**Information Retrieval System:
Impacts of Water-Level Changes on
Uses of Federal Storage Reservoirs
of the Columbia River**

Appendix F - RIVOPR User's Manual

September 1982

Prepared for the U.S. Department of Energy
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Pacific Northwest Laboratory
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INFORMATION RETRIEVAL SYSTEM:
IMPACTS OF WATER-LEVEL CHANGES ON USES
OF FEDERAL STORAGE RESERVOIRS OF THE
COLUMBIA RIVER

APPENDIX F: RIVOPR USER'S MANUAL

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APPENDIX F

RIVOPR USER'S MANUAL

Information relating to environmental effects of BPA's river operations is stored in a computer data base. The data is of two types: citations to sources of information and descriptions of specific impacts. The impacts are stored in the form of an impact matrix. A data base management system called DRS is used with BPA's VAX computer to access, select, and display portions of the data. This manual describes the use of DRS in conjunction with the River Operations (RIVOPR) data base.

This manual will teach you how to use the RIVOPR data base. The manual is written specifically for you, the user. A user is any person who uses the computer as a tool. As a user, you are more concerned with how to use the computer than with how the computer works internally. The manual places special emphasis on understanding how data is stored and used. The success of RIVOPR is directly related to your interest in the RIVOPR data.

This manual includes general information about data bases and DRS language and commands. (Chapters 1, 2, and 3 are general purpose and apply to any data base, although RIVOPR data is used in the examples.) The manual also describes specific information about the RIVOPR system, including some examples of its use.

Chapter 1 of this manual describes data base concepts. You should attend a class as well as read this chapter carefully. Your ability to understand subsequent documentation depends upon your understanding of this chapter.

Chapter 2 describes the query language. A query language is a set of user-oriented commands used to find, sort, and list data from a data base. It will take "hands-on experience" to learn the query language.

Chapter 3 describes some of the command features of DRS. Several of the query commands described in Chapter 2 are covered in more detail in this chapter.

Chapter 4 describes the data in the RIVOPR system. When you use the query language, you will refer to this chapter for information specifically about RIVOPR. It describes the data base structure and includes descriptions of the fields and files. Special-purpose software developed for the RIVOPR data base is also described.

Chapter 5 includes nine sample sessions that show examples of how the data base can be used.

Although there will be an initial "learning curve" to overcome, your persistence should be more than rewarded when you are easily able to use RIVOPR as a daily tool.

If you need more assistance in using the RIVOPR system, write or call:

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1.0 DATA BASE CONCEPTS

The purpose of this chapter is to give you a basic understanding of data bases. This knowledge is necessary before you can use the query language to access a data base.

DEFINITIONS

Once you understand a few simple concepts, you can easily extract a considerable amount of information from the data base. Do not be concerned that this will be too difficult--data base concepts are actually more user-oriented than most computer systems. You will, however, need to understand the following:

A data base is made up of records (which contain fields) and relationships between these records.

A field is a single piece of information. Examples include: your social security number, your name, and your birthdate. A record is a group of fields. Your employee record would contain the fields mentioned above. Another example of a record is a dependent record, which would contain information for each one of your dependents (children). Fields which might be in a dependent record are birthdate, sex, name, etc.

A data base contains many different types of records. A personnel data base would probably contain a record for each employee, a record for each dependent (child), and a record for each personnel action. Each type of record would be given a unique name. For example, the employee record might be called EMP, the dependent record might be called DEP, and the personnel-action record might be called PACT.

Each field in a record will also be given a unique name. For example, the employee's name in the employee record might be called NAME_EMP, the employee's birthdate in the employee record might be called BDATE_EMP, and the dependent child's birthdate in the dependent record might be called BDATE_DEP.

Figure F.1 illustrates what we have discussed so far.

Records may be related to each other by "one to many" relationships. For example, the relationship between employee records and personnel action records is "one to many" (i.e., a given employee may have many personnel actions). Another example is the relationship between employee records and dependent records. A given employee may have many dependents. Both of these data base relationships are illustrated in Figure F.2. An arrow between two record types indicates a "one to many" relationship. For example, there is a one-to-many relationship between employee and dependent records, so the arrow points from the employee records to the dependent records.

FIGURE F.1. Relationship between Field, Record and Data Base

FIGURE F.2. Example of One-to-Many Relationships

Let's consider another example. Suppose we have a data base of projects and employees. This data base is used to track which employee is assigned to which project. The data base would probably contain three types of records:

- . One record for each employee, which contains employee name; employee number; GS level; etc.
- . One record for each project, which contains project name; project number; start date; project cost estimate; etc.
- . One record for each employee assignment (i.e., who is assigned to which project), which contains employee number; project number; date assigned; etc.

An illustration of a this data base is given in Figure F.3.

FIGURE F.3. Example of Employee Relationships

In this example, a given employee may be assigned to many projects (a one-to-many relationship between an employee record and assignment records). In addition, a given project may have many employees assigned to it (a one-to-many relationship between a project record and assignment records).

All data bases are made up of records and relationships between these records. For example, a data base which contains the data for both of our examples is illustrated in Figure F.4. Now, compare Figure F.4 to Figures F.2 and F.3. Note that Figure F.4 combines all the records from Figures F.2 and F.3.

Notice that the data base shown in Figure F.4 contains many different types of data. Different users would need to update and to look at (i.e., view) only certain portions of this data. For example, the personnel department may be interested only in viewing personnel actions (Figure F.5), whereas the planning department may be interested only in viewing the project-related data (Figure F.6). To accommodate these different uses of a common, multipurpose data base, different views are established. Note that

FIGURE F.4. A Personnel Data Base

FIGURE F.5. The Personnel Department View

FIGURE F.6. The Planning Department View

each of these views is simply a subset (i.e., a portion) of the overall data base. The relationships are not altered in any way. All user access of a data base is defined by views.

SUMMARY

To summarize what we have covered so far:

- . A data base has many types of records (example: employee record). A data base will have many records for a given type (example: a record for each employee). Each type of record has a unique name (example: EMP).
- . A type of record, such as an employee record, has many fields (example: the employee record has an employee name field). Each field has a unique name (example: NAME_EMP).
- . Records can be related to each other by "one-to-many" relationships (example: a given employee may have many personnel actions).

- . "Views" are established to permit different users to access only those portions of the data base they wish to examine (example: the personnel department may only want to view personnel actions and not other data).

2.0 THE DRS QUERY LANGUAGE

A query language is a group of user-oriented commands which allows you to extract (select) information from a data base for listing and sorting (arranging). Only a few simple commands need to be learned, but as you progress you may wish to learn additional commands.

The purpose of this chapter is to explain the few commands you need to know. Your ability to use these commands will be considerably enhanced if you understand what the command does and how it works. Many non-data processing people in other organizations have mastered this query language. Start with simple queries, and as your confidence grows try something a little more difficult. You will not harm the data base if you make mistakes.

ESTABLISHING ACCESS TO THE DATA BASE

After you have logged in, you will need to type the following commands:

DRS	which tells the VAX computer that you want to use the DRS query language.
OPEN RIVOPR	which tells DRS that you want to use the RIVOPR data base (there are many data bases on the VAX and DRS must know which one you want to use).
HAM xyz	which tells DRS that you want to use xyz view (HAM). HAM stands for "hierarchical access method" and tells DRS how you want to look at (or view) the data. If you do not specify a view, you can only query one type of a record (i.e., no relationships will be recognized). Using the data base without a HAM would not provide much meaningful information. There are two HAMs in the RIVOPR data base. The SITE HAM allows you to view the data base from the impact matrix. The BIBL HAM allows you to view it from the bibliography. The two HAM's will be described in detail in Chapter 4.

An example of logging on the VAX and entering these first three commands is illustrated in Figure F.7.

RETRIEVING DATA FROM THE DATA BASE

Before discussing additional commands, you need to understand how you will find (select) data.

A data base can be compared to a large room full of file cabinets. Each file cabinet contains many files full of data. If someone asks you to find a file for a given site (such as Albeni Falls), there are two possible ways you could find (select) that information:

1. You could simply look through every file cabinet until you found a file jacket (equivalent to a record in the data base) for Albeni Falls (in other words, an index tab on the jacket is labeled Albeni Falls). This would be very slow (it would probably take days).

```
Username: PBEJXP
Password:
      Welcome to VAX/VMS Version V2.5 on node _BPA2::
25-JUN-1982 06:13:19
VAX2/BPA2
$ drs
25-JUN-1982 06:13
```

```
A.D.M. Data Retrieval System - DRS
      VAX/VMS Version 3.0G33
```

```
Select, Arrange, List, Execute, or Other? > OPEN RIVOPR
```

```
NUMBER OF RECORDS IN DATA BASE = 6961
```

```
Select, Arrange, List, Execute, or Other? > HAM SITE
```

FIGURE F.7. Logging on the VAX

2. A better way is to have an index (a list) that shows which file cabinet and which drawer contains a jacket for Albeni Falls. You simply find Albeni Falls on your index (the list) and then go immediately to the indicated file cabinet and drawer. Instead of taking days to find (select) the desired information, you can find (select) it in a few minutes.

Let's consider another example. Suppose someone asks you to find (select) all jackets (records) concerning recreation. You probably would not have an index based upon uses. In such a case, you would have no choice but to look through every jacket (record) and find (select) those jackets where the use is recreation. Probably no one would ask you to do this very often because it is too time consuming. As a result, some necessary analysis never gets done because it is too costly. Now you can see why data bases and query languages are so helpful.

The RIVOPR data base is analogous to a room full of file cabinets. Inside the data base is a record (i.e., a jacket) for each use. There are also records for each impact, impact type, and month. In total, there are several thousand records. As with any good filing system, the RIVOPR data base has indexes (lists) for the more common pieces of information (fields). Examples of fields which are indexed include:

- site
- use
- impact
- month.

When you ask DRS to find data in the RIVOPR data base, it will be faster (and use much less of the costly computer resources) if you use an index. If the data you must find (select) is not in an index, DRS will have to look through the entire data base.

Let's consider another example using our room full of file cabinets. Suppose you are asked to find (select) all the entries for Libby for the month of June where the critical elevation is 2450 feet. You have an index (a list)

by site and month, but not for specific feet. The fastest way for you to find (select) this data is:

1. Using your index by site, quickly go pull all Libby jackets for the month of June.
2. Now, look through only those jackets for entries where the critical elevation is 2450 feet.

Even though this will be tedious, imagine how much longer it would have taken if you had reversed your selection approach. The same is true for DRS. Always select using an index first, if at all possible. DRS will find the desired records quickly. Then ask DRS to do the much less efficient job of looking for data which is not indexed. DRS will only look in the records it (previously) found using the index.

One final difference between the room full of file cabinets and the RIVOPR data base must be explained. Then we will describe other query language commands.

