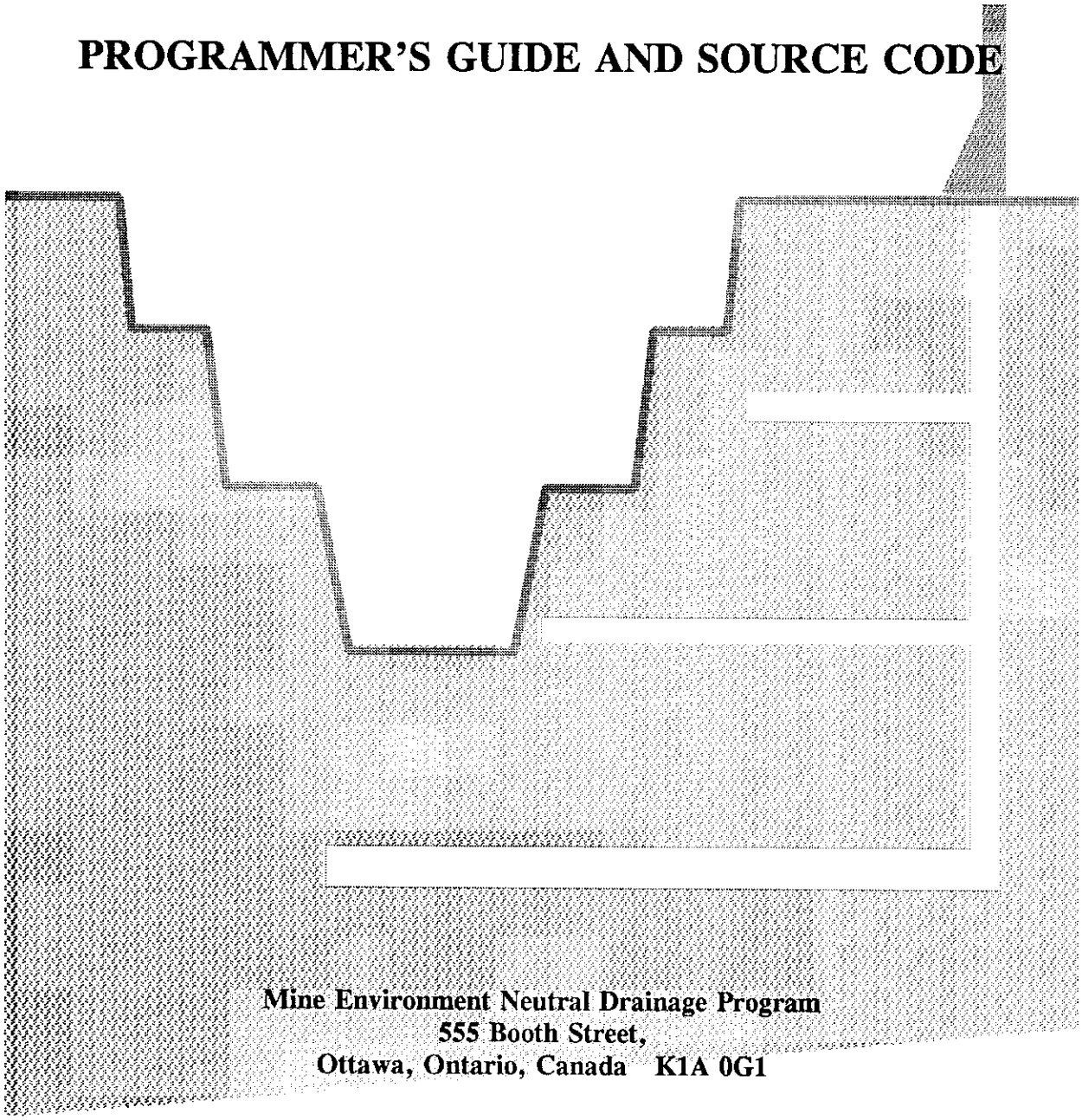
MINEWALL 2.0

PROGRAMMER'S GUIDE AND SOURCE CODE



Mine Environment Neutral Drainage Program
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1. INTRODUCTION

MINEWALL Version 2.0 is partially based on the expansion of Version 1.0 (Morin, 1990), which was written in Fortran 77. Version 1.0 included a preprocessor to handle the input-file formatting, but data input and output remained rather primitive.

A major, non-technical objective of Version 2.0 was to greatly improve the ease and flexibility of data handling over that of the previous version. In today's software environments, the improvements obviously include (1) optional mouse control while maintaining options for full keyboard control, (2) form-oriented (object-oriented) programming through which a user controls program flow by responding to questions/items on individually displayed forms, and (3) a stand-alone program requiring only a common operating system.

In order to provide these improvements, Visual Basic 1.0 for DOS (copyright 1992 by Microsoft Corporation) was selected as the programming environment. The sister environment, Visual Basic for Windows (currently in Version 3), is a primary programming environment for Windows and apparently Microsoft created the DOS version to ease the transition to graphical interfaces. Consequently, Visual Basic for DOS creates programs that have the "feel" of Windows-based programs. Nevertheless, a program created under Visual Basic for DOS still suffers from the DOS limitations of program execution in the lower 640K of RAM and the need for an independent upper-memory manager for extended/expanded memory. Such limitations slowed the development and testing of MINEWALL Version 2.0. Section 2 discusses some of the limitations.

Although Microsoft has created a Project Translator between Visual Basic (VB) for DOS and VB for Windows, there are several significant differences between the two that prevents a simple and direct translation. For this reason, MINEWALL 2.0 cannot be easily translated into a Windows program; some modules would likely require significant recoding. Addition coding would be needed to access Dynamic Data Exchange (DDE) to share data between programs.

A program written in Visual Basic for DOS consists of "modules". The two basic types are code modules with the file extension of ".BAS" and form modules with the file extension of ".FRM". Other types of modules exist (Microsoft, 1992), but are not important here. A form module contains code which defines a form that interacts with a user. The form module typically contains one or more "controls" such as push buttons, text boxes, and option buttons, through which the user enters data, chooses options, and continues to the next form. On the other hand, a code module does not define a form, but often contains code for calculation-intensive tasks. Forms and controls are referred to as "objects", leading to the currently in-vogue "object-oriented programming" which basically implies that the user controls program operation through interactions with the objects which are basically re-useable elsewhere.

In a general sense, Visual Basic (VB) form and code modules can be thought of as old-style "subroutines". As a result, one module can "call" another. However, there are important differences, advantages, and disadvantages between VB modules and subroutines. Subroutines and older programming environments often followed a linear pattern where execution begins at the top of a program and ends at the bottom. On the other hand, a set of VB modules can be thought of, and used, as a more diffuse program with recursive or non-recursive calls among modules in any order. Consequently, there is no required top or bottom, although one module must be defined as the initial, or "start up", module. Nevertheless, programming typically follows some pattern or flowpath, and MINEWALL is no exception (see the User's Manual for details).

Another important distinction of VB modules from older-style subroutines lies in the format of a module. Modules typically contain one or more "procedures" which in fact more closely resemble subroutines. Thus a module can be thought of as a collection of one or more subroutines. A form model, for example, contains procedures which define the form and execute code when a user activates a control. However, all procedures in a module are controlled by the "module-level" code which contains non-executable statements such as COMMON and certain DIM commands which can be applied to all the module's procedures. From this perspective, a module is a superset of the older-style subroutine.

Section 2 of this report contains details of MINEWALL's programming approach, including the use of RAM memory, disk storage, and memory overlays. Section 3 contains the list of references. Section 4 contains a listing of all modules for MINEWALL 2.0. An inspection of Section 4 will reveal the structure of modules and the calling of one module or procedure from another. For more details on programming with Visual Basic for DOS, see Microsoft (1992).

2. PROGRAMMER'S NOTES

2.1 Required System Configuration

Despite the limitations inherent in DOS, it remains a dominant operating system for PCs at this time. Therefore, MINEWALL 2.0 was written for DOS, specifically for Microsoft DOS Version 3.x and higher. In addition to DOS, MINEWALL 2.0 also *requires* extended memory (XMS), a hard disk, and a microprocessor equivalent to an 80386 or higher. An optional version of MINEWALL 2.0 for an 80286 processor is available from the CANMET Project Manager, Mr. Carl Weatherell, at 613-995-3097. Additionally, MINEWALL 2.0 is easier to use with an *optional* 80397 or higher numeric coprocessor, color monitor, and mouse.

2.2 Lower RAM Memory

Because MINEWALL 2.0 is a DOS program, its code executes from the lower 640K RAM. Specifically, the lower 640K RAM is used for (1) MS-DOS and TSR programs, (2) MINEWALL code, (3) the Near Data Heap (DGROUP), and (4) Far Data Heap. The Data Heaps contain various array, string, and form descriptors as well as static array data and other strings and constants. Basically, the user has control only over the amount of lower RAM used by MS-DOS and TSR programs; MINEWALL controls the rest.

MINEWALL 2.0 is heavily memory constrained, indicating it requires as much free lower RAM as possible. After initial loading, MINEWALL typically reports about 200K of lower RAM is free. However, this lower RAM is quickly allocated as arrays are created. If MINEWALL ceases execution and returns the DOS prompt due to the lack of lower RAM, TSR programs should be temporarily removed from the lower RAM and MS-DOS should be loaded into Upper Memory (between 640K and 1Mb).

2.3 Memory Overlays

An inspection of MINEWALL's stand-alone EXE file shows that it is approximately

700K in size. Obviously, this would not fit into the lower 640K RAM under any condition, except that the EXE file contains "overlays". In reality, the EXE file is divided into portions of code that are swapped in and out of the lower RAM as needed. While this resolves some of the memory constraint discussed in Section 2.2, the larger constraint is the size and number of data arrays. For example, a weekly simulation repeating yearly values, with 35 geochemical parameters, would require roughly 30K of lower RAM using MINEWALL 16-byte limitation for a value. Because up to a few dozen arrays may be needed depending on the simulation, extended memory is needed and thus implemented (see following subsections). However, some lower RAM is still required to swap arrays in and out, and thus an untimely combination of overlay swapping and array swapping in the simulation can exhaust the lower RAM and terminate execution.

2.4 Extended Memory (XMS)

At least 1 Mb of free XMS is needed to begin a simulation with MINEWALL 2.0. Notably, because MINEWALL includes options that can be used only on advanced PCs, up to 50 Mb of free XMS may be required for specific, intensive simulations. At start up, MINEWALL informs the user of the amount of free XMS and the basic type of simulation that the free XMS allows. "Memory Check" can also be accessed under the Information submenu of the Main Menu to check remaining free XMS during program operation.

MINEWALL uses XMS to store input data if the user chooses to simulate with one year of data repeated yearly. If the user chooses to input different values for each year of simulation, significantly less XMS is used and, instead, large data files are stored on the hard drive (Section 2.5).

If the remaining amount of XMS is insufficient at any time, an "Out of Memory" error is issued, the program terminates, and the user is returned to the DOS prompt. There is no error trapping for this problem, because there is no simple way around the insufficient XMS.

2.5 Hard-Disk Storage

At least 10 Mb of free hard-disk storage is suggested for a simulation by MINEWALL 2.0. This is a consequence of MINEWALL's use of temporary disk files which store output data during program operation. If values entered for input are not to be repeated year after year, but new values are to be used for each yearly cycle, then these input data will also be stored to disk. With long simulations of up to 500 years on a weekly basis with 35 geochemical parameters, each input data array will be approximately 4 Mb in size. Since there are up to seven input data arrays, the maximum required free disk storage is approximately 30 Mb.

A reading of this and the previous subsection will reveal the option provided by MINEWALL 2.0 to be either disk-intensive or XMS-intensive. This option was intentionally provided to allow a user to adjust MINEWALL's operation to the limitations a particular PC.

2.6 Overall Program Control

Chapters 3, 4, and 5 of the MINEWALL 2.0 User's Manual and should be reviewed and understood before reading this subsection. Otherwise, the following make not make much sense.

Control of program operation and data handling in MINEWALL 2.0 is accomplished through a set of variables contained in COMMON statements. These are listed in the file, MW-COMDF.BI, which is the first file listed in Section 4. The array, CCL(), is of particular importance because it contains a set of flags that is examined throughout the program (Table 3-1).

In order to facilitate sending arrays from lower RAM to XMS, a TYPE variable called "Strlen" was created with one record (.AA) as STRING*16 (a string variable of 16-bytes length). The two arrays that use Strlen are: MinewallArray1 and GeochemRate1. The former array accepts most of the data entered into spreadsheets and sends the data to XMS. The latter array accepts geochemical reactions rates for each Geochemical Unit and sends the data to XMS.

Table 2-1
Listing of Flags in Array, CCL(), for MINEWALL 2.0

Value:	Purpose:
CCL(0)	passes other CCL values to some modules
1	0 = datafile not loaded; 1 = datafile loaded
2	0 = pit only; 1 = both; 2 = underground (U/G) only (1 is currently disabled)
3	0 = operation only; 1 = both; 2 = closure only
4	# of Geochemical Parameters
5	0 = daily simulations; 1 = weekly; 2 = monthly
6	1 = submerged rates controlled by DO; 2 = controlled by SubmergenceFactor
7	# of leachable Geochemical Parameters (ID 14-35)
8	1 = inputted oxidation rates from fresh surfaces; 2 = from aged surfaces
9	1 = NP rate inputted; 2 = NP/SO4 ratio inputted
10	# of Layers during closure (only 1 allowed due to memory constraints)
11	Pit Dimensions: # of elevation increments
12	# of Geochemical Units
13	Pit Precip: 0 = no data; 1 = repeat yearly data; 2 = year-by-year data
14	Pit Saturated Flow: 0 = no data; 1 = repeat yearly data; 2 = year-by-year data
15	Pit Runoff: 0 = no data; 1 = repeat yearly data; 2 = year-by-year data
16	Pi Evaporation: 0 = no data; 1 = repeat yearly data; 2 = year-by-year data
17	Pit Pump#1: 0 = no data; 1 = repeat yearly data; 2 = year-by-year data
18	Pit Pump#2: 0 = no data; 1 = repeat yearly data; 2 = year-by-year data
19	not used
20	not used
21	not used
22	not used
23	not used

Table 2-1 (continued)	
24	not used
25	not used
26	not used
27	not used
28	not used
29	not used
30	not used
31	Pit Pump#2: 0 = do not balance during operation; 1 = balance
32	Pit Pump#2: elevation in nearest meter to maintain during closure
33	Pit Sat Flow: 0 = no change in flow as level rises (L^0); 1 = linear (L^1); 2= some other power (get variable, SatPower)
34	not used
35	not used
36	not used
37	not used
38	not used
39	0 = operation not yet simulated; 1 = operation simulated
40	0 = closure not yet simulated; 1 = closure simulated

All other variables and arrays are either STRING (or STRING*16), SINGLE (4-byte floating point, single precision), LONG (4-byte INTEGER), and INTEGER (2 bytes). All variables are explicitly declared in the modules, except for INTEGER which is the default.

MINEWALL 2.0 consists of 20 code modules and 28 form modules (Table 3-2). The source code for each module is listed in Section 4. In total, MINEWALL 2.0 consists of approximately 24,000 lines of code.

The overall flow to a MINEWALL 2.0 simulation is depicted in Figure 2-1. This shows that program flow moves from data input, to simulation, to examination and export of results using the various modules of Table 2-2. The core technical module of MINEWALL 2.0 is MW-SIMUL.BAS (Table 3-2), with the remaining modules mostly dedicated to data input, output, and user interaction. MW-SIMUL.BAS performs the calculations representing simulation of a mine, its water balance, and chemical loadings through Operation and/or Closure. The conceptual flowchart for this module is depicted in Figure 2-2.

Table 2-2 Code and Form Modules Comprising MINEWALL 2.0	
MW-INIT.BAS	start-up module; initial declarations; calls MW-MAINM
MW-MAINM.FRM	main menu and primary program control; calls many other modules
MW-DATS.BAS	saves input data; calls MW-CMND
MW-DATG.BAS	retrieves input data; calls MW-CMND
MW-CMND.BAS	with MW-CMNDF, provides a form to list directories and files for data save and retrieve
MW-CMNDF.FRM	form to accompany MW-CMNDF
MW-CLEAR.BAS	clears arrays and data and reinitializes MINEWALL; called by user of MW-DATG
MW-TITLE.FRM	asks for title and pit/UG simulation (CCL(2))
MW-TIME.FRM	asks for operation or closure (CCL(3)) and for daily/weekly/monthly (CCL(5)); shows MW-TIME2 and/or MW-TIME3 as appropriate
MW-TIME2.FRM	asks for start and end of operation; called by MW-TIME
MW-TIME3.FRM	asks for start and end of closure; called by MW-TIME
MW-WAIT.FRM	displays a small "Please Wait" form; called by various modules
MW-GEOP.FRM	displays a list of Geochemical Parameters
MW-GEADJ.BAS	adjusts arrays if the selection of Geochemical Parameters is changed
MW-TIMLB.BAS	creates various time labels (e.g., "JAN" or "MAR 29")
MW-UNITS.BAS	asks for information on exposed Geochemical Units
MW-UNIT1.FRM	asks for the number of Geochemical Units; called from MW-UNITS
MW-UNIT2.FRM	asks for information on each Unit; called from MW-UNITS
MW-UNIT3.FRM	asks for information on the Units; called from MW-UNITS
MW-LYUT.BAS	controls information on the Pit Layers during Closure
MW-LYR1.FRM	asks for information on the Layers; called from MW-LYUT
MW-LYR2.FRM	asks for information on the Layers; called from MW-LYUT
MW-SETSP.BAS	initializes the spreadsheet for CCL(13) to CCL(18); calls MW-SPRED

Table 2-2 (continued)	
MW-SPRED.BAS	shows a 123-like spreadsheet for data input
MW-MOUSE.BAS	controls the mouse for MW-SPRED
MW-SATFM.FRM	asks how water level is controlled during closure (CCL(33)
MW-QUE1.FRM	if data exist, asks whether to replace or edit
MW-QUE2.FRM	asks if data are repeatedly yearly or data will be entered year by year
MW-SIMUL.BAS	simulates operation and closure
MW-PROG.FRM	displays text indicating progress of a simulation
MW-GAUGE.FRM	displays a "gas gauge" visually indicating the progress of a simulation
MW-SUBS.BAS	contains various procedures used by MW-SIMUL
MW-LYCT.BAS	calculates water-level control and mass balance during a simulation
MW-CHEM1.BAS	calculates concentrations based on MW-LYUT (kinetic, empirical, etc.)
MW-GRAPH.BAS	displays graphical output from a simulation
MW-PRGR.FRM	asks for details on printer type, landscape vs. portrait, etc; called by MW-GRAPH
MW-GRF1.FRM	asks for selections of parameters to graph; called by MW-GRAPH
MW-GRF2.FRM	asks for selections of parameters to graph; called by MW-GRAPH
MW-GRF3.FRM	asks for various X and Y choices to graph; called by MW-GRAPH
MW-GRF4.FRM	asks for selections of parameters to graph; called by MW-GRAPH
MW-REPOR.BAS	provides input and/or output as a text file
MW-REPT1.FRM	asks for choices on the type of report; called by MW-REPOR
MW-OUTOP.BAS	provides output through browsing or creating an ASCII/Lotus file
MW-DATA1.FRM	asks for choices on the type of data file; called by MW-OUTOP
MW-BROW1.FRM	asks for choices on browsing output; called by MW-OUTOP
MW-BROW2.FRM	asks for choices on browsing output; called by MW-OUTOP

Table 2-2 (continued)	
MW-HELPF.FRM	displays help screens; called by MW-HELP
MW-HELP.BAS	provides on-line help to users

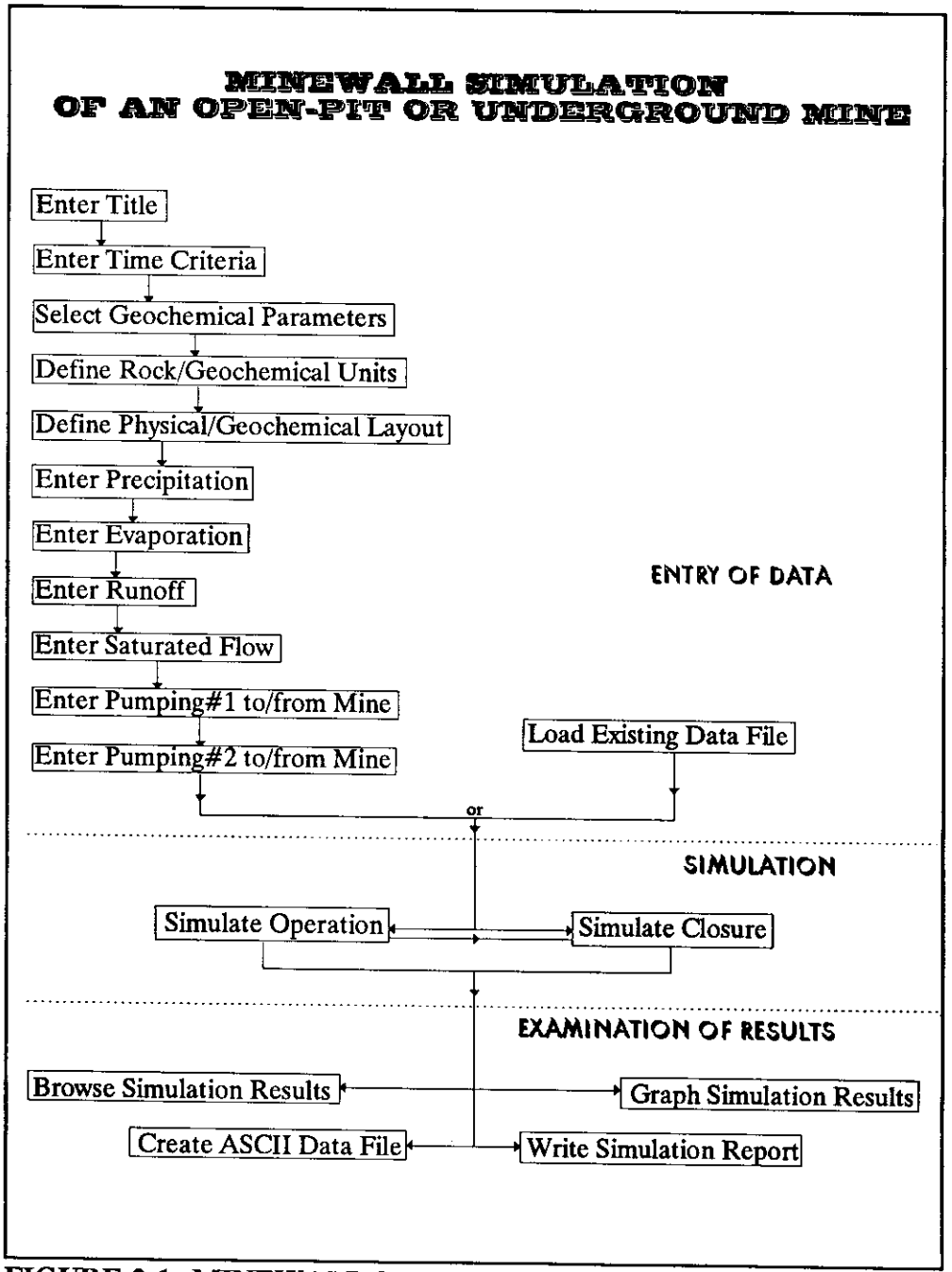

FIGURE 2-1. MINEWALL 2.0 Flowchart for simulating an open-pit or underground mine.

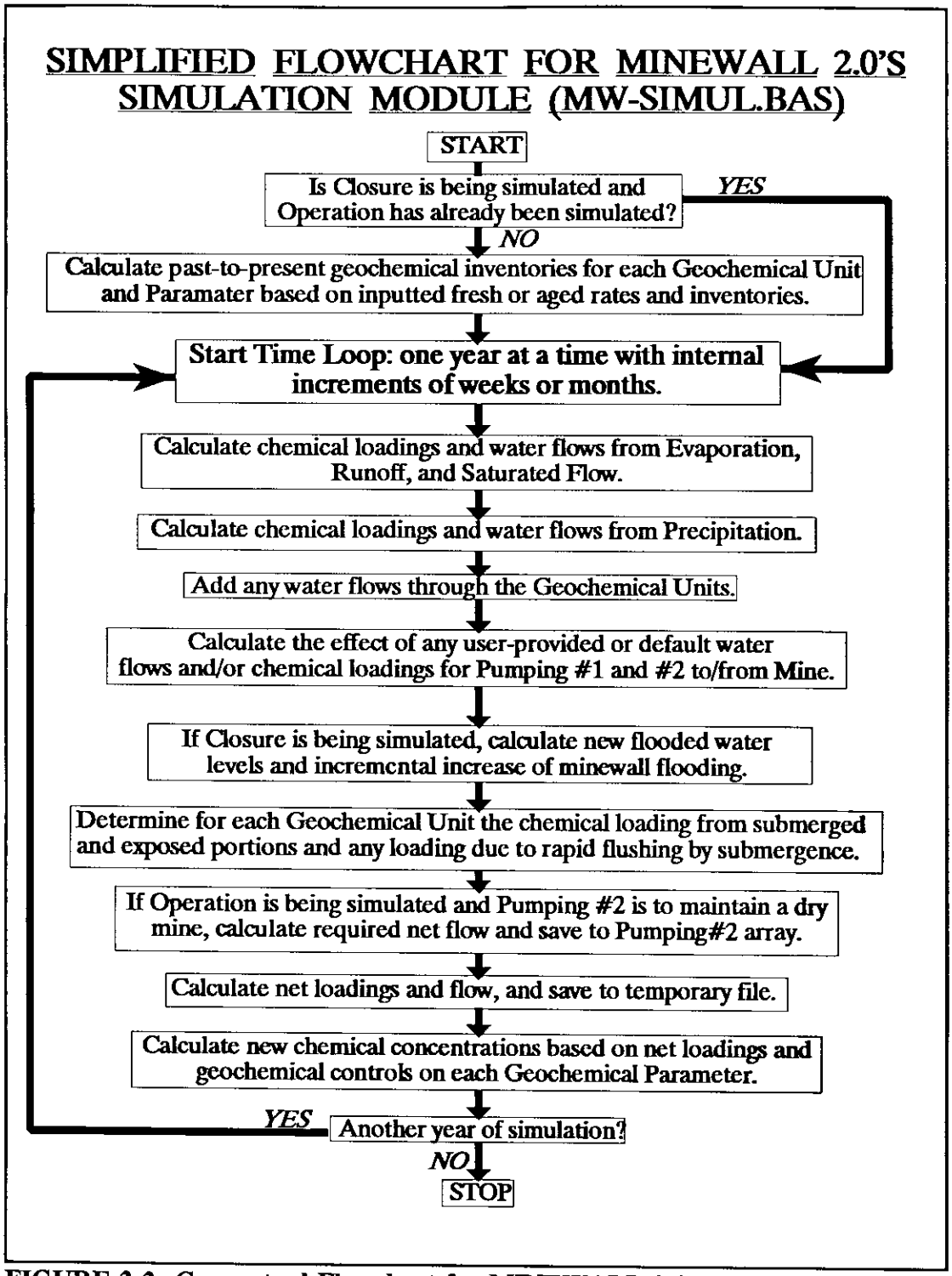

FIGURE 2-2. Conceptual Flowchart for MINEWALL 2.0 Simulation Module.

3. REFERENCES

Microsoft Corporation. 1992. Microsoft Visual Basic Programming System for MS-DOS (Version 1.0, Professional Edition). Three manuals: Programmer's Guide, Reference, and Professional Features.

Morin, K.A. 1990. Acid Drainage from Mine Walls: The Main Zone Pit at Equity Silver Mines. Report for the British Columbia AMD Task Force and Mine Environment Neutral Drainage (MEND) Program.

4. SOURCE CODE

```
' ========================================
' MINEWALL 2.0
' MW-INIT.BAS STARTUP MODULE
' INITIAL CHECKS AND DEFINITIONS
' ========================================

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

'$FORM frmHelpMain

DECLARE FUNCTION XMSError% ()
DECLARE FUNCTION XMSLoaded% ()
DECLARE FUNCTION DiskRoom (Drive$) AS LONG
DECLARE FUNCTION GetCPU% ()
DECLARE FUNCTION Peek1 (Segment%, Address%) AS INTEGER
DECLARE SUB Pause (Ticks%)
DECLARE SUB MouseDriver (m0%, m1%, m2%, m3%)
DECLARE SUB MouseHide ()
DECLARE SUB MouseInit ()
DECLARE SUB MousePoll (row%, col%, lButton%, rButton%)
DECLARE SUB MouseShow ()
DECLARE SUB MouseBorder (row1%, col1%, row2%, col2%)
DECLARE SUB ScrSettings (sMode AS INTEGER, sWidth AS INTEGER)
DECLARE SUB SetHigh ()

DIM CCL(40) AS INTEGER, SimTime_Array(12) AS INTEGER, TimeParam() AS STRING *
16, TimeCount() AS INTEGER, TimeTrack() AS LONG
DIM MinewallArray1() AS Strlen, MinewallArray2() AS STRING * 16, GeochemRate1() AS
Strlen, GeochemRate2() AS STRING * 16, FractureFlush() AS INTEGER
DIM LayerName() AS STRING * 16, LayerData() AS SINGLE, LayerTurnover() AS
INTEGER, XmsLayerName() AS INTEGER, RateAccel(10) AS SINGLE
DIM XmsName(40, 2) AS INTEGER, XmsGeochemRateName(20) AS INTEGER, PitDims() AS
STRING * 16, PitPoints(5) AS INTEGER, MonthlyDays(12) AS INTEGER, TempName(10 TO
20, 0 TO 2) AS STRING
DIM GeochemParam() AS STRING * 16, GeochemName() AS STRING * 16, GeochemLeach()
AS INTEGER, GeochemCount() AS INTEGER, GeochemPower(15) AS SINGLE
DIM GeochemInventory() AS SINGLE, CalcArray() AS SINGLE, GeochemAccum() AS
SINGLE, XmsLayerConc() AS INTEGER
DIM ChX() AS SINGLE, ChY() AS SINGLE, SeriesLabels() AS STRING
DIM YMax() AS SINGLE, YMin() AS SINGLE, XYFlag() AS SINGLE, GraphSim() AS
INTEGER, GrPrint(10) AS SINGLE


' execute code
CLS
LOCATE 12, 25
PRINT "Checking for mouse ..."
CALL MouseDriver(MP%, 0, 0, 0)
IF MP = -1 THEN
   MousePresent = 1
   LOCATE 14, 25
   PRINT "Mouse Found"
ELSE
   MousePresent = 0
   LOCATE 14, 25
   PRINT "Mouse Not Found"
END IF
CALL Pause(10)
CLS

' set MenuPop
MenuPop = 1

' set background and title-bar colors
SCREEN.ControlPanel(5) = 4
SCREEN.ControlPanel(16) = 5
SCREEN.ControlPanel(0) = 4

'check for monochrome monitor to set 3-D off
IF Peek1%(0, &H463) = &HB4 THEN
  SCREEN.ControlPanel(15) = 0
  SCREEN.ControlPanel(0) = 15
END IF


MSG$ = "                Welcome to MINEWALL Version 2.0" + CHR$(13) +
STRING$(75, 205) + CHR$(13) + "  This Program was sponsored by the Mine Environment
Neutral Drainage (MEND) Program and"
MSG$ = MSG$ + " the British Columbia Acid Mine Drainage Task Force.  Funding was
provided under the Canada/British Columbia Mineral Development Agreement through the
Governments of Canada and British Columbia." + CHR$(13) + CHR$(13)
MSG$ = MSG$ + "  Additional assistance was provided by BHP Minerals' Island Copper
Mine and Noranda Minerals' Bell Mine." + CHR$(13) + CHR$(13)
MSG$ = MSG$ + "  All questions and comments should be directed to Mr. Carl Weatherell of
CANMET at (613) 995-3097."
MSGBOX MSG$, 0, "WELCOME!"

TYPE XMSInfoType
   XMSVersion AS INTEGER
   DriverVersion AS INTEGER
   NumHandles AS INTEGER
   FreeMem AS INTEGER
   Largest AS INTEGER
   HMAAvail AS INTEGER
   LargestUMB AS LONG
END TYPE

DIM XMS AS XMSInfoType

CPU = GetCPU
IF CPU < 286 THEN
   MSG$ = "The CPU on this machine cannot run MINEWALL 2.0!"
   MSGBOX MSG$, 0, "A BIG PROBLEM!!"
   END
ELSEIF CPU < 300 AND CPU > 280 THEN
   MSG$ = "The CPU on this computer is a 80286 and cannot run this copy of MINEWALL
2.0.  Contact MEND for an '80286' copy."
   MSGBOX MSG$, 0, "A BIG PROBLEM!"
   END
END IF

IF XMSLoaded% THEN
   CALL XmsInfo(XMS)
ELSE
   MSG$ = "Your PC does not have extended (XMS) memory.  You cannot run MINEWAL 2.0
without XMS memory."
   MSGBOX MSG$, 0, "A BIG PROBLEM!"
   END
END IF
MinewallMemory! = XMS.FreeMem * .001
Drive$ = ""
MinewallDiskSpace! = DiskRoom(Drive$) * .000001

' initialize MonthlyDays array for later use
MonthlyDays(0) = 31
MonthlyDays(1) = 29
MonthlyDays(2) = 31
MonthlyDays(3) = 30
MonthlyDays(4) = 31
MonthlyDays(5) = 30
MonthlyDays(6) = 31
MonthlyDays(7) = 31
MonthlyDays(8) = 30
MonthlyDays(9) = 31
MonthlyDays(10) = 30
MonthlyDays(11) = 31

FOR I = 1 TO 10
   RateAccel(I) = 1!
NEXT

SubmergenceFactor = 0!

FOR I = 10 TO 20
   J = 0
   TempName(I, J) = "TEMPLY" + LTRIM$(RTRIM$(STR$(I - 9))) + ".MWL"
   IF I = 10 THEN TempName(I, J) = "TEMPPB.MWL"
   FOR J = 1 TO 2
      TempName(I, J) = "TEMP" + LTRIM$(RTRIM$(STR$(I)))
      IF I = 11 THEN TempName(I, J) = "TEMPMS"
      IF J = 1 THEN
         TempName(I, J) = TempName(I, J) + "OP.MWL"
      ELSE
         TempName(I, J) = TempName(I, J) + "CL.MWL"
      END IF
   NEXT
NEXT

CALL HelpRegister("MW20.HLP", HelpLoaded)
```

```
IF HelpLoaded = 0 THEN
   MSG$ = "Cannot load Help File, MW20.HLP." + CHR$(13) + CHR$(10)
   MSG$ = MSG$ + "No on-line Help will be available."
   MSGBOX MSG$
ELSE
   CALL HelpSetOptions(7, 0, 7, 0, 7, 10, 83)
   frmHelpMain.HIDE
   UNLOAD frmHelpMain
END IF

' show the main menu
Form1.SHOW

' terminate MINEWALL only from Procedure InputFileExit in Main Menu

'*************************************
' MINEWALL 2.0
' MW-MAINM.FRM FORM MODULE
' "MAIN MENU"
' CENTRAL CONTROL CORE OF PROGRAM
' (STARTUP MODULE IS MW-INIT.BAS)
'*************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

' declare main sub's
DECLARE SUB About (AboutText AS STRING, ForeColor AS INTEGER, BackColor AS
INTEGER, Flags AS INTEGER)
DECLARE SUB FileOpen (FileName AS STRING, PathName AS STRING, DefaultExt AS
STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS INTEGER, Flags
AS INTEGER, Cancel AS INTEGER)
DECLARE SUB FileSave (FileName AS STRING, PathName AS STRING, DefaultExt AS
STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS INTEGER, Flags
AS INTEGER, Cancel AS INTEGER)
DECLARE SUB RunSpr (NumRows%, NumCols%, ArrayName() AS STRING * 16)
DECLARE SUB MinewallDataSave ()
DECLARE SUB MinewallDataGet ()
DECLARE SUB MinewallSimulate ()
DECLARE SUB MinewallTimeLabel ()
DECLARE SUB SetupSpread ()
DECLARE SUB MinewallClear ()
DECLARE SUB MinewallGraphics ()
DECLARE SUB MinewallChemistry (NewRows)
DECLARE SUB MinewallXMS ()
DECLARE SUB MinewallBrowse ()
DECLARE SUB MinewallDatafile ()
DECLARE SUB MinewallUnits ()
DECLARE SUB MinewallReport ()

' declare other sub's and functions
DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB XmsGet1El (SEG Value AS ANY, ElSize, ElNum, Handle)
DECLARE SUB XmsSet1El (SEG Value AS ANY, ElSize, ElNum, Handle)
DECLARE SUB XmsAllocMem (BYVAL NumK, Handle)
DECLARE SUB XmsRelMem (BYVAL Handle)
DECLARE SUB XmsSetError (BYVAL ErrNumber)
DECLARE SUB XmsInfo (Info AS ANY)
DECLARE FUNCTION PRNReady (LPTNumber%) AS STRING
DECLARE FUNCTION XMSError% ()
DECLARE SUB Pause (Ticks%)
DECLARE FUNCTION BestMode ()
DECLARE FUNCTION DiskRoom (Drive$) AS LONG
DECLARE FUNCTION XMSLoaded% ()
DECLARE FUNCTION Exist% (FileName$)


'$FORM Form3
'$FORM Form2
'$FORM Unit2
'$FORM Unit1
'$FORM Unit3
'$FORM Form3
'$FORM Form5
'$FORM Form4
'$FORM Geoparam
'$FORM Time3
'$FORM Time2
'$FORM WaitForm
'$FORM SatForm
'$FORM ProgForm
'$FORM ProgGauge
'$FORM BrowseForm1
'$FORM BrowseForm2

TYPE XMSInfoType
   XMSVersion AS INTEGER
   DriverVersion AS INTEGER
   NumHandles AS INTEGER
   FreeMem AS INTEGER
   Largest AS INTEGER
   HMAAvail AS INTEGER
   LargestUMB AS LONG
END TYPE

DIM SHARED XMS AS XMSInfoType

Version 1.00
BEGIN Form Form1
        AutoRedraw   = 0
        BackColor    = QBColor(9)
        BorderStyle  = 3
        Caption      = "MINEWALL 2.0 Main Menu"
        ControlBox   = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(25)
        Left         = Char(0)
        MaxButton    = 0
        MinButton    = 0
        MousePointer = 0
        Tag          = ""
        Top          = Char(0)
        Visible      = -1
        Width        = Char(80)
        WindowState  = 0
        BEGIN Menu mnuFile
                Caption    = "    &File    "
                Checked    = 0
                Enabled    = -1
                Separator  = 0
                Tag        = ""
                Visible    = -1
                BEGIN Menu mnuFileLoad
                        Caption    = "&Open Existing Data File"
                        Checked    = 0
                        Enabled    = -1
                        Separator  = 0
                        Tag        = ""
                        Visible    = -1
                END
                BEGIN Menu mnuFileSave
                        Caption    = "&Save Current Data"
                        Checked    = 0
                        Enabled    = -1
                        Separator  = 0
                        Shortcut   = {F2}
                        Tag        = ""
                        Visible    = -1
                END
                BEGIN Menu mnuFileErase
                        Caption    = "&Erase Current Data"
                        Checked    = 0
                        Enabled    = -1
                        Separator  = 0
                        Tag        = ""
                        Visible    = -1
                END
                BEGIN Menu mnuFileSep1
                        Caption    = ""
                        Checked    = 0
                        Enabled    = -1
                        Separator  = -1
                        Tag        = ""
                        Visible    = -1
                END
                BEGIN Menu mnuFileExit
                        Caption    = "E&xit MINEWALL"
```

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            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Shortcut    = {F9}
            Tag         = ""
            Visible     = -1
        END
    END
    BEGIN Menu mnuInput
        Caption     = "  &Input Data  "
        Checked     = 0
        Enabled     = -1
        Separator   = 0
        Tag         = ""
        Visible     = -1
        BEGIN Menu mnuInputTitle
            Caption     = "&Title"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputTime
            Caption     = "Time &Criteria"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputGeochemParam
            Caption     = "&Geochemical Parameters"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputSep1
            Caption     = ""
            Checked     = 0
            Enabled     = -1
            Separator   = -1
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputPitUnits
            Caption     = "Pit - Rock/Geochemical &Units"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputPitLayout
            Caption     = "Pit - Physical/Geochemical &Layout"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputPitPrecip
            Caption     = "Pit - &Precipitation"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputPitEvap
            Caption     = "Pit - &Evaporation"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputPitRunoff
            Caption     = "Pit - &Runoff"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputPitSat
            Caption     = "Pit - &Saturated Flow"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputPitPump1
            Caption     = "Pit - Pumping/&1 to/from Pit"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInputPitPump2
            Caption     = "Pit - Pumping/&2 to/from Pit"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
    END
    BEGIN Menu mnuOutput
        Caption     = "    &Output    "
        Checked     = 0
        Enabled     = -1
        Separator   = 0
        Tag         = ""
        Visible     = -1
        BEGIN Menu mnuOutputOperationSim
            Caption     = "&Operation - Simulate"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Shortcut    = {F3}
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputOperationBrowse
            Caption     = "Operation - &Browse Simulation
Results"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputOperationGraphics
            Caption     = "Operation - &Graph Simulation
Results"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputOperationDatafile
            Caption     = "Operation - Create Data &File"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputOperationReport
            Caption     = "Operation - &Write Simulation
Report"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
```

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            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputSep1
            Caption     = ""
            Checked     = 0
            Enabled     = -1
            Separator   = -1
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputClosureSim
            Caption     = "&Closure - Simulate"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Shortcut    = {F4}
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputClosureBrowse
            Caption     = "Closure - Browse &Simulation
Results"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputClosureGraphics
            Caption     = "Closure - Gra&ph Simulation
Results"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputClosureDatafile
            Caption     = "Closure - Create &Data File"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuOutputClosureReport
            Caption     = "Closure - W&rite Simulation Report"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
    END
    BEGIN Menu mnuInfo
        Caption     = "  Infor&mation
        Checked     = 0
        Enabled     = -1
        Separator   = 0
        Tag         = ""
        Visible     = -1
        BEGIN Menu mnuInfoHelp
            Caption     = "&Help"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Shortcut    = {F1}
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInfoAbout
            Caption     = "&About MINEWALL..."
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInfoMenuPop
            Caption     = "&Menu Pop"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
        BEGIN Menu mnuInfoMemory
            Caption     = "Memory/Disk &Check"
            Checked     = 0
            Enabled     = -1
            Separator   = 0
            Tag         = ""
            Visible     = -1
        END
    END
END

REM $DYNAMIC
DEFSNG A-Z
SUB Form_Load ()
  mnuInputTime.Enabled = False
  mnuInputGeochemParam.Enabled = False
  mnuInputPitPrecip.Enabled = False
  mnuInputPitUnits.Enabled = False
  mnuInputPitSat.Enabled = False
  mnuInputPitEvap.Enabled = False
  mnuInputPitRunoff.Enabled = False
  mnuInputPitUnsat.Enabled = False
  mnuInputPitSat.Enabled = False
  mnuInputPitPump1.Enabled = False
  mnuInputPitPump2.Enabled = False
  mnuInputPitLayout.Enabled = False
  mnuInputUGLayout.Enabled = False
  mnuInputUGGeochem.Enabled = False
  mnuInputUGDiffuse.Enabled = False
  mnuInputUGTrickle.Enabled = False
  mnuInputUGInand.Enabled = False
  mnuInputUGOther1.Enabled = False
  mnuInputUGOther2.Enabled = False
  IF MenuPop = 1 THEN mnuInfoMenuPop.Checked = True

  MSG$ = "MINEWALL 2.0 requires extended (XMS) memory to run.  This PC has " +
STR$(MinewallMemory) + " Mb of free XMS, "
  IF MinewallMemory < 2.1 THEN
    MSG2$ = MSG$ + "which may NOT be sufficient to run MINEWALL even on a
monthly basis unless only a few parameters are selected."
  ELSEIF MinewallMemory < 8.4 THEN
    MSG2$ = MSG$ + "which may only be sufficient to run MINEWALL on a monthly
basis, or a weekly basis with only a few parameters."
  ELSEIF MinewallMemory < 32! THEN
    MSG2$ = MSG$ + "which may only be sufficient XMS to run MINEWALL on a weekly
or monthly basis, or a daily basis with a few parameters."
  ELSE
    MSG2$ = MSG$ + "which is sufficient to run MINEWALL under any time frequency
(daily, weekly, or monthly)."
  END IF
  MSGBOX MSG2$, 0, "CHECK OF FREE XMS MEMORY"
  NL$ = CHR$(10) + CHR$(13)
  MSG$ = MSG$ + NL$ + NL$
  MSG$ = "MINEWALL 2.0 requires at least 10 Mb of free hard-disk space and an additional
2 to 200 Mb if you enter different values for each year.  "
  MSG$ = MSG$ + "Your current hard drive has " + STR$(MinewallDiskSpace) + " Mb."
  MSGBOX MSG$, 0, "CHECK OF FREE HARD-DRIVE SPACE ON CURRENT DRIVE"
  REDIM GeochemLeach(25, 1) AS INTEGER, GeochemCount(40, 1) AS INTEGER
  IF Exist("TEMPMSOP.MWL") = -1 THEN KILL ("TEMPMSOP.MWL")
  IF Exist("TEMPPB.MWL") = -1 THEN KILL ("TEMPPB.MWL")
  IF Exist("TEMPMSCL.MWL") = -1 THEN KILL ("TEMPMSCL.MWL")
  IF Exist("TEMPLY*.MWL") = -1 THEN KILL ("TEMPLY*.MWL")

END SUB

DEFINT A-Z
SUB mnuFileErase_Click ()
  MSG$ = "Are you sure you want to erase all current data in MINEWALL?"
  A = MSGBOX(MSG$, 1, "Erase Data Currently Entered Into MINEWALL")
  IF A > 1 THEN
    EXIT SUB
  END IF
  CCL(0) = 0
```

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    CALL MinewallClear
END SUB

DEFSNG A-Z
SUB mnuFileExit_Click ()
    MSG$ = "Are you sure all input data are saved and you want to leave MINEWALL?"
    Response% = MSGBOX(MSG$, 3, "EXIT MINEWALL")
    IF Response% = 6 THEN
        CALL HelpClose
        END
    END IF
END SUB

SUB mnuFileLoad_Click ()
    CALL MinewallDataGet
    CCL(39) = 0 'do not preserve any flag for output
    CCL(40) = 0
END SUB

SUB mnuFileSave_Click ()
    CCL(39) = 0 'do not save any flag for output
    CCL(40) = 0
    CALL MinewallDataSave
END SUB

SUB mnuInfoAbout_Click ()
    CALL About("About MINEWALL", 9, 7, 1)
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

DEFINT A-Z
SUB mnuInfoHelp_Click ()
    Form1.HIDE
    CALL HelpShowTopic("Help")
    'CALL HelpClose
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

REM $STATIC
SUB mnuInfoMemory_Click ()
    IF XMSLoaded% THEN
        CALL XmsInfo(XMS)
    END IF
    MinewallMemory! = XMS.FreeMem * .001
    MinewallHandles = XMS.NumHandles

    NL$ = CHR$(13) + CHR$(10)
    MSG$ = "Remaining bytes in far memory for code and data: " + STR$(FRE(-1)) + NL$
    MSG$ = MSG$ + "Remaining bytes in stack space: " + STR$(FRE(-2)) + NL$
    MSG$ = MSG$ + "Remaining XMS memory in megabytes: " + STR$(MinewallMemory!)
+ NL$
    MSG$ = MSG$ + "Remaining number of free XMS handles: " + STR$(MinewallHandles)
+ NL$ + NL$
    Drive$ = ""
    MinewallDiskSpace! = DiskRoom(Drive$) * .000001
    MSG$ = MSG$ + "Remaining megabytes on the default disk drive: " +
STR$(MinewallDiskSpace)
    MSGBOX MSG$, 0, "Check of Free Memory and Disk Space"
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuInfoMenuPop_Click ()
    NL$ = CHR$(10) + CHR$(13)
    MSG$ = "Menu Pop causes the 'Input Data' or 'Output' pulldown menus to" + NL$
    MSG$ = MSG$ + "automatically re-appear after you have completed an option under them."
+ NL$
    MSG$ = MSG$ + "You can disable this option by choosing 'No' below." + NL$ + NL$
    IF MenuPop = 1 THEN
        MSG2$ = "ENABLED."
    ELSE
        MSG2$ = "DISABLED."
    END IF
    MSG$ = MSG$ + "Menu Pop is currently " + MSG2$ + NL$ + NL$
    MSG$ = MSG$ + "Do you want Menu Pop enabled?"
    Action% = MSGBOX(MSG$, 4, "Menu Pop Option")
    IF Action = 6 THEN
        MenuPop = 1
        Form1.mnuInfoMenuPop.Checked = True
    ELSE
        MenuPop = 0
        Form1.mnuInfoMenuPop.Checked = False
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

REM $DYNAMIC
DEFSNG A-Z
SUB mnuInputGeochemParam_Click ()
    LOAD Geoparam
    Form1.HIDE
    Geoparam.SHOW 1
    UNLOAD Geoparam
    IF CCL(0) < > -1 THEN mnuInputGeochemParam.Checked = True
    IF MenuPop = 1 THEN
        M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
        CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW
END SUB

DEFINT A-Z
SUB mnuInputPitEvap_Click ()
    Form1.HIDE
    REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
    CCL(0) = 16
    MinewallArray2(1, 1) = "* PIT EVAP"
    MinewallArray2(2, 2) = "Evap (m^3/d)"
    HlpName = "Evaporation"
    CALL SetupSpread
    REDIM MinewallArray1(1, 1) AS Strlen, MinewallArray2(1, 1) AS STRING * 16
    IF MenuPop = 1 THEN
        M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
        CALL StuffBuf(M$)
    END IF
    IF CCL(16) > 0 THEN Form1.mnuInputPitEvap.Checked = True
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuInputPitLayout_Click ()
    ' get PitDims and Layer information
    NumCols = 4 + CCL(12)
    NumRows = 25
REM If data already exist, ask if old data should be erased or just edited
    IF CCL(11) > 0 THEN
        CCL(0) = 11
        Form4.SHOW 1
        IF CCL(11) < 0 THEN
            CCL(11) = CCL(11) + 50
            Form1.SHOW
            EXIT SUB
        END IF
    END IF
    HlpName = "Physical/Geochemical Layout"
    IF CCL(11) < 1 THEN ' No data entered yet
        Form1.HIDE
        REDIM PitDims(NumRows, NumCols) AS STRING * 16
        PitDims(1, 1) = "* MINE DIM'S"
        PitDims(2, 1) = "Important Pts."
        PitDims(2, 2) = "Elev. (msl)"
        PitDims(2, 3) = "Cum.Vol.(m^3)"
        PitDims(2, 4) = "Area (m^2)"
        FOR I = 1 TO CCL(12)
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      PitDims(2, I + 4) = "Unit#" + STR$(I) + " (Cum.%)"
    NEXT
    PitDims(3, 1) = "Top of Mine"
    PitDims(4, 1) = "Drain Level"
    PitDims(5, 1) = "Equil. Level"
    PitDims(20, 1) = "Bottom of Mine"
    CALL RunSpr(NumRows, NumCols, PitDims())
    FOR I = 3 TO NumRows 'identify PitPoints
      A$ = LTRIM$(PitDims(I, 1))
      J = 1
      IF MID$(A$, 1, 1) = "'" THEN J = 2
      IF MID$(A$, J, 1) = "T" OR MID$(A$, J, 1) = "t" THEN PitPoints(1) = I - 2
      IF MID$(A$, J, 1) = "D" OR MID$(A$, J, 1) = "d" THEN PitPoints(2) = I - 2
      IF MID$(A$, J, 1) = "E" OR MID$(A$, J, 1) = "e" THEN PitPoints(3) = I - 2
      IF MID$(A$, J, 1) = "B" OR MID$(A$, J, 1) = "b" THEN PitPoints(4) = I - 2
    NEXT
    'set defaults
    IF PitPoints(1) = NumRows - 2 THEN PitPoints(1) = 1
    IF PitPoints(2) = NumRows - 2 THEN PitPoints(2) = 1
    IF PitPoints(2) < PitPoints(1) THEN PitPoints(2) = PitPoints(1)
    IF PitPoints(3) = NumRows - 2 THEN PitPoints(3) = 1
    IF PitPoints(3) < PitPoints(2) THEN PitPoints(3) = PitPoints(2)
    IF PitPoints(4) < PitPoints(3) THEN PitPoints(4) = PitPoints(3)
    CCL(11) = PitPoints(4)
  ELSE ' Data already entered
    Form1.HIDE
    PitDims(1, 1) = "* MINE DIM'S"
    PitDims(2, 1) = "Important Pts."
    PitDims(2, 2) = "Elev. (msel)"
    PitDims(2, 3) = "Cum.Vol.(m^3)"
    PitDims(2, 4) = "Area (m^2)"
    FOR I = 1 TO CCL(12)
      PitDims(2, I + 4) = "Unit#" + STR$(I) + " (Cum.%)"
    NEXT
    PitDims(PitPoints(1) + 2, 1) = "Top of Mine"
    PitDims(PitPoints(2) + 2, 1) = "Drain Level"
    PitDims(PitPoints(3) + 2, 1) = "Equil. Level"
    PitDims(PitPoints(4) + 2, 1) = "Bottom of Mine"
    ' ******* show data
    CALL RunSpr(NumRows, NumCols, PitDims())
    ' ******* return data
    FOR I = 3 TO NumRows
      A$ = LTRIM$(PitDims(I, 1))
      J = 1
      IF MID$(A$, 1, 1) = "'" THEN J = 2
      IF MID$(LTRIM$(A$), J, 1) = "T" OR MID$(LTRIM$(A$), J, 1) = "t" THEN
PitPoints(1) = I - 2
      IF MID$(LTRIM$(A$), J, 1) = "D" OR MID$(LTRIM$(A$), J, 1) = "d" THEN
PitPoints(2) = I - 2
      IF MID$(LTRIM$(A$), J, 1) = "E" OR MID$(LTRIM$(A$), J, 1) = "e" THEN
PitPoints(3) = I - 2
      IF MID$(LTRIM$(A$), J, 1) = "B" OR MID$(LTRIM$(A$), J, 1) = "b" THEN
PitPoints(4) = I - 2
    NEXT
    'set defaults
    IF PitPoints(1) = NumRows - 2 THEN PitPoints(1) = 1
    IF PitPoints(2) = NumRows - 2 THEN PitPoints(2) = 1
    IF PitPoints(2) < PitPoints(1) THEN PitPoints(2) = PitPoints(1)
    IF PitPoints(3) = NumRows - 2 THEN PitPoints(3) = 1
    IF PitPoints(3) < PitPoints(2) THEN PitPoints(3) = PitPoints(2)
    IF PitPoints(4) < PitPoints(3) THEN PitPoints(4) = PitPoints(3)
    CCL(11) = PitPoints(4)
  END IF
  CCL(0) = 10
  ' *****
  CALL MinewallLayerChem
  ' *****
  IF MenuPop = 1 THEN
    M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
    CALL StuffBuf(M$)
  END IF
  IF CCL(10) < 0 THEN ' if MinewallLayerChem says to Quit
    CCL(10) = CCL(10) + 50
    EXIT SUB
  END IF
  IF CCL(11) > 0 THEN Form1.mnuInputPitLayout.Checked = True
  Form1.Top = 0
  Form1.Left = 0
  Form1.SHOW
END SUB

