



BORIS 123: a method to transfer water bore records from the Perkin Elmer mini-computer to an IBM micro-computer for use in Lotus 1-2-3.

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Abstract

A method of searching the water bores database (BORIS), residing on the Department of Mines Perkin Elmer mini-computer, and extracting relevant records for import into Lotus 1-2-3 residing on an IBM-compatible micro-computer, is described. The process of re-constructing records within Lotus 1-2-3 is detailed. The process creates a Lotus 1-2-3 spreadsheet file which can be manipulated using any of the powerful string, numeric, statistical and graphing functions available within Lotus 1-2-3.

INTRODUCTION

BORIS contains data which is suitable for statistical and probabilistic type analysis. A method of being able to undertake water bore data analysis has been required for some time. The Lotus 1-2-3 spreadsheet program contains powerful string, numeric, statistical and graphing functions. It was considered desirable to be able to extract data from BORIS and import it into Lotus 1-2-3 so that the data set could be manipulated and analyzed. A method has been devised to do this. Several steps are involved:

1. Search the water bores database and save the required records to a file.
2. Transfer the saved file from the mini-computer to the micro-computer.
3. Import the file into Lotus 1-2-3 and re-constitute the database in Lotus 1-2-3.

SEARCHING THE DATABASE

Ensure that a physical connection exists between the Perkin Elmer mini-computer and the Engineering Geology and Groundwater Branch's Olivetti micro-computer. This connection is made between a plug terminating a multi-coloured lead attached to the rear panel of the Olivetti, and the socket labelled AMPEX attached to a white lead located near the micro-computer. With the Olivetti turned on, access the main menu screen and select Perkin Elmer from the menu. The screen should change to indicate that a link has been established to the Perkin Elmer. A * will be displayed at the top of the screen. Sign-on to the Perkin Elmer by issuing the command:

S [USER-ID],5,DATA

N.B. 1. keystrokes within [] are the choice of the user. The [and] characters are not typed.

N.B. 2. the [USER-ID] is used as the name of the file to which the selected records will be saved. The extension name for this file is BOR.

N.B. 3. the ENTER key is pressed to issue a command after it is typed.

To begin a search of the water bores database (BORIS) issue the command:

BORIS123

Search the database in the usual manner. When the search is complete, a report will be issued on the number of records selected. A request for a screen listing is issued. The records may be listed if desired. A further request is issued to print the records. An affirmative response is required to this request. A final request is issued to print the analysis where available. An affirmative response is also required to this request. A physical hard copy print-out is NOT produced, but instead a copy of the data is sent to a file. This file has the name:

[USER-ID].BOR

TRANSFERRING SELECTED RECORDS FROM THE MINI- TO THE MICRO-COMPUTER

To transfer the file [USER-ID].BOR from the Perkin Elmer mini-computer to the micro-computer issue the command:

V SYSF

then press the ALT and R keys together. This commences the file transfer process. Enter the name of the host (mini-computer) file to be received:

[USER-ID].BOR

Enter the name of the PC (micro-computer) file to be received from the host by typing:

C:\123\[FILENAME].[EXTENSION-NAME]

Substitute a name, up to 8 characters long, for [FILENAME]. The name should commence with an alphabetic character, and may also contain numeric characters. Similarly, substitute a name, up to 3 characters long, for [EXTENSION-NAME]. This too should commence with an alphabetic character, and may also contain numeric characters. Make a note of this name, it is used later. The [and] characters are not typed but the period (.) between them is required.

The file transfer should commence after the file specification has been entered. Upon successful transfer,

press the END key. To use the END key, the red LED below the FUNCT LOCK key on the Olivetti keyboard must be glowing. If it is not, press the FUNCT LOCK key to make the LED glow. Then press the 1 key on the numeric key-pad. To delete the file from the Perkin Elmer issue the command:

DEL [USER-ID].BOR

Sign-off from the Perkin Elmer by issuing the command:

BYE

and then press the ALT and X keys together to end communications with the Perkin Elmer. Respond to the prompt to leave GRAPE accordingly.

