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Inventory of Federal Energy-Related Environment and Safety Research for FY 1977

Volume III—Interactive Terminal Users Guide

July 1978

MASTER

U.S. Department of Energy
Assistant Secretary for Environment
Division of Environmental Impacts

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By
Carole R. Shriner
Larry J. Peck
Information Center Complex
Oak Ridge National Laboratory
and
C. E. Miller
Department of Energy

U.S. Department of Energy
Assistant Secretary for Environment
Division of Environmental Impacts
Washington, D.C. 20545

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86

INTERACTIVE TERMINAL USERS GUIDE
for
the Inventory of Federal Energy-Related
Environment and Safety Research
for FY 1977

Prepared by:

Carole R. Shriner and Larry J. Peck
Information Center Complex
Information Division
Oak Ridge National Laboratory*

C. E. Miller
Division of Environmental Impacts
Office of Environment
Department of Energy

Under the direction of:

The Assistant Secretary for Environment
Department of Energy

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PREFACE

This users guide was prepared to provide interested persons access to, via computer terminals, federally funded energy-related environment and safety research projects for FY 1977. Although this information is also available in hardbound volumes, this on-line searching capability is expected to reduce the time required to answer ad hoc questions and, at the same time, produce meaningful reports. The data contained in this data base are not exhaustive and represent research being reported by the following agencies:

- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Health, Education, and Welfare
- Department of Housing and Urban Development
- Department of Interior
- Department of Transportation
- Environmental Protection Agency
- National Aeronautics and Space Administration
- National Science Foundation
- Nuclear Regulatory Commission
- Tennessee Valley Authority
- Energy Research and Development Administration (now Department of Energy)
- Federal Energy Administration (now Department of Energy)

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ACKNOWLEDGMENTS

The automation of this inventory was conducted under the direction of Mr. Theodore M. Albert, Division of Environmental Impacts, Office of Environment, Department of Energy.

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CONTENTS

Preface	v
Acknowledgments	vii
Introduction	1
The Automation of the Federal Inventory	1
Whom to Contact for Federal Inventory Access	1
Scope of This Users Guide	2
How to Include Projects in Next Year's Federal Inventory	2
Data Base Access Procedures	2
Terminology and Conventions	2
General Access Procedures.	3
Logging On and Off the DECsystem-10	3
Help for the User.	5
System 1022 Commands	6
General Command Format	6
Command Line Continuations	6
Character Strings	6
Diagnostic Messages	7
Arithmetic Expressions	7
Entering and Exiting System 1022	8
Data Base Set Command	8
Mapping Command	9
INFORM Command	9
FIND Command	10
SEARCH Command	12
SORT Command	13
SAVE Command	14
TYPE Command	15
REPORT Command	16
Appendix A	19
Appendix B	33
Appendix C	35
Appendix D	39
Appendix E	44

INTRODUCTION

The Automation of the Federal Inventory

The *Inventory of the Federal Energy-Related Environment and Safety Research* data base has been slightly reformatted from the published version of the document and has been installed on System 1022 at Oak Ridge National Laboratory. System 1022 is a generalized data management system created for use on the Digital Equipment Corporation DECsystem-10 computer. It was the intent of the authors to provide to the unsophisticated user a fast retrieval capability for personal queries and a limited number of "canned" reports for analysis or planning needs.

At present, the Federal Inventory is updated annually for publication, but it is hoped that the automated version could be updated at least semi-annually in the future.

Whom to Contact for Federal Inventory Access

Access to the Federal Inventory can be obtained by contacting:

Mr. C. Edward Miller
Information System Specialist
Division of Environmental Impacts
Mail Stop E-201
Department of Energy
Washington, D.C. 20545

Telephone: (301) 353-4665
Federal Telecommunications System: 233-4665

At that time, the proper phone numbers for dial-up access, an account number, and a security password will be issued. Activity on the system can be monitored in this fashion. If, during a terminal session, the user should encounter any difficulties or have questions about query syntax, please contact:

Ms. Carole Shriner
Information Center Complex
Oak Ridge National Laboratory
P. O. Box X
Oak Ridge, Tenn. 37830

Telephone: (615) 483-8611, ext. 3-6616
Federal Telecommunications System: 850-6616

Presently, costs for access will be assumed by the Office of Environment, Department of Energy. In the future, if dial-up use becomes extensive it may be necessary to implement a cost-sharing system of accounting based on individual account use.

Scope of This Users Guide

This guide is intended to introduce the user to System 1022 only in the framework of accessing the *Inventory of Federal Energy-Related Environment and Safety Research*. The commands, examples, and report formats are tailored to the Federal Inventory data base only and are not meant to educate the user in the intricacies of System 1022.

If an account user desires more sophisticated report formats to satisfy requests, the *System 1022 - Data Base Management System* manual should be obtained from Larry J. Peck or Carole R. Shriner at the Oak Ridge National Laboratory.

How to Include Projects in Next Year's Federal Inventory

If recipients of this document would like to have their federally funded projects included in this inventory for FY 1978, survey forms can be obtained by contacting the Assistant Secretary for Environment, Department of Energy, Washington, D.C. 20545. A sample survey form for the FY 1977 Federal Inventory can be found in Appendix A.

DATA BASE ACCESS PROCEDURES

Terminology and Conventions

Prior to a discussion of accessing the Federal Inventory data base using System 1022, an explanation of terms and conventions used throughout the manual is necessary.

Data base	A collection of related information arranged into records, for example, the Federal Inventory data base.
Record	A collection of related data items which are consistent in format from record to record. Within the Federal Inventory data base each project is considered a record.
Attribute	The data items comprising a record. For example, LOG AGENCY, MONITOR, and FUNDA are attributes within a given Federal Inventory project (record).
↓	Indicates the carriage return key.
↑	Indicates the control key (CTRL) which is depressed and held until a subsequent key is typed, for example, ↑C or ↑O.

<u> </u>	Underlining indicates those portions of the example which the user must type.
Upper case	Parts of the examples printed in upper case characters should be printed exactly as shown.
Lower case	Parts of the examples printed in lower case characters are user-supplied command arguments which may take on a variety of arguments.
Brackets	Portions of examples enclosed within square brackets indicate they are optional.
Vertical list	A vertical list of parameters indicates one item from the list should be chosen when the command is used.

General Access Procedures

In order to access the Federal Inventory data base on the DECsystem-10 computer at Oak Ridge National Laboratory (ORNL) several steps are involved. Assuming the user has permission to access the data base and has obtained the proper project-programmer number, password, and telephone number, the following general steps should be followed:

1. Dial the ORNL DECsystem-10 computer. This assumes the user has a computer terminal with an acoustic coupler or data set.
2. Log into the DECsystem-10 by entering the proper project-programmer number and password.
3. Perform the desired Federal Inventory search and/or reports.
4. Exit from System 1022.
5. Log off the ORNL DECsystem-10.

Logging On and Off the DECsystem-10

To access the Federal Inventory data base, the user must first log into the DECsystem-10. The terminal transmission rate should be set at either 110 baud (10 characters/sec) or 300 baud (30 characters/sec) and the terminal should be set to operate in full duplex mode. After the appropriate telephone number is dialed and the terminal is properly connected to the DECsystem-10, the following procedures should be followed:

1. Depress Return key.
2. The terminal should type PLEASE LOGIN OR ATTACH and then a period (.). If nothing is typed, type Return until a period is printed by the system.
3. After the period, type your project-programmer number: xxxx,xx↓.
4. If a valid project-programmer number was entered, the system will type PASSWORD: and wait for the user to respond with a valid password. At this point the password is typed. For security purposes, the password is not displayed on the user terminal.

The following is an example of the log-on procedure:

```
PLEASE LOGIN OR ATTACH
.LOGIN↓
JOB 24  UCCND  603  KL10  TTY6/73
#6144,42↓
PASSWORD: _____↓
```

After entry of a valid project-programmer number and password, the user has successfully logged into the DECsystem-10. Following entry of the password, a list of system-user messages will be printed. Printing of the messages can be aborted by typing +0.

In order to log off the DECsystem-10, the user types K/F and a carriage return. The system will print certain user information, including cost of the session. The system will then print a period and the user may either log on again or turn off the terminal and sever the communication connection. It is important to always log off after a terminal session. The following is an example of logging off the DECsystem-10:

```
.K/F
JOB 60, User [6145,45] Logged off TTY56 1335
14-May-78

Saved all files (95 blocks)
CPU Time  = 0.03 Minutes
Con Time  = 0.46 Hours
Kilo Time = 0.00 Hours
Job Cost  = 1.20 Dollars
Prime Rates
```


Help for the User

Should the DECsystem-10 user need additional help in the procedures previously discussed, the user can type .HELP name+, where name is an available HELP file name in a given area of interest. For a listing of all the HELP file names available, type .HELP INDEX+. For log-on and log-off procedures the following HELP files may be useful:

.HELP LOGIN+

.HELP BEGINN+

.HELP IAMA+

.HELP CTRLC+

.HELP CTRLQ+

SYSTEM 1022 COMMANDS

System 1022 is a general-purpose data-management software system resident on the Oak Ridge National Laboratory DECSYSTEM-10 computer. The purpose of this section is to overview those commands necessary for basic retrieval and display of data from the Federal Inventory data base. If a more sophisticated use of System 1022 is desired, the user should refer to the manual *System 1022 - Data Base Management System*.

