User Manual for the Hanford Energy Conservation Project Data Base

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the U.S. Department of Energy
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PREFACE

The Hanford Energy Conservation Project (HECP) was developed as a mechanism for incorporating state-of-the-art conservation technologies and knowledge into Hanford projects and for determining research and development (R&D) opportunities involving new construction projects or modifications of existing facilities. The basic elements of the program include (1) the identification of energy-conservation opportunities in existing or planned projects, (2) the integration of R&D technology into site projects, and (3) energy-conservation information exchange among all Hanford contractors.

The Hanford Energy Conservation Data Base was developed as a management tool for monitoring the progress of proposed, on-going, and completed projects managed by the HECP. This user manual was designed to be used in tandem with the user friendly screen menus and prompts by the data base management option. The data base is intended for use mainly by HECP management and not for widespread distribution; therefore, the user manual is designed for an adept computer-user having familiarity with the HEC project.

SUMMARY

The Hanford Energy Conservation (HEC) Project Data Base developed by the Pacific Northwest Laboratory for the U.S. Department of Energy's Richland Operations Office, provides a centralized storehouse of information on planned and ongoing projects which are part of the HEC project. The data base will enable quick analysis of the project portfolio. The data base uses dBase III Plus^(a) on an IBM PC^(b). Over 40 data items are stored for each project. A menu-driven applications program was developed as an alternative to using standard dBase III Plus commands. The menu-driven program prompts the user to add data, edit data, perform on-screen searches of the data base, sort the data base by any variable or combination of variables, or generate hard-copy reports of the stored data.

(a) dBase III is a trademark of Ashton-Tate, Culver City, California.

(b) IBM PC is a trademark of International Business Machines Corporation, Boca Raton, Florida.

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CONTENTS

PREFACE	iii
SUMMARY	v
ACKNOWLEDGMENTS	vii
1.0 INTRODUCTION	1.1
2.0 OVERVIEW OF THE HEC PROJECT DATA BASE.	2.1
3.0 GETTING STARTED.	3.1
3.1 BASIC HARDWARE AND SOFTWARE REQUIREMENTS.	3.1
3.2 DOS CONFIGURATION	3.1
3.3 LOADING dBASE III PLUS.	3.2
3.4 ACCESSING THE HEC PROJECT DATA BASE	3.2
4.0 APPLICATIONS PROGRAM	4.1
4.1 THE MAIN MENU	4.1
4.2 ENTERING DATA	4.1
4.2.1 Entering Character and Numeric Data.	4.3
4.2.2 Entering the Project Description, Project Justification, and Project Schedule.	4.4
4.3 EDITING	4.4
4.4 ON-SCREEN SEARCH.	4.5
4.4.1 Title Search	4.5
4.4.2 Keyword Search	4.5
4.4.3 Boolean Search	4.6
4.5 PRINTING REPORTS.	4.8
4.6 HELP.	4.9
4.7 EXITING THE APPLICATIONS PROGRAM.	4.9

APPENDIX A	AN OVERVIEW OF dBASE III PLUS	A.1
APPENDIX B	PROGRAM LISTING	B.1
APPENDIX C	TROUBLE-SHOOTING GUIDE.	C.1

1.0 INTRODUCTION

The Hanford Energy Conservation (HEC) Project Data Base is a microcomputer data base with menu-driven software that manages project information for the HEC project. It was developed for use with the dBase III Plus data base management system. The HEC data base can be accessed in two ways:

1. Menu-driven software written to access the data base enables the beginning user to select options from displayed menus in order to perform various data management tasks.
2. Standard dBase III Plus commands enable the experienced user to perform the full spectrum of data management tasks available with the dBase III Plus data base management system.

The HEC data base consists of a series of records in interconnected data files, each of which contains 48 fields of information on projects under the Hanford Energy Conservation Project.

The purpose of this User Manual is to describe the features of the HEC project data base and illustrate how to use them. It is intended as a companion to dBase III Plus documentation, not as a replacement. An overview of what is included in the data base is presented in Section 2.0. Section 3.0 tells the user how to get started using the HEC project data base. Use of the menu-driven applications program is discussed in Section 4.0. Appendix A presents an overview of the characteristics and capabilities of dBase III Plus. The program files of the HEC project data base are defined and listed in Appendix B. Appendix C gives trouble-shooting information in the event a data base error occurs.

2.0 OVERVIEW OF THE HEC PROJECT DATA BASE

PNL developed this computerized data base as a key part of the Hanford Energy Conservation Project. The data base was created to provide a centralized storehouse of information on all potential and ongoing energy-conservation projects at the Hanford Site. The addition of new projects to the data base as they are developed and the updating of project information already contained in the data base is critical to the usefulness of the data base. The data base system includes the following items for each project:

- Project Title
- Project Description
- Project Justification
- Project Schedule
- Current Status
- Project Manager
- Research Contact
- Other Contacts
- Project Location
- Project Cost
- Project Spending
- Electricity Savings
- Thermal Energy Savings
- Non-Energy Benefits

The HEC data base consists of three data base files:

1. HPLAN.DBF: The main HEC data base. The file HPLT.NDX is an index file created by indexing HPLAN.DBF on the project title (PRJTITLE).
2. HPLMEM.DBF: This data base contains a list of three memo fields for the project description, justification, and schedule. The file HPLMEM.DBT is an auxiliary data base containing the memo data typed into the three memo fields listed in the HPLMEM data base.
3. HPLKEY.DBF: The data base containing keywords

Each record in any one data base file is related to one record in the other two database files through the two key fields common to all three data bases: PRJTITLE and PRJNO.

3.0 GETTING STARTED

This section first defines the basic hardware and software required to use the HEC project data base. Next, the steps necessary to properly configure the disk operating system are explained, followed by the procedure for loading the dBase III Plus program. Finally, the procedure used to access the HEC project data base system is described.

3.1 BASIC HARDWARE AND SOFTWARE REQUIREMENTS

Before beginning, check that the following basic hardware and software requirements are met:

1. The IBM-PC or compatible microcomputer has two floppy disk drives or one floppy drive and a hard disk.
2. The microcomputer has at least 512K of internal memory
3. A copy of the DOS operating system software (PC DOS version 2.0 or higher or MS DOS version 2.1 or higher).
4. A copy of dBase III Plus software.

3.2 DOS CONFIGURATION

In order for dBase III Plus to run properly, the file CONFIG.SYS must be on the DOS boot disk. This file must be configured to accommodate the maximum number of data base files and data buffers needed, which is recommended as 20 and 15, respectfully. To see if the CONFIG.SYS file is on the DOS boot disk, enter the command "TYPE CONFIG.SYS". If the CONFIG.SYS file is present, you can use a text editor, such as EDLIN, WORD STAR, or WORDPERFECT, to add the following lines to it or modify the default settings, if necessary:

```
FILES = 20  
BUFFERS = 15
```

If the CONFIG.SYS file is not present, it can be created from the console using the steps described below. Press the RETURN key after each command is entered.

1. Check that the DOS boot disk is in drive A and that the 'A' prompt appears on the screen.

2. Type: COPY CON: CONFIG.SYS
3. Type: FILES = 20
4. Type: BUFFERS = 15
5. Press the F6 function key, release it, and then press the RETURN key to create and save the CONFIG.SYS file on your DOS boot disk.

Examine the CONFIG.SYS file to verify the entries. If a mistake was made, re-create the file by repeating the above five steps. Once the CONFIG.SYS file is created and has been saved on the DOS boot disk, the file does not need to be recreated when you reuse dBase III Plus.

If the DOS boot disk already had the proper version of the CONFIG.SYS file, dBase III Plus can be loaded. If it did not and the proper version of CONFIG.SYS was just placed on the DOS boot disk, the computer must be rebooted by pressing the CTRL, ALT, and DEL keys simultaneously.

3.3 LOADING DBASE III PLUS

If you have a two-disk dBase III Plus program, the two disks are labeled "System Disk # 1" and "System Disk # 2". In order to load dBase III Plus, perform the following three steps:

1. Insert System Disk # 1 into floppy drive A
2. Type DBASE and press the RETURN key
3. When prompted to do so, remove the System Disk # 1 from drive A and insert the System Disk # 2 and press the RETURN key.

When dBase III Plus has been successfully started, a menu screen will be displayed in the upper left hand corner of the screen.

4. Press the ESC key

A '.' prompt will now be displayed on the screen with a status bar along the bottom of the screen.

3.4 ACCESSING THE HEC PROJECT DATA BASE

To access the HEC project data base, insert the disk containing the HEC software package into drive B and proceed in one of the following two ways.

Option A

To activate the menu-driven software, type the following two commands and press the RETURN key after each one:

1. SET DEFAULT TO B
2. DO MENU

This will cause the menu program to load into internal memory from the disk in drive B and display the Main Menu that allows the user to interface with the data base. If Option A is selected, character input responses to the menu prompts should be entered with uppercase letters.

Option B

To bypass the menu-driven software, type the following two commands and press the RETURN key after each one:

1. SET DEFAULT TO B
2. USE "file" (where "file" is the data base of interest). To access the main data base file in the HEC project data base, type:
USE HPLAN and press the return key.

This allows the use of dBase III Plus commands to access and manipulate the data base.

4.0 APPLICATIONS PROGRAM

An interactive, menu-driven program is provided to enter, edit, sort and report the data in the Hanford Energy Conservation Project Data Base. The applications program has a modular design. Subroutines are called and executed from the main program (MENU.PRG) as shown in Figure 4.1. These subroutines are of two types: command files (filename extension .PRG), and format files (filename extension .FMT). Command files consist of sets of instructions in dBase III Plus programming language. Format files create custom screen formats for data entry or on-screen data display. Each of the modules shown in Figure 4.1 is discussed in detail below. In addition, Appendix B contains program listings for the command files and the screen format files.

4.1 THE MAIN MENU

The MENU program controls the execution of the appropriate subroutines based on the main applications selected from the on-screen menu. The four main applications that can be called from the MENU program are: (1) adding data for new projects to the data bases, (2) editing existing project data, (3) reporting project data, and (4) searching the data base for projects that meet user-specified criteria. In addition, a HELP program can be called which describes the functions of the major command programs. To execute the MENU program, follow the steps in Section 3.0, "Getting Started."