IMPORTING SELECTED RECORDS INTO LOTUS 123

Place any floppy disk in the floppy disk drive and close the door. The main menu should automatically be re-displayed on the micro-computer. Select Lotus 1-2-3 from the main menu. The initial 1-2-3 access menu is displayed, and the cursor will highlight 1-2-3 at the top of the screen. Press the ENTER key to load the spreadsheet program. It is necessary to first load a template into Lotus 1-2-3 by typing:

/FR

After typing these characters, the second line from the top of the screen will display:

Name of file to retrieve: A:*.wk?

or something similar. A series of filenames may be listed below this line. These should be disregarded. Press the key labelled ESC situated at the top left hand side of the keyboard until the second line reads:

Name of file to retrieve:

then type:

C:\123\BORIS123

When this command is issued, the template will be loaded and instructions on the use of the template will be displayed (fig. 1). Read them!

The template is controlled by a series of macros which lead the user through the processes required to re-construct the data from the string format in which the data was acquired from the Perkin Elmer.

The first step is to import the data extracted by the search of the water bores database into Lotus 1-2-3. After reading the screen instructions, press the enter key and then type the:

[FILENAME].[EXTENSION-NAME]

that was given when the file received from the Perkin Elmer mini-computer was saved onto the Olivetti micro-computer.

When this command is issued, the file will be imported into column A, starting at row 30 and the screen divided vertically in two. A second set of instructions are then displayed (fig. 2). Read them!

The second step is to re-construct the database by separating out the various fields of data. This is done by aligning the highlighted cell in column AA against the first record in the imported file, part of which is displayed on

the screen to the left of the partition. Records are initially separated from one another by at least one blank row.

If a record is two lines deep, it does not contain chemical analysis data, and the imported record can be separated into columns of fields by pressing the ALT and S keys together. The blank row immediately after the record is removed in this process, so the highlighted cell should be opposite the beginning of the next imported record on the left of the partition, or against a blank row. If the highlight is adjacent to a blank row, use the down arrow key to align it against the first line of the next record.

If a record is four lines deep, it contains chemical analysis data, and the imported record can be separated into columns of fields by pressing the ALT and L keys together. The blank row immediately after the record is removed in this process, so the highlighted cell should be opposite the beginning of the next imported record on the left of the partition, or against a blank row. If the highlight is adjacent to a blank row, use the down arrow key to align it against the first line of the next record.

Proceed through this process until all imported records have been re-constructed into columns of fields. Be careful, as mistakes are not recoverable!

When all records have been re-constructed press the ALT and M keys together to receive further instructions (fig. 3). Read them!

The third step is to tidy up the re-constructed database by deleting any blank rows. After reading the instructions, press the ENTER key. The highlighted cell will move to the row immediately below the headings for the various columns. Use the down arrow key to position the highlight on a blank row which occurs between the headings and the end of the re-constructed data. By pressing the ALT and D keys together, the highlighted row will be deleted from the data set. All such blank rows should be removed between the headings and the end of the re-constructed data set. Be careful not to delete rows of data!

The final step is to save the re-constructed data set as a new file. When all blank rows have been deleted between the headings and the end of the data set, press the ALT and E keys together. Watch the second top line of the screen and enter a file-name when prompted. The [FILENAME] format has previously been discussed. An [EXTENSION-NAME] is not required as the extension .WK1 is added automatically by Lotus 1-2-3.

When the command to save the file is issued, the extent or range of the data saved will be displayed on the second top line of the screen. Make a note of this range. Be quick as it is only displayed momentarily. Once the file is saved, check that this is indeed the range of data which was intended to be saved. If so, the conversion of data from the Perkin Elmer mini-computer to the micro-computer has been successfully completed.

