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Sandia Sorption Data Management System Version 2 (SSDMS II)

User's Manual

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SANDIA SORPTION DATA MANAGEMENT SYSTEM VERSION 2 (SSDMS II)

USER'S MANUAL

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ABSTRACT

The Sandia Sorption Data Management System (SSDMS II) stores and retrieves trace element sorption data. The data management system has potential applications in performance assessment studies of transuranic high- and low-level, and toxic waste sites. The current version stores information describing the degree of sorption (as batch sorption or desorption ratios), the compositions of rocks and solutions used in the sorption experiment, and the experimental procedures. SSDMS II uses dBase III+™ interactive menus to guide data searches, and output files can be used for graphical or statistical post-processing. This User's Manual describes SSDMS II data searches, creation of new data files, and the merging of new with existing data base files. These extended data bases can be used to examine relationships among experimental variables, mineralogy of the substrate, water composition, and sorption ratios. Examples of using SSDMS II with a data base of radionuclide sorption data are given.

ACKNOWLEDGMENTS

The Sandia Sorption Data Management System Version 2 (SSDMS II) incorporates the basic structure and many features of the Sandia Sorption Data Management System Version 1 (SSDMS). This earlier data management system was developed with funding from both the U.S. Nuclear Regulatory Commission (NRC) under contract FIN-A1756 and the U.S. Department of Energy (DOE), Waste Isolation Pilot Plant (WIPP), under contract DE-AC04-76DP00789. This document incorporates some of the text and format of a letter report (Moore et al., 1989) written to satisfy the requirements of NRC FIN-A1756.

The authors wish to acknowledge the work of several coworkers whose contributions to the NRC letter report are included in this document. A. Trujillo (Science Applications International Corporation) helped to design an early version of SSDMS. C.D. Leigh, E. Bonano and M.S. Chu (Sandia National Laboratories) and P. Bembia (Ecology and Environment, Inc.) critically reviewed early versions of the User's Manual and tested the software.

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SANDIA SORPTION DATA MANAGEMENT SYSTEMS VERSION 2 (SSDMS II)

USER'S MANUAL

1. INTRODUCTION

GENERAL DESCRIPTION

This User's Manual describes the features and uses of the Sandia Sorption Data Management System Version 2 (SSDMS II). SSDMS II contains two elements: 1) a program that helps compile and extract data from a dBase III+™ data base file and 2) a set of dBase III+™ data base files that organize sorption data in a manner useful to performance assessment modeling and experimental studies. These data base files contain values of sorption ratios* (R_d) that describe the partitioning of radioelements between rocks and waters that interest researchers studying geologic disposal of high-level and transuranic wastes. For each R_d value, the data base files contain information describing the rock, water, and experimental conditions used during the measurement of the sorption ratio.

SSDMS II menus guide you through data compilation and extraction. During data compilation, you enter data into one or more data base files, link the new data base files together, and then join them with a preexisting relational data base file. Section 2 TUTORIAL, "Adding New Data to the Existing Main Data Base File," and Section 3 REFERENCE, "Create Data Base Files," describe the procedures for adding data to the SSDMS II data base files.

A relational data base file consists of several small data base files, each containing a few parameters describing the object of interest (rock sample, R_d value, etc.). Together, these files form a Main Data Base File. This larger data base file describes the relationships among all the parameters contained in the smaller files. To add parameters or relationships to the Main Data Base File, you create additional files and link them to the Main Data Base File. The user's manual for dBase III+™ (Ashton-Tate, 1985) discusses the general structure of relational data bases constructed by dBase III+™. The next section of this User's Manual describes the structure of the SSDMS II relational data base file .

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* The professional literature refers to sorption ratios as K_d, K_D, R_d, and R_s. The notation K_D (or K_d) is common for the thermodynamic distribution coefficient describing reversible ion exchange or coprecipitation. Authors of several studies reviewed for the SSDMS II used the notation K_d to identify the sorption ratio; however, this usage is misleading and confusing because processes other than reversible sorption have probably occurred during their experiments. For this reason, many authors use R_d and R_s to indicate results of sorption experiments. This manual uses the notation R_d to denote the empirical sorption ratio when it is not certain that reversible sorption is the only important chemical process.

During data extraction, SSDMS II lists the data variables, and you define logical and/or numerical search criteria for selecting data. Finally, you identify the parameters whose values are to be listed on the screen and/or copied to an ASCII file and/or printed. The ASCII files produced by the data extraction can be used by graphical or statistical programs for data analysis. Section 2 TUTORIAL, "Extracting Information from the Main Data Base File," and Section 3 REFERENCE, "Extract Data from Main Data Base File," describe the procedures that search and extract data from the Main Data Base File. "Potential Uses" (below) describes the kinds of SSDMS II data searches that may be useful in performance assessment and experimental studies.

SOFTWARE AND DATA BASE DEVELOPMENT

Development of the Sandia Sorption Data Management System Version 1 (SSDMS) began at Sandia National Laboratories (SNL) in 1984 with support from the U.S. Nuclear Regulatory Commission (NRC). An early version of the file structure of a Main Data Base File was defined and dBase III™ was used to compile and tabulate R_d data for a report on the proposed high-level nuclear waste repository site in the unsaturated tuff at Yucca Mountain, Nevada (Tien et al., 1985). SSDMS was developed during 1985-1988 for NRC sensitivity analysis (Siegel, 1989). SSDMS compiled the basalt Main Data Base File that summarizes R_d data for a proposed repository in basalt. A user's manual (Moore et al., 1989) and a description of the basalt Main Data Base File (Siegel et al., 1989) were prepared and are available from the NRC and SNL.

SSDMS II was developed with the support of the U.S. Department of Energy (DOE), Waste Isolation Pilot Plant (WIPP). It incorporates many features of SSDMS, and the data base files supplied with this manual are modified versions of the ones prepared for the NRC (Siegel et al., 1989). SSDMS II allows more flexible design of the Main Data Base File and contains more extensive code documentation than SSDMS. The SSDMS II program and User's Manual conform to the requirements of the WIPP Quality Assurance Program (Pickering, 1989).

As of May 1989, Main Data Base Files, including over 3000 R_d values, exist for basalt, tuff, and salt geological environments. The basalt Main Data Base File comes with this manual, and data base files for tuff (Tien et al., 1985) are available from SNL. Currently, data describing radioelement sorption in the presence of organics and in brines is being compiled for SSDMS II. When these data base files are complete, they will aid studies supporting the WIPP project, low-level and mixed nuclear waste disposal.

STRUCTURE

Figure 1 shows a generalized file structure of the SSDMS II Main Data Base File. This file structure accommodates sorption data from different geologic media and wastes. For each medium (basalt, salt, etc.) a separate Main Data Base File can be constructed from smaller data base files containing the sorption ratios, descriptions of the experimental conditions, water chemistry, and stratigraphic and mineralogical data. In the generalized example shown in Figure 1, the files containing sorption data are labeled "Table File 1," "Table File 2," etc., which are combined into a Sorption File.

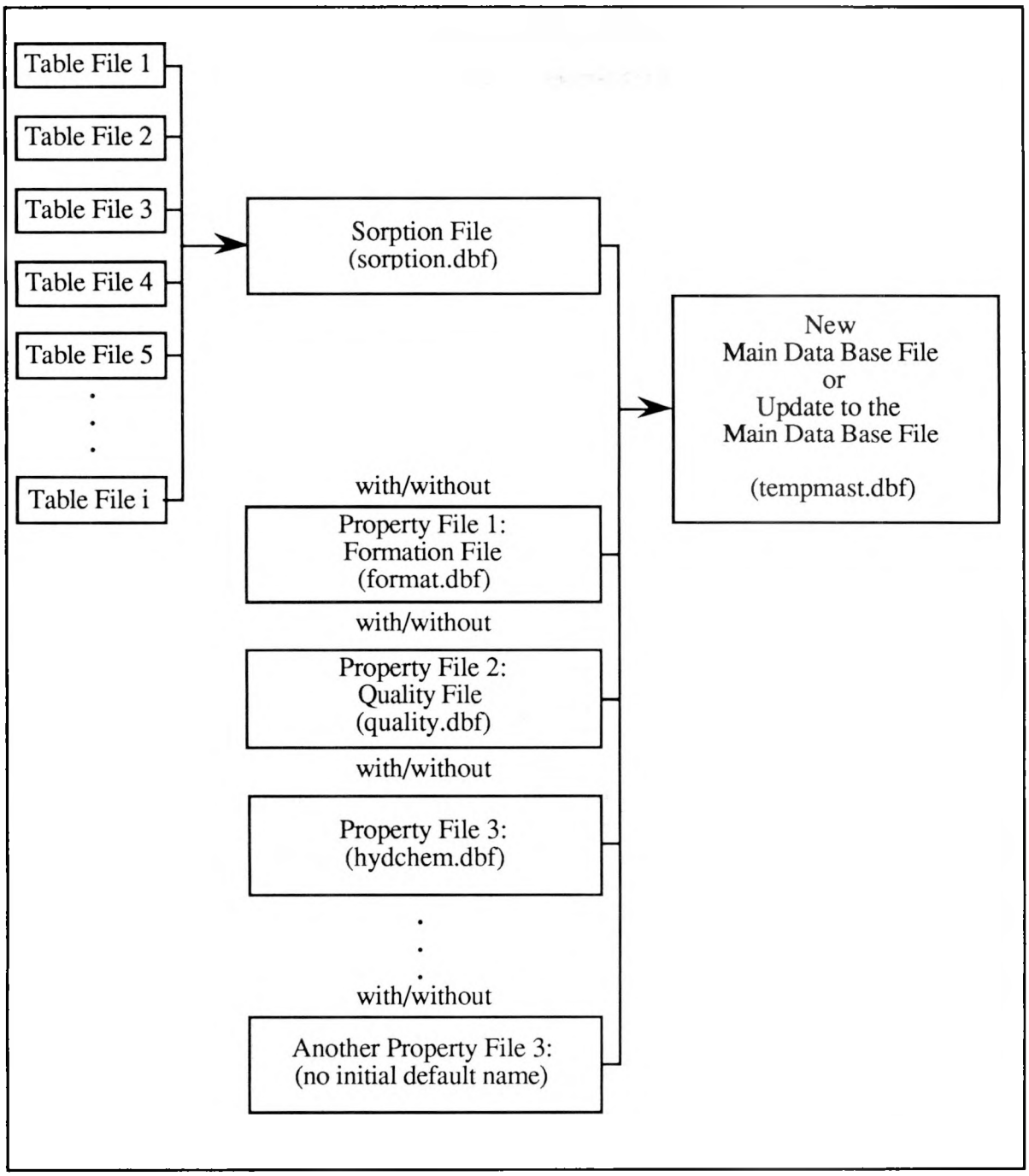


Figure 1. Relationships among data base files in the Main Data Base File used by the Sandia Sorption Data Management System Version 2 (SSDMS II).

Auxiliary data appear in Property Files. Formation and Quality Files, because they are so frequently used, are the first and second Property Files. "Property File 3" refers to all subsequent Property Files, and because a common use for the first Property File 3 is to store water chemistry information, the default name for the first Property File 3 is "hydchem.dbf."

The Formation File is a Property File that describes the lithology, mineralogy, and stratigraphic origin of the rock sample used in each sorption experiment.

The Quality File is a Property File that describes experimental procedures and evaluates the quality of the data for each set of experiments. After reviewing experimental procedures, users may assign quality indices to the sorption data using variable fields (Q1, Q2, QUALGROUP), then use those variables to extract a data subset of a particular quality from the Main Data Base File. Siegel et al. (1989) and Siegel (1989) discuss assigning and using quality indices. Note that the Q1, Q2 and QUALGROUP fields in this SSDMS II User's Manual correspond to the Q5, Q3 and QUALGROUP fields in the letter report describing SSDMS Version 1 (Moore et al., 1989).

Other properties of the water or rock samples used in the sorption experiments can be compiled in other Property Files (all called "Property File 3" in this manual) and joined to the existing Main Data Base File.

In the basalt Main Data Base File supplied with this manual, the Sorption File, the Formation File and the Quality File are already combined to form the Main Data Base File.

Appendix A contains a more detailed description of the file structure of the SSDMS II data base files.

POTENTIAL USES

SSDMS II provides a structure for critically evaluating empirical sorption data (R_d). Such evaluation can yield defensible values and ranges of R_d values for assessing performance of nuclear waste sites. SSDMS II can also select R_d values for specific combinations of rock and water composition and experimental conditions. SSDMS II can exclude results of sorption experiments that employ procedures known to compromise the results. Because SSDMS II identifies the literature citation for each R_d value, the means, variances and distributions of R_d values for specific environmental conditions based on data of known quality and source can be easily tabulated. As additional data are obtained, SSDMS II can add these to the Main Data Base File, thus updating the R_d values recommended for use in performance assessment modeling. Examples of such SSDMS II applications appear in Siegel and Leigh (1988), Siegel et al. (1989), Siegel (1989) and Leigh et al. (1989).

Design of new experiments also requires a critical evaluation of sorption data. In general, R_d data are collected in an empirical manner, without an underlying model for the chemical behavior of the radionuclides in the rock/water systems of interest. These empirical studies do not compare the measured R_d values to theoretical expectations. Experimental parameters are varied over a range of values that bracket the environmental conditions of interest; the resulting changes in R_d values are used to assess the strength of relationships between the extent of sorption and the physicochemical parameters. Rarely, however, are these experiments designed to satisfy the requirements for proper statistical analysis of the data. Without a theoretical basis or a statistical design to guide the collection of data, important experimental parameters are often not characterized. Consequently, it is difficult to detect faulty experimental design and poor data.

Because it helps review existing data, SSDMS II can help design empirical sorption experiments and document new results meaningfully. Although a large number of R_d values have been obtained by researchers for many different combinations of radionuclides, rock and water compositions and experimental conditions, a standard method for measuring R_d values does not exist. SSDMS II can help establish a uniform format for reviewing, collecting and documenting sorption data. The variables (field names) listed in Appendix B have been included in the Main Data Base File because a preliminary review of the data for radionuclide sorption in tuff and basalt media indicate that these experimental parameters provide a minimum basis for critical evaluation of the sorption data. This list of variables will probably be modified as data from transuranic, low-level and mixed wastes are reviewed and compiled in SSDMS II.

After you compile into the uniform SSDMS II format the R_d values and auxiliary data obtained by different research groups, the Main Data Base File can be searched using criteria based on specific values and combinations of experimental parameters. Where sufficient data are available, the relationships between R_d values and experimental parameters can then be examined using techniques such as factorial design (Davies, 1967; Laitinen and Harris, 1975) . The batch subsetting capability of SSDMS II (Option 3.2) can count the number of analyses available for different combinations of variables in the Main Data Base File. Data will probably be insufficient to examine the relationships between the R_d values and many parameters of interest in a statistically meaningful way. SSDMS II can identify these data gaps, thereby setting priorities for new experiments. The available data can be compared against criteria defined by the Plackett-Burman (Plackett and Burman, 1943) or the Box-Behnken (Box and Behnken, 1960) experimental designs to determine which additional measurements must be made.

GETTING STARTED

This section assumes that dBase III+™ and SSDMS II are correctly installed and that you are somewhat familiar with DOS and dBase. For complete instructions on installing SSDMS II, see Section 2 TUTORIAL.

SSDMS II requires a hard disk to contain large data base files and the program files. Make sure that dBase III+™ is available on the system and that SSDMS II has been installed according to the procedures in Section 2 TUTORIAL. If more than one dBase is on the system, dBase III+™ should be the only active version; de-install others (see Ashton-Tate, 1985).

NOTE: SSDMS II stores a large number of variables that require more memory than dBase III+™ defaults allow. So before using SSDMS II, with any text editor add the line

MVARSIZ = 8

to the config.db file (found with other dBase III+™ files).

To start dBase III+™, set the current directory to the directory containing the dBase III+™ program and enter

dbase

If dBase defaults to its assist program, press ESCape to abort it and display the dBase "dot prompt." At the dot prompt (shown in the command line below), enter

.DO ssdmsii

SSDMS II checks for necessary files, restores defaults, and displays its Main Menu, which offers the following options:

1. Create Data Base Files
2. Edit Data Base Files
3. Extract Data from Main Data Base File
4. Display Graphs and Statistical Information
5. Drive/Directory Settings and Information
6. dBASE Shell
7. Quit SSDMS II

Section 2 TUTORIAL describes the initial installation and configuration of SSDMS II and explains step-by-step how to add sorption data to the existing Main Data Base File (option 1) and retrieve information from the Main Data Base File (option 3).

Section 3 REFERENCE describes every option on every SSDMS II screen.

Appendix A describes how SSDMS II uses its data base files.

Appendix B describes the data base structures and field names for the basalt Main Data Base File supplied with this manual and used in Section 2 TUTORIAL.

Appendix C explains how to make Template Files, which allow you to create different Table Files and Property Files.

Appendix D explains the program files and the relationships among them.

Appendix E explains how to solve problems that SSDMS II may encounter.

2. TUTORIAL

OVERVIEW

The Tutorial consists of three parts.

"Initial Installation and Configuration" describes program installation and configuration. This involves creating subdirectories and copying files to them; combining three files into the BWIP Main Data Base File (default name "master.dbf"); and setting the defaults for the data base file names, the program file names, and the directory paths.

"Adding New Data to the Existing Main Data Base File" describes a sample session in which you add data from two tables (included in this manual) to the existing Main Data Base File (master.dbf). Step by step, you create and add data to a set of Table Files; append these Table Files to form the Sorption File (sorption.dbf); create and add data to the Formation File (format.dbf); create and add data to the Quality File (quality.dbf); and join the Sorption File, the Formation File and the Quality File to form an update to the Main Data Base File (tempmast.dbf).

In a real update, you would append this update file (tempmast.dbf) to the existing Main Data Base File (master.dbf), but this data is already in the Main Data Base File. Thus, although the manual outlines the steps to do so, you will not append the update file to the Main Data Base File.

"Extracting Information from the Main Data Base File" describes a sample session in which you extract sorption data for cesium from the Main Data Base File. First you subset the Main Data Base File by specifying the Element field, and then you direct the output of the Batch Sorption Average and Temperature fields to the screen.

Section 3 REFERENCE describes the commands in this tutorial in more detail.

SSDMS II may be used with any dBase III+™ data base file. Throughout this report, a Main Data Base File compiled for radionuclides in basalt/water systems serves as the example. It may be called the "BWIP [Basalt Waste Isolation Plant] Main Data Base File" or the "basalt Main Data Base File."

SSDMS II also works with other data bases. Sorption data for evaporite rock/water systems, obtained from the Waste Isolation Pilot Plant (WIPP) and high-level waste programs for salt repositories, appear in Main Data Base Files called the "WIPP Main Data Base File" or the "salt Main Data Base File," respectively. Finally, sorption data obtained in tuff/water systems appear in a Main Data Base File called the "NNWSI [Nevada Nuclear Waste Site Investigation] Main Data Base File" or the "tuff Main Data Base File."

CONVENTIONS

This User's Manual presents what the computer says to you and what you enter into the computer in different type styles.

When DOS talks to you, the prompt appears in capital letters:

```
C:\>
C:\DBASE>
```

When dBase talks to you, the prompt is a dot, a period:

When SSDMS II talks to you, it most often says

```
Enter choice >> [  ]
```

This is called the "Main Prompt" because it is the most frequently used, appearing on almost all SSDMS II screens. But SSDMS II also says things like

```
OK? (Y/N) [  ]
```

or

```
Enter name for new file: [              ]
```

When you talk to SSDMS II, either press ENTER to accept the default sometimes written inside the brackets, or type your own answer and press ENTER, or--only for the Main Prompt--just type your answer.

For commands that The User's Manual displays on lines by themselves, you respond to DOS or dBase III+™ prompts by typing what appears in boldface.

```
C:\>MKDIR dbase
.DO ssdms
```

For commands that appear in text, type what appears within quotation marks, for example "MKDIR dBase."

For commands that you type, capitals indicate DOS or dBase commands that you must spell exactly as they appear. But you can type them in upper or lower case (or a combination) since DOS and dBase ignore case anyway. So you could also type "mkdir DBASE" or "MKDIR DBASE" or "mkdir dbase."

Sometimes the manual tells you to "enter a blank" field name. If the brackets in which you respond are empty, enter a blank by pressing ENTER. If a default name appears in the brackets, press the spacebar until you overtype the entire default, and then press ENTER.

Sometimes the manual indicates a key or key combination to press. These appear in capital letters, e.g. ESCape, ENTER (sometimes called RETURN), PGDN. Key combinations are hyphenated, e.g. CTRL-W, which means hold down the CTRL key and press W once.

So you could find them quickly, the manual labels prompts and screen menus and numbers them according to the options hierarchy. Those labels usually appear to the right above prompts and centered above menus and other screen displays. If you cannot find a prompt label, scan the text. For example, if you seek prompt 6 but only see labels for 5 and 7, look in the paragraphs between 5 and 7 for prompt 6.

Prompts, menus and options are numbered, e.g. Option 1.3.2. The numbers indicate how you get to that option, starting from the SSDMS II Main Menu. So to get to Option 1.3.2, you would choose option 1 on the Main Menu, option 3 on the next menu, and finally option 2 on the next. What you would then see on the screen would be Option 1.3.2's prompt or menu.

The manual also lists in parentheses the initial default names of data base files it discusses. Most initial default filenames appear with the 3-character extensions that dBase III+™ supplies (e.g., master.dbf, fields.dbf). However, when SSDMS II asks for a file name, you need to type only what appears before the period (e.g., master, fields).

The manual sequentially numbers steps that you must perform and puts hyphens next to lists for which the order is unimportant.

INITIAL INSTALLATION AND CONFIGURATION

SSDMS II uses dBase III+™ version 1.1 on an MS-DOS compatible computer with a hard disk. Check that it runs from the directory containing the SSDMS II program files.

Install dBase III+™

SSDMS II requires a hard disk with about .3 megabytes of space for the program files plus 0.9 megabytes for the BWIP Main Data Base Files plus additional space for dBase III+™. If dBase III+™ is not already installed on the hard disk, install it according to the Ashton-Tate manual (1985).

Place all dBase III+™ program files in their own directory (e.g., in c:\dBase). Set the DOS path to include this directory in its search (e.g., "PATH=c:\dbase").

Make sure that dBase III+™ is the only version of dBase that is active on the system. If any other version is active, deinstall it according to instructions in Ashton-Tate (1985) before using SSDMS II.

For more information on installing dBase III+™ or setting the DOS path, see the dBase III+™ and DOS manuals.

> **NOTE:** SSDMS II stores a large number of variables that require more memory than dBase III+™ allows by default. So before using SSDMS II, add the line
>
> **MVARSIZ = 8**
>
> to the config.db file found with other dBase III+™ files. Any text editor can add this command.

The DOS prompt may or may not show the directory you are in. If your prompt is set to show the current directory, you will see C:\SSDMS\BWIP> when you are in the "bwip" subdirectory; otherwise you will see C:\>. The prompt does not effect the commands that are entered, only what appears on the screen.

This manual displays DOS prompts as if the current directory appears in the DOS prompt. If yours does not, make sure you issue commands from the directory the documentation indicates. To display the current directory within the prompt, type

C:\>**PROMPT PG**

Install SSDMS II

SSDMS II consists of

Program Disk	(1 floppy disk)
Data Disk(s)	(Main Data Base Files, auxiliary data base files)

The number of disks for the data disks varies with the amount of data. For example, the Basalt Waste Isolation Plant data requires data 4 disks: 3 for the Main Data Base Files, 1 for the auxiliary data base files.

Before installing SSDMS II, create working copies of all disks, and save the originals as backups.

Create and name a directory for the SSDMS II program and data by typing

C:>MKDIR ssdms

Make this the current directory by typing

C:>CD ssdms

SSDMS II accommodates data from different geological media and types of waste. Main Data Base Files for different sites or wastes may have different structures and contain different variables, but all Main Data Base Files used with SSDMS II are associated with certain auxiliary data base files. Some of these auxiliary data base files come with the Main Data Base File, and SSDMS II creates others. For more details, see Section 3 REFERENCE: Option 3.1.a - "?" prompt.

You should establish separate directories and declare different DOS paths for the program and data files for each repository or each type of waste. This is especially important because many auxiliary data base files for different geologic media have the same names but different contents. By declaring a different DOS path, you may use SSDMS II from one directory while switching between several sets of data stored in other directories. For more details, see the configuration setup described in Section 3 REFERENCE - Option 5.1 (charge defaults).

In this tutorial, you create two subdirectories within the SSDMS subdirectory. Then you copy the program files into a "program" subdirectory and the basalt data base files into a "bwip" subdirectory.

To create the subdirectories, enter the following commands:

C:\SSDMS>**MKDIR program**

C:\SSDMS>**MKDIR bwip**

Usually, you name the data subdirectory (here, "bwip") to reflect the type of data. If you were interested in a salt site, you might name the data subdirectory "salt."

To load the program, first make the program subdirectory the current directory by typing

C:\SSDMS>**CD program**

To copy the program into the C:\SSDMS\PROGRAM subdirectory, insert the Program Disk into drive A and type

C:\SSDMS\PROGRAM>**COPY a:*.***

The file names appear on screen as the files are copied. When the C:\SSDMS\PROGRAM> prompt returns, remove the Program Disk from drive A.

To load the BWIP data, first change to the BWIP subdirectory by typing:

C:\SSDMS\PROGRAM>**CD \ssdms\bwip**

To copy the data into the C:\SSDMS\BWIP subdirectory, insert a data disk into drive A and type

C:SSDMS\BWIP>**COPY a:*.***

File names appear on the screen as the files are copied. When the prompt returns, remove the first data disk from drive A, insert another, and repeat the copy command until all data disks are copied.

Create the Main Data Base File

The BWIP Main Data Base File comes on more than one floppy disk. Therefore, the files from these disks (split1.dbf, split2.dbf, split3.dbf) need to be linked together to generate the complete Main Data Base File. This is done from within dBase III+™.

Start dBase III+™ by typing

C:\SSDMS\BWIP>**DBASE**

If DOS cannot fine the dBase III+ subdirectory it will respond

Program too big to fit in memory

In this case, define the path by typing C:\SSDMS\BWIP>PATH=C:\dBase

If dBase III+™ defaults to its "assist" program, abort the assist menu by pressing ESCape.

When the dBase dot prompt appears as shown in the following command lines, enter the commands, ending each by pressing ENTER. The program automatically supplies the next dBase dot prompt.

.USE split1
.COPY TO master
.USE master
.APPEND FROM split2
.APPEND FROM split3

Now a complete Main Data Base File (master.dbf) exists. Any number of files with any names may be joined analogously.

Configure SSDMS II

To access its data correctly, SSDMS II must be started from its own program subdirectory.

To exit dBase III+™ and return to DOS from the dBase dot prompt (shown below), type

.QUIT

Then change to the SSDMS II program directory by typing

C:\SSDMS\.BWIP>**CD \ssdms\program**

In case DOS cannot find the dBase III+™ subdirectory, enter

C:\SSDMS\PROGRAM>**PATH=c:\dbase**

and run dBase III+™ by typing

C:\SSDMS\PROGRAM>**DBASE**

If dBase III+™ defaults to its "assist" program, abort the assist menu by pressing ESCape.

When the dBase III+™ dot prompt appears (as shown below), type

.DO ssdmsii

The SSDMS II title screen appears as the program starts. After the program determines that program and data files exist and restores default values for DOS paths and names of program and data files, the Main Menu appears.

Main Menu

```
SSDMS II Main Menu

1. Create Data Base Files
2. Edit Data Base Files
3. Extract Data from Main Data Base File
4. Display Graphs and Statistical Information
5. Drive/Directory Settings and Information
6. dBASE Shell
7. Quit SSDMS II

Enter choice >> [ ]
```

(If you encounter any prompts or messages not shown in this tutorial, refer to Section 3 REFERENCE.)

Most SSDMS II menus display the following Main Prompt:

Main Prompt

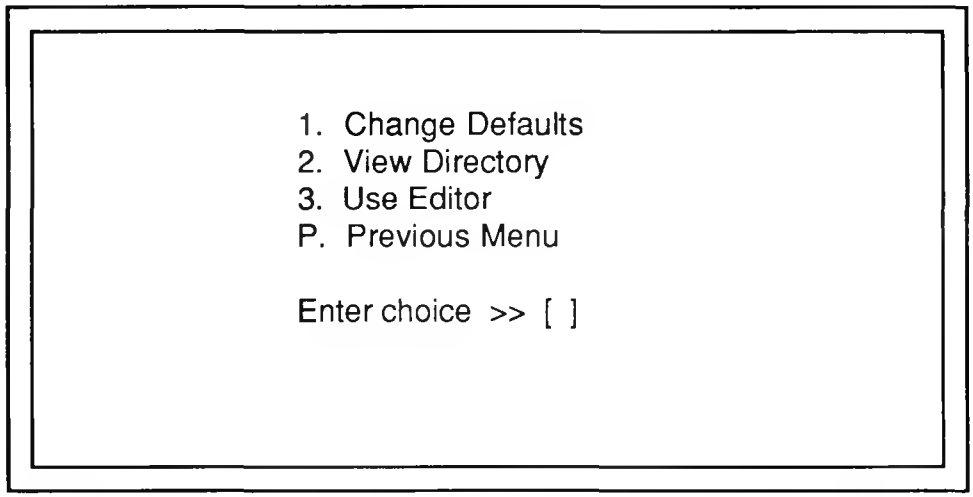
```
Enter choice >> [ ]
```

To select a menu option, enter the option number at the Main Prompt, and SSDMS II immediately executes the choice.

Other menus prompt you to enter data, and the prompt looks different. On those menus, enter data and press ENTER (sometimes called RETURN).

Enter a "5" (without the quotation marks) to display the menu for Option 5 (Drive/Directory Settings and Information).

Menu 5 - Drive/Directory Settings and Information

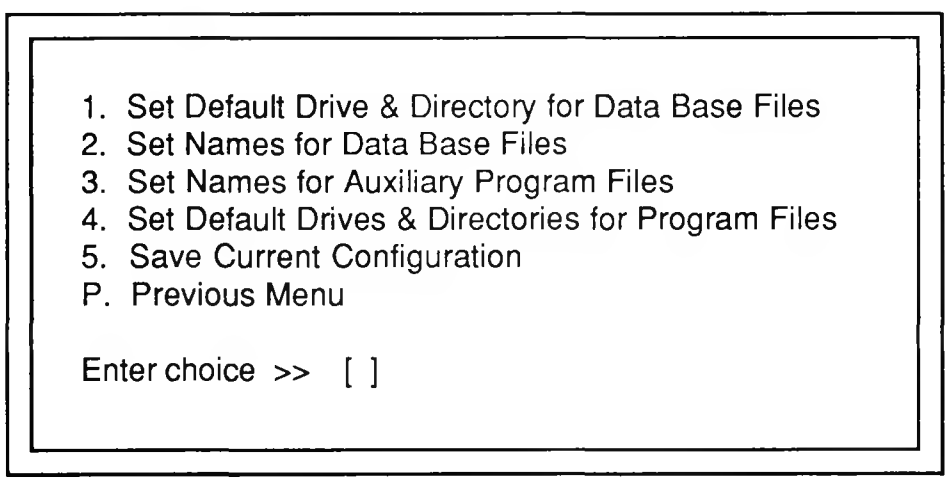


Option 5 (Drive/Directory Settings and Information) from the Main Menu allows you to

- -- change the names and paths of the data base files and auxiliary program files (Option 1: Change Defaults)
- -- display the files in the current data base file directory (Option 2: View Directory)
- -- edit any text file with the editor specified under Change Defaults (Option 3: Use Editor)
- -- return to the SSDMS II Main Menu.

Before using SSDMS II, you must specify the defaults. Enter a "1" at the Main Prompt to display Menu 5.1 (Change Defaults).

Menu 5.1 - Change Defaults

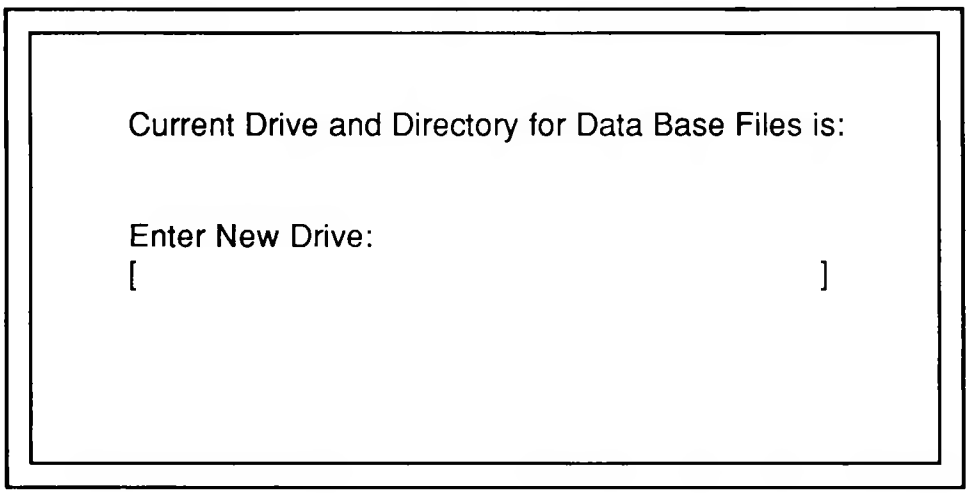


SSDMS II must know where all data base and program files reside during its execution. You may change these paths at any time to employ files from different directories. If you select "P," you will return to Menu 5 (Drive/Directory Settings and Information).

Set Default Drive and Directory for Data Base Files (Option 5.1.1)

Enter a "1" to display Menu 5.1.1 (Set Default Drive & Directory for Data Base Files).

Menu 5.1.1 - Set Default Drive & Directory for Data Base Files



You indicate where the data base files are by specifying a complete filename, including subdirectory, so enter "c:\ssdms\bwip" and press ENTER.

SSDMS II asks

Option 5.1.1 - Prompt

OK? (Y/N) [Y]

Enter an "N" to re-enter the filename. Otherwise, enter a "Y".

After setting the path to the data base file directory, you return to Menu 5.1 (Change Defaults).

Set Names for Data Base Files (Option 5.1.2)

At the Main Prompt, enter a "2" to display Menu 5.1.2 (Set Names for Data Base Files).

Menu 5.1.2 - Set Names for Data Base Files

Current Data Base File Names Are:

Main Data Base File	: [Master	]
Collected Table Files	: [Sorption	]
Table File Template	: [tablank	]
Formation File	: [Format	]
Formation File Template	: [fmt	]
Quality File	: [Quality	]
Quality File Template	: [qual	]
Property File 3	: [Hydchem	]
Property File 3 Template	: [	]
List of Table File Names	: [names	]
Index File Template	: [index	]
Field Names and Units File	: [fields	]

Option 5.1.2 (Set Names for Data Base Files) lets you change the default data base file names used by SSDMS II. (A brief description of the files named above appears under Option 5.1.2 (Set Names for Data Base Files) in Section 3 REFERENCE.)

Because this tutorial uses the default files, no changes are required, so press ENTER repeatedly until the following prompt appears:

Option 5.1.2 - Prompt

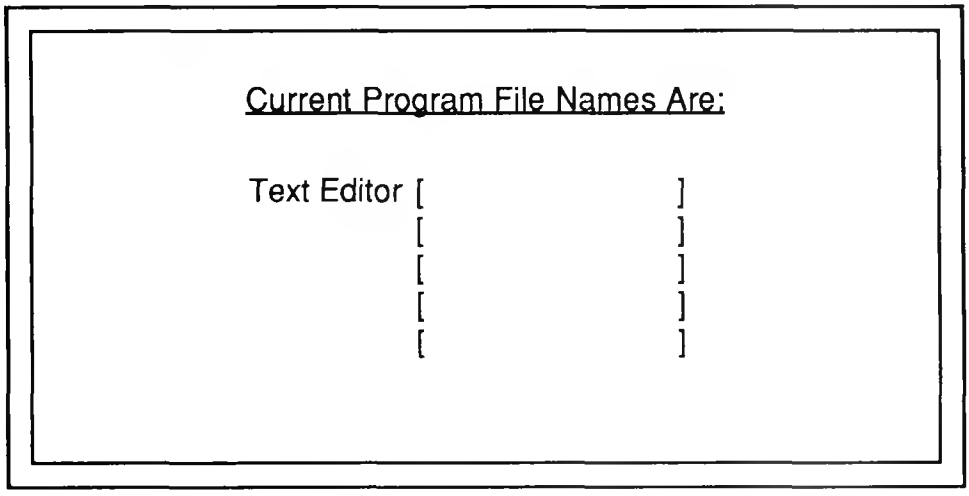
OK? (Y/N) [Y]

Enter a "Y" to accept the defaults and return to Menu 5.1 (Change Defaults).

Set Names for Auxiliary Program Files (Option 5.1.3)

Enter "3" at the Main Prompt to display Menu 5.1.3 (Set Names for Auxiliary Program Files).

Menu 5.1.3 - Set Names for Auxiliary Program Files



No names appear on the screen unless you saved them in a previous SSDMS II session. If you wish to use auxiliary programs from within SSDMS II (e.g., a spreadsheet or graphing utility), they are installed here and their paths are set under Option 5.1.4 (Set Default Drives & Directories for Program Files).

No auxiliary programs will be installed in this tutorial. Press ENTER until the following prompt appears.

Option 5.1.3 - Prompt

```
OK? (Y/N)  [ Y ]
```

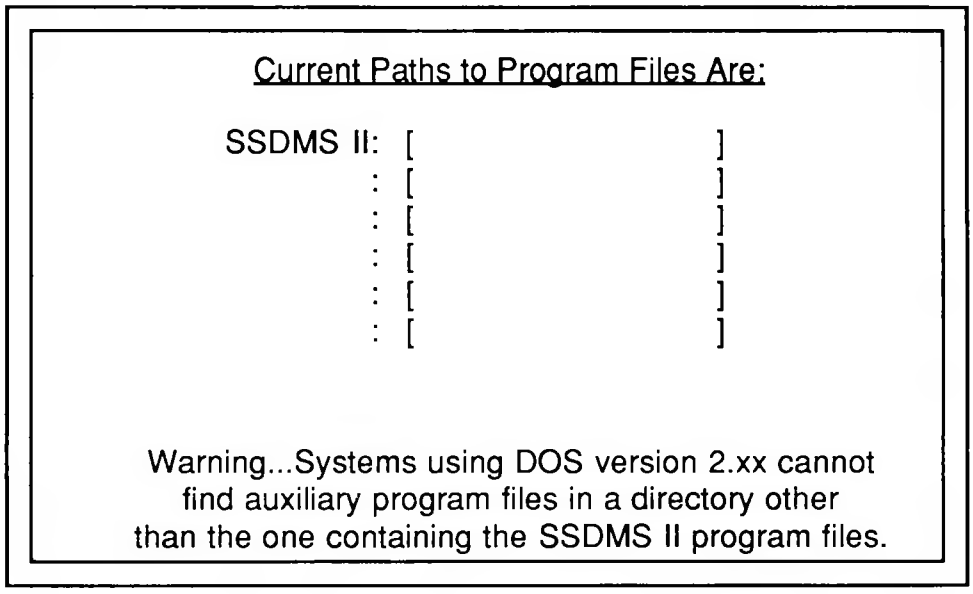
Enter a "Y."

After setting the program file names, you return to Menu 5.1 (Change Defaults).

Set Default Drives and Directories for Program Files (Option 5.1.4)

Enter a "4" at the Main Prompt to display the menu for Option 5.1.4 (Set Default Drives & Directories for Program Files).

Menu 5.1.4 - Set Default Drives & Directories for Program Files



NOTE: If no auxiliary program names have been entered under Option 5.1.3 (Set Names for Auxiliary Program Files), only the SSDMS II label appears here.