4.2 ENTERING DATA

The data entry program (ADD.PRG) allows the addition of information for a project that is not currently in the data base. The ADD program is executed when the ENTER DATA option is selected from the main menu. Data entry is accomplished through formatted screens that are called from the ADD program. These screens are stored as the files SCR1.FMT, SCR2.FMT, SCR3.FMT, SCR4.FMT, and SCR5.FMT.

After entering project data, the user is asked whether or not additional project data are to be entered into the data base. A negative response returns the user to the main menu, while a positive response presents the

FIGURE 4.1. HEC Data Base Program Structure

user with the first data entry screen for input of the information. The following two subsections provide instructions for entering character/numeric data and textual data.

4.2.1 Entering Character and Numeric Data

All items, with the exception of the project description, project justification, and project schedule, are stored in character or numeric fields. All numeric and character data should be stored in the data base in capital letters. Thus, before entering data, press the "Caps Lock" key. To enter data, type the requested information in the highlighted spaces provided on the formatted screens. If information is not entered in a given space, the data base will automatically store zeroes in numeric fields and blanks in character fields.

If the data completely fills the space provided, the cursor will automatically jump to the next item. If the data does not completely fill the highlighted space, use the RETURN key to move to the next data item. The arrows on the right of the keyboard can be used to position the cursor at the desired location. When you are finished entering the data on a particular screen, press "PgDn" to go to the next screen. Once you have exited a screen you will not be able to go back to it while in the ADD program. If you want to change data items that you have entered on a previous screen, refer to Section 4.3 of this User Manual.

Table 4.1 provides a list of commands that may be helpful in entering character and numeric data.

Table 4.1. Summary of Commands Useful for Data Entry

"Ctrl/Y"	Deletes all data to the right of the cursor in a given field
"Del" or "Ctrl G"	Deletes the character at the cursor position
"RETURN"	Moves the cursor to the next data item
"PgDn" or "Esc"	Moves the cursor to the next formatted screen
"Ins"	When on, any text that is typed is inserted at the cursor position. When off, any text is typed over the top of existing text. On/off indicator is displayed in the upper right-hand corner of the screen.

4.2.2 Entering the Project Description, Project Justification, and Project Schedule

The project description, project justification, and project schedule are stored in memo fields. The dBase III Plus text editor is used to enter data into the memo fields. When the description/justification/schedule screen comes up, move the cursor to the box that says "memo" next to the title "project description". Typing "Ctrl PgDn" puts the user in the text editor. At this time textual description information may be entered into the data base. After entering the project description, type "Ctrl PgUp" to exit the editor. Entering the project justification and project schedule is performed in a similar manner. Text need not be entered in capital letters. When entering text it is not necessary to use the return key or hyphenate words.

4.3 EDITING DATA

The data edit program (EDIT.PRG) allows the modification of project information that is already stored in the data base. The EDIT program is executed when the EDIT option is selected from the main applications menu. This program requests the title of the project to be edited and then locates it. The title must be entered exactly or the proper information will not be located. If the user is unsure of the exact title, he should generate an abbreviated hard-copy of each project file using the print option.

If the title cannot be located in the data base, the user will be asked if he wants to enter another title. A positive response asks for the new title, while a negative response returns the user to the main menu. If the title is located in the data base, the user is presented with another menu from which he can elect to edit all the data (Option 10) for the project or edit only a specified piece of data (Options 1-9). Selecting Option 10 will cause each of the formatted data screens to be presented sequentially, whereas the other options only display the pertinent data screen(s). The screens display the information that is currently in the data base for the project title that was entered. To make corrections, the new data is simply typed over the existing data, with the "Ins" key off.

After the screen is edited, "PgDn" will call up the next formatted screen if Option 10 was selected, or the user will be asked if he would like to ask

additional information for this project if Option 1 - 9 was selected. A yes (Y) response returns the user to the menu where the type of information to be edited is selected. If no (N) is entered, the user is then asked if he wants to edit data for another project. If an affirmative answer is given to this question, the user is requested to enter the title of the new project to be edited. If a negative response is given, the user is returned to the main applications menu.

4.4 ON-SCREEN SEARCH

The on-screen search program (SEARCH.PRG) is executed when the search option is selected from the applications menu. SEARCH allows the user to search the data base for a given project title, for a combination of keywords, or for a combination of field constraints combined in a Boolean expression. Each of these options is discussed in more detail in the following sections.

4.4.1 Title Search

The title search program (STITLE.PRG) is called from the SEARCH program when the user selects option 1 from the search menu. The user is first asked to enter the title of the project which is the object of the search. If the title is not found, the user is given the option to enter another title, return to the search menu, or return to the application menu. If the title is found, a menu is provided which allows the user to elect to display all or selected information for that project on the screen. Project data is displayed on the same formatted screens used in the data entry and data edit programs. After viewing the data, press "PgDn" twice. The user can then elect to: (1) display additional information for the project, (2) search for another project title, (3) return to the search menu, or (4) return to the applications menu.

4.4.2 Keyword Search

The keyword search program (SKEY.PRG) is executed when option 2 is selected from the search menu. A formatted screen is provided in which the user can enter up to six keywords. The keywords are entered along with a keyword code which indicates the type of keyword (i.e., area, contractor, energy form saved, or other). A list of keyword codes is provided on the screen. Keywords may be all of one type or all different types. The program

automatically searches the keyword data base (HPLKEY.DBF) for projects that list the keyword combination specified by the user. If multiple keywords are specified, a project must list all the specified keywords in its record of keywords in order to satisfy the keyword search. The screen will display the number of projects that list the specified keywords and the percentage of the total number of projects in the data base that this represents.

For the projects that list the specified keywords, the user can elect to: (1) display the titles on the screen, (2) print the titles, or (3) print project description sheets for each of the projects. Alternatively, the user can elect to return to the search menu or the applications menu at this point.

4.4.3 Boolean Search

The Boolean search program (SBOOL.PRG) is executed when option 3 is selected from the search menu. This program allows the user to sort the data base on a combination of up to six field constraints. The following example, which has three field constraints, will be used to illustrate the use of the Boolean search program:

All projects pertaining to the 300 Area which have a budget of more than \$10,000 per year and for which Steve Weakley is the project manager.

The first screen in the Boolean search program prompts the user to enter up to six field name/field type/operator/data constraints. The screen is formatted for ease of data entry. The field is entered first followed by an "N" or a "C" to indicate whether it is a numeric or character field, respectively. A list of the field names and their corresponding field types that can be used with the Boolean search option is provided in Table 4.2. Next, the desired relational operator is entered. The equal to (=) and not equal to (#) operators can be used with character or numeric data. The greater than (>), less than(<), greater than or equal to(>=), and less than or equal to(<=) operators can only be used with numeric fields. Finally, the numeric or character data that is the object of the search is entered under the search-data column. Press "RETURN" to move to the next screen position. When you have entered all the constraints for the search, press "PgDn".

TABLE 4.2. Field Names for Boolean Search

<u>Field Name</u>	<u>Character/Numeric</u>	<u>Expanded Field Name</u>
PJ_COST	N	Project Cost
PJ_LOCAT	C	Project Location
PMGR	C	Project Manager
CUR_STATUS	C	Current Status
RC_NAME	C	Research Contact
OC1_NAME	C	Other Contact
OC2_NAME	C	Other Contact
PJ_SPENDING	N	Project Spending
ESAVG_KWH	N	Electricity Savings
OSAVG_BTU	N	Thermal Energy Savings

EXAMPLE:

<u>FIELD NAME</u>	<u>TYPE</u>	<u>OPERATOR</u>	<u>SEARCH DATA</u>
PJ_COST	N	>	10000
PJ_LOCAT	C	=	300 Area
PMGR	C	=	Steve Weakley

The next screen displays the constraints that have been entered. Each of these is assigned a letter, beginning with A. The user is then asked to combine the constraints into a Boolean expression for the search, using the logical operators "AND" and "OR" and parentheses as needed for grouping.

EXAMPLE:

A: PJ_COST > 10000
 B: PJ_LOCAT = 300 Area
 C: PMGR = Steve Weakley

USE THE CODES ON THE RIGHT TO
 WRITE A BOOLEAN EXPRESSION
 (e.g., (A+B)*(C+D) represents
 (A and B) or (C and D)

CODE	LOGIC OPERATOR
*	OR
+	AND

User Types: A+B+C

Program displays the following expression:

PJ_COST > 10000 AND PJ_LOCAT = '300 AREA' AND PMGR = 'Steve Weakley'

Press any key to continue...

The program then searches the data base for projects that meet the specified constraints. It sums the number of projects that meet the constraints and displays this information on the screen along with the percentage of the total number of projects in the data base represented by this subset.

EXAMPLE: 2 PROJECTS(S), MEET THE FOLLOWING CRITERIA:

PJ_COST = 10000 .AND. PJ_LOCAT = '300 AREA' .AND. PMGR = 'Steve Weakley'

THIS REPRESENTS:

20% OF THE 10 HANFORD ENERGY CONSERVATION PROJECTS

Press any key to continue...

For the projects that meet the constraints, the user can elect to: (1) display the titles on the screen, (2) print the titles, or (3) print project description sheets for each of the projects. The user can elect to return to the search menu or the application menu at this point.

4.5 PRINTING REPORTS

Invoking the PRINT REPORT(S) option starts the report program. The user is given the option to either print expanded or abbreviated reports. Upon choosing the type of output, the user is prompted to put the printer on-line. The printer must be connected to port LPT1. Failure to put the printer on-line will result in premature termination of the program. After placing the printer on-line, the user is asked whether a printout for all projects is

desired or a user-specified project is desired. Once the printout is finished the program returns to the main applications menu.

4.6 HELP

The HELP program (HELP.PRG) is executed when the user selects option 5 from the application menu. In the HELP program, the user is asked to select the application with which he/she would like help. A brief paragraph describing the application is shown on the screen and the appropriate section in the User Manual is indicated.

4.7 EXITING THE APPLICATIONS PROGRAM

The user can exit the applications program by selecting option 6 from the applications menu. This option closes all open files and returns the user to the DOS operating system.

