N

5.3.1 Transaction File Name Selection

Next, the transaction or data file name needs to be assigned.

Select Card Output File Name (A): d.userid.xxx_____

A default transaction file name is provided and consists of d.userid.xxx, where xxx is a sequential number that forms a unique output file name. If this file name is not modified, it will be the name of the file used to store the transaction data. The file will be stored in the directory where the GWSI program was started, unless a pathname is specified. If the file exists, the program asks if the file is to be overwritten. If **Y**, the old file is deleted and a new one is created in its place. If **N**, the new data are appended to the end of the existing file. The **(A)** specifies that the field is alphanumeric.

5.3.2 Site ID Selection

The Site ID Selection screen prompts for the Agency Code and Site ID of the station to be modified or added. GWSI will check the database to determine if the site already exists based on these two fields. The Site ID is expected to contain a 7-15 digit number. A 15-digit ID is checked for proper latitude and longitude values and warns if an invalid number is found. No additional checking is done on a number less than 15 digits. If the site was found, the program displays the Station Name. If the site was not found, the “New Site” message appears in screen 1:



If an error was made when typing the Site ID, the user can respond with **N** to: **”Are these Items Correct?”** and the cursor will return to the Site ID field and the correct value can be reentered. If the prompt is answered with a **Y** or an <Enter>, a search is made for the specified ID and control is passed to screen 2.

If the user does not know the site ID, or prefers not to type out the 15 numbers, the user can skip the site ID field and enter a partial or full station name. GWSI will search the database and will display the possible matches until the user selects a site.

5.3.3 General Site Data

The General Site Data Record applies to all sites and has no special record selection screen; it is displayed automatically in Screen Entry (hdrinp) when a nonexistent site is selected or when option 3 (General Site Data) is selected. Options 4 through 10 correspond to the ground-water data records ([section 5.3.4.1](#)).

The cursor will move to each field (unless using a prompt list file) and mandatory fields must be completed. Press <Enter> to skip non-mandatory fields or if there is no data or changes to the existing data. A ‘?’ will provide an explanation of the options for that field when available.

Screen 2:

***** General Site Data *****

```

Agency Code USGS           Site ID 391234076543201       Project No. 1=_____
Station Name 2=test
District 3=24              Country 4=US           State 5=24           County 6=003
Land Net 7=                Latitude 8= 391234       Lon 9= 0765432
Lat-Lon Accuracy 10=S      Lat-Lon Method 11=M     Lat-Lon Datum 12=NAD27
Map Name 13=                Map Scale 14=
Altitude 15=                Accuracy 16=            Method 17=           Datum 18=
Hydrologic Unit Code 19=    Drainage Basin Code 20=
Topographic Setting 21=     Agency Use 22=          Date Inventoried 23= - - -
Station Type 24= Y          Data Type 25= 1234567890ABC   1234567890ABCDEF
Instruments 26=            1234567890ABCDEF          National Water Use Code 27=
Remarks 28=
Standard Time Zone Code 29=MST      Daylight Savings Time Flag 30=N
Web-ready Flag 31=C

Edit Which Item (0 = Store)? 0__
    
```

Data can be added or changed for any field by selecting the internal GWSI number for that field. The internal numbers are shown on the screen near the field. The number is unique to the screen and does not correspond to the numbers on the GWSI coding form (Form No. 9-1904-A). For example, the internal GWSI number for District field is three on the GWSI screen and C6 on the GWSI coding form.

If no changes are to be made, after entering the general site data for a new site, the program options screen ([5.3.4.1](#)) will appear. Remember that when data entry has been

Ground Water

140

NWIS User

completed, the transaction file will need to be processed using the GWSI Edit and Update programs.