DEFSNG A-Z
SUB mnuInputPitPrecip_Click ()
  DEFINT A-Z
  Form1.HIDE
  REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
  CCL(0) = 13
  HlpName = "Precipitation"
  MinewallArray2(1, 1) = "* MINE PRECIP"
  MinewallArray2(2, 2) = "Precip (m/d)"
  CALL SetupSpread
  IF MenuPop = 1 THEN
    M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
    CALL StuffBuf(M$)
  END IF
  REDIM MinewallArray1(1, 1) AS Strlen, MinewallArray2(1, 1) AS STRING * 16
  IF CCL(13) > 0 THEN Form1.mnuInputPitPrecip.Checked = True
  Form1.Top = 0
  Form1.Left = 0
  Form1.SHOW


END SUB

SUB mnuInputPitPump1_Click ()
  DEFINT A-Z
  Form1.HIDE
  REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
  MinewallArray2(1, 1) = "* MINE PUMP #1"
  MinewallArray2(2, 2) = "Pumping (m^3/d)"
  HlpName = "Pumping#1 to/from Mine"
  CCL(0) = 17
  CALL SetupSpread
  IF MenuPop = 1 THEN
    M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
    CALL StuffBuf(M$)
  END IF
  REDIM MinewallArray1(1, 1) AS Strlen, MinewallArray2(1, 1) AS STRING * 16
  IF CCL(17) > 0 THEN Form1.mnuInputPitPump1.Checked = True
  Form1.Top = 0
  Form1.Left = 0
  Form1.SHOW

END SUB

SUB mnuInputPitPump2_Click ()
  DEFINT A-Z
  Form1.HIDE
  REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
  MinewallArray2(1, 1) = "* MINE PUMP #2"
  MinewallArray2(2, 2) = "Pumping (m^3/d)"
  HlpName = "Pumping#2 to/from Mine"
  CCL(0) = 18
  CALL SetupSpread
  IF MenuPop = 1 THEN
    M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
    CALL StuffBuf(M$)
  END IF
  REDIM MinewallArray1(1, 1) AS Strlen, MinewallArray2(1, 1) AS STRING * 16
  IF CCL(18) > 0 THEN Form1.mnuInputPitPump2.Checked = True
  Form1.Top = 0
  Form1.Left = 0
  Form1.SHOW

END SUB

SUB mnuInputPitRunoff_Click ()
  DEFINT A-Z
  Form1.HIDE
  REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
  MinewallArray2(1, 1) = "* MINE RUNOFF"
  MinewallArray2(2, 2) = "Runoff (m^3/d)"
  HlpName = "Runoff"
  CCL(0) = 15
  CALL SetupSpread
  IF MenuPop = 1 THEN
    M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
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    CALL StuffBuf(M$)
  END IF
  REDIM MinewallArray1(1, 1) AS Strlen, MinewallArray2(1, 1) AS STRING * 16
  IF CCL(15) > 0 THEN Form1.mnuInputPitRunoff.Checked = True
  Form1.Top = 0
  Form1.Left = 0
  Form1.SHOW


END SUB

SUB mnuInputPitSat_Click ()
  DEFINT A-Z
  Form1.HIDE
  REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
  MinewallArray2(1, 1) = "* MINE SATUR GW"
  MinewallArray2(2, 2) = "Flow (m^3/d)"
  HlpName = "Saturated Flow"
  CCL(0) = 14
  CALL SetupSpread
  IF MenuPop = 1 THEN
    M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
    CALL StuffBuf(M$)
  END IF
  REDIM MinewallArray1(1, 1) AS Strlen, MinewallArray2(1, 1) AS STRING * 16
  IF CCL(14) > 0 THEN Form1.mnuInputPitSat.Checked = True
  Form1.Top = 0
  Form1.Left = 0
  Form1.SHOW


END SUB

SUB mnuInputPitUnits_Click ()
  HlpName = "Rock/Geochemical Units"
  CCL(0) = 12
  CALL MinewallUnits
  IF MenuPop = 1 THEN
    M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
    CALL StuffBuf(M$)
  END IF
  IF CCL(12) > 0 THEN Form1.mnuInputPitUnits.Checked = True
  Form1.Top = 0
  Form1.Left = 0
  Form1.SHOW

END SUB

SUB mnuInputTime_Click ()
  Form1.HIDE
  NL$ = CHR$(13) + CHR$(10)
  IF SimTime_Array(6) > 0 OR CCL(3) > 0 THEN
    MSG$ = "Any changes to the following screen or choosing OK" + NL$
    MSG$ = MSG$ + " will lead to erasure of previously entered data." + NL$ + NL$
    MSG$ = MSG$ + "Choose Quit if you do not want data erased."
  ELSE
    MSG$ = "Make selections on the following screen carefully." + NL$ + NL$
    MSG$ = MSG$ + "Later changes in the selections will lead to deletion" + NL$
    MSG$ = MSG$ + " of some previously entered data."
  END IF
  MSGBOX MSG$, 0, "IMPORTANT!"
  LOAD Form2
  Form2.SHOW 0
  LOAD Time2
  LOAD Time3
  IF CCL(3) > 0 THEN Time3.SHOW 0
  IF CCL(3) < 2 THEN Time2.SHOW 0
END SUB

DEFSNG A-Z
SUB mnuInputTitle_Click ()
  LOAD Form3
  Form3.SHOW 1
  UNLOAD Form3
  Form1.HIDE
  mnuInputTime.Enabled = True
  mnuInputGeochemParam.Enabled = True
  mnuInputTitle.Checked = True
  IF MenuPop = 1 THEN
    M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
    CALL StuffBuf(M$)
  END IF
  Form1.Top = 0
  Form1.Left = 0
  Form1.SHOW

END SUB

DEFINT A-Z
SUB mnuInput_Click ()
  Count = 0
  IF mnuInputTitle.Checked = True THEN Count = Count + 1
  IF mnuInputTime.Checked = True THEN Count = Count + 1
  IF mnuInputGeochemParam.Checked = True THEN Count = Count + 1

  mnuInputPitUnits.Enabled = False
  mnuInputPitPrecip.Enabled = False
  mnuInputPitEvap.Enabled = False
  mnuInputPitRunoff.Enabled = False
  mnuInputPitSat.Enabled = False
  mnuInputPitPump1.Enabled = False
  mnuInputPitPump2.Enabled = False
  mnuInputPitLayout.Enabled = False
  mnuInputUGLayout.Enabled = False
  mnuInputUGGeochem.Enabled = False
  mnuInputUGDiffuse.Enabled = False
  mnuInputUGTrickle.Enabled = False
  mnuInputUGInund.Enabled = False
  mnuInputUGOther1.Enabled = False
  mnuInputUGOther2.Enabled = False
  IF CCL(2) = 0 THEN 'pit simulation
    mnuInputPitUnits.Caption = "Pit - Rock/Geochemical &Units"
    mnuInputPitPrecip.Caption = "Pit - &Precipitation"
    mnuInputPitEvap.Caption = "Pit - &Evaporation"
    mnuInputPitRunoff.Caption = "Pit - &Runoff"
    mnuInputPitSat.Caption = "Pit - &Saturated Flow"
    mnuInputPitPump1.Caption = "Pit - Pumping/&1 to/from Mine"
    mnuInputPitPump2.Caption = "Pit - Pumping/&2 to/from Mine"
    mnuInputPitLayout.Caption = "Pit - Physical/Geochemical &Layout"
  ELSE
    mnuInputPitUnits.Caption = "U/G - Rock/Geochemical &Units"
    mnuInputPitPrecip.Caption = "U/G - &Precipitation"
    mnuInputPitEvap.Caption = "U/G - &Evaporation"
    mnuInputPitRunoff.Caption = "U/G - &Runoff"
    mnuInputPitSat.Caption = "U/G - &Saturated Flow"
    mnuInputPitPump1.Caption = "U/G - Pumping/&1 to/from Mine"
    mnuInputPitPump2.Caption = "U/G - Pumping/&2 to/from Mine"
    mnuInputPitLayout.Caption = "U/G - Physical/Geochemical &Layout"
  END IF
  IF Count = 3 THEN
    IF CCL(2) < 2 THEN
      mnuInputPitUnits.Enabled = True
      IF CCL(12) > 0 THEN
        mnuInputPitLayout.Enabled = True
        mnuInputPitPrecip.Enabled = True
        mnuInputPitSat.Enabled = True
        mnuInputPitEvap.Enabled = True
        mnuInputPitRunoff.Enabled = True
        mnuInputPitPump1.Enabled = True
        mnuInputPitPump2.Enabled = True
      END IF
    END IF
    IF CCL(2) > 0 THEN
      mnuInputUGLayout.Enabled = True
      IF CCL(21) > 0 THEN
        mnuInputUGGeochem.Enabled = True
        mnuInputUGDiffuse.Enabled = True
        mnuInputUGTrickle.Enabled = True
        mnuInputUGInund.Enabled = True
        mnuInputUGOther1.Enabled = True
        mnuInputUGOther2.Enabled = True
      END IF
    END IF
  END IF
END SUB

REM $STATIC
SUB mnuOutputClosureBrowse_Click ()
  CCL(0) = 40
```

```
    CALL MinewallBrowse
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuOutputClosureDatafile_Click ()
    Form1.HIDE
    CCL(0) = 40
    CALL MinewallDatafile
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuOutputClosureGraphics_Click ()
    Form1.HIDE
    CCL(0) = 40
    CALL MinewallGraphics
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuOutputClosureReport_Click ()
    Form1.HIDE
    CCL(0) = 40
    CALL MinewallReport
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuOutputClosureSim_Click ()
    Form1.HIDE
    CCL(0) = 40
    CALL MinewallSimulate
    IF CCL(40) < 0 THEN
      CCL(40) = 0
      EXIT SUB
    ELSE
      CCL(40) = 1
    END IF
    CCL(40) = 1
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuOutputOperationBrowse_Click ()
    CCL(0) = 39
    CALL MinewallBrowse
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuOutputOperationDatafile_Click ()
    Form1.HIDE
    CCL(0) = 39
    CALL MinewallDatafile
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuOutputOperationGraphics_Click ()
    Form1.HIDE
    CCL(0) = 39
    CALL MinewallGraphics
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB mnuOutputOperationReport_Click ()
    Form1.HIDE
    CCL(0) = 39
    CALL MinewallReport
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW
END SUB

REM $DYNAMIC
SUB mnuOutputOperationSim_Click ()
    Form1.HIDE
    CCL(0) = 39
    CALL MinewallSimulate
    IF CCL(39) < 0 THEN
      CCL(39) = 0
      EXIT SUB
    ELSE
      CCL(39) = 1
    END IF
    CCL(39) = 1
    IF MenuPop = 1 THEN
      M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
      CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-BROW1.FRM FORM MODULE
' SELECT DATA TO BROWSE
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'
```

```
'$FORM BrowseForm2Version 1.00

BEGIN Form BrowseForm1
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Select the Data to Browse"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(22)
        Left         = Char(3)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(75)
        WindowState  = 0
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "Choose one (if you choose Concentration, also
choose a Layer):"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(2)
                Left         = Char(5)
                MousePointer = 0
                TabIndex     = 3
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(63)
        END
        BEGIN OptionButton optBrowse1Load
                BackColor    = QBColor(7)
                Caption      = "&Flows/Volumes, Loadings, and Remaining $ and
NP per time interval"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(1)
                MousePointer = 0
                TabIndex     = 0
                TabStop      = 0
                Tag          = ""
                Top          = Char(3)
                Value        = 0
                Visible      = -1
                Width        = Char(71)
        END
        BEGIN CommandButton cmdBrowse1Quit
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Quit"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(54)
                MousePointer = 0
                TabIndex     = 6
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdBrowse1OK
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&OK"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(7)
                MousePointer = 0
                TabIndex     = 4
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdBrowse1Help
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Help"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(31)
                MousePointer = 0
                TabIndex     = 5
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN OptionButton optBrowse1Conc
                BackColor    = QBColor(7)
                Caption      = "&Concentrations and Flows/Volumes in Layer:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(1)
                MousePointer = 0
                TabIndex     = 1
                TabStop      = -1
                Tag          = ""
                Top          = Char(6)
                Value        = -1
                Visible      = -1
                Width        = Char(53)
        END
        BEGIN ComboBox cboBrowse1Layer
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(27)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 2
                TabStop      = -1
                Tag          = ""
                Top          = Char(9)
                Visible      = -1
                Width        = Char(39)
        END
END

REM $DYNAMIC
SUB cmdBrowse1Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Browse Simulation Results")
  END IF
END SUB

SUB cmdBrowse1OK_Click ()
  IF optBrowse1Load.Value = -1 THEN
    XYFlag(1) = 0
  ELSE
    XYFlag(1) = 1
    XYFlag(2) = cboBrowse1Layer.ListIndex
    IF XYFlag(2) = -1 THEN XYFlag(2) = 0
    XYFlag(2) = XYFlag(2) + 1
  END IF
```

```
    BrowseForm1.HIDE
END SUB

SUB cmdBrowse1Quit_Click ()
    CCL(0) = -1
    BrowseForm1.HIDE
END SUB

SUB Form_Load ()
    IF CCL(0) = 39 THEN
        A$ = "1: Pit Bottom"
        cboBrowse1Layer.ADDITEM A$
    ELSE
        LastLayer = CCL(10)
        FOR I = 1 TO LastLayer
            A$ = STR$(I) + ":" + LayerName(I)
            cboBrowse1Layer.ADDITEM A$
        NEXT
    END IF
    optBrowse1Load.Value = 0
    optBrowse1Conc.Value = -1
    cboBrowse1Layer.ListIndex = 0
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-BROW2.FRM FORM MODULE
' BROWSE THROUGH SIMULATION RESULTS
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

'$FORM BrowseForm1


Version 1.00
BEGIN Form BrowseForm2
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Browse Simulation Results"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(22)
        Left         = Char(2)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(76)
        WindowState  = 0
        BEGIN TextBox txtBrowse2Text1
                BackColor    = QBColor(7)
                BorderStyle  = 1
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(15)
                Left         = Char(0)
                MousePointer = 0
                MultiLine    = -1
                ScrollBars   = 3
                TabIndex     = 0
                TabStop      = -1
                Tag          = ""
                Text         = "Browse"
                Top          = Char(2)
                Visible      = -1
                Width        = Char(72)
        END
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "You can only browse about 50-100 rows at a time.
Press Next or Previous to see another set of rows."
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(2)
                Left         = Char(12)
                MousePointer = 0
                TabIndex     = 1
                Tag          = ""
                Top          = Char(0)
                Visible      = -1
                Width        = Char(51)
        END
        BEGIN CommandButton cmdBrowse2Previous
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Previous"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(21)
                MousePointer = 0
                TabIndex     = 3
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdBrowse2Next
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Next"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(4)
                MousePointer = 0
                TabIndex     = 2
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdBrowse2Help
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Help"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(40)
                MousePointer = 0
                TabIndex     = 5
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdBrowse2Quit
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Quit"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(58)
                MousePointer = 0
                TabIndex     = 4
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
```

```
                Visible     = -1
                Width       = Char(12)
            END
END

REM $DYNAMIC
SUB cmdBrowse2Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Browse Simulation Results")
  END IF
END SUB

SUB cmdBrowse2Next_Click ()
  XYFlag(2) = 1
  BrowseForm2.HIDE
END SUB

SUB cmdBrowse2Previous_Click ()
  XYFlag(2) = 2
  BrowseForm2.HIDE
END SUB

SUB cmdBrowse2Quit_Click ()
  XYFlag(2) = 3
  BrowseForm2.HIDE
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-CHEM1.BAS CODE MODULE
' CALCULATES CONCENTRATIONS FOR LAYER 1
'    FROM LOADINGS IN MW-SIMOP (MinewallSimulateOperation)
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
COMMON SHARED /ConcCalc1/ Layer AS INTEGER, NewRows AS INTEGER
COMMON SHARED /ConcCalc2/ Conc1() AS SINGLE, WaterData() AS SINGLE

DECLARE SUB MinewallChemistry (NewRows%, Layer%)
' DECLARE SUB MinewallSpeciation ()   'not used in this version

DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB XmsRelMem (BYVAL Handle)

REM $DYNAMIC
SUB MinewallChemistry (NewRows%, Layer%)
  ' NewRows contains the number of time periods + 1, and changes through the simulation
  '   only if daily sim is used and a leap year is encountered
  DIM LoadFactor AS SINGLE, NetAcid AS SINGLE, IndConc AS SINGLE, TimeRem AS
SINGLE
  DIM GeoAcidity AS INTEGER, GeoAlk AS INTEGER, IndID1 AS INTEGER
  DIM Acidity AS SINGLE, Alkal AS SINGLE, Marker AS INTEGER
  NewCols = CCL(4) + 2
  LayerElSize = 4
  LayerNumEls = (CCL(4) * 5 + 1)
  LayerRows = LayerNumEls - 1
  DIM LayerChem(LayerNumEls) AS SINGLE

   EquilFlag = 0
   CALL Xms2Array(SEG LayerChem(0), LayerElSize, LayerNumEls,
XmsLayerName(Layer))
   ' check each parameter (column) for its geochemical control
   '   and calculate the resulting concentration ONLY if mass balance or set
   FOR J = 3 TO NewCols
    Param = J - 2
    LatRow = (Param - 1) * 5 + 2
    SELECT CASE INT(LayerChem((LatRow)))
    CASE 1  ' simple mass-balance concentrations, set equilibrium flag, or set value
      ' already done in MinewallSimulation during normalization
    CASE 2  ' equilibrium; NOT AVAILABLE IN THIS VERSION
      ' set flag for later calculations
      ' EquilFlag = 1
      EquilFlag = 0
    CASE 3  ' set value
      FOR I = 3 TO NewRows
        Conc1(I, J) = LayerChem(LatRow + 1)
      NEXT
    END SELECT
  NEXT J
  ' now check each parameter (column) for its geochemical control
  '   and calculate the resulting concentration ONLY if empirical
  FOR J = 3 TO NewCols
    Param = J - 2
    LatRow = (Param - 1) * 5 + 2
    SELECT CASE INT(LayerChem((LatRow)))
    CASE 5  ' empirical
      IF GeochemCount(Param, 1) = 1 THEN  'pH
        Marker = 1
        GeoAcidity = 0
        GeoAlk = 0
        FOR JJ = 1 TO CCL(4)
          IF GeochemCount(JJ, 1) = 5 THEN GeoAcidity = JJ + 2
          IF GeochemCount(JJ, 1) = 4 THEN GeoAlk = JJ + 2
        NEXT
        FOR I = 3 TO NewRows
          Acidity = Conc1(I, GeoAcidity)
          Alkal = Conc1(I, GeoAlk)
          NetAcid = Acidity - Alkal
          Marker = (GeoAcidity - 3) * 5 + 3
          IF NetAcid > 0 THEN ' calculate pH from acidity
            Acidity = NetAcid
            Conc1(I, GeoAcidity) = Acidity
            Conc1(I, GeoAlk) = 0
            Marker = (GeoAcidity - 3) * 5 + 3
            IF Acidity > 0 AND LayerChem(Marker) < > 0 THEN
              Conc1(I, 3) = LOG(Acidity) / LOG(10)
              Conc1(I, 3) = (Conc1(I, 3) - LayerChem(Marker + 1)) /
LayerChem(Marker)
            ELSE
              Conc1(I, 3) = 2!
            END IF
          ELSE  ' calculate from alkalinity
            Alkal = (-NetAcid)
            Conc1(I, GeoAcidity) = 0
            Conc1(I, GeoAlk) = Alkal
            Marker = (GeoAlk - 3) * 5 + 3
            IF Alkal > 0 AND LayerChem(Marker) < > 0 THEN
              Conc1(I, 3) = LOG(Alkal) / LOG(10)
              Conc1(I, 3) = (Conc1(I, 3) - LayerChem(Marker + 1)) /
LayerChem(Marker)
            ELSE
              Conc1(I, 3) = 8!
            END IF
          END IF
        NEXT
      ELSE ' not pH
        FOR I = 3 TO NewRows
          IF Marker > 0 THEN  ' pH calculated from Acidity-Alkalinity
            IF J < > GeoAcidity AND J < > GeoAlk THEN
              Conc1(I, J) = 10 ^ (LayerChem(LatRow + 1) * Conc1(I, 3) +
LayerChem(LatRow + 2))
            END IF
          ELSE
            Conc1(I, J) = 10 ^ (LayerChem(LatRow + 1) * Conc1(I, 3) +
LayerChem(LatRow + 2))
          END IF
        NEXT
      END IF
    END SELECT
  NEXT J
  FOR J = 3 TO NewCols
    Param = J - 2
    LatRow = (Param - 1) * 5 + 2
    SELECT CASE INT(LayerChem((LatRow)))
    CASE 4  ' kinetic
      FOR I = 3 TO NewRows
        'get independent conc, just using IndID1 as a value holder and store molarity into
IndConc
        IndID1 = 0
        FOR JJ = 1 TO CCL(4)
          IF GeochemCount(JJ, 1) = LayerChem(LatRow + 2) THEN IndID1 = JJ + 2
        NEXT
        IndConc = Conc1(I, IndID1) / (1000! * GeochemCount(IndID1 - 2, 0))
        'do finite difference using days as basic interval
        LoadFactor = Conc1(I, 0)
        TimeInt% = INT(LoadFactor)
        TimeRem = LoadFactor - INT(TimeInt)
```

```
        Conc1(I, J) = Conc1(I, J) / (1000! * GeochemCount(Param, 0))' convert initial
value to molarity
        FOR KLM = 1 TO Timelst
          Conc1(I, J) = Conc1(I, J) + LayerChem(LatRow + 1) * IndConc ^
LayerChem(LatRow + 3)
        NEXT
        Conc1(I, J) = Conc1(I, J) * (1000! * GeochemCount(Param, 0))'convert back to
mg/L
      NEXT
    END SELECT
  NEXT J
  ' if flag was set above by one or more Params, then
  ' ** Equilibrium not available in this version
  ' IF EquilFlag = 1 THEN CALL MinewallSpeciation
  ' **

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-CLEAR.BAS CODE MODULE
' CLEARS AND RE-INITIALIZES MINEWALL
' ************************************

'$INCLUDE: 'MW-COMDF.BI'

DECLARE SUB XmsRelMem (BYVAL Handle)
DECLARE FUNCTION Exist% (FileName$)

'$FORM Form1

REM $DYNAMIC
SUB MinewallClear ()
  IF CCL(0) = 0 THEN
    Form1.mnuInputTitle.Checked = False
    Form1.mnuInputTime.Checked = False
    Form1.mnuInputGeochemParam.Checked = False
  END IF
  Form1.mnuInputPitPrecip.Checked = False
  Form1.mnuInputPitUnits.Checked = False
  Form1.mnuInputPitEvap.Checked = False
  Form1.mnuInputPitRunoff.Checked = False
  Form1.mnuInputPitSat.Checked = False
  Form1.mnuInputPitPump1.Checked = False
  Form1.mnuInputPitPump2.Checked = False
  Form1.mnuInputPitLayout.Checked = False

  Form1.mnuInputTitle.Enabled = True
  IF CCL(0) = 0 THEN
    Form1.mnuInputTime.Enabled = False
    Form1.mnuInputGeochemParam.Enabled = False
  END IF
  Form1.mnuInputPitPrecip.Enabled = False
  Form1.mnuInputPitUnits.Enabled = False
  Form1.mnuInputPitSat.Enabled = False
  Form1.mnuInputPitEvap.Enabled = False
  Form1.mnuInputPitRunoff.Enabled = False
  Form1.mnuInputPitPump1.Enabled = False
  Form1.mnuInputPitPump2.Enabled = False
  Form1.mnuInputPitLayout.Enabled = False

  IF CCL(0) = 0 THEN
    FOR I = 1 TO 7
      CCL(I) = 0
    NEXT
  END IF
  IF CCL(12) > 0 THEN
    FOR I = 1 TO UBOUND(GeochemName, 1)
      FOR J = 1 TO UBOUND(GeochemName, 2)
        GeochemName(I, J) = ""
      NEXT
    NEXT
    FOR I = 1 TO UBOUND(FractureFlush, 1)
      FOR J = 1 TO UBOUND(FractureFlush, 2)
        FractureFlush(I, J) = 0
      NEXT
    NEXT
    FOR I = 1 TO UBOUND(GeochemRate2, 1)
      FOR J = 1 TO UBOUND(GeochemRate2, 2)
        GeochemRate2(I, J) = ""
      NEXT
    NEXT
    FOR I = 1 TO UBOUND(XmsGeochemRateName, 1)
      CALL XmsRelMem(XmsGeochemRateName(I))
      XmsGeochemRateName(I) = 0
    NEXT
  END IF
  IF CCL(11) > 0 THEN
    FOR I = 1 TO UBOUND(PitDims, 1)
      FOR J = 1 TO UBOUND(PitDims, 2)
        PitDims(I, J) = ""
      NEXT
    NEXT
    FOR I = 1 TO UBOUND(PitPoints, 1)
      PitPoints(I) = 0
    NEXT
    FOR I = 0 TO UBOUND(XmsLayerName)
      CALL XmsRelMem(XmsLayerName(I))
      XmsLayerName(I) = 0
    NEXT
  END IF
  NumRows = 1
  NumCols = CCL(10)
  REDIM LayerName(NumCols) AS STRING * 16
  REDIM XmsLayerName(NumCols) AS INTEGER
  REDIM LayerData(17, NumCols) AS SINGLE
  REDIM LayerTurnover(NumRowsSpr, 1) AS INTEGER
  FOR I = 1 TO UBOUND(XmsName, 1)
    FOR J = 0 TO UBOUND(XmsName, 2)
      CALL XmsRelMem(XmsName(I, J))
      XmsName(I, J) = 0
    NEXT
  NEXT
  FOR L = 10 TO 20
    FOR LL = 0 TO 2
      FThere = Exist(TempName(L, LL))
      'IF FThere = -1 THEN KILL TempName(L, LL)
    NEXT
  NEXT
  FOR I = 8 TO 40
    CCL(I) = 0
  NEXT
  IF CCL(0) = 0 THEN
    Title$ = ""
    FOR I = 1 TO 12
      SimTime_Array(I) = 0
    NEXT
  END IF
  IF CCL(4) > 0 THEN
    IF CCL(0) = 0 THEN
      FOR I = 1 TO UBOUND(GeochemParam, 1)
        GeochemParam(I) = ""
      NEXT
      FOR I = 1 TO UBOUND(GeochemLeach, 1)
        GeochemLeach(I, 1) = 0
      NEXT
      FOR I = 1 TO UBOUND(GeochemCount, 1)
        FOR J = 0 TO UBOUND(GeochemCount, 2)
          GeochemCount(I, J) = 0
        NEXT
      NEXT
    END IF
  END IF

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-CMNDF.BAS CODE MODULE
' STOCK FORMS FOR LOADING AND SAVING DATA
' ************************************

' ---------------------------------------------------
' Visual Basic for MS-DOS Common Dialog Toolkit
'
' Copyright (C) 1982-1992 Microsoft Corporation
```

```
'
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' and distribute the sample applications and toolkits provided with
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' in any way you find useful, provided that you agree that
' Microsoft has no warranty, obligations or liability for
' any of the sample applications or toolkits.
' ----------------------------------------------------------------

' Include file containing declarations for called procedures.
'$INCLUDE: 'MW-COMDF.BI'

' Common dialog form
'$FORM frmCmnDlg

' Procedure declarations for Common Dialog Toolkit.
' Public routines.
DECLARE SUB About (AboutText AS STRING, ForeColor AS INTEGER, BackColor AS
INTEGER, Flags AS INTEGER)
DECLARE SUB CmnDlgClose ()
DECLARE SUB CmnDlgRegister (Success AS INTEGER)
DECLARE SUB FileOpen (FileName AS STRING, PathName AS STRING, DefaultExt AS
STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS INTEGER, Flags
AS INTEGER, Cancel AS INTEGER)
DECLARE SUB FilePrint (Copies AS INTEGER, ForeColor AS INTEGER, BackColor AS
INTEGER, Cancel AS INTEGER)
DECLARE SUB FileSave (FileName AS STRING, PathName AS STRING, DefaultExt AS
STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS INTEGER, Flags
AS INTEGER, Cancel AS INTEGER)

' Private routines.
DECLARE SUB DrawAboutPicture ()
DECLARE SUB filOpenList_DblClick ()

REM $DYNAMIC
DEFSNG A-Z
' About common dialog support routine.
'
' Displays About dialog with custom picture and text.
' Dialog is centered and sized around the picture and
' text.  Text to be displayed is passed as an argument
' to procedure, picture must be created by the
' programmer in the DrawAboutPicture routine.
'
' Parameters:
'   AboutText - text to display in dialog.
'   ForeColor - sets the dialog foreground color.  Does not affect
'         SCREEN.ControlPanel color settings.
'   BackColor - sets the dialog background color.  Does not affect
'         SCREEN.ControlPanel color settings.
'   Flags     - Determines if picture is displayed.
'             Default is no picture.
'
SUB About (AboutText AS STRING, ForeColor AS INTEGER, BackColor AS INTEGER,
Flags AS INTEGER)
    ON LOCAL ERROR GOTO AboutError

    frmCmnDlg.Caption = "About MINEWALL"        ' Set form caption.

    ' Set dialog colors.
    frmCmnDlg.ForeColor = ForeColor
    frmCmnDlg.BackColor = BackColor
    frmCmnDlg.pctAbout.ForeColor = ForeColor
    frmCmnDlg.pctAbout.BackColor = BackColor
    frmCmnDlg.pctAboutPict.ForeColor = ForeColor
    frmCmnDlg.pctAboutPict.BackColor = BackColor
    frmCmnDlg.lblAboutText.ForeColor = ForeColor
    frmCmnDlg.lblAboutText.BackColor = BackColor
    frmCmnDlg.cmdAboutOK.BackColor = BackColor

    frmCmnDlg.cmdOpenHelp.Visible = 0

    ' Determine if picture should be displayed.
    IF Flags = 1 THEN
       CALL DrawAboutPicture          ' Routine that draws picture.
       PictWidth% = frmCmnDlg.pctAboutPict.Width  ' Get Width and Height of picture for
       PictHeight% = frmCmnDlg.pctAboutPict.Height ' determining size of dialog.
    ELSE
       frmCmnDlg.pctAboutPict.Visible = False     ' Make picture visible.
       PictWidth% = 0
       PictHeight% = 0
    END IF

    ' Size and position label correctly for text display.
    AboutText = "MINEWALL Version 2.0 simulates water" + CHR$(13)
    AboutText = AboutText + "flow and chemistry in open-pit and" + CHR$(13)
    AboutText = AboutText + "underground mines.  Simulations" + CHR$(13)
    AboutText = AboutText + "can address both operational and" + CHR$(13)
    AboutText = AboutText + "closure phases.  See the User's" + CHR$(13)
    AboutText = AboutText + "Manual for more information."
    frmCmnDlg.lblAboutText.Caption = AboutText
    frmCmnDlg.lblAboutText.MOVE frmCmnDlg.pctAboutPict.Left + PictWidth% + 3,
frmCmnDlg.lblAboutText.Top, frmCmnDlg.TEXTWIDTH(frmCmnDlg.lblAboutText.Caption),
frmCmnDlg.TEXTHEIGHT(frmCmnDlg.lblAboutText.Caption)
    LabelWidth% = frmCmnDlg.lblAboutText.Width     ' Get Width and Height of text for
    LabelHeight% = frmCmnDlg.lblAboutText.Height   ' determining size of dialog.

    ' Size and position About container.
    frmCmnDlg.pctAbout.BorderStyle = 0
    frmCmnDlg.pctAbout.Visible = True
    frmCmnDlg.pctAbout.Width = PictWidth% + LabelWidth% + 8
    IF LabelHeight% > PictHeight% THEN
       frmCmnDlg.pctAbout.Height = LabelHeight% + 6
    ELSE
       frmCmnDlg.pctAbout.Height = PictHeight% + 5
    END IF

    ' Center command button at the bottom of the dialog.
    frmCmnDlg.cmdAboutOK.MOVE (frmCmnDlg.pctAbout.ScaleWidth -
frmCmnDlg.cmdAboutOK.Width) \ 2, frmCmnDlg.pctAbout.ScaleHeight - 3
    frmCmnDlg.cmdAboutOK.Default = True
    frmCmnDlg.cmdAboutOK.Cancel = True

    ' Size and center dialog.
    frmCmnDlg.MOVE frmCmnDlg.Left, frmCmnDlg.Top, frmCmnDlg.pctAbout.Width + 2,
frmCmnDlg.pctAbout.Height + 2
    frmCmnDlg.MOVE (SCREEN.Width - frmCmnDlg.Width) \ 2, ((SCREEN.Height -
frmCmnDlg.Height) \ 2)

    ' Display dialog modally.
    frmCmnDlg.SHOW 1

    ' Hide or unload dialog and return control to user's program.
    ' (Hide if user chose to preload form for performance.)
    IF LEFT$(frmCmnDlg.Tag, 1) = "H" THEN
       frmCmnDlg.pctAbout.Visible = False
       frmCmnDlg.HIDE
    ELSE
       UNLOAD frmCmnDlg
    END IF

    EXIT SUB

' Error handling routine.
AboutError:
    SELECT CASE ERR
    CASE 7:                             ' Out of memory.
       MSGBOX "Out of memory.  Can't load dialog.", 0, "About"
       EXIT SUB
    CASE ELSE
       RESUME NEXT
    END SELECT
END SUB

' CmnDlgClose common dialog support routine
'
' Unloads common dialog form (if you have preloaded it for
' better performance) so program will terminate,
' otherwise common dialog form will remain loaded but
' invisible.  This routine should be called if
' CmnDlgRegister was used to preload the form.  If
' CmnDlgRegister was not used, the form will be unloaded
' after each use.
'
SUB CmnDlgClose ()
    UNLOAD frmCmnDlg          ' Unload form.
END SUB

' CmnDlgRegister common dialog support routine
'
```

```
' Loads and registers common dialog form before using it
' to obtain better performance (loaded forms display faster
' than unloaded forms). Form will remain loaded (but
' invisible) until this routine is called again to
' unload it. Thus, all common dialog usage in your
' program will be faster (form is not loaded and unload
' each time a common dialog is invoked). Keeping the
' form loaded requires more memory, however, than loading
' and unloading it each time a common dialog is used.
'
' Use of this routine is optional since the common dialog
' form does not need to be loaded before it is used (each
' common dialog routine will load the form is it is not
' loaded).
'
' Parameters:
'   Success - returns TRUE (-1) if the load or unload
'         attempt was successful, otherwise returns
'         FALSE (0).
'
SUB CmnDlgRegister (Success AS INTEGER)
   ' Set up error handling.
   ON LOCAL ERROR GOTO RegisterError

   LOAD frmCmnDlg              ' Load form.
   frmCmnDlg.Tag = "H"         ' Set flag for keeping form loaded after
                               ' each common dialog usage.

   Success = True
   EXIT SUB

' Option error handling routine.
' Trap errors that occur when preloading dialog.
RegisterError:
   SELECT CASE ERR
   CASE 7:                             ' Out of memory.
      MSGBOX "Out of memory.  Can't load Common Dialogs.", 0, "Common Dialog"
      Success = False
      EXIT SUB
   CASE ELSE
      MSGBOX ERROR$ + ".  Can't load Common Dialogs.", 0, "Common Dialog"
      Success = False
      EXIT SUB
   END SELECT
END SUB

' About Picture drawing routine for About common dialog.
'
' Creates custom text-mode (ASCII) picture to be displayed
' in About dialog.  Add code here to create the picture
' you want to display in your About dialog.  Use PRINT
' method and ForeColor and BackColor properties to
' display characters and set picture Height and Width
' properties appropriately.
'
SUB DrawAboutPicture ()
   frmCmnDlg.picAboutPict.Height = 11        ' Set picture height.
   frmCmnDlg.picAboutPict.Width = 35         ' Set picture width.
   frmCmnDlg.picAboutPict.BorderStyle = 1    ' Set border style.
   frmCmnDlg.picAboutPict.Visible = True     ' Make picture visible.

   ' Display picture.
   frmCmnDlg.picAboutPict.PRINT CHR$(179) + "M           L" + CHR$(179) + " " +
CHR$(186)
   frmCmnDlg.picAboutPict.PRINT CHR$(192) + CHR$(196) + CHR$(191); SPC(12);
CHR$(218) + CHR$(196) + CHR$(217) + " " + CHR$(186)
   frmCmnDlg.picAboutPict.PRINT " " + CHR$(179) + "I       L" + CHR$(179) + "   "
+ CHR$(186)
   frmCmnDlg.picAboutPict.PRINT SPC(2); CHR$(192) + CHR$(196) + CHR$(191); SPC(8);
CHR$(218) + CHR$(196) + CHR$(217) + "   " + CHR$(186)
   frmCmnDlg.picAboutPict.PRINT "   " + CHR$(179) + "N     A" + CHR$(198) +
STRING$(5, 205) + CHR$(185)
   frmCmnDlg.picAboutPict.PRINT SPC(4); CHR$(192) + CHR$(196) + CHR$(191); SPC(4);
CHR$(218) + CHR$(196) + CHR$(217) + "     " + CHR$(186)
   frmCmnDlg.picAboutPict.PRINT "     " + CHR$(179) + "E  W" + CHR$(179) + "
" + CHR$(204) + STRING$(1, 205) + " VERSION " + STRING$(2, 205)
   frmCmnDlg.picAboutPict.PRINT "     " + CHR$(192) + STRING$(4, 196) + CHR$(217)
+ "       " + CHR$(186)
   frmCmnDlg.picAboutPict.PRINT "                " + CHR$(204) + STRING$(3, 205) + "
2.0 " + STRING$(4, 205)
END SUB

' FileOpen common dialog support routine
'
' Displays Open dialog which allows users to select a
' file from disk.  This procedure only provides
' the user interface and returns user input.  It does
' not actually carry out the corresponding action.
'
' Parameters:
'   FileName - returns the name (without path) of the
'         file the user wants to open.  To supply
'         default filename in dialog, assign default
'         to FileName then pass it to this procedure.
'   PathName - returns the path (without filename) of
'         the file the user wants to open.  To supply
'         default path in dialog, assign default to
'         PathName then pass it to this procedure.
'         Note, only pass a valid drive and path.  Do
'         not include a filename or file pattern.
'   DefaultExt - sets the default search pattern for the
'         File Listbox.  Default pattern when DefaultExt
'         is null is "*.*".  To specify a different
'         search pattern (i.e. "*.BAS"), assign new
'         value to DefaultExt then pass it to this
'         procedure.
'   DialogTitle - sets the dialog title.  Default title
'         when DialogTitle is null is "Open".  To
'         specify a different title (i.e. "Open My File"),
'         assign new value to DialogTitle then pass it to
'         this procedure.
'   ForeColor - sets the dialog foreground color.  Does not affect
'         SCREEN.ControlPanel color settings.
'   BackColor - sets the dialog background color.  Does not affect
'         SCREEN.ControlPanel color settings.
'   Flags - unused.  Use this to customize dialog action if needed.
'   Cancel - returns whether or not user pressed the dialog's Cancel
'         button.  True (-1) means the user cancelled the dialog.
'
SUB FileOpen (FileName AS STRING, PathName AS STRING, DefaultExt AS STRING,
DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS INTEGER, Flags AS
INTEGER, Cancel AS INTEGER)
   ' Set up error handling for option validation.
   ON LOCAL ERROR GOTO FileOpenError

   ' Set form caption.
   IF DialogTitle = "" THEN
      frmCmnDlg.Caption = "Open"
   ELSE
      frmCmnDlg.Caption = DialogTitle
   END IF

   ' Determine search pattern for file listbox.
   IF DefaultExt <> "" THEN
      frmCmnDlg.filOpenList.Pattern = DefaultExt
   ELSE
      frmCmnDlg.filOpenList.Pattern = "*.*"
   END IF

   ' Determine default path.
   IF PathName <> "" THEN
      ' Set drive and path for file-system controls.
      ' Set Directory listbox path.  If PathName is different
      ' than current path, PathChange event will be triggered
      ' which updates Drive listbox drive and File listbox path.
      frmCmnDlg.dirOpenList.Path = PathName
   END IF
   ' Display current path to the user.
   frmCmnDlg.lblOpenPath.Caption = frmCmnDlg.filOpenList.Path

   ' Determine default filename to display in edit field.
   IF FileName <> "" THEN
      frmCmnDlg.txtOpenFile.Text = UCASE$(FileName)
   ELSE
      frmCmnDlg.txtOpenFile.Text = frmCmnDlg.filOpenList.Pattern
   END IF

   ' Set default and cancel command buttons.
   frmCmnDlg.cmdOpenOK.Default = True
   frmCmnDlg.cmdOpenCancel.Cancel = True
```

```
    ' Size and position Open/Save container.
    frmCmnDlg.pctFileOpen.BorderStyle = 0
    frmCmnDlg.pctFileOpen.Visible = True

    ' Size and center dialog.
    frmCmnDlg.MOVE frmCmnDlg.Left, frmCmnDlg.Top, frmCmnDlg.pctFileOpen.Width +
2, frmCmnDlg.pctFileOpen.Height + 2
    frmCmnDlg.MOVE (SCREEN.Width - frmCmnDlg.Width) \ 2, ((SCREEN.Height -
frmCmnDlg.Height) \ 2)

    ' Set dialog colors.
    frmCmnDlg.ForeColor = ForeColor
    frmCmnDlg.BackColor = BackColor
    frmCmnDlg.pctFileOpen.ForeColor = ForeColor
    frmCmnDlg.pctFileOpen.BackColor = BackColor
    frmCmnDlg.lblOpenFile.ForeColor = ForeColor
    frmCmnDlg.lblOpenFile.BackColor = BackColor
    frmCmnDlg.txtOpenFile.ForeColor = ForeColor
    frmCmnDlg.txtOpenFile.BackColor = BackColor
    frmCmnDlg.lblOpenPath.ForeColor = ForeColor
    frmCmnDlg.lblOpenPath.BackColor = BackColor
    frmCmnDlg.filOpenList.ForeColor = ForeColor
    frmCmnDlg.filOpenList.BackColor = BackColor
    frmCmnDlg.drvOpenList.ForeColor = ForeColor
    frmCmnDlg.drvOpenList.BackColor = BackColor
    frmCmnDlg.dirOpenList.ForeColor = ForeColor
    frmCmnDlg.dirOpenList.BackColor = BackColor
    frmCmnDlg.cmdOpenOK.BackColor = BackColor
    frmCmnDlg.cmdOpenCancel.BackColor = BackColor

    ' Display dialog modally.
    frmCmnDlg.SHOW 1

    ' Determine if user canceled dialog.
    IF frmCmnDlg.cmdOpenCancel.Tag <> "FALSE" THEN
        Cancel = True
    ' If not, return FileName and PathName.
    ELSE
        Cancel = False
        FileName = frmCmnDlg.txtOpenFile.Text
        PathName = frmCmnDlg.filOpenList.Path
        frmCmnDlg.cmdOpenCancel.Tag = ""
    END IF

    ' Hide or unload dialog and return control to user's program.
    ' (Hide if user chose to preload form for performance.)
    IF LEFT$(frmCmnDlg.Tag, 1) = "H" THEN
        frmCmnDlg.pctFileOpen.Visible = False
        frmCmnDlg.HIDE
    ELSE
        UNLOAD frmCmnDlg
    END IF

    EXIT SUB

' Option error handling routine.
' Ignore errors here and let dialog's controls
' handle the errors.
FileOpenError:
    SELECT CASE ERR
    CASE 7:                             ' Out of memory.
        MSGBOX "Out of memory.  Can't load dialog.", 0, "FileOpen"
        Cancel = True
        EXIT SUB
    CASE ELSE
        RESUME NEXT
    END SELECT
END SUB

' FilePrint common dialog support routine
'
' Displays Print dialog which allows users to select
' Print destination (PRINTER.PrintTarget) and the
' number of copies to print.  This procedure only provides
' the user interface and returns user input.  It does
' not actually carry out the corresponding action.
'
' Parameters:
'   Copies - returns the number of copies (1 to 99) the user wants
'       to print.  To supply default number of copies
'       in dialog, assign default to Copies then
'       pass it to this procedure (default when Copies
'       is 0 is 1).
'   ForeColor - sets the dialog foreground color.  Does not affect
'       SCREEN.ControlPanel color settings.
'   BackColor - sets the dialog background color.  Does not affect
'       SCREEN.ControlPanel color settings.
'   Cancel - returns whether or not user pressed the dialog's Cancel
'       button.  True (-1) means the user cancelled the dialog.
'
SUB FilePrint (Copies AS INTEGER, ForeColor AS INTEGER, BackColor AS INTEGER,
Cancel AS INTEGER)
    ON LOCAL ERROR GOTO FilePrintError

    frmCmnDlg.Caption = "Print"         ' Set form caption.

    ' Determine default number of copies.
    IF Copies = 0 THEN
        frmCmnDlg.txtPrintCopies.Text = "1"
    ELSE
        frmCmnDlg.txtPrintCopies.Text = STR$(Copies)
    END IF

    ' Set default and cancel command buttons.
    frmCmnDlg.cmdPrintOK.Default = True
    frmCmnDlg.cmdPrintCancel.Cancel = True

    ' Size and position Print container.
    frmCmnDlg.pctFilePrint.BorderStyle = 0
    frmCmnDlg.pctFilePrint.Visible = True

    ' Size and center dialog.
    frmCmnDlg.MOVE frmCmnDlg.Left, frmCmnDlg.Top, frmCmnDlg.pctFilePrint.Width + 2,
frmCmnDlg.pctFilePrint.Height + 2
    frmCmnDlg.MOVE (SCREEN.Width - frmCmnDlg.Width) \ 2, ((SCREEN.Height -
frmCmnDlg.Height) \ 2) - 2

    ' Set dialog colors.
    frmCmnDlg.ForeColor = ForeColor
    frmCmnDlg.BackColor = BackColor
    frmCmnDlg.pctFilePrint.ForeColor = ForeColor
    frmCmnDlg.pctFilePrint.BackColor = BackColor
    frmCmnDlg.lblPrintCopies.ForeColor = ForeColor
    frmCmnDlg.lblPrintCopies.BackColor = BackColor
    frmCmnDlg.txtPrintCopies.ForeColor = ForeColor
    frmCmnDlg.txtPrintCopies.BackColor = BackColor
    frmCmnDlg.txtPrintFile.ForeColor = ForeColor
    frmCmnDlg.txtPrintFile.BackColor = BackColor
    frmCmnDlg.fraPrintTarget.ForeColor = ForeColor
    frmCmnDlg.fraPrintTarget.BackColor = BackColor
    FOR I% = 0 TO 3
        frmCmnDlg.optPrintTarget(I%).ForeColor = ForeColor
        frmCmnDlg.optPrintTarget(I%).BackColor = BackColor
    NEXT I%
    FOR I% = 0 TO 1
        frmCmnDlg.optPrintAppend(I%).ForeColor = ForeColor
        frmCmnDlg.optPrintAppend(I%).BackColor = BackColor
    NEXT I%
    frmCmnDlg.lblPrintAppend.ForeColor = ForeColor
    frmCmnDlg.lblPrintAppend.BackColor = BackColor
    frmCmnDlg.cmdPrintOK.BackColor = BackColor
    frmCmnDlg.cmdPrintCancel.BackColor = BackColor

    ' Display dialog modally.
    frmCmnDlg.SHOW 1

    ' Determine if user canceled dialog.
    IF frmCmnDlg.cmdPrintCancel.Tag <> "FALSE" THEN
        Cancel = True
    ' If not, return number of copies to print
    ELSE
        Cancel = False
        IF VAL(frmCmnDlg.txtPrintCopies.Text) > 99 THEN
            Copies = 99
        ELSEIF VAL(frmCmnDlg.txtPrintCopies.Text) < 1 THEN
            Copies = 1
        ELSE
            Copies = VAL(frmCmnDlg.txtPrintCopies.Text)
        END IF
        frmCmnDlg.cmdPrintCancel.Tag = ""
```

```
    END IF

    ' Hide or unload dialog and return control to user's program.
    ' (Hide if user chose to preload form for performance.)
    IF LEFT$(frmCmnDlg.Tag, 1) = "H" THEN
        frmCmnDlg.pctFilePrint.Visible = False
        frmCmnDlg.HIDE
    ELSE
        UNLOAD frmCmnDlg
    END IF

    EXIT SUB

' Error handling routine.
FilePrintError:
    SELECT CASE ERR
    CASE 7:                             ' Out of memory.
        MSGBOX "Out of memory.  Can't load dialog.", 0, "FindPrint"
        Cancel = True
        EXIT SUB
    CASE ELSE
        RESUME NEXT
    END SELECT
END SUB

' FileSave common dialog support routine
'
' Displays Save dialog which allows users to specify
' filename for subsequent file save operation.
' This procedure only provides the user interface and
' returns user input.  It does not actually carry out
' the corresponding action.
'
' Parameters:
'   FileName - returns the name (without path) of the
'         file for the save operation.  To supply
'         default filename in dialog, assign default
'         to FileName then pass it to this procedure.
'   PathName - returns the path (without filename) of
'         the file for the save operation.  To supply
'         default path in dialog, assign default to
'         PathName then pass it to this procedure.
'         Note, only pass a valid drive and path. Do
'         not include a filename or file pattern.
'   DefaultExt - sets the default search pattern for the
'         File Listbox.  Default pattern when DefaultExt
'         is null is "*.*".  To specify a different
'         search pattern (i.e. "*.BAS"), assign new
'         value to DefaultExt then pass it to this
'         procedure.
'   DialogTitle - sets the dialog title.  Default title
'         when DialogTitle is null is "Save As".  To
'         specify a different title (i.e. "Save My File"),
'         assign new value to DialogTitle then pass it to
'         this procedure.
'   ForeColor - sets the dialog foreground color.  Does not affect
'         SCREEN.ControlPanel color settings.
'   BackColor - sets the dialog background color.  Does not affect
'         SCREEN.ControlPanel color settings.
'   Flags - unused.  Use this to customize dialog action if needed.
'   Cancel - returns whether or not user pressed the dialog's Cancel
'         button.  True (-1) means the user cancelled the dialog.
'
SUB FileSave (FileName AS STRING, PathName AS STRING, DefaultExt AS STRING,
DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS INTEGER, Flags AS
INTEGER, Cancel AS INTEGER)
    ' Set up error handling for option validation.
    ON LOCAL ERROR GOTO FileSaveError

    ' Set form caption.
    IF DialogTitle = "" THEN
        frmCmnDlg.Caption = "Save As"
    ELSE
        frmCmnDlg.Caption = DialogTitle
    END IF
    frmCmnDlg.Tag = frmCmnDlg.Tag + "SAVE"          ' Set form tag for common unload
procedure.