At this point, backup copies of the data bases should be made to protect against loss of any new information that has been entered or any alternations that have been made. Backup can be accomplished from the DOS operating system with the following commands:

To backup a single file:

COPY d1:filename.DBF d2:filename.DBF

To backup all data base files:

COPY d1:*.DBF d2:

To backup all program files

COPY d1:*.PRG d2:

Where d1 = source drive designation and d2 = destination drive designation. The following files should always be backed up: HPLAN.DBF, HPLT.NDX, HPLMEM.DBF, HPLMEM.DBT, HPLKEY.DBF.

APPENDIX A

AN OVERVIEW OF dBASE III PLUS

APPENDIX A

AN OVERVIEW OF dBase III Plus

dBASE III Plus is a relational data base management system for the IBM-PC and compatible microcomputers. The software was developed by Ashton-Tate corporation for maintaining and manipulating data stored in relational data bases. A relational data base organizes data as a two-dimensional table consisting of rows and columns. Each column defines a data field, and each row defines a data record. Thus, each data record (row) is divided into data fields (columns). The data base consists of a set of data records. The names of the data fields and type of data stored in each field are specified in the data structure of the data base.

dBASE III Plus can be used in two processing modes: interactive command processing and batch command processing. In the interactive command mode, data in the data base are manipulated by individually entering English-like commands from the keyboard. After each command is entered, the results are displayed on the computer screen or printer.

In the batch command mode, data processing tasks are defined by writing a set of command procedures using the dBASE III Plus programming language. The collection of commands is stored in a command file, which constitutes a computer program. These commands are then executed as a batch file. The batch command was used to develop the menu-driven software for the HEC project data base that allows users to select and execute specific data management tasks from menus displayed on the computer screen.

The availability of two processing modes makes dBASE III a flexible and powerful data base management system. It allows the user to perform a wide range of data processing and computational tasks to manage a relational data base. These tasks can range from simple to complex data base applications. Examples of the more commonly performed tasks are as follows:

1. Add new data to the data base, change part or all of the contents of the data base, and delete items from the data base.
2. Sort or rearrange the data records in the data base into a user-specified sequence or order.

3. Locate and display data fields that satisfy user-specified conditions.
4. Display customized formatted reports.
5. Do arithmetic calculations with the data, such as totals, averages, etc.
6. Link together multiple relational data bases through common data fields.
7. Build command files using the dBASE III programming language to create menu-driven systems that enable the beginning user to select options from displayed menus in order to perform selected data management tasks.

The complete repertoire of dBASE III Plus commands is documented in the user manual published by the developer, Ashton-Tate (1). Other publications that will introduce the user to the capabilities of dBASE III Plus are listed in the bibliography (2-4). The user that elects to bypass the menu-driven interface to the HEC project data base and instead use the dBASE III commands to access the data base may want to consult these publications.

BIBLIOGRAPHY

- Ashton-Tate. 1984. dBASE III Plus User Manual.
Ashton-Tate, 10150 West Jefferson Boulevard, Culver City, CA 90230.
- Simpson, Alan. 1985. Understanding dBASE III.
Sybex, Inc., 2344 Sixth Street, Berkeley, CA 94710.
- Jones, Edward. 1985. Using dBASE III.
Osborne McGraw-Hill, 2600 Tenth Street, Berkeley, CA 94710.
- Chou, George Tsu-der. 1985. dBASE III Handbook.
Que Corporation, 7999 Knue Road, Indianapolis, IN 46250.
- Carrabis, Joseph-David. 1985. dBASE III Advanced Programming.

APPENDIX B

PROGRAM LISTINGS

```

*****MENU.PRG*****
***          THIS IS THE MAIN PROGRAM FOR THE HANFORD ENERGY          ***
***          CONSERVATION PROJECT DATA BASE                          ***
*****

SET ESCAPE OFF
SET HEADING OFF
SET STATUS OFF
SET TALK OFF
SET DEVICE TO SCREEN
SET COLOR TO B/G,G/B,B+
CLEAR
@ 6,15 SAY '      HANFORD ENERGY CONSERVATION      '
@ 7,15 SAY '      PROJECT DATA BASE                '
@ 8,15 SAY '      U.S. DEPARTMENT OF ENERGY        '
@ 5,15 TO 9,55 DOUBLE
@ 12,5 SAY 'This data base contains descriptive information on'
@ 13,5 SAY 'each of the projects currently being conducted'
@ 14,5 SAY 'or proposed under the Hanford Energy Conservation Project.'
@ 16,5 SAY 'Set "Caps Lock" on.'
@ 21,5 SAY ' '
WAIT
***
*** MAIN MENU SET-UP
***
STORE .T. TO MENU
DO WHILE MENU
  STORE 0 TO mMEN
  DO WHILE mMEN > 6 .OR. mMEN < 1
    CLEAR
    @ 2,10 SAY '  HANFORD ENERGY CONSERVATION PROJECT DATA BASE  '
    @ 6,20 SAY '  APPLICATIONS MENU  '
    @ 5,18 TO 7,46 DOUBLE
    @ 10,21 SAY '(1) ENTER DATA'
    @ 12,21 SAY '(2) PRINT REPORT(S)'
    @ 14,21 SAY '(3) EDIT'
    @ 16,21 SAY '(4) SEARCH'
    @ 18,21 SAY '(5) HELP'
    @ 20,21 SAY '(6) QUIT'
    @ 8,18 TO 23,46 DOUBLE
    STORE 0 TO mMEN
    CLEAR TYPEAHEAD
    @ 24,20 SAY 'PLEASE SELECT AN OPTION:' GET mMEN PICTURE '9'
    READ
    CLEAR
    ENDDO mMEN
    **
    DO CASE
    CASE mMEN = 1
      DO ADD
    CASE mMEN = 2
      DO REPORT
    CASE mMEN = 3

```

```
DO EDIT
CASE mMEN = 4
DO SEARCH
CASE mMEN = 5
DO HELP
CASE mMEN = 6
CLEAR ALL
QUIT
ENDCASE
ENDDO MENU
CLEAR ALL
RETURN
```

```

*****ADD.PRG*****
***      THIS PROGRAM ADDS DATA TO THE PROJECT DATA FILES THROUGH      ***
***      CUSTOM FORMATTED SCREENS                                         ***
*****
SET DEVICE TO SCREEN
SET HEADING OFF
STORE 'Y' TO CONT
DO WHILE UPPER(CONT) = 'Y'
  CLEAR
  @ 11,21 SAY 'ADD RECORDS TO PROJECT FILE'
  @ 9,19 TO 13,49 DOUBLE
  USE HPLMEM
  APPEND BLANK
  USE HPLKEY
  APPEND BLANK
  USE HPLAN
  APPEND BLANK
  GO BOTTOM
  STORE RECNO() TO RN
  REPLACE PRJNO WITH RN
  ***
  *** DATA ENTRY
  ***
  SET FORMAT TO SCR1
  EDIT RN
  @ ROW()+5,5 SAY ' '
  WAIT
  SET FORMAT TO SCR2
  EDIT RN
  @ ROW()+5,5 SAY ' '
  WAIT
  SET FORMAT TO SCR3
  EDIT RN
  @ ROW()+5,5 SAY ' '
  WAIT
  GO RN
  STORE PRJTITLE TO pTITLE
  USE HPLKEY
  GOTO RN
  SET FORMAT TO SCR4
  REPLACE PRJTITLE WITH pTITLE
  REPLACE PRJNO WITH RN
  EDIT RN
  WAIT
  GO BOTTOM
  CLOSE FORMAT
  USE HPLMEM
  GOTO RN
  SET FORMAT TO SCR5
  REPLACE PRJTITLE WITH pTITLE
  REPLACE PRJNO WITH RN
  CHANGE FIELD DESCRIPTN, JUSTIFICTN, SCHEDULE

```

```

CLOSE FORMAT
***
*** ADD ADDITIONAL DATA?
***
CLEAR
STORE ' ' TO nNUM
@ 10,5 SAY 'DO YOU WANT TO ADD ANOTHER PROJECT TO THE DATA BASE [Y/N?];
' GET nNUM PICTURE 'X'
READ
DO WHILE UPPER(nNUM) # 'Y' .AND. UPPER(nNUM) # 'N'
CLEAR
@ 5,5 SAY 'ILLEGAL RESPONSE, TRY AGAIN'
@ 10,5 SAY 'DO YOU WANT TO ADD ANOTHER PROJECT TO THE DATA BASE [Y/N]?;
' GET nNUM PICTURE 'X'
READ
ENDDO
*
IF UPPER(nNUM) = 'N'
ERASE HPLT.NDX
USE HPLAN
INDEX ON PRJTITLE TO HPLT
USE
ENDIF 'N'
*
STORE nNUM TO CONT
@ 20,1 SAY ' '
ENDDO
CLEAR ALL
RETURN

```

```

*****EDIT.PRG*****
*** THIS SUBPROGRAM ALLOWS DATA TO BE EDITED IN THE SELECTED FILE ***
*****

CLEAR
STORE .T. TO ED
DO WHILE ED
  CLEAR
  STORE ' ' TO pTITLE
  @ 7,15 SAY ' ENTER TITLE OF PROJECT TO EDIT: '
  SET COLOR TO W/N,G/B+
  @ 9,20 GET pTITLE
  SET COLOR TO
  READ
  USE HPLAN INDEX HPLT
  DO WHILE .NOT. EOF()
    LOCATE FOR UPPER(PRJTITLE) = UPPER(pTITLE)
    *
    IF EOF()
      CLEAR
      @ 7,5 SAY 'TITLE NOT FOUND'
      STORE 'Y' TO ANS
      @ 10,5 SAY 'WOULD YOU LIKE TO ENTER ANOTHER TITLE? [Y/N]: ' GET ANS
      READ
      *
      IF UPPER(ANS) # 'Y'
        RETURN TO MASTER
      ENDIF #ANS
      *
      IF UPPER(ANS) = 'Y'
        DO EDIT
      ENDIF ANS
      *
    ENDIF EOF
    *
    STORE RECNO() TO R
    CLEAR
    SET COLOR TO W+/N
    @ 10,5 SAY 'TO EDIT ANY OF THE DATA ITEMS TYPE OVER THE'
    @ ROW()+1,5 SAY 'EXISTING INFORMATION. PRESS <RETURN> TO MOVE TO THE'
    NEXT'
    @ ROW()+1,5 SAY 'ITEM. AFTER CHANGES ARE MADE, PRESS <PgDn>.'
    @ ROW()+5,5 SAY ' '
    SET COLOR TO W/N
    WAIT
    STORE .T. TO TYPE
    DO WHILE TYPE
      CLEAR
      STORE 0 TO TYP
      DO WHILE TYP<1 .OR. TYP>11
        @ 5,11 SAY 'SELECT TYPE OF INFORMATION TO EDIT FROM FOLLOWING LIST:'
        @ 8,11 SAY '(1) Current Project Status'
        @ 9,11 SAY '(2) Project Management'