For DOS versions 1.xx and 2.xx, auxiliary programs MUST reside in the same directory as the SSDMS II program files. For DOS 3.xx and later versions, auxiliary packages MAY reside in directories other than the SSDMS II program directory.

Because no auxiliary programs will be installed in this tutorial, enter "c:\ssdms\program" at the SSDMS II label and then press ENTER until the following prompt appears:

Option 5.1.4 - Prompt

```
OK? (Y/N)  [Y]
```

To re-edit the paths, enter an "N." To return to Menu 5.1 (Change Defaults), enter a "Y."

Save Current Configuration (Option 5.1.5)

Option 5 (Save Current Configuration) lets you save all variables for a later SSDMS II session. Enter a "5" at the Main Prompt, and SSDMS II reports the information it saves:

Menu 5.1.5 - Save Current Configuration

```
Saving Setup to Disk...
Including:
Default Names for Data Base Files
Drive and Directory Choice for Data Base Files
Auxiliary Program File Names
Drive and Directory Choices for Auxiliary Program Files
Search and Output Criteria for Individual Subsetting

Enter any key to continue...
```

If you do not save the current configuration, the next time you start SSDMS II, it will assume the same defaults it used at the beginning of today's session.

Press any key to return to Menu 5.1 (Change Defaults).

Return to SSDMS II Main Menu

This completes the configuration of SSDMS II. Enter a "P" at the Main Prompt twice to return to the SSDMS II Main Menu.

ADDING NEW DATA TO AN EXISTING MAIN DATA BASE FILE

This section assumes that you have installed dBase III+™ according to the instructions given by Ashton-Tate (1985) and that the SSDMS II defaults have been set as described under Section 2 (Initial Installation and Configuration). It is assumed that SSDMS II is not running as your start this section and that the DOS prompt shows the current directory.

SSDMS II contains sorption and desorption data for the Basalt Waste Isolation Pilot Plant (BWIP) repository as reported in tables and appendices from quarterly and annual Rockwell Hanford Operations (RHO) and Oak Ridge National Laboratory (ORNL) reports to the Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC). (See Siegel et al., 1989). If additional sorption or desorption studies are released, then SSDMS II can incorporate data from these studies into the Main Data Base File.

This tutorial session explains how to add data to the Main Data Base File (master.dbf). The data come from a report on Tc and Np sorption onto basalt for the BWIP repository (Kelmers et al., 1985). Because the data you enter are already in the BWIP Main Data Base File, the tutorial will explain how to add but you will not actually add your input to the BWIP Main Data Base File.

Adding data to an existing Main Data Base File involves the following steps:

1. Create a Sorption File (sorption.dbf).
2. Enter information about the rock samples used in the new experiments into the Formation File (format.dbf).
3. Enter quality indices for the experimental procedures and results into a Quality File (quality.dbf).
4. Join the new Sorption File, Formation File and Quality File. into a new Main Data Base File (tempmast.dbf).
5. Append this synthesis onto an existing Main Data Base File (master.dbf).

These steps are detailed below.

For the relationships among these files, see Section 1 INTRODUCTION, Figure 1.

For the structure and fields in the BWIP Main Data Base File, see Appendix B.

During the tutorial, if you see any prompts or screen displays other than those appearing in the documentation, consult Section 3 REFERENCE.

Except at the Main Prompt (Enter choice >> [ ]), press ENTER after entering data.

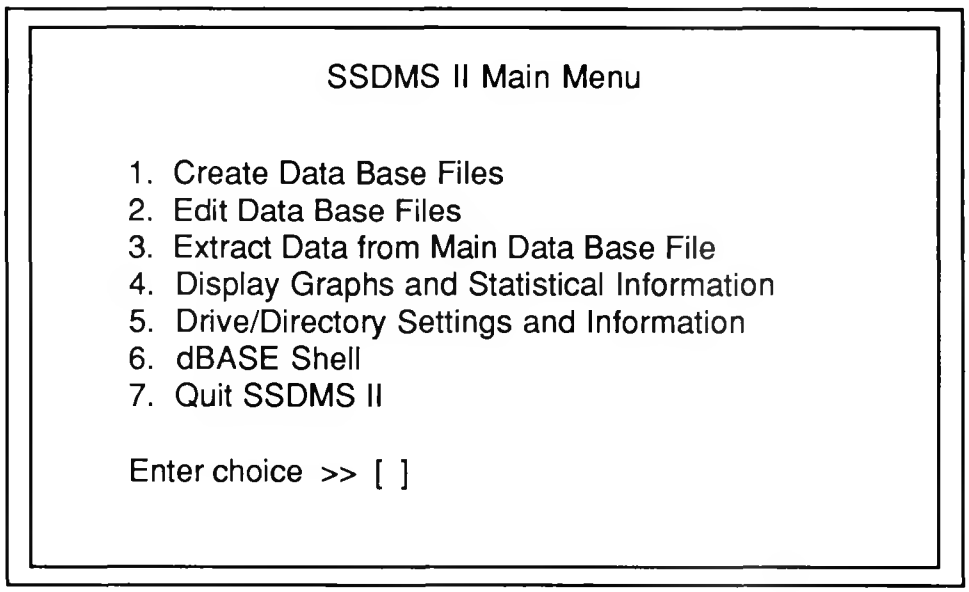
Create Data Base Files (Option 1)

To start SSDMS II, set the current directory to the SSDMS II program directory and then enter

C:\SSDMS\PROGRAM> **DBASE ssdmsii**

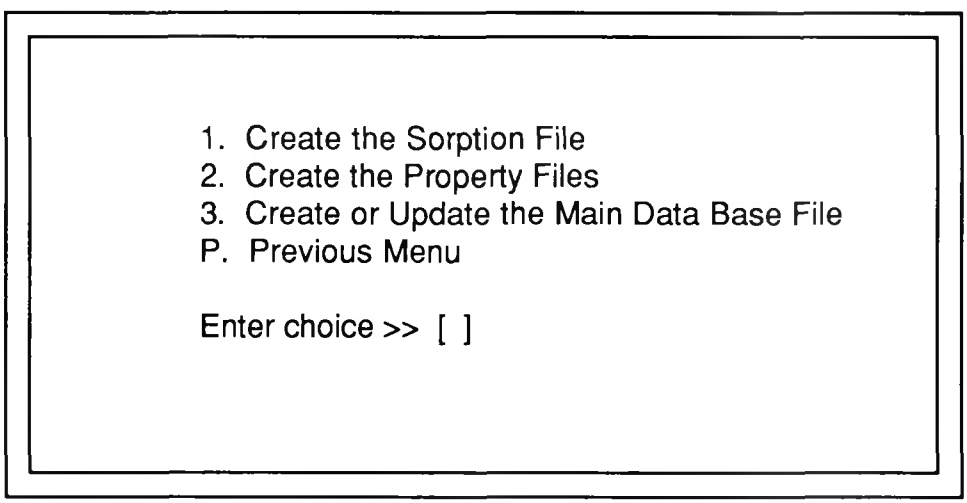
to display the SSDMS II Main Menu.

Main Menu



Enter a "1" at the Main Prompt to display the menu for Option 1 (Create Data Base Files).

Menu 1 - Create Data Base Files



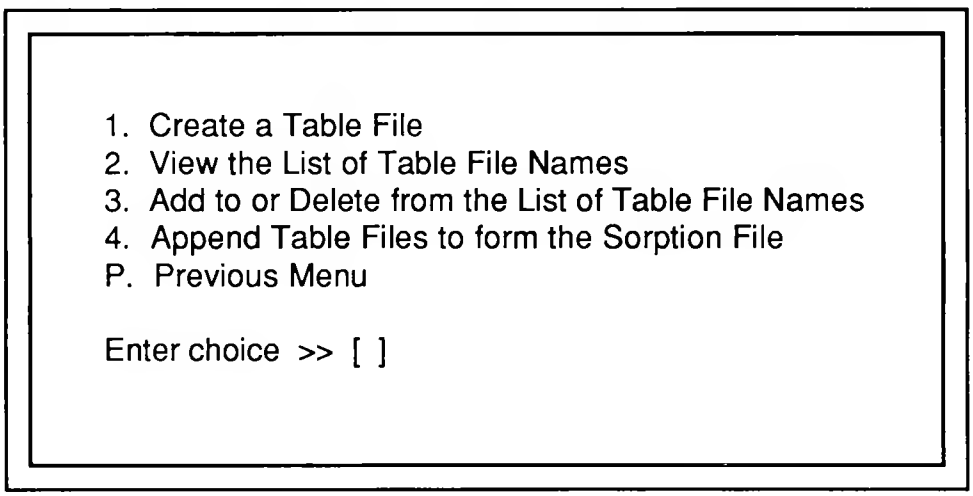
If you need to return to the SSDMS II Main Menu, enter a "P" at the Main Prompt.

Create the Sorption File (Option 1.1)

First, create the Sorption File.

Enter a "1" at the Main Prompt to display the menu for Option 1.1 (Create the Sorption File).

Menu 1.1 - Create the Sorption File



Creating the Sorption File (sorption.dbf) involves the following steps:

1. Clear the list of Table File names (Option 1.1.3: Add to or Delete from the List of Table File Names).
2. Enter the sorption or desorption data into Table Files (Option 1.1.1: Create a Table File).
3. Verify the Table Files to include in the Sorption File (Option 1.1.2: View the List of Table File Names).
4. Correct the list of Table Files to include in the Sorption File (Option 1.1.3: Add to or Delete from the List of Table File Names).
5. Link the Table Files to form the Sorption File (Option 1.1.4: Append Table Files to Form the Sorption File).
6. Return to Menu 1 (Create Data Base Files), through Option 1.1.P (Previous Menu).

The following sections explain each of these steps.

Clear the List of Table File Names (Option 1.1.3)

To clear the list of old Table File names before the new Table Files are created, enter a "3" at the Main Prompt . The menu for Option 1.1.3 (Add to or Delete from the List of Table File Names) appears.

Menu 1.1.3 - Add to or Delete from the List of Table File Names

```
You have chosen to add or delete the name of a
Table File from the current list of Table File
names to be included in the Sorption File.

    1. Add
    2. Delete
    P. Previous Menu

    Enter choice >> [ ]
```

Enter a "2" at the Main Prompt and SSDMS II asks

Option 1.1.3.2 - Prompt 1

```
Delete all names from list of Table File names? (Y/N)  [ N ]
```

Type a "Y" and press ENTER to delete any names currently in the list of Table File names. After deleting the names, SSDMS II displays

Option 1.1.3.2 - Prompt 2

```
All names have been deleted.
Enter any key to continue...
```

Press any key to return to Menu 1.1.3 (Add to or Delete from the List of Table File Names).

Enter a "P" at the Main Prompt to return to Menu 1.1 (Create the Sorption File).

A new list of Table File names will be constructed as the new Table Files are made.

Enter Data into the Table Files (Option 1.1.1)

The next step is entering sorption data into two table files from Tables 2 and 3 on the following pages (Kelmers et al., 1985).

Enter a "1" at the Main Prompt to select Option 1.1.1 (Create a Table File) and display

Option 1.1.1 - Prompt 1

```
You will be making a Table File for the data in
c:\ssdms\bwip\

Enter any key to continue...
```

Because the data directory is named for the data set, by displaying the data directory prompt, SSDMS II reminds you which data set you are adding to--in this case, the BWIP data base files.

If "c\ssdms\bwip\" does not appear as the data directory, repeat "Configure SSDMS II." To return to the Main Menu to reconfigure SSDMS II, press any key, enter a blank at the prompt for a file name, enter any key at the "Returning..." prompt and enter a "P" at the Main Prompts until the Main Menu appears.

If "c:\ssdms\bwip\" does appear, press any key to continue. SSDMS II asks for a Table File name.

Option 1.1.1 - Prompt 2

```
Enter name for new file: [          ]
```

BWIP Table File names follow a convention that specifies the agency report number, then the volume number , then the table number for the published source of the data. For example, data from ORNL's quarterly report TM-9614, volume 4, table 3, appear in a Table File named 9614_4_3.

In this tutorial , data is taken from report number TM-9614, volume 1, table 1, so enter "9614_1_1" as the Table File name, and press ENTER.

If you need to exit the procedure, enter a blank for the file name. SSDMS II displays

Option 1.1.1 - Prompt 3

```
Returning...
```

Press any key to return to Menu 1.1 (Create the Sorption File).

Once you begin using SSDMS II, you may use any file naming convention as long as the file name without the .dbf extension is eight characters or less. DOS truncates longer file names, e.g., "TooLongName" to "TooLongN".

After you enter a Table File name, SSDMS II displays the screen for creating a Table File.

Menu 1.1.1: Create a Table File

Record No. 1

CURSOR <-- --> Char: <-- --> Word : Home End	UP DOWN Field: ↑ ↓ Page: PgUp PgDn Help : F1	DELETE Char: Del Field: ^Y Record: ^U	INSERT MODE: Ins Exit/Save: ^End Abort: Esc Memo: ^Home

```
 ROCK          [                              ]
SAMPLE_NO      [                    ]
GENERAL_SN     [                ]
ELEMENT        [  ]
BAT_SOR_AV     [                ]
REPLICATE      [  ]
STD_DEVIA      [      ]
CONT_TIME      [   ]
LOWEST_PH      [   ]
HIGHEST_PH     [   ]
INIT_PH        [   ]
FINAL_PH       [   ]
BAT_DES_AV     [                ]
REPLICATE2     [  ]
STD_DEVIAT     [      ]
```

See Table 1 for the English expansions of the dBase field names and Appendix B for complete descriptions of the data fields.

SSDMS II displays the first 15 fields of the record and a "HELP" field for the editor.

Enter data from Table 2, the "Record 1" column, into these fields. Press ENTER to advance to the next field. If the data occupy the entire field, the cursor will automatically advance to the next field and no carriage return is needed. If the record has more than 15 fields, pressing PGDN or CTRL-C displays additional pages of 15 fields each. When you reach the end of the record, entering PGDN or CTRL-C displays the next record. Enter data for all 7 records/columns in Table 2.

The following commands also can be used in the dBase edit, browse or append modes to alter the fields:

CTRL-W, CTRL-END	quit and save
CTRL-Q, ESCape	quit and ignore changes
CTRL-C	skip to next input record
CTRL-D	skip to next character to the right
CTRL-S	skip to next character to the left
CTRL-Y	delete all characters to the right
CTRL-X	skip to next field below
CTRL-E	skip to next field above

Table 1 Field Names in BWIP Table Files.

English Field Name	dBase Field Name
Rock	ROCK
Sample Number of the Solid	SAMPLE_NO
General Sample Number	GENERAL_SN
Element	ELEMENT
Batch Sorption Average	BAT_SOR_AV
No. of Replications (Sorption)	REPLICATE
Standard Deviation (Sorption)	STD_DEVIA
Contact Time (Sorption)	CONT_TIME
Lowest pH	LOWEST_PH
Highest pH	HIGHEST_PH
Initial pH	INIT_PH
Final pH	FINAL_PH
Batch Desorption Average	BAT_DES_AV
No. of Replications (Desorp.)	REPLICATE2
Standard Deviation (Desorp.)	STD_DEVIAT
Contact Time (Desorption)	CON_TIME
Temperature	TEMP
Tracer Feed Concentration	TRA_FE_CON
Equilibrium Concentration	EQUIL_CONC
Solid Concentration	SOLID_CONC
Particle Size Range	SIZE
Upper Mesh Size	UP_MES_SIZ
Lower Mesh Size	LO_MES_SIZ
Ground Water Type	GRNDWATER
Atmosphere	ATMOSPHERE
Eh	EH
Solution to Solid Ratio	SOLN2SOLID
Shaking	SHAKING
Decantation Method	DECANT
Pre-Equilibration	PRE_EQUIL
Source Document Number	SOURCE
File Name	FNM

NOTE: Field names vary in each Main Data Base File (i.e., BWIP, NNWSI, WIPP, etc.). These are the field names in the BWIP Main Data Base File, which the tutorial uses.

Table 2 Data for Table File 9614_1_1.
(Kelmers et al., 1985)

Field Name	Record 1	Record 2	Record 3
ROCK	B/McCoy Canyon-TM-9614/V1	B/McCoy Canyon-TM-9614/V1	B/McCoy Canyon-TM-9614/V1
SAMPLE_NO	TM9614/1-1-McC	TM9614/1-1-McC	TM9614/1-1-McC
GENERAL_SN	B/McCoy Canyon	B/McCoy Canyon	B/McCoy Canyon
ELEMENT	Tc	Tc	Tc
BAT_SOR_AV	3.5	5.5	5
REPLICATE	3	3	3
STD_DEVIA	0.2	0.8	2.3
CONT_TIME	14	14	14
LOWEST_PH	9	9.1	9.5
HIGHEST_PH	9	9.1	9.5
INIT_PH	NG	NG	NG
FINAL_PH	NG	NG	NG
BAT_DES_AV	NG	NG	NG
REPLICATE2	NG	NG	NG
STD_DEVIAT	NG	NG	NG
CON_TIME	NG	NG	NG
TEMP	60	60	60
TRA_FE_CON	3.00E-12	1.00E-08	5.00E-07
EQUIL_CONC	2.10E-12	6.60E-09	3.40E-07
SOLID_CONC	7.35E-12	3.63E-08	1.70E-06
SIZE	45-212	45-212	45-212
UP_MES_SIZ	212	212	212
LO_MES_SIZ	45	45	45
GRNDWATER	GR-2	GR-2	GR-2
ATMOSPHERE	anoxic2	anoxic2	anoxic2
EH	R	R	R
SOLN2SOLID	10/1	10/1	10/1
SHAKING	NG	NG	NG
DECANT	C	C	C
PRE_EQUIL	N	N	N
SOURCE	TM-9614/V1	TM-9614/V1	TM-9614/V1
FNM	i96141_1	i96141_1	i96141_1

Table 2 Data for Table File 9614_1_1. (continued)
(Kelmers et al., 1985)

Field Name	Record 4	Record 5
ROCK	B/McCoy Canyon-TM-9614/V1	B/McCoy Canyon-TM-9614/V1
SAMPLE_NO	TM9614/1-1-McC	TM9614/1-1-McC
GENERAL_SN	B/McCoy Canyon	B/McCoy Canyon
ELEMENT	Tc	Tc
BAT_SOR_AV	4	2
REPLICATE	3	3
STD_DEVIA	0.1	0.2
CONT_TIME	14	14
LOWEST_PH	9	9.5
HIGHEST_PH	9	9.5
INIT_PH	NG	NG
FINAL_PH	NG	NG
BAT_DES_AV	NG	NG
REPLICATE2	NG	NG
STD_DEVIAT	NG	NG
CON_TIME	NG	NG
TEMP	60	60
TRA_FE_CON	1.00E-06	2.00E-06
EQUIL_CONC	7.20E-07	1.70E-06
SOLID_CONC	2.88E-06	3.40E-06
SIZE	45-212	45-212
UP_MES_SIZ	212	212
LO_MES_SIZ	45	45
GRNDWATER	GR-2	GR-2
ATMOSPHERE	anoxic2	anoxic2
EH	R	R
SOLN2SOLID	10/1	10/1
SHAKING	NG	NG
DECANT	C	C
PRE_EQUIL	N	N
SOURCE	TM-9614/V1	TM-9614/V1
FNM	i96141_1	i96141_1

Table 2 Data for Table File 9614_1_1. (continued)
(Kelmers et al., 1985)

Field Name	Record 6	Record 7
ROCK	B/McCoy Canyon-TM-9614/V1	B/McCoy Canyon-TM-9614/V1
SAMPLE_NO	TM9614/1-1-McC	TM9614/1-1-McC
GENERAL_SN	B/McCoy Canyon	B/McCoy Canyon
ELEMENT	Tc	Tc
BAT_SOR_AV	1.1	0.5
REPLICATE	3	3
STD_DEVIA	0.1	0.1
CONT_TIME	14	14
LOWEST_PH	9.5	9.5
HIGHEST_PH	9.5	9.5
INIT_PH	NG	NG
FINAL_PH	NG	NG
BAT_DES_AV	NG	NG
REPLICATE2	NG	NG
STD_DEVIAT	NG	NG
CON_TIME	NG	NG
TEMP	60	60
TRA_FE_CON	5.00E-06	1.00E-05
EQUIL_CONC	4.50E-06	9.50E-06
SOLID_CONC	4.95E-06	4.75E-06
SIZE	45-212	45-212
UP_MES_SIZ	212	212
LO_MES_SIZ	45	45
GRNDWATER	GR-2	GR-2
ATMOSPHERE	anoxic2	anoxic2
EH	R	R
SOLN2SOLID	10/1	10/1
SHAKING	NG	NG
DECANT	C	C
PRE_EQUIL	N	N
SOURCE	TM-9614/V1	TM-9614
FNM	i96141_1	i96141_1

After entering the data, press CTRL-END to close and save the new Table File.

SSDMS II displays

Option 1.1.1 - Prompt 4

Appending the name 9614_1_1 to the list of Table File names.

and adds the name of this Table File (9614_1_1) to the list of Table File names (names.dbf), which eventually determines the contents of the Sorption File (sorption.dbf). When

Enter any key to continue...

appears, press any key to return to Menu 1.1 (Create the Sorption File).

Follow the previous procedures to make a second Table File. The data for this Table File comes from report TM-9614, volume 1, table 3, so enter 9614_1_3 for the Table File name.

Enter the data from Table 3.

Table 3 Data for Table File 9614_1_3.
(Kelmers et al., 1985)

Field Name	Record 1	Record 2	Record 3
ROCK	B/Cohassett-TM-9614/V1	B/Cohassett-TM-9614/V1	B/Cohassett-TM-9614/V1
SAMPLE_NO	TM9614-3-Coh	TM9614-3-Coh	TM9614-3-Coh
GENERAL_SN	B/Cohassett	B/Cohassett	B/Cohassett
ELEMENT	Np	Np	Np
BAT_SOR_AV	4.7	14.5	56.6
REPLICATE	3	3	3
STD_DEVIA	1.4	6.0	10.8
CONT_TIME	14	14	14
LOWEST_PH	NG	NG	NG
HIGHEST_PH	NG	NG	NG
INIT_PH	NG	NG	NG
FINAL_PH	NG	NG	NG
BAT_DES_AV	NG	NG	NG
REPLICATE2	NG	NG	NG
STD_DEVIAT	NG	NG	NG
CON_TIME	NG	NG	NG
TEMP	60	60	60
TRA_FE_CON	3.00E-07	3.00E-07	3.00E-07
EQUIL_CONC	1.21E-07	8.60E-08	4.00E-08
SOLID_CONC	5.69E-07	1.25E-06	2.26E-06
SIZE	212-425	212-425	212-425
UP_MES_SIZ	425	425	425
LO_MES_SIZ	212	212	212
GRNDWATER	GR-4	GR-4	GR-4
ATMOSPHERE	anoxic2	anoxic2	anoxic2
EH	R	R	R
SOLN2SOLID	10/1	10/1	10/1
SHAKING	NG	NG	NG
DECANT	NG	NG	NG
PRE_EQUIL	N	N	N
SOURCE	TM-9614/V1	TM-9614/V1	TM-9614/V1
FNM	i96141_3	i96141_3	i96141_3

Table 3 Data for Table File 9614_1_3. (continued)
(Kelmers et al., 1985)

Field Name	Record 4	Record 5	Record 6
ROCK	B/Cohassett-TM-9614/V1	B/Cohassett-TM-9614/V1	B/Cohassett-TM-9614/V1
SAMPLE_NO	TM9614-3-Coh	TM9614-3-Coh	TM9614-3-Coh
GENERAL_SN	B/Cohassett	B/Cohassett	B/Cohassett
ELEMENT	Np	Np	Np
BAT_SOR_AV	202	235	275
REPLICATE	3	3	3
STD_DEVIA	142	104	168
CONT_TIME	14	14	14
LOWEST_PH	NG	NG	NG
HIGHEST_PH	NG	NG	NG
INIT_PH	NG	NG	NG
FINAL_PH	NG	NG	NG
BAT_DES_AV	NG	NG	NG
REPLICATE2	NG	NG	NG
STD_DEVIAT	NG	NG	NG
CON_TIME	NG	NG	NG
TEMP	60	60	60
TRA_FE_CON	3.00E-07	3.00E-07	3.00E-07
EQUIL_CONC	1.70E-08	1.20E-08	1.50E-08
SOLID_CONC	3.43E-06	2.82E-06	4.13E-06
SIZE	212-425	212-425	212-425
UP_MES_SIZ	425	425	425
LO_MES_SIZ	212	212	212
GRNDWATER	GR-4	GR-4	GR-4
ATMOSPHERE	anoxic2	anoxic2	anoxic2
EH	R	R	R
SOLN2SOLID	10/1	10/1	10/1
SHAKING	NG	NG	NG
DECANT	NG	NG	NG
PRE_EQUIL	N	N	N
SOURCE	TM-9614/V1	TM-9614/V1	TM-9614/V1
FNM	i96141_3	i96141_3	i96141_3

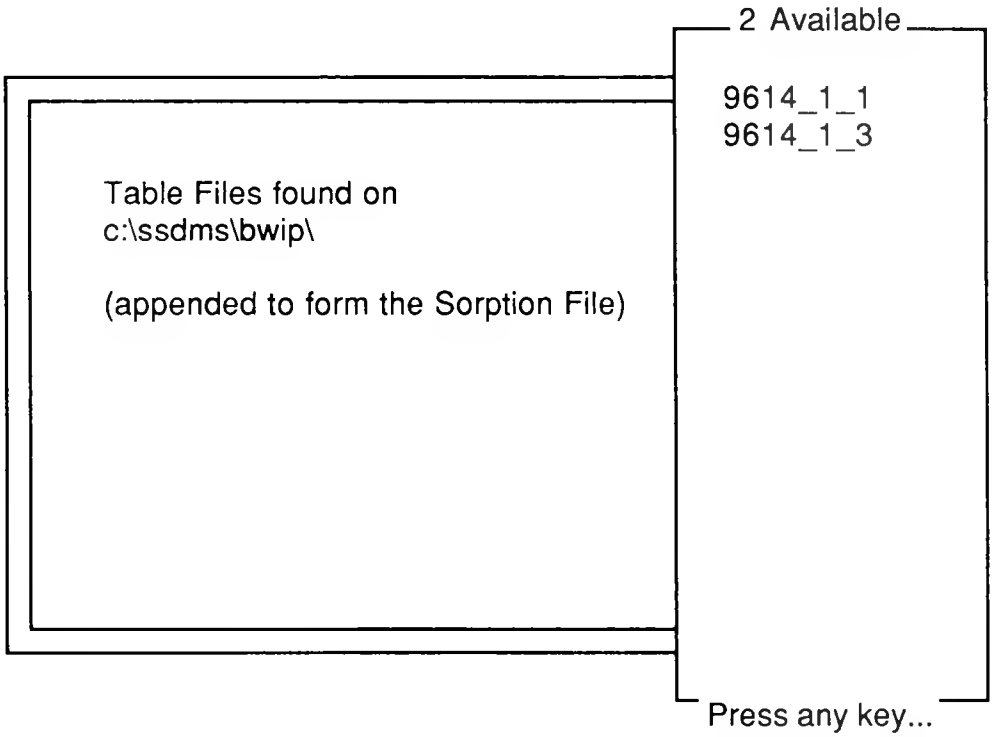
Once you input data into a Table File and SSDMS II adds its name to the list of Table Files, Menu 1.1 (Create the Sorption File) appears.

Verify Table File Names (Option 1.1.2)

Next you verify that the correct Table File names are in the list that determines the contents of the Sorption File.

Enter a "2" to display the menu for Option 1.1.2 (View the List of Table File Names).

Menu 1.1.2 - View the List of Table File Names



On the left, SSDMS II displays the directory containing the Table Files you just entered. On the right are the Table File names. In Option 1.1.4 (Append Table Files to form the Sorption File), these two Table Files will form the Sorption File.

After viewing, you may print the list of Table File names when SSDMS II asks

Option 1.1.2 - Prompt 1

```
Do you want a printout
of this list? (Y/N)   [ N ]
```

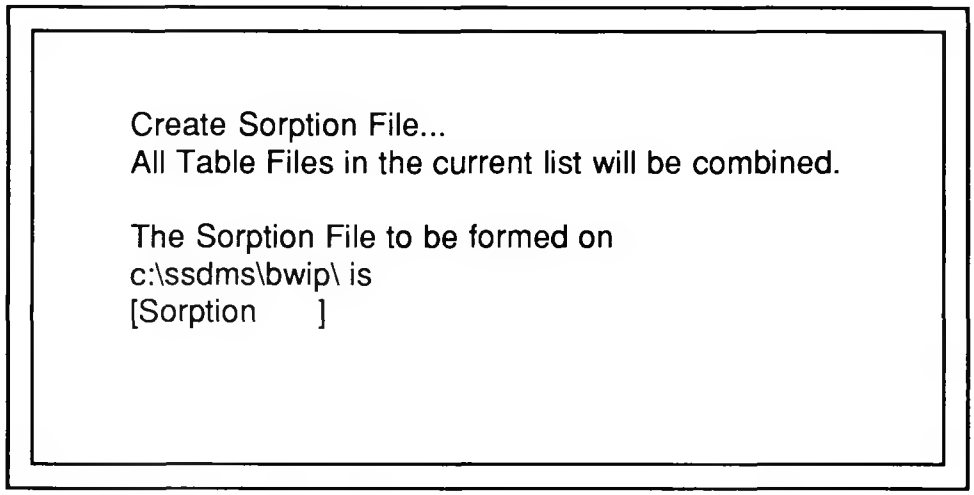
Enter an "N" to return to Menu 1.1 (Create the Sorption File).

Append Table Files to Form the Sorption File (Option 1.1.4)

The Table Files will be combined to form the Sorption File. dBase calls this "appending" files because it repeatedly adds files to the files previously combined.

Enter a "4" to display the menu for Option 1.1.4 (Append Table Files to Form the Sorption File).

Menu 1.1.4 - Append Table Files to Form the Sorption File



The Sorption File (sorption.dbf) is the main component of the Main Data Base File (master.dbf) and contains appended Table Files. Option 1.1.4 (Append Table Files to Form the Sorption File) will gather all the Table Files whose names appear in the list of Table File names (names.dbf) and append them into one data base: the Sorption File.

The first prompt asks for the name of the Sorption File.

Option 1.1.4 - Prompt 1

```
The Sorption File to be formed on
c:\ssdms\bwip\ is
[sorption       ]
```

The name can be up to eight characters long, but the tutorial uses the default (sorption.dbf). Accept the name "sorption" by pressing ENTER.

If you need to exit at this prompt, enter a blank file name, and after SSDMS II displays "Returning... " (Option 1.1.4 - Prompt 2), press any key to return to Menu 1.1 (Create the Sorption File).

After you enter the Sorption File name, SSDMS II makes the Sorption File by appending all the files in the list of Table Files. Meanwhile, it displays a message like

Option 1.1.4 - Prompt 3

```
Appending from c:\ssdms\bwip\9614_1_1
```

to show which file it is working on. After creating the Sorption File, SSDMS II displays

Option 1.1.4 - Prompt 4

Enter any key to continue...

Press any key to return to Menu 1.1 (Create the Sorption File).

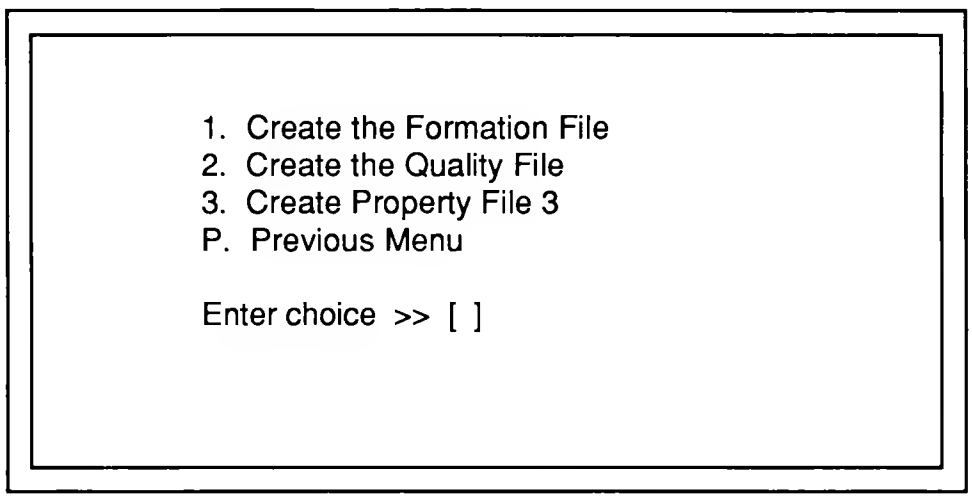
Then enter a "P" to return to Menu 1 (Create Data Base Files).

Create the Property Files (Option 1.2)

A complete Main Data Base File contains the Sorption File and perhaps some Property Files. The following steps explain how to prepare the most frequently used Property Files--specifically, the Formation File and the Quality File.

Enter "2" at the Main Prompt to display the menu for Option 1.2 (Create the Property Files).

Menu 1.2 - Create the Property Files



Option 1.2 (Create the Property Files) allows you to create a Formation File (format.dbf), a Quality File (quality.dbf) or a Property File 3 . Formation and Quality Files, because they are so frequently used, are the first and second Property Files. "Property File 3" refers to all subsequent Property Files, and because a common use for the first Property File 3 is to store water information, the default name for the first Property File 3 is "hydchem.dbf."

If you need to return to Menu 1 (Create Data Base Files), enter a "P" at the Main Prompt.

Create the Formation File (Option 1.2.1)

The first Property File to create is the Formation File.

Enter a "1," and SSDMS II displays

Option 1.2.1 - Prompt 1

```
You will be making a Formation File for the data in
c:\ssdms\bwip\

Enter any key to continue...
```

This prompt reminds you of the data directory, which should be for the BWIP data. If the prompt does not display "c\ssdms\bwip\," reset the defaults. To do this, enter any key, enter a blank at the prompt for a file name, enter any key at the "Returning..." prompt, enter a "P" at the Main Prompts until the Main Menu appears, and repeat the procedure to set the defaults in "Configure SSDMS II."

The next prompt asks for the Formation File name.

Option 1.2.1 - Prompt 2

```
Enter name for new file: [Format       ]
```

You may enter any name up to eight characters long, but the tutorial uses the default name, so press ENTER to accept the name "Format."

If you need to exit the procedure, enter a blank for the file name, and when SSDMS II displays "Returning..." (Option 1.2.1 - Prompt 3), enter any key to return to Menu 1.2 (Create the Property Files).

After you name the Formation File name, SSDMS II displays the menu for creating the Formation File.

Option 1.2.1: Create the Formation File

Record No. 1

CURSOR <-- --> Char: <-- --> Word : Home End	UP DOWN Field: ↑ ↓ Page: PgUp PgDn Help : F1	DELETE Char: Del Field: ^Y Record: ^U	INSERT MODE: Ins Exit/Save: ^End Abort: Esc Memo: ^Home

```
 SAMPLE_NO     [                  ]
FORMATION      [                     ]
SYMBOL         [    ]
SORPTN_CAT     [                     ]
CAT_SOURCE     [          ]
DEPTH_FT       [        ]
DRILL_HOLE     [           ]
SOR_INTER      [                        ]
INTER_SOUR     [                ]
SAT_TYPE       [ ]
STRATINDEX     [ ]
RECNO          [     ]
```

Table 4 lists the dBase field names and their English equivalents, and Appendix B describes each field in detail.

SSDMS II displays the first 15 fields of the record.

Enter data from Table 5's "Record 1" column into these fields. Press ENTER to advance to the next field. If the data occupy the entire field, the cursor will automatically advance to the next field, and no carriage return is needed. If the record has more than 15 fields, pressing PGDN or CTRL-C displays additional pages of 15 fields each. When you reach the end of the record, entering PGDN or CTRL-C displays the next record. Enter data for both records/columns in Table 5.

The following commands can be used in the dBase edit, browse or append modes to alter the fields:

CTRL-W, CTRL-END	quit and save
CTRL-Q, ESCape	quit and ignore changes
CTRL-C	skip to next input record
CTRL-D	skip to next character to the right
CTRL-S	skip to next character to the left
CTRL-Y	delete all characters to the right
CTRL-X	skip to next field below
CTRL-E	skip to next field above

Table 4 Field Names for the BWIP Formation File.

English Field Name	dBase Field Name
Sample Number of the Solid	SAMPLE_NO
Formation Name	FORMATION
Geologic Symbol	SYMBOL
Sorption Category Type	SORPTN_CAT
Category Source Doc. No.	CAT_SOURCE
Depth of Sample	DEPTH_FT
Drill Hole Number	DRILL_HOLE
Sorption Interval	SOR_INTER
Source Interval Doc. No.	INTER_SOUR
Saturation Type	SAT_TYPE
Stratigraphic Index	STRATINDEX

NOTE: Field names vary with the current Main Data Base File (i.e., BWIP, NNWSI, WIPP, etc.). These names apply only to the BWIP Main Data Base File, which the tutorial uses.

Table 5 Data for Formation File "Format". (Kelmers et al., 1985)

Field Name	Record 1	Record 2
SAMPLE_NO	TM9614/1-1-McC	TM9614-3-Coh
FORMATION	Grande Ronde	Grande Ronde
SYMBOL	Tsb	Tsb
SORPTN_CAT	basalt	basalt
CAT_SOURCE	TM-9109	TM-9109
DEPTH_FT	NG	NG
DRILL_HOLE	Surface	Surface
SOR_INTER	McCoy Canyon	Cohassett
INTER_SOUR	TM-9109	TM-9109
SAT_TYPE	S	S
*STRATINDEX		
*RECNO		

*Enter a blank for this field by hitting the return key.

After entering data, press CTRL-END to close and save the new Formation File and to display Menu 1.2 (Create the Property Files).

Create the Quality File (Option 1.2.2)

The second Property File to create is the Quality File.

Enter a "2" at the Main Prompt to display the prompt for Option 1.2.2 (Create the Quality File).

Option 1.2.2 - Prompt 1

```
You will be making a Quality File for the data in
c:\ssdms\bwip\

Enter any key to continue...
```

This prompt reminds you of the data directory, which should be for the BWIP data.

If the prompt does not display "c/ssdms/bwip/," reset the defaults. To do this, enter any key, enter a blank at the prompt for a file name, enter any key at the "Returning..." prompt, enter a "P" at the Main Prompts until the Main Menu appears, and repeat the procedure in "Configure SSDMS II."

If the prompt does display "c/ssdms/bwip/," press any key, and SSDMS II asks for the Quality File's name.

Option 1.2.2 - Prompt 2

```
Enter name for new file: [Quality        ]
```

You may enter any name up to eight characters long, but the tutorial uses the default, so press ENTER to accept the name "Quality."

If you need to exit the procedure, enter a blank for the file name. SSDMS II displays "Returning..." (Option 1.2.2 - Prompt 3). Enter any key to return to Menu 1.2 (Create the Property File).

After you name the Quality File, SSDMS II displays the menu for creating a Quality File.

Option 1.2.2: Create a Quality File

Record No. 1

CURSOR <-- --> Char: <-- --> Word : Home End	UP DOWN Field: ↑ ↓ Page: PgUp PgDn Help : F1	DELETE Char: Del Field: ^Y Record: ^U	INSERT MODE: Ins Exit/Save: ^End Abort: Esc Memo: ^Home

FNM	[ ]
CNTR_MATL	[ ]
SEAL	[ ]
LINER	[ ]
AGIT_RATE	[ ]
FLTR_SZ	[ ]
CNTRFG_RT	[ ]
PE_CON_TIM	[ ]
PE_TEMP	[ ]
PE_ATM	[ ]
NO_WSHNGS	[ ]
CRSHNG_ATM	[ ]
Q1	[ ]
Q2	[ ]
QUALGROUP	[ ]

Table 5 lists the dBase field names and their English equivalents, and Appendix B describes each field in detail.