All that remains to be done is to quit from Lotus 1-2-3 by issuing the command:

/QYE

It would be prudent to make a back-up copy of your re-constructed data before manipulating it.

Happy data conversion and manipulation!

[7 July 1989]

BORIS123.WK1 - a template to re-constitute water bore records obtained from the Perkin-Elmer mini-computer.

This template is initially controlled by a macro.

When you have read these instructions press the ENTER key.

The cursor will move to cell A30.

A prompt requesting the name of the file to be imported will be displayed at the second top line on the screen.

Press the ESC key until the line reads "Name of file to retrieve:" then type C:\123\BORIS123 and press the ENTER key.

The file will be imported and the screen divided vertically in two.

<press ENTER>

Figure 1. *Initial screen instructions for use of the Lotus 1-2-3 template BORIS123.*

When you have read these instructions press the ENTER key.

The cursor will move to an area where the new data set will be created. Keeping the cursor in column AA, align it against the first line of the first record in the window to the left. Maintain this alignment between the cursor and the start of a record. Initially, records are separated from one another by at least one blank row (or line).

A record which is 2 lines long contains no analysis data. Process these by pressing the ALT and S keys together. Process records which are 4 lines long by pressing the ALT and L keys together. Continue this process until all records have been processed and separated into columns.

When this processing has been completed, press the ALT and M keys together to obtain instructions on how to proceed to the next step.

<press ENTER>

Figure 2. *Second screen of instructions for the use of the Lotus 1-2-3 template BORIS123.*

When you have read these instructions, press the ENTER key.

There may be several blank rows in the data set that has been created. It is necessary to remove these blank rows. To do this, position the cursor in a blank row and press the ALT and D keys together. This will cause the row the cursor was on to be deleted. BE CAREFUL - there is no un-do!!!

There may also be blank rows between the headings of the data set and the first row. These should be deleted as well.

When all blank rows have been deleted, the data may be saved as a new file. To do this, press the ALT and E keys together. Watch the second top line of the screen and enter a filename when prompted. An extension name is not required.

Note the data range selected when the file is saved and cross check it before leaving Lotus 1-2-3.

<press ENTER>

Figure 3. *Third screen of instructions for use of the Lotus 1-2-3 template BORIS123.*

APPENDIX A

The following is a listing of the CSS used to search the water bores database and create a file of the results of the search.

```
*BORIS123.CSS - SEARCH THE WATER BORE FILE
SE GR 93
$DEF 1,,CUR(USER)
$IFX SYSF:@*1.BOR;$WRITE FILE EXISTS;$CLEAR;$SEND
$IFX WAT.UPD/G;$WRITE FILE BEING UPDATED;$CLEAR;$SEND
L WATSRCH1/G,10;AS 4, WATMAIN.DAT/G, SRO;AS 2, WATANAL.DAT/G, SRO
XAL SYSF:@*1.BOR,IN,132/3/2
AS 6, SYSF:@*1.BOR;REW 6;AS 5, CON::TEMPFILE 3,IN,80;ST
SE GR 5;$EXIT
```

WATSRCH1.FTN is a copy of WATSRCH.FTN. The output has been changed at format lines 302, 303 and 304 in that the text between single quotes has been replaced by a single * between quotes.

APPENDIX B

The template BORIS123.WK1 contains a start-up macro and other macros which are used to guide the user through the conversion of the file received from the Perkin Elmer (an ASCII file) into columns of strings or values. The macros are listed below with comments.