General Command Format

System 1022 is designed to accept commands in a natural word-oriented format. The basic command format is:

COMMAND [parameter parameter . . . parameter]

where parameter is a file name, attribute name, etc., depending upon the command. Multiple commands may be typed on a single line provided each command is terminated by a period and a space.

COMMAND parameter. COMMAND parameter.

Command Line Continuations

Lengthy commands may be continued for succeeding lines by typing a minus sign (-) and carriage return (↑). The system will erase both the minus sign and the carriage return from the command string. The system will request succeeding command lines with a pound sign (#) rather than the asterisk (*). If after typing a multiple line command the user wishes to abort the entire command, this may be done by typing the command #Z. A single-line command may be aborted by typing ↑U. The following is an example of entry of a multiple-line command:

```
*FIND LOG_AGAB EQ -↑  
#DOC/ASEA AND MON_AGAB -↑  
#EQ EPA↑
```

Actual command entered is:

```
*FIND LOG_AGAB EQ DOC/ASEA AND MON_AGAB EQ EPA↑
```

Character Strings

To enter a character in a command line, enclose the string in single quotes (''). For example:

```
*FIND MONITOR EQ 'JOHN SMITH'↑
```

If an incorrect character is entered, the user may erase that character by typing the DEL or RUBOUT key. Characters are erased beginning with the last character typed. To erase a line of characters the user types:

.↓U

Diagnostic Messages

When a command is entered incorrectly, System 1022 prints a number-coded diagnostic message and repeats the command up to and including the invalid word within the command. The command is then ignored. For example:

```
*PRENT TOT FUNDA
?(C524) INVALID COMMAND
PRENT
*
```

Typical diagnostic messages the user may encounter in searching the Federal Inventory data base are listed in Appendix B. A complete set of messages is contained in the manual entitled *System 1022 - Data Base Management System*.

Arithmetic Expressions

System 1022 arithmetic expressions consist of a combination of numeric values, attribute names, parentheses, and the following numeric operators:

```
*Multiply
/Divide
+Add
-Subtract
```

System 1022 evaluates a given arithmetic expression according to parenthetical groups. Within any parenthetical group, numeric operators are evaluated in the order given above, multiply (*) first and subtract (-) last. When operator precedence is equal, the numeric operators are evaluated from left to right. For example, if NUM = 28 the following expression would evaluate as follows:

```
*PRINT (2*3-NUM/(3+4)+5)↓
7
```

Additional information is available from the following Digital Equipment Corporation manuals:

<i>Operating System Command Manual</i>	DEC-10-OSMA-A-D
<i>Getting Started with DECsystem-10</i>	DEC-10-X-GSDA-A-D

Entering and Exiting System 1022

The Federal Inventory data base is composed of three data sets. A successful log on automatically places the user in the first data set of the Inventory in System 1022. No commands are needed to enter System 1022 or to open the data base. After log on the system will respond:

```
SYSTEM 1022A (113-2)
IN DATA SET 1
*
```

The user is now at the point where inquiries to the data base can be made.

In order to leave System 1022 and return to the DECsystem 10 monitor, the user enters the command:

*QUIT↓ or Q↓

The system will respond with EXIT, indicating the user has returned to the monitor. Care must be taken to always use the QUIT command to exit System 1022.

The system automatically assumes an 80 character width line size when the user enters System 1022. If the user's terminal has a 132 character width line size, the width command should be used to specify the line size. The user enters System 1022, exits using the QUIT command, enters the width command, and finally reenters System 1022. The procedure is:

```
SYSTEM 1022A (113-2)
IN DATA SET 1
*QUIT↓
EXIT
.TTY WIDTH 132↓
.R 1022↓
```

The user is now back in System 1022 with a 132 character width line size and can proceed with inquiries to the data base.

Data Base Set Command

As stated above, the Federal Inventory data base consists of four data sets. Data set 1 contains most of the project identification information, data set 2 contains the bulk text fields, data set 3 is a list of the boxes marked on each questionnaire (Appendix A), and the fourth data set contains funding data, log and monitoring agencies and keywords. The system begins execution in data set 1. To change to another data set, the user enters the command @DX where X is the number of the desired set. The system will respond with the desired data set, for example:

*@D3↓
IN DATA SET 3
Mapping Command

The three data sets are linked together by the log numbers field. All records in all data sets generated from a single questionnaire share the same log number. Thus for records found in one data set, a related group of records may be found in another data set based on log number values in the first data set. To find a related group of records in a second data base, the mapping command is used. A group of utility routines to perform this mapping has been developed. To map between data sets the user enters the command @MX where X is the data set number mapped to. The system will respond with the number of records found and the data set number mapped to, for example:

```
IN DATA SET 1
*@D3↓
IN DATA SET 3.
*FIND K EQ 490↓
1892 RECS FOUND.
*@M1
1853 RECS FOUND.
IN DATA SET 1.
```

This example shows the command to enter data set 3 (@D3), a FIND command in data set 3, and a mapping command back to data set 1 (@M1).

INFORM Command

The INFORM command is used to generate information on the structure and status of the currently selected data base. This command is useful if the user desires to know the attribute names, which attributes are keyed, etc. The general form of the command is:

```
INFORM [STRUCTURE
        ATT Attribute
        NAMES]
```

where STRUCTURE displays one line of information for each attribute in the data base. The information includes attribute name, attribute abbreviation, data type, keying status, and field size. ATT attribute displays the line from the STRUCTURE describing this particular attribute. NAMES displays a list of attribute names for the data base without additional structure information. To display attributes and the one line of information the user enters:

*INFORM STRUCTURE↓

Appendix C lists the attributes contained in each data set and relates the individual attribute to the question number of the questionnaire.

FIND Command

The FIND command allows the fastest retrieval mechanism from a data base by use of special key tables associated with keyed access attributes. The FIND command is restricted to selection criteria using keyed attributes. Refer to the chapter on data base structure or use the INFORM command for a list of keyed attributes in the Federal Inventory data base. Searching of nonkeyed attributes is accomplished with the SEARCH command, which is slower since key tables are not used. The general form of the FIND command is:

FIND comparison [logicalop comparison . . logicalop comparison]

where comparison is an arithmetic or logical comparison performed on keyed attribute values and takes the following form:

Keyedattribute relationop value

where keyedattribute is the name of the keyed attribute on which System 1022 will perform the comparison. Relationop is one of the following relational operators:

<u>Relational operator</u>	<u>Description</u>
EQ	Is equal to the value
NE	Is not equal to the value
GT	Is greater than the value
GE	Is greater than or equal to the value
LT	Is less than the value
LE	Is less than or equal to the value
BET	Is between or equal to the named value
NBET	Is not between or not equal to the named value

When these operators are used with text values, the comparisons are made on the basis of alphabetical precedence. For example, BBB is less than BBC. Note also that lower case characters have a greater value in comparison than upper case characters (e.g., b is greater than B).

Value is the value to which the keyed attribute is compared. Values may be integers, real numbers, text, or dates, depending on the data type of the attribute. Note that text values cannot be compared to numeric attributes, nor can numeric values be compared to text attributes.

Logicalop is one of the logical operators listed below which may be used to combine basic selection comparisons to form more complex selection criteria.

Logical
operator

Description

AND	Finds only those records statis- fying both comparisons at once
OR	Finds all records satisfying either comparison
XOR	Finds all records satisfying one but not both comparisons
EQV	Finds all comparisons in which the comparisons are either both true or both false in the same record
NOT	Produces the opposite of the element following it

Any level or grouping of parentheses may be used in the FIND command. When used without parentheses, the logical operators are evaluated according to the following precedence:

1. XOR and EQV
2. AND
3. OR

The NOT operator acts only in the relation or comparison immediately following it.

The special command FIND ALL↓ can be used to quickly select the entire data base and the special keyword LAST may be used in a FIND command to represent the records found in the most recent FIND or SEARCH command. A third special FIND command is FIND SYSID↓ which selects records by the internal record number assigned by the system to each record. Examples of the use of the FIND command in searching the Federal Inventory data base follow.

Example of FIND ALL command:

```
SYSTEM 1022A (113-2)
IN DATA SET 1
*FIND ALL↓
3271 RECS FOUND.
```

Examples of FIND LAST command:

```
Example 1.  IN DATA SET 1
             *FIND CI EQ 'OAK RIDGE'↓
             211 RECS FOUND.
             *@M3↓
             211 RECS FOUND.
             IN DATA SET 3.
```

*FIND LAST↓
229 RECS FOUND.

