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GEOLOGICAL SURVEY

MRDS - REV

A Mineral Occurrence/Deposit Data Base for Microcomputer

by

Paul G. Schruben

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I. Abstract

A data base management system, MRDS-REV, was developed for micro-computers, using commercially available software as well as in-house programs. The system simulates the Survey's mainframe-based mineral occurrence/deposit file known as the Mineral Resources Data System (MRDS). Each MRDS-REV record contains 147 fixed and variable length alpha-numeric fields with location and geologic information on mineral deposits. A menu-driven retrieval and printing program was developed for the system as well as programs for exchanging information between the mainframe MRDS file and microcomputer files.

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II. Introduction

This report describes MRDS-REV, a mineral deposit data base management system developed for microcomputer. The system simulates the Mineral Resources Data System (MRDS), currently in use on the Amdahl mainframe computer in Reston, Virginia. This report shows MRDS-REV's capabilities to enter, edit, retrieve and print deposit data. The features and capabilities of the commercial software (COSMOS, 1985) documented in this report relate to a specialized application and do not constitute an evaluation or review of the product.

A) Rationale for developing MRDS-REV

MRDS-REV was developed for the following reasons:

1) Data entry is particularly suited to the microcomputer environment. Menus and input screens appear almost instantly, making interactive updating preferable to batch updating. In contrast, interactive updating on mainframe computers through a modem link is slow and cumbersome. For remote mainframe users, batch input remains preferable.

2) An increasing percentage of MRDS participants prefer to manipulate subsets of the deposit file on their own micro-computers instead of the mainframe. There are many reasons for this:
   a) to avoid mainframe on-line charges;
   b) mainframe phone connections can be unreliable or nonexistant, especially in foreign countries;
   c) they are familiar with their machine and wish to avoid learning a new system and
   d) they wish to exert more control over their data and operating environment.

3) Microcomputer software and hardware are approaching the capabilities of some mainframe computers. The Revelation data base management system used in MRDS-REV is one of the first on microcomputers allowing variable length fields and records up to 65,000 bytes each. Indexed data-base managers for microcomputers are becoming available at the time this report is prepared. These programs speed retrieval times because an indexed file is searched much more rapidly than a sequentially searched file. Indexing and other developments make the use of larger files on microcomputers more practical.

B) Software components developed in-house

The non-commercial components of the MRDS-REV system are:

1) a fully prompted retrieval and printing program developed
   by the author;
2) the dictionary, data validation files, report generator
   files, data input screens and menus developed by the
   author to accept MRDS data and
3) programs for translating data to and from mainframe MRDS,
   which is in General Information Processing System
   (GIPSY) format.

III. Initial setup procedures

A) Hardware and software requirements

MRDS-REV is a large system by microcomputer standards. The Revelation programs occupy 350K bytes of disk space, whereas an IBM PC floppy disk only holds 320K bytes with DOS on it. The MRDS programs, dictionaries and screens occupy an additional 200K bytes of disk space. Consequently, a working MRDS-REV system starts with an overhead of 550k bytes. An IBM-XT/AT fixed disk machine or equivalent is recommended to avoid file storage problems.

The hardware requirements follow:
    1) IBM-PC/XT/AT or compatible computer capable of running
       Microsoft MS-DOS;
    2) 320K bytes RAM (640K recommended);
    3) Two 360K byte disk drives. A fixed disk of higher
       capacity is strongly recommended and
    4) Math co-processor 8087 chip recommended but not required.

The software requirements follow:
    1) Microsoft MS-DOS or PC-DOS, version 1.x, 2.x, 3.x or
       higher.
    2) Revelation by COSMOS, Inc. Distributed by:
       ELF Software Distributors, Inc.
       PO Box 1237
       Longview, WA   98632
       phone: 1-800-422-2511

B) Installation instructions for IBM XT/AT fixed disk machines

Insert the system disk for MS- or PC-DOS and reboot by pressing the Ctrl, Alt and Del keys simultaneously. IBM XT/AT's boot from the fixed disk by powering up with the floppy drive door open. IBM XT/AT machines usually observe the following disk drive designation convention:

    A = floppy disk drive
    C = fixed disk drive

If there is uncertainty about the designation for your machine, find out which drive letter designation applies to the fixed disk and floppy disk drives.

Type: DIR A:
Type: DIR B:
Type: DIR C:
Type: DIR D:
Type: DIR E:

Type: DIR F:

and observe which drive lights up.   Then

Type: C: On IBM XT machines, "C" is the main drive.
Type: DIR   Displays the number of remaining bytes on
            this drive. If it is less than 700,000 bytes, delete
            excess files or change to another drive by typing "A:"
            or "B:", etc.

Create a sub-directory on the fixed disk for MRDS-REV. This
avoids cluttering up the root directory with the large number of
files which MRDS-REV generates. The resulting directory
tree is displayed in Figure 1.


```
          drive C:
             ¦
        root directory
        ¦          ¦
     MRDS      other directories
```
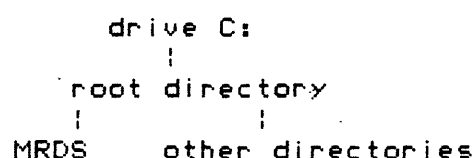

Figure 1.   Directory tree on fixed disk drive

To set up the directory:

Type: MD MRDS   This sets up a directory called MRDS
                         under the root directory.
Type: CD MRDS   This makes MRDS the current directory

Place the Revelation Program disk (not the Utilities disk) in
the floppy drive. Then

Type: COPY A:*.*/v   If the floppy drive is not the
                           "A" drive, then substitute the
                           appropriate letter.

Place the MRDS-REV disk in the floppy drive.
Press: Capslock key
Type: REV SYSPROG
Prompt: REVELATION LOGON MENU
Type: <cr>   This selects the ATTACH option
Prompt: ENTER DRIVE TO ATTACH OR TYPE 'END'?
Type: A
Type: F9   Function key 9 on left-hand side.
Prompt: :
Type: RUN SETUP CM
Prompt: ENTER DRIVE LETTER DESIGNATION FOR FLOPPY DRIVE.
                DEFAULT = A

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```
Type:        <cr>              Type the drive letter for the MRDS-REV
                               floppy disk.
Prompt:      REVELATION LOGON MENU
Type:        F9                Function key 9 on left-hand side.
Prompt:      :
Type:        DELETE-FILE VOC
Prompt:      :
Type:        OFF
Prompt:      C>
Type:        REV SYSPROG
Prompt:      REVELATION LOGON MENU
Type:        <cr>              This selects the 'ATTACH' option.
Prompt:      DRIVE TO ATTACH OR TYPE 'END'?
Type:        A                 Type the drive letter for the MRDS-REV
                               floppy disk.
Prompt:      REVELATION LOGON MENU
Type:        F9                Function key 9 on left hand side.
Prompt:      :
Type:        RUN SETUP M2M
Prompt:      ENTER DRIVE LETTER DESIGNATION FOR FLOPPY DRIVE.
                   DEFAULT = A
Type:        <cr>              Type the drive letter for the MRDS-REV
                               floppy disk.
Prompt:      MRDS-REV MASTER MENU
```

Each time you run MRDS-REV after the above installation for fixed
disk machines, use the following procedure:

Power up the machine and boot normally.
```
Prompt:    C>
Type:      MRDS
Prompt:    MRDS-REV MASTER MENU
```

C) Installation instructions for dual floppy drive machines

Power up the computer with the DOS system disk in drive A. Then

```
Type:      diskcopy a: b:
```

The computer will prompt you to insert the correct disks in the
drives.
Use the above command to make a copy on a blank disk of the
Revelation program disk (not the Utility disk). Label it REV.B.
Use the above command to make a copy on a blank disk of the MRDS-
REV disk supplied by the author of this report. Label it
MRDS.DATA1.

Place the DOS system disk you booted with in drive B.
Take a blank disk, label it REV.BOOT and place it in drive A.

```
Type:      b:format a:/s
```

Place the MRDS.DATA1 disk in drive B.

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```
Type:       copy b:autoexec.bat
Type:       copy b:capslock.com
Type:       copy b:keybuff.exe

Place the REV.B disk in drive B.

Type:       copy b:rev.exe
Type:       del b:rev.exe
Type:       Ctrl-Alt-Del        Depress the three keys simultaneously.
Type:       SYSPROG
Prompt:     :
Type:       DELETE-FILE CUSTOMERS
Prompt:     Are you sure? (Y/N)
Type:       Y
Prompt:     :
Type:       DELETE-FILE CUST.STATUS
Prompt:     Are you sure? (Y/N)
Type:       Y
Prompt:     :
Type:       CREATE-ACCOUNT MRDS
Prompt:     PASSWORD:
Type:       <cr>        Press "RETURN" or enter a password.  If a
                        password is entered at this prompt, it must be
                        entered at every subsequent login to MRDS-REV.
Prompt:     :
Type:       LOGTO MRDS
Prompt:     :
Type:       DELETE-FILE VOC
Prompt:     Are you sure ? (Y/N)
Type:       Y
Prompt:     :
Type:       OFF
Prompt:     B>
Type:       Ctrl-Alt-Del        Press the three keys simultaneously.
Prompt:     YOUR ACCOUNT PLEASE:
Type:       MRDS
Prompt:     Enter Selection ?        This is the MRDS master menu.
```

Each time you run MRDS-REV after the above installation for dual
floppy machines, use the following procedure:

Place the REV.BOOT disk in drive A and the REV.B disk in drive B.
Power up the machine or warm boot by pressing Ctrl-Alt-Del
simultaneously.

Prompt: YOUR ACCOUNT PLEASE:

Remove the REV.BOOT disk from drive A and substitute the
MRDS.DATA1 disk.

```
Type:      MRDS
Prompt:    MRDS-REV MASTER MENU
```

IV.   Entering and editing deposit records

The following menu appears after booting MRDS-REV:

         MRDS-REV MASTER MENU

   1) Enter or edit deposit records
   2) Retrievals and printouts
   3) Transfer records to PC-DOS or mainframe MRDS
   4) REVELATION command level
   5) PC-DOS command level. (type "EXIT" to return to REVELATION)
   6) End session

Select #1 above by pressing the "Enter" key. The following
menu appears:

         DATA ENTRY MENU

   1. Record ID   (RECORD NUMBER to SYNONYMS)   '
   2. Location   (MINING DISTRICT to LONGITUDE)
   3. Location (cont.) (ACC to LOCATION COMMENTS)
   4. Commodities   (COMMODITIES PRESENT to PROD)
   5. Explotation or Development + Description of Deposit
   6. Description of Deposit and Workings   (DEP SIZE to COMMENTS)
   7. Geology   (to ALTERATION)
   8. Geology (cont.) (CONC/ENRICHMENT to COMMENTS)
   9. General Comments
  10. References
  11. Production
  12. Reseves and Resources

     The MRDS Site Form is split into the above 12 screens for
data entry and editing. Select screens from this menu with the
up and down cursor arrows on the right hand key-pad. The right
and left arrows will not work.
     Once a screen has been selected, use the up and down arrow
keys to change fields and the right and left arrow keys to move
within a field. The "HOME" and "END" keys move to the beginning
or end of a field. Use the "Ins" and "Del" keys to insert and
delete data in a field.

When a screen is complete, a prompt appears at the bottom of the
screen for the number of the field to be edited. The up and down
cursor movement keys are not operational at this time on an
existing record. Once the field number is entered, the user may
be prompted for a multi-value number to edit. The following
fields are currently set up as multi-value fields:

     ANNUAL PRODUCTION
     CUMULATIVE PRODUCTION
     RESERVES AND POTENTIAL RESOURCES

RESERVES
POTENTIAL RESOURCES
FORMATION NAME
FORMATION AGE
IGNEOUS FORMATION NAME
IGNEOUS FORMATION AGE

If the data in all the fields has been entered correctly, press "RETURN". The screen is automatically saved on disk, an input screen with blank fields appears, ready for the next record number. If there are no more records to enter, type "END".

Many fields are checked against data validation lists on entry. For instance, it is impossible to enter an incorrect state code in MRDS-REV. Also, several fields are mandatory and must be filled in before proceeding with the rest of the record. A help message about the required information or validation lists can be displayed by typing a "?". Further information can be obtained from the MRDS Instructions for Reporters Manual.

The fields and descriptions are identical with those in the MRDS Instructions for Reporters, except in the following cases:

1) The first field on each screen is the MRDS-REV record number. This number is mandatory in the MRDS-REV system but is not transfered to the MRDS mainframe file. Consequently, the user may wish to enter the same number in field #4, DEPOSIT NUMBER, so records can be cross-referenced when transfered to the main file in Reston.
2) The fields under ACCURACY, (ACC and EST) are combined in MRDS-REV. If the location is known accurately, enter "ACC". If not, enter "EST " and any comments that apply.
3) The fields PROD, YES, SML, MED, LGE, UND and NO have been combined into a single field called PRODUCTION. Enter Y, S, M, L, U, or N.
4) The fields SURFACE, UNDERGROUND and BOTH are combined into WORKINGS DESCRIPTION. Enter S, U or B.
5) The following fields have been deleted:
     SECOND FORMATION NAME
     SECOND FORMATION AGE
     SECOND IGNEOUS UNIT NAME
     SECOND IGNEOUS UNIT AGE
The data can be entered in the appropriate multi-value field: FORMATION NAME, FORMATION AGE, etc.

