Appendix D: USER'S GUIDE TO DS 64 SEARCH SOFTWARE

INTRODUCTION

Welcome to the ASTM Cleanup Criteria for Contaminated Soil and Groundwater Search Software. The search software contains data abstracted from ASTM Data Series (DS) 64, *Cleanup Criteria for Soil and Groundwater,* edited by Anthony J. Buonicore, and sponsored by ASTM E-50 on Environmental Assessment. The data in the software product are not complete and are intended to be used in conjunction with DS 64.

Features

- In general, main menu prompts or prompts at the bottom of the screen will guide you through the search process.
- The system allows you to view data on the screen or as printed output.
- Searchable data in the system is comprised of cleanup criteria for soil and groundwater by state. Cleanup criteria is also included from several of the tables in DS 64 as follows:
  Table 1—Representative Limits of Detection.
  Table 4—Action Levels Under RCRA Corrective Action.
  Table 8—EPA Current and Proposed Drinking Water Standards.
  Table 9—Superfund Proposed Soil Screening Levels (SSLs).
  Table 10—EPA PCB Contaminated Soil Cleanup Policy.
  Table 11—Background Concentrations of Elements in Soils.
  Table 12—Contaminant Indicator Criteria Used by The Netherlands.
  Table 13—Maximum Allowable Concentrations (MAC) and Tentative Allowable Concentrations (TAC) of Contaminants in Soil in the Soviet Union (as of 1984).
  Table 14—Alberta, Canada, Suggested Cleanup Guidelines for Inorganics in Soils.
  Table 15—Ontario, Canada, Cleanup Guidelines for Soils.
  Table 16—Quebec, Canada, Groundwater and Soil Contamination Indicators.
  Table 17—Tentative "Trigger Concentrations" for Selected Inorganics in the United Kingdom.
  Table 18—Reference Thresholds for Soil Pollutants Used by France.
- Criteria may be browsed for each state or table including a comments section, reference section, numeric criteria section, contact information section, and if applicable footnote section. The user may also browse the database by defining his/her own search criteria, for example, search for all numeric criteria for a state(s) for a given chemical for groundwater.

System Requirements

To run the DS 64 search software you need the following:

- An IBM or IBM compatible PC (Model 286 or later) with 640 kbytes RAM.
- 530 Kbytes available executable memory.
- A VGA or monochrome monitor.
- DOS operating system, Ver. 3.0 or above.
- 10 Mbytes of available disk storage

GETTING STARTED

Installation

The diskette contains instructions to guide you through the installation. Place the diskette into the A: or B: drive at the DOS C: prompt type A:INSTALL or B:INSTALL, respectively.

The system will then begin execution, and the following screens will be displayed?

```
DS 64 Cleanup Software
Version 1.00

INSTALLATION

You will be asked to specify a
destination disk drive and
subdirectory.

The DS 64 CLEANUP program requires
that the system FILES be set to at
least 30 in your CONFIG.SYS file.
After installation, please check
your CONFIG.SYS file and adjust if
necessary.

You may press <Esc> at any time to
cancel the installation process.

Press [Esc] to quit, and any other
key to continue ...
```

```
On which disk drive do you wish to
install DS 64 Cleanup Software?

            Drive C:
            Drive D:
            Drive E:
            Drive F:
            Drive I:
            Drive M:
            Drive N:
            Drive O:
            Drive P:
            Drive Q:
            Drive R:
            Drive S:
```

```
Please specify a subdirectory for
DS 64 Cleanup Software
(Press <Enter> to accept the
current selection)

Please enter the Subdirectory Name:
\DS64
```

Upon completing the choice of the subdirectory name, hit the enter key, and the system will install the programs, build the indexes, and leave the following message:

```
Installation of
DS 64 Cleanup Software
is now finished.
```

The system is now installed and the PC screen displays the prompt, C:\DS64 (or the Subdirectory of your choice). To execute the program, type

DS64 and hit <Enter>

Note the first time you enter the program, the indexes for the search software are built. This will take approximately 5 minutes. Hereafter, when you type DS64 to enter the system, you will directly enter the program.

If you receive a memory error while loading the program, you may need more executable memory. See the section **Trouble Shooting** on page 326 for more information.

Hereafter, anytime you want to enter DS64, do the following:

At the prompt, C:\>, type

cd\DS64 <Enter>

Then at the prompt, C:\DS64, type

DS64 <Enter>

TUTORIAL

Following the first two introductory copyright screens, the Main Menu appears as follows:

```
MAIN MENU

A - Browse Database by
    State/Federal/Other Country
B - Design Your Own Search Criteria
C - Printer Setup
D - Quit and exit program
```

Option C–Printer Setup

The Main Menu shows four options. It is suggested you first setup the system to use your printer, by selecting Option C, Printer Setup. A selection menu appears of available printers. Move the cursor to the name of your printer, and press <Enter> to select it. Then hit <Esc> to return to the main menu.