Example 2. IN DATA SET 1
*FIND ZIP EQ 37830↓
211 RECS FOUND.
*@M3↓
2072 RECS FOUND.
IN DATA SET 3.
*FIND LAST AND KEYFIELD BET 19A 19E↓
112 RECS FOUND.

Example of FIND SYSID command:

IN DATA SET 1
*FIND SYSID LT 500↓
499 RECS FOUND.

In data set 4 the attribute KEYWORD contains both keywords and funding agencies. The FIND command can be used with the KEYWORD attribute to retrieve records containing a specific funding agency. For example:

IN DATA SET 4
*FIND KEYWORD EQ EPA↓

To find a range of funding agencies or to find all records which have agency values in the KEYWORD attribute, the procedure is:

IN DATA SET 4
*FIND FILE AG↓
1741 RECS FOUND.
*FIND LAST AND K BET HEW/NCI AND HEW/NIH↓

Because of the length of the log agency, funding agency, and monitoring agency names, these have been abbreviated in the respective attributes. A listing of agencies with their abbreviations is provided in Appendix D to facilitate data base searching.

System 1022 allows the FIND command to be used in an abbreviated form making assumptions based on syntax. For example, if a relational operator is omitted in front of a value, it is assumed to be EQ. For a full explanation of these simplified syntax rules, refer to the System 1022 manual.

SEARCH Command

The SEARCH command is generally the same form as the FIND command; however, attributes specified in the SEARCH command can be either keyed or unkeyed. Since key tables are not used, the SEARCH command is considerably slower than the FIND command. Therefore, the FIND command should be used whenever possible. The SEARCH command only searches the records found by the last FIND or search command entered and, therefore, at least one FIND command must precede a search command. The general form of the SEARCH command is:

SEARCH comparison [logicalop comparison . . . logicalop comparison]

where comparison and logicalop are as described in the FIND command. The following additional relational operators are valid for the SEARCH command:

<u>Relational operator</u>	<u>Description</u>
CT	Contains the character string
NCT	Does not contain the character string

The following are examples of use of the SEARCH command:

Example 1. IN DATA SET 1
 *FIND ALL↓
 3271 RECS FOUND.
 *SEARCH TYPE CT 'EPA'↓
 978 RECS FOUND.

Example 2. IN DATA SET 1
 *FIND ZIP EQ 37830↓
 211 RECS FOUND.
 *SEARCH TITLE CT 'FISSION AND NOT FUSION'↓
 2 RECS FOUND.

Example 3. IN DATA SET 1
 *@D3↓
 IN DATA SET 3.
 *FIND KEYFIELD BET 23A 23D↓
 37 RECS FOUND.
 *@M1↓
 37 RECS FOUND.
 IN DATA SET 1.
 *FIND LAST↓
 37 RECS FOUND.
 *SEARCH AFFIL CT 'UNIVERSITY'↓
 3 RECS FOUND.

SORT Command

The SORT command is used to arrange the order of a group of records selected by the last FIND or SEARCH command. Following a use of the SORT command, the PRINT command or report program are normally used to display the records in sorted order. The general form of the SORT command is:

SORT [BY] expression [sequence] . . . expression [sequence]

where BY is an optional word the user may wish to include for clarity. Expression is normally an attribute name but may be a true expression if the sorting situation allows it.

Sequence is a keyword (UP or DOWN) specifying the type of sort. If the sequence keyword is omitted, UP is assumed. The order of the attributes in the command string specifies the order of the sort. All records are sorted according to the first attribute, then equal occurrences of the first attribute are sorted according to the second attribute, etc. The following are examples of use of the SORT command:

Example 1. IN DATA SET 1
*FIND MA EQ EPA↓
1078 RECS FOUND.
*SORT PI↓

Example 2. IN DATA SET 1
*@D3↓
IN DATA SET 3.
*FIND KEYFIELD EQ 19D↓
147 RECS FOUND.
*@M1↓
147 RECS FOUND.
IN DATA SET 1.
*SORT AFFIL PI↓

SAVE Command

The SAVE command allows the user to save a system-readable copy of the current record selection group. The copy is stored as a disk file, using the default extension of .DMV. The general form of the command is:

SAVE file-descriptor

The file may then be referred to by FILE file-descriptor. This makes it possible for the user to retain different selection groups and make them available for a subsequent operation. To save the current selection record group the user enters:

*SAVE file-descriptor↓

The following are examples of the SAVE command:

Example 1. IN DATA SET 1
*FIND LA EQ ERDA↓
1903 RECS FOUND.
*SAVE ERDA↓

Example 2. IN DATA SET 1
*@D3↓
IN DATA SET 3.
*FIND K BET 22A 22D↓
141 RECS FOUND.

```

Example 2.      *@M1↓
(continued)    133 RECS FOUND.
               IN DATA SET 1.
               *SAVE GEOTHERMAL↓
               *@D3↓
               IN DATA SET 3.
               *FIND K BET 23A 23E↓
               143 RECS FOUND.
               *@M1↓
               135 RECS FOUND.
               IN DATA SET 1.
               *SAVE SOLAR↓
               *FIND FILE GEOTHERMAL AND FILE SOLAR↓
               268 RECS FOUND.

```

If the user has saved files during the session, those files need to be deleted before logging off DECsystem-10. To delete files, the user first exits System 1022 and then deletes the files. The sequence for file deletion is:

```

*QUIT↓
EXIT
.DELETE *.DMV↓
.K/F↓

```

TYPE Command

The TYPE command allows the user to display record values to the user's terminal. It can calculate and print standard system functions of expressions. The records which the TYPE command will display are the records currently selected by the last FIND or SEARCH command. Every record selected will be displayed when the TYPE command is executed. The general form is:

TYPE attribute

The output list has the following general form:

main-lists

The main-list is a list of general arithmetic expressions and text attributes which will be evaluated and printed for each record selected. Each expression is delimited from the next one by at least one space or comma. The following is an example of a TYPE command to display values of several attributes:

```

IN DATA SET 1
*FIND MON_AGAB EQ DOC↓
479 RECS FOUND.
*TYPE LOG_NO MON_AGAB TITLE↓

```

To total attribute values for a selected record group the totals-list function is used. This prints the total attribute value once after all records have been processed by the main-list. The following is an example of using the TYPE command to total attribute values:

```
IN DATA SET 1
*FIND LOG_AGAB EQ "EPA"↓
969 RECS FOUND.
*TYPE TOT FUND4↓
90897.301
```

All dollars are given as thousands of dollars; thus, the total for FUND4 in the above example is \$90897.301K. The totals-list functions may apply to general attributes by following the function name by the attribute to be evaluated for each record. The available functions are:

MIN Returns the minimum attained attribute value
MAX Returns the maximum attained attribute value
MEAN Returns the mean value over all records of the attribute
TOT Returns the sum of the value over all records

To control and display attribute values in a more readable manner than that produced by the TYPE command alone, the user may use the FORMAT option with the TYPE command. The general form is:

```
TYPE attribute [FORMAT ---- END]
```

To display the attributes a scrolling format can be used with the general form:

```
FORMAT SX END
```

where S is the scrolling command and X is the character length of the line. The scrolling command must be preceded by FORMAT and one space and followed by one space and END. An example of the TYPE command with the FORMAT option is:

```
IN DATA SET 1
*FIND MON_AGAB EQ DOC↓
479 RECS FOUND.
*TYPE MON_AGAB TITLE FORMAT S50 END↓
```

REPORT Command

Three basic canned reports are included in the system. Each report sorts the selected records by number before displaying the records. Report one (R1) lists log number; FY 1977 funding level, monitoring agency, and project title for the currently selected set of records. Report two (R2)

lists the same items as report one plus the question numbers and percentages from data set three. Report two requires that the user create a SAVE file name "S" in data set three containing the question numbers to be included in the report. Report three (R3) lists the same items as report one plus the objective attribute from data set two. All reports print the total FY 1977 funding for the currently selected records at the end of the report. To use the report system, the user enters the command @RX where X is the number of desired report, for example:

*@R2+

A second group of reports is provided for users with terminals having a line size of 132 characters. These reports perform like the reports described above. To use one of the wide format reports enter @WX where X is the number of the report, for example:

*@W2+

The following are examples of the REPORT command:

Example 1. IN DATA SET 1
 *FIND LA "ERDA/NE"+
 22 RECS FOUND.
 *@R1+
 POSITION TO TOP OF FORM AND ENTER RETURN.
 INVENTORY OF FEDERAL ENERGY-RELATED
 ENVIRONMENT AND SAFETY RESEARCH 5/09/1978 PAGE 1

 95001 \$500.0 EPA
 TITLE: WASTE UTILIZATION PROGRAM, SLUDGE
 THERMORADIATION

 95002 \$50.0 EPA
 TITLE: MARINE ENVIRONMENTAL TEST PROGRAM

 TITLE FY77: \$550.0

Example 2. IN DATA SET 1
 *FIND LOG AGAB EQ "DOT/FAA"+
 23 RECS FOUND.
 *@M3+
 133 RECS FOUND.
 IN DATA SET 3.
 *FIND LAST AND KEYFIELD EQ "260"+
 18 RECS FOUND.
 *SAVE S+
 *@M1+
 18 RECS FOUND.
 IN DATA SET 1.
 *@R2+
 POSITION TO TOP OF FORM AND ENTER RETURN.
 INVENTORY OF FEDERAL ENERGY-RELATED ENVIRONMENT
 AND SAFETY RESEARCH 5/09/1978 PAGE 1.