V.   The MRDS-REV retrieval program

A) Rationale for developing the retrieval program

        The retrieval program developed by the author serves as an
interface between Revelation command language and the user.
There are several reasons the author developed the retrieval
program:

1) The Revelation data base manager program is a complex system
owing to its mini-computer heritage. It has an extensive list of
commands and capabilities. The manual, consisting of three
volumes plus several smaller booklets; may be more than the
average user wishes to read. Although Revelation has a tutorial
for a business application, the user would have to spend several
hours translating the general capabilities and features of
Revelation to MRDS-REV tasks. Consequently, a completely menu-
driven environment was developed which prompts the user with
alternative actions rather than requiring him to remember a
specific command sequence.

2)   The retrieval program helps the user create complicated
retrievals and printout commands. Retrieval conditions connected
with OR relations need not appear on the same line as in
retrievals from Revelation command level. Retrieval and display
commands can be saved, recalled and re-executed at a later time.
This is particularly valuable for routine reports with complex
systems such as MRDS-REV which contains 147 fields per record.
MRDS users commonly retreive records for 10 or 12 different
commodities.

3)   Revelation's report capabilites are oriented towards <u>column</u>
type listings. However, column widths cannot be changed at run
time. The author's retrieval program allows such changes.
        MRDS personnel make frequent use of another type of report
format in which each field is placed on a separate line.
However, the Revelation report generator cannot be instructed to
skip blank fields when printing line reports. Blank lines are
particularly undesirable for sparse data matrices as is the case
for some MRDS records. The author's retrieval program skips
blank fields.

4) Revelation has no simple provision for copying selected fields
and records to a PC-DOS file for plotting, statistical work or
interfacing with other data base systems. The Revelation COPY
DOS command does not operate from a SELECT list so each record
must be specified by record number. Furthermore, the COPY DOS
command sends only complete records to a file, not selected
fields. They are written in line as opposed to column format.
Rather than force the user to write a computer program every time
the need for a DOS file arises, the author has incorporated this
feature in the retrieval program.

B) Retrieval program description and operating instructions

Select item #2 on the MRDS-REV master menu. The retrieval program is divided into 3 main steps:

RETRIEVAL => SORT => OUTPUT

The program guides the user through the following sequence:

1) Type of retrieval:
    a) create a new retrieval or
    b) re-execute a set of retrieval commands saved
       in an previous session.

A complete retrieval and output sequence can be recalled from a previous session or created and edited in the Revelation editor and submitted to the retrieval program. See Appendix A for the file format. If the re-execute option is selected, all of the following steps are skipped.

2) Select a file to conduct retrievals on.
3) Choose one of three methods to extract records:
    a) select all records;
    b) select records by record number only or
    c) select records based on the contents of any field(s)
       in the record, i.e. "STATE EQ VA". These commands
       can be selected from menus if desired.
4) Execute the retrieval and display the number of records in the resulting sub-file.
5) Edit or append the current retrieval command or a past command, and re-execute it against the current sub-file or select from previous sub-files.
6) Sort the currently active sub-file against any field(s) in MRDS-REV.
7) Select from several report types:
    a) default fields column listing: (deposit number, site name, state, lat, long, commodities);
    b) user selected fields column listing or
    c) line listing of entire record.
8) Select output device:
    a) display on screen;
    b) printer or
    c) PC-DOS file.
9) After viewing results, change the sort criteria, report type or output device and re-execute.
10) Save the current retrieval commands for execution in a later session.

The retrieval program consists of over 1000 lines of modular Revelation Basic code, which is easily modified for special applications.

VI. Running retrievals at command level

MRDS-REV can also be operated from Revelation terminal command level (TCL). Revelation has four retrieval commands but the MRDS user need only concern himself with two:

    SELECT
    LIST

SELECT is the best choice for the first command because it allows the user to iterate (re-select) on the resulting sub-file. The general form of the command is:

SELECT (filename) (connector) (field (operator) (comparison
                                     name)   value)

There are two connectors:

    WITH
    WITHOUT

The complete list of operators follows:

EQ NE   equals, not equal to
GT LT   greater than, less than
GE LE   greater than or equal to, less than or equal to
[]   containing
]   starts with
[ends with

For example:

Prompt: :
Type: SELECT MRDS WITH STATE EQ "VA"
Prompt: >

Notice the prompt changes to ">" when a select list is active. Another condition can be logically connected with an "AND" to the first one by typing:

Type: SELECT MRDS WITH COUNTY EQ "RAPPAHANNOCK"

If the second condition is to be conected by an "OR" with the first, they would have to be typed on the same line because select lists cannot be added together. For example:

    :SELECT MRDS WITH STATE EQ "VA" OR WITH STATE EQ "MD"

This is equivalent to:

    SELECT MRDS WITH STATE EQ "VA" "MD"

The "OR" is implied between "VA" and "MD". There is no hierarchy
of execution for logical connectors. Revelation evaluates the
command strictly from left to right. Parentheses are not
allowed. For instance, the following command would give
erroneous results:

        :SELECT MRDS WITH STATE EQ "VA" AND WITH COUNTY EQ
            "RAPPAHANNOCK" OR WITH COUNTY EQ "FAUQUIER"

The above command retrieves all records with VA and RAPPAHANNOCK
first, then looks in the same subset for FAUQUIER and finds no
entries. Fortunately, there is an easy solution to this
particular problem:

        :SELECT MRDS WITH STATE EQ "VA" AND COUNTY EQ "RAPPAHANNOCK" "FAUQUIER'

The OR is implied between the two counties. This is a one line
retrieval. Alternatively, type:

        :SELECT MRDS WITH STATE EQ "VA"
        >SELECT MRDS WITH COUNTY "RAPPAHANNOCK" "FAUQUIER"

This is a two step process and may be easier for most users to
type in. Occasionally, the solution may not be so easy. Logic
such as

        (a and b) or (c and d)

is impossible in Revelation release G. Future releases may
correct this problem. For example, in retrieving two types of
bi-metallic ore deposits, those containing both Pb and Zn or both
Sn and W, two separate lists would result:

        :SELECT MRDS WITH COMMOD [] "ZN" AND WITH COMMOD [] "PB"
        >LIST MRDS BY SITE.NAME (P)
        :SELECT MRDS WITH COMMOD [] "SN" AND WITH COMMOD [] "W"
        >LIST MRDS BY SITE.NAME (P)

The operator, [] means "containing". It is used very often in
MRDS-REV because the value ZN can appear anywhere in the COMMOD
field. When selecting the contents of numeric fields, the quotes
are unnecessary.

        :LIST MRDS WITH NUM EQ 67 70 82 (P)

This command selects record numbers 67, 70 and 82

The (P) parameter directs output to the printer as opposed to the
screen.

The BY connector tells it to sort by the following field(s).

Notice the LIST command terminates retrievals from the active
select list. Use LIST last for sorting and printing. The
format of the resulting list is columnar. If no fields are

specified in the list command, the displayed fields defaults to:

DEPOSIT.NUMBER   SITE.NAME   STATE   LATITUDE   LONGITUDE   COMMODITY

To list fields other than the default fields, type the
dictionary names from Appendix B of this paper.

>LIST MRDS DEP.TYPE HR.AGE QUAD1 etc

The column widths default to the value set in the MRDS-REV
dictionary. Use the author's retrieval program (Section V., this
paper) or the FORM command (see below) to change the display
length of fields in listings and prinouts.

The Dot Processor

A very useful feature of Revelation is the ".L" command. It
lists the last 9 commands the user has issued. Any one of the
9 commands can be retrieved for edititng and re-execution with
".Xn" where "n" is the command number.

The FORM command

Revelation's report generator, the FORM command, requires using
the Revelation TEXT editor. TEXT is screen orientated and uses
the convenient PC arrow keys to move the cursor on the screen.
However, casual users may find the commands difficult to learn.
The author has avoided FORM for another reason. It cannot be
instructed to skip blank fields in a record.

VII. Transfering records between MRDS-GIPSY and MRDS-REV

        MRDS has operated on an Amdahl mainframe using the GIPSY
data base manager program since 1972. This author has written
conversion programs that accept GIPSY data in CONVERT format as
input and produce GIPSY data in BUILD format as output.
Conversion programs between GIPSY and Revelation are necessary
for the following reasons:

        1) The Revelation COPY command produces only one record at a
time .in PC-DOS format.
        2) Some of the fields differ between MRDS-GIPSY and MRDS-
REV, as outlined in Section IV, this paper. The author's programs
convert the fields in the most logical possible way. However,
with ambiguous data, they display the converted data and ask if
the user wishes to change the results.
        3) The two data bases store data in different formats and
the dictionaries are sorted in different orders.
        4) The field names differ from MRDS-GIPSY to MRDS-REV.

To convert from MRDS-GIPSY to MRDS-REV use the following
procedure:

        1) Have your MRDS representative prepare a GIPSY CONVERT
file using dictionary VG9225M.CVD01.DATA.
        2) Instruct him to download it to a DOS file on floppy disk.
If you have a modem you can download it directly to your machine.
Ask your MRDS representative for details.
        3) Boot MRDS-REV and select item #3 on the master menu. You
will be prompted for the necessary file names and record numbers.

To convert from MRDS-REV to MRDS-GIPSY use the following
procedure:

        1) Boot with a PC-DOS system disk. Then type

        FORMAT A: Place a blank disk in floppy drive A and
                           press "RETURN". Make sure you are not
                           formatting your fixed disk.

        2) Run MRDS-REV. Select item #3 on the MRDS-REV master menu.
        3) When the program prompts you for the output file name,
specify the floppy drive in front of the name, i.e. "A:filename".
        4) Send the floppy disk to your MRDS representative who will
add MRDS record numbers and use the GIPSY BUILD program to
install the records in the main file.

VIII. Creating and moving files

          Revelation uses a seperate, non-PC-DOS file system and
directory.   Each disk must be given a MEDIA NAME to establish
a directory and each drive must be ATTACHED in order for its
files to be accessible. In addition, files must be CREATED
before data can be copied to them.
          A single Revelation data file may consist of many DOS files.
These files are visible as separate DOS files under a DOS
DIRectory command but are combined in the Revelation directory
listing which is evoked by the LISTMEDIA command. A Revelation
data file contains both data and dictionary. COPY moves the data
record(s) or the dictionary. MOVE moves both at once but only
the entire file. MOVE cannot put records into an existing file.
The old file must be deleted first.

A) Copying files to floppy disk with the same account name.

1) Boot MRDS-REV normally.   '
2) Put a formated disk in the floppy drive.
3) Go to Revelation command level by selecting item #4 on the
master menu.

Type: NAMEMEDIA A DATA1   This command establishes a
                                            disk named DATA1
Prompt: :
Type: CREATE-FILE MRDS1 A   Creates a file named MRDS1.
                                            Maximum intended size is 64K bytes.

or

             CREATE-FILE MRDS1 1 64000   Creates file MRDS1.
                  Maximum expected file size is 128K bytes. Type
                  "2 64000" for 192K bytes, etc. MRDS-REV records
                  average 2K bytes each.

Prompt: :
Type: COPY DICT MRDS
Prompt: TO:
Type: (MRDS1
Prompt: :
Type: COPY MRDS 3 5   Copies record number 3 and 5 in
                                            file MRDS to MRDS1
Prompt: TO:
Type: (MRDS1

or

             COPY MRDS *   Copies all the records in file MRDS.

This disk can be transported to any similar machine with MRDS-REV

with the following procedure:

1) Boot MRDS-REV normally.
2) Put the source disk in the floppy drive.
3) Go to Revelation command level by selecting item #4 on the master menu.

```
Type:      ATTACH A
Prompt:    :
Type:      COPY MRDS1 3 5
Prompt:    TO:
Type:      (MRDS 46 47        Copies records 3 and 5 to records
                              46 and 47 on the destination machine.
```

or

```
Type:      COPY MRDS1 3 5 (O)
Prompt:    TO:
Type:      (MRDS              To overlay the existing records 3
                             and 5 on the destination machine.
```

B) Copying files on dual floppy machines

Dual floppy disk machine owners must use a multi-step procedure to move files from floppy to floppy, unless there is enough room on drive B for the file. If so, the MOVE command can be used to transfer the file from A to B then back to a new disk placed in A. Otherwise, follow the procedure below.

1) Boot MRDS-REV normally. Go to Revelation command level.
2) Place a formated, bootable destination disk in drive A.

```
Prompt:    :
Type:      NAMEMEDIA A     Type this only if the disk does not already
                          have a ROSMEDIA.MAP file on it.
Prompt:    :
Type:      PC
Prompt:    B>
Type:      TYPE A:ROSMEDIA.MAP       Write down the numeric
                          portion of the first file name in the directory.
                          The file names all start with ROS. This is the
                          next file number used on a Revelation CREATE-FILE
                          command.
Prompt:    B>
Type:      EXIT
Prompt:    :                  Put the source disk back in drive A.
Type:      LISTMEDIA A        Write down the ROS number of the
                             file to be transfered.
Prompt:    :
Type:      PC
Prompt:    B>                 Put destination disk in drive B.
Type:      COPY A:ROSxxxxxx.* B:ROSyyyyyy.*/V   where "xxxxxx" is
                             the source number and "yyyyyy" is the destination
                             number.
```

```
Prompt:   B>
Type:     EXIT
Prompt:   :          Put destination disk in A, MRDS-REV.B back in B.
Type:     CREATE-FILE filename A
Prompt:   :
Type:     ATTACH A
```

C) Copying files between accounts with different names

    The MOVE command must be used to copy between different
accounts. Only whole files can be moved. However, the copy
command can be used first to create a sub-file of the source
file.