SSDMS II displays the first 15 fields of the record.

Enter data from Table 7's "Record 1" column. Press ENTER to advance to the next field. If the data occupy the entire field, the cursor will automatically advance to the next field, and no carriage return is needed. If the record has more than 15 fields, pressing PGDN or CTRL-C displays additional pages of 15 fields each. When you reach the end of the record, entering PGDN or CTRL-C displays the next record. Enter data for both records/columns in Table 5.

The following commands can be used in the dBase edit, browse or append modes to alter the fields:

CTRL-W, CTRL-END	quit and save
CTRL-Q, ESCape	quit and ignore changes
CTRL-C	skip to next input record
CTRL-D	skip to next character to the right
CTRL-S	skip to next character to the left
CTRL-Y	delete all characters to the right
CTRL-X	skip to next field below
CTRL-E	skip to next field above

Table 6 Field Names for the BWIP Quality File.

English Field Name	dBase Field Name
File Name	FNM
Container Material	CNTR_MATL
Seal Material	SEAL
Liner Material	LINER
Agitation Rate	AGIT_RATE
Filter Size	FLTR_SZ
Centrifuge Rate	CNTRFG_RT
Pre-Equilibration Contact Time	PE_CON_TIM
Pre-Equilibration Temperature	PE_TEMP
Pre-Equilibration Atmosphere	PE_ATM
Number of Washings	NO_WSHINGS
Crushing Atmosphere	CRSHNG_ATM
First Basalt Quality Index	Q1
Second Basalt Quality Index	Q2
Combined Basalt Quality Index	QUALGROUP
Rock	ROCK
Sample Number of the Solid	SAMPLE_NO

NOTE: Field names vary with the current Main Data Base File (i.e., BWIP, NNWSI, WIPP, etc.). These names apply only to the BWIP Main Data Base File.

Table 7 Data for the Quality File "Quality".
(Kelmers et al., 1985)

Field Name	Record 1	Record 2
FNM	i96141_1	i96141_3
CNTR_MATL	polypropylene	polypropylene
SEAL	NG	NG
LINER	NG	NG
AGIT_RATE	30	30
FLTR_SZ	N/A	N/A
CNTRFG_RT	5000	5000
PE_CON_TIM	N/A	N/A
PE_TEMP	N/A	N/A
PE_ATM	N/A	N/A
NO_WSHINGS	NG	NG
CRSHNG_ATM	anoxic2	anoxic2
Q1	Q	Q
Q2	Q	Q
QUALGROUP	II	II
ROCK	B/McCoy Canyon-TM-9614/V1	B/Cohassett-TM-9614/V1
SAMPLE_NO	TM9614/1-1-McC	TM9614-3-Coh

After entering data, press CTRL-END to close and save the new Quality File and to display Menu 1.2 (Create the Property Files).

Enter a "P" at the Main Prompt to return to Menu 1 (Create Data Base Files).

Join the Sorption and Property Files (Option 1.3)

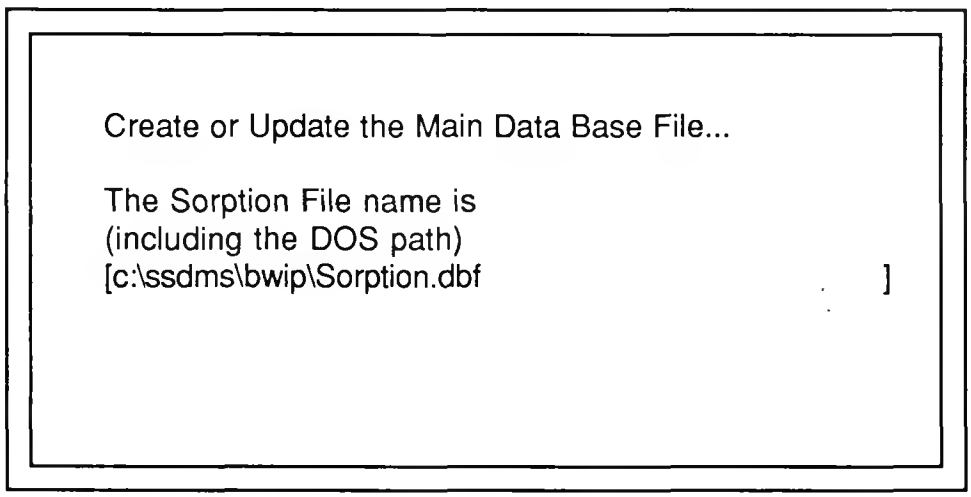
So far, you have created the Sorption and Property files (sorption.dbf, format.dbf, quality.dbf) containing new data. Now you must combine them into a temporary Main Data Base File (tempmast.dbf) that you can either append to the existing Main Data Base File (master.dbf) or maintain as a separate Main Data Base File. Combining and appending involves these steps:

1. Name the files to combine and the temporary Main Data Base File.
2. Combine the files, one by one, identifying the fields to move to the combined file and identifying the dBase "condition," (the field all the files have in common).
3. Append the combined file to a Main Data Base File.

First, you will name the files to combine and the temporary Main Data Base File.

Enter a "3" at the Main Prompt to select Option 1.3 (Create or Update the Main Data Base File), and SSDMS II asks for the Sorption File's name.

Menu 1.3.a - Get Name of the Sorption File



You could change the DOS path or the file name of the Sorption File, but the defaults are acceptable, so press ENTER.

If you need to exit the procedure, enter a blank for the file name. SSDMS II displays "Returning..." (Option 1.3.1 - Prompt 1) At this prompt, enter any key. SSDMS II again displays Enter any key to continue... (Option 1.3.a - Prompt 2). Again, enter any key to return to Menu 1 (Create Data Base Files).

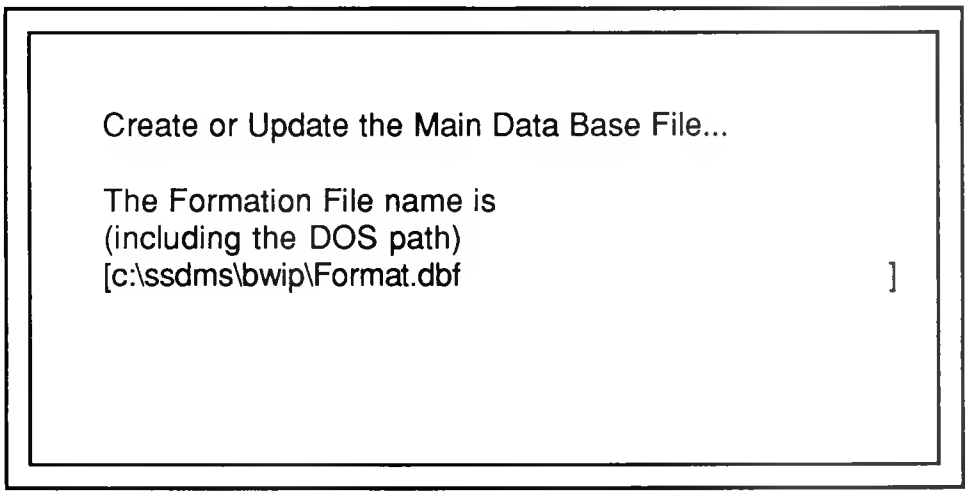
But you are not exiting. SSDMS II asks if you will join a Formation File (format.dbf) with the Sorption File.

Option 1.3.a - Prompt 3

Do you want to join the Sorption File
with a Formation File? (Y/N) [Y]

Enter a "Y", and SSDMS II asks for the Formation File name.

Menu 1.3.b - Get Name of the Formation File



You could change the DOS path or the file name of the Formation File to include in the temporary master. But the defaults are acceptable, so press ENTER.

If you need to exit the procedure, enter a blank for the file name. This is equivalent to saying you do not want to add a Formation File to the temporary master file. SSDMS II displays "Returning..." (Option 1.3.b - Prompt 1). Continue to enter blanks when asked for file names, and SSDMS II eventually returns to Menu 1.

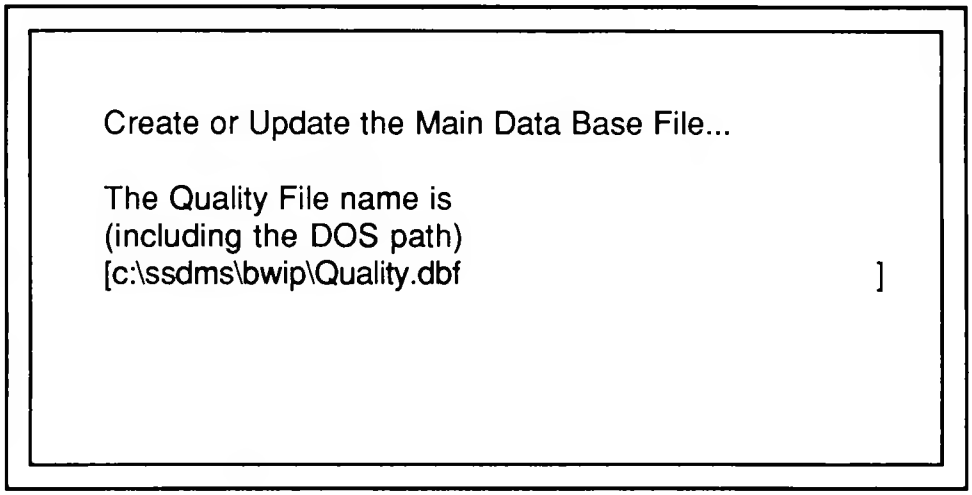
But you are not exiting. SSDMS II asks if you will join a Quality File (quality.dbf) with the Sorption File.

Option 1.3.b - Prompt 2

Do you want to join the Sorption File
with a Quality File? (Y/N) [Y]

Enter a "Y", and SSDMS II asks for the Quality File name.

Menu 1.3.c - Get Name of the Quality File



You could change the DOS path or the file name of the Quality File to include in the temporary Main Data Base File, but the defaults are acceptable, so press ENTER.

If you need to exit the procedure, enter a blank for the file name. This is equivalent to saying you do not want to add a Quality File to the temporary Main Data Base File. SSDMS displays "Returning..." (Option 1.3.c - Prompt 1). Continue to enter blanks when asked for file names, and SSDMS II eventually returns to Menu 1.

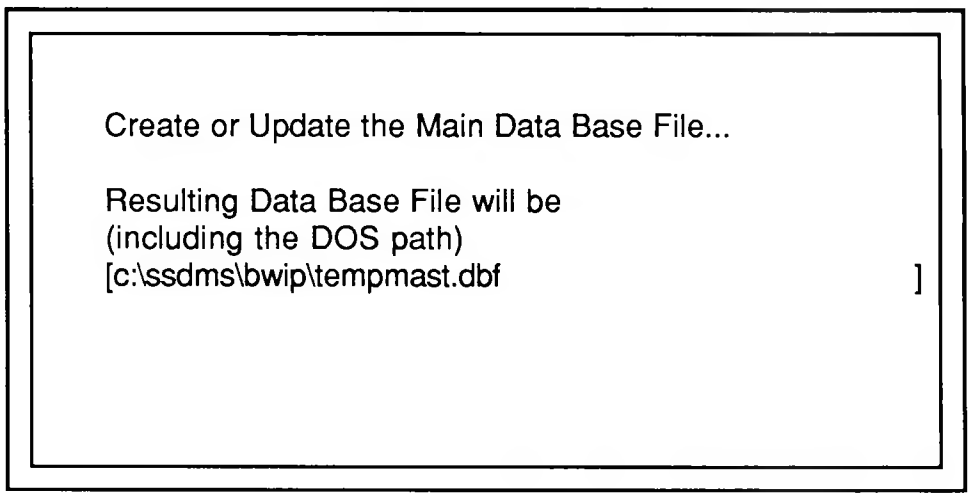
But you are not exiting. SSDMS II asks if you will join a Property File (hydchem.dbf) with the Sorption File.

Option 1.3.c - Prompt 2

Do you want to join the Sorption File
with a Property File? (Y/N) [Y]

Since you created no third Property File in this tutorial, enter an "N," and SSDMS II asks for the name of the combined file.

Menu 1.3.d - Get Name of the Resulting Data Base File



DANGER: If you give this temporary master the same name as the Main Data Base File (master.dbf) and give a positive response to the prompts 3 and 4 listed under Menu 1.3.e in Section 3 REFERENCE, all data in the Main Data Base File will be lost.

You could change the DOS path or the file name of the temporary Main Data Base File, but the default (tempmast.dbf) is acceptable, so press ENTER to accept it.

If you need to exit the procedure, enter a blank for the file name. SSDMS II displays "Returning..." (Option 1.3.d - Prompt 1). Enter any key, and SSDMS II prompts "Enter any key to continue..." (Option 1.3.d - Prompt 2). Again, enter any key, and you return to Menu 1 (Create Data Base Files).

If you complete the naming step, the second step in joining and appending is joining the files, two at a time. The Sorption File and the Formation File join to form a temporary file, and that temporary file joins with the Quality File to form tempmast.dbf. As part of the combining procedure, SSDMS II asks for the fields you want to include (or omit) in the combined file and the dBase "condition," or field the files you are joining have in common.

SSDMS II begins the joining operation by displaying

Option 1.3.e - Prompt 1

Joining the designated fields of c:\ssdms\bwip\Format
and c:\ssdms\bwip\Sorption.

Enter Fields (Enter a blank for all fields) :

[ ]

If you specify fields, SSDMS combines only the fields you specify. So by specifying a subset of the fields, you exclude the fields you do not name. If you misspell a field name or specify a nonexistent field, a dBase error results and SSDMS II returns to the Main Menu without combining any files.

If you do not specify fields, SSDMS II assumes you want to combine all fields from both data base files.

Because you want to combine all fields, press ENTER.

SSDMS asks for the condition on which to join the files. The prompt assumes, as its beginning, "Joining the designated fields of the two files...."

Option 1.3.e - Prompt 2

for the following condition.

Enter Condition (Enter a return for the default):

[SAMPLE_NO = Format->SAMPLE_NO]

The default condition is the "SAMPLE_NO" field, which is common to the Sorption File, the Formation File and the Quality File for the BWIP data base files. You could specify any valid dBase condition, or field in common. If the condition is not valid, a dBase error results, and you return to the SSDMS II Main Menu.

Because the default is acceptable, press ENTER.

As SSDMS II joins the files, it displays a message that identifies which files it joins, the condition, and for which fields:

Option 1.3.e - Prompt 3

Join Format with Sorption for the condition

SAMPLE_NO = Format->SAMPLE_NO

on all fields.

When the two files have been joined, SSDMS displays

Option 1.3.e - Prompt 4

Enter any key to continue...

Press any key.

Next, you join the temporary combination of the Sorption File and the Formation File with the Quality File. The following prompt appears automatically.

Option 1.3.e - Prompt 5

Joining the designated fields of c:\ssdms\bwip\Quality
and the other data base files.

Enter Fields (Enter a blank for all fields) :

[ ]

As before, specifying fields will join only the fields you specify, and if you misspell a field name or name a nonexistent field, SSDMS returns to the Main Menu without joining files. Specifying no fields results in SSDMS joining all fields in both files.

Because the defaults are acceptable, press ENTER.

Next SSDMS II asks for the condition on which to join the files, again assuming as the prompt's beginning, "Joining the designated fields...."

Option 1.3.e - Prompt 6

for the following condition.

Enter Condition (Enter a return for the default):

[SAMPLE_NO = Quality->SAMPLE_NO]

Again, the default condition for joining is the "SAMPLE_NO" field. Because that is acceptable, press ENTER.

As SSDMS II joins the files, it displays the file names, condition, and fields.

Option 1.3.e - Prompt 7

Join Quality with the other data base files for the condition

SAMPLE_NO = Quality->SAMPLE_NO

on all fields.

When SSDMS II displays

Option 1.3.e - Prompt 8

Enter any key to continue...

press any key.

SSDMS II repeats the fields and condition queries until all the new data files that you named have been joined into the combined file you named. You are now ready for the last step in joining and appending.

Updating the Main Data Base File

You have created the combined file named "tempmast.dbf," which--because it contains all the necessary files--SSDMS II considers a Main Data Base File. Under normal circumstances, you would either append it to an existing Main Data Base File or let it stand as a Main Data Base File by itself.

But this tutorial is not a normal circumstance. The data in tempmast.dbf already appears in the BWIP Main Data Base File (master.dbf). You created it only to practice using SSDMS II. So this section of the tutorial will explain (1) how to leave this practice file, (2) how to append it to an existing Main Data Base File if it did contain brand new data, and (3) how to let it stand as an existing Main Data Base File if you were creating a brand new Main Data Base File. Execute the instructions in the first subsection, and then skip to "Return to SSDMS II Main Menu" before executing any more commands. You may read the subsequent second and third subsections, but do not execute any commands in those subsections or you will add duplicate data to the Main Data Base File supplied with this report.

Leave the Practice Main Data Base File (tempmast.dbf) - do this!

When SSDMS II asks

Option 1.3.f - Prompt 1

> Do you want to append the new Main Data Base File
> to another file? (Y/N) [Y]

answer "N" to avoid influencing any more files. When the program asks

Option 1.3.f - Prompt 2

> Do you want to make the Field Selection Screen
> for the Main Data Base File? (Y/N) [Y]

answer "N" again to return to Menu 1 (Create Data Base Files).

From Menu 1 (Create Data Base Files), enter a "P" to return to the SSDMS II Main Menu.

Appending a New to an Existing Main Data Base File - read this!

Suppose the newly created Main Data Base File (tempmast.dbf) did contain sorption data you wanted to add to the existing BWIP Main Data Base File. How would you append it?

When SSDMS II asks

Option 1.3.f - Prompt 1

Do your want to append the new Main Data Base File
to another file? (Y/N) [Y]

answer "Y" and SSDMS II asks for the

Option 1.3.f - Prompt 1.1

Name of old Main Data Base File
(including DOS path)
[c:\ssdms\bwip\Master]

You may change the DOS path or the Main Data Base File name to any existing Main Data Base File. To accept the default for the BWIP Main Data Base File (master.dbf), you would just press ENTER. Once you enter an acceptable file name, SSDMS II appends the combined data base file to the existing Main Data Base File you named.

If you needed to exit the procedure, when SSDMS asks for the name of the existing or "old" Main Data Base File, you would enter a blank. SSDMS would display "Returning..." (Option 1.3.f - Prompt 1.2), and you would enter any key. Entering a blank at the prompt for an existing or "old" Main Data Base File name is equivalent to saying you do not want to join the combined file to an existing Main Data Base File.

After joining a new to an existing Main Data Base File, SSDMS II asks

Option 1.3.f - Prompt 2

Do you want to make the Field Selection Screen
for the Main Data Base File? (Y/N) [Y]

If the new Main Data Base File used different data structures than the existing Main Data Base File, answer "Y." Otherwise (as in the case of the tutorial's tempmast.dbf and master.dbf), answer "N" to return to Menu 1 (Create Data Base Files).

From Menu 1 (Create Data Base Files), enter a "P" to return to the SSDMS II Main Menu.

Letting a New Main Data Base File Stand Alone - read this!

Suppose the new Main Data Base File contained information you wished to search separately from any existing Main Data Base File. This might occur if the new Main Data Base File were for a different host rock. How could you let the file stand by itself as a new Main Data Base File?

When SSDMS II asks

Option 1.3.f - Prompt 1

> Do your want to append the new Main Data Base File
> to another file? (Y/N) [Y]

answer "N," and when SSDMS II asks

Option 1.3.f - Prompt 2

> Do you want to make the Field Selection Screen
> for the Main Data Base File? (Y/N) [Y]

answer "N" to return to Menu 1 (Create Data Base Files).

From Menu 1 (Create Data Base Files), enter a "P" to return to the SSDMS II Main Menu.

Before you can search the new Main Data Base File, you should do several things:

1. Create a subdirectory for it (see "Install SSDMS II").
2. Copy it into that subdirectory, along with all the files you created it with and it needs to operate (see Appendix A).
3. Configure SSDMS II defaults to access the new subdirectory and files (see "Configure SSDMS II").

EXTRACTING INFORMATION FROM THE MAIN DATA BASE FILE

Once you install SSDMS II and define the defaults (see "Initial Installation and Configuration"), you can extract data from the Main Data Base File. SSDMS II prompts you for the criteria by which to subset the Main Data Base File, the fields to output, and the form of output.

The subset criteria include the field to check, the criteria values to check for, and how to associate the criteria and existing values (e.g., equal or unequal).

In this part of the tutorial, you search the BWIP Main Data Base File for all experiments involving cesium and output the values of batch sorption average and experimental temperature onto the screen. Thus, the subsetting criterion is Element = CS, the output is Batch Sorption Average and Temperature, and the output form is screen display.

During the tutorial, if you see any prompts or screen displays other than those appearing in the documentation, consult Section 3 REFERENCE.

Except at the Main Prompt (Enter choice >> [ ]), press ENTER after entering data.

It is assumed that SSDMS II is not running when you start this section of the tutorial.

Access the "Extract Data" Option (Option 3)

To start SSDMS II, set the current directory to the SSDMS II program director, and then enter

C:\SSDMS\PROGRAM> **DBASE ssdmsii**

to display the SSDMS II Main Menu.

Main Menu

```
SSDMS II Main Menu

1. Create Data Base Files
2. Edit Data Base Files
3. Extract Data from Main Data Base File
4. Display Graphs and Statistical Information
5. Drive/Directory Settings and Information
6. dBASE Shell
7. Quit SSDMS II

Enter choice >> [ ]
```

Enter a "3" at the Main Prompt to display the menu for Option 3 (Extract Data from Main Data Base File).

Menu 3 - Extract Data from Main Data Base File

```
1. Individual Subsetting
2. Batch Subsetting
P. Previous Menu

Enter choice >> [ ]
```

If you need to return to the SSDMS II Main Menu, enter a "P" at the Main Prompt.

Option 3 allows you to subset the Main Data Base File using individual (Option 3.1: Individual Subsetting) or batch (Option 3.2: Batch Subsetting) subsetting techniques.

Individual Subsetting (Option 3.1)

Individual subsetting involves the following steps:

1. Describe the search criteria
2. Describe the output
3. Choose the output mode and search the data base

To start individual subsetting, enter a "1" to select Option 3.1 (Individual Subsetting)

If this is the first time that individual subsetting has been carried out on your Main Data Base file, the following message will appear on the screen:

```
No Field Selection Screen exists for the
current Main Data Base File.

Do you want to make the Field Selection Screen? (Y/N)   [ Y ]
```

Press "ENTER" to proceed.

After the Field Selection Screen has been made, Menu 3.1.a will appear.

Describe the Search Criteria (Option 3.1.a)

Describing the search criteria involves the following steps:

1. Clear previous search settings.
2. Identify the field(s) for the data searches.
3. Ignore or distinguish between upper and lower case in comparing current values and the criterion value.
4. Choose equality or inequality as the type of comparison.
5. Enter the criterion value.

SSDMS II displays Menu 3.1.a (Individual Subsetting: Subset Criteria).

Menu 3.1.a - Individual Subsetting: Subset Criteria

Subset the Main Data Base File

1	File Name	17	Sample Number of the Solid
2	Container Material	18	General Sample Number
3	Seal Material	19	Element
4	Liner Material	20	Batch Sorption Average
5	Agitation Rate	21	No. of Replications (Sorption)
6	Filter Size	22	Standard Deviation (Sorption)
7	Centrifuge Rate	23	Contact Time (Sorption)
8	Pre-Equilibration Contact Time	24	Lowest pH
9	Pre-Equilibration Temperature	25	Highest pH
10	Pre-Equilibration Atmosphere	26	Initial pH
11	Number of Washings	27	Final pH
12	Crushing Atmosphere	28	Batch Desorption Average
13	First Basalt Quality Index	29	No. of Replications (Desorp.)
14	Second Basalt Quality Index	30	Standard Deviation (Desorp.)
15	Combined Quality Index	31	Contact Time (Desorption)
16	Rock	32	Temperature

Enter choices on which to subset the Main Data Base File:
[ ]
Criteria are

Clear Next Page Return Edit Units

NOTE: Field names vary in each Main Data Base File (i.e., BWIP, NNWSI, WIPP, etc.). These are the field names in the BWIP Main Data Base File.

The top box is the Field Selection Screen and lists the fields whose existing values you may compare to a criterion value you enter. For the BWIP Main Data Base File, not all the fields fit on one Field Selection Screen. To display the fields not shown, enter a "P" at the Subset Prompt (Option 3.1.a), though you do not need to see all fields for this tutorial. See Appendix B for a description of these fields.

The lower box is the Subset Prompt, and, between the brackets, you enter the number(s) of the field(s) you want to select, or you choose the options listed on the bottom edge of the screen. Those options are

Clear	clears the criteria shown at the bottom of the screen
Next	advances to the next operation (Describe Desired Output)
Page	displays the next/previous page of the Field Selection Screen
Return	returns to the SSDMS II Main Menu
Edit	edits the subsetting criteria string
Units	displays the units of a specified field

For a more detailed explanation of these options, see Section 3 REFERENCE, Option 3.1.a (Individual Subsetting: Describe Desired Input), heading "Option Row for Individual Subsetting".

You identify subsetting criteria on this menu by entering the numbers of the fields you want to select. If you specify two or more fields, SSDMS II links them with an "AND" logical operation by default. However, you can customize the criteria with the Edit function on the bottom, option row of this menu. For example, you could replace the default "AND" logic with an "OR" logic expression.

The main prompt for the input of individual subsetting criteria is the Subset Prompt (Option 3.1.a).

Option 3.1.a - Subset Prompt

```
Enter choices on which to subset the Main Data Base File:
                              [  ]
Criteria are

     Clear     Next     Page     Return     Edit     Units
```

By default, criteria from the last subsetting operation are saved and appear at the bottom of the screen.

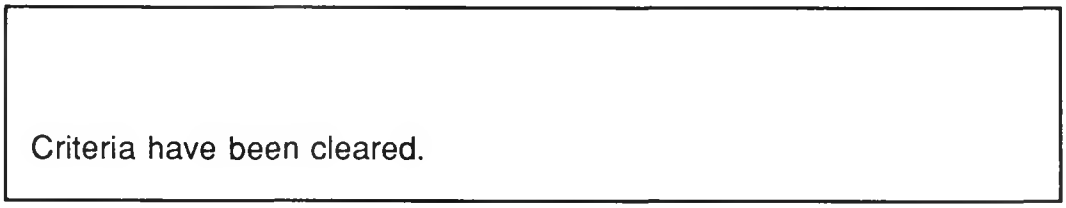
Enter a "C" to clear the criteria.

Option 3.1.a - Subset Criteria Prompt 1

```
Enter choices on which to subset the Main Data Base File:
                              [C ]
Criteria are

     Clear     Next     Page     Return     Edit     Units
```

Once the criteria have been cleared, Prompt 2 (Option 3.1.a - Subset Criteria) appears briefly before Option 3.1.a (Subset Prompt) reappears.

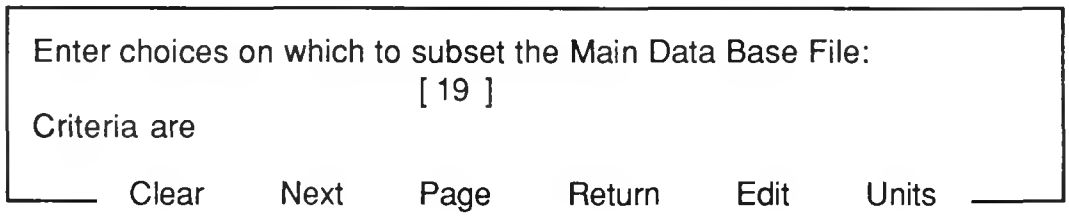
Option 3.1.a - Subset Criteria Prompt 2



To subset the Main Data Base File, you must choose a subsetting field. In this example, the chosen field will be Element, field number 19.

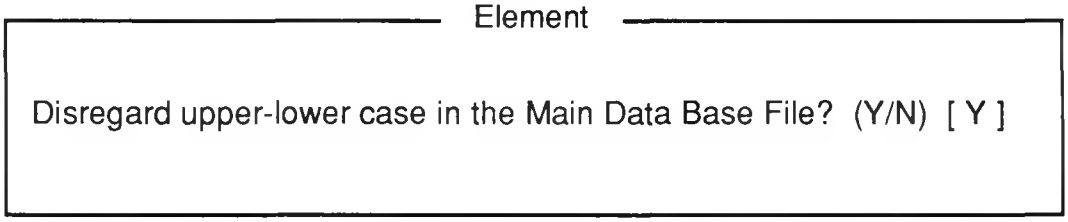
Enter a "19" at the Subset Prompt (Option 3.1.a).

Option 3.1.a - Subset Criteria Prompt 3



Next, choose whether SSDMS II should ignore or distinguish between upper and lower case in comparing the current values in the Element field to a criterion value. SSDMS II asks

Option 3.1.a - Subset Criteria Prompt 4

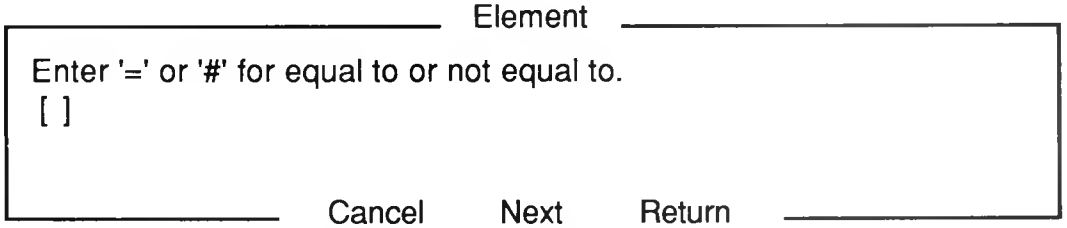


In a later step in this tutorial, you will enter "Cs" for cesium as the criterion value. If you enter "Y" here at Prompt 4 (Option 3.1.a - Subset Criteria) to disregard case, SSDMS II will display results for "Cs" or "cS" or "CS" or "cs". But if you choose "N" to distinguish between upper and lower case, only a perfect match--"Cs"--would return results.

Enter a "Y".

Next, SSDMS II asks whether the current values and the criterion values should be equal or unequal. SSDMS II tells you

Option 3.1.a - Subset Criteria Prompt 5

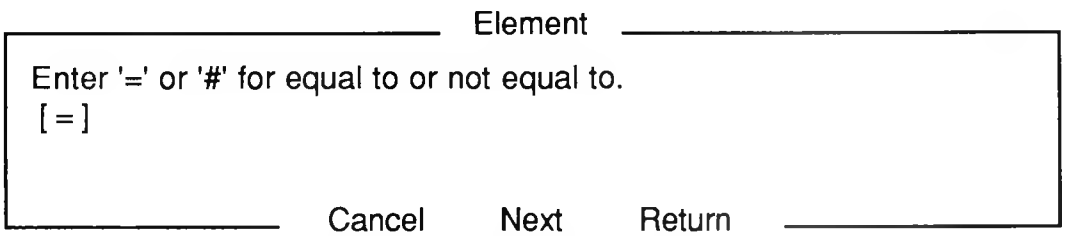


At this point the option bar changes:

Cancel	cancels Element as a field choice and returns to Menu 3.1.a (Individual Subsetting: Subset Criteria)
Next	advances to Menu 3.1.b (Individual Subsetting: Output Criteria) to choose output fields.
Return	returns to the SSDMS II Main Menu.

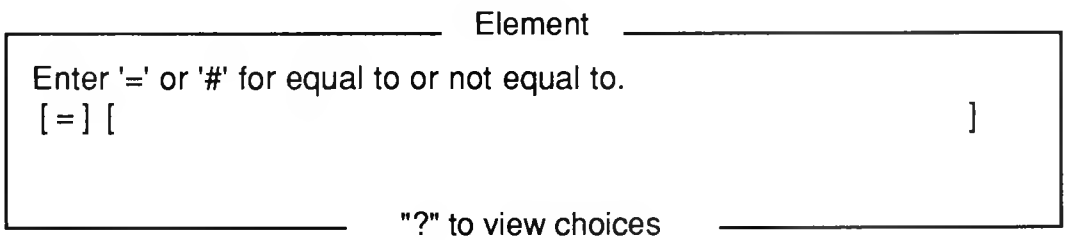
SSDMS II allows the current value in the Element field to be "equal to" or "not equal to" a criterion value. You could also construct more advanced phrasing with the Edit option accessed from Option 3.1.a - Subset Prompt. But for this example, enter an "=" at Prompt 5 (Option 3.1.a - Subset Criteria).

Option 3.1.a - Subset Criteria Prompt 6



Now the criterion value must be entered.

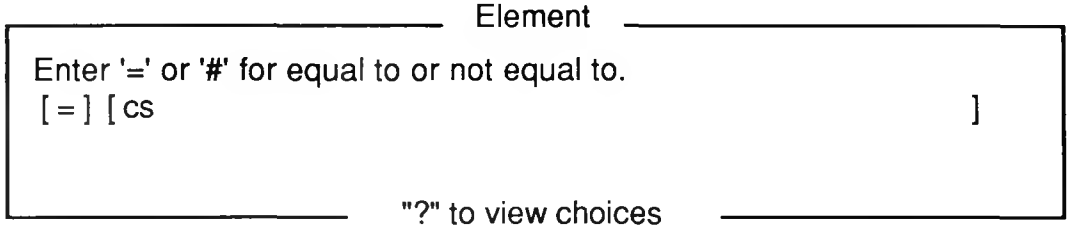
Option 3.1.a - Subset Criteria Prompt 7



This prompt allows you to list all alphanumeric strings in the Element field of the entire Main Data Base File by entering a "?," but that is not necessary for this tutorial.

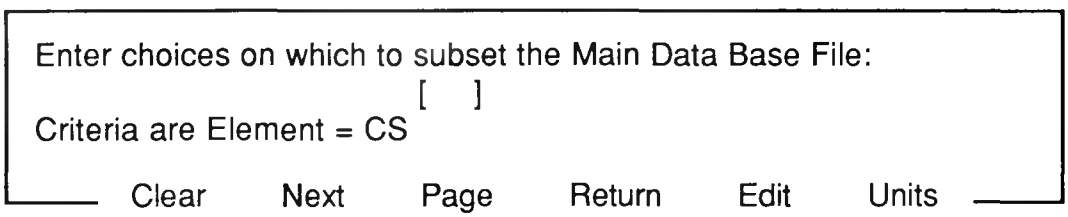
Enter "cs" as the criterion value to search Element for

Option 3.1.a - Subset Criteria Prompt 8



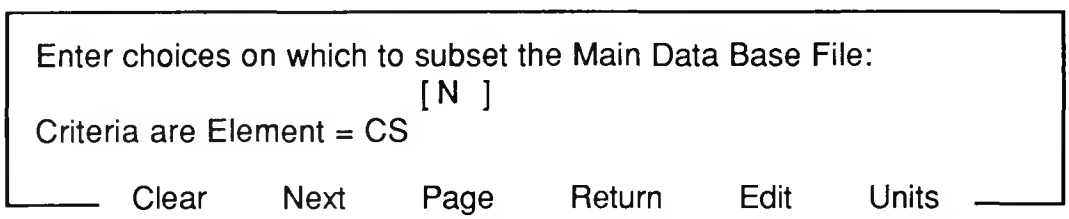
Prompt 9 (Option 3.1.a - Subset Criteria) displays CS as the criterion value.

Option 3.1.a - Subset Criteria Prompt 9



Since you have finished specifying the input/search criteria for this individual subsetting procedure, enter an "N" to advance to output specification.

Option 3.1.a - Subset Criteria Prompt 10



Describe Desired Output (Option 3.1.b)

Specifying output is similar to specifying search criteria and involves the following steps:
1. Clear previous output settings
2. Identify the field(s) from which to output values

SSDMS II displays Menu 3.1.b (Individual Subsetting: Output Criteria), which contains the Field Selection Screen (upper box) and the Output Prompt (lower box) .

Menu 3.1.b - Individual Subsetting: Output Criteria

Choose Output Fields

1	File Name	17	Sample Number of the Solid
2	Container Material	18	General Sample Number
3	Seal Material	19	Element
4	Liner Material	20	Batch Sorption Average
5	Agitation Rate	21	No. of Replications (Sorption)
6	Filter Size	22	Standard Deviation (Sorption)
7	Centrifuge Rate	23	Contact Time (Sorption)
8	Pre-Equilibration Contact Time	24	Lowest pH
9	Pre-Equilibration Temperature	25	Highest pH
10	Pre-Equilibration Atmosphere	26	Initial pH
11	Number of Washings	27	Final pH
12	Crushing Atmosphere	28	Batch Desorption Average
13	First Basalt Quality Index	29	No. of Replications (Desorp.)
14	Second Basalt Quality Index	30	Standard Deviation (Desorp.)
15	Combined Quality Index	31	Contact Time (Desorption)
16	Rock	32	Temperature

Enter criteria to have output to screen/file:
[ ]
Criteria are

Clear Next Page Return Edit Units

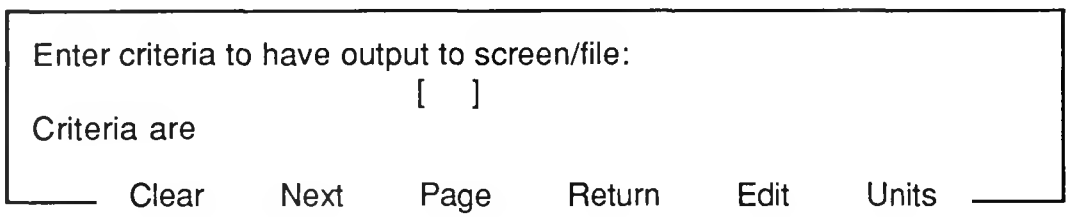
The option row at the bottom of the screen offers the following choices:

Clear	clears the output criteria shown at the bottom of the screen
Next	advances to the next operation (Searching the Main Data Base File)
Page	displays the next/previous page of the Field Selection Screen
Return	returns to the SSDMS II Main Menu
Edit	edits the subsetting criteria string
Units	displays the units of a specified field

An explanation of these options can be found in Section 3 REFERENCE, Option 3.1.a (Individual Subsetting: Describe Desired Input), under the heading "Option Row for Individual Subsetting".

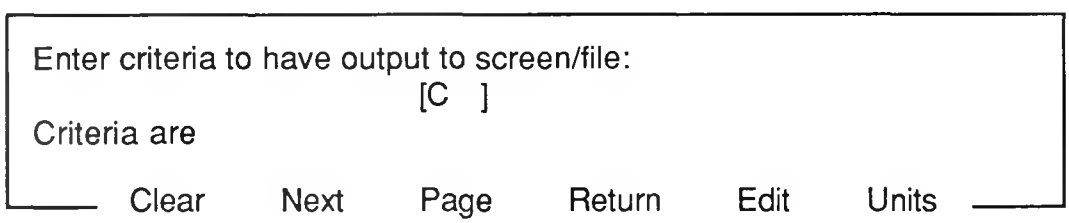
The main prompt for the output for individual subsetting criteria is the Output Prompt (Option 3.1.b) shown below.

Option 3.1.b - Output Prompt



By default, SSDMS II saves output descriptors and displays them at the bottom of the screen. Enter a "C" to clear these descriptors.

Option 3.1.b - Output Criteria Prompt 1



While clearing output criteria, SSDMS II displays Prompt 2 (Option 3.1.b - Output Criteria) briefly.

Option 3.1.b - Output Criteria Prompt 2

```
Criteria have been cleared.
```

Then the Output Prompt (Option 3.1.b) reappears.

After clearing output criteria, you select the fields to output by entering the number(s) corresponding to those fields.