Example 2. 62004 \$495.0 DOT
 (continued) TITLE: JET NOISE REDUCTION
 260 1.00 \$495.0
 62023 \$250.0 DOT
 TITLE: ANALYSIS OF AIRCRAFT EFFECTS
 260 .50 \$125.0
 TOTAL FY77: \$750.0 PERCENTAGE TIMES FY77: \$633.3

Example 3. IN DATA SET 1
 *FIND ZIP EQ 37830↓
 211 RECS FOUND.
 *@M3↓
 2072 RECS FOUND.
 IN DATA SET 3.
 *FIND LAST AND KEYFIELD BET 19A 19E↓
 112 RECS FOUND.
 *@M1↓
 99 RECS FOUND.
 IN DATA SET 1.
 *@R3↓
 POSITION TO TOP OF FORM AND ENTER RETURN.
 INVENTORY OF FEDERAL ENERGY-RELATED
 ENVIRONMENT AND SAFETY RESEARCH 5/09/78 PAGE 1
 51018 \$30.0 DOI/FWS
 TITLE: BIBLIOGRAPHY: ENVIRONMENTAL IMPACTS OF
 ELECTRIC POWER GENERATION AND TRANSMISSION
 ON FISH AND WILDLIFE
 OBJECT: COMPILE SEVERAL BIBLIOGRAPHIES OF TECHNICAL
 INFORMATION PERTAINING TO ENVIRONMENTAL
 IMPACTS OF ELECTRIC POWER GENERATION AND
 TRANSMISSION.

An example of an extensive search of the Inventory data base using most of the commands described above is provided in Appendix E.

The search strategy is:

1. Find the records in each technology category and save each category as a file.
2. Compare the files to find records associated with several selected technologies.
3. Sort the selected records and print selected record attributes.

APPENDIX A

Inventory of Federal Energy-Related Environment
and Safety Research FY 1977 Questionnaire

Inventory of Federal Energy-Related Environment and Safety Research

FY 1977

**Energy Research and Development Administration
Office of the Assistant Administrator
for Environment and Safety**

INSTRUCTIONS

for

Project Documentation

Energy-Related Environment and Safety Projects

For purposes of this Inventory, a project is defined as an investigation with a specific objective to be met within prescribed time and dollar limitations (normally planned on a fiscal year basis). It may be a theoretical or analytical study. It may be basic or applied research or development. It will generally be the lowest level of an agency's work breakdown structure. More detailed breakdowns of a work unit by a contractor are not generally considered to be a project. A contract may cover multiple projects, however, a project would not involve more than one contract.

- The agency performing the research in-house or directly contracting for the research effort will report on the project. They will also report the source(s) and types of funds which pay for the project.

SECTION I - ADMINISTRATIVE

- Item 1 Please use full project title. Do not abbreviate.
- Item 2 This will be the identification number of the responsible federal agency for both new and continuing projects. (In the case of ERDA projects, use the Research Project Identification System (RPIS) number, if known.)
- Item 3 Date of completion of questionnaire.
- Items 4
through
6 Self explanatory.
- Item 7 If project is being performed in a foreign country, insert country's name under Item 7 - STATE.
- Items 8
and 9 Self explanatory.
- Item 10 FTS - Federal Telecommunications System
- Item 11 Monitoring Agency is the federal agency responsible for interfacing with the contractor and directly monitoring the contracted work. (This may or may not be the funding agency)
- Items 12
through
15 Self explanatory.
- Item 16 In most cases, the Funding Agency is the same as the monitoring agency. If funding is received from more than one agency, please list each agency's funding separately.
- Item 17 Enter scientific and technical manpower only; do not include management, secretarial, and administrative support (graphics, publishing, etc.).
- Item 18 If current activity is a continuation of a previous project, the start date should indicate the initiation of the prior work. Thus, the duration should cover the time from the start of previous work to the expected completion date. If the project is a continuing activity with no set completion date, enter N/A for not applicable.

(Instructions are continued on inside back cover)

INVENTORY OF FEDERAL ENERGY-RELATED ENVIRONMENT AND SAFETY RESEARCH

PROJECT DOCUMENTATION - FY 1977

(Please print in black ink or type)

SECTION I - ADMINISTRATIVE

PROJECT TITLE

1. PROJECT TITLE

2. PROJECT NUMBER

3. DATE (Day, month, year)

PRINCIPAL INVESTIGATOR

4. NAME (Last, first, initials)

5. BUSINESS ADDRESS

6. CITY

7. STATE

8. ZIP

9. INVESTIGATOR'S AFFILIATION (Full name)

10. TELEPHONE

(Area)

☐

FTS

☐

Commercial

PROJECT MONITOR

11. MONITORING AGENCY(s) (Full name)

12. MONITORING AGENCY DIVISION OR OFFICE (Full name)

13. MONITOR'S PROJECT OFFICER (Last, first, initials)

14. TELEPHONE

(Area)

☐

FTS

☐

Commercial

PROJECT ACCOUNTING

15. TYPE OF FUNDING ACTIVITY (Check one)

a. ☐ Contract No. _____

c. ☐ Agency in-house effort

b. ☐ Grant No. _____

d. ☐ EPA "pass-thru" funding

e. ☐ Interagency agreement _____

(funding agency)

16. FUNDING (\$ thousands)

Funding Agency(s)	FY 76	FY 77
	\$	\$
	\$	\$

17. SCIENTIFIC AND TECHNICAL MANPOWER (Man Years)

a. FY 76 _____

b. FY 77 _____

18. PROJECT SCHEDULE

a. Duration: _____ months

b. Start date: _____ (day, month, year)

c. Expected completion date (if not applicable, enter N/A) _____ (day, month, year)

INVENTORY OF FEDERAL ENERGY-RELATED ENVIRONMENT AND SAFETY RESEARCH

PROJECT NUMBER _____

SECTION IIA

GENERAL CATEGORIES

(Enter project percentages in applicable boxes and check applicable circles)

TECHNOLOGY

19. FOSSIL FUELS (including synfuel)
a. ☐ Fossil Fuels (general)
b. ☐ Coal
1) ☐ Conversion - Liquefaction
2) ☐ Conversion - Gasification
c. ☐ Oil and Gas
d. ☐ Oil Shale
e. ☐ Biomass - pyrolysis
20. NUCLEAR
a. ☐ Nuclear (general)
b. ☐ Fission
1) ☐ Converters
2) ☐ Breeders
c. ☐ Fusion
1) ☐ Magnetic
2) ☐ Laser
21. ☐ HYDROELECTRIC
22. GEOTHERMAL
a. ☐ Geothermal (general)
b. ☐ Hydrothermal
c. ☐ Geopressurized
d. ☐ Hot dry rock
23. SOLAR
a. ☐ Solar (general)
b. ☐ Direct heat/cool
c. ☐ Electric
d. ☐ Ocean, wind
e. ☐ Biomass
24. CONSERVATION
a. ☐ Conservation (general)
b. ☐ End use
c. ☐ Improved conversion efficiency
d. ☐ Energy storage
25. Reserved
26. ☐ GENERAL (OR BASIC) SCIENCE
27. Reserved
28. Reserved

TOTAL to 100% (Items 19 through 28)

ENERGY CYCLE

29. ☐ Extraction
30. ☐ Combustion in situ
31. ☐ Transportation
32. ☐ Storage
33. ☐ Processing, Conversion
34. ☐ Combustion or End-use
35. ☐ Electricity generation
36. ☐ Electrical transmission
37. ☐ Waste management
38. ☐ Does not apply

TOTAL to 100% (items 29 through 38)

POLLUTANTS (specify)

39. ☐ Noxious gases _____
40. ☐ Metals _____
41. ☐ Particulates _____
42. ☐ Organics _____
43. ☐ Radiation _____
44. ☐ Noise/Vibration _____
45. ☐ Heat/Thermal _____
46. ☐ Visual Aesthetics _____
47. ☐ Other _____
48. ☐ None

TOTAL to 100% (items 39 through 48)

CHARACTER OF STUDY

49. ☐ Research
1) ☐ Theoretical
2) ☐ Laboratory
3) ☐ General
4) ☐ Applied
50. ☐ Development
1) ☐ Laboratory Scale
2) ☐ Pilot Plant
51. ☐ Full Scale Demonstration
52. ☐ Production
53. ☐ Analytical/"Paper" Study

TOTAL to 100% (items 49 through 53)

REGIONS OF INTEREST
(Check applicable circles)