    ' Determine search pattern for file listbox.
    IF DefaultExt <> "" THEN
        frmCmnDlg.filOpenList.Pattern = DefaultExt
    ELSE
        frmCmnDlg.filOpenList.Pattern = "*.*"
    END IF

    ' Determine default path.
    IF PathName <> "" THEN
        ' If the path ends with a backslash, remove it.
        IF RIGHT$(PathName, 1) = "\" THEN
            PathName = LEFT$(PathName, LEN(PathName) - 1)
        END IF
        ' Set drive and path for file-system controls.

        ' Set File listbox path.  If PathName is different
        ' than current path, PathChange event will be triggered
        ' which updates Drive listbox drive and Directory listbox path,
        frmCmnDlg.filOpenList.Path = PathName
    END IF
    ' Display current path to the user.
    frmCmnDlg.lblOpenPath.Caption = frmCmnDlg.filOpenList.Path

    ' Determine default filename to display in edit field.
    IF FileName <> "" THEN
        frmCmnDlg.txtOpenFile.Text = UCASE$(FileName)
    ELSE
        frmCmnDlg.txtOpenFile.Text = frmCmnDlg.filOpenList.Pattern
    END IF

    ' Set default and cancel command buttons.
    frmCmnDlg.cmdOpenOK.Default = True
    frmCmnDlg.cmdOpenCancel.Cancel = True

    ' Size and position Open/Save container.
    frmCmnDlg.pctFileOpen.BorderStyle = 0
    frmCmnDlg.pctFileOpen.Visible = True

    ' Size and center dialog.
    frmCmnDlg.MOVE frmCmnDlg.Left, frmCmnDlg.Top, frmCmnDlg.pctFileOpen.Width +
2, frmCmnDlg.pctFileOpen.Height + 2
    frmCmnDlg.MOVE (SCREEN.Width - frmCmnDlg.Width) \ 2, ((SCREEN.Height -
frmCmnDlg.Height) \ 2)

    ' Set dialog colors.
    frmCmnDlg.ForeColor = ForeColor
    frmCmnDlg.BackColor = BackColor
    frmCmnDlg.pctFileOpen.ForeColor = ForeColor
    frmCmnDlg.pctFileOpen.BackColor = BackColor
    frmCmnDlg.lblOpenFile.ForeColor = ForeColor
    frmCmnDlg.lblOpenFile.BackColor = BackColor
    frmCmnDlg.txtOpenFile.ForeColor = ForeColor
    frmCmnDlg.txtOpenFile.BackColor = BackColor
    frmCmnDlg.lblOpenPath.ForeColor = ForeColor
    frmCmnDlg.lblOpenPath.BackColor = BackColor
    frmCmnDlg.filOpenList.ForeColor = ForeColor
    frmCmnDlg.filOpenList.BackColor = BackColor
    frmCmnDlg.drvOpenList.ForeColor = ForeColor
    frmCmnDlg.drvOpenList.BackColor = BackColor
    frmCmnDlg.dirOpenList.ForeColor = ForeColor
    frmCmnDlg.dirOpenList.BackColor = BackColor
    frmCmnDlg.cmdOpenOK.BackColor = BackColor
    frmCmnDlg.cmdOpenCancel.BackColor = BackColor

    ' Display dialog modally.
    frmCmnDlg.SHOW 1

    ' Determine if user canceled dialog.
    IF frmCmnDlg.cmdOpenCancel.Tag <> "FALSE" THEN
        Cancel = True
    ' If not, return FileName and PathName.
    ELSE
        Cancel = False
        FileName = frmCmnDlg.txtOpenFile.Text
        PathName = frmCmnDlg.filOpenList.Path
        frmCmnDlg.cmdOpenCancel.Tag = ""
    END IF

    ' Hide or unload dialog and return control to user's program.
    ' (Hide if user chose to preload form for performance.)
    IF LEFT$(frmCmnDlg.Tag, 1) = "H" THEN
        frmCmnDlg.pctFileOpen.Visible = False
```

```
    frmCmnDlg.HIDE
    frmCmnDlg.Tag = "H"          ' Reset tag.
  ELSE
    UNLOAD frmCmnDlg
  END IF

  EXIT SUB

' Option error handling routine.
' Ignore errors here and let dialog's controls
' handle the errors.
FileSaveError:
  SELECT CASE ERR
  CASE 7:                        ' Out of memory.
    MSGBOX "Out of memory.  Can't load dialog.", 0, "FileSave"
    Cancel = True
    EXIT SUB
  CASE ELSE
    RESUME NEXT
  END SELECT
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-CMNDF.FRM FORM MODULE
' STOCK VBDOS FORM FOR FILE OPEN AND SAVE
' ************************************
'
' ----------------------------------------------------------
' Visual Basic for MS-DOS Common Dialog Toolkit
'
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'
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' and distribute the sample applications and toolkits provided with
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' any of the sample applications or toolkits.
' ----------------------------------------------------------

' Include file containing declarations for called procedures.
'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

' Procedure declarations for Common Dialog Toolkit.
' Public routines.
DECLARE SUB About (AboutText AS STRING, ForeColor AS INTEGER, BackColor AS
INTEGER, Flags AS INTEGER)
DECLARE SUB CmnDlgClose ()
DECLARE SUB CmnDlgRegister (Success AS INTEGER)
DECLARE SUB FileOpen (FileName AS STRING, PathName AS STRING, DefaultExt AS
STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS INTEGER, Flags
AS INTEGER, Cancel AS INTEGER)
DECLARE SUB FilePrint (Copies AS INTEGER, ForeColor AS INTEGER, BackColor AS
INTEGER, Cancel AS INTEGER)
DECLARE SUB FileSave (FileName AS STRING, PathName AS STRING, DefaultExt AS
STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS INTEGER, Flags
AS INTEGER, Cancel AS INTEGER)

' Private routines.
DECLARE SUB DrawAboutPicture ()
DECLARE SUB filOpenList_DblClick ()


Version 1.00
BEGIN Form frmCmnDlg
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 1
        Caption      = "Common Dialog"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(19)
        Left         = Char(11)
        MaxButton    = 0
        MinButton    = 0
        MousePointer = 0
        Tag          = ""
        Top          = Char(3)
        Visible      = -1
        Width        = Char(64)
        WindowState  = 0
        BEGIN PictureBox picColorPalette
                AutoRedraw   = 0
                BackColor    = QBColor(7)
                BorderStyle  = 1
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(17)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 38
                TabStop      = 0
                Tag          = ""
                Top          = Char(0)
                Visible      = 0
                Width        = Char(46)
                BEGIN CommandButton cmdColorOK
                        BackColor    = QBColor(7)
                        Cancel       = 0
                        Caption      = "OK"
                        Default      = 0
                        DragMode     = 0
                        Enabled      = -1
                        Height       = Char(3)
                        Left         = Char(33)
                        MousePointer = 0
                        TabIndex     = 57
                        TabStop      = -1
                        Tag          = ""
                        Top          = Char(1)
                        Visible      = -1
                        Width        = Char(12)
                END
                BEGIN CommandButton cmdColorCancel
                        BackColor    = QBColor(7)
                        Cancel       = 0
                        Caption      = "Cancel"
                        Default      = 0
                        DragMode     = 0
                        Enabled      = -1
                        Height       = Char(3)
                        Left         = Char(33)
                        MousePointer = 0
                        TabIndex     = 58
                        TabStop      = -1
                        Tag          = ""
                        Top          = Char(4)
                        Visible      = -1
                        Width        = Char(12)
                END
                BEGIN Label lblColors
                        Alignment    = 0
                        AutoSize     = 0
                        BackColor    = QBColor(7)
                        BorderStyle  = 0
                        Caption      = "&Choose a color:"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(1)
                        Left         = Char(2)
                        MousePointer = 0
                        TabIndex     = 39
                        Tag          = ""
                        Top          = Char(1)
                        Visible      = -1
                        Width        = Char(17)
                END
                BEGIN Frame fraColors
                        BackColor    = QBColor(7)
                        Caption      = ""
                        DragMode     = 0
                        Enabled      = -1
```

```
ForeColor    = QBColor(0)
Height       = Char(14)
Left         = Char(1)
MousePointer = 0
TabIndex     = 40
Tag          = ""
Top          = Char(2)
Visible      = -1
Width        = Char(30)
BEGIN PictureBox pctColors
        AutoRedraw   = -1
        BackColor    = QBColor(2)
        BorderStyle  = 0
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(3)
        Index        = 2
        Left         = Char(14)
        MousePointer = 0
        TabIndex     = 43
        TabStop      = 0
        Tag          = ""
        Top          = Char(0)
        Visible      = -1
        Width        = Char(7)
END
BEGIN PictureBox pctColors
        AutoRedraw   = -1
        BackColor    = QBColor(3)
        BorderStyle  = 0
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(3)
        Index        = 3
        Left         = Char(21)
        MousePointer = 0
        TabIndex     = 44
        TabStop      = 0
        Tag          = ""
        Top          = Char(0)
        Visible      = -1
        Width        = Char(7)
END
BEGIN PictureBox pctColors
        AutoRedraw   = -1
        BackColor    = QBColor(4)
        BorderStyle  = 0
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(3)
        Index        = 4
        Left         = Char(0)
        MousePointer = 0
        TabIndex     = 45
        TabStop      = 0
        Tag          = ""
        Top          = Char(3)
        Visible      = -1
        Width        = Char(7)
END
BEGIN PictureBox pctColors
        AutoRedraw   = -1
        BackColor    = QBColor(5)
        BorderStyle  = 0
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(3)
        Index        = 5
        Left         = Char(7)
        MousePointer = 0
        TabIndex     = 46
        TabStop      = 0
        Tag          = ""
        Top          = Char(3)
        Visible      = -1
        Width        = Char(7)
END
BEGIN PictureBox pctColors
        AutoRedraw   = -1
        BackColor    = QBColor(6)
        BorderStyle  = 0
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(15)
        Height       = Char(3)
        Index        = 6
        Left         = Char(14)
        MousePointer = 0
        TabIndex     = 47
        TabStop      = 0
        Tag          = ""
        Top          = Char(3)
        Visible      = -1
        Width        = Char(7)
END
BEGIN PictureBox pctColors
        AutoRedraw   = -1
        BackColor    = QBColor(7)
        BorderStyle  = 0
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(3)
        Index        = 7
        Left         = Char(21)
        MousePointer = 0
        TabIndex     = 48
        TabStop      = 0
        Tag          = ""
        Top          = Char(3)
        Visible      = -1
        Width        = Char(7)
END
BEGIN PictureBox pctColors
        AutoRedraw   = -1
        BackColor    = QBColor(8)
        BorderStyle  = 0
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(15)
        Height       = Char(3)
        Index        = 8
        Left         = Char(0)
        MousePointer = 0
        TabIndex     = 49
        TabStop      = 0
        Tag          = ""
        Top          = Char(6)
        Visible      = -1
        Width        = Char(7)
END
BEGIN PictureBox pctColors
        AutoRedraw   = -1
        BackColor    = QBColor(9)
        BorderStyle  = 0
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(3)
        Index        = 9
        Left         = Char(7)
        MousePointer = 0
        TabIndex     = 50
        TabStop      = 0
        Tag          = ""
        Top          = Char(6)
        Visible      = -1
        Width        = Char(7)
END
BEGIN PictureBox pctColors
        AutoRedraw   = -1
        BackColor    = QBColor(10)
        BorderStyle  = 0
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
```

```
            Height      = Char(3)
            Index       = 10
            Left        = Char(14)
            MousePointer = 0
            TabIndex    = 51
            TabStop     = 0
            Tag         = ""
            Top         = Char(6)
            Visible     = -1
            Width       = Char(7)
END
BEGIN PictureBox pctColors
            AutoRedraw  = -1
            BackColor   = QBColor(11)
            BorderStyle = 0
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Index       = 11
            Left        = Char(21)
            MousePointer = 0
            TabIndex    = 52
            TabStop     = 0
            Tag         = ""
            Top         = Char(6)
            Visible     = -1
            Width       = Char(7)
END
BEGIN PictureBox pctColors
            AutoRedraw  = -1
            BackColor   = QBColor(12)
            BorderStyle = 0
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Index       = 12
            Left        = Char(0)
            MousePointer = 0
            TabIndex    = 53
            TabStop     = 0
            Tag         = ""
            Top         = Char(9)
            Visible     = -1
            Width       = Char(7)
END
BEGIN PictureBox pctColors
            AutoRedraw  = -1
            BackColor   = QBColor(13)
            BorderStyle = 0
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Index       = 13
            Left        = Char(7)
            MousePointer = 0
            TabIndex    = 54
            TabStop     = 0
            Tag         = ""
            Top         = Char(9)
            Visible     = -1
            Width       = Char(7)
END
BEGIN PictureBox pctColors
            AutoRedraw  = -1
            BackColor   = QBColor(15)
            BorderStyle = 0
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Index       = 15
            Left        = Char(21)
            MousePointer = 0
            TabIndex    = 56
            TabStop     = 0
            Tag         = ""
            Top         = Char(9)
            Visible     = -1
            Width       = Char(7)
END
BEGIN PictureBox pctColors
            AutoRedraw  = -1
            BackColor   = QBColor(14)
            BorderStyle = 0
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Index       = 14
            Left        = Char(14)
            MousePointer = 0
            TabIndex    = 55
            TabStop     = 0
            Tag         = ""
            Top         = Char(9)
            Visible     = -1
            Width       = Char(7)
END
BEGIN PictureBox pctColors
            AutoRedraw  = -1
            BackColor   = QBColor(0)
            BorderStyle = 0
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(15)
            Height      = Char(3)
            Index       = 0
            Left        = Char(0)
            MousePointer = 0
            TabIndex    = 41
            TabStop     = 0
            Tag         = ""
            Top         = Char(0)
            Visible     = -1
            Width       = Char(7)
END
BEGIN PictureBox pctColors
            AutoRedraw  = -1
            BackColor   = QBColor(1)
            BorderStyle = 0
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(15)
            Height      = Char(3)
            Index       = 1
            Left        = Char(7)
            MousePointer = 0
            TabIndex    = 42
            TabStop     = 0
            Tag         = ""
            Top         = Char(0)
            Visible     = -1
            Width       = Char(7)
END
        END
END
BEGIN PictureBox pctAbout
        AutoRedraw  = 0
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(12)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 59
        TabStop     = 0
        Tag         = ""
        Top         = Char(0)
        Visible     = 0
        Width       = Char(49)
        BEGIN PictureBox pctAboutPict
                AutoRedraw  = -1
                BackColor   = QBColor(7)
                BorderStyle = 1
                DragMode    = 0
```

```
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(7)
                Left        = Char(1)
                MousePointer = 0
                TabIndex    = 60
                TabStop     = 0
                Tag         = ""
                Top         = Char(1)
                Visible     = 0
                Width       = Char(15)
        END
        BEGIN Label lblAboutText
                Alignment   = 2
                AutoSize    = 0
                BackColor   = QBColor(7)
                BorderStyle = 0
                Caption     = "About Text"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(1)
                Left        = Char(22)
                MousePointer = 0
                TabIndex    = 61
                Tag         = ""
                Top         = Char(2)
                Visible     = -1
                Width       = Char(10)
        END
        BEGIN CommandButton cmdAboutOK
                BackColor   = QBColor(7)
                Cancel      = 0
                Caption     = "OK"
                Default     = 0
                DragMode    = 0
                Enabled     = -1
                Height      = Char(3)
                Left        = Char(18)
                MousePointer = 0
                TabIndex    = 62
                TabStop     = -1
                Tag         = ""
                Top         = Char(8)
                Visible     = -1
                Width       = Char(12)
        END
END
BEGIN PictureBox pctFilePrint
        AutoRedraw  = 0
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(10)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 23
        TabStop     = 0
        Tag         = ""
        Top         = Char(0)
        Visible     = 0
        Width       = Char(60)
        BEGIN Frame fraPrintTarget
                BackColor   = QBColor(7)
                Caption     = "Print Target"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(8)
                Left        = Char(1)
                MousePointer = 0
                TabIndex    = 24
                Tag         = ""
                Top         = Char(1)
                Visible     = -1
                Width       = Char(43)
                BEGIN OptionButton optPrintTarget
                        BackColor   = QBColor(7)
                        Caption     = "LPT&1"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(1)
                        Index       = 0
                        Left        = Char(1)
                        MousePointer = 0
                        TabIndex    = 25
                        TabStop     = 0
                        Tag         = ""
                        Top         = Char(0)
                        Value       = 0
                        Visible     = -1
                        Width       = Char(9)
                END
                BEGIN OptionButton optPrintTarget
                        BackColor   = QBColor(7)
                        Caption     = "LPT&2"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(1)
                        Index       = 1
                        Left        = Char(1)
                        MousePointer = 0
                        TabIndex    = 26
                        TabStop     = 0
                        Tag         = ""
                        Top         = Char(1)
                        Value       = 0
                        Visible     = -1
                        Width       = Char(9)
                END
                BEGIN OptionButton optPrintTarget
                        BackColor   = QBColor(7)
                        Caption     = "LPT&3"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(1)
                        Index       = 2
                        Left        = Char(1)
                        MousePointer = 0
                        TabIndex    = 27
                        TabStop     = 0
                        Tag         = ""
                        Top         = Char(2)
                        Value       = 0
                        Visible     = -1
                        Width       = Char(9)
                END
                BEGIN OptionButton optPrintTarget
                        BackColor   = QBColor(7)
                        Caption     = "&File:"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(1)
                        Index       = 3
                        Left        = Char(1)
                        MousePointer = 0
                        TabIndex    = 28
                        TabStop     = -1
                        Tag         = ""
                        Top         = Char(3)
                        Value       = -1
                        Visible     = -1
                        Width       = Char(9)
                END
                BEGIN TextBox txtPrintFile
                        BackColor   = QBColor(7)
                        BorderStyle = 1
                        DragMode    = 0
                        Enabled     = 0
                        ForeColor   = QBColor(0)
                        Height      = Char(3)
                        Left        = Char(11)
                        MousePointer = 0
                        MultiLine   = 0
```

```
                ScrollBars    = 0
                TabIndex      = 29
                TabStop       = -1
                Tag           = ""
                Text          = ""
                Top           = Char(2)
                Visible       = -1
                Width         = Char(29)
        END
        BEGIN PictureBox potPrintAppend
                AutoRedraw    = 0
                BackColor     = QBColor(7)
                BorderStyle   = 0
                DragMode      = 0
                Enabled       = 0
                ForeColor     = QBColor(0)
                Height        = Char(1)
                Left          = Char(0)
                MousePointer  = 0
                TabIndex      = 30
                TabStop       = 0
                Tag           = ""
                Top           = Char(5)
                Visible       = -1
                Width         = Char(41)
                BEGIN Label lblPrintAppend
                        Alignment     = 0
                        AutoSize      = 0
                        BackColor     =
QBColor(7)

                        BorderStyle   = 0
                        Caption       = "If file
exists:"

                        DragMode      = 0
                        Enabled       = -1
                        ForeColor     =
QBColor(0)

                        Height        = Char(1)
                        Left          = Char(1)
                        MousePointer  = 0
                        TabIndex      = 31
                        Tag           = ""
                        Top           = Char(0)
                        Visible       = -1
                        Width         = Char(16)
                END
                BEGIN OptionButton optPrintAppend
                        BackColor     =
QBColor(7)

                        Caption       =
"&Append"

                        DragMode      = 0
                        Enabled       = -1
                        ForeColor     =
QBColor(0)

                        Height        = Char(1)
                        Index         = 0
                        Left          = Char(17)
                        MousePointer  = 0
                        TabIndex      = 32
                        TabStop       = 0
                        Tag           = ""
                        Top           = Char(0)
                        Value         = 0
                        Visible       = -1
                        Width         = Char(11)
                END
                BEGIN OptionButton optPrintAppend
                        BackColor     =
QBColor(7)

                        Caption       =
"&Replace"

                        DragMode      = 0
                        Enabled       = -1
                        ForeColor     =
QBColor(0)

                        Height        = Char(1)
                        Index         = 1
                        Left          = Char(29)
                        MousePointer  = 0
                        TabIndex      = 33
                        TabStop       = -1
                        Tag           = ""
                        Top           = Char(0)
                        Value         = -1
                        Visible       = -1
                        Width         = Char(11)
                END
        END
END
BEGIN CommandButton cmdPrintOK
        BackColor     = QBColor(7)
        Cancel        = 0
        Caption       = "OK"
        Default       = 0
        DragMode      = 0
        Enabled       = -1
        Height        = Char(3)
        Left          = Char(46)
        MousePointer  = 0
        TabIndex      = 34
        TabStop       = -1
        Tag           = ""
        Top           = Char(1)
        Visible       = -1
        Width         = Char(13)
END
BEGIN CommandButton cmdPrintCancel
        BackColor     = QBColor(7)
        Cancel        = 0
        Caption       = "Cancel"
        Default       = 0
        DragMode      = 0
        Enabled       = -1
        Height        = Char(3)
        Left          = Char(46)
        MousePointer  = 0
        TabIndex      = 35
        TabStop       = -1
        Tag           = ""
        Top           = Char(4)
        Visible       = -1
        Width         = Char(13)
END
BEGIN Label lblPrintCopies
        Alignment     = 0
        AutoSize      = 0
        BackColor     = QBColor(7)
        BorderStyle   = 0
        Caption       = "&Copies:"
        DragMode      = 0
        Enabled       = -1
        ForeColor     = QBColor(0)
        Height        = Char(1)
        Left          = Char(46)
        MousePointer  = 0
        TabIndex      = 36
        Tag           = ""
        Top           = Char(8)
        Visible       = -1
        Width         = Char(7)
END
BEGIN TextBox txtPrintCopies
        BackColor     = QBColor(7)
        BorderStyle   = 1
        DragMode      = 0
        Enabled       = -1
        ForeColor     = QBColor(0)
        Height        = Char(1)
        Left          = Char(54)
        MousePointer  = 0
        MultiLine     = 0
        ScrollBars    = 0
        TabIndex      = 37
        TabStop       = -1
        Tag           = ""
        Text          = ""
        Top           = Char(8)
        Visible       = -1
        Width         = Char(5)
```

```
        END
END
BEGIN PictureBox pctFindText
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 1
        DragMode     = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(11)
        Left         = Char(0)
        MousePointer = 0
        TabIndex     = 10
        TabStop      = 0
        Tag          = ""
        Top          = Char(0)
        Visible      = 0
        Width        = Char(66)
        BEGIN Label lblSearchFind
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "&Find What:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(1)
                MousePointer = 0
                TabIndex     = 11
                Tag          = ""
                Top          = Char(2)
                Visible      = -1
                Width        = Char(11)
        END
        BEGIN TextBox txtSearchFind
                BackColor    = QBColor(7)
                BorderStyle  = 1
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(12)
                MousePointer = 0
                MultiLine    = 0
                ScrollBars   = 0
                TabIndex     = 12
                TabStop      = -1
                Tag          = ""
                Text         = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(34)
        END
        BEGIN Label lblSearchChange
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "&Change To:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(1)
                MousePointer = 0
                TabIndex     = 13
                Tag          = ""
                Top          = Char(5)
                Visible      = -1
                Width        = Char(11)
        END
        BEGIN TextBox txtSearchChange
                BackColor    = QBColor(7)
                BorderStyle  = 1
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(12)
                MousePointer = 0
                MultiLine    = 0
                ScrollBars   = 0
                TabIndex     = 14
                TabStop      = -1
                Tag          = ""
                Text         = ""
                Top          = Char(4)
                Visible      = -1
                Width        = Char(34)
        END
        BEGIN CheckBox chkSearchCase
                BackColor    = QBColor(7)
                Caption      = "&Match Case"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(1)
                MousePointer = 0
                TabIndex     = 15
                TabStop      = -1
                Tag          = ""
                Top          = Char(8)
                Value        = 0
                Visible      = -1
                Width        = Char(15)
        END
        BEGIN CheckBox chkSearchWord
                BackColor    = QBColor(7)
                Caption      = "&Whole Word"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(1)
                MousePointer = 0
                TabIndex     = 16
                TabStop      = -1
                Tag          = ""
                Top          = Char(9)
                Value        = 0
                Visible      = -1
                Width        = Char(15)
        END
        BEGIN Frame fraSearchDir
                BackColor    = QBColor(7)
                Caption      = "Direction"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(26)
                MousePointer = 0
                TabIndex     = 17
                Tag          = ""
                Top          = Char(7)
                Visible      = -1
                Width        = Char(20)
                BEGIN OptionButton optSearchDir
                        BackColor    = QBColor(7)
                        Caption      = "&Up"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(1)
                        Index        = 0
                        Left         = Char(1)
                        MousePointer = 0
                        TabIndex     = 18
                        TabStop      = 0
                        Tag          = ""
                        Top          = Char(0)
                        Value        = 0
                        Visible      = -1
                        Width        = Char(6)
                END
                BEGIN OptionButton optSearchDir
                        BackColor    = QBColor(7)
```

```
                Caption     = "&Down"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(1)
                Index       = 1
                Left        = Char(9)
                MousePointer = 0
                TabIndex    = 19
                TabStop     = -1
                Tag         = ""
                Top         = Char(0)
                Value       = -1
                Visible     = -1
                Width       = Char(8)
        END
    END
    BEGIN CommandButton cmdSearchFind
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "Find and &Verify"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(48)
        MousePointer = 0
        TabIndex    = 20
        TabStop     = -1
        Tag         = ""
        Top         = Char(1)
        Visible     = -1
        Width       = Char(17)
    END
    BEGIN CommandButton cmdSearchChangeAll
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "Change &All"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(48)
        MousePointer = 0
        TabIndex    = 21
        TabStop     = -1
        Tag         = ""
        Top         = Char(4)
        Visible     = -1
        Width       = Char(17)
    END
    BEGIN CommandButton cmdSearchCancel
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "Cancel"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(48)
        MousePointer = 0
        TabIndex    = 22
        TabStop     = -1
        Tag         = ""
        Top         = Char(7)
        Visible     = -1
        Width       = Char(17)
    END
END
BEGIN PictureBox pctFileOpen
    AutoRedraw  = 0
    BackColor   = QBColor(7)
    BorderStyle = 1
    DragMode    = 0
    Enabled     = -1
    ForeColor   = QBColor(0)
    Height      = Char(17)
    Left        = Char(0)
    MousePointer = 0
    TabIndex    = 0
    TabStop     = 0
    Tag         = ""
    Top         = Char(0)
    Visible     = 0
    Width       = Char(50)
    BEGIN Label lblOpenFile
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "File &Name:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 1
        Tag         = ""
        Top         = Char(2)
        Visible     = -1
        Width       = Char(11)
    END
    BEGIN TextBox txtOpenFile
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(12)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 2
        TabStop     = -1
        Tag         = ""
        Text        = ""
        Top         = Char(1)
        Visible     = -1
        Width       = Char(23)
    END
    BEGIN DriveListBox drvOpenList
        BackColor   = QBColor(7)
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(19)
        MousePointer = 0
        TabIndex    = 5
        TabStop     = -1
        Tag         = ""
        Top         = Char(6)
        Visible     = -1
        Width       = Char(16)
    END
    BEGIN FileListBox filOpenList
        Archive     = -1
        BackColor   = QBColor(7)
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(11)
        Hidden      = 0
        Left        = Char(1)
        MousePointer = 0
        Normal      = -1
        Pattern     = "*.*"
        ReadOnly    = -1
        System      = 0
        TabIndex    = 4
        TabStop     = -1
        Tag         = ""
        Top         = Char(5)
        Visible     = -1
        Width       = Char(16)
    END
    BEGIN Label lblOpenPath
        Alignment   = 0
```

```
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "C:\"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(2)
            MousePointer = 0
            TabIndex    = 3
            Tag         = ""
            Top         = Char(4)
            Visible     = -1
            Width       = Char(33)
      END
      BEGIN DirListBox dirOpenList
            BackColor   = QBColor(7)
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(9)
            Left        = Char(19)
            MousePointer = 0
            TabIndex    = 6
            TabStop     = -1
            Tag         = ""
            Top         = Char(7)
            Visible     = -1
            Width       = Char(16)
      END
      BEGIN CommandButton cmdOpenOK
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&OK"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(37)
            MousePointer = 0
            TabIndex    = 7
            TabStop     = -1
            Tag         = ""
            Top         = Char(1)
            Visible     = -1
            Width       = Char(12)
      END
      BEGIN CommandButton cmdOpenCancel
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Quit"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(37)
            MousePointer = 0
            TabIndex    = 8
            TabStop     = -1
            Tag         = ""
            Top         = Char(4)
            Visible     = -1
            Width       = Char(12)
      END
END
BEGIN CommandButton cmdOpenHelp
      BackColor   = QBColor(7)
      Cancel      = 0
      Caption     = "&Help"
      Default     = 0
      DragMode    = 0
      Enabled     = -1
      Height      = Char(3)
      Left        = Char(37)
      MousePointer = 0
      TabIndex    = 9
      TabStop     = -1
      Tag         = ""
      Top         = Char(7)
      Visible     = -1
      Width       = Char(12)
END
END

REM $DYNAMIC
DEFSNG A-Z
' Click event procedure for About dialog OK button.
' Makes dialog invisible to return control to About
' procedure (dialog was shown modally).
'
SUB cmdAboutOK_Click ()
   Visible = False
END SUB

' Click event procedure for Color Palette Cancel button.
' Makes dialog invisible to return control to ColorPalette
' procedure (dialog was shown modally).
'
SUB cmdColorCancel_Click ()
   Visible = False
END SUB

' Click event procedure for Color Palette OK button.
' Sets cancel condition to FALSE and makes dialog invisible to
' return control to ColorPalette procedure
' (dialog was shown modally).
'
SUB cmdColorOK_Click ()
   pctColors(VAL(pctColors(0).Tag)).SETFOCUS
   cmdColorCancel.Tag = "FALSE"
   Visible = False
END SUB

' Click event procedure for Open/Save dialog Cancel button.
' Makes dialog invisible to return control to FileOpen or FileSave
' procedure (dialog was shown modally).
'
SUB cmdOpenCancel_Click ()
   txtOpenFile.SETFOCUS
   Visible = False
END SUB

REM $STATIC
DEFINT A-Z
SUB cmdOpenHelp_Click ()
   IF HelpLoaded = -1 THEN
      CALL HelpShowTopic("File")
   END IF
END SUB

REM $DYNAMIC
DEFSNG A-Z
' Click event procedure for Open/Save dialog OK button.
' Determines whether user has selected a file or whether
' path and pattern need to be changed.
'
SUB cmdOpenOK_CLick ()
   ' Set up error handling for directory/drive change errors.
   ON LOCAL ERROR GOTO OKError

   cmdOpenOK.SETFOCUS                ' Set focus to button, so focus can be reset to edit
field if needed.

   ' Update Directory listbox path if user single
   ' clicked or used arrow keys in Directory listbox
   ' (only double click automatically changes path).
   dirOpenList.Path = dirOpenList.List(dirOpenList.ListIndex)

   ' If edit field filename does not match File listbox filename
   ' then assign edit field value to File listbox filename
   ' and let it determine if path or pattern need to be
   ' changed.
   IF filOpenList.FileName < > txtOpenFile.Text THEN
      OldPattern$ = filOpenList.Pattern   ' Save old pattern.

      ' Let File listbox control determine if path
      ' or pattern or filename needs to be updated.
      ' PathChange event will be triggered if path needs
      ' updating, PatternChange event will be triggered if
```

```
    ' pattern needs updating, and DblClick event will
    ' be triggered if a valid filename has been given.
    filOpenList.FileName = txtOpenFile.Text

    ' If a valid filename was not given (dialog is
    ' still visible to user after DblClick event),
    ' then update the edit field appropriately.
    IF Visible = True THEN
      ' If no pattern change was indicated then either
      ' a new filename was specified for Save dialog
      ' or file was not found for Open dialog.
      IF (INSTR(txtOpenFile.Text, "*") + INSTR(txtOpenFile.Text, "?") < 1) THEN
        IF INSTR(Tag, "SAVE") THEN
          CALL filOpenList_DblClick
        ELSE
          MSGBOX "File not found", 0, Caption
          filOpenList.Pattern = OldPattern$  ' Restore old File listbox search pattern.
          txtOpenFile.SETFOCUS
        END IF
      ' Pattern change was indicated so just update
      ' textbox with pattern.
      ELSE
        txtOpenFile.Text = filOpenList.Pattern
        txtOpenFile.SETFOCUS
      END IF
    END IF
  ' File has been selected by user so close dialog
  ' and return control to FileOpen or FileSave routine.
  ELSE
    CALL filOpenList_DblClick
  END IF

OKErrorReturn:
  EXIT SUB

' Drive/Path error handling routine.
OKError:
  MSGBOX ERROR$, 0, Caption        ' Display error message.
  txtOpenFile.SETFOCUS             ' Set focus to edit field so error can be fixed.
  RESUME OKErrorReturn             ' Exit procedure.
END SUB

' Click event procedure for Print dialog Cancel button.
' Makes dialog invisible to return control to FilePrint
' procedure (dialog was shown modally).
'
SUB cmdPrintCancel_Click ()
  Visible = False
END SUB

' Click event procedure for Print dialog OK button.
' Sets print destination (PRINTER.PrintTarget) and
' makes dialog invisible to return control to FilePrint
' procedure (dialog was shown modally).
'
SUB cmdPrintOK_Click ()
  ' Set up error handling for print to file errors.
  ON LOCAL ERROR GOTO PrintError

  ' Set print target
  IF optPrintTarget(0).Value THEN
    PRINTER.PrintTarget = "LPT1:"      ' Use Basic LPT1 device (colon specifies this).
  ELSEIF optPrintTarget(1).Value THEN
    PRINTER.PrintTarget = "LPT2:"      ' Use Basic LPT2 device (colon specifies this).
  ELSEIF optPrintTarget(2).Value THEN
    PRINTER.PrintTarget = "LPT3"       ' No Basic LPT3 device, treat as a normal file
open.
  ELSE
    ' Print target is a file.
    PRINTER.PrintTarget = txtPrintFile.Text
    ' If user specified "Replace" instead of "Append"
    ' option, delete existing file.
    IF optPrintAppend(1).Value THEN KILL txtPrintFile.Text
  END IF
  Visible = False
  cmdPrintCancel.Tag = "FALSE"

  EXIT SUB

' Print to file error handling routine.
' Ignores File Not Found error that occurs when
' deleting a file that does not exist (when user
' chooses "Replace" option).
PrintError:
  RESUME NEXT
END SUB

' Click event procedure for FindText/ChangeText dialog Cancel button.
' Makes dialog invisible to return control to FindText or ChangeText
' procedure (dialog was shown modally).
'
SUB cmdSearchCancel_Click ()
  txtSearchFind.SETFOCUS
  Visible = False
END SUB

' Click event procedure for Change dialog Change All button.
' Sets Change All condition to TRUE and makes dialog
' invisible to return control to ChangeText
' procedure (dialog was shown modally).
'
SUB cmdSearchChangeAll_Click ()
  txtSearchFind.SETFOCUS
  cmdSearchChangeAll.Tag = "1"
  cmdSearchCancel.Tag = "FALSE"
  Visible = False
END SUB

' Click event procedure for Find/Change dialog Find and Verify button.
' Sets Change All condition to FALSE and makes dialog
' invisible to return control to FindText or ChangeText
' procedure (dialog was shown modally).
'
SUB cmdSearchFind_Click ()
  txtSearchFind.SETFOCUS
  cmdSearchChangeAll.Tag = "0"
  cmdSearchCancel.Tag = "FALSE"
  Visible = False
END SUB

' Change event procedure for Open/Save dialog Directory listbox.
' Updates the File listbox path to reflect
' the directory change.
'
SUB dirOpenList_Change ()
  ' Set up error handling for path errors.
  ON LOCAL ERROR GOTO DirChangeError

  ' Update file listbox path.
  filOpenList.Path = dirOpenList.Path

  ' Display new path to the user.
  lblOpenPath.Caption = dirOpenList.Path

  ' Update text box with search pattern.
  txtOpenFile.Text = filOpenList.Pattern

DirChangeErrorReturn:
  EXIT SUB

' Path change error handling routine.
DirChangeError:
  MSGBOX ERROR$, 0, Caption        ' Display error message.
  txtOpenFile.SETFOCUS             ' Set focus to edit field so error can be fixed.
  RESUME DirChangeErrorReturn      ' Exit procedure.
END SUB

' Change event procedure for Open/Save dialog Drive listbox.
' Updates the Directory listbox path to reflect
' the drive change.
'
SUB drvOpenList_Change ()
  ' Set up error handling for path errors.
  ON LOCAL ERROR GOTO DriveChangeError

  ' Update Dir listbox path.
  dirOpenList.Path = drvOpenList.Drive

DriveChangeErrorReturn:
  EXIT SUB
```

```
' Path change error handling routine.
DriveChangeError:
   MSGBOX ERROR$, 0, Caption            ' Display error message.
   drvOpenList.Drive = dirOpenList.Path ' Reset drive.
   RESUME DriveChangeErrorReturn        ' Exit procedure.
END SUB

' Click event procedure for Open/Save dialog File listbox.
' Selects the file and updates the edit field.
'
SUB filOpenList_Click ()
   txtOpenFile.Text = filOpenList.FileName
END SUB

' Double Click event procedure for Open/Save dialog File listbox.
' File has been selected by the user so make dialog
' invisible to return control to FileOpen or FileSave
' procedure (dialog was shown modally).
'
SUB filOpenList_DblClick ()
   txtOpenFile.SETFOCUS
   Visible = False
   cmdOpenCancel.Tag = "FALSE"
END SUB

' PathChange event procedure for Open/Save dialog File listbox.
' Updates the Drive listbox drive and Directory
' listbox path to reflect the change.
'
SUB filOpenList_PathChange ()
   ' Set up error handling for path errors.
   ON LOCAL ERROR GOTO FileChangeError

   ' Update drive and path.
   drvOpenList.Drive = filOpenList.Path
   dirOpenList.Path = filOpenList.Path

FileChangeErrorReturn:
   EXIT SUB

' Path change error handling routine.
FileChangeError:
   MSGBOX ERROR$, 0, Caption            ' Display error message.
   drvOpenList.Drive = dirOpenList.Path ' Reset drive.
   filOpenList.Path = dirOpenList.Path  ' Reset path.
   RESUME FileChangeErrorReturn         ' Exit procedure.
END SUB

' PatternChange event procedure for Open/Save dialog File listbox.
' Uppercases search pattern for subsequent display
' in edit field.
'
SUB filOpenList_PatternChange ()
   filOpenList.Pattern = UCASE$(filOpenList.Pattern)
END SUB

' Click event procedure for Print dialog PrintTarget option buttons (control array)
' Handles print target selection.
'
SUB optPrintTarget_Click (index AS INTEGER)
   ' If file is chosen as print target, enable
   ' filename edit field and append/replace options.
   IF index = 3 THEN
      txtPrintFile.Enabled = True
      optPrintAppend.Enabled = True
   ' If LPT1, LPT2, LPT3 is chosen as print target,
   ' disable filename edit field and append/replace options.
   ELSE
      txtPrintFile.Enabled = False
      optPrintAppend.Enabled = False
   END IF
END SUB

' Click event procedure for Color Palette color Picture box (control array)
' Handles color selection via the mouse.
'
SUB pctColors_Click (index AS INTEGER)
   ' Get current color selection.
   CurrIndex% = VAL(pctColors(0).Tag)

   ' Remove border around current selection and remove from tab order.
   pctColors(CurrIndex%).CLS
   pctColors(CurrIndex%).TabStop = False

   ' Select new color, signal it with border, and add to tab order.
   pctColors(index).PRINT " ┌──────┐ "
   pctColors(index).PRINT " │      │ "
   pctColors(index).PRINT " └──────┘ "
   pctColors(index).TabStop = True

   ' Mark selected color.
   pctColors(0).Tag = STR$(index)
END SUB

' KeyDown event procedure for Color Palette color Picture box (control array)
' Handles color selection/navigation via the keyboard arrow keys.
'
SUB pctColors_KeyDown (index AS INTEGER, KeyCode AS INTEGER, Shift AS INTEGER)
   ' Get current color selection.
   CurrIndex% = VAL(pctColors(0).Tag)

   ' Remove border around current selection and remove from tab order
   pctColors(CurrIndex%).CLS
   pctColors(CurrIndex%).TabStop = False

   ' Determine new color based on arrow key selection.
   SELECT CASE KeyCode
   CASE 39
      IF CurrIndex% = 15 THEN CurrIndex% = 0 ELSE CurrIndex% = CurrIndex% + 1
   CASE 37
      IF CurrIndex% = 0 THEN CurrIndex% = 15 ELSE CurrIndex% = CurrIndex% - 1
   CASE 40
      IF CurrIndex% > 11 THEN CurrIndex% = CurrIndex% - 12 ELSE CurrIndex% =
CurrIndex% + 4
   CASE 38
      IF CurrIndex% < 4 THEN CurrIndex% = CurrIndex% + 12 ELSE CurrIndex% =
CurrIndex% - 4
   END SELECT


   ' Select new color, signal it with border, and add to tab order.
   pctColors(CurrIndex%).PRINT " ┌──────┐ "
   pctColors(CurrIndex%).PRINT " │      │ "
   pctColors(CurrIndex%).PRINT " └──────┘ "
   pctColors(CurrIndex%).TabStop = True

   ' Mark selected color.
   pctColors(0).Tag = STR$(CurrIndex%)
END SUB

' GotFocus event procedure for OpenFile textbox.
' Selects all textbox text when textbox receives focus
' (for easier replacement of text).
'
SUB txtOpenFile_GotFocus ()
   txtOpenFile.SelStart = 0
   txtOpenFile.SelLength = LEN(txtOpenFile.Text)
END SUB

' GotFocus event procedure for PrintCopies textbox.
' Selects all textbox text when textbox receives focus
' (for easier replacement of text).
'
SUB txtPrintCopies_GotFocus ()
   txtPrintCopies.SelStart = 0
   txtPrintCopies.SelLength = LEN(txtPrintCopies.Text)
END SUB

' GotFocus event procedure for PrintFile textbox.
' Selects all textbox text when textbox receives focus
' (for easier replacement of text).
'
SUB txtPrintFile_GotFocus ()
   txtPrintFile.SelStart = 0
   txtPrintFile.SelLength = LEN(txtPrintFile.Text)
END SUB

' GotFocus event procedure for SearchChange textbox.
' Selects all textbox text when textbox receives focus
' (for easier replacement of text).
```

```
'
SUB txtSearchChange_GotFocus ()
   txtSearchChange.SelStart = 0
   txtSearchChange.SelLength = LEN(txtSearchChange.Text)
END SUB

' GotFocus event procedure for SearchFind textbox.
' Selects all textbox text when textbox receives focus
' (for easier replacement of text).
'
SUB txtSearchFind_GotFocus ()
   txtSearchFind.SelStart = 0
   txtSearchFind.SelLength = LEN(txtSearchFind.Text)
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-DATA1.FRM FORM MODULE
' SELECT TYPE OF DATA FILE TO CREATE
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