The macro which executes automatically when the template is retrieved.

```
\0  '{home}{down 18}{right 5}      display first screen of instructions
      '{?}~                          wait for ENTER key
      '{left 5}{down 11}           move to area where file will import
      '/wgdd{esc}c:\123~q/fit{?}~ request file to import as text
      '{right}/wvw~                 split screen vertically
      '{window}                      move to right window
      '{goto}aa1~{down 19}         display second screen of instructions
      '{?}~                          wait for ENTER key
      '{goto}aa28~{down 5}         move to area where data set will be created
```

ALT M—displays third screen of instructions.

```
\M  '{paneloff}/wvc~{goto}j1~      clear split screen
      '{panelon}{down 19}{right 3} display third screen of instructions
      '{?}~                          wait for ENTER key
      '{goto}aa28~{down 2}         move to area where data set was created
```

ALT D—deletes a row from the data-set.

```
\D ' {paneloff}/wdr~                delete a row from the data set
```

ALT E—extracts the re-constructed data set and saves it to a user specified file.

```
\E  '{goto}bh28~                    move to last column heading
      '/fxv{esc}{?}~{end}{left}{end} request file-name to save data to
      '{down}~{goto}aa29~           then move to beginning of data set
```

ALT S—re-constructs columns of fields for a record without chemical analysis data.

```
\S  '/caa21..aq21~{down}/wdr        copy formulae for a record without
      '{down}~{down 4}{up 4}         chemical analysis data and move
```

ALT L—re-constructs columns of fields for a record with chemical analysis data.

```
\L  '/caa24..bh24~{down}/wdr        copy formulae for a record with chemical
      '{down 3}~{down 4}{up 4}       analysis data and move
```

APPENDIX C

The template has embedded within it a typical imported record without any chemical analysis data (cells A21 and A22) and another typical imported record with chemical analysis data (cells A24-A27). Formulae have been written to extract the relevant fields from these records. For the case without chemical analysis data, these formulae occur in cells AA21-AQ21 and, for the case with chemical analysis data, the formulae are located in cells AA24-BH24.

The imported ASCII file is converted back to columns of data simply by copying these formula from the appropriate cells to the appropriate destination cells.

The typical imported records and the formulae used in their conversion are listed below.

Typical imported record without chemical analysis data:

```
*D.BURN                *CLIFTON BEACH                * 543352402* 83* 1*CA *0 * 68
* 12.8* 11.3* 3.7* 0.0* 0.38* * 0* 0*TD
```

Typical imported record with chemical analysis data:

```
*G.F.DAVIES            *CARLTON                * 558252524* 83* 9*AB *C * 71
* 45.1* 14.0* 7.6* 0.0* 0.38* 2410* 0* 2*MONO
* 8.1* 0.0* 0.0* 0.0* 360.0* 990.0* 84.0* 30.0* 120.0* 215.0
* 0.5* 0.2* 6.0* 250.0* 2410.0* 295.0* 890.0* 295.0
```

Formulae used in Lotus 123 to convert a record saved in ASCII format to columns of strings and values.

For the case where there is no chemical analysis data:

| Cell | Width Formula | Field Name |
|-------|-------------------------------|------------------------|
| AA21: | [W25] @MID(A21,1,24) | OWNER |
| AB21: | [W31] @MID(A21,26,30) | LOCATION |
| AC21: | [W10] @VALUE(@MID(A21,57,10)) | AMG |
| AD21: | [W5] @VALUE(@MID(A21,68,3)) | QUADRANGLE NUMBER |
| AE21: | [W5] @VALUE(@MID(A21,72,3)) | CARD NUMBER |
| AF21: | [W5] @MID(A21,76,3) | INITIALS |
| AG21: | [W4] @MID(A21,80,2) | GEOLOGY CODE |
| AH21: | [W3] @VALUE(@MID(A21,83,3)) | YEAR DRILLED |
| AI21: | [W6] @VALUE(@MID(A22,1,5)) | TOTAL DEPTH |
| AJ21: | [W6] @VALUE(@MID(A22,7,5)) | DEPTH WATER STRUCK |
| AK21: | [W4] @VALUE(@MID(A22,13,5)) | STANDING WATER LEVEL |
| AL21: | [W6] @VALUE(@MID(A22,19,5)) | DEPTH OF CASING |
| AM21: | [W6] @VALUE(@MID(A22,25,5)) | YIELD |
| AN21: | [W6] @VALUE(@MID(A22,31,5)) | TOTAL DISSOLVED SOLIDS |
| AO21: | [W7] @VALUE(@MID(A22,37,6)) | CONDUCTIVITY (field) |
| AP21: | [W5] @VALUE(@MID(A22,44,2)) | NUMBER OF ANALYSES |
| AQ21: | [W9] @MID(A22,47,8) | DRILLING COMPANY |