The general form of the move command is:

    MOVE account file drive TO: account file drive

The command seems to work best when all the parameters are
specified. Accepting default parameters sometimes causes it to
fail.

    MOVE MRDS MRDS C TO: CMRDS MRDS A

This command moves file MRDS in account MRDS on drive C to
account CMRDS on drive A.

IX. Programming in Revelation Basic

Revelation contains an interface language called R/BASIC.
It is called BASIC because of its many string functions.
However, it also has many of the structures of a higher level
language such as Pascal. In addition, there are some unique
features found in few other languages. Arrays are called
matrices but find little use compared to dynamic string arrays
which are really the core of the power of Revelation. Dynamic
string arrays are three dimensional arrays, up to 65K bytes each,
requiring no dimension statements. Revelation has a multitude of
string function commands tailored to these arrays as well as
simple strings. They make many programming tasks easier,
especially interfacing with data files, but most users would do
well to read the following tips before writing code in R/BASIC.

1) Initialize all dynamic string arrays to '' (null string) to
avoid an error message when putting data in them.

    STR = ''

2) Setting a dynamic string array's 0'th member equal to anything
will erase the entire array.

3) C := CHAR(X)   appends fields to the array "C" according to
the following rules:
    a)   if X = 252, 253, 254 it adds another sub-value, value or
         field mark.
    b)   if X = any other number, it appends a field mark,
         CHAR(254), plus that character.

4) The number of sub-values, values or fields is always one more
than the COUNT function returns.

Some considerations with other R/BASIC statements follow:

1) PERFORM executes all the TCL commands such as LIST, COPY,
etc. except ".Xn", the DOT PROCESSOR command that re-executes an
old command. It executes the command but does not return to the
calling program. Use a dynamic string array to store commands in
a program.

2) There is no provision for restricting variables to string,
integer or real. Also, there is no floating point or double
precision. The fixed decimal precision displays F19.4 but this
author has not determined what precision is stored. Microsoft
BASIC double precision is 17 digits.

Converting values from string to numeric is possible but all
leading or trailing blanks must be stripped. Convert the blanks
to sub-value marks or use the TRIM function. Also, read the page
on "Null and Zero" in the R/BASIC Section for the rules about
zeroed variables.

3) The CONVERT command operates on dynamic string arrays but array elements cannot be specified in the CONVERT command. For instance,

        CONVERT 'ab cd' TO C<1,1> IN D<X>

is illegal because of the arguments in the <>. Instead type

        C1 = C<1,1>
        D1 = D<X>
        CONVERT 'ab cd' TO C1 IN D1
        D<X> = D1

If C = 'abcd' then
                CONVERT 'bc' TO 'x' IN C   yields   C = 'axd'.
                CONVERT 'yc' TO 'x' in C   yields   C = 'abd'
                CONVERT 'cy' TO 'x' IN C   yields   C = 'abxd'
                CONVERT 'c' to 'xx' in C   yields   C = 'abxd'

CONVERT cannot insert more than is removed. Instead, use

        Z=INDEX(C,'c')
        C = C[1,Z-1]:'xx':C[Z+1,65000]

The manual's program example in Technical Reference, Appendix VI, (COSMOS, 1985), for converting files from DOS to Revelation cannot be used for Revelation to DOS. See the author's conversion programs in Appendix C, part 2 of this paper for alternative methods. Also, there is a mistake in line 7. It should read:

        OPEN '', 'REV.FILE' TO FILE.VISI ELSE STOP

4) The @RECCOUNT variable, Technical Reference, Appendix IX (COSMOS, 1985), does not work. Use a loop with READNEXT @ID and a counter against a select list instead. See author's retrieval program, Appendix C, part 1 of this paper, subroutine RETR:.

5) The @RECORD<n> convention works for all field numbers n > 0. Use @ID to retrieve the 0'th field. If n = '', the entire record is returned. This is equivalent to simply @RECORD.

X. Reference

1) COSMOS, Inc., 1985, Revelation users manuals, ELF Software Distributors, Inc., P.O. Box 1237, Longview, WA, 98632.

Appendix A. Retrieval program command file structure

The author's retrieval program is capable of saving each
session's commands in a file called RETRIEVALS. Since the
command file is a Revelation text file, it can be edited in the
line or text editor. Alternatively, the entire command file can
originate in the editor in the following format:

General form:

        filename
        retrieval conditions
        output device
              crt screen - type nothing, no blank line
              printer   - type PRINTER
              PC-DOS file - type DOS
        DOS file name (optional)
        listing type
              default column listing - type DEFAULT
              selected colunms   - type COLUMNS
              line listing   - type LINES
        fields to be listed

Example:

        MRDS
        WITH
        COMMOD [] 'PB' 'ZN' 'CU'
        AND WITH
        STATE
        EQ 'VA'
        DOS FILE
        FILEX
        LIST
        COLUMNS
        SITE.NAME 30
        LAT 9
        LONG 10
        STATE 2
        DEP.TYPE 20
        HR.TYPE 20

Appendix B. MRDS-REV field name dictionary

N.. FIELD.CODE.. DESCRIPTION......................................

```
 1 NUM          REVELATION RECORD NUMBER
 2 REC.NUM      MRDS RECORD NUMBER
 3 REC.TYP      RECORD TYPE
 4 DEP.NUM      DEPOSIT NUMBER
 5 REP.DATE     REPORT DATE
 6 INFO.SRC     INFORMATION SOURCE
 7 FIL.LINK     FILE LINK ID
 8 REP          REPORTER
 9 REP.AFF      REPORTER AFFILIATION
10 SITE.NAME    SITE NAME
11 SYN          SYNONYM NAME
12 DIST         MINING DISTRICT
13 COUNTY       COUNTY
14 STATE        STATE
15 COUNTRY      COUNTRY
16 PHYS         PHYSIOGRAPHIC PROVINCE
17 DRAIN        DRAINAGE AREA
18 LAND.ST      LAND STATUS
19 QUAD1        QUADRANGLE NAME
20 Q1.SCALE     QUADRANGLE SCALE
21 QUAD2        SECOND QUADRANGLE NAME
22 Q2.SCALE     SECOND QUAD SCALE
23 ELEV         ELEVATION
24 UTM.N        UTM NORTHING
25 UTM.E        UTM EASTING
26 UTM.Z        UTM ZONE NUMBER
27 ACC          ACCUARCY OF LOCATION
28 LAT          LATITUDE
29 LONG         LONGITUDE
30 TOWNSHIP     TOWNSHIP
31 SECTION      SECTION
32 RANGE        RANGE
33 SECT.FRACT   SECT.FRACT
34 MERIDIAN     MERIDIAN
35 POS          POSITION FROM NEAREST LOCALITY
36 LOCATION     LOCATION COMMENTS
37 COMMOD       COMMODITIES PRESENT
38 ORE.MAT      ORE MATERIALS
39 COM.SUB      COMMODITY SUBTYPES
40 GEN.ANAL     GENERAL ANALYTICAL DATA
41 COM.INFO     COMMODITY INFO COMMENTS
42 MAJOR        MAJOR COMMODITITS
43 MINOR        MINOR COMMODITIES
44 POTEN        POTENTIAL COMMODITIES
45 OCCUR        OCCURRENCES COMMODITIES
46 NP.MAIN      MAIN NON-PRODUCER
47 NP.MINOR     MINOR NON-PRODUCER
48 PROD         PRODUCTION
49 STATUS       STATUS AND ACTIVITY
50 DISC         DISCOVERER
51 YR.DISC      YEAR OF DISCOVERY
52 NAT.DISC     NATURE OF DISCOVERY
53 YR.1ST.PROD  YEAR OF FIRST PRODUCTION
54 YR.LAST.PROD YEAR OF LAST PRODUCTION
55 OWNER        OWNER
56 OPER         OPERATOR
57 EXPL.COM     EXPLORATION COMMENTS
58 DEP.TYPE     DEPOSIT TYPE
59 DEP.FORM     DEPOSIT FORM
60 DEPTH.TOP    DEPTH TO TOP OF DEPOSIT
```

```
 61 DEP.T.U       UNITS
 62 DEPTH.BOT     DEPTH TO BOTTOM OF DEPOSIT
 63 DEP.B.U       UNITS
 64 MAX.LEN       MAXIMUM LENGTH OF DEPOSTI
 65 M.L.U         UNITS
 66 MAX.WID       MAXIMUM WIDTH OF DEPOSIT
 67 M.W.U         UNITS
 68 MAX.THICK     MAXIMUM THICKNESS OF DEPOSIT
 69 M.T. U        UNITS
 70 DEP.SIZE      DEPOSIT SIZE
 71 STRIKE
 72 DIP
 73 PLUNGE.DIR    PLUNGE DIRECTION
 74 PLUNGE
 75 DEP.DESC.COM  DEPOSIT DESCRIPTION COMMENTS
 76 DESC.WORK     WORKINGS ARE (SURFACE UNDERGROUND BOTH)
 77 DEPTH.WK      DEPTH OF WORKINGS
 78 D.WK.U        UNITS
 79 LEN.WK        LENGTH OF WORKINGS
 80 L.WK.U        UNITS
 81 OV.LEN.WK     OVERALL LENGTH
 82 O.L.U         UNITS
 83 OV.WID.WK     OVERALL WIDTH
 84 O.W.U         UNITS
 85 OV.AREA.WK    OVERALL AREA
 86 O.A.U         UNITS
 87 DESC.WORK.CO  DESCRIPTION OF WORKINGS COMMENTS
 88 HR.AGE        HOST ROCK AGE
 89 HR.TYPE       HOST ROCK TYPE
 90 IG.AGE        IGNEOUS ROCK AGE
 91 IG.TYPE       IGNEOUS ROCK TYPE
 92 MIN.AGE       AGE OF MINERALIZATION
 93 NON.ORE.MINS  PERTINENT MINERALOGY (NON ORE)
 94 ORE.CNTL      ORE CONTROL/LOCUS
 95 REG.STRUCT    MAJOR REGIONAL TRENDS OR STRUCTURE
 96 TECT.SET      TECTONIC SETTING
 97 LOCAL.STRUCT  SIGNIFICANT LOCAL STRUCTURE
 98 ALTER         SIGNIFICANT ALTERATION
 99 CONC          PROCESS OF CONCENTRATION OR ENRICHMENT
100 FORM.AGE      FORMATION AGE
101 FORM.NAME     FORMATION NAME
102 IG.UNIT.AGE   IGNEOUS UNIT AGE
103 IG.UNIT.NAME  IGNEOUS UNIT NAME
104 GEOL.COM      GEOLOGY COMMENTS
105 GEN.COM       GENERAL COMMENTS
106 RF1           REFERENCE 1
107 RF2           REFERENCE 2
108 RF3           REFERENCE 3
109 RF4           REFERENCE 4
110 AP.ITEM       ANNUAL PRODUCTION ITEM  (type of ore, metal, conc.)
111 AP.ACC        ACCURACY OF AMOUNT
112 AP.AMT        AMOUNT OF PRODUCTION
113 AP.U          UNITS  (tons, ounces, etc.)
114 AP.YEAR       YEAR OF PRODUCTION
115 AP.GRADE      GRADE OF ITEM
116 CP.ITEM       CUMULATIVE PRODUCTION  (type of ore, metal, conc.)
117 CP.ACC        ACCURACY OF AMOUNT
118 CP.AMT        AMOUNT OF PRODUCTION
119 CP.U          UNITS
120 CP.YEAR       YEARS OF PRODUCTION
```

```
121 CP.GRADE      GRADE OF ITEM
122 P.COM         PRODUCTION COMMENTS
123 P.SOURCE      PRODUCTION SOURCE OF INFORMATION
124 RPR.ITEM      RESERVES AND RESOURCES ITEM  (type of ore, metal, etc)
125 RPR.ACC       ACCURACY OF AMOUNT
126 RPR.AMT       AMOUNT OF RESERVES AND RESOURCES
127 RPR.U         UNITS  (tons, ounces, etc.)
128 RPR.YEAR      YEAR OF ASSESSMENT
129 RPR.GRADE     GRADE OF ITEM
130 RPR.COM       RESERVES AND RESOURCES COMMENTS
131 RPR.SOURCE    RESERVES AND RESOURCES SOURCE OF INFORMATION
132 R.ITEM        RESERVES ITEM  (type of ore, metal, etc)
133 R.ACC         ACCURACY OF AMOUNT
134 R.AMT         AMOUNT OF RESERVES
135 R.U           UNITS
136 R.YEAR        YEARS OF ASSESEMENT
137 R.GRADE       GRADE OF ITEM
138 R.COM         RESERVES COMMENTS
139 R.SOURCE      RESERVES SOURCE OF INFORMATION
140 PR.ITEM       POTENTIAL RESOURCES ITEM  (type of ore, metal, etc)
141 PR.ACC        ACCURACY OF AMOUNT
142 PR.AMT        AMOUNT OF POTENTIAL RESOURCES
143 PR.U          UNITS  (tons, ounces, etc.)
144 PR.YEAR       YEAR OF ASSESSMENT
145 PR.GRADE      GRADE OF ITEM
146 PR.COM        POTENTIAL RESOURCES COMMENTS
147 PR.SOURCE     POTENTIAL RESOURCES SOURCE OF INFORMATION

147 Records Processed
```

```
0001          GOSUB SETUP
0002   REFILE:
0003          GOSUB RUN.RERUN
0004          GOSUB SET.RET.TYPE
0005          GOSUB ITERATE
0006   RESORT:
0007          GOSUB SORT
0008   REPRINT:
0009          GOSUB OUTPUT
0010   RELIST:
0011          GOSUB TERMINUS
0012          BEGIN CASE
0013          CASE A18=1; GOTO RESORT
0014          CASE A18=2; GOTO REPRINT
0015          CASE A18=3; GOTO REFILE
0016          CASE A18=4
0017             GOSUB SAVE.RET
0018             GOSUB WRITE.RET
0019             GOTO RELIST
0020          CASE A18=5
0021             GOTO EOP
0022          CASE 1; PRINT BEL; GOTO RELIST
0023          END CASE
0024          *
0025   SETUP:
0026          DIM FORMAT(200)
0027          DIM FLD(200)
0028          PROMPT ''
0029          BEEP=CHAR(7)
0030          CR=CHAR(13)
0031          LF=CHAR(10)
0032          FM=CHAR(254)
0033          VM=CHAR(253)
0034          SM=CHAR(252)
0035          LN=0
0036          CM=''
0037          CM1=''
0038          CO=''
0039          O.DEVICE=''
0040          LIST=''
0041          OUT=''
0042          OPEN '', 'LISTS' TO L.V ELSE
0043             PERFORM 'CREATE-FILE LISTS'
0044             RETURN
0045          END
0046          PERFORM 'CLEAR-FILE LISTS'
0047          @LPTRWIDE=80
0048          RETURN
0049          *
0050   RET.REV.NO:
0051          *ERFORM "SORT ';REV.FILE
0052          GOSUB START.CO
0053          PRINT
0054          CO<2> = 'WITH NUM GE ?"STARTING NUMBER"? AND WITH NUM LE
               - - >  ?"ENDING NUMBER"?'
0055          GOSUB RETR
0056          RETURN
0057          *
0058   OUTPUT:
0059          PRINT @(-1),@(-2)
0060          PRINT
0061          PRINT 'CHOOSE OUTPUT FORMAT';PRINT
```

```
0062              PRINT;PRINT '      1) COLUMNS  (ONE FIELD PER COLUMN)'
0063              PRINT;PRINT '      2) LINES    (ONE FIELD PER LINE, ENTIRE
                  - - >  RECORD)'
0064              PRINT;PRINT '      3) NO OUTPUT DESIRED FOR THIS FILE'
0065              PRINT;PRINT 'ENTER "1", "2" OR "3":   ':
0066              INPUT ANS
0067              BEGIN CASE
0068              CASE ANS=1
0069                 GOSUB SFIELD.COLS
0070              CASE ANS=2
0071                 GOSUB LIST.LINES.ALL
0072              CASE ANS=3
0073              CASE 1; GOTO OUTPUT
0074              END CASE
0075              PRINTER OFF
0076              RETURN
0077              *
0078  RET.ANY:
0079              GOSUB START.CO
0080              GOSUB COMD.BUILD
0081              GOSUB COMD.BUILD1
0082              IF A3='P' THEN GOTO COMD.HELP
0083              CO<2>=A3
0084              GOSUB RETR
0085              RETURN
0086              *
0087  COMD.BUILD:
0088              PRINT @(-1),@(-2)
0089              PRINT 'THE GENERAL FORM OF RETRIEVAL COMMANDS IS AS FOLLOWS:'
0090              PRINT
0091              PRINT '   SELECT   MRDS   "connector"  "field name"  "operator"
                  - - >  "comparison value"'
0092              PRINT
0093              PRINT 'HERE ARE SOME EXAMPLES:'
0094              PRINT
0095              PRINT '   SELECT   MRDS    WITH        STATE       EQ
                  - - >  "VA"'
0096              PRINT '   SELECT   MRDS    WITH        COMMOD      [ ]
                  - - >  "PB"'
0097              PRINT '   SELECT   MRDS    WITH        LAT         GE
                  - - >  "22-22-22W"'
0098              PRINT '   SELECT   MRDS    WITHOUT     LONG        ]
                  - - >  086'
0099              PRINT '   SELECT   MRDS   1 3 22'
0100              PRINT
0101              PRINT
0102              RETURN
0103              *
0104  COMD.BUILD1:
0105              PRINT 'PLEASE FINISH TYPING THE FOLLOWING COMMAND OR TYPE "P" TO
                  - - >  BE PROMPTED:'
0106              PRINT
0107              PRINT CO<1>:'
0108              INPUT A3
0109              RETURN
0110              *
0111  COMD.HELP:
0112  SUBCOM.AGAIN:
0113              SUBN=SUBN+1
0114              GOSUB COMD.BUILD
0115              GOSUB CURRENT
0116              PRINT
```