Version 1.00
BEGIN Form DataForm1
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Type of Data File to Create"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(18)
        Left         = Char(5)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(3)
        Visible      = -1
        Width        = Char(68)
        WindowState  = 0
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "Choose one:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(3)
                MousePointer = 0
                TabIndex     = 6
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(13)
        END
        BEGIN OptionButton optData1Space
                BackColor    = QBColor(7)
                Caption      = "&Space-delimited file"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(6)
                MousePointer = 0
                TabIndex     = 4
                TabStop      = 0
                Tag          = ""
                Top          = Char(5)
                Value        = 0
                Visible      = -1
                Width        = Char(26)
        END
        BEGIN CommandButton cmdData1OK
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&OK"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(7)
                MousePointer = 0
                TabIndex     = 0
                TabStop      = -1
                Tag          = ""
                Top          = Char(13)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdData1Quit
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Quit"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(47)
                MousePointer = 0
                TabIndex     = 2
                TabStop      = -1
                Tag          = ""
                Top          = Char(13)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdData1Help
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Help"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(28)
                MousePointer = 0
                TabIndex     = 1
                TabStop      = -1
                Tag          = ""
                Top          = Char(13)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN OptionButton optData1Lotus
                BackColor    = QBColor(7)
                Caption      = "&Lotus 123 WKS file"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(6)
                MousePointer = 0
                TabIndex     = 5
                TabStop      = 0
                Tag          = ""
                Top          = Char(7)
                Value        = 0
                Visible      = -1
                Width        = Char(27)
        END
        BEGIN OptionButton optData1Comma
                BackColor    = QBColor(7)
                Caption      = "&Comma-delimited file"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(6)
                MousePointer = 0
                TabIndex     = 3
                TabStop      = -1
```

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                Tag         = ""
                Top         = Char(3)
                Value       = -1
                Visible     = -1
                Width       = Char(26)
        END
END


REM $DYNAMIC
SUB cmdData1Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Create Data File")
  END IF
END SUB

SUB cmdData1OK_Click ()
  IF optData1Space.Value = -1 THEN
    XYFlag(3) = 2
  ELSEIF optData1Lotus.Value = -1 THEN
    XYFlag(3) = 3
  ELSE
    XYFlag(3) = 1
  END IF
  DataForm1.HIDE
END SUB

SUB cmdData1Quit_Click ()
  CCL(0) = -1
  DataForm1.HIDE
END SUB
```

```
' ***************************************
' MINEWALL 2.0
' MW-DATG.BAS CODE MODULE
' RETRIEVES PREVIOUSLY SAVED INPUT DATA
' ***************************************

'$INCLUDE: 'MW-COMDF.BI'

DECLARE SUB MinewallDataGet ()
DECLARE SUB MinewallClear ()
DECLARE SUB MinewallTimeLabel ()
DECLARE SUB MinewallXMS ()

DECLARE SUB FileSave (InputFileName AS STRING, InputPathName AS STRING,
DefaultExt AS STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS
INTEGER, Flags AS INTEGER, Cancel AS INTEGER)
DECLARE SUB FileOpen (InputFileName AS STRING, InputPathName AS STRING,
DefaultExt AS STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS
INTEGER, Flags AS INTEGER, Cancel AS INTEGER)
DECLARE SUB FClose (Handle%)
DECLARE SUB FCreate (FileName$)
DECLARE SUB FOpen (FileName$, Handle%)
DECLARE FUNCTION DOSError% ()
DECLARE FUNCTION ErrorMsg$ (ErrNumber%)
DECLARE FUNCTION Exist% (FileName$)
DECLARE FUNCTION WhichError% ()
DECLARE SUB XmsRelMem (BYVAL Handle)
DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)

'$FORM WaitForm

REM $DYNAMIC
SUB MinewallDataGet ()
  ElSize = 16
  DIM Zed(54, 60) AS SINGLE
  DIM Xin AS SINGLE
  CCL(1) = 0
  DO WHILE CCL(1) = 0
    Loct = INSTR(1, InputFileName, ".")
    IF Loct > 0 THEN
      Ex$ = "DAT"
      TDN$ = LTRIM$(RTRIM$(MID$(InputFileName, 1, Loct)))
      TDN$ = TDN$ + LTRIM$(RTRIM$(Ex$))
    END IF
    CALL FileOpen(InputFileName, InputPathName, "*.MW2", "Open MINEWALL Data
File", 0, 7, 0, Cancel%)
    IF Cancel% = True THEN EXIT SUB
    InputDataName = InputPathName + "\" + InputFileName
    IF Exist%(InputDataName) = 0 THEN
      MSG$ = "File does not exist!"
      MSGBOX MSG$
      EXIT SUB
    END IF
    CALL FOpen(InputDataName, Handle%)
    IF DOSError% THEN
      BEEP
      MSG$ = ErrorMsg$(WhichError%)
      MSGBOX MSG$
      EXIT SUB
    ELSE
      LOAD WaitForm
      WaitForm.SHOW
    END IF
    CALL FClose(Handle%)
    OPEN InputDataName FOR INPUT AS #1
    CCL(1) = 1
    INPUT #1, A$
    IF A$ = "*** MINEWALL 2.0" THEN
      EXIT DO
    ELSE
      MSG$ = "Not A Valid MINEWALL 2.0 Data File!"
      MSGBOX MSG$
      CCL(1) = 0
      CLOSE #1
      InputFileName$ = ""
    END IF
  LOOP
REM clear all arrays and memory
  CCL(0) = 0
  CALL MinewallClear
REM Continue input
  INPUT #1, A$
  B$ = ""
  NL$ = CHR$(13) + CHR$(10)   'carriage return
  C = 0
  INPUT #1, B$
  Title$ = B$
  DO WHILE C = 0
    INPUT #1, B$
    IF LTRIM$(B$) = "END TITLE" THEN
      EXIT DO
    ELSE
      Title$ = Title$ + NL$ + B$
    END IF
  LOOP

  INPUT #1, CCL(1), CCL(2), CCL(3), CCL(4), CCL(5), CCL(6), CCL(7), CCL(8), CCL(9)
  INPUT #1, CCL(10), CCL(11), CCL(12), CCL(13), CCL(14), CCL(15), CCL(16),
CCL(17), CCL(18), CCL(19)
  INPUT #1, CCL(20), CCL(21), CCL(22), CCL(23), CCL(24), CCL(25), CCL(26),
CCL(27), CCL(28), CCL(29)
  INPUT #1, CCL(30), CCL(31), CCL(32), CCL(33), CCL(34), CCL(35), CCL(36),
CCL(37), CCL(38), CCL(39)

  INPUT #1, SimTime_Array(1), SimTime_Array(2), SimTime_Array(3), SimTime_Array(4),
SimTime_Array(5), SimTime_Array(6)
  INPUT #1, SimTime_Array(7), SimTime_Array(8), SimTime_Array(9), SimTime_Array(10),
SimTime_Array(11), SimTime_Array(12)

  I = 0
  IF SimTime_Array(6) > 0 OR SimTime_Array(12) > 0 THEN
    Form1.mnuInputTime.Enabled = True
    Form1.mnuInputTime.Checked = True
    I = 1
  END IF
  NumReps = 1
  IF CCL(3) = 1 THEN NumReps = 2
  IF Title$ = "" THEN
    IF CCL(4) > 0 OR I = 1 THEN
      Form1.mnuInputTitle.Enabled = True
      Form1.mnuInputTitle.Checked = True
    END IF
  ELSE
    Form1.mnuInputTitle.Enabled = True
    Form1.mnuInputTitle.Checked = True
```

```
  END IF

REM Reassign Time Labels (TimeParam)
  IF Form1.mnuInputTime.Enabled = True THEN
    CALL MinewallTimeLabel
  END IF

REM Read geochem parameter list one at a time
  IF CCL(4) > 0 THEN
    REDIM GeochemParam(CCL(4)) AS STRING * 16
    Form1.mnuInputGeochemParam.Enabled = True
    Form1.mnuInputGeochemParam.Checked = True
    FOR I = 1 TO CCL(4)
      INPUT #1, GeochemParam(I)
    NEXT
    REDIM GeochemCount(40, 1) AS INTEGER
    FOR I = 1 TO CCL(4)
      INPUT #1, GeochemCount(I, 0), GeochemCount(I, 1)
    NEXT
  END IF

REM Read ID#'s of leachable parameters
  IF CCL(7) > 0 THEN
    REDIM GeochemLeach(25, 1) AS INTEGER
    FOR I = 1 TO CCL(7)
      INPUT #1, GeochemLeach(I, 1)
    NEXT
  END IF

REM Read MineUnits
  IF CCL(12) > 0 THEN
    Form1.mnuInputPitUnits.Enabled = True
    Form1.mnuInputPitUnits.Checked = True
    NumCols = CCL(12) + 1
    NumRows = 16 + CCL(7)
    REDIM GeochemName(NumRows, NumCols) AS STRING * 16
    FOR I = 2 TO NumCols
      INPUT #1, GeochemName(2, I)
    NEXT
    FOR I = 3 TO NumRows
      FOR J = 2 TO NumCols
        INPUT #1, Zed(I, J)
        GeochemName(I, J) = STR$(Zed(I, J))
      NEXT
    NEXT
    GeochemName(1, 1) = "* GEOCHEM UNITS"
    GeochemName(2, 1) = "Unit Name"
    GeochemName(3, 1) = "Unit #"
    GeochemName(4, 1) = "Rate - Control"
    GeochemName(5, 1) = "- max 'd', m"
    GeochemName(6, 1) = "Years Exposed"
    GeochemName(7, 1) = "Wall Area, m^2"
    GeochemName(8, 1) = "- %Area Sloping"
    GeochemName(9, 1) = "- Slope Angle"
    GeochemName(10, 1) = "Ratio Total/Wall"
    GeochemName(11, 1) = "- %Flushed Reg"
    GeochemName(12, 1) = "- %Flushed Per"
    GeochemName(13, 1) = "- %Not Flushed"
    GeochemName(14, 1) = "Reactive %S"
    GeochemName(15, 1) = "React ppt CaCO3"
    GeochemName(16, 1) = "Spec. Grav."
    FOR J = 1 TO CCL(7)
      SELECT CASE GeochemLeach(J, 1)
        CASE 14
          GeochemName(J + 16, 1) = "React Al (ppm)"'#14
        CASE 15
          GeochemName(J + 16, 1) = "React Ag (ppm)"
        CASE 16
          GeochemName(J + 16, 1) = "React As (ppm)"
        CASE 17
          GeochemName(J + 16, 1) = "React Ca (ppm)"
        CASE 18
          GeochemName(J + 16, 1) = "React Cd (ppm)"
        CASE 19
          GeochemName(J + 16, 1) = "React Co (ppm)"
        CASE 20
          GeochemName(J + 16, 1) = "React Cr (ppm)"'#20
        CASE 21
          GeochemName(J + 16, 1) = "React Cu (ppm)"
        CASE 22
          GeochemName(J + 16, 1) = "React Fe (ppm)'
        CASE 23
          GeochemName(J + 16, 1) = "React Hg (ppm)"
        CASE 24
          GeochemName(J + 16, 1) = "React K  (ppm)"
        CASE 25
          GeochemName(J + 16, 1) = "React Mg (ppm)"'#25
        CASE 26
          GeochemName(J + 16, 1) = "React Mn (ppm)"
        CASE 27
          GeochemName(J + 16, 1) = "React Mo (ppm)"
        CASE 28
          GeochemName(J + 16, 1) = "React Na (ppm)"
        CASE 29
          GeochemName(J + 16, 1) = "React Ni (ppm)"
        CASE 30
          GeochemName(J + 16, 1) = "React Pb (ppm)" '#30
        CASE 31
          GeochemName(J + 16, 1) = "React Ra (ppm)"
        CASE 32
          GeochemName(J + 16, 1) = "React Sr (ppm)'
        CASE 33
          GeochemName(J + 16, 1) = "React Th (ppm)"
        CASE 34
          GeochemName(J + 16, 1) = "React U  (ppm)"
        CASE 35
          GeochemName(J + 16, 1) = "React Zn (ppm)" '#35
      END SELECT
    NEXT
    FOR J = 2 TO NumCols
      SELECT CASE Zed(4, J)
        CASE 1
          GeochemName(4, J) = "1: TIME^[F]"
        CASE 2
          GeochemName(4, J) = "2: 10^[F*TIME]"
        CASE 3
          GeochemName(4, J) = "3: 1/log[F*TIM]"
      END SELECT
    NEXT

    FOR I = 1 TO 15
      INPUT #1, GeochemPower(I)
    NEXT
    IF CCL(5) = 0 THEN
      NumRows = 366 + 2
      A$ = "Day"
    ELSEIF CCL(5) = 1 THEN
      NumRows = 52 + 2
      A$ = "Week"
    ELSE
      NumRows = 12 + 2
      A$ = "Month"
    END IF

    NumCols = CCL(12) + 1
    REDIM FractureFlush(NumRows, NumCols) AS INTEGER
    FOR J = 1 TO CCL(12)
      INPUT #1, X
      INPUT #1, Y
      FractureFlush(0, J + 1) = Y
      FOR I = 1 TO Y
        INPUT #1, Z
        FractureFlush(Z + 2, J + 1) = 1
      NEXT
    NEXT

    INPUT #1, SubmergenceFactor

REM Read rate data for each unit
    NumCols = CCL(4) + 2
    NumEls = (NumRows + 1) * (NumCols + 1)
    REDIM GeochemRate1(NumRows, NumCols) AS Strlen, GeochemRate2(NumRows,
NumCols) AS STRING * 16
    GeochemRate1(1, 1).AA = "* FLO/CONC/RATE"
    GeochemRate1(1, 2).AA = "Unit #" + STR$(C)
    GeochemRate1(2, 1).AA = A$
    GeochemRate1(2, 2).AA = "Flow (m^3/d)"
    GeochemRate1(2, 3).AA = "SO4 mg/m^2/d"
    GeochemRate1(2, 4).AA = "Acid mg/m^2/d"
    IF CCL(9) = 1 THEN
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        GeochemRate1(2, 5).AA = "NP mg/m^2/d"
      ELSE
        GeochemRate1(2, 5).AA = "NP/SO4 Ratio"
      END IF
      FOR I = 3 TO NumRows
        NX = 1
        IF CCL(3) = 2 THEN NX = 2
        GeochemRate1(I, 1).AA = TimeParam(I - 2, NX)
      NEXT
      T = 0
      BB = 0
      FOR R = 1 TO CCL(4)
        J = R + 5 - T
        IF GeochemCount(R, 1) < 4 OR GeochemCount(R, 1) > 7 THEN
          GeochemRate1(2, J).AA = GeochemParam(R)
        ELSE
          T = T + 1
        END IF
        IF GeochemCount(R, 1) = 7 THEN
          GeochemRate1(2, J).AA = MID$(GeochemParam(R), 1, 3) + " mg/m^2/d"
          BB = J
        END IF
        IF GeochemCount(R, 1) > 13 AND GeochemCount(R, 1) < 36 THEN
          GeochemRate1(2, J).AA = MID$(GeochemParam(R), 1, 2) + " mg/m^2/d"
        END IF
      NEXT
    FOR C = 1 TO CCL(12)
     INPUT #1, A$
      FOR I = 3 TO NumRows
        FOR J = 1 TO NumCols
          INPUT #1, Zed(I, J)
          GeochemRate1(I, J).AA = STR$(Zed(I, J))
        NEXT
      NEXT
     CALL Array2Xms(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(C))
    NEXT
     FOR I = 1 TO CCL(12)
       INPUT #1, RateAccel(I)
     NEXT
  END IF

REM Read MineLayout
  IF CCL(11) > 0 THEN
     Form1.mnuInputPitLayout.Enabled = True
     Form1.mnuInputPitLayout.Checked = True
     FOR I = 1 TO 5
       INPUT #1, PitPoints(I)
     NEXT
     NumCols = 4 + CCL(12)
     NumRows = 25
     REDIM PitDims(NumRows, NumCols) AS STRING * 16
     PitDims(1, 1) = "* PIT DIM'S"
     PitDims(2, 1) = "Important Pts."
     PitDims(2, 2) = "Elev. (msl)"
     PitDims(2, 3) = "Cum.Vol.(m^3)"
     PitDims(2, 4) = "Area (m^2)"
     FOR I = 1 TO CCL(12)
       PitDims(2, I + 4) = "Unit#" + STR$(I) + " (Cum.%)"
     NEXT
     PitDims(PitPoints(1) + 2, 1) = "Top of Mine"
     PitDims(PitPoints(2) + 2, 1) = "Drain Level"
     PitDims(PitPoints(3) + 2, 1) = "Equil. Level"
     PitDims(PitPoints(4) + 2, 1) = "Bottom of Mine"
     FOR I = 3 TO PitPoints(4) + 2
       FOR J = 2 TO NumCols
         INPUT #1, Zed(I, J)
         PitDims(I, J) = STR$(Zed(I, J))
       NEXT
     NEXT
  END IF

REM Read Mine Layers and Their Chemical Controls
  IF CCL(11) > 0 THEN
    NumLayers = CCL(10)
    REDIM LayerName(NumLayers) AS STRING * 16
    FOR J = 0 TO NumLayers
     INPUT #1, LayerName(J)
    NEXT
    NumRows = 17
    NumCols = CCL(10)
    REDIM LayerData(NumRows, NumCols) AS SINGLE
    FOR J = 0 TO NumCols
     FOR I = 1 TO NumRows
       INPUT #1, LayerData(I, J)
     NEXT
    NEXT
    NumRows = CCL(4) * 5
    LayerElSize = 4
    LayerNumEls = NumRows + 1
    REDIM XmsLayerName(NumLayers) AS INTEGER
    DIM LayerChem(NumRows) AS SINGLE
    FOR K = 1 TO NumReps
     NumLayers = CCL(10)
     IF K = 1 AND CCL(3) < 2 THEN NumLayers = 1
     FOR J = 1 TO NumLayers
       Layer = J
       IF K = 1 AND CCL(3) < 2 THEN Layer = 0
       INPUT #1, LL
       FOR I = 1 TO NumRows
         INPUT #1, LayerChem(I)
       NEXT
       CALL Array2Xms(SEG LayerChem(0), LayerElSize, LayerNumEls,
XmsLayerName(Layer))
     NEXT
    NEXT K
    ERASE LayerChem
    NF = 0
    FOR J = 1 TO NumCols
     IF LayerData(11, J) = 1 THEN NF = NF + 1
    NEXT
    LayerData(11, 0) = NF
    IF CCL(3) > 0 AND NF > 0 THEN
       REDIM PRESERVE LayerTurnover(NumRowsSpr, CCL(10) + 1) AS INTEGER
       FOR I = 3 TO NumRowsSpr
         FOR J = 1 TO CCL(10) + 1
           INPUT #1, LayerTurnover(I, J)
         NEXT
       NEXT
    END IF
   END IF


REM Read Other Arrays
  NumColsSpr = CCL(4) + 2
  IF CCL(5) = 0 THEN
     NumRowsSpr = 368
  ELSEIF CCL(5) = 1 THEN
     NumRowsSpr = 54
  ELSE
     NumRowsSpr = 14
  END IF
  NumElsSpr = (NumRowsSpr + 1) * (NumColsSpr + 1)
  ElSize = 16
  REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
  DO WHILE EOF(1) = 0
   INPUT #1, Y
   IF Y = 14 THEN INPUT #1, SalPower
   INPUT #1, A$
   IF CCL(Y) = 1 THEN
    FOR K = 1 TO NumReps
     INPUT #1, B$
       FOR I = 3 TO NumRowsSpr
         FOR J = 1 TO NumColsSpr
           INPUT #1, Zed(I, J)
         NEXT
       NEXT
     SELECT CASE Y
     CASE 13    ' MinePrecip
       MinewallArray1(1, 1).AA = A$
       MinewallArray1(1, 2).AA = B$
       Form1.mnuInputPitPrecip.Checked = False
       IF CCL(13) > 0 THEN
         Form1.mnuInputPitPrecip.Checked = True
         FOR I = 3 TO NumRowsSpr
           FOR J = 1 TO NumColsSpr
             MinewallArray1(I, J).AA = STR$(Zed(I, J))
           NEXT
         NEXT
```

```
        CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(13,
K))
      END IF

    CASE 14    ' MineSat
      MinewallArray1(1, 1).AA = A$
      MinewallArray1(1, 2).AA = B$
      Form1.mnuInputPitSat.Checked = False
      IF CCL(14) > 0 THEN
        Form1.mnuInputPitSat.Checked = True
        FOR I = 3 TO NumRowsSpr
          FOR J = 1 TO NumColsSpr
            MinewallArray1(I, J).AA = STR$(Zed(I, J))
          NEXT
        NEXT
        CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(14,
K))
      END IF

    CASE 15    ' MineRunoff
      MinewallArray1(1, 1).AA = A$
      MinewallArray1(1, 2).AA = B$
      Form1.mnuInputPitRunoff.Checked = False
      IF CCL(15) > 0 THEN
        Form1.mnuInputPitRunoff.Checked = True
        FOR I = 3 TO NumRowsSpr
          FOR J = 1 TO NumColsSpr
            MinewallArray1(I, J).AA = STR$(Zed(I, J))
          NEXT
        NEXT
        CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(15,
K))
      END IF


    CASE 16    ' MineEvap
      MinewallArray1(1, 1).AA = A$
      MinewallArray1(1, 2).AA = B$
      Form1.mnuInputPitEvap.Checked = False
      IF CCL(16) > 0 THEN
        Form1.mnuInputPitEvap.Checked = True
        FOR I = 3 TO NumRowsSpr
          FOR J = 1 TO NumColsSpr
            MinewallArray1(I, J).AA = STR$(Zed(I, J))
          NEXT
        NEXT
        CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(16,
K))
      END IF

    CASE 17    ' MinePump#1
      MinewallArray1(1, 1).AA = A$
      MinewallArray1(1, 2).AA = B$
      Form1.mnuInputPitPump1.Checked = False
      IF CCL(17) > 0 THEN
        Form1.mnuInputPitPump1.Checked = True
        FOR I = 3 TO NumRowsSpr
          FOR J = 1 TO NumColsSpr
            MinewallArray1(I, J).AA = STR$(Zed(I, J))
          NEXT
        NEXT
        CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(17,
K))
      END IF

    CASE 18    ' MinePump#2
      MinewallArray1(1, 1).AA = A$
      MinewallArray1(1, 2).AA = B$
      Form1.mnuInputPitPump2.Checked = False
      IF CCL(18) > 0 THEN
        Form1.mnuInputPitPump2.Checked = True
        FOR I = 3 TO NumRowsSpr
          FOR J = 1 TO NumColsSpr
            MinewallArray1(I, J).AA = STR$(Zed(I, J))
          NEXT
        NEXT
        CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(18,
K))
      END IF
    END SELECT
  NEXT

 ELSEIF CCL(Y) = 2 THEN ' read into a tempfile
  FOR K = 1 TO NumReps
   OPEN TempName(Y, K) FOR OUTPUT AS #7
   INPUT #1, B$
     DO WHILE B$ < > ""
       FOR J = 1 TO NumColsSpr - 1
         INPUT #1, Xin
         IF Xin = -9999.909 THEN EXIT FOR
         PRINT #7, Xin;
       NEXT
       IF Xin = -9999.909 THEN EXIT DO
       INPUT #1, Xin
       IF Xin = -9999.909 THEN
         EXIT DO
       ELSE
         PRINT #7, Xin
       END IF
     LOOP
   CLOSE #7
   SELECT CASE Y
   CASE 13    ' MinePrecip
        Form1.mnuInputPitPrecip.Checked = True

   CASE 14    ' MineSat
        Form1.mnuInputPitSat.Checked = True

   CASE 15    ' MineRunoff
        Form1.mnuInputPitRunoff.Checked = True

   CASE 16    ' MineEvap
        Form1.mnuInputPitEvap.Checked = True

   CASE 17    ' MinePump#1
        Form1.mnuInputPitPump1.Checked = True

   CASE 18    ' MinePump#2
        Form1.mnuInputPitPump2.Checked = True
   END SELECT
  NEXT

  END IF
 LOOP
 CLOSE #1
 REDIM GeochemRate1(1, 1) AS Strlen, GeochemRate2(1, 1) AS STRING * 16
 REDIM MinewallArray1(1, 1) AS Strlen, MinewallArray2(1, 1) AS STRING * 16

 WaitForm.HIDE
 UNLOAD WaitForm
 Form1.Top = 0
 Form1.Left = 0
 Form1.SHOW

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-DAT$.BAS CODE MODULE
' SAVES INPUT DATA,
' ************************************

'$INCLUDE: 'MW-COMDF.BI'

DECLARE SUB MinewallDataSave ()
DECLARE SUB MinewallXMS ()

DECLARE SUB FileSave (InputFileName AS STRING, InputPathName AS STRING,
DefaultExt AS STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS
INTEGER, Flags AS INTEGER, Cancel AS INTEGER)
DECLARE SUB FileOpen (InputFileName AS STRING, InputPathName AS STRING,
DefaultExt AS STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS
INTEGER, Flags AS INTEGER, Cancel AS INTEGER)
DECLARE SUB FClose (Handle%)
DECLARE SUB FCreate (FileName$)
DECLARE SUB FOpen (FileName$, Handle%)
DECLARE FUNCTION DOSError% ()
DECLARE FUNCTION ErrorMsg$ (ErrNumber%)
```

```
DECLARE FUNCTION Exist% (FileName$)
DECLARE FUNCTION WhichError% ()
DECLARE SUB XmsRelMem (BYVAL Handle)
DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)

'$FORM WaitForm

REM $DYNAMIC
SUB MinewallDataSave ()
  ElSize = 16
  Loct = INSTR(1, InputFileName, ".")
  IF Loct > 0 THEN
    Ex$ = "DAT"
    TDN$ = LTRIM$(RTRIM$(MID$(InputFileName, 1, Loct)))
    TDN$ = TDN$ + LTRIM$(RTRIM$(Ex$))
  END IF
  CALL FileSave(InputFileName, InputPathName, "*.MW2", "Save MINEWALL Data File",
0, 7, 0, Cancel%)
  IF Cancel = -1 THEN EXIT SUB
  InputDataName = InputPathName + "\" + InputFileName
  IF Exist%(InputDataName) = 0 THEN
    CALL FCreate(InputDataName)
  END IF
  CALL FOpen(InputDataName, Handle%)
  IF DOSError% THEN
    BEEP
    MSG$ = ErrorMsg$(WhichError%)
    MSGBOX MSG$
    EXIT SUB
  ELSE
    LOAD WaitForm
    WaitForm.SHOW 0
  END IF
  CALL FClose(Handle%)
  OPEN InputDataName FOR OUTPUT AS #1
  CCL(1) = 1
  PRINT #1, " *** MINEWALL 2.0"
  PRINT #1, DATE$, TIME$
  PRINT #1, Title$
  PRINT #1, "END TITLE"
  PRINT #1, CCL(1); CCL(2); CCL(3); CCL(4); CCL(5); CCL(6); CCL(7); CCL(8); CCL(9)
  PRINT #1, CCL(10); CCL(11); CCL(12); CCL(13); CCL(14); CCL(15); CCL(16);
CCL(17); CCL(18); CCL(19)
  PRINT #1, CCL(20); CCL(21); CCL(22); CCL(23); CCL(24); CCL(25); CCL(26);
CCL(27); CCL(28); CCL(29)
  PRINT #1, CCL(30); CCL(31); CCL(32); CCL(33); CCL(34); CCL(35); CCL(36);
CCL(37); CCL(38); CCL(39)
  PRINT #1, SimTime_Array(1); SimTime_Array(2); SimTime_Array(3); SimTime_Array(4);
SimTime_Array(5); SimTime_Array(6)
  PRINT #1, SimTime_Array(7); SimTime_Array(8); SimTime_Array(9); SimTime_Array(10);
SimTime_Array(11); SimTime_Array(12)
  NumReps = 1
  IF CCL(3) = 1 THEN NumReps = 2

REM Print parameter list one at a time then the list of codes
  IF CCL(4) > 0 THEN
    FOR I = 1 TO CCL(4)
      PRINT #1, GeochemParam(I)
    NEXT
    FOR I = 1 TO CCL(4) - 1
      PRINT #1, GeochemCount(I, 0); GeochemCount(I, 1);
    NEXT
    PRINT #1, GeochemCount(CCL(4), 0); GeochemCount(CCL(4), 1)
  END IF

REM Read ID#'s of leachable parameters
  IF CCL(7) > 0 THEN
    FOR I = 1 TO CCL(7) - 1
      PRINT #1, GeochemLeach(I, 1);
    NEXT
    PRINT #1, GeochemLeach(CCL(7), 1)
  END IF

REM Save Geochem/Rock Units
  IF CCL(12) > 0 THEN
    NumRows = 16 + CCL(7)
    NumCols = CCL(12) + 1
    FOR I = 2 TO NumCols
      PRINT #1. GeochemName(2, I)
    NEXT
    FOR I = 3 TO NumRows
      FOR J = 2 TO NumCols - 1
        T! = VAL(GeochemName(I, J))
        PRINT #1, T!;
      NEXT
      T! = VAL(GeochemName(I, NumCols))
      PRINT #1, T!
    NEXT
    FOR I = 1 TO 14
      PRINT #1, GeochemPower(I);
    NEXT
    PRINT #1, GeochemPower(15)
    IF CCL(5) = 0 THEN
      NumRows = 366 + 2
      A$ = "Day"
    ELSEIF CCL(5) = 1 THEN
      NumRows = 52 + 2
      A$ = "Week"
    ELSE
      NumRows = 12 + 2
      A$ = "Month"
    END IF
    NumCols = CCL(12) + 1
    FOR J = 1 TO CCL(12)
      PRINT #1, J; FractureFlush(0, J + 1)
      FOR I = 3 TO NumRows
        IF FractureFlush(I, J + 1) = 1 THEN
          PRINT #1, I - 2;
        END IF
      NEXT
      PRINT #1, ""
    NEXT
    PRINT #1, SubmergenceFactor
    NumCols = CCL(4) + 2
    NumEls = (NumRows + 1) * (NumCols + 1)
    REDIM GeochemRate1(NumRows, NumCols) AS Strlen, GeochemRate2(NumRowsSpr,
NumCols) AS STRING * 16
    FOR C = 1 TO CCL(12)
      CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(C))
      PRINT #1, "Unit#" + STR$(C)
      FOR I = 3 TO NumRows
        FOR J = 1 TO NumCols - 1
          X! = VAL(GeochemRate1(I, J).AA)
          PRINT #1, X!;
        NEXT
        X! = VAL(GeochemRate1(I, NumCols).AA)
        PRINT #1, X!
      NEXT
    NEXT
    REDIM GeochemRate1(1, 1) AS Strlen, GeochemRate2(1, 1) AS STRING * 16
  END IF
  FOR I = 1 TO CCL(12) - 1
    PRINT #1, RateAccel(I);
  NEXT
  PRINT #1, RateAccel(CCL(12))

REM Save MineDimensions
  IF CCL(11) > 0 THEN
    PRINT #1, PitPoints(1); PitPoints(2); PitPoints(3); PitPoints(4); PitPoints(5)
    NumCols = 4 + CCL(12)
    NumRows = 25
    FOR I = 3 TO PitPoints(4) + 2
      FOR J = 2 TO NumCols - 1
        X! = VAL(PitDims(I, J))
        PRINT #1, X!;
      NEXT
      X! = VAL(PitDims(I, NumCols))
      PRINT #1, X!
    NEXT
  END IF

REM Save Layers and Their Chemical Controls
  IF CCL(11) > 0 THEN
    BotLayer = 0
    IF CCL(3) = 2 THEN BotLayer = 1
    NumLayers = CCL(10)
    IF CCL(3) = 0 THEN NumLayers = 0
    FOR J = BotLayer TO NumLayers
```

```
      PRINT #1, LayerName(J)
    NEXT
    NumRows = 17
    NumCols = CCL(10)
    FOR J = 0 TO NumCols
     FOR I = 1 TO NumRows - 1
       PRINT #1, LayerData(I, J);
     NEXT
     PRINT #1, LayerData(NumRows, J)
    NEXT
    NumRows = CCL(4) * 5
    LayerElSize = 4
    LayerNumEls = NumRows + 1
    DIM LayerChem(NumRows) AS SINGLE
    FOR K = 1 TO NumReps
     NumLayers = CCL(10)
     IF K = 1 AND CCL(3) < 2 THEN NumLayers = 1
     FOR J = 1 TO NumLayers
       Layer = J
       IF K = 1 AND CCL(3) < 2 THEN Layer = 0
       CALL Xms2Array(SEG LayerChem(0), LayerElSize, LayerNumEls,
XmsLayerName(Layer))
       PRINT #1, J
       FOR I = 1 TO NumRows - 1
         PRINT #1, LayerChem(I);
       NEXT
       PRINT #1, LayerChem(NumRows)
     NEXT
    NEXT K
    ERASE LayerChem
    NF = 0
    FOR J = 1 TO NumCols
     IF LayerData(11, J) = 1 THEN NF = NF + 1
    NEXT
    LayerData(11, 0) = NF
    IF CCL(3) > 0 AND NF > 0 THEN
       FOR I = 3 TO NumRowsSpr
         FOR J = 1 TO CCL(10)
           PRINT #1, LayerTurnover(I, J);
         NEXT
         PRINT #1, LayerTurnover(I, CCL(10) + 1)
       NEXT
    END IF

  END IF

REM Save MinePrecip
  REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
  PRINT #1, 13
  PRINT #1, "*MINE PRECIP"
  IF CCL(13) = 1 THEN
   FOR K = 1 TO NumReps
    CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(13, K))
    PRINT #1, MinewallArray1(1, 2).AA
      FOR I = 3 TO NumRowsSpr
        FOR J = 1 TO NumColsSpr - 1
          X! = VAL(MinewallArray1(I, J).AA)
          PRINT #1, X!;
        NEXT
        X! = VAL(MinewallArray1(I, NumColsSpr).AA)
        PRINT #1, X!
      NEXT
   NEXT K
  ELSEIF CCL(13) = 2 THEN
    FOR K = 1 TO NumReps
      IF CCL(3) < 2 THEN
        IF K = 1 THEN
          LBL$ = "* OPERATION"
        ELSE
          LBL$ = "* CLOSURE"
        END IF
      ELSE
        LBL$ = "* CLOSURE"
      END IF
      FThere = Exist(TempName(13, K))
      IF FThere = -1 THEN ' file exists
        PRINT #1, LBL$
        OPEN TempName(13, K) FOR INPUT AS #7
        DO WHILE NOT EOF(7)
          FOR J = 1 TO NumColsSpr - 1
            INPUT #7, X!
            PRINT #1, X!;
          NEXT
          INPUT #7, X!
          PRINT #1, X!
        LOOP
        PRINT #1, -9999.909
        CLOSE #7
      END IF
    NEXT
  END IF

REM Save MineSat
  PRINT #1, 14, SatPower
  PRINT #1, "*MINE SATUR GW"
  IF CCL(14) = 1 THEN
   FOR K = 1 TO NumReps
    CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(14, K))
    PRINT #1, MinewallArray1(1, 2).AA
      FOR I = 3 TO NumRowsSpr
        FOR J = 1 TO NumColsSpr - 1
          X! = VAL(MinewallArray1(I, J).AA)
          PRINT #1, X!;
        NEXT
        X! = VAL(MinewallArray1(I, NumColsSpr).AA)
        PRINT #1, X!
      NEXT
   NEXT K
  ELSEIF CCL(14) = 2 THEN
    FOR K = 1 TO NumReps
      IF CCL(3) < 2 THEN
        IF K = 1 THEN
          LBL$ = "* OPERATION"
        ELSE
          LBL$ = "* CLOSURE"
        END IF
      ELSE
        LBL$ = "* CLOSURE"
      END IF
      FThere = Exist(TempName(14, K))
      IF FThere = -1 THEN ' file exists
        PRINT #1, LBL$
        OPEN TempName(14, K) FOR INPUT AS #7
        DO WHILE NOT EOF(7)
          FOR J = 1 TO NumColsSpr - 1
            INPUT #7, X!
            PRINT #1, X!;
          NEXT
          INPUT #7, X!
          PRINT #1, X!
        LOOP
        PRINT #1, -9999.909
        CLOSE #7
      END IF
    NEXT
  END IF

REM Save MineRunoff
  PRINT #1, 15
  PRINT #1, "*MINE RUNOFF"
  IF CCL(15) = 1 THEN
   FOR K = 1 TO NumReps
    CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(15, K))
    PRINT #1, MinewallArray1(1, 2).AA
      FOR I = 3 TO NumRowsSpr
        FOR J = 1 TO NumColsSpr - 1
          X! = VAL(MinewallArray1(I, J).AA)
          PRINT #1, X!;
        NEXT
        X! = VAL(MinewallArray1(I, NumColsSpr).AA)
        PRINT #1, X!
      NEXT
   NEXT K
  ELSEIF CCL(15) = 2 THEN
    FOR K = 1 TO NumReps
      IF CCL(3) < 2 THEN
        IF K = 1 THEN
          LBL$ = "* OPERATION"
        ELSE
```

```
            LBL$ = "* CLOSURE"
          END IF
        ELSE
          LBL$ = "* CLOSURE"
        END IF
        FThere = Exist(TempName(15, K))
        IF FThere = -1 THEN  ' file exists
          PRINT #1, LBL$
          OPEN TempName(15, K) FOR INPUT AS #7
          DO WHILE NOT EOF(7)
            FOR J = 1 TO NumColsSpr - 1
              INPUT #7, X!
              PRINT #1, X!;
            NEXT
            INPUT #7, X!
            PRINT #1, X!
          LOOP
          PRINT #1, -9999.909
          CLOSE #7
        END IF
      NEXT
    END IF

REM Save MineEvap
    PRINT #1, 16
    PRINT #1, "*MINE EVAP"
    IF CCL(16) = 1 THEN
      FOR K = 1 TO NumReps
        CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(16, K))
        PRINT #1, MinewallArray1(1, 2).AA
          FOR I = 3 TO NumRowsSpr
            FOR J = 1 TO NumColsSpr - 1
              X! = VAL(MinewallArray1(I, J).AA)
              PRINT #1, X!;
            NEXT
            X! = VAL(MinewallArray1(I, NumColsSpr).AA)
            PRINT #1, X!
          NEXT
      NEXT K
    ELSEIF CCL(16) = 2 THEN
      FOR K = 1 TO NumReps
        IF CCL(3) < 2 THEN
          IF K = 1 THEN
            LBL$ = "* OPERATION"
          ELSE
            LBL$ = "* CLOSURE"
          END IF
        ELSE
          LBL$ = "* CLOSURE"
        END IF
        FThere = Exist(TempName(16, K))
        IF FThere = -1 THEN  ' file exists
          PRINT #1, LBL$
          OPEN TempName(16, K) FOR INPUT AS #7
          DO WHILE NOT EOF(7)
            FOR J = 1 TO NumColsSpr - 1
              INPUT #7, X!
              PRINT #1, X!;
            NEXT
            INPUT #7, X!
            PRINT #1, X!
          LOOP
          PRINT #1, -9999.909
          CLOSE #7
        END IF
      NEXT
    END IF

REM Save MinePump#1
    PRINT #1, 17
    PRINT #1, "*MINE PUMP #1"
    IF CCL(17) = 1 THEN
      FOR K = 1 TO NumReps
        CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(17, K))
        PRINT #1, MinewallArray1(1, 2).AA
          FOR I = 3 TO NumRowsSpr
            FOR J = 1 TO NumColsSpr - 1
              X! = VAL(MinewallArray1(I, J).AA)
              PRINT #1, X!;
            NEXT
            X! = VAL(MinewallArray1(I, NumColsSpr).AA)
            PRINT #1, X!
          NEXT
      NEXT K
    ELSEIF CCL(17) = 2 THEN
      FOR K = 1 TO NumReps
        IF CCL(3) < 2 THEN
          IF K = 1 THEN
            LBL$ = "* OPERATION"
          ELSE
            LBL$ = "* CLOSURE"
          END IF
        ELSE
          LBL$ = "* CLOSURE"
        END IF
        FThere = Exist(TempName(17, K))
        IF FThere = -1 THEN  ' file exists
          PRINT #1, LBL$
          OPEN TempName(17, K) FOR INPUT AS #7
          DO WHILE NOT EOF(7)
            FOR J = 1 TO NumColsSpr - 1
              INPUT #7, X!
              PRINT #1, X!;
            NEXT
            INPUT #7, X!
            PRINT #1, X!
          LOOP
          PRINT #1, -9999.909
          CLOSE #7
        END IF
      NEXT
    END IF

REM Save MinePump #2
    PRINT #1, 18
    PRINT #1, "*MINE PUMP #2"
    IF CCL(18) = 1 THEN
      FOR K = 1 TO NumReps
        CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(18, K))
        PRINT #1, MinewallArray1(1, 2).AA
          FOR I = 3 TO NumRowsSpr
            FOR J = 1 TO NumColsSpr - 1
              X! = VAL(MinewallArray1(I, J).AA)
              PRINT #1, X!;
            NEXT
            X! = VAL(MinewallArray1(I, NumColsSpr).AA)
            PRINT #1, X!
          NEXT
      NEXT K
    ELSEIF CCL(18) = 2 THEN
      FOR K = 1 TO NumReps
        IF CCL(3) < 2 THEN
          IF K = 1 THEN
            LBL$ = "* OPERATION"
          ELSE
            LBL$ = "* CLOSURE"
          END IF
        ELSE
          LBL$ = "* CLOSURE"
        END IF
        FThere = Exist(TempName(18, K))
        IF FThere = -1 THEN  ' file exists
          PRINT #1, LBL$
          OPEN TempName(18, K) FOR INPUT AS #7
          DO WHILE NOT EOF(7)
            FOR J = 1 TO NumColsSpr - 1
              INPUT #7, X!
              PRINT #1, X!;
            NEXT
            INPUT #7, X!
            PRINT #1, X!
          LOOP
          CLOSE #7
          PRINT #1, -9999.909
        END IF
      NEXT
    END IF
    REDIM MinewallArray1(1, 1) AS Strlen, MinewallArray2(1, 1) AS STRING * 16
    CLOSE #1
    WaitForm.HIDE
```

```
    UNLOAD WaitForm
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-GAUGE.FRM FORM MODULE
' "GAS GAUGE" TO SHOW PROGRESS DURING CALCULATIONS
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$FORM ProgForm

Version 1.00
BEGIN Form ProgGauge
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 1
        Caption      = "Task"
        ControlBox   = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(7)
        Left         = Char(13)
        MaxButton    = 0
        MinButton    = 0
        MousePointer = 0
        Tag          = ""
        Top          = Char(15)
        Visible      = -1
        Width        = Char(54)
        WindowState  = 0
        BEGIN Label ProgLabel3
                Alignment    = 0
                AutoSize     = -1
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "12345"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(1)
                MousePointer = 0
                TabIndex     = 2
                Tag          = ""
                Top          = Char(4)
                Visible      = -1
                Width        = Char(5)
        END
        BEGIN Label ProgLabel4
                Alignment    = 1
                AutoSize     = -1
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "12345"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(46)
                MousePointer = 0
                TabIndex     = 3
                Tag          = ""
                Top          = Char(4)
                Visible      = -1
                Width        = Char(5)
        END
        BEGIN Label ProgLabel2
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 1
                Caption      = ""
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(10)
                Height       = Char(3)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 1
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(52)
        END
        BEGIN Label ProgLabel1
                Alignment    = 2
                AutoSize     = -1
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "ProgLabel1"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(16)
                MousePointer = 0
                TabIndex     = 0
                Tag          = ""
                Top          = Char(0)
                Visible      = -1
                Width        = Char(10)
        END
        BEGIN Label ProgLabel5
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = ""
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 4
                Tag          = ""
                Top          = Char(0)
                Visible      = -1
                Width        = Char(11)
        END
END
```

```
' ************************************
' MINEWALL 2.0
' MW-GEADJ.BAS CODE MODULE
' ADJUSTS GEOCHEMICAL PARAMETERS
'   IF ANY ADDED OR SUBTRACTED
' ************************************

'$INCLUDE: 'MW-COMDF.BI'

DECLARE SUB MinewallXMS ()
DECLARE SUB XmsRelMem (BYVAL Handle)
DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE FUNCTION Exist% (FileName$)
DECLARE SUB FCopy (Source$, Dest$, Buffer$, ErrCode%)

DIM GeochemAdjust() AS STRING * 16

REM $DYNAMIC
SUB MinewallGeochemAdjust (I, J)
    DIM Zed AS SINGLE
    IF CCL(4) = 1 THEN
      MSG$ = "Some previously entered data will be lost " + NL$
      MSG$ = MSG$ + "and new columns will be added.  Be sure to edit all " + NL$
      MSG$ = MSG$ + "previously entered data to change zeros in the new columns."
    ELSEIF CCL(4) < 1 THEN
      MSG$ = "New columns will be added to previously entered data.  " + NL$
      MSG$ = MSG$ + "Be sure to edit all previous data to change the zeros " + NL$
      MSG$ = MSG$ + "in the new columns."
```

```
    ELSE
      MSG$ = "Some previous data will be lost.  If you chose " + NL$
      MSG$ = MSG$ + "new parameters, then edit all existing data to change " + NL$
      MSG$ = MSG$ + "the zeros for the new parameters."
    END IF
    MSG2$ = "You have changed the selection of geochemical parameters.  " + NL$
    MSG2$ = MSG2$ + NL$ + NL$ + MSG$
    MSGBOX MSG2$, 0, "IMPORTANT!"
    REM adjust flows and concs
    Count1 = 1
    Count2 = 1
    Count3 = 5
    ElSize = 16
    OldCols = NumColsSpr
    NumEls = (NumRowsSpr + 1) * (OldCols + 1)
    LoopFlag = 0
    DO 'until all param's considered
      IF GeochemCount(Count1, 1) = GeochemCount(Count2, 2) THEN
        ' no adjustment necessary for this parameter
        Count1 = Count1 + 1
        Count2 = Count2 + 1
        IF GeochemCount(Count1, 1) > 3 AND GeochemCount(Count1, 1) < 7 THEN
Count3 = Count3 - 1
      ELSEIF GeochemCount(Count1, 1) > GeochemCount(Count2, 2) THEN
        ' delete a column of data
        FOR L = 13 TO 18
          FOR LL = 1 TO 2
            IF CCL(L) = 1 THEN ' adjust XMS array
              NewCols = OldCols
              NumEls = (NumRowsSpr + 1) * (NewCols + 1)
              CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumEls,
XmsName(L, LL))
              CALL XmsRelMem(XmsName(L, LL))
              FOR RR = 2 TO NumRowsSpr
                FOR CC = Count2 + 2 TO NewCols - 1
                  MinewallArray1(RR, CC).AA = MinewallArray1(RR, CC +
1).AA
                NEXT
              NEXT
              NewCols = NewCols - 1
              NumEls = (NumRowsSpr + 1) * (NewCols + 1)
              CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumEls,
XmsName(L, LL))
              CALL MinewallXMS
            ELSE ' adjust tempfile
              FThere = Exist(TempName(L, LL))
              IF FThere = -1 THEN ' file exists
                CALL FCopy(TempName(L, LL), TempName(11, LL), SPACE$(512),
ErrCode%)
                OPEN TempName(L, LL) FOR OUTPUT AS #1
                OPEN TempName(11, LL) FOR INPUT AS #2
                REM *** Start loop
                NewCols = OldCols
                DO WHILE NOT EOF(2)
                  FOR CC = 1 TO NewCols
                    INPUT #2, Zed
                    IF CC < > Count2 + 2 THEN PRINT #1, Zed
                  NEXT
                LOOP
                CLOSE #1
                CLOSE #2
              END IF
              NewCols = NewCols - 1
            END IF
          NEXT
        NEXT
        FOR L = 1 TO CCL(12)
          IF XmsGeochemRateName(L) > 0 THEN ' adjust XMS arrays
            NewCols = OldCols
            NumEls = (NumRowsSpr + 1) * (NewCols + 1)
            CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(L))
            CALL XmsRelMem(XmsGeochemRateName(L))
            FOR RR = 2 TO NumRowsSpr
              FOR CC = Count2 + Count3 TO NewCols - 1
                GeochemRate1(RR, CC).AA = GeochemRate1(RR, CC + 1).AA
              NEXT
            NEXT
            NewCols = NewCols - 1
            NumEls = (NumRowsSpr + 1) * (NewCols + 1)
            CALL Array2Xms(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(L))
            CALL MinewallXMS
          END IF
        NEXT
        OldCols = OldCols - 1
        Count2 = Count2 + 1
        REDIM MinewallArray1(NumRowsSpr, OldCols) AS Strlen
        REDIM MinewallArray2(NumRowsSpr, OldCols) AS STRING * 16
        REDIM GeochemRate1(NumRowsSpr, OldCols) AS Strlen
        REDIM GeochemRate2(NumRowsSpr, OldCols) AS STRING * 16

      ELSE
        ' add a column of zeros with a label
        REDIM MinewallArray1(NumRowsSpr, OldCols + 1) AS Strlen
        REDIM MinewallArray2(NumRowsSpr, OldCols + 1) AS STRING * 16
        REDIM GeochemRate1(NumRowsSpr, OldCols + 1) AS Strlen
        REDIM GeochemRate2(NumRowsSpr, OldCols + 1) AS STRING * 16
        FOR L = 13 TO 18
          FOR LL = 1 TO 2
            IF CCL(L) = 1 THEN 'adjust XMS array
              NewCols = OldCols
              NumEls = (NumRowsSpr + 1) * (NewCols + 1)
              CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumEls,
XmsName(L, LL))
              CALL XmsRelMem(XmsName(L, LL))
              FOR RR = 2 TO NumRowsSpr
                FOR CC = Count2 + 2 TO NewCols
                  MinewallArray1(RR, CC + 1).AA = MinewallArray1(RR,
CC).AA
                NEXT
                MinewallArray1(RR, Count2 + 2).AA = "0"
                IF RR = 2 THEN MinewallArray1(2, Count2 + 2).AA =
GeochemParam(GeochemCount(Count1, 1))
              NEXT
              NewCols = NewCols + 1
              NumEls = (NumRowsSpr + 1) * (NewCols + 1)
              CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumEls,
XmsName(L, LL))
              CALL MinewallXMS

            ELSE ' adjust tempfile
              FThere = Exist(TempName(L, LL))
              IF FThere = -1 THEN ' file exists
                CALL FCopy(TempName(L, LL), TempName(11, LL), SPACE$(512),
ErrCode%)
                OPEN TempName(L, LL) FOR OUTPUT AS #1
                OPEN TempName(11, LL) FOR INPUT AS #2
                REM *** Start loop
                NewCols = OldCols
                DO WHILE NOT EOF(2)
                  FOR CC = 1 TO NewCols
                    INPUT #2, Zed
                    PRINT #1, Zed
                    IF CC = Count2 + 1 THEN PRINT #1, 0
                  NEXT
                LOOP
                CLOSE #1
                CLOSE #2
              END IF
              NewCols = NewCols + 1
            END IF
          NEXT
        NEXT
        FOR L = 1 TO CCL(12)
          IF XmsGeochemRateName(L) > 0 THEN
            NewCols = OldCols
            NumEls = (NumRowsSpr + 1) * (NewCols + 1)
            CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(L))
            CALL XmsRelMem(XmsGeochemRateName(L))
            FOR RR = 2 TO NumRowsSpr
              FOR CC = Count2 + Count3 TO NewCols
                GeochemRate1(RR, CC + 1).AA = GeochemRate1(RR, CC).AA
              NEXT
              GeochemRate1(RR, Count2 + Count3).AA = "0"
              IF RR = 2 THEN GeochemRate1(2, Count2 + Count3).AA =
GeochemParam(GeochemCount(Count1, 1))
              IF GeochemCount(Count1, 1) > 13 AND GeochemCount(Count1, 1) <
36 THEN
```

```
                GeochemRate1(2, Count2 + Count3).AA = MID$(GeochemRate1(2,
Count2 + Count3).AA, 1, 3) + " mg/m^2/d"
              END IF
            NEXT
            NewCols = NewCols + 1
            NumEls = (NumRowsSpr + 1) * (NewCols + 1)
            CALL Array2Xms(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(L))
            CALL MinewallXMS
          END IF
        NEXT
        OldCols = OldCols + 1
        Count1 = Count1 + 1
      END IF
      IF Count1 > I OR Count2 > CCL(4) THEN LoopFlag = 1
    LOOP UNTIL LoopFlag = 1
    REM now adjust GeochemName by temporarily switching rows and columns in
GeochemAdjust
    Count1 = 1
    Count2 = 1
    OldRows = 16 + CCL(7)
    OldCols = CCL(12) + 1
    REDIM GeochemAdjust(OldCols, OldRows) AS STRING * 16
    FOR L = 1 TO OldRows
      FOR LL = 1 TO OldCols
        GeochemAdjust(LL, L) = GeochemName(L, LL)
      NEXT
    NEXT
    FOR K = 1 TO J
      IF GeochemLeach(Count1, 1) = GeochemLeach(Count2, 2) THEN
        ' no adjustment necessary for this parameter
        Count1 = Count1 + 1
        Count2 = Count2 + 1
      ELSEIF GeochemLeach(Count1, 1) > GeochemLeach(Count2, 2) THEN
        ' delete a column of data
        NewCols = OldRows
        FOR RR = 1 TO OldCols
          FOR CC = Count2 + 16 TO NewCols - 1
            GeochemAdjust(RR, CC) = GeochemAdjust(RR, CC + 1)
          NEXT
        NEXT
        NewCols = NewCols - 1
        OldRows = NewCols
        Count2 = Count2 + 1
        REDIM PRESERVE GeochemAdjust(OldCols, OldRows) AS STRING * 16
      ELSE
        ' add a column of zeros
        REDIM PRESERVE GeochemAdjust(OldCols, OldRows + 1) AS STRING * 16
        NewCols = OldRows
        FOR RR = 1 TO OldCols
          FOR CC = Count2 + 16 TO NewCols
            GeochemAdjust(RR, CC + 1) = GeochemAdjust(RR, CC)
          NEXT
          GeochemAdjust(RR, Count2 + 16) = "0"
          IF RR = 1 THEN GeochemAdjust(1, Count2 + 16) =
GeochemParam(GeochemLeach(Count1, 1))
        NEXT
        NewCols = NewCols + 1
        OldRows = NewCols
        Count1 = Count1 + 1
      END IF
    NEXT
    REDIM GeochemName(OldRows, OldCols) AS STRING * 16
    FOR L = 1 TO OldRows
      FOR LL = 1 TO OldCols
        GeochemName(L, LL) = GeochemAdjust(LL, L)
      NEXT
    NEXT
    REDIM GeochemAdjust(1, 1) AS STRING * 16

    ' now adjust LayerChem
    NumRows = CCL(4) * 5
    NewNumRows = I * 5
    LayerElSize = 4
    LayerNumEls = NumRows + 1
    NewLayerNumEls = NewNumRows + 1
    FOR L = 0 TO CCL(10)
      IF XmsLayerName(L) > 0 THEN
        DIM LayerChem(NewLayerNumEls) AS SINGLE
        CALL Xms2Array(SEG LayerChem(0), LayerElSize, LayerNumEls,
XmsLayerName(L))
        CALL XmsRelMem(XmsLayerName(L))
        Count1 = 1
        Count2 = 1
        LoopFlag = 0
        DO ' until no more params
          IF GeochemCount(Count1, 1) = GeochemCount(Count2, 1) THEN
            Count1 = Count1 + 1
            Count2 = Count2 + 1
          ELSEIF GeochemCount(Count1, 1) > GeochemCount(Count2, 1) THEN
            ' delete 5 rows of data
            FOR K = (Count2 * 5 + 1) TO NewNumRows
              LayerChem(K - 5) = LayerChem(K)
            NEXT
            NumRows = NumRows - 5
            Count2 = Count2 + 1
          ELSE
            ' add 5 rows and add GeochemCount and Mass-balance default (=1)
            Tcount = (Count2 * 5) + 1
            FOR K = Tcount TO NewNumRows
              LayerChem(K) = LayerChem(K - 5)
            NEXT
            LayerChem(Tcount - 5) = GeochemCount(Count1, 1)
            LayerChem(Tcount - 4) = 1
            Count1 = Count1 + 1
          END IF
        IF Count1 > I OR Count2 > CCL(4) THEN LoopFlag = 1
        LOOP UNTIL LoopFlag = 1
        CALL Array2Xms(SEG LayerChem(0), LayerElSize, NewLayerNumEls,
XmsLayerName(L))
        ERASE LayerChem
      END IF
    NEXT
END SUB
```

```
' ********************************
' MINEWALL 2.0
' MW-GEOP.FRM FORM MODULE
' LISTS AND COORDINATES GEOCHEMICAL PARAMETERS
' ********************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

DECLARE SUB MinewallGeochemAdjust (I%, J%)

Version 1.00
BEGIN Form Geoparam
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 1
        Caption      = "Geochemical Parameters to be Simulated"
        ControlBox   = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(23)
        Left         = Char(0)
        MaxButton    = 0
        MinButton    = 0
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(80)
        WindowState  = 0
        BEGIN CheckBox Check13
                BackColor    = QBColor(7)
                Caption      = ""
                DragMode     = 0
                Enabled      = 0
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(27)
                MousePointer = 0
                TabIndex     = 12
                TabStop      = -1
                Tag          = ""
                Top          = Char(4)
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        Value       = 0
        Visible     = -1
        Width       = Char(18)
END
BEGIN CheckBox Check36
        BackColor   = QBColor(7)
        Caption     = "H2S gas (atm)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 35
        TabStop     = -1
        Tag         = ""
        Top         = Char(14)
        Value       = 0
        Visible     = -1
        Width       = Char(17)
END
BEGIN CheckBox Check37
        BackColor   = QBColor(7)
        Caption     = "CH4 gas (atm)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 36
        TabStop     = -1
        Tag         = ""
        Top         = Char(16)
        Value       = 0
        Visible     = -1
        Width       = Char(17)
END
BEGIN CheckBox Check1
        BackColor   = QBColor(7)
        Caption     = "&pH"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 0
        TabStop     = -1
        Tag         = ""
        Top         = Char(0)
        Value       = 0
        Visible     = -1
        Width       = Char(12)
END
BEGIN CheckBox Check33
        BackColor   = QBColor(7)
        Caption     = "T&h (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 32
        TabStop     = -1
        Tag         = ""
        Top         = Char(8)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check3
        BackColor   = QBColor(7)
        Caption     = "&Eh (mV)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 2
        TabStop     = -1
        Tag         = ""
        Top         = Char(4)
        Value       = 0
        Visible     = -1
        Width       = Char(12)
END
BEGIN CheckBox Check9
        BackColor   = QBColor(7)
        Caption     = "PO&4 (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 8
        TabStop     = -1
        Tag         = ""
        Top         = Char(16)
        Value       = 0
        Visible     = -1
        Width       = Char(18)
END
BEGIN CheckBox Check7
        BackColor   = QBColor(7)
        Caption     = "Sulf&ide (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 6
        TabStop     = -1
        Tag         = ""
        Top         = Char(12)
        Value       = 0
        Visible     = -1
        Width       = Char(27)
END
BEGIN CheckBox Check10
        BackColor   = QBColor(7)
        Caption     = "NO&3 (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 9
        TabStop     = -1
        Tag         = ""
        Top         = Char(18)
        Value       = 0
        Visible     = -1
        Width       = Char(24)
END
BEGIN CheckBox Check4
        BackColor   = QBColor(7)
        Caption     = "Al&kalinity(mg CaCO3/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 3
        TabStop     = -1
        Tag         = ""
        Top         = Char(6)
        Value       = 0
        Visible     = -1
        Width       = Char(27)
END
BEGIN CheckBox Check14
        BackColor   = QBColor(7)
        Caption     = "A&l (mg/L)"
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        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 13
        TabStop     = -1
        Tag         = ""
        Top         = Char(6)
        Value       = 0
        Visible     = -1
        Width       = Char(15)
END
BEGIN CheckBox Check15
        BackColor   = QBColor(7)
        Caption     = "A&g (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 14
        TabStop     = -1
        Tag         = ""
        Top         = Char(8)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check16
        BackColor   = QBColor(7)
        Caption     = "&As (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 15
        TabStop     = -1
        Tag         = ""
        Top         = Char(10)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check18
        BackColor   = QBColor(7)
        Caption     = "C&d (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 17
        TabStop     = -1
        Tag         = ""
        Top         = Char(14)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check19
        BackColor   = QBColor(7)
        Caption     = "C&o (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 18
        TabStop     = -1
        Tag         = ""
        Top         = Char(16)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check34
        BackColor   = QBColor(7)
        Caption     = "&U (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 33
        TabStop     = -1
        Tag         = ""
        Top         = Char(10)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check5
        BackColor   = QBColor(7)
        Caption     = "Acidity (mg CaCO3/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 4
        TabStop     = -1
        Tag         = ""
        Top         = Char(8)
        Value       = 0
        Visible     = -1
        Width       = Char(27)
END
BEGIN CheckBox Check32
        BackColor   = QBColor(7)
        Caption     = "&Sr (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 31
        TabStop     = -1
        Tag         = ""
        Top         = Char(6)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check31
        BackColor   = QBColor(7)
        Caption     = "&Ra (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 30
        TabStop     = -1
        Tag         = ""
        Top         = Char(4)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check29
        BackColor   = QBColor(7)
        Caption     = "N&i (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 28
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        TabStop     = -1
        Tag         = ""
        Top         = Char(0)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check28
        BackColor   = QBColor(7)
        Caption     = "&Na (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 27
        TabStop     = -1
        Tag         = ""
        Top         = Char(16)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check17
        BackColor   = QBColor(7)
        Caption     = "&Ca (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 16
        TabStop     = -1
        Tag         = ""
        Top         = Char(12)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check11
        BackColor   = QBColor(7)
        Caption     = "&Org C (mg C/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 10
        TabStop     = -1
        Tag         = ""
        Top         = Char(0)
        Value       = 0
        Visible     = -1
        Width       = Char(18)
END
BEGIN CheckBox Check12
        BackColor   = QBColor(7)
        Caption     = "Diss O&2 (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 11
        TabStop     = -1
        Tag         = ""
        Top         = Char(2)
        Value       = 0
        Visible     = -1
        Width       = Char(18)
END
BEGIN CheckBox Check35
        BackColor   = QBColor(7)
        Caption     = "&Zn (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 34
        TabStop     = -1
        Tag         = ""
        Top         = Char(12)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check38
        BackColor   = QBColor(7)
        Caption     = "O2 gas (atm)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 37
        TabStop     = -1
        Tag         = ""
        Top         = Char(18)
        Value       = 0
        Visible     = -1
        Width       = Char(17)
END
BEGIN CheckBox Check23
        BackColor   = QBColor(7)
        Caption     = "&Hg (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 22
        TabStop     = -1
        Tag         = ""
        Top         = Char(6)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check24
        BackColor   = QBColor(7)
        Caption     = "&K (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 23
        TabStop     = -1
        Tag         = ""
        Top         = Char(8)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check22
        BackColor   = QBColor(7)
        Caption     = "&Fe (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 21
        TabStop     = -1
        Tag         = ""
        Top         = Char(4)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
```

```
BEGIN CheckBox Check21
        BackColor   = QBColor(7)
        Caption     = "&Cu (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 20
        TabStop     = -1
        Tag         = ""
        Top         = Char(2)
        Value       = 0
        Visible     = -1
        Width       = Char(14)
END
BEGIN CheckBox Check20
        BackColor   = QBColor(7)
        Caption     = "C&r (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 19
        TabStop     = -1
        Tag         = ""
        Top         = Char(0)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check27
        BackColor   = QBColor(7)
        Caption     = "M&o (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 26
        TabStop     = -1
        Tag         = ""
        Top         = Char(14)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check8
        BackColor   = QBColor(7)
        Caption     = "Cl (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 7
        TabStop     = -1
        Tag         = ""
        Top         = Char(14)
        Value       = 0
        Visible     = -1
        Width       = Char(24)
END
BEGIN CheckBox Check25
        BackColor   = QBColor(7)
        Caption     = "M&g (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 24
        TabStop     = -1
        Tag         = ""
        Top         = Char(10)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check26
        BackColor   = QBColor(7)
        Caption     = "&Mn (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 25
        TabStop     = -1
        Tag         = ""
        Top         = Char(12)
        Value       = 0
        Visible     = -1
        Width       = Char(14)
END
BEGIN CheckBox Check2
        BackColor   = QBColor(7)
        Caption     = "Tem&perature (C)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 1
        TabStop     = -1
        Tag         = ""
        Top         = Char(2)
        Value       = 0
        Visible     = -1
        Width       = Char(23)
END
BEGIN CheckBox Check30
        BackColor   = QBColor(7)
        Caption     = "&Pb (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 29
        TabStop     = -1
        Tag         = ""
        Top         = Char(2)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CommandButton GeochemParamOK
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "&OK"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(16)
        MousePointer = 0
        TabIndex    = 38
        TabStop     = -1
        Tag         = ""
        Top         = Char(18)
        Visible     = -1
        Width       = Char(12)
END
BEGIN CommandButton GeochemParamQuit
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "&Quit"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
```

```
            Height      = Char(3)
            Left        = Char(47)
            MousePointer = 0
            TabIndex    = 40
            TabStop     = -1
            Tag         = ""
            Top         = Char(18)
            Visible     = -1
            Width       = Char(12)
      END
      BEGIN CommandButton GeochemParamHelp
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Help"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(32)
            MousePointer = 0
            TabIndex    = 39
            TabStop     = -1
            Tag         = ""
            Top         = Char(18)
            Visible     = -1
            Width       = Char(12)
      END
      BEGIN CheckBox Check6
            BackColor   = QBColor(7)
            Caption     = "Sul&fate (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(0)
            MousePointer = 0
            TabIndex    = 5
            TabStop     = -1
            Tag         = ""
            Top         = Char(10)
            Value       = 0
            Visible     = -1
            Width       = Char(25)
      END
END

REM $DYNAMIC
SUB Form_Load ()

  IF CCL(4) = 0 THEN
    Check1.Value = 1
    Check2.Value = 0
    Check3.Value = 0
    Check4.Value = 1
    Check5.Value = 1
    Check6.Value = 1
    Check7.Value = 0
    Check8.Value = 0
    Check9.Value = 0
    Check10.Value = 0
    Check11.Value = 0
    Check12.Value = 0
    Check13.Value = 0
    Check14.Value = 0
    Check15.Value = 0
    Check16.Value = 0
    Check17.Value = 0
    Check18.Value = 0
    Check19.Value = 0
    Check20.Value = 0
    Check21.Value = 0
    Check22.Value = 0
    Check23.Value = 0
    Check24.Value = 0
    Check25.Value = 0
    Check26.Value = 0
    Check27.Value = 0
    Check28.Value = 0
    Check29.Value = 0
    Check30.Value = 0
    Check31.Value = 0
    Check32.Value = 0
    Check33.Value = 0
    Check34.Value = 0
    Check35.Value = 0
    Check36.Value = 0
    Check37.Value = 0
    Check38.Value = 0
  ELSE
    REDIM PRESERVE GeochemCount(40, 2) AS INTEGER
    FOR I = 1 TO UBOUND(GeochemCount, 1)
      GeochemCount(I, 2) = GeochemCount(I, 1)
      SELECT CASE GeochemCount(I, 1)
        CASE 1
          Check1.Value = 1
        CASE 2
          Check2.Value = 1
        CASE 3
          Check3.Value = 1
        CASE 4
          Check4.Value = 1
        CASE 5
          Check5.Value = 1
        CASE 6
          Check6.Value = 1
        CASE 7
          Check7.Value = 1
        CASE 8
          Check8.Value = 1
        CASE 9
          Check9.Value = 1
        CASE 10
          Check10.Value = 1
        CASE 11
          Check11.Value = 1
        CASE 12
          Check12.Value = 1
        CASE 13
          Check13.Value = 1
        CASE 14
          Check14.Value = 1
        CASE 15
          Check15.Value = 1
        CASE 16
          Check16.Value = 1
        CASE 17
          Check17.Value = 1
        CASE 18
          Check18.Value = 1
        CASE 19
          Check19.Value = 1
        CASE 20
          Check20.Value = 1
        CASE 21
          Check21.Value = 1
        CASE 22
          Check22.Value = 1
        CASE 23
          Check23.Value = 1
        CASE 24
          Check24.Value = 1
        CASE 25
          Check25.Value = 1
        CASE 26
          Check26.Value = 1
        CASE 27
          Check27.Value = 1
        CASE 28
          Check28.Value = 1
        CASE 29
          Check29.Value = 1
        CASE 30
          Check30.Value = 1
        CASE 31
          Check31.Value = 1
        CASE 32
          Check32.Value = 1
        CASE 33
          Check33.Value = 1
        CASE 34
```

```
            Check34.Value = 1
          CASE 35
            Check35.Value = 1
          CASE 36
            Check36.Value = 1
          CASE 37
            Check37.Value = 1
          CASE 38
            Check38.Value = 1
        END SELECT
      NEXT
      REDIM PRESERVE GeochemLeach(25, 2) AS INTEGER
      FOR I = 1 TO UBOUND(GeochemLeach, 1)
        GeochemLeach(I, 2) = GeochemLeach(I, 1)
      NEXT
    END IF
END SUB

REM $STATIC
SUB GeochemParamHelp_Click ()
    IF HelpLoaded = -1 THEN
      CALL HelpShowTopic("Geochemical Parameters")
    END IF
END SUB

REM $DYNAMIC
SUB GeochemParamOK_Click ()
    FOR I = 1 TO UBOUND(GeochemCount, 1) ' clear column 1
      GeochemCount(I, 1) = 0  'Geochem ID
      GeochemCount(I, 0) = 0  ' rounded molecular wt
    NEXT
    FOR I = 1 TO UBOUND(GeochemLeach, 1)
      GeochemLeach(I, 1) = 0
    NEXT
    REDIM GeochemParam(40) AS STRING * 16
    I = 0
    J = 0
'   IF Check1.Value = 1 THEN  'pH always required
      Check1.Value = 1
      I = I + 1
      GeochemParam(I) = "pH "
      GeochemCount(I, 1) = 1
      GeochemCount(I, 0) = 1
'   END IF
    IF Check2.Value = 1 THEN
      I = I + 1
      GeochemParam(I) = "Temp (C)"
      GeochemCount(I, 0) = 1
      GeochemCount(I, 1) = 2
    END IF
    IF Check3.Value = 1 THEN
      I = I + 1
      GeochemCount(I, 1) = 3
      GeochemCount(I, 0) = 1
      GeochemParam(I) = "Eh (mV)"
    END IF
'   IF Check4.Value = 1 THEN 'Alk always required
      Check4.Value = 1
      I = I + 1
      GeochemCount(I, 0) = 100
      GeochemCount(I, 1) = 4
      GeochemParam(I) = "Alk (mg/L)"
'   END IF
'   IF Check5.Value = 1 THEN 'Acid always required
      Check5.Value = 1
      I = I + 1
      GeochemCount(I, 0) = 100
      GeochemCount(I, 1) = 5
      GeochemParam(I) = "Acid (mg/L)"
'   END IF
'   IF Check6.Value = 1 THEN 'SO4 always required
      Check6.Value = 1
      I = I + 1
      GeochemCount(I, 0) = 96
      GeochemCount(I, 1) = 6
      GeochemParam(I) = "SO4 (mg/L)"
'   END IF
    IF Check7.Value = 1 THEN
      I = I + 1
      GeochemCount(I, 0) = 32
      GeochemCount(I, 1) = 7
      GeochemParam(I) = "S2- (mg/L)"
    END IF
    IF Check8.Value = 1 THEN
      I = I + 1
      GeochemCount(I, 0) = 35
      GeochemCount(I, 1) = 8
      GeochemParam(I) = "Cl (mg/L)"
    END IF
    IF Check9.Value = 1 THEN
      I = I + 1
      GeochemCount(I, 0) = 95
      GeochemCount(I, 1) = 9
      GeochemParam(I) = "PO4 (mg/L)"
    END IF
    IF Check10.Value = 1 THEN
      I = I + 1
      GeochemCount(I, 0) = 62
      GeochemCount(I, 1) = 10
      GeochemParam(I) = "NO3 (mg/L)"
    END IF
    IF Check11.Value = 1 THEN
      I = I + 1
      GeochemCount(I, 0) = 12
      GeochemCount(I, 1) = 11
      GeochemParam(I) = "OC (mg C/L)"
    END IF

    IF Check12.Value = 1 THEN
      I = I + 1
      GeochemCount(I, 0) = 16
      GeochemCount(I, 1) = 12
      GeochemParam(I) = "DO (mg/L)"
    END IF
REM Check13 disabled
'   IF Check13.Value = 1 THEN
'     I = I + 1
'     GeochemCount(I, 0) = 1
'     GeochemCount(I,1) = 13
'     GeochemParam(I) = ""
'   END IF
    IF Check14.Value = 1 THEN
      I = I + 1
      J = J + 1
      GeochemLeach(J, 1) = 14
      GeochemCount(I, 0) = 27
      GeochemCount(I, 1) = 14
      GeochemParam(I) = "Al (mg/L)"
    END IF
    IF Check15.Value = 1 THEN
      I = I + 1
      J = J + 1
      GeochemLeach(J, 1) = 15
      GeochemCount(I, 0) = 108
      GeochemCount(I, 1) = 15
      GeochemParam(I) = "Ag (mg/L)"
    END IF
    IF Check16.Value = 1 THEN
      I = I + 1
      J = J + 1
      GeochemLeach(J, 1) = 16
      GeochemCount(I, 0) = 75
      GeochemCount(I, 1) = 16
      GeochemParam(I) = "As (mg/L)"
    END IF
    IF Check17.Value = 1 THEN
      I = I + 1
      J = J + 1
      GeochemLeach(J, 1) = 17
      GeochemCount(I, 0) = 40
      GeochemCount(I, 1) = 17
      GeochemParam(I) = "Ca (mg/L)"
    END IF
    IF Check18.Value = 1 THEN
      I = I + 1
      J = J + 1
      GeochemLeach(J, 1) = 18
      GeochemCount(I, 0) = 112
      GeochemCount(I, 1) = 18
      GeochemParam(I) = "Cd (mg/L)"
```

```
END IF
IF Check19.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 19
   GeochemCount(I, 0) = 59
   GeochemCount(I, 1) = 19
   GeochemParam(I) = "Co (mg/L)"
END IF
IF Check20.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 20
   GeochemCount(I, 0) = 52
   GeochemCount(I, 1) = 20
   GeochemParam(I) = "Cr (mg/L)"
END IF
IF Check21.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 21
   GeochemCount(I, 0) = 64
   GeochemCount(I, 1) = 21
   GeochemParam(I) = "Cu (mg/L)"
END IF
IF Check22.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 22
   GeochemCount(I, 0) = 56
   GeochemCount(I, 1) = 22
   GeochemParam(I) = "Fe (mg/L)"
END IF
IF Check23.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 23
   GeochemCount(I, 0) = 201
   GeochemCount(I, 1) = 23
   GeochemParam(I) = "Hg (mg/L)"
END IF
IF Check24.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 24
   GeochemCount(I, 0) = 39
   GeochemCount(I, 1) = 24
   GeochemParam(I) = "K  (mg/L)"
END IF
IF Check25.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 25
   GeochemCount(I, 0) = 24
   GeochemCount(I, 1) = 25
   GeochemParam(I) = "Mg (mg/L)"
END IF
IF Check26.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 26
   GeochemCount(I, 0) = 55
   GeochemCount(I, 1) = 26
   GeochemParam(I) = "Mn (mg/L)"
END IF
IF Check27.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 27
   GeochemCount(I, 0) = 96
   GeochemCount(I, 1) = 27
   GeochemParam(I) = "Mo (mg/L)"
END IF
IF Check28.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 28
   GeochemCount(I, 0) = 23
   GeochemCount(I, 1) = 28
   GeochemParam(I) = "Na (mg/L)"
END IF
IF Check29.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 29
   GeochemCount(I, 0) = 59
   GeochemCount(I, 1) = 29
   GeochemParam(I) = "Ni (mg/L)"
END IF
IF Check30.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 30
   GeochemCount(I, 0) = 207
   GeochemCount(I, 1) = 30
   GeochemParam(I) = "Pb (mg/L)"
END IF
IF Check31.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 31
   GeochemCount(I, 0) = 226
   GeochemCount(I, 1) = 31
   GeochemParam(I) = "Ra (mg/L)"
END IF
IF Check32.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 32
   GeochemCount(I, 0) = 88
   GeochemCount(I, 1) = 32
   GeochemParam(I) = "Sr (mg/L)"
END IF
IF Check33.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 33
   GeochemCount(I, 0) = 232
   GeochemCount(I, 1) = 33
   GeochemParam(I) = "Th (mg/L)"
END IF
IF Check34.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 34
   GeochemCount(I, 0) = 238
   GeochemCount(I, 1) = 34
   GeochemParam(I) = "U  (mg/L)"
END IF
IF Check35.Value = 1 THEN
   I = I + 1
   J = J + 1
   GeochemLeach(J, 1) = 35
   GeochemCount(I, 0) = 65
   GeochemCount(I, 1) = 35
   GeochemParam(I) = "Zn (mg/L)"
END IF
IF Check36.Value = 1 THEN
   I = I + 1
   GeochemCount(I, 0) = 34
   GeochemCount(I, 1) = 36
   GeochemParam(I) = "H2S (atm)"
END IF
IF Check37.Value = 1 THEN
   I = I + 1
   GeochemCount(I, 0) = 16
   GeochemCount(I, 1) = 37
   GeochemParam(I) = "CH4 (atm)"
END IF
IF Check38.Value = 1 THEN
   I = I + 1
   GeochemCount(I, 0) = 32
   GeochemCount(I, 1) = 38
   GeochemParam(I) = "O2 (atm)"
END IF
NL$ = CHR$(13) + CHR$(10)
TestFlag = 0
IF CCL(4) > 0 THEN
   FOR K = 1 TO UBOUND(GeochemCount, 1)
      IF GeochemCount(K, 1) < > GeochemCount(K, 2) THEN TestFlag = TestFlag + 1
```

```
    NEXT
  END IF
  IF TestFlag > 0 THEN
    CALL MinewallGeochemAdjust(I, J)
  END IF
  CCL(0) = CCL(4)
  CCL(4) = I
  REDIM PRESERVE GeochemParam(CCL(4)) AS STRING * 16
  REDIM PRESERVE GeochemCount(40, 1) AS INTEGER
  REDIM PRESERVE GeochemLeach(25, 1) AS INTEGER
  NumColsSpr = I + 2
  CCL(7) = J
  IF NumRowsSpr < 1 THEN NumRowsSpr = 14
  Geoparam.HIDE
END SUB

REM $STATIC
SUB GeochemParamQuit_Click ()
  CCL(0) = -1
  Geoparam.HIDE
END SUB
```

```
' ***************************************
' MINEWALL 2.0
' MW-GRAPH.BAS CODE MODULE
' GRAPHICS DRIVER
' ***************************************

'$INCLUDE: 'MW-CHART.BI'
'$INCLUDE: 'MW-COMDF.BI'

'$FORM GraphForm1
'$FORM GraphForm2
'$FORM GraphForm3
'$FORM GraphForm4
'$FORM PrintForm1

DEFINT A-Z
DECLARE FUNCTION BestMode% ()
DECLARE SUB MinewallGraphics ()
DECLARE SUB MinewallJet (Row%, Col%, LPTNo%)
DECLARE FUNCTION PrintReady% (LPTNo%)
DECLARE SUB ValidCheck ()

DECLARE SUB Pause (Ticks%)
DECLARE FUNCTION WaitKey% ()
DECLARE SUB BLPrint (LPTNo%, Work$, ErrCount%)
DECLARE SUB ScrnDump (Size$, LPTNumber%, Translate%)
DECLARE FUNCTION PRNReady% (LPTNumber%)
DECLARE FUNCTION Peek1% (Segment%, Address%)

CONST HIGHESTMODE = 13

REM $DYNAMIC
' Best graphics screenmode retrieval routine.
'
' Determines the best graphics screenmode available
' for displaying the chart.
'
FUNCTION BestMode ()
        ' Set error trap for determining supported screenmodes.
        ON LOCAL ERROR GOTO ScreenError

        FOR TestValue = HIGHESTMODE TO 0 STEP -1
                DisplayError = False
                SCREEN TestValue
                IF DisplayError = False THEN
                        SELECT CASE TestValue
                                CASE 12, 13
                                        BestMode = 12
                                CASE 9, 10, 11
                                        BestMode = 9
                                CASE 8, 4, 3
                                        BestMode = TestValue
                                CASE 2, 7
                                        BestMode = 2
                                CASE 1
                                        BestMode = 1
                                CASE ELSE
                                        PRINT "Graphics screenmode required to display charts."
                                        END
                        END SELECT
                        EXIT FUNCTION
                END IF
        NEXT TestValue


        EXIT FUNCTION

' Screenmode error trap
' Handles invalid SCREEN values.
ScreenError:
        IF ERR = 5 THEN
                DisplayError = True
                RESUME NEXT
        ELSE
                ERROR ERR
        END IF
END FUNCTION

SUB MinewallGraphics ()
        DIM Env AS ChartEnvironment    ' variable to hold environment structure
        DIM Col(0 TO cPalLen) AS INTEGER
        DIM Lines(0 TO cPalLen) AS INTEGER
        DIM Fill(0 TO cPalLen) AS STRING
        DIM Char(0 TO cPalLen) AS INTEGER
        DIM Bord(0 TO cPalLen) AS INTEGER
        DataCols0 = CCL(4) + 2 + (CCL(12) * 2) + 2
        DataCols1 = CCL(4) + 2
        DIM Zed0(DataCols0) AS SINGLE' width of TEMPOP file
        DIM Zed1(DataCols0) AS SINGLE
        DIM TempLabels(10) AS STRING, YTest AS SINGLE, YFactor1 AS SINGLE
        DIM YTic AS SINGLE, XTic AS SINGLE, SumS AS SINGLE, SumNP AS
SINGLE
        DIM DPI AS STRING, LPTNumber AS INTEGER, Translate AS INTEGER
        REDIM XYFlag(10) AS SINGLE, OpenFileNum(2) AS INTEGER


        IF CCL(0) = 39 THEN  ' check if simulations were performed
                IF CCL(39) = 0 THEN
                        MSG$ = "You have not yet simulated operation.
Press 'OK' to return to main menu, then Simulate Operation."
                        MSGBOX MSG$
                        CCL(0) = -1
                        EXIT SUB
                END IF
        ELSEIF CCL(0) = 40 THEN
                IF CCL(40) = 0 THEN
                        MSG$ = "You have not yet simulated closure.  Press
'OK' to return to main menu, then Simulate Closure."
                        MSGBOX MSG$
                        CCL(0) = -1
                        EXIT SUB
                END IF
        ELSE
                MSG$ = "You have not yet performed the required simulations.
Press 'OK' to return to main menu."
                MSGBOX MSG$
                CCL(0) = -1
                EXIT SUB
        END IF

' initialize printer if printing desired
PrntOption = 0
MSG$ = "Will you want to print a graph?"
Action = MSGBOX(MSG$, 4, "Print Graphics")
IF Action = 6 THEN
        PrntOption = 1
        Count = 0
        OL = 0
        DO
                OL = 0
                DO
                        Count = Count + 1
                        LPTNo = Count
                        Ready = PrintReady%(LPTNo)
                        IF Ready = 0 THEN
```

