♲EPA

PREscore Software

Users Manual and Tutorial
Version 1.0

PREscore Software
USERS MANUAL & TUTORIAL

VERSION 1.0

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Solid Waste and Emergency Response
Office of Emergency and Remedial Response
Hazardous Site Evaluation Division
Washington, DC 20460

NOTICE

The procedures set forth here are intended as guidance to employees of the U.S. Environmental Protection Agency (EPA), States, and other government agencies. EPA officials may decide to follow the guidance provided in this directive, or to act at variance with it, based on analysis of site specific circumstances. EPA reserves the right to modify this guidance at any time without public notice.

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Mention of company or product names in this document should not be considered as an endorsement by EPA.

The PREscore software package will be updated periodically. Updating may include modifications to the PREscore and PREprint programs and the users manual. At a minimum, updating will involve the modification of information contained in the PREscore program's hazardous substance information file.

CONTENTS

FIGURES

FIGURES (concluded)

CHAPTER 1

GETTING STARTED

1.1 Introduction: PREscore Software Package

The PREscore software package is comprised of the PREscore and PREprint computer programs and this users manual. The PREscore software package has been developed by EPA Headquarters to assist site assessment investigations and Hazard Ranking System (HRS) scoring by generating a Preliminary Ranking Evaluation score and associated documentation.

The PREscore computer program (PREscore) provides an accurate, efficient, and convenient means of scoring sites using the HRS. PREscore performs HRS calculations from raw data, calculates values from hazardous substance information, and calculates site scores. The PREprint computer program (PREprint) generates HRS scoresheets, an HRS documentation record, and EPA's NPL Characteristics Data Collection form. The PREscore software package assists investigators by reducing time involved in developing site scores, and minimizing potential math errors in scoring. The users manual provides instruction for installing and using PREscore and PREprint.

1.2 PREscore Computer Program

PREscore is the principle component of the PREscore Software package. PREscore was designed to:

- Computerize the scoring system for the HRS
- Provide a user-friendly menu screen system for completing site scores
- Integrate the Superfund Chemical Data Matrix (SCDM) and calculate substance characteristics
- Minimize mathematical scoring errors
- Provide a useful tool for HRS scenario scoring

PREscore automates the HRS, allowing for entry and evaluation of site-related information including sampling data, waste quantities and waste characteristics, physical parameters of the site, and population data. In addition, PREscore allows you to enter administrative and site characteristics information into EPA's NPL Characteristics Data Collection form, which has been incorporated into PREscore. Through PREscore, the majority of pertinent information concerning sites proposed for the NPL can be contained in a single site file (electronic and paper). PREscore also allows you to fully document site scoring by using the PREscore documentation editor. You can enter descriptive narrative text and reference citations to document entered data, selection of specific HRS factor values, and scoring decisions.

PREscore users must be familiar with the HRS. PREscore does not provide detailed HRS instructions; however, help screens are available throughout the program. PREscore does not internally check ("error trap") the logic for assigning all HRS factor values. PREscore is not intended as an HRS training tool or as a substitute for HRS training. Rather, it is intended to make scoring a site and preparing the documentation record quicker and more efficient. Further, while PREscore directly automates the HRS, it cannot address every possible scoring situation. Therefore, you should be aware of the few scoring situations that require PREscore-specific data-entry and the few situations that cannot be accommodated by PREscore programming (see Appendix A).

PREscore contains HRS-related hazardous substance information on over 300 substances derived from SCDM. This includes substance characteristics (such as toxicity and persistence) and concentration

benchmarks for substances commonly found at Superfund sites. The PREscore software package will be updated and redistributed periodically. At these times a new hazardous substance information file will be distributed for incorporation into PREscore (see Appendix B regarding updating individual site files). This will ensure that EPA is using the most recent hazardous substance data available. The documentation record displays the program version number and date of the hazardous substance information file. You are responsible for ensuring that the most current version of PREscore software is being used. If you have questions regarding program updates, notify your EPA Regional computer contact.

1.3 Users Manual & Tutorial

This users manual consists of three parts. Chapter 1, "GETTING STARTED," introduces you to the software package and takes you through the procedures necessary to install PREscore software on your computer. Chapter 2, "TUTORIAL," provides an initial step-by-step "hands-on" lesson in using PREscore by "walking" you through a series of screens, entering and editing data. Chapter 3, "PRINTING," provides instruction for using PREprint, which performs printing functions on PREscore site files.

This manual assumes you have some familiarity with the IBM PC-type platform. Actual scoring of a site with PREscore requires little, if any, knowledge of the Disk Operating System (DOS). However, limited use of DOS will be necessary to install PREscore onto your computer, and to maintain the site files you create. In addition, technical knowledge of your printer may be necessary to produce quality printouts using PREprint. If you are unfamiliar with DOS, consult with others in your office for basic instruction. If you are unfamiliar with your printer, contact your systems administrator.

The tutorial is designed to show how best to use the PREscore and PREprint programs. It is not intended to provide instruction on using the HRS. The Hazard Ranking System (HRS) Guidance Manual (OSWER Directive 9345.1-07) is under development by EPA Headquarters to provide instruction for HRS scoring and preparing NPL listing packages. The example site file used in the tutorial is entirely fictitious.

If, after reviewing the Users Manual & Tutorial, you have questions or comments regarding the operation of the PREscore and PREprint programs, contact your EPA Regional computer contact.

1.4 Hardware Requirements

PREscore software requires an IBM PC or compatible. Specific minimum hardware requirements are:

- 384K of RAM (random access memory)
- 1.0MB of available memory
- MS-DOS 3.1

Site files may be saved/stored on double-density or high-density diskettes (3.5" or 5.25" size). However, due to their size, the programs themselves can only be run from a high-density diskette or a hard drive. PREprint will support most printers (e.g., EPSON, IBM, Hewlett-Packard) and printer types (e.g., dot-matrix, laser).

EPA recommends that PREscore and PREprint be run from a hard disk because this greatly enhances the programs' operation and calculation speed. Directions for creating a PREscore subdirectory on your hard disk are provided in Section 1.5, "Software Installation." PREscore site files may be kept on either the hard disk or a floppy.

PREscore and PREprint were designed as single-user, interactive programs. Therefore, local area network (LAN) compatibility is limited. The software cannot be used as a multi-user application; however, it can be loaded into a LAN environment and used by one user at a time (see Appendix C).

1.5   Software Installation

The installation procedures presented here assume you are starting from the DOS prompt. The DOS prompt consists of a letter (the disk drive currently active) often followed by a colon, backslash, and/or names of subdirectories on your disk (A>, C:\>, C:\FILES> are some examples of DOS prompts). If you do not see the DOS prompt, you may be using one of numerous menu "shell" programs (LAN users, see Appendix C for installation instructions). Most of these have an "Exit to DOS" option that allows you to operate from the DOS prompt. The hard disks on many computers that use menu software have a certain subdirectory structure that is maintained by a systems administrator. Consult your systems administrator if you are unfamiliar with how your particular system is set up.

To install PREscore and PREprint on a hard disk:

1.   Insert the PREscore Software diskette into drive A. Type A: and press <ENTER>. If only drive B is the correct size and format for the PREscore Software diskette, then insert the diskette into drive B, type B:, and press <ENTER>.

2.   At the A> prompt (or B> prompt if you are using drive B:), type INSTALL and press <ENTER>. A subdirectory named C:\PRESCORE will be created (if it does not already exist) and all files needed to run PREscore and PREprint will be copied into that subdirectory.

3.   To start the programs, type PRESCORE or PREPRINT at the C:\PRESCORE prompt, then press <ENTER>.

After installation, or if you have difficulty running the programs, compare the contents of the PRESCORE subdirectory you created with the list of "PRESCORE Subdirectory Files" given in Appendix D. If the two do not correspond, perform the installation procedures again or contact your systems administrator.

To run PREscore and PREprint from a floppy disk, insert the PREscore Software disk in drive A:, type PRESCORE or PREPRINT (whichever program you want to access) at the A> prompt, and press <ENTER>.

1.6   File Management

PREscore file management includes site file naming conventions, maintenance, and security. Site file names can be made of up to eight characters (do not include spaces in the file name). When naming site files, EPA suggests the first eight letters of the official site name be used; however, your office may want to develop naming conventions based on site identification numbers, cost accounting codes, etc. The site's full name (up to 29 characters) and CERCLIS number will be displayed (as entered) on the PREscore file system screen to allow for additional identification. You will not be able to alter the ".HRS" suffix in the site name while in the PREscore program. PREscore uses this suffix to identify a file as a PREscore file. Site files with different suffixes cannot be accessed by PREscore.

A plan for the maintenance of PREscore site files should be established. EPA recommends that site files be maintained on both floppy diskette and hard disk. While PREscore evaluation of a site is in

progress, you should retain a floppy diskette copy of the site file. Upon completion of PREscore evaluation, a floppy diskette copy of the site file should be included with the site report and PREscore printout. In addition, a protected (see security below) copy of the site file should be maintained in the PREscore subdirectory on the hard disk with other completed PREscore site files.

PREscore has a feature that ensures the security of site data and scoring information entered into or derived from PREscore. You may password protect individual site files. The password protection feature is accessed from the File System Screen (see Section 2.2).

CHAPTER 2

TUTORIAL

2.1   Introduction: PREscore Computer Program

This chapter provides instruction in the basic operation of PREscore by taking you through a series of screens and by providing examples of how to enter and edit data. Certain conventions are used in describing required user actions (what you must do). Words appearing in boldface indicate specific keyboard actions. The words <ENTER>, <END>, <HOME>, <Delete>, <Insert>, <PgUp>, <PgDn>, and <F1>, <F2>, <F3>, etc., indicate individual keys you must press. Four additional keys you will often use are called the *cursor keys*, and are marked on your keyboard by arrows pointing up, down, left, and right. These are used to move the *cursor* or *highlight* to a particular point on the screen. The phrase "CURSOR to the Population Factor value" means "use the appropriate cursor key(s) to move the highlight to the Population Factor value." In cases where words or numbers are to be typed, actions are indicated by phrases such as "type landfill #1" meaning "type the words 'landfill #1'."

If you have correctly followed the procedures listed in Section 1.5, "Software Installation," you should be able to access PREscore. To begin...

>   Type **PRESCORE.**
>   Press **<ENTER>**.

You should see the PREscore Title Screen shown below:

PREscore Title Screen

```
┌──────────────────────────────────────────────────────────────────┐
│                                              Site Score   0.00     │
│ ┌────────────────────────────────────────────────────────────────┐ │
│ │                                                                │ │
│ │   PREscore                                                     │ │
│ │                                                                │ │
│ │                        VERSION  1.0                            │ │
│ │                                                                │ │
│ │              A Program for Hazard Ranking System Scoring        │ │
│ │                                                                │ │
│ │                                                                │ │
│ │            UNITED STATES ENVIRONMENTAL PROTECTION AGENCY        │ │
│ │               Office of Solid Waste and Emergency Response      │ │
│ │               Office of Emergency and Remedial Response         │ │
│ │                  Hazardous Site Evaluation Division             │ │
│ │                     Washington, DC 20460                        │ │
│ └────────────────────────────────────────────────────────────────┘ │
│                                                                    │
│ Press <ENTER> to Continue                                          │
└──────────────────────────────────────────────────────────────────┘
```
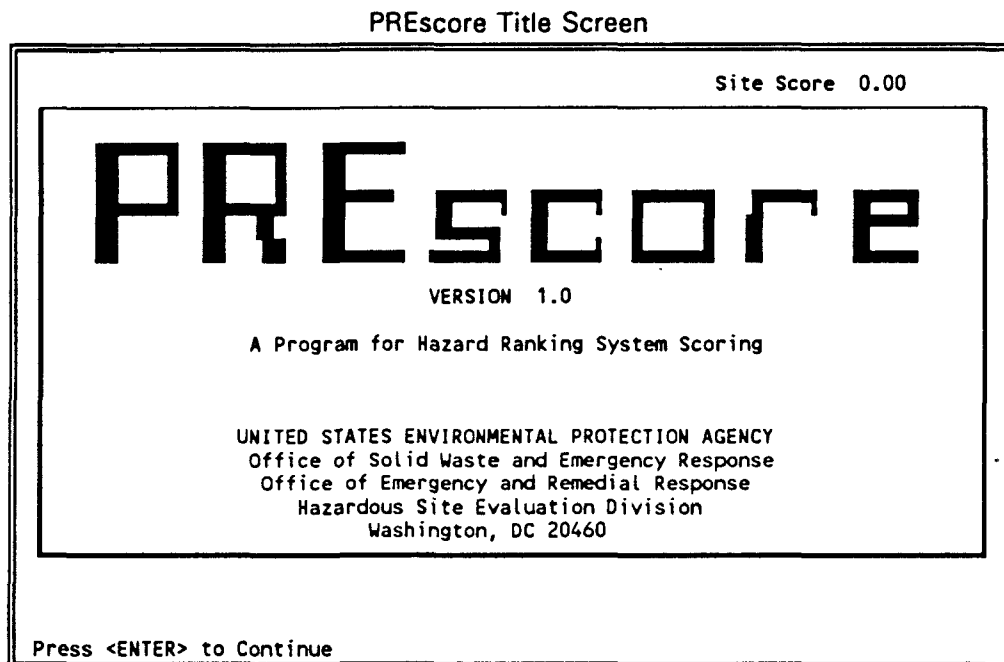
Figure 1

If you do not see the PREscore Title Screen, return to the software installation section.

To continue...

Press <ENTER>.

General Information Screen

```
┌─────────────────────────────────────────────────────────────┐
│ ╔═══════════════════════════════════════════════════════════╗ │
│ ║                                        Site Score   0.00  ║ │
│ ║  ┌────────────────────────────────────────────────────┐   ║ │
│ ║  │             GENERAL INFORMATION                     │   ║ │
│ ║  │                                                     │   ║ │
│ ║  │  EPA developed PREscore to assist site assessment investigators by │
│ ║  │  automating site scoring with the Hazard Ranking System (HRS). │
│ ║  │                                                     │   ║ │
│ ║  │  PREscore performs HRS calculations from raw data entered by the user │
│ ║  │  and contains HRS-related hazardous substance information derived from │
│ ║  │  the Superfund Chemical Data Matrix (SCDM).  PREscore allows site │
│ ║  │  investigators to easily test different scoring scenarios and can be │
│ ║  │  used to generate HRS documentation and other decisional records. │
│ ║  │                                                     │   ║ │
│ ║  │  For program assistance consult the PREscore Software "Users Manual & │
│ ║  │  Tutorial" or call your EPA Regional computer contact. │
│ ║  └────────────────────────────────────────────────────┘   ║ │
│ ║                                                           ║ │
│ ║  Press <ENTER> to Continue                                ║ │
│ ╚═══════════════════════════════════════════════════════════╝ │
└─────────────────────────────────────────────────────────────┘
```

Figure 2

This screen provides some general information concerning the functions of PREscore. To continue with PREscore...

Press <ENTER>.

2.2   File System

You should now be at the PREscore File System Screen shown below:

File System Screen

```
┌──────────────────────────────────────────────────────────────────────────┐
│                                                                            │
│                                                    Site Score   0.00       │
│ ┌──────────────────────────────────────────────────────────────────────┐  │
│ │ PREscore Data Files -> C:\PRESCORE                                     │  │
│ │                                                                        │  │
│ │ Name       Date      Time    Size │ Site Name            CERCLIS Number│  │
│ │                                   │                                    │  │
│ │ TUTORIAL  09/11/91  13:20   10271 │ Tutorial Site           TXD123456789│  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                   │                                    │  │
│ │                                                                        │  │
│ └──────────────────────────────────────────────────────────────────────┘  │
│ ENTER-Select  F2-Chdir  F3-New File  F4-Copy   F5-Passwd  F6-Delete End-Exit│
└──────────────────────────────────────────────────────────────────────────┘
```

Figure 3

The file system enables you to create, select, save, delete, copy, or password protect PREscore site files in any directory or on diskette. Information in the current directory includes filenames, dates and times that the files were last saved, and file sizes (in bytes). To the right of the middle bar is the name of each site and its CERCLIS number (as entered). You should apply a standard method for naming site files. Section 1.6 of this manual discusses file management.

The *status line* at the bottom of the screen indicates which actions and functions are available from the screen (in this case, the <F3> function key to create a new file, <F6> function key to delete a file, and so on). The status line also provides brief user instructions (on-screen help), such as "Enter Data" and "ENTER-Select."

One of the functions displayed on the status line for the file system screen is "F5-Passwd." PREscore allows you to password protect site files. The password protection feature is accessed from the file system screen using the <F5> function key. You may protect a site file at any stage in a PREscore evaluation. The password protection is activated the first time you exit PREscore after having selected a password. The next time anyone enters the program and attempts to access the protected site file they are prompted for the password. If they do not provide the correct password, access to that site file is denied. A password may be up to eight characters long and cannot be changed once assigned.

To retrieve the site file for this tutorial...

> **CURSOR** to the TUTORIAL filename.
> Press <**ENTER**>.

7

2.3   General Operation

You are at the Summary Screen, the "main menu" of PREscore:

Summary Screen

```
┌──────────────────────────────────────────────────────────────────────┐
│ Tutorial Site              TUTORIAL.HRS        Site Score 71.15        │
│ ┌────────────────────────────────────────────────────────────────────┐│
│ │                    PREscore Version 1.0                             ││
│ │ ┌──────────────┬──────────┬──────────────┬──────────┬──────────────┐││
│ │ │              │Likelihood│    Waste     │          │   Pathway    │││
│ │ │   Pathway    │of Release│Characteristics│ Targets │    Score     │││
│ │ ├──────────────┼──────────┼──────────────┼──────────┼──────────────┤││
│ │ │ Ground Water │   550    │      32      │ 1.34E+03 │   100.00     │││
│ │ ├──────────────┼──────────┼──────────────┼──────────┼──────────────┤││
│ │ │ Drinking Water│  550    │      32      │ 1.60E+01 │    3.41      │││
│ │ │ Food Chain   │   550    │     320      │ 4.86E+01 │   100.00     │││
│ │ │ Environmental│   550    │     320      │ 1.25E-01 │    0.27      │││
│ │ │ Surface Water│  Overland Flow, F7 to Toggle         │   100.00     │││
│ │ ├──────────────┼──────────┼──────────────┼──────────┼──────────────┤││
│ │ │ Resident     │   550    │      32      │ 7.30E+01 │   15.57      │││
│ │ │ Nearby       │    25    │      32      │ 9.00E-01 │    0.01      │││
│ │ │ Soil Exposure│                                     │   15.58      │││
│ │ ├──────────────┼──────────┼──────────────┼──────────┼──────────────┤││
│ │ │ Air          │   340    │      18      │ 3.90E+01 │    2.90      │││
│ │ └──────────────┴──────────┴──────────────┴──────────┴──────────────┘││
│ │                                                                    ││
│ │                                                                    ││
│ └────────────────────────────────────────────────────────────────────┘│
│ ENTER-Select                    F8-Files  F9-Info  F10-Help  End-Exit  │
└──────────────────────────────────────────────────────────────────────┘
```

Figure 4

The Summary Screen is a menu with choices of factor categories within pathways (or threats for Surface Water and Soil Exposure), such as Air Pathway Likelihood of Release, Ground Water Pathway Likelihood of Release, Drinking Water Threat Targets, etc. As you move the cursor around this screen (using the cursor keys), notice that if you try to enter a number, PREscore "beeps" to alert you that data entry is inappropriate at your location.   Whenever the cursor is a solid "block" (on some monochrome screens it will appear as an underline), PREscore is displaying a *calculated value*, one that cannot be overwritten or entered directly by the user and can only be changed by editing "raw" data.

When you start a new file, only zeros will appear on this screen until you enter data.   Because the TUTORIAL file already has data entered, scores are displayed.   The "ENTER-Select" prompt on the status line (in the lower left corner of the screen) indicates that you must press <ENTER> if you want to enter new data or edit previously entered data.   For example...

> CURSOR to the "Targets" column for the Air Pathway.
> Press <ENTER> to select the item.