54. Biomes
a. ☐ Atmospheric
b. ☐ Terrestrial
c. ☐ Freshwater
d. ☐ Estuarine
e. ☐ Marine
f. ☐ Does not apply
55. Geographic Areas
a. ☐ Northeast
b. ☐ Midwest
c. ☐ Southeast
d. ☐ Middle Atlantic
e. ☐ South
f. ☐ Southwest

55. (continued)
g. ☐ Far west
h. ☐ Northwest
i. ☐ Alaska
j. ☐ Continental
k. ☐ Global
l. ☐ Site specific _____ (specify)
m. ☐ Does not apply
56. Reserved
57. Coasts
a. ☐ Northeast
b. ☐ Southeast
c. ☐ Gulf

57. (continued)

- d. ☐ Far west
e. ☐ Northwest
f. ☐ Alaska
g. ☐ Other _____ (specify)
h. ☐ Does not apply
58. Reserved
59. Hydrographic Areas
a. ☐ Deep ocean
b. ☐ Continental shelf
c. ☐ Great Lakes
d. ☐ Other _____ (specify)
e. ☐ Does not apply

INVENTORY OF FEDERAL ENERGY-RELATED ENVIRONMENT AND SAFETY RESEARCH

PROJECT NUMBER _____

SECTION IIB

BIOMEDICAL AND ENVIRONMENTAL RESEARCH CATEGORIES
(Enter project percentages in applicable boxes)

CHARACTERIZATION, MEASUREMENT, AND MONITORING

60. Characterization of source terms and pollutants
a. ☐ Baseline measurements
b. ☐ Operating site measurements
61. Measurement technology
a. ☐ Advanced concepts, components and systems
b. ☐ Applied systems
c. ☐ Quality assurance and standards
62. Monitoring
a. ☐ Occupational health
b. ☐ Public health

ENVIRONMENTAL TRANSPORT - PHYSICAL AND CHEMICAL PROCESSES AND EFFECTS

63. ☐ Environmental transport, dispersion and diffusion of pollutants (including modeling and geochemical cycling).
64. ☐ Physical and chemical transformation of pollutants (e.g., photochemical reactions in atmosphere, adsorption of pollutants by soil particles).
65. ☐ Processes by which pollutants are removed from air, land and water.
66. ☐ Pollutant effects on materials.
67. ☐ Terrestrial disturbances resulting from resource extraction (e.g., seismic activity, surface modification, aquifer disruption).
68. ☐ Meteorological/climatic effects of heat, moisture, and pollutant releases.

HEALTH EFFECTS

69. ☐ Screening for hazardous agents (toxicity, teratogens, carcinogens, etc.)
70. ☐ Determine disposition, metabolism, turnover, and elimination of hazardous agents.
71. ☐ Determine processes of damage, repair, recovery, protection, and amelioration.
72. Determine effects of energy-related pollutants on man
a. ☐ Epidemiological studies
b. ☐ Clinical studies
c. ☐ Biological dose-effect studies (non-human experimental research models).

ECOLOGICAL PROCESSES AND EFFECTS

73. ☐ Baseline measurements and determination of ecological parameters.
74. ☐ Ecological impacts related to physical disturbances (e.g., injection of waste heat, land disruption-reclamation, offshore drilling).
75. Ecological impacts related to chemical disturbances
a. ☐ Absorption and toxicity of pollutants
b. ☐ Cycling of pollutants in the biosphere
c. ☐ Biotransformation of pollutants.

INTEGRATED ASSESSMENT

76. ☐ Environmental Data Integration
77. ☐ Health Assessment Methodology (includes transport models)
78. ☐ Environmental Assessment Methodology (includes socio/economic and cultural implications, and regional coordination and case studies)
79. ☐ National/Regional Energy Technology Assessments
80. ☐ Environmental Policy Analysis

Total to 100% (Items 60 thru 80)

INVENTORY OF FEDERAL ENERGY-RELATED ENVIRONMENT AND SAFETY RESEARCH

PROJECT NUMBER _____

SECTION IIC

ENVIRONMENTAL CONTROL TECHNOLOGY R&D CATEGORIES
(Enter project percentages in applicable boxes and check applicable circles)

Environmental Control

Development of procedures, processes, and systems which are designed to mitigate the environmental, health and safety impact of emissions and discharges and energy system wastes.

81. ☐ Air Quality Controls

82. ☐ Solid Waste Management and Land Reclamation

83. ☐ Water Control and Protection

84. ☐ Other (Explain) _____

85. ☐ Disposal of surplus contaminated equipment and facilities.

Energy Materials Transport

86. ☐ Development of procedures, processes, and systems for the safe, secure, and operationally efficient handling, packaging, and transport of fuel cycle materials in accordance with environmental, health, and safety standards.

TOTAL to 100% (items 81 through 86)

SECTION IID

OPERATIONAL SAFETY R&D CATEGORIES

(Enter project percentages in applicable boxes and check applicable circles)

87. ☐ Preparation and distribution of safety methods, standards, and regulations.

88. ☐ Evaluation and monitoring of plant and site operations and safety compliance.

89. ☐ Accident prevention programs, including training programs in health and safety.

90. ☐ Reactor safety programs, including decontamination and disposal.

91. ☐ Risk assessment

1) ☐ Data collection

2) ☐ Statistical data analysis

3) ☐ Accident investigation

92. ☐ Other safety programs _____ (specify)

TOTAL to 100% (items 87 through 92)

INVENTORY OF FEDERAL ENERGY-RELATED ENVIRONMENT AND SAFETY RESEARCH

PROJECT NUMBER _____

SECTION III

PROJECT

DESCRIPTION

93. PROJECT SUMMARY (200 words or less)

a. Objective:

b. Approach:

c. Product/Results Expected:

94. PROJECT MILESTONES

INVENTORY OF FEDERAL ENERGY-RELATED ENVIRONMENT AND SAFETY RESEARCH

PROJECT NUMBER _____

SECTION III PROJECT DESCRIPTION (continued)

95. KEY WORDS

In the Key Word List below, please circle up to six key words that best characterize your project. If the Key Word List is inadequate, provide up to three additional words which describe your project (maximum total six words). List and define additional words in space provided at bottom of this page.

Aerosols	Flora	Noise
Aging	Food	Oil Spills
Air	Forests	Oxidation
Americium	Gamma Ray	Pathogenesis
Animal	Genetics	Photosynthesis
Antimony	Glands	Plants
Arsenic	Heart	Plumes
Bacteria	Hormones	Plutonium
Biochemistry	Human	Radionuclide
Biomass	Hydrocarbon	Reproduction
Biopsy	Immunology	Respiration
Blood	Infrared	RNA
Bone	Ingestion	Safety
Cancer	Inhalation	Scrubber
Carcinogens	Instrumentation	Selenium
Cells	Invertebrates	Sewage
Chlorine	In vitro	Sociology
Chromium	In vivo	Soils
Climates	Iodine	Somatic
Computer Codes	Kidneys	Subsidence
Construction	Land	Sulfur Compound
Copper	Lead	Synthetic Fuels
Diseases	Lungs	Teratogenesis
DNA	Magnetic Fields	Thyroid
Economics	Medicine	Tissues
Ecosystem	Mercury	Toxicology
Effluents	Metabolism	Toxins
Electromagnetic	Meteorology	Tritium
Element (Specify) _____	Microwave	Ultraviolet
Emissions	Mining	Virus
Enzymes	Molecular	Waste
Epidemiology	Mutagenesis	Water
Fate	Mutation	Weather
Fauna	Neoplasms	X-ray
Financial	Neurology	Xenon
Fishes	Nitrogen Compounds	Zinc

ADDITIONAL KEY WORDS AND DEFINITIONS

- a) _____

- b) _____

- c) _____

INVENTORY OF FEDERAL ENERGY-RELATED ENVIRONMENT AND SAFETY RESEARCH

PROJECT NUMBER _____

ADDITIONAL INFORMATION

96. COMMENTS OR REMARKS

SECTION IIA - GENERAL PROJECT CATEGORIZATION

Items 19 through 28 Taking the whole scope of your project as 100%, estimate the percentage of the funding which applies to each of the numbered Technology Categories and write the percentage in the appropriate box. For those categories (such as Fossil Fuels) having further subcategorization (such as Conversion-Liquefaction), check in the appropriate circles. The sum of the percentages under Technology boxes should total to 100%.

Insert a percentage figure in the General Science box (item 26) only if your project, or some portion, is basic in nature and not directly related to any specific energy technology.

Items 29 through 59 Proceed in a similar fashion to allocate a percentage of total effort being devoted to the various sequences of the ENERGY CYCLE (items 29 through 38), and also estimate the percentage applicable to the various POLLUTANTS (items 39 through 48). In each case, total to 100% as indicated. Under CHARACTER OF STUDY (items 49 through 53), the Analytical or "Paper" study (item 53) is defined as the compilation, evaluation, and/or synthesis of secondary data and information. These studies are not involved with the actual generation of original data. Under REGIONS OF INTEREST (items 54 through 59), check the applicable circles.