For this tutorial, enter a "20" to output values from the Batch Sorption Average field

Option 3.1.b - Output Criteria Prompt 3

```
Enter criteria to have output to screen/file:
                              [20 ]
Criteria are

    Clear    Next    Page    Return    Edit    Units
```

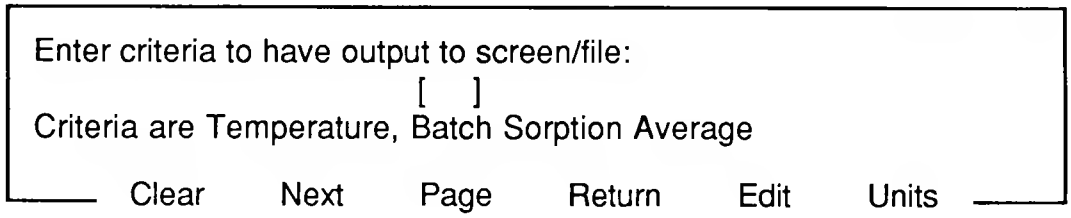
and enter a "32" to output values from the Temperature field (Option 3.1.b - Output Criteria Prompt 4).

Option 3.1.b - Output Criteria Prompt 4

```
Enter criteria to have output to screen/file:
                              [32 ]
Criteria are Batch Sorption Average

    Clear    Next    Page    Return    Edit    Units
```

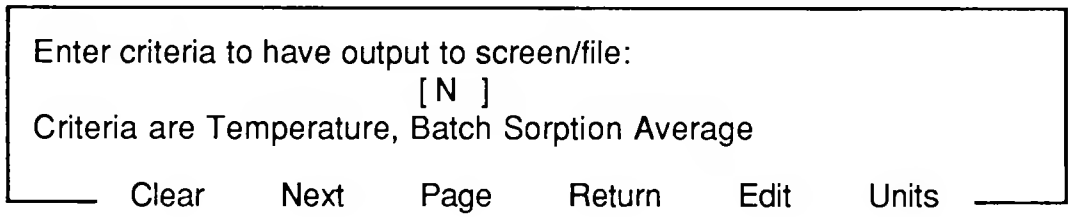
The Output Prompt lists every field you have chosen to output values from, as Prompt 5 (Option 3.1.b - Output Criteria) shows.

Option 3.1.b - Output Criteria Prompt 5



Because you have completely specified the output criteria, press "N" to advance to the next stage.

Option 3.1.b - Output Criteria Prompt 6



In the next section you will complete individual subsetting by specifying the output mode and by searching the Main Data Base File.

Specify Output Mode & Search the Main Data Base File (Option 3.1.c)

dBase displays dBase variable names for the subsetting criteria and output choices for confirmation. To correct mistakes, abort the search by entering an "N" at Prompt 1 (Option 3.1.c - Searching the Main Data Base File). This would return you to Option 3.1.a (Describe Desired Input). For an explanation of the dBASE variable name conventions and operator such as "UPPER" shown in the example, consult the dBASE III ™ manual.

Option 3.1.c - Searching the Main Data Base File Prompt 1

```
Now ready to query the Main Data Base File for
output fields:
  >> TEMP,BAT_SOR_AV

That satisfy the following criteria:
  >> UPPER(ELEMENT)='CS'

Do you wish to continue? (Y/N)   [ Y ]
```

To accept the output criteria , enter a "Y".

To determine output mode, SSDMS II asks if you want the output printed or not, with or without headings, written to a file or displayed on screen. The first question concerns printing.

Option 3.1.c - Searching the Main Data Base File Prompt 2

```
Do you want data sent to the printer? (Y/N)   [N ]
```

Enter an "N".

The second question concerns field names above the corresponding data columns.

Option 3.1.c - Searching the Main Data Base File Prompt 3

```
Do you want headings on the columns of data? (Y/N)   [N ]
```

Enter an "Y" for columns with headings.

The third question concerns writing search results to a file. You can edit the file after the subsetting is complete.

Option 3.1.c - Searching the Main Data Base File Prompt 4

```
Enter name of file to save data in (blank for none):
[         ].TXT
```

Enter a blank for the file name, thereby skipping an output file.

After you choose the output mode, SSDMS II searches the Main Data Base File. When subsetting is complete, the following message appears:

Option 3.1.c - Searching the Main Data Base File Prompt 5

```
Press any key to continue...
```

If the search yields no data, only Prompt 6 (Option 3.1.c - Searching the Main Data Base File) appears.

Option 3.1.c - Searching the Main Data Base File Prompt 6

```
Element = CS
Press any key to continue...
```

If the search yields data, because you chose screen display only, press any key to scroll results across the screen. Press CTRL-S to pause, CTRL-Q to resume scrolling or ESCape to abort output display and return to the SSDMS II Main Menu.

A partial listing of the output for this example would be

```
TEMP  BAT_SOR_AV
25    >10000
60    1432
25    >12000
25    9795
25    212
25    1080
25    10000
25    >12000
25    >12000
60    167
60    960
60    12400
60    11600
60    11800
25    228     ....
```

```
Press any key to continue...
```

Press any key to return to Menu 3.1.a (Individual Subsetting: Subset Criteria).

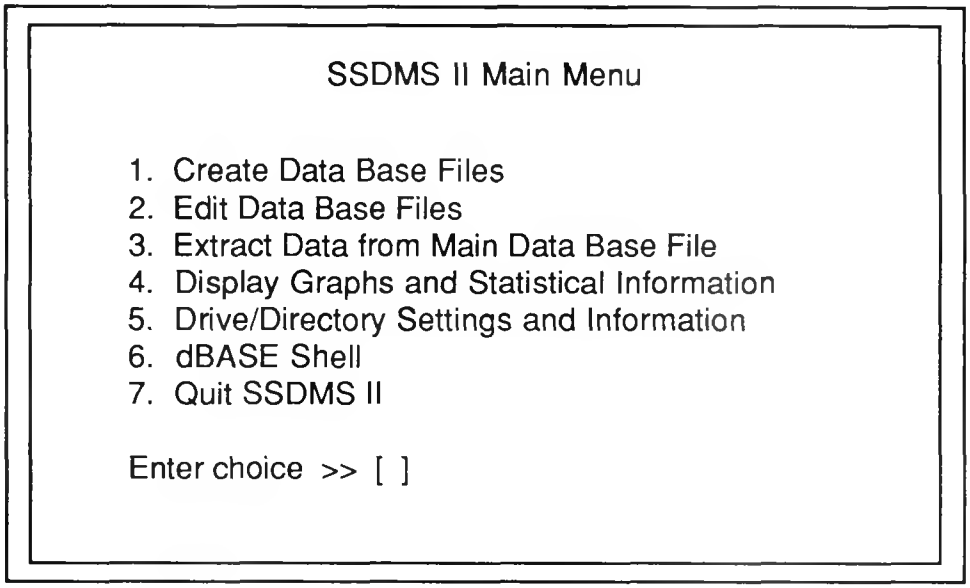
Return to SSDMS II Main Menu

From the Subset Prompt (Option 3.1.a), enter an "R" to return to the SSDMS II Main Menu.

3. REFERENCE

MAIN MENU

Main Menu



The SSDMS II Main Menu presents 7 options. All operations associated with these 7 options are accessed through and return to the Main Menu. Press ESCape to abort any operation (press ESCape key twice if the menu is awaiting input). If the operation is waiting for a file name, entering a blank exits the operation. By repeatedly selecting the Previous Menu option, you can return to the Main Menu.

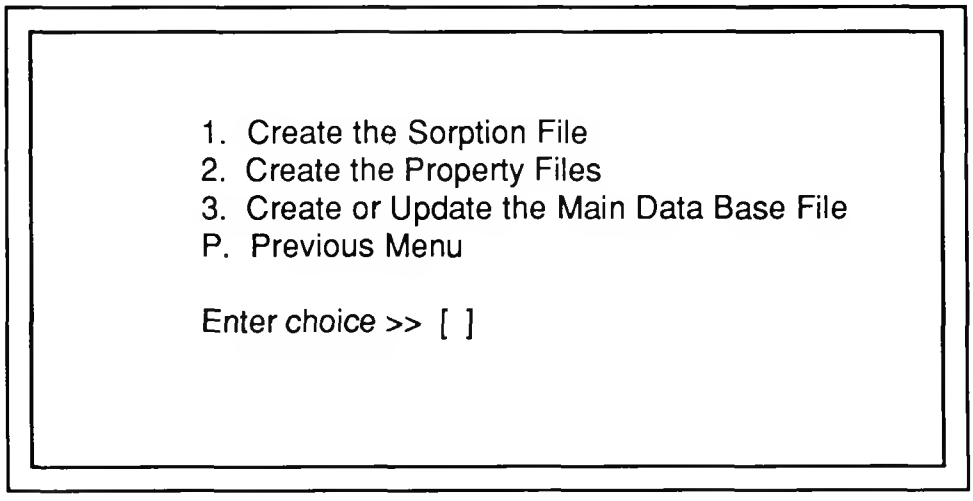
Except when entering an option in the Main Prompt shown below, press ENTER after entering all data.

Main Prompt

Enter choice >> [ ]

CREATE DATA BASE FILES (OPTION 1)

Menu 1 - Create Data Base Files



The Main Data Base File (master.dbf) (Option 1.3: Create or Update the Main Data Base File) is formed by joining a Sorption File (sorption.dbf) with the appropriate Property Files. The Sorption File (Option 1.1: Create the Sorption File) stores experimental variables and results of batch sorption and desorption experiments. The Property Files (Option 1.2: Create the Property Files) store additional information about the experiments.

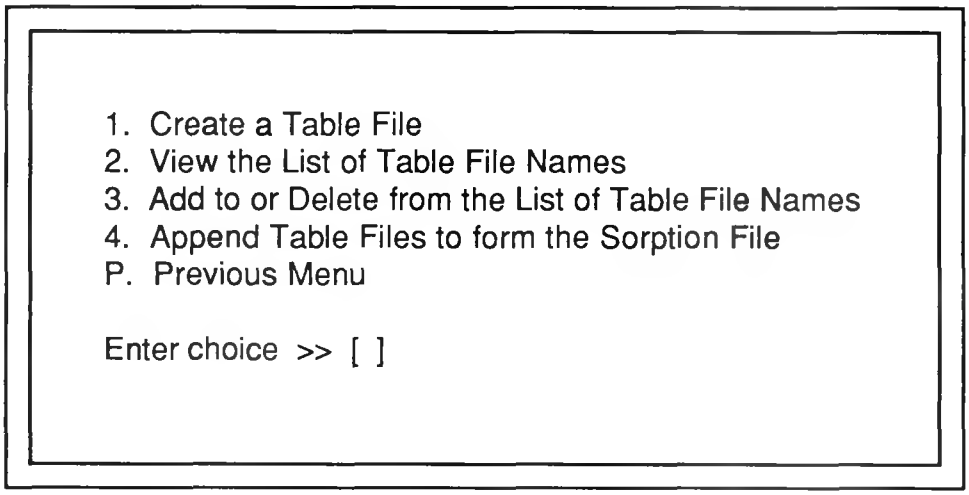
SSDMS II allows three Property Files. The first is a Formation File (format.dbf). This file stores stratigraphical and lithological data for the rock sample used in the batch sorption and desorption experiments. The second is a Quality File (quality.dbf). The Quality File stores information about the experimental procedure and assigns a quality index to the data based on a critical evaluation of it. The third is a user-defined Property File and is called Property File 3. The initial default name for this file (hydchem.dbf) reflects the possibility that you may need to include chemical analyses of ground waters in the Main Data Base File. Entering a "P" will return the Main Menu.

For the BWIP directory, which is used as the example in this manual, the Main Data Base File (master.dbf) was constructed by joining the Sorption File (sorption.dbf) with a Formation File (format.dbf) and a Quality File (quality.dbf). A third Property File was not necessary for the BWIP Main Data Base File. Potentially useful Property Files that could be created under Option 1.2.3 (Create Property File 3) and joined with the Sorption File under Option 1.3 (Create or Update the Main Data Base File) include a Hydrochemical File (hydchem.dbf), which could contain chemical analyses of the ground waters used in the batch sorption and desorption experiments; or a Geochemical File (suggested name "geochem.dbf"), which could contain other geochemical data. Currently, no files exist which are created by Option 1.2.3 (Create Property File 3) for the BWIP Main Data Base File. Appendix C details the procedure for creating additional property files.

The following sections describe the assembly of a new Main Data Base File (master.dbf) from creating the Sorption File (sorption.dbf) through creating the Formation File (format.dbf), the Quality File (quality.dbf) and the Property File 3 (hydchem.dbf) to linking the Sorption File, the Formation File, the Quality File and the Property File 3 in order to create the Main Data Base File. This process is shown schematically in Section 1 INTRODUCTION, Figure 1.

Create the Sorption File (Option 1.1)

Menu 1.1 - Create the Sorption File



Creating the Sorption File (sorption.dbf) involves these steps:

1. Input the sorption or desorption data into Table Files (Option 1.1.1: Create a Table File).
2. Verify the Table Files to include in the Sorption File (Option 1.1.2: View the List of Table File Names).
3. If necessary, correct the list of Table File names to include in the Sorption File (Option 1.1.3: Add to or Delete from the List of Table File Names).
4. Join the Table Files to form the Sorption File (Option 1.1.4: Append Table Files to form the Sorption File).

Entering a "P" will return Menu 1 (Create Data Base Files).

Create a Table File (Option 1.1.1)

When you choose to create a Table File for the BWIP Main Data Base File, the following prompt appears:

Option 1.1.1 - Prompt 1

```
You will be making a Table File for the data in
c:\ssdms\bwip\

Enter any key to continue...
```

This prompt reminds you that the Table File is being made for the BWIP directory. If the prompt displays the wrong directory, you should enter a blank when asked for the a file name, return to the Main Menu by repeatedly selecting the Previous Menu option, and check the path to the data base files under Option 5.1.1 (Set Default Drive & Directory for Data Base Files).

Template Files store the structures of the data base files. While creating a new data base file, SSDMS II copies the structure of the corresponding Template File to the file being created. For the BWIP directory, Template Files exist for the Table Files (tablank.dbf), the Sorption File (tablank.dbf), the Formation File (fmt.dbf) and the Quality File (qual.dbf). The same Template File is used for the Table Files and Sorption File because these files have the same data base structure. Once SSDMS II copies the structure from the Template File to the new file, you can enter data into the new file. No data is entered into the Template File itself. The Template Files mentioned above are supplied with the auxiliary data base files for the BWIP Main Data Base File. No Property File 3 was required to describe the BWIP sorption and desorption experiments, so no Template File for Property File 3 is supplied with the BWIP data base files. Appendix C explains how to create a new Template File.

The Table File can not be created until a Template File is made, so if the Template File for the Table Files (tablank.dbf) does not exist, the following message appears and you return to Menu 1.1 (Create the Sorption File).

Option 1.1.1 - Prompt 2

```
Template File for creating this file could not be found.

Enter any key to continue...
```

If the Template File is found, the next prompt will be for the file name.

Option 1.1.1 - Prompt 3

```
Enter name for new file: [          ]
```

Names for Table Files in the BWIP Main Data Base File (supplied with this manual) follow a convention that specifies the agency report number, then the volume number, then the table number for the data input into the Table File. For example, data from Table 3 in volume 4 of ORNL's quarterly report TM-9614 would go into Table File 9614_4_3. SSDMS II accepts any file name eight characters or shorter, excluding the extension (i.e., ".dbf" and truncates a longer filename (e.g., "TooLongName" to "TooLongN").

Entering a blank at Prompt 3 (Option 1.1.1) displays the following prompt:

Option 1.1.1 - Prompt 3.1

```
Returning...
```

Pressing any key returns to Menu 1.1 (Create the Sorption File).

Entering the name of an existing file (e.g., "table1") yields the following error message:

Option 1.1.1 - Prompt 3.2

```
c:\ssdms\bwip\table1.dbf already exists.
Do you want to replace it?  (Y/N)    [ N ]
```

Answer "Y" to erase the existing file, or answer "N" to enter a different file name.

If you enter an acceptable name (e.g., "format2"), the next screen displays the fields for the Table File being created. Table 8 lists the dBase field names and their English equivalents for the BWIP Table Files. The actual screen display (Menu 1.1.1: Create a Table File) follows.

Table 8 Field Names in BWIP Table Files.

English Field Name	dBase Field Name
Rock	ROCK
Sample Number of the Solid	SAMPLE_NO
General Sample Number	GENERAL_SN
Element	ELEMENT
Batch Sorption Average	BAT_SOR_AV
No. of Replications (Sorption)	REPLICATE
Standard Deviation (Sorption)	STD_DEVIA
Contact Time (Sorption)	CONT_TIME
Lowest pH	LOWEST_PH
Highest pH	HIGHEST_PH
Initial pH	INITIAL_PH
Final pH	FINAL_PH
Batch Desorption Average	BAT_DES_AV
No. of Replications (Desorp.)	REPLICATE2
Standard Deviation (Desorp.)	STD_DEVIAT
Contact Time (Desorption)	CON_TIME
Temperature	TEMP
Tracer Feed Concentration	TRA_FE_CON
Equilibrium Concentration	EQUIL_CONC
Solid Concentration	SOLID_CONC
Particle Size Range	SIZE
Upper Mesh Size	UP_MES_SIZ
Lower Mesh Size	LO_MES_SIZ
Ground Water Type	GRNDWATER
Atmosphere	ATMOSPHERE
Eh	EH
Solution to Solid Ratio	SOLN2SOLID
Shaking	SHAKING
Decantation Method	DECANT
Pre-Equilibration	PRE_EQUIL
Source Document Number	SOURCE
File Name	FNM

Menu 1.1.1: Create a Table File

Record No. 1

CURSOR <-- --> Char: <-- --> Word : Home End	UP DOWN Field: ↑ ↓ Page: PgUp PgDn Help : F1	DELETE Char: Del Field: ^Y Record: ^U	INSERT MODE: Ins Exit/Save: ^End Abort: Esc Memo: ^Home

```
ROCK          [                              ]
SAMPLE_NO     [                    ]
GENERAL_SN    [                 ]
ELEMENT       [   ]
BAT_SOR_AV    [                 ]
REPLICATE     [   ]
STD_DEVIA     [        ]
CONT_TIME     [    ]
LOWEST_PH     [    ]
HIGHEST_PH    [    ]
INIT_PH       [    ]
FINAL_PH      [    ]
BAT_DES_AV    [                 ]
REPLICATE2    [   ]
STD_DEVIAT    [        ]
```

SSDMS II displays the first 15 fields of the record. After entering data, press ENTER to advance to the next field. If the data occupy the entire field, the cursor will automatically advance to the next field, and no carriage return is needed. If the record contains more than 15 fields, presssing PGDN or CTRL-C displays additional pages of 15 fields each. When you reach the end of the record, entering PGDN or CTRL-C displays the next record.

The following dBase commands can be used in the edit, browse or append mode to alter the fields:

CTRL-W, CTRL-END	quit and save
CTRL -Q, ESCape	quit and ignore changes
CTRL-C	skip to next input record
CTRL-D	skip to next character to the right
CTRL-S	skip to next character to the left
CTRL-Y	delete all characters to the right
CTRL-X	skip to next field below
CTRL-E	skip to next field above

After entering the data, end with a CTRL-W or CTRL-END to close and save the new Table File.

NOTE: Ending with a CTRL-Q or the ESCape key will not save the data in the Table File.

SSDMS II automatically adds the new Table File's name to the list of Table File names (names.dbf), which determines the contents of the Sorption File (sorption.dbf).

If a file containing Table File names (names.dbf) does not exist, the following message appears:

Option 1.1.1 - Prompt 4.1

```
No data base for the list of Table File names exists on
c:\ssdms\bwip\
The new Table File can not be added to the list.

Enter any key to continue...
```

Entering any key ends the input session and returns to Menu 1.1 (Create the Sorption File).

The procedures for creating a data base of Table File names is described in Appendix C.

If the file containing Table File names (names.dbf) exists but the name of the new Table File (for instance: "table2") is already in the list, the following message appears:

Option 1.1.1 - Prompt 4.2

```
The name table2 is already in the list of Table File names.

Enter any key to continue...
```

Entering any key ends the input session and returns to Menu 1.1 (Create the Sorption File).

If the file containing Table File names (names.dbf) exists but does not include the name of the new Table File, SSDMS II adds the Table File name (for instance: "table3") and displays the following prompt:

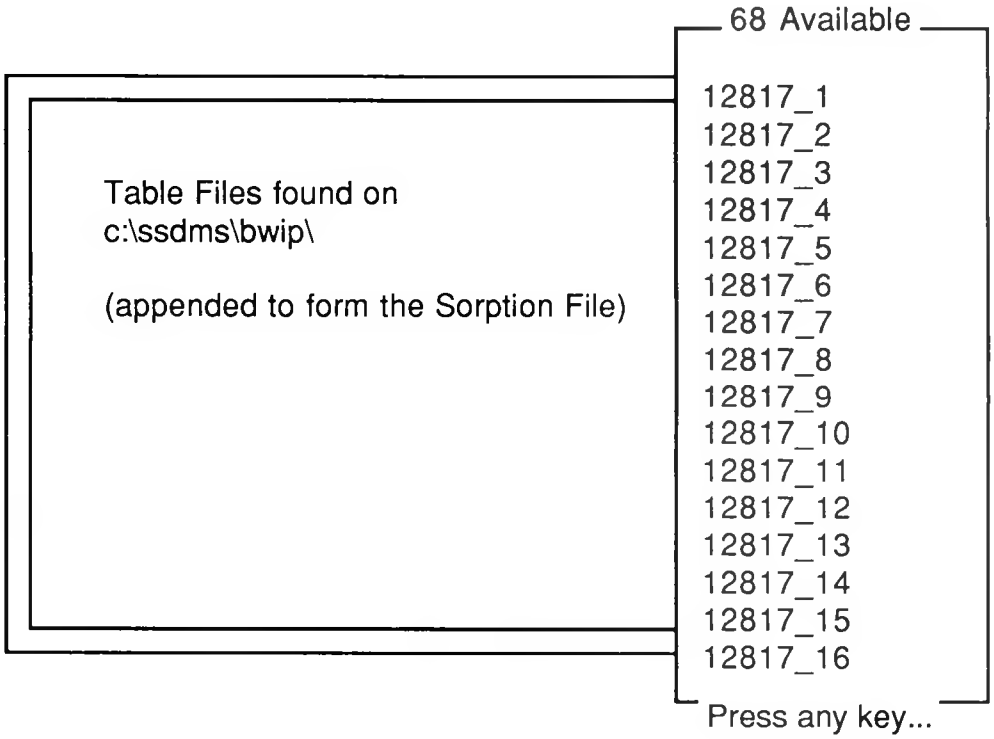
Option 1.1.1 - Prompt 4.3

```
Appending the name table3 to the list of Table File names.

Enter any key to continue...
```

Entering any key ends the input session and returns Menu 1.1 (Create the Sorption File).

View the List of Table File Names (Option 1.1.2)

Menu 1.1.2 - View the List of Table File Names



On the right, Option 1.1.2 (View the List of Table File Names) displays a window showing the total number of Table Files to include in the Sorption File (sorption.dbf) and their names. Option 1.1.4 (Append Table Files to form the Sorption File) will join these Table Files to form the Sorption File . The names of the Table Files appear 16 at a time, and any key stroke advances to the next group of 16 names. In the left window, SSDMS II displays the directory where these Table Files reside, which is the directory specified under Option 5.1.1 (Set Default Drive & Directory for Data Base Files).

After viewing the Table File names, you may print this list.

Option 1.1.2 - Prompt 1

Do you want a printout
of this list? (Y/N) [N]

Enter a "Y" to print the list and return to Menu 1.1 (Create the Sorption File). Enter an "N" to return to Menu 1.1 (Create the Sorption File) without printing the list.

If the file containing Table File names (names.dbf) does not exist, the following message appears:

Option 1.1.2 - Prompt 2

No data base for the list of Table File names exists on
c:\ssdms\bwip\

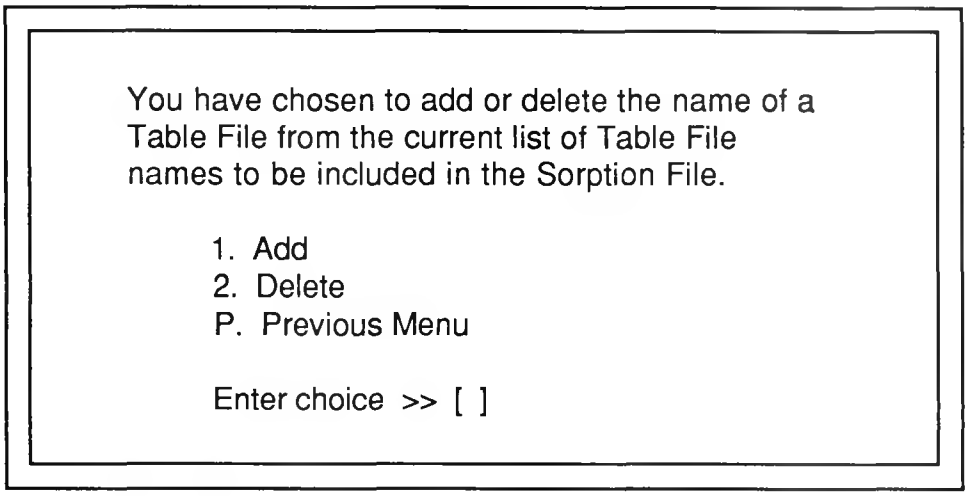
Enter any key to continue...

Press any key to return to Menu 1.1 (Create the Sorption File).

The procedure for creating data base for the list of Table File names (default name "names.dbf") is described in Appendix C.

Add to or Delete from the List of Table File Names (Option 1.1.3)

Menu 1.1.3 - Add to or Delete from the List of Table File Names



As SSDMS II creates a Table File under Option 1.1.1 (Create a Table File), its name is automatically added to the list of Table File names (names.dbf). The list of Table Files (names.dbf) determines which Table Files SSDMS II combines into the Sorption File (sorption.dbf). By including or excluding Table File names from the list, you can synthesize different Sorption Files that, when joined with appropriate Property Files, create different versions of the Main Data Base File (master.dbf).

Entering a "P" returns to Menu 1.1 (Create the Sorption File).

If SSDMS II cannot find a file containing Table File names, it displays the following message instead of Menu 1.1.3 (Add to or Delete from the List of Table File Names) above:

Option 1.1.3 - Prompt 1

No data base for the list of Table File names exists on
c:\ssdms\bwip\

Enter any key to continue...

Enter any key to return to Menu 1.1 (Create the Sorption File).

The procedure for creating the data base of Table File names is described in Appendix C.

Add (Option 1.1.3.1)

Option 1.1.3.1 (Add) allows you to add a Table File name to the list of Table File names (names.dbf). This is necessary if you did not previously create the Table File with Option 1.1.1 (Create a Table File) or if you deleted the Table File name from the list using Option 1.1.3.2 (Delete).

First, SSDMS II asks for the name of the Table File to be added.

Option 1.1.3.1 - Prompt 1

Enter
Table File name: [ ]

A blank returns to Menu 1.1.3 (Add to or Delete from the List of Table File Names).
Entering the name of a file not found in the default data base directory (for instance: "table1") triggers the following error message:

Option 1.1.3.1 - Prompt 1.1

table1 could not be found on c:\ssdms\bwip\
Enter any key to continue...

Enter any key, and SSDMS II prompts for the file name again.

Entering the name of a Table File already in the list of Table Files (for instance: "table2") triggers the following error message:

Option 1.1.3.1 - Prompt 1.2

table2 is already in the list of Table File names.
Record # 1 >> table2

Enter any key to continue...

Enter any key to returnto Menu 1.1.3 (Add to or Delete from the List of Table File Names).

Entering an acceptable name yields the following message:

Option 1.1.3.1 - Prompt 2

Do you still want to add it? (Y/N) [Y]

A "Y" adds the name to the list of Table File names and returns Menu 1.1.3 (Add to or Delete from the List of Table File Names). An "N" returns Menu 1.1.3 (Add to or Delete from the List of Table File Names) without adding the name to the list of Table Files.

Delete (Option 1.1.3.2)

Option 1.1.3.2 (Delete) removes a Table File name from the list of Table Files (.dbf) to include in the Sorption File (sorption.dbf). In this way, a Table File can be excluded from the Sorption File without deleting the Table File itself.

SSDMS II asks if all the Table File names should be deleted.

Option 1.1.3.2 - Prompt 1

Delete all names from the list of Table File names? (Y/N) [N]

If you answer "Y," the following message appears:

Option 1.1.3.2 - Prompt 1.1

```
All names have been deleted.
Enter any key to continue...
```

Pressing any key returns to Menu 1.1.3 (Add to or Delete from the List of Table File Names).

If you answer "N", SSDMS II asks which Table File to delete.

Option 1.1.3.2 - Prompt 2

```
Enter
Table File name: [          ]
```

Entering a blank returns to Menu 1.1.3 (Add to or Delete from the List of Table File Names).

Entering a name that is not in the list of Table File names (e.g., "table1") triggers the error message

Option 1.1.3.2 - Prompt 2.1

```
table1 is not in the list of Table File names.
```

and requests the Table File name again.

Entering a name in the list of Table Files (e.g., "table2") deletes that name from the list and displays the following prompt.

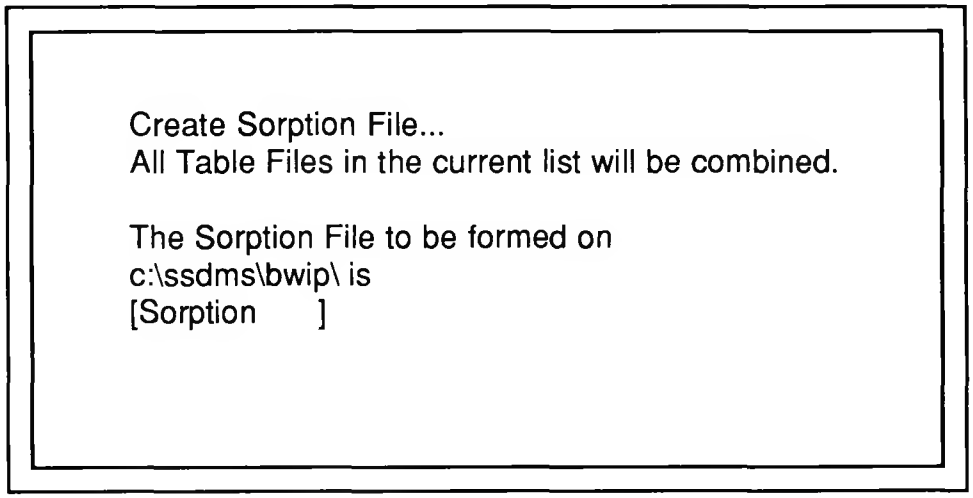
Option 1.1.3.2 - Prompt 2.2

```
Deleting table2 from the list of Table File names.
Enter any key to continue...
```

Enter any key to return to Menu 1.1.3 (Add to or Delete from the List of Table File Names).

Append Table Files to Form the Sorption File (Option 1.1.4)

Menu 1.1.4 - Append Table Files to form the Sorption File



The Sorption File (sorption.dbf) is a combination of Table Files and is the main component of the Main Data Base File (master.dbf). Option 1.1.4 (Append Table Files to form the Sorption File) gathers all the Table Files in the list of Table File names (names.dbf) and joins them into the Sorption File.

To make the Sorption File (sorption.dbf), both the list of Table File names (names.dbf) and the Template File for the Sorption File (tablank.dbf) must be present.

If the Template File for the Sorption File (tablank.dbf) is absent, the following prompt appears instead of Menu 1.1.4 (Append Table Files to form the Sorption File) above:

Option 1.1.4 - Prompt 1.1

The Template File for the Sorption File could not be found.

Enter any key to continue...

Entering any key returns Menu 1.1 (Create the Sorption File).

The procedure for creating the template file is described in Appendix C.

If the list of Table File names (names.dbf) is absent, the following prompt appears instead of Menu 1.1.4 (Append Table Files to form the Sorption File) above:

Option 1.1.4 - Prompt 1.2

The list of Table File names for forming the
Sorption File could not be found.

Enter any key to continue...

Entering any key returns to Menu 1.1 (Create the Sorption File).

The procedure for creating the list of Table Files names is described in Appendix C.

If both files are missing, both prompts appear. Refer to Appendix C for the procedure to create the Files.

If both files are present, SSDMS II asks for the name of the Sorption File (sorption.dbf). You may accept the default or enter any name up to eight characters long. If you create the Main Data Base File (master.dbf) in the same session you create a new Sorption File, the new Sorption File name will appear in an Option 1.3 prompt (Create or Update the Main Data Base File).

Option 1.1.4 - Prompt 2

```
The Sorption File to be formed on
c:\ssdms\bwip\ is
[Sorption      ]
```

If you enter a blank at this prompt, SSDMS II displays the following prompt and, after you press any key, returns to Menu 1.1 (Create the Sorption File):

Option 1.1.4 - Prompt 2.1

```
Returning...
```

If you enter the name of a file that already exists (e.g., sorption), SSDMS II displays the following message:

Option 1.1.4 - Prompt 2.2

```
c:\ssdms\bwip\sorption.dbf already exists.
Do you want to replace it? (Y/N)   [ N ]
```

To erase the existing file and make a new Sorption File, answer "Y." To re-enter the file name, answer "N."

If you enter an acceptable name, SSDMS II makes the new Sorption File.

As the Sorption File is being constructed, the message "Appending from c:\name" appears on the screen. If a Table File cannot be found, the message "c:\name could not be found" appears below the Table File names being joined. An example of these prompts is shown below for the Table File names "table1.dbf" and "table2.dbf".

Option 1.1.4 - Prompt 3

```
Appending from c:\ssdms\bwip\table1.
c:\ssdms\bwip\table2 could not be found.
```

After the Sorption File has been created, SSDMS II displays

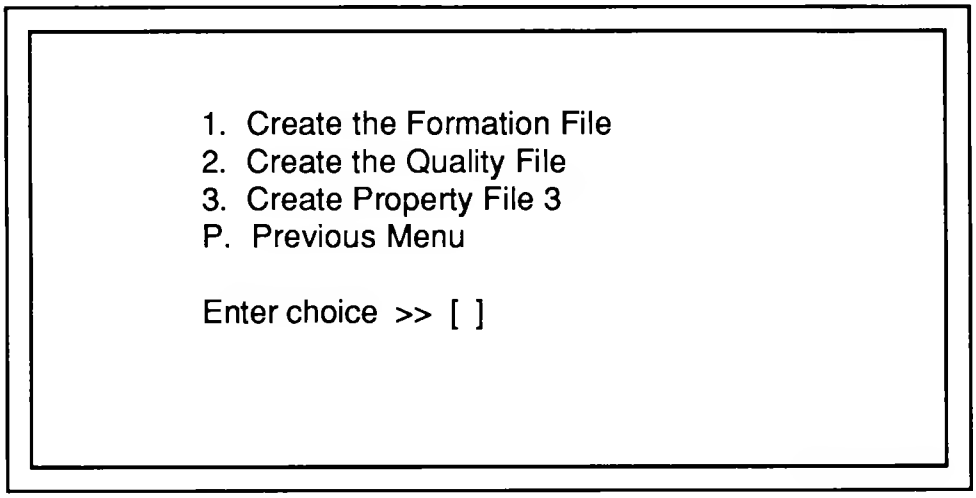
Option 1.1.4 - Prompt 4

```
Enter any key to continue...
```

Entering any key returns to Menu 1.1 (Create the Sorption File).

Create the Property Files (Option 1.2)

Menu 1.2 - Create the Property Files



Option 1.2 (Create the Property Files) creates a Formation File (format.dbf), a Quality File (quality.dbf) or a Property File 3. You may create several Property File 3s; the default name for the first is "hydchem.dbf." Entering a "P" will return Menu 1 (Create Data Base Files).

Create the Formation File (Option 1.2.1)

Choosing Option 1.2.1 (Create the Formation File) displays

Option 1.2.1 - Prompt 1

```
You will be making a Formation File for the data in
c:\ssdms\bwip\

Enter any key to continue...
```

This prompt reminds you of the current data set. The directory displayed above is for the BWIP data base files. If the prompt displays the wrong directory, enter a blank at the prompt for a file name, return to the Main Menu by repeatedly selecting the Previous Menu option, and check the path to the data base files under Option 5.1.1 (Set Default Drive & Directory for Data Base Files).

Template Files store the structures of data base files. SSDMS II copies the structure of the corresponding Template File to the file being created. For the BWIP directory, Template Files exist for the Table Files (tablank.dbf), the Sorption File (tablank.dbf), the Formation File (fmt.dbf) and the Quality File (qual.dbf). The same Template File is used for the Table Files and Sorption File because these files have the same data base structure. Once the structure has been copied from the Template File to the new file, you can enter data into the new file. No data is entered into the Template File itself. The Template Files mentioned above are supplied with the auxiliary data base files for the BWIP Main Data Base File. No Property File 3 was required to describe the BWIP sorption and desorption experiments, so no Template File for Property File 3 exists.

The Formation File can not be created until a Template File is made. If the Template File for the Formation File (fmt.dbf) does not exist, the following message appears and Menu 1.2 (Create the Property Files) reappears.

Option 1.2.1 - Prompt 2

```
Template File for creating this file could not be found.

Enter any key to continue...
```

Appendix C outlines the procedure for creating Template Files.

If the Template File is found, SSDMS II asks for the Formation File name.

Option 1.2.1 - Prompt 3

```
Enter name for new file: [Format      ]
```

The default name is "Format".

Any name up to eight characters long is acceptable. If you create the Main Data Base File (master.dbf) in the same SSDMS II session as the Formation File, the new Formation File name appears when Option 1.3 (Create or Update the Main Data Base File) prompts for the Formation File name.

If you enter a blank, SSDMS II displays the following prompt and, after you press any key, returns to Menu 1.2 (Create the Property Files).

Option 1.2.1 - Prompt 3.1

```
Returning...
```

If you enter the name of an existing file (e.g., "format1"), the following error message appears:

Option 1.2.1 - Prompt 3.2

```
c:\ssdms\bwip\format1.dbf already exists...
Do you want to replace it? (Y/N)  [ N ]
```

To replace the existing file with the new one, enter "Y." To re-enter the file name, enter "N."

If you enter an acceptable name (e.g., "format2"), the next screen displays the fields for the Formation File (format.dbf) being created. Table 9 lists the dBase field names and their English equivalents. The fields are described in Appendix B, Table B.2. The actual screen display (Menu 1.2.1: Create the Formation File) follows.

Table 9 Field Names for the BWIP Formation File.

English Field Name	dBase Field Name
Sample Number of the Solid	SAMPLE_NO
Formation Name	FORMATION
Geologic Symbol	SYMBOL
Sorption Category Type	SORPTN_CAT
Category Source Doc. No.	CAT_SOURCE
Depth of Sample	DEPTH_FT
Drill Hole Number	DRILL_HOLE
Sorption Interval	SOR_INTER
Source Interval Doc. No.	INTER_SOUR
Saturation Type	SAT_TYPE
Stratigraphic Index	STRATINDEX

Menu 1.2.1: Create the Formation File

Record No. 1

CURSOR <-- --> Char: <-- --> Word : Home End	UP DOWN Field: ↑ ↓ Page: PgUp PgDn Help : F1	DELETE Char: Del Field: ^Y Record: ^U	INSERT MODE: Ins Exit/Save: ^End Abort: Esc Memo: ^Home

```
SAMPLE_NO     [                ]
FORMATION     [                   ]
SYMBOL        [    ]
SORPTN_CAT    [                   ]
CAT_SOURCE    [         ]
DEPTH_FT      [       ]
DRILL_HOLE    [          ]
SOR_INTER     [                        ]
INTER_SOUR    [               ]
SAT_TYPE      [ ]
STRATINDEX    [ ]
RECNO         [     ]
```

The first 15 fields of the record appear. If the record contains over 15 fields, press the PGDN key or CTRL-C to display additional pages of 15 fields each or, if at the end of the record, to display the next record. You enter data into each field and move to the next field with a carriage return. If the data occupy the entire field, the cursor automatically advances to the next field without a carriage return.