```

```

@ 10,11 SAY '(3) Research Contact'
@ 11,11 SAY '(4) Contacts in Operations and Construction'
@ 12,11 SAY '(5) Project Location'
@ 13,11 SAY '(6) Project Funding'
@ 14,11 SAY '(7) Project Benefits and Savings'
@ 15,11 SAY '(8) Keywords'
@ 16,11 SAY '(9) Project Description, Justification, or Schedule'
@ 17,11 SAY '(10) All Information'
@ 18,11 SAY '(11) RETURN TO MAIN MENU'
SET COLOR TO B+/N
@ 7,9 TO 19,69
@ 4,9 TO 6,69
SET COLOR TO W/N
@ 20,24 SAY 'PLEASE SELECT AN OPTION: ' GET TYP PICTURE '99'
READ
ENDDO
DO TYPCHK
CLEAR
STORE 'Y' TO AN
CLEAR TYPEAHEAD
@ 13,5 SAY 'DO YOU WANT TO EDIT ANY OTHER INFORMATION FOR THIS PROJECT?
[Y/N]: ' GET AN
READ
DO WHILE UPPER(AN) # 'Y' .AND. UPPER(AN) # 'N'
CLEAR
SET COLOR TO W+/N
@10,5 SAY 'ILLEGAL RESPONSE, TRY AGAIN'
SET COLOR TO W/N
STORE 'Y' TO AN
@ 13,5 SAY 'DO YOU WANT TO EDIT ANY OTHER INFORMATION FOR THIS
PROJECT? [Y/N]: 'GET AN
READ
ENDDO # Y/N
*
IF AN = 'N'
STORE .F. TO TYPE
ENDIF
*
ENDDO TYPE
STORE 'Y' TO eNUM
CLEAR
CLEAR TYPEAHEAD
@13,5 SAY 'DO YOU WANT TO EDIT DATA FOR ANDTHER PROJECT? [Y/N]:' GET eNUM
PICTURE 'X'
READ
DO WHILE UPPER(eNUM) # 'Y' .AND. UPPER(eNUM) # 'N'
CLEAR
SET COLOR TO W+/N
@10,5 SAY 'ILLEGAL RESPONSE, TRY AGAIN'
SET COLOR TO W/N
STORE 'Y' TO eNUM
CLEAR TYPEAHEAD

```



```

      @ 13,5 SAY 'DO YOU WANT TO EDIT DATA FOR ANOTHER PROJECT? [Y/N]: ' GET
      eNUM PICTURE 'X'
      READ
      ENDDO # UPPER Y/N
      *
      IF eNUM = 'N'
      ERASE HPLT.NDX
      USE HPLAN
      INDEX ON PRJTITLE TO HPLT
      CLEAR ALL
      RETURN TO MASTER
      ELSE
      STORE .F. TO TYPE
      STORE .T. TO ED
      DO EDIT
      ENDIF
      *
      @15,5 SAY ' '
      ENDDO
      CLEAR ALL
      RETURN

```

```

*****TYPCHK.PRG*****
***          THIS IS A SUBPROGRAM SUPPORTING EDIT.PRG          ***
*****
IF TYP>11
LOOP
ENDIF
*
IF TYP=11
STORE .F. TO TYPE
STORE .F. TO ED
RETURN TO MASTER
ENDIF
*
SET COLOR TO W/N,G/B+
*
IF TYP = 1 .OR. TYP = 2 .OR. TYP = 3 .OR. TYP = 10
USE HPLAN
GOTO R
SET FORMAT TO SCR1
READ
REPLACE CUR STATUS WITH CUR STATUS, PMGR WITH PMGR, PMGR_PHONE WITH PMGR_PHONE
REPLACE PMGR_CO WITH PMGR_CO, PMGR_MADD WITH PMGR_MADD, RC_NAME WITH RC_NAME
REPLACE RC_TITLE WITH RC_TITLE, RC_CO WITH RC_CO, RC_PHONE WITH RC_PHONE
REPLACE RC_MADD WITH RC_MADD
CLOSE FORMAT
USE
ENDIF 1 OR 2 OR 4 OR 10
*
IF TYP = 4 .OR. TYP = 10
USE HPLAN
GOTO R
SET FORMAT TO SCR2
READ
REPLACE OC1_NAME WITH OC1_NAME, OC1_CO WITH OC1_CO, OC1_PHONE WITH OC1_PHONE
REPLACE OC1_MADD WITH OC1_MADD, OC2_NAME WITH OC2_NAME, OC2_CO WITH OC2_CO
REPLACE OC2_PHONE WITH OC2_PHONE, OC2_MADD WITH OC2_MADD
CLOSE FORMAT
USE
ENDIF 4 OR 10
*
IF TYP = 5 .OR. TYP = 6 .OR. TYP = 7 .OR. TYP = 10
USE HPLAN
GOTO R
SET FORMAT TO SCR3
READ
REPLACE PJ_LOCAT WITH PJ_LOCAT, PJ_COST WITH PJ_COST, PJ_SPENDING WITH PJ_SPENDING
REPLACE E_SAVG_KWH WITH E_SAVG_KWH, O_SAVG_BTU WITH O_SAVG_BTU, NEB_1 WITH NEB_1
REPLACE NEB_2 WITH NEB_2, NEB_3 WITH NEB_3
CLOSE FORMAT
USE
ENDIF 5 OR 6 OR 7 OR 10
*

```

```

IF TYP = 8 .OR. TYP = 10
USE HPLKEY
LOCATE FOR PRJNO = R
SET FORMAT TO SCR4
READ
REPLACE ARE1 WITH ARE1, ARE2 WITH ARE2, ARE3 WITH ARE3, CON1 WITH CON1
REPLACE FOR1 WITH FOR1, FOR2 WITH FOR2, TYPE1 WITH TYPE1
REPLACE OTH1 WITH OTH1, OTH2 WITH OTH2, OTH3 WITH OTH3
CLOSE FORMAT
USE
ENDIF 8 OR 10
*
IF TYP = 9 .OR. TYP = 10
CLEAR
USE HPLAN
USE HPLMEM
GOTO R
SET FORMAT TO SCR5
READ
REPLACE DESCRIPTN WITH DESCRIPTN, JUSTIFICTN WITH JUSTIFICTN,
SCHEDULE WITH SCHEDULE
CLOSE FORMAT
CLEAR
USE
ENDIF 9 OR 10
*
SET COLOR TO
RETURN

```

```

*****SEARCH.PRG*****
*** THIS PROGRAM SEARCHES THE DATA BASE FOR USER-SPECIFIED INFORMATION ***
*****
STORE .T. TO SEARCH
DO WHILE SEARCH
  STORE 0 TO nSR
  DO WHILE nSR>4 .OR. nSR<1
    CLEAR
    @ 2,10 SAY ' HANFORD ENERGY CONSERVATION PROJECT DATA BASE '
    @ 6,25 SAY ' SEARCH MENU '
    @ 5,18 TO 7,47 DOUBLE
    @ 11,21 SAY '(1) TITLE SEARCH'
    @ 13,21 SAY '(2) KEYWORD SEARCH'
    @ 15,21 SAY '(3) ON SCREEN SEARCH'
    @ 17,21 SAY '(4) RETURN TO MAIN MENU'
    @ 9,18 TO 19,47 DOUBLE
    @ 23,20 SAY 'PLEASE SELECT A NUMBER:' GET nSR PICTURE '9'
    READ
    CLEAR
  ENDDO nSR
  **
  DO CASE
  CASE nSR = 1
    DO STITLE
  CASE nSR = 2
    CLEAR ALL
    DO SKEY
  CASE nSR = 3
    DO SBOOL
  CASE nSR = 4
    STORE .F. TO SEARCH
    STORE .T. TO MENU
    RETURN
  ENDCASE
  CLEAR ALL
  ENDDO SEARCH
RETURN

```

```

*****SBOOL.PRG*****
***      THIS SUBPROGRAM WILL SEARCH SPECIFIED FIELDS FOR      ***
***      GIVEN CHARACTER STRINGS WITH UP TO SIX TERMS          ***
*****