The RIVOPR data base not only contains records (which are equivalent to jackets in the file cabinet system), but it also contains relationships between these records. For example, a group of impact records is associated with (related to) a certain bibliographic reference. It is these relationships which make a data base so useful. Let's consider several examples. If you find (select) an impact where the impact type is elevation, you can immediately list out all the cross reference accession numbers that are referenced for that impact type. All of these cross reference numbers are tied directly to the impact type record. This could be done in the file cabinet system if you put a list of cross reference numbers in the impact type jacket.

Let's explore this example using the file cabinet analogy. You pull a particular impact type jacket out of the file cabinet. Inside the jacket is a list of all cross reference accession numbers for that impact type. Using your index, you quickly locate all of the bibliographic jackets on your list. Inside each bibliographic jacket is information on the citation, including the

title, publisher, cost, and from whom the document can be obtained. Because DRS includes relationships between the records, it is much more efficient than the file cabinet method of retrieving records, although the end result is the same.

Now might be an appropriate time to re-read "Data Base Concepts" (Chapter 1). You will probably understand it better.

So far, we have discussed access to the data base in general terms. DRS has a specific vocabulary of commands. We will introduce the most important commands in the following sections. Additional explanations and examples of the more complicated commands are given in Chapter 3.

Quick Select (QS)

By now you should understand the concepts involved in finding (selecting) data and understand why relationships are important. Now let's learn about the different SELECT commands. Remember that you first want to select using a field which has an index so that DRS can quickly locate (generally in a few seconds) the record or records you want. To do this, you use the "quick select" command, which is abbreviated QS. A common form of the quick select command is:

QS index = value

The names of indexes you can use are indicated in Chapter 4 (Table F.1).

"Value" indicates which occurrence you are looking for in the index.

Sometimes the index name is the same as the view name (because a view is also an index). Here are some examples of QS commands:

1. To select the use record for recreation, tell DRS:

QS USE='RECREATION'

The single quotes are necessary because the index is based on an alphanumeric field. USE is the index name.

2. To select all use records for fish, tell DRS:

QS USE#'FISH'

The pound sign (#) means "starts with". Only those uses that start with the word "fish" will be selected. This would include both "Fish, game" and "Fish, non-game."

3. To select all use records, tell DRS:

```
QS USE >''
```

This means find all use records where the use is greater than "nothing".

This would give you all the uses that exist in the data base.

4. To select use records for two uses, tell DRS:

```
QS USE=('FISH, GAME','MAMMALS, GAME')
```

You may enter any number of values in the parenthesis.

Subselect (SS)

Once you have done a quick select (QS) to find records, you can do a subselect (SS) to further refine your selection criteria (i.e., be more selective). A common form of the subselect command is:

```
SS field name = value
```

Let's consider a few examples:

1. To select month records for April for all uses, tell DRS:

```
QS USE >''
```

```
SS MONTH='APR'
```

2. To select all entries for June where the critical elevation is unknown, tell DRS:

```
QS MONTH='JUN'
```

```
SS CODE='U'
```

These examples indicate some of the simple uses of the quick select (QS) and subselect (SS) commands. Additional features of the QS and SS commands are described in Chapter 3 of this manual.

Arrange (A)

Once you have selected data, you may sort or arrange it using the arrange command (A). The arrange command has the form:

```
A field name,field name,etc.
```


Examples:

1. To arrange by site, tell DRS:
A SITE
2. To arrange by use, tell DRS:
A USE
3. To arrange by use within site, tell DRS:
A SITE,USE

Other features of the arrange command are described in the Chapter 3.

List (L)

Once you have selected and arranged the data, you may tell DRS which data (fields) you would like listed using the list (L) command. The list command has the form:

L field name,field name,etc.

Here are some examples of the list command:

1. L IMPACT,MONTH,CODE,VALUE,UNITS
This will produce a list of critical elevations for the selected impacts.
2. L IMPACT,XREF,TITLE
This will produce a list of the cross reference accession numbers and titles for the selected impacts.

Execute (E)

The final command you need to know is EXECUTE (E). This command tells DRS that it can now do any arranging and listing that you have requested. The execute command has the form:

E number of lines or E;

The number of lines means how many lines of the report you wish to see. If you want to see all of the report, tell DRS: E;. Here are two examples:

1. E 10

Indicates that you only want to see ten lines of the report (not including the heading).

2. E;

Indicates that you want to see the entire report.

WRITING RESULTS TO A FILE

In all of the examples so far, the retrieved data will be displayed on the terminal. Often there will be more information than you can assimilate at the terminal, and it may be desirable to print the information on a line printer. This can be done by telling DRS to put the results on a computer file and print the file after exiting from DRS. VAX file names consist of a series of letters and numbers (the first character must be a letter) plus a period and a three-character extension (for example: ABCDEF.OUT). Telling DRS to write to a file is a two-command process. The first command tells DRS that you want the data to go someplace other than the terminal (i.e., to a write device). The second command tells DRS the name of the file to which the data is to be written. Tell DRS:

IO DO=WD

[WD=ABCDEF.OUT

where IO means input/output; DO means data out; WD means write device; and ABCDEF.OUT is the file to which the data is to be written. Another way to do this that involves fewer keystrokes is to enter:

LP

[LP=ABCDEF.OUT

If you want to print on the line printer the file you have generated, exit from DRS and enter:

PRINT ABCDEF.OUT

All data will go to that file until you tell DRS to write to another file or tell it to display the results on the terminal. To tell DRS to put the data on the terminal, enter:

KB

Report (REP)

Once data has been selected, a report writer program which has been written for this data base can be run against that set of data. Usually the report writer expects the data to be arranged in a certain order. You must determine the arrange command to be used before invoking the report writer (see Chapter 4). The report writer command has the form:

REP report name;;

Examples:

1. To invoke the impact matrix report named SIMPAC, you must arrange the data by site, use, impact and month. Tell DRS:
A SITE,USE,IDIM,MONTH
REP SIMPAC;;
2. To invoke the bibliographic report named BEVABS, select the bibliographic entries and then arrange by accession number and author. Tell DRS:
A ACC,AUTHOR
REP BEVABS;;

EXITING DRS (EXIT)

When your session is complete, tell DRS:

EXIT

This command will cause DRS to print out a summary of what happened during the session and return control to the VAX operating system. You will receive a dollar sign prompt. You may now do one of three things: print on the line printer any files you have generated (e.g., PRINT ABCDEF.OUT), look at the files on the terminal (TYPE ABCDEF.OUT), or log out (LO).

SUMMARY

To summarize what we have covered so far:

- You must open the data base and select a view.
- Next, you will use a quick select (QS) command.
- You may follow the quick select command (QS) with one or more subselect commands (SS) to refine your selection. Each subselect command (SS) may reference one or more field names.
- You may then arrange (A) on any number of fields in the view.
- You may then list (L) any fields in the view.
- You may use the execute command (E) to tell DRS to execute the instructions you have given it.
- You may tell DRS to write to a file rather than on the terminal.
- You may invoke a report writer.
- You may exit from DRS.
- You may PRINT files on the line printer or TYPE files on your terminal.

3.0 COMMAND FEATURES

INTRODUCTION

The more common query language commands and their various features are described in this chapter. Additional (but less user oriented) information is contained in the DRS Command Reference Manual.^{*} In this chapter, the general form of the command is shown followed by numerous examples. Commands are presented in alphabetical order.

^{*} DRS Command Reference Manual, DRS Version 2.3, Revision 3. October, 1980, Advanced Data Management, Inc., P.O. Box 601, Kingston, New Jersey.

ARRANGE (A)

The arrange command is used to tell DRS the order in which it will list sorted data. The arrange command also has several options.

General form of command:

A field name/(options),field name/(options),etc.

The common options are:

- F for arrange in forward (ascending) order
- R for arrange in reverse (descending) order
- SF for suppress field. This eliminates duplicate information from appearing on a list. In the example below, it prevents the same accession number from being printed out more than once.

<u>Accession Number</u>	<u>Author</u>
30023	CAIRNS J HOCUFF CH STAUFFER JR
20034	HOLZWORTH DR
20035	OLIVER J

Arrange (A) Examples:

1. A SITE
Arrange on site name. Arranging will be done in forward (ascending) order if you do not specify by an "F" or "R".
2. A SITE,USE
Arrange on site name (major) and use (minor).
3. A SITE/(SF),USE/(SF),MONTH
Arrange on site name, then use, and finally month. Suppress any duplicate information for site and use.
4. A;
This tells DRS to "turn off" a previously entered arrange (i.e., do not arrange anymore).

DEFINE SELECT (DS)

The define select command is used to store the results of a query so that those results can be used as part of a more complex query.

Whenever a quick select (QS) or subselect (SS) command is used, DRS informs the user of the number of records selected. These records form the active record set, which is referred to as \$ARS. This active record set can be saved for later use by entering the command

DS Tn:=\$ARS

where n is an integer assigned by the user.

This step is required to "and" two record sets together. For example, if you wish to find all the documents that mention fishing at Albeni Falls you must find all citations containing the keyword "FISH" and then find all citations containing the keyword "ALBENI FALLS". This query cannot be performed in one step. The command

QS KEYWORD#'FISH' & KEYWORD='ALBENI FALLS'

will return with zero records selected. The example below shows how to obtain all citations that have both the keyword starting with "FISH" and the keyword "ALBENI FALLS".

QS KEYWORD#'FISH'	(Find all entries where keyword starts with "FISH".)
SS BIBL	(Find the accession numbers for those citations.)
DS T1:=\$ARS	(Save the active record set in T1.)
QS KEYWORD='ALBENI FALLS'	(Find all entries where keyword is "ALBENI FALLS".)
SS BIBL	(Find the accession numbers for those citations.)
DS T2:=\$ARS	(Save this active record set in T2.)
DS \$ARS:=T1 & T2	(Define the active record set to be those citations in both T1 and T2.)

LIST (L)

The list command is used to tell DRS which fields you want listed.

General form of the command:

L field name,field name,etc.

List (L) Examples:

1. L ACC,AUTHOR
List accession numbers and authors.
2. L SITE,USE,MONTH,CODE,VALUE
List sites, uses, month, codes, and critical elevations.

QUICK SELECT (QS)

This should be the first selection command used. A quick select will frequently be followed by one or more subselects to refine your selection criteria.

General form of command:

QS index name operator value(s)

- Index name is as shown in Table F.1 and described in Chapter 4 (if a field is indexed, an index name is indicated).
- Operators allowed are:

= equal to	# starts with
< less than	> greater than
<= less than or equal to	>= greater than or equal to
- Value(s) is the value(s) you are searching for. Text values must be in single quotes as shown in the examples (below).
- When DRS places a term in an index, the term is converted to upper case. All values should be entered in upper case when using the QS command.

Quick Select (QS) Examples:

1. QS SITE='ALBENI FALLS'
Finds the site record for Albeni Falls.
2. QS USE='RECREATION'
Finds all use records for recreation.
3. QS USE#'FISH'
Finds all use records starting with fish (would include "FISH, GAME" and "FISH, NON-GAME").
4. QS SITE=('HUNGRY HORSE','LIBBY')
Finds the site records for Hungry Horse and Libby.
5. QS MONTH > ''
Finds all month records.
6. QS AUTHOR#'BOND'
Finds all authors whose last name starts with "Bond".