The system is now ready for you to begin searching the cleanup criteria for contaminated soil and groundwater by either Option A or B as follows.

Option A–Browse Database by State, Federal, or Other Country Table in DS 64

To browse the database by State, Federal, or Other Country or Table in DS 64, select Option A. The following Main Information screen will appear.

```
                                MAIN INFORMATION
State: CO          Table:                                Fed Reg.:

X Regulation       X Existing        Date: 09/19/91        Soil
  Guideline          Proposed                            X Groundwater
  In Development                                           Both Soil/Groundwater
  None                                                     Other

Comments:
1. A compliance standard different from a listed standard and equal to the
   background level of a constituent may be allowed.

Reference:
(1)  Colorado Department of Health Water Quality Control Commission,
     Basic Standards for Groundwater, Regulation 3.11.0, 17 October, 1991.

A - Zoom Comments    N - Next          S - State Search   E - Print
B - Zoom Reference   P - Previous      T - Table Search   Q - Quit
                     V - View
                              View related records
```

Select from the functions at the bottom of the screen to browse the database as follows:

A – Zoom Comments: Allows you to browse the entire comments for a particular state, federal, or other country table in DS 64.

B – Zoom Reference: Allows you to browse the entire Reference Section for a particular state, federal, or other country table in DS 64.

N – Next: Allows you to move to the next state, federal, or other country table in ascending alphabetic order.

P – Previous: Allows you to move to the previous state, federal, or other country table in descending alphabetic order.

S – State Search: Allows you to select and move to the next state table you would like to browse, by typing in the 2 letter state abbreviation. For example, to view the table for NJ, select S, and type in the 2 letter state abbreviation, NJ.

T – Table Search: Allows you to select and move to the next federal or other country table you would like to browse. For example, to view Table 10-EPA PCB Contaminated Soil Cleanup Policy, select T and type, 10.

E – Print: Allows you to print the criteria you are currently viewing.

Q – Quit: Allows you to return to the Main Menu.

V – View: Allows you to view and search all of the criteria for the state, federal or other country table you are currently viewing. The screen contains the following choices:

A. Address: Allows you to view contact names and addresses.

B. Numerical Criteria: Allows you to view numeric criteria for soil and groundwater by chemical, CAS Number, or Synonym (See example screen below).

NUMERICAL CRITERIA

Constituent	CAS Number	Groundwater Standard (mg/L)
Acrylonitrile	107-13-1	0.000058
α-AHC	319-84-6	0.0000092/0.000006
Aldicarb	116-06-3	0.01
Aldrin	309-00-2	0.0000000784/0.00000
Arsenic	7440-38-2	0.05
Atrazine	1912-24-9	0.003
Barium	7440-39-3	1.0
Benzene	71-43-2	0.001
Benzidine	92-87-5	0.00000012/0.000002
Bis(2-chloroethyl) e	111-44-4	0.0000000037/0.00003

F - Find Chemical Name S - Search by Synonym
L - Locate CAS Number Q - Quit

To scroll the information on the screen, use the up and down arrows to move through the list of constituents and the left and right arrows to view all soil and groundwater criteria for a particular constituent.

The bottom of the screen has functions that allow you to search the criteria by Chemical Name (F), by Chemical Synonym (S), or by CAS Number (L). Select Q - Quit to return to the previous screen.

C. Numerical Footnote: Allows you to view any footnotes designated by asterisks that clarify items in the Numerical Criteria.

Q. Quit: Returns you to the previous Main Information screen.

Option B: Design Your Own Search Criteria

Select Option B if you would like to design your own search criteria. The following User Defined Search Criteria Screen will appear. This screen contains options for designing your own search criteria and viewing and printing the results of your search.