SECTIONS IIB, IIC, AND IID - ENVIRONMENT AND SAFETY CATEGORIES

Items 60 through 92 Complete Section IIB, IIC, or IID, whichever applies to your project. If you believe your project is applicable to more than one section, complete those sections. Enter estimated percentages in the appropriate boxes, check appropriate circles, and total each section to 100% as indicated.

SECTION III - PROJECT DESCRIPTION

Item 93 Enter a Project Summary (limit 200 words) covering the following:

Objective(s). State project objectives, quantifying where possible (e. g., "demonstrate 95% recovery of sulfur from raw gas with molten salt recycling at a rate of one gallon per minute").

Approach. Describe the technical approach to the project, i. e., how the work is to be done. (See Supplemental Instructions applicable only to Biomedical and Environmental Research projects.)

Expected Product/Results. Describe the final products or results expected from the project and their importance and relevance.

Item 94 A milestone is defined as a recognizable, project-important event that is expected to occur at a future point in time. An example might be "first launch of a fully instrumented balloon" or "interim report distributed." Milestones also include scheduled decision dates important to the design of an experiment or to the direction of research.

Item 95 Self explanatory.

(APPLICABLE TO BIOMEDICAL AND ENVIRONMENTAL RESEARCH CATEGORIES)

Characterization, Measurement, and Monitoring

The requirements for information to be included in descriptions of projects under Characterization, Measurement, and Monitoring are very sensitive to the subcategory involved. If a project is directed toward the Characterization of Source Terms and Pollutants, the description should provide information of the instrumentation, the range, type, and number of measurements involved in the characterization of elemental, molecular, and particulate species, as well as the efforts being made to describe such agents as radiation, pressure, temperature, and electromagnetic fields.

If the project is in the Measurement Technology area, the description should indicate whether the project is intended to explore new and advanced approaches for pollutant detection, specification and measurement, or to develop specific measurement systems. In the latter instance the specific pollutant and the method of detection should be identified.

In the Monitoring area, descriptions should be provided of advanced strategies, techniques, and procedures for quantifying estimates of both occupational and general population exposure to energy-related pollutants.

Environmental Transport - Physical and Chemical Processes and Effects

Descriptions for projects in these areas should describe the design of the experiment, including such items as the pollutants involved, concentration and duration of exposure to toxic agents or pollutants, test organisms, methods of measurement, and environmental characteristics of test sites (if applicable).

Health Effects

The experimental design should be described, including:

- a) test system(s): in vivo (species); in vitro (cell(s), organs, etc.)
- b) exposure conditions: identity of chemical, biological or physical agents where pertinent, route of administration, dose and duration of exposure; acute, chronic, intermittent (cite time regimens)
- c) biological endpoints to be assessed: metabolic, physiologic or pathologic changes, target organ, cellular or molecular species, developmental, mutagenic or carcinogenic effects.

Ecological Processes and Effects

See instructions for Environmental Transport - Physical and Chemical Processes and Effects.

Integrated Assessments

State issues of problems to be solved. Give results where possible. Where alternatives are developed, specify them. State technologies to which the project is related. For case studies, suggest possible wider application and do the same for any methodology developed.

Where models or data bases are used, they should be identified. Relation to other assessments should be stated, particularly if done by other agencies, or if aggregation or disaggregation is involved in which other assessments are used. Specific sites should be identified, as should states, river basins, mountain ranges or valleys, etc., where project work was done. If results of assessments are being used by state or regional commissions, offices, etc., or are directed toward their use, describe such use. Indicate relation to, or impact on, policy.

SYSTEM 1022 ERROR MESSAGES

The following is an abbreviated list of the error messages which can be generated by System 1022. The error conditions are divided into an error type number, and within each type, an error code number. Consult the System 1022 manual if a more complete description of each error message is desired.

CS1	RELATIONAL FOLLOWS ARITHMETIC OR LOGICAL
CS2	LOGICAL FOLLOWS LOGICAL
CS3	VALUE WAS REQUIRED
CS12	ARITHMETIC OVERFLOW IN NUMBER, OR NON NUMERIC CHAR
CS15	UNEXPECTED LEFT OR RIGHT PAREN
CS16	MORE RIGHT THAN LEFT PARENS
CS17	MORE RIGHT THAN LEFT PARENS IN A BASIC SELECTOR GROUP
CS18	NEEDED AN ATTRIBUTE NAME
CS19	UNBALANCED PARENS IN AN ATTRIBUTE GROUPING
CS20	UNBALANCED PARENS IN A COMMAND
CS21	HIT A NULL PAREN GROUP IE ()
CS22	A NOT FOLLOWS AN ARITHMETIC
CS23	EXPRESSIONS NESTED TOO DEEPLY
CS24	INVALID COMMAND
CS26	BAD # COMMAND
CS31	DATA BASE NOT OPEN
CS35	TOO MANY ATTRIBUTES IN A SORT DESCRIPTION
CS37	CT REQUIRES TEXT ATTRIBUTE
CS38	ILLEGAL OR REPEATED PARAMETER
CS43	FUNCTION HAS NO EXPRESSION
CS45	TEXT IN ARITHMETIC EXPRESSION
CS46	UNEXPECTED PERIOD
CS47	UNEXPECTED OPERATOR OR RIGHT PAREN
CS48	NULL TEXT LITERAL
CS49	UNBALANCED PARENTHESES
CS50	UNRECOGNIZED WORD
CS51	DATA NOT OF EXPECTED TYPE
CS52	UNEXPECTED LEFT PAREN
CS55	NOT AN INTEGER
CS56	OUT OF LEGAL RANGE
CS57	COMMAND OUT OF CONTEXT (EG. REPORTS)
CS59	CHARACTER NOT ALLOWED HERE
CS60	ATTRIBUTE AS VALUE NOT ALLOWED IN FIND
CS61	ATTRIBUTE REFERENCED TWICE
CS62	UNKEYED ATTRIBUTE
CS63	VALUE TOO LARGE
CS64	CONTAINS NOT ALLOWED IN FIND
CS65	NEEDED LOGICAL OR ATTRIBUTE
CS66	FILE NOT FOUND

CS69	EXTRA WORK IN COMMAND
CS70	ATTRIBUTE PROTECTED FROM ADD OR CHANGE
CS72	EXPECTED A RESERVED WORD
CS77	BAD RELATIONAL EG. EQ GT
CS79	NOT A DATA SYMBOL
CS80	VARIABLE MUST START WITH LETTER
CS87	UNAUTHORIZED COMMAND
CS88	UNAUTHORIZED ATTRIBUTE
CS89	UNAUTHORIZED ATTRIBUTE, NEED PASSWORD
CS90	ALREADY AN ATTRIBUTE IDENTIFIER
FI1	ATTRIBUTE NOT KEYED
FD1	FILE DAMAGED
SO4	TOO MANY SORT FIELDS

APPENDIX C

DATA SET ATTRIBUTES

DATA SET ONE

ATTRIBUTE	LOG_NO ABBREV L INTEGER KEYED COL 1 6 project identifier
ATTRIBUTE	ADDR ABBREV A TEXT COL 7 161 question 5
ATTRIBUTE	AFFIL ABBREV AF TEXT COL 162 335 question 9
ATTRIBUTE	AGA_AB ABBREV AA TEXT KEYED COL 336 344 question 16, first funding agency
ATTRIBUTE	AGB_AB ABBREV AB TEXT KEYED COL 345 353 question 16, second funding agency
ATTRIBUTE	AGC_AB ABBREV AC TEXT KEYED COL 354 356 question 16, third funding agency
ATTRIBUTE	AGD_AB ABBREV AD TEXT KEYED COL 357 360 question 16, fourth funding agency
ATTRIBUTE	FUNDA ABBREV FA TEXT COL 361 387 FY76 and FY77 funding for AGA_AB, question 16
ATTRIBUTE	FUNDB ABBREV FB TEXT COL 388 408 FY76 and FY77 funding for AGB_AB, question 16
ATTRIBUTE	FUNDC ABBREV FC TEXT COL 409 418 FY76 and FY77 funding for AGC_AB, question 16
ATTRIBUTE	FUNDD ABBREV FD TEXT COL 419 428 FY76 and FY77 funding for AGD_AB, question 16
ATTRIBUTE	BERHEAD ABBREV BH TEXT COL 429 567 main category titles of questions 60 thru 80
ATTRIBUTE	CHAR ABBREV CH TEXT COL 568 770 text of questions 49 thru 53
ATTRIBUTE	CITY ABBREV CI TEXT COL 771 805 question 6
ATTRIBUTE	CPL DATE ABBREV CD TEXT COL 806 826 question 18c
ATTRIBUTE	DATE ABBREV D TEXT COL 827 834 question 3
ATTRIBUTE	DIV ABBREV DI TEXT COL 835 965 question 12
ATTRIBUTE	DUR ABBREV DU TEXT COL 966 980 question 18a
ATTRIBUTE	ENERCYCL ABBREV EC TEXT COL 981 1195 text of questions 29 thru 38
ATTRIBUTE	FUND1 ABBREV F1 REAL COL 1196 1200 total FY75 funding for agencies A thru D
ATTRIBUTE	FUND2 ABBREV F2 REAL COL 1201 1205 total FY76 funding for agencies A thru D
ATTRIBUTE	FUND3 ABBREV F3 REAL COL 1206 1210 total transition quarter funding for agencies A thru D