SUBSELECT (SS)

The subselect command is used to refine your selection criteria. It must be preceded by a quick select (QS) command.

General form of command:

SS field name operator value(s)

- Multiple combinations of the "field name operator value(s)" are allowed as shown in the examples.
- The subselect command is case sensitive. This means that if you subselect only on 'lake'(lower case), it won't find 'LAKE' (upper case). All indexed terms, including keywords and authors, are in upper case, so almost all subselects will use upper case.
- Because there are so many variations of this command, the following examples will be used to show the different forms allowed.

Subselect (SS) Examples:

1. SS CODE='U'
Find all month records where the critical elevation is unknown.
2. SS CODE='+' & VALUE >2300.
Find all months where elevations over 2300 feet are critical. The ampersand (&) means "and".
3. SS CODE='- ' & VALUE >=2300. & VALUE <=2400.
Find all months where a drawdown from 2400 to 2300 feet is critical.
4. SS MONTH='JUN'! MONTH='JUL'! MONTH='AUG'
Find all records for June, July, and August. The exclamation point (!) means "or".
5. SS USE=('FISH, GAME','BIRD, GAME','MAMMAL, GAME')
Find all use records where the use is as indicated.
6. SS KEYWORD@'LAKE'
Find all keyword records where the keyword contains the four letters, LAKE. The "at sign" (@) means "contains". The "at sign" cannot be used with the QS command.

7. SS AUTH
Find all author records (only one type of record should be named).
8. SS CODE ^='N'
Find all month records where the code is not 'N' (i.e., choose all the month records where elevation is applicable). The caret sign (^) means "not".
9. SS EX(AUTHOR)
Find all records that have authors. (The function EX means to select records where an author exists.)
10. SS NX(AUTHOR)
Find all records where there is no author. (The function NX means to select records where authors do not exist.)

ADDITIONAL NOTES:

1. Parentheses may be used to clarify your request.
2. Arithmetic expressions may include:

+ plus	* multiply
- minus	/ divide

4.0 THE RIVOPR DATA BASE

Passwords will be established to provide security for the data base. Data base security is described in this chapter.

The structure of the data base is also described in this chapter. Each file, and the fields within each file, are described in detail. Several report writer programs have been written for this data base. The programs are described and instructions for their use are included. Several SIP (screen input processor) programs have been written for this data base, and their use is also described.

THE DATA BASE SECURITY

When security is instituted, a password must be entered before a user can access the RIVOPR data base. Passwords will be designed to prevent unauthorized use of the data base. Associated with each password will be a list of the records and fields that the user can access. While this manual describes all the records and fields in the data base, a particular password may not be able to access all the fields. If a user tries to access a field for which he has no authorization, the data base will act as if the field does not exist.

Most passwords will not allow the user to make changes to the data base. The update function has been reserved to prevent intentional or unintentional damage to the data base.

THE DATA BASE STRUCTURE

The River Operations (RIVOPR) data base consists of two major parts that have been linked together. One part contains impact matrix information; the other part contains bibliographic information that supports information in the impact matrix. The parts may be used in one of several ways. The user may 1) work with the matrix and pull information from the bibliography 2) work with the bibliography and pull information from the impact matrix, or 3) use either part separately from the other. Each bibliographic entry has been assigned a

unique 5-digit accession number. In addition to storing the accession number with the bibliographic entry, the accession numbers are also used to link the matrix and bibliography together.

The data base has two views or HAMS (hierarchical access methods). In the SITE HAM, the user is primarily interested in the impact matrix but might wish to pull information from the bibliography. In the BIBL HAM, the user is primarily interested in the bibliography but might wish to pull information from the matrix.

As can be seen from Figures F.8 and F.9, the two HAMS are the reverse of each other. The user can move back and forth between the two HAMS depending on the queries.

FIGURE F.8. SITE HAM

FIGURE F.9. BIBL HAM

DATA BASE FILES

Figure F.10 shows the sections of the data base as well as the files that make up the sections. A short description of each file is included below. The file name given in parentheses is the file name that DRS recognizes. This name is used in querying the data base.

1. Sites (SITES)

There is one SITES record for each site in the impact matrix. The record stores the site name plus the minimum elevation of the pool, and full pool elevation.

2. Uses (USES)

There is one USES record for every use identified for each site. The record contains the use.

3. Impacts (IMPACTS)

There is at least one IMPACTS record for each use record. Each impact is assigned a 3-digit identification number which, along with the site and use, uniquely identifies the impact. Each IMPACTS record also includes a short description of the impact and a definition of the impact.

4. Impact Type (ITYPE)

At this writing, only one type of evaluation (water level) has been included in the data base, but the data base has been set up to handle more types of impacts. Currently, each IMPACTS record has one ITYPE record. In addition to the type of impact, the type record also includes the evaluator's initials and evaluation date. If an impact is revised, the initials of the person doing the re-evaluation and the date can also be stored.

5. Impact by Month (IMON)

There are 12 IMON records (one for each month of the year) for each ITYPE record. Each IMON record contains a 3-character abbreviation for month, a 1-character code, a critical value, units for the value, and a short comment.

FIGURE F.10. The RIVOPR Data Base

6. Cross Reference (XREF)

The XREF file is the link between the bibliography and the impact matrix. For each impact type, any number of accession numbers can be included in the XREF file that point to the bibliographic entries. These accession numbers can be put into the impact matrix and DRS will automatically link up the bibliographic entries.

7. Citations (BIBL)

The BIBL file contains information on each citation, including accession number, title, publisher, publication date, from whom the information was received, from whom the information is available, the cost, the initials of the person who evaluated the citation, the date it was evaluated, and the date it was inserted into the data base.

8. Authors (AUTH)

Each AUTH record contains either the name of an author or the name of the agency responsible for the citation. A BIBL record may contain any number of AUTH records.

9. Keywords (KEYW)

Each KEYW record contains a keyword that has been assigned by the evaluator of the citation. A BIBL record may contain any number of KEYW records.

DATA BASE FIELDS

A summary of each field in the data base is provided in Table F.1. The table also shows the field in which the file is found and several names by which the field can be accessed. Each field can be queried by using either its short name, its query name, or its output name. The short names are rather difficult to keep straight. The query names have been set up to be learned and used routinely. The output names have been set up to be displayed on reports generated by the queries. The underscores that appear in the names cause the headings to go to another line. For example, IMPACT_ID will appear on two lines with IMPACT on one line and ID on the second line. When a field is indexed and can be used with the QS (quick select) command, the index name is given. When an index name does not appear, the QS command cannot be used on the field. In all cases but one, the index name matches the query name. The index name for ACC is BIBL (which is also the HAM name) instead of ACC.

The following paragraphs describe each field. The paragraphs are arranged to follow the order illustrated in Table F.1. Each paragraph starts with the query name, file name, short name, output name and index name. The paragraphs are followed by example(s) of the contents of the field. The field and its uses are also discussed.

TABLE F.1. RIVOPR Data Base

<u>FILE</u>	<u>SHORT NAME</u>	<u>QUERY NAME</u>	<u>OUTPUT NAME</u>	<u>INDEX NAME</u>
SITES	A1	SITE	SITE	SITE
	A2	LOW	LOW_ELEVATION	
	A3	HIGH	HIGH_ELEVATION	
USES	B2	USE	USE	USE
IMPACTS	C3	IDIM	IMPACT_ID	IDIM
	C4	DEF	DEFINITION	
	C5	IMPACT	IMPACT	
ITYPE	D4	TYPE	IMPACT_TYPE	IMPACT
	D5	EVAL	EVALUATOR	
	D6	EDATE	EVAL_DATE	
	D7	REVAL	REV_EVALUATOR	
	D8	REDATE	REV_DATE	
IMON	E5	MONTH	MONTH	MONTH
	E6	CODE	CODE	
	E7	VALUE	VALUE	
	E8	UNITS	UNITS	
	E9	COMMENTS	COMMENTS	
BREF	F6	XREF	CROSS_REFERENCE	
BIBL	I1	ACC	ACCESSION_NUMBER	BIBL
	I2	TITLE	TITLE	
	I3	PUB	PUBLISHER	
	I4	PDATE	PUBLISH_DATE	
	I5	PAGES	PAGES	
	I6	REF	REF_TYPE	
	I7	FORM	FORM	
	I8	MICRO	MICRO_FICHE	
	I9	IFROM	INFO_FROM	
	IA	AFROM	AVAILABLE_FROM	
	IB	IPHONE	INFO_FROM_PHONE	
	IC	APHONE	AVAIL_FROM_PHONE	
	ID	COST	COST	
	IE	CEVAL	CITATION_EVALUATOR	
	IF	CEDATE	CITATION_EVAL_DATE	
	IG	ABSTRACT	ABSTRACT	
	IH	EVALUATION	EVALUATION	
	II	IDATE	INSERTION_DATE	
KEYW	G2	KEYWORD	KEYWORD	KEYWORD
AUTH	H2	AUTHOR	AUTHOR	AUTHOR

QUERY NAME: SITE

FILE NAME: SITES
SHORT NAME: A1
OUTPUT NAME: SITE
INDEX NAME: SITE
EXAMPLES: ALBENI FALLS, LIBBY

SITE is an alphanumeric field containing the impact location. (In the initial loading of the matrix, site refers to dam.) SITE is contained in the file SITES. Its short query name is A1. SITE is an indexed field. QS (Quick Select) retrievals may be made using SITE. In the initial loading of the matrix, there are five SITES: ALBENI FALLS, DWORSHAK, GRAND COULEE, HUNGRY HORSE, and LIBBY. SITE is the major selection criteria for the impact matrix. To retrieve impacts occurring at a particular water elevation, you will always use the QS command on SITE first.

QUERY NAME: LOW

FILE NAME: SITES
SHORT NAME: A2
OUTPUT NAME: LOW_ELEVATION
INDEX NAME: --
EXAMPLES: 2287

LOW is a numeric field containing the minimum reservoir water elevation, in feet, at each site. LOW is contained in the file SITES. Its short name is A2. The output name is LOW_ELEVATION. This will be printed as a two line column heading ^{LOW}ELEVATION; the underscore connecting the W and the E will not appear on your output. In the initial loading of the matrix, minimum elevations are given for five sites (see "QUERY NAME: SITE"). In retrieving impacts occurring at particular elevation, LOW provides the lower bounds.

QUERY NAME: HIGH

FILE NAME: SITES
SHORT NAME: A3
OUTPUT NAME: HIGH_ELEVATION
INDEX NAME: --
EXAMPLE: 2459

HIGH is a numeric field containing the maximum water elevation, in feet, at each site. HIGH is contained in the file SITES. Its short name is A3. The input name is HIGH_ELEVATION. In the initial loading of the matrix, maximum elevations are given for five sites (see "QUERY NAME: SITE"). In retrieving impacts occurring at particular elevations, HIGH provides an upper bound.