Column 1 gives options for Search Criteria as follows:

User Defined Search Criteria

Search Criteria
- A - State/Federal/Other Country
- B - Soil/Groundwater
- C - Chemicals
- D - Status
- E - Existing/Proposed
- F - View Search Criteria

Output Options
- G - Contact Information
- H - Comments
- I - Reference
- J - Chemical Information
- K - All

Miscellaneous
- L - Output to Printer/Screen
- M - Clear all Search Criterias
- Q - Quit Back to Main Menu

OUTPUT: Screen

Options A through F allow you to set up your own search criteria as follows:

A - State/Federal/Other Country: This option allows you to select state(s), federal, and/or other country tables to be searched. Select this option by selecting the "a" key from your keyboard. When you select Option A, the following menu appears:

```
Please select State, Federal, or
Other Country, or both:

A - Select States
B - Select Federal or Other Country

Q - Quit
```

If you would like to search a group of state tables, for example, NJ and PA, select Option A - Select States, from this menu. The following menu appears:

```
                STATE

          A - All
          B - Select State(s)
          C - Clear

          Q - Quit
          Selections: 0
```

This menu gives you the option to

A - All: Select all 50 states
B - Select States: Select a state or group of states
C - Clear: Deselect states you have previously selected
Q - Quit: Return to the previous menu

The item, Selections: 0, shows the number of tables you have selected. Let us proceed with our example of selecting tables for NJ and PA to be searched. Select Option B - Select States by selecting the "b" key from your keyboard. The following menu appears:

```
                STATE
          Code      State Name

           AK       Alaska
           AL       Alabama
           AR       Arkansas
           AZ       Arizona
           CA       California
           CO       Colorado
           CT       Connecticut
           DC       District of Columbia
           DE       Delaware
           FL       Florida

  F  - Find State                Q - Quit
  C  - Clear all marks
  F6 - Mark/Unmark
```

This menu contains a list of the 50 states that can be either scrolled or searched as follows:

Scrolling 50 states: Use the up and down arrows on your keyboard to scroll through the list of 50 states.

F - Find state: Select this option by selecting the "f" key from your keyboard. Then simple enter the 2 letter state abbreviation for the state you are looking for. For example, to find NJ, select Option F, and type , NJ.

To select a state, for example, NJ, select the F6 key, and the state will be marked with an asterisk. To select PA, either scroll down the list of states using the down arrow on your keyboard, or select Option F and type in the letters, PA. Once you have found PA, select the F6 key and the state will be marked with an asterisk. If you wish to deselect (unmark) a state you already selected, scroll to or find the state, and select the F6 key. You can deselect all states by selecting Option C - Clear all marks. When you are done selecting states, select the Option Q-Quit. Your selections will be saved, and you will return to the previous menu.

Select Q - Quit again and you will return to the menu, "Please select State, Federal, or Other Country." If you wish to select a Federal table or table for another country other than the U.S. to be searched, select Option B - Select Federal or Country. Then select the appropriate tables using the F6 key. When you have finished selecting Federal and/or country tables, select Q - Quit until you return to the menu, "User Defined Search Criteria."

B - Soil/Groundwater: Allows you to select either soil, groundwater, or both, from a look-up menu.

C - Chemicals: Allows you to select all chemicals or a selection of chemicals. If you choose to make a selection of chemicals, a screen containing a list of the CAS numbers and chemical names appears as follows:

```
CASNO        Name
00-00-10     Total PNA (non-carcinogens)
00-00-11     Oil/Grease
00-00-12     Total Oil or Kerosene
00-00-13     Total Gasoline
00-00-14     Total Hydrocarbons
00-00-17     Barium, Barium Sulfate
00-00-19     Total VOC
00-00-20     Total, Semi-VOC
00-00-21     Individual Semi-VOC
00-00-22     Total Pesticides

F - Find Name        F6 - To mark and
L - Locase CAS RN     unmark
V - View Synonyms    Q - To save selec-
                      tions and exit
```

You now have the option to search this list by chemical name (F) or by CAS Number (L). In addition, you can scroll through the list using the up and down arrows on your keyboard. If you are unsure of the chemical name, you may search the synonym table by choosing the V - View Synonym option. From the synonym list you can obtain the CAS Number of the chemical in question and then select Q to return to the Chemical Selection screen. The cursor should be at the corresponding CAS Number and chemical name for the synonym you selected. Once you have found the chemical, mark the chemical by selecting the F6 key. If you wish to deselect a chemical simply highlight that chemical and select F6. Continue this process until you are done selecting chemicals. When you are finished selecting chemicals, select the Q key to save selections and return to the User Defined Search Criteria Screen.

D - Status: Allows you to narrow queries by Regulation, Guideline, or In-Development, or a combination of the three.

E - Existing Proposed: Allows you to choose between existing or proposed, or both, for Regulations and Guidelines selected in Option D.

F - View Search Criteria: Allows you to see a printout on the screen of the search criteria you have selected.

Note: If you do not make a selection from A through F, the default for each of these options is All.

At the bottom center of the screen under Miscellaneous are options for printing (L), clearing search criteria (M), and returning to the Main Menu (Q). When you are finished selecting criteria and output options, select L for printing. Select whether you would like to print the results of your search to the screen or the printer. If you would like to design a new search criteria, select M to clear previously designed search criteria. Then select Options A through F to design the new search criteria.