By selecting Air Pathway Targets, you see the following:

Air Pathway Targets Screen

```
┌─────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                    TUTORIAL.HRS       Site Score 71.15      │
│ ┌───────────────────────────────────────────────────────────────────────┐│
│ │ Air Pathway -> Targets                                                ││
│ ├───────────────────────────────────────────────┬──────┬─────────┬─────┤│
│ │ Factor Category and Factors                    │ Max  │ Value   │Type ││
│ ├───────────────────────────────────────────────┼──────┼─────────┼─────┤│
│ │   Distance to Nearest Individual (miles)       │  50  │ 20 /0.020│    ││
│ ├───────────────────────────────────────────────┼──────┼─────────┼─────┤│
│ │       Population Level I Concentrations         │  **  │ 0.00E+00│▒▒▒▒ ││
│ │       Population Level II Concentrations        │  **  │ 0.00E+00│▒▒▒▒ ││
│ │       Population Potential Contamination        │  **  │ 1.40E+01│▒▒▒▒ ││
│ ├───────────────────────────────────────────────┼──────┼─────────┼─────┤│
│ │   Population                                    │  **  │ 1.40E+01│▒▒▒▒ ││
│ ├───────────────────────────────────────────────┼──────┼─────────┼─────┤│
│ │   Resources                                    │   5  │ 5.00E+00│    ││
│ ├───────────────────────────────────────────────┼──────┼─────────┼─────┤│
│ │ Sensitive Environments                         │  **  │ 4.35E-02│▒▒▒▒ ││
│ ├───────────────────────────────────────────────┼──────┼─────────┼─────┤│
│ │ Air Pathway Targets Total                      │  **  │ 3.90E+01│▒▒▒▒ ││
│ └───────────────────────────────────────────────┴──────┴─────────┴─────┘│
│ ** Maximum value not applicable                                           │
│                                                                           │
│                                                                           │
│ Enter Data                                       F10-Help  End-Previous   │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 5

You can now see factor-category and factor-level detail of the Air Pathway Targets score that was displayed on the Summary Screen. Choosing an item from the Summary Screen takes you from general information to specific. This is the concept behind operation of the PREscore program -- a hierarchy of menus with the Summary Screen at the apex.

The cursor is flashing; the status line prompt, in the lower left corner of the screen, says "Enter Data." This means you enter data for this factor at this location. Type the applicable number (the raw data). In this case you are entering the distance, in miles, to the nearest individual.

>
> Type .05.
> CURSOR to the "Population" value.

PREscore immediately calculates the factor value for "Distance to Nearest Individual." Notice that the cursor at the population position is not flashing. This means a calculated value is displayed; you do not enter data at this location. In addition, the status line prompt says "ENTER-Select," which means you must access another screen to enter data. To enter the raw data required to calculate the population value...

>
> Press <ENTER>.

Air Pathway Target Population Screen

```
Tutorial Site                    TUTORIAL.HRS        Site Score 71.15

 Air Pathway -> Targets -> Population

 Distance from Nearest Source   Population  Concentration  Type   Score

 Onsite                            12.0      Potential            1.70E+00

 Greater than 0 to 1/4 mile       123.3      Potential            4.10E+00

 Greater than 1/4 to 1/2 mile     236.3      Potential            9.00E-01

 Greater than 1/2 to 1 mile       321.0      Potential            8.00E-01

 Greater than 1 to 2 miles       5476.0      Potential            2.70E+00

 Greater than 2 to 3 miles       8976.9      Potential            1.20E+00

 Greater than 3 to 4 miles      13745.1      Potential            2.30E+00




 Enter Data                                       F10-Help  End-Previous
```

Figure 6

The cursor is now flashing and you may enter population data. If you are uncertain which people can be evaluated for this factor, use the <F10> function key to access *help screens* which provide basic information, derived from the HRS, about each factor.

Press <F10>.

Air Pathway Target Population Help Screen

```
                        AIR TARGET POPULATION

    Enter number of people within each distance category.  Count residents,
 students, and workers regularly present within target distance category.
 Do not count transient populations (e.g., customers and travelers passing
 through area).
    When residential population estimate is based on number of residences,
 multiply each residence by average number of persons per residence for
 the county in which the residence is located.
    Enter sampling information under "Concentration" column.

 For further information, see:
 HRS Section 6.3.2:   "Population"
 HRS Section 6.3.2.4: "Potential contamination"

                  *** Press any key to EXIT Help ***
```

Figure 7

To exit the help screen...

Press **any key**.

To enter population data...

> CURSOR to the "Greater than 0 to 1/4 mile" position.
> Type **5000**.
> Press **<ENTER>**.

In the far column a recalculation gives the new population value for that distance category.

The middle column, entitled "Concentration," shows the level of contamination the population is exposed to (Level I, Level II, or Potential). *The level of contamination is based on sampling information.* To enter air sampling information...

> CURSOR to the "Concentration" column.
> Press **<ENTER>**.

Air Pathway Samples Screen

```
+-----------------------------------------------------------------+
| Tutorial Site          TUTORIAL.HRS       Site Score 71.15      |
| +-------------------------------------------------------------+ |
| | Air Pathway -> Samples                                      | |
| | +-----------------------+---------+-------------+---------+ | |
| | |                       | Distance| Level of    | Data    | | |
| | |    Sample Name        | (miles) | Concentration| Type   | | |
| | +-----------------------+---------+-------------+---------+ | |
| | | 1                     |  0.000  | Potential   |   *     | | |
| | +-----------------------+---------+-------------+---------+ | |
| | |                       |         |             |         | | |
| | +-----------------------+---------+-------------+---------+ | |
| | |                       |         |             |         | | |
| | +-----------------------+---------+-------------+---------+ | |
| | |                       |         |             |         | | |
| | +-----------------------+---------+-------------+---------+ | |
| | |                       |         |             |         | | |
| | +-----------------------+---------+-------------+---------+ | |
| | |                       |         |             |         | | |
| | +-----------------------+---------+-------------+---------+ | |
| | |                       |         |             |         | | |
| | +-----------------------+---------+-------------+---------+ | |
| Enter Data                        F10-Help   End-Previous      |
+-----------------------------------------------------------------+
```

Figure 8

Samples for the air pathway are entered by recording sample name/identification number and distance of sample from the nearest source.

> Type **Air Sample #1**.

This air sample was taken at the source so the distance remains "0.000" miles.

To enter chemical sampling data...

> CURSOR to the "Level of Concentration" column.
> Press **<ENTER>**.

Air Pathway Sample Contaminants Screen

```
┌──────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site              TUTORIAL.HRS      Site Score 71.15             │
│ ┌────────────────────────────────────────────────────────────────────┐   │
│ │ Air Pathway -> Samples -> Contaminants                             │   │
│ │ Sample ID -> Air Sample #1                                         │   │
│ │ ┌──────────────────────────┬──────────┬─────────────────────────┐  │   │
│ │ │                          │ Sample   │Benchmarks/Screening C(µg/m3)│ │
│ │ │    Sample Contaminants   │ Concentr.├───────┬─────────┬───────┤  │   │
│ │ │                          │  µg/m3   │ NAAQS │Cancer R.│ RFD   │  │   │
│ │ ├──────────────────────────┼──────────┼───────┼─────────┼───────┤  │   │
│ │ │                          │          │       │         │       │  │   │
│ │ │                          │          │       │         │       │  │   │
│ │ │                          │          │       │         │       │  │   │
│ │ │                          │          │       │         │       │  │   │
│ │ │                          │          │       │         │       │  │   │
│ │ │                          │          │       │         │       │  │   │
│ │ │                          │          │       │         │       │  │   │
│ │ ├──────────────────────────┴──────────┴───────┼─────────┼───────┤  │   │
│ │ │     Cumulative Screening Index, Σ(C/SC)      │ 0.0E+00 │0.0E+00│  │   │
│ │ └──────────────────────────────────────────────┴─────────┴───────┘  │   │
│ ENTER-Select   F2-Radionuclides                    F10-Help  End-Previous │
└──────────────────────────────────────────────────────────────────────────┘
```

Figure 9

From the Air Pathway Sample Contaminants Screen, access the hazardous substances list and enter the concentrations reported from the sample defined in the previous screen. To select a hazardous substance...

Press <ENTER>.

Hazardous Substance Listing Screen

```
┌──────────────────────────────────────────────────────────────────────────┐
│ 04/16/91      Chemical Name       Synonym               Page 1 of 14      │
│                                                                            │
│ Acenaphthylene                                           00208-96-8        │
│ Acenaphthene            Acenaphthylene, 1,2-dihydro      00083-32-9        │
│ Acetaldehyde            Ethyl aldehyde                   00075-07-0        │
│ Acetone                 2-Propanone                      00067-64-1        │
│ Acetonitrile            Methyl cyanide                   00075-05-8        │
│ Acetophenone            Acetylbenzene                    00098-86-2        │
│ Acetyl-2-thiourea, 1-   Acetylthiocarbamide, n-          00591-08-2        │
│ Acrolein                Propenal                         00107-02-8        │
│ Acrylamide              Propenamide                      00079-06-1        │
│ Acrylic acid            Propenoic acid                   00079-10-7        │
│ Acrylonitrile           Vinyl cyanide                    00107-13-1        │
│ Adipic acid             Hexanedioic acid                 00124-04-9        │
│ Aldicarb                                                 00116-06-3        │
│ Aldrin                                                   00309-00-2        │
│ Allyl alcohol           Propenol, 2-                     00107-18-6        │
│ Aluminum                                                 07429-90-5        │
│ Aluminum phosphide      Phostoxin                        20859-73-8        │
│ Ammonia                                                  07664-41-7        │
│ Ammonium picrate        Phenol, 2,4,6-trinitro-, ammonium00131-74-8        │
│ Ammonium sulfamate      Sulfamic acid, monoammonium salt 07773-06-0        │
│ Aniline                 Benzeneamine                     00062-53-3        │
│ Anthracene              Paranaphthalene                  00120-12-7        │
│ ↑↓ PgDn   PgUp   End   Home   F2-Search   F3-Next   ENTER-(De)Select  F10-Help │
└──────────────────────────────────────────────────────────────────────────┘
```

Figure 10

12

Movement within the hazardous substance list is explained on the status line. Hazardous substances can be located in one of two ways: scanning for the substance name by using the <PgDn>, <PgUp>, and cursor keys, or by the search function (<F2>). You may search by substance name or CAS number.

       CURSOR to "Aluminum."
       Press <ENTER>.

A triangle appears next to the substance indicating selection.

       Press <END>.

Air Pathway Sample Contaminants Screen: With Example

Tutorial Site		TUTORIAL.HRS		Site Score 71.15	

Air Pathway -> Samples -> Contaminants
Sample ID -> Air Sample #1

Sample Contaminants	Sample Concentr. µg/m3	Benchmarks/Screening C(µg/m3)		
		NAAQS	Cancer R.	RFD
1 Aluminum	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Cumulative Screening Index, Σ(C/SC)			0.0E+00	0.0E+00

ENTER-Select   F10-Help End-Previous

Figure 11

You returned to the contaminants screen with your substance selection recorded. The applicable benchmarks and screening concentrations for the hazardous substance(s) you select are displayed (zeros are displayed if these concentrations have not been established). To enter concentration data for this substance...

       CURSOR to the "Sample Concentr." column.
       Type 1.2. (Note that concentrations must be entered in the units displayed.)
       Press <ENTER>.

You have reached the lowest level (screen) in the overall hierarchy of menus. It provides PREscore with the most detailed information you can enter (sample-specific chemical data). In this example you have moved four levels down in the hierarchy, from Summary Screen to Air Pathway Targets Screen to Air Pathway Target Population Screen to Air Pathway Samples Screen to Air Pathway Sample Contaminants Screen. To return to previous screens (move up through the hierarchy)....

       Press <END>.

Air Pathway Samples Screen: With Example

```
┌──────────────────────────────────────────────────────────────────────┐
│                                                                        │
│  Tutorial Site              TUTORIAL.HRS      Site Score 71.15         │
│  ┌──────────────────────────────────────────────────────────────────┐ │
│  │ Air Pathway -> Samples                                           │ │
│  │ ┌──────────────────────────┬──────────┬────────────┬──────────┐  │ │
│  │ │                          │ Distance │ Level of   │ Data     │  │ │
│  │ │        Sample Name       │ (miles)  │Concentration│ Type    │  │ │
│  │ ├──────────────────────────┼──────────┼────────────┼──────────┤  │ │
│  │ │ 1   Air Sample #1        │  0.000   │  Level II  │    *     │  │ │
│  │ ├──────────────────────────┼──────────┼────────────┼──────────┤  │ │
│  │ │                          │          │            │          │  │ │
│  │ ├──────────────────────────┼──────────┼────────────┼──────────┤  │ │
│  │ │                          │          │            │          │  │ │
│  │ ├──────────────────────────┼──────────┼────────────┼──────────┤  │ │
│  │ │                          │          │            │          │  │ │
│  │ ├──────────────────────────┼──────────┼────────────┼──────────┤  │ │
│  │ │                          │          │            │          │  │ │
│  │ ├──────────────────────────┼──────────┼────────────┼──────────┤  │ │
│  │ │                          │          │            │          │  │ │
│  │ ├──────────────────────────┼──────────┼────────────┼──────────┤  │ │
│  │ │                          │          │            │          │  │ │
│  │ └──────────────────────────┴──────────┴────────────┴──────────┘  │ │
│  └──────────────────────────────────────────────────────────────────┘ │
│  ENTER-Select                              F10-Help  End-Previous      │
└──────────────────────────────────────────────────────────────────────┘
```

Figure 12

You have returned to the Air Pathway Samples Screen. The <END> key functions conversely to the <ENTER> key, moving from detailed to general. Note that the sample information you entered is reflected in the "Level of Concentration" column.

You can also qualitatively record the quality of data entered.

    CURSOR to the "Data Type" column.
    Press <ENTER>.

You should now see the letter "E" in the column. Pressing <ENTER> or the <F1> function key cycles through three choices: E, H, or blank. "H" indicates that the entered data is "hard" or "HRS quality" data. "E" indicates "estimated" data was entered. The blank is used when you have not entered data.

2.3.1 Documentation Feature

From the "Data Type" column, you may access the documentation editor. The status line says "F3-Document."

    Press <F3>.

14

Documentation Editor Screen

```
┌──────────────────────────────────────────────────────────────────┐
│ Tutorial Site                  TUTORIAL.HRS       Site Score 71.15 │
│   ┌──────────────── PREscore Documentation Editor ──────────────┐  │
│ ─ │ Document time and location of the sample. Provide the sample │─ │
│   │ quantitation limit.  Identify any data that was qualified and│ a│
│   │ explain qualifications and rationale for using the data.     │ e│
│ ─ │ Document background concentrations and attribution of the    │─ │
│ 1 │ substance(s) to the site.  Include reference numbers.        │  │
│   ├──────────────────────────────────────────────────────────────┤  │
│   │ Air Sample #1 was taken at location B-9 on 8/8/90 (Reference 1).│ │
│ ─ │                                                              │─ │
│   │ Aluminum was found at a concentration of 1.2 ug/m3 (SQL 0.5 ug/m3)│ │
│ ─ │ (Reference 1).                                               │─ │
│   │                                                              │  │
│ ─ │ A waste pile with aluminum is located at the site (Reference 3).│─│
│   │                                                              │  │
│ ─ │ Background (location A-2) has aluminum concentrations of <0.5 ug/m3│─│
│   │ (SQL 0.5 ug/m3)(Reference 1).                                │  │
│ ─ │                                                              │─ │
│   │                                                              │  │
│   ├──────────────────────────────────────────────────────────────┤  │
│   │ Refs: 1,3                                                    │  │
│   └──────────────────────────────────────────────────────────────┘  │
│ ESC-Switch                        Row  1 Col  1 Page  1 End-Previous │
└──────────────────────────────────────────────────────────────────┘
```

Figure 13

The document editor operates as a simple word processor. You can insert, delete, and type over existing text; however, it does not have advanced word processing features (e.g., block, underline). The editor also features "word wrap" and "scrolling" so text that would extend beyond the right edge of the screen is moved to the next line. The documentation screen also provides brief guidance on documentation requirements. References should be recorded to support documentation statements.

To reference text...

        Press <ESC>.
        Note that reference numbers (1,3) have been entered.
        Press <F1>.

The reference list appears, displaying previously entered references. Enter reference citations by typing directly into the space opposite the "Number" column. The citation is restricted to three lines of text. References may be inserted and deleted; however, those actions will change reference numbering only on the list. (Entry of more than 100 references may cause memory overload difficulties which could cause the system to terminate.)

Reference List

```
┌─────────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                    TUTORIAL.HRS         Site Score 71.15        │
│  ┌────────┬──────────────────────────────────────────────────────────────┐   │
│  │ Number │    PREscore Reference List -> References                      │   │
│  ├────────┼──────────────────────────────────────────────────────────────┤   │
│  │   1    │ Environmental Assessment of Tutorial Site, ABC Consultants,    │   │
│  │        │ January 2, 1991.                                              │   │
│  ├────────┼──────────────────────────────────────────────────────────────┤   │
│  │   2    │ U.S. Environmental Protection Agency, "Standard Operating Procedure │
│  │        │ to Determine Site Latitude and Longitude Coordinates," 1991.  │   │
│  │        │ Calculation worksheet for Tutorial Site.                      │   │
│  ├────────┼──────────────────────────────────────────────────────────────┤   │
│  │   3    │ Special Study, Recycling at Tutorial Site, XYZ Corporation,    │   │
│  │        │ May 29, 1988.                                                 │   │
│  ├────────┼──────────────────────────────────────────────────────────────┤   │
│  │   4    │                                                              │   │
│  │        │                                                              │   │
│  ├────────┼──────────────────────────────────────────────────────────────┤   │
│  │   5    │                                                              │   │
│  │        │                                                              │   │
│  └────────┴──────────────────────────────────────────────────────────────┘   │
│ Enter Data                                          F10-Help  End-Previous     │
└─────────────────────────────────────────────────────────────────────────────┘
```

Figure 14

The <PgUp>, <PgDn>, and cursor keys move you through the list of references.

To exit the reference list and documentation editor...

Press <END> twice.

To return to the Summary Screen...

Press <HOME>.

Summary Screen

Tutorial Site		TUTORIAL.HRS		Site Score 72.14
PREscore Version 1.0				
Pathway	Likelihood of Release	Waste Characteristics	Targets	Pathway Score
Ground Water	550	32	1.34E+03	100.00
Drinking Water	550	32	1.60E+01	3.41
Food Chain	550	320	4.86E+01	100.00
Environmental	550	320	1.25E-01	0.27
Surface Water	Overland Flow, F7 to Toggle			100.00
Resident	550	32	7.30E+01	15.57
Nearby	25	32	9.00E-01	0.01
Soil Exposure				15.58
Air	550	18	2.00E+02	24.01

ENTER-Select   F8-Files F9-Info F10-Help End-Exit

Figure 15

The Summary Screen displays the new Air Targets value and new Site Score resulting from the information entered.

2.3.2 NPL Characteristics Data Collection Form

In addition to displaying scores and serving as the main menu for PREscore, the Summary Screen is also the access point for the NPL Characteristics Data Collection form. Note the "F9-Info" function on the status line. Every time you create a new site file you should first enter site administrative and characteristics information. To enter this information...

From the Summary Screen...

   Press <F9>.

Page 1 of the NPL Characteristics Data Collection form appears.

NPL Characteristics Data Collection Form

```
┌────────────────────────────────────────────────────────────────────┐
│ ┌──────────────────────────────────────────────────────────────┐   │
│ │ Tutorial Site              TUTORIAL.HRS        Site Score 72.14│   │
│ │ ┌────────────────────────────────────────────────────────────┐│   │
│ │ │ NPL Characteristics Data Collection Form -> Record Information   Page 1 of 5 ││
│ │ │                                                            ││   │
│ │ │  1. Site Name: Tutorial Site                               ││   │
│ │ │     (as entered in CERCLIS)                                ││   │
│ │ │                                                            ││   │
│ │ │  2. Site CERCLIS Number: TXD123456789                      ││   │
│ │ │                                                            ││   │
│ │ │  3. Site Reviewer: R.G. Alexander                          ││   │
│ │ │                                                            ││   │
│ │ │  4. Date: 8/30/91                                          ││   │
│ │ │                                                            ││   │
│ │ │  5. Site Location: Venus, Texas                            ││   │
│ │ │     (city/county,state)                                    ││   │
│ │ │                                                            ││   │
│ │ │  6. Congressional District: 21                             ││   │
│ │ │                                                            ││   │
│ │ │  7. Site Coordinates: Single                               ││   │
│ │ │                                                            ││   │
│ │ │     Latitude: 25°12'34.2"        Longitude: 121°34'21.4"  ││   │
│ │ │                                                            ││   │
│ │ └────────────────────────────────────────────────────────────┘│   │
│ │ Enter Data                        PgUp PgDn F10-Help   End-Previous│   │
│ └──────────────────────────────────────────────────────────────┘   │
└────────────────────────────────────────────────────────────────────┘
```

Figure 16

Various administrative and site characteristics information is entered on the NPL Characteristics Data Collection form. Information is entered directly (typed) or selected from pop-up menus. The form encompasses five pages (screens); the succeeding pages are accessed via the <PgDn> key.

To exit the form and return to the Summary Screen...

      Press <HOME>.

2.3.3 Exiting and Saving Site Files

To save any changes made to the file...

From the Summary Screen...

      Press <END>.

PREscore Save/Exit Pop-Up Menu