QUERY NAME: USE

FILE NAME: USES
SHORT NAME: B2
OUTPUT NAME: USE
INDEX NAME: USE
EXAMPLES: RECREATION; FISH, GAME

USE is an alphanumeric field containing the site uses which are impacted. USE is contained in the file USES. Its short name is B2. USE is an indexed field; QS retrievals may be made using USE. In the initial loading of the matrix, 11 uses are identified: RECREATION; IRRIGATION; COMMERCIAL; FLOOD CONTROL; FISH, GAME; FISH, NON-GAME; BIRD, GAME; BIRD, NON-GAME; MAMMAL, GAME; MAMMAL, NON-GAME; and WILDLIFE. USE can be used as a major selection criterion using the QS command. However, it would be more logical to do a QS on SITE and then use the SS (Subselect) command to focus the retrieval on a particular USE. All uses have been entered using capital letters.

QUERY NAME: IDIM

FILE NAME: IMPACTS
SHORT NAME: C3
OUTPUT NAME: IMPACT-ID
INDEX NAME: IDIM
EXAMPLES: 001, 004

Field IDIM is a 3-digit identification number assigned to each impact. IDIM is contained in the file IMPACTS. Its short name is C3. IDIM is an indexed field; QS retrievals may be made using IDIM. Selections based on IDIM will be used mainly for updating information. To use DRS to retrieve one specific impact, use the unique combination of SITE, USE, and IDIM in your QS and SS commands.

QUERY NAME: DEF

FILE NAME: IMPACTS
SHORT NAME: C4
OUTPUT NAME: DEFINITION
INDEX NAME: --
EXAMPLE: KOKANEE SPAWN IN THE GRAVEL OF BOAT LAUNCH RAMPS AT
BIG EDDY AND BRUCE'S EDDY, AND OTHER AREAS NEAR THE
DAM IN NOVEMBER. LATE RESERVOIR DRAWDOWN DESICCATES
DEVELOPING EGGS.

DEF is an alphanumeric field containing the impact definition. DEF is contained in the file IMPACTS. Its short name is C4. You use DEF with the L (list) command to display the results of a retrieval.

QUERY NAME: IMPACT

FILE NAME: IMPACTS

SHORT NAME: C5

OUTPUT NAME: IMPACT

INDEX NAME: IMPACT

EXAMPLES: GULLS AND TERNS - NESTING - FLOODING

IMPACT is an alphanumeric field containing the short, descriptive, impact phrase. IMPACT is contained in the file IMPACTS. Its short name is C5. IMPACT is an indexed field. Subselections utilizing words or parts of words from the IMPACT can be used to refine retrievals. For example, to retrieve all impacts on boats and boat usage, the SS command would search for impacts containing "BOAT". The "at" sign (@) would be used to select impacts containing the word "BOAT". All impacts have been entered using upper case letters.

QUERY NAME: TYPE

FILE NAME: ITYPE

SHORT NAME: D4

OUTPUT NAME: IMPACT_TYPE

INDEX NAME: --

EXAMPLE: ELEV

TYPE is an alphanumeric field containing the impact type. In the initial loading of the impact matrix, there is only one impact type--ELEV (water elevation). TYPE is contained in the file ITYPE. Its short name is D4. This field was included so that the impact matrix can be expanded to include other impact types, such as temperature.

QUERY NAME: EVAL

FILE NAME: ITYPE
SHORT NAME: D5
OUTPUT NAME: EVALUATOR
INDEX NAME: --
EXAMPLES: REF, LJH

EVAL is a 3-character alphanumeric field containing the evaluator's initials. EVAL is contained in the file ITYPE. Its short name is D5. The EVAL field can be listed (L) on the terminal, and is printed as part of the report writer (REP). EVAL stores the initials of the evaluator who first defined a particular impact. For each impact, only one evaluator is listed. A table showing the evaluator's initials and full names is in the body of the final report.

QUERY NAME: EDATE

FILE NAME: ITYPE
SHORT NAME: D6
OUTPUT NAME: EVAL_DATE
INDEX NAME: --
EXAMPLES: 04/22/82, 05/03/82

EDATE contains the date (in the form MM/DD/YY) on which an impact was initially described. EDATE is contained in the file ITYPE. Its short name is D6. The EDATE field can be listed (L) on the terminal, and is printed as part of the report writer (REP). EDATE indicates the date a particular impact was identified and described. EDATE could be used with the SS (subselect) command to find, for example, all impacts entered into the matrix after 01/01/83.

QUERY NAME: REVAL

FILE NAME: ITYPE
SHORT NAME: D7
OUTPUT NAME: REV_EVALUATOR
INDEX NAME: --
EXAMPLES: REF, LJH

REVAL is an alphanumeric field containing the evaluator's initials who modified or otherwise changed an already existing impact entry. REVAL is contained in the file ITYPE. Its short name is D7. The REVAL field can be listed (L) on the terminal, and is printed as part of the report writer (REP). REVAL contains the initials of the person who last modified a particular impact. There are no REVAL entries in the initial loading of the matrix.

QUERY NAME: REDATE

FILE NAME: ITYPE
SHORT NAME: D8
OUTPUT NAME: REV_DATE
INDEX NAME: --
EXAMPLES: 06/12/83, 10/22/83

REDATE is an alphanumeric field containing the date (in the form MM/DD/YY) an impact was modified. REDATE is contained in the file ITYPE. Its short name is D8. The REDATE field can be listed (L) on the terminal, and is printed as part of the report writer (REP). REDATE contains the date of the last modification only. There are no REDATE entries in the initial loading of the matrix.

QUERY NAME: MONTH

FILE NAME: IMON
SHORT NAME: E5
OUTPUT NAME: MONTH
INDEX NAME: MONTH
EXAMPLES: JAN, FEB

MONTH is a three-character alphanumeric field containing the abbreviations of the months of the year. MONTH is contained in the file IMON. Its short name is E5. MONTH is an indexed field and can be used in the QS or SS command to focus the search for impacts to a particular month or season (group of months).

QUERY NAME: CODE

FILE NAME: IMON
SHORT NAME: E6
OUTPUT NAME: CODE
INDEX NAME: --
EXAMPLES: +, -, N or U

CODE is an alphanumeric field containing the codes associated with an impact value. CODE is contained in the file IMON. Its short name is E6. In the initial loading of the impact matrix, there are four codes: +, -, N, U. The "+" and "-" are associated with critical water elevations greater than zero and indicate whether the impact occurs as water levels rise or fall. The codes N and U are associated with a zero water elevation. "N" indicates that a critical water elevation is not applicable for a particular month or months. "U" indicates that the exact critical elevation is presently unknown. To retrieve impacts occurring at a particular water elevation, the code "+" or "-" should be included in the SS command. Selections for all impacts coded with "U" would indicate potential or real impacts where information was lacking at a particular site.

QUERY NAME: VALUE

FILE NAME: IMON
SHORT NAME: E7
OUTPUT NAME: VALUE
INDEX NAME: --
EXAMPLES: 1585, 2246.5

VALUE is a numeric field containing the limit at which an impact occurs. VALUE is contained in the file IMON. Its short name is E7. In the initial loading of the impact matrix, VALUE refers to the critical water elevation producing an impact at a particular site. VALUE is used in the SS command to retrieve impacts occurring at or below (above) a particular critical water elevation. Fields LOW and HIGH can be used to ensure that VALUE is in the proper range for the site.

QUERY NAME: UNITS

FILE NAME: IMON
SHORT NAME: E8
OUTPUT NAME: UNITS
INDEX NAME: --
EXAMPLE: FEET

UNITS is an alphanumeric field containing the units of the impact type. In the initial loading of the impact matrix, the impact type was water elevation and the units are FEET. UNITS is contained in the file IMON. Its short name is E8.

QUERY NAME: COMMENTS

FILE NAME: IMON

SHORT NAME: E9

OUTPUT NAME: COMMENTS

INDEX NAME: --

EXAMPLE: FOREST DEVELOPMENT ROAD OPENED ALLOWING ACCESS TO
BOAT RAMP

COMMENTS is an alphanumeric field containing the monthly comments associated with impact values. COMMENTS is contained in the file IMON. Its short name is E9. Comments are used by the report writer (REP) and may be used with the L (list) command.

QUERY NAME: XREF

FILE NAME: BREF

SHORT NAME: F6

OUTPUT NAME: CROSS_REFERENCE

INDEX NAME: --

EXAMPLES: 30001, 50106

XREF is an alphanumeric field containing an accession number that links the impact matrix to the bibliography. Accession numbers were assigned to all documents as they were analyzed. These numbers were also included in the cross reference file (BREF) to show those references that support the critical values listed. XREF is contained in the file BREF. Its short name is F6. Its output name is CROSS_REFERENCE.

QUERY NAME: ACC

FILE NAME: BIBL
SHORT NAME: I1
OUTPUT NAME: ACCESSION_NUMBER
INDEX NAME: BIBL
EXAMPLES: 30002, 50105

ACC is an alphanumeric field containing the accession number. The accession number is the key into the bibliographic part of the data base. The accession number was assigned by the researcher when the document was analyzed. Blocks of accession numbers were assigned to each researcher. ACC is contained in the file BIBL. Its short name is I1. ACC has been indexed for efficient retrieval purposes. Note that its index name is BIBL rather than ACC.

QUERY NAME: TITLE

FILE NAME: BIBL
SHORT NAME: I2
OUTPUT NAME: TITLE
INDEX NAME: --
EXAMPLE: PREDATOR-PREY RELATIONSHIPS OF KOKANEE IN LAKE PEND
OREILLE

TITLE is an alphanumeric field containing the title of a document, if a title exists. TITLE is contained in the file BIBL. Its short name is I2. Its output name is TITLE.

QUERY NAME: PUB

FILE NAME: BIBL
SHORT NAME: I3
OUTPUT NAME: PUBLISHER
INDEX NAME: --
EXAMPLE: WESTERN COMMISSION FOR HIGHER EDUCATION

PUB is an alphanumeric field indicating the publisher, if the document has been published. PUB is contained in the field BIBL. Its short name is I3. Its output name is PUBLISHER.

QUERY NAME: PDATE

FILE NAME: BIBL
SHORT NAME: I4
OUTPUT NAME: PUBLISH_DATE
INDEX NAME: --
EXAMPLES: 1978, 03/81

PDATE is a field containing the publication date(in the form MM/DD/YY), if the document has been published. The field may contain only a year, a month and a year, or a day, month and year. PDATE is contained in the file BIBL. Its short name is I4. Its output name is PUBLISH_DATE.

QUERY NAME: PAGES

FILE NAME: BIBL
SHORT NAME: I5
OUTPUT NAME: PAGES
INDEX NAME: --
EXAMPLES: 23, 106

PAGES is an alphanumeric field containing the number of pages in the document. This is useful to know when trying to decide whether to get a copy of the document. PAGES is in the file BIBL. Its short name is I5. Its output name is PAGES.