Column 2 contains options for what parts of output you would like to select as follows:

G – Contact Information
H – Comments
I – Reference
J – Chemical Information
K – All

Select what part(s) (or all) of the information you would like to output. The program will then search the database and output your results to the screen or the printer. After viewing or printing the data, you may view or print it again. Search criteria you defined remains in memory until you choose M to clear the search criteria, design a new search criteria, or exit the program.

An example of a user defined search follows. The search is for the state of Minnesota, the chemical Butanol, for both soil and groundwater, all regulations, guidelines, and in-development, and both existing and proposed. All parts of output were chosen (K-all). The printed output for this search is as follows:

Soil and Ground Cleanup Criteria

MINNESOTA

STATUS

☐ **Regulation**
- ☐ Exists
- ☐ Proposed

☐ **In Development**
- ☐ Expected Availability

☐ **None**

☒ **Guideline**
- ☒ Exists 05/28/92
- ☐ Proposed

☐ **Soil**
☐ **Groundwater**
☒ **Both Soil & Groundwater**
☐ **Other**

COMMENTS

1. Minnesota Pollution Control Agency (MPCA) establishes groundwater cleanups goals based on a site-specific evaluation of risks and the following:

(a) prevention of any further groundwater degradation where recommended allowable limits (RALs) and maximum contaminant levels (MCLs) are not exceeded or risk is below 1 in 100,000 for carcinogens;

(b) remediation to RALs and 1 in 100,000 cumulative risk for carcinogens, or to MCLs, whichever is more restrictive, for sites involving groundwater already exceeding RALs or MCLs; or

(c) adjustment to levels such that groundwater contaminants do not pose an unacceptable risk based on site-specific risk assessment.

4. Soil cleanup criteria are based on a site-specific risk assessment considering the following routes of exposure: ingestion, dermal contact, inhalation, and migration of contaminants in soil to groundwater.

REFERENCE

1. MPCA compilation of Groundwater Rules and Regulations, Superfund Program, Approach of Minnesota Superfund Program to Groundwater.
2. MPCA memorandum, Site Reponse Soil Cleanup Procedures, 28 May 1992.
3. Recommended allowable Limits for Drinking Water Contaminants, MN Dept. of Health, Health Risk Assessment Section, Release No. 3, Jan. 1991.

Contact: Gary Pulford
Office: Solid Waste Division
Agency: Pollution Control Agency
Address: 520 Lafayette Rd.
St. Paul, MN 55155-4194
Phone: 612-296-7290

NUMERICAL CRITERIA

		Groundwater Recommended Allowable Limits		Groundwater Groundwater	
Constituent	CAS Number	mg/L	Remarks	million fibers/L	Remarks
n-Butyl alcohol	71-36-3	0.700			

TROUBLE SHOOTING

The program has been tested and will execute using 530k base memory on most machines. If you receive a "BASE MEMORY LOW" error message while executing the program, this means that you do not have enough base memory free to run the program. You can check the amount of base memory free by typing CHKDSK or MEM at the DOS prompt.

CHKDSK will display your base memory free as:
"bytes free"
MEM will display your base memory free as:
"Largest executable program size"

You can gain more base memory by proceeding in any one of the following ways:

1. If your system has expanded memory. You can run a program that optimizes your upper memory to free more base memory.
   - Run the program called **MEMMAKER** if you are using the MS-DOS upper memory manager EMM386. (DOS 6.0 or above.)
   - Run the program called **OPTIMIZE** if you are using QEMM386.
2. Free more base memory by not loading TSRs and Devices that are not necessary for the execution of the program.
3. Create separate config.sys and autoexec.bat files that use as little base memory as possible. Use these files when you boot machine.
4. If you are using MS-DOS 6.0 or above you may setup a separate configuration as a menu item when you boot your machine. Refer to the DOS command **MenuItem** for instructions.

Here is an example of a config.sys and autoexec.bat file which uses as little memory as possible.

The CONFIG.SYS file:

```
FILES=49
BUFFERS=30
```

The AUTOEXEC.BAT file:

```
PROMPT $P$G
PATH C:\DOS
```

TECHNICAL SUPPORT

For technical support for DS 64 software contact:

Peter Few
ASTM
1916 Race St.
Philadelphia, PA 19103
215-299-5422

For questions relating to the data contact:

Anthony J. Buonicore, Editor
Environmental Data Resources, Inc.
3530 Post Rd.
Southport, CT 06490
203-255-6606