```

```

CLEAR
@ 1,5 SAY 'This program will search the data base for records that meet'
@ 2,5 SAY 'the constraints specified below. Up to six constraints may'
@ 3,5 SAY 'be entered. Refer to the USER MANUAL for allowable field'
@ 4,5 SAY 'names and operators.'
@ 6,2 SAY 'FIELD'
@ 7,2 SAY 'NAME      TYPE  OP  SEARCH DATA'
STORE 0 TO TN
DO WHILE TN <= 5
  STORE TN + 1 TO TN
  STORE CHR(TN+64) TO FD
  STORE CHR(TN+70) TO TY
  STORE CHR(TN+76) TO OP
  STORE CHR(TN+82) TO ST
  STORE ' ' TO &FD
  STORE ' ' TO &TY
  STORE ' ' TO &OP
  STORE ' ' TO &ST
  @ TN+7,2 GET &FD
  @ TN+7,13 GET &TY
  @ TN+7,17 GET &OP
  @ TN+7,21 GET &ST
  READ
  CLEAR GET
  *
  IF &FD=' '
    STORE TN-1 TO TN
    EXIT
  ENDIF
  *
  STORE .T. TO FLAG1
  *
  IF TRIM(&FD) # 'PJ COST'.AND. TRIM(&FD) # 'CUR STATUS'.AND.
    TRIM(&FD) # 'PMGR'.AND. TRIM(&FO) # 'PJ LOCAT'.AND. TRIM(&FO) #
    'ESAVG_KWH'.AND. TRIM(&FD) # 'OSAVG_BTU'
    STORE .F. TO FLAG1
  ENDIF
  *
  IF .NOT. FLAG1
    SET COLOR TO W+/N
    @ 22,2 SAY 'IMPROPER FIELD NAME'
    SET COLOR TO W/N
    ? CHR(7)
    @ 22,2 SAY ' '
    STORE TN-1 TO TN
  LOOP
ENDIF
*
```

```

IF &TY # 'N' .AND. &TY # 'C'
STORE .F. TO FLAG1
ENDIF
*
IF .NOT. FLAG1
SET COLOR TO W+/N
@22,2 SAY 'IMPROPER FIELD TYPE'
SET COLOR TO W/N
?CHR(7)
@22,2 SAY '
STORE TN-1 TO TN
LOOP
ENDIF
*
IF TRIM(&OP) # '=' .AND. TRIM(&OP) # '<' .AND. TRIM(&OP) # '>'
  .AND. TRIM(&OP) # '◇' .AND. TRIM(&OP) # '<=' .AND. TRIM(&OP) #
  ';>='
STORE .F. TO FLAG1
ENDIF
*
IF .NOT. FLAG1
SET COLOR TO W+/N
@ 22,2 SAY 'IMPROPER OPERATOR'
SET COLOR TO W/N
?CHR(7)
@ 22,2 SAY '
STORE TN-1 TO TN
LOOP
ENDIF
*
ENDDO
STORE 0 TO LINE
STORE 0 TO TC
CLEAR
DO WHILE TC<TN
STORE TC+1 TO TC
STORE CHR(64+TC) TO FD
STORE CHR(70+TC) TO TY
STORE CHR(76+TC) TO OP
STORE CHR(82+TC) TO ST
@ ROW()+1,5 SAY FD +": "+TRIM(&FD)+' '+ TRIM(&OP)+ " '" + TRIM(&ST)+'"' "
*
IF UPPER(&TY) = 'C'
STORE ' '+TRIM(UPPER(&FD))+' '+TRIM(&OP)+" '" +TRIM(UPPER(&ST))+"'" TO &FD
ENDIF
*
IF UPPER(&TY) = 'N'
STORE ' '+TRIM(&FD)+' '+TRIM(&OP)+' '+TRIM(&ST) TO &FD
ENDIF
*
ENDDO WHILE TC
STORE .T. TO ERR

```

```

STORE ' ' TO BOOL
DO WHILE ERR
  CLEAR GET
  STORE .F. TO ERR
  @ ROW()+2,5 SAY 'USE THE CODES ON THE RIGHT TO
OPERATOR'
  @ ROW()+1,5 SAY 'WRITE A BOOLEAN EXPRESSION
  @ ROW()+1,5 SAY '[e.g., (A+B)*(C+D) represents
  @ ROW()+1,5 SAY '(A and B) or (C and D)]'
  @ ROW()+2,15 GET BOOL
  READ
  *
  IF UPPER(BOOL) = 'R' .OR. BOOL = ''
  RETURN
  ENDIF UPPER(BOOL)
  *
  STORE LEN(TRIM(BOOL)) TO LENG
  STORE LENG-1 TO LR
  STORE ' ' TO EXPR
  DO WHILE LR>=0
    STORE SUBSTR(BOOL,LENG-LR,1) TO CDR
    DO CASE
      CASE ASC(CDR)>45
        EXPR=TRIM(EXPR)+&CDR
      CASE ASC(CDR)=40 .OR. ASC(CDR)=41
        EXPR=TRIM(EXPR)+CDR
      CASE ASC(CDR)=43
        EXPR=TRIM(EXPR)+' .AND. '
      CASE ASC(CDR)=42
        EXPR=TRIM(EXPR)+' .OR. '
      OTHERWISE
        STORE .T. TO ERR
        CLEAR
        SET COLOR TO W+/N
        @ ROW(),5 SAY 'ILLEGAL CHARACTER IN EXPRESSION'
        SET COLOR TO W/N
        ? CHR(7)
        ENDCASE
    STORE LR-1 TO LR
  ENDDO WHILE LR>=
ENDDO WHILE ERR
@ 15,1 SAY 'EXPRESSION: '
@ 15,14 SAY EXPR
@ 18,5 SAY ' '
WAIT
USE HPLAN
COUNT FOR &EXPR TO XTOT
GO TOP
COUNT TO TOT
PCT = (XTOT/TOT)*100
GO TOP
CLEAR

```

CODE	BOOLEAN
*	OR'
+	AND'

```

*
IF XTOT=0
@ 10,5 SAY ' NO PROJECTS EXIST WITH THE SPECIFIED CRITERIA.'
@ 18,5 SAY ' '
WAIT
RETURN
ENDIF
*
@ 5,15 SAY XTOT PICTURE '999'
@ 5,COL()+1 SAY ' PROJECT(S) MEET(S) THE FOLLOWING CRITERIA:'
@ 7,5 SAY EXPR
@ 9,5 SAY ' THIS REPRESENTS: '
@ 11, 5 SAY PCT PICTURE '999.99'
@ 11,COL()+1 SAY '% OF THE '
@ 11,COL() SAY TOT PICTURE '9999'
@ 11,COL()+1 SAY ' ENERGY CONSERVATION PROJECTS'
@ 13,5 SAY ' '
WAIT
STORE .T. TO OPTION
DO WHILE OPTION
CLEAR
STORE 0 TO AN
@ 5,15 SAY 'FOR THE PROJECTS THAT MEET THESE CRITERIA:'
@ 8,15 SAY '(1) DISPLAY PROJECT TITLES ON SCREEN'
@ 10,15 SAY '(2) PRINT PROJECT TITLES'
@ 12,15 SAY '(3) PRINT PROJECT INFORMATION'
@ 14,15 SAY '(4) RETURN TO SEARCH MENU'
@ 16,15 SAY '(5) RETURN TO MAIN MENU'
SET COLOR TO B+/N
@ 7,14 TO 17,58
@ 4,14 TO 6,58
SET COLOR TO W/N
@ 18,15 SAY 'PLEASE SELECT A NUMBER: 'GET AN PICTURE '9'
READ
DO SBOOLCASE
ENDDO OPTION
USE
RELEASE ALL
RETURN

```



```

*****SBOOLCAS.PRG*****
***          THIS IS A SUBPROGRAM SUPPORTING SBOOL.PRG          ***
*****
**
DO CASE
CASE AN = 0
STORE .F. TO OPTION
STORE .F. TO SEARCH
RETURN
CASE AN = 4
STORE .F. TO OPTION
STORE .T. TO SEARCH
RETURN
CASE AN = 5
RETURN TO MASTER
CASE AN = 1
CLEAR
USE HPLAN
STORE 1 TO R
@ 2,0 SAY 'PRJNO PROJECT TITLE'
@ 3,0 SAY ' '
DISPLAY ALL FIELDS PRJNO,      PRJTITLE FOR &EXPR OFF
@ ROW()+5,10 SAY ' '
WAIT
CASE AN = 2
CLEAR
USE HPLAN
DISPLAY ALL FIELDS PRJNO, PRJTITLE FOR &EXPR OFF TO PRINT
CASE AN = 3
STORE .T. TO EX
STORE 0 TO R
DO WHILE EX
USE HPLAN
STORE 1+R TO R
*
IF R > TOT
RETURN
ENDIF
*
GOTO R
LOCATE NEXT 999 FOR &EXPR
STORE RECNO() TO R
DO REP2
*
IF EOF()
STORE .F. TO EX
ENDIF
*
ENDDO
SET DEVICE TO SCREEN
ENDCASE
RETURN

```

```

*****SKEY.PRG*****
***          THIS PROGRAM SEARCHES THE DATA BASE ON KEYWORDS          ***
*****
STORE .T. TO KEY
DO WHILE KEY
  CLEAR
  @ 1,5 SAY 'YOU MAY ENTER UP TO SIX KEYWORDS. REFER TO THE LIST OF VALID'
  @ 2,5 SAY 'TYPES SHOWN ON THE RIGHT AND ENTER THE ASSOCIATED CODE (e.g.,ARE)
    IN'
  @ 3,5 SAY 'THE TYPE COLUMN. KEYWORDS CAN BE ALL ONE TYPE, OR DIFFERENT
TYPES'
  @ 6,5 SAY 'TYPE                KEYWORD                TYPE CODES '
  @ 7,5 SAY '_____
STORE 0 TO TN
  @ 8,44 SAY 'AREA (ARE)'
  @ 9,44 SAY 'CONTRACTOR (CON)'
  @ 10,44 SAY 'ENERGY FORM SAVED (FOR)'
  @ 11,44 SAY 'ENERGY TYPE SAVED (TYPE)'
  @ 12,44 SAY 'OTHER (OTH)'
  DO WHILE TN < 7
    STORE TN+1 TO TN
    STORE CHR(TN+64) TO TYPE
    STORE CHR(TN+70) TO KEY
    STORE ' ' TO &TYPE
    STORE ' ' TO &KEY
    @ TN+7,5 GET &TYPE
    @ TN+7,12 GET &KEY
    READ
    CLEAR GET
    *
    IF &TYPE # 'ARE' .AND. &TYPE # ' ' .AND. &TYPE # 'CON' .AND.
    &TYPE # 'FOR' .AND. &TYPE # 'TYPE' .AND. &TYPE # 'OTH'
    STORE TN-2 TO TN
    LOOP
    ENDIF
    *
    IF &TYPE = ' '
    STORE TN-1 TO TN
    EXIT
    ENDIF
    *
    STORE .F. TO FLAG1
    STORE 0 TO LL
    DO WHILE LL<24
      STORE 1+LL TO LL
      STORE CHR(LL+64) TO CODE
      *
      IF TRIM(&CODE) = TRIM(&TYPE)
      STORE .T. TO FLAG1
      EXIT
      ENDIF
      *