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```
0117          PRINT 'CHOOSE A CONNECTOR:'
0118          PRINT
0119          PRINT '      1) WITHOUT'
0120          PRINT
0121          PRINT '      2) WITH'
0122          PRINT
0123          PRINT 'ENTER 1 OR 2:
0124          INPUT A6
0125          BEGIN CASE
0126          CASE A6=1 OR A6='WITHOUT'; CO<SUBN>='WITHOUT'
0127          CASE A6=2 OR A6='WITH' OR A6=''; CO<SUBN>='WITH'
0128          CASE 1; GOTO COMD.HELP
0129          END CASE
0130          SUBN=SUBN+1
0131  FIELD.AGAIN:
0132          GOSUB COMD.HELP1
0133          BEGIN CASE
0134          CASE A7=''
0135             PERFORM 'CLEAR'
0136             PERFORM 'LIST FIELD.DESC ID-SUPP'
0137             GOTO FIELD.AGAIN
0138          .CASE 1
0139             CO<SUBN>=A7
0140          END CASE
0141          GOSUB COMD.HELP2
0142          GOSUB COMD.HELP3
0143          GOSUB COMD.HELP4
0144  HELP4.AGAIN:
0145          BEGIN CASE
0146          CASE A16=''
0147             GOSUB RETR
0148             RETURN
0149          CASE A16=1 OR A16='AND'
0150             SUBN=SUBN+1
0151             CO<SUBN>='AND'
0152             GOTO SUBCOM.AGAIN
0153          CASE A16=2 OR A16='OR'
0154             SUBN=SUBN+1
0155             CO<SUBN>='OR'
0156             GOTO SUBCOM.AGAIN
0157          CASE 1
0158             GOTO HELP4.AGAIN:
0159          END CASE
0160          *
0161  COMD.HELP1:
0162          GOSUB COMD.BUILD
0163          GOSUB CURRENT
0164          PRINT            '
0165          PRINT 'ENTER A DICTIONARY FIELD NAME OR'
0166          PRINT;PRINT 'PRESS "RETURN" TO SEE A LIST OF AVAILABLE FIELD
              - - >  NAMES:  ':
0167          INPUT A7
0168          RETURN
0169          *
0170  COMD.HELP2:
0171          GOSUB COMD.BUILD
0172          GOSUB CURRENT
0173          PRINT
0174          PRINT 'REVELATION OPERATORS          EQ NE'
0175          PRINT '                              GT LT GE LE'
0176          PRINT '                              [] (contains)'
0177          PRINT '                              ] (starts with)'
```

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```
0178          PRINT '                           [  (ends with)'
0179          PRINT;PRINT 'ENTER AN OPERATOR FROM THE ABOVE LIST:
0180          INPUT A8
0181          A7 := ' ':A8
0182          CO<SUBN>=A7
0183          RETURN
0184          *
0185  COMD.HELP3:
0186          GOSUB COMD.BUILD
0187          GOSUB CURRENT
0188          PRINT;PRINT 'ENTER COMPARISON VALUE(S).  QUOTES ARE UNNECESSARY.'
0189          PRINT;PRINT 'PRESS "Esc" TO END ENTRIES:  ':
0190          INPUT A9
0191          IF A9 <> CHAR(27) THEN
0192            A7 := ' ':QUOTE(A9)
0193            CO<SUBN>=A7
0194            GOTO COMD.HELP3
0195          END
0196          RETURN
0197          *
0198  COMD.HELP4:
0199          .GOSUB COMD.BUILD
0200          GOSUB CURRENT
0201          PRINT;PRINT 'ENTER CONNECTOR FOR NEXT SUBCOMMAND'
0202          PRINT;PRINT '     1) AND'
0203          PRINT;PRINT '     2) OR'
0204          PRINT;PRINT 'RETURN) TERMINATE COMMAND'
0205          PRINT;PRINT 'ENTER 1, 2 OR "RETURN":  ':
0206          INPUT A16
0207          RETURN
0208          *
0209  CURRENT:
0210          PRINT 'YOUR CURRENT COMMAND IS:  ':
0211          FOR I=1 TO SUBN
0212            PRINT CO<I>:' ':
0213          NEXT I
0214          PRINT
0215          RETURN
0216          *
0217  SFIELD.COLS:
0218          PRINT @(-1),@(-2)
0219          PRINT
0220          PRINT 'SELECT FIELDS FOR COLUMN LISTING'
0221          PRINT
0222          PRINT;PRINT '     1) DEFAULT LISTING (SITE NAME, COUNTRY, STATE,
          - - >  LAT, LONG, COMMODITY)'
0223          PRINT;PRINT '     2) CHOOSE FROM COMPLETE LIST OF DICTIONARY
          - - >  ITEMS' '
0224          PRINT
0225          PRINT;PRINT 'ENTER 1 OR 2:  ':
0226          INPUT ANS
0227          BEGIN CASE
0228          CASE ANS='' OR ANS=1
0229            GOSUB O.DEVICE
0230            GOSUB DEFAULT
0231          CASE ANS=2
0232            GOSUB MAKE.LIST
0233            GOSUB O.DEVICE
0234            GOSUB COLS.OUT
0235          CASE 1; GOTO SFIELD.COLS
0236          END CASE
0237          RETURN
```

```
0238         *
0239  DEFAULT:
0240         LIST = 'DEFAULT'
0241         IF O.DEVICE = 'DOS FILE' THEN
0242            GOSUB SEL.DOS.FILE
0243            GOSUB DEFAULT.DOS
0244            RETURN
0245         END
0246         CP='LIST ':REV.FILE
0247         IF O.DEVICE = 'PRINTER' THEN CP := ' (P)'
0248         PRINT @(-1),@(-2)
0249         PERFORM 'GET-LIST LIST.S'
0250         PERFORM CP
0251         RETURN
0252         *
0253  DEFAULT.DOS:
0254         PERFORM 'GET-LIST LIST.S'
0255         R=''
0256         LOOP
0257            READNEXT @ID ELSE
0258               WRITE R TO DOS.FILE.V, DOS.FILE
0259               RETURN
0260            END
0261            READ @RECORD FROM REV.FILE.V, @ID ELSE
0262               PRINT;PRINT 'ERROR IN FILE ':REV.FILE
0263               GOSUB PAUSE
0264               RETURN
0265            END
0266            S=SPACE(80)
0267            S[1,4] = @ID 'R#4'
0268            S[7,20]= @RECORD<33> 'L#20'
0269            S[29,2] = @RECORD<12> 'L#2'
0270            S[33,9] = @RECORD<34> 'L#9'
0271            S[44,10] = @RECORD<35> 'L#10'
0272            S[56,24] = @RECORD<38> 'L#24'
0273            R := S[1,79]:CR:LF
0274         REPEAT
0275         *
0276  SEL.DOS.FILE:
0277         PRINT @(-1),@(-2)
0278         PRINT 'ENTER DOS FILE TO WRITE DATA TO.  (DEFAULT = A:MDOS.O):
              - - > ':
0279         INPUT DOS.FILE
0280         IF DOS.FILE = '' THEN DOS.FILE = 'A:MDOS.O'
0281         GOSUB OPEN.DOS
0282         IF DOS.FILE THEN RETURN
0283         GOTO SEL.DOS.FILE
0284         *
0285  OPEN.DOS:
0286         OPEN '', 'DOS' TO DOS.FILE.V ELSE
0287            PRINT BEL;PRINT 'CANNOT OPEN FILE ':DOS.FILE
0288            GOSUB PAUSE
0289            DOS.FILE=''
0290         END
0291         RETURN
0292         *
0293  MAKE.LIST:
0294         LIST = 'COLUMNS'
0295         I=0;NC=0
0296  FIELDS:
0297         PRINT
0298         PRINT 'ENTER "FIELD NAME" AND "LENGTH" IE.   SITE.NAME 25'
```