QUERY NAME: REF

FILE NAME: BIBL

SHORT NAME: I6

OUTPUT NAME: REF_TYPE

INDEX NAME: --

EXAMPLES: JOURNAL, REPORT, BOOK, PRIVATE FILES, CONTACT MEMO,
COMPUTER DATA

REF is an alphanumeric field indicating the type of document. While some entries are actually documents (books, journals, reports), other entries indicate sources of information (such as private files), or cover discussions with individuals (such as contact memos). Other entries indicate the existence of data that might be useful. REF is contained in the file BIBL. Its short name is I6. Its output name is REF_TYPE.

QUERY NAME: FORM

FILE NAME: BIBL

SHORT NAME: I7

OUTPUT NAME: FORM

INDEX NAME: --

EXAMPLES: DRAFT, FINAL, INTRM, INPRG

FORM is an alphanumeric field indicating whether a document is in draft, interim (INTRM), in progress (INPRG), or in final form. The field is not used if it is not applicable to the reference type. FORM is in the file BIBL. Its short name is I7. Its output name is FORM.

QUERY NAME: MICRO

FILE NAME: BIBL
SHORT NAME: I8
OUTPUT NAME: MICRO_FICHE
INDEX NAME: --
EXAMPLES: Y or blank

MICRO is a single alphanumeric character indicating whether the document is available on microfiche. When it is available on microfiche, MICRO is a "Y". If the field is blank, the document is available in a form other than microfiche. FORM is in the file BIBL. Its short name is I8. Its output name is MICRO_FICHE.

QUERY NAME: IFROM

FILE NAME: BIBL
SHORT NAME: I9
OUTPUT NAME: INFO_FROM
INDEX NAME: --
EXAMPLES: THOMAS BONDE

IFROM is an alphanumeric field indicating from whom the information or document was obtained. Often this is different from the person or place to contact to receive a copy of a document (see AFROM below). IFROM is in the file BIBL. Its short name is I9. Its output name is INFO_FROM.

QUERY NAME: AFROM

FILE NAME: BIBL
SHORT NAME: IA
OUTPUT NAME: AVAILABLE_FROM
INDEX NAME: --
EXAMPLE: WICHE LIBRARY, BOULDER, COLORADO

AFROM is an alphanumeric field indicating the name and address of the person or place to contact to request a copy of the document being described. In many cases, the documents are available at BPA. All documents procured by PNL have been delivered to BPA. AFROM is in the file BIBL. Its short name is IA. Its output name is AVAILABLE_FROM.

QUERY NAME: IPHONE

FILE NAME: BIBL
SHORT NAME: IB
OUTPUT NAME: INFO_FROM_PHONE
INDEX NAME: --
EXAMPLES: FTS 123-4567; (509)123-4567

IPHONE is an alphanumeric field containing a telephone number for the person listed in the field IFROM (Information from field). The number may be either a FTS number or a commercial number. IPHONE is in the file BIBL. Its short name is IB. Its output name is INFO_FROM_PHONE.

QUERY NAME: APHONE

FILE NAME: BIBL
SHORT NAME: IC
OUTPUT NAME: AVAIL_FROM_PHONE
INDEX NAME: --
EXAMPLES: FTS 123-4567; (509)123-4567

APHONE is an alphanumeric field containing a telephone number for the person or place listed in the field AFROM (available from field). The number may be either a FTS number or a commercial number. APHONE is in the file BIBL. Its short name is IC. Its output name is AVAIL_FROM_PHONE.

QUERY NAME: COST

FILE NAME: BIBL
SHORT NAME: ID
OUTPUT NAME: COST
INDEX NAME: --
EXAMPLES: 12.00, 75.00, 0.00

COST is a decimal field indicating how much it costs to purchase a copy of the document being cited. This field is used only if the cost is known. A value of zero does not mean that the document is free. COST is in the file BIBL. Its short name is ID. Its output name is COST.

QUERY NAME: CEVAL

FILE NAME: BIBL
SHORT NAME: IE
OUTPUT NAME: CITATION_EVALUATOR
INDEX NAME: --
EXAMPLES. REF, DHF

CEVAL is a three-character alphanumeric field containing the initials of the PNL staff member who evaluated the document. CEVAL is in the file BIBL. Its short name is IE. Its output name is CITATION_EVALUATOR. A table of evaluator's initials is in the body of the main report.

QUERY NAME: CDATE

FILE NAME: BIBL
SHORT NAME: IF
OUTPUT NAME: CITATION_EVAL_DATE
INDEX NAME: --
EXAMPLES: 04/22/82, 05/01/82

CDATE is a field containing the date on which the document was evaluated. The date is stored in MM/DD/YY form. CDATE is in the file BIBL. Its short name is IF. Its output name is CITATION_EVAL_DATE.

QUERY NAME: ABSTRACT

FILE NAME: BIBL
SHORT NAME: IG
OUTPUT NAME: ABSTRACT
INDEX NAME: --

ABSTRACT is an alphanumeric field describing the contents of the document. The abstract is an objective overview of the document and is often a preface, introduction, or summary taken directly from the document. The abstract tends to be rather long. It is intended to give the reader enough information to determine whether the document itself is of sufficient interest. ABSTRACT is in file BIBL. Its short name is IG. Its output name is ABSTRACT.

QUERY NAME: EVALUATION

FILE NAME: BIBL
SHORT NAME: IH
OUTPUT NAME: EVALUATION
INDEX NAME: --

EVALUATION is an alphanumeric field containing the evaluator's subjective impression of the document. The evaluation describes the usefulness of the information contained in the document. EVALUATION is in the file BIBL. Its short name is IH.

QUERY NAME: KEYWORD

FILE NAME: KEYW
SHORT NAME: G2
OUTPUT NAME: KEYWORD
INDEX NAME: KEYWORD
EXAMPLES: ALBENI FALLS, FISH, RECREATION

Each occurrence of the field KEYWORD contains a keyword assigned by the evaluator. A citation may contain many keywords. Sites and uses are included as keywords. KEYWORD is indexed for efficient retrieval on the basis of keywords. KEYWORD is in the file KEYW. Its short name is G2. Its output name is KEYWORD. All keywords are in upper case.

QUERY NAME: AUTHOR

FILE NAME: AUTH
SHORT NAME: H2
OUTPUT NAME: AUTHOR
INDEX NAME: AUTHOR
EXAMPLES: GOLDIE CA, COE SEATTLE DISTRICT, US FOREST SERVICE

Each occurrence of the field AUTHOR contains an author or agency name. Some documents have no authors; others have several. Authors may be agencies rather than a particular individual. All author's names are stored with the last name first followed by initials (with no punctuation). This minimizes storage and allows meaningful sorts. AUTHOR is indexed for efficient retrieval on the basis of author. AUTHOR is in the file AUTH. Its short name is H2. Its output name is AUTHOR. All author names are stored in upper case.

To avoid remembering (and matching) initials, the "starts with" (#) operator is more useful than trying to match the complete author entry.

THE REPORT WRITERS

Often the user is interested in more comprehensive output of his queries than can be provided by a few lines produced by the list command. DRS includes a report writer capability that allows a programmer to design and implement reports tailored for the data base.

At this writing, five report writer programs have been implemented for the RIVOPR data base. Three of the report writers generate reports on the citations in the BIBL HAM. Two other report writers generate reports on impacts. Other report writer programs can be developed as needed.

The report writers can be invoked from DRS after data has been selected using the QS (quick select) and SS (subselect) commands. A report writer can be invoked instead of using the L (list) and E (execute) commands. The user can either have the reports displayed on the terminal or written to a file for later printing on a line printer. (Chapter 2 describes how to write data to a file.)

Each report writer is described below. A sample is included for each program showing which HAM is used and how the data must be arranged if arranging is required.

BTITLE

The BTITLE report writer displays a short description of each citation selected by the user. This report includes title, author(s) or agency, publisher and publication date, from whom the information was received, and from whom to obtain a copy of the citation. The user may use any valid selection criteria to select the data. The report writer requires the data to be arranged first by accession number and then by author. Here is an example of how to use the BTITLE report writer:

```
DRS
OPEN RIVOPR.BIBL
QS ...
SS ...
A ACC, AUTHOR
REP BTITLE;;
EXIT
```

BEVABS

The BEVABS report writer includes all the information on the BTITLE report plus the abstract and evaluation for the citation. The user may use any valid selection criteria to select the data. The report writer requires the data to be arranged first by accession number and then by author. The example below shows how to use the BEVABS report writer. The example includes commands to cause the output to go to a file for later printing rather than displaying the report on the terminal.

```
DRS
OPEN RIVOPR.BIBL
QS ...
SS ...
LP
[LP=BEVABS.OUT
A ACC,AUTHOR
REP BEVABS;;
EXIT
```

KWBEVA

The KWBEVA report writer is similar to the BEVABS report writer but also includes a listing of keywords. There are restrictions on criteria used to select the data. The selection criteria must either be based solely on information from the BIBL file or a "SS BIBL" command must be entered before the report writer is invoked. Because of the complexity of this report, no HAM is used. The example below shows how the HAM is "turned off." No arrange is needed.

```

DRS
OPEN RIVORP.BIBL
QS...
SS...
SS BIBL
HAM;
LP
[LP=KWBEVA.OUT
REP KWBEVA;;
EXIT

```

SIMPAC

The SIMPAC report writer generates an impact report for each impact. Each impact includes such information as the site, use, impact, and definition for the impact. If you subselect on months, only those months will appear. If you do not subselect on months, all months will appear. The report writer requires the data to be arranged first by SITE, followed by USE, IDIM, and MONTH. The user can optionally put a special title on each page of the report. The example below shows how the user puts a special heading on the report and writes the report to a file for later printing.

```

DRS
OPEN RIVOPR.SITE
QS ...
SS ...
LP
[LP=SIMPAC.OUT
HEADING:H2='Critical Elevations for ...'
A SITE,USE,IDIM,MONTH
REP SIMPAC;;
EXIT

```

XRSIMP

The XRSIMP report writer is similar to the SIMPAC report writer except that the cross reference accession numbers for the citations are included. The use of this report writer is the most restricted of all the report writers. The selection criteria must be based either on 1) the site, use, impact, or impact type files, or 2) the level of qualification must be raised from the month level or cross-reference numbers but not on both unless the define select command is used. The HAM must be turned off before the report writer is invoked. No arrange is needed. The example below shows how to put a special heading on the report, how to use the "SS ITYPE" command to raise the level of qualification, and how to turn off the HAM.

```
DRS
OPEN RIVOPR.SITE
QS...
SS...
SS ITYPE
HAM;
HEADING:H2='Report title ...'
REP XRSIMP;;
EXIT
```

THE SIP PROGRAMS

DRS provides a capability to access data from a DRS data base and display it on a terminal screen. Two SIP (Screen Input Processor) programs have been written to meet the display requirements of the RIVOPR data base. Although it may look like updates have been made on the screen, no changes go into the data base. Two other SIP programs allow updates to the data base, but their use is restricted to those users with update privileges. These two programs are not discussed in this manual.