```

```

        ENDDO
    *
    IF .NOT. FLAG1
    @ 22,2 SAY 'IMPROPER TYPE CODE'
    ? CHR(7)
    @ 22,2 SAY '
    STORE TN-I TO TN
    LOOP
    ENDIF
    *
    ENDDO
STORE 0 TO TC
CLEAR
DO WHILE TC<TN
    STORE TC+1 TO TC
    STORE CHR(64+TC) TO TYPE
    STORE CHR(70+TC) TO KEY
    @ 1,5 SAY TYPE+": KEYWORD <"+TRIM(&KEY)+>"
    STORE ""+TRIM(&KEY)+"'" TO &KEY
    STORE TRIM(&TYPE)
+ '1'+ '='+&KEY+' .OR. '+TRIM(&TYPE)+'2'+ '='+&KEY+' .OR. '+TRIM(&TYPE)+'3'
    + '='+&KEY TO TY
    STORE UPPER(TY) TO TY
    *
    IF TC =1
    USE HPLKEY
    ELSE
    USE &FILE
    ENDIF
    *
    STORE 'FILE'+CHR(64+TC) TO FILE
    SET FILTER TO &TY
    COPY TO &FILE
    *
    ENDDO WHILE TC
USE &FILE
COUNT TO XTOT
USE HPLKEY
GO TOP
COUNT TO TOT
USE
PCT = (XTOT/TOT)*100
*
IF XTOT = 0
CLEAR
@ 10,5 SAY 'NO PROJECTS FOUND IN KEYWORD SEARCH.'
@ 15,5 SAY ' '
WAIT
STORE .T. TO SEARCH
RETURN
ENDIF
*
```

```

@ 8,1 CLEAR
@ ROW()+3,15 SAY XTOT PICTURE '999'
@ ROW(),19 SAY ' PROJECT(S) LIST THE SPECIFIED KEYWORDS:'
@ ROW()+2,5 SAY 'THIS REPRESENTS '
@ ROW(),COL()+1 SAY PCT PICTURE '999.99'
@ ROW(),COL()+1 SAY 'PERCENT OF THE '
@ ROW(),COL() SAY TOT PICTURE '9999'
@ ROW(),COL()+1 SAY 'CONSERVATION PROJECTS'
@ ROW()+1,5 SAY ' '
WAIT
STORE .T. TO OPTION
DO WHILE OPTION
  CLEAR
  STORE 0 TO AN
  @ 5,20 SAY 'FOR THE PROJECTS THAT LIST THESE KEYWORDS:'
  @ 4,19 TO 6,64
  @ 8,20 SAY '(1) DISPLAY PROJECT TITLES ON SCREEN'
  @ 10,20 SAY '(2) PRINT PROJECT TITLES'
  @ 12,20 SAY '(3) PRINT PROJECT INFORMATION'
  @ 14,20 SAY '(4) RETURN TO KEYWORD SEARCH'
  @ 16,20 SAY '(5) RETURN TO MAIN MENU'
  @ 7,19 TO 17,64
  @ 18,27 SAY 'PLEASE SELECT AN OPTION: 'GET AN PICTURE '9'
  READ
  SELECT 1
  USE &FILE
  SELECT 2
  USE HPLAN
  **
DO CASE
  CASE AN = 5
    CLEAR ALL
    STORE .F. TO SEARCH
    STORE .F. TO OPTION
    STORE .F. TO KEY
    RETURN TO MASTER
  CASE AN=4
    STORE .F. TO OPTION
    STORE .T. TO SEARCH
    CLEAR
    RETURN
  CASE AN = 1
    SET HEADING OFF
    CLEAR
    @ 2,1 SAY 'PROJECT TITLE'
    @ 4,1 SAY ' '
    STORE 1 TO R
    DO WHILE R<=XTOT
      SELECT 1
      GOTO R
      SELECT 2
      LOCATE FOR PRJNO=A->PRJNO

```

```

        DISPLAY PRJTITLE OFF
        STORE 1+R TO R
        ENDDO R<=XTOT
    @ ROW()+5,5 SAY ' '
    WAIT
    CLEAR
    SET HEADING ON
CASE AN = 2
    CLEAR
    SET HEADING OFF
    SET DEVICE TO PRINT
    @ ROW()+2,10 SAY 'PROJECT TITLE'
    @ ROW()+2,10 SAY ' '
    STORE 1 TO R
    DO WHILE R<=XTOT
        SELECT 1
        GOTO R
        SELECT 2
        LOCATE FOR PRJNO=A->PRJNO
        @ PROW()+1,10 SAY PRJNO
        @ PROW(),15 SAY PRJTITLE
        STORE 1+R TO R
        ENDDO R<=XTOT
    SET DEVICE TO SCREEN
    SET HEADING ON
    CLEAR
CASE AN = 3
    CLEAR
    SET DEVICE TO PRINT
    STORE 1 TO T
    DO WHILE T<=XTOT
        SELECT 1
        GOTO T
        SELECT 2
        LOCATE FOR PRJNO=A->PRJNO
        STORE RECNO() TO R
        DO REP2
        STORE 1+T TO T
        SET DEVICE TO SCREEN
        ENDDO T<=XTOT
    ENDCASE
    ENDDO OPTION
    ENDDO KEY
    CLEAR ALL
    RETURN

```

```

*****STITLE.PRG*****
***      THIS PROGRAM SEARCHES THE DATA BASE BY PROJECT TITLE      ***
*****
STORE .T. TO aTL
DO WHILE aTL
  USE HPLAN INDEX HPLT
  STORE .T. TO ST
  DO WHILE ST
    CLEAR
    @ ROW()+10,15 SAY 'ENTER TITLE TO SEARCH FOR : '
    @ ROW()+3,15 SAY ' '
    ACCEPT "                TITLE: " TO mTL
    LOCATE FOR PRJTITLE =UPPER(mTL)
    STORE PRJNO TO pNUM
    STORE PRJTITLE TO mTITLE
    CLEAR
    *
    IF EOF()
      CLEAR
      @ ROW()+5,33 SAY 'TITLE NOT FOUND'
      @ ROW()+2,37 SAY 'SELECT:'
      @ 6,25 TO 8,55
      STORE 0 TO SEL
      DO WHILE SEL>3 .OR. SEL<1
        @ ROW()+3,27 SAY '(1) ENTER ANOTHER TITLE'
        @ ROW()+2,27 SAY '(2) RETURN TO SEARCH MENU'
        @ ROW()+2,27 SAY '(3) RETURN TO MAIN MENU'
        @ 9,25 TO 16,55
        @ ROW()+2,27 SAY 'PLEASE SELECT A NUMBER: ' GET SEL PICTURE '9'
        STORE 0 TO SEL
        READ
      ENDDO SEL
      **
      DO CASE
      CASE SEL = 1
        LOOP
      CASE SEL = 2
        RETURN
      CASE SEL = 3
        RETURN TO MASTER
      ENDCASE
      ELSE
        STORE .F. TO ST
      ENDIF EOF
      *
    ENDDO ST
  SET INDEX TO HPLT
  STORE .T. TO OPT
  DO WHILE OPT
    CLEAR
    STORE 0 TO INF
    DO WHILE INF>10 .OR. INF<1

```

```

@ 5,14 SAY 'SELECT PROJECT INFORMATION TO BE DISPLAYED ON SCREEN'
@ 4,5 TO 6,75
@ 8,6 SAY '(1) PROJECT IDENTIFICATION          (6) ENERGY SAVINGS AND
  BENEFITS'
@ 9,6 SAY '(2) PROJECT DESCRIPTION              (7) PROJECT COSTS'
@ 10,6 SAY '(3) PROJECT JUSTIFICATION           (8) PROJECT SCHEDULE'
@ 11,6 SAY '(4) PROJECT MANAGEMENT              (9) ALL'
@ 12,6 SAY '(5) CONTACTS                        (10) RETURN TO MAIN MENU'
@ 7,5 TO 13,75
@ 14,25 SAY 'PLEASE SELECT A NUMBER: ' GET INF PICTURE '99'
STORE 0 TO INF
READ
ENDDO
*
IF INF = 1 .OR. INF = 9
USE HPLAN
LOCATE FOR PRJNO = pNUM
SET FORMAT TO SCR1
READ
@ ROW()+5,2 SAY ' '
WAIT
CLOSE FORMAT
USE
ENDIF
*
IF INF = 2 .OR. INF = 9
CLEAR
USE HPLMEM
LOCATE FOR PRJNO = pNUM
@ 2,5 SAY 'PROJECT DESCRIPTION:'
@ 4,5 SAY ' '
DISPLAY DESCRIPTN OFF
USE
@ ROW()+5, 5 SAY ' '
WAIT
ENDIF
*
IF INF = 3 .OR. INF = 9
CLEAR
USE HPLMEM
LOCATE FOR PRJNO = pNUM
@ 2,5 SAY 'PROJECT JUSTIFICATION:'
@ 4,5 SAY ' '
DISPLAY JUSTIFICTN OFF
USE
@ ROW()+5,5 SAY ' '
WAIT
ENDIF
*
IF INF = 4
USE HPLAN
LOCATE FOR PRJNO = pNUM

```

```

SET FORMAT TO SCR1
READ
@ ROW()+5,5 SAY ' '
WAIT
CLOSE FORMAT
USE
ENDIF
*
IF INF = 5 .OR. INF = 9
USE HPLAN
LOCATE FOR PRJNO = pNUM
SET FORMAT TO SCR2
READ
@ ROW()+5,5 SAY ' '
WAIT
CLOSE FORMAT
USE
ENDIF
*
IF INF = 8 .OR. INF = 9
CLEAR
USE HPLMEM
LOCATE FOR PRJNO = pNUM
@2,5 SAY 'PROJECT SCHEDULE:'
@4,5 SAY ' '
DISPLAY SCHEDULE OFF
USE
@ROW()+5,5 SAY ' '
WAIT
ENDIF
*
IF INF = 6 .OR. INF = 7 .OR. INF = 9
USE HPLAN
LOCATE FOR PRJNO = pNUM
SET FORMAT TO SCR3
READ
@ ROW()+5,5 SAY ' '
WAIT
CLOSE FORMAT
USE
ENDIF
*
IF INF = 10
STORE .F. TO OPT
STORE .F. TO aTL
STORE .F. TO SEARCH
EXIT
ENDIF
*
STORE 0 TO aSEL
DO WHILE aSEL > 4 .OR. aSEL < 1
CLEAR