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                        OL = OL + 1
                ELSE
                        GrPrint(4) = Count
                END IF
        LOOP UNTIL Count = 3
        IF OL = 3 THEN
                MSG$ = "Printer is not yet ready.  Return to Main
Menu."
                Action = MSGBOX(MSG$, 0, "PROBLEM!")
                PrntOption = 0
                CCL(0) = -1
                EXIT SUB
        END IF
    LOOP UNTIL OL < 3
        Hold = CCL(0)
        PrintForm1.SHOW 1
        UNLOAD PrintForm1
        IF CCL(0) = -1 THEN
                CCL(0) = Hold
                PrntOption = 0
        END IF
        LPTNumber = INT(GrPrint(4))
        Translate = INT(GrPrint(5))
        IF GrPrint(1) = 0 THEN 'locate printer cursor
                GrRow = 1
                GrCol = 1
                IF GrPrint(2) = 75 THEN
                        DPI = "075"
                        GrRow = 2
                        IF GrPrint(3) = 1 THEN GrCol = 15
                        CALL MinewallLJet(GrRow, GrCol,
LPTNumber)
                ELSEIF GrPrint(2) = 100 THEN
                        DPI = "100"
                        IF GrPrint(3) = 1 THEN
                                GrRow = 5
                                GrCol = 20
                        ELSE
                                GrRow = 3
                                GrCol = 7
                        END IF
                        CALL MinewallLJet(GrRow, GrCol,
LPTNumber)
                ELSEIF GrPrint(2) = 150 THEN
                        DPI = "150"
                        GrRow = 5
                        GrCol = 10
                        CALL MinewallLJet(GrRow, GrCol,
LPTNumber)
                ELSE
                        DPI = "300"
                        GrRow = 15
                        GrCol = 20
                        CALL MinewallLJet(GrRow, GrCol,
LPTNumber)
                END IF
        END IF
END IF

LoopFlag = 0
LoopCount = 0
' ************************
DO 'big graphics loop with LoopFlag
PrntDone = 0
LoopCount = LoopCount + 1
MaxPoints = 2000
First = 1
Last = 5
'REDIM ChX(1 TO MaxPoints, First TO Last) AS SINGLE
'REDIM ChY(1 TO MaxPoints, First TO Last) AS SINGLE
REDIM YMax(Last) AS SINGLE
REDIM YMin(Last) AS SINGLE
REDIM GraphSim(10) AS INTEGER
ChoiceTotal = 2 + CCL(4) + CCL(12) * 2 + 2
REDIM GraphChoice(ChoiceTotal) AS INTEGER
REDIM SeriesLabels(ChoiceTotal) AS STRING

' initialize XYFlag array for default or specified X and Y ranges
IF LoopCount = 1 THEN
        XYFlag(1) = 0
        XYFlag(2) = 1960
        XYFlag(3) = 2460
        XYFlag(4) = 1
        XYFlag(6) = 0
        XYFlag(7) = .010001
        XYFlag(8) = 10
        XYFlag(9) = 1
END IF

GraphForm1.SHOW 1  ' select params to plot
IF CCL(0) = -1 THEN
        UNLOAD GraphForm1
        EXIT SUB
END IF
File0$ = TempName(11, CCL(0) - 38)
IF CCL(0) = 39 THEN
        File1$ = TempName(10, 0)
        Layer = 0
ELSE
        Layer = GraphForm1.cboGraph1ComboLayer.ListIndex + 1
        Layer = 1 'only one layer allowed in this version
        File1$ = TempName(10 + Layer, 0)
END IF
UNLOAD GraphForm1

IF GraphChoice(3) = 1 THEN
        GraphForm2.HIDE
        GraphChoice(3) = 0
        NN = 5
        IF GraphChoice(ChoiceTotal) = 1 THEN NN = NN - 1
        IF GraphChoice(ChoiceTotal - 1) = 1 THEN NN = NN - 1
        GraphForm2.Caption = "Select a Maximum of " + STR$(NN)
        GraphForm2.SHOW 1  ' get geochem params
        UNLOAD GraphForm2
        IF CCL(0) = -1 THEN EXIT SUB
END IF
NN = 0
FOR I = 2 TO ChoiceTotal
        IF GraphChoice(I) = 1 THEN NN = NN + 1
NEXT

IF GraphChoice(3 + CCL(4)) = 1 AND NN < 5 THEN
        GraphForm4.HIDE
        GraphChoice(3 + CCL(4)) = 0
        MSG$ = "Check NO MORE THAN"
        MSG1$ = STR$(5 - NN) + " if S or NP only are chosen, or" + STR$(INT((5 -
NN) / 2)) + " if both"
        MSG$ = MSG$ + MSG1$
        GraphForm4.Frame2.Caption = MSG$
        GraphForm4.SHOW 1
        UNLOAD GraphForm4
END IF

GraphForm3.SHOW 1  ' get min's and max's with XYFlag array
UNLOAD GraphForm3

NN = 0
FOR I = 2 TO ChoiceTotal
        IF GraphChoice(I) = 1 OR GraphChoice(I) = 200 THEN
                NN = NN + 1
                IF NN < 6 THEN TempLabels(NN) = SeriesLabels(I)
        END IF
NEXT I
Last = NN
IF NN > 5 THEN Last = 5

REM Time to get data from file
CLS
LOCATE 12, 35
PRINT "PLEASE WAIT!"
LOCATE 13, 20
PRINT "This usually takes less than 30 seconds,"
LOCATE 14, 7
PRINT "unless you chose several parameters and there are centuries of data."
LOCATE 16, 30
PRINT "Reading data ..."
I = 0
MinPoints = 0
OPEN File1$ FOR INPUT AS #2
DO WHILE NOT EOF(2)  ' read in data line by line, and assign as required
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  I = I + 1
  FOR J = 1 TO DataCols0
          INPUT #2, Zed1(J)
  NEXT
  IF XYFlag(1) = 1 AND INT(Zed1(1)) < INT(XYFlag(2)) THEN
          I = 0
          MinPoints = MinPoints + 1
  END IF
  IF XYFlag(1) = 1 AND INT(Zed1(1)) = INT(XYFlag(3)) THEN
          EXIT DO
  END IF
LOOP
CLOSE #2
MaxPoints = I
REDIM ChX(1 TO MaxPoints, First TO Last) AS SINGLE
REDIM ChY(1 TO MaxPoints, First TO Last) AS SINGLE
REDIM SericsLabels(First TO Last) AS STRING
FOR L = First TO Last
          YMin(L) = 9E+20
          YMax(L) = -9E+20
          SericsLabels(L) = TempLabels(L)
NEXT
' OPEN File0$ FOR INPUT AS #2
OPEN File1$ FOR INPUT AS #3
I = 0
II = 0
DO WHILE NOT EOF(3)  ' read in data line by line, and assign as required
  I = I + 1
  II = II + 1
  UK = 0
  IF I > MaxPoints THEN EXIT DO
  FOR J = 1 TO DataCols0
          INPUT #3, Zed1(J)
  NEXT
  IF II <= MinPoints THEN
          I = 0
  ELSE
  NN = 1
  FOR L = 1 TO Last
          ChX(I, L) = Zed1(1)
          FOR NL = NN + 1 TO ChoiceTotal
                  IF GraphChoice(NL) = 1 OR GraphChoice(NL) = 200 THEN
                          NN = NL
                          EXIT FOR
                  END IF
          NEXT NL
          IF NN = (3 + CCL(4)) AND GraphChoice(NN) = 200 THEN  ' sum all S
                  SumS = 0!
                  FOR LJ = NN TO ChoiceTotal - 2 STEP 2
                          SumS = SumS + Zed1(LJ)
                  NEXT
                  ChY(I, L) = SumS
          END IF
          IF NN = (4 + CCL(4)) AND GraphChoice(NN) = 200 THEN   ' sum all NP
                  SumNP = 0!
                  FOR LJ = NN TO ChoiceTotal - 2 STEP 2
                          SumNP = SumNP + Zed1(LJ)
                  NEXT
                  ChY(I, L) = SumNP
          END IF
          IF GraphChoice(NN) = 1 THEN ' graph this parameter
                  ChY(I, L) = Zed1(NN)
          END IF
          IF ChY(I, L) > YMax(L) THEN YMax(L) = ChY(I, L)
          IF ChY(I, L) < YMin(L) THEN YMin(L) = ChY(I, L)
  NEXT L
  END IF
LOOP
' CLOSE #2
CLOSE #3
LOCATE 16, 30
PRINT "Reading data: COMPLETED"
Min = 17
IF XYFlag(4) = 2 THEN 'change X Axis to log values
          LOCATE Min, 30
          PRINT "Converting X values to logarithms ..."
          FOR I = 1 TO MaxPoints
                  FOR L = 1 TO Last
                          IF ChX(I, L) > 0 THEN
                                  ChX(I, L) = LOG(ChX(I, L)) /
LOG(10)
                          ELSE
                                  ChX(I, L) = -7!
                          END IF
                  NEXT
          NEXT
          FOR I = 2 TO 3
                  IF XYFlag(I) > 0 THEN
                          XYFlag(I) = LOG(XYFlag(I)) / LOG(10)
                  ELSE
                          IF I = 2 THEN
                                  XYFlag(I) = 3.29
                          ELSE
                                  XYFlag(I) = 3.39
                          END IF
                  END IF
          NEXT
          LOCATE Min, 30
          PRINT "Conversion of X values to logarithms: COMPLETED"
          Min = Min + 1
END IF
IF XYFlag(9) = 2 THEN 'change Y Axis to log values
          LOCATE Min, 30
          PRINT "Converting Y values to logarithms ..."
          FOR I = 1 TO MaxPoints
                  FOR L = 1 TO Last
                          IF ChY(I, L) > 0 THEN
                                  ChY(I, L) = LOG(ChY(I, L)) /
LOG(10)
                          ELSE
                                  ChY(I, L) = -7!
                          END IF
                  NEXT
          NEXT
          FOR L = 1 TO Last
                  IF YMax(L) > 0 THEN
                          YMax(L) = LOG(YMax(L)) / LOG(10)
                  ELSE
                          YMax(L) = -7!
                  END IF
                  IF YMin(L) > 0 THEN
                          YMin(L) = LOG(YMin(L)) / LOG(10)
                  ELSE
                          YMin(L) = -7!
                  END IF
          NEXT
          FOR I = 7 TO 8
                  IF XYFlag(I) > 0 THEN
                          XYFlag(I) = LOG(XYFlag(I)) / LOG(10)
                  ELSE
                          XYFlag(I) = -7!
                  END IF
          NEXT
          LOCATE Min, 30
          PRINT "Conversion of Y values to logarithms: COMPLETED"
          Min = Min + 1
END IF

LOCATE Min, 30
PRINT "Calculating limits ..."
IF XYFlag(6) = 0 THEN ' calculate default maximum and minimum values
          YMax(0) = YMax(1)
          YMin(0) = YMin(1)
          FOR L = 1 TO Last
                  IF YMax(L) > YMax(0) THEN YMax(0) = YMax(L)
                  IF YMin(L) < YMin(0) THEN YMin(0) = YMin(L)
          NEXT
          L = 0
          IF YMax(L) = YMin(L) THEN
                  IF YMax(L) > 0 THEN
                          YMin(L) = YMax(L) - (YMax(L) / 2!)
                  ELSEIF YMax(L) = 0 THEN
                          YMax(L) = 1!
                          YMin(L) = -1!
                  ELSE
                          YMin(L) = YMax(L) + (YMax(L) / 2!)
                  END IF
          END IF
          LOCATE Min + 1, 30
          PRINT "YMax and YMin = "; YMax(L); "&"; YMin(L)
```

```
        FOR I = 1 TO 2
                IF I = 1 THEN
                        YMaxTotal = YMax(L)
                        YTest = YMaxTotal
                        YFactor4 = 1
                        YFactor5 = 1
                ELSE
                        YMinTotal = YMin(L)
                        YTest = YMinTotal
                        YFactor4 = (-1)
                        YFactor5 = 1  ' no. of decimal places to show
                END IF
                YFactor1 = 1!
                IF YTest > 0 THEN
                        YFactor3 = 1
                ELSE
                        YFactor3 = (-1)
                END IF
                YTest = YTest * CSNG(YFactor3)
                IF YTest < 10 AND YTest > 0 THEN
                        YFactor1 = 1!
                        DO UNTIL YTest > 10
                                YTest = YTest * 10
                                YFactor1 = YFactor1 / 10!
                                YFactor5 = YFactor5 + 1
                        LOOP
                ELSEIF YTest >= 10 THEN
                        YFactor1 = 1!
                        DO UNTIL YTest < 100
                                YTest = YTest / 10!
                                YFactor1 = YFactor1 * 10!
                                YFactor5 = 0
                        LOOP
                END IF
                IF YTest <> 0 THEN
                        YFactor2 = INT(YTest) + YFactor3 * YFactor4
                        YTest = CSNG(YFactor2) * YFactor1 *
CSNG(YFactor3)
                END IF
                IF I = 1 THEN
                        YMaxTotal = YTest
                        XYFlag(8) = YTest
                ELSE
                        YMinTotal = YTest
                        XYFlag(7) = YTest
                END IF
        NEXT
        IF ABS(YMaxTotal) <= .01 THEN
                IF YMaxTotal > 0 THEN
                        XYFlag(8) = .010001
                ELSE
                        XYFlag(8) = 0
                END IF
                IF YMaxTotal <> 0 THEN XYFlag(6) = 1
        END IF
        IF ABS(YMinTotal) <= .01 THEN
                IF YMinTotal > 0 THEN
                        XYFlag(7) = 0
                ELSEIF YMinTotal < 0 THEN
                        XYFlag(7) = -.010001
                ELSE
                        XYFlag(7) = 0
                END IF
                IF YMinTotal <> 0 THEN XYFlag(6) = 1
        END IF
END IF
IF XYFlag(6) = 1 THEN ' assign no. of decimal places to YFactor5 based on YMin
        YMinTotal = ABS(XYFlag(7))
        YMaxTotal = ABS(XYFlag(8))
        IF YMinTotal = 0 THEN
                IF YMaxTotal = 0 THEN
                        MSG$ = "Upper and Lower Limits are zero.  Try
again."
                        MSGBOX MSG$, 0, "LIMITS PROBLEM!"
                        PrntDone = 1
                ELSE
                        YMinTotal = YMaxTotal
                END IF
        ELSE
                IF YMaxTotal > 0 AND YMaxTotal < YMinTotal THEN
                        YMinTotal = YMaxTotal
                END IF
                YTest = YMinTotal
                YFactor5 = 1  ' no. of decimal places to show
                YFactor1 = 1!
                IF YTest < 10 THEN
                        DO UNTIL YTest > 10
                                YTest = YTest * 10
                                YFactor1 = YFactor1 / 10!
                                YFactor5 = YFactor5 + 1
                        LOOP
                ELSE
                        YFactor5 = 1
                        DO UNTIL YTest < 100
                                YTest = YTest / 10!
                                YFactor1 = YFactor1 * 10!
                                YFactor5 = 0
                        LOOP
                END IF
END IF
LOCATE Mln, 30
PRINT "Calculation of limits: COMPLETED"
LOCATE Mln + 1, 30
PRINT "Entering Chart Routine ..."

' Pass the value returned by the BestMode function to the Presentation
' Graphics routine ChartScreen to set the graphics mode for charting
ChartScreen (BestMode)      ' Even if SCREEN is already set to an acceptable

                ' mode, you still have to set it with ChartScreen

IF ChartErr = cBadScreen THEN  ' Check to make sure ChartScreen succeeded
                MSG$ = "Cannot switch to a graphics screen mode.  Press 'OK' to return to
main menu."
                MSGBOX MSG$
                EXIT SUB
END IF

CALL GetPaletteDef(Col(), Lines(), Fill(), Char(), Bord())
Char(4) = (4)
Char(5) = (30)
CALL SetPaletteDef(Col(), Lines(), Fill(), Char(), Bord())

' Initialize a default pie chart
DefaultChart Env, cScatter, cLines  ' Constant cScatter (for Scatter Chart), cNoLines (unjoined
points)

' Add Titles and some chart options. These assignments modify some default
' values set in the variable Env (of type ChartEnvironment) by DefaultChart
GrTitle$ = ""
TitleLen = LEN(Title$)
FOR I = 1 TO TitleLen
        IF I > 25 THEN EXIT FOR
        GrChar$ = MID$(Title$, I, 1)
        IF GrChar$ = CHR$(58) THEN EXIT FOR
        IF GrChar$ = CHR$(13) THEN GrChar$ = " "
        IF GrChar$ <> CHR$(10) THEN
                GrTitle$ = GrTitle$ + GrChar$
        END IF
NEXT
IF CCL(0) = 39 THEN
        GrTitle$ = GrTitle$ + ": OPERATION"
ELSE
        GrTitle$ = GrTitle$ + ": CLOSURE"
END IF
Env.MainTitle.Title = GrTitle$          ' Specifies text of chart title
Env.MainTitle.TitleColor = 11           ' Specifies color of title text
Env.MainTitle.Justify = cRight          ' How to align of title text
ChTitle$ = "TIME vs. "
FOR I = 1 TO Last - 1
        ChTitle$ = ChTitle$ + SeriesLabels(I) + ", "
NEXT
ChTitle$ = ChTitle$ + SeriesLabels(Last)
Env.SubTitle.Title = ChTitle$           ' Text of chart subtitle
Env.SubTitle.TitleColor = 15            ' Color of subtitle text
Env.SubTitle.Justify = cCenter          ' How to align of subtitle text
Env.ChartWindow.Border = cYes             ' Specifies chart has no border

' Label the x axis of the chart
```

```
IF XYFlag(1) = 0 THEN
        XYFlag(3) = INT(ChX(MaxPoints, 1) + 1)
        XYFlag(2) = INT(ChX(1, 1))
ELSE
        IF XYFlag(4) = 2 THEN
                XYFlag(2) = LOG(XYFlag(2)) / LOG(10)
                XYFlag(3) = LOG(XYFlag(3)) / LOG(10)
        END IF
END IF
XFactor1! = XYFlag(3) - XYFlag(2) + 1
XTic = 1
IF XFactor1! < 10! THEN
        XTic = 1
ELSEIF XFactor1! > 10! THEN
        XTic = INT(XFactor1! / 10!)
END IF

'XFactor2 = (XFactor1 MOD 2)
'XYFlag(3) = XYFlag(3) + XFactor2

Env.XAxis.AxisTitle.Title = "TIME (yr)"
Env.XAxis.AutoScale = cNo
Env.XAxis.ScaleMin = XYFlag(2)
Env.XAxis.ScaleMax = XYFlag(3)
Env.XAxis.ScaleFactor = 1
Env.XAxis.ScaleTitle.Title = ""
Env.XAxis.TicInterval = XTic
XY = INT(XYFlag(4))
Env.XAxis.TicFormat = 1
Env.XAxis.TicDecimals = 0
IF XYFlag(3) - XYFlag(2) < 2 THEN Env.XAxis.TicDecimals = 3

' Y axis
YFactor1 = (XYFlag(8) - XYFlag(7))
I = 0
IF YFactor1 < 1! THEN
        YTic = YFactor1 / 10!
ELSEIF YFactor1 < 10! AND YFactor1 >= 1! THEN
        YTic = 1
ELSEIF YFactor1 >= 10! THEN
        YFactor1 = YFactor1 + 1
        YTic = INT(YFactor1 / 10!)
END IF
LA$ = "VALUE"
IF XYFlag(9) = 2 THEN LA$ = "LOG(VALUE)"
Env.YAxis.AxisTitle.Title = LA$
Env.YAxis.AutoScale = cNo
Env.YAxis.ScaleMin = XYFlag(7)
Env.YAxis.ScaleMax = XYFlag(8)
Env.YAxis.ScaleFactor = 1
Env.YAxis.ScaleTitle.Title = ""
Env.YAxis.TicInterval = YTic
XY = INT(XYFlag(9))
Env.YAxis.TicFormat = 1
Env.YAxis.TicDecimals = YFactor5

' Call the pie-charting routine --- Arguments for call to ChartPie are:
' Env           - Environment variable
' X         - Array containing orange-juice sales values to chart
' Y         - Array containing hot-chocolate sales values to chart
' MaxPoints         - Tells number of data values to chart
ChartScatterMS Env, ChX(), ChY(), MaxPoints, First, Last, SericsLabels()
IF ChartError < > 0 THEN
        LOCATE 1, 2
        PRINT "Chart Error" + STR$(ChartError)
        LOCATE 1, 18
        INPUT A$
END IF
DO WHILE PrntDone = 0' for PrntDone
        LOCATE 1, 2
        IF PrntOption = 1 THEN
                PRINT "F10=PRINT;others=QUIT"
        ELSE
                PRINT "Press any key to QUIT"
        END IF
        Ky = WaitKey
        IF Ky = -68 AND PrntOption = 1 THEN
                LOCATE 1, 2
                PRINT " MINEWALL 2.0 GRAPH "
                CALL MinewallLJet(GrRow, GrCol, LPTNumber)
                CALL ScrnDump(DPI, LPTNumber, Translate)
                CALL BLPrint(LPTNumber, CHR$(12), ErrCount)
                IF ErrCount < > -1 THEN
                        MSG$ = "Something is wrong with the printer.
Please check and try again"
                        MSGBOX MSG$, 0, "PRINTER PROBLEM!"
                        PrntDone = 1
                END IF
                CLS
        ELSE
                PrntDone = 1
                CLS
                SCREEN 0
                MSG$ = "Do you want do to another graph?"
                Action = MSGBOX(MSG$, 4, "Another Graph?")
                IF Action = 7 THEN LoopFlag = 1
        END IF
LOOP ' for PrntDone
IF XYFlag(4) = 2 THEN
        XYFlag(2) = 10 ^ XYFlag(2)
        XYFlag(3) = 10 ^ XYFlag(3)
END IF
IF XYFlag(9) = 2 THEN
        XYFlag(7) = 10 ^ XYFlag(7)
        XYFlag(8) = 10 ^ XYFlag(8)
END IF
LOOP UNTIL LoopFlag = 1' if LoopFlag
IF PrntOption = 1 THEN
  IF GrPrint(1) = 0 THEN
        CALL BLPrint(LPTNumber, CHR$(27) + "E", ErrCount)
'reset the printer
  ELSE
        CALL BLPrint(LPTNumber, CHR$(27) + "@", ErrCount)
'reset the printer
  END IF
END IF
REDIM ChX(1 TO MaxPoints, 1 TO 1) AS SINGLE
REDIM ChY(1 TO MaxPoints, 1 TO 1) AS SINGLE
END SUB

REM $STATIC
SUB MinewallLJet (Row, Col, LPTNo)
'-- send LaserJet codes to position the print cursor at a given row and column
        Position$ = CHR$(27) + "&a" + STR$(Row) + "r" + STR$(Col) + "C"
        CALL BLPrint(LPTNo, Position$, ErrCount)
END SUB

STATIC FUNCTION PrintReady (LPTNo)

  RetryAddr = &H477 + LPTNo             'Calculate BIOS Retry address
  SaveRetries = Peek1%(Zero, RetryAddr)     'Save the current setting
  CALL Poke1(Zero, RetryAddr, 1)        'Set to 1 retry, never use 0!
  PrintReady% = PRNReady%(LPTNo)        'Check the printer
  CALL Poke1(Zero, RetryAddr, SaveRetries)  'Restore the original Retry

END FUNCTION
```

```
' ********************************
' MINEWALL 2.0
' MW-GRF1.FRM FORM MODULE
' FIRST GRAPHICS SELECTION SCREEN
' ********************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

'$FORM GraphForm2
'$FORM GraphForm3
'$FORM GraphForm4

Version 1.00
BEGIN Form GraphForm1
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Selection of Parameters for Graphing"
        ControlBox   = -1
```

```
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(25)
        Left         = Char(0)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(0)
        Visible      = -1
        Width        = Char(80)
        WindowState  = 0
        BEGIN Frame Frame3
                BackColor    = QBColor(7)
                Caption      = ""
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(4)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 14
                Tag          = ""
                Top          = Char(16)
                Visible      = -1
                Width        = Char(78)
                BEGIN OptionButton optGraph1Option6
                        BackColor    = QBColor(7)
                        Caption      = "&Remaining S and/or NP in one or
more units"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(3)
                        Left         = Char(0)
                        MousePointer = 0
                        TabIndex     = 5
                        TabStop      = 0
                        Tag          = ""
                        Top          = Char(0)
                        Value        = 0
                        Visible      = -1
                        Width        = Char(47)
                END
                BEGIN OptionButton optGraph1Option7
                        BackColor    = QBColor(7)
                        Caption      = "None"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(3)
                        Left         = Char(68)
                        MousePointer = 0
                        TabIndex     = 6
                        TabStop      = -1
                        Tag          = ""
                        Top          = Char(0)
                        Value        = -1
                        Visible      = -1
                        Width        = Char(8)
                END
        END
        BEGIN Label lblGraph1Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "Make one selection from each of the boxes below.
In the first box, balanced pumping at Pump #2 was an input option.  If you did not choose
balanced pumping, water imbalance may be important to establish proper water balance."
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 10
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(77)
        END
        BEGIN CommandButton cmdGraph1Quit
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Quit"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(59)
                MousePointer = 0
                TabIndex     = 9
                TabStop      = -1
                Tag          = ""
                Top          = Char(20)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdGraph1OK
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&OK"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(7)
                MousePointer = 0
                TabIndex     = 7
                TabStop      = -1
                Tag          = ""
                Top          = Char(20)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdGraph1Help
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Help"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(34)
                MousePointer = 0
                TabIndex     = 8
                TabStop      = -1
                Tag          = ""
                Top          = Char(20)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN Frame Frame1
                BackColor    = QBColor(7)
                Caption      = ""
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(4)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 12
                Tag          = ""
                Top          = Char(4)
                Visible      = -1
                Width        = Char(77)
                BEGIN OptionButton optGraph1Option1
                        BackColor    = QBColor(7)
                        Caption      = "&Balanced pumping at Pump #2"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(3)
                        Left         = Char(0)
                        MousePointer = 0
                        TabIndex     = 0
                        TabStop      = 0
                        Tag          = ""
                        Top          = Char(0)
```

```
            Value      = 0
            Visible    = -1
            Width      = Char(32)
        END
        BEGIN OptionButton optGraph1Option3
            BackColor  = QBColor(7)
            Caption    = "Nei&ther"
            DragMode   = 0
            Enabled    = -1
            ForeColor  = QBColor(0)
            Height     = Char(3)
            Left       = Char(64)
            MousePointer = 0
            TabIndex   = 2
            TabStop    = 0
            Tag        = ""
            Top        = Char(0)
            Value      = 0
            Visible    = -1
            Width      = Char(11)
        END
        BEGIN OptionButton optGraph1Option2
            BackColor  = QBColor(7)
            Caption    = "Water &elevation"
            DragMode   = 0
            Enabled    = -1
            ForeColor  = QBColor(0)
            Height     = Char(3)
            Left       = Char(38)
            MousePointer = 0
            TabIndex   = 1
            TabStop    = -1
            Tag        = ""
            Top        = Char(0)
            Value      = -1
            Visible    = -1
            Width      = Char(21)
        END
    END
    BEGIN Label lblGraph1Label2
        Alignment  = 0
        AutoSize   = 0
        BackColor  = QBColor(7)
        BorderStyle = 0
        Caption    = "Up to 5 parameters (4 if you did not choose Neither
in the first box) can be selected from a following screen if you choose ""One or more..."" 
below."
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(2)
        Left       = Char(0)
        MousePointer = 0
        TabIndex   = 11
        Tag        = ""
        Top        = Char(9)
        Visible    = -1
        Width      = Char(77)
    END
    BEGIN Frame Frame2
        BackColor  = QBColor(7)
        Caption    = ""
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(4)
        Left       = Char(0)
        MousePointer = 0
        TabIndex   = 13
        Tag        = ""
        Top        = Char(11)
        Visible    = -1
        Width      = Char(78)
        BEGIN OptionButton optGraph1Option4
            BackColor  = QBColor(7)
            Caption    = "One or more geochemical
&concentrations in Layer:"
            DragMode   = 0
            Enabled    = -1
            ForeColor  = QBColor(0)
            Height     = Char(3)
            Left       = Char(0)
            MousePointer = 0
            TabIndex   = 3
            TabStop    = 0
            Tag        = ""
            Top        = Char(0)
            Value      = 0
            Visible    = -1
            Width      = Char(52)
        END
        BEGIN ComboBox cboGraph1ComboLayer
            BackColor  = QBColor(7)
            DragMode   = 0
            Enabled    = -1
            ForeColor  = QBColor(0)
            Height     = Char(1)
            Left       = Char(52)
            MousePointer = 0
            Sorted     = 0
            Style      = 2
            TabIndex   = 15
            TabStop    = -1
            Tag        = ""
            Top        = Char(1)
            Visible    = -1
            Width      = Char(15)
        END
        BEGIN OptionButton optGraph1Option5
            BackColor  = QBColor(7)
            Caption    = "&None"
            DragMode   = 0
            Enabled    = -1
            ForeColor  = QBColor(0)
            Height     = Char(3)
            Left       = Char(68)
            MousePointer = 0
            TabIndex   = 4
            TabStop    = -1
            Tag        = ""
            Top        = Char(0)
            Value      = -1
            Visible    = -1
            Width      = Char(8)
        END
    END
END

REM $DYNAMIC
SUB cmdGraph1Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Graph Simulation Results")
  END IF
END SUB

SUB cmdGraph1OK_Click ()
  IF optGraph1Option1.Value = -1 THEN
    GraphChoice(ChoiceTotal - 1) = 1
    SeriesLabels(ChoiceTotal - 1) = "Pump#2 (m^3/d)"
  END IF
  IF optGraph1Option2.Value = -1 THEN
    GraphChoice(ChoiceTotal) = 1
    SeriesLabels(ChoiceTotal) = "Water Level(m)"
  END IF
  IF optGraph1Option4.Value = -1 THEN
    GraphChoice(3) = 1
  END IF
  IF optGraph1Option6.Value = -1 THEN
    GraphChoice(2 + CCL(4) + 1) = 1
  END IF
  GraphForm1.HIDE
END SUB

SUB cmdGraph1Quit_Click ()
  CCL(0) = -1
  GraphForm1.HIDE
END SUB

SUB Form_Load ()
  ' check if Pump #2 or Water Level previously checked
```

```
    IF GraphChoice(ChoiceTotal - 1) = 1 THEN
       optGraph1Option1.Value = -1
    ELSEIF GraphChoice(ChoiceTotal) = 1 THEN
       optGraph1Option2.Value = -1
    ELSE
       optGraph1Option3.Value = -1
    END IF
    ' check if one or more geochemical parameters were previously checked
    N = 0
    FOR I = 3 TO 2 + CCL(4)
       IF GraphChoice(I) = 1 THEN N = 1
    NEXT
    IF N = 0 THEN
       optGraph1Option5.Value = -1
    ELSE
       optGraph1Option4.Value = -1
    END IF
    ' check if remaining S or NP in one or more Units was previously checked
    M = 0
    FOR I = 3 + CCL(4) TO ChoiceTotal - 2
       IF GraphChoice(I) = 1 THEN M = 1
    NEXT
    IF M = 0 THEN
       optGraph1Option7.Value = -1
    ELSE
       optGraph1Option6.Value = -1
    END IF
    IF CCL(0) = 39 THEN
       A$ = "1: Pit Bottom"
       cboGraph1ComboLayer.ADDITEM A$
    ELSE
       LastLayer = CCL(10)
       FOR I = 1 TO LastLayer
          A$ = STR$(I) + ":" + LayerName(I)
          cboGraph1ComboLayer.ADDITEM A$
       NEXT
    END IF
    cboGraph1ComboLayer.ListIndex = 0
    IF optGraph1Option4.Value = -1 THEN
       cboGraph1ComboLayer.Enabled = True
    ELSE
       cboGraph1ComboLayer.Enabled = False
    END IF

END SUB

REM $STATIC
SUB optGraph1Option4_Click ()
    cboGraph1ComboLayer.Enabled = True
END SUB