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```
0299          PRINT '                              LAT 9'
0300          PRINT '                              LONG 10'
0301          PRINT
0302          PRINT 'OR ENTER "." TO SEE DICTIONARY LIST '
0303          PRINT 'OR PRESS "RETURN" TO EDIT OR END ENTRIES'
0304          PRINT
0305          *
0306  ENTER:
0307          PRINT 'ENTER FIELD AND LENGTH:
0308          INPUT ANS
0309          IF ANS = '' THEN GOTO EDIT
0310          BEGIN CASE
0311          CASE ANS = ''
0312            GOTO EDIT
0313          CASE ANS = '.'
0314            PERFORM 'LIST FIELD.DESC ID-SUPP'
0315            GOTO EDIT
0316          CASE 1
0317            I=I+1;NC=I
0318            GOSUB STORE
0319            GOTO ENTER
0320          .END CASE
0321  EDIT:
0322          GOSUB FLIST
0323  ACTION:
0324          PRINT
0325          PRINT 'ENTER A FIELD NUMBER TO CHANGE OR'
0326          PRINT 'PRESS "." TO SEE A LIST OF DICTIONARY LIST'
0327          PRINT 'PRESS "RETURN" TO EXECUTE LIST AS IS:   ':
0328          INPUT A13
0329          BEGIN CASE
0330          CASE NC=0
0331            RETURN
0332          CASE A13='.'
0333            PERFORM 'LIST FIELD.DESC ID-SUPP'
0334          CASE A13=NC+1
0335            GOSUB APPEND1
0336          CASE A13=''
0337            RETURN
0338          CASE A13 > 0 AND A13 <= NC
0339            GOSUB CHANGE1
0340          CASE 1
0341            GOTO EDIT
0342          END CASE
0343          GOTO EDIT
0344          *
0345  APPEND1:
0346          PRINT;PRINT 'ENTER "FIELD NAME" AND "LENGTH":
0347          INPUT ANS
0348          NC=I
0349          GOSUB STORE
0350          GOSUB FIX.LIST
0351          RETURN
0352          *
0353  CHANGE1:
0354          GOSUB FLIST
0355          PRINT
0356          PRINT
0357          PRINT 'ENTER NEW FIELD AND LENGTH'
0358          PRINT;PRINT FLD(A13):'. ':FORMAT(A13)
0359          PRINT
0360          INPUT ANS
```

```
0361            I=A13
0362            GOSUB STORE
0363            GOSUB FIX.LIST
0364            RETURN
0365            *
0366  COLS.OUT:
0367            BEGIN CASE
0368            CASE O.DEVICE=''
0369              GOSUB LIST.COLS
0370            CASE O.DEVICE='PRINTER'
0371              PRINTER ON
0372              GOSUB LIST.COLS
0373            CASE O.DEVICE='DOS FILE'
0374              GOSUB SEL.DOS.FILE
0375              GOSUB LIST.COLS.DOS
0376            END CASE
0377            RETURN
0378            *
0379  LIST.COLS:
0380            PRINT @(-1),@(-2)
0381            PERFORM 'GET-LIST LIST.S'
0382            READNEXT @ID ELSE
0383              PRINT;PRINT 'NO RECORDS IN SELECT LIST'
0384              GOSUB PAUSE
0385              RETURN
0386            END
0387            IF O.DEVICE='PRINTER' THEN PRINTER ON
0388            S=''
0389            FOR I=1 TO NC
0390              SP=FORMAT(I)-LEN(FLD(I))+2
0391              S := FLD(I):SPACE(SP)
0392            NEXT I
0393            PRINT S
0394            PRINT
0395            LOOP
0396              READ @RECORD FROM REV.FILE.V, @ID ELSE
0397                PRINT;PRINT 'ERROR READING FILE ':REV.FILE
0398                GOSUB PAUSE
0399                RETURN
0400              END
0401              S=''
0402              FOR I=1 TO NC
0403                F='L#':FORMAT(I)
0404                S := CALCULATE(FLD(I)) F:'  '
0405              NEXT I
0406              PRINT S
0407              READNEXT @ID ELSE
0408                IF O.DEVICE = 'PRINTER' THEN
0409                  PRINT;PRINT CM1<1,2>:' RECORDS PROCESSED'
0410                  PRINTER OFF
0411                END
0412                GOSUB PAUSE
0413                RETURN
0414              END
0415            REPEAT
0416            *
0417  LIST.COLS.DOS:
0418            PERFORM 'GET-LIST LIST.S'
0419            R=''
0420            LOOP
0421              READNEXT @ID ELSE
0422                WRITE R TO DOS.FILE.V, DOS.FILE
```

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```
0423              RETURN
0424              END
0425              READ @RECORD FROM REV.FILE.V, @ID ELSE
0426                 PRINT;PRINT 'ERROR IN FILE ':REV.FILE
0427                 GOSUB PAUSE
0428              END
0429              S=SPACE(255)
0430              COL = 1
0431              FOR I=1 TO NC
0432                 F = 'L#':FORMAT(I)
0433                 S[COL,FORMAT(I)] = CALCULATE(FLD(I)) F
0434                 COL += FORMAT(I)+2
0435              NEXT I
0436              R := S[1,COL]:CR:LF
0437           REPEAT
0438           RETURN
0439           *
0440  FLIST:
0441           PRINT @(-1),@(-2)
0442           IF I=0 THEN  RETURN
0443           PRINT '    FIELD NAME      LENGTH'
0444           .PRINT
0445           FOR I=1 TO NC
0446              PRINT I:@(4):  FLD(I):'    ':@(20):FORMAT(I)
0447           NEXT I
0448           PRINT I
0449           RETURN
0450           *
0451  STORE:
0452           CONVERT ' ' TO FM IN ANS
0453           FLD(I)=ANS<1>
0454           FORMAT(I)=ANS<2>
0455           RETURN
0456           *
0457  FIX.LIST:
0458           IF FLD(I)='' THEN
0459              FOR J=I TO NC
0460                 FLD(J)=FLD(J+1)
0461                 FORMAT(J)=FORMAT(J+1)
0462              NEXT J
0463              NC=NC-1
0464           END
0465           RETURN
0466           *
0467  O.DEVICE:
0468           PRINT @(-1),@(-2)
0469           PRINT @(1,5): 'CHOOSE OUTPUT DEVICE'
0470           PRINT;PRINT '   '  1) PRINTER'
0471           PRINT;PRINT '     2) DOS FILE'
0472           PRINT;PRINT '     3) SCREEN'
0473           PRINT;PRINT
0474           PRINT 'ENTER 1, 2 OR 3:
0475           INPUT ANS
0476           BEGIN CASE
0477           CASE ANS=1; O.DEVICE='PRINTER'
0478           CASE ANS=2; O.DEVICE='DOS FILE'
0479           CASE ANS=3; O.DEVICE=''
0480           CASE 1
0481              PRINT BEL
0482              GOTO O.DEVICE
0483           END CASE
0484           RETURN
```

```
0485            *
0486  LIST.LINES.ALL:
0487            LIST = 'LINES'
0488            GOSUB O.DEVICE
0489            PRINT @(-1),@(-2)
0490            OPEN '', 'LINE.LABELS' TO TITLE.V ELSE
0491              PRINT;PRINT 'CANNOT FIND FILE "LINE.LABELS"'
0492              GOSUB PAUSE
0493              RETURN
0494            END
0495            READ T FROM TITLE.V, 1 ELSE
0496              PRINT;PRINT 'CANNOT READ FILE "LINE.LABELS"'
0497              GOSUB PAUSE
0498              RETURN
0499            END
0500            F=COUNT(T,FM)+1
0501            PERFORM 'GET-LIST LIST.S'
0502            READNEXT @ID ELSE
0503              PRINT;PRINT 'NO RECORDS IN SELECT LIST'
0504              GOSUB PAUSE
0505              RETURN
0506            END
0507            IF O.DEVICE = 'PRINTER' THEN PRINTER ON
0508            IF O.DEVICE = 'DOS FILE' THEN
0509              GOSUB LIST.LINES.DOS
0510              RETURN
0511            END
0512            *
0513  LISTM:
0514            READ @RECORD FROM REV.FILE.V, @ID ELSE
0515              PRINTER OFF
0516              PRINT;PRINT 'CANNOT READ FILE ':REV.FILE
0517              GOSUB PAUSE
0518              RETURN
0519            END
0520            K=0
0521            PRINT 'MRDS-REV RECORD NUMBER........ ':@ID
0522            FOR I=1 TO F
0523              LINE=''
0524              FN=T<I,1,1>
0525              *                            MULTIVALUED ?  CHECK NEXT FIELD
                  - - >  FOR DATA
0526              IF FN<0 THEN
0527                FN=T<I+1,1,1>
0528                IF @RECORD<FN> THEN
0529                  TI=T<I,1>
0530                  HC=COUNT(TI,SM)+1
0531                  FOR J=2 TO HC
0532                    LINE=T<I,1,J>
0533                    GOSUB PRINTM
0534                  NEXT J
0535                END
0536                *                                        PRINT DATA
0537              END ELSE
0538                IF @RECORD<FN> THEN
0539                  R=@RECORD<FN>
0540                  MVC=COUNT(R,VM)+1
0541                  TI=T<I>
0542                  COLS=COUNT(TI,VM)+1
0543                  FOR MV=1 TO MVC
0544                    FOR J=1 TO COLS
0545                      FN=T<I,J,1>
```

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```
0546                         LINE := T<I,J,2>: @RECORD<FN,MV> T<I,J,3>
0547                      NEXT J
0548                      GOSUB PRINTM
0549                   NEXT MV
0550                 END
0551               END
0552            NEXT I
0553            READNEXT @ID ELSE
0554               PRINT;PRINT CM1<1,2>:' RECORD(S) PROCESSED'
0555               PRINTER OFF
0556               IF O.DEVICE='' THEN GOSUB PAUSE
0557               RETURN
0558            END
0559            GOTO LISTM
0560            *
0561    PRINTM:
0562            K=K+1
0563            L=ABS(LEN(LINE)-21)
0564            L=INT(L/59)
0565            L1=LINE[1,79]:CR:LF
0566            IF L>0 THEN
0567            . FOR M=1 TO L
0568                 L1 := SPACE(20):LINE[21+(M*59),59]:CR:LF
0569               NEXT M
0570            END
0571            PRINT L1:
0572            K += L
0573            IF MOD(K,22)=0 AND O.DEVICE='' THEN PRINT 'PRESS "RETURN"':;
                - - >  INPUT A
0574            LINE=''
0575            RETURN
0576            *
0577    LIST.LINES.DOS:
0578            PRINT 'LINE LIST TO PC-DOS NOT IMPLEMENTED AT THIS TIME'
0579            GOSUB PAUSE
0580            RETURN
0581            *
0582    SORT:
0583            PERFORM 'GET-LIST LIST':LN
0584            CS='SELECT ':REV.FILE
0585            PRINT @(-1),@(-2)
0586            PRINT
0587            PRINT 'DO YOU WISH OUTPUT TO BE SORTED (Y/N) ?  DEFAULT = N ':
0588            INPUT ANS
0589            IF ANS = '' OR ANS[1,1] = 'N' THEN
0590               PERFORM 'SAVE-LIST LIST.S'
0591               CS=''
0592               RETURN
0593            END
0594    ENTERSORT:
0595            PRINT
0596            PRINT 'ENTER DICTIONARY FIELD NAMES TO CONDUCT THE SORT ON '
0597            PRINT 'OR TYPE "." TO SEE DICTIONARY ITEM NAMES'
0598            PRINT 'OR PRESS "RETURN" TO END ENTRIES '
0599            PRINT
0600            LOOP
0601               PRINT 'ENTER FIELD NAME TO SORT ON:
0602               INPUT ANS
0603               IF ANS='.' THEN PERFORM 'LIST FIELD.DESC ID-SUPP';GOTO
                   - - >  ENTERSORT
0604            WHILE ANS
0605               CS := ' BY ':ANS
```

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```
0606          REPEAT
0607          PERFORM CS
0608          GOSUB PAUSE
0609          PERFORM 'SAVE-LIST LIST.S'
0610          RETURN
0611          *
0612  SET.RET.TYPE:
0613          PERFORM 'CLEAR'
0614          PRINT @(-1),@(-2)
0615          PRINT
0616          PRINT 'SELECT RETRIEVAL TYPE'
0617          PRINT
0618          PRINT 'HOW DO YOU WISH TO SELECT RECORDS?'
0619          PRINT
0620          PRINT '      1) ALL RECORDS IN FILE ':QUOTE(REV.FILE)
0621          PRINT
0622          PRINT '      2) BY SPECIFYING REVELATION RECORD NUMBER ONLY'
0623          PRINT
0624          PRINT '      3) BY SPECIFYING FIELD NAMES AND THE CONTENTS OF
              - - >  FIELDS'
0625          PRINT '              IE.  "SELECT MRDS WITH STATE EQ VA"'
0626         .PRINT
0627          PRINT
0628          PRINT 'ENTER 1,2 OR 3:  ':
0629          INPUT A
0630          BEGIN CASE
0631          CASE A=1; GOSUB RET.ALL
0632          CASE A=2; GOSUB RET.REV.NO
0633          CASE A=3; GOSUB RET.ANY
0634          CASE 1;   GOTO SET.RET.TYPE
0635          END CASE
0636          RETURN
0637          *
0638  ITERATE:
0639          PRINT @(-1),@(-2)
0640          GOSUB LCOM
0641          PRINT
0642          PRINT 'COURSE OF ACTION?'
0643          PRINT '      1) ANOTHER RETRIEVAL ?'
0644          PRINT '      2) GO TO "SORT" OR "PRINT"'
0645          PRINT
0646          PRINT 'CHOOSE 1 OR 2:
0647          INPUT A2
0648          BEGIN CASE
0649          CASE A2=1
0650             GOSUB FILER
0651             GOSUB COMMANDER
0652           , GOTO ITERATE '
0653          CASE A2=2 OR A2=''
0654          CASE 1   ; GOTO ITERATE
0655          END CASE
0656          RETURN
0657          *
0658  FILER:
0659          PRINT @(-1),@(-2)
0660          GOSUB LCOM
0661          PRINT;PRINT
0662          PRINT 'YOU ARE CURRENTLY RETRIEVING FROM FILE "LIST ':LN:'"'
0663          PRINT
0664          PRINT 'SELECT COURSE OF ACTION.  RETRIEVE ON:'
0665          PRINT '    1) CURRENT LIST'
0666          PRINT '    2) AN OLD LIST (SEE LIST ABOVE)'
```