```
╔══════════════════════════════════════════════════════════════════╗
║ Tutorial Site              TUTORIAL.HRS      Site Score 72.14      ║
║  ┌──────────────────────────────────────────────────────────────┐ ║
║  │                   PREscore Version 1.0                        │ ║
║  ├──────────────┬───────────┬──────────────┬─────────┬──────────┤ ║
║  │              │ Likelihood│    Waste      │         │  Pathway │ ║
║  │   Pathway    │ of Release│Characteristics│ Targets │   Score  │ ║
║  ├──────────────┼───────────┼──────────────┼─────────┼──────────┤ ║
║  │ Ground Water │    550    │      32       │1.34E+03 │  100.00  │ ║
║  ├──────────────┼───────────┼──────────────┼─────────┼──────────┤ ║
║  │ Drinking Water│   550    │      32       │1.60E+01 │   3.41   │ ║
║  │ Food Chain   │    550    │     320       │4.86E+01 │  100.00  │ ║
║  │ Environmental│    550    │     320       │1.25E-01 │   0.27   │ ║
║  │ Surface Water│  Overland Flow, F7 to Toggle        │  100.00  │ ║
║  ├──────────────┼───────────┼──────────────┬─────────────────────┤ ║
║  │ Resident     │    550    │      32       ┌───── Save / Exit ──┐ ║
║  │ Nearby       │     25    │      32       │ Return to PREscore  │ ║
║  │ Soil Exposure│                           │ Save changes and continue │
║  ├──────────────┼───────────┼──────────────┤ Exit to DOS, save changes │
║  │ Air          │    550    │      18       │ Exit to DOS, ignore changes│
║  │              │           │               └─────────────────────┘ ║
║  └──────────────┴───────────┴──────────────────────────────────────┘
║                                                                    ║
║ ENTER-Select                    F8-Files F9-Info F10-Help End-Exit ║
╚══════════════════════════════════════════════════════════════════╝
```

Figure 17

CURSOR to "Save changes and continue" (if you are finished, select "Exit to DOS, Save Changes").
Press <ENTER>.

Save File Option Pop-Up Menu

```
╔══════════════════════════════════════════════════════════════════╗
║ Tutorial Site              TUTORIAL.HRS      Site Score 72.14      ║
║  ┌──────────────────────────────────────────────────────────────┐ ║
║  │                   PREscore Version 1.0                        │ ║
║  ├──────────────┬───────────┬──────────────┬─────────┬──────────┤ ║
║  │              │ Likelihood│    Waste      │         │  Pathway │ ║
║  │   Pathway    │ of Release│Characteristics│ Targets │   Score  │ ║
║  ├──────────────┼───────────┼──────────────┼─────────┼──────────┤ ║
║  │ Ground Water │    550    │      32       │1.34E+03 │  100.00  │ ║
║  ├──────────────┼───────────┼──────────────┼─────────┼──────────┤ ║
║  │ Drinking Water│   550    │      32       │1.60E+01 │   3.41   │ ║
║  │ Food Chain   │    550    │     320       │4.86E+01 │  100.00  │ ║
║  │ Environmental│    550    │     320       │1.25E-01 │   0.27   │ ║
║  │ Surface Water│  Overland Flow, F7 to Toggle        │  100.00  │ ║
║  ├──────────────┼───────────┼──────────────┬─────────────────────┤ ║
║  │ Resident     │    550    │      32       ┌───── Save / Exit ──┐ ║
║  │ Nearby       │     25    │      32       │ Return to PREscore  │ ║
║  │ Soil Exposure│                           │ Save changes and continue │
║  ├──────────┌───── Save File Option ──────┐─OS, save changes     │ ║
║  │ Air      │ Save file with current name │ OS, ignore changes   │ ║
║  │          └ Save file with new name ────┘─────────────────────┘ ║
║  └──────────────────────────────────────────────────────────────┘ ║
║                                                                    ║
║ ENTER-Select                                                       ║
╚══════════════════════════════════════════════════════════════════╝
```

Figure 18

CURSOR to "Save file with new name."
Press <ENTER>.

19

Type your first name (8 or fewer characters, no spaces in name).
Press <ENTER>.

A copy of the tutorial file (with modifications) has now been made under your name. The next time you access the File System (either when you start PREscore or by pressing <F8> from the Summary Screen) you will see this file. Note that you need to save the file when exiting the program or when accessing a new file.

To this point, the Tutorial has covered the basics of operating the PREscore program. You have learned how to access any screen in PREscore by using the cursor keys and <ENTER>, and how to return to previous screens by pressing <END>, or return to the Summary Screen by pressing <HOME>. You have also learned how to access Help (<F10>), the documentation editor (<F3>), and the NPL Characteristics Data Collection form (<F9> from the Summary Screen). The rest of this Tutorial shows how to apply these basics to the screens for each pathway.

2.4   Waste Characteristics

The hierarchy of menus allows you maximum flexibility in data input; you may enter any piece of data at any time. EPA recommends entering source and waste information first.

If you saved your file and exited PREscore after completing the General Operation section, retrieve your file by following the procedures outlined in Section 2.2.

From the Summary Screen...

CURSOR to the "Waste Characteristics" column (any pathway).
Press <ENTER>.

Regardless of which pathway was selected, you see the following screen:

Waste Characteristics Sources Screen

Tutorial Site	NAME.HRS	Site Score 72.14

Waste Characteristics -> Sources

Source Name	Migration Pathways	Vol/Area Value	Wastestream Value	HWQ Value
1 Waste Pile #1	GW-SW-SE-A	1.00E+02	0.00E+00	1.00E+02
2 Paint Waste Area #3	GW-SW-SE-A	4.00E+01	4.00E-01	4.00E+01

Migration Pathway	Contaminant Values		HWQVs	WCVs
Ground Water	Toxicity/Mobility	1.00E+04	100	32
Surface Drinking Water	Tox./Persistence	1.00E+04	100	32
Surface Water Food Chain	Tox./Persis./Bioacc.	5.00E+08	100	320
Surface Water Environment	Etox/Persis./Ebioacc.	5.00E+08	100	320
Soil Resident Threat	Toxicity	1.00E+04	100	32
Soil Nearby Threat	Toxicity	1.00E+04	100	32
Air	Toxicity/Mobility	2.00E+03	100	18

ENTER-Select	F10-Help End-Previous

Figure 19

The Sources Screen lists all the sources defined for the site.

> **CURSOR** to the "Migration Pathways" column for Paint Waste Area #3.
> Press <ENTER>.

Source Containment Screen

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│  Tutorial Site                   NAME.HRS           Site Score 72.14  │
│                                                                       │
│  ┌─────────────────────────────────────────────────────────────────┐ │
│  │ Waste Characteristics -> Source -> Containment -> Paint Waste Area #3 │
│  ├───────────────────────────────────────────────┬─────┬───────┬─────┤
│  │ Pathway Containment                           │ Max │ Value │Type │
│  ├───────────────────────────────────────────────┼─────┼───────┼─────┤
│  │ Ground Water Containment                      │ 10  │  10   │     │
│  ├───────────────────────────────────────────────┼─────┼───────┼─────┤
│  │ Overland Flow Surface Water Containment       │ 10  │  10   │     │
│  │                                               │     │       │     │
│  │ Flood Containment Factor                      │ 10  │  0    │     │
│  │ Flood Frequency Factor                        │ 50  │  0    │     │
│  ├───────────────────────────────────────────────┼─────┼───────┼─────┤
│  │ Soil Exposure Attractiveness / Accessibility  │ 100 │  50   │     │
│  │     if contamination is less than 2 feet deep │     │       │     │
│  ├───────────────────────────────────────────────┼─────┼───────┼─────┤
│  │ Air Pathway Containment (gas)                 │ 10  │  10   │     │
│  │                                               │     │       │     │
│  │ Air Pathway Containment (particulate)         │ 10  │  10   │     │
│  └───────────────────────────────────────────────┴─────┴───────┴─────┘
│                                                                       │
│                                                                       │
│  ENTER-Select                           F10-Help  End-Previous        │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 20

This screen displays all containment values for Paint Waste Area #3. In this way, PREscore knows whether to include the hazardous waste quantity and hazardous substances associated with this source when calculating pathway scores.

> **CURSOR** to the "Ground Water Containment" value.
> Press <ENTER>.

Source Containment Screen: Ground Water Containment Pop-Up Menu

```
╔══════════════════════════════════════════════════════════════════════╗
║ Tutorial Site                    NAME.HRS          Site Score 72.14    ║
║  ┌──────────────────────────────────────────────────────────────────┐ ║
║  │ Waste Characteristics -> Source -> Containment -> Paint Waste Area #3 │
║  ├────────────────────────────────────────────────┬─────┬───────┬────┤ ║
║  │ Pathway Containment                            │ Max │ Value │Type│ ║
║  ├────────────────────────────────────────────────┼─────┼───────┼────┤ ║
║  │ Ground Water Containment           ┌ Containment ┐        │    │ ║
║  ├──────────────────────────────────  │    0         │────────┼────┤ ║
║  │ Overland Flow Surface Water Containment │ 3         │        │    │ ║
║  │                                    │    5         │        │    │ ║
║  │ Flood Containment Factor           │    7         │        │    │ ║
║  │ Flood Frequency Factor             │    9         │        │    │ ║
║  │                                    │   10         │────────┼────┤ ║
║  │ Soil Exposure Attractiveness / Accessibility └────┘        │    │ ║
║  │    if contamination is less than 2 feet deep │     │       │    │ ║
║  ├────────────────────────────────────────────────┼─────┼───────┼────┤ ║
║  │ Air Pathway Containment (gas)                  │ 10  │  10   │    │ ║
║  ├────────────────────────────────────────────────┼─────┼───────┼────┤ ║
║  │ Air Pathway Containment (particulate)          │ 10  │  10   │    │ ║
║  └────────────────────────────────────────────────┴─────┴───────┴────┘ ║
║                                                                        ║
║ ENTER-Select                                   F10-Help  End-Previous  ║
╚══════════════════════════════════════════════════════════════════════╝
```

Figure 21

A pop-up menu appears displaying the ground water containment values. To select a containment value, cursor to the appropriate choice and press <ENTER>. <ESC> exits a menu without changing the previous selection. If you are unsure of how to evaluate the containment value for this pathway...

Press <F10>.

Source Containment Screen: Ground Water Containment Help Screen

```
╔══════════════════════════════════════════════════════════════════════╗
║  ┌──────────────────────────────────────────────────────────────────┐ ║
║  │                                                                    │ ║
║  │                    GROUND WATER CONTAINMENT                        │ ║
║  │                                                                    │ ║
║  │   Select containment factor value from HRS Table 3-2 for each source. │
║  │  If there is evidence of hazardous substance migration from source area, │
║  │  select containment value of 10.                                   │ ║
║  │                                                                    │ ║
║  │  For further information, see:                                     │ ║
║  │  HRS Section 3.1.2.1:  "Containment"                               │ ║
║  │                                                                    │ ║
║  │              *** Press any key to EXIT Help ***                    │ ║
║  │                                                                    │ ║
║  └──────────────────────────────────────────────────────────────────┘ ║
╚══════════════════════════════════════════════════════════════════════╝
```

Figure 22

The help screens provide limited guidance and direct you to the appropriate section of the HRS for more detailed information.

To leave the help screen...

Press any key.
Press <ENTER>.

22

Suppose that when applying HRS criteria to Paint Waste Area #3, you determine its overland flow surface water containment value is 0. To enter this information...

> CURSOR to the "Overland Flow Surface Water Containment" value.
> Press <ENTER>.
> CURSOR to "0" in the pop-up menu.
> Press <ENTER>.

The new value for Overland Flow Surface Water Containment is now recorded. To return to the Sources Screen...

> Press <END>.

Because both Surface Water Pathway containment values (overland flow and flood) for Paint Waste Area #3 are now 0, the "Migration Pathways" column shows that the wastes associated with this source are only available to the Ground Water (GW), Soil Exposure (SE), and Air Pathways (A). The waste quantity value for this source is not included in the hazardous waste quantity value (HWQV) totals for any of the surface water pathway threats.

To see more information about the source...

> CURSOR to the "Vol/Area Value" column for Paint Waste Area #3.
> Press <ENTER>.

The following screen appears:

Source Information Screen

Tutorial Site	NAME.HRS	Site Score 72.14

| Waste Characteristics -> Source -> Vol/Area -> Paint Waste Area #3 |

Factor Categories and Factors	Units	Value	Type
Source Type	⬚	Surf.Imp	•
Secondary Source Type	⬚	N.A.	
Number of Source Contaminants	Count	3	
Source Volume	cu yd	100.0	
Source Area	ft²	1021.5	

| ENTER-Select | F10-Help End-Previous |

Figure 23

Displayed is information on the source including its type, number of associated hazardous substances, volume, and area. To select a source type...

CURSOR to the "Source Type" value.
Press <ENTER>.

A pop-up menu appears displaying different source types. Since "Surface Impoundment" is the correct source type...

CURSOR to the "Secondary Source Type" position.
Press <ESC>.
Press <ENTER>.

This pop-up menu allows you to further define source type with respect to fire history (active fire area, burn pit, or not applicable). This information is important in the scoring of the Air Pathway.

Press <END>.

Suppose this source is contaminated with lead, mercury, and nickel. To enter this information...

CURSOR to the "Number of Source Contaminants" value.
Press <ENTER>.

The Contaminant Selection Screen appears:

Source Contaminant Selection Screen

Tutorial Site	NAME.HRS	Site Score 72.14

Source / Soil Exposure -> Contaminants
Source ID -> Paint Waste Area #3

Sample Contaminants	Concentr. ppm	Liq? Y/N	2 ft or Less	Screening C.(ppm) Cancer R.	Screening C.(ppm) RFD
1 Lead	0.0E+00	YES	YES	0.0E+00	0.0E+00
2 Mercury	0.0E+00	YES	YES	0.0E+00	1.7E+02
3 Nickel	0.0E+00	YES	YES	0.0E+00	1.2E+04
Cumulative Screening Index, Σ(C/SC)				0.0E+00	0.0E+00

ENTER-Select   F10-Help   End-Previous

Figure 24

The three hazardous substances are recorded as associated with this source. These substances were selected from PREscore's hazardous substance file. To view this file...

Press <ENTER>.

24

Hazardous substances can be located in one of two ways: scanning for the substance name by using the <PgDn>, <PgUp>, and cursor keys, or by a search function (<F2>). You can search by substance name or CAS number. To add arsenic to the list of hazardous substances at Paint Waste Area #3...

> Press <F2>.
> Type arsenic.
> Press <ENTER> twice.

The triangular mark to the left of the hazardous substance name indicates that it has been selected (pressing <ENTER> again would *deselect* the substance).

To exit the Contaminant Selection Screen...

> Press <END>.

Source Contaminant Selection Screen: With Example

Tutorial Site	NAME.HRS	Site Score 72.14

Source / Soil Exposure -> Contaminants
Source ID -> Paint Waste Area #3

Sample Contaminants	Concentr. ppm	Liq? Y/N	2 ft or Less	Screening C.(ppm)	
				Cancer R.	RFD
1 Arsenic	0.0E+00	NO	YES	3.2E-01	5.8E+02
2 Lead	0.0E+00	YES	YES	0.0E+00	0.0E+00
3 Mercury	0.0E+00	YES	YES	0.0E+00	1.7E+02
4 Nickel	0.0E+00	YES	YES	0.0E+00	1.2E+04
Cumulative Screening Index, Σ(C/SC)				0.0E+00	0.0E+00

ENTER-Select   F10-Help   End-Previous

Figure 25

Four hazardous substances have now been selected and are displayed. If you have analytical data from samples collected at the source, enter them, in ppm, in the "Concentr." column. For each substance, you must record whether it was deposited or is present as a liquid and whether it is present at depths of 2 feet or less.

> CURSOR to the "Liq?" column for arsenic.
> Press <ENTER>.
> CURSOR to "No".
> Press <ENTER>.

To exit the Source Contaminant Selection Screen...

Press <END>.

To evaluate waste quantity...

On the Source Information Screen...

CURSOR to the "Source Volume" position.
Type 248.
CURSOR to the "Source Area" position.
Type 1498.
Press <END>.

On the Waste Characteristics Sources Screen...

CURSOR to the "Wastestream Value" column for Waste Pile #1.
Press <ENTER>.

The Wastestreams Screen appears:

Source Hazardous Waste Quantity Wastestreams/Constituents Screen

Tutorial Site			NAME.HRS			Site Score 72.14	
Waste Characteristics -> Source -> Wstreams-> Waste Pile #1							
Wastestream Name	Constituents			Wastestream Quantity as Deposited			
	HCQ	Compl	Type	Quantity	Unit	Compl	Type	Factors
1	0.00E+00	NO		0.0	lbs	NO		0.00E+00
HCQ total for source	0.00E+00			WQD total for source				0.00E+00

Enter Data   F10-Help   End-Previous

Figure 26

Suppose you have file information indicating that ABC Chemical Co. trucked 15 cubic yards of solid waste to this pile for disposal between 1978 and 1980. Also, laboratory analysis shows this waste contained approximately 1 percent cadmium. To enter this information...

CURSOR to the "Wastestream Name" column.
Type Cadmium Waste.
CURSOR to the "HCQ" column for this wastestream (HCQ is hazardous constituent quantity).
Press <ENTER>.

The Constituents Screen appears:

Source Hazardous Waste Quantity Constituents Screen