SUB optGraph1Option5_Click ()
    cboGraph1ComboLayer.Enabled = False
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-GRF2.FRM FORM MODULE
' SECOND GRAPHICS SELECTION SCREEN
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'INCLUDE: 'MW-HELP.BI'

'$FORM GraphForm1
'$FORM GraphForm3
'$FORM GraphForm4

Version 1.00
BEGIN Form GraphForm2
            AutoRedraw   = 0
            BackColor    = QBColor(7)
            BorderStyle  = 1
            Caption      = "Geochemical Parameters to be Simulated"
            ControlBox   = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(23)
            Left         = Char(0)
            MaxButton    = 0
            MinButton    = 0
            MousePointer = 0
            Tag          = ""
            Top          = Char(2)
            Visible      = -1
            Width        = Char(80)
            WindowState  = 0
BEGIN CheckBox Check38
                  BackColor    = QBColor(7)
                  Caption      = "O2 Gas (atm)"
                  DragMode     = 0
                  Enabled      = -1
                  ForeColor    = QBColor(0)
                  Height       = Char(3)
                  Left         = Char(61)
                  MousePointer = 0
                  TabIndex     = 37
                  TabStop      = -1
                  Tag          = ""
                  Top          = Char(18)
                  Value        = 0
                  Visible      = -1
                  Width        = Char(17)
END
BEGIN CheckBox Check13
                  BackColor    = QBColor(7)
                  Caption      = ""
                  DragMode     = 0
                  Enabled      = 0
                  ForeColor    = QBColor(0)
                  Height       = Char(3)
                  Left         = Char(27)
                  MousePointer = 0
                  TabIndex     = 12
                  TabStop      = -1
                  Tag          = ""
                  Top          = Char(4)
                  Value        = 0
                  Visible      = -1
                  Width        = Char(18)
END
BEGIN CheckBox Check36
                  BackColor    = QBColor(7)
                  Caption      = "H2S gas (atm)"
                  DragMode     = 0
                  Enabled      = -1
                  ForeColor    = QBColor(0)
                  Height       = Char(3)
                  Left         = Char(61)
                  MousePointer = 0
                  TabIndex     = 35
                  TabStop      = -1
                  Tag          = ""
                  Top          = Char(14)
                  Value        = 0
                  Visible      = -1
                  Width        = Char(17)
END
BEGIN CheckBox Check37
                  BackColor    = QBColor(7)
                  Caption      = "CH4 gas (atm)"
                  DragMode     = 0
                  Enabled      = -1
                  ForeColor    = QBColor(0)
                  Height       = Char(3)
                  Left         = Char(61)
                  MousePointer = 0
                  TabIndex     = 36
                  TabStop      = -1
                  Tag          = ""
                  Top          = Char(16)
                  Value        = 0
                  Visible      = -1
                  Width        = Char(17)
END
BEGIN CheckBox Check34
                  BackColor    = QBColor(7)
```

```
            Caption     = "&U (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(61)
            MousePointer = 0
            TabIndex    = 33
            TabStop     = -1
            Tag         = ""
            Top         = Char(10)
            Value       = 0
            Visible     = -1
            Width       = Char(13)
END
BEGIN CheckBox Check33
            BackColor   = QBColor(7)
            Caption     = "&Th (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(61)
            MousePointer = 0
            TabIndex    = 32
            TabStop     = -1
            Tag         = ""
            Top         = Char(8)
            Value       = 0
            Visible     = -1
            Width       = Char(13)
END
BEGIN CheckBox Check32
            BackColor   = QBColor(7)
            Caption     = "&Sr (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(61)
            MousePointer = 0
            TabIndex    = 31
            TabStop     = -1
            Tag         = ""
            Top         = Char(6)
            Value       = 0
            Visible     = -1
            Width       = Char(13)
END
BEGIN CheckBox Check29
            BackColor   = QBColor(7)
            Caption     = "N&i (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(61)
            MousePointer = 0
            TabIndex    = 28
            TabStop     = -1
            Tag         = ""
            Top         = Char(0)
            Value       = 0
            Visible     = -1
            Width       = Char(13)
END
BEGIN CheckBox Check28
            BackColor   = QBColor(7)
            Caption     = "&Na (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(46)
            MousePointer = 0
            TabIndex    = 27
            TabStop     = -1
            Tag         = ""
            Top         = Char(16)
            Value       = 0
            Visible     = -1
            Width       = Char(13)
END
BEGIN CheckBox Check27
            BackColor   = QBColor(7)
            Caption     = "M&o (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(46)
            MousePointer = 0
            TabIndex    = 26
            TabStop     = -1
            Tag         = ""
            Top         = Char(14)
            Value       = 0
            Visible     = -1
            Width       = Char(13)
END
BEGIN CheckBox Check26
            BackColor   = QBColor(7)
            Caption     = "&Mn (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(46)
            MousePointer = 0
            TabIndex    = 25
            TabStop     = -1
            Tag         = ""
            Top         = Char(12)
            Value       = 0
            Visible     = -1
            Width       = Char(14)
END
BEGIN CheckBox Check25
            BackColor   = QBColor(7)
            Caption     = "M&g (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(46)
            MousePointer = 0
            TabIndex    = 24
            TabStop     = -1
            Tag         = ""
            Top         = Char(10)
            Value       = 0
            Visible     = -1
            Width       = Char(13)
END
BEGIN CheckBox Check24
            BackColor   = QBColor(7)
            Caption     = "&K (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(46)
            MousePointer = 0
            TabIndex    = 23
            TabStop     = -1
            Tag         = ""
            Top         = Char(8)
            Value       = 0
            Visible     = -1
            Width       = Char(13)
END
BEGIN CheckBox Check23
            BackColor   = QBColor(7)
            Caption     = "&Hg (mg/L)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(46)
            MousePointer = 0
```

```
        TabIndex    = 22
        TabStop     = -1
        Tag         = ""
        Top         = Char(6)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check22
        BackColor   = QBColor(7)
        Caption     = "&Fe (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 21
        TabStop     = -1
        Tag         = ""
        Top         = Char(4)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check21
        BackColor   = QBColor(7)
        Caption     = "&Cu (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 20
        TabStop     = -1
        Tag         = ""
        Top         = Char(2)
        Value       = 0
        Visible     = -1
        Width       = Char(14)
END
BEGIN CheckBox Check31
        BackColor   = QBColor(7)
        Caption     = "R&a (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 30
        TabStop     = -1
        Tag         = ""
        Top         = Char(4)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check20
        BackColor   = QBColor(7)
        Caption     = "C&r (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 19
        TabStop     = -1
        Tag         = ""
        Top         = Char(0)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check19
        BackColor   = QBColor(7)
        Caption     = "C&o (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 18
        TabStop     = -1
        Tag         = ""
        Top         = Char(16)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check18
        BackColor   = QBColor(7)
        Caption     = "C&d (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 17
        TabStop     = -1
        Tag         = ""
        Top         = Char(14)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check17
        BackColor   = QBColor(7)
        Caption     = "&Ca (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 16
        TabStop     = -1
        Tag         = ""
        Top         = Char(12)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check16
        BackColor   = QBColor(7)
        Caption     = "&As (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 15
        TabStop     = -1
        Tag         = ""
        Top         = Char(10)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check15
        BackColor   = QBColor(7)
        Caption     = "A&g (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 14
        TabStop     = -1
        Tag         = ""
        Top         = Char(8)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
```

```
END
BEGIN CheckBox Check14
        BackColor   = QBColor(7)
        Caption     = "Al&l (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 13
        TabStop     = -1
        Tag         = ""
        Top         = Char(6)
        Value       = 0
        Visible     = -1
        Width       = Char(15)
END
BEGIN CheckBox Check12
        BackColor   = QBColor(7)
        Caption     = "Diss O&2 (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 11
        TabStop     = -1
        Tag         = ""
        Top         = Char(2)
        Value       = 0
        Visible     = -1
        Width       = Char(15)
END
BEGIN CheckBox Check11
        BackColor   = QBColor(7)
        Caption     = "&Org C (mg C/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(27)
        MousePointer = 0
        TabIndex    = 10
        TabStop     = -1
        Tag         = ""
        Top         = Char(0)
        Value       = 0
        Visible     = -1
        Width       = Char(15)
END
BEGIN CheckBox Check10
        BackColor   = QBColor(7)
        Caption     = "NO&3 (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 9
        TabStop     = -1
        Tag         = ""
        Top         = Char(15)
        Value       = 0
        Visible     = -1
        Width       = Char(24)
END
BEGIN CheckBox Check9
        BackColor   = QBColor(7)
        Caption     = "PO&4 (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 8
        TabStop     = -1
        Tag         = ""
        Top         = Char(16)
        Value       = 0
        Visible     = -1
        Width       = Char(18)
END
BEGIN CheckBox Check8
        BackColor   = QBColor(7)
        Caption     = "Cl (mg&/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 7
        TabStop     = -1
        Tag         = ""
        Top         = Char(14)
        Value       = 0
        Visible     = -1
        Width       = Char(24)
END
BEGIN CheckBox Check3
        BackColor   = QBColor(7)
        Caption     = "Eh (m&V)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 2
        TabStop     = -1
        Tag         = ""
        Top         = Char(4)
        Value       = 0
        Visible     = -1
        Width       = Char(12)
END
BEGIN CheckBox Check30
        BackColor   = QBColor(7)
        Caption     = "P&h (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 29
        TabStop     = -1
        Tag         = ""
        Top         = Char(2)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CheckBox Check1
        BackColor   = QBColor(7)
        Caption     = "&pH"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 0
        TabStop     = -1
        Tag         = ""
        Top         = Char(0)
        Value       = 0
        Visible     = -1
        Width       = Char(12)
END
BEGIN CheckBox Check2
        BackColor   = QBColor(7)
        Caption     = "&Temperature (C)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
```

```
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 1
        TabStop     = -1
        Tag         = ""
        Top         = Char(2)
        Value       = 0
        Visible     = -1
        Width       = Char(23)
END
BEGIN CheckBox Check5
        BackColor   = QBColor(7)
        Caption     = "Acidit&y (mg CaCO3/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 4
        TabStop     = -1
        Tag         = ""
        Top         = Char(8)
        Value       = 0
        Visible     = -1
        Width       = Char(27)
END
BEGIN CheckBox Check4
        BackColor   = QBColor(7)
        Caption     = "Alkalinit&y(mg CaCO3/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 3
        TabStop     = -1
        Tag         = ""
        Top         = Char(6)
        Value       = 0
        Visible     = -1
        Width       = Char(27)
END
BEGIN CheckBox Check7
        BackColor   = QBColor(7)
        Caption     = "Sulf&ide (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 6
        TabStop     = -1
        Tag         = ""
        Top         = Char(12)
        Value       = 0
        Visible     = -1
        Width       = Char(27)
END
BEGIN CommandButton GeochemParamHelp
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "&Help"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 39
        TabStop     = -1
        Tag         = ""
        Top         = Char(18)
        Visible     = -1
        Width       = Char(12)
END
BEGIN CheckBox Check35
        BackColor   = QBColor(7)
        Caption     = "&Zn (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(61)
        MousePointer = 0
        TabIndex    = 34
        TabStop     = -1
        Tag         = ""
        Top         = Char(12)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN CommandButton GeochemParamOK
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "&OK"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(24)
        MousePointer = 0
        TabIndex    = 38
        TabStop     = -1
        Tag         = ""
        Top         = Char(18)
        Visible     = -1
        Width       = Char(12)
END
BEGIN CheckBox Check6
        BackColor   = QBColor(7)
        Caption     = "Sul&fate (mg/L)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 5
        TabStop     = -1
        Tag         = ""
        Top         = Char(10)
        Value       = 0
        Visible     = -1
        Width       = Char(25)
END
END

REM $DYNAMIC
SUB Form_Load ()
  IF CCL(4) = 0 THEN
    Check1.Value = 1
    Check2.Value = 0
    Check3.Value = 0
    Check4.Value = 1
    Check5.Value = 1
    Check6.Value = 1
    Check7.Value = 0
    Check8.Value = 0
    Check9.Value = 0
    Check10.Value = 0
    Check11.Value = 0
    Check12.Value = 0
    Check13.Value = 0
    Check14.Value = 0
    Check15.Value = 0
    Check16.Value = 0
    Check17.Value = 0
    Check18.Value = 0
    Check19.Value = 0
    Check20.Value = 0
    Check21.Value = 0
    Check22.Value = 0
    Check23.Value = 0
    Check24.Value = 0
    Check25.Value = 0
```

```
    Check26.Value = 0
    Check27.Value = 0
    Check28.Value = 0
    Check29.Value = 0
    Check30.Value = 0
    Check31.Value = 0
    Check32.Value = 0
    Check33.Value = 0
    Check34.Value = 0
    Check35.Value = 0
    Check36.Value = 0
    Check37.Value = 0
    Check38.Value = 0
  ELSE
    FOR I = 1 TO CCL(4)
      SELECT CASE GeochemCount(I, 1)
        CASE 1
          Check1.Value = 1
        CASE 2
          Check2.Value = 1
        CASE 3
          Check3.Value = 1
        CASE 4
          Check4.Value = 1
        CASE 5
          Check5.Value = 1
        CASE 6
          Check6.Value = 1
        CASE 7
          Check7.Value = 1
        CASE 8
          Check8.Value = 1
        CASE 9
          Check9.Value = 1
        CASE 10
          Check10.Value = 1
        CASE 11
          Check11.Value = 1
        CASE 12
          Check12.Value = 1
        CASE 13
          Check13.Value = 1
        CASE 14
          Check14.Value = 1
        CASE 15
          Check15.Value = 1
        CASE 16
          Check16.Value = 1
        CASE 17
          Check17.Value = 1
        CASE 18
          Check18.Value = 1
        CASE 19
          Check19.Value = 1
        CASE 20
          Check20.Value = 1
        CASE 21
          Check21.Value = 1
        CASE 22
          Check22.Value = 1
        CASE 23
          Check23.Value = 1
        CASE 24
          Check24.Value = 1
        CASE 25
          Check25.Value = 1
        CASE 26
          Check26.Value = 1
        CASE 27
          Check27.Value = 1
        CASE 28
          Check28.Value = 1
        CASE 29
          Check29.Value = 1
        CASE 30
          Check30.Value = 1
        CASE 31
          Check31.Value = 1
        CASE 32
          Check32.Value = 1
        CASE 33
          Check33.Value = 1
        CASE 34
          Check34.Value = 1
        CASE 35
          Check35.Value = 1
        CASE 36
          Check36.Value = 1
        CASE 37
          Check37.Value = 1
        CASE 38
          Check38.Value = 1
      END SELECT
    NEXT
  END IF
END SUB

REM $STATIC
SUB GeochemParamHelp_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Graph Simulation Results")
  END IF

END SUB

REM $DYNAMIC
SUB GeochemParamOK_Click ()
 DIM MMM AS INTEGER
 MMM = 0
 DO
  MMM = 1
  N = 6
  IF Check1.Value = 1 THEN
    SeriesLabels(3) = "pH "
    GraphChoice(3) = 1
  END IF
  IF Check2.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    SeriesLabels(N) = "Temp (C)"
    GraphChoice(N) = 1
  END IF
  IF Check3.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Eh (mV)"
  END IF
  IF Check4.Value = 1 THEN
    GraphChoice(4) = 1
    SeriesLabels(4) = "Alk (mg/L)"
  END IF
  IF Check5.Value = 1 THEN
    GraphChoice(5) = 1
    SeriesLabels(5) = "Acid (mg/L)"
  END IF
  IF Check6.Value = 1 THEN
    GraphChoice(6) = 1
    SeriesLabels(6) = "SO4 (mg/L)"
  END IF
  IF Check7.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "S2- (mg/L)"
  END IF
  IF Check8.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Cl (mg/L)"
  END IF
  IF Check9.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "PO4 (mg/L)"
  END IF
  IF Check10.Value = 1 THEN
    N = N + 1
```

```
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "NO3 (mg/L)"
  END IF
  IF Check11.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "OC (mg C/L)"
  END IF
  IF Check12.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "DO (mg/L)"
  END IF
REM Check13 disabled
'  IF Check13.Value = 1 THEN
'    N = N + 1: IF N > 2 + CCL(4) THEN EXIT DO
'    GeochemCount(I,1) = 13
'    SeriesLabels(N) = ""
'  END IF
  IF Check14.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Al (mg/L)"
  END IF
  IF Check15.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Ag (mg/L)"
  END IF
  IF Check16.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "As (mg/L)"
  END IF
  IF Check17.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Ca (mg/L)"
  END IF
  IF Check18.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Cd (mg/L)"
  END IF
  IF Check19.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Co (mg/L)"
  END IF
  IF Check20.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Cr (mg/L)"
  END IF
  IF Check21.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Cu (mg/L)"
  END IF
  IF Check22.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Fe (mg/L)"
  END IF
  IF Check23.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Hg (mg/L)"
  END IF
  IF Check24.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "K  (mg/L)"
  END IF
  IF Check25.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Mg (mg/L)"
  END IF
  IF Check26.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Mn (mg/L)"
  END IF
  IF Check27.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Mo (mg/L)"
  END IF
  IF Check28.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Na (mg/L)"
  END IF
  IF Check29.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Ni (mg/L)"
  END IF
  IF Check30.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Pb (mg/L)"
  END IF
  IF Check31.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Ra (mg/L)"
  END IF
  IF Check32.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Sr (mg/L)"
  END IF
  IF Check33.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Th (mg/L)"
  END IF
  IF Check34.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "U  (mg/L)"
  END IF
  IF Check35.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "Zn (mg/L)"
  END IF
  IF Check36.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "H2S (atm)"
  END IF
```

```
  IF Check37.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "CH4 (atm)"
  END IF
  IF Check38.Value = 1 THEN
    N = N + 1
    IF N > 2 + CCL(4) THEN EXIT DO
    GraphChoice(N) = 1
    SeriesLabels(N) = "O2 (atm)"
  END IF
 LOOP UNTIL MMM > 0
 GraphForm2.HIDE
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-GRF3.FRM FORM MODULE
' THIRD GRAPHICS SELECTION SCREEN
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

'$FORM GraphForm1
'$FORM GraphForm2
'$FORM GraphForm4

Version 1.00
BEGIN Form GraphForm3
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Limits for X and Y Axes"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(25)
        Left         = Char(0)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(0)
        Visible      = -1
        Width        = Char(80)
        WindowState  = 0
        BEGIN Frame Frame1
                BackColor    = QBColor(7)
                Caption      = "X AXIS (Years)"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(10)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 14
                Tag          = ""
                Top          = Char(0)
                Visible      = -1
                Width        = Char(78)
                BEGIN Frame Frame4
                        BackColor    = QBColor(7)
                        Caption      = "Choose one:"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(4)
                        Left         = Char(7)
                        MousePointer = 0
                        TabIndex     = 17
                        Tag          = ""
                        Top          = Char(4)
                        Visible      = -1
                        Width        = Char(62)
                        BEGIN OptionButton optGraph3XLog
                                BackColor    = QBColor(7)
                                Caption      = "&Logarithmic"
                                DragMode     = 0
                                Enabled      = -1
                                ForeColor    = QBColor(0)
                                Height       = Char(3)
                                Left         = Char(45)
                                MousePointer = 0
                                TabIndex     = 7
                                TabStop      = 0
                                Tag          = ""
                                Top          = Char(0)
                                Value        = 0
                                Visible      = -1
                                Width        = Char(15)
                        END
                        BEGIN OptionButton optGraph3XArith
                                BackColor    = QBColor(7)
                                Caption      = "&Arithmetic"
                                DragMode     = 0
                                Enabled      = -1
                                ForeColor    = QBColor(0)
                                Height       = Char(3)
                                Left         = Char(0)
                                MousePointer = 0
                                TabIndex     = 6
                                TabStop      = -1
                                Tag          = ""
                                Top          = Char(0)
                                Value        = -1
                                Visible      = -1
                                Width        = Char(14)
                        END
        END
        BEGIN Frame Frame3
                BackColor    = QBColor(7)
                Caption      = "Choose one: (enter Min and Max if
Specified)"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(4)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 16
                Tag          = ""
                Top          = Char(0)
                Visible      = -1
                Width        = Char(76)
                BEGIN Label Label2
                        Alignment    = 0
                        AutoSize     = 0
                        BackColor    = QBColor(7)
                        BorderStyle  = 0
                        Caption      = "X Max="
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(1)
                        Left         = Char(56)
                        MousePointer = 0
                        TabIndex     = 21
                        Tag          = ""
                        Top          = Char(1)
                        Visible      = -1
                        Width        = Char(6)
                END
                BEGIN Label Label1
                        Alignment    = 0
                        AutoSize     = 0
                        BackColor    = QBColor(7)
                        BorderStyle  = 0
                        Caption      = "X Min="
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(1)
                        Left         = Char(36)
                        MousePointer = 0
                        TabIndex     = 20
                        Tag          = ""
```

```
                Top             = Char(1)
                Visible         = -1
                Width           = Char(6)
        END
        BEGIN TextBox txtGraph3Text2
                BackColor       = QBColor(7)
                BorderStyle     = 1
                DragMode        = 0
                Enabled         = -1
                ForeColor       = QBColor(0)
                Height          = Char(3)
                Left            = Char(62)
                MousePointer    = 0
                MultiLine       = 0
                ScrollBars      = 0
                TabIndex        = 5
                TabStop         = -1
                Tag             = ""
                Text            = "2460"
                Top             = Char(0)
                Visible         = -1
                Width           = Char(12)
        END
        BEGIN TextBox txtGraph3Text1
                BackColor       = QBColor(7)
                BorderStyle     = 1
                DragMode        = 0
                Enabled         = -1
                ForeColor       = QBColor(0)
                Height          = Char(3)
                Left            = Char(42)
                MousePointer    = 0
                MultiLine       = 0
                ScrollBars      = 0
                TabIndex        = 4
                TabStop         = -1
                Tag             = ""
                Text            = "1960"
                Top             = Char(0)
                Visible         = -1
                Width           = Char(12)
        END
        BEGIN OptionButton optGraph3XSpecified
                BackColor       = QBColor(7)
                Caption         = "&Specified->"
                DragMode        = 0
                Enabled         = -1
                ForeColor       = QBColor(0)
                Height          = Char(3)
                Left            = Char(18)
                MousePointer    = 0
                TabIndex        = 3
                TabStop         = 0
                Tag             = ""
                Top             = Char(0)
                Value           = 0
                Visible         = -1
                Width           = Char(15)
        END
        BEGIN OptionButton optGraph3XDefault
                BackColor       = QBColor(7)
                Caption         = "&Default"
                DragMode        = 0
                Enabled         = -1
                ForeColor       = QBColor(0)
                Height          = Char(3)
                Left            = Char(0)
                MousePointer    = 0
                TabIndex        = 2
                TabStop         = -1
                Tag             = ""
                Top             = Char(0)
                Value           = -1
                Visible         = -1
                Width           = Char(12)
        END
    END
END
BEGIN Frame Frame2
    BackColor       = QBColor(7)
    Caption         = "Y AXIS (Values)"
    DragMode        = 0
    Enabled         = -1
    ForeColor       = QBColor(0)
    Height          = Char(10)
    Left            = Char(0)
    MousePointer    = 0
    TabIndex        = 15
    Tag             = ""
    Top             = Char(10)
    Visible         = -1
    Width           = Char(78)
    BEGIN Frame Frame6
        BackColor       = QBColor(7)
        Caption         = "Choose one: (use Arith. for flows
unless all values are +)"
        DragMode        = 0
        Enabled         = -1
        ForeColor       = QBColor(0)
        Height          = Char(4)
        Left            = Char(7)
        MousePointer    = 0
        TabIndex        = 19
        Tag             = ""
        Top             = Char(4)
        Visible         = -1
        Width           = Char(62)
        BEGIN OptionButton optGraph3YLog
            BackColor       = QBColor(7)
            Caption         = "Lo&garithmic"
            DragMode        = 0
            Enabled         = -1
            ForeColor       = QBColor(0)
            Height          = Char(3)
            Left            = Char(45)
            MousePointer    = 0
            TabIndex        = 13
            TabStop         = 0
            Tag             = ""
            Top             = Char(0)
            Value           = 0
            Visible         = -1
            Width           = Char(15)
        END
        BEGIN OptionButton optGraph3YArith
            BackColor       = QBColor(7)
            Caption         = "A&rithmetic"
            DragMode        = 0
            Enabled         = -1
            ForeColor       = QBColor(0)
            Height          = Char(3)
            Left            = Char(0)
            MousePointer    = 0
            TabIndex        = 12
            TabStop         = -1
            Tag             = ""
            Top             = Char(0)
            Value           = -1
            Visible         = -1
            Width           = Char(14)
        END
    END
    BEGIN Frame Frame5
        BackColor       = QBColor(7)
        Caption         = "Choose one: (enter Min and Max if
Specified as 0 or >0.01)"
        DragMode        = 0
        Enabled         = -1
        ForeColor       = QBColor(0)
        Height          = Char(4)
        Left            = Char(0)
        MousePointer    = 0
        TabIndex        = 18
        Tag             = ""
        Top             = Char(0)
        Visible         = -1
        Width           = Char(76)
        BEGIN Label Label4
            Alignment       = 0
            AutoSize        = 0
```

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            BackColor    = QBColor(7)
            BorderStyle  = 0
            Caption      = "Y Max="
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(1)
            Left         = Char(56)
            MousePointer = 0
            TabIndex     = 23
            Tag          = ""
            Top          = Char(1)
            Visible      = -1
            Width        = Char(6)
END
BEGIN TextBox txtGraph3Text4
            BackColor    = QBColor(7)
            BorderStyle  = 1
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(3)
            Left         = Char(62)
            MousePointer = 0
            MultiLine    = 0
            ScrollBars   = 0
            TabIndex     = 11
            TabStop      = -1
            Tag          = ""
            Text         = "2460"
            Top          = Char(0)
            Visible      = -1
            Width        = Char(12)
END
BEGIN TextBox txtGraph3Text3
            BackColor    = QBColor(7)
            BorderStyle  = 1
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(3)
            Left         = Char(42)
            MousePointer = 0
            MultiLine    = 0
            ScrollBars   = 0
            TabIndex     = 10
            TabStop      = -1
            Tag          = ""
            Text         = "1960"
            Top          = Char(0)
            Visible      = -1
            Width        = Char(12)
END
BEGIN Label Label3
            Alignment    = 0
            AutoSize     = 0
            BackColor    = QBColor(7)
            BorderStyle  = 0
            Caption      = "Y Min="
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(1)
            Left         = Char(36)
            MousePointer = 0
            TabIndex     = 22
            Tag          = ""
            Top          = Char(1)
            Visible      = -1
            Width        = Char(6)
END
BEGIN OptionButton optGraph3YSpecified
            BackColor    = QBColor(7)
            Caption      = "S&pecified->"
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(3)
            Left         = Char(18)
            MousePointer = 0
            TabIndex     = 9
            TabStop      = 0
            Tag          = ""
            Top          = Char(0)
            Value        = 0
            Visible      = -1
            Width        = Char(15)
      END
      BEGIN OptionButton optGraph3YDefault
            BackColor    = QBColor(7)
            Caption      = "De&fault"
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(3)
            Left         = Char(0)
            MousePointer = 0
            TabIndex     = 8
            TabStop      = -1
            Tag          = ""
            Top          = Char(0)
            Value        = -1
            Visible      = -1
            Width        = Char(12)
      END
   END
   BEGIN CommandButton cmdGraph3Help
      BackColor    = QBColor(7)
      Cancel       = 0
      Caption      = "&Help"
      Default      = 0
      DragMode     = 0
      Enabled      = -1
      Height       = Char(3)
      Left         = Char(52)
      MousePointer = 0
      TabIndex     = 1
      TabStop      = -1
      Tag          = ""
      Top          = Char(20)
      Visible      = -1
      Width        = Char(12)
   END
   BEGIN CommandButton cmdGraph3OK
      BackColor    = QBColor(7)
      Cancel       = 0
      Caption      = "&OK"
      Default      = 0
      DragMode     = 0
      Enabled      = -1
      Height       = Char(3)
      Left         = Char(14)
      MousePointer = 0
      TabIndex     = 0
      TabStop      = -1
      Tag          = ""
      Top          = Char(20)
      Visible      = -1
      Width        = Char(12)
   END
END

REM $DYNAMIC
SUB cmdGraph3Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Graph Simulation Results")
  END IF
END SUB

SUB cmdGraph3OK_Click ()
  IF optGraph3XDefault.Value = -1 THEN XYFlag(1) = 0
  IF optGraph3XSpecified.Value = -1 THEN
    XYFlag(1) = 1
    XYFlag(2) = VAL(txtGraph3Text1.Text)
    XYFlag(3) = VAL(txtGraph3Text2.Text)
  END IF
  IF optGraph3XArith.Value = -1 THEN
    XYFlag(4) = 1
  ELSE
```

```
    XYFlag(4) = 2
  END IF
  XYFlag(7) = VAL(txtGraph3Text3.Text)
  XYFlag(8) = VAL(txtGraph3Text4.Text)
  IF optGraph3YDefault.Value = -1 THEN XYFlag(6) = 0
  IF optGraph3YSpecified.Value = -1 THEN
    XYFlag(6) = 1
  END IF
  IF optGraph3YArith.Value = -1 THEN
    XYFlag(9) = 1
  ELSE
    XYFlag(9) = 2
  END IF
  GraphForm3.HIDE
END SUB

SUB Form_Load ()
  txtGraph3Text1.Text = STR$(XYFlag(2))
  txtGraph3Text2.Text = STR$(XYFlag(3))
  IF XYFlag(1) = 1 THEN
    txtGraph3Text1.Enabled = -1
    txtGraph3Text2.Enabled = -1
    optGraph3XDefault.Value = 0
    optGraph3XSpecified.Value = -1
  END IF
  IF XYFlag(1) = 0 THEN
    optGraph3XDefault.Value = -1
    optGraph3XSpecified.Value = 0
    txtGraph3Text1.Enabled = False
    txtGraph3Text2.Enabled = False
  END IF
  IF XYFlag(4) = 0 THEN XYFlag(4) = 1
  IF XYFlag(4) = 2 THEN
    optGraph3XLog.Value = -1
    optGraph3XArith.Value = 0
  ELSE
    optGraph3XLog.Value = 0
    optGraph3XArith.Value = -1
  END IF
  txtGraph3Text3.Text = STR$(XYFlag(7))
  txtGraph3Text4.Text = STR$(XYFlag(8))
  IF XYFlag(6) = 1 THEN
    txtGraph3Text3.Enabled = -1
    txtGraph3Text4.Enabled = -1
    optGraph3YDefault.Value = 0
    optGraph3YSpecified.Value = -1
  END IF
  IF XYFlag(6) = 0 THEN
    optGraph3YDefault.Value = -1
    optGraph3YSpecified.Value = 0
    txtGraph3Text3.Enabled = False
    txtGraph3Text4.Enabled = False
  END IF
  IF XYFlag(9) = 0 THEN XYFlag(9) = 1
  IF XYFlag(9) = 2 THEN
    optGraph3YLog.Value = -1
    optGraph3YArith.Value = 0
  ELSE
    optGraph3YLog.Value = 0
    optGraph3YArith.Value = -1
  END IF

END SUB

SUB optGraph3XDefault_Click ()
    txtGraph3Text1.Enabled = False
    txtGraph3Text2.Enabled = False
    GraphForm3.REFRESH
END SUB

SUB optGraph3XSpecified_Click ()
  txtGraph3Text1.Enabled = True
  txtGraph3Text2.Enabled = True
  GraphForm3.REFRESH
END SUB

SUB optGraph3YDefault_Click ()
  txtGraph3Text3.Enabled = False
  txtGraph3Text4.Enabled = False
  GraphForm3.REFRESH
END SUB

SUB optGraph3YSpecified_Click ()
  txtGraph3Text3.Enabled = True
  txtGraph3Text4.Enabled = True
  GraphForm3.REFRESH
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-GRF4.FRM FORM MODULE
' GRAPHICS FORM 4 FOR S AND NP CHOICES
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

'$FORM GraphForm3
'$FORM GraphForm2
'$FORM GraphForm1

Version 1.00
BEGIN Form GraphForm4
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Remaining Sulfide and NP in the Geochemical Units"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(21)
        Left         = Char(3)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(70)
        WindowState  = 0
        BEGIN OptionButton Option3
                BackColor    = QBColor(7)
                Caption      = "Option3"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(28)
                MousePointer = 0
                TabIndex     = 7
                TabStop      = -1
                Tag          = ""
                Top          = Char(8)
                Value        = -1
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN Frame Frame1
                BackColor    = QBColor(7)
                Caption      = "Choose one which will apply to all choices in the
lower box:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(4)
                Left         = Char(1)
                MousePointer = 0
                TabIndex     = 0
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(65)
                BEGIN OptionButton optGraph4Option3
                        BackColor    = QBColor(7)
                        Caption      = "&Both"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
```

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                Height          = Char(3)
                Left            = Char(43)
                MousePointer    = 0
                TabIndex        = 8
                TabStop         = 0
                Tag             = ""
                Top             = Char(0)
                Value           = 0
                Visible         = -1
                Width           = Char(12)
        END
        BEGIN OptionButton optGraph4Option2
                BackColor       = QBColor(7)
                Caption         = "&NP only"
                DragMode        = 0
                Enabled         = -1
                ForeColor       = QBColor(0)
                Height          = Char(3)
                Left            = Char(21)
                MousePointer    = 0
                TabIndex        = 6
                TabStop         = 0
                Tag             = ""
                Top             = Char(0)
                Value           = 0
                Visible         = -1
                Width           = Char(15)
        END
        BEGIN OptionButton optGraph4Option1
                BackColor       = QBColor(7)
                Caption         = "&Sulfur only"
                DragMode        = 0
                Enabled         = -1
                ForeColor       = QBColor(0)
                Height          = Char(3)
                Left            = Char(0)
                MousePointer    = 0
                TabIndex        = 5
                TabStop         = -1
                Tag             = ""
                Top             = Char(0)
                Value           = -1
                Visible         = -1
                Width           = Char(17)
        END
END
BEGIN CommandButton cmdGraph4Quit
        BackColor       = QBColor(7)
        Cancel          = 0
        Caption         = "&Quit"
        Default         = 0
        DragMode        = 0
        Enabled         = -1
        Height          = Char(3)
        Left            = Char(46)
        MousePointer    = 0
        TabIndex        = 4
        TabStop         = -1
        Tag             = ""
        Top             = Char(16)
        Visible         = -1
        Width           = Char(12)
END
BEGIN CommandButton cmdGraph4OK
        BackColor       = QBColor(7)
        Cancel          = 0
        Caption         = "&OK"
        Default         = 0
        DragMode        = 0
        Enabled         = -1
        Height          = Char(3)
        Left            = Char(9)
        MousePointer    = 0
        TabIndex        = 2
        TabStop         = -1
        Tag             = ""
        Top             = Char(16)
        Visible         = -1
        Width           = Char(12)
END
BEGIN CommandButton cmdGraph4Help
        BackColor       = QBColor(7)
        Cancel          = 0
        Caption         = "&Help"
        Default         = 0
        DragMode        = 0
        Enabled         = -1
        Height          = Char(3)
        Left            = Char(27)
        MousePointer    = 0
        TabIndex        = 3
        TabStop         = -1
        Tag             = ""
        Top             = Char(16)
        Visible         = -1
        Width           = Char(12)
END
BEGIN Frame Frame2
        BackColor       = QBColor(7)
        Caption         = ""
        DragMode        = 0
        Enabled         = -1
        ForeColor       = QBColor(0)
        Height          = Char(10)
        Left            = Char(1)
        MousePointer    = 0
        TabIndex        = 1
        Tag             = ""
        Top             = Char(6)
        Visible         = -1
        Width           = Char(65)
        BEGIN CheckBox chkGraph4Check10
                BackColor       = QBColor(7)
                Caption         = "Unit1&0"
                DragMode        = 0
                Enabled         = -1
                ForeColor       = QBColor(0)
                Height          = Char(3)
                Left            = Char(43)
                MousePointer    = 0
                TabIndex        = 19
                TabStop         = -1
                Tag             = ""
                Top             = Char(4)
                Value           = 0
                Visible         = -1
                Width           = Char(20)
        END
        BEGIN CheckBox chkGraph4Check9
                BackColor       = QBColor(7)
                Caption         = "Unit&9"
                DragMode        = 0
                Enabled         = -1
                ForeColor       = QBColor(0)
                Height          = Char(3)
                Left            = Char(43)
                MousePointer    = 0
                TabIndex        = 18
                TabStop         = -1
                Tag             = ""
                Top             = Char(2)
                Value           = 0
                Visible         = -1
                Width           = Char(20)
        END
        BEGIN CheckBox chkGraph4Check8
                BackColor       = QBColor(7)
                Caption         = "Unit&8"
                DragMode        = 0
                Enabled         = -1
                ForeColor       = QBColor(0)
                Height          = Char(3)
                Left            = Char(43)
                MousePointer    = 0
                TabIndex        = 17
                TabStop         = -1
                Tag             = ""
                Top             = Char(0)
                Value           = 0
                Visible         = -1
```

```
        Width      = Char(20)
END
BEGIN CheckBox chkGraph4Check7
        BackColor  = QBColor(7)
        Caption    = "Unit&7"
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(3)
        Left       = Char(21)
        MousePointer = 0
        TabIndex   = 16
        TabStop    = -1
        Tag        = ""
        Top        = Char(6)
        Value      = 0
        Visible    = -1
        Width      = Char(22)
END
BEGIN CheckBox chkGraph4Check6
        BackColor  = QBColor(7)
        Caption    = "Unit&6"
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(3)
        Left       = Char(21)
        MousePointer = 0
        TabIndex   = 15
        TabStop    = -1
        Tag        = ""
        Top        = Char(4)
        Value      = 0
        Visible    = -1
        Width      = Char(22)
END
BEGIN CheckBox chkGraph4Check5
        BackColor  = QBColor(7)
        Caption    = "Unit&5"
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(3)
        Left       = Char(21)
        MousePointer = 0
        TabIndex   = 14
        TabStop    = -1
        Tag        = ""
        Top        = Char(2)
        Value      = 0
        Visible    = -1
        Width      = Char(22)
END
BEGIN CheckBox chkGraph4Check4
        BackColor  = QBColor(7)
        Caption    = "Unit&4"
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(3)
        Left       = Char(21)
        MousePointer = 0
        TabIndex   = 13
        TabStop    = -1
        Tag        = ""
        Top        = Char(0)
        Value      = 0
        Visible    = -1
        Width      = Char(22)
END
BEGIN CheckBox chkGraph4Check3
        BackColor  = QBColor(7)
        Caption    = "Unit&3"
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(3)
        Left       = Char(0)
        MousePointer = 0
        TabIndex   = 12
        TabStop    = -1
        Tag        = ""
        Top        = Char(6)
        Value      = 0
        Visible    = -1
        Width      = Char(21)
END
BEGIN CheckBox chkGraph4Check2
        BackColor  = QBColor(7)
        Caption    = "Unit&2"
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(3)
        Left       = Char(0)
        MousePointer = 0
        TabIndex   = 11
        TabStop    = -1
        Tag        = ""
        Top        = Char(4)
        Value      = 0
        Visible    = -1
        Width      = Char(21)
END
BEGIN CheckBox chkGraph4Check1
        BackColor  = QBColor(7)
        Caption    = "Unit&1"
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(3)
        Left       = Char(0)
        MousePointer = 0
        TabIndex   = 10
        TabStop    = -1
        Tag        = ""
        Top        = Char(2)
        Value      = 0
        Visible    = -1
        Width      = Char(21)
END
BEGIN CheckBox chkGraph4Check0
        BackColor  = QBColor(7)
        Caption    = "Sum of &all units"
        DragMode   = 0
        Enabled    = -1
        ForeColor  = QBColor(0)
        Height     = Char(3)
        Left       = Char(0)
        MousePointer = 0
        TabIndex   = 9
        TabStop    = -1
        Tag        = ""
        Top        = Char(0)
        Value      = 0
        Visible    = -1
        Width      = Char(21)
END
    END
END

REM $DYNAMIC
SUB cmdGraph4Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Graph Simulation Results")
  END IF
END SUB

SUB cmdGraph4OK_Click ()
  DIM Units AS INTEGER
  Units = CCL(12)
  Count = 2 + CCL(4)
  DataCol = CCL(4) + 2
  IF chkGraph4Check0.Value = 1 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 1) = 200
      SeriesLabels(Count + 1) = "S All (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 2) = 200
      SeriesLabels(Count + 2) = "NP All (kg)"
```

```
    ELSE
      GraphChoice(Count + 1) = 200
      SeriesLabels(Count + 1) = "S All (kg)"
      GraphChoice(Count + 2) = 200
      SeriesLabels(Count + 2) = "NP All (kg)"
    END IF
  END IF
  IF chkGraph4Check1.Value = 1 AND Units > 0 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 1) = 1
      SeriesLabels(Count + 1) = "S Unit#1 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 2) = 1
      SeriesLabels(Count + 2) = "NP Unit#1 (kg)"
    ELSE
      GraphChoice(Count + 1) = 1
      SeriesLabels(Count + 1) = "S Unit#1 (kg)"
      GraphChoice(Count + 2) = 1
      SeriesLabels(Count + 2) = "NP Unit#1 (kg)"
    END IF
  END IF
  IF chkGraph4Check2.Value = 1 AND Units > 1 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 3) = 1
      SeriesLabels(Count + 3) = "S Unit#2 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 4) = 1
      SeriesLabels(Count + 4) = "NP Unit#2 (kg)"
    ELSE
      GraphChoice(Count + 3) = 1
      SeriesLabels(Count + 3) = "S Unit#2 (kg)"
      GraphChoice(Count + 4) = 1
      SeriesLabels(Count + 4) = "NP Unit#2 (kg)"
    END IF
  END IF
  IF chkGraph4Check3.Value = 1 AND Units > 2 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 5) = 1
      SeriesLabels(Count + 5) = "S Unit#3 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 6) = 1
      SeriesLabels(Count + 6) = "NP Unit#3 (kg)"
    ELSE
      GraphChoice(Count + 5) = 1
      SeriesLabels(Count + 5) = "S Unit#3 (kg)"
      GraphChoice(Count + 6) = 1
      SeriesLabels(Count + 6) = "NP Unit#3 (kg)"
    END IF
  END IF
  IF chkGraph4Check4.Value = 1 AND Units > 3 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 7) = 1
      SeriesLabels(Count + 7) = "S Unit#4 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 8) = 1
      SeriesLabels(Count + 8) = "NP Unit#4 (kg)"
    ELSE
      GraphChoice(Count + 7) = 1
      SeriesLabels(Count + 7) = "S Unit#4 (kg)"
      GraphChoice(Count + 8) = 1
      SeriesLabels(Count + 8) = "NP Unit#4 (kg)"
    END IF
  END IF
  IF chkGraph4Check5.Value = 1 AND Units > 4 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 9) = 1
      SeriesLabels(Count + 9) = "S Unit#5 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 10) = 1
      SeriesLabels(Count + 10) = "NP Unit#5 (kg)"
    ELSE
      GraphChoice(Count + 9) = 1
      SeriesLabels(Count + 9) = "S Unit#5 (kg)"
      GraphChoice(Count + 10) = 1
      SeriesLabels(Count + 10) = "NP Unit#5 (kg)"
    END IF
  END IF
  IF chkGraph4Check6.Value = 1 AND Units > 5 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 11) = 1
      SeriesLabels(Count + 11) = "S Unit#6 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 12) = 1
      SeriesLabels(Count + 12) = "NP Unit#6 (kg)"
    ELSE
      GraphChoice(Count + 11) = 1
      SeriesLabels(Count + 11) = "S Unit#6 (kg)"
      GraphChoice(Count + 12) = 1
      SeriesLabels(Count + 12) = "NP Unit#6 (kg)"
    END IF
  END IF
  IF chkGraph4Check7.Value = 1 AND Units > 6 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 13) = 1
      SeriesLabels(Count + 13) = "S Unit#7 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 14) = 1
      SeriesLabels(Count + 14) = "NP Unit#7 (kg)"
    ELSE
      GraphChoice(Count + 13) = 1
      SeriesLabels(Count + 13) = "S Unit#7 (kg)"
      GraphChoice(Count + 14) = 1
      SeriesLabels(Count + 14) = "NP Unit#7 (kg)"
    END IF
  END IF
  IF chkGraph4Check8.Value = 1 AND Units > 7 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 15) = 1
      SeriesLabels(Count + 15) = "S Unit#8 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 16) = 1
      SeriesLabels(Count + 16) = "NP Unit#8 (kg)"
    ELSE
      GraphChoice(Count + 15) = 1
      SeriesLabels(Count + 15) = "S Unit#8 (kg)"
      GraphChoice(Count + 16) = 1
      SeriesLabels(Count + 16) = "NP Unit#8 (kg)"
    END IF
  END IF
  IF chkGraph4Check9.Value = 1 AND Units > 8 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 17) = 1
      SeriesLabels(Count + 17) = "S Unit#9 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 18) = 1
      SeriesLabels(Count + 18) = "NP Unit#9 (kg)"
    ELSE
      GraphChoice(Count + 17) = 1
      SeriesLabels(Count + 17) = "S Unit#9 (kg)"
      GraphChoice(Count + 18) = 1
      SeriesLabels(Count + 18) = "NP Unit#9 (kg)"
    END IF
  END IF
  IF chkGraph4Check10.Value = 1 AND Units > 9 THEN
    IF optGraph4Option1.Value = -1 THEN
      GraphChoice(Count + 19) = 1
      SeriesLabels(Count + 19) = "S Unit#10 (kg)"
    ELSEIF optGraph4Option2.Value = -1 THEN
      GraphChoice(Count + 20) = 1
      SeriesLabels(Count + 20) = "NP Unit#10 (kg)"
    ELSE
      GraphChoice(Count + 19) = 1
      SeriesLabels(Count + 19) = "S Unit#10 (kg)"
      GraphChoice(Count + 20) = 1
      SeriesLabels(Count + 20) = "NP Unit#10 (kg)"
    END IF
  END IF
  GraphForm4.HIDE
END SUB

SUB cmdGraph4Quit_Click ()
  DataCols = CCL(4) + 2 + (CCL(12) * 2) + 1
  FOR I = 1 TO 5
    II = 6 - I
    IF GraphSim(II) > CCL(4) + 2 AND GraphSim(II) <> DataCols THEN
      GraphSim(II) = 0!
      GraphSim(0) = II - 1
    END IF
  NEXT
  GraphForm4.HIDE
```

```
END SUB

SUB Form_Load ()
   ' enable and assign unit names to # of units
   chkGraph4Check0.Enabled = True
   chkGraph4Check0.Value = 1
   chkGraph4Check1.Enabled = True
   chkGraph4Check1.Caption = "1:" + GeochemName(2, 2)
   IF CCL(12) > 1 THEN
      chkGraph4Check2.Enabled = True
      chkGraph4Check2.Caption = "2:" + GeochemName(2, 3)
   ELSE
      chkGraph4Check2.Enabled = False
   END IF
   IF CCL(12) > 2 THEN
      chkGraph4Check3.Enabled = True
      chkGraph4Check3.Caption = "3:" + GeochemName(2, 4)
   ELSE
      chkGraph4Check3.Enabled = False
   END IF
   IF CCL(12) > 3 THEN
      chkGraph4Check4.Enabled = True
      chkGraph4Check4.Caption = "4:" + GeochemName(2, 5)
   ELSE
      chkGraph4Check4.Enabled = False
   END IF
   IF CCL(12) > 4 THEN
      chkGraph4Check5.Enabled = True
      chkGraph4Check5.Caption = "5:" + GeochemName(2, 6)
   ELSE
      chkGraph4Check5.Enabled = False
   END IF
   IF CCL(12) > 5 THEN
      chkGraph4Check6.Enabled = True
      chkGraph4Check6.Caption = "6:" + GeochemName(2, 7)
   ELSE
      chkGraph4Check6.Enabled = False
   END IF
   IF CCL(12) > 6 THEN
      chkGraph4Check7.Enabled = True
      chkGraph4Check7.Caption = "7:" + GeochemName(2, 8)
   ELSE
      chkGraph4Check7.Enabled = False
   END IF
   IF CCL(12) > 7 THEN
      chkGraph4Check8.Enabled = True
      chkGraph4Check8.Caption = "8:" + GeochemName(2, 9)
   ELSE
      chkGraph4Check8.Enabled = False
   END IF
   IF CCL(12) > 8 THEN
      chkGraph4Check9.Enabled = True
      chkGraph4Check9.Caption = "9:" + GeochemName(2, 10)
   ELSE
      chkGraph4Check9.Enabled = False
   END IF
   IF CCL(12) > 9 THEN
      chkGraph4Check10.Enabled = True
      chkGraph4Check10.Caption = "10:" + GeochemName(2, 11)
   ELSE
      chkGraph4Check10.Enabled = False
   END IF

END SUB
```

```
' ************************************
' MINEWALL 2.0
' CODE MODULE
' HELP MODULE BASED ON:
' Visual Basic for MS-DOS Help Toolkit
'
' The Help ToolKit consists of the following routines:
'    HelpRegister   - initializes the Help system and loads Help file
'    HelpShowTopic  - displays specified Help topic
'    HelpClose      - closes Help file
'    HelpSetOptions - sets Help display options
'    HelpSearch     - invokes Help Search dialog to enable topic search
' You have a royalty-free right to use, modify, reproduce
' and distribute the sample applications and toolkits provided with
' Visual Basic for MS-DOS (and/or any modified version)
' in any way you find useful, provided that you agree that
' Microsoft has no warranty, obligations or liability for
' any of the sample applications or toolkits.
' ************************************

' Include file containing procedure declarations.
'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

'$FORM frmHelpUtils      ' Form for Search, History, and Change dialogs
'$FORM frmHelpMain       ' Help window

TYPE IndexType          ' Used to index Help topics
   StartFilePtr AS LONG  ' Position within the topic's file
   NumLines AS INTEGER   ' Number of lines in the Help topic
END TYPE

TYPE PointType
   X AS INTEGER         ' Horizontal location
   Y AS INTEGER         ' Vertical location
END TYPE

' Variables common to HELP.BAS, HELPF.FRM, and HELPUTIL.FRM.
COMMON SHARED /HelpLib/ DialogBackcolor AS INTEGER ' Background color for Help
dialog boxes (Search, Copy, History)
COMMON SHARED /HelpLib/ DialogForecolor AS INTEGER ' Foreground color for Help
dialog boxes (Search, Copy, History)

' Variables common to HELP.BAS and HELPF.FRM.
COMMON SHARED /HelpLib/ Topic() AS STRING      ' Lines of the current Help topic
COMMON SHARED /HelpLib/ LeftChar AS INTEGER    ' Leftmost character of the Help
topic given the horizonal scroll position
COMMON SHARED /HelpLib/ StartLine AS INTEGER   ' Top line of the Help topic given
the vertical scroll position
COMMON SHARED /HelpLib/ MaxLineLen AS INTEGER  ' Longest line of the Help topic
COMMON SHARED /HelpLib/ HelpIndexPtr() AS IndexType ' Table that stores data about
each Help topic
COMMON SHARED /HelpLib/ HelpIndexTopics() AS STRING ' Array of Help topic names.
Used with the HelpIndexPtr table.
COMMON SHARED /HelpLib/ HelpFileNum AS INTEGER ' Logical file number assigned to
the Help file by HelpRegister
COMMON SHARED /HelpLib/ HelpTopicStack() AS STRING ' Array of the last 20 Help
topics shown
COMMON SHARED /HelpLib/ HelpTopicStackPtr AS INTEGER ' Number of topics in the
HelpTopicStack
COMMON SHARED /HelpLib/ TopicFound AS STRING   ' The Help topic being shown
COMMON SHARED /HelpLib/ MaxHistoryStack AS INTEGER ' Maximum allowed size of the
HelpTopicStack.  HelpRegister sets to 20.
COMMON SHARED /HelpLib/ UnloadOnClose AS INTEGER ' Flag that determines if closing
the Help form terminates the Help system.
COMMON SHARED /HelpLib/ KillHelp AS INTEGER    ' Flag that HelpClose sets to
terminate the Help form
COMMON SHARED /HelpLib/ CursorPos AS PointType ' Position of the currently selected
Help link within a topic
COMMON SHARED /HelpLib/ ButtonBarHeight AS INTEGER ' Number of lines to reserve at
the top of the form for the button bar.  0 or 3.
COMMON SHARED /HelpLib/ CloseOnEscape AS INTEGER ' If TRUE, pressing ESC will
close the Help window
COMMON SHARED /HelpLib/ CCLFlag AS INTEGER

DEFINT A-Z

CONST TabSpaces = 4             ' Number of spaces that a TAB represents

DIM SHARED SelectedTopicColor AS INTEGER ' The foreground color of Help links
DIM SHARED SpaceString AS STRING   ' A string of blank spaces used by the HelpPrintText
procedure
DIM SHARED HelpFileName AS STRING  ' Help file name.