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```
0667            PRINT '   3) MAIN ':QUOTE(REV.FILE):' FILE: ':
0668            INPUT A4
0669            BEGIN CASE
0670            CASE A4=1; PERFORM 'GET-LIST LIST':LN
0671            CASE A4=2; GOSUB FILER1
0672            CASE A4=3;
0673            CASE 1; GOTO FILER
0674            END CASE
0675            RETURN
0676            *
0677    COMMANDER:
0678            PRINT @(-1),@(-2)
0679            GOSUB LCOM
0680            PRINT;PRINT
0681            PRINT 'TO EDIT, APPEND OR RE-RUN AN OLD COMMAND,'
0682            PRINT '     TYPE THE COMMAND NUMBER FROM THE LIST ABOVE'
0683            PRINT
0684            PRINT 'TO START A NEW RETRIEVAL COMMAND,'
0685            PRINT '     PRESS "RETURN" '
0686            PRINT
0687            PRINT 'ENTER NUMBER OR PRESS "RETURN":
0688            INPUT CN
0689            BEGIN CASE
0690            CASE CN > 0 AND CN < 11
0691               GOSUB SWITCH
0692               GOSUB RECOMMAND
0693            CASE CN=''; GOSUB RET.ANY
0694            CASE 1; GOTO COMMANDER
0695            END CASE
0696            RETURN
0697            *
0698    SWITCH:
0699            CO=''
0700            C=COUNT(CM<CN>,VM)+1
0701            FOR I=1 TO C
0702               CO<I>=CM<CN,I>
0703            NEXT I
0704            RETURN
0705            *
0706    RECOMMAND:
0707            PRINT @(-1),@(-2)
0708            NSUB=COUNT(CO,FM)+1
0709            FOR I=1 TO NSUB
0710               PRINT I:'. ':CO<I>
0711            NEXT I
0712            PRINT I
0713            PRINT;PRINT
0714            PRINT 'ENTER SUBCOMMAND NUMBER TO CHANGE'
0715            PRINT '     OR'
0716            PRINT 'PRESS "RETURN" TO RUN RETRIEVAL AS IS:
0717            INPUT SUBCN
0718            BEGIN CASE
0719            CASE SUBCN > 0 AND SUBCN <= NSUB
0720               GOSUB CHANGE
0721               GOTO RECOMMAND
0722            CASE SUBCN=''
0723               GOSUB RETR
0724            CASE SUBCN = NSUB+1
0725               GOSUB APPEND:
0726               GOTO RECOMMAND
0727            CASE 1
0728               PRINT BEL
```

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```
0729                GOTO RECOMMAND
0730                END CASE
0731                RETURN
0732                *
0733    CHANGE:
0734                PRINT;PRINT
0735                PRINT 'ENTER NEW SUBCOMMAND TO REPLACE:'
0736                PRINT;PRINT '      ':CO<SUBCN>
0737                PRINT;PRINT '     :':
0738                INPUT A14
0739                CO<SUBCN>=A14
0740                IF A14 = '' AND SUBCN < NSUB THEN
0741                  FOR I=SUBCN TO NSUB-1
0742                    CO<I> = CO<I+1>
0743                  NEXT I
0744                  CO<NSUB>=''
0745                END
0746                RETURN
0747                *
0748    APPEND:
0749                PRINT;PRINT
0750                PRINT 'ENTER NEXT SUBCOMMAND:
0751                INPUT A14
0752                CO<SUBCN>=A14
0753                RETURN
0754                *
0755    LCOM:
0756                PRINT @(-1),@(-2)
0757                FOR I=10 TO 1 STEP -1
0758                  C=CM1<I,1>
0759                  IF C > 0 THEN
0760                    PRINT I:". ":
0761                    FOR J= 1 TO C
0762                      PRINT CM<I,J>:' ':
0763                    NEXT J
0764                    PRINT;PRINT '    ':CM1<I,2>:' RECORD(S) SELECTED':
0765                    PRINT ' AND STORED IN LIST ' :CM1<I,3>
0766                  END
0767                NEXT I
0768                RETURN
0769                *
0770    FILER1:
0771                GOSUB LCOM
0772                PRINT;PRINT
0773                PRINT 'SPECIFY "LIST #" FILE NUMBER TO RETRIEVE ON'
0774                PRINT;PRINT 'ENTER LIST NUMBER:  ':
0775                INPUT A10
0776                IF A10<1 OR A10>LN THEN PRINT BEEP;GOTO FILER1
0777                PERFORM 'GET-LIST LIST':A10
0778                RETURN
0779                *
0780    PAUSE:
0781                PRINT @(1,25): ':PRESS "RETURN" TO CONTINUE:':
0782                INPUT A11
0783                RETURN
0784                *
0785    SAVER:
0786                LN=LN+1
0787                PERFORM 'SAVE-LIST LIST':LN
0788                CM1<1,3>=LN
0789                RETURN
0790                *
```

```
0791  RETR:
0792          GOSUB PUSH
0793          NSUB=COUNT(CO,FM)+1
0794          CM1<1,1>=NSUB
0795          CMD=''
0796          FOR I=1 TO NSUB
0797             CMD := CO<I>:' '
0798             CM<1,I>=CO<I>
0799          NEXT I
0800          PERFORM CMD
0801          GOSUB PAUSE
0802          GOSUB SAVER
0803          PERFORM 'GET-LIST LIST':LN
0804          I=0
0805          LOOP
0806             READNEXT @ID ELSE GOTO CONT1:
0807             I=I+1
0808             PRINT @ID
0809          REPEAT
0810  CONT1:
0811          CM1<1,2>=I
0812          .RETURN
0813              *
0814  PUSH:
0815          FOR I=10 TO 2 STEP -1
0816             CM<I>=CM<I-1>
0817             CM1<I>=CM1<I-1>
0818          NEXT I
0819          CM<1>=''
0820          CM1<1>=''
0821          RETURN
0822              *
0823  RET.ALL:
0824          GOSUB START.CO
0825          GOSUB RETR
0826          RETURN
0827              *
0828  RUN.RERUN:
0829          PRINT @(-1):@(-2)
0830          PRINT @(14,3):'GENERAL PURPOSE RETRIEVAL AND PRINTING PROGRAM'
0831          PRINT @(25,6):'by  PAUL SCHRUBEN, MRDS'
0832          PRINT @(16,13):'CHOOSE COURSE OF ACTION:'
0833          PRINT @(19,16):'1) CREATE NEW RETRIEVAL'
0834          PRINT @(19,18):'2) RE-RUN A RETRIEVAL SAVED IN AN EARLIER
              - - >  SESSION'
0835          PRINT @(16,21):'CHOOSE 1 OR 2:   ':
0836          INPUT ANS
0837          BEGIN CASE
0838          CASE ANS = 1
0839             GOSUB IFILE
0840             RETURN
0841          CASE ANS=2
0842             GOSUB USE.RET
0843             GOTO RUN.RERUN
0844          CASE ANS=''
0845             STOP
0846          CASE 1
0847             PRINT BEL
0848             GOTO RUN.RERUN
0849          END CASE
0850              *
0851  IFILE:
```

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```
0852            PRINT @(-1),@(-2)
0853            PRINT @(5,10):'ENTER NAME OF FILE TO BE RETRIEVED.  DEFAULT =
                - - >  MRDS  :  ':
0854            INPUT REV.FILE
0855            PRINT
0856            IF REV.FILE='' THEN REV.FILE='MRDS'
0857            GOSUB OPEN
0858            IF REV.FILE THEN RETURN
0859            GOTO IFILE
0860            *
0861   OPEN:
0862            OPEN '', REV.FILE TO REV.FILE.V ELSE
0863              PRINT BEL;PRINT 'CANNOT OPEN FILE "':REV.FILE:'"'
0864              REV.FILE=''
0865              GOSUB PAUSE
0866              RETURN
0867            END
0868            OPEN 'DICT', REV.FILE TO @DICT ELSE
0869              PRINT BEL;PRINT 'CANNOT FIND DICTIONARY FOR FILE "':REV.FILE'"'
0870              REV.FILE=''
0871              GOSUB PAUSE
0872            END
0873            RETURN
0874            *
0875   START.CO:
0876            CO=''
0877            CO<1>='SELECT ':REV.FILE
0878            SUBN=1
0879            RETURN
0880            *
0881   SAVE.RET:
0882            CO=''
0883            FOR I=1 TO CM1<1,1>
0884              CO<I>=CM<1,I>
0885            NEXT I
0886            C=CO<1>
0887            CONVERT ' ' TO VM IN C
0888            CO<1>=C<1,2>
0889            IF CS THEN
0890              CO<I>='SORT'
0891              CONVERT 'BY' TO FM IN CS
0892              J=2
0893              LOOP
0894              WHILE CS<J>
0895                I=I+1
0896                CO<I>=CS<J>
0897                J=J+1
0898              REPEAT
0899              I=I+1
0900            END
0901            BEGIN CASE
0902            CASE O.DEVICE='PRINTER'
0903              CO<I>='PRINTER'
0904              I=I+1
0905            CASE O.DEVICE='DOS.FILE'
0906              CO<I>='DOS FILE'
0907              CO<I+1>=DOS.FILE
0908              I=I+2
0909            END CASE
0910            BEGIN CASE
0911            CASE LIST = 'DEFAULT'
0912              CO<I> = 'LIST'
```

```
0913              CO<I+1> = 'DEFAULT'
0914            CASE LIST = 'COLUMNS'
0915              CO<I> = 'LIST'
0916              I=I+1
0917              CO<I>='COLUMNS'
0918              FOR J=1 TO NC
0919                CO<I+J,1>=FLD(J):' ':FORMAT(J)
0920          *         CO<I+J,2>=FORMAT(J)
0921              NEXT J
0922            CASE LIST = 'LINES'
0923              CO<I>='LIST'
0924              CO<I+1>='LINES'
0925            END CASE
0926            RETURN
0927            *
0928    WRITE.RET:
0929            OPEN '', 'RETRIEVALS' TO R.V ELSE
0930              PERFORM 'CREATE-FILE RETRIEVALS 100 1000'
0931              OPEN '', 'RETRIEVALS' TO R.V ELSE
0932                PRINT 'CANNOT OPEN FILE RETRIEVALS'
0933                GOSUB PAUSE
0934                RETURN
0935              END
0936            END
0937            PERFORM 'LIST ONLY RETRIEVALS'
0938            PRINT;PRINT 'ENTER A SUB-FILE NAME TO SAVE THE RETRIEVAL
                - - >  COMMANDS IN:  ':
0939            INPUT ANS
0940            IF ANS='' THEN RETURN
0941            READ R FROM R.V, ANS ELSE
0942    WRITE:
0943              WRITE CO TO R.V, ANS
0944              RETURN
0945            END
0946            PRINT;PRINT 'FILE "':ANS:'" ALREADY EXISTS!  OVERWRITE? (Y/N):
                - - >  ':
0947            INPUT A
0948            IF A[1,1] = 'Y' THEN
0949              PERFORM 'DELETE R.V, ANS'
0950              WRITE CO TO R.V, ANS
0951              PRINT;PRINT 'SUB-FILE ':QUOTE(ANS):' HAS BEEN SAVED IN FILE
                - - >  "RETRIEVALS"'
0952              PRINT; GOSUB PAUSE
0953            END
0954            RETURN
0955            *
0956    TERMINUS:
0957            PRINT @(-1),@(-2)
0958            PRINT;PRINT 'CHOOSE A COURSE OF ACTION:'
0959            PRINT
0960            PRINT;PRINT '    1) SORT AGAIN'
0961            PRINT;PRINT '    2) PRINT AGAIN'
0962            PRINT;PRINT '    3) RETRIEVE AGAIN'
0963            PRINT;PRINT '    4) SAVE SESSION'
0964            PRINT;PRINT '    5) END SESSION'
0965            PRINT @(1,20):'ENTER 1, 2, 3, 4 OR 5:
0966            INPUT A18
0967            RETURN
0968            *
0969    USE.RET:
0970            OPEN '', 'RETRIEVALS' TO R.V ELSE
0971              PRINT 'CANNOT OPEN FILE RETRIEVALS'
```

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```
0972              GOSUB PAUSE
0973              RETURN
0974          END
0975          PERFORM 'LIST ONLY RETRIEVALS'
0976          PRINT;PRINT 'CHOOSE FROM THE ABOVE LIST OF RETRIEVAL COMMAND
              - - >  FILES:  ':
0977          INPUT ANS
0978          IF ANS = '' THEN RETURN
0979          READ R FROM R.V, ANS ELSE
0980             PRINT 'CANNOT FIND FILE "':ANS:'" IN FILE RETRIEVALS'
0981             GOSUB PAUSE
0982             GOTO USE.RET
0983          END
0984          REV.FILE=R<1>
0985          GOSUB OPEN
0986          CO='SELECT ':R<1>
0987          CS='SELECT ':R<1>
0988          O.DEVICE=''
0989          J=2
0990          LOOP
0991          UNTIL R<J>='SORT' OR R<J>='PRINTER' OR R<J>='DOS FILE' OR
              .- - >  R<J>='LIST' OR R<J>=''
0992            CO := ' ':R<J>
0993            J=J+1
0994          REPEAT
0995          GOSUB RETR
0996          PERFORM 'GET-LIST LIST':LN
0997          IF R<J>='SORT' THEN
0998             J=J+1
0999             LOOP
1000             UNTIL R<J>='PRINTER' OR R<J>='DOS FILE' OR R<J>='LIST'
1001               CS := ' BY ':R<J>
1002               J=J+1
1003             REPEAT
1004             PERFORM CS
1005          END
1006          PERFORM 'SAVE-LIST LIST.S'
1007          PERFORM 'GET-LIST LIST.S'
1008          IF R<J>='PRINTER' THEN
1009             O.DEVICE=R<J>
1010             J=J+1
1011          END ELSE
1012             IF R<J>='DOS FILE' THEN
1013                O.DEVICE=R<J>
1014                DOS.FILE=R<J+1>
1015                GOSUB OPEN.DOS
1016                J=J+2
1017             END
1018          END
1019          IF R<J>='LIST' THEN
1020             J=J+1
1021             BEGIN CASE
1022             CASE R<J>=''
1023                OUT='DEFAULT'
1024             CASE R<J>='DEFAULT'
1025                OUT=R<J>
1026             CASE R<J>='COLUMNS'
1027                OUT=R<J>
1028                NC=0
1029                LOOP
1030                   J=J+1
1031                   WHILE R<J>
```