```
╔═══════════════════════════════════════════════════════════════════════╗
║  Tutorial Site              NAME.HRS          Site Score 72.14          ║
║ ┌─────────────────────────────────────────────────────────────────┐    ║
║ │ Waste Characteristics -> Source -> Wastestream -> Constituents -> │    ║
║ │ Waste Pile #1            Cadmium Waste                             │    ║
║ ├───────────────────────────────┬─────────────┬─────┬────┬────┬─────┤    ║
║ │     Constituents              │Concentration│Units│Liq.│Qual│ HCQ │    ║
║ ├───────────────────────────────┼─────────────┼─────┼────┼────┼─────┤    ║
║ │                               │             │     │    │    │     │    ║
║ │                               │             │     │    │    │     │    ║
║ │                               │             │     │    │    │     │    ║
║ │                               │             │     │    │    │     │    ║
║ │                               │             │     │    │    │     │    ║
║ │                               │             │     │    │    │     │    ║
║ ├───────────────────────────────┼─────────────┼─────┴────┴────┼─────┤    ║
║ │Quantity Deposited in Wastestream(lbs)│0.0   │Wastestream HCQ│0.00E+00│ ║
║ ├───────────────────────────────┴─────────────┴───────────────┴─────┤    ║
║ │ ENTER-Select                              F10-Help  End-Previous    │   ║
║ └─────────────────────────────────────────────────────────────────┘    ║
╚═══════════════════════════════════════════════════════════════════════╝
```

Figure 27

From this screen you enter substances (constituents) that are known to compose, in known concentrations, all or part of the wastestream you have defined. To enter constituent information...

> **CURSOR** to the "Constituents" column.
> Press <ENTER>.
> Press <F2>.
> Type cadmium.
> Press <ENTER> twice.
> Press <END>.
> **CURSOR** to the "Concentration" column.
> Type 1.
> **CURSOR** to the "Units" column.
> Press <ENTER>.
> **CURSOR** to "%."
> Press <ENTER>.
> **CURSOR** to the "Liq." column.
> Press <ENTER>.
> **CURSOR** to "No."
> Press <ENTER>.
> Press <END>.

You have now entered a constituent and a concentration. "HCQ" still shows zero because you have not yet entered the wastestream quantity of which the cadmium is a constituent. To enter wastestream quantity...

27

CURSOR to the "Quantity" column.
Type **15.**
CURSOR to the "Unit" column.
Press **<ENTER>.**
CURSOR to "cu yds."
Press **<ENTER>.**

Source Hazardous Waste Quantity Wastestreams/Constituents Screen: With Example

Tutorial Site			NAME.HRS			Site Score 72.14	
Waste Characteristics -> Source -> Wstreams-> Waste Pile #1							
	Constituents			Wastestream Quantity as Deposited			
Wastestream Name	HCQ	Compl	Type	Quantity	Unit	Compl	Type	Factors
1 Cadmium Waste	3.00E+02	NO		15.0	yd3	NO		6.00E+00
				.				
HCQ total for source	3.00E+02			WQD total for source				3.00E+02
ENTER-Select						F10-Help End-Previous	

Figure 28

PREscore has calculated values for Hazardous Constituent Quantity (HCQ, 3.00E+02) and Wastestream Quantity (6.00E+00). Because the constituent information is not complete, the higher of these two values is recorded as the Wastestream Quantity Deposited (WQD) total for the source. The "Compl" columns in both constituent and wastestream sections reflect whether the information you have entered is "complete." To select "YES" or "NO," cursor to the "Compl" column and use the <F1> function key to toggle between the two choices.

To return to the Sources Screen...

Press **<END>.**

The Hazardous Waste Quantity (HWQ) value for Waste Pile #1 has been updated to reflect the wastestream information.

To return to the Summary Screen...

Press **<HOME>.**

The hazardous waste quantity information entered is evaluated for all pathways based on the availability of source contaminants to each pathway. You define that availability by assigning containment values for each source. Therefore, you only enter source information once; PREscore evaluates it for all pathways.

28

All pathway scores and the site score now reflect the additions you have made while in the Waste Characteristics section of the program.

2.5 Ground Water Pathway

The likelihood of release and targets factor categories for the Ground Water Pathway work differently than other pathways. Both factor categories are scored on an "aquifer specific" basis.

From the Summary Screen...

CURSOR to the "Likelihood of Release" column for the Ground Water Pathway. Press <ENTER>.

Aquifer Selection Screen

Tutorial Site			NAME.HRS		Site Score 72.14	
Ground Water -> Aquifer Selection						
Aquifer Name	Over-lying no.	Type of Aquifer	Inter-connect with	Data Type	Likelihood of Release Value	Targets Value
1 Surficial Aquifer	0	NonKrst	0		550	1.10E+01
2 Cascade Sand	˙1	NonKrst	1		550	1.34E+03
3 Big Water Aquifer	0	Karst	0		410	1.66E+03
ENTER-Select					F10-Help End-Previous	

Figure 29

This is the Aquifer Selection Screen. Here, you enter information about the aquifers being evaluated. Enter the aquifer name and specify an "overlying number" indicating which aquifer, if any, immediately overlies the aquifer you are defining. In this example, the Cascade Sand aquifer is overlain by the Surficial Aquifer, so "1" is entered next to the Cascade Aquifer. You must also indicate whether the aquifer is karst or non-karst and specify which aquifers are interconnected. Interconnection is recorded in the "Interconnect with" column by entering the number of the aquifer interconnected with the aquifer you are defining. In this case the Cascade Sand aquifer is interconnected with the Surficial aquifer, so "1" is entered. Note that both the overlying and interconnected aquifer numbers must be lower than the sequential number of the aquifer you are entering (the Cascade Sand aquifer is sequential aquifer #2, which is numerically greater than sequential aquifer #1, the Surficial Aquifer). For pathway scoring, PREscore automatically uses the highest scoring aquifer.

The <Delete> key can be used to delete aquifer information; deleting an aquifer results in the deletion of all aquifer-specific information entered for that aquifer (i.e., targets, sampling data, etc.).

To view likelihood of release information for the Surficial Aquifer...

> **CURSOR** to the "Likelihood of Release Value" column for the Surficial Aquifer. Press < ENTER >.

Ground Water Pathway Likelihood of Release Screen

Tutorial Site	NAME.HRS '	Site Score 72.14			
Ground Water -> Likelihood of Release -> Surficial Aquifer					
Factor Category and Factors			Max	Value	Type
Observed Release			550	550	
a. Containment			10	10	
Net Precipitation (inches) b. Precipitation Factor			10	4.3 1	
c. Depth to Aquifer d. Travel Time			5 35	5 35	
Potential to Release = a * (b + c + d)			500	410	
Likelihood of Release			550	550	

ENTER-Select	F10-Help End-Previous

Figure 30

For this aquifer, an observed release has been scored and potential to release factors have also been evaluated.

> Press < END >.

To view likelihood of release information for the Big Water Aquifer...

> **CURSOR** to the "Likelihood of Release Value" column for the Big Water Aquifer. Press < ENTER >.

Note that no observed release has been scored, so the Likelihood of Release value is the same as the Potential to Release value.

> **CURSOR** to the "Depth to Aquifer" value. Press < ENTER >.

Ground Water Pathway Potential to Release Screen

```
╔═══════════════════════════════════════════════════════════════════════╗
║  Tutorial Site                  NAME.HRS            Site Score 72.14   ║
║  ┌─────────────────────────────────────────────────────────────────┐  ║
║  │ Ground Water -> Potential to Release -> Depth to Aquifer/Hydr. Conductivity │
║  │ Big Water Aquifer                                               │  ║
║  ├───────────────────────────────────────────────────┬───────┬─────┤  ║
║  │ Factors                                           │ Value │ Type│  ║
║  ├═══════════════════════════════════════════════════╪═══════╪═════┤  ║
║  │ Depth of Contamination (feet)        ·            │ 10.00 │     │  ║
║  ├───────────────────────────────────────────────────┼───────┼─────┤  ║
║  │ Depth to Aquifer from Surface (feet)              │ 25.00 │     │  ║
║  ├───────────────────────────────────────────────────┼───────┼─────┤  ║
║  │ Are All Layers Karst?                             │ YES   │     │  ║
║  ├───────────────────────────────────────────────────┼───────┼─────┤  ║
║  │ Total Thickness of Layer(s) With Lowest Conductivity (ft)│ 12.00 │     │
║  ├───────────────────────────────────────────────────┼───────┼─────┤  ║
║  │ Hydraulic Conductivity of Layer(s)  (cm/sec)      │ 1E-06 │     │  ║
║  └───────────────────────────────────────────────────┴───────┴─────┘  ║
║                                                                       ║
║                                                                       ║
║                                                                       ║
║  Enter Data                                   F10-Help  End-Previous  ║
╚═══════════════════════════════════════════════════════════════════════╝
```

Figure 31

On this screen you specify depth of contamination and depth to the aquifer. You also describe the geologic material in the interval between the contamination and the top of the aquifer being evaluated. Specifically, you describe the extent of karst layers, the thickness of the layer(s) with the lowest hydraulic conductivity, and the hydraulic conductivity of that layer.

> **CURSOR** to the "Depth to Aquifer from Surface" position.
> Type **156**.
> **CURSOR** to the "Hydraulic Conductivity of Layer(s)" position.
> Type **17** (this becomes 1×10^{-7} cm/sec).

Note that hydraulic conductivity may only be entered as integers representing a single digit multiplier raised to a negative exponent. If you are unsure of the hydraulic conductivity of the geologic material, access the help screen.

> Press <F10>.

```
                    GROUND WATER HYDRAULIC CONDUCTIVITY

      Enter lowest hydraulic conductivity of individual layers in interval
   between the lowest known point of hazardous substances and top of aquifer
   being evaluated.  Use HRS Table 3-6 or data from in-situ or laboratory
   tests to determine hydraulic conductivity.  Use representative, measured,
   hydraulic conductivity values whenever available.
      Enter 18 for layers with hydraulic conductivity (HC) = 1x10-8 (clay; low
   permeability till; shale; unfractured metamorphic/igneous rocks)
      Enter 16 for layers with HC = 1x10-6 (silt; loesses; silty clays;
   moderately permeable till; low permeability sandstone; low permeability
   limestone (no karst); low permeability fractured metamorphic/igneous rocks)
      Enter 14 for layers with HC = 1x10-4 (sands; sandy silts; highly
   permeable till; peat; moderately permeable limestone (no karst); moderately
   permeable sandstone; moderately permeable fractured metamorphic/igneous
   rocks)
      Enter 12 for layers with HC = 1x10-2 (gravel; clean sand; karst
   limestones; permeable basalt; highly permeable fractured metamorphic/
   igneous rocks)
   For further information, see:
   HRS Section 3.1.2.4:  "Travel time"

                    *** Press any key to EXIT Help ***
```

Figure 32

Remember, help screens are available from every data entry position throughout the program. To exit a help screen...

> Press any key.
> Press <END>.

The depth to aquifer and travel time values reflect changes you made in depth to aquifer and hydraulic conductivity. Note that likelihood of release data must be entered separately for each aquifer.

> Press <END>.
> CURSOR to the "Targets Value" column for the Surficial Aquifer.
> Press <ENTER>.

Ground Water Pathway Targets Screen

```
┌────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                    NAME.HRS          Site Score 72.14 │
│ ┌──────────────────────────────────────────────────────────────────┐│
│ │ Ground Water -> Targets -> Surficial Aquifer                     ││
│ ├──────────────────────────────────────────┬─────┬──────────┬─────┤│
│ │ Factor Category and Factors              │ Max │ Value    │Type ││
│ ├──────────────────────────────────────────┼─────┼──────────┼─────┤│
│ │ Distance to Nearest Well (miles)         │ 50  │ 5  / 1.200│     ││
│ ├──────────────────────────────────────────┼─────┼──────────┼─────┤│
│ │    Population Potential Contamination    │ **  │ 1.00E+00 │     ││
│ │    Population Level I Concentrations     │ **  │ 0.00E+00 │     ││
│ │    Population Level II Concentrations    │ **  │ 0.00E+00 │     ││
│ │ Population                               │ **  │ 1.00E+00 │     ││
│ ├──────────────────────────────────────────┼─────┼──────────┼─────┤│
│ │ Resources                                │  5  │ 5.00E+00 │     ││
│ ├──────────────────────────────────────────┼─────┼──────────┼─────┤│
│ │ Wellhead Protection Area (WHPA)          │ 20  │ 0.00E+00 │     ││
│ ├──────────────────────────────────────────┼─────┼──────────┼─────┤│
│ │ Ground Water Targets Total (this aquifer only) │ ** │ 1.10E+01 │  ││
│ ├──────────────────────────────────────────┼─────┼──────────┼─────┤│
│ │ Ground Water Targets Total (incl. overlying aquifers) │ ** │ 1.10E+01 │ ││
│ └──────────────────────────────────────────┴─────┴──────────┴─────┘│
│ ** Maximum value not applicable                                     │
│                                                                      │
│ Enter Data                                    F10-Help  End-Previous │
└────────────────────────────────────────────────────────────────────┘
```

Figure 33

This screen displays target factor values for the Surficial Aquifer. When entering target data, include information only for wells screened in the selected aquifer. PREscore will account for targets in overlying and/or interconnected aquifers. The total ground water targets value for the aquifer being evaluated (Surficial Aquifer) and overlying aquifers, if any, is displayed at the bottom of the screen.

To enter population exposed to potential contamination...

> CURSOR to the "Population Potential Contamination" position.
> Press <ENTER>.

Ground Water Pathway Target Population Screen

```
+==================================================================+
| Tutorial Site              NAME.HRS        Site Score 72.14      |
|  +------------------------------------------------------------+  |
|  | Ground Water -> Targets -> Population ->    Surficial Aquifer| |
|  +------------------------------------------------------------+  |
|  | Potential Population by Distance |          |Data| Population |      |
|  | (Exclude wells listed below)     |Population |Type|Incls.Pot.Wells| Score|
|  +----------------------------------+----------+----+-----------+------+
|  | 0 to 1/4 mile                    |   0.0    |    |    0.0    |0.00E+00|
|  | Greater than 1/4 to 1/2 mile     |   0.0    |    |    0.0    |0.00E+00|
|  | Greater than 1/2 to 1 mile       |   0.0    |    |    0.0    |0.00E+00|
|  | Greater than 1 to 2 miles        |   0.0    |    |    5.0    |7.00E-02|
|  | Greater than 2 to 3 miles        |  34.0    |    |   34.0    |7.00E-01|
|  | Greater than 3 to 4 miles        |  56.7    |    |   56.7    |4.00E-01|
|  +----------------------------------+----------+----+-----------+------+
|  | Population by Individual Well |Dist. |Well|Level of |Data|Population|      |
|  |          Well ID              |(miles)|Type|Concentr.|Type| Served  | Value|
|  +-------------------------------+-------+----+---------+----+---------+------+
|  | 1 Site Well #1                | 0.00  | MW |Level I  |    |  N.A    | N.A  |
|  +-------------------------------+-------+----+---------+----+---------+------+
|  | 2 Baker Residence             | 1.20  | DW |Potential|    |  5.0    | N.A  |
|  +-------------------------------+-------+----+---------+----+---------+------+
|  |                               |       |    |         |    |         |      |
|  +-------------------------------+-------+----+---------+----+---------+------+
|  |        Aquifer Target Population                           |1.00E+00|
| Enter Data                                     F10-Help  End-Previous |
+==================================================================+
```

Figure 34

Populations drawing water from individual wells or wells within a distance category are entered on this screen. *Only potentially contaminated target populations can be entered in distance categories.*

Actually contaminated target population must be entered associated with individual wells. Suppose sampling reveals lead contamination (5.1 ppb) attributable to your site in a nearby well (Johnson family well 0.2 miles from the site)...

> **CURSOR** to the third row of "Population by Individual Well" column.
> Type **Johnson Well.**
> **CURSOR** to the "Dist." column.
> Type **0.2.**
> **CURSOR** to the "Well Type" column.
> Press **<ENTER>.**

Ground Water Pathway Target Population Screen: Well Type Pop-Up Menu

```
┌────────────────────────────────────────────────────────────────────────┐
│  Tutorial Site               NAME.HRS           Site Score 72.14         │
│ ┌──────────────────────────────────────────────────────────────────────┐│
│ │ Ground Water -> Targets -> Population ->            Surficial Aquifer  ││
│ ├──────────────────────────────┬───────────┬─────┬────────────┬────────┤│
│ │ Potential Population by Distance         │Data │ Population  │        ││
│ │ (Exclude wells listed below) │Population │Type │Incls.Pot.Wells│ Score ││
│ ├──────────────────────────────┼───────────┼─────┼────────────┼────────┤│
│ │ 0 to 1/4 mile                │   0.0     │     │    0.0     │0.00E+00││
│ │ Greater than 1/4 to 1/2 mile │   0.0     │     │    0.0     │0.00E+00││
│ │ Greater than 1/2 to 1 mile   │   0.0     │     │    0.0     │0.00E+00││
│ │ Greater than 1 to 2 miles    │   0.0     │     │    5.0     │7.00E-02││
│ │ Greater than 2 to 3 miles    │  34.0     │     │   34.0     │7.00E-01││
│ │ Greater than 3 to 4 miles    │  56.7     │     │   56.7     │4.00E-01││
│ ├─────────────────────┬─────────┬────┬─────────┬─────┬──────────┼────────┤│
│ │Population by Individual Well│ Dist.│Well│Level of│Data│Population│        ││
│ │       Well ID       │(miles)│Type│Concentr.│Type│ Served  │ Value  ││
│ ├─────────────────────┼─────────┼────┼─────────┼─────┼──────────┼────────┤│
│ │ 2 Baker Residence   │  1.20  │ DW │Potential│     │   5.0    │  N.A   ││
│ ├─────────────────────┼─────────┴────┴─────────┴─────┼──────────┼────────┤│
│ │ 3 Johnson Well      │   ┌── Type of Well ──┐        │   N.A    │  N.A   ││
│ ├─────────────────────┤   │ Monitoring        │       ├──────────┼────────┤│
│ │                     │   │ Drinking Water    │       │          │        ││
│ ├─────────────────────┤   │ Standby:Used Annually     │          │        ││
│ │      Aquifer Ta─────┘   └───────────────────┘       │          │1.00E+00││
│ │ ENTER-Select                                    F10-Help  End-Previous ││
│ └──────────────────────────────────────────────────────────────────────┘│
└────────────────────────────────────────────────────────────────────────┘
```

Figure 35

CURSOR to "Drinking Water."
Press <ENTER>.
CURSOR to the "Level of Concentr." column.
Press <ENTER>.

Ground Water Pathway Sample Contaminants Screen

```
┌────────────────────────────────────────────────────────────────────────┐
│  Tutorial Site               NAME.HRS           Site Score 72.14         │
│ ┌──────────────────────────────────────────────────────────────────────┐│
│ │ Ground Water -> Targets -> Population -> Contaminants -> Surficial Aquifer││
│ │ ·Well ID ->    Johnson Well                                           ││
│ ├──────────────────────────────┬───────────┬───────────────────────────┤│
│ │                              │ Sample    │ Benchmarks/Screening C.(ppb)││
│ │   Sample Contaminants        │ Concentr. ├─────────┬────────┬────────┤│
│ │                              │   ppb     │ MCL/MCLG│ Cancer │  RFD   ││
│ ├──────────────────────────────┼───────────┼─────────┼────────┼────────┤│
│ │                              │           │         │        │        ││
│ │                              │           │         │        │        ││
│ │                              │           │         │        │        ││
│ │                              │           │         │        │        ││
│ │                              │           │         │        │        ││
│ │                              │           │         │        │        ││
│ ├──────────────────────────────┴─────┬─────┼─────────┼────────┼────────┤│
│ │    Cumulative Screening Index, Σ(C/SC)   │         │0.0E+00 │0.0E+00 ││
│ │ ENTER-Select    F2-Radionuclides                F10-Help  End-Previous││
│ └──────────────────────────────────────────────────────────────────────┘│
└────────────────────────────────────────────────────────────────────────┘
```

Figure 36

Press <ENTER>.
Press <F2>.
Type **Lead.**
Press <ENTER> twice.
Press <END>.
CURSOR to the "Sample Concentr." column.
Type **51.**
Press <ENTER>.

To determine the level of contamination, the concentration you enter is compared to benchmark(s) for the selected contaminant. In this case, the concentration is greater than the benchmark, so the residents using this well are evaluated as Level I population. Multiple contaminants and concentrations may be entered.

Press <END>.
CURSOR to the "Population Served" column.
Type **4** (the Johnson family).
Press <ENTER>.

Ground Water Pathway Target Population Screen: With Example

Tutorial Site				NAME.HRS		Site Score 72.14	
Ground Water -> Targets -> Population ->					Surficial Aquifer		
Potential Population by Distance (Exclude wells listed below)		Population		Data Type	Population Incls.Pot.Wells		Score
0 to 1/4 mile		0.0			0.0		0.00E+00
Greater than 1/4 to 1/2 mile		0.0			0.0		0.00E+00
Greater than 1/2 to 1 mile		0.0			0.0		0.00E+00
Greater than 1 to 2 miles		0.0			5.0		7.00E-02
Greater than 2 to 3 miles		34.0			34.0		7.00E-01
Greater than 3 to 4 miles		56.7			56.7		4.00E-01
Population by Individual Well Well ID	Dist. (miles)	Well Type	Level of Concentr.	Data Type	Population Served		Value
2 Baker Residence	1.20	DW	Potential		5.0		N.A
3 Johnson Well	0.20	DW	Level I		4.0		4.00E+01
Aquifer Target Population							4.10E+01
Enter Data					F10-Help	End-Previous	

Figure 37

You have recorded that the Johnson Well is exposed to Level I concentrations, and that the Johnson family represents four Level I targets. If the Johnson's well had not been contaminated, their family population would have been added to the "0 to 1/4 mile" distance category potential population.

Press <END>.

The distance to nearest well factor has been automatically evaluated based on the target information entered. The distance in miles may also be entered directly. Other ground water targets to be evaluated include Resources and Wellhead Protection Area.

36

CURSOR to the "Resources" position.
Press <ENTER>.

A resources pop-up menu appears:

Ground Water Pathway Targets Screen: Resources Factor Pop-Up Menu

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│  Tutorial Site              NAME.HRS           Site Score 72.14       │
│  ┌──────────────────────────────────────────────────────────────┐    │
│  │ Ground Water -> Targets -> Surficial Aquifer                 │    │
│  ├───────────────────────────────────────────┬─────┬───────┬──────┤ │
│  │ Factor Category and Factors               │ Max │ Value │ Type │ │
│  ├───────────────────────────────────────────┼─────┼───────┼──────┤ │
│  │ Distance to Nearest Well (miles)          │ 50  │50 / 1.200│    │ │
│  │                                           │     │          │     │ │
│  │   Population Potential Contamination      │ **  │1.00E+00 │ ░░░ │ │
│  │   Population Level I Concentrations       │ **  │4.00E+01 │ ░░░ │ │
│  │   Population Level II Concentrations      │ **  │0.00E+00 │ ░░░ │ │
│  │   Population        ┌ Is Ground Water Used as a Resource? ┐│ ░░░ │ │
│  │                     │                                      ││    │ │
│  │   Resources         │              NO              │  +00 │     │ │
│  │                     │              YES             │      │     │ │
│  │   Wellhead Protection Are└─────────────────────────┘ +00  │     │ │
│  ├───────────────────────────────────────────┼─────┼───────┼──────┤ │
│  │ Ground Water Targets Total (this aquifer only) │ ** │9.60E+01│░░░│ │
│  ├───────────────────────────────────────────┼─────┼───────┼──────┤ │
│  │ Ground Water Targets Total (incl. overlying aquifers) │** │9.60E+01│░░░│
│  └───────────────────────────────────────────┴─────┴───────┴──────┘ │
│  ** Maximum value not applicable                                     │
│                                                                       │
│  ENTER-Select                              F10-Help  End-Previous     │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 38

Select "YES" or "NO" by cursoring to your choice and pressing <ENTER>. The resources factor is evaluated for every pathway based on pathway-specific criteria. The methodology for selecting a resources value is the same for each pathway.

Press <END>.

The Wellhead Protection Area factor is also scored using a pop-up menu.

CURSOR to the "Wellhead Protection Area" position.
Press <ENTER>.

The Wellhead Protection Area pop-up menu appears:

Ground Water Pathway Targets Screen: Wellhead Protection Area Factor Pop-Up Menu