SIP programs run on certain terminals with CRT (cathode ray tube) screens. You must determine which type of terminal you are using before entering a SIP program. If you do not specify a terminal type, SIP will assume you have a VT52 terminal and the program may not operate properly.

Below is a list of terminal designations and the types of terminals to be used with each designation.

<u>Terminal Designation</u>	<u>Types of Terminals</u>
VT52	DEC VT52, VT52-compatible
VT100	DEC VT100 series, VT100-compatible
ADM3A	ADM3A, ADM3A-compatible
HP2640	Hewlett-Packard 2640 series (currently usable but has problems)

Do not go into DRS to use a SIP program. SIP programs are invoked when you have a dollar sign (\$) prompt.

The SITE SIP program allows the user to look at impact information. The first screen prompts the user for site, use, and impact ID. Only certain sites and uses are valid. If you enter a carriage return when prompted for a site, the SIP program will end. When an impact has been identified, the SIP program will display the operating limits for the site, the impact, the impact type, the impact definition, and evaluator information. When you are finished looking at this information, enter a "Y" and the second impact screen will be displayed. If any other character is entered, you will be prompted for a new site. This screen displays critical elevations by month and accession numbers that support the information given in the impact. There is limited space to display the comments associated with each month. You can see the rest of a comment by using the tab key to move the cursor to the comment. Use the down arrow key to see the second line of the comment. The up arrow key will display the first line again. Several carriage returns or an escape E (use the ESC key and the E key) will cause the SIP program to return to the first screen and prompt you for a new site.

To invoke the SITE SIP program from a VT100-type terminal, make sure you have a dollar sign prompt (either from logging on or exiting from DRS) and enter

SIP MN=SITE TT=VT100

If your terminal is not a VT100, substitute the proper terminal designation from the list above.

The BIBL SIP program allows you to look at the citations stored in the data base. When you first enter this program, you are prompted for an accession number. If you simply enter a carriage return, the program will stop. After entering the accession number, you will be asked which of five screens of information you wish to view first. The first screen is the title screen and contains such information as title, publisher, reference type, form, source of information, and evaluator information. The second screen displays the abstract. Many abstracts are too long to fit on the screen, so a scrolling capability has been provided. The down arrow key can be used to move the cursor to the bottom of the abstract. Using the down arrow key again causes the first line to disappear, moves the rest of the lines up, and displays another line at the bottom. The up arrow key allows scrolling in the opposite direction. The third screen contains the evaluation. You can use the scrolling capability for the evaluation, but most of the evaluations will fit on the screen. The fourth screen contains author names. In some cases, agency names may be used. Up to 15 authors can be displayed. The fifth screen displays keywords. Up to 15 keywords can be displayed.

To invoke the BIBL SIP program from a VT52 terminal, make sure you have a dollar sign prompt and enter

SIP MN=BIBL TT=VT52

If your terminal is not a VT52, substitute the proper terminal designation from the list on the previous page.

5.0 SAMPLE SESSIONS

This chapter contains examples of nine sample sessions that were executed using the RIVOPR data base. The sessions show you how to use the DRS query language to retrieve data from the data base.

Each sample session begins with a statement of the problem to be solved by the query. A description of one solution to the problem is given. New concepts that are presented by the session are listed. The remainder of the session shows the actual output from the computer.

Sample Session #1 is the easiest session and introduces the basic commands. Each successive session includes new concepts and was developed with the assumption that you have mastered the preceding session(s). You should make sure you understand the concepts in each session before moving on to the next example. Previous chapters in the User's Manual describe each command and its syntax. Numerous examples are provided.

The sample sessions illustrate some types of queries that might be useful when using the data base. You are encouraged to experiment with the examples until you become comfortable with the use of DRS. Remember that you cannot harm the data base.

Sample Session #1

Problem: Find all uses and impacts for Albeni Falls.

Solution: Select Albeni Falls. Arrange by use and impact. List use and impact. Suppress redundant printing of the use.

New Concepts Introduced

OPEN
QS (quick select)
A (arrange)
L (list)
E (execute)

\$ DRS
19-SEP-1982 18:36

A.D.M. Data Retrieval System - DRS
VAX/VMS Version 3.1G3

Select, Arrange, List, Execute, or Other? > OPEN RIVOPR

NUMBER OF RECORDS IN DATA BASE = 7199

Select, Arrange, List, Execute, or Other? > HAM SITE

Select, Arrange, List, Execute, or Other? > QS SITE='ALBENI FALLS'

NUMBER THAT QUALIFY = 1

Select, Arrange, List, Execute, or Other? > A USE/(SF),IMPACT

Select, Arrange, List, Execute, or Other? > LIST USE,IMPACT

Select, Arrange, List, Execute, or Other? > E;

ARRANGING

Sample Session #1 (cont)

PAGE 1
09/19/82 18:37

RIVER OPER ENVIRONMENTAL INFORMATION SYS

SELECTION: SITE='ALBENI FALLS'

USE	IMPACT
BIRD, GAME	DIVING DUCKS - FOOD AVAILABILITY - UPLAND GAME BIRDS - HABITAT LOSS - EROSION WATERFOWL - LOSS OF NEST SITES - FLOODING AND WATERFOWL - NESTING - PREDATION WATERFOWL - RESTING AREAS - DRY UP
BIRD, NON-GAME	GULLS AND TERNS - NESTING - FLOODING SONGBIRDS - HABITAT LOSS
FISH, GAME	KOKANEE SPAWNING - DEWATERING OF EGGS
FLOOD CONTROL	MAXIMUM ELEVATIONS FOR FLOOD CONTROL
MAMMAL, GAME	AQUATIC FURBEARERS - PREDATION INCREASED BIG GAME - RIPARIAN HABITAT - LOSS
MAMMAL, NON-GAME	SMALL MAMMALS AND BATS - HABITAT LOSS TERRESTRIAL FURBEARERS - LOSS OF PREY BASE AND
RECREATION	ANGLER ACCESS - LIMITED BY LOW WATER LEVELS BOAT MOORAGE - PRIEST RIVER - UNUSABLE BOAT MOORAGE - RILEY CREEK - UNUSABLE BOAT MOORAGE - SPRINGY POINT - UNUSABLE BOAT RAMP - ALBENI COVE - UNUSABLE BOAT RAMP - FARRAGUT STATE PARK - UNUSABLE BOAT RAMP - JOHNSON CREEK - UNUSABLE BOAT RAMP - MORTON SLOUGH - UNUSABLE

Sample Session #1 (cont)

BOAT RAMP - PACK RIVER -
UNUSABLE
BOAT RAMP - PRIEST RIVER
- UNUSABLE
BOAT RAMP - RILEY CREEK -
UNUSABLE
BOAT RAMP - SAMOWEN
RECREATION AREA -
BOAT RAMP - SPRINGY POINT
- UNUSABLE
BOAT RAMP - TRESTLE CREEK
- UNUSABLE
BOATING - ACCESS TO
STRONGS ISLAND -
BOATING - PRIVATE DOCKS -
USE LIMITED
CAMPING - ALBENI AND
JOHNSON CREEK - USE
CAMPING - FARRAGUT - USE
DECLINE
CAMPING - PRIEST RIVER -
USE DECLINE
CAMPING - RILEY CREEK -
USE DECLINE
CAMPING - SAMOWEN - USE
DECLINE
CAMPING - SPRINGY POINT -
USE DECLINE
CAMPING - USE DECLINE
HOMES - VIEW - DECLINE
PICNICKING - ALBENI AND
JOHNSON CREEK - USE
PICNICKING - FARRAGUT -
USE DECLINE
PICNICKING - PRIEST RIVER
- USE DECLINE
PICNICKING - RILEY CREEK
- USE DECLINE
PICNICKING - SAMOWEN -
USE DECLINE
PICNICKING - SPRINGY
POINT - USE DECLINE
PICNICKING - TRESTLE
CREEK - USE DECLINE
PICNICKING - USE DECLINE
SIGHTSEEING - USE DECLINE
SWIMMING AREAS DECLINE IN
QUALITY AND USE.
SWIMMING AREAS UNUSABLE

Sample Session #2

Problem: Find all sites in the data base.

Solution: Select all sites where the site name is greater than nothing (i.e., all those that exist). List them alphabetically.

New Concepts Introduced

>' '(greater than nothing)
EXIT (exit)

Select, Arrange, List, Execute, or Other? > QS SITE>' '

NUMBER THAT QUALIFY = 5

Select, Arrange, List, Execute, or Other? > A SITE/(SF)

Select, Arrange, List, Execute, or Other? > L SITE

Select, Arrange, List, Execute, or Other? > E

ARRANGING

PAGE 1 RIVER OPER ENVIRONMENTAL INFORMATION SYS
06/21/82 07:39

SELECTION: SITE>' '

SITE

ALBENI FALLS
DWORSHAK
GRAND COULEE
HUNGRY HORSE
LIBBY

Select, Arrange, List, Execute, or Other? > EXIT

Sample Session #3

Problem: Find all citations having a keyword starting with "swim."

Solution: Select all keywords that start with "swim." Find the accession numbers for those keywords. Arrange by accession number and keyword. Suppress redundant printing of accession numbers.

New Concepts Introduced

(starts with)

SS (subselect)

Select, Arrange, List, Execute, or Other? > OPEN RIVOPR.BIBL

NUMBER OF RECORDS IN DATA BASE = 6913

Select, Arrange, List, Execute, or Other? > QS KEYWORD# 'SWIM'

NUMBER THAT QUALIFY = 22

Select, Arrange, List, Execute, or Other? > QS CU

>

> SS BIBL

NUMBER OF RECORDS SUBSELECTED = 22

Select, Arrange, List, Execute, or Other? > A I1/(SF),KEYWORD/(SF)

Select, Arrange, List, Execute, or Other? > LIST I1,KEYWORD

Select, Arrange, List, Execute, or Other? > E;

ARRANGING

PAGE 1

RIVER OPER ENVIRONMENTAL INFORMATION SYS

06/18/82 07:20

SELECTION: KEYWORD# 'SWIM'

SUBSELECTION: BIBL

ACCESSION
NUMBER

KEYWORD

80002 Albeni Falls
 Boating
 Camping
 Fish
 fishing
 Picnicking

Sample Session #3 (cont)

	Recreation
	Swimming
	Wildlife
80025	Albeni Falls
	Boating
	Recreation
	Swimming
80026	Boating
	Camping
	Fishing
	Huntsr Horse
	Picnicking
	Recreation
	Sightseeing
	Swimming
80028	Boating
	Camping
	Fish
	Libbe
	Picnicking
	Recreation
	Swimming
	Wildlife
80030	Boating
	Camping
	Libbe
	Picnicking
	Recreation
	Swimming
80034	Boating
	Camping
	Fish
	Grand Coulee
	Picnicking
	Recreation
	Swimming
	Wildlife
80036	Boating
	Camping
	Fish
	Grand Coulee
	Picnicking
	Recreation
	Swimming
	Wildlife
80038	Camping
	Grand Coulee
	Recreation
	Swimming

Select, Arrange, List, Execute, or Other? > EXIT

Sample Session #4

Problem: Find all references that have keywords starting with "boat."
Find the sites those references concern.