5.3.4 Data Entry Screens

There are three types of entry screens:

1. Program Options
2. Record Selection
3. Record Data Entry

5.3.4.1 Program Option Screens

The Program Option screen consists of a list of program options and a single prompt to select the desired option. The form used for all station types is shown below:

```
1  Exit HDRINP Program
2  Select New Site
3  General Site Data Record
   (SITE)
4  Construction Data Records
   (CONS,LIFT,REPR,MPNT)
5  Miscellaneous Data Records
   (OWNER,OCNT,OTID,OTDT,VIST,QVAL,QVAL,NETW,COOP,RMKS)
6  Discharge Data Record
   (DISC)
7  Geohydrologic Data Records
   (GEOH,AQFR)
8  Hydraulic Data Records
   (HYDR,COEF)
9  Water-Level Data Record
   (LEV)
10 Observation Data Record
    (OBS)

Select Record Type (I or A): _____
```

The desired option may be selected by typing in the integer (I) number on the left side menu, or the three to four alpha (A) character record types shown in parentheses. For example, if the user wants to add or update Miscellaneous Data records, the number “5” should be typed; if the user wants to update the MPNT record “MPNT” may be entered at the prompt, rather than select “4” for the Construction Record and then select MPNT at the prompt for record type.

Below is a list of the program options and functions:

Exit HDRINP Program - Closes the data transaction file and terminates execution of the Screen Entry (hdrinp) program.

Select New Site - Used to select a different site to add or modify. Once a site is selected, all data transactions will refer to that site until the site ID is again changed using this option.

5.3.4.2 Record Selection Screens

The Record Selection screen consists of data record descriptors used to identify the unique data record. The screen prompts for the key information required to identify both the data type and the specific entry where multiple entries are permitted. For example, first select option 4 for construction data records, then specifying “OPEN” for opening as the record type. Record types are identified in [section 5.3.4.3](#).

```

Agency Code USGS                               Site ID
391234076543201
Record Type OPEN                               Record Sequence
Number
>>>>"NEXT"=No More Construction Records

Record Type:          CONS = Construction          HOLE = Hole
CSNG = Casing         OPEN = Openings             LIFT = Lift
REPR = Repairs        SPNG = Springs             MPNT =
Measuring Point
    
```

5.3.4.3 Record Data Entry Screens

The Record Data Entry screens may consist of multiple data descriptors and entry fields. The Record Data Entry screen has many forms, each one corresponding to one of the data record types.

Menu Code	Record Type	Screen Entry (hdrinp) Option
3	General Site Data Record	SITE
4	Construction Data Record Construction Data Hole Data Casing Data Openings Data Lift Data Repairs Data Spring Data Measuring-Point Data	CONS HOLE CSNG OPEN LIFT REPR SPNG MPNT
5	Miscellaneous Data Record Owner Data Owner Contact Data Other-ID Data Other Data Site-Visit Data Water-Quality Data Water-Quality Value Data Geophysical Logs Data Network Data Special-Cases Data Miscellaneous-Values Data Cooperator Data Remarks	OWNR OCNT OTID OTDT VIST QUAL QVAL LOGS NETW SPEC MSVL COOP RMKS
6	Discharge Data Record	DISC
7	Geohydrologic Data Record Geohydrologic Units Data Aquifer Data	GEOH AQFR
8	Hydraulic Data Record Hydraulic Data Coefficients Data	HYDR COEF
9	Water-Level Data Record	LEV
10	Observation Data Record	OBS

5.3.5 Required Fields

Many of the screens have mandatory or required fields that must be completed before the GWSI program will allow the data to be stored. If an existing record is modified and a required field is found to be missing, the program forces the user to supply the required data before the data can be stored.

5.3.6 Error-Checking

The GWSI program checks for errors using the same criteria as the Edit and Update programs. Full error-checking is done as the data are entered. Several different types of tests are performed. In numeric fields, non-valid characters are rejected immediately upon input. Other values are checked for valid choices where a list of valid codes is available. Dates are checked for nonexistent days (February 30), or dates after the current date. Latitude and longitude values are also checked for validity.

Where a list of valid codes is available, the codes can be listed by inputting a '?' in column one of the appropriate field, or by entering a '?' while in the temporary control mode. Temporary control mode is when the user types a '^' to specify that the next character is to be (temporarily) used for control; normal mode returns when the character has been entered. If an error is detected, an error message is displayed at the bottom of the screen.

There are two types of errors: warnings and fatal errors.

Error messages that begin and end with five dashes (-----) are **WARNINGS** only. Error messages that begin and end with five asterisks (*****) are **FATAL ERRORS** and the associated data is rejected either immediately, or after an unchanged conflicting value.