```
┌──────────────────────────────────────────────────────────────────────┐
│ Tutorial Site              NAME.HRS          Site Score 72.14          │
│ ┌──────────────────────────────────────────────────────────────────┐  │
│ │ Ground Water -> Targets -> Surficial Aquifer                      │  │
│ ├──────────────────────────────────────────────┬────┬────────┬─────┤  │
│ │ Factor Category and Factors                  │Max │ Value  │Type │  │
│ ├──────────────────────────────────────────────┼────┼────────┼─────┤  │
│ │ Distance to Nearest Well (miles)             │ 50 │50 / 1.200│    │  │
│ │                                              │    │        │     │  │
│ │     Population Potential Contamination       │ ** │1.00E+00│░░░░░│  │
│ │     Population Level I Concentrations         │ ** │4.00E+01│░░░░░│  │
│ │     Population Level II Concentrations        │ ** │0.00E+00│░░░░░│  │
│ │     Population                                │ ** │4.10E+01│░░░░░│  │
│ ├───────────────── Wellhead Protection Area? ──┴────┴────────┴─────┤  │
│ │ No Wellhead Protection Area (WHPA)                               │  │
│ │ Source with containment value greater than 0 lies within or above the WHPA│
│ │ Observed ground water contamination from the site lies within the WHPA   │
│ │ None of the above; but there is a WHPA within the target distance limit  │
│ ├──────────────────────────────────────────────┬────┬────────┬─────┤  │
│ │ Ground Water Targets Total (incl. overlying aquifers)│ ** │9.60E+01│░░░░│
│ └──────────────────────────────────────────────┴────┴────────┴─────┘  │
│ ** Maximum value not applicable                                       │
│                                                                        │
│ ENTER-Select                                    F10-Help  End-Previous │
└──────────────────────────────────────────────────────────────────────┘
```

Figure 39

Press <END>.

To return to the Summary Screen...

Press <HOME>.

The site score now reflects the additions made while in the Ground Water Pathway section of the program.

2.6   Surface Water Pathway

The Surface Water Pathway is composed of two components, the Overland Flow/Flood Component and the Ground Water to Surface Water Component. While evaluation of the two is similar, the Surface Water Pathway tutorial emphasizes the Overland Flow/Flood Component. Features unique to the Ground Water to Surface Water Component are described in Section 2.6.4.

From the Summary Screen...

CURSOR to the "Likelihood of Release" column for any Surface Water Pathway threat.
Press <ENTER>.

The following screen appears:

Surface Water Pathway Likelihood of Release Screen

Tutorial Site	NAME.HRS		Site Score 72.14	
Surface Water -> Likelihood of Release				
Factor Category and Factors		Max	Value	Type
Observed Release		550	550	▓▓▓
a. Containment for Overland Flow		10	10	▓▓▓
Rainfall, 2-yr, 24-hr, (inches) Drainage Area (acres) Soil Group Designation b. Runoff Factor		25	0.0 0.0 A 0	▓▓▓
Distance to Surface Water (feet) c. Distance to Surface Water Factor		25	0.0 25	▓▓▓
Potential to Release by Overland Flow	a * (b + c)	500	250	▓▓▓
Potential to Release by Flood		500	250	▓▓▓
Likelihood of Release		550	550	▓▓▓
ENTER-Select		F9-Segment Definition F10-Help End-Previous		

Figure 40

Displayed on this screen are the likelihood of release factors for the Surface Water Pathway; they are applied to all threats. Note the "F9-Segment Definition" prompt on the status line at the bottom of the screen.

Press <F9>.

Watershed Description Screen

Tutorial Site	NAME.HRS			Site Score 72.14		
Surface Water -> Watershed Description						Type
Ground Water to Surface Water	PPE (miles)	0.000	Angle θ	175		
Segment Name	Segment Type	Water Type	Start Point (mi)	End Point (mi)	Average Flow (cfs)	Data Type
1 Robert's Creek	River	Fresh	0.00	1.20	11	
2 Potomac Segment #1	River	Fresh	1.20	4.89	205	
3 Potomac Segment #2	River	Fresh	4.89	15.00	358	
Enter Data				F10-Help End-Previous		

Figure 41

39

The Watershed Description Screen is displayed. You access this screen from the Surface Water Likelihood of Release Screen or from any of the surface water targets screens. Starting at the probable point of entry (PPE), enter a segment name and select segment and water types. Enter the start point, endpoint, and flow for each segment, up to a distance of 15 miles. Note that this methodology for defining the surface water migration path is based on a linearly defined migration path (see Appendix A for a discussion of branching migration paths). Define new segments wherever you have a change in flow, type of surface water body, or fishery. When you specify a surface water target (e.g., drinking water intake), you only need to provide the target distance from the PPE; PREscore assigns the appropriate dilution weighting factor and persistence value based on the segment definitions entered here. If you need to change a flow rate, access the Watershed Description Screen, change the flow, and PREscore updates the values for all targets on that segment to reflect the change. Segments may be inserted or deleted using the <Insert> and <Delete> keys.

    Press <END>.

The Surface Water Pathway Likelihood of Release Screen is simpler than the Likelihood of Release Screen for the Ground Water Pathway. Most values are entered directly, such as rainfall, drainage area, soil group, and distance to surface water. Containment values reflect those entered in Waste Characteristics (see Section 2.4) and can be accessed directly from this screen by pressing <ENTER> at the "Containment" position. The "Potential to Release by Flood" value also reflects information entered in Waste Characteristics (flood containment) and can be accessed directly.

Note that an observed release has been scored.

    CURSOR to the "Observed Release" position.
    Press <ENTER>.

Surface Water Pathway Samples Screen

Tutorial Site				NAME.HRS		Site Score 72.14	
Surface Water -> Samples				Level of Concentration			
Sample ID	Dist. (miles)	Sample Type	Data Type	DW	HFC	ENV	
1 Sample #1	0.000	Sediment		Level II	Level II	Level II	
2 Sample #2	0.000	Sediment		Level II	Level II	Level II	
ENTER-Select					F10-Help End-Previous		

Figure 42

This is the *Surface Water Pathway Samples Screen*. Samples (sediment, aqueous, and tissue) pertinent to all three threats are recorded on this screen. Samples are entered by recording the sample name/identification, distance from the PPE to the sample, and sample type. Levels of concentration for each threat, determined by PREscore, are displayed on the right side of the screen.

> **CURSOR** to the "Sample Type" column for Sample #2.
> **Press < ENTER >.**

To change the sample type,

> **CURSOR** to "Aqueous."
> **Press < ENTER >.**

Surface Water Pathway Sample Contaminants Screen

```
┌─────────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                    NAME.HRS          Site Score 72.14           │
│ ┌───────────────────────────────────────────────────────────────────────────┐ │
│ │ Surface Water -> Samples -> Aqueous -> Contaminants                        │ │
│ │ Sample ID -> Sample #2                                                     │ │
│ ├────────────────────┬──────────┬───────────────────────────────────────────┤ │
│ │                    │ Sample   │ Benchmark/Screening Factor (ppb)          │ │
│ │ Sample Contaminant │ Concentr.├──────────┬──────────┬──────────┬──────────┬────────┤
│ │                    │ ppb      │ MCL/MCLG │AWQC Frsh │AWQC Salt │Cancer R. │ RFD    │
│ ├────────────────────┼──────────┼──────────┼──────────┼──────────┼──────────┼────────┤
│ │ 1  Mercury         │ 1.0E+00  │ 2.0E+00  │ 1.2E-02  │ 2.5E-02  │ 0.0E+00  │1.1E+01 │
│ │ 2  Nickel          │ 2.0E+00  │ 0.0E+01  │ 1.6E+02  │ 8.3E+00  │ 0.0E+00  │7.0E+02 │
│ │                                                                           │ │
│ ├───────────────────────────────────────────────────────┬──────────┬────────┤ │
│ │          Cumulative Screening Index, Σ(C/SC)          │ 0.0E+00  │0.0E+00 │ │
│ └───────────────────────────────────────────────────────┴──────────┴────────┘ │
│ ENTER-Select                                        F10-Help   End-Previous    │
└─────────────────────────────────────────────────────────────────────────────┘
```

Figure 43

Hazardous substances and their concentrations can be selected and recorded on this screen. The methodology for selecting hazardous substances is described in Section 2.3. Notice that benchmarks are displayed on the right side of the screen.

To return to the Summary Screen...

> **Press < HOME >.**

2.6.1   Drinking Water Threat Targets

To record target information for the Drinking Water Threat...

From the Summary Screen...

> **CURSOR** to the "Targets" column for the Drinking Water Threat.
> **Press < ENTER >.**

The following screen appears:

Surface Water Pathway Drinking Water Threat Targets Screen

```
Tutorial Site                    NAME.HRS          Site Score 72.14

┌──────────────────────────────────────────────────────────────────┐
│ Surface Water -> Drinking Water -> Targets                         │
├────────────────────────────────────────────┬─────┬─────────┬──────┤
│ Factor Category and Factors                 │ Max │ Value   │ Type │
├────────────────────────────────────────────┼─────┼─────────┼──────┤
│ Nearest Intake                              │ 50  │ 0.00E+00│░░░░░░│
├────────────────────────────────────────────┼─────┼─────────┼──────┤
│   Population Potential Contamination        │ **  │ 1.60E+01│░░░░░░│
│   Population Level I Concentrations         │ **  │ 0.00E+00│░░░░░░│
│   Population Level II Concentrations        │ **  │ 0.00E+00│░░░░░░│
├────────────────────────────────────────────┼─────┼─────────┼──────┤
│   Population                                │ **  │ 1.60E+01│░░░░░░│
├────────────────────────────────────────────┼─────┼─────────┼──────┤
│   Resources                                 │ 5   │ 0.00E+00│      │
├────────────────────────────────────────────┼─────┼─────────┼──────┤
│ Drinking Water Targets Total                │ **  │ 1.60E+01│░░░░░░│
└────────────────────────────────────────────┴─────┴─────────┴──────┘

** Maximum value not applicable



ENTER-Select                                  F10-Help  End-Previous
```

Figure 44

CURSOR to the "Population" value.
Press <ENTER>.

Surface Water Pathway Drinking Water Threat Target Population Screen

```
Tutorial Site                    NAME.HRS          Site Score 72.14

┌──────────────────────────────────────────────────────────────────┐
│ Surface Water -> Drinking Water -> Targets -> Population            │
├──────────────────┬───────┬─────┬──────────┬─────────┬─────┬────────┤
│                  │ Dist. │ In- │Population│Level of │Data │        │
│ Drinking Water   │(miles)│take │ Served   │Concentr.│Type │ Value  │
│ Intake           │       │     │          │         │     │        │
├──────────────────┼───────┼─────┼──────────┼─────────┼─────┼────────┤
│ 1 Potomac Water #3│ 2.00 │ DW  │ 12849.0  │Potential│     │1.63E+01│
├──────────────────┼───────┼─────┼──────────┼─────────┼─────┼────────┤
│                  │       │     │          │         │     │        │
├──────────────────┼───────┼─────┼──────────┼─────────┼─────┼────────┤
│                  │       │     │          │         │     │        │
├──────────────────┼───────┼─────┼──────────┼─────────┼─────┼────────┤
│                  │       │     │          │         │     │        │
├──────────────────┼───────┼─────┼──────────┼─────────┼─────┼────────┤
│                  │       │     │          │         │     │        │
├──────────────────┴───────┴─────┴──────────┴─────────┴─────┼────────┤
│                  Potential Contamination                  │1.60E+01│
│                  Level I Concentrations                   │0.00E+00│
│                  Level II Concentrations                  │0.00E+00│
├───────────────────────────────────────────────────────────┼────────┤
│                  Drinking Water Population Value          │1.60E+01│
└───────────────────────────────────────────────────────────┴────────┘

Enter Data               F9-Segment Definition  F10-Help  End-Previous
```

Figure 45

42

On this screen, you enter drinking water intake information in the same manner that drinking water wells are entered in the Ground Water Pathway section (see Section 2.5).

To return to the Summary Screen:

Press <HOME>.

2.6.2 Human Food Chain Threat Targets

To record target information for the Human Food Chain Threat...

From the Summary Screen...

CURSOR to the "Targets" column for the Food Chain Threat.
Press <ENTER>.

Surface Water Pathway Human Food Chain Threat Targets Screen

Tutorial Site		NAME.HRS		Site Score 72.14	
Surface Water -> Food Chain -> Targets					
Fishery ID (from segment ID)	Dilution Weight	Production (lbs/year)	Data Type	Level of Concentr.	Value
1 Robert's Creek	0.000000	1200.0		Level II	3.00E+00
2 Potomac Segment #1	0.010000	257900.0		Potential	3.10E-01
3 Potomac Segment #2	0.010000	300000.0		Potential	3.10E-01
Food Chain Individual (max 50)					4.50E+01
Potential Contamination Level I Concentrations Level II Concentrations Human Food Chain Population Value					6.20E-01 0.00E+00 3.00E+00 3.62E+00
Surface Water Human Food Chain Targets Total					4.86E+01
Enter Data		F9-Segment Definition		F10-Help	End-Previous

Figure 46

The fishery names displayed on this screen are taken directly from the surface water segments entered on the Watershed Description Screen. The dilution weights shown are based on the flow rate or water body type selected for each segment. To evaluate a segment as a fishery, a production value (lbs/year) must be entered. The "Level of Concentr." column accesses the Surface Water Pathway Samples Screen where you enter sample information, including fish and benthic organism tissue sample information.

To return to the Summary Screen...

Press <HOME>.

2.6.3 Environmental Threat Targets

To record target information for the Environmental Threat...

From the Summary Screen...

> **CURSOR** to the "Targets" column for the Environmental Threat.
> Press <ENTER>.

Surface Water Pathway Environmental Threat Targets Screen

```
┌──────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                    NAME.HRS              Site Score 72.14    │
│ ┌────────────────────────────────────────────────────────────────────┐    │
│ │ Surface Water -> Sensitive Environments -> Targets                 │    │
│ │                                                                    │    │
│ │                      Wetland                                       │    │
│ │      Sensitive       Frontage  Envir.  Distance Level of Data      │    │
│ │   Environment Name   (miles)   Value   (miles)  Concentr. Type Value│   │
│ │                                                                    │    │
│ │ 1 Willy Moor         3.60      100     8.00    Potential     1.00E-01│   │
│ │                                                                    │    │
│ │ 2 Smithson Park      N.A       25      8.70    Potential     2.50E-02│   │
│ │                                                                    │    │
│ │                                                                    │    │
│ │                                                                    │    │
│ │                  Potential Contamination             1.25E-01      │    │
│ │                  Level I Concentrations              0.00E+00      │    │
│ │                  Level II Concentrations             0.00E+00      │    │
│ │                                                                    │    │
│ │        Surface Water Environmental Targets Total     1.25E-01      │    │
│ └────────────────────────────────────────────────────────────────────┘    │
│                                                                            │
│ Enter Data               F9-Segment Definition  F10-Help  End-Previous     │
└──────────────────────────────────────────────────────────────────────────┘
```

Figure 47

On this screen, enter the name of each sensitive environment, its wetland frontage or its rating value (from HRS Table 4-23), and distance from the PPE. The "Level of Concentr." column accesses the Surface Water Pathway Samples Screen where you enter sample information. Note, if you enter wetland frontage, PREscore assigns the environment value.

To return to the Summary Screen...

> Press <HOME>.

2.6.4 Ground Water to Surface Water Component

On the Summary Screen, notice the message "Overland Flow, F7 to Toggle," shown in the shaded line under Surface Water Pathway. To see scores for the Ground Water to Surface Water Component...

> Press <F7>.

Summary Screen: Surface Water Pathway Components Toggle

```
┌─────────────────────────────────────────────────────────────────────┐
│ Tutorial Site              NAME.HRS           Site Score 72.14        │
│  ┌──────────────────────────────────────────────────────────────┐    │
│  │                    PREscore Version 1.0                       │    │
│  ├────────────┬──────────┬──────────────┬──────────┬───────────┤    │
│  │            │Likelihood│    Waste      │          │ Pathway   │    │
│  │  Pathway   │of Release│Characteristics│ Targets  │  Score    │    │
│  ├────────────┼──────────┼──────────────┼──────────┼───────────┤    │
│  │ Ground Water│   550   │      32      │ 1.38E+03 │  100.00   │    │
│  ├────────────┼──────────┼──────────────┼──────────┼───────────┤    │
│  │ Drinking Water│ 550   │      32      │ 8.00E+00 │   1.71    │    │
│  │ Food Chain │   550    │     320      │ 4.83E+01 │  100.00   │    │
│  │ Environmental│ 550    │     320      │ 6.25E-02 │   0.13    │    │
│  │ Surface Water│  GW to SW, F7 to Toggle          │  100.00   │    │
│  ├────────────┼──────────┼──────────────┼──────────┼───────────┤    │
│  │ Resident   │   550    │      32      │ 7.30E+01 │  15.57    │    │
│  │ Nearby     │    25    │      32      │ 9.00E-01 │   0.01    │    │
│  │ Soil Exposure│                                  │  15.58    │    │
│  ├────────────┼──────────┼──────────────┼──────────┼───────────┤    │
│  │ Air        │   550    │      18      │ 2.00E+02 │  24.01    │    │
│  └────────────┴──────────┴──────────────┴──────────┴───────────┘    │
│                                                                       │
│ ENTER-Select              F8-Files  F9-Info  F10-Help  End-Exit       │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 48

Note the change in the displayed message and Surface Water Pathway scores.

CURSOR to the Surface Water "Likelihood of Release" position (any threat). Press <ENTER>.