APPENDIX C (continued)

For the case where chemical analysis data is available:

| <i>Cell</i> | <i>Width Formula</i> | <i>Field Name</i> |
|-------------|-------------------------------|-----------------------------|
| AA24: | [W25] @MID(A24,1,24) | OWNER |
| AB24: | [W31] @MID(A24,26,30) | LOCATION |
| AC24: | [W10] @VALUE(@MID(A24,57,10)) | AMG |
| AD24: | [W5] @VALUE(@MID(A24,68,3)) | QUADRANGLE NUMBER |
| AE24: | [W5] @VALUE(@MID(A24,72,3)) | CARD NUMBER |
| AF24: | [W5] @MID(A24,76,3) | INITIALS |
| AG24: | [W4] @MID(A24,80,2) | GEOLOGY CODE |
| AH24: | [W3] @VALUE(@MID(A24,83,3)) | YEAR DRILLED |
| AI24: | [W6] @VALUE(@MID(A25,1,5)) | TOTAL DEPTH |
| AJ24: | [W6] @VALUE(@MID(A25,7,5)) | DEPTH WATER STRUCK |
| AK24: | [W4] @VALUE(@MID(A25,13,5)) | STANDING WATER LEVEL |
| AL24: | [W6] @VALUE(@MID(A25,19,5)) | DEPTH OF CASING |
| AM24: | [W6] @VALUE(@MID(A25,25,5)) | YIELD |
| AN24: | [W6] @VALUE(@MID(A25,31,5)) | TOTAL DISSOLVED SOLIDS |
| AO24: | [W7] @VALUE(@MID(A25,37,6)) | CONDUCTIVITY (field) |
| AP24: | [W5] @VALUE(@MID(A25,44,2)) | NUMBER OF ANALYSES |
| AQ24: | [W9] @MID(A25,47,8) | DRILLING COMPANY |
| AR24: | [W5] @VALUE(@MID(A26,1,4)) | pH |
| AS24: | [W8] @VALUE(@MID(A26,6,7)) | CONDUCTIVITY (lab) |
| AT24: | [W8] @VALUE(@MID(A26,14,7)) | CO ₃ |
| AU24: | [W8] @VALUE(@MID(A26,22,7)) | HCO ₃ |
| AV24: | [W8] @VALUE(@MID(A26,30,7)) | Cl |
| AW24: | [W8] @VALUE(@MID(A26,38,7)) | SO ₄ |
| AX24: | [W8] @VALUE(@MID(A26,46,7)) | SiO ₂ |
| AY24: | [W8] @VALUE(@MID(A26,54,7)) | Ca |
| AZ24: | [W8] @VALUE(@MID(A26,62,7)) | Mg |
| BA24: | [W8] @VALUE(@MID(A27,1,7)) | Fe |
| BB24: | [W8] @VALUE(@MID(A27,9,7)) | Al |
| BC24: | [W8] @VALUE(@MID(A27,17,7)) | K |
| BD24: | [W8] @VALUE(@MID(A27,25,7)) | Na |
| BE24: | [W8] @VALUE(@MID(A27,33,7)) | TOTAL DISSOLVED SOLIDS |
| BF24: | [W8] @VALUE(@MID(A27,41,7)) | ALKALINITY |
| BG24: | [W8] @VALUE(@MID(A27,49,7)) | TOTAL OR PERMANENT HARDNESS |
| BH24: | [W8] @VALUE(@MID(A27,57,7)) | TEMPORARY HARDNESS |