ATTRIBUTE	FUND4 ABBREV F4 REAL COL 1211 1216 total FY77 funding for agencies A thru D
ATTRIBUTE	FUND5 ABBREV F5 REAL COL 1217 1222 total funding beyond FY77 for agencies A thru D
ATTRIBUTE	GEN_CAT ABBREV GC TEXT COL 1223 1256 text of question categories 19 thru 48
ATTRIBUTE	HEADER ABBREV H TEXT COL 1257 1267 text set to "BER" (Biomedical and Environmental Research) if questions 60 thru 80 are answered, "ECT" (Environmental Control Technology) if questions 81 thru 86 are answered, "OS" (Operational Safety) if questions 87 thru 92 are answered, and "UNSPECIFIED" if none of the questions 60 thru 92 are answered.
ATTRIBUTE	LOG_AGAB ABBREV LA TEXT KEYED COL 1268 1285 log agency abbreviation
ATTRIBUTE	MON_AGAB ABBREV MA TEXT KEYED COL 1286 1302 monitoring agency abbreviation, question 11
ATTRIBUTE	MONITOR ABBREV M TEXT KEYED COL 1303 1355 question 13
ATTRIBUTE	MY TEXT COL 1356 1366 question 17
ATTRIBUTE	PHONE ABBREV P TEXT COL 1362 1410 question 14
ATTRIBUTE	PI TEXT COL 1411 1559 question 4
ATTRIBUTE	PROJ_NO ABBREV PN TEXT COL 1560 1617 question 2
ATTRIBUTE	RECID ABBREV R INTEGER KEYED COL 1618 1621 ADSEP record identifier
ATTRIBUTE	RESCAT ABBREV RC TEXT COL 1622 1771 text from questions 60 thru 92
ATTRIBUTE	SI_DATE ABBREV SD TEXT COL 1772 1779 question 18b
ATTRIBUTE	STATE ABBREV S TEXT KEYED COL 1780 1786 question 7
ATTRIBUTE	STATUS TEXT KEYED COL 1787 1808 current project status
ATTRIBUTE	TELE ABBREV T TEXT COL 1809 1857 question 10
ATTRIBUTE	TITLE ABBREV TI TEXT COL 1858 2061 question 1
ATTRIBUTE	TYPE ABBREV TY TEXT COL 2062 2162 question 15
ATTRIBUTE	ZIP ABBREV 2 INTEGER KEYED COL 2163 2167 question 8

DATA SET TWO

ATTRIBUTE	LOG_NO ABBREV L INTEGER KEYED COL 1 6 project identifier
-----------	---

ATTRIBUTE	FLD ABBREV F TEXT KEYED COL 7 14
	field name of a bulk text data field, contains one of:
	APPROACH question 93b
	KEYWORDS questions 95, 95a-95c, 98
	MILESTON question 94
	OBJECT question 93a
	POLLUT questions 39 thru 48
	REGION questions 54 thru 59
	RESINTS question 93c
	COMMENT question 96
	ECT questions 81 thru 86
	OS questions 87 thru 92
	TECH questions 19 thru 28
ATTRIBUTE	TEXT ABBREV T TEXT COL 15 589
	data for field specified in FLD

DATA SET THREE

ATTRIBUTE	LOG_NO ABBREV L INTEGER KEYED COL 1 6
	project identifier
ATTRIBUTE	KEYFIELD ABBREV K TEXT KEYED COL 7 9
	question number of any question marked between 19a thru 92
ATTRIBUTE	PERFIELD ABBREV P REAL COL 10 14
	percentage of project for question number in KEYFIELD
ATTRIBUTE	LOB_AGAB ABBREV LA TEXT KEYED COL 15 32
	log agency abbreviation
ATTRIBUTE	MON_AGAB ABBREV MA TEXT KEYED COL 33 49
	monitoring agency abbreviation, question 11
ATTRIBUTE	FUND1 ABBREV F1 REAL COL 50 54
	total FY75 funding for agencies A thru D
ATTRIBUTE	FUND2 ABBREV F2 REAL COL 55 59
	total FY76 funding for agencies A thru D
ATTRIBUTE	FUND3 ABBREV F3 REAL COL 60 64
	total transition quarter funding for agencies A thru D
ATTRIBUTE	FUND4 ABBREV F4 REAL COL 65 70
	total FY77 funding for agencies A thru D
ATTRIBUTE	FUND5 ABBREV F5 REAL COL 71 76
	total funding beyond FY77 for agencies A thru D

DATA SET FOUR

ATTRIBUTE	LOG_NO ABBREV L INTEGER KEYED COL 1 6
	project identifier
ATTRIBUTE	KEYWORD ABBREV K TEXT KEYED COL 7 48
	keywords and funding agency
ATTRIBUTE	FY77 REAL COL 55 64
	Contains funding for FY 1977 for specific funding agencies. If this field is blank, then KEYWORD contains a keyword; if this field is not blank, then KEYWORD contains a funding agency.

ATTRIBUTE	LOG	AGAB	ABBREV	LA	TEXT	KEYED	COL	65	82
ATTRIBUTE	MON	AGAB	ABBREV	MA	TEXT	KEYED	COL	83	99
ATTRIBUTE	FUND1	ABBREV	F1	REAL	COL	100	104		
ATTRIBUTE	FUND2	ABBREV	F2	REAL	COL	105	109		
ATTRIBUTE	FUND3	ABBREV	F3	REAL	COL	110	114		
ATTRIBUTE	FUND4	ABBREV	F4	REAL	COL	115	120		
ATTRIBUTE	FUND5	ABBREV	F5	REAL	COL	121	126		

APPENDIX D

LOG AGENCY ABBREVIATIONS

Department of Agriculture	DOA
Department of Commerce	DOC
Assistant Secretary - Environmental Affairs	DOC/ASEA
National Bureau of Standards	DOC/NBS
National Oceanographic and Atmospheric Administration	DOC/NOAA
Department of Defense	DOD
Department of Interior	DOI
Bureau of Land Management	DOI/BLM
Bonneville Power Administration	DOI/BPA
Bureau of Reclamation	DOI/BR
Fish and Wildlife Service	DOI/FWS
U.S. Geological Survey	DOI/USGS
Department of Transportation	DOT
Assistant Secretary - Environment, Safety, and Consumer Affairs	DOT/ASSSC
Federal Aviation Administration	DOT/FAA
Urban Mass Transit Administration	DOT/UMTA
Environmental Protection Agency	EPA
Energy Research and Development Administration	ERDA
Argonne National Laboratory	ERDA/ANL
Albuquerque Operations	ERDA/AO
Brookhaven National Laboratory	ERDA/BNL
Conservation	ERDA/C
Chicago Operations	ERDA/CO
Environmental Protection Agency pass thru	ERDA/EPA PASS THRU
Fossil Energy	ERDA/FE
Headquarters	ERDA/H
Idaho Operations	ERDA/IO
Los Alamos Scientific Laboratory	ERDA/LASL
Lawrence Berkeley Laboratory	ERDA/BLB
Lawrence Livermore Laboratory	ERDA/LLL
Nuclear Energy	ERDA/NE
Nevada Operations	ERDA/NO
Oak Ridge National Laboratory	ERDA/ORNL
Oak Ridge Operations	ERDA/ORO
Planning and Analysis	ERDA/PA
Pacific Northwest Laboratory	ERDA/PNL
Richland Operations	ERDA/RO
San Francisco Operations	ERDA/SFO
Solar, Geothermal, and Advanced Energy	ERDA/SGE
Savannah River Operations	ERDA/SRO
Federal Energy Administration	FEA
Department of Health, Education, and Welfare	HEW
National Institute of Arthritis, Metabolism, and Digestive Diseases	HEW/NAMDD

National Institute of Child Health and Human Development	HEW/NCHHD
National Cancer Institute	HEW/NCI
National Institute of Dental Research	HEW/NDR
National Institute of General Medical Sciences	HEW/NGMS
National Heart, Lung, and Blood Institute	HEW/NHLB
National Institute on Aging	HEW/NIA
National Institute of Environmental Health Sciences	HEW/NIEHS
National Institute of Health	HEW/NIH
National Institute for Occupational Safety and Health	HEW/NIOSH
National Institute of Neurological and Communicative Disease and Stroke	HEW/NNCDS
Nuclear Regulatory Commission	NRC
National Science Foundation	NSF
RANN	NSF/RANN
Tennessee Valley Authority	TVA