Solution: Select all keywords that start with "boat." Find the
accession numbers for those keywords. Arrange by site and accession
number. List the sites and accession numbers.

Select, Arrange, List, Execute, or Other? > OPEN RIVOPR,BIBL

NUMBER OF RECORDS IN DATA BASE = 7210

Select, Arrange, List, Execute, or Other? > QS KEYWORD# 'BOAT'

NUMBER THAT QUALIFY = 33

Select, Arrange, List, Execute, or Other? > A SITE,I1

Select, Arrange, List, Execute, or Other? > L SITE,I1

Select, Arrange, List, Execute, or Other? > E;

ARRANGING

Sample Session #4 (cont)

PAGE 1
09/20/82 23:01

RIVER OPER ENVIRONMENTAL INFORMATION SYS

SELECTION: KEYWORD# 'BOAT'

SITE	ACCESSION NUMBER
------	---------------------

	50036
	80000
	80001
	80002
	80003
	80005
	80006
	80008
	80009
	80010
	80011
	80012
	80015
	80016
	80017
	80018
	80020
	80021
	80022
	80023
	80024
	80025
	80026
	80027
	80028
	80029
	80030
	80031
	80032
	80033
	80034
	80036
	80037

Sample Session #5

Problem: Find the recreational impacts for Libby Dam for the months of April and May where the impact is a drawdown between 2450 feet and 2460 feet.

Solution: Select Libby Dam. If Libby Dam's operating limits are not known, list them. Select on recreation and the months of April and May. Select those impacts where the critical elevation is unknown. Also select those impacts where the code is '-' (i.e., the impact is due to a drawdown) and the critical elevation is between 2450 feet and 2460 feet. Arrange by impact ID and month. List the impact, month, code, critical elevation, and units. Display the results on the terminal.

(Note: Change to the SITE HAM before beginning this query by entering "HAM SITE".)

New Concepts Introduced

HAM
! (OR)

Select, Arrange, List, Execute, or Other? > QS SITE='LIBBY'

NUMBER THAT QUALIFY = 1

Select, Arrange, List, Execute, or Other? > L LOW,HIGH

Select, Arrange, List, Execute, or Other? > Ei

Sample Session #5 (cont)

PAGE 1 RIVER OPER ENVIRONMENTAL INFORMATION SYS
09/20/82 23:15

SELECTION: SITE='LIBBY'

LOW ELEVATION	HIGH ELEVATION
------------------	-------------------

2,287.00	2,459.00
----------	----------

Select, Arrange, List, Execute, or Other? > SS USE='RECREATION'

NUMBER OF RECORDS SUBSELECTED = 1

Select, Arrange, List, Execute, or Other? > SS MONTH='APR'!MONTH='MAY'

NUMBER OF RECORDS SUBSELECTED = 60

Select, Arrange, List, Execute, or Other? > SS CODE='U'!(CODE='-'&VALUE>=2450&VALUE<=2460)

NUMBER OF RECORDS SUBSELECTED = 9

Select, Arrange, List, Execute, or Other? > A SITE/(SF),USE/(SF),IDIM,MONTH

Select, Arrange, List, Execute, or Other? > L IMPACT,MONTH,CODE,VALUE,UNITS

Select, Arrange, List, Execute, or Other? > E;

ARRANGING

Sample Session #5 (cont)

PAGE 1 RIVER OPER ENVIRONMENTAL INFORMATION SYS
09/20/82 23:17

SELECTION: SITE='LIBBY'
SUBSELECTION: CODE='U'!(CODE='-'&VALUE>=2450&VALUE<=2460)

IMPACT	MONTH	CODE	VALUE	UNITS
SIGHTSEEING - DECLINE IN ACTIVITY	MAY	-	2,455.00	FEET
BOATING - HAZARDS - ROCKS	APR	-	2458.0	FEET
BOATING - HAZARDS - ROCKS	MAY	-	2458.0	FEET
CAMPING - YARNELL ISLANDS	MAY	U	0000.0	FEET
- USE DECLINE				
CAMPING - GATEWAY - USE DECLINE	MAY	U	0000.0	FEET
PICNICKING - LOWER RESERVOIR - USE DECLINE	MAY	-	2455.0	FEET
PICNICKING - UPPER RESERVOIR - USE DECLINE	MAY	-	2,457.00	FEET
CAMPING - LOWER RESERVOIR - USE DECLINE	MAY	-	2,455.00	FEET
CAMPING - UPPER RESERVOIR - USE DECLINE	MAY	-	2,457.00	FEET

Sample Session #6

Problem: Find the recreational impacts for Libby Dam for the summer months where the impact is a drawdown between 2450 feet and 2460 feet.

Solution: Select Libby Dam. If Libby Dam's operating limits are not known, list them. Select on recreation and the months of June, July, and August. Select those impacts where the critical elevation is unknown. Also select those impacts where the code is '-' (i.e., the impact is due to a drawdown) and the critical elevation is between 2450 feet and 2460 feet. Arrange by site, use, impact ID, and month. Put a special title on the report. Rather than displaying it on the terminal, write it to a disk file for later printing.

New Concepts Introduced

HEADING:H2 (Special heading)
IO DO=WD (Send data elsewhere)
[WD (Where to send data)
REP (Invoke the report writer)

F.71

Select, Arrange, List, Execute, or Other? > QS SITE='LIBBY'
NUMBER THAT QUALIFY = 1

Select, Arrange, List, Execute, or Other? > LIST LOW,HIGH

Select, Arrange, List, Execute, or Other? > E;

PAGE 1 RIVER OPER ENVIRONMENTAL INFORMATION SYS
06/17/82 07:33

SELECTION: SITE='LIBBY'

LOW ELEVATION	HIGH ELEVATION
------------------	-------------------

2287	2459
------	------

Sample Session #6 (cont)

Select, Arrange, List, Execute, or Other? > SS USE='RECREATION'

NUMBER OF RECORDS SUBSELECTED = 1

Select, Arrange, List, Execute, or Other? > SS MONTH='JUN'!MONTH='JUL'!MONTH='AUG'

NUMBER OF RECORDS SUBSELECTED = 90

Select, Arrange, List, Execute, or Other? > SS CODE='U'!(CODE='-'&VALUE>=2450&VALUE<=2460)

NUMBER OF RECORDS SUBSELECTED = 24

Select, Arrange, List, Execute, or Other? > A SITE,USE,IDIM,MONTH

Select, Arrange, List, Execute, or Other? > ^U

> HEADING:h2='Critical Elevations forRecreational Use at Libby in Summer'

Select, Arrange, List, Execute, or Other? > IO DO=WD

Select, Arrange, List, Execute, or Other? > LWD=LIBBY.REC
> REP SIMPAC:9

ARRANGING

Select, Arrange, List, Execute, or Other? > EXIT

Sample Session #6 (cont)

06/17/82 07:37

RIVER OPERATIONS ENVIRONMENTAL INFORMATION: SITE-IMPACT REPORT
Critical Elevations for Recreational Use at Libby in Summer

KEY TO SYMBOLS USED FOR IMPACT CODE

+ Impact caused by increase in water level
- Impact caused by decrease in water level
U Impact for which level is unknown
N Impact not applicable

*** ** IMPACT REPORT FOR LIBBY *** **
OPERATING LIMITS : 2287 TO 2459

*** USE CATEGORY: RECREATION

IMPACT 007 SIGHTSEEING - DECLINE IN ACTIVITY

Sightseeing activity throughout the reservoir declines as unsightly mudflats appear between the actual and full pool shoreline. Some sightseers and hikers will go to different areas as a result of aesthetic deterioration of the reservoir.

Evaluated by LJH on 04/28/82

MON	CODE	ELEV (FEET)	COMMENTS
---	----	-----	-----
AUG	-	2,455.00	
JUN	-	2,455.00	
JUL	-	2,455.00	

RIVER OPERATIONS ENVIRONMENTAL INFORMATION: SITE-IMPACT REPORT
Critical Elevations for Recreational Use at Libby in SummerLIBBY
RECREATION
IMPACT 010

BOATING - HAZARDS - ROCKS

At the critical elevation of 2458 feet, rock outcroppings become a potential hazard to boaters.

Evaluated by LJH on 04/28/82

MON CODE	ELEV (FEET)	COMMENTS
---	----	-----
AUG -	2,458.00	
JUN -	2,458.00	
JUL -	2,458.00	

LIBBY
RECREATION
IMPACT 013

CAMPING - YARNELL ISLANDS - USE DECLINE

To reach the camping facilities on the Yarnell Islands boaters must beach their boats and walk to shore. At an unknown reservoir elevation camping activity will decline as boaters are unable to traverse the mudflats to reach the camping sites, or are unable to secure their boat to the shore.

Evaluated by LJH on 04/28/82

MON CODE	ELEV (FEET)	COMMENTS
---	----	-----
AUG U		
JUN U		
JUL U		

Sample Session #6 (cont)

RIVER OPERATIONS ENVIRONMENTAL INFORMATION: SITE-IMPACT REPORT Critical Elevations for Recreational Use at Libby in Summer

LIBBY
RECREATION
IMPACT 016

CAMPING - GATEWAY - USE DECLINE

To reach the Gateway campground boaters must beach their boats and walk to shore. At an unknown reservoir elevation camping activity will decline as boaters are unable to traverse the mudflats to reach the camping site or are unable to secure their boat to the shore.

Evaluated by LJH on 04/28/82

MON CODE	ELEV (FEET)	COMMENTS
---	----	-----
AUG U		
JUN U		
JUL U		

LIBBY
RECREATION
IMPACT 023

PICNICKING - LOWER RESERVOIR - USE DECLINE

Mudflats appear between the actual and full pool shoreline. These unsightly mudflats will reduce the aesthetic nature of the reservoir. Picnic activity at Kikimun and Rexford Bench will be affected as some picnickers go elsewhere to picnic. Those who do picnic will experience a reduced quality picnicking experience.

Evaluated by LJH on 04/28/82

MON CODE	ELEV (FEET)	COMMENTS
---	----	-----
AUG -	2,455.00	
JUN -	2,455.00	
JUL -	2,455.00	

Sample Session #6 (cont)

RIVER OPERATIONS ENVIRONMENTAL INFORMATION: SITE-IMPACT REPORT
Critical Elevations for Recreational Use at Libby in Summer

LIBBY
RECREATION
IMPACT 024

PICNICKING - UPPER RESERVOIR - USE DECLINE

The reservoir drawdown causes vast mudflats to appear between the actual and high pool shoreline. These unsightly mudflats will affect the aesthetic nature of the reservoir. Picnic activity at Kikimun and Rexford Bench will be affected as some picnickers go elsewhere to picnic because of poor conditions.