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```
1032              NC=NC+1
1033              F=R<J>
1034              CONVERT ' ' TO FM IN F
1035              FLD(NC)=F<1>
1036              FORMAT(NC)=F<2>
1037            REPEAT
1038          CASE R<J>='LINES'
1039            OUT='LINES'
1040          CASE 1
1041            PRINT; PRINT 'CANNOT UNDERSTAND COMMAND "':R<J>:'
1042            GOSUB PAUSE
1043            RETURN
1044          END CASE
1045        END
1046        BEGIN CASE
1047        CASE OUT='DEFAULT'
1048          IF O.DEVICE='' THEN PERFORM 'LIST ':R<1>
1049          IF O.DEVICE = 'PRINTER' THEN PERFORM 'LIST ':R<1>:' .. ,
1050          IF O.DEVICE = 'DOS FILE' THEN GOSUB DEFAULT.DOS
1051        CASE OUT = 'COLUMNS'
1052          IF O.DEVICE='' OR O.DEVICE='PRINTER' THEN
1053            GOSUB LIST.COLS
1054          END
1055          IF O.DEVICE='DOS FILE' THEN
1056            GOSUB OPEN.DOS
1057            GOSUB LIST.COLS.DOS
1058          END
1059        END CASE
1060        RETURN
1061 EOP:
1062        END
```

```
0001          BEL=CHAR(7)
0002          LF=CHAR(10)
0003          CR=CHAR(13)
0004          CZ=CHAR(26)
0005          VM=CHAR(253)
0006          FM=CHAR(254)
0007          RM=CHAR(255)
0008          TC=''
0009          T2=''
0010          F=''
0011          V=''
0012          FLD=0
0013          PROMPT ' '
0014   START:
0015          PRINT @(-1),@(-2)
0016          PRINT;PRINT 'THIS PROGRAM CONVERTS A GIPSY FILE TO REVELATION
                - - >  FORMAT'
0017          PRINT;PRINT
0018          PRINT 'INPUT FORMAT:    GIPSY DICTIONARY "VG9225M.CVD01.DATA"'
0019          PRINT '                 PC-DOS FORMAT'
0020          PRINT '                 "@" = RECORD MARKER'
0021          PRINT '                 "_" = FIELD MARKER'
0022          PRINT
0023          PRINT 'OUTPUT FORMAT:   MRDS REVELATION FILE FORMAT'
0024          PRINT;PRINT                                            ,
0025          PRINT 'ENTER PCDOS GIPSY INPUT FILE NAME ......DEFAULT =
                - - >  "C:MDOS.0"':
0026          INPUT DOS.FILE
0027          IF DOS.FILE = '' THEN DOS.FILE='C:MDOS.0'
0028          OPEN '', 'DOS' TO DOS.FILE.V ELSE STOP
0029          READ T FROM DOS.FILE.V, DOS.FILE ELSE
0030             PRINT;PRINT BEL
0031             PRINT 'CANNOT READ FILE "':DOS.FILE:'".  ARE YOU SURE IT
                   - - >  EXISTS?'
0032             GOSUB PAUSE
0033             GOTO START
0034          END
0035          CONVERT '_' TO VM IN T
0036          CONVERT '@' TO FM IN T
0037          CONVERT CR:LF:CZ TO '' IN T
0038          *
0039          L=COUNT(T,FM)
0040          FOR I=1 TO L
0041             PRINT @(-1),@(-2)
0042             PRINT 'DATA VALIDATION AND TRANSLATION FOR RECORD :':I
0043             PRINT
0044             P=T<I,116>
0045             Y=T<I,117>
0046             NO=T<I,118>
0047             LG=T<I,119>
0048             M=T<I,120>
0049             S=T<I,121>
0050             U=T<I,122>
0051             BEGIN CASE
0052             CASE Y
0053                IF LG THEN A='L'; GOTO E:
0054                IF M THEN A='M'; GOTO E:
0055                IF S THEN A='S'; GOTO E:
0056                A='Y'
0057   E:
0058             CASE NO
0059                A='N'
```

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```
0060              CASE P='PROD';A='Y'
0061              CASE P[1,1]='Y'; A='Y'
0062              CASE P[1,1]='N'; A='N'
0063              CASE 1
0064                A='U'
0065              END CASE
0066              T<I,116>=A
0067              PRINT
0068              PRINT 'GIPSY      PROD:      ':P:'        REVELATION:      ':A
0069              PRINT '               YES      ':Y
0070              PRINT '               LARGE:   ':LG
0071              PRINT '               MEDIUM:  ':M
0072              PRINT '               SMALL:   ':S
0073              PRINT '               NO:      ':NO
0074              PRINT '               UND:     ':U
0075              A=T<I,41>
0076              E=T<I,42>
0077              BEGIN CASE
0078              CASE A='' AND E<>''
0079                T<I,41>=E
0080              CASE A<>''AND E=''
0081          .   CASE A<>'' AND E<>''
0082                PRINT 'ACC = ':A:'      EST = ':E
0083                PRINT 'YOUR TRANSLATION IS : ':
0084                INPUT A
0085                T<I,41>=A
0086              CASE 1
0087              END CASE
0088              PRINT
0089              PRINT 'GIPSY      ACC:     ':A:'       REVELATION    ':S
0090              PRINT '               EST:     ':E
0091              S=T<I,102>
0092              U=T<I,103>
0093              SU=T<I,104>
0094              BEGIN CASE
0095              CASE S='S' OR S='SURFACE'
0096                T<I,102>='S'
0097              CASE U='U' OR U='UNDERGROUND'
0098                T<I,102>='U'
0099              CASE SU='SU' OR SU='SURFACE AND UNDERGROUND'
0100                T<I,102>='B'
0101              CASE S='' AND U='' AND SU=''
0102              CASE 1
0103                PRINT 'ENTRY FOR SURFACE, UNDERGROUND = ':C
0104                PRINT 'YOUR TRANSLATION IS (S,U,B) ?
0105                INPUT C
0106                T<I,102>=C
0107              END CASE
0108              PRINT
0109              PRINT 'GIPSY      SURFACE:    ':S:'       REVELATION    ':T<I,
                  - - > 102>
0110              PRINT '               UNDERGROUND:':U
0111              PRINT '               SURF & UNDG:':SU
0112              PRINT
0113              GOSUB PAUSE
0114          NEXT I
0115  REV.FILE:
0116          PRINT @(-1),@(-2)
0117          PRINT 'ENTER REVELATION FILE NAME (DESTINATION FILE)'
0118          PRINT;PRINT 'DEFAULT = "MRDS": ':
0119          INPUT REV.FILE
0120          IF REV.FILE='' THEN REV.FILE = 'MRDS'
```

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```
0121            OPEN '', REV.FILE TO REV.FILE.V ELSE
0122              PERFORM 'CREATE-FILE ':REV.FILE
0123              OPEN '', REV.FILE TO REV.FILE.V ELSE
0124                PRINT;PRINT BEL
0125                PRINT 'CANNOT OPEN FILE "':REV.FILE:'"'
0126                GOSUB PAUSE
0127                GOTO REV.FILE
0128              END
0129              D='(DICT ':REV.FILE
0130              DATA D
0131              PERFORM 'COPY DICT MRDS * (OS)'
0132            END
0133            PERFORM 'SORT ':REV.FILE
0134            PRINT;PRINT 'ENTER STARTING RECORD NUMBER FOR NEW RECORDS:
0135            INPUT N
0136            OPEN '', 'DR' TO DR.V ELSE GOTO ND
0137            READ GDICT FROM DR.V, 'GIPDICT' ELSE
0138  ND:
0139              PRINT;PRINT 'CANNOT FIND GIPSY DICTIONARY IN "DR" FILE'
0140              GOSUB PAUSE
0141              STOP
0142            END
0143            CDICT=COUNT(GDICT,FM)+1
0144            PRINT @(-1),@(-2)
0145            PRINT @(1,10):'PATIENCE........READING DICTIONARY FILE'
0146            FOR J=1 TO CDICT
0147              FLD=GDICT<J>
0148              FLD=FLD[60,3]
0149              FLD=TRIMF(FLD)
0150              F<J>=FLD
0151              VAL=GDICT<J>
0152              VAL=VAL[65,3]
0153              VAL=TRIMF(VAL)
0154              V<J>=VAL
0155            NEXT J
0156            FOR I=1 TO L
0157              PRINT @(-1),@(-2)
0158              PRINT @(1,10):'WORKING ON RECORD NUMBER ':I:' OF ':L
0159              T2=''
0160              FOR J=1 TO CDICT
0161                FLD=F<J>
0162                VAL=V<J>
0163                IF VAL='' THEN VAL=1
0164                IF FLD AND T<I,J> THEN
0165                  T2<FLD,VAL>=T<I,J>
0166                  IF FLD=118 OR FLD=124 OR FLD=132 OR FLD=140 OR FLD=148 THEN
0167                    *SPLIT "ITEM" AND "ACC" FIELDS
0168                    T0=T<I,J>
0169                    ITEM=T0[1,9]
0170                    ACC=T0[11,3]
0171                    T2<FLD,VAL>=ITEM
0172                    T2<FLD+1,VAL>=ACC
0173                  END
0174                END
0175              NEXT J
0176              WRITE T2 TO REV.FILE.V, I+N-1
0177            NEXT I
0178            STOP
0179            *
0180  PAUSE:
0181            PRINT @(1),@(25)
0182            PRINT 'PRESS "RETURN" TO CONTINUE:
```

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```
0183          INPUT A
0184          RETURN
0185          END
```

```
0001              *  CONVERTS MRDS-REV FILE TO PC-DOS FILE, GIPSY ORDER
0002              *
0003              *  T<>  =  REV FIELDS IN GIPSY ORDER
0004              *  R<>  =  REV FIELDS IN REV ORDER
0005              *  GF<> =  GIPSY FIELD NUMBER
0006              *  RN<> =  REV FIELD NUMBER
0007              *  RV<> =  REV VALUE NUMBER
0008              LF=CHAR(10)
0009              CR=CHAR(13)
0010              Z=CHAR(26)
0011              SM=CHAR(252)
0012              VM=CHAR(253)
0013              FM=CHAR(254)
0014              RM=CHAR(255)
0015              BEL=CHAR(7)
0016              K=''
0017              L=''
0018              T=''
0019              RN=''
0020              RV=''
0021              GN=''
0022              GD=''
0023              GF=''
0024              TC=''
0025              RO=''
0026              FLD=0
0027              VAL=0
0028              PROMPT ' '
0029              *
0030   START:
0031              PRINT @(-1),@(-2)
0032              PRINT 'THIS PROGRAM CONVERTS REVELATION FILES TO PC-DOS FORMAT'
0033              PRINT;PRINT '    INPUT FORMAT:    MRDS DICTIONARY, REVELATION
                  - - > FORMAT'
0034              PRINT;PRINT '    OUTPUT FORMAT:   GIPSY "BUILD", PC-DOS FORMAT'
0035              GOSUB GDICT
0036              *
0037   REV.FILE:
0038              PRINT;PRINT 'ENTER REVELATION FILE NAME (SOURCE FILE)'
0039              PRINT;PRINT 'DEFAULT = "MRDS":  ':
0040              INPUT REV.FILE
0041              IF REV.FILE='' THEN REV.FILE = 'MRDS'
0042              OPEN '', REV.FILE TO REV.FILE.V ELSE
0043                 PRINT 'CANNOT FIND ':REV.FILE
0044                 GOSUB PAUSE
0045                 GOTO START
0046              END
0047   LST:
0048              PERFORM 'SORT ':REV.FILE
0049              PRINT;PRINT 'ENTER STARTING RECORD NUMBER TO BE TRANSFORMED:
0050              INPUT M
0051              IF M='' THEN GOTO REV.FILE
0052              PRINT;PRINT 'ENTER ENDING RECORD NUMBER TO BE TRANSFORMED:  '
0053              INPUT N
0054              *
0055              GOSUB OF:
0056              *
0057              FOR I= M TO N
0058                 PRINT @(-1),@(-2)
0059                 PRINT @(1,10):'WORKING ON RECORD NUMBER ':I-M+1:' OF ':N-M+1
0060                 READ R FROM REV.FILE.V, I ELSE
0061                    PRINT @(-1),@(-2)        48
```

```
0062            PRINT;PRINT 'CANNOT FIND RECORD ':I
0063            GOSUB PAUSE
0064            GOTO LST
0065          END
0066          *              PUT REV RECORD IN GIPSY ORDER
0067          T=''
0068          FOR J=1 TO GC
0069            K=RN<J>
0070            L=RV<J>
0071            IF R<K,L> THEN
0072              T<J>=R<K,L>
0073              IF K=118 OR K=124 OR K=132 OR K=140 OR K=148 THEN
0074                T1=T<J>:SPACE(10)
0075                *          COMBINE "ITEM" AND "ACC" FIELDS
0076                T<J>=T1[1,10]:R<K+1,L>
0077              END
0078            END
0079          NEXT J
0080          *
0081          *  SPECIAL CHANGES FOR GIPSY FORMAT
0082          P=T<116>
0083          T<116>=' '
0084          IF P THEN
0085            IF P='Y' THEN T<117>=' '
0086            IF P='L' THEN T<119>=' '
0087            IF P='M' THEN T<120>=' '
0088            IF P='S' THEN T<121>=' '
0089            IF P='N' THEN T<118>=' '
0090            IF P='U' THEN T<122>=' '
0091          END ELSE
0092            T<116>=''
0093          END
0094          S=T<102>
0095          IF S THEN
0096            IF S='S' THEN T<102>=' '
0097            IF S='U' THEN T<103>=' '
0098            IF S='B' THEN T<104>=' '
0099          END ELSE
0100            T<102>=''
0101          END
0102          IF T<41> THEN
0103            IF T<41> NE 'ACC' THEN
0104              T<42>=T<41>
0105              T<41>=''
0106            END
0107          END
0108          *
0109          L=1
0110          RO<I,L>=SPACE(9):'CRIB':CR
0111          RECNO=R<1>:SPACE(9)
0112          RECNO=RECNO[1,9]
0113          FOR J=1 TO GC
0114            IF T<J> THEN
0115              L=L+1
0116              T1=GF<J>:'<':T<J>:'>'
0117              LN=LEN(T1)
0118              NSV=INT((LN+70)/71)
0119              FOR K=1 TO NSV
0120                RO<I,L,K>=RECNO:T1[71*K-70,71]:CR
0121              NEXT K
0122            END
0123          NEXT J
```