Ground Water Pathway Likelihood of Release Screen: Surficial Aquifer

```
┌─────────────────────────────────────────────────────────────────────┐
│ Tutorial Site              NAME.HRS           Site Score 72.14        │
│  ┌──────────────────────────────────────────────────────────────┐    │
│  │ Ground Water -> Likelihood of Release -> Surficial Aquifer   │    │
│  ├──────────────────────────────────────────┬─────┬──────┬─────┤    │
│  │ Factor Category and Factors              │ Max │ Value│Type │    │
│  ├──────────────────────────────────────────┼─────┼──────┼─────┤    │
│  │ Observed Release                         │ 550 │ 550  │     │    │
│  ├──────────────────────────────────────────┼─────┼──────┼─────┤    │
│  │ a. Containment                           │  10 │  10  │     │    │
│  ├──────────────────────────────────────────┼─────┼──────┼─────┤    │
│  │    Net Precipitation (inches)            │     │ 4.3  │     │    │
│  │ b. Precipitation Factor                  │  10 │  1   │     │    │
│  ├──────────────────────────────────────────┼─────┼──────┼─────┤    │
│  │ c. Depth to Aquifer                      │  5  │  5   │     │    │
│  │ d. Travel Time                           │  35 │  35  │     │    │
│  ├──────────────────────────────────────────┼─────┼──────┼─────┤    │
│  │ Potential to Release = a * ( b + c + d ) │ 500 │ 410  │     │    │
│  ├──────────────────────────────────────────┼─────┼──────┼─────┤    │
│  │ Likelihood of Release                    │ 550 │ 550  │     │    │
│  └──────────────────────────────────────────┴─────┴──────┴─────┘    │
│                                                                       │
│ ENTER-Select                             F10-Help  End-Previous       │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 49

The Ground Water Pathway Likelihood of Release Screen for the <u>shallowest</u> aquifer appears. When evaluating the Ground Water to Surface Water Component, this likelihood of release score is applied to the Surface Water Pathway (see HRS for restrictions). You may change the information displayed; however, PREscore also applies any changes to the Ground Water Pathway.

>   Press <END>.
>   CURSOR to the "Targets" column for the Environmental Threat.
>   Press <ENTER>.
>   Press <F9> to access the Watershed Description Screen.

Watershed Description Screen: Ground Water to Surface Water Component

```
┌────────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                    NAME.HRS              Site Score 72.14      │
│ ┌────────────────────────────────────────────────────────────────────┬─────┐│
│ │ Surface Water -> Watershed Description                              │Type ││
│ ├─────────────────────────────────┬───────────┬──────┬──────────────┼─────┤│
│ │ Ground Water to Surface Water    │PPE (miles)│0.000 │Angle θ│ 175  │     ││
│ ├─────────────────────────┬────────┬──────┬─────┬─────┬────────┬─────┤     ││
│ │                         │        │      │Start│End  │Average │     │     ││
│ │                         │        │Water │Point│Point│Flow    │Data │     ││
│ │      Segment Name       │Segment │Type  │(mi) │(mi) │(cfs)   │Type │     ││
│ │                         │Type    │      │     │     │        │     │     ││
│ ├─────────────────────────┼────────┼──────┼─────┼─────┼────────┼─────┤     ││
│ │ 1 Robert's Creek        │River   │Fresh │0.00 │1.20 │11      │     │     ││
│ │ 2 Potomac Segment #1    │River   │Fresh │1.20 │4.89 │205     │     │     ││
│ │ 3 Potomac Segment #2    │River   │Fresh │4.89 │15.00│358     │     │     ││
│ │                         │        │      │     │     │        │     │     ││
│ │                         │        │      │     │     │        │     │     ││
│ │                         │        │      │     │     │        │     │     ││
│ │                         │        │      │     │     │        │     │     ││
│ ├─────────────────────────┴────────┴──────┴─────┴─────┴────────┴─────┘     ││
│ │ Enter Data                              F10-Help   End-Previous           ││
│ └──────────────────────────────────────────────────────────────────────────┘│
└────────────────────────────────────────────────────────────────────────────┘
```

Figure 50

Near the top of the screen is a data entry position entitled "PPE (miles)." If the Ground Water to Surface Water Component PPE is different than the Overland Flow/Flood Component PPE, you must enter the distance between the two. The distance can be a positive or negative number. In addition, next to the "Angle θ" position you must enter the angle theta. These two values are the only unique data entry requirements for scoring the Ground Water to Surface Water Component.

To return to the Summary Screen...

>   Press <HOME>.
>   Press <F7>.

The scores now reflect the additions made while working through the Surface Water Pathway section of the program.

2.7   Soil Exposure Pathway

Once sources have been defined and accessibility/attractiveness values entered (see Section 2.4), scoring the Soil Exposure Pathway becomes primarily a matter of entering target information.

2.7.1   Resident Population Threat

From the Summary Screen...

> **CURSOR** to the "Targets" column for the Resident Population Threat.
> Press <ENTER>.

<div align="center">Soil Exposure Pathway Resident Population Threat Screen</div>

Tutorial Site	NAME.HRS		Site Score 72.14	
Soil Exposure -> Residents				
Factor Categories and Factors	Max	Value/Data		Type
Likelihood of Exposure	550	5.50E+02		▨
Resident Individual	50	4.50E+01		▨
Level I Concentrations Value/Population Level II Concentrations Value/Population Resident Population	** ** **	0.00E+00 /0.0 2.30E+01 /23.0 2.30E+01		▨
Workers Factor Value / Number of Workers	15	5.00E+00 /12.0		
Resources	5	0.00E+00		
Terrestrial Sensitive Environments	**	0.00E+00		▨
Resident Population Targets Total	**	7.30E+01		▨

** Maximum value not applicable

Enter Data   F10-Help   End-Previous

<div align="center">Figure 51</div>

Likelihood of exposure and target information is displayed on a single screen. Even though you entered this screen through the Targets factor category, you may change the Likelihood of Exposure score. Likewise,if you enter this screen through the Likelihood of Exposure factor category, you may still enter and edit targets information.

> **CURSOR** to the "Likelihood of Exposure" position.
> Press <ENTER>.

The following screen appears:

Soil Exposure Pathway Likelihood of Exposure Screen

```
╔════════════════════════════════════════════════════════════════════╗
║ Tutorial Site              NAME.HRS          Site Score 72.14        ║
║ ┌──────────────────────────────────────────────────────────────────┐║
║ │ Soil Exposure -> Likelihood of Exposure                          │║
║ │────────────────────────────────────────────────────────────────────│║
║ │                    │Level of │Data│Attract./│Data│Area (ft²) of│Data│║
║ │    Source Name     │Concentr.│Type│Accessib.│Type│Contamination│Type│║
║ │────────────────────┼─────────┼────┼─────────┼────┼─────────────┼────│║
║ │ 1   Waste Pile #1  │Level II │    │   50    │    │   12000     │    │║
║ │ 2   Paint Waste Area #3│Level II │    │   50    │    │   20000     │    │║
║ │                    │         │    │         │    │             │    │║
║ │                    │         │    │         │    │             │    │║
║ │                    │         │    │         │    │             │    │║
║ │                    │         │    │         │    │             │    │║
║ │                    │         │    │         │    │             │    │║
║ └──────────────────────────────────────────────────────────────────┘║
║                                                                      ║
║ ENTER-Select                              F10-Help  End-Previous     ║
╚════════════════════════════════════════════════════════════════════╝
```

Figure 52

> **CURSOR** to the "Level of Concentr." column for Waste Pile #1.
> Press <ENTER> twice.
> **CURSOR** to "Aldrin."
> Press <ENTER>.
> Press <END>.
> **CURSOR** to the "Concentr." column next to aldrin.
> Type **1.23**.
> Press <END>.

PREscore determines, based on the analytical information you entered, that Aldrin is present at Level I concentrations.

To enter target information...

> Press <END>.
> **CURSOR** to the "Level I Concentrations Value/Population" position.
> Type **1**.

Note that, for this pathway, you must determine whether a population is exposed to areas with Level I and Level II concentrations (i.e., PREscore cannot make that determination).

To enter other target information...

> **CURSOR** to the "Workers Factor Value / Number of Workers" position.
> Type **160**.
> **CURSOR** to the "Terrestrial Sensitive Environments" position.
> Press <ENTER>.

The following screen appears:

Soil Exposure Pathway Resident Population Threat/Terrestrial Sensitive Environment Targets Screen

```
Tutorial Site                 NAME.HRS          Site Score 72.41

 Soil Exposure Residents -> Targets -> Terrestrial Sensitive Environments

                                              Rating      Data
   Terrestrial Sensitive Environment Name     Value       Type

 1                                               0

 Terrestrial Sensitive Environments Factor Value   0

Enter Data                                       F10-Help  End-Previous
```

Figure 53

To enter a terrestrial sensitive environment...

> Type Seashore Nat. Area.
> CURSOR to the "Rating Value" column.
> Type 25 (see HRS Table 5-5).
> Press <ENTER>.
> Press <END>.

49

The Soil Exposure Pathway Resident Population Threat Screen reappears:

Soil Exposure Pathway Resident Population Threat Screen: With Example

```
┌──────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                  NAME.HRS            Site Score 72.82        │
│ ┌────────────────────────────────────────────────────────────────────────┐│
│ │ Soil Exposure -> Residents                                             ││
│ ├──────────────────────────────────────────┬─────┬──────────────┬────────┤│
│ │ Factor Categories and Factors            │ Max │ Value/Data   │ Type   ││
│ ├──────────────────────────────────────────┼─────┼──────────────┼────────┤│
│ │   Likelihood of Exposure                 │ 550 │ 5.50E+02     │ ▓▓▓▓▓▓ ││
│ ├──────────────────────────────────────────┼─────┼──────────────┼────────┤│
│ │   Resident Individual                    │  50 │ 5.00E+01     │ ▓▓▓▓▓▓ ││
│ ├──────────────────────────────────────────┼─────┼──────────────┼────────┤│
│ │     Level I Concentrations Value/Population │ ** │ 1.00E+01 /1.0 │       ││
│ │     Level II Concentrations Value/Population│ ** │ 2.30E+01 /23.0│       ││
│ │   Resident Population                    │  ** │ 3.30E+01     │ ▓▓▓▓▓▓ ││
│ ├──────────────────────────────────────────┼─────┼──────────────┼────────┤│
│ │   Workers Factor Value / Number of Workers│ 15 │ 1.00E+01 /160.0│       ││
│ ├──────────────────────────────────────────┼─────┼──────────────┼────────┤│
│ │   Resources                              │   5 │ 0.00E+00     │        ││
│ ├──────────────────────────────────────────┼─────┼──────────────┼────────┤│
│ │   Terrestrial Sensitive Environments     │  ** │ 2.50E+01     │ ▓▓▓▓▓▓ ││
│ ├──────────────────────────────────────────┼─────┼──────────────┼────────┤│
│ │ Resident Population Targets Total        │  ** │ 1.18E+02     │ ▓▓▓▓▓▓ ││
│ └──────────────────────────────────────────┴─────┴──────────────┴────────┘│
│ ** Maximum value not applicable                                           │
│ ENTER-Select                                      F10-Help  End-Previous   │
└──────────────────────────────────────────────────────────────────────────┘
```

Figure 54

The Resident Population Threat Targets score has been calculated based on the information you entered.

To return to the Summary Screen...

> Press <HOME>.

2.7.2 Nearby Population Threat

To enter information for the Nearby Population Threat...

> CURSOR to the "Targets" column for the Nearby Population Threat.
> Press <ENTER>.

The following screen appears:

Soil Exposure Pathway Nearby Population Threat Screen

```
┌──────────────────────────────────────────────────────────────────────────┐
│  Tutorial Site                    NAME.HRS           Site Score 72.82      │
│  ┌──────────────────────────────────────────────────────────────────────┐ │
│  │ Soil Exposure -> Nearby Population Threat                             │ │
│  ├─────────────────────────────────────────┬──────┬───────────────┬─────┤ │
│  │ Factor Categories and Factors           │ Max  │ Value/Data    │Type │ │
│  ├─────────────────────────────────────────┼──────┼───────────────┼─────┤ │
│  │ Attractiveness/Accessibility            │ 100  │ 5.00E+01      │▒▒▒▒ │ │
│  │ Area of Contamination Value / Area (ft²)│ 100  │ 2.00E+01 / 32000│▒▒▒│ │
│  ├─────────────────────────────────────────┼──────┼───────────────┼─────┤ │
│  │ Likelihood of Exposure                  │ 500  │ 2.50E+01      │▒▒▒▒ │ │
│  ├─────────────────────────────────────────┼──────┼───────────────┼─────┤ │
│  │ Nearby Individual                       │  1   │ 0.00E+00      │▒▒▒▒ │ │
│  ├─────────────────────────────────────────┼──────┼───────────────┼─────┤ │
│  │   0 to 1/4 mile Value / Population       │ **   │ 4.00E-01 / 214.2│   │ │
│  │ > 1/4 to 1/2 mile Value / Population     │ **   │ 2.00E-01 / 123.0│   │ │
│  │ > 1/2 to 1 mile Value / Population       │ **   │ 3.00E-01 / 562.3│   │ │
│  ├─────────────────────────────────────────┼──────┼───────────────┼─────┤ │
│  │ Population Within 1 Mile Factor Value    │ **   │ 9.00E-01      │▒▒▒▒ │ │
│  ├─────────────────────────────────────────┼──────┼───────────────┼─────┤ │
│  │ Nearby Population Target Totals          │ **   │ 9.00E-01      │▒▒▒▒ │ │
│  └─────────────────────────────────────────┴──────┴───────────────┴─────┘ │
│  ** Maximum value not applicable                                           │
│                                                                            │
│  Enter Data                                   F10-Help   End-Previous      │
└──────────────────────────────────────────────────────────────────────────┘
```

Figure 55

Once again, likelihood of exposure and target information are displayed on a single screen. Note that the attractiveness/accessibility and area of contamination values, based on your previous input (Section 2.4), are displayed. You may change these values by cursoring to the "Likelihood of Exposure" position and pressing <ENTER>, which takes you to the Soil Exposure Pathway Likelihood of Exposure Screen discussed in Section 2.7.1.

To enter target data...

> **CURSOR** to the "> 1/4 to 1/2 mile Value / Population" position.
> Type **397**.
> **CURSOR** to the "> 1/2 to 1 mile Value / Population" position.
> Type **221**.
> Press <ENTER>.

To return to the Summary Screen...

> Press <HOME>.

The site score now reflects the additions made while in the Soil Exposure Pathway portion of the program.

2.8 Air Pathway

Most of the factors in the Air Pathway Likelihood of Release factor category are source dependent and automatically calculated by PREscore based on the source information you enter (see Section 2.4). Therefore, scoring the Air Pathway consists primarily of entering target information.

From the Summary Screen...

> **CURSOR** to the "Likelihood of Release" column for the Air Pathway.
> Press <ENTER>.

Air Pathway Likelihood of Release Screen

```
┌─────────────────────────────────────────────────────────────────────┐
│  Tutorial Site                  NAME.HRS         Site Score 72.82     │
│  ┌──────────────────────────────────────────────────────────────┐    │
│  │ Air Pathway -> Likelihood of Release                         │    │
│  ├──────────────────────────────────────────┬─────┬────────┬────┤    │
│  │ Factor Category and Factors              │ Max │ Value  │Type│    │
│  ├──────────────────────────────────────────┼─────┼────────┼────┤    │
│  │ Observed Release                         │ 550 │ 550    │▓▓▓▓│    │
│  ├──────────────────────────────────────────┼─────┼────────┼────┤    │
│  │   Gas Potential to Release               │ 500 │ 340    │▓▓▓▓│    │
│  │   Source: Waste Pile #1    , Containment Value │ 10 │ 10 │▓▓▓▓│    │
│  ├──────────────────────────────────────────┼─────┼────────┼────┤    │
│  │   Particulate Potential to Release       │ 500 │ 280    │▓▓▓▓│    │
│  │   Source: Waste Pile #1    , Containment Value │ 10 │ 10 │▓▓▓▓│    │
│  ├──────────────────────────────────────────┼─────┼────────┼────┤    │
│  │   Particulate Migration Potential        │ 17  │ 0      │    │    │
│  │   Particulate Mobility Factor Value      │0.02 │0.00002 │    │    │
│  ├──────────────────────────────────────────┼─────┼────────┼────┤    │
│  │ Potential to Release                     │ 500 │ 340    │▓▓▓▓│    │
│  ├──────────────────────────────────────────┼─────┼────────┼────┤    │
│  │ Likelihood of Release                    │ 550 │ 550    │▓▓▓▓│    │
│  └──────────────────────────────────────────┴─────┴────────┴────┘    │
│                                                                       │
│  ENTER-Select                            F10-Help   End-Previous      │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 56

This screen summarizes likelihood of release information for the Air Pathway, displaying the highest scoring source. To see a summary of potential to release information for all sources, cursor to either the "Gas Potential to Release" or the "Particulate Potential to Release" position and press <ENTER>. For example...

> **CURSOR** to the "Gas Potential to Release" value.
> Press <ENTER>.

52

The following screen appears:

Air Pathway Gas Potential to Release Screen

```
┌────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                    NAME.HRS            Site Score 72.82     │
│  ┌────────────────────────────────────────────────────────────────────┐ │
│  │ Air Pathway -> Likelihood of Release -> Gas Potential to Release Summary │
│  ├────────────────────────┬──────────┬────────┬──────────┬──────────┤ │
│  │                        │Source Gas│ Source │   Gas    │   Gas    │ │
│  │                        │Containment│  Type  │Migration │Potential │ │
│  │      Source Name       │  Value   │ Factor │Potential │to Release│ │
│  ├────────────────────────┼──────────┼────────┼──────────┼──────────┤ │
│  │ 1   Waste Pile #1      │    10    │   17   │    17    │   340    │ │
│  ├────────────────────────┼──────────┼────────┼──────────┼──────────┤ │
│  │ 2   Paint Waste Area #3│    10    │   19   │    11    │   300    │ │
│  ├────────────────────────┼──────────┼────────┼──────────┼──────────┤ │
│  │                        │          │        │          │          │ │
│  ├────────────────────────┼──────────┼────────┼──────────┼──────────┤ │
│  │                        │          │        │          │          │ │
│  ├────────────────────────┼──────────┼────────┼──────────┼──────────┤ │
│  │                        │          │        │          │          │ │
│  ├────────────────────────┼──────────┼────────┼──────────┼──────────┤ │
│  │                        │          │        │          │          │ │
│  ├────────────────────────┼──────────┼────────┼──────────┼──────────┤ │
│  │                        │          │        │          │          │ │
│  ├────────────────────────┴──────────┴────────┴──────────┼──────────┤ │
│  │ Potential to Release (highest source: Waste Pile #1  ) │   340    │ │
│  └────────────────────────────────────────────────────────┴──────────┘ │
│ PgUp or PgDn to Browse                        F10-Help  End-Previous     │
└────────────────────────────────────────────────────────────────────────┘
```

Figure 57

This screen provides a summary of source information; however, no values can be changed. The <PgUp> and <PgDn> keys can be used to browse if more than seven sources have been defined.

Press <END>.
CURSOR to the Gas Potential to Release, "Source: Waste Pile #1, Containment Value" position.
Press <ENTER>.

The following screen appears:

Air Pathway Containment Screen

```
╔═══════════════════════════════════════════════════════════════════╗
║ ┌─────────────────────────────────────────────────────────────────┐ ║
║ │ Tutorial Site              NAME.HRS           Site Score 72.82   │ ║
║ ├─────────────────────────────────────────────────────────────────┤ ║
║ │ Air Pathway -> Likelihood of Release -> Source Containment       │ ║
║ ├──────────────────────────────────┬──────────┬───────────────────┤ ║
║ │                                  │          │ Air Containment (Max 10) │ ║
║ │                                  │ Source   ├─────┬─────┬───────────┬─────┤ ║
║ │          Source Name             │ Type     │     │Data │           │Data │ ║
║ │                                  │          │ Gas │Type │Particulate│Type │ ║
║ ├──────────────────────────────────┼──────────┼─────┼─────┼───────────┼─────┤ ║
║ │ 1   Waste Pile #1                │ Waste P. │ 10  │     │    10     │     │ ║
║ ├──────────────────────────────────┼──────────┼─────┼─────┼───────────┼─────┤ ║
║ │ 2   Paint Waste Area #3          │ Surf.Imp │ 10  │     │    10     │     │ ║
║ ├──────────────────────────────────┼──────────┼─────┼─────┼───────────┼─────┤ ║
║ │                                  │          │     │     │           │     │ ║
║ ├──────────────────────────────────┼──────────┼─────┼─────┼───────────┼─────┤ ║
║ │                                  │          │     │     │           │     │ ║
║ ├──────────────────────────────────┼──────────┼─────┼─────┼───────────┼─────┤ ║
║ │                                  │          │     │     │           │     │ ║
║ ├──────────────────────────────────┼──────────┼─────┼─────┼───────────┼─────┤ ║
║ │                                  │          │     │     │           │     │ ║
║ ├──────────────────────────────────┴──────────┴─────┴─────┴───────────┴─────┤ ║
║ │ ENTER-Select                                    F10-Help  End-Previous    │ ║
║ └─────────────────────────────────────────────────────────────────┘ ║
╚═══════════════════════════════════════════════════════════════════╝
```

Figure 58

Sources are displayed on this screen, along with source types and air containment values. The containment values may be changed; however, sources can only be added or deleted in the Waste Characteristics portion of the program (see Section 2.4).

> Press <END>.

Two factor values must be entered on the Air Pathway Likelihood of Release Screen, particulate migration potential and particulate mobility.

> CURSOR to the "Particulate Migration Potential" position.
> Press <ENTER>.
> CURSOR to "6."
> Press <ENTER>.
> CURSOR to the "Particulate Mobility Factor Value" position.
> Press <ENTER>.
> CURSOR to "0.0002."
> Press <ENTER>.

To return to the Summary Screen...

> Press <HOME>.

To enter target information...

> CURSOR to the "Targets" column for the Air Pathway.
> Press <ENTER>.

Air Pathway Targets Screen

```
+================================================================+
|| Tutorial Site              NAME.HRS        Site Score 72.82  ||
||                                                              ||
|| +----------------------------------------------------------+ ||
|| | Air Pathway -> Targets                                   | ||
|| |                                                          | ||
|| | +------------------------------------+-----+--------+----+| ||
|| | | Factor Category and Factors        | Max | Value  |Type|| ||
|| | +------------------------------------+-----+--------+----+| ||
|| | | Distance to Nearest Individual (miles)| 50| 45 /0.050|  || ||
|| | +------------------------------------+-----+--------+----+| ||
|| | |    Population Level I Concentrations  | **| 0.00E+00|####|| ||
|| | |    Population Level II Concentrations | **| 1.20E+01|####|| ||
|| | |    Population Potential Contamination | **| 1.38E+02|####|| ||
|| | +------------------------------------+-----+--------+----+| ||
|| | | Population                         | **  | 1.50E+02|####|| ||
|| | +------------------------------------+-----+--------+----+| ||
|| | | Resources                          |  5  | 5.00E+00|    || ||
|| | +------------------------------------+-----+--------+----+| ||
|| | | Sensitive Environments             | **  | 4.35E-02|####|| ||
|| | +------------------------------------+-----+--------+----+| ||
|| | | Air Pathway Targets Total          | **  | 2.00E+02|####|| ||
|| | +------------------------------------+-----+--------+----+| ||
|| |                                                          | ||
|| | ** Maximum value not applicable                          | ||
|| +----------------------------------------------------------+ ||
||                                                              ||
||                                                              ||
|| Enter Data                              F10-Help  End-Previous||
+================================================================+
```

Figure 59

Section 2.3, "General Operation" discussed target population and sampling data entry for the Air Pathway. Additional Air Pathway data entry is discussed here.