```



```

@ ROW()+5,34 SAY 'SELECT:'
@ 4,15 TO 6,60
@ ROW()+3,16 SAY '(1)  DISPLAY ADDITIONAL INFORMATION FOR:'
@ ROW()+2,20 SAY '      "'+ TRIM(mTITLE) + '"'
@ ROW()+2,16 SAY '(2)  SEARCH FOR ANOTHER TITLE'
@ ROW()+2,16 SAY '(3)  RETURN TO SEARCH MENU'
@ ROW()+2,16 SAY '(4)  RETURN TO MAIN MENU'
@ 7,15 TO 18,60
@ ROW()+3,25 SAY ' PLEASE SELECT A NUMBER: ' GET aSEL PICTURE '9'
STORE 0 TO aSEL
READ
ENDDO
**
DO CASE
CASE aSEL = 1
  ENDDO OPT
CASE aSEL = 2
  STORE .F. TO OPT
CASE aSEL = 3
  STORE .F. TO OPT
  STORE .F. TO aTL
  RETURN
CASE aSEL = 4
  RETURN TO MASTER
ENDCASE
@ 15,5 SAY ' '
ENDDO OPT
ENDDO aTL
RELEASE ALL
RETURN

```

```

*****REPORT.PRG*****
***          THIS PROGRAM DISPLAYS THE REPORT MENU ON SCREEN AND          ***
***          ALLOWS VARIOUS REPORTING OPTIONS                            ***
*****
SET TALK OFF
SET DEVICE TO SCREEN
***
*** REPORT MENU SET-UP
***
CLEAR
@ 2,15 SAY ' HANFORD ENERGY CONSERVATION PROJECT DATA BASE '
@ 5,31 SAY ' REPORT MENU '
@ 4,19 TO 6,55 DOUBLE
@ 8,20 SAY '(1) PRINT STANDARD PROJECT REPORT'
@ 10,20 SAY '(2) PRINT EXPANDED PROJECT REPORT'
@ 12,20 SAY '(3) RETURN TO MAIN MENU'
@ 7,19 TO 13,55 DOUBLE
STORE 0 TO RM
@14,25 SAY 'PLEASE SELECT A NUMBER:' GET RM PICTURE '9'
READ
*
IF RM>3 .OR. RM<1
DO REPORT
ENDIF RM
*
IF RM # 3
CLEAR
@ ROW()+2,5 SAY 'TURN ON PRINTER, SET PAPER AT TOP OF PAGE, AND'
@ ROW()+1,5 SAY 'PRESS "TOF" BUTTON ON PRINTER'
@ ROW()+5,5 SAY ' '
WAIT
ENDIF
*
**
DO CASE
CASE RM = 1
  STORE 'REP2' TO REP
CASE RM = 2
  STORE 'REP3' TO REP
CASE RM = 3
  RETURN TO MASTER
ENDCASE
CLEAR
SET DEVICE TO SCREEN
STORE 0 TO OP
DO WHILE OP > 2 .OR. OP < 1
@ 5,25 SAY 'PRINT PROJECT DESCRIPTION SHEETS'
@ 10,30 SAY '(1) ALL PROJECTS'
@ 12,30 SAY '(2) SELECT A PROJECT'
@ 8,28 TO 14,51
@ 17,28 SAY 'PLEASE SELECT AN OPTION:' GET OP PICTURE '9'
READ

```

```

ENDDO OP
**
DO CASE
CASE OP = 1
  USE HPLAN INDEX HPLT
  COUNT TO TT
  GOTO 1
  STORE RECNO() TO R
  DO WHILE .NOT. EOF()
    GOTO R
    DO &REP
    *
    IF R<= TT
      STORE 1 + R TO R
    ENDIF
    *
    IF R>TT
      USE
      EXIT
    ENDIF
    *
  ENDDO
CASE OP = 2
  STORE .T. TO TI
  DO WHILE TI
    CLEAR
    STORE ' ' TO pTITLE
    @ 3,5 SAY 'PRINT PROJECT REPORT FOR WHICH PROJECT?:'
    @ 5,5 SAY 'ENTER PROJECT TITLE:'
    @ 8,1 GET pTITLE
    READ
    USE HPLAN INDEX HPLT
    DO WHILE .NOT. EOF()
      LOCATE FOR PRJTITLE = UPPER(pTITLE)
      *
      IF EOF()
        CLEAR
        @ 2,5 SAY 'TITLE NOT FOUND'
        STORE 'Y' TO ANS
        @ 3,5 SAY 'WOULD YOU LIKE TO ENTER ANOTHER TITLE? [Y/N]: ' GET ANS
        READ
        *
        IF UPPER(ANS) = 'Y'
          LOOP
        ENDIF ANS
        *
        IF UPPER(ANS) # 'Y'
          STORE .F. TO TI
          EXIT
        ENDIF ANS
        *
      ENDIF EOF
    
```

```
      *  
      STORE RECNO() TO R  
      DO &REP  
      STORE .F. TO TI  
      CLEAR  
      DO REPORT  
      ENDDO EOF  
    ENDDO TI  
  ENDCASE  
SET DEVICE TO SCREEN  
CLEAR ALL  
RETURN
```

```

*****REP2.PRG*****
***          PRINTS BRIEF PROJECT DESCRIPTION SHEETS          ***
*****
SET TALK OFF
CLEAR
LOCATE FOR PRJNO = R
SET DEVICE TO PRINT
@ 3,25 SAY 'HANFORD ENERGY CONSERVATION PLAN'
@ 5,10 SAY 'Project Title:'
@ 5,27 SAY PRJTITLE
@ 7,10 SAY 'Current Status:'
@ 7,27 SAY CUR_STATUS
@ 9,10 SAY 'Project Manager:'
@ 9,27 SAY PMGR
@ 11,10 SAY 'Project Location:'
@ 11,27 SAY PJ_LOCAT
@ 13,10 SAY 'Project Cost:'
@ 13,27 SAY PJ_COST
@ 14,10 SAY 'Project Spending to Date:'
@ 14,27 SAY PJ_SPENDNG
@ 16,10 SAY 'Energy Savings, kWh:'
@ 16,27 SAY ESAVG_KWH
@ 17,10 SAY 'Other Savings, BTU:'
@ 17,27 SAY OSAVG_BTU
@ 18,10 SAY 'Non-Energy Benefits:'
@ 18,35 SAY NEB_1
@ 19,35 SAY NEB_2
@ 20,35 SAY NEB_3
EJECT
SET DEVICE TO SCREEN
RETURN

```

```

*****REP3.PRG*****
***                PRINTS EXTENDED PROJECT DESCRIPTION SHEETS                ***
*****

SET TALK OFF
CLEAR
USE HPLAN
LOCATE FOR PRJNO = R
SET DEVICE TO PRINT
@ 3,25 SAY 'HANFORD ENERGY CONSERVATION PROJECT'
@ 5,10 SAY 'Project Title:'
@ 5,27 SAY PRJTITLE
@ 7,10 SAY 'Current Status:'
@ 7,27 SAY CUR_STATUS
@ 9,10 SAY 'Project Manager:'
@ 9,27 SAY PMGR
@ 10,27 SAY PMGR_CO
@ 11,27 SAY PMGR_PHONE
@ 12,27 SAY PMGR_MADD
@ 14,10 SAY 'Research Contact:'
@ 14,30 SAY RC_NAME
@ 15,30 SAY RC_TITLE
@ 16,30 SAY RC_CO
@ 17,30 SAY RC_PHONE
@ 18,30 SAY RC_MADD
@ 20,10 SAY 'Other Contacts:'
@ 20,27 SAY OC1_NAME
@ 21,27 SAY OC1_CO
@ 22,27 SAY OC1_PHONE
@ 23,27 SAY OC1_MADD
@ 25,27 SAY OC2_NAME
@ 26,27 SAY OC2_CO
@ 27,27 SAY OC2_PHONE
@ 28,27 SAY OC2_MADD
@ 30,10 SAY 'Project Location:'
@ 30,29 SAY PJ_LOCAT
@ 32,10 SAY 'Project Cost:'
@ 32,31 SAY PJ_COST
@ 33,10 SAY 'Project Spending:'
@ 33,27 SAY PJ_SPENDNG
@ 35,10 SAY 'Energy Savings, kWh:'
@ 35,27 SAY ESAVG_KWH
@ 36,10 SAY 'Energy Savings, BTU:'
@ 36,27 SAY OSAVG_BTU
@ 38,10 SAY 'Non-Energy Benefits:'
@ 38,32 SAY NEB_1
@ 39,32 SAY NEB_2
@ 40,32 SAY NEB_3
USE HPLMEM
GOTO R
@ PROW()+5,1 SAY 'PROJECT DESCRIPTION:'
@ PROW()+2,1 SAY ' '
DISPLAY DESCRIPTN OFF TO PRINT

```

```

*
IF PROW() >50
EJECT
ENDIF
*
@ PROW()+2,1 SAY ' '
@ PROW()+3,1 SAY 'PROJECT JUSTIFICATION:'
@ PROW()+2,1 SAY ' '
DISPLAY JUSTIFICTN OFF TO PRINT
*
IF PROW() >50
EJECT
ENDIF
*
@ PROW()+2,1 SAY ' '
@ PROW()+3,1 SAY 'PROJECT SCHEDULE:'
@ PROW()+2,1 SAY ' '
DISPLAY SCHEDULE OFF TO PRINT
EJECT
SET PRINT OFF
SET DEVICE TO SCREEN
RELEASE ALL EXCEPT R
RETURN

```

```

*****HELP.PRG*****
***   THIS SUBPROGRAM PROVIDES A BRIEF DESCRIPTION OF THE OPTIONS   ***
***   AVAILABLE FROM THE MAIN MENU                                   ***
*****
STORE 0 TO HP
CLEAR
@ 4,28 SAY 'HELP MENU'
@ 8,25 SAY '(1)  ENTERING'
@ 10,25 SAY '(2)  EDITING'
@ 12,25 SAY '(3)  REPORTING'
@ 14,25 SAY '(4)  SEARCHING'
@ 16,25 SAY '(5)  EXITING'
SET COLOR TO B+/N
@ 3,23 TO 5,42 DOUBLE
@ 6,23 TO 18,42 DOUBLE
SET COLOR TO W/N
@ 20,10 SAY 'SELECT THE ITEM FOR WHICH HELP IS REQUIRED: 'GET HP PICTURE '9'
READ
*
IF HP > 5 .OR. HP < 1
DO HELP
ENDIF HP
*
CLEAR
*
**
DO CASE
CASE HP = 1
  SET COLOR TO W+/N
  TEXT
  ENTER DATA: This option allows a new project to be added to the data
                base. Formatted screens are presented for entering data.
                Type the requested information in the highlighted spaces.
                Use the <RETURN> key to move from one item to the next.
                The position arrows can also be used. If the data
                completely fills the space provided, the cursor will
                automatically jump to the next item. When you are through
                entering data on a particular screen, press PgDn to go
                to the next screen.

                For additional information refer to Section 4.2 of
                the User Manual.

  ENDTEXT
  SET COLOR TO W/N
  WAIT
CASE HP=2
  SET COLOR TO W+/N
  TEXT
  EDIT DATA:  This option allows the existing data to be changed.
                Formatted screens are presented, showing the data that
                is currently in the data base. To make a correction,

```


the new data is typed over the existing data. The user has the option to edit all data, in which case each formatted screen is displayed sequentially, or to edit a given data set, in which case only the pertinent screens are presented.