5.3.7 Default Data

In some cases, such as District code, defaults are provided or are set up by the DBA. These defaults are displayed in the data field, and may be used by pressing <Enter> without modifying the data field, or the default values can be modified.

One special default occurs on the site header record. If the site has a 15-digit site identifier, the latitude and longitude values default to the values reflected in the site identifier.

5.3.8 Data Field Justification

Character and integer fields are left-justified; however, some integer fields such as the sequence numbers are actually right-justified first, and the leading blanks are replaced with "0". Floating point numbers are right-justified.

5.3.9 Using Prompt List Files

Prompt list files can be used with Screen Entry (GWSI release 4.1). A prompt list file is a user-defined file that specifies which fields the cursor will move to (or prompt the user for) when doing data entry in the GWSI input programs. Prompt list files take only minutes to create and can be used again. Specifying only those fields needed saves time since the <Enter> key does not need to be pressed to skip the fields where there is no data. The prompt list file can also be used with [Query Entry \(Section 4\)](#).

```
Do You Want to Use a Prompt List? Y
Select Prompt List to Use or Create (A): watlev.prompt
```

Type the name of the prompt list file to be used or created. It is helpful to assign a name that describes the function of the prompt list file. For example: watlev.prompt for water levels.

5.3.9.1 Using an Existing Prompt List File

If the prompt list file already exists, specify the prompt list file name. The GWSI program will then ask for a filename to store the data, and continue with the data entry screens. The Menu Codes for the Data Records will still need to be selected, then the prompt list file will move the cursor to the fields selected in the prompt list file.

5.3.9.2 Creating a Prompt List File

To create a prompt list file, select a prompt list file name. The error message ***** **File Does Not Exist** ***** will appear at the bottom of the screen because the file does not yet exist.

Do You Want to Try Another One? N

Type **N** (no) to create a prompt list file. Type **Y** (yes) if the filename was mistyped.

Do You Really Want to Create a New List? Y

The GWSI program will then ask for which fields to include in the prompt list file.

Example:

Do You want to prompt for General Site Data (Y,N,A,Q):

Y = Yes, **N** = No, **A** = Add, **Q** = Quit

Y (yes) is the default and if this field is to be always included in the prompt list file, press <enter>. If, for example, there is General Site Data to be entered and **Y** is selected, the program will give the opportunity to select the specific fields within this section, such as Site Name and Project Number. If **N** is selected, the entire section is skipped. The **A** (Add) is used when the user only wants to be prompted for the field when adding a new site (not when modifying an existing site).

The prompt list file is complete when there are no more fields to include in the prompt list file. GWSI will begin creating the data input file and will ask for a file name to store the data:

Select Card Output File Name (A): d.wsmcpher.044_____

The default file name consists of d.userID.xxx (sequential number).

The cursor will move to the fields selected in the prompt list file, although all fields appear on the screen and mandatory fields must be completed. Press <enter> to skip non-mandatory fields or if there is no data or changes to the existing data. For an explanation of the available options for that field, type a '?'.

Data can be added or changed for any field, (not just the fields specified in the prompt list file), by typing the internal GWSI number for that field at the following:

Edit Which Item (0 = Store)? 0__

The internal numbers are shown on the screen near the field. The number is unique to the screen and does not correspond to the numbers on the GWSI coding form. For example District field is 3 on the GWSI screen and C6 on the GWSI coding form.

5.4 Transaction Data Output File

The Screen Entry (hdrinp) program writes the data to a formatted sequential access (flat) file. This file is a temporary file that contains all of the information for performing the specified transactions. The format of a transaction file record is very similar to the old GWSI card image format. After the Screen Entry program is executed, the output file can be modified externally with an editor before processing through the update program. If an editor is used, however, special care must be taken to prevent errors in the modified data. Additionally, the editor selected must not be one that inserts hidden control characters in the file. The particular errors to watch out for include: illegal item numbers, illegal characters in numeric fields, missing field terminators, and records which have been extended past the proper record length (80 characters).

When a new site or data record is added, all defined fields are written to the output file. All required fields must be defined before the data can be output to the transaction file.

If a record is being modified, only the descriptor fields and those fields that have actually been modified are written to the transaction file. If a required field is encountered that has not been defined, such as in a record that has been input to the system by some other program, that data field must be defined before any further modification is permitted.