Evaluated by LJH on 04/28/82

MON CODE	ELEV (FEET)	COMMENTS
AUG -	2,457.00	
JUN -	2,457.00	
JUL -	2,457.00	

LIBBY
RECREATION
IMPACT 025

CAMPING - LOWER RESERVOIR - USE DECLINE

The reservoir drawdown causes mudflats to appear between the actual and high pool shoreline. These unsightly mudflats will affect the aesthetic nature of the reservoir. Camping activity at McGillivray, Peck Gulch and the Yarnell Islands will be affected as some campers go elsewhere.

Evaluated by LJH on 04/28/82

MON CODE	ELEV (FEET)	COMMENTS
AUG -	2,455.00	
JUN -	2,455.00	
JUL -	2,455.00	

Sample Session #6 (cont)

RIVER OPERATIONS ENVIRONMENTAL INFORMATION: SITE-IMPACT REPORT
Critical Elevations for Recreational Use at Libby in Summer

LIBBY
RECREATION
IMPACT 026

CAMPING - UPPER RESERVOIR - USE DECLINE

The reservoir drawdown to 2457 feet causes vast mudflats to appear between the actual and high pool shoreline. These unsightly mudflats reduce the aesthetic nature of the reservoir. Camping activity at Kikimun, Tobacco Plains, Gateway, and Rexford Bench will be affected as some campers go elsewhere to camp.

Evaluated by LJH on 04/28/82

MON	CODE	ELEV (FEET)	COMMENTS
AUG	-	2,457.00	
JUN	-	2,457.00	
JUL	-	2,457.00	

Sample Session #7

Problem: Find all references about either swimming or boating.

Solution: Select all keywords starting with "boating." Select their accession numbers and store them temporarily in T1. Select all keywords starting with "swimming" and save their accession numbers in T2. Combine T1 and T2. Arrange by accession number and keyword.

New Concepts Introduced

DS (Define select)
\$ARS (Active record set)
Tn: (Temporary place to store active record sets)

```
QS KEYWORD# 'BOATING'
```

```
NUMBER THAT QUALIFY = 32
```

```
Select, Arrange, List, Execute, or Other? > SS BIBL
```

```
NUMBER OF RECORDS SUBSELECTED = 32
```

```
Select, Arrange, List, Execute, or Other? > DS T1:=$ARS
```

```
NUMBER OF RECORDS SAVED = 32
```

```
Select, Arrange, List, Execute, or Other? > QS KEYWORD# 'SWIMMING'
```

```
NUMBER THAT QUALIFY = 22
```

```
Select, Arrange, List, Execute, or Other? > SS BIBL
```

```
NUMBER OF RECORDS SUBSELECTED = 22
```

```
Select, Arrange, List, Execute, or Other? > DS T2:=$ARS
```

```
NUMBER OF RECORDS SAVED = 22
```

```
Select, Arrange, List, Execute, or Other? > DS $ARS:=T1!T2
```

```
NUMBER OF RECORDS IN $ARS = 35
```

Sample Session #7 (cont)

Select, Arrange, List, Execute, or Other? > A I1/(SF),KEYWORD

Select, Arrange, List, Execute, or Other? > L I1,KEYWORD

Select, Arrange, List, Execute, or Other? > E;

ARRANGING

PAGE 1 RIVER OPER ENVIRONMENTAL INFORMATION SYS
06/18/82 07:27

SELECTION: \$ARS:=T1!T2

ACCESSION
NUMBER

KEYWORD

80000	Boating
	Camping
	Dworshak
	Fish
	Fishing
	Picnicking
	Recreation
	Wildlife
80001	Boating
	Camping
	Dworshak
	Fish
	Fishing
	Picnicking
	Recreation
	Wildlife
80002	Albeni Falls
	Boating
	Camping
	Fish
	fishing
	Picnicking
	Recreation
	Swimming
	Wildlife

•
•
•

Sample Session #7 (cont)

80029	Boating Libby Recreation
80030	Boating Camping Libby Picnicking Recreation Swimming
80031	Boating Fishing Libby Recreation
80032	Boating Camping Libby Recreation
80033	Boating Camping Fishing Grand Coulee hiking Hunting Picnicking Recreation Sightseeing Water Skiing
80034	Boating Camping Fish Grand Coulee Picnicking Recreation Swimming Wildlife
80035	Boating Camping Fish Grand Coulee Picnicking Recreation Swimming Wildlife
80036	Boating Camping Grand Coulee Recreation
80037	Boating Camping Grand Coulee Recreation Swimming
80038	Camping Grand Coulee Recreation Swimming

Sample Session #8

Problem: Demonstrate the difference between OR(!) and AND(&) using references concerning swimming at Grand Coulee.

Solution: Create two record sets and store them. T1 contains references with keywords of "Grand Coulee." T2 contains references with keywords starting with "swim." Create a new active record set that contains both T1 and T2. Arrange by accession number and keyword. (Note: not all the results are displayed here.) Create another active record set that contains only those accession numbers that have both Grand Coulee and swim as keywords.

```
# DRS
21-JUN-1982 07:31
```

```
A.D.M. Data Retrieval System - DRS
VAX/VMS Version 3.0633
```

```
Select, Arrange, List, Execute, or Other? > OPEN RIVOPR.BIBL
```

```
NUMBER OF RECORDS IN DATA BASE = 6913
```

```
Select, Arrange, List, Execute, or Other? > QS KEYWORD# 'GRAND COULEE'
```

```
NUMBER THAT QUALIFY = 53
```

```
Select, Arrange, List, Execute, or Other? > SS BIBL
```

```
NUMBER OF RECORDS SUBSELECTED = 53
```

```
Select, Arrange, List, Execute, or Other? > DS T1:=$ARS
```

```
NUMBER OF RECORDS SAVED = 53
```

```
Select, Arrange, List, Execute, or Other? > QS KEYWORD# 'SWIM'
```

```
NUMBER THAT QUALIFY = 22
```

```
Select, Arrange, List, Execute, or Other? > SS BIBL
```

```
NUMBER OF RECORDS SUBSELECTED = 22
```

```
Select, Arrange, List, Execute, or Other? > DS T2:=$ARS
```

```
NUMBER OF RECORDS SAVED = 22
```

Sample Session #8 (cont)

Select, Arrange, List, Execute, or Other? > DS \$ARRANGE-T1!T2

NUMBER OF RECORDS IN \$ARS = 71

Select, Arrange, List, Execute, or Other? > A I1/(BF),KEYWORD

Select, Arrange, List, Execute, or Other? > L I1/TU

>

> L I1,KEYWORD

Select, Arrange, List, Execute, or Other? > E;

ARRANGING

PAGE 1

RIVER OPER ENVIRONMENTAL INFORMATION SYS

06/21/82 07:34

SELECTION: \$ARS:=T1!T2

ACCESSION
NUMBER

KEYWORD

10001	Albeni Falls Dworshak Grand Coulee Hungry Horse Libby Reservoir elevation Stream flow Water quality
10002	Albeni Falls Dworshak Grand Coulee Hungry Horse Libby Reservoir Elevation Stream flow Water quality
10003	Albeni Falls Dworshak Grand Coulee Hungry Horse Libby Reservoir Elevation Reservoir Operations

Sample Session #8 (cont)

10020 Dissolved Gas
Grand Coulee
Lake Roosevelt
10022 Banks Lake
Dissolved Gas
Fish
Grand Coulee
Kockanee
Lake Roosevelt
Rainbow
Whitefish
Yellow Perch
20001 Grand Coulee
Habitat use
Inundation
Mitigation
Power peaking
Shoreline modification
Subinundations

•
•
•

Select, Arrange, List, Execute, or Other? > DS \$ARS:=T1&T2

NUMBER OF RECORDS IN \$ARS = 4

Select, Arrange, List, Execute, or Other? > A CU

•

>
> E;

ARRANGING

PAGE 1 RIVER OPER ENVIRONMENTAL INFORMATION SYS
06/21/82 07:37

SELECTION: \$ARS:=T1&T2

ACCESSION
NUMBER

KEYWORD

80011 Boating
Camping
Fishing
Grand Coulee
Hunting
Picnicking
Recreation
Sightseeing
Swimming
Waterskiing

Sample Session #8 (cont)

80034	Boating
	Camping
	Fish
	Grand Coulee
	Picnicking
	Recreation
	Swimming
	Wildlife
80036	Boating
	Camping
	Fish
	Grand Coulee
	Picnicking
	Recreation
	Swimming
	Wildlife
80038	Camping
	Grand Coulee
	Recreation
	Swimming

Sample Session #9

Problem: Find all references concerning fishing at Albeni Falls where the authors are either Bonde or Bowler.

Solution: Create three record sets. T1 contains those references that have a keyword of Albeni Falls. T2 contains those references that have keywords starting with fish. T3 contains references written by Bonde or Bowler. List the accession numbers and authors.

```
Select, Arrange, List, Execute, or Other? > DS KEYWORD# 'ALBENI'
NUMBER THAT QUALIFY = 40
```

```
Select, Arrange, List, Execute, or Other? > SS PIEL
NUMBER OF RECORDS SUBSELECTED = 39
```

```
Select, Arrange, List, Execute, or Other? > DS T1:=#ARS
NUMBER OF RECORDS SAVED = 39
```

```
Select, Arrange, List, Execute, or Other? > DS KEYWORD# 'FISH'
NUMBER THAT QUALIFY = 216
```

Sample Session #9 (cont)

Select, Arrange, List, Execute, or Other? > SS BIBL

NUMBER OF RECORDS SUBSELECTED = 175

Select, Arrange, List, Execute, or Other? > DS T2:=\$ARS

NUMBER OF RECORDS SAVED = 175

Select, Arrange, List, Execute, or Other? > RS AUTHOR('BONDE'+'BOWLER')

NUMBER THAT QUALIFY = 7

Select, Arrange, List, Execute, or Other? > SS BIBL

NUMBER OF RECORDS SUBSELECTED = 7

Select, Arrange, List, Execute, or Other? > DS T3:=\$ARS

NUMBER OF RECORDS SAVED = 7

Select, Arrange, List, Execute, or Other? > DS \$ARS:=T1&T2&T3

NUMBER OF RECORDS IN \$ARS = 3

Select, Arrange, List, Execute, or Other? > A I1/(SF),H2

Select, Arrange, List, Execute, or Other? > L I1,H2

Select, Arrange, List, Execute, or Other? > E)

ARRANGING

Sample Session #9 (cont)

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06/18/82 06:43

SELECTION: #ARS:=T1&T2&T3

ACCESSION NUMBER	AUTHOR
---------------------	--------

50037	Bonde TJH
60004	Bowler B
	Riceman B
60005	Bowler B
	Ellis V

Select, Arrange, List, Execute, or Other? > EXIT

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