For additional information refer to Section 4.3 of the User Manual.

```
ENDTEXT
SET COLOR TO W/N
WAIT
CASE HP =3
SET COLOR TO W+/N
TEXT
PRINT REPORT: There are two reporting formats: (1) A brief project
description sheet, and (2) an expanded project
description sheet, The user can elect to print reports
for all projects in the data base, or for a given project.
```

For additional information refer to Section 4.4 of the User Manual.

```
ENDTEXT
SET COLOR TO W/N
WAIT
CASE HP=4
SET COLOR TO W+/N
TEXT
SEARCH: This program option allows the user to search the data base for
a given project title, for a combination of keywords, or
for a combination of field constraints combined in a
boolean expression. The title search program option allows the
user to display all or selected information for that project
on the screen. The keyword search and boolean search
program options allow the user to display the titles of the
projects that meet the specified conditions on the screen,
print the titles, or print expanded description sheets
for the projects.
```

For additional information refer to Section 4.5 of the User Manual.

```
ENDTEXT
SET COLOR TO W/N
WAIT
CASE HP=5
SET COLOR TO W+/N
TEXT
EXIT: This option returns the user to the DOS operating system.
For additional information refer to Section 4.7 of the
User Manual.
```

```
ENDTEXT  
  SET COLOR TO W/N  
  WAIT  
ENDCASE  
RETURN
```

*****SCR1.FMT*****
*** FORMATTED SCREEN #1 FOR ADDING RECORDS TO GENERAL FILES ***

CLEAR

@1,2 SAY '1. Project Title' GET PRJTITLE
@3,2 SAY '2. Current Status' GET CUR_STATUS
@5,2 SAY '3. Project Manager'
@6,2 SAY ' A. Name:' GET PMGR
@7,2 SAY ' B. Phone:' GET PMGR_PHONE
@8,2 SAY ' C. Company:' GET PMGR_CO
@9,2 SAY ' D. Mailing Address:' GET PMGR_MADD
@11,2 SAY '4. Research Contact'
@12,2 SAY ' A. Name:' GET RC_NAME
@13,2 SAY ' B. Title:' GET RC_TITLE
@14,2 SAY ' C. Company:' GET RC_CO
@15,2 SAY ' D. Phone:' GET RC_PHONE
@16,2 SAY ' E. Mailing Address:' GET RC_MADD

*****SCR2.FMT*****
*** FORMATTED SCREEN #2 FOR ADDING RECORDS TO GENERAL FILES ***

CLEAR

@1,2 SAY 'PROJECT TITLE: ' + PRJTITLE
@3,2 SAY 'Contact in Operations and Construction'
@5,2 SAY '5A. Name:' GET OC1_NAME
@6,2 SAY '5B. Company:' GET OC1_CO
@7,2 SAY '5C. Phone:' GET OC1_PHONE
@8,2 SAY '5D. Mailing Address:' GET OC1_MADD
@11,2 SAY '6A. Name:' GET OC2_NAME
@12,2 SAY '6B. Company:' GET OC2_CO
@13,2 SAY '6C. Phone:' GET OC2_PHONE
@14,2 SAY '6D. Mailing Address:' GET OC2_MADD

```

*****SCR3.FMT*****
***      FORMATTED SCREEN #3 FOR ADDING RECORDS TO GENERAL FILES      ***
*****
CLEAR
@1,2 SAY 'PROJECT TITLE:      '+PRJTITLE
@3,2 SAY '7.  Project Location:' GET PJ_LOCAT
@5,2 SAY '8.  Funding'
@6,4 SAY 'A.  Project Cost:' GET PJ_COST
@7,4 SAY 'B.  Project Spending:' GET PJ_SPENDNG
@9,2 SAY '9.  Benefits'
@10,4 SAY 'A.  Electrical Savings, kWh:' GET ESAVG_KWH
@11,4 SAY 'B.  Other Savings, BTU:' GET OSAVG_BTU
@12,4 SAY 'C.  Non-economic Benefit #1:' GET NEB_1
@13,4 SAY 'D.  Non-economic Benefit #2:' GET NEB_2
@14,4 SAY 'E.  Non-economic Benefit #3:' GET NEB_3

```

```

*****SCR4.FMT*****
***      FORMATTED SCREEN #4 FOR ADDING RECORDS TO GENERAL FILES      ***
*****
CLEAR
@1,5 SAY 'Project Title:      ' +pTITLE
@3,10 SAY '10.  TECHNICAL KEYWORDS'
@5,13 SAY 'A.  AFFECTED AREA(S)'
@6,15 SAY '1.' GET ARE1
@7,15 SAY '2.' GET ARE2
@8,15 SAY '3.' GET ARE3
@10,13 SAY 'B.  CONTRACTOR(S) IN WORKING AREA'
@11,15 SAY '1.' GET CON1
@13,13 SAY 'C.  FORM OF ENERGY SAVED'
@14,15 SAY '1.' GET FOR1
@15,15 SAY '2.' GET FOR2
@17,13 SAY 'D.  TYPE OF ENERGY SAVED'
@18,15 SAY '1.' GET TYPE1
@20,13 SAY 'E.  OTHER'
@21,15 SAY '1.' GET OTH1
@22,15 SAY '2.' GET OTH2
@23,15 SAY '3.' GET OTH3

```

```

*****SRC5.FMT*****
***      FORMATTED SCREEN #5 FOR ADDING RECORDS TO GENERAL FILES      ***
*****
CLEAR
@1,2 SAY 'PROJECT TITLE:          '+pTITLE
@5,2 SAY 'Press <CtrlX>PgDn> to edit the project description,'
@6,2 SAY '  project justification, or project schedule, '
@7,2 SAY '  place the cursor on the appropriate "memo" block'
@8,2 SAY '  using <RETURN>.'
@10,2 SAY 'To save your changes, press <CtrlX>PgUp>'
@11,2 SAY ' <RETURN> takes you back'
@13,2 SAY ' Project Description:  ' GET DESCRIPTN
@15,2 SAY ' Project Justification:  ' GET JUSTIFICTN
@17,2 SAY ' Project Schedule:  ' GET SCHEDULE

```


APPENDIX C

TROUBLE-SHOOTING GUIDE

APPENDIX C

TROUBLE-SHOOTING GUIDE

This appendix provides instructions for recovering from certain abnormal events that may occur during the execution of the Hanford Energy Conservation Project Data Base. Included in this section are discussions of the following:

- Abnormal Termination
- Disk Full Message
- Loss of Data

ABNORMAL TERMINATION

The adaption of any newly developed computer code raises the possibility of abnormal termination during the execution of the code. In the event that this should occur during the execution of the Hanford Energy Conservation Project Data Base, a general message will be printed on the screen: (1) indicating the type of problem that has occurred and the program and/or subprogram(s) in which the problem occurred, and (2) asking the user whether the command file should be terminated.

When the screen asks whether or not to terminate the command file, the following steps should be taken:

1. Type Y to terminate the command file.
2. Type CLEAR ALL to close any open files.
3. Type DO MENU to restart the applications program.
4. If termination occurred during the data entry (ADD.PRG) or the data edit (EDIT.PRG) program, you should check the data base to see if the data you were entering before the termination has been stored. The edit program or the title search program can be used to display the project information on the screen for this check.

DISK FULL MESSAGE

Each time you add data to a data base or edit a data base, a backup file or the original data base is automatically made. The backup file has the same file name as the original file and the file extension .BAK. The storage of backup files will at times create a shortage of storage space on the disk (most likely to occur on a floppy disk). Data files should be backed up on

separate disks as discussed in Section 4.7, rather than relying on these backup files. To prevent a disk full error message from occurring, the user can erase the backup files from the disk before entering the dBase III Plus program by typing the following after the DOS prompt:

```
ERASE *.BAK*           This eliminates all backup files on the current drive.
```

If insufficient storage space is encountered during program execution, the following message will appear:

```
Disk full when writing file - FILENAME
```

```
Abort, Ignore, or Delete old files (A, I or D)?
```

Abort

Selecting the abort (A) option causes the program to terminate its attempt to copy the file. The following message will appear:

```
**WARNING** Data will probably be lost
```

```
confirm (Y/N)?
```

If you type Y, the data will be lost and the screen will display the dot prompt. Typing N will produce the disk full error message again.

Ignore

Selecting the ignore (I) option causes the program to reattempt to copy the file. Most likely this will be unsuccessful and the disk full error message will again be displayed.

Delete

Selecting the delete (D) option causes the program to sequentially display all of the files currently stored on the disk. The user is given the option of deleting each file as it appears on the screen in order to make more room on the disk. Files with file extension .BAK should be deleted first. After the entire list has been displayed, the program will automatically continue its attempt to copy the file. If sufficient space is still unavailable, the disk full error message will again appear.

LOSS OF DATA

Loss of data from floppy or hard disk files can occur as a result of power surges or operator error. Surge-protection devices can be used to prevent the occurrence of the first type of data loss. The possibility of the latter occurring can be reduced by becoming familiar with the applications program and with dBase III. If inadvertent data loss occurs, the backup data base file can be copied to the master disk as follows:

IN dBASE III:

1. COPY FILE d1:FILENAME.EXT TO d2:FILENAME.EXT, where d1 and d2 are the source and destination drives, respectively.
2. The screen will state that the file already exists and will ask if you want to overwrite it. Overwriting will delete the faulty information and store the data from the backup file onto the master disk.

IN DOS:

1. COPY d1:FILENAME.EXT d2:FILENAME.EXT, where d1 and d2 are the source and destination drives, respectively.
2. The screen will state that one file has been copied.

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