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```
0124            C=SPACE(9):'@':CR
0125            RO<I,L+1>=C
0126         NEXT I
0127         CONVERT SM TO LF IN RO
0128         CONVERT VM TO LF IN RO
0129         CONVERT FM TO LF IN RO
0130         WRITE RO TO DOS.FILE.V, DOS.FILE
0131         PRINT BEL
0132         STOP
0133         *
0134  OF:
0135         PRINT;PRINT 'ENTER PC DOS-GIPSY OUTPUT FILE NAME  (DESTINATION
             - - >  FILE)'
0136         PRINT;PRINT 'DEFAULT = "C:MDOS.O"  ':
0137         INPUT DOS.FILE
0138         IF DOS.FILE = '' THEN DOS.FILE='C:MDOS.O'
0139         OPEN '', 'DOS' TO DOS.FILE.V ELSE
0140            PRINT;PRINT 'CANNOT OPEN FILE ':DOS.FILE
0141            GOSUB PAUSE
0142            GOTO OF:
0143         END
0144         RETURN
0145         *
0146  PAUSE:
0147         PRINT
0148         PRINT @(1),@(25)
0149         PRINT 'PRESS "RETURN" TO CONTINUE:  ':
0150         INPUT A
0151         RETURN
0152         *
0153  GDICT:
0154         PRINT;PRINT;PRINT 'PATIENCE...........  READING GIPSY DICTIONARY
             - - >  FILE'
0155         OPEN '', 'DR' TO DR.V ELSE GOTO ND
0156         READ GD FROM DR.V, 'GIPDICT' ELSE
0157  ND:
0158            PRINT;PRINT 'CANNOT FIND GIPSY DICTIONARY IN "DR" FILE'
0159            GOSUB PAUSE
0160            STOP
0161         END
0162         GC=COUNT(GD,FM)+1
0163         RF=0
0164         FOR I=1 TO GC
0165            FLD=GD<I>
0166            FLD=FLD[60,3]
0167            FLD=TRIMF(FLD)
0168            RN<I>=FLD
0169            *
0170            VAL=GD<I>
0171            VAL=VAL[65,3]
0172            VAL=TRIMF(VAL)
0173            RV<I>=VAL
0174            IF NOT(RV<I>) THEN RV<I>=1
0175            *
0176            G=GD<I>
0177            G=G[1,4]
0178            GF<I>=TRIMB(G)
0179         NEXT I
0180         RETURN
0181         END
```

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```
IMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM;
:                        MRDS-REV MASTER MENU                          MRDS :
:                        12:44:10  03 OCT 1985                              :
:                                                                          :
:         1. Enter or edit deposit records                                 :
:         2. Retrievals and printouts                                      :
:         3. Transfer records to PC-DOS or mainframe MRDS                   :
:         4. REVELATION command level (TCL)                                :
:         5. PC-DOS command level. (type "EXIT" to return to REVELATION)    :
:         6. End session                                                   :
:                                                                          :
:                                                                          :
:                                                                          :
:                                                                          :
:                                                                          :
:                                                                          :
:                                                                          :
:                                                                          :
:                                                                          :
HMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM<

F5=Toggle MAIN/LAST menu    Ctl-F5=TCL    F9=END menu    Retrn=Run menu option
```

```
IMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM;
:                      MRDS-REV DATA ENTRY MENU                        MRDS :
:                        12:44:32  03 OCT 1985                              :
:                                                                          :
:         1. Record ID        (RECORD NUMBER to SYNONYMS)                   :
:         2. Location         (MINING DISTRICT to LONGITUDE)                :
:         3. Location (cont.) (ACC to LOCATION COMMENTS)                    :
:         4. Commodities      (COMMODITIES PRESENT to PROD)                 :
:         5. Exploratiion or Development + Description of Deposit           :
:         6. Description of Deposit and Workings  (DEP SIZE to COMMENTS)    :
:         7. Geology          (to ALTERATION)                              :
:         8. Geology (cont.)  (CONC/ENRICHMENT to COMMENTS)                 :
:         9. General Comments                                              :
:        10. References                                                    :
:        11. Production                                                    :
:        12. Reserves and Resources                                        :
:                                                                          :
:                                                                          :
:                                                                          :
:                                                                          :
HMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM<

F5=Toggle MAIN/LAST menu    Ctl-F5=TCL    F9=END menu    Retrn=Run menu option
```

1) RECORD IDENTIFICATION   01 MRDS-REV RECORD NUMBER ____ (I-1)

02 REC NUMBER B10   03 REC TYPE B20   04 DEP NO. B40
05 REP DATE G1   06 INFO SOURCE B30   07 FILE LINK ID B50

08 REPORTER (SUPERVISOR) G2

09 REPORTER AFFILIATION G5

10 SITE NAME A10

11 SYNONYMS A11

MRDS-REV RECORD NUMBER (DEFAULT=1)

2) LOCATION   01 MRDS-REV RECORD NUMBER ____ (I-1)

. 02 MINING DISTRICT/AREA A30

03 COUNTY A60   04 STATE A50   05 COUNTRY A40

06 PHYSIOGRAPHIC PROVINCE A63

07 DRAINAGE AREA A62

08 LAND STATUS A64

09 QUADRANGLE NAME A90   10 QUADRANGLE SCALE A100
11 SECOND QUAD NAME A92   12 SECOND QUAD SCALE A91

13 ELEVATION A107

UTM COORDINATES   GEODETIC COORDINATES
14 NORTHING A120   17 LATITUDE A70
15 EASTING A130   18 LONGITUDE A80
16 ZONE NUMBER A110

3) LOCATION (cont.)   E1 MRDS-REV RECORD NUMBER _____ (I-1)

02 ACC or EST

CADASTRAL

03 TOWNSHIP A77
04 RANGE A79
05 SECTION A79
06 SECTIONAL FRACTION(S) A76
07 MERIDIAN(S) A81

08 POSITION FROM NEAREST LOCALITY A82

09 LOCATION COMMENTS A83

4) COMMODITIES   01 MRDS-REV RECORD NUMBER _____ (I-1)

02 COMMODITIES PRESENT
03 ORE MATERIALS

04 COMMODITY SUBTYPES

05 GENERAL ANALYTICAL DATA

06 COMMODITY INFO COMMENTS C50

            PRODUCER   NON-PRODUCER
07 MAJOR   11 MAIN
08 MINOR   12 MINOR
09 POTEN
                    10 OCCUR
13 PRODUCTION SML MED LGE NO UND   14 STATUS

5) EXPLORATION OR DEVELOPMENT   01 MRDS-REV RECORD NUMBER ____ (I-1)
02 DISCOVERER L20

03 YEAR OF DISCOVERY L10   04 NATURE OF DISCOVERY L30
05 YEAR OF FIRST PROD. L10   06 YEAR OF LAST PROD. L45
07 PRESENT/LAST OWNER A12

08 PRESENT/LAST OPERATOR A13

09 EXPL./DEV. COMMENTS L110

       DESCRIPTION OF DEPOSIT
10 DEPOSIT TYPE C40

11 DEPOSIT FORM/SHAPE M10

12 DEPTH TO TOP   UNITS   16 MAX. LENGTH   UNITS
14 DEPTH TO BTM   UNITS   18 MAX. WIDTH   UNITS
                                       20 MAX. THICK   UNITS

6) DESCRIPTION OF DEPOSIT (cont.)   01 MRDS-REV RECORD NUMBER ____ (I-1)
02 DEPOSIT SIZE M15
03 STRIKE M70   04 DIP M80
04 PLUNGE DIRECTION M110   06 PLUNGE M90
07 DEPOSIT DESCRIPTION COMMENTS M110

DESCRIPTION OF WORKINGS

08 WORKINGS ARE: (SURFACE, UNDERGROUND, BOTH)
09 DEPTH BELOW SURFACE M160   10 UNITS M161
11 LENGTH OF WORKINGS M170   12 UNITS M171
13 OVERALL LENGTH M190 ·   14 UNITS M191
15 OVERALL WIDTH M200   16 UNITS M201
17 OVERALL AREA M210   18 UNITS M211
19 DESCRIPTION OF WORKINGS COMMENTS M220

7) GEOLOGY   01 MRDS-REV RECORD NUMBER _____ (I-1)
02 AGE OF HOST ROCK(S) K1
03 HOST ROCK TYPE(S) K1A

04 AGE OF IGNEOUS ROCK(S) K2
05 IGNEOUS ROCK TYPE(S) K2A

06 AGE OF MINERALIZATION K3
07 PERT. MINERALS (NOT ORE) K4

08 ORE CONTROL/LOCUS K5

09 MAJ. REG. TRENDS/STRUCT. N5

10 TECTONIC SETTING N15

11 SIGNIFICANT LOCAL STRUCT. N70

12 SIGNIFICANT ALTERATION N75

8) GEOLOGY (cont.)   01 MRDS-REV RECORD NUMBER _____ (I-1)
02 PROCESS OF CONC./ENRICH. N80

03 FORMATION AGE N30
04 FORMATION NAME N30A

07 IGNEOUS UNIT AGE N50
08 IGNEOUS UNIT NAME N50A

11 GEOLOGY COMMENTS

9) GENERAL COMMENTS   01 MRDS-REV RECORD NUMBER _____ (I-1)

02 GENERAL COMMENTS GEN

10) BIBLIOGRAPHIC REFERENCES   01 MRDS-REV RECORD NUMBER _____ (I-1)

02 REFERENCE 1

03 REFERENCE 2

04 REFERENCE 3

05 REFERENCE 4

11) ANNUAL PRODUCTION   01 MRDS-REV RECORD NUMBER ____ (I-1)

02 ITEM   ACC   AMOUNT   TH UNITS   YEAR   GRADE

CUMULATIVE PRODUCTION

08 ITEM   ACC   AMOUNT   TH UNITS   YEARS   GRADE

14 SOURCE OF INFORMATION
15 COMMENTS

12) RESERVES AND POTENTIAL RESOURCES   01 MRDS-REV RECORD NUMBER ____ (I-1)

02 ITEM   ACC   AMOUNT   TH UNITS   YEAR   GRADE

08 SOURCE OF INFORMATION
09 COMMENTS

RESERVES ONLY

10 ITEM   ACC   AMOUNT   TH UNITS   YEAR   GRADE

16 SOURCE OF INFORMATION
17 COMMENTS

POTENTIAL RESOURCES

18 ITEM   ACC   AMOUNT   TH UNITS   YEAR   GRADE

24 SOURCE OF INFORMATION
25 COMMENTS