The following commands can be used in the dBase edit, browse or append modes to alter the fields:

CTRL-W, CTRL-END	quit and save
CTRL-Q, ESCape	quit and ignore changes
CTRL-C	skip to next input record
CTRL-D	skip to next character to the right
CTRL-S	skip to next character to the left
CTRL-Y	delete all characters to the right
CTRL-X	skip to next field below
CTRL-E	skip to next field above

After entering data, press CTRL -W or CTRL-END to close and save the new Formation File. If you end the session with a CTRL -Q or ESCape, the new Formation File will not be saved.

Ending the input session returns to Menu 1.2 (Create the Property Files).

Create the Quality File (Option 1.2.2)

When you choose to create the Quality File, the following prompt appears:

Option 1.2.2 - Prompt 1

```
You will be making a Quality File for the data in
c:\ssdms\bwip\

Enter any key to continue...
```

This prompt reminds you of the current directory. The directory above is for the BWIP data base files. If the prompt displays the wrong directory, enter a blank at the prompt for a file name, return to the Main Menu by repeatedly selecting the Previous Menu option, and check the path to the data base files under Option 5.1.1 (Set Default Drive & Directory for Data Base Files).

Template Files store the structures of data base files. SSDMS II copies the structure of the corresponding Template File to the file being created. For the BWIP directory, Template Files exist for the Table Files (tablank.dbf), the Sorption File (tablank.dbf), the Formation File (fmt.dbf) and the Quality File (qual.dbf). The same Template File is used for the Table Files and Sorption File because these files have the same data base structure. Once the structure has been copied from the Template File to the new file, you can enter data into the new file. No data is entered into the Template File itself. The Template Files mentioned above are supplied with the auxiliary data base files for the BWIP Main Data Base File. No Property File 3 was required to describe the BWIP sorption and desorption experiments, so no Template File for Property File exists.

The Quality File can not be created until a Template File is made. If the Template File for the Quality File (qual.dbf) does not exist, the following message appears and Menu 1.2 (Create the Property Files) reappears.

Option 1.2.2 - Prompt 2

```
Template File for creating this file could not be found.

Enter any key to continue...
```

Appendix C outlines the procedure for creating Template Files.

If the Template File is found, SSDMS II asks for the file name.

Option 1.2.2 - Prompt 3

```
Enter name for new file: [Quality        ]
```

The default name is "Quality".

Any name up to eight characters long is acceptable. If you create the Main Data Base File (master.dbf) in the same session as the Quality File, the new Quality File name will appear when Option 1.3 (Create or Update the Main Data Base File) prompts for the name of the Quality File.

If you enter a blank for the file name, SSDMS II displays the following prompt and, after you press any key, returns to Menu 1.2 (Create the Property Files).

Option 1.2.2 - Prompt 3.1

```
Returning...
```

If you enter the name of an existing file (e.g., "quality1"), the following error message appears:

Option 1.2.2 - Prompt 3.2

```
c:\ssdms\bwip\quality1.dbf already exists.
Do you want to replace it? (Y/N)   [ N ]
```

To replace the existing file with the new one, answer "Y." To re-enter the file name, answer "N."

If you enter an acceptable name (e.g., "quality2"), SSDMS II displays the fields for the Quality File (quality.dbf). Table 10 lists the dBase field names and their English equivalents. The actual screen display (Menu 1.1.2: Create a Quality file) follows. The fields are described in Appendix B, Table B.3.

Table 10 Field Names for the BWIP Quality File.

English Field Name	dBase Field Name
File Name	FNM
Container Material	CNTR_MATL
Seal Material	SEAL
Liner Material	LINER
Agitation Rate	AGIT_RATE
Filter Size	FLTR_SZ
Centrifuge Rate	CNTRFG_RT
Pre-Equilibration Contact Time	PE_CON_TIM
Pre-Equilibration Temperature	PE_TEMP
Pre-Equilibration Atmosphere	PE_ATM
Number of Washings	NO_WSHINGS
Crushing Atmosphere	CRSHNG_ATM
First Basalt Quality Index	Q1
Second Basalt Quality Index	Q2
Combined Basalt Quality Index	QUALGROUP
Rock	ROCK
Sample Number of the Solid	SAMPLE_NO

Menu 1.2.2: Create a Quality file

Record No. 1

CURSOR <-- --> Char: <-- --> Word : Home End	UP DOWN Field: ↑ ↓ Page: PgUp PgDn Help : F1	DELETE Char: Del Field: ^Y Record: ^U	INSERT MODE: Ins Exit/Save: ^End Abort: Esc Memo: ^Home

```
 FNM            [         ]
CNTR_MATL       [              ]
SEAL            [       ]
LINER           [         ]
AGIT_RATE       [   ]
FLTR_SZ         [         ]
CNTRFG_RT       [     ]
PE_CON_TIM      [     ]
PE_TEMP         [     ]
PE_ATM          [         ]
NO_WSHNGS       [     ]
CRSHNG_ATM      [         ]
Q1              [  ]
Q2              [  ]
QUALGROUP       [      ]
```

The first 15 fields of the record appear. If the record contains over 15 fields, press the PGDN key or CTRL-C to display additional pages of 15 fields each or, at the end of the record, to display the next record. You enter data into each field and move to the next field with a carriage return. If the data occupy the entire field, the cursor automatically advances to the next field without a carriage return.

The following commands can be used in the dBase edit, browse or append modes to alter the fields:

CTRL-W, CTRL-END	quit and save
CTRL-Q, ESCape	quit and ignore changes
CTRL-C	skip to next input record
CTRL-D	skip to next character to the right
CTRL-S	skip to next character to the left
CTRL-Y	delete all characters to the right
CTRL-X	skip to next field below
CTRL-E	skip to next field above

After entering the data, press CTRL-W or CTRL-End to close and save the new Quality File. If you end with a CTRL-Q or ESCape, the new Quality File will not be saved.

Ending the input session returns to Menu 1.2 (Create the Property Files).

Create Property File 3 (Option 1.2.3)

When you choose to create Property File 3, the following prompt appears:

Option 1.2.3 - Prompt 1

```
You will be making a Property File 3 for the data in:
c:\ssdms\bwip\

Enter any key to continue...
```

This reminds you of the current directory and, by implication, the current Main Data Base File. The directory above is for the BWIP data base files. If the prompt displays the wrong directory, enter a blank for a file name, return to the Main Menu by repeatedly selecting the Previous Menu option, and check the path to the data base files under Option 5.1.1 (Set Default Drive & Directory for Data Base Files).

Template Files store the structures of data base files. SSDMS II copies the structure of the corresponding Template File to the file being created. For the BWIP directory, Template Files exist for the Table Files (tablank.dbf), the Sorption File (tablank.dbf), the Formation File (fmt.dbf) and the Quality File (qual.dbf). The same Template File is used for the Table Files and Sorption File because these files have the same data base structure. Once the structure has been copied from the Template File to the new file, you can enter data into the new file. No data is entered into the Template File itself. The Template Files mentioned above are supplied with the auxiliary data base files for the BWIP Main Data Base File. No Property File 3 was required to describe the BWIP sorption and desorption experiments, so no Template File for Property File 3 exists. Appendix C outlines the procedure for creating Template Files.

You cannot create a Property File 3 without first making a Template File, but if you try, SSDMS II displays the following message and returns to Menu 1.2 (Create the Property Files).

Option 1.2.3 - Prompt 2

```
Template File for creating this file could not be found.

Enter any key to continue...
```

If the Template File has been previously created, SSDMS II says

Option 1.2.3 - Prompt 3

```
Enter name for new file:  [Hydchem        ]
```

and displays a name (e.g., hydchem.dbf). However, you can enter any name up to eight characters long. If you create the Main Data Base File (master.dbf) in the same session as Property File 3, the new Property File 3 name will appear when Option 1.3 (Create or Update the Main Data Base File) prompts for the name of the Property File 3.

If you enter a blank for the new file name, SSDMS II displays the following prompt and, after you press any key, returns to Menu 1.2 (Create the Property Files).

Option 1.2.3 - Prompt 3.1

```
Returning...
```

If you enter the name of an existing file (e.g., "hydchem1"), the following error message appears:

Option 1.2.3 - Prompt 3.2

```
c:\ssdms\bwip\hydchem1.dbf already exists.
Do you want to replace it? (Y/N)   [ N ]
```

Answer "Y" to replace the existing file with a new one. Answer "N" to re-enter the file name.

Entering an acceptable name (e.g., "hydchem2") displays the fields for the Property File 3 for which you created a Template File. No example exists for the BWIP data base files, so none appears here.

Create or Update the Main Data Base File (Option 1.3)

SSDMS II combines the parts of the Main Data Base File to create a temporary Main Data Base File (tempmast.dbf) that can either serve as a Main Data Base File or be added to an existing Main Data Base File (master.dbf) to create an updated version. SSDMS II continues to access the Main Data Base File set under Option 5.1.2 (Set Names for Data Base Files). If a new Main Data Base File is created, you must enter its name under Option 5.1.2 before SSDMS II considers it the current Main Data Base File.

For BWIP, three parts comprise the Main Data Base File (master.dbf): the Sorption File (sorption.dbf), the Formation File (format.dbf) and the Quality File (quality.dbf). But you can replace these default file names with any other file names up to 8 characters long using Option 5.1.2 (Set Names for Data Base Files).

If you create the Sorption File, the Formation File, the Quality File or a Property File 3 during the same SSDMS II session as the Main Data Base File, the names you give these files (or the default names you accept) appear in the following prompts.

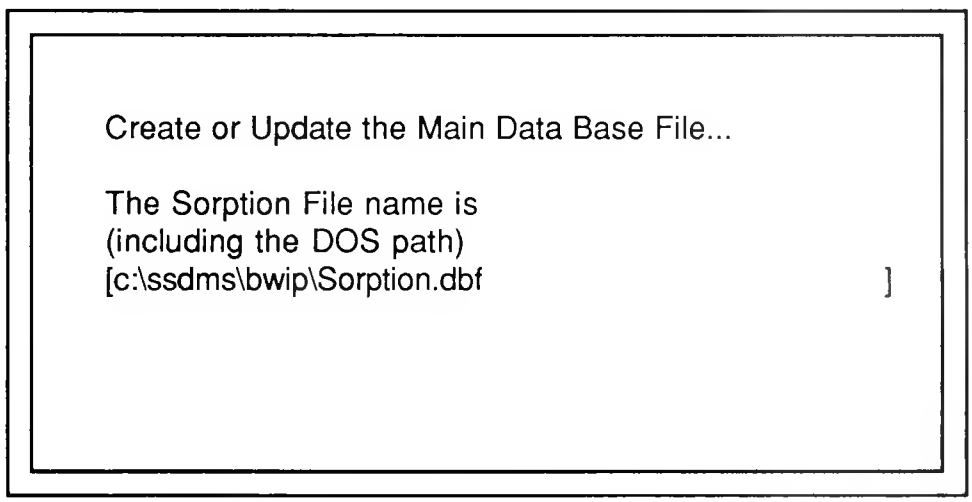
This option joins all records with the same Sample Number (SAMPLE_NO) so that, for example, the data associated with Sample 1 in the Sorption File is joined with the data for Sample 1 in the Formation File and the Quality File. You may specify another field for combining files.

With the default, all fields are included in the new Main Data Base File. If fewer fields are required, you can specify the ones to include during the joining procedure.

Except for changing default file names, you probably will not use many of the following options unless you are creating a special Main Data Base File.

The following sections explain the features in Option 1.3 (Create or Update the Main Data Base File).

Menu 1.3.a - Get Name of the Sorption File



If you need to use a file outside the default directory, change the path. Otherwise, leave the path unchanged.

If you enter a blank file name, SSDMS II displays

Option 1.3.a - Prompt 1

```
Returning...
```

Enter any key, and SSDMS II displays

Option 1.3.a - Prompt 2

```
Enter any key to continue...
```

Enter any key (again) to return to Menu 1 (Create Data Base Files), where SSDMS II prompts you to name a Sorption File.

If you enter a path and file name that SSDMS II can not find, it says

Option 1.3.a - Prompt 3

```
The designated Sorption File could not be found.
Enter any key to continue...
```

Enter any key, and SSDMS II again asks for the file name.

Once an acceptable file name has been entered, SSDMS II asks if a Formation File (format.dbf) is to join the Sorption File.

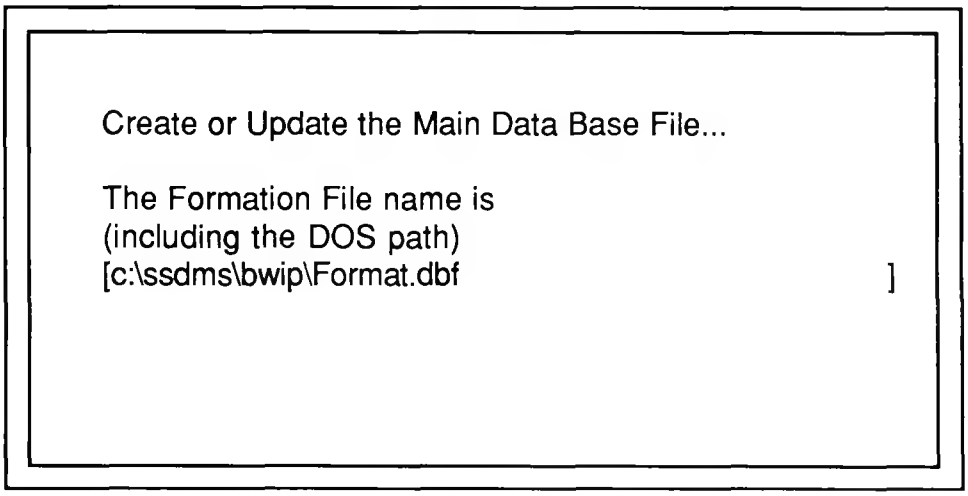
Option 1.3.a - Prompt 4

```
Do you want to join the Sorption File
with a Formation File? (Y/N)  [ Y ]
```

If you answer "N," SSDMS II skips to Prompt 3 of Option 1.3.b.

If you answer "Y," SSDMS asks for the Formation File name.

Menu 1.3.b - Get Name of the Formation File



If the Formation File is specified correctly, accept the default. Otherwise, backspace and correct the path and file name.

If you enter a blank file name, SSDMS II displays

Option 1.3.b - Prompt 1

Returning...

Press any key, and SSDMS II skips to Prompt 3 of Option 1.3.b.

If you enter the path and name of a file that can not be found, the following error message appears:

Option 1.3.b - Prompt 2

The designated Formation File could not be found.
Enter any key to continue...

Enter any key, and SSDMS II will again ask for the file name.

Once you enter an acceptable file name for the Formation File, SSDMS II asks

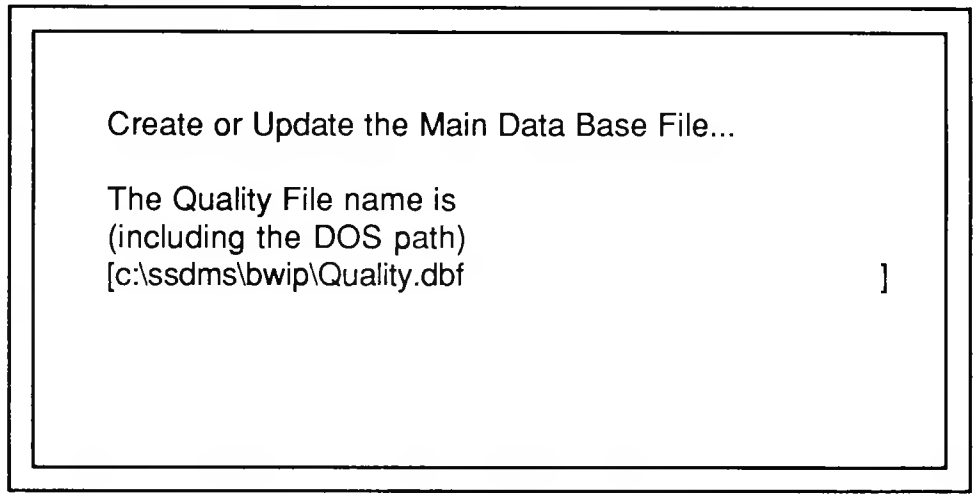
Option 1.3.b - Prompt 3

Do you want to join the Sorption File
with a Quality File? (Y/N) [Y]

If you answer "N," SSDMS II skips to Prompt 3 of Option 1.3.c.

If you answer "Y," the program asks for the Quality File name.

Menu 1.3.c - Get Name of the Quality File



If the Quality File is specified correctly, accept the default. Otherwise, backspace and correct the path and file name.

If you enter a blank file name, SSDMS II says

Option 1.3.c - Prompt 1

Returning...

Press any key to skip to Prompt 3 of Option 1.3.c.

If you enter a path and file that cannot be found, the following error message appears:

Option 1.3.c - Prompt 2

The designated Quality File could not be found.
Enter any key to continue...

When you press any key, the program asks again for the file name.

Once you enter an acceptable file name for the Quality File, the program asks

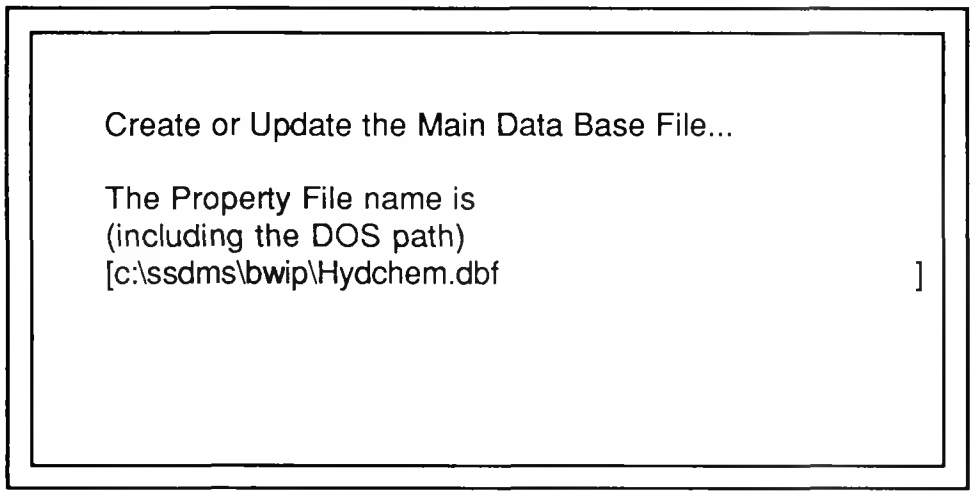
Option 1.3.c - Prompt 3

Do you want to join the Sorption File
with a Property File? (Y/N) [Y]

If you answer "N," SSDMS II skips to Menu 1.3.e (Get Name of the Resulting Data Base File).

If you answer "Y," SSDMS II asks for the Property File 3 name, supplying "hydchem.dbf" as the default.

Menu 1.3.d - Get Name of Property File 3



If the Property File 3 is correctly specified, accept the default. Otherwise, backspace and correct the path and file name.

If you enter a blank file name, SSDMS II displays

Option 1.3.d - Prompt 1

Returning...

Press any key, and SSDMS II skips to Prompt 3 of Option 1.3.d.

If you enter the path and name of a file that can not be found, the following error message appears:

Option 1.3.d - Prompt 2

The designated Property File could not be found.
Enter any key to continue...

When you press any key, the program asks again for the file name.

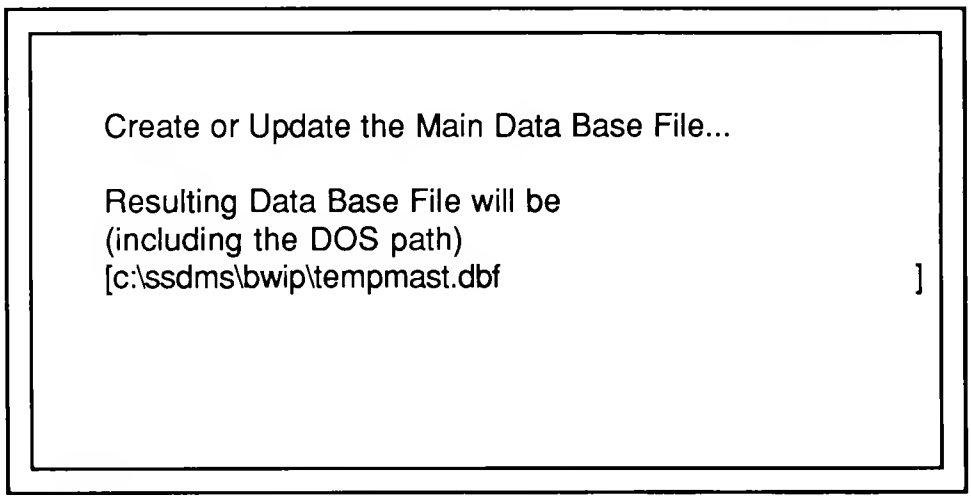
Once you enter an acceptable file name, the program asks if another Property File (no initial default name) is to join the Sorption File.

Option 1.3.d - Prompt 3

Do you want to join the Sorption File
with another Property File? (Y/N) [N]

If you choose to add another Property File, Menu 1.3.d (Get Name of Property File 3) appears with only the path. You enter the file name. The prompts for Property File names repeat until you answer Prompt 3 of Option 1.3.d with an "N".

Menu 1.3.e - Get Name of the Resulting Data Base File



DANGER: If you give this temporary master the same name as the Main Data Base File (master.dbf) and give positive responses to prompts 3 and 4 below, all data in the Main Data Base File will be lost.

To store the file outside the default directory, change the path. To store the file in the default directory, accept the default.

Entering a blank displays the following prompt:

Option 1.3.e - Prompt 1

Returning...

Press any key to continue.

SSDMS II requires a name for the new (or temporary) Main Data Base File. If you enter a blank for the Main Data Base File name, the program says

Option 1.3.e - Prompt 2

Enter any key to continue...

Press any key to return to Menu 1 (Create Data Base Files).

If you name an existing file, the following error message appears:

Option 1.3.e - Prompt 3

The designated name for the new Main Data Base File exists.
Do you want to replace it? (Y/N) [N]

Enter "N" to cancel the name you entered and re-display Menu 1.3.e (Get Name of the Resulting Data Base File).

Enters a "Y" to display the following prompt:

Option 1.3.e - Prompt 4

```
This will delete the data base file.
Do you want to replace it? (Y/N)   [ N ]
```

Enter "N" to cancel the replacement and re-display Menu 1.3.e (Get Name of the Resulting Data Base File).

Enter a "Y" to erase the existing Main Data Base File and make a new one.

Once an acceptable file name has been entered, the program joins the files.

If you name only a Sorption File and a resultant data base file, the program copies the Sorption File to the resultant data base file and displays Prompt 1 of Option 1.3.g.

Otherwise, the designated files combine two at a time. Assuming you entered names for a Sorption File, a Formation File, a Quality File and a Property File 3, then the Sorption File and the Formation File join to form a temporary file. That temporary file combines with the Quality File to form a second temporary file. The second temporary file combines with the Property File 3 to form the resultant data base file. In this way, as many as 99 files can combine, although it is highly unlikely you would need to join any more that the four files listed above.

The following explanation assumes you accepted default names for the Sorption File, the Formation File and the Quality File and are forming a resultant data base file (tempmast.dbf) with the same structure as the BWIP Main Data Base File. The explanation shows the prompts for combining the Sorption File and the Formation File. Similar prompts containing different file names would appear (but are not shown here) to join the temporary file and the Quality File. And if you had created more files, the same procedure would repeat until all files had been combined.

Option 1.3.f - Prompt 1

```
Joining the designated fields of c:\ssdms\bwip\Format
and c:\ssdms\bwip\Sorption

Enter Fields (Enter a blank for all fields):

[                                                    ]
```

To include all fields from both data base files in the resulting data base file, enter a blank.

To include some but not all fields from the data base files in the resulting data base file, name the fields to include. But be careful. If you misspell a field name or name a nonexistent field, SSDMS II returns to the Main Menu without joining the files.

The number of fields you can name individually is limited by the length of the names (approximately 10 fields). If you want to include more than 10 fields but less than all fields in the two data base files, include all fields at this step. Then, after SSDMS II creates the resultant data base file (tempmast.dbf), use the dBase "modify structure" command to remove unwanted

fields. To accomplish this, return to the SSDMS II Main Menu, select Option 6 (dBase Shell) and issue the following two commands at the dot prompt (shown below):

```
.use tempmast
.modify structure
```

For details on using the "modify structure" command, refer to Learning and Using dBase III+, Volume 1 (Ashton-Tate, 1985).

After you specify fields to include, SSDMS II completes the previous prompt with the phrase

Option 1.3.f - Prompt 2

```
for the following condition.

Enter Condition (Enter a return for the default):

[ SAMPLE_NO = Format->SAMPLE_NO                                    ]
```

The "condition" is a field common to the two files you are joining. The default condition is "SAMPLE_NO," which is common to the Sorption File, the Formation File and the Quality File for the BWIP data base files, but you may specify any valid dBase condition. If the condition is not valid, SSDMS II returns to the Main Menu.

After you specify the condition, the program displays file names, condition, and the fields it includes while joining the files.

Option 1.3.f - Prompt 3

```
Join Format with Sorption for the condition

SAMPLE_NO = Format->SAMPLE_NO

on all fields.
```

When the two files are joined, the following prompt appears:

Option 1.3.f - Prompt 4

```
Enter any key to continue...
```

Press any key to continue. If you have not joined all the files you previously named, SSDMS II repeats the previous procedure to append the Quality File, then repeats it again to append any Property File 3, and so on. Once all files that you named are joined into a resultant data base file (tempmast.dbf), SSDMS II asks whether you want to append this new Main Data Base File (tempmast.dbf) to an existing Main Data Base File or let it stand by itself.

Option 1.3.g - Prompt 1

```
Do you want to append the new Main Data Base File
to another file? (Y/N)  [ Y ]
```

To let the new Main Data Base File stand by itself, answer "N" and skip to Prompt 2 (Option 1.3.g).

To append the new Main Data Base File to an existing Main Data Base File, answer "Y." SSDMS II prompts you to name the existing Main Data Base File.

Option 1.3.g - Prompt 1.1

```
Name of old Main Data Base File
(including DOS path)
[c:\ssdms\bwip\Master.dbf                    ]
```

If the existing Main Data Base File is outside the default directory, change the path. If the file is in the default directory, accept the path.

If you enter a blank for the name of the existing Main Data Base File, you are saying you do not want to append the new Main Data Base File to an existing one. SSDMS II displays

Option 1.3.g - Prompt 1.2

```
Returning...
```

and then Prompt 2 of Option 1.3.g. Continue at that prompt below.

If you enter a path or name a file that SSDMS II cannot find, the following error message appears:

Option 1.3.g - Prompt 1.3

```
The old Main Data Base File could not be found.
Enter any key to continue...
```

Enter any key, and SSDMS II asks again for the name of an existing Main Data Base File.

Once you enter an acceptable file name, the resultant data base file is appended to the old Main Data Base File.

Next, SSDMS II asks if you want to make the Field Selection Screen. (For details, see Option 2.4: Make the Field Selection Screen.)

Option 1.3.g - Prompt 2

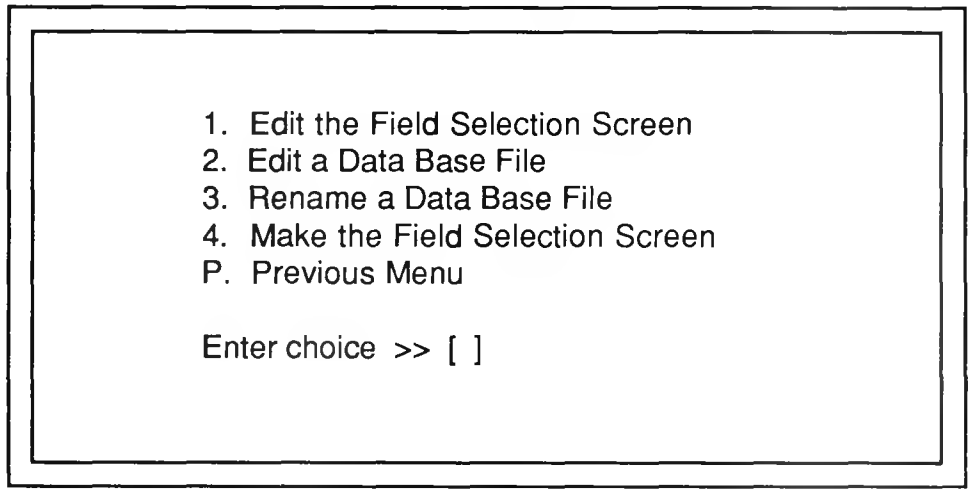
```
Do you want to make the Field Selection Screen
for the Main Data Base File? (Y/N)  [ Y ]
```

Enter a "Y" to create a Field Selection Screen for the current Main Data Base File and return to Menu 1 (Create Data Base Files). To reset the default, see Option 5.1.2 (Set Names for Data Base Files).

Enter an "N" to return directly to Menu 1 (Create Data Base Files).

EDIT DATA BASE FILES (OPTION 2)

Menu 2 - Edit Data Base Files



Option 2 (Edit Data Base Files) from the Main Menu allows you to

-- edit the Field Selection Screen, which displays the field names of the Main Data Base File (Option 2.1: Edit the Field Selection Screen),
-- edit the data in any data base file (Option 2.2: Edit a Data Base File),
-- edit the name of a data base file (Option 2.3: Rename a Data Base File),
-- create the Field Selection Screen (Option 2.4: Make the Field Selection Screen), and
-- return to the SSDMS Main Menu (Option 2.P: Previous Menu).

The following sections explain each option.

Edit the Field Selection Screen (Option 2.1)

Menu 2.1 - Edit the Field Selection Screen

```
                Field name is FNM

Enter English Name
[File Name                                                    ]
Enter Units
[                                                             ]

        Enter choice >> [ C ]

        C: Edit Current Entry          E: Exclude from Menu
        N: Next Entry                  P: Previous Entry
        #: Skip to Entry Number        R: Return

        1:57
        Included
```

Option 3 (Extract Data from Main Data Base File) displays the Field Selection Screen, which contains longer, more descriptive, names for the fields than the 8-character names that dBase allows. The 8-character Main Data Base File field names, the more descriptive English names, units for each field and a T/F designator identifying which fields to include/exclude in the Field Selection Screen are contained in an accessory data base file (fields.dbf). Option 2.1 (Edit the Field Selection Screen) allows you to edit the data base file of field names and units (fields.dbf). Option 2.4 (Make the Field Selection Screen) uses this data base file to make the Field Selection Screen.

If the data base file describing the Main Data Base File field names (fields.dbf) is not in the default directory for the data base files set under Option 5.1.1 (Set Default Drive & Directory for Data Base Files), the following prompt appears instead of Menu 2.1 (Edit the Field Selection Screen):

Option 2.1 - Prompt 1

```
Data base file of field names and units could not be found.

Enter any key to continue...
```

Enter any key to return to Menu 2 (Edit Data Base Files) and create the Field Selection Screen. SSDMS II will use the 8-character dBase field names taken from the Main Data Base File (Option 2.4: Make the Field Selection Screen).

If the Field Selection Screen has not been made, the following prompt appears in place of Menu 2.1 (Edit the Field Selection Screen) above:

Option 2.1 - Prompt 2

```
The Field Selection Screen has not been made.
Do you want to make it? (Y/N)  [ Y ]
```

Enter a "Y" for SSDMS II to make the Field Selection Screen and continue. (For details, see Option 2.4: Make the Field Selection Screen.)

Enter an "N" to return to Menu 2 (Edit Data Base Files).

If the field names and units file (fields.dbf) contains no records but the menu has been made, the file and menu do not correspond to the same Main Data Base File. Instead of Menu 2.1 (Edit the Field Selection Screen) above, the following prompt appears so you can remake the Field Selection Screen for the current Main Data Base File. (For details, see Option 2.4: Make the Field Selection Screen.)

Option 2.1 - Prompt 3

```
c:\ssdms\bwip\fields exists but has no records
Do you want to make the Field Selection Screen? (Y/N)  [ Y ]
```

Enter a "Y" to make the Field Selection Screen and continue.

Enter an "N" to return to Menu 2 (Edit Data Base Files).

Once all the files are in order, Menu 2.1(Edit the Field Selection Screen) appears as shown above and lets you edit the Field Selection Screen.

In the bottom left corner, the edit screen displays the number of the current field name and the total number of field names in the Main Data Base File. You may edit the English name to best reflect the meaning of the dBase name and may enter or alter the units as necessary. You can also include or exclude a field from the Field Selection Screen, thereby determining the number of fields actually displayed. The last line tells whether the field being edited is "Included" or "Not Included" in the Field Selection Screen.

To edit the Field Selection Screen, enter an edit command listed on the edit screen and press ENTER.

Option 2.1 - Prompt 4

```
Enter choice >>  [   ]
```

The editing options are

Current	edits the current field name entry
Next	displays the next field name entry
Previous	displays the previous field name entry
Return	returns to Menu 2 (Edit Data Base Files)
#	skips to a specified field name, e.g., typing "22" displays field name #22
Include	includes an excluded field name in the Field Selection Screen
Exclude	excludes an included field name from the Field Selection Screen

Under the # option, if you enter a number for which no record exists, Prompt 4 of Option 2.1 reappears.

If you include fields previously excluded (enter "E") or include fields previously excluded (enter "I"), the following prompts appear:

Option 2.1 - Prompt 5

Resetting Field Selection Screen Names...

Option 2.1 - Prompt 6

Saving Field Selection Screen set up to disk...

This updates the Field Selection Screen so that only fields with a "T" in the "INCLUDED" field appear during the subsetting operation.

After editing, press "R" to return to Menu 2 (Edit Data Base Files).

Edit a Data Base File (Option 2.2)

This option implements the full-screen edit, append or browse dBase functions to edit a data base file.

First, specify the data base file to edit:

Option 2.2 - Prompt 1

```
Enter the name of the file to edit:    [                ]
```

If you enter a blank, the following message appears, and after you press any key, the program returns to Menu 2 (Edit Data Base Files).

Option 2.2 - Prompt 1.1

```
Returning...
```

If you enter a file name that SSDMS II cannot find on the default drive (e.g., "sample"), the following message appears:

Option 2.2 - Prompt 2

```
c:\ssdms\bwip\sample.dbf could not be found.

Enter any key to continue...
```

Enter any key, and the program asks for another file name (Option 2.2 - Prompt 1).

If you enter a valid file name, the following prompt appears:

Option 2.2 - Prompt 3

```
Edit (E), Append (A), Browse (B), or Cancel (C)? >>  [ E ]
```

If you choose cancel, Menu 2 (Edit Data Base Files) appears.

If you choose append or browse, the program runs the append or browse dBase commands with the given data base file and then returns to Menu 2 (Edit Data Base Files).

If you choose edit, SSDMS II displays

Option 2.2 - Prompt 3.1

```
Enter a record number to edit or R to Return.
      [  ]
```

Specify the record number. If the file is not indexed, the first record number is 1.

SSDMS II displays the first 15 fields of the record. If the record has more than 15 fields, press PGDN or CTRL-C to display additional pages of 15 fields each or, when you reach the end of the record, to display the next record. For more cursor control commands, see Option 1.1.1 (Create a Table File), Option 1.2.1 (Create the Formation File) or Option 1.2.2 (Create the Quality File).

Depending on the record number you select, you may see some of the following prompts.

If the file (e.g., "sample2") has no records in it, the program responds

Option 2.2 - Prompt 3.2

```
sample2 has no records.
Do you want to append? (Y/N)   [ N ]
```

A "Y" allows you to append records while an "N" returns to Menu 2 (Edit Data Base Files).

If the record number you enter is outside the range for the data base file, SSDMS II says (if the data base file contains 59 records)

Option 2.2 - Prompt 3.3

```
The choice entered is out of range.
Valid choices are from 1 to 59.

Enter any key to continue...
```

Press any key to return to Prompt 3.1 (Option 2.2) and enter another record number.

In dBase, you mark a record for deletion by typing "CTRL-U" while editing the record. This marks it for deletion, and a "pack" operation at the end of the editing session deletes it.

Option 2.2 - Prompt 3.4

```
Pack? (Y/N)   [ N ]
(permanently remove data base records marked for deletion)
```

A "Y" deletes all records marked for deletion by copying all records not marked for deletion to a new file with the same name, so packing large data base files takes some time.

An "N" leaves records marked but does not delete them. For more information on dBase III+™ functions, see Learning and Using dBase III+, Volume 1 (Ashton-Tate, 1985).

At the end of the editing session, press any key to return to Menu 2 (Edit Data Base Files).

Rename a Data Base File (Option 2.3)

This option renames any existing data base file in the default data base directory. (To view or change that directory, see Option 5.1.1: Set Default Drive and Directory for Data Base Files).

Option 2.3 - Prompt 1

```
Enter the name of the file to be renamed:  [                ]
```

If you enter a blank for the existing file's name, the following prompt appears, and, after you press any key, SSDMS II returns to Menu 2 (Edit Data Base Files).

Option 2.3 - Prompt 1.1

```
Returning...
```

If SSDMS II cannot find the existing file (e.g., "oldname"), the following prompt appears:

Option 2.3 - Prompt 1.2

```
c:\ssdms\bwip\oldname.dbf could not be found.

Enter any key to continue...
```

Press any key, and SSDMS II asks again for a file name (Option 2.3 - Prompt 1).

Once you enter an acceptable name for an existing file, the program prompts for the new name.

Option 2.3 - Prompt 2

```
Enter the NEW Name:  [                ]
```

If you enter a blank for the new file name, the following prompt appears, and, after you press any key, SSDMS II returns to Menu 2 (Edit Data Base Files).

Option 2.3 - Prompt 2.1

```
Returning...
```

If you enter a name (e.g., "newname") that matches an existing file name, the program responds

Option 2.3 - Prompt 2.2

```
c:\ssdms\bwip\newname.dbf already exists.
Do you want to replace it? (Y/N)   [ N ]
```

Answer "Y" to erase the existing "newname" file and rename "oldname" to "newname."

Answer "N" to re-enter a new file name (Option 2.3 - Prompt 2).

Some data bases have memory files (.dbt) that must also be renamed in order to keep the data base intact. SSDMS II looks for these memory files and renames them along with the corresponding .dbf files.

The final prompt allows you to see the old name and new name side by side.

Option 2.3 - Prompt 3

```
oldname.dbf >> newname.dbf
oldname.dbt >> newname.dbt

Enter any key to continue...
```

Press any key to return to Menu 2 (Edit Data Base Files).

Make the Field Selection Screen (Option 2.4)

This option creates the Field Selection Screen that displays the names of fields in the Main Data Base File in Option 3 (Extract Data from Main Data Base File). Each time you access a different Main Data Base File, create a new Field Selection Screen for it. Otherwise, the field names for the previous Main Data Base File will appear under Option 3 (Extract Data from Main Data Base File). To create the Field Selection Screen, the Main Data Base File (master.dbf) MUST be present. If the data base file of field names and units (fields.dbf) is also present, SSDMS II will insert the longer, English field names into the Field Selection Screen when you choose Option 3 (Extract Data from Main Data Base File).

If the Main Data Base File is not found, the following prompt appears, and, after you press any key, SSDMS II returns to Menu 2 (Edit Data Base Files).

Option 2.4 - Prompt 1

```
The Main Data Base File could not be found.
The field names are not available.

Enter any key to continue...
```

If SSDMS II cannot find the data base file of field names and units (fields.dbf), the following prompt appears and the program uses the dBase field names (8 characters or less) to create the Field Selection Screen.