MONITORING AGENCY ABBREVIATIONS

Ames Laboratory, Iowa	AL
Council on Environmental Quality	CEQ
Department of Agriculture	DOA
Cooperative State Research Service	DOA/CSRS
Forest Service	DOA/FS
Department of Commerce	DOC
National Bureau of Standards	DOC/NBS
Department of Defense	DOD
Department of Interior	DOI
Bureau of Land Management	DOI/BLM
Bonneville Power Administration	DOI/BPA
Bureau of Reclamation	DOI/BR
Fish and Wildlife Service	DOI/FWS
National Marine Fisheries Service	DOI/NMFS
U.S. Geological Survey	DOI/USGS
Department of Transportation	DOT
Environmental Protection Agency	EPA
Electric Power Research Institute	EPRI
Energy Research and Development Administration	ERDA
Argonne National Laboratory	ERDA/ANL
Brookhaven National Laboratory	ERDA/BNL
Battelle Pacific Northwest Laboratory	ERDA/BPNL
Clinch River Breeder Reactor	ERDA/CRBR
Los Alamos Scientific Laboratory	ERDA/LASL
Oak Ridge National Laboratory	ERDA/ORNL
Food and Drug Administration	FDA
Federal Energy Administration	FEA
General Technologies Corporation	GTC
Georgia University	GU
Department of Health, Education, and Welfare	HEW

National Institute of Arthritis, Metabolism, and Digestive Diseases	HEW/NAMDD
National Institute of Child Health and Human Development	HEW/NCHHD
National Cancer Institute	HEW/NCI
National Institute of Dental Research	HEW/NDR
National Institute of General Medical Sciences	HEW/NGMS
National Heart, Lung, and Blood Institute	HEW/NHLB
National Institute of Environmental Health Sciences	HEW/NIEHS
National Institute of Health	HEW/NIH
National Institute for Occupational Safety and Health	HEW/NIOSH
National Institute of Neurological and Communicative Disease and Stroke	HEW/NNCDS
Public Health Service	HEW/PHS
Health Research Incorporated	HRI
New York State Department of Health	HRI/NYS DH
National Aeronautics and Space Administration	NASA
Department of Commerce/National Oceanographic and Atmospheric Administration	NOAA
Nuclear Regulatory Commission	NRC
National Science Foundation	NSF
Robert S. Kerr Environmental Research Laboratory	RSKERL
Stanford Research Institute	SRI
Tennessee Valley Authority	TVA

FUNDING AGENCY ABBREVIATIONS

Agency A

Council on Environmental Quality	CEQ
Dow Chemical Co.	DO
Department of Agriculture	DOA
Cooperative State Research Service	DOA/CSRS
Forest Service	DOA/FS
Department of Commerce	DOC
National Bureau of Standards	DOC/NBS
Department of Defense	DOD
Department of Interior	DOI
Bureau of Land Management	DOI/BLM
Bonneville Power Administration	DOI/BPA
Bureau of Reclamation	DOI/BR
Fish and Wildlife Service	DOI/FWS
U.S. Geological Survey	DOI/USGS
Department of Transportation	DOT
Environmental Protection Agency	EPA
Electric Power Research Institute	EPRI
Federal Energy Administration	FEA
Department of Health, Education, and Welfare	HEW

National Institute of Arthritis, Metabolism, and Digestive Diseases	HEW/NAMDD
National Institute of Child Health and Human Development	HEW/NCHHD
National Cancer Institute	HEW/NCI
National Institute of Dental Research	HEW/NDR
National Institute of General Medical Sciences	HEW/NGMS
National Heart, Lung, and Blood Institute	HEW/NHLB
National Institute of Environmental Health Sciences	HEW/NIEHS
National Institute of Health	HEW/NIH
National Institute for Occupational Safety and Health	HEW/NIOSH
National Institute of Neurological and Communicative Disease and Stroke	HEW/NNCDS
Health Research Incorporated	HRI
Department of Commerce/National Oceanographic and Atmospheric Administration	NOAA
Nuclear Regulatory Commission	NRC
National Science Foundation	NSF
Rockefeller University	RU
Tennessee Valley Authority	TVA

Agency B

American Cancer Society	ACS
American Public Power Association	APPA
Colorado School of Mines	CSM
California University	CU
Department of Agriculture	DOA
Forest Service	DOA/FS
Department of Commerce	DOC
Department of Interior	DOI
Bureau of Land Management	DOI/BLM
Bureau of Mines	DOI/BM
National Marine Fisheries Service	DOI/NMFS
Environmental Protection Agency	EPA
Florida University	FU
Department of Health, Education, and Welfare	HEW
National Cancer Institute	HEW/NCI
National Institute of Environmental Health Sciences	HEW/NIEHS
National Institute of Health	HEW/NIH
Hawaii University	HU
Department of Housing and Urban Development	HUD
Louisiana State University	LSU
Massachusetts Institute of Technology	MIT
Department of the Navy	NAVY
Department of Commerce/National Oceanographic and Atmospheric Administration	NOAA
Nuclear Regulatory Commission	NRC
National Science Foundation	NSF

Oregon State University	OSU
Rhode Island University	RIU
Southern California Edison Co.	SCEC
Texas A and M University	TAMU
Texas Tech University	TTU
Texas University	TU
Tennessee Valley Authority	TVA
University of Southern California	USC
Utah State University	USU
Woods Hold Oceanograhpic Institute	WHOI

Agency C

Coast Guard	CG
Federal Energy Administration	FEA

Agency D

Federal Energy Administration	FEA
Department of the Navy	NAVY

APPENDIX E

IN DATA SET 1.
* @D3
IN DATA SET 3.
* FIND K BET 19A 19E
1796 RECS FOUND.
* @M1
1648 RECS FOUND.
IN DATA SET 1.
* SAVE FOSSIL
* @D3
IN DATA SET 3.
* FIND K BET 20A 20C
846 RECS FOUND.
* @M1
819 RECS FOUND.
IN DATA SET 1.
* SAVE NUCLEAR
* @D3
IN DATA SET 3.
* FIND K BET 210 210
19 RECS FOUND.
* @M1
19 RECS FOUND.
IN DATA SET 1.
* SAVE HYDRO
* @D3
IN DATA SET 3.
* F K BET 22A 22D
141 RECS FOUND.
* @M1
133 RECS FOUND.
IN DATA SET 1.
* SAVE GEOTHER
* @D3
IN DATA SET 3.
* F K BET 23A 23E
143 RECS FOUND.
* @M1
135 RECS FOUND.
IN DATA SET 1.
* SAVE SOLAR
* @D3
IN DATA SET 3.
* F K BET 24A 24D
221 RECS FOUND.
* @M1
208 RECS FOUND.
IN DATA SET 1.
* SAVE CONSER

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* @D3
IN DATA SET 3.
* F K 250
4 RECS FOUND.
* @M1
4 RECS FOUND.
IN DATA SET 1.
* SAVE MULTI
* @D3
IN DATA SET 3.
* F K 260
1151 RECS FOUND.
* @M1
1151 RECS FOUND.
IN DATA SET 1.
* SAVE GENERAL
* @D3
IN DATA SET 3.
* F KEYFIELD 270
4 RECS FOUND.
* @M1
4 RECS FOUND.
IN DATA SET 1.
* SAVE MEDICAL
* @D3
IN DATA SET 3.
* F K 280
7 RECS FOUND.
* @M1
7 RECS FOUND.
IN DATA SET 1.
* SAVE OTHER

* F FILE FOSSIL AND FILE CONSER
90 RECS FOUND.
* TY TOT FUND4 FORMAT "FY77 FUNDING FOR PROJECTS RELATING TO" -
# "FOSSIL FUELS AND CONSERVATION" / P$(9).9 END
FY77 FUNDING FOR PROJECTS RELATING TO FOSSIL FUELS AND CONSERVATION
$16813.8
* F FILE SOLAR AND FILE GEOTHER
38 RECS FOUND.
* SORT AFFIL PI
* TY AFFIL PI TITLE FORMAT / "AFFILIATION:" S66 / "INVESTIGATOR" &
# S65 / "TITLE:" S72 / END

AFFILIATION:ALASKA STATE DIV. OF ENERGY AND POWER DEVELOPMENT, ANCHORAGE
INVESTIGATOR:MCCONKEY, W.C.
TITLE:ALASKA REGIONAL ENERGY PLANNING PROJECT

AFFILIATION:ARGONNE NATIONAL LAB., ILL. (USA)
INVESTIGATOR:INOKUTI, M.
TITLE:PHYSICS AND CHEMISTRY OF POLLUTANT INTERACTIONS IN THE ENVIRONMENT,
MOLECULAR PHYSICS AND CHEMISTRY BASIC TO ENVIRONMENTAL RESEARCH

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AFFILIATION:BATTELLE COLUMBUS LABS., OHIO (USA)

INVESTIGATOR:ALLEN, C.M.

TITLE:INTEGRATED ALTERNATIVE FUELS AND ENERGY SUPPLIES AND ENVIRONMENTAL
CONTROL FOR THE CALIFORNIA REGION. PHASE I: COMMUNITY OF RIVERSIDE,
CALIFORNIA, ENERGY PLAN