REM $DYNAMIC
' Help close and unload routine.
'
' Closes help file and unloads help form.
' This routine should be called when the
' parent application terminates.  If the parent
' routine has no END statement (e.g. it stops when
' the user closes the last form), the last Form_Unload
```

```
' must call this procedure.  Otherwise, the application
' will not end because frmHelpMain will still be loaded
'
SUB HelpClose ()
   KillHelp = True
   frmHelpMain.HIDE
   UNLOAD frmHelpMain
END SUB

' Internal routine that returns the greater of two integers.
'
FUNCTION HelpMax (int1 AS INTEGER, int2 AS INTEGER) AS INTEGER
   IF int1 > int2 THEN
      HelpMax = int1
   ELSE
      HelpMax = int2
   END IF
END FUNCTION

' Internal routine that returns the lower of two integers.
'
FUNCTION HelpMin (int1 AS INTEGER, int2 AS INTEGER) AS INTEGER
   IF int1 > int2 THEN
      HelpMin = int2
   ELSE
      HelpMin = int1
   END IF
END FUNCTION

' Help topic print routine.
'
' Internal routine that prints Help topic text.
' Called when a topic is first shown and when
' the form is scrolled.
'
' Parameters:
'   TopLine   - The first element (line) of the topic
'               array to be displayed.
'   LeftPos   - The first character of each topic line
'               to be displayed.
'
SUB HelpPrintText (TopLine AS INTEGER, LeftPos AS INTEGER)
   MaxLines = UBOUND(Topic)    ' The number of lines in the Help topic.
   IF TopLine > MaxLines THEN EXIT SUB
   LastPrintedLine = TopLine + frmHelpMain.pctBackground.ScaleHeight ' The last line of the
Help topic that will be printed.

   IF LastPrintedLine > MaxLines THEN
      ' Ensures that the routine does not attempt to print more lines than the topic size
      LastPrintedLine = MaxLines
   END IF

   blanklines = frmHelpMain.pctBackground.ScaleHeight - (LastPrintedLine - TopLine -
ButtonBarHeight) ' Number of blank lines on the form.
   FormWidth = frmHelpMain.pctBackground.ScaleWidth ' Local variable copy of the form
width.  Used to minimize property access.
   frmHelpMain.pctBackground.CurrentY = 0 ' Start printing at the top of the picture control

   ' Print the necessary topic lines.
   FOR i = TopLine TO LastPrintedLine
      frmHelpMain.pctBackground.PRINT MID$(Topic(i) + SpaceString, LeftPos, FormWidth)
   NEXT i

   ' Print as many blank lines as required.
   DO WHILE blanklines > 0
      blanklines = blanklines - 1
      frmHelpMain.pctBackground.PRINT SpaceString
   LOOP

   ' Set the common variables StartLine and LeftChar based
   ' on parameters passed to this routine.
   StartLine = TopLine
   LeftChar = LeftPos

   ' Do a quick check to see if there is a highlighted
   ' link.  CursorPos.Y will be 0 if the users has not
   ' pressed TAB or Shift-TAB in this topic.  Skips a lot
   ' of code if there is no selected Help link.
   '
   IF CursorPos.Y > 0 THEN

      DIM PrintTopicFound AS STRING ' String containing the selected Help link

      ' Is the selected link within the currently visible
      ' vertical region of the form?
      IF CursorPos.Y >= StartLine AND CursorPos.Y <= LastPrintedLine THEN
         ' Yes.

         ' Now see if it's in the visible horizontal
         ' region
         IF CursorPos.X >= LeftPos AND CursorPos.X <= LeftPos + FormWidth THEN
            ' The entire link text will fit horizontally
            frmHelpMain.pctBackground.CurrentX = CursorPos.X - LeftPos
            PrintTopicFound = TopicFound
         ELSEIF CursorPos.X + LEN(TopicFound) >= LeftPos AND CursorPos.X <=
LeftPos + FormWidth THEN
            ' Part of the link text will fit horizontally
            frmHelpMain.pctBackground.CurrentX = 0
            PrintTopicFound = MID$(TopicFound, LeftChar - CursorPos.X + 1)
         END IF

         ' Print the link text in the SelectedTopicColor
         ' if it is in the visible region.
         IF PrintTopicFound <> "" THEN
            frmHelpMain.pctBackground.CurrentY = CursorPos.Y - StartLine
            RealColor = frmHelpMain.pctBackground.Forecolor
            frmHelpMain.pctBackground.Forecolor = SelectedTopicColor
            frmHelpMain.pctBackground.PRINT PrintTopicFound
            frmHelpMain.pctBackground.Forecolor = RealColor
         END IF
      END IF
   END IF

   ' Set the scroll bar values.
   frmHelpMain.vscHelp.Value = StartLine
   frmHelpMain.hscHelp.Value = LeftChar

   ' Make sure the Help form is visible.
   frmHelpMain.HIDE
   IF CCLFlag = -1 THEN
      CALL HelpClose
      EXIT SUB
   END IF
   frmHelpMain.SHOW 1

END SUB

' Help initialization routine.
'
' Initializes the Help Toolkit by scanning through
' the specified Help file to create a table of
' all Help topics.  This routine MUST be
' called BEFORE using any other Help Toolkit
' routines.
'
' Parameters:
'   HelpFile$ - The MS-DOS file name of the Help file.
'               Must include file extensions (e.g. HELPDEMO.TXT).
'   Success% -  Signals whether Help initialization was successful.
'
' Topics must be defined in the Help file as follows
' for HelpRegister to recognize them.  See HELPDEMO.TXT
' for a complete example.
'     .TOPIC:
'     topic_name
'     Topic Text Goes Here....
'
SUB HelpRegister (HelpFile$, Success%)
   Success% = False

   ' Default option settings.  HelpSetOptions can override.
   ButtonBarHeight = 3
   SelectedTopicColor = screen.controlpanel(0)
   DialogBackcolor = 7
   DialogForecolor = 0

   ' Assume there are 50 help topics in the file.
   MaxTopics = 50
   REDIM HelpIndexPtr(MaxTopics)  AS IndexType
   REDIM HelpIndexTopics(MaxTopics) AS STRING
```

```
HelpFileNum = 9

ON LOCAL ERROR GOTO HelpFileNotFound
   OPEN HelpFile$ FOR INPUT AS HelpFileNum
ON LOCAL ERROR GOTO 0

DO WHILE NOT EOF(HelpFileNum)
   LINE INPUT #HelpFileNum, temp$
   IF RTRIM$(temp$) = ".TOPIC:" THEN
      ' Now that it hit a .TOPIC:, it knows how
      ' many lines were in the previous
      ' topic so goes back and fills in
      ' the # of lines for the PREVIOUS
      ' topic.  Will fill element 0, by the way.
      HelpIndexPtr(NumTopics).NumLines = LinesRead

      ' Now clear LinesRead for this new
      ' topic and increment the number of topics.
      LinesRead = 0
      NumTopics = NumTopics + 1

      ' Are the arrays large enough given the number
      ' Help topics?
      IF NumTopics > MaxTopics THEN
         ' No.  More topics than current array
         ' allocation so grow the arrays by another
         ' 50 elements.
         MaxTopics = MaxTopics + 50
         ON LOCAL ERROR GOTO HelpOutOfMemory
            REDIM PRESERVE HelpIndexPtr(MaxTopics) AS IndexType
            REDIM PRESERVE HelpIndexTopics(MaxTopics) AS STRING
         ON LOCAL ERROR GOTO 0
      END IF

      ' The next line in the file must be the topic
      ' name.
      LINE INPUT #HelpFileNum, HelpIndexTopics(NumTopics)

      ' Remember where the Help topic actually
      ' starts so HelpShowTopic can jump to it
      ' immediately when a jump is requested.
      HelpIndexPtr(NumTopics).StartFilePtr = SEEK(HelpFileNum)
   ELSE
      ' Line was not a Topic marker or the first line
      ' after a topic marker.  Increment the number
      ' of lines in this topic.
      LinesRead = LinesRead + 1
   END IF
LOOP

' Abort the registration process if no Help topics
' were found.
IF NumTopics = 0 THEN
   MSGBOX HelpFile$ + " is not a valid Help file.", 0, "Help"
   HelpFileNum = 0
   EXIT SUB
END IF

' Completes the table entries for the last topic
HelpIndexPtr(NumTopics).NumLines = LinesRead

' Shrink the arrays to the exact size required
ON LOCAL ERROR GOTO HelpOutOfMemory
   REDIM PRESERVE HelpIndexPtr(NumTopics) AS IndexType
   REDIM PRESERVE HelpIndexTopics(NumTopics) AS STRING
ON LOCAL ERROR GOTO 0

' Initialize variables
HelpTopicStackPtr = 0
'frmHelpMain.cmdButtonBar(0).Enabled = True ' Enable the Contents button
'frmHelpMain.cmdButtonBar(1).Enabled = True ' Enable the Search button
MaxHistoryStack = 1
ON LOCAL ERROR GOTO HelpOutOfMemory
   REDIM HelpTopicStack(MaxHistoryStack) AS STRING
ON LOCAL ERROR GOTO 0

SpaceString = STRING$(screen.width, 32)
IF HelpFileNum > 0 THEN
   Success% = True
   ' Store a fully qualified HelpFile name
   ' in case the Help file needs to be
   ' re-registered later.  The full path
   ' name is stored so the Help Toolkit can
   ' always find the file even if an application
   ' causes CURDIR$ to change.
   '
   IF INSTR(HelpFile$, "\") = 0 THEN
      ' No slash in the file name so local
      ' file name was provided.  Add path
      ' info.
      IF RIGHT$(CURDIR$, 1) = "\" THEN
         HelpFileName = CURDIR$ + HelpFile$
      ELSE
         HelpFileName = CURDIR$ + "\" + HelpFile$
      END IF
   ELSE
      ' Path info was already provided
      HelpFileName = HelpFile$
   END IF
END IF
EXIT SUB

' Local error handlers
HelpOutOfMemory:
   MSGBOX "Insufficient memory to display Help.", 0, "Help"
   HelpClose
   EXIT SUB

HelpFileNotFound:
   ' Construct a fully qualified file name
   IF RIGHT$(CURDIR$, 1) = "\" THEN
      UseFile$ = CURDIR$ + HelpFile$
   ELSE
      UseFile$ = CURDIR$ + "\" + HelpFile$
   END IF

   MSGBOX "Help file " + UseFile$ + " not found.", 0, "Help"
   HelpClose
   EXIT SUB
END SUB

' Help search routine.
'
' Displays Help Search dialog and searches for
' selected Help topic.
'
SUB HelpSearch ()
   ' Confirm that a Help file is open.
   'IF HelpFileNum = 0 THEN
      ' No open Help file.  HelpFileName will
      ' be null if HelpRegister was never successful
      ' but will have a valid file name if a Help
      ' file was registered correctly but an error
      ' such as Insufficient Memory to Display Help
      ' caused Help to close.  Also occurs if
      ' HelpSearch is called after the Help
      ' form is unloaded (e.g. if HelpSetOptions
      ' set UnloadOnClose to TRUE).
      'IF HelpFileName = "" THEN
      '   MSGBOX "Help Search can only be used after registering a valid Help file.", 0,
"Help"
      '   EXIT SUB
      'ELSE
         ' Register the Help file again.
      '   HelpRegister HelpFileName, HelpLoaded
      '   IF HelpLoaded = False THEN
      '      MSGBOX "Help Search can only be used after registering a valid Help file.", 0,
"Help"
      '      EXIT SUB
      '   END IF
      'END IF
   'END IF

   ' Fill the search list box with all the Help
   ' topics.  LstSearch.Sorted = TRUE so the topics will
   ' be listed alphabetically.
   'FOR i = 1 TO UBOUND(HelpIndexTopics)
      'frmHelpUtils.lstSearch.ADDITEM HelpIndexTopics(i)
   'NEXT i
```

```
    ' Set the list index to the top.
    'frmHelpUtils.lstSearch.ListIndex = 0

    ' Show the Search form modally.
    'frmHelpUtils.SHOW 1

    ' The search form's tag property will be set
    ' to the topic the user selected or null if Cancel
    ' was selected.
    'RequestedTopic$ = frmHelpUtils.Tag
    'UNLOAD frmHelpUtils

    ' pctBackground must always have the focus so keys can
    ' be trapped.
    'IF frmHelpMain.Visible THEN frmHelpMain.pctBackground.SETFOCUS

    ' Show the selected topic.
    'IF RequestedTopic$ < > "" THEN
    '    HelpShowTopic RequestedTopic$
    'END IF
END SUB

' Help option setting routine.
'
' Sets colors and shows/hides buttons on the
' Help window's button bar.  This routine is
' optional as default settings are provided.
'
' Parameters:
'   BColor      - Sets help window background color (frmHelpMain.pctBackground.BackColor)
'   FColor      - Sets help window foreground color (frmHelpMain.pctBackground.ForeColor)
'   DBColor     - Sets the background color for Help dialogs (Search, Copy, History).
'   DFColor     - Sets the foreground color for Help dialogs (Search, Copy, History).
'   ButtonColor - Sets the background color for the five
'                 help window button bar.  Set SCREEN.CONTROLPANEL(4)
'                 to change button foreground color.
'   SelectColor - Sets the color of the link markers.
'   Flags       - Bit flags set the VISIBLE status
'                 of the five command buttons and
'                 enable other Help Toolit options.
'                 Add the values below to show buttons
'                 and enable options.
'
'                 Function              Value   Default
'                 --------------------  ---     -----
'                 ESC closes Help         1     0 (Escape key does not close help window)
'                 UNLOAD Help at Form close  2      0 (Help form in made invisible, not
unloaded when form is closed)
'                 No Contents Button      4     0 (Contents button is visible)
'                 No Search Button        8     0 (Search button is visible)
'                 No Back Button          16    0 (Back button is visible)
'                 No History Button       32    0 (History button is visible)
'                 No Copy Button          64    0 (Copy button is visible)
'
'                 For example, Flags = 65 allows ESC to
'                 close Help and hides the Copy button.
'                 Space for the button bar is only reserved
'                 at the top frmHelpMain if at least one button is visible.
'
SUB HelpSetOptions (bcolor AS INTEGER, fcolor AS INTEGER, dbcolor AS INTEGER,
dfcolor AS INTEGER, buttoncolor AS INTEGER, SelectColor AS INTEGER, Flags AS
INTEGER)
    ' Trap to ensure HelpRegister has already been called.
    IF HelpFileNum = 0 THEN
        MSGBOX "You must call the HelpRegister procedure before calling HelpSetOptions.
Proposed settings ignored.", 0, "Help"
        EXIT SUB
    END IF

    ' Confirm that the proposed color settings are valid.
    ' If so, set the appropriate properties or variables.
    IF bcolor > = 0 AND bcolor < = 15 THEN frmHelpMain.pctBackground.Backcolor =
bcolor
    IF fcolor > = 0 AND fcolor < = 15 THEN frmHelpMain.pctBackground.Forecolor =
fcolor
    IF SelectColor > = 0 AND SelectColor < = 15 THEN SelectedTopicColor = SelectColor
    IF dbcolor > = 0 AND dbcolor < = 15 THEN DialogBackcolor = dbcolor
    IF dfcolor > = 0 AND dfcolor < = 15 THEN DialogForecolor = dfcolor

    IF buttoncolor > = 0 AND buttoncolor < = 15 THEN
        frmHelpMain.Backcolor = buttoncolor
        FOR i = 0 TO 4
            frmHelpMain.cmdButtonBar(i).Backcolor = buttoncolor
        NEXT i
    END IF

    ' Hide or show buttons as requested
    FOR i = 0 TO 4
        IF (Flags AND 2 ^ (i + 3)) = False THEN
            frmHelpMain.cmdButtonBar(i).Left = 13 * NumButtons
            frmHelpMain.cmdButtonBar(i).Visible = True
            NumButtons = NumButtons + 1
        ELSE
            frmHelpMain.cmdButtonBar(i).Visible = False
        END IF
    NEXT i

    ' Allow space for the button bar if at least one button
    ' is shown.
    IF NumButtons = 0 THEN
        ButtonBarHeight = 0
    ELSE
        ButtonBarHeight = 3
    END IF

    CloseOnEscape = Flags AND 1
    UnloadOnClose = Flags AND 2

END SUB

' Help topic display routine.
'
' Displays the requested topic on the Help form.
'
' Parameter:
'   ProvidedTopic$ - The name of the topic that should be shown.
'
SUB HelpShowTopic (ProvidedTopic$)
    ' Confirm that a Help file has been registered and
    ' that non-null topic has been provided.
    IF ProvidedTopic$ = "" THEN
        MSGBOX "A Help topic must be supplied", 0, "Help"
        EXIT SUB
    END IF

    ' Confirm that a Help file is open.
    IF HelpFileNum = 0 THEN
        ' No open Help file.  HelpFileName will
        ' be null if HelpRegister was never successful
        ' but will have a valid file name if a Help
        ' file was registered correctly but an error
        ' such as Insufficient Memory to Display Help
        ' caused Help to close.  Also occurs if
        ' HelpShowTopic is called after the Help
        ' form is unloaded (e.g. if HelpSetOptions
        ' set UnloadOnClose to TRUE).
        IF HelpFileName = "" THEN
            MSGBOX "You must call the HelpRegister procedure before calling HelpShowTopic.",
0, "Help"
            EXIT SUB
        ELSE
            ' Register the Help file again.
            HelpRegister HelpFileName, HelpLoaded
            IF HelpLoaded = False THEN
                MSGBOX "You must call the HelpRegister procedure before calling
HelpShowTopic.", 0, "Help"
                EXIT SUB
            END IF
            CCLFlag = 1
        END IF
    END IF
    IF CCLFlag = -1 THEN
        frmHelpMain.HIDE
        CALL HelpClose
        EXIT SUB
    END IF
    MaxHistoryStack = 1
    REDIM HelpTopicStack(MaxHistoryStack) AS STRING
```

```
    ' Convert the topic request to uppercase to make
    ' matching easier then scan the HelpIndex table
    ' for that topic.
    '
    RequestedTopic$ = UCASE$(ProvidedTopic$)
    TotalTopics = UBOUND(HelpIndexTopics)
    TopicNum = 1
    EndNow = False
    DO UNTIL EndNow
       IF UCASE$(HelpIndexTopics(TopicNum)) = RequestedTopic$ THEN
          EndNow = True
       ELSE
          TopicNum = TopicNum + 1
          IF TopicNum > TotalTopics THEN
             EndNow = True
             TopicNum = 0
          END IF
       END IF
    LOOP

    ' Exit if the topic does not exist.
    IF TopicNum = 0 THEN
       MSGBOX "MW 2.0 Help topic '" + ProvidedTopic$ + "' not found.", 0, "Help"
       EXIT SUB
    END IF

    ' Seek to the topic's position in the Help file.
    SEEK HelpFileNum, HelpIndexPtr(TopicNum).StartFilePtr

    ' REDIM the topic array so that it's the exact size
    ' needed to store the requested topic.
    MaxLines = HelpIndexPtr(TopicNum).NumLines

    ON LOCAL ERROR GOTO HelpShowOutOfMemory
       REDIM Topic(1 TO MaxLines) AS STRING

       ' Load the topic lines into the topic array
       MaxLineLen = 0
       FOR i = 1 TO MaxLines
          LINE INPUT #HelpFileNum, Topic(i)

          ' Convert tabs (CHR$(9)) to spaces.
          TabPos = INSTR(Topic(i), CHR$(9))
          DO WHILE TabPos > 0
             Topic(i) = LEFT$(Topic(i), TabPos - 1) + STRING$(TabSpaces - (TabPos MOD
TabSpaces), " ") + MID$(Topic(i), TabPos + 1)
             TabPos = INSTR(TabPos + TabSpaces - 1, Topic(i), CHR$(9))
          LOOP
          IF LEN(Topic(i)) > MaxLineLen THEN MaxLineLen = LEN(Topic(i))
       NEXT i
    ON LOCAL ERROR GOTO 0

    ' Set misc. values
    frmHelpMain.hscHelp.Value = 1
    frmHelpMain.hscHelp.min = 1
    frmHelpMain.hscHelp.max = HelpMax(MaxLineLen -
frmHelpMain.pctBackground.ScaleWidth + 1, 1)
    frmHelpMain.vscHelp.max = HelpMax(MaxLines -
frmHelpMain.pctBackground.ScaleHeight + 1, 1)
    frmHelpMain.vscHelp.Value = 1
    frmHelpMain.vscHelp.min = 1
    frmHelpMain.Caption = "Help: " + ProvidedTopic$
    TopicCursor.Y = 0
    IF frmHelpMain.ScaleHeight > 3 THEN frmHelpMain.vscHelp.LargeChange =
frmHelpMain.pctBackground.ScaleHeight

    ' Update the history stack
    HelpTopicStackPtr = HelpTopicStackPtr + 1

    ' Only store the last MaxHistoryStack of
    ' Help topics.
    IF HelpTopicStackPtr > MaxHistoryStack THEN
       'Would overflow.  Drop the least recent entry.
       FOR i = 2 TO MaxHistoryStack
          HelpTopicStack(i - 1) = HelpTopicStack(i)
       NEXT i
       HelpTopicStackPtr = MaxHistoryStack
    END IF

    ' Add this topic to the Help stack
    HelpTopicStack(HelpTopicStackPtr) = HelpIndexTopics(TopicNum)

    ' Enable/disable buttons based on the size of the
    ' Help stack
    SELECT CASE HelpTopicStackPtr
    CASE 1
       ' This is the first topic.  Both
       ' BACK (2) and History(3) should be
       ' disabled.
       'frmHelpMain.cmdButtonBar(2).Enabled = False
       'frmHelpMain.cmdButtonBar(3).Enabled = FALSE
    CASE 2
       ' This is the second topic.
       ' BACK (2) should be enabled but History(3)
       ' isn't necessary.
       'frmHelpMain.cmdButtonBar(2).Enabled = True
       'frmHelpMain.cmdButtonBar(3).Enabled = FALSE
    CASE IS > 2
       ' More than 2 topics have been shown so enabled
       ' both Back and History.
       'frmHelpMain.cmdButtonBar(2).Enabled = True
       'frmHelpMain.cmdButtonBar(3).Enabled = TRUE
    END SELECT

    ' Restore the Help form to its former size/position
    ' if it is currently minimized.
    IF frmHelpMain.WindowState = 1 THEN
       frmHelpMain.WindowState = 0
    END IF

    ' Refresh the form to ensure that new button bar
    ' states take effect.
    ' Actually display the topic, starting at
    ' the top and far left
    CursorPos.X = 0
    CursorPos.Y = 0
    HelpPrintText 1, 1
    IF CCLFlag = -1 THEN
       frmHelpMain.HIDE
       CALL HelpClose
       EXIT SUB
    END IF

HelpShowOutOfMemory:
    MSGBOX "Insufficient memory to display Help.", 0, "Help"
    HelpClose
    EXIT SUB

END SUB
```

```
* MW-HELPF.FRM FORM MODULE
* STOCK VBDOS HELP MODULE
' -----------------------------------------------------
' Visual Basic for MS-DOS Help Toolkit
'
' Help Window Form
'
' The Help Toolkit (HELP.BAS, HELPF.FRM, and HELPUTIL.FRM)
' makes it easy to add a hypertext Help system to your
' applications.
'
' To use the Help Toolkit in your programs, include
' HELP.BAS, HELPF.FRM, and HELPUTIL.FRM in your program or
' use the supplied library (HELP.LIB, HELPA.LIB - AltMath
' version) and Quick library (HELP.QLB) and call the
' appropriate routines to load and display your help topics.
' Forms and code modules that call Help routines
' must include HELP.BI ('$INCLUDE: 'HELP.BI').'
'
' Refer to the module level comments in HELP.BAS for
' more information on using the Help Toolkit.
'
' Copyright (C) 1982-1992 Microsoft Corporation
'
' You have a royalty-free right to use, modify, reproduce
' and distribute the sample applications and toolkits provided with
' Visual Basic for MS-DOS (and/or any modified version)
' in any way you find useful, provided that you agree that
```

```
' Microsoft has no warranty, obligations or liability for
' any of the sample applications or toolkits.
' ----------------------------------------------------------

' Include file containing procedure declarations.
'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

''$FORM frmHelpUtils        ' Form for Search, History, and Change dialogs

TYPE IndexType              ' Used to index Help topics
   StartFilePtr AS LONG     ' Position within the topic's file
   NumLines AS INTEGER      ' Number of lines in the Help topic
END TYPE

TYPE PointType
   X AS INTEGER             ' Horizontal location
   Y AS INTEGER             ' Vertical location
END TYPE

' Variables common to HELP.BAS, HELPF.FRM, and HELPUTIL.FRM.
COMMON SHARED /HelpLib/ DialogBackcolor AS INTEGER ' Background color for Help
dialog boxes (Search, Copy, History)
COMMON SHARED /HelpLib/ DialogForecolor AS INTEGER ' Foreground color for Help
dialog boxes (Search, Copy, History)

' Variables common to HELP.BAS and HELPF.FRM.
COMMON SHARED /HelpLib/ Topic() AS STRING ' Lines of the current Help topic
COMMON SHARED /HelpLib/ LeftChar AS INTEGER ' Leftmost character of the Help topic
given the horizonal scroll position
COMMON SHARED /HelpLib/ StartLine AS INTEGER ' Top line of the Help topic given the
vertical scroll position
COMMON SHARED /HelpLib/ MaxLineLen AS INTEGER ' Longest line of the Help topic
COMMON SHARED /HelpLib/ HelpIndexPtr() AS IndexType ' Table that stores data about
each Help topic
COMMON SHARED /HelpLib/ HelpIndexTopics() AS STRING ' Array of Help topic names.
Used with the HelpIndexPtr table.
COMMON SHARED /HelpLib/ HelpFileNum AS INTEGER ' Logical file number assigned to
the Help file by HelpRegister
COMMON SHARED /HelpLib/ HelpTopicStack()  AS STRING ' Array of the last 20 Help
topics shown
COMMON SHARED /HelpLib/ HelpTopicStackPtr  AS INTEGER ' Number of topics in the
HelpTopicStack
COMMON SHARED /HelpLib/ TopicFound AS STRING ' The Help topic being shown
COMMON SHARED /HelpLib/ MaxHistoryStack AS INTEGER ' Maximum allowed size of the
HelpTopicStack.  HelpRegister sets to 20.
COMMON SHARED /HelpLib/ UnloadOnClose AS INTEGER ' Flag that determines if closing
the Help form terminates the Help system.
COMMON SHARED /HelpLib/ KillHelp AS INTEGER ' Flag that HelpClose sets to terminate
the Help form
COMMON SHARED /HelpLib/ CursorPos AS PointType ' Position of the currently selected
Help link within a topic
COMMON SHARED /HelpLib/ ButtonBarHeight AS INTEGER ' Number of lines to reserve at
the top of the form for the button bar.  0 or 3.
COMMON SHARED /HelpLib/ CloseOnEscape AS INTEGER ' If TRUE, pressing ESC will
close the Help window
COMMON SHARED /HelpLib/ CCLFlag AS INTEGER

DEFINT A-Z

CONST StartChar = "◄"
CONST EndChar = "►"

Version 1.00
BEGIN Form frmHelpMain
        AutoRedraw   = -1
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Help"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(19)
        Left         = Char(7)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(66)
        WindowState  = 0
        BEGIN HScrollBar hscHelp
                Attached     = -1
                DragMode     = 0
                Enabled      = -1
                Height       = Char(1)
                LargeChange  = 20
                Left         = Char(8)
                Max          = 32767
                Min          = 1
                MousePointer = 0
                SmallChange  = 1
                TabIndex     = 6
                TabStop      = 0
                Tag          = ""
                Top          = Char(20)
                Value        = 1
                Visible      = -1
                Width        = Char(63)
        END
        BEGIN VScrollBar vscHelp
                Attached     = -1
                DragMode     = 0
                Enabled      = -1
                Height       = Char(16)
                LargeChange  = 1
                Left         = Char(72)
                Max          = 32767
                Min          = 1
                MousePointer = 0
                SmallChange  = 1
                TabIndex     = 7
                TabStop      = 0
                Tag          = ""
                Top          = Char(3)
                Value        = 1
                Visible      = -1
                Width        = Char(1)
        END
        BEGIN PictureBox pctBackground
                AutoRedraw   = -1
                BackColor    = QBColor(7)
                BorderStyle  = 0
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(14)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 0
                TabStop      = -1
                Tag          = ""
                Top          = Char(3)
                Visible      = -1
                Width        = Char(64)
        END
        BEGIN CommandButton cmdButtonBar
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Contents"
                Default      = 0
                DragMode     = 0
                Enabled      = 0
                Height       = Char(3)
                Index        = 0
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 1
                TabStop      = 0
                Tag          = ""
                Top          = Char(0)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdButtonBar
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Search..."
                Default      = 0
```

```
            DragMode    = 0
            Enabled     = 0
            Height      = Char(3)
            Index       = 1
            Left        = Char(13)
            MousePointer = 0
            TabIndex    = 2
            TabStop     = 0
            Tag         = ""
            Top         = Char(0)
            Visible     = -1
            Width       = Char(12)
      END
      BEGIN CommandButton cmdButtonBar
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Back"
            Default     = 0
            DragMode    = 0
            Enabled     = 0
            Height      = Char(3)
            Index       = 2
            Left        = Char(26)
            MousePointer = 0
            TabIndex    = 3
            TabStop     = 0
            Tag         = ""
            Top         = Char(0)
            Visible     = -1
            Width       = Char(12)
      END
      BEGIN CommandButton cmdButtonBar
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "His&tory..."
            Default     = 0
            DragMode    = 0
            Enabled     = 0
            Height      = Char(3)
            Index       = 3
            Left        = Char(39)
            MousePointer = 0
            TabIndex    = 4
            TabStop     = 0
            Tag         = ""
            Top         = Char(0)
            Visible     = -1
            Width       = Char(12)
      END
      BEGIN CommandButton cmdButtonBar
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "Co&py..."
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Index       = 4
            Left        = Char(52)
            MousePointer = 0
            TabIndex    = 5
            TabStop     = 0
            Tag         = ""
            Top         = Char(0)
            Visible     = -1
            Width       = Char(12)
      END
END


REM $DYNAMIC
' Click event procedure for the button bar command buttons (control array)..
' Invokes appropriate action when user clicks one of the buttons.
SUB cmdButtonBar_Click (index AS INTEGER)
   CCLFlag = 1
   SELECT CASE index
      CASE 0 ' Contents button
         'pctBackground.SETFOCUS
         'HelpShowTopic "Contents"
      CASE 1 ' Search button
         'HelpSearch
      CASE 2 ' Back button
         'HelpTopicStackPtr = HelpTopicStackPtr - 2
         'pctBackground.SETFOCUS
         'HelpShowTopic HelpTopicStack(HelpTopicStackPtr + 1)
      CASE 3 ' History button
         'FOR i = HelpTopicStackPtr TO 1 STEP -1
         '   frmHelpUtils.lstHistory.ADDITEM HelpTopicStack(i)
         'NEXT i
         'frmHelpUtils.Caption = "History"
         'frmHelpUtils.lstHistory.ListIndex = 1
         'frmHelpUtils.lstHistory.Visible = TRUE
         'frmHelpUtils.lstSearch.Visible = FALSE
         'frmHelpUtils.SHOW 1
         'RequestedTopic$ = frmHelpUtils.Tag
         'UNLOAD frmHelpUtils
         'pctBackground.SETFOCUS

         ' RequestedTopic will be null if CANCEL was
         ' pressed.
         'IF RequestedTopic$ < > "" THEN
         '   HelpShowTopic RequestedTopic$
         'END IF
      CASE 4 ' Quit button
         frmHelpMain.HIDE
         'UNLOAD frmHelpMain
         CCLFlag = -1
         'frmHelpUtils.Width = 63
         'frmHelpUtils.Caption = "Copy"
         'frmHelpUtils.txtCopyArea.Visible = TRUE
         'frmHelpUtils.lstHistory.Visible = FALSE
         'frmHelpUtils.lstSearch.Visible = FALSE
         'frmHelpUtils.cmdOK.Caption = "Copy"
         'frmHelpUtils.cmdOK.Left = frmHelpUtils.cmdOK.Left + 8
         'frmHelpUtils.cmdCancel.Left = frmHelpUtils.cmdOK.Left
         'frmHelpUtils.lblSelectTopic.Visible = FALSE
         'frmHelpUtils.lblSelectText.Visible = TRUE
         'frmHelpUtils.Left = (screen.Width - Width) \ 2
         'frmHelpUtils.Top = (screen.Height - Height) \ 2

         ' Fill txtCopyArea with the contents of the
         ' current topic.
         ' Use temp$ instead of txtCopyArea itself
         ' for speed reasons.
         '
         temp$ = ""
         'FOR i = 1 TO UBOUND(Topic)
         '   temp$ = temp$ + Topic(i) + CHR$(13)
         'NEXT i
         'frmHelpUtils.txtCopyArea.text = temp$

         'frmHelpUtils.SHOW 1
         'UNLOAD frmHelpUtils
         'pctBackground.SETFOCUS
   END SELECT
END SUB

' Load event procedure for the form.
' Sets default values and centers the form.
'
SUB Form_Load ()
   REDIM PRESERVE Topic(1 TO 50) AS STRING
   StartLine = 1
   LeftChar = 1
   hscHelp.Value = 1
   vscHelp.Value = 1

   ' Center the form.
   Left = (screen.Width - Width) \ 2
   Top = (screen.Height - Height) \ 2
   cmdButtonBar(0).Visible = False
   cmdButtonBar(1).Visible = False
   cmdButtonBar(2).Visible = False
   cmdButtonBar(3).Visible = False
   cmdButtonBar(4).Caption = "&Quit"
END SUB

' Resize event procedure for the form.
' Ensures pctBackground is always the correct size
' and that various scroll bar settings are correct
```

```
' for the new form size.
'
SUB Form_Resize ()
   IF ScaleHeight > 3 THEN
      pctBackground.MOVE 0, ButtonBarHeight, ScaleWidth, ScaleHeight - ButtonBarHeight
      vscHelp.LargeChange = ScaleHeight - ButtonBarHeight
      hscHelp.Max = HelpMax(MaxLineLen - pctBackground.ScaleWidth + 1, 1)
      vscHelp.Max = HelpMax(UBOUND(Topic) - pctBackground.ScaleHeight + 1, 1)
   END IF
   HelpPrintText StartLine, LeftChar
   'pctBackground.SETFOCUS
END SUB

' Unload event procedure for the form.
' Cancels the form close unless UnloadOnClose
' flag is set to TRUE in the HelpSetOptions routine.
'
SUB Form_Unload (Cancel AS INTEGER)
   'IF UnloadOnClose OR KillHelp THEN
      CLOSE HelpFileNum
      HelpFileNum = 0
   'ELSE
      ' KillHelp is FALSE unless HelpClose sets it to
      ' TRUE
   '  IF KillHelp = FALSE THEN
   '     Cancel = TRUE
   '     HIDE
   '  ELSE
   '     CLOSE HelpFileNum
   '  END IF
   'END IF
END SUB

' Change event procedure for the horizontal scroll bar.
' Scrolls help topic text.
SUB hscHelp_Change ()
   ' Call the HelpPrintText routine using the new
   ' horizontal scroll bar value.
   HelpPrintText StartLine, (hscHelp.Value)

   ' Refresh the form and ensure pctBackground
   ' has the focus.
   pctBackground.REFRESH
   'pctBackground.SETFOCUS
END SUB

' KeyPress event procedure for the pctBackground.
' No other control needs a KeyPress routine because
' other Help routines were written to ensure that
' pctBackground always has the focus.
'
' See KeyUp event procedure for cursor navigation
' and Tab key handlers.
'
SUB pctBackground_KeyPress (KeyAscii AS INTEGER)
   SELECT CASE KeyAscii
      CASE 13 ' ENTER key
         ' Jump to a link if if TAB or Shift-TAB have
         ' been used to select one.
         IF TopicFound < > "" THEN
            HelpShowTopic TopicFound
         END IF
      CASE 27 'ESC key
         ' Close the Help form is ESC is pressed
         ' and the CloseOnEscape flag was set
         ' by HelpSetOptions
         CCLFlag = -1
         IF CloseOnEscape THEN
            IF UnloadOnClose THEN
               CALL HelpClose
            ELSE
               Form_Unload Cancel
            END IF
         END IF

      ' The following statements click the appropriate
      ' command button as if the mouse was used.
      '
      CASE 67, 99    'C as in Contents
         IF cmdButtonBar(0).Visible AND cmdButtonBar(0).Enabled THEN
cmdButtonBar_Click 0
      CASE 83, 115   'S as in Search
         IF cmdButtonBar(1).Visible AND cmdButtonBar(1).Enabled THEN
cmdButtonBar_Click 1
      CASE 66, 98    'B as in Back
         IF cmdButtonBar(2).Visible AND cmdButtonBar(2).Enabled THEN
cmdButtonBar_Click 2
      CASE 84, 116   'T as in hisTory
         IF cmdButtonBar(3).Visible AND cmdButtonBar(3).Enabled THEN
cmdButtonBar_Click 3
      CASE 81, 113   'Q as in Quit
         IF cmdButtonBar(4).Visible AND cmdButtonBar(4).Enabled THEN
cmdButtonBar_Click 4
   END SELECT
END SUB

' KeyUp event procedure for keyboard navigation.
' No other control needs a KeyUp routine because other
' Help rountines were written to ensure that
' pctBackground always has the focus.
'
' See KeyPress for ENTER, ESCAPE, C, S, B,
' T, and P handlers.
'
SUB pctBackground_KeyUp (KeyCode AS INTEGER, Shift AS INTEGER)
   SELECT CASE KeyCode
      CASE 9 ' tab key
         IF (Shift AND 1) = 0 THEN
            ' Search forward.  Shift is not
            ' pressed.
            Direction = 1
         ELSE
            ' Search backwards.  Shift is
            ' pressed.
            Direction = -1
         END IF

         ' CursorPos.Y is only 0 if no link has
         ' been highlighted yet.
         IF CursorPos.Y = 0 THEN
            ' No link is currently selected.
            ' Find the first link in the topic.

            MaxTopicLines = UBOUND(Topic)
            TopicScanY = 1
            EndNow = False
            StartPos = INSTR(Topic(1), StartChar)
            DO WHILE NOT EndNow
               IF StartPos > 0 THEN
                  TopicScanX = StartPos + 1
                  LastStartPos = StartPos
                  IF Direction = 1 THEN
                     StartPosLine = TopicScanY
                     EndNow = True
                  ELSE
                     StartPos = INSTR(TopicScanX, Topic(TopicScanY), StartChar)
                     StartPosLine = TopicScanY
                  END IF
               ELSE
                  IF TopicScanY < MaxTopicLines THEN
                     TopicScanY = TopicScanY + 1
                     TopicScanX = 1
                     StartPos = INSTR(TopicScanX, Topic(TopicScanY), StartChar)
                  ELSE
                     EndNow = True
                  END IF
               END IF
            LOOP

            ' Below only happens in Direction -1 searches
            IF LastStartPos < > StartPos AND TopicScanY < > StartLinePos THEN
               StartPos = LastStartPos
               TopicScanX = StartPos + 1
               TopicScanY = StartPosLine
            END IF
         ELSE
            ' A link is currently selected.
            ' Find the next link in the topic.
            MaxTopicLines = UBOUND(Topic)
            TopicScanY = CursorPos.Y
```

```
        IF Direction = 1 THEN
          TopicScanX = CursorPos.X + 1
          TimesThrough = 0 ' TimesThrough is used so this routine can loop back to start
of the topic if it doesn't find a match going forward.
          StartPos = INSTR(TopicScanX, Topic(TopicScanY), StartChar)
          DO
            StartPos = INSTR(TopicScanX, Topic(TopicScanY), StartChar)
            EndNow = False
            DO WHILE NOT EndNow
              IF StartPos > 0 THEN
                TopicScanX = StartPos + 1
                EndNow = True
              ELSE
                IF TopicScanY < MaxTopicLines THEN
                  TopicScanY = TopicScanY + 1
                  TopicScanX = 1
                  StartPos = INSTR(TopicScanX, Topic(TopicScanY), StartChar)
                ELSE
                  EndNow = True
                  TimesThrough = TimesThrough + 1
                  TopicScanX = 1
                  TopicScanY = 1
                END IF
              END IF
            LOOP
          LOOP UNTIL (TimesThrough = 2) OR (StartPos > 0)
        ELSE
          ' Scan backwards.
          TimesThrough = 0
          TopicScanX = 0
          StartPos = CursorPos.X - 2
          DO UNTIL EndNow OR TimesThrough = 2
            IF StartPos < 1 THEN
              EndLineNow = True
            ELSE
              EndLineNow = False
            END IF

            ' See if there's any need for
            ' checking the line char by char.
            ' Small optimization.
            IF INSTR(Topic(TopicScanY), StartChar) = 0 THEN
              EndLineNow = True
            END IF

            DO UNTIL EndLineNow
              IF MID$(Topic(TopicScanY), StartPos, 1) = StartChar THEN
                TopicScanX = StartPos + 1
                EndLineNow = True
                EndNow = True
              ELSE
                StartPos = StartPos - 1
                IF StartPos = 0 THEN EndLineNow = True
              END IF
            LOOP

            IF NOT EndNow THEN
              TopicScanY = TopicScanY - 1
              IF TopicScanY = 0 THEN
                TopicScanY = MaxTopicLines
                TimesThrough = TimesThrough + 1
              END IF
              StartPos = LEN(Topic(TopicScanY))
            END IF
          LOOP
        END IF
      END IF

      IF StartPos > 0 THEN
        ' Found a topic start marker.
        ' Find the end marker.
        EndPos = INSTR(TopicScanX + 1, Topic(TopicScanY), EndChar)

        ' Be sure that an end marker was found
        IF EndPos = 0 THEN
          MSGBOX "No topic end marker found.", 0, "Help"
          EXIT SUB
        END IF

        TopicFound = MID$(Topic(TopicScanY), StartPos + 1, EndPos - StartPos - 1)

        ' Now scroll the display appropriately
        ' so the link can be seen.

        ' Is the link being displayed now?
        ' Vertically first
        IF TopicScanY < StartLine OR TopicScanY > StartLine +
pctBackground.ScaleHeight - 1 THEN

          ' The link isn't on a visible line.
          ' Scroll so the topic is visible
          ' vertically

          IF TopicScanY > StartLine + pctBackground.ScaleHeight - 1 THEN
            StartLine = TopicScanY - pctBackground.ScaleHeight + 1
          ELSE
            StartLine = TopicScanY
          END IF
        END IF

        ' Then horizontally
        IF TopicScanX < LeftChar OR TopicScanX >= LeftChar + ScaleWidth THEN
          ' The link isn't visible horizontally.
          ' Scroll so the topic is visible
          ' horizontally
          IF TopicScanX + LEN(TopicFound) + 1 < pctBackground.ScaleWidth THEN
            LeftChar = 1
          ELSE
            LeftChar = TopicScanX - pctBackground.ScaleWidth + LEN(TopicFound)
+ 1
          END IF
        END IF

        ' Now reprint the topic
        CursorPos.Y = TopicScanY
        CursorPos.X = TopicScanX
        HelpPrintText StartLine, LeftChar
      END IF

    ' Scroll using the cursor keys
    CASE 39 'cursr right
      IF hscHelp.Value < hscHelp.Max THEN hscHelp.Value = hscHelp.Value + 1
    CASE 38 'cursr up
      IF vscHelp.Value > 1 THEN vscHelp.Value = vscHelp.Value - 1
    CASE 37 'cursr left
      IF hscHelp.Value > 1 THEN hscHelp.Value = hscHelp.Value - 1
    CASE 40 'cursr down
      IF vscHelp.Value < vscHelp.Max THEN vscHelp.Value = vscHelp.Value + 1

    CASE 36 ' Home
      IF Shift AND 2 THEN ' If ctrl is pressed
        vscHelp.Value = 1
      ELSE
        hscHelp.Value = 1
      END IF
    CASE 35 ' End
      IF Shift AND 2 THEN ' If ctrl is pressed
        vscHelp.Value = vscHelp.Max
      ELSE
        hscHelp.Value = hscHelp.Max
      END IF
    CASE 33 ' PgUp
      vscHelp.Value = HelpMax(vscHelp.Value - vscHelp.LargeChange, 1)
    CASE 34 ' PgDn
      vscHelp.Value = HelpMin(vscHelp.Value + vscHelp.LargeChange, (vscHelp.Max))
  END SELECT
END SUB

' MouseUp event procedure for pctBackground.
' Looks for Help links based on the location
' of mouse clicks. See KeyUp procedure for
' how TAB and Shift-TAB select links.
'
SUB pctBackground_MouseUp (Button AS INTEGER, Shift AS INTEGER, X AS SINGLE, Y
AS SINGLE)
  ' Find the link

  IF Y + StartLine <= UBOUND(Topic) THEN
    ' Providing the user clicked somewhere
    ' there is text....
```

```
    TopicLine$ = Topic(Y + StartLine)
    MouseCursorPos = LeftChar + X

    ' Go forward to look for a EndChar
    EndPos = INSTR(MouseCursorPos, TopicLine$, EndChar)
    IF EndPos = 0 THEN
       ' No EndChar on this line to the right of
       ' the mouse click.
       TopicFound = ""
       EXIT SUB
    END IF

    ' Go back and look for StartChar.
    EndNow = 0
    StartPos = MouseCursorPos
    DO UNTIL EndNow
       SELECT CASE MID$(TopicLine$, StartPos, 1)
       CASE StartChar
          ' Found a topic start char.
          EndNow = -1
       CASE EndChar
          ' Found a link EndChar.
          ' Unless this is the char under
          ' the mouse, cancel the seach.
          ' Means the mouse is in between
          ' two Help links.
          IF StartPos < > MouseCursorPos THEN
             TopicFound = ""
             EXIT SUB
          ELSE
             ' Just back up and keep on looking
             StartPos = StartPos - 1
             IF StartPos = 0 THEN EndNow = -1
          END IF
       CASE ELSE
          ' Back up.  Stop if reach start of line.
          StartPos = StartPos - 1
          IF StartPos = 0 THEN EndNow = -1
       END SELECT
    LOOP

    IF StartPos = 0 THEN
       TopicFound = ""
       EXIT SUB
    END IF

    ' Sets the Common Shared TopicFound variable.
    TopicFound = MID$(TopicLine$, StartPos + 1, EndPos - StartPos - 1)

    ' Jump to that topic.
    HelpShowTopic TopicFound
  END IF
END SUB

' Change event procedure for the vertical scroll bar.
' Scrolls help topic text.
SUB vscHelp_Change ()
   ' Call the HelpPrintText routine using the new
   ' vertical scroll bar value.
   HelpPrintText (vscHelp.Value), LeftChar

   ' Refresh the form and ensure pctBackground
   ' has the focus.
   pctBackground.REFRESH
   'pctBackground.SETFOCUS
END SUB
```

```
' ***********************************
' MINEWALL 2.0
' MW-LYCT.BAS CODE MODULE
' GEOCHEMICAL CONTROL OF LAYERS DURING SIMULATIONS:
'   DISTRIBUTES LOADINGS AMONG LAYERS
' ***********************************

'$INCLUDE: 'MW-COMDF.BI'
COMMON SHARED /ConcCalc1/ Layer AS INTEGER, NewRows AS INTEGER
COMMON SHARED /ConcCalc2/ Conc1() AS SINGLE, WaterData() AS SINGLE
COMMON SHARED /ConcCalc3/ MaxElev AS SINGLE, MaxVolume AS SINGLE, MaxArea
AS SINGLE
COMMON SHARED /ConcCalc4/ RemAmount() AS SINGLE, UnAmount() AS SINGLE

DEFINT A-Z
'$FORM Form1

DECLARE SUB MinewallLayerWater ()
DECLARE SUB MinewallXMS ()
DECLARE SUB MinewallChemistry (NewRows%)

DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, handle)
DECLARE SUB XmsRelMem (HYVAL handle)
DECLARE SUB XmsGet1El (SEG Value AS ANY, ElSize, ElNum, handle)
DECLARE SUB XmsSet1El (SEG Value AS ANY, ElSize, ElNum, handle)
DECLARE SUB StuffBuf (M$)
DECLARE SUB Pause (Ticks%)
DECLARE FUNCTION Exist% (FileName$)

REM $DYNAMIC
SUB MinewallLayerWater ()
   ' For each Layer, calculates new values of Top & Bottom Elev, Volume, Area, and % of
each Unit submerged
   ' For cumulative volumes and loadings, last year's final loadings were stored in Row 2
   DIM Volume AS SINGLE, DelVol AS SINGLE, DelElev AS SINGLE, Ratio AS SINGLE,
Ratio2 AS SINGLE
   DIM IJK AS INTEGER, J AS INTEGER, I AS INTEGER, GU AS INTEGER, II AS
INTEGER, III AS INTEGER
   Layer = 1  'only 1 layer allowed during Closure in this version
   ' calculate new cumulative volumes and loadings based on previous year's final values in Row
2
   FOR IJK = 3 TO NumRowsSpr
    IF IJK = 5 THEN
     Msg$ = ""
     FOR I = 3 TO 5
        Msg$ = Msg$ + STR$(CalcArray(I, 2)) + STR$(CalcArray(I, 4))
     NEXT I
    END IF
     ' adjust new cumulative volumes and loadings if necessary
     Volume = CalcArray(IJK, 2)
     IF Volume > = MaxVolume THEN 'Max parameters calculated in MW-SIMUL
representing user-defined maximums
        DelVol = MaxVolume - Volume
        CalcArray(IJK, 2) = MaxVolume
        Ratio2 = MaxVolume / Volume
        FOR J = 3 TO NumColsSpr
           CalcArray(IJK, J) = CalcArray(IJK, J) * Ratio2
        NEXT J
        WaterData(IJK, Layer, 3) = MaxVolume
        WaterData(IJK, Layer, 1) = MaxElev
        WaterData(IJK, Layer, 4) = MaxArea
        FOR II = PitPoints(3) + 2 TO PitPoints(4) + 2
           III = II
           IF MaxElev > VAL(PitDims(III, 2)) THEN EXIT FOR
        NEXT II
        Ratio = (MaxElev - VAL(PitDims(III, 2)) / (VAL(PitDims(III - 1, 2)) -
VAL(PitDims(III, 2))))
     ELSE
        IF Volume < 0! THEN Volume = 0!
        WaterData(IJK, Layer, 3) = Volume
        FOR II = PitPoints(3) + 2 TO PitPoints(4) + 2
           III = II
           IF Volume > VAL(PitDims(III, 3)) THEN EXIT FOR
        NEXT II
        DelVol = Volume - VAL(PitDims(III, 3))
        Ratio = DelVol / (VAL(PitDims(III - 1, 3)) - VAL(PitDims(III, 3)))
        WaterData(IJK, Layer, 1) = VAL(PitDims(III, 2)) + Ratio * (VAL(PitDims(III - 1,
2)) - VAL(PitDims(III, 2)))
        WaterData(IJK, Layer, 4) = VAL(PitDims(III, 4)) + Ratio * (VAL(PitDims(III - 1,
4)) - VAL(PitDims(III, 4)))
     END IF
     FOR GU = 5 TO CCL(12) + 4
        WaterData(IJK, Layer, GU) = VAL(PitDims(III, GU)) + Ratio * (VAL(PitDims(III -
1, GU)) - VAL(PitDims(III, GU)))
     NEXT GU
   NEXT IJK

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-LYR1.FRM FORM MODULE
' RETRIEVES GEOCHEMICAL CONTROLS ON
'    LAYERS' CONCENTRATIONS
' ************************************

'$INCLUDE: 'MW-COMDF.BI'

REM $DYNAMIC

Version 1.00
BEGIN Form LayerForm1
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Geochemical Controls on Layers"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(23)
        Left         = Char(2)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(1)
        Visible      = -1
        Width        = Char(76)
        WindowState  = 0
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "LAYER:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(1)
                MousePointer = 0
                TabIndex     = 16
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(7)
        END
        BEGIN Label Label2
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "PARAMETER:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(50)
                MousePointer = 0
                TabIndex     = 17
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(10)
        END
        BEGIN Label lblLayer1Number
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "1"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(8)
                MousePointer = 0
                TabIndex     = 18
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(37)
        END
        BEGIN Label lblLayer1Param
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "pH"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(61)
                MousePointer = 0
                TabIndex     = 19
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(13)
        END
        BEGIN CommandButton cmdLayer1Help
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Help"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(47)
                MousePointer = 0
                TabIndex     = 1
                TabStop      = -1
                Tag          = ""
                Top          = Char(18)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN TextBox txtLayer1Power2
                BackColor    = QBColor(7)
                BorderStyle  = 1
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(66)
                MousePointer = 0
                MultiLine    = 0
                ScrollBars   = 0
                TabIndex     = 12
                TabStop      = -1
                Tag          = ""
                Text         = "power2"
                Top          = Char(12)
                Visible      = -1
                Width        = Char(8)
        END
        BEGIN ComboBox cboLayer1Param2
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(56)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 11
                TabStop      = -1
                Tag          = ""
                Top          = Char(13)
                Visible      = -1
                Width        = Char(10)
        END
        BEGIN TextBox txtLayer1Rate2
                BackColor    = QBColor(7)
                BorderStyle  = 1
```