Option 2.4 - Prompt 2

```
Making the Field Selection Screen...

Data base file of field names and units could not be found.
The dBASE names from the Main Data Base File will be displayed.

Enter any key to continue...
```

Press any key.

If the Main Data Base File is present, SSDMS II announces

Option 2.4 - Prompt 3

```
Making the Field Selection Screen...

Getting field names...

Setting field

Saving Field Selection Screen set up to disk...
```

If the file of field names and units (fields.dbf) exists but contains no records, SSDMS II makes the Field Selection Screen with all dBase field names (8 or fewer characters) from the Main Data Base File and sets the "INCLUDED" values for all fields to True.

If the file of field names and units (fields.dbf) exists and contains records, SSDMS II makes the Field Selection Screen with the English names for all fields whose "INCLUDED" value is True.

After making the Field Selection Screen, the program says

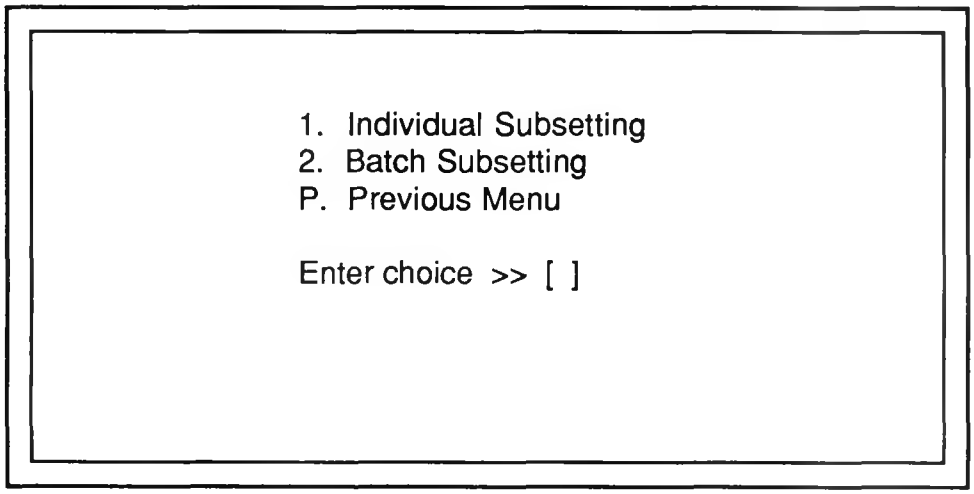
Option 2.4 - Prompt 4

Enter any key to continue...

Enter any key to return Menu 2 (Edit Data Base Files).

EXTRACT DATA FROM MAIN DATA BASE FILE (OPTION 3)

Menu 3 - Extract Data from Main Data Base File



Option 3 (Extract Data from Main Data Base File) allows you to
- -- extract data using individual subsetting (Option 3.1: Individual Subsetting),
- -- extract data using batch subsetting (Option 3.2: Batch Subsetting), and
- -- return to the Main Menu (Option 3.P: Previous Menu).

To accomplish either subsetting operation, SSDMS II must find the Main Data Base File and the Field Selection Screen (See Option 2.4: Make the Field Selection Screen).

If SSDMS II cannot find the Main Data Base File, Prompt 1 (Option 3) appears.

Option 3 - Prompt 1

Main Data Base File could not be found on
c:\ssdms\bwip\

Enter any key to continue...

Enter any key to return to the SSDMS II Main Menu.

If SSDMS II finds the Main Data Base File but not the Field Selection Screen, Prompt 2 (Option 3) appears.

Option 3 - Prompt 2

No Field Selection Screen exists for the
current Main Data Base File.

Do you want to make the Field Selection Screen? (Y/N) [Y]

Press "Y" to make the Field Selection Screen and continue with the subsetting operation. Press "N" to return to the Main Menu.

In either subsetting operation, the criterion string must be less than 254 characters long. If you exceed 254 characters, dBase says

Option 3 - Prompt 3

> Criteria string is at its maximum length.
> No more fields may be selected.

and prohibits further input. Enter any key and select "N" to continue to the Next part of the subsetting operation.

After you enter the subsetting criteria and output choices, SSDMS II combines them with the appropriate dBase commands to form one command line, executes the command, and searches the Main Data Base File. The dBase default requires a command line no longer than 250 characters. If the command line exceeds this length, dBase says

Option 3 - Prompt 4

> The combined search criteria and output fields
> string is too long. The combined string must
> be shortened before the Main Data Base File
> can be searched.
>
> Enter any key to continue...

If you are doing an individual subsetting, entering any key returns to Menu 3.1.a (Individual Subsetting: Subset Criteria). By using the Edit command or by clearing the criteria, you may shorten the subsetting criteria and output choices to an acceptable length and continue with the subsetting.

If you are doing a batch subsetting, entering any key returns to the Main Menu. You reselect Option 3.2 (Batch Subsetting) and re-enter the criterion string.

Individual Subsetting (Option 3.1)

Describe Search Criteria

Menu 3.1.a - Individual Subsetting: Subset Criteria

Subset the Main Data Base File

1	File Name	17	Sample Number of the Solid
2	Container Material	18	General Sample Number
3	Seal Material	19	Element
4	Liner Material	20	Batch Sorption Average
5	Agitation Rate	21	No. of Replications (Sorption)
6	Filter Size	22	Standard Deviation (Sorption)
7	Centrifuge Rate	23	Contact Time (Sorption)
8	Pre-Equilibration Contact Time	24	Lowest pH
9	Pre-Equilibration Temperature	25	Highest pH
10	Pre-Equilibration Atmosphere	26	Initial pH
11	Number of Washings	27	Final pH
12	Crushing Atmosphere	28	Batch Desorption Average
13	First Basalt Quality Index	29	No. of Replications (Desorp.)
14	Second Basalt Quality Index	30	Standard Deviation (Desorp.)
15	Combined Quality Index	31	Contact Time (Desorption)
16	Rock	32	Temperature

Enter choices on which to subset the Main Data Base File:
[ ]
Criteria are

Clear Next Page Return Edit Units

NOTE: Field names vary in each Main Data Base File (i.e., BWIP NNWSI, WIPP, etc.). These are the field names in the BWIP Main Data Base File.

Option 1 from Menu 3 (Extract Data from Main Data Base File) displays Menu 3.1.a (Individual Subsetting: Subset Criteria), which prompts for the criteria by which to subset the Main Data Base File. You can string several fields together by entering the numbers of those fields. You can ignore distinctions between upper and lower case and set the field "=" or "#" any value. By default, SSDMS II links the fields by an "AND" logical operation, but you can change the logical operator to "OR" with the Edit function, an option on Menu 3.1.a (Individual Subsetting: Subset Criteria).

The option row at the bottom of the screen offers the following choices:

Clear	clears the criteria shown at the bottom of the screen
Next	advances to the next operation: Describe Desired Output
Page	displays the next/previous page of the Field Selection Screen
Return	returns to the SSDMS II Main Menu
Edit	edits the subsetting criteria string
Units	displays the units of a specified field

The section "Option Row for Individual Subsetting" below explains these options.

This section lists the prompts encountered during an individual subsetting procedure in detail.

You may choose as many search criteria as you want as long as the final command line does not exceed 254 characters (see Option 3: Extract Data from Main Data Base File).

The main prompt for the input of individual subsetting criteria is the Subset Prompt (Option 3.1.a):

Option 3.1.a - Subset Prompt

```
Enter choices on which to subset the Main Data Base File:
                              [  ]
Criteria are

    Clear     Next     Page     Return     Edit     Units
```

By default, criteria from the last subsetting operation appear at the bottom of the screen. Enter a "C" to clear these criteria.

In this example, the previous subsetting criteria will be cleared.

Option 3.1.a - Subset Criteria Prompt 1

```
Enter choices on which to subset the Main Data Base File:
                              [C ]
Criteria are

    Clear     Next     Page     Return     Edit     Units
```

Once the criteria have been cleared, Prompt 2 (Option 3.1.a - Subset Criteria) appears briefly and then Subset Prompt (Option 3.1.a) reappears.

Option 3.1.a - Subset Criteria Prompt 2

```
Criteria have been cleared.
```

To construct the subsetting criteria, choose a field.

In this example, Element has been chosen by entering "19" at the Subset Prompt (Option 3.1.a).

Option 3.1.a - Subset Criteria Prompt 3

```
Enter choices on which to subset the Main Data Base File:
                              [ 19 ]
Criteria are

    Clear     Next     Page     Return     Edit     Units
```

The next prompt asks if you want to distinguish between upper and lower case.

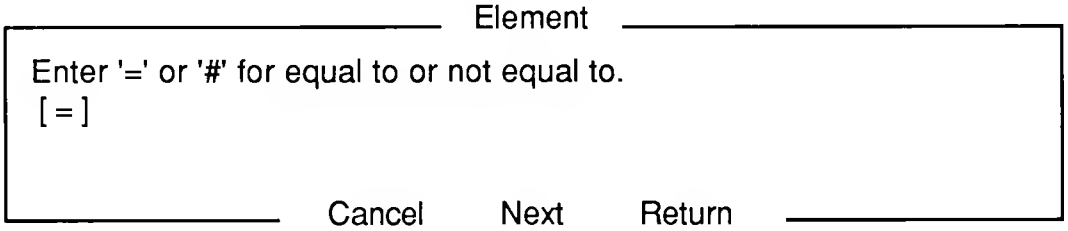
Option 3.1.a - Subset Criteria Prompt 4

```
                        Element
Disregard upper-lower case in the Main Data Base File? (Y/N) [ Y ]
```

For example, suppose you want to see data for the element cesium and plan to enter "Cs" as the criterion value for the Element field. If you enter "Y" at this prompt (as in the example) to disregard case, SSDMS II returns results for "cS", "Cs", "CS" and "cs". If you choose "N", only a perfect match--"Cs"--returns results.

At Prompt 5 and Prompt 6 of Option 3.1.a - Subset Criteria, you specify the value of Element for which the Main Data Base File should be searched.

Option 3.1.a - Subset Criteria Prompt 5



The option row allows the following options:

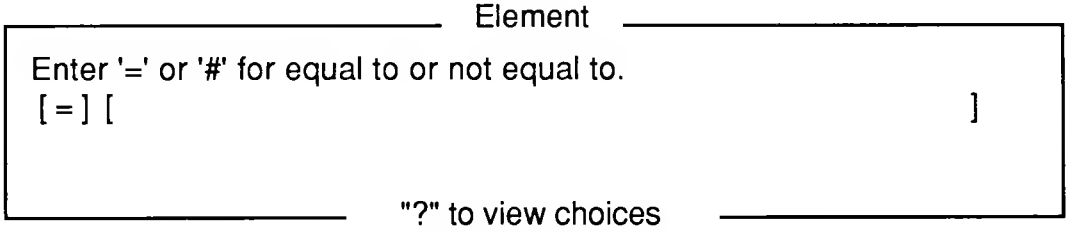
Cancel	cancels Element as a choice and returns to Menu 3.1.a (Individual Subsetting: Subset Criteria)
Next	advances to Menu 3.1.b (Individual Subsetting: Output Criteria) to choose output fields
Return	returns to the SSDMS II Main Menu

SSDMS II allows Element to be "equal to" (=) or "not equal to" (#) a value. However, more advanced phrasing may be constructed with the Edit option (accessed from Option 3.1.a - Subset Prompt)

This example shows an "=" at Prompt 5 (Option 3.1.a - Subset Criteria).

SSDMS II prompts for the value that Element should be equal to.

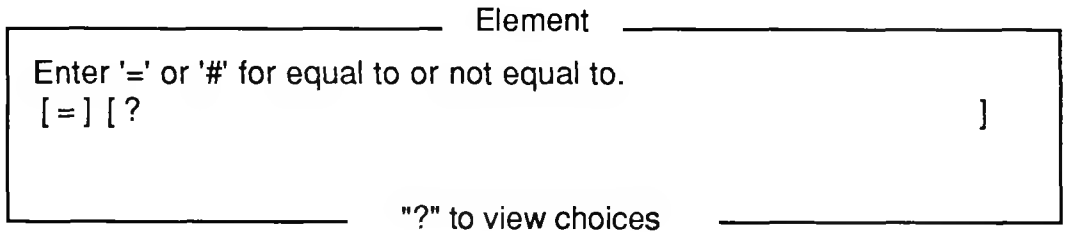
Option 3.1.a - Subset Criteria Prompt 6



The Main Data Base File may be queried for any alphanumeric string. Entering a "?" (Option 3.1.a - Subset Criteria Prompt 6) allows you to see the values available in the Main Data Base File for the chosen field (here, Element).

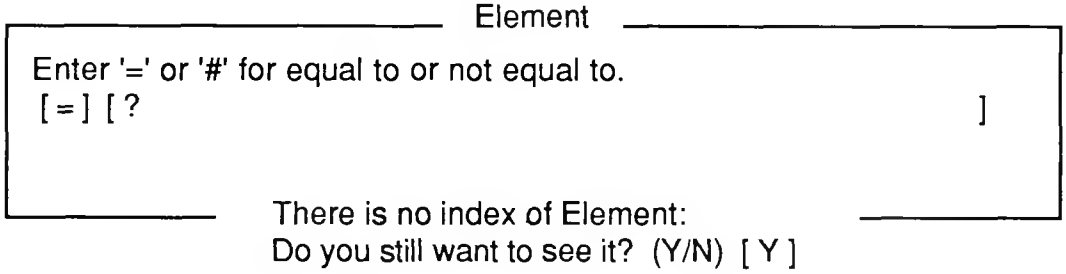
Enter a "?" at Prompt 6 of Option 3.1.a - Subset Criteria.

Option 3.1.a - Subset Criteria Prompt 7



This information resides in an auxiliary data base file (element.dbf) that contains all the distinct values for that field. Once this data base file (element.dbf) exists, you access it by the "?" command. If no auxiliary data base file is present for Element, Prompt 8 (Option 3.1.a - Subset Criteria) appears.

Option 3.1.a - Subset Criteria Prompt 8



Enter a "Y" as in the example to create the auxiliary data base file. Enter an "N" to return to Prompt 6 Option 3.1.a - Subset Criteria.

If the Main Data Base File (master.dbf) has been edited or updated, the auxiliary data base files created prior to the changes may not accurately reflect the changed Main Data Base File. To reflect the changes, you must erase and re-create the auxiliary data base files by answering "Y" to Prompt 8 (Option 3.1.a - Subset Criteria) above. SSDMS II uses the field names of the Main Data Base File to name these auxiliary data base files and then stores them in the same directory as the Main Data Base File. For example, if an auxiliary data base file was formed for the field Element, SSDMS II would create a file named "element.dbf" in the Main Data Base File directory (for basalt, c:\ssdms\bwip). The DOS command "del" can delete this file (see the DOS manual if additional help is required with the "del" command).

A Template File (index.dbf) stores the structure for the auxiliary data base file created in response to Prompt 8 (Option 3.1.a - Subset Criteria) above.

If a Template File does not exist, SSDMS II can not re-create the auxiliary data base file and so displays the following prompt. After you press any key, SSDMS II returns to Menu 3.1.a (Individual Subsetting: Subset Criteria).

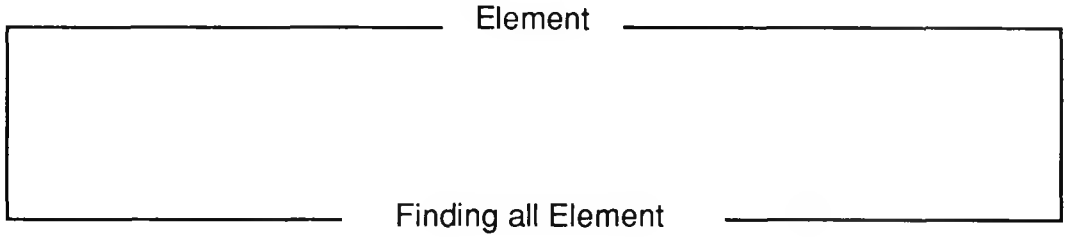
Option 3.1.a - Subset Criteria Prompt 9

```
The Template File index could not be found.
Enter any key to continue...
```

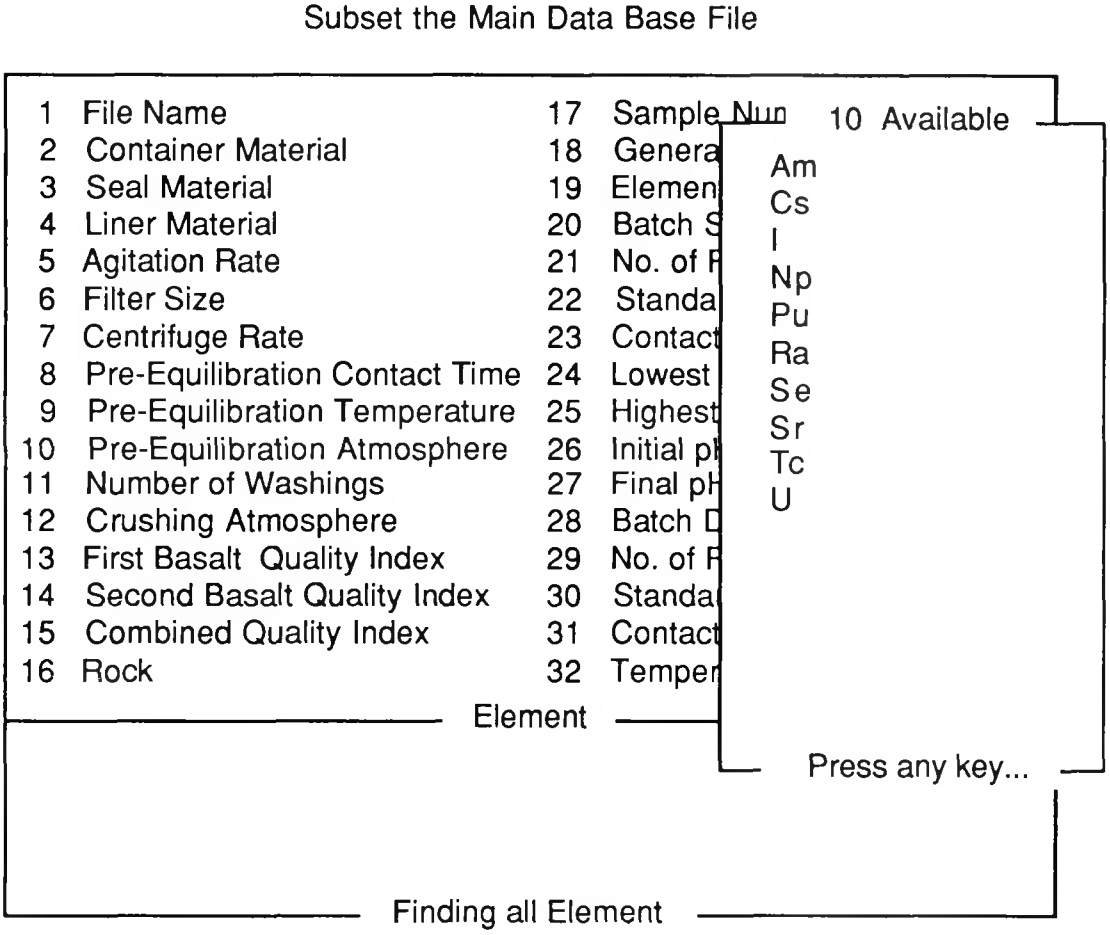
Appendix C describes the procedure to create a Template File.

If the Template File exists, the following prompt appears, followed by a list of all values for Element in the Main Data Base File.

Option 3.1.a - Subset Criteria Prompt 10



Menu 3.1.a - Individual Subsetting: Field Values



The values for the fields appear 16 at a time. If more exist, pressing any key displays the next 16. After all values have been displayed, pressing any key displays

Option 3.1.a - Subset Criteria Prompt 11

```
Do you want a printout of this list? (Y/N)   [ N ]
```

A "Y" prints the list and returns to Prompt 6 (Option 3.1.a - Subset Criteria). An "N" returns to Prompt 6 without printing.

This example shows an "N" for Prompt 11 (Option 3.1.a - Subset Criteria), an "=" for Prompt 5 (Option 3.1.a - Subset Criteria), and a "cs" for Prompt 6 (Option 3.1.a - Subset Criteria).

Option 3.1.a - Subset Criteria Prompt 12

```
                    Element
Enter '=' or '#' for equal to or not equal to.
[ = ] [ cs                                    ]


                "?" to view choices
```

When Prompt 13 (Option 3.1.a - Subset Criteria) appears, you should enter an "N" to continue to the Next part of the subsetting operation, Option 3.1.b (Individual Subsetting: Output Criteria).

Option 3.1.a - Subset Criteria Prompt 13

```
Enter choices on which to subset the Main Data Base File:
                              [   ]
Criteria are Element = CS

   Clear    Next    Page    Return    Edit    Units
```

Option 3.1.a - Subset Criteria Prompt 14

```
Enter choices on which to subset the Main Data Base File:
                              [ N ]
Criteria are Element = CS

   Clear    Next    Page    Return    Edit    Units
```

After you describe the criteria by which to search the data base (input), you describe the search output.

Describe Desired Output (Option 3.1.b)

Entering "N" at Menu 3.1.a (Individual Subsetting: Subset Criteria) displays Menu 3.1.b (Individual Subsetting: Output Criteria), which prompts for variables to output to screen, printer or text file.

Menu 3.1.b - Individual Subsetting: Output Criteria

Choose Output Fields

1	File Name	17	Sample Number of the Solid
2	Container Material	18	General Sample Number
3	Seal Material	19	Element
4	Liner Material	20	Batch Sorption Average
5	Agitation Rate	21	No. of Replications (Sorption)
6	Filter Size	22	Standard Deviation (Sorption)
7	Centrifuge Rate	23	Contact Time (Sorption)
8	Pre-Equilibration Contact Time	24	Lowest pH
9	Pre-Equilibration Temperature	25	Highest pH
10	Pre-Equilibration Atmosphere	26	Initial pH
11	Number of Washings	27	Final pH
12	Crushing Atmosphere	28	Batch Desorption Average
13	First Basalt Quality Index	29	No. of Replications (Desorp.)
14	Second Basalt Quality Index	30	Standard Deviation (Desorp.)
15	Combined Quality Index	31	Contact Time (Desorption)
16	Rock	32	Temperature

Enter criteria to have output to screen/file:
[ ]
Criteria are

Clear Next Page Return Edit Units

NOTE: Field names vary in each Main Data Base File (i.e., BWIP, NNWSI,WIPP, etc.). These are the field names in the BWIP Main Data Base File.

Specifying output criteria is similar to specifying input criteria with one main difference: you specify only fields, not criterion values. Values from these fields are the output and so are not specified.

The option row at the bottom of the screen offers the following choices:

Clear	clears the criteria at the bottom of the screen
Next	advances to the next operation: Searching the Main Data Base File
Page	displays the next/previous page of the Field Selection Screen
Return	returns to the SSDMS II Main Menu
Edit	edits the subsetting criteria string
Units	displays the units of a specified field

A section below, "Option Row for Individual Subsetting," explains these options in detail.

The main prompt for output is the Output Prompt (Option 3.1.b).

Option 3.1.b - Output Prompt

```
Enter criteria to have output to screen/file:
                              [   ]
Criteria are

    Clear     Next     Page     Return     Edit     Units
```

By default, criteria from the last subsetting operation appear at the bottom of the screen. Clear these criteria by entering "C" for the Clear option.

In this example, the previous subsetting criteria are cleared.

Option 3.1.b - Output Criteria Prompt 1

```
Enter criteria to have output to screen/file:
                              [C  ]
Criteria are

    Clear     Next     Page     Return     Edit     Units
```

Once the criteria have been cleared, Prompt 2 (Option 3.1.b - Output Criteria) appears briefly and the Output Prompt (Option 3.1.b) reappears.

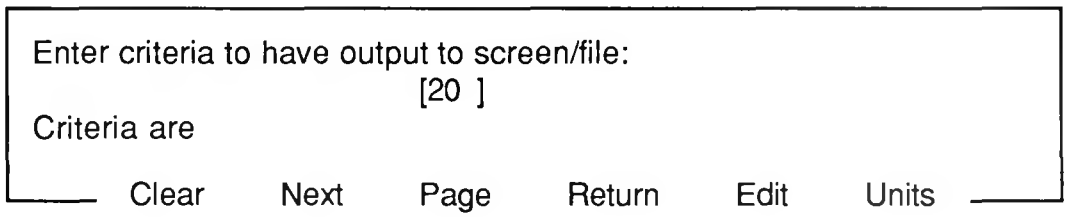
Option 3.1.b - Output Criteria Prompt 2

```
Enter criteria to have output to screen/file:
                              [   ]
Criteria have been cleared.

    Clear     Next     Page     Return     Edit     Units
```

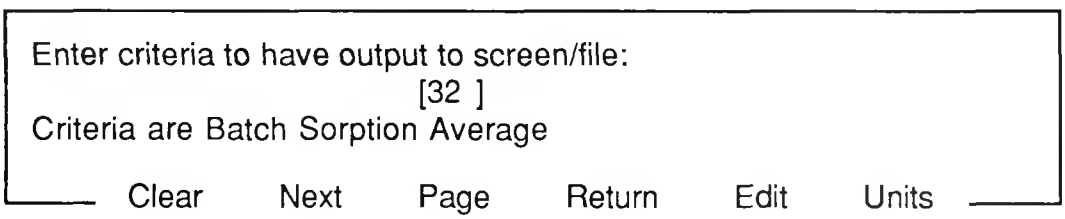
To select the output fields, enter the numbers corresponding to as many fields as you want, subject to the maximum string length of 254 characters (see Option 3: Extract Data from Main Data Base File).

For example, you might enter a "20" for Batch Sorption Average and a "32" for Temperature.

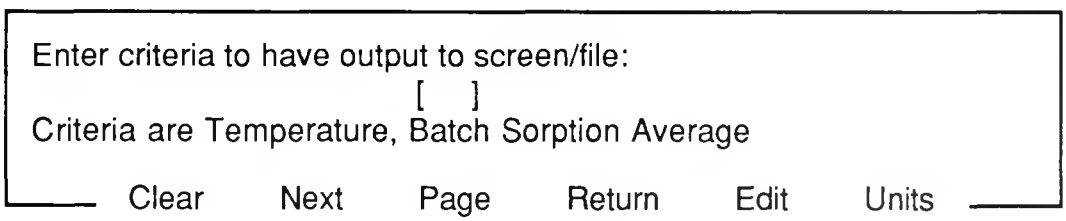
Option 3.1.b - Output Criteria Prompt 3



Option 3.1.b - Output Criteria Prompt 4

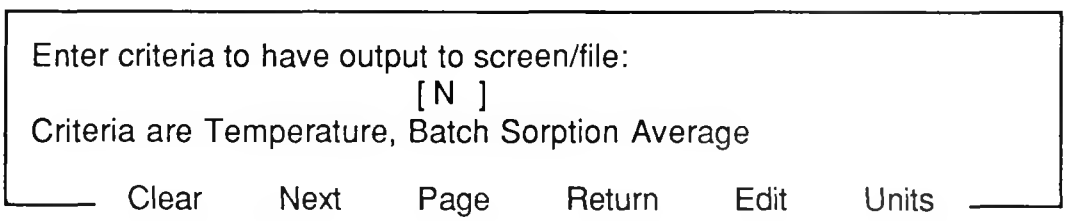


Option 3.1.b - Output Criteria Prompt 5



After specifying the output, enter an "N" to advance to the Next part of the subsetting operation, Option 3.1.c (Individual Subsetting: Searching the Main Data Base File).

Option 3.1.b - Output Criteria Prompt 6



Specify Output Mode and Search the Main Data Base File (Option 3.1.c)

As long as the command line does not exceed its maximum length of 254 characters (see Option 3 - Prompt 4), SSDMS II continues.

dBase presents you with its version of the subsetting criteria and output choices. If a mistake has been made, you may abort the operation rather than continuing a search for unwanted data.

Option 3.1.c - Searching the Main Data Base File Prompt 1

```
Now ready to query the Main Data Base File for
output fields:
  >> TEMP,BAT_SOR_AV

That satisfy the following criteria:
  >> UPPER(ELEMENT)='CS'

Do you wish to continue? (Y/N)   [ Y ]
```

Enter "Y" to continue the search or "N" to abort it and return to Menu 3.1.a (Individual Subsetting: Subset Criteria).

If you continue, SSDMS II asks if you want to send data to the printer.

Option 3.1.c - Searching the Main Data Base File Prompt 2

```
Do you want data sent to the printer? (Y/N)    [N ]
```

A "Y" sends data to the printer; an "N" does not.

The program can display field names above the columns of data or suppress column headings.

Option 3.1.c - Searching the Main Data Base File Prompt 3

```
Do you want headings on the columns of data? (Y/N)    [N ]
```

A "Y" displays headings; an "N" suppresses them.

The next prompt asks if the data should be stored to a file, which you could use with data analysis or graphics routines (see Option 4: Display Graphs and Statistical Information).

Option 3.1.c - Searching the Main Data Base File Prompt 4

```
Enter name of file to save data in (blank for none):
[         ].TXT
```

If you enter a blank, the data appears only on the screen.

If you name an existing file (e.g., "data.txt"), the following prompt appears:

Option 3.1.c - Searching the Main Data Base File Prompt 5

```
c:\ssdms\bwip\data.txt already exists.
Do you want to replace it? (Y/N)   [ N ]
```

A "Y" deletes the file; an "N" displays Prompt 4 (Option 3.1.c - Searching the Main Data Base File).

Finally, SSDMS II queries the Main Data Base File and displays results on the screen. Press CTRL-S to pause the display, CTRL-Q to resume and ESCape to abort the operation and return to the SSDMS II Main Menu.

A partial listing of sample output appears below.

Option 3.1.c - Searching the Main Data Base File Prompt 6

```
Element = CS

TEMP      BAT_SOR_AV
25     >10000
60     1432
25     >12000
25     9795
25     212
25     1080
25     10000
25     >12000
25     >12000
60     167
60     960
60     12400
60     11600
60     11800
25     228      ....
```

When the subsetting is complete, the following message appears:

Option 3.1.c - Searching the Main Data Base File Prompt 7

```
Press any key to continue...
```

If no data satisfy the search criteria, only Prompt 7 (Option 3.1.c - Searching the Main Data Base File) appears.

Enter any key to continue.

If you designated an output file, the program asks if you want to edit that file.

Option 3.1.c - Searching the Main Data Base File Prompt 8

```
Do you want to edit this file now? (Y/N)  [ N ]
```

If you answer "Y" but have not installed an editor under Option 5.1.3 (Set Names for Auxiliary Program Files) and Option 5.1.4 (Set Default Drive & Directories for Program Files), then the file can not be edited and the following message appears:

Option 3.1.c - Searching the Main Data Base File Prompt 9

```
No editor has been installed.
Enter any key to continue...
```

Otherwise, a "Y" executes the editing program, and you may edit the file.

If you enter an "N" at Prompt 8 (Option 3.1.c - Searching the Main Data Base File) or when you finish editing the file, Menu 3.1.a (Individual Subsetting: Subset Criteria) appears.

Option Row for Individual Subsetting (Option 3.1)

The Clear, Next, Page and Return commands can also be accessed from Option 3.2 (Batch Subsetting). There is no difference between accessing these commands from the two options except that you return either to the Subset Prompt (Option 3.2.a) or to the Output Prompt (Option 3.2.b), depending on which section of the program you are in..

Clear

As discussed above, if the criteria constructed so far are not what you intend or if unwanted criteria were saved from a previous SSDMS II session, you may enter a "C" at the Subset Prompt (Option 3.1.a) or at the Output Prompt (Option 3.1.b) to clear those criteria.

Once criteria are cleared, the Clear Prompt (Option 3.1) appears briefly before the Subset Prompt (Option 3.1.a) or the Output Prompt (Option 3.1.b) reappears.

Option 3.1 - Clear Prompt

```
Criteria have been cleared.
```

Edit

This option edit the search criteria or output criteria strings. Use it only if you are familiar with dBase III+™ syntax and need to customize subset criteria strings. You may construct any valid dBaseIII+™ search string, including"AND" or "OR" logical operators. SSDMS II ordinarily displays the subsetting and output criteria with the English versions of the field names but will revert to the dBase III+™ names after the editing is complete.

Option 3.1 - Edit Prompt 1

```
                Edit the Subsetting Criteria
      Warning...You must enter valid dBASE expressions or
             the subsetting may not be successful...
________________________________________________________________
 [



                                ]
________________________________________________________________
        The displayed subsetting criteria will now use the dBase
              field names instead of the English equivalent.
```

Before returning to the Subset Prompt (Option 3.1.a) or the Output Prompt (Option 3.1.b), SSDMS II asks if the search or output criteria string is ok.

Option 3.1 - Edit Prompt 2

OK? (Y/N) [Y]

A "Y" returns the Subset Prompt (Option 3.1.a) or the Output Prompt (Option 3.1.b). An "N" returns Prompt 1 (Option 3.1.a - Edit).

Units

The descriptive English name and units for each field reside in a data base file (fields.dbf) that you can view by selecting "U" from the option row.

If this data base file of field names and units does not exist, the following prompt appears:

Option 3.1 - Units Prompt 1

The data base file of field names and units could not be found.
Enter any key to continue...

Enter any key to return to the Subset Prompt (Option 3.1.a) or the Output Prompt (Option 3.1.b). Create the data base by following the procedure described in Appendix C.

If the data base file of field names and units exists, SSDMS II prompts for the field to be viewed. Viewing the units has no effect on the search or output criteria; all fields can be viewed before any choice is made. You can edit the fields and units file (fields.dbf) from Menu 2.1 (Edit the Field Selection Screen).

Option 3.1 - Units Prompt 2

Display units for which field? [ ]

If no field corresponds to the number entered, the following error message appears:

Option 3.1 - Units Prompt 3

The field number entered is out of range. Please reenter.

Re-enter the number of a field displayed on the Field Selection Screen.

Once you enter an acceptable number (e.g., "20" for the Batch Sorption Average in the BWIP Main Data Base File), SSDMS II searches the data base file of field names and units.

Option 3.1 - Units Prompt 4

```
Display units for which field?  [ 20 ]
```

If SSDMS II cannot find the field, the following message appears:

Option 3.1 - Units Prompt 5

```
BAT_SOR_AV could not be found...
```

Enter any key to return to the Subset Prompt (Option 3.1.a) or the Output Prompt (Option 3.1.b).

If SSDMS II does find the fields and units data base file, it displays the information.

Option 3.1 - Units Prompt 6

```
Name:  Batch Sorption Average
Units:  ml/gm
Looking for BAT_SOR_AV

        Press any key to continue...
```

Enter any key to return to the Subset Prompt (Option 3.1.a) or the Output Prompt (Option 3.1.b).

Other menu row options for individual subsetting are:

Next	Continue to the next part of the subsetting operation
Page	Display the next/previous page of the Field Selection Screen
Return	Abort this menu and return to the SSDMS II Main Menu

Batch Subsetting (Option 3.2)

In the initial stages of data analysis, you may need a description of the entire data base. For example, in the multivariate analysis of variance (MANOVA), you may wish to know the number of data records in each cell of an *n x m* matrix describing the possible combinations of *n* rock types and *m* water types. Option 3.2 (Batch Subsetting) allows you to see all cells in such a multi-dimensional factor matrix. You are prompted for the matrix factors ("fields to subset on") and the type of data to view ("fields to output"). In this way, Option 3.2 (Batch Subsetting) can be used to determine if MANOVA requirements are met.

Describe Search Criteria (Option 3.2.a)

Menu 3.2.a - Batch Subsetting: Subset Criteria

Batch Subsetting of the Main Data Base File

1	File Name	17	Sample Number of the Solid
2	Container Material	18	General Sample Number
3	Seal Material	19	Element
4	Liner Material	20	Batch Sorption Average
5	Agitation Rate	21	No. of Replications (Sorption)
6	Filter Size	22	Standard Deviation (Sorption)
7	Centrifuge Rate	23	Contact Time (Sorption)
8	Pre-Equilibration Contact Time	24	Lowest pH
9	Pre-Equilibration Temperature	25	Highest pH
10	Pre-Equilibration Atmosphere	26	Initial pH
11	Number of Washings	27	Final pH
12	Crushing Atmosphere	28	Batch Desorption Average
13	First Basalt Quality Index	29	No. of Replications (Desorp.)
14	Second Basalt Quality Index	30	Standard Deviation (Desorp.)
15	Combined Quality Index	31	Contact Time (Desorption)
16	Rock	32	Temperature

Enter choices on which to subset the Main Data Base File:

[ ]

Criteria are

Clear Next Page Return

NOTE: Field names vary in each Main Data Base File (i.e., BWIP, NNWSI, WIPP, etc.). These are the field names in the BWIP Main Data Base File.

Specifying the batch subsetting criteria and output fields is similar to specifying the output criteria for individual subsetting except you specify only the fields and no values. The values from these fields will be the output and thus are not specified.

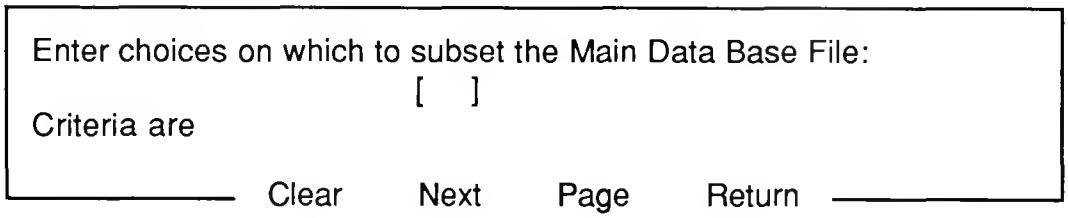
The option row at the bottom of the screen offers the following choices:

Clear	clears the criteria at the bottom of the screen
Next	advances to the next operation: Describe Desired Output
Page	displays the next/previous page of the Field Selection Screen
Return	returns to the SSDMS II Main Menu

An explanation of these options appears at the end of the Individual Subsetting section under the heading "Option Row for Individual Subsetting."

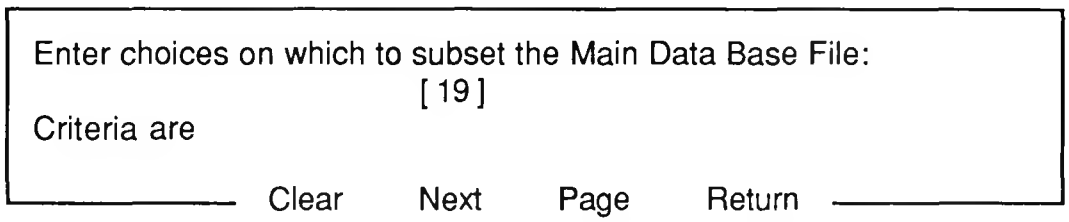
The main prompt for entering batch subsetting criteria is the Subset Prompt (Option 3.2.a).

Option 3.2.a - Subset Prompt

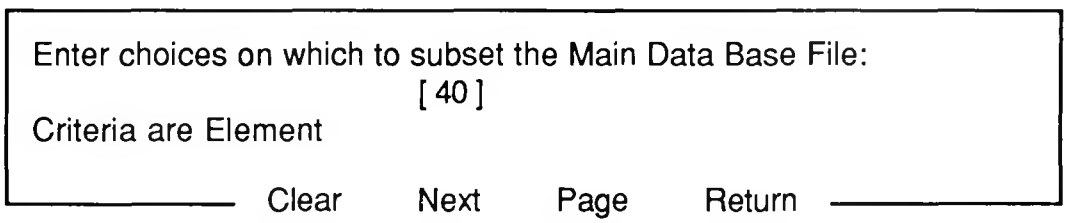


For this example, the subsetting criteria are Element and Atmosphere. A "19" selects Element and a "40" selects Atmosphere. These choices appear on the screen as in Prompt 1 (Option 3.2.a - Subset Criteria) and Prompt 2 (Option 3.2.a - Subset Criteria).