CURSOR to the "Sensitive Environments" value.
Press < ENTER >.

Air Pathway Sensitive Environment Targets Screen

Sensitive Environment Name	Wetland Acreage	Rating Value	Level of Concentr.	Distance (miles)	Data Type	Value
1 Bogg's Swamp	23.5	25	Potential	1/2-1.0		4.00E-02
2 Camden Rec. Area	N.A	25	Potential	3.200		3.50E-03
3 Smithson Park	N.A	25	Potential	8.700		0.00E-00

Tutorial Site   NAME.HRS   Site Score 72.82

Air Pathway -> Targets -> Sensitive Environments

Air Pathway Sensitive Environments Actual Contamination	0.00E+00
Air Pathway Sensitive Environments Potential Contamination	4.35E-02
Air Pathway Sensitive Environments Factor Value	4.35E-02

Enter Data   F10-Help End-Previous

Figure 60

CURSOR to the first blank line.
Type **Wetland #2.**
CURSOR to the "Wetland Acreage" column.
Type **20.25.**
Press **<ENTER>**.

PREscore assigns a rating value (25) for this sensitive environment. To enter a sensitive environment that is not a wetland, skip directly from the "Sensitive Environment Name" column to the "Rating Value" column and enter a value determined from HRS Table 4-23.

CURSOR to the "Level of Concentr." column.
Press **<ENTER>**.

Air Pathway Samples Screen

Tutorial Site	NAME.HRS	Site Score 72.82		
Air Pathway -> Samples				
Sample Name		Distance (miles)	Level of Concentration	Data Type
1 Air Sample #1		0.000	Level II	E*
Enter Data			F10-Help End-Previous	

Figure 61

This is the Air Pathway Samples Screen; data entry was discussed in Section 2.3. To return to the sensitive environments screen...

Press **<END>**.
CURSOR to the "Distance (miles)" column for Wetland #2.
Press **<ENTER>**.
CURSOR to "Greater than 3 to 4 miles."
Press **<ENTER>**.
CURSOR to the "Distance (miles)" column for Smithson Park.
Type **8.5.**

Wetland #2 and Smithson Park are targets exposed to potential contamination, requiring the application of a distance weight. Distance to wetlands is recorded using distance categories from a pop-up menu, while the discrete distance to other sensitive environments must be typed. PREscore applies the distance weight and calculates a factor value for each sensitive environment.

56

To return to the Summary Screen...

Press <HOME>.

The scores now reflect the additions made while in the Air Pathway portion of the program.

2.9   Radionuclides

Scoring radionuclides (radioactive hazardous substances) requires only slight deviations from the standard procedures described elsewhere in this manual. Special procedures are required for the entry/selection of specific radionuclides (source-related and sampling information) and for entry of hazardous waste quantity information. Entering likelihood of release and target information requires no special instructions for radionuclides.

To score radionuclides, you must first designate a radioactive source. From the Summary Screen...

CURSOR to the "Waste Characteristics" column (for any pathway or threat).
Press <ENTER>.
CURSOR to the third row of the "Source Name" column.
Type **Radium Waste**.
CURSOR to the "Vol/Area Value" column.
Press <ENTER>.
CURSOR to the "Source Type" position.
Press <ENTER>.

Source Information Screen: Source Type Pop-Up Menu

```
┌──────────────────────────────────────────────────────────────────────────┐
│  Tutorial Site                    NAME.HRS           Site Score 72.82       │
│  ┌──────────────────────────────────────────────────────────────────────┐ │
│  │ Waste Characteristics -> Source -> Vol/A ┌──── Source Type ────┐       │ │
│  │                                          │Drums                │       │ │
│  │ ┌──────────────────────────────────────┐│Non-drum Containers   │Value│Type││
│  │ │ Factor Categories and Factors        ││Contaminated Soil     │     │    ││
│  │ │                                      ││Land Treatment        │Drums│    ││
│  │ │ Source Type                          ││Landfill              │     │    ││
│  │ │                                      ││Surface Impoundment   │N.A. │    ││
│  │ │ Secondary Source Type                ││Waste Pile            │     │    ││
│  │ │                                      ││Other                 │0    │    ││
│  │ │ Number of Source Contaminants        ││Unallocated           │     │    ││
│  │ │                                      ││Radioactive Source    │0    │    ││
│  │ │ Source Volume                        │└──────────────────────┘     │    ││
│  │ │ Source Area                          │  ft²  │  N.A.  │              │    ││
│  │ └──────────────────────────────────────┘                                   │ │
│  │                                                                        │ │
│  │  ENTER-Select                              F10-Help  End-Previous       │ │
│  └──────────────────────────────────────────────────────────────────────┘ │
└──────────────────────────────────────────────────────────────────────────┘
```

Figure 62

CURSOR to "Radioactive Source."
Press <ENTER>.
CURSOR to "Below 2 times background levels."
Press <ENTER>.

57

Sources Information Screen: With Example

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│  Tutorial Site                    NAME.HRS          Site Score 72.82  │
│  ┌─────────────────────────────────────────────────────────────────┐ │
│  │ Waste Characteristics -> Source -> Vol/Area -> Radium Waste      │ │
│  ├──────────────────────────────────────────┬──────┬─────────┬─────┤ │
│  │ Factor Categories and Factors            │Units │ Value   │Type │ │
│  ├──────────────────────────────────────────┼──────┼─────────┼─────┤ │
│  │ Source Type                              │ ▓▓▓  │Radioact │     │ │
│  ├──────────────────────────────────────────┼──────┼─────────┼─────┤ │
│  │ Secondary Source Type                    │ ▓▓▓  │  N.A.   │     │ │
│  ├──────────────────────────────────────────┼──────┼─────────┼─────┤ │
│  │ Number of Source Contaminants            │Count │  0      │     │ │
│  ├──────────────────────────────────────────┼──────┼─────────┼─────┤ │
│  │ Source Volume                            │cu yd │  N.A.   │     │ │
│  ├──────────────────────────────────────────┼──────┼─────────┼─────┤ │
│  │ Source Area                              │ ft²  │  N.A.   │     │ │
│  └──────────────────────────────────────────┴──────┴─────────┴─────┘ │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│  ENTER-Select                                   F10-Help  End-Previous│
└─────────────────────────────────────────────────────────────────────┘
```

Figure 63

Notice that the source volume and area positions display "N.A." (not applicable). This reflects the HRS methodology restricting radionuclide-related hazardous waste quantity evaluation to constituent or wastestream data.

To record hazardous substances associated with this source...

> CURSOR to the "Number of Source Contaminants" position.
> Press <ENTER>.

The following screen appears:

Source Radionuclide Screen

```
╔══════════════════════════════════════════════════════════════════╗
║  Tutorial Site              NAME.HRS           Site Score 72.82    ║
║ ┌────────────────────────────────────────────────────────────────┐║
║ │ Source / Soil Exposure -> Radionuclides                        │║
║ │ Source ID -> Radium Waste                                      │║
║ ├────────────────────────────┬───────┬───┬─────┬─────────────────┤║
║ │                            │       │   │2 ft │ Screening pCi/Kg │║
║ │   Sample Radionuclides     │Concent│Liq│ or  ├─────┬──────┬─────┤║
║ │                            │pCi/kg │Y/N│Less │UMTRCA│CR-Gamma│CR-Ingest│║
║ │                            │       │   │     │     │      │     │║
║ │                            │       │   │     │     │      │     │║
║ │                            │       │   │     │     │      │     │║
║ │                            │       │   │     │     │      │     │║
║ │                            │       │   │     │     │      │     │║
║ ├────────────────────────────┴───────┴───┴─────┼─────┼──────┼─────┤║
║ │     Cumulative Screening Index, Σ(C/SC)       │0.0E+00│0.0E+00│    │║
║ └───────────────────────────────────────────────┴──────┴──────┘║
║  ENTER-Select   F2-Radionuclides          F10-Help  End-Previous ║
╚══════════════════════════════════════════════════════════════════╝
```

Figure 64

From this screen you select the radionuclide substances associated with the source.

Press <F2> (note the message on the status line).

Radionuclide Selection Screen

```
╔══════════════════════════════════════════════════════════════════╗
║  04/16/91 Rad Chemical Name      Synonym            Page 1 of 1    ║
║                                                                    ║
║  Radium 226 (radionuclide)                          07440-14a4     ║
║  Radon 222 (radionuclide)                           10043-92a2     ║
║  Uranium 233 (radionuclide)                         07440-61a1     ║
║  Uranium 234 (radionuclide)                         07440-61b1     ║
║  Uranium 235 (radionuclide)                         07440-61c1     ║
║  Uranium 238 (radionuclide)                         07440-61d1     ║
║                                                                    ║
║                                                                    ║
║                                                                    ║
║  ↑↓  PgDn   PgUp   End   Home   F2-Search   F3-Next   ENTER-(De)Select F10-Help║
╚══════════════════════════════════════════════════════════════════╝
```

Figure 65

The list of radionuclide hazardous substances appears. The selection of specific radionuclides follows the methodology discussed previously for hazardous substance selection (see Section 2.3).

Non-radioactive substances cannot be assigned to a source defined as "Radioactive source." To evaluate a single source with mixed wastes (both radionuclides and non-radioactive substances) you must define the source twice, once as a radioactive source and once as a non-radioactive source.

To enter radionuclide waste quantity information...

>   Press <END> three times.
>   CURSOR to the "Wastestream Value" column.
>   Press <ENTER>.
>   Type Radium Wastestream.
>   CURSOR to the "HCQ" column.
>   Press <ENTER>.

Source Hazardous Waste Quantity Radionuclide Wastestream Screen

```
┌─────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                 NAME.HRS          Site Score 72.82      │
│ ┌───────────────────────────────────────────────────────────────────┐ │
│ │ Waste Characteristics -> Source -> Wastestream -> Radionuclides --> │ │
│ │ Radium Waste               Radium Wastestream                      │ │
│ │ ┌──────────────────────┬─────────────┬─────┬────┬────┬────────┐    │ │
│ │ │   Radionuclides       │Concentration│Units│Liq.│Qual│  HCQ   │    │ │
│ │ │                       │             │     │    │    │        │    │ │
│ │ │                       │             │     │    │    │        │    │ │
│ │ │                       │             │     │    │    │        │    │ │
│ │ │                       │             │     │    │    │        │    │ │
│ │ │                       │             │     │    │    │        │    │ │
│ │ │                       │             │     │    │    │        │    │ │
│ │ │                       │             │     │    │    │        │    │ │
│ │ │                       │             │     │    │    │        │    │ │
│ │ │                       │             │     │    │    │        │    │ │
│ │ └──────────────────────┴─────────────┴─────┴────┴────┴────────┘    │ │
│ │ Quantity Deposited in Wastestream(yd3) 0.0   Wastestream HCQ 0.00E+00│ │
│ └───────────────────────────────────────────────────────────────────┘ │
│ ENTER-Select                            F10-Help  End-Previous         │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 66

At this screen you enter wastestream constituents and their concentrations as discussed in Section 2.4. Note that concentrations must be entered in picoCuries per gram (pCi/g).

>   Press <END>.

To enter the wastestream quantity deposited...

>   CURSOR to the "Quantity" column.
>   Type 500.

Note that quantity units are restricted to cubic yards.

>   Press <END>.

The following screen appears:

Waste Characteristics Sources Screen: With Example

```
┌─────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site                  NAME.HRS              Site Score 72.82     │
│ ┌───────────────────────────────────────────────────────────────────────┐│
│ │ Waste Characteristics -> Sources                                      ││
│ │ ┌───────────────────────┬─────────┬───────┬──────────┬──────────┐     ││
│ │ │                       │Migration│Vol/Area│Wastestream│  HWQ    │     ││
│ │ │      Source Name      │Pathways │ Value  │  Value   │  Value   │     ││
│ │ ├───────────────────────┼─────────┼───────┼──────────┼──────────┤     ││
│ │ │ 2 Paint Waste Area #3 │ GW-SE-A │9.92E+01│ 4.00E-01│ 9.92E+01 │     ││
│ │ ├───────────────────────┼─────────┼───────┼──────────┼──────────┤     ││
│ │ │ 3 Radium Waste        │         │RAD-N.A.│ 9.09E+02│ 9.09E+02 │     ││
│ │ └───────────────────────┴─────────┴───────┴──────────┴──────────┘     ││
```

Migration Pathway	Contaminant Values		HWQVs	WCVs
Ground Water	Toxicity/Mobility	1.00E+04	100	32
Surface Drinking Water	Tox./Persistence	1.00E+04	100	32
Surface Water Food Chain	Tox./Persis./Bioacc.	5.00E+08	100	320
Surface Water Environment	Etox/Persis./Ebioacc.	5.00E+08	100	320
Soil Resident Threat	Toxicity	1.00E+04	100	32
Soil Nearby Threat	Toxicity	1.00E+04	100	32
Air	Toxicity/Mobility	2.00E+03	100	18

ENTER-Select   F10-Help End-Previous

Figure 67

A hazardous waste quantity value (909) has been determined for the radioactive source. This value has not affected the site score because containment values have not yet been assigned to the radioactive source via the "Migration Pathways" column.

Special procedures are also required for entry and selection of radionuclide sampling information.

To return to the Summary Screen...

Press <HOME>.
CURSOR to the Air Pathway "Likelihood of Release" column.
Press <ENTER>.
CURSOR to the "Observed Release" value.
Press <ENTER>.
CURSOR to the second row.
Type Air Sample #2.
CURSOR to the "Level of Concentration" column.
Press <ENTER>.

```
┌─────────────────────────────────────────────────────────────────────────┐
│ Tutorial Site              NAME.HRS           Site Score 72.82            │
│ ┌───────────────────────────────────────────────────────────────────┐   │
│ │ Air Pathway -> Samples -> Contaminants                            │   │
│ │ Sample ID -> Air Sample #2                                        │   │
│ │ ┌──────────────────────────────┬──────────┬───────────────────────┐│  │
│ │ │                              │  Sample  │Benchmarks/Screening C(μg/m3)││
│ │ │     Sample Contaminants      │ Concentr.├────────┬─────────┬─────┤│  │
│ │ │                              │   μg/m3  │ NAAQS  │Cancer R.│ RFD ││  │
│ │ ├──────────────────────────────┼──────────┼────────┼─────────┼─────┤│  │
│ │ │                              │          │        │         │     ││  │
│ │ │                              │          │        │         │     ││  │
│ │ │                              │          │        │         │     ││  │
│ │ │                              │          │        │         │     ││  │
│ │ ├──────────────────────────────┴──────────┼────────┼─────────┼─────┤│  │
│ │ │  Cumulative Screening Index, Σ(C/SC)     │        │0.0E+00 │0.0E+00││ │
│ │ └──────────────────────────────────────────┴────────┴─────────┴─────┘│ │
│ ENTER-Select    F2-Radionuclides                    F10-Help  End-Previous│
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 68

Note that the status line at the bottom of the screen says "F2-Radionuclides." To access the listing of radionuclide substances from any sample screen...

Press <F2>.

Radionuclides and non-radioactive substances cannot be selected for a single sample. Instead, you must enter the sample twice, and record radionuclide and non-radioactive substances separately.

To return to the Summary Screen...

Press <HOME>.

2.10   Conclusion

You have now reviewed all components of PREscore. You should, at this point, be able to enter data to describe waste characteristics, determine the likelihood of release of hazardous substances to the environment, and determine the numbers and characteristics of targets exposed or potentially exposed to contamination.

To save your file and exit PREscore...

Press <END>.
CURSOR to "Exit to DOS, save changes."
Press <ENTER>.

To save your file under its current name...

Press <ENTER>.
You should now be at a DOS prompt or shell menu (if your system is so configured).

CHAPTER 3

PRINTING

3.1   Introduction: PREprint Computer Program

The program to print PREscore site file information is called **PREprint**. It is a separate program from PREscore and must be accessed from the DOS prompt. PREprint retrieves site files created with PREscore and extracts entered or calculated information. The procedures for executing PREprint are discussed below. PREprint is capable of producing HRS scoresheets, a complete HRS documentation record, and the NPL Characteristics Data Collection form.

Some parts of the printing operation require familiarity with DOS and technical knowledge of the printer. Consult your systems administrator for first-time setup (LAN users see Appendix C for special network printing instructions).

From the DOS prompt...

>   Type **PREPRINT**.
>   Press **<ENTER>**.

If the program has been properly installed, the following screen appears:

PREprint File System Screen

```
                                                    Site Score  0.00

  PREscore Data Files -> C:\PRESCORE

  Name      Date      Time    Size   Site Name.            CERCLIS Number

  NAME      09/12/91  12:35   10979  Tutorial Site         TXD123456789
  TUTORIAL  09/11/91  13:20   10271  Tutorial Site         TXD123456789









  ENTER-Select   F2-Change Directory            F10-Help   End-Exit
```

Figure 69

This looks and operates much like the file system in the PREscore program (see Section 2.2).

>   **CURSOR** to your NAME file.
>   Press **<ENTER>**.

The following screen appears:

PREprint Menu Screen

```
┌─────────────────────────────────────────────────────────────────┐
│ ╔═════════════════════════════════════════════════════════════╗ │
│ ║ Tutorial Site              NAME.HRS        Site Score 72.82  ║ │
│ ║ ┌─────────────────────────────────────────────────────────┐ ║ │
│ ║ │ PRINTER = LPT1                          PREscore PREprint │ ║ │
│ ║ └─────────────────────────────────────────────────────────┘ ║ │
│ ║ ┌─── PREprint Menu ────────────┐                             ║ │
│ ║ │ Select File                  │                             ║ │
│ ║ │ Select Printer               │                             ║ │
│ ║ │ Select Printer Options       │                             ║ │
│ ║ │ Print Complete Report        │                             ║ │
│ ║ │ Print Site and Source Info   │                             ║ │
│ ║ │ Print Scoresheets            │        .                    ║ │
│ ║ │ Print NPL Data Form          │                             ║ │
│ ║ │ Print Ground Water Pathway   │                             ║ │
│ ║ │ Print SW: Overland Flow Comp.│                             ║ │
│ ║ │ Print SW: GW to SW Comp.     │                             ║ │
│ ║ │ Print Soil Exposure Pathway  │                             ║ │
│ ║ │ Print Air Pathway            │                             ║ │
│ ║ │ Print Reference List         │                             ║ │
│ ║ │ Reset the Printer File       │                             ║ │
│ ║ │ Exit                         │                             ║ │
│ ║ └──────────────────────────────┘                             ║ │
│ ║                                                               ║ │
│ ║ ┌───────────────────────────────────────────────────────────║ │
│ ║ ENTER-Select                          F10-Help  End-Previous ║ │
│ ╚═════════════════════════════════════════════════════════════╝ │
└─────────────────────────────────────────────────────────────────┘
```

Figure 70

From the PREprint menu you can select and configure your printer and print HRS scoresheets and documentation, reference list, and NPL Characteristics Data Collection form. Note that HRS scoresheets and documentation can be printed by individual pathways or for all pathways.

3.2   Printer Setup and Print Options

The "PRINTER = " heading at the top of the screen indicates the location to which you are sending the printout (in this case LPT1). To see the different destinations to which you may print...

> **CURSOR** to "Select Printer."
> Press <ENTER>.

The following screen appears:

Printer Selection Pop-Up Menu

```
┌──────────────────────────────────────────────────────────────┐
│ Tutorial Site              NAME.HRS         Site Score 72.82   │
│  ┌─────────────────────────────────────────────────────────┐  │
│  │ PRINTER = LPT1                        PREscore PREprint   │  │
│  └─────────────────────────────────────────────────────────┘  │
│   ┌──── PREprint Menu ────┐  ┌──── Printer Selection Menu ──┐  │
│   │ Select File           │  │ Print to Disk File           │  │
│   │ Select Printer        │  │ Print to Printer Port: LPT1  │  │
│   │ Select Printer Options│  │ Print to Printer Port: LPT2  │  │
│   │ Print Complete Report │  │ Print to Communications Port: COM1 │ │
│   │ Print Site and Source Info │ Print to Communications Port: COM2 │ │
│   │ Print Scoresheets     │  └──────────────────────────────┘  │
│   │ Print NPL Data Form   │                                     │
│   │ Print Ground Water Pathway │ .                              │
│   │ Print SW: Overland Flow Comp. │                            │
│   │ Print SW: GW to SW Comp. │                                  │
│   │ Print Soil Exposure Pathway │                               │
│   │ Print Air Pathway     │                                     │
│   │ Print Reference List  │                                     │
│   │ Reset the Printer File│                                     │
│   │ Exit                  │                                     │
│   └───────────────────────┘                                    │
│                                                                │
│ ENTER-Select                          F10-Help  End-Previous   │
└──────────────────────────────────────────────────────────────┘
```

Figure 71

The printer selection menu allows you to send a file to a disk, modem, or printer port destination. Note that most printers are connected to the LPT1 port.

> **CURSOR** to the "Print to Printer Port: LPT1" option.
> Press <ENTER>.

Note the message on the status line requesting you reset the printer file to incorporate your printer choice.

To reset the printer file...

> Press <ENTER>.

> **CURSOR** to "Select Printer Options."
> Press <ENTER>.

The following screen appears:

Printer Options - Set Graphics Mode Pop-Up Menu