Option 3.2.a - Subset Criteria Prompt 1

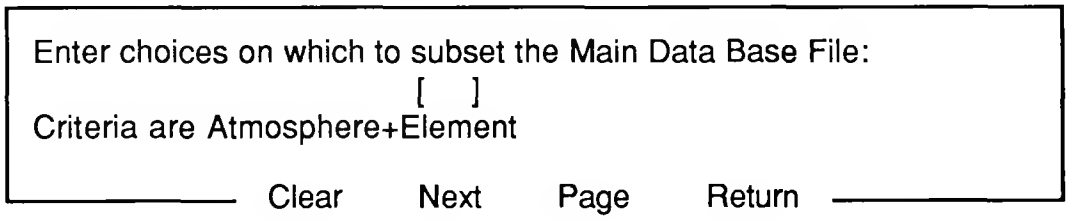


Option 3.2.a - Subset Criteria Prompt 2

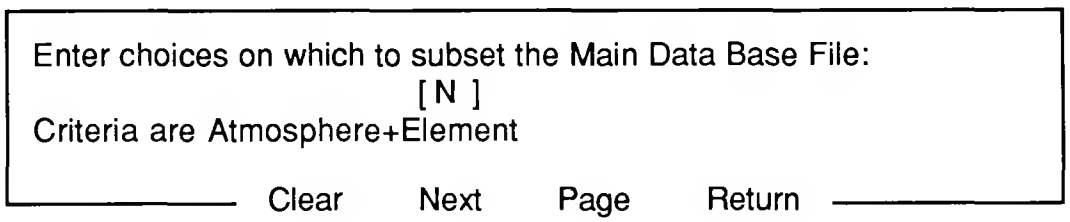


Once you specify these fields, Prompt 3 (Option 3.2.a - Subset Criteria) appears. Enter an "N" to continue to the Next part of the subsetting operation, Option 3.2.b (Batch Subsetting: Output Criteria).

Option 3.2.a - Subset Criteria Prompt 3



Option 3.2.a - Subset Criteria Prompt 4



Describe Desired Output (Option 3.2.b)

Menu 3.2.b - Batch Subsetting: Output Criteria

Choose Batch Output Fields

1	File Name	17	Sample Number of the Solid
2	Container Material	18	General Sample Number
3	Seal Material	19	Element
4	Liner Material	20	Batch Sorption Average
5	Agitation Rate	21	No. of Replications (Sorption)
6	Filter Size	22	Standard Deviation (Sorption)
7	Centrifuge Rate	23	Contact Time (Sorption)
8	Pre-Equilibration Contact Time	24	Lowest pH
9	Pre-Equilibration Temperature	25	Highest pH
10	Pre-Equilibration Atmosphere	26	Initial pH
11	Number of Washings	27	Final pH
12	Crushing Atmosphere	28	Batch Desorption Average
13	First Basalt Quality Index	29	No. of Replications (Desorp.)
14	Second Basalt Quality Index	30	Standard Deviation (Desorp.)
15	Combined Quality Index	31	Contact Time (Desorption)
16	Rock	32	Temperature

Enter criteria to have output to screen/file:
[ ]
Criteria are

Clear Next Page Return

NOTE: Field names vary in each Main Data Base File (i.e., BWIP, NNWSI, WIPP, etc.). These are the field names in the BWIP Main Data Base File.

Specifying the batch subsetting criteria and output fields is similar to specifying the output criteria for individual subsetting. The values from these fields will be the output and so are not specified.

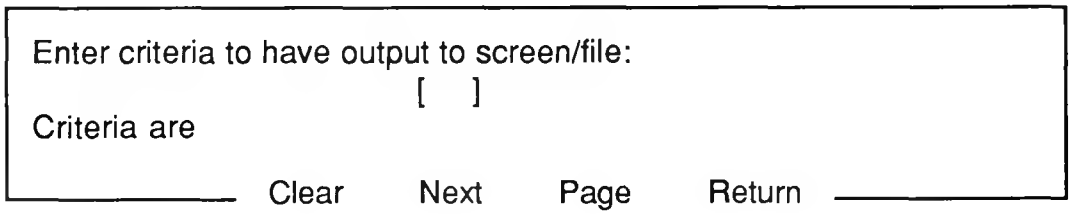
The option row at the bottom of the screen offers the following choices:

Clear	clears the criteria shown at the bottom of the screen
Next	advances to the next operation: Searching the Main Data Base File
Page	displays the next/previous page of the Field Selection Screen
Return	returns to the SSDMS II Main Menu

An explanation of these options appears at the end of the Individual Subsetting section under the heading "Option Row for Individual Subsetting."

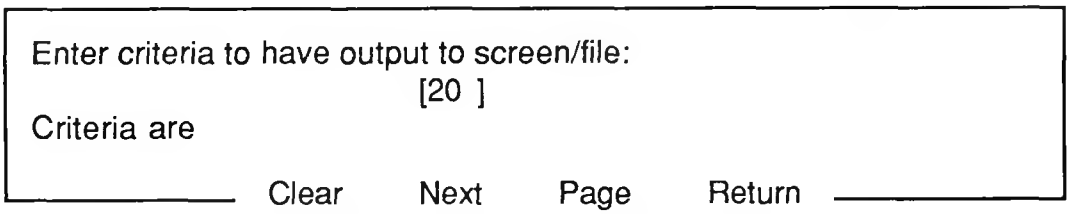
The main prompt for specifying batch output fields is the Output Prompt (Option 3.2.b).

Option 3.2.b - Output Prompt



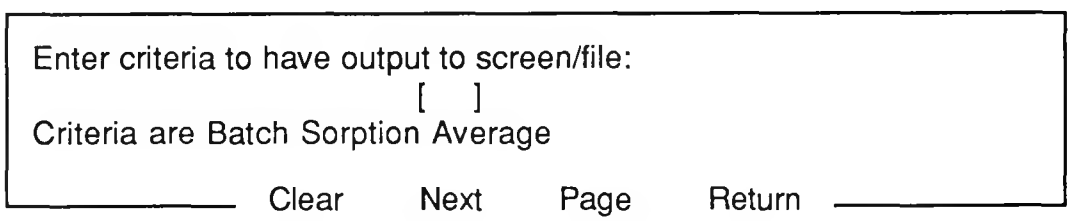
For this example, the output field will be Batch Sorption Average, so a "20" selects the field, as Prompt 1 (Option 3.2.b - Output Criteria) shows.

Option 3.2.b - Output Criteria Prompt 1

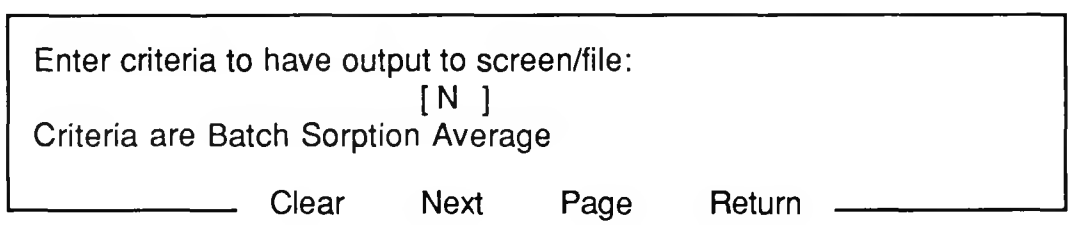


Once you choose a field, Prompt 2 (Option 3.2.b - Output Criteria) appears. Enter"N" to advance to the Next part of the subsetting operation: Option 3.2.c (Batch Subsetting: Searching the Main Data Base File).

Option 3.2.b - Output Criteria Prompt 2



Option 3.2.b - Output Criteria Prompt 3



Search the Main Data Base File (Option 3.2.c)

As output for this example, SSDMS II lists Batch Sorption Averages grouped by combinations of Element and Atmosphere.

SSDMS II asks if the output should be stored in a file. You could create such a file, remove identifying text and use the file with a data analysis or graphics routine under Option 4 (Display Graphs and Statistical Information).

If you enter a blank for the file name, the data will appear on the screen only.

Option 3.2.c - Searching the Main Data Base File Prompt 1

```
Enter name of file to save data in (blank for none):
[          ].TXT
```

If you name an existing file (e.g.,"data.txt"), the following prompt appears:

Option 3.2.c - Searching the Main Data Base File Prompt 2

```
c:\ssdms\bwip\data.txt already exists.
Do you want to replace it? (Y/N)   [ N ]
```

Enter "Y" to delete the existing file, an "N" to display Prompt 1 (Option 3.2.c - Searching the Main Data Base File).

The Main Data Base File is indexed on the input fields and data is output (to the screen and to a file, if specified) in the order that the fields were chosen. In this example, the first group of Batch Sorption Averages will be output for the first value of the field Atmosphere and the first value of the field Element encountered in the Main Data Base File. The second group will be output for the first value of the field Atmosphere and the second value of the field Element encountered in the Main Data Base File, and so on.

The results scroll across the screen. Press CTRL-S to pause, CTRL-Q to resume and ESCape to abort the operation and return to the SSDMS II Main Menu.

Menu 3.2.c - Searching the Main Data Base File Prompt 3

```
Indexing on Atmosphere + Element
```

Prompt 4 (Menu 3.2.c - Searching the Main Data Base File) lists part of the sample output.

Menu 3.2.c - Searching the Main Data Base File Prompt 4

```
(ELEMENT = Am) (ATMOSPHERE = anoxic1)
>10000
end

(ELEMENT = Cs)  (ATMOSPHERE = anoxic1)
70
100
3.70E+01
6.30E+01
8.70E+01
9.20E+01
1.01E+02
1.05E+02
1.12E+02
1.18E+02
1.17E+02
1.24E+02
1.16E+02
1.25E+02
1.16E+02
2.30E+01
4.90E+01
7.50E+01
8.00E+01
9.10E+01
9.20E+01
9.80E+01
1.02E+02
1.01E+02
9.20E+01
9.70E+01
end
```

NOTE: At the time of this manual, these two cells were adjacent to one another but were not the first two cells of the output.

Note that each permutation begins with an identifying label and terminates with an "end" label.

When the subsetting is complete, the following message appears:

Option 3.2.c - Searching the Main Data Base File Prompt 5

```
Press any key to continue...
```

If no data satisfy the search criteria, only Prompt 5 (Option 3.2.c - Searching the Main Data Base File) appears. Enter any key to continue.

If you designated an output file, an option to edit that file appears.

Option 3.2.c - Searching the Main Data Base File Prompt 6

Do you want to edit this file now? (Y/N) [N]

If you answer "Y" but have not installed an editor under Option 5.1.3 (Set Names for Auxiliary Program Files) and Option 5.1.4 (Set Default Drive & Directories for Program Files), then the following message appears:

Option 3.2.c - Searching the Main Data Base File Prompt 7

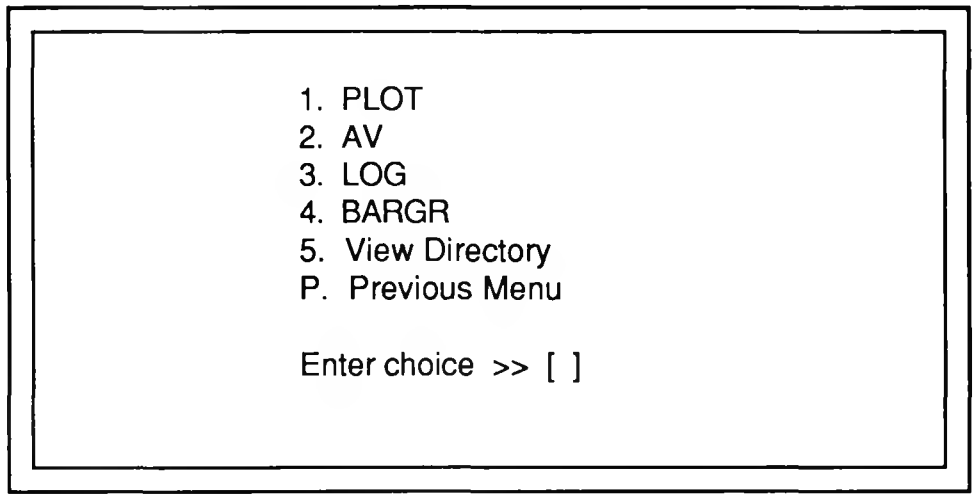
No editor has been installed.
Enter any key to continue...

Otherwise, a "Y" executes the editing program.

If you enter "N" at Prompt 6 (Option 3.2.c - Searching the Main Data Base File) or when you finish editing the file, the program returns to the SSDMS II Main Menu.

DISPLAY GRAPHS AND STATISTICAL INFORMATION (Option 4)

Menu 4 - Display Graphs and Statistical Information



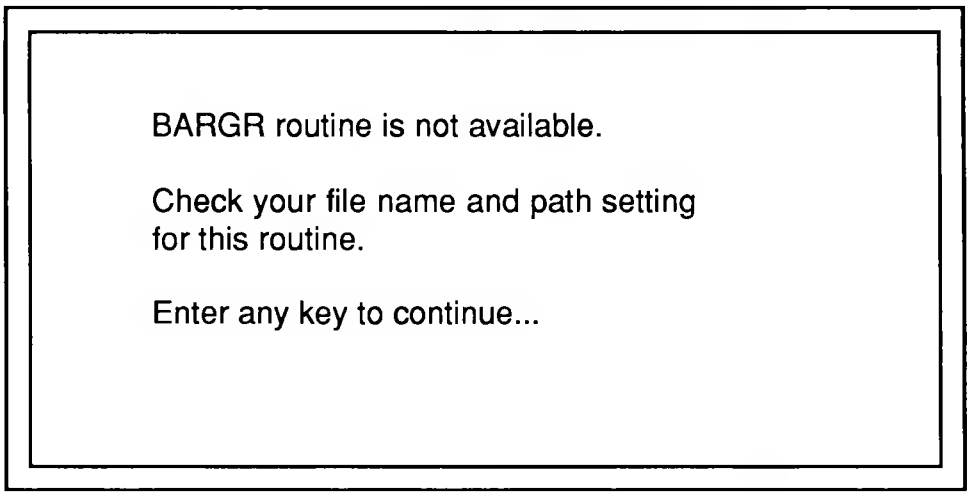
NOTE: Options 1 through 4 above will be blank unless auxiliary file names have been entered under Option 5.1.3 (Set Names for Auxiliary Program Files). Example names are shown above.

If you choose Options 1 through 4, SSDMS II checks to see if the program exists in the specified directory. If so, SSDMS II calls the program and displays its menu. If SSDMS II cannot find the program, Menu 4.a appears (see next page for sample program BARGR). Exiting the program returns you to Menu 4 (Display Graphs and Statistical Information).

If you choose "P," SSDMS II displays its Main Menu.

NOTE: The text files created during the individual and batch subsetting operations can serve as input files for graphics or statistical programs subject to the restrictions of those programs. For the BWIP Main Data Base File, not every experiment has reported values for all the fields. In cases where no data have been reported, an "NG" (not given) or an "NA" (not applicable) appears for the field value. Thus, it is necessary to edit the output text files to remove all alphabetic characters and mathematical symbols (<, >, =, etc.) before using graphic or statistical programs (Option 5.1.3: Use Editor).

Menu 4.a


BARGR routine is not available.
Check your file name and path setting
for this routine.
Enter any key to continue...

View Directory (Option 4.5)

If you choose Option 5 (View Directory), SSDMS II lists files in the data base file directory.

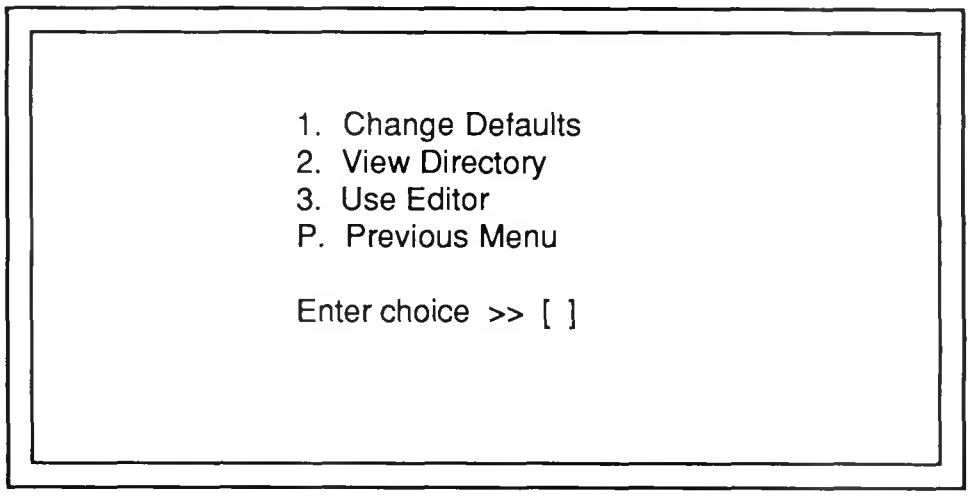
Menu 4.5 - View Directory

```
Volume in drive C has no label
Directory of C:\SSDMS\BWIP\

.                   ..                  FIELDS      DBF     FMT         DBF
INDEX       DBF     NAMES       DBF     QUAL        DBF     TABLANK     DBF
SPLIT1      PRG     SPLIT1      DBF     SPLIT2      DBF     SPLIT3      DBF
MASTER      DBF     SSDMS       MEM     TEMP1       DBF     CONT_MAT    DBF
FORMAT      DBF     QUALITY     DBF     SORPTION    DBF     TEMPMAST    DBF

        Enter any key to continue...
```

Press any key to return to Menu 4 (Display Graphs and Statistical Information).

DRIVE/DIRECTORY SETTINGS AND INFORMATION (OPTION 5)

Menu 5 - Drive/Directory Settings and Information

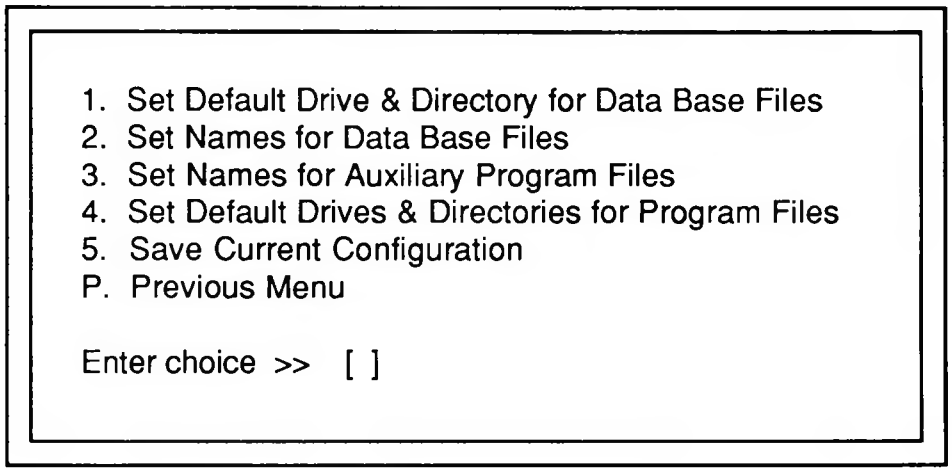


Option 5 (Drive/Directory Settings and Information) from the Main Menu allows you to

-- change the names and paths of the data base files and auxiliary program files (Option 1: Change Defaults),
-- display the files in the current data base file directory (Option 2: View Directory),
-- edit any text file with the editor specified under Change Defaults (Option 3: Use Editor), and
-- return to the SSDMS II Main Menu (Option P: Previous Menu).

Change Defaults (Option 5.1)

Menu 5.1 - Change Defaults

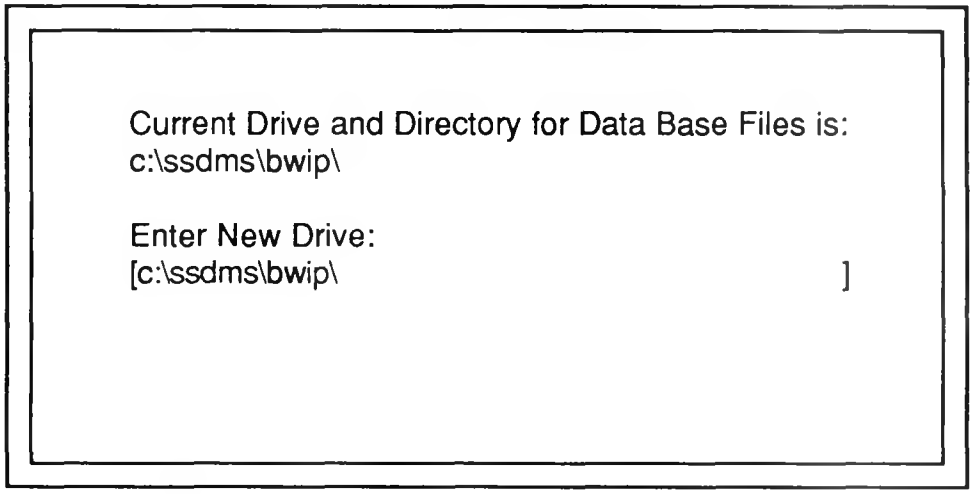


During execution, SSDMS II must know where all data base and program files reside. From this menu, you may change the paths to use different files from different directories.

"P" returns to Menu 5 (Drive/Directory Settings and Information).

Set Default Drive and Directory for Data Base Files (Option 5.1.1)

Menu 5.1.1 - Set Default Drive and Directory for Data Base Files



To specify the location of data base files, enter the entire path and file name when SSDMS II asks for the new drive. This allows you to access several sets of data without having to exit SSDMS II. The disk drive name must be followed by a colon and backslash (e.g., "c:\" for the c drive); the entry will replace the default shown in the menu above.

After you enter a new path and file name, SSDMS II asks

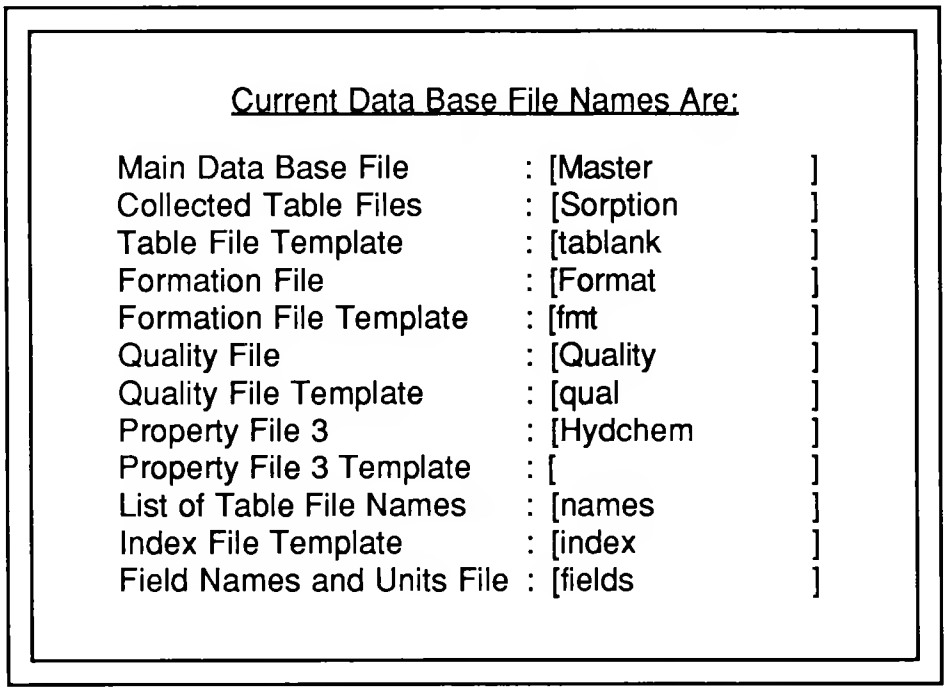
Option 5.1.1 - Prompt 1

OK? (Y/N) [Y]

Enter "N" to change the path again, a "Y" to return to Menu 5.1 (Change Defaults).

Set Names for Data Base Files (Option 5.1.2)

Menu 5.1.2 - Set Names for Data Base Files



Option 5.1.2 (Set Names for Data Base Files) changes the default data base file names. The following page describes the file names above.

After you enter the file names, SSDMS II asks

Option 5.1.2 - Prompt 1

```
OK? (Y/N)  [ Y ]
```

Answer "N" to change the file names again, "Y" to return to Menu 5.1 (Change Defaults).

Description of requested file names:

Main Data Base File	contains the experimental data that SSDMS II searches and is created or updated under Option 1.3 (Create or Update the Main Data Base File).
Collected Table Files	is the default name for the Sorption File formed by appending the Table Files under Option 1.1.4 (Append Table Files to Form the Sorption File).
Table File Template	stores the structure (i.e., field names, field types and field lengths) for the Table Files formed under Option 1.1.1 (Create a Table File) and for the Sorption File formed under Option 1.1.4 (Append Table Files to Form the Sorption File).

Formation File	is the default name for the Formation File formed under Option 1.2.1 (Create the Formation File).
Formation File Template	stores the structure (i.e., field names, field types and field lengths) for the Formation File formed under Option 1.2.1 (Create the Formation File).
Quality File	is the default name for the Quality File formed under Option 1.2.2 (Create the Quality File).
Quality File Template	stores the structure (i.e., field names, field types and field lengths) for the Quality File formed under Option 1.2.2 (Create the Quality File).
Property File 3	is the default name for the Property File 3 formed under Option 1.2.3 (Create Property File 3).
Property File 3 Template	stores the structure (i.e., field names, field types and field lengths) for any Property File 3.
List of Table File Names	is the default name for the data base file that stores the names of the Table Files to combine to form the Sorption File. Its contents can be viewed under Option 1.1.2 (View the List of Table File Names).
Index File Template	stores the structure (i.e., field names, field types and field lengths) for the data base files formed in response to the "?" command under Option 3.1.a (Individual Subsetting).
Field Names and Units File	stores the description of the Main Data Base File fields, including the dBase field names, more descriptive English field names, the field units and a True/False indicator that identifies which fields appear in the Field Selection Screen.

Danger: Each Main Data Base File has a set of auxiliary data base files associated with it, and each set of Main Data Base Files and auxiliary data base files should reside in its own subdirectory.

Auxiliary data base files perform several functions. Template files define the data structures of other files. The Field Names and Units File controls the contents of the Field Selection Screen. Index Files contain all the distinct values for each subsetting criterion.

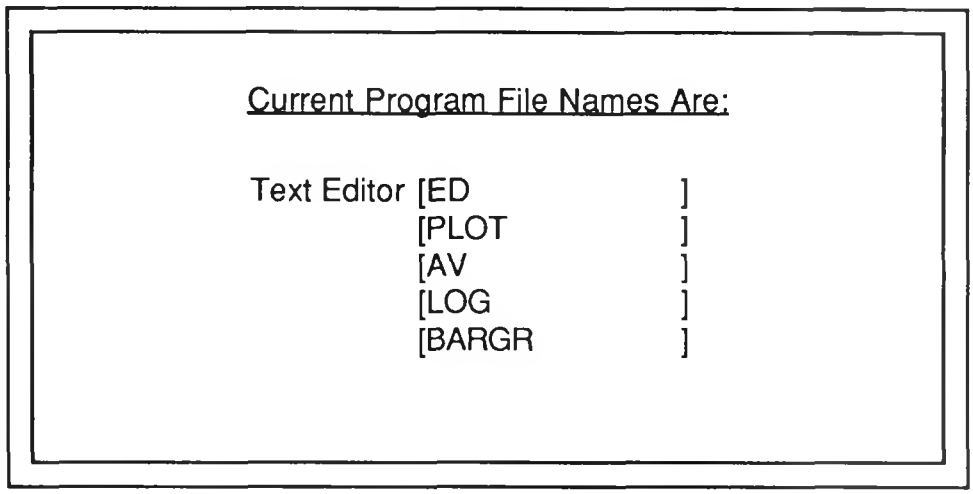
Because Main Data Base Files for different rock hosts often contain the same types of data (elements, temperatures, batch sorption averages, etc.), the dBase data field names in different Main Data Base Files are often identical (ELEM, TEMP, BAT_SOR-AVG, etc.). If auxiliary data base files from one Main Data Base File (e.g., basalt) resided in the same data directory as another Main Data Base File (e.g., tuff), SSDMS II might apply one set of auxiliary files to another set of Main Data Base Files. Because of identical field names used in both sets, values would appear on screen, and you might not notice the mismatch and might accept faulty data.

To prevent such mismatches and subsequent faulty data management, store each Main Data Base File and its associated auxiliary data base files in a separate data directory.

Set Names for Auxiliary Program Files (Option 5.1.3)

Auxiliary program files are non-dBase programs and their associated files that SSDMS II executes through Option 2.2 (Edit a Data Base File) or Option 4 (Display Graphs and Statistical Information). These may be text editors, data analysis programs and graphing routines.

Menu 5.1.3 - Set Names for Auxiliary Program Files



No names appear on the screen unless saved from a previous SSDMS II session. Example names appear above. If you want to use other programs from within SSDMS II (e.g., file editors or graphing routines), list them here. If you want to use a text editor, it must appear on the first line. dBase will treat only the first-named program as a text editor. Select Option 5.1.4 (Set Default Drives & Directories for Program Files) to set the paths to the auxiliary program files.

After you enter the auxiliary program file names, SSDMS II asks

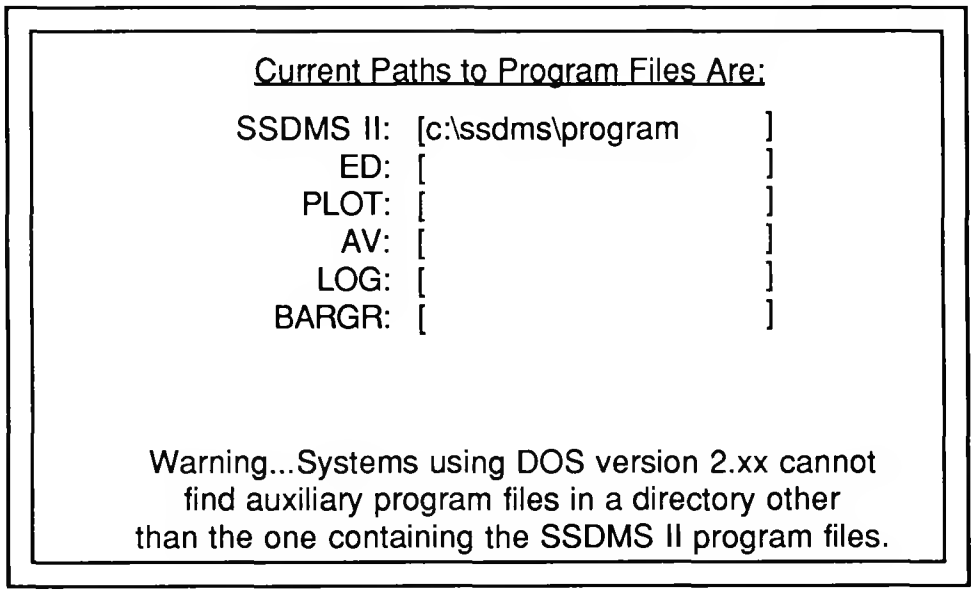
Option 5.1.3 - Prompt 1

OK? (Y/N) [Y]

Answer "N" to change the file names, "Y" to return to Menu 5.1 (Change Defaults).

Set Default Drives & Directories for Program Files (Option 5.1.4)

Menu 5.1.4 - Set Default Drives & Directories for Program Files



NOTE: If no auxiliary program names have been entered under Option 5.1.3 (Set Names for Auxiliary Program Files), only the SSDMS II label appears.

Each of the auxiliary program packages MAY reside in separate directories when SSDMS II is run under DOS 3.xx. For earlier versions of DOS, auxiliary programs MUST be in the same directory as the SSDMS II program files.

After you enter the paths, SSDMS II asks

Option 5.1.3 - Prompt 1

OK? (Y/N) [Y]

Answer "N" to change the paths, "Y" to return to Menu 5.1 (Change Defaults).

Save Current Configuration (Option 5.1.5)

Option 5.1.5 - Prompt 1

Saving Setup to Disk...
Including:
Default Names for Data Base Files
Drive and Directory Choice for Data Base Files
Auxiliary Program File Names
Drive and Directory Choices for Auxiliary Program Files
Search and Output Criteria for Individual Subsetting

Enter any key to continue...

Option 5 (Save Current Configuration) saves all variables for a later SSDMS II session. The information saved appears under Prompt 1 (Option 5.1.5).

If you change defaults, always save the current configuration so SSDMS II will use the new defaults in the next session.

Enter any key to return to Menu 5.1 (Change Defaults).

View Directory (Option 5.2)

Choose this option to list all files in the data base directory.

Menu 5.2 - View Directory

Volume in drive C has no label
Directory of C:\SSDMS\BWIP\

.		..		FIELDS	DBF	FMT	DBF
INDEX	DBF	NAMES	DBF	QUAL	DBF	TABLANK	DBF
SPLIT1	PRG	SPLIT1	DBF	SPLIT2	DBF	SPLIT3	DBF
MASTER	DBF	SSDMS	MEM	TEMP1	DBF	CONT_MAT	DBF
FORMAT	DBF	QUALITY	DBF	SORPTION	DBF	TEMPMAST	DBF

Enter any key to continue...

Press any key to return to Menu 5 (Drive/Directory Settings and Information).

Use Editor (Option 5.3)

Enter a data base file name at the following prompt. (**Note:** Only text files may be edited.)

Menu 5.3 - Prompt 1

```
Enter File to Edit [                                    ]
```

Then the editor, set under Option 5.1.3 (Set Names for Auxiliary Program Files) and Option 5.1.4 (Set Default Drives and Directories for Program Files), executes.

If the data base file does not already exist, a new file is created.

If SSDMS II cannot find the editor program (see Option 5.1.4: Set Default Drive & Directories for Program Files and Option 5.1.3: Set Auxiliary Program File Names), it displays this error message:

Menu 5.3 - Prompt 2

```
No editor has been installed.

Enter any key to continue...
```

dBASE SHELL (OPTION 6)

Option 6 (dBase Shell) returns to dBase III+™ without exiting SSDMS II. This permits you to clean directories, edit the data base and perform other operations without having to reinitialize SSDMS II.

The dBase message "Do suspended" will appear at the bottom of the screen followed by the dBase dot prompt. By typing "assist" at the dot prompt, you may access the menu-driven dBase assist system.

To return to the dot prompt from the assist menu, press ESCape. To return to SSDMS II, type "resume" at the dot prompt.

QUIT SSDMS II (OPTION 7)

Option 7 (Quit SSDMS II) from the Main Menu exits from SSDMS II and returns to dBase III+™.

To exit dBase III+™, enter "quit" at the dBase dot prompt.

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APPENDIX A

DESCRIPTION OF DATA BASE FILES

A.1 INTRODUCTION

This appendix describes the SSDMS II data base files.

"Functions of Data Base Files" defines terms that describe those files.

"List of Data Base Files" lists the initial default names for the data base files and describes their contents and functions.

"Required, Generated and Updated Data Base Files" names the data base files SSDMS II requires for proper execution. They are provided on one of the data disks (See Section 2.1: Initial Installation and Configuration). SSDMS II creates other files (also listed) during operation. If you wish to change the structure of the Main Data Base File, this section mentions the other files to change also.

"Memory Files" discusses the memory files that SSDMS II creates.

A.2 FUNCTIONS OF DATA BASE FILES

SSDMS II is very flexible in naming and using data base files. For almost all data base files, the program assigns an initial default name but then allows you to change this default name. You can also create different data base files within SSDMS II by using different Template Files (see Appendix C). This section discusses the nomenclature and use of data base files.

"Data base files" refers to all files having a ".dbf" or a ".dbt" extension. Files with ".dbf" extensions contain the experimental results. If these data base files have memo fields, they will have an associated memory file with the same name and a ".dbt" extension.

"Sorption File" refers to the data base file containing the sorption data from the site of interest. The Sorption File is the core of the Main Data Base File, and its default name is "sorption.dbf."

"Table Files" store sorption data from a particular table in a particular published report. These files are appended together to form the Sorption File. A Table File exists for every table of data entered. As a result, SSDMS II does not assign and does not allow you to declare a default name. Instead, SSDMS II prompts you for a file name just prior to entering data into the file.

"List of Table File names" or "list of Table Files" refers to the data base file that stores the names of the Table Files to combine into the Sorption File. SSDMS II assigns an initial default name of "names.dbf" to this data base file, but you may change the default name under--and only under--Option 5.1.2 (Set Default Names for Data Base Files). Although you may name the file whatever you wish, its structure must match "names.dbf" provided with the BWIP data base files (see Appendix B).

"Property Files" refers to data base files that store data describing the rocks and waters used in the sorption experiment and evaluating the quality of the experimental data itself. These files include a Formation File, a Quality File and one or more user-defined files named "Property File 3."

"Formation File" refers to a data base file describing the solid sample used in the sorption experiment, e.g. basalt or tuff. You may include or exclude this file from the Main Data Base File. SSDMS II assigns an initial default name of "format.dbf," which you may change under Option 5.1.2 (Set Default Names for Data Base Files). You may specify a different name before entering data into the Formation File, and SSDMS II asks you to name the Formation File before it creates or updates the Main Data Base File.

"Quality File" refers to the data base file containing evaluation indices of the experimental procedure and data. You may include or exclude this file from the Main Data Base File. SSDMS II assigns an initial default name of "quality.dbf, " which you may change under Option 5.1.2 (Set Default Names for Data Base Files). You may specify a different name before entering data into the Quality File, and SSDMS II asks you to name the Quality File before creating or updating the Main Data Base File.

"Property File 3" refers to an optional user-defined data base file containing other useful information. You may include one or more Property File 3s in the Main Data Base File. SSDMS II assigns an initial default name of "hydchem.dbf" to the first Property File 3 you create (reflecting the potential importance of including water chemistry data), but you can change this default name and name other Property File 3's as you wish in Option 5.1.2 (Set Default Names for Data Base Files).

The Property File 3 option is a major part of SSDMS II's flexibility. You create a Template File (described below and in Appendix C) to include any variables you feel are important. You can create several Property File 3's by changing the Template File name under Option 5.1.2 (Set Default Names for Data Base Files) and then reselecting Option 1.2.3 (Create Property File 3). Thus, the characteristics of Property File 3 fit the application. The BWIP data base files do not include a Property File 3.

"Main Data Base File" refers to the data base file that SSDMS II searches. It contains fields from a Sorption File and/or a Formation File and/or a Quality File and/or one or more Property File 3. SSDMS II assigns an initial default name of "master.dbf" to the Main Data Base File; you may change this under Option 5.1.2 (Set Default Names for Data Base Files). The name entered under Option 5.1.2 becomes the default name. When you choose Option 1.3 (Create or Update the Main Data Base File), SSDMS II assigns the default name "tempmast.dbf" to the new Main Data Base File to prevent inadvertent deletion of the previous Main Data Base File.

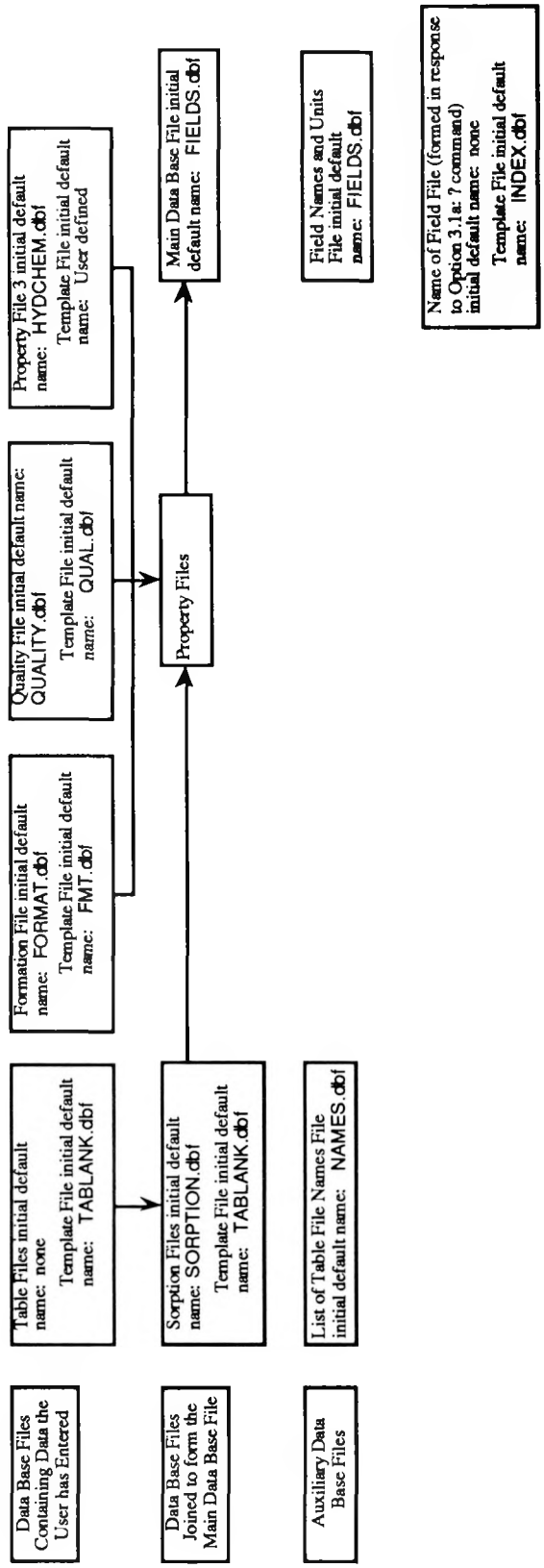
"Field Names and Units File" refers to the data base file that stores the names of the Main Data Base File fields, an English version of each name, the units associated with each field and a True/False variable indicating whether to include each field on the Field Selection Screen. SSDMS II assigns an initial default name of "fields.dbf" to this data base file; you may change under this Option 5.1.2 (Set Default Names for Data Base Files). This is the only place in the program that you may change this file's name.

"'Name of Field' File" refers to the data base file which stores the unique values for a chosen field in the Main Data Base File. SSDMS II assigns the name of the chosen field to the data base file, and you may not change this name. This file is created in response to the "?" command under Option 3.1 (Individual Subsetting).

"Template File" refers to data base files that store structures of other data base files, either existing or to be created. Appendix C explains how to create a Template File. While creating a new data base file, SSDMS II copies the structure of a Template File to its corresponding data base file, then adds data. No data is entered into the Template File itself. Figure A.1 lists initial default names of Template Files for the data base files that require them. You can change the initial default names of these files under Option 5.1.2 (Set Default Names for Data Base Files). This option is the only place to change a Template File's name.

Figure A.1 shows all data base files and the initial default names assigned by SSDMS II. You can change all initial default names except for the 'Name of Field' File and "Table".dbf from within SSDMS II.

Figure A.1 Initial Default Names of Data Base Files.



A.3 LIST OF DATA BASE FILES

Data Base Files with Initial Default Names

FIELDS.dbf — This file stores information about the fields in the Main Data Base File. This information includes the field name as it appears in the Main Data Base File, a more descriptive English name, the units of the field and a True/ False value that indicates whether to include the field in the Field Selection Screen.

FMT.dbf — This is the Template File for the Formation File you create under Option 1.2.1 (Create the Formation File). This file stores the data base structure of the Formation File..

FORMAT.dbf — This is the Formation File created under Option 1.2.1 (Create the Formation File). This file contains information about the rock formation that supplied the solid sample for the sorption or desorption experiment.

INDEX.dbf — This is the Template File for the "name of field".dbf file that SSDMS II creates in response to the "?" command - Option 3.1.a (Individual Subsetting). This file stores the structure of the data base file created when you request all values present in the Main Data Base File for a particular field.

TABLANK.dbf — This is the Template File for the Table Files you create under Option 1.1.1 (Create a Table File) and for the Sorption File formed under Option 1.1.4 (Create the Sorption File). This file stores the data base structure of the Sorption and Table Files.

MASTER.dbf — This is the Main Data Base File that SSDMS II searches. Additional information may be added by creating and then joining Table Files into a Sorption File, appending any desired Property Files to create a temporary Main Data Base File, and appending that temporary file to the existing Main Data Base File. See Option 1.3 (Create or Update the Main Data Base File).

NAMES.dbf — This data base file stores the names of the Table Files to be combined under Option 1.1.4 (Create the Sorption File). The list of Table File names may be viewed under Option 1.1.2 (View the List of Table File Names) and altered under Option 1.3 (Add to or Delete from the List of Table File Names).

QUAL.dbf — This is the Template File for the Quality File you create under Option 1.2.2 (Create the Quality File). This file stores the data base structure of the Quality File.

QUALITY.dbf — This is the Quality File formed under Option 1.2.2 (Create the Quality File), that contains information on the quality of the data reported.

SORPTION.dbf — This is the file created under Option 1.1.4 (Create the Sorption File) by combining the Table Files listed in names.dbf.

Data Base Files without Initial Default Names

"Name of Field".dbf — This is the data base file that results from requesting all existing values of a field in the Main Data Base File. (See the "?" command in Option 3.1.a: Individual Subsetting). For example, if you ask to see all values for the field ELEMENT in the Main Data Base File, SSDMS II displays the contents of ELEMENT.dbf.

"Table".dbf — These are files into which you enter new sorption data under Option 1.1.1 (Create a Table). These files contain the results of the sorption or desorption experiments.

A.4 REQUIRED, GENERATED AND UPDATED DATA BASE FILES

SSDMS II requires these files (with or without these default names) to operate for the first time.

FIELDS.dbf
FMT.dbf
INDEX.dbf
TABLANK.dbf
MASTER.dbf
NAMES.dbf
QUAL.dbf

SSDMS II creates these files (with these default names) during operation.

FORMAT.dbf
"Name of Field".dbf
QUALITY.dbf
SORPTION.dbf
"Table".dbf

If you update an existing Main Data Base File by adding new data and the new data has a different structure from the existing Main Data Base File, than you must update the Template Files for the new data's Sorption File (tablank.dbf), the Formation File (fmt.dbf), the Quality File (qual.dbf) and Property File 3. Also update the field name and units data base file (fields.dbf) to display the changed structure on the Field Selection Screen.

If you add new information to the Main Data Base File, the "name of field".dbf files will not necessarily contain all occurring values for their particular fields. Erase and recreate these files with the "?" command in Option 3.1.a (Individual Subsetting).

A.5 MEMORY FILES

At several points in its operation, SSDMS II saves the memory variables (see Ashton-Tate, 1985) to two memory files that save values from one SSDMS II session to the next. For instance, Option 2.4 (Make the Field Selection Screen) saves the Field Selection Screen, Option 3.1 (Individual Subsetting) saves the search criteria and Option 5.1.5 (Save Current Configuration) saves all memory variables.

One memory file resides in the data base file directory and the other in the program directory. Both have the name "ssdms.mem." If you delete these files, SSDMS II initializes all memory variables to their initial default values.

APPENDIX B

BASALT DATA BASE FILES

B.1 INTRODUCTION

This appendix describes the basalt data base files provided with this manual. Siegel et al. (1988) describes the quality index and lists all the data in the basalt Main Data Base File.

The fields and data structures for this basalt Main Data Base File may differ from those in other Main Data Base Files for several reasons.

Because different parameters describe different geologic media, a data base describing a repository in a different host rock would differ.

Reports from sorption experiments do not necessarily report the same variables, even for the same geologic medium. For example, sorption and desorption experiments were carried out for basalt. It is possible that for a second basalt site, only sorption experiments might be carried out. Desorption would not need to be included in this second Main Data Base File.

The next section outlines the structure for each of the basalt data base files. The structure of the data base files with the initial default names FIELDS, INDEX and NAMES will remain the same regardless of the geologic media, but the structure of the other data base files will be media-dependent. The structure of data base files can not be changed from within SSDMS II but can be changed in dBase III+™.

The last section describes the contents of data base fields in the Sorption File, Formation File and Quality File of the basalt Main Data Base File.

B.2 Structure of Data Base Files for Basalt

FIELDS.dbf

Field	Field Name	Type	Width
1	FIELD	Character	15
2	NAME	Character	55
3	UNITS	Character	40
4	INCLUDED	Logical	1

INDEX.dbf

Field	Field Name	Type	Width
1	FIELDNAME	Character	50

TABLANK.dbf

Field	Field Name	Type	Width
1	ROCK	Character	30
2	SAMPLE_NO	Character	17
3	GENERAL_SN	Character	15
4	ELEMENT	Character	3
5	BAT_SOR_AV	Character	15
6	REPLICATE	Character	3
7	STD_DEVIA	Character	7
8	CONT_TIME	Character	4
9	LOWEST_PH	Character	4
10	HIGHEST_PH	Character	4
11	INIT_PH	Character	4
12	FINAL_PH	Character	4
13	BAT_DES_AV	Character	15
14	REPLICATE2	Character	3
15	STD_DEVIAT	Character	7
16	CON_TIME	Character	4
17	TEMP	Character	4
18	TRA_FE_CON	Character	20
19	EQUIL_CONC	Character	20
20	SOLID_CONC	Character	20
21	SIZE	Character	12
22	UP_MES_SIZ	Character	4
23	LO_MES_SIZ	Character	4
24	GRNDWATER	Character	10
25	ATMOSPHERE	Character	9
26	EH	Character	2
27	SOLN2SOLID	Character	5
28	SHAKING	Character	2
29	DECANT	Character	2
30	PRE_EQUIL	Character	2
31	SOURCE	Character	17
32	FNM	Character	8

FMT.dbf

Field	Field Name	Type	Width
1	SAMPLE_NO	Character	17
2	FORMATION	Character	20
3	SYMBOL	Character	4
4	SORPTN_CAT	Character	20
5	CAT_SOURCE	Character	9
6	DEPTH_FT	Character	7
7	DRILL_HOLE	Character	10
8	SOR_INTER	Character	25
9	INTER_SOUR	Character	15
10	SAT_TYPE	Character	2
11	STRATINDEX	Character	2
12	RECNO	Character	5

NAMES.dbf

1	NAME	Character	10
2	USED	Logical	1

QUAL.dbf

Field	Field Name	Type	Width
1	FNM	Character	8
2	CNTR_MATL	Character	13
3	SEAL	Character	6
4	LINER	Character	8
5	AGIT_RATE	Character	3
6	FLTR_SZ	Character	7
7	CNTRFG_RT	Character	4
8	PE_CON_TIM	Character	4
9	PE_TEMP	Character	4
10	PE_ATM	Character	7
11	NO_WSHNGS	Character	4
12	CRSHNG_ATM	Character	7
13	Q1	Character	2
14	Q2	Character	2
15	QUALGROUP	Character	5
16	ROCK	Character	30
17	SAMPLE_NO	Character	17

MASTER.dbf

Field	Field Name	Type	Width
1	FNM	Character	8
2	CNTR_MATL	Character	13
3	SEAL	Character	6
4	LINER	Character	8
5	AGIT_RATE	Character	3
6	FLTR_SZ	Character	7
7	CNTRFG_RT	Character	4
8	PE_CON_TIM	Character	4
9	PE_TEMP	Character	4
10	PE_ATM	Character	7
11	NO_WSHNGS	Character	4
12	CRSHNG_ATM	Character	7
13	Q1	Character	2
14	Q2	Character	2
15	QUALGROUP	Character	5
16	ROCK	Character	30
17	SAMPLE_NO	Character	17
18	GENERAL_SN	Character	15
19	ELEMENT	Character	3
20	BAT_SOR_AV	Character	15
21	REPLICATE	Character	3
22	STD_DEVIA	Character	7
23	CONT_TIME	Character	4
24	LOWEST_PH	Character	4
25	HIGHEST_PH	Character	4
26	INIT_PH	Character	4
27	FINAL_PH	Character	4
28	BAT_DES_AV	Character	15
29	REPLICATE2	Character	3
30	STD_DEVIAT	Character	7
31	CON_TIME	Character	4
32	TEMP	Character	4
33	TRA_FE_CON	Character	20
34	EQUIL_CONC	Character	20
35	SOLID_CONC	Character	20
36	SIZE	Character	12
37	UP_MES_SIZ	Character	4
38	LO_MES_SIZ	Character	4
39	GRNDWATER	Character	10
40	ATMOSPHERE	Character	9
41	EH	Character	2
42	SOLN2SOLID	Character	5
43	SHAKING	Character	2
44	DECANT	Character	2
45	PRE_EQUIL	Character	2
46	SOURCE	Character	17
47	FORMATION	Character	20
48	SYMBOL	Character	4
49	SORPTN_CAT	Character	20
50	CAT_SOURCE	Character	9
51	DEPTH_FT	Character	7

52	DRILL_HOLE	Character	10
53	SOR_INTER	Character	25
54	INTER_SOUR	Character	15
55	SAT_TYPE	Character	2
56	STRATINDEX	Character	2
57	RECNO	Numeric	5

B.3 FIELDS IN THE MAIN DATA BASE FILE FOR BASALT

Table B.1 Main Data Base File Field Descriptors: Sorption File.

Field Name	English Name	Description
ROCK	Rock	Identifies the report number, the sorption category (i.e., B - basalt, SB - secondary basalt, etc.) and the basalt member or flow for the solid sample used in the sorption or desorption experiment.
SAMPLE_NO	Sample Number of the Solid	Identifies the report number, the table number and the basalt member or flow for the solid sample used in the sorption or desorption experiment.
GENERAL_SN	General Sample Number	Identifies the sorption category (i.e., B - basalt, SB - secondary basalt, etc.) and the basalt member or flow for the solid sample used in the sorption or desorption experiment.
ELEMENT	Element	Identifies the element or nuclide used in the sorption or desorption experiment.
BAT_SOR_AV	Batch Sorption Average	Provides the batch sorption average (ml/g).
REPLICATE	No. of Replications (Sorption)	Provides the number of replicates used to determine the batch sorption average.
STD_DEVIA	Standard Deviation (Sorption)	Provides the standard deviation for the batch sorption average.
CONT_TIME	Contact Time (Sorption)	Provides the contact time used in the batch sorption experiment (days).
LOWEST_PH	Lowest pH	Provides the lowest solution pH reported for the batch sorption or desorption experiment.
HIGHEST_PH	Highest pH	Provides the highest solution pH reported for the batch sorption or desorption experiment.
INIT_PH	Initial pH	Provides the initial solution pH for the batch sorption or desorption experiment.
FINAL_PH	Final pH	Provides the final solution pH for the batch sorption or desorption experiment.
BAT_DES_AV	Batch Desorption Average	Provides batch desorption average (ml/g).
REPLICATE2	No. of Replications (Desorp.)	Provides the number of replicates used to determine the batch desorption average.
STD_DEVIAT	Standard Deviation (Desorp.)	Provides the standard deviation for the batch desorption average.
CON_TIME	Contact Time (Desorp.)	Provides the contact time used in the batch desorption experiment.

Table B.1 Main Data Base File Field Descriptors: Sorption File. (continued)

Field Name	English Name	Description
TEMP	Temperature	Provides the temperature the batch sorption or desorption experiment was conducted at (^{o}C).
TRA_FE_CON	Tracer Feed Concentration	Provides the initial solution concentration of the nuclide used in the batch sorption or desorption experiment (added to the container with the solution and the solid sample) (M).
EQUIL_CONC	Equilibrium Concentration	Provides the final solution concentration of the nuclide after the batch sorption or desorption experiment has been completed (M).
SOLID_CONC	Solid Concentration	Provides the final concentration of nuclide on the solid sample (M/g).
SIZE	Particle Size Range	Provides the range of particle sizes determined by the upper and lower mesh sizes.
UP_MES_SIZ	Upper Mesh Size of the Solid Sample	Provides the upper mesh size of the crushed solid sample used in the batch sorption or desorption experiment (microns).
LO_MES_SIZ	Lower Mesh Size of the Solid Sample	Provides the lower mesh size of the crushed solid sample used in the batch sorption or desorption experiment (microns).
GRNDWATER	Groundwater	Provides the synthetic ground water used in the batch sorption or desorption experiment.
ATMOSPHERE	Atmosphere	Provides the atmosphere the batch sorption or desorption experiment was exposed to.
EH	Eh	Provides a qualitative indication of the redox condition under which the batch sorption or desorption experiment was run (O - oxic or R - reducing).
SOLN2SOLID	Solution to Solid Ratio	Provides the solution to solid ratio for the batch sorption or desorption experiment (ml/g).
SHAKING	Shaking Position	Provides the position of the contact tube used in the batch sorption or desorption experiment during shaking (H - horizontal or V - vertical).
DECANT	Decantation Method	Provides the method used to separate the solution from the solid at the end of the contact time and prior to determining nuclide concentrations by counting.
PRE_EQUIL	Pre-Equilibrium	Refers to the use of solid samples which were pre-equilibrated with the synthetic ground water prior to use in the batch sorption or desorption experiment.
SOURCE	Source Document	Provides the source document number from which the sorption or desorption data were taken.
FNM	File Name	Provides the name of the original file (source document number and table number) that was appended to form Sorption File.

Table B.2 Main Data Base File Field Descriptors: Formation File.

Field Name	English Name	Description
SAMPLE_NO	Sample Number of the Solid	Identifies the report number, the table number and the basalt member or flow for the solid sample used in the sorption or desorption experiment.
FORMATION	Formation	Provides the geologic formation from which the solid sample was taken.
SYMBOL	Symbol	Provides the geologic symbol for the formation.
SORPTN_CAT	Sorption Category	Identifies the generic rock type used in the sorption or desorption experiment.
CAT_SOURCE	Category Source	Provides the source document number for the field SORPTN_CAT.
DEPTH_FT	Depth of Sample	Provides the depth below the land surface at which the solid sample was collected.
DRILL_HOLE	Drill Hole Number	Provides the drill hole number from which the solid sample was collected.
SOR_INTER	Sorption Interval	Provides the particular member or flow from which the solid sample was taken.
INTER_SOUR	Interval Source	Provides the source document number for the field SOR_INTER.
SAT_TYPE	Saturation Type	Identifies whether SOR_INTER was below (saturated) or above (unsaturated) the water table.
STRATINDEX	Stratigraphic Index	Provides the numerical sequence of flow intervals.
RECNO	Record Number	Parameter used by the SSDMS II program files.

Table B.3 Main Data Base File Field Descriptors: Quality File.

Field Name	English Name	Description
FNM	File Name	Provides the name of the original file (source document number and table number) that was appended to form the Sorption File.
CNTR_MATL	Container Material	Identifies the batch contact tube material.
SEAL	Seal Material	Identifies the material used to seal the batch contact tube.
LINER	Liner Material	Identifies the liner material used in the batch contact tube.
AGIT_RATE	Agitation Rate	Provides the number of excursions/minute used on the shaker table during the batch contact.
FLTR_SZ	Filter Size	Provides the size of the filter openings (microns) or the molecular weight cutoff size.
CNTRFG_RT	Centrifuge rate	Provides the relative centrifugal force (rcf) used during the centrifugation of the solution/solid mixture.
PE_CON_TIM	Pre-Equilibrium Contact Time	Provides the number of days that the synthetic ground water and the solid sample were in contact before the nuclide was added.
PE_TEMP	Pre-Equilibrium Temperature	Provides the temperature at which the synthetic ground water and the solid sample were pre-equilibrated.
PE_ATM	Pre-Equilibrium Atmosphere	Provides the atmosphere under which the synthetic ground water and the solid sample were pre-equilibrated.
NO_WSHNGS	Number of Washings	Provides the number of times the synthetic ground water was changed during the pre-equilibration period.
CRSHNG_ATM	Crushing Atmosphere	Provides the atmosphere the solid was exposed to during crushing.
Q1	First Basalt Quality Index	Provides a coarse sorting index for the batch sorption or desorption average based on the fields PRE_EQUIL and ATMOSPHERE.
Q2	Second Basalt Quality Index	Provides a detailed sorting index for the batch sorption or desorption average based on several experimental parameters.
QUALGROUP	Combined Quality Index	Provides a quality sorting index based on the values for Q1 and Q2.
ROCK	Rock	Identifies the report number, the sorption category (i.e., B - basalt, SB - secondary basalt, etc.) and the basalt member or flow for the solid sample used in the sorption or desorption experiment.
SAMPLE_NO	Sample Number of the Solid	Identifies the report number, the table number and the basalt member or flow for the solid sample used in the sorption or desorption experiment.

APPENDIX C

CREATING AUXILIARY FILES

SSDMS II requires several auxiliary or accessory data files to be associated with the Main Data Base, Sorption, and Property Files. These auxiliary files have been described in Appendix A. They include the List of Table Names File (default name NAMES.dbf), the Field Names and Units File (default name FIELDS.dbf), and Template Files. These last files are identified in Figure A.1 by the following default names: FMT.dbf, INDEX.dbf, TABLANK.dbf, QUAL.dbf.

With the exception of the Template File for the Property File 3, the auxiliary files have been included in the BWIP data base supplied with this manual. The Template File for a Property 3 File must be created with the procedure described below if a Property 3 File is to be used. In addition, if you wish to create your own data base directories, you will have to create new versions of the auxiliary files that are appropriate for the structure of the new data bases. Examples of cases in which you would need to create an auxiliary data base file are given in Reference Section of the manual (e.g. Options 1.1.1, 1.1.2, 1.1.3, and 1.1.4)

FIELD NAMES AND UNITS AND LIST OF TABLE NAMES FILE

To create a file, you must be at the dBase dot prompt. This can be accomplished by choosing Option 6 form the SSDMS II Main Menu.

At the dot prompt, type:

.CREATE newfile

to create an auxiliary file called "newfile".

dBase will prompt you to enter the names, types and lengths of the fields. If the prompts confuse you, refer to the dBase III+™ Manual (Ashton-Tate, 1985). Save the new file structure as instructed by the HELP screen and/or manual. You will be asked if you want to save enter data (e.g. field names, units and table names) immediately after the file structure is saved.

After you enter the data, save the file and return to SSDMS II as instructed by the screen prompts. Finally, use Option 5.1.2 to set the names for the new auxiliary data base files within SSDMS II.

TEMPLATE FILES

For any data file you create, SSDMS II requires a corresponding file that stores the structure. This file is called a Template File. When you create a file, SSDMS II looks for the corresponding Template File and copies the structure from the Template File to the new file you name. Creating a Template File is no different from creating a data base file except that you enter only the data structure, not the data itself, into the Template File.

To create a Template File, you must be at the dBase dot prompt. (Select Option 6 from the SSDMS II Main Menu to bring up the dBase dot prompt.)

In this example, the new Template File will be called "newtempl."

At the dot prompt (shown below), type:

.CREATE newtempl

dBase prompts you to enter the names, types and lengths of the fields. If the prompts confuse you, refer to the dBase III+™ Manual (Ashton-Tate, 1985).

To use the newly created Template File with SSDMS II, enter its name under Option 5.1.2 (Set Names for Data Base Files). For example, if "newtempl" is the name of the Template File for a Property File 3, enter "newtempl" at the prompt for the Property File 3 Template under Option 5.1.2 (Set Names for Data Base Files).

Be sure that the new Auxiliary Files resides in the same directory as the other data base files or SSDMS II will not be able to find it. Consult the DOS reference manual to determine how to move files from one directory to another.

APPENDIX D

DESCRIPTION OF PROGRAM FILES

D.1 LIST OF PROGRAM FILES

SSDMSII The starting program. This program sets the dBase environment, declares variables, displays the Title Screen, calls the INITIAL procedure to initialize the variables and to call the FINDFILE procedure (which initializes flags that allow the program to know whether or not each data base file can be found), and finally calls the MAIN procedure to display the SSDMS II Main Menu.

INITIAL This procedure declares public variables and assigns them default values.

FINDFILE This procedure searches the default directories for the data base files and program files to see if they exist and sets flags accordingly.

MAIN This procedure displays the SSDMS II Main Menu and calls the appropriate procedures to execute the menu choices. All Main Menu choices are executed from and return to the MAIN procedure. The MAIN procedure executes Option 6 (dBase Shell) and Option 7 (Quit SSDMS II) itself.

CMENU This procedure displays Menu 1 (Create Data Base Files). Upon receiving the menu choice, CMENU calls the appropriate procedure to execute the choice.

CPROC This file stores the following routines: CREATESF, MAKETABLE, VIEW, DELORADD, MAKESORP, CREATEPF, MAKEMAST, FNREAD, and JOINFILE.

CREATESF This procedure displays Menu 1.1 (Create the Sorption File). Upon receiving the menu choice, CREATESF calls the appropriate procedure to execute the choice.

MAKETABLE This procedure allows you to create a Table File (Option 1.1.1: Create a Table File).

VIEW This procedure allows you to see the list of Table File names that SSDMS II will combine to form the Sorption File (Option 1.1.2: View the List of Table File Names).

DELORADD This procedure displays Menu 1.1.3 (Add to or Delete from the List of Table File Names) and, upon receiving the menu choice, deletes or adds a Table File name to the list of Table Files to include in the Sorption File. (Option 1.1.3.1: Add and Option 1.1.3.2: Delete).

MAKESORP This procedure combines the Table Files whose names appear in the list of Table File names to form the Sorption File (Option 1.1.4: Create the Sorption File).

CREATEPF This procedure displays Menu 1.2 (Create the Property Files), reads in the menu choice and allows you to create one of three Property Files (Option 1.2.1: Create the Formation File; Option 1.2.2: Create the Quality File; and Option 1.2.3: Create Property File 3).

MAKEMAST This procedure combines the appropriate Property Files with the Sorption File to make the Main Data Base File (Menu 1.3: Create or Update the Main Data Base File).

FNREAD This procedure is called by MAKEMAST to read in the file names for the Sorption File, the Formation File, the Quality File, the Property Files, the resultant data base file and the old Main Data Base File.

JOINFILE This procedure is called by MAKEMAST to join the designated files to form a new Main Data Base File or an update to the Main Data Base File.

EMENU This procedure displays Menu 2 (Edit Data Base Files). Upon receiving the menu choice, EMENU calls the appropriate procedure to execute the choice.

EPROC This file stores the following procedures: EDITMENU, EDITFILE, and RENAMEIT.

EDITMENU This procedure allows you to edit the data base file of field names and units (fields.dbf) used to create the Field Selection Screen under Option 2.4 (Make the Field Selection Screen) (Option 2.1: Edit the Field Selection Screen).

EDITFILE This procedure allows you to edit any data base file in the data base file directory (Option 2.2: Edit a Data Base File).

RENAMEIT This procedure allows you to rename a data base file (Option 2.3: Rename a Data Base File).

MAKEMENU This procedure makes the Field Selection Screen from which you select the fields by which to subset the Main Data Base File and the fields to output from the subsetting operation. If the data base file of field names and units (fields.dbf) exists, only those field names with a value of True for the field Included are included in the Field Selection Screen, and the English version of the field name is displayed instead of the dBase version. If the data base file of field names and units is not present, all fields are included and the field names are taken from the Main Data Base File (master.dbf) (Option 2.4: Make the Field Selection Screen).

DINDIV This file stores the following procedures: DIMENU, GETINPUT, GETOUTPUT, PROCESS, DRAW, DRAWLMEN, DRAWRMEN, FIELDLOO and ED.

DIMENU This procedure oversees the individual subsetting of the Main Data Base File. It checks if the Main Data Base File exists and if the Field Selection Screen has been made. If the Field Selection Screen has not been made and you wish to make one, DIMENU will call MAKEMENU. If the Main Data Base File exists and the Field Selection Screen has been made, DIMENU calls GETINPUT, GETOUTPUT and PROCESS so you can subset the Main Data Base File. Otherwise, you return to the SSDMS II Main Menu (Option 3.1.a - Individual Subsetting: Describe Desired Input; Option 3.1.b - Individual Subsetting: Describe Desired Output; and Option 3.1.c - Individual Subsetting: Searching the Main Data Base File).

GETINPUT This procedure prompts for search criteria to use in the individual subsetting of the Main Data Base File.

GETOUTPUT This procedure prompts for the fields to output from the individual subsetting of the Main Data Base File.

PROCESS This procedure queries the Main Data Base File subject to the criteria entered in response to the procedures GETINPUT and GETOUTPUT.

DRAW This procedure allows as many pages of the Field Selection Screen as are necessary to be displayed and combines drawing the left and right sides of the Field Selection Screen into one procedure. Although versatile, it is extremely slow. It is included in case program modifications require its use. Currently, it is not used.

DRAWLMEN This procedure draws the left side of the Field Selection Screen.

DRAWRMEN This procedure draws the right side of the Field Selection Screen.

FIELDLOO This procedure allows you to view the dBase name, English name and the units of any field in the Field Selection Screen (Option 3.1: Option Row for Individual Subsetting)

ED This procedure allows you to edit the subsetting criteria or the list of fields to output for individual subsetting (Option 3.1: Option Row for Individual Subsetting).

DBATCH This file stores the following procedures: BATCH, DRAW, DRAWLMEN, and DRAWRMEN.

BATCH This procedure oversees the batch subsetting of the Main Data Base File. It checks to see if the Main Data Base File exists and if the Field Selection Screen has been made. If the Field Selection Screen has not been made and you wish to make one, BATCH calls MAKEMENU. If the Main Data Base File exists and the Field Selection Screen has been made, BATCH prompts for search criteria and fields to be output and executes a batch subsetting of the Main Data Base File. Otherwise, the SSDMS II Main Menu reappears. (Option 3.2.a - Batch Subsetting: Describe Desired Input; Option 3.2.b - Batch Subsetting: Describe Desired Output; and Option 3.2.c - Batch Subsetting: Searching the Main Data Base File).

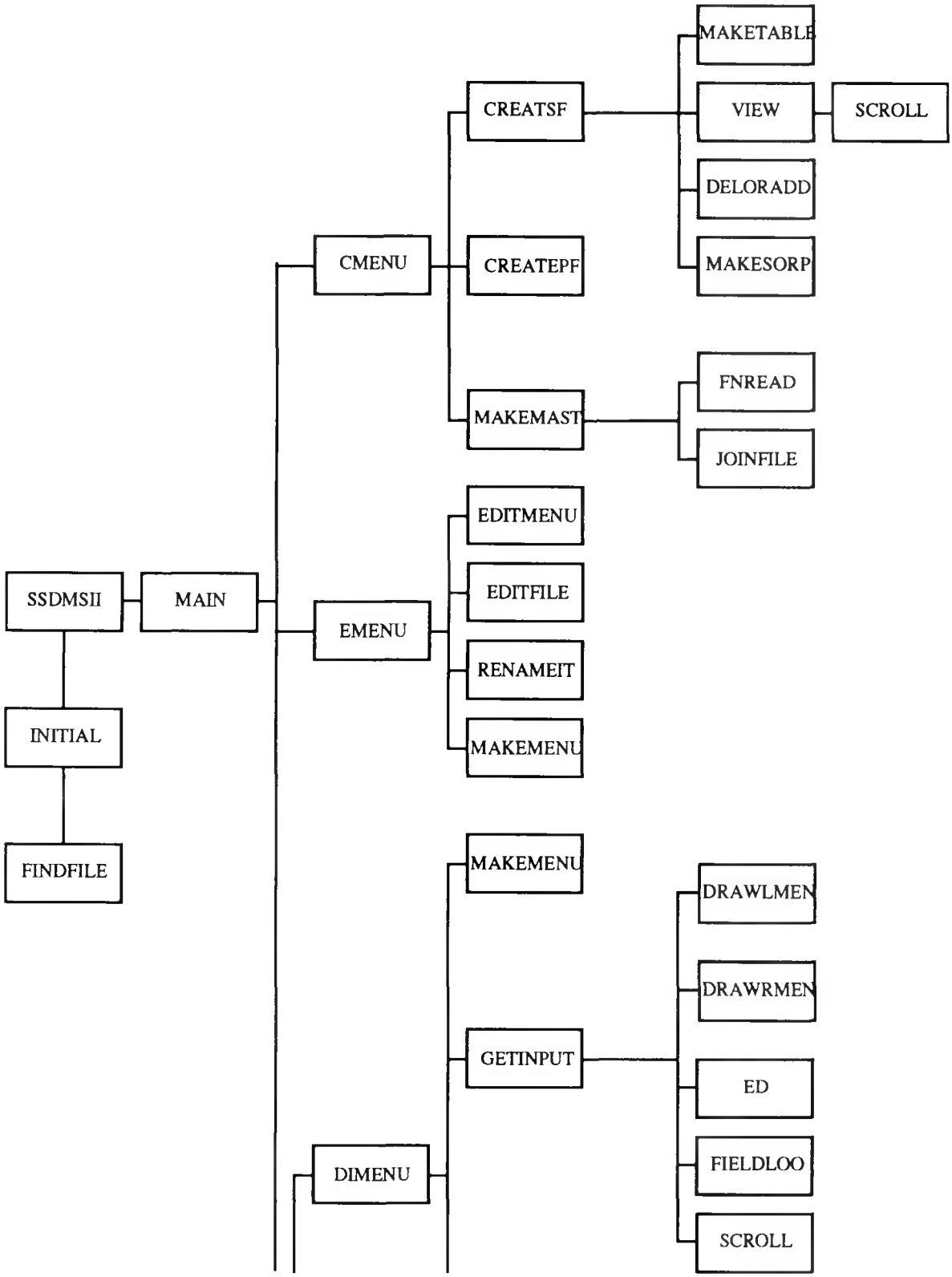
APMENU This procedure displays Menu 4 (Display Graphs and Statistical Information). It allows you to access auxiliary programs and to view the data base file directory (Option 4.1; Option 4.2; Option 4.3; Option 4.4; and Option 4.5: View Directory).

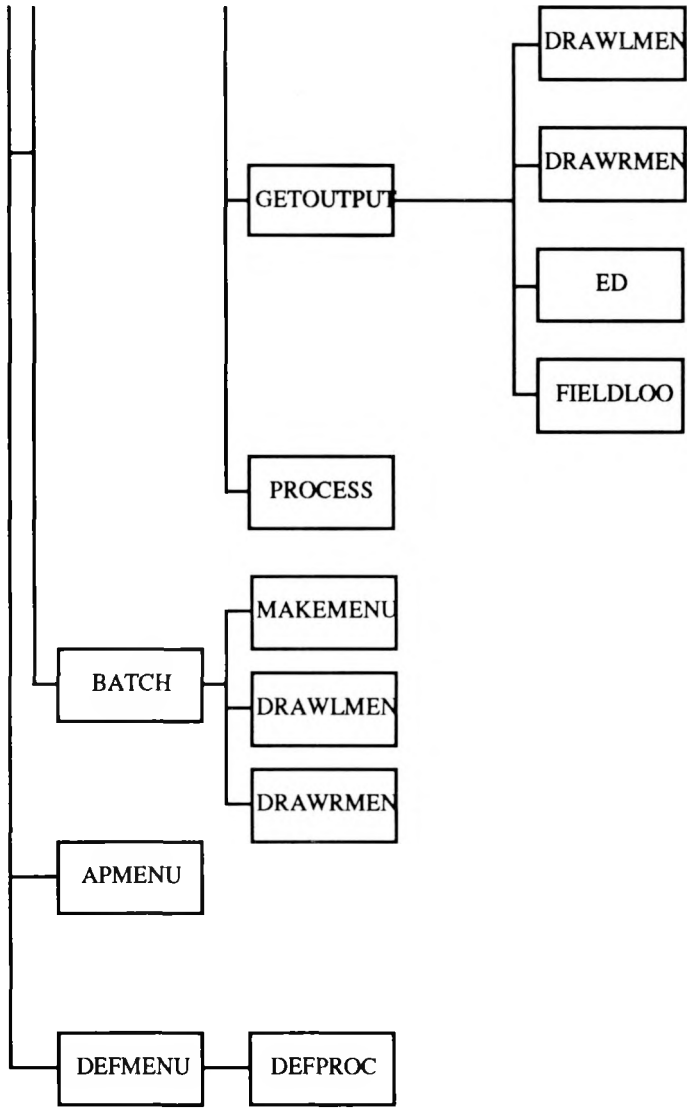
DEFMENU This procedure displays Menu 5 (Drive/Directory Settings and Information). You may view the data base file directory, use an editor or change the program defaults. If you choose to change the defaults, DEFMENU will call DEFPROC (Option 5.2: View Directory and Option 5.3: Use Editor).

DEFPROC This procedure displays Menu 5.1 (Change Defaults) and allows you to set the default paths and file names for the data base and program files (Option 5.1.1: Set Default Drive & Directory for Data Base Files; Option 5.1.2: Set Names for Data Base Files; Option 5.1.3: Set Names for Auxiliary Program Files; Option 5.1.4: Set Default Drives and Directories for Program Files; and Option 5.1.5: Save Current Configuration).

SCROLL This procedure is called by GETINPUT to respond to the "?" prompt and is called by VIEW to respond to Option 1.2 (View the List of Table File Names). In response to the "?" prompt, SCROLL looks for a data base file with the same name as the selected field. If the file exists, the values in that file are displayed on the screen. Otherwise, SCROLL creates a data base file and gives it the name of the selected field. Then SCROLL searches the Main Data Base File for all unique values of the selected field and stores them in the file. The contents of the file are displayed on the screen. In response to Option 1.2 (View the List of Table File Names), SCROLL displays all Table File names currently selected to be included in the Sorption File.

Figure D.1 Procedure Call Tree.

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DRAWRMEN
GETOUTPUT
ED
FIELDLOO
PROCESS
MAKEMENU
BATCH
DRAWLMEN
DRAWRMEN
APMENU
DEFMENU
DEFPROC

D.2 MEMORY FILES

At several points, SSDMS II saves memory variables (See Ashton-Tate, 1985) to two memory files for use in the next SSDMS II session. For instance, Option 5.1.5 (Save Current Configuration) saves all memory variables to the memory files, Option 3.1 (Individual Subsetting) saves the search criteria and Option 2.4 (Make the Field Selection Screen) saves the Field Selection Screen.

One memory file resides in the data base file directory and the other in the program directory. Both are named "ssdms.mem". If these files are deleted, SSDMS II initializes all memory variables to their initial default values.

APPENDIX E

TROUBLE SHOOTING THE SSDMS II CODE

SSDMS II requires your help to solve some problems. Some potential problems, likely causes, and solutions appear below.

Problem	Cause	Solution
Option 6 (dBase Shell) chosen but data base files are not found.	dBase cannot find the path to the data base files.	Enter the DOS path to the data base files at the dot prompt. (For the BWIP directory, type "SET PATH TO c:\ssdms\bwip".)
"Variable not found... Enter any key to continue..." appears when batch subsetting is aborted.	SSDMS II cannot find a variable.	Enter any key to display the SSDMS II Main Menu. Re-enter the key sequence.
SSDMS II runs incorrectly, and the "SSDMS II Main Menu" and a number appear in the top right corner of the Main Menu.	A complicated combination of user aborts and program error messages has generated this message.	Restart SSDMS II: Enter a "7" at the Main Menu - Main Prompt. When the dBase dot prompt appears, type "DO ssdmsii".
"Data type mismatch" appears on screen.	Memory variables not set correctly.	Quit SSDMS II and dBase III. Erase SSDMS.MEM Files in PROGRAM directory and BWIP directory. Restart SSDMS II and set paths as shown in Option 5.1
SSDMS II cursor blinks but program does not advance to next stop.	SSDMS II excepts a RETURN.	Press ENTER key.
Wrong Field Selection Screen.	SSDMS II is using a Field Selection screen from a previous session.	Make a new Field Selection screen using Option 2.4.

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