```
┌────────────────────────────────────────────────────────────────────────┐
│  Tutorial Site              NAME.HRS           Site Score 72.82          │
│  ┌───────────────────────────────────────────────────────────────────┐  │
│  │  PRINTER = LPT1                          PREscore PREprint         │  │
│  ├───────────────────────────────────────────────────────────────────┤  │
│  │  ┌──── PREprint Menu ────┐              '                          │  │
│  │  │ Select File           │                                        │  │
│  │  │ Select Printer        │                                        │  │
│  │  │ Select Printer Options│                                        │  │
│  │  │ Print Complete Report │                                        │  │
│  │  │ Print Site and Source Info │                                   │  │
│  │  │ Print Scoresheets     │                                        │  │
│  │  │ Print NPL Data Form   │                                        │  │
│  │  │ Print Ground Water Pathway │  ┌──── Set Graphics Mode ────┐    │  │
│  │  │ Print SW: Overland Flow Comp.│ 1.  ASCII Characters 0 - 255 │   │  │
│  │  │ Print SW: GW to SW Comp.│    2.  ASCII Characters 0 - 127 │    │  │
│  │  │ Print Soil Exposure Pathway │ └──────────────────────────┘    │  │
│  │  │ Print Air Pathway     │                                        │  │
│  │  │ Print Reference List  │                                        │  │
│  │  │ Reset the Printer File│                                        │  │
│  │  │ Exit                  │                                        │  │
│  │  └───────────────────────┘                                        │  │
│  ├───────────────────────────────────────────────────────────────────┤  │
│  │  ENTER-Select                         F10-Help   End-Previous      │  │
│  └───────────────────────────────────────────────────────────────────┘  │
└────────────────────────────────────────────────────────────────────────┘
```

Figure 72

The printer options selection is where you tell PREprint the capabilities of your printer. (Printer options can be saved to disk, so the following printer configuration procedures may only need to be performed once for each site file.) The "Set Graphics Mode" pop-up menu presents two options for ASCII characters. Some printers can reproduce "high order" ASCII characters such as the lines in the above screen, whereas other printers will produce nonsense characters, italic letters, or blanks. If your printer cannot reproduce high order ASCII characters, select "ASCII Characters 0 - 127." If you are unsure of your printer's capabilities, no harm will be done by choosing the high order option to find out...

CURSOR to the "ASCII Characters 0 - 255" option.
Press <ENTER>.

The following screen appears:

Printer Options - Tabstops Pop-Up Menu

```
╔══════════════════════════════════════════════════════════════════════════╗
║  Tutorial Site              NAME.HRS            Site Score 72.82            ║
║ ┌────────────────────────────────────────────────────────────────────────┐║
║ │ PRINTER = LPT1                              PREscore PREprint            │║
║ ├────────────────────────────────────────────────────────────────────────┤║
║ │┌── PREprint Menu ──────┐                                                 │║
║ ││ Select File           │                                                 │║
║ ││ Select Printer        │                                                 │║
║ ││ Select Printer Options│                                                 │║
║ ││ Print Complete Report │                                                 │║
║ ││ Print Site and Source Info                                              │║
║ ││ Print Scoresheets     │                                                 │║
║ ││ Print NPL Data Form   │                                                 │║
║ ││ Print Ground Water Pathway  ┌── Tabstops in Printer Output ? ──┐        │║
║ ││ Print SW: Overland Flow Comp.│          YES                    │        │║
║ ││ Print SW: GW to SW Comp.│    │          NO                     │        │║
║ ││ Print Soil Exposure Pathway  └─────────────────────────────────┘        │║
║ ││ Print Air Pathway     │                                                 │║
║ ││ Print Reference List  │                                                 │║
║ ││ Reset the Printer File│                                                 │║
║ ││ Exit                  │                                                 │║
║ │└───────────────────────┘                                                 │║
║ │                                                                          │║
║ ├────────────────────────────────────────────────────────────────────────┤║
║ │                                                                          │║
║ │ ENTER-Select                              F10-Help  End-Previous         │║
║ └────────────────────────────────────────────────────────────────────────┘║
╚══════════════════════════════════════════════════════════════════════════╝
```

Figure 73

The next option asks if you want tabstops used in the output (as opposed to spaces). Some printers evaluate tabs differently than others. Choose the "YES" option initially, but if problems appear in the alignment of columns in printouts, go through this procedure again and select the "NO" option.

CURSOR to the "YES" option.
Press <ENTER>.

Printer Options - Printer Control Codes Pop-Up Menu

```
╔══════════════════════════════════════════════════════════════════════════╗
║  Tutorial Site              NAME.HRS            Site Score 72.82            ║
║ ┌────────────────────────────────────────────────────────────────────────┐║
║ │ PRINTER = LPT1                              PREscore PREprint            │║
║ ├────────────────────────────────────────────────────────────────────────┤║
║ │┌── PREprint Menu ──────┐                                                 │║
║ ││ Select File           │                                                 │║
║ ││ Select Printer        │                                                 │║
║ ││ Select Printer Options│                                                 │║
║ ││ Print Complete Report │                                                 │║
║ ││ Print Site and Source Info                                              │║
║ ││ Print Scoresheets     │                                                 │║
║ ││ Print NPL Data Form   │                                                 │║
║ ││ Print Ground Water Pathway  ┌── Change Printer Control Codes ? ──┐      │║
║ ││ Print SW: Overland Flow Comp.│          NO                       │      │║
║ ││ Print SW: GW to SW Comp.│    │          YES                      │      │║
║ ││ Print Soil Exposure Pathway  └───────────────────────────────────┘      │║
║ ││ Print Air Pathway     │                                                 │║
║ ││ Print Reference List  │  RESET 27/69/                                   │║
║ ││ Reset the Printer File│  BOLD  27/40/115/51/66/                         │║
║ ││ Exit                  │  LIGHT 27/40/115/48/66/                         │║
║ │└───────────────────────┘                                                 │║
║ ├────────────────────────────────────────────────────────────────────────┤║
║ │                                                                          │║
║ │ ENTER-Select                                                            │║
║ └────────────────────────────────────────────────────────────────────────┘║
╚══════════════════════════════════════════════════════════════════════════╝
```

Figure 74

The final printer option allows you to define "control codes" for alternating boldface and normal type in your printouts. Use of this capability is optional, but it produces a more readable printout. The codes shown in Figure 74 are for the Hewlett-Packard LaserJet II, III, and IIIp Series printers. Consult your printer manual for the codes appropriate for your printer. Printer control codes for IBM ProPrinter, EPSON, and OKIDATA printers are provided below. If your printer code information is not immediately available, you can proceed without entering any.

Printer Control Codes for Common Printers

Code Type	IBM ProPrinter/EPSON (emphasized)	OKIDATA (enhanced)
RESET	blank	blank
BOLD	27/69/	27/72/
LIGHT	27/70/	27/73/

CURSOR to the "YES" option if you want to enter different codes.
Type in the appropriate control codes.
Press <ENTER>.

You have now configured the printer and are ready to print.

Preprint allows you to print HRS scoring information in a variety of ways. The "Print Complete Report" option prints a complete HRS documentation record (HRS scoresheets, documentation, reference list, and NPL Characteristics Data Collection form). The components of the HRS documentation record may also be printed individually. The "Print Scoresheets" option prints HRS scoresheets for all pathways. The "Print Site and Source Info" option prints site administrative information and HRS scoring and documentation information regarding sources. The "Print Reference List" option prints the reference list. The "Print NPL Data Form" option prints the NPL Characteristics Data Collection form.

HRS scoresheets and documentation may also be printed by pathway.

To print HRS information for a particular pathway (in this case, the Ground Water Pathway)...

CURSOR to the "Print Ground Water Pathway" option.
Press <ENTER>.

The following screen appears:

Ground Water Pathway Print Pop-Up Menu

```
╔═══════════════════════════════════════════════════════════════════════╗
║  Tutorial Site                    NAME.HRS          Site Score 72.82   ║
║ ┌───────────────────────────────────────────────────────────────────┐ ║
║ │  PRINTER = LPT1                                PREscore PREprint    │ ║
║ └───────────────────────────────────────────────────────────────────┘ ║
║ ┌──── PREprint Menu ────┐  ┌──────── Pathway Print Menu ────────┐     ║
║ │ Select File           │  │ Pathway ( Print All )              │     ║
║ │ Select Printer        │  │ Pathway Scoresheets                │     ║
║ │ Select Printer Options│  │ Pathway Documentation              │     ║
║ │ Print Complete Report │  └────────────────────────────────────┘     ║
║ │ Print Site and Source Info                                          ║
║ │ Print Scoresheets                                                   ║
║ │ Print NPL Data Form                                                 ║
║ │ Print Ground Water Pathway                                          ║
║ │ Print SW: Overland Flow Comp.                                       ║
║ │ Print SW: GW to SW Comp.                                            ║
║ │ Print Soil Exposure Pathway                                         ║
║ │ Print Air Pathway                                                   ║
║ │ Print Reference List                                                ║
║ │ Reset the Printer File                                              ║
║ │ Exit                  │                                             ║
║ └───────────────────────┘                                             ║
║ ┌───────────────────────────────────────────────────────────────────┐ ║
║ └───────────────────────────────────────────────────────────────────┘ ║
║  ENTER-Select                                 F10-Help  End-Previous   ║
╚═══════════════════════════════════════════════════════════════════════╝
```

Figure 75

The pathway print menu provides the option of printing HRS scoresheets, HRS documentation record for the pathway, or both. To print the Ground Water Pathway scoresheets...

> **CURSOR** to the "Pathway Scoresheets" option.
> Press <ENTER>.

The scoresheets should now print. Messages on the status line will indicate the generation and printing of the scoresheets. You may abort a printing operation by pressing <ESC>.

The procedure described above is applicable to each pathway. Note that the Surface Water Pathway is divided into its two components, Overland Flow/Flood and Ground Water to Surface Water.

Each time you print, you generate a printer file that must be erased, or reset, prior to any subsequent print operations. PREprint prompts you each time a reset is necessary; however, you may also select "Reset the Printer File" to erase the contents of the print file that you have printed.

To exit PREprint...

> **CURSOR** to the "Exit" option.
> Press <ENTER>.

The following screen appears:

Save Printer Configurations Pop-Up Menu

```
┌─────────────────────────────────────────────────────────────────────────┐
│  Tutorial Site                   NAME.HRS          Site Score 72.82       │
│  ┌──────────────────────────────────────────────────────────────────────┐│
│  │ PRINTER = LPT1                              PREscore PREprint         ││
│  ├──────────────────────────────────────────────────────────────────────┤│
│  │ ┌───── PREprint Menu ──────┐                                         ││
│  │ │ Select File              │                                         ││
│  │ │ Select Printer           │                                         ││
│  │ │ Select Printer Options   │                                         ││
│  │ │ Print Complete Report    │                                         ││
│  │ │ Print Site and Source Info│                                        ││
│  │ │ Print Scoresheets        │                                         ││
│  │ │ Print NPL Data Form      │                                         ││
│  │ │ Print Ground Water Pathway│                                        ││
│  │ │ Print SW: Overland Flow Comp.│                                     ││
│  │ │ Print SW: GW to SW Comp.  │                                        ││
│  │ │ Print Soil Exposure Pathway│                                       ││
│  │ │ Print Air Pathway        │  ┌─ Save Printer Configuration Changes ? ─┐││
│  │ │ Print Reference List     │  │           NO                        │││
│  │ │ Reset the Printer File   │  │           YES                       │││
│  │ │ Exit                     │  └─────────────────────────────────────┘││
│  │ └──────────────────────────┘                                         ││
│  │                                                                      ││
│  └──────────────────────────────────────────────────────────────────────┘│
│  ENTER-Select                              F10-Help  End-Previous         │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 76

If you made changes under "Select Printer" or "Printer Options," the program asks if you want to "Save Printer Configuration Changes ?" before exiting. If you make no changes you will exit directly to the DOS prompt.

       CURSOR to **"YES"** to save changes.
       Press **<ENTER>**.

You have now exited the PREprint program and have returned to the DOS prompt. If you would like to return to PREscore...

       Type **PRESCORE.**

70

INDEX

APPENDIX A

PRESCORE SCORING LIMITATIONS

PREscore directly automates the HRS in nearly all aspects of site scoring; however, there are a few unique and/or complex scoring situations that are not directly accommodated by PREscore programming. These are:

- Multiple watersheds
- Branching surface water migration path
- Single aquifers which contain both karst and non-karst conditions

These three situations can be scored if specific PREscore data entry methodology is followed as described below:

Multiple Watersheds - PREscore allows for evaluation of only one watershed at a time; however, PREscore site files, and all the information they contain, can be copied. To evaluate more than one watershed for a site, copy or save the one watershed site file with a different name. Retrieve the new file and replace the existing watershed information with information for the second watershed. The surface water pathway score will be the result of the evaluation of the second watershed. Since the rest of the information in the site file (the other pathways) is unchanged, the site score also reflects the evaluation of this second watershed. Compare the surface water pathway scores and retain the site file with the highest scoring watershed. You may then delete the other site file(s) and give the highest scoring watershed site file the proper file name.

Branching Surface Water Migration Path - PREscore allows entry and definition of individual surface water segments. However, PREscore requires that these segments be entered linearly, with no two segments assigned the same, or overlapping, distance intervals from the probable point of entry (PPE). To define branching water segments, one branch should be entered as a linear path to the target distance limit. The remaining branches should be entered as linear paths added to the end of the original branch (i.e., the distance interval for the secondary branch(es) begins at the end of the target distance limit for the original branch). Since surface water targets are evaluated on the flow characteristics of the segments, not distance from the site, the site score is not affected by this method.

Single Aquifers Which Contain Both Karst and Non-karst Conditions - PREscore allows the evaluation of both karst and non-karst aquifers; however, an aquifer evaluated by PREScore must be defined as one or the other, not both. In cases were an aquifer contains both karst and non-karst conditions, PREscore requires that the aquifer be defined and evaluated as two aquifers, a karst aquifer and a non-karst aquifer.

In the future, EPA will provide individual "PREscore Scoring Fact Sheets" that provide detailed instructions for the application of each of the PREscore data-entry methodologies described above.

In addition, there are three other situations that PREscore programming cannot evaluate. These are:

- Ground water injection wells to non-surficial aquifers
- Removal actions
- Calculation of index I for mixed wastes

If these situations are pertinent to a site's HRS evaluation, calculations will have to be performed manually.

EPA believes that PREscore is capable of evaluating most sites without complications; however, each new site may present unique HRS scoring conditions. Therefore, other problematic situations may arise. If you encounter a scoring situation that you cannot accommodate within PREscore's framework, contact your EPA Regional computer contact and provide him/her with a complete description of the situation.

APPENDIX B

UPDATING SITE FILES

The PREscore software package, most notably the hazardous substance information file, will be updated periodically. In order to assure that a site has been scored using the most recent hazardous substance information, the site file must be updated using the latest version of PREscore.

Updating site files does not require reentry of all site information. Rather, as the updates will chiefly involve the modification and addition of information contained in PREscore's hazardous substance information file (PRESCORE.TCL), only the hazardous substance information need be reentered.

PREscore alerts the user if a site has been scored with outdated hazardous substance information. Each time a site file is retrieved into PREscore, the version number (date) of the hazardous substance information used to score that site is automatically compared with the version number (date) of the hazardous substance information currently being utilized by PREscore. If the version numbers do not match, the program will ask if you wish to update the site file (see Figure B-1). If you choose to update the site file, PREscore will erase all of the hazardous substances that were previously entered and you must reenter all substances into the appropriate places in PREscore. A site file that has been scored using outdated hazardous substance information cannot be retrieved into PREscore without going through the update process.

Site File Updating Message

```
                                                        Site Score  0.00

  PREscore Data Files -> A:\

  ┌────────────────── PRESCORE.TCL Version Mismatch ──────────────────┐
  - The hazardous substance information file (PRESCORE.TCL) currently in the
  - PREscore directory is different from the one used to evaluate the site.
  - The selected site file needs to be updated using the current PRESCORE.TCL
  - file before access to PREscore will be permitted.  When updating this
  - site file, PREscore will automatically delete all hazardous substances
  - previously entered.  You must then reenter all of those hazardous
  - substances using PREscore and the current PRESCORE.TCL file.
  -

        Return to PRESCORE File System Screen
        Continue and Update using the current PRESCORE.TCL file




ENTER-Select
```

Figure B-1

APPENDIX C

NETWORK (LAN) USER INSTRUCTIONS

The PREscore and PREprint programs (PREscore software) were designed to operate as interactive, single-user programs; however, they can be installed and used on a multi-user system, such as a local area network (LAN), with some restrictions. As PREscore software does not possess multi-user capability, PREscore and PREprint can only be used by one user at a time, even in a network environment. In addition, installation of the software and printing to a printer require LAN-specific operations. These are provided below:

INSTALLATION

To install PREscore software on a LAN workstation you must first exit the system/applications shell menu. The menu should have an "Exit to DOS" option. Remember to consult the LAN systems administrator before you attempt PREscore software installation.

CURSOR to the "Exit to DOS" option.
Press <ENTER>.

A letter prompt, corresponding to the hard drive, should appear. To create a PREscore subdirectory on the hard drive...

Type md **PRESCORE** (make a directory called PRESCORE).
Press <ENTER>.

To access that subdirectory...

Type cd **PRESCORE** (change directory to the PRESCORE directory).

To load the PREscore software files into the PRESCORE subdirectory...

Type copy a:*.* (if the PREscore or PREprint disk is in drive a:).

To begin the programs...

Type **PRESCORE** or **PREPRINT**.

PRINTING

To print to a printer, while operating PREprint on a LAN, the PREprint "Print to a disk file" option must be utilized. PREprint cannot print directly to a printer on a network. After printing to a disk file, the standard LAN print procedures may be employed to print the desired PREscore information to a printer.

To print to a disk file...

From the PREprint menu,
CURSOR to the "Select Printer" option.
Press <ENTER>.

CURSOR to the "Print to Disk File" option.
Press <**ENTER**>.
Type in the name of the file and the disk drive to which the information is to be printed (for example, "a:SITE.PRT").
Press <**ENTER**>.
CURSOR to the "Select Printer Options" option.
Press <**ENTER**>.
CURSOR to the "ASCII Characters 0 - 225" option.
Press <**ENTER**>.
CURSOR to the "YES" option.
Press <**ENTER**>.

You should be at the Printer Control Codes Pop-Up Menu.
CURSOR to "Yes".
Press <**ENTER**>.
Erase any existing codes by typing spaces over them.
Press <**ENTER**>.

You have now configured PREprint to print to a disk file.

Select the desired print task...
Press <**ENTER**>.

The information now exists on the disk file defined earlier (example a:site.prt). After exiting PREprint, this disk file can be printed using standard LAN print procedures.

APPENDIX D

PRESCORE SOFTWARE FILES/DISKETTE

The PREscore and PREprint programs require several files to operate. Check the diskette to ensure that all required files are present:

PREscore Software Diskette Files

INSTALL.BAT	TUTORIAL.HRS
PRESCORE.EXE	PREPRINT.EXE
PRESCORE.TCL	PREPRINT.CFG
SCRATCH.PAD	PREPRINT.TXT
SCRATCH.SIZ	PRSCREEN.PAD
HELP.PAD	PRSCREEN.SIZ
HELP.SIZ	

If the PREscore software has been installed on the hard disk, in a PRESCORE subdirectory, ensure that the following files are present in that subdirectory:

PRESCORE Subdirectory Files

PRESCORE.EXE	TUTORIAL.HRS
PRESCORE.TCL	PREPRINT.EXE
SCRATCH.PAD	PREPRINT.CFG
SCRATCH.SIZ	PREPRINT.TXT
HELP.PAD	PRSCREEN.PAD
HELP.SIZ	PRSCREEN.SIZ