```
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(47)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 10
        TabStop     = -1
        Tag         = ""
        Text        = "rate2"
        Top         = Char(12)
        Visible     = -1
        Width       = Char(9)
END
BEGIN OptionButton optLayer1Kin
        BackColor   = QBColor(7)
        Caption     = "&Kinetic"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 6
        TabStop     = 0
        Tag         = ""
        Top         = Char(12)
        Value       = 0
        Visible     = -1
        Width       = Char(11)
END
BEGIN TextBox txtLayer1Power1
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(38)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 9
        TabStop     = -1
        Tag         = ""
        Text        = "power1"
        Top         = Char(12)
        Visible     = -1
        Width       = Char(8)
END
BEGIN ComboBox cboLayer1Param1
        BackColor   = QBColor(7)
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(28)
        MousePointer = 0
        Sorted      = 0
        Style       = 2
        TabIndex    = 8
        TabStop     = -1
        Tag         = ""
        Top         = Char(13)
        Visible     = -1
        Width       = Char(10)
END
BEGIN TextBox txtLayer1Rate1
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(18)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 7
        TabStop     = -1
        Tag         = ""
        Text        = "rate1"
        Top         = Char(12)
        Visible     = -1
        Width       = Char(10)
END
BEGIN Label lblLayer1EmpConc
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "LOG10(mg/L)="
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(16)
        MousePointer = 0
        TabIndex    = 24
        Tag         = ""
        Top         = Char(16)
        Visible     = -1
        Width       = Char(12)
END
BEGIN CommandButton cmdLayer1OK
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "&OK"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(18)
        MousePointer = 0
        TabIndex    = 0
        TabStop     = -1
        Tag         = ""
        Top         = Char(18)
        Visible     = -1
        Width       = Char(12)
END
BEGIN Label lblLayer1Set
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Conc (mg/L) ="
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(20)
        MousePointer = 0
        TabIndex    = 22
        Tag         = ""
        Top         = Char(7)
        Visible     = -1
        Width       = Char(14)
END
BEGIN TextBox txtLayer1Set
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(34)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 5
        TabStop     = -1
        Tag         = ""
        Text        = "mg/L"
        Top         = Char(6)
        Visible     = -1
        Width       = Char(12)
END
```

```
BEGIN Label lblLayer1Kind
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "d="
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(15)
        MousePointer = 0
        TabIndex    = 23
        Tag         = ""
        Top         = Char(13)
        Visible     = -1
        Width       = Char(2)
END
BEGIN TextBox txtLayer1Offset
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(53)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 15
        TabStop     = -1
        Tag         = ""
        Text        = "offset"
        Top         = Char(15)
        Visible     = -1
        Width       = Char(11)
END
BEGIN OptionButton optLayer1Emp
        BackColor   = QBColor(7)
        Caption     = "Em&pirical"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 13
        TabStop     = 0
        Tag         = ""
        Top         = Char(15)
        Value       = 0
        Visible     = -1
        Width       = Char(13)
END
BEGIN Label lblLayer1KinPlus
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "+"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(46)
        MousePointer = 0
        TabIndex    = 20
        Tag         = ""
        Top         = Char(13)
        Visible     = -1
        Width       = Char(1)
END
BEGIN Label lblLayer1EmpParam
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "*pH +"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(40)
        MousePointer = 0
        TabIndex    = 21
        Tag         = ""
        Top         = Char(16)
        Visible     = -1
        Width       = Char(13)
END
BEGIN TextBox txtLayer1Slope
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(28)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 14
        TabStop     = -1
        Tag         = ""
        Text        = "slope"
        Top         = Char(15)
        Visible     = -1
        Width       = Char(12)
END
BEGIN OptionButton optLayer1Set
        BackColor   = QBColor(7)
        Caption     = "&Set Value"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 4
        TabStop     = 0
        Tag         = ""
        Top         = Char(6)
        Value       = 0
        Visible     = -1
        Width       = Char(17)
END
BEGIN OptionButton optLayer1Equil
        BackColor   = QBColor(7)
        Caption     = "&Equilibrium (not available in this version)"
        DragMode    = 0
        Enabled     = 0
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 3
        TabStop     = 0
        Tag         = ""
        Top         = Char(9)
        Value       = 0
        Visible     = -1
        Width       = Char(48)
END
BEGIN OptionButton optLayer1Mass
        BackColor   = QBColor(7)
        Caption     = "&Mass balance"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 2
        TabStop     = -1
        Tag         = ""
        Top         = Char(3)
        Value       = -1
        Visible     = -1
        Width       = Char(16)
END
```

```
END

SUB cmdLayer1Help_Click ()
   IF HelpLoaded = -1 THEN
      CALL HelpShowTopic("Pit - Physical/Geochemical Layout")
   END IF
END SUB

SUB cmdLayer1OK_Click ()
   Layerform1.HIDE
END SUB

SUB Form_Load ()
   FOR I = 1 TO UBOUND(GeochemParam)
      A$ = MID$(GeochemParam(I), 1, 3) + "(M)"
      cboLayer1Param1.ADDITEM A$
   NEXT
   lblLayer1Kind.Caption = CHR$(127) + CHR$(61)
   txtLayer1Rate2.Enabled = False
   cboLayer1Param2.Enabled = False
   txtLayer1Power2.Enabled = False
   lblLayer1KinPlus.Enabled = False

END SUB

SUB optLayer1Emp_Click ()
   lblLayer1Set.Visible = False
   txtLayer1Set.Visible = False
   txtLayer1Rate1.Visible = False
   cboLayer1Param1.Visible = False
   txtLayer1Power1.Visible = False
   txtLayer1Rate2.Visible = False
   cboLayer1Param2.Visible = False
   txtLayer1Power2.Visible = False
   lblLayer1Kind.Visible = False
   lblLayer1KinPlus.Visible = False
   txtLayer1Slope.Visible = True
   lblLayer1EmpParam.Visible = True
   txtLayer1Offset.Visible = True
   lblLayer1EmpConc.Visible = True

END SUB

SUB optLayer1Equil_Click ()

END SUB

SUB optLayer1Kin_Click ()
   lblLayer1Set.Visible = False
   txtLayer1Set.Visible = False
   txtLayer1Rate1.Visible = True
   cboLayer1Param1.Visible = True
   txtLayer1Power1.Visible = True
   txtLayer1Rate2.Visible = True
   cboLayer1Param2.Visible = True
   txtLayer1Power2.Visible = True
   lblLayer1Kind.Visible = True
   lblLayer1KinPlus.Visible = True
   txtLayer1Slope.Visible = False
   lblLayer1EmpParam.Visible = False
   txtLayer1Offset.Visible = False
   lblLayer1EmpConc.Visible = False

END SUB

SUB optLayer1Mass_Click ()
   lblLayer1Set.Visible = False
   txtLayer1Set.Visible = False
   txtLayer1Rate1.Visible = False
   cboLayer1Param1.Visible = False
   txtLayer1Power1.Visible = False
   txtLayer1Rate2.Visible = False
   cboLayer1Param2.Visible = False
   txtLayer1Power2.Visible = False
   lblLayer1Kind.Visible = False
   lblLayer1KinPlus.Visible = False
   txtLayer1Slope.Visible = False
   lblLayer1EmpParam.Visible = False
   txtLayer1Offset.Visible = False
   lblLayer1EmpConc.Visible = False

END SUB

SUB optLayer1Set_Click ()
   lblLayer1Set.Visible = True
   txtLayer1Set.Visible = True
   txtLayer1Rate1.Visible = False
   cboLayer1Param1.Visible = False
   txtLayer1Power1.Visible = False
   txtLayer1Rate2.Visible = False
   cboLayer1Param2.Visible = False
   txtLayer1Power2.Visible = False
   lblLayer1Kind.Visible = False
   lblLayer1KinPlus.Visible = False
   txtLayer1Slope.Visible = False
   lblLayer1EmpParam.Visible = False
   txtLayer1Offset.Visible = False
   lblLayer1EmpConc.Visible = False

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-LYR2.FRM FORM MODULE
' RETRIEVES NAMES OF LAYERS
' ************************************

'$INCLUDE: 'MW-COMDF.BI'


Version 1.00
BEGIN Form LayerForm2
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Names of Layers"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(22)
        Left         = Char(1)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(77)
        WindowState  = 0
        BEGIN TextBox txtLayer2Text
                BackColor    = QBColor(7)
                BorderStyle  = 1
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Index        = 1
                Left         = Char(12)
                MousePointer = 0
                MultiLine    = 0
                ScrollBars   = 0
                TabIndex     = 1
                TabStop      = -1
                Tag          = ""
                Text         = "Layer 2"
                Top          = Char(4)
                Visible      = -1
                Width        = Char(17)
        END
        BEGIN TextBox txtLayer2Text
                BackColor    = QBColor(7)
                BorderStyle  = 1
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Index        = 2
                Left         = Char(12)
                MousePointer = 0
```

```
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 2
        TabStop     = -1
        Tag         = ""
        Text        = "Layer 3"
        Top         = Char(7)
        Visible     = -1
        Width       = Char(17)
END
BEGIN TextBox txtLayer2Text
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Index       = 3
        Left        = Char(12)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 3
        TabStop     = -1
        Tag         = ""
        Text        = "Layer 4"
        Top         = Char(10)
        Visible     = -1
        Width       = Char(17)
END
BEGIN TextBox txtLayer2Text
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Index       = 4
        Left        = Char(12)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 4
        TabStop     = -1
        Tag         = ""
        Text        = "Layer 5"
        Top         = Char(13)
        Visible     = -1
        Width       = Char(17)
END
BEGIN TextBox txtLayer2Text
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Index       = 5
        Left        = Char(55)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 5
        TabStop     = -1
        Tag         = ""
        Text        = "Layer 6"
        Top         = Char(1)
        Visible     = -1
        Width       = Char(17)
END
BEGIN TextBox txtLayer2Text
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Index       = 6
        Left        = Char(55)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 6
        TabStop     = -1
        Tag         = ""
        Text        = "Layer 7"
        Top         = Char(4)
        Visible     = -1
        Width       = Char(17)
END
BEGIN TextBox txtLayer2Text
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Index       = 7
        Left        = Char(55)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 7
        TabStop     = -1
        Tag         = ""
        Text        = "Layer 8"
        Top         = Char(7)
        Visible     = -1
        Width       = Char(17)
END
BEGIN TextBox txtLayer2Text
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Index       = 8
        Left        = Char(55)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 8
        TabStop     = -1
        Tag         = ""
        Text        = "Layer 9"
        Top         = Char(10)
        Visible     = -1
        Width       = Char(17)
END
BEGIN TextBox txtLayer2Text
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Index       = 9
        Left        = Char(55)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 9
        TabStop     = -1
        Tag         = ""
        Text        = "Layer 10"
        Top         = Char(13)
        Visible     = -1
        Width       = Char(17)
END
BEGIN TextBox txtLayer2Text
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Index       = 0
        Left        = Char(12)
        MousePointer = 0
```

```
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 0
        TabStop     = -1
        Tag         = ""
        Text        = "Bottom Layer"
        Top         = Char(1)
        Visible     = -1
        Width       = Char(17)
END
BEGIN Label lblLayer2Label
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Layer &1:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Index       = 0
        Left        = Char(3)
        MousePointer = 0
        TabIndex    = 12
        Tag         = ""
        Top         = Char(2)
        Visible     = -1
        Width       = Char(9)
END
BEGIN Label lblLayer2Label
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Layer &2:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Index       = 1
        Left        = Char(3)
        MousePointer = 0
        TabIndex    = 13
        Tag         = ""
        Top         = Char(5)
        Visible     = -1
        Width       = Char(9)
END
BEGIN Label lblLayer2Label
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Layer &3:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Index       = 2
        Left        = Char(3)
        MousePointer = 0
        TabIndex    = 14
        Tag         = ""
        Top         = Char(8)
        Visible     = -1
        Width       = Char(9)
END
BEGIN Label lblLayer2Label
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Layer &4:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Index       = 3
        Left        = Char(3)
        MousePointer = 0
        TabIndex    = 15
        Tag         = ""
        Top         = Char(11)
        Visible     = -1
        Width       = Char(9)
END
BEGIN Label lblLayer2Label
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Layer &5:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Index       = 4
        Left        = Char(3)
        MousePointer = 0
        TabIndex    = 16
        Tag         = ""
        Top         = Char(14)
        Visible     = -1
        Width       = Char(9)
END
BEGIN Label lblLayer2Label
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Layer &6:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Index       = 5
        Left        = Char(45)
        MousePointer = 0
        TabIndex    = 17
        Tag         = ""
        Top         = Char(2)
        Visible     = -1
        Width       = Char(9)
END
BEGIN Label lblLayer2Label
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Layer &7:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Index       = 6
        Left        = Char(45)
        MousePointer = 0
        TabIndex    = 18
        Tag         = ""
        Top         = Char(5)
        Visible     = -1
        Width       = Char(9)
END
BEGIN Label lblLayer2Label
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Layer &8:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Index       = 7
        Left        = Char(45)
        MousePointer = 0
        TabIndex    = 19
        Tag         = ""
        Top         = Char(8)
        Visible     = -1
```

```
            Width      = Char(9)
      END
      BEGIN Label lblLayer2Label
            Alignment  = 0
            AutoSize   = 0
            BackColor  = QBColor(7)
            BorderStyle = 0
            Caption    = "Layer &9:"
            DragMode   = 0
            Enabled    = -1
            ForeColor  = QBColor(0)
            Height     = Char(1)
            Index      = 8
            Left       = Char(45)
            MousePointer = 0
            TabIndex   = 20
            Tag        = ""
            Top        = Char(11)
            Visible    = -1
            Width      = Char(9)
      END
      BEGIN Label lblLayer2Label
            Alignment  = 0
            AutoSize   = 0
            BackColor  = QBColor(7)
            BorderStyle = 0
            Caption    = "Layer 1&0:"
            DragMode   = 0
            Enabled    = -1
            ForeColor  = QBColor(0)
            Height     = Char(1)
            Index      = 9
            Left       = Char(45)
            MousePointer = 0
            TabIndex   = 21
            Tag        = ""
            Top        = Char(14)
            Visible    = -1
            Width      = Char(10)
      END
      BEGIN CommandButton cmdLayer2OK
            BackColor  = QBColor(7)
            Cancel     = 0
            Caption    = "&OK"
            Default    = 0
            DragMode   = 0
            Enabled    = -1
            Height     = Char(3)
            Left       = Char(19)
            MousePointer = 0
            TabIndex   = 10
            TabStop    = -1
            Tag        = ""
            Top        = Char(17)
            Visible    = -1
            Width      = Char(12)
      END
      BEGIN CommandButton cmdLayer2Help
            BackColor  = QBColor(7)
            Cancel     = 0
            Caption    = "&Help"
            Default    = 0
            DragMode   = 0
            Enabled    = -1
            Height     = Char(3)
            Left       = Char(43)
            MousePointer = 0
            TabIndex   = 11
            TabStop    = -1
            Tag        = ""
            Top        = Char(17)
            Visible    = -1
            Width      = Char(12)
      END
END

REM $DYNAMIC
SUB cmdLayer2Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Pit - Physical/Geochemical Layout")
  END IF

END SUB

SUB cmdLayer2OK_Click ()
  FOR I = 1 TO CCL(10)
    LayerName(I) = txtLayer2Text(I - 1).Text
  NEXT
  LayerForm2.HIDE
END SUB

SUB Form_Load ()
  FOR I = 1 TO CCL(10)
    lblLayer2Label(I - 1).Enabled = True
    txtLayer2Text(I - 1).Enabled = True
    txtLayer2Text(I - 1).Text = LayerName(I)
  NEXT
  FOR I = CCL(10) + 1 TO 10
    lblLayer2Label(I - 1).Enabled = False
    txtLayer2Text(I - 1).Enabled = False
  NEXT
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-LYUT.BAS CODE MODULE
' INPUT/EDIT OF LAYER CHEMICAL CONTROLS
' ************************************

'$INCLUDE: 'MW-COMDF.BI'

'$FORM Form4
'$FORM Unit1
'$FORM LayerForm1
'$FORM LayerForm2

DECLARE SUB MinewallLayerChem ()
DECLARE SUB RunSpr (NumRows%, NumCols%, ArrayName() AS STRING * 16)

DECLARE SUB MinewallXMS ()
DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB XmsRelMem (BYVAL Handle)

REM $DYNAMIC
SUB MinewallLayerChem ()
  ' routine to enter/edit the Water-Layer layout and geochemical controls
  '  during Operation and Closure
  HlpName = "Physical/Geochemical Layout"
  NumReps = 2
  IF CCL(3) = 0 OR CCL(3) = 2 THEN NumReps = 1
  IF CCL(5) = 0 THEN
    A$ = "Day"
  ELSEIF CCL(5) = 1 THEN
    A$ = "Week"
  ELSE
    A$ = "Month"
  END IF
  CCL(0) = 10
  OldCCL = CCL(CCL(0))
  ' if Layers previously chosen, keep them or start new?
  IF CCL(CCL(0)) > 0 THEN
    CCL(0) = 10
    Form4.SHOW 1
    IF CCL(10) < 0 THEN
      EXIT SUB
    ELSEIF CCL(10) > 0 THEN
      CCL(10) = OldCCL
    END IF
  END IF
  UNLOAD Form4
  CCL(0) = 10
  IF CCL(10) < 1 THEN ' If no Layers yet chosen
    OldData = 0
  ELSE
    OldData = 1
  END IF
  IF CCL(3) > 0 THEN
    LOAD Unit1
```

```
    cmdUnit1Cancel.Visible = False
    Unit1.Caption = "Mine Layers During Closure - Number"
    Unit1.Label1.Caption = "Only 1 layer is allowed in this version"
    Unit1.SHOW 1
    ' Get number of Layers
    IF CCL(10) < 1 THEN EXIT SUB
    ' Allow only 1 layer in this version
    CCL(10) = 1
END IF
UNLOAD Unit1
NumRows = 17
' Allow only 1 layer in this version
CCL(10) = 1
NumCols = CCL(10) + 1
REDIM PRESERVE LayerName(NumCols - 1) AS STRING * 16
LayerForm2.SHOW 1
UNLOAD LayerForm2
REDIM PRESERVE XmsLayerName(NumCols - 1) AS INTEGER
REDIM PRESERVE LayerData(NumRows, NumCols - 1) AS SINGLE
DIM TempArray(NumRows, NumCols) AS STRING * 16
TempArray(2, 1) = "LAYER NUMBER:"
TempArray(3, 1) = "LAYER NAME:"
TempArray(4, 1) = "FLOWS:..."
TempArray(5, 1) = " -Precip (%)"
TempArray(6, 1) = " -Evap (%)"
TempArray(7, 1) = " -Runoff (%)"
TempArray(8, 1) = " -Sat Flow (%)"
TempArray(9, 1) = " -Pump#1 (%)"
TempArray(10, 1) = " -Pump#2 (%)"
' TempArray(11, 1) = "Turnover?"  : Disabled in this version
TempArray(11, 1) = ""
TempArray(12, 1) = "CHEM:coming up"
TempArray(13, 1) = " -Mass Balance"
TempArray(14, 1) = " -Set Value"
TempArray(15, 1) = " -Equilibrium"
TempArray(16, 1) = " -Kinetic"
TempArray(17, 1) = " -Empirical"
FOR M = 1 TO NumReps
  IF CCL(3) < 2 THEN
    IF M = 1 THEN ' Operation
      TimeRound = 1
    ELSE ' Closure
      TimeRound = 2
    END IF
  ELSE ' Closure
    TimeRound = 2
  END IF
  IF TimeRound = 1 THEN ' Operation for Mine Bottom only
    TempArray(1, 1) = "* MINE BOTTOM"
    TempArray(1, 2) = "* OPERATION"
    TempArray(2, 2) = STR$(1)
    TempArray(3, 2) = "Mine Bottom"
    FOR I = 5 TO 10
      TempArray(I, 2) = "100"
    NEXT
    FOR I = 11 TO NumRows
      IF OldData = 1 THEN
        IF LayerData(I, 0) = 1 THEN TempArray(I, 2) = "1"
      ELSE
        TempArray(I, 2) = ""
      END IF
    NEXT

  ELSE ' Closure
    TempArray(1, 1) = "* MINE LAYERS"
    TempArray(1, 2) = "* CLOSURE"
    FOR J = 1 TO CCL(10)
      TempArray(2, J + 1) = STR$(J)
    NEXT
    FOR I = 3 TO NumRows
      FOR J = 2 TO NumCols
        TempArray(I, J) = ""
      NEXT
    NEXT
    FOR J = 2 TO NumCols
      TempArray(3, J) = LayerName(J - 1)
    NEXT
    FOR I = 4 TO NumRows
      FOR J = 2 TO NumCols
        IF OldData = 1 THEN
          IF I < 11 THEN
            TempArray(I, J) = STR$(LayerData(I, J - 1))
          ELSE
            IF LayerData(I, J - 1) = 1 THEN TempArray(I, J) = "1"
          END IF
        ELSE
          TempArray(I, J) = ""
          IF I > 4 AND I < 11 THEN TempArray(I, J) = "100"
        END IF
      NEXT
    NEXT
  END IF
  ' ***** call spreadsheet
  CALL RunSpr(NumRows, NumCols, TempArray())
  ' *****
  IF TimeRound = 1 THEN  'Operation
    LayerName(0) = "Mine Bottom"
    FOR I = 5 TO 10
      LayerData(I, 0) = 100!
    NEXT
    FOR I = 11 TO NumRows
      IF VAL(TempArray(I, 2)) < 1 THEN
        LayerData(I, 0) = 0
      ELSE
        LayerData(I, 0) = 1
      END IF
    NEXT
  ELSE  ' Closure
    FOR I = 5 TO NumRows
      FOR J = 2 TO NumCols
        IF I < 11 THEN
          LayerData(I, J - 1) = VAL(TempArray(I, J))
        ELSE
          IF VAL(TempArray(I, J)) < 1 THEN
            LayerData(I, J - 1) = 0
          ELSE
            LayerData(I, J - 1) = 1
          END IF
        END IF
      NEXT
    NEXT
  END IF
NEXT M
ERASE TempArray
' now get turnover data if Closure and if any Layers turnover
' ** Disabled in this version due to restriction to 1 layer

' now get geochemical-control information
LayerElSize = 4
NumRows = CCL(4) * 5
LayerNumEls = NumRows + 1
DIM LayerChem(NumRows) AS SINGLE
FOR M = 1 TO NumReps
  IF CCL(3) < 2 THEN
    IF M = 1 THEN ' Operation
      TimeRound = 1
    ELSE ' Closure
      TimeRound = 2
    END IF
  ELSE ' Closure
    TimeRound = 2
  END IF
  LayerForm1.HIDE
  NumLayers = CCL(10)
  IF TimeRound = 1 THEN NumLayers = 1
  FOR Lay = 1 TO NumLayers
   FOR J = 0 TO NumRows
     LayerChem(J) = 0!
   NEXT
   Layer = Lay
   IF TimeRound = 1 THEN Layer = 0
   IF Layer = 0 THEN
    MSG$ = "Prepare to enter chemical relationships for the Mine Sump(s) during
Operation."
   ELSE
    MSG$ = "Prepare to enter chemical relationships during Closure for Layer " +
STR$(Layer) + ": " + LayerName(Layer)
   END IF
   MSGBOX MSG$
   OldData2 = 0
```

```
    IF OldData = 1 THEN
      IF XmsLayerName(Layer) < > 0 THEN
        OldData2 = OldData
        CALL Xms2Array(SEG LayerChem(0), LayerElSize, LayerNumEls,
XmsLayerName(Layer))
        CALL XmsRelMem(XmsLayerName(Layer))
      ELSE
        OldData2 = 0
      END IF
    END IF
    FOR Param = 1 TO CCL(4)
      LayerForm1.lblLayer1Number.Caption = STR$(Layer) + " :" + LayerName(Layer)
      LayerForm1.lblLayer1Param.Caption = GeochemParam(Param)
      IF GeochemCount(Param, 1) = 1 THEN
        LayerForm1.lblLayer1EmpParam.Caption = "LG(Ac)+"
        LayerForm1.lblLayer1EmpConc.Caption = "pH  ="
        LayerForm1.lblLayer1Set.Caption = "       pH="
      ELSE
        LayerForm1.lblLayer1EmpParam.Caption = "pH    +"
        LayerForm1.lblLayer1EmpConc.Caption = "LOG10(mg/L)="
        LayerForm1.lblLayer1Set.Caption = "Conc (mg/L) ="
      END IF
      LayerForm1.lblLayer1Set.Visible = False
      LayerForm1.txtLayer1Set.Visible = False
      LayerForm1.txtLayer1Rate1.Visible = False
      LayerForm1.cboLayer1Param1.Visible = False
      LayerForm1.txtLayer1Power1.Visible = False
      LayerForm1.txtLayer1Rate2.Visible = False
      LayerForm1.cboLayer1Param2.Visible = False
      LayerForm1.txtLayer1Power2.Visible = False
      LayerForm1.lblLayer1Kind.Visible = False
      LayerForm1.lblLayer1KinPhs.Visible = False
      LayerForm1.txtLayer1Slope.Visible = False
      LayerForm1.lblLayer1EmpParam.Visible = False
      LayerForm1.txtLayer1Offset.Visible = False
      LayerForm1.lblLayer1EmpConc.Visible = False
      LayerForm1.optLayer1Mass.Value = -1
      LayerForm1.txtLayer1Set.Text = ""
      LayerForm1.txtLayer1Rate1.Text = "rate1"
      LayerForm1.cboLayer1Param1.ListIndex = 0
      LayerForm1.txtLayer1Power1.Text = "power1"
      LayerForm1.txtLayer1Slope.Text = "slope"
      LayerForm1.txtLayer1Offset.Text = "offset"
      LatRow = (Param - 1) * 5 + 1
      LayerForm1.optLayer1Equil.Enabled = False
      IF OldData2 = 1 THEN ' previous data exist
        SELECT CASE INT(LayerChem(LatRow + 1))
        CASE 1
          LayerForm1.optLayer1Mass.Value = -1
        ' CASE 2  Disabled in this version
        '   LayerForm1.optLayer1Equil.Value = -1
        CASE 3
          LayerForm1.optLayer1Set.Value = -1
          LayerForm1.txtLayer1Set.Enabled = True
          LayerForm1.txtLayer1Set.Text = STR$(LayerChem(LatRow + 2))
        CASE 4
          LayerForm1.optLayer1Kin.Value = -1
          LayerForm1.txtLayer1Rate1.Enabled = True
          LayerForm1.txtLayer1Rate1.Text = STR$(LayerChem(LatRow + 2))
          LayerForm1.cboLayer1Param1.Enabled = True
          LayerForm1.cboLayer1Param1.ListIndex = INT(LayerChem(LatRow + 3) - 1)
          LayerForm1.txtLayer1Power1.Enabled = True
          LayerForm1.txtLayer1Power1.Text = STR$(LayerChem(LatRow + 4))
        CASE 5
          LayerForm1.optLayer1Emp.Value = -1
          LayerForm1.txtLayer1Slope.Enabled = True
          LayerForm1.txtLayer1Slope.Text = STR$(LayerChem(LatRow + 2))
          LayerForm1.txtLayer1Offset.Enabled = True
          LayerForm1.txtLayer1Offset.Text = STR$(LayerChem(LatRow + 3))
        END SELECT
      ELSE
        LayerForm1.optLayer1Mass.Value = -1
      END IF
      ' **** call the form
      LayerForm1.SHOW 1
      ' ****
      LayerChem(LatRow) = GeochemCount(Param, 1)
      IF LayerForm1.optLayer1Equil.Value = -1 THEN
        LayerChem(LatRow + 1) = 2
      ELSEIF LayerForm1.optLayer1Set.Value = -1 THEN
        LayerChem(LatRow + 1) = 3
        LayerChem(LatRow + 2) = VAL(LayerForm1.txtLayer1Set.Text)
      ELSEIF LayerForm1.optLayer1Kin.Value = -1 THEN
        LayerChem(LatRow + 1) = 4
        LayerChem(LatRow + 2) = VAL(LayerForm1.txtLayer1Rate1.Text)
        LayerChem(LatRow + 3) = CSNG(LayerForm1.cboLayer1Param1.ListIndex + 1)
        LayerChem(LatRow + 4) = VAL(LayerForm1.txtLayer1Power1.Text)
      ELSEIF LayerForm1.optLayer1Emp.Value = -1 THEN
        LayerChem(LatRow + 1) = 5
        LayerChem(LatRow + 2) = VAL(LayerForm1.txtLayer1Slope.Text)
        LayerChem(LatRow + 3) = VAL(LayerForm1.txtLayer1Offset.Text)
      ELSE
        LayerChem(LatRow + 1) = 1
      END IF
    NEXT Param
    CALL Array2Xms(SEG LayerChem(0), LayerElSize, LayerNumEls,
XmsLayerName(Layer))
    CALL MinewallDOMS
  NEXT Lay
NEXT M
UNLOAD LayerForm1
ERASE LayerChem

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-MOUSE.BAS CODE MODULE
' NON-FORM MOUSE CONTROL USING VBDOS BUILT-IN PROCEDURES
' ************************************


' ---------------------------------------------------------
' Visual Basic for MS-DOS Mouse Toolkit
'
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' any of the sample applications or toolkits.
' ---------------------------------------------------------

DEFINT A-Z

'$INCLUDE: 'VBDOS.BI'

CONST FALSE = 0
CONST TRUE = NOT FALSE

DECLARE SUB MouseBorder (row1%, col1%, row2%, col2%)
DECLARE SUB MouseDriver (m0%, m1%, m2%, m3%)
DECLARE SUB MouseHide ()
DECLARE SUB MouseInit ()
DECLARE SUB MousePoll (row%, col%, lButton%, rButton%)
DECLARE SUB MouseShow ()
DECLARE SUB ScrSettings (aMode AS INTEGER, aWidth AS INTEGER)
DECLARE SUB SetHigh ()

' MouseBorder procedure.
'
' Sets vertical and horizontal boundaries for
' mouse pointer travel.
'
' Parameters:
'   row1, row2 - begining and ending vertical
'                boundaries.
'   col1, col2 - beginning and ending horizontal
'                boundaries.
'
' Row and column coordinates are determined by
' current screen mode and width -- returned by
' the ScrSettings procedure.
'
STATIC SUB MouseBorder (row1, col1, row2, col2)
```

```
        ScrSettings sMode, sWidth       ' Get current screen mode
                                                ' to determine coordinate settings.
        SELECT CASE sMode
                CASE 0                  ' Text-mode coordinates
                        row1 = row1 - 1 * 8
                        col1 = col1 - 1 * 8
                        row2 = row2 - 1 * 8
                        col2 = col2 - 1 * 8
                CASE 1, 7, 13           ' Graphic mode coordinates
                        col1 = col1 * 2
                        col2 = col2 * 2
                CASE 2, 3, 4, 8, 9, 10, 11, 12
                                                ' No adjustment needed
        END SELECT

        MouseDriver 7, 0, col1, col2
        MouseDriver 8, 0, row1, row2

END SUB

' MouseDriver procedure.
'
' Provides a Basic language interface to
' the mouse routines in MOUSE.COM or MOUSE.SYS.
'
' Parameters:
'   m0    - mouse task to perform:
'           0 - initialize mouse routines.
'           1 - display mouse pointer.
'           2 - hide mouse pointer.
'           3 - poll mouse location and
'               button status.
'           7 - set horizontal boundary for mouse
'               travel.
'           8 - set vertical boundary for mouse
'               travel.
'   m1, m2, - these vary for different mouse tasks.
'   and m3    See MouseInit, MouseShow, MouseHide,
'           MouseShow, MousePoll, and MouseBorder
'           procedures for valid settings.
'
' The Mouse Toolkit provides access to the mouse routines
' listed above. For information on other mouse routines
' and other valid settings for m0, m1, m2, and m3, see
' the "Microsoft Mouse Programmer's Guide" (Microsoft
' Press).
'
STATIC SUB MouseDriver (m0, m1, m2, m3)

        DIM regs AS RegType

        IF MouseChecked = FALSE THEN
                DEF SEG = 0

                MouseSegment& = 256& * PEEK(207) + PEEK(206)
                MouseOffset& = 256& * PEEK(205) + PEEK(204)

                DEF SEG = MouseSegment&

                IF (MouseSegment& = 0 AND MouseOffset& = 0) OR
PEEK(MouseOffset&) = 207 THEN
                        MousePresent = FALSE
                        MouseChecked = TRUE
                        DEF SEG
                END IF
        END IF

        IF MousePresent = FALSE AND MouseChecked = TRUE THEN
                EXIT SUB
        END IF

        ' Calls interrupt 51 to invoke mouse functions in the MS Mouse Driver.

        regs.ax = m0
        regs.bx = m1
        regs.cx = m2
        regs.dx = m3

        INTERRUPT 51, regs, regs

        m0 = regs.ax
        m1 = regs.bx
        m2 = regs.cx
        m3 = regs.dx

        IF MouseChecked THEN EXIT SUB

        ' Check for successful mouse initialization

        IF m0 AND NOT MouseChecked THEN
                MousePresent = TRUE
                DEF SEG
        END IF

        MouseChecked = TRUE

END SUB

' MouseHide procedure.
'
' Hides the mouse pointer.
'
SUB MouseHide ()

  MouseDriver 2, 0, 0, 0

END SUB

' MouseInit procedure.
'
' Initializes the mouse driver.
'
SUB MouseInit ()

        MouseDriver MousePresent%, 0, 0, 0

        IF MousePresent% = FALSE THEN
                Action = MSGBOX("Mouse not present or mouse driver not
installed. End program?", 4, "Error")
                IF Action = 6 THEN STOP
        END IF

END SUB

' MousePoll procedure.
'
' Gets the mouse pointer location and button
' status.
'
' Parameters:
'   row     - vertical location of mouse pointer.
'   col     - horizontal location of mouse pointer.
'   lButton - status of left mouse button:
'             0 - not pressed.
'             1 - pressed.
'   rButton - status of right mouse button:
'             0 - not pressed.
'             1 - pressed.
'
' The valid range for row and col are determined
' by the current screen mode and width returned
' by the ScrSettings procedure.
'
STATIC SUB MousePoll (row, col, lButton, rButton)

        MouseDriver 3, button, col, row

        ScrSettings sMode, sWidth   ' Get current screen mode to determine coordinate

                ' settings.
        SELECT CASE sMode
                CASE 0              ' Text-mode coordinates
                        row = row / 8 + 1
                        col = col / 8 + 1
                CASE 1, 7, 13       ' Graphic mode coordinates
                        col = col / 2
                CASE 2, 3, 4, 8, 9, 10, 11, 12
```

```
                ' No adjustment needed.
        END SELECT

        IF button AND 1 THEN
                lButton = TRUE
        ELSE
                lButton = FALSE
        END IF

        IF button AND 2 THEN
                rButton = TRUE
        ELSE
                rButton = FALSE
        END IF

END SUB

' MouseShow procedure.
'
' Displays mouse pointer.
'
SUB MouseShow ()

        MouseDriver 1, 0, 0, 0

END SUB

' ScrSettings procedure.
'
' Gets the current Basic screen mode setting and width.
'
' Parameters:
'   sMode  - the current Basic screen mode. See the
'            SCREEN statement for valid return values
'            (0-13).
'   sWidth - the current width of the display in
'            characters.
'
SUB ScrSettings (sMode AS INTEGER, sWidth AS INTEGER)

        '
'=======================================================
'=======================
        ' Gets current Basic screen mode and width setting.
        '
'=======================================================
'=======================

        DIM regs AS RegType

        regs.ax = &HF00

        INTERRUPT &H10, regs, regs      ' &H10 returns video

                                        ' information.

        sWidth = (regs.ax AND &HFF00) \ 256 ' High byte of AX (AH).
        sMode = regs.ax AND &HFF        ' Low byte of AX (AL).

        SELECT CASE sMode               ' Map MS-DOS video mode
                CASE 3                  '  number to Basic screen
                        sMode = 0       '  modes.
                CASE 4
                        sMode = 1
                CASE 6
                        sMode = 2
                CASE 13
                        sMode = 7
                CASE 14
                        sMode = 8
                CASE 15
                        sMode = 10
                CASE 16
                        sMode = 9
                CASE 17
                        sMode = 11
                CASE 18
                        sMode = 12
                CASE 19
                        sMode = 13
                CASE ELSE
                        sMode = 3
        END SELECT

END SUB

' SetHigh procedure.
'
' Sets the highest-resolution graphics screen mode
' that is available for the current hardware.
'
SUB SetHigh ()

ON LOCAL ERROR RESUME NEXT

' Step through video modes (12-0) until
' one works.

FOR Mode = 12 TO 0 STEP -1
        SCREEN Mode
        IF ERR = 0 THEN EXIT SUB
NEXT Mode

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-OUTOP.BAS CODE MODULE
' OUTPUT CONTROL EXCEPT GRAPHICS AND REPORT
' ************************************

'$INCLUDE: 'MW-COMDF.BI'

DEFINT A-Z
DECLARE SUB MinewallBrowse ()
DECLARE SUB MinewallDatafile ()
DECLARE SUB ValidCheck ()
DECLARE SUB WriteColWidth (Column%, ColWidth%)
DECLARE SUB WriteInteger (Row%, Column%, ColWidth%, Integ%)
DECLARE SUB WriteLabel (Row%, Column%, ColWidth%, MSG$)
DECLARE SUB WriteNumber (Row%, Column%, ColWidth%, Fmt$, Number#)
DECLARE SUB FClose (Handle%)
DECLARE SUB FCreate (FileName$)
DECLARE SUB FOpen (FileName$, Handle%)
DECLARE FUNCTION DOSError% ()
DECLARE FUNCTION ErrorMsg$ (ErrNumber%)
DECLARE FUNCTION Exist% (FileName$)
DECLARE FUNCTION WhichError% ()
DECLARE SUB Pause (Ticks%)
DECLARE SUB FileSave (InputFileName AS STRING, InputPathName AS STRING,
DefaultExt AS STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS
INTEGER, Flags AS INTEGER, Cancel AS INTEGER)
DECLARE SUB XmsRelMem (BYVAL Handle)
DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)

'$FORM BrowseForm1
'$FORM BrowseForm2
'$FORM DataForm1
'$FORM WaitForm

DIM SHARED CellFmt AS STRING * 1      'allows reading one byte
DIM SHARED ColNum() AS INTEGER        'maximum number of columns to write
DIM SHARED FileNum AS INTEGER         'the file number to use
DIM SHARED File0 AS STRING
DIM SHARED File1 AS STRING

REM $DYNAMIC
SUB MinewallBrowse ()
  Form1.HIDE
  DataCols0 = CCL(4) + 2 + (CCL(12) * 2) + 2
  DataRows0 = 20000 \ (DataCols0 * 18)
  DataCols1 = CCL(4) + 2
  DataRows1 = 20000 \ (DataCols1 * 18)
  DIM Zed(DataCols0) AS SINGLE' width of TEMPOP file
  DIM TempLabels(10) AS STRING
  DIM Alf AS STRING, Header AS STRING, Entry AS STRING * 16
  REDIM XYFlag(10) AS SINGLE  ' just used for passing a few values
  CALL ValidCheck
  IF CCL(0) = -1 THEN EXIT SUB
  BrowseForm1.SHOW 1
  UNLOAD BrowseForm1
  IF CCL(0) = -1 THEN EXIT SUB
  Layer = 0
  IF CCL(0) = 40 THEN
    File1 = TempName(XYFlag(2) + 10, 0)
    Layer = XYFlag(2)
  END IF 'otherwise already set under ValidCheck
  Layer$ = " " + LTRIM$(RTRIM$(STR$(Layer)))
  IF Layer < 10 THEN Layer$ = Layer$ + " "
  WaitForm.SHOW 0
  NL$ = CHR$(13) + CHR$(10)
  Header = "|"
  IF XYFlag(1) = 0 THEN  'browse loadings
    OPEN File0 FOR INPUT AS #2
    File$ = File0
    Header = Header + "    Time      |" + " Flow (m^3/int) |"
  ELSE  ' browse concentrations
    OPEN File1 FOR INPUT AS #2
    File$ = File1
    IF CCL(0) = 39 THEN
      Header = Header + "    Time      |" + " Flow (m^3/int) |"
    ELSE
      Header = Header + "    Time      |" + " Vol(m^3)-Lyr" + Layer$ + "|"
    END IF
  END IF
  Rows = DataRows0 - 1
  DCols = DataCols0
  Header = Header + MID$(LTRIM$(GeochemParam(1)), 1, 3) + "            " + "|"
  FOR I = 4 TO DataCols1
    IF XYFlag(1) = 0 THEN  'browse loadings
      Header = Header + MID$(LTRIM$(GeochemParam(I - 2)), 1, 3) + " mg/interval "
+ "|"
    ELSE  'browse concentrations
      Header = Header + MID$(LTRIM$(GeochemParam(I - 2)), 1, 3) + "   mg/L     "
+ "|"
    END IF
  NEXT
  L = 0
  FOR I = DataCols1 + 1 TO DataCols1 + (CCL(12) * 2) STEP 2
    L = L + 1
    SPP$ = " "
    IF L > 9 THEN SPP$ = ""
    Header = Header + LTRIM$(RTRIM$(STR$(L))) + ":" + SPP$ + "S rem. (kg)  |"
    Header = Header + LTRIM$(RTRIM$(STR$(L))) + ":" + SPP$ + "NP rem. (kg) |"
  NEXT
  Header = Header + " Pump #2 (m^3/d)|"
  Header = Header + " Water Level (m)|" + NL$
  SkipStart = 1
  SkipEnd = 0
  StartRow = 1
  EndRow = StartRow + Rows
  BrowseForm2.HIDE
  LoopFlag1 = 0
  LoopFlag2 = 0

  DO  ' LoopFlag1
    FOR I = SkipStart TO SkipEnd
      FOR J = 1 TO DCols
        INPUT #2, Zed(J)
      NEXT
    NEXT
    DO 'LoopFlag2
      Alf = Header
      FOR I = StartRow TO EndRow
        Alf = Alf + "|"
        FOR J = 1 TO DCols - 1
          IF EOF(2) THEN EXIT FOR
          INPUT #2, Zed(J)
          Entry = STR$(Zed(J))
          Alf = Alf + Entry + "|"
        NEXT
        IF EOF(2) THEN
          Alf = Alf + NL$
          EXIT FOR
        ELSE
          INPUT #2, Zed(DCols)
          Entry = STR$(Zed(DCols))
          Alf = Alf + Entry + "|" + NL$
        END IF
      NEXT
      BrowseForm2.txtBrowse2Text1.Text = Alf
      BrowseForm2.SHOW 1
      IF XYFlag(2) = 1 THEN ' next page
        StartRow = EndRow
        EndRow = EndRow + Rows - 1
      ELSEIF XYFlag(2) = 2 THEN  ' previous page
        CLOSE #2
        OPEN File$ FOR INPUT AS #2
        SkipStart = 1
        SkipEnd = StartRow - Rows - 1
        StartRow = SkipEnd
        IF StartRow < 1 THEN StartRow = 1
        EndRow = StartRow + Rows - 1
        LoopFlag2 = 1
      ELSE  ' quit
        LoopFlag1 = 1
        LoopFlag2 = 1
        CLOSE #2
      END IF
    LOOP WHILE LoopFlag2 = 0
  LOOP WHILE LoopFlag1 = 0

  UNLOAD BrowseForm2
  UNLOAD WaitForm
```

```
    CLOSE #2

END SUB

SUB MinewallDatafile ()
    REDIM ColNum(80) AS INTEGER
    DataCols0 = CCL(4) + 2 + (CCL(12) * 2) + 2
    DataCols1 = CCL(4) + 2
    DIM Zed(DataCols0) AS SINGLE' width of TEMPOP file
    DIM TempLabels(10) AS STRING, TimeConvert AS SINGLE, TimeRemain AS SINGLE
    DIM Header AS STRING, Entry AS STRING * 16, Delimit AS STRING
    REDIM XYFlag(10) AS SINGLE ' just used for passing a few values
    CALL ValidCheck
    IF CCL(0) = -1 THEN EXIT SUB
    BrowseForm1.HIDE
    BrowseForm1.Caption = "Select the Data to File"
    BrowseForm1.SHOW 1 'XYFlag(1) is (1) loadings or (2) concs and XYFlag(2) is Layer #
    UNLOAD BrowseForm1
    Layer = 0
    IF CCL(0) = 40 THEN
      File1 = TempName(XYFlag(2) + 10, 0)
      Layer = XYFlag(2)
    END IF 'otherwise already set under ValidCheck
    Layer$ = LTRIM$(RTRIM$(STR$(Layer)))

    DataForm1.SHOW 1 'XYFlag(3) is (1) comma-delimited or (2) space-delimited, or (3) Lotus
123
    IF CCL(0) = -1 THEN EXIT SUB
    NL$ = CHR$(13) + CHR$(10)
    DataExtension$ = "*.DAT"
    IF XYFlag(3) = 3 THEN DataExtension$ = "*.WKS"
    Loctn = INSTR(1, InputFileName$, ".")
    IF Loctn > 0 THEN
      Ex$ = "DAT"
      IF XYFlag(3) = 3 THEN Ex$ = "WKS"
      TDN$ = LTRIM$(RTRIM$(MID$(InputFileName$, 1, Loctn)))
      TDN$ = TDN$ + LTRIM$(RTRIM$(Ex$))
      InputDataName$ = TDN$
    ELSE
      InputDataName$ = ""
    END IF
    CALL FileSave(InputDataName$, InputPathName$, DataExtension$, "Create a Data File with
Output Results", 0, 7, 0, Cancel%)
    IF Cancel% = -1 THEN EXIT SUB
    InputDataName$ = InputPathName$ + "\" + InputDataName$
    IF Exist%(InputDataName$) = 0 THEN
      CALL FCreate(InputDataName$)
    END IF
    CALL FOpen(InputDataName$, Handle%)
    IF DOSError% THEN
      BEEP
      MSG$ = ErrorMsg$(WhichError%)
      MSGBOX MSG$
      EXIT SUB
    END IF
    CALL FClose(Handle%)
    IF CCL(5) = 0 THEN
      AABB$ = "DAY"
      TimeConvert = .00274 '=0.002732 for leap year
    ELSEIF CCL(5) = 1 THEN
      AABB$ = "WEEK"
      TimeConvert = .01923
    ELSE
      AABB$ = "MONTH"
      TimeConvert = .0833333
    END IF
    ' for comma or space:
    Q$ = CHR$(34)
    Delimit = " "
    IF XYFlag(3) = 1 THEN Delimit = ","
    IF XYFlag(3) = 1 OR XYFlag(3) = 2 THEN ' comma- or space-delimited file
      OPEN InputDataName$ FOR OUTPUT AS #1
      Header = ""
      IF XYFlag(1) = 0 THEN 'export loadings
        OPEN File0 FOR INPUT AS #2
        File$ = File0
        Header = Header + Q$ + "YEAR" + Q$ + Delimit + Q$ + AABB$ + Q$ +
Delimit + Q$ + "Flow (m^3/int)" + Q$ + Delimit
        FOR I = 3 TO DataCols1
          Header = Header + Q$ + MID$(LTRIM$(RTRIM$(GeochemParam$(I - 2))), 1, 3)
+ "(mg/int)" + Q$ + Delimit
        NEXT
      ELSE ' export concentrations
        OPEN File1 FOR INPUT AS #2
        File$ = File1
        IF CCL(0) = 39 THEN
          Header = Header + Q$ + "YEAR" + Q$ + Delimit + Q$ + AABB$ + Q$ +
Delimit + Q$ + "Flow (m^3/int)" + Q$ + Delimit
        ELSE
          Header = Header + Q$ + "YEAR" + Q$ + Delimit + Q$ + AABB$ + Q$ +
Delimit + Q$ + "Vol(m^3)-Lyr" + Layer$ + Q$ + Delimit
        END IF
        Header = Header + Q$ + MID$(LTRIM$(RTRIM$(GeochemParam$(I))), 1, 3) + "
(mg/L) " + Q$ + Delimit
        FOR I = 4 TO DataCols1
          Header = Header + Q$ + MID$(LTRIM$(RTRIM$(GeochemParam$(I - 2))), 1, 3)
+ " (mg/L) " + Q$ + Delimit
        NEXT
      END IF
      'File$ = File0
      Rows = DataRows0 - 1
      DCols = DataCols0
      L = 0
      FOR I = DataCols1 + 1 TO DataCols1 + (CCL(12) * 2) STEP 2
        L = L + 1
        SPP$ = " "
        IF L > 9 THEN SPP$ = ""
        Header = Header + Q$ + LTRIM$(RTRIM$(STR$(L))) + ":" + SPP$ + "S rem.
(kg)" + Q$ + Delimit
        Header = Header + Q$ + LTRIM$(RTRIM$(STR$(L))) + ":" + SPP$ + "NP rem.
(kg)" + Q$ + Delimit
      NEXT
      Header = Header + Q$ + "Pump #2 (m^3/d)" + Q$
      Header = Header + Q$ + "Water Level (m)" + Q$
      PRINT #1, Header
      Row = 0
      S = 0
      IF CCL(0) = 40 THEN S = 6
      LastYear = SimTime_Array(S + 3)
      DO WHILE NOT EOF(2)
        Row = Row + 1
        J = 1
        INPUT #2, Zed(J)
        ThisYear = INT(Zed(J))
        TimeRemain = Zed(J) - CSNG(ThisYear)
        PRINT #1, ThisYear;
        IF XYFlag(3) = 1 THEN PRINT #1, CHR$(44);
        IF CCL(5) = 0 THEN
          IF ThisYear > LastYear THEN
            Leap = (2000 - ThisYear) MOD 4
            IF Leap = 0 THEN
              Leap = 1
              TimeConvert = .002732
            ELSE
              Leap = 0
              TimeConvert = .00274
            END IF
            LastYear = ThisYear
          END IF
        END IF
        TestInterval = CINT(TimeRemain / TimeConvert)
        PRINT #1, TestInterval;
        IF XYFlag(3) = 1 THEN PRINT #1, CHR$(44);
        FOR J = 2 TO DCols - 1
          LOCATE 12, 10
          PRINT "Writing Row and Col: "; Row; J
          INPUT #2, Zed(J)
          PRINT #1, Zed(J);
          IF XYFlag(3) = 1 THEN PRINT #1, CHR$(44);
        NEXT
        INPUT #2, Zed(Cols)
        PRINT #1, Zed(Cols)
      LOOP
      CLOSE #2
      CLOSE #1
    ELSEIF XYFlag(3) = 3 THEN 'Lotus file
      FileNum = 1
      OPEN InputDataName$ FOR BINARY AS #FileNum
      Temp = 0                'OpCode for Start of File
      PUT FileNum, , Temp
```

```
    Temp = 2                'data length is 2 (for the following integer)
    PUT FileNum, , Temp
    Temp = 1028             'the Lotus version number
    PUT FileNum, , Temp     '(Lotus version 1 = 1028; version 2 = 1030)

    Row = 0                 'row numbers in Lotus begin with 0, not 1
    'header line
    IF XYFlag(1) = 0 THEN
      OPEN File0 FOR INPUT AS #2
      File$ = File0
    ELSE
      OPEN File1 FOR INPUT AS #2
      File$ = File1
    END IF
      DCols = DataCols0
      WriteLabel Row, 0, 16, "YEAR"
      WriteLabel Row, 1, 16, AABB$
      IF CCL(0) = 39 THEN
        WriteLabel Row, 2, 16, "Flow (m^3/int)"
        WriteLabel Row, 3, 16, MID$(LTRIM$(RTRIM$(GeochemParam(1))), 1, 3) + "
"
        IF XYFlag(1) = 0 THEN
          FOR I = 4 TO DataCols1
            WriteLabel Row, I, 16, MID$(LTRIM$(RTRIM$(GeochemParam(I - 2))), 1,
3) + "(mg/int)"
          NEXT
        ELSE
          FOR I = 4 TO DataCols1
            WriteLabel Row, I, 16, MID$(LTRIM$(RTRIM$(GeochemParam(I - 2))), 1,
3) + " (mg/L) "
          NEXT
        END IF

      ELSE
        IF XYFlag(1) = 0 THEN
          WriteLabel Row, 2, 16, "Cumul Vol(m^3)"
          WriteLabel Row, 3, 16, MID$(LTRIM$(RTRIM$(GeochemParam(1))), 1, 3) +
"    "
          FOR I = 4 TO DataCols1
            WriteLabel Row, I, 16, MID$(LTRIM$(RTRIM$(GeochemParam(I - 2))), 1,
3) + "(mg/int)"
          NEXT
        ELSE
          WriteLabel Row, 2, 16, "Vol(m^3)/Lyr" + Layer$
          WriteLabel Row, 3, 16, MID$(LTRIM$(RTRIM$(GeochemParam(1))), 1, 3) +
"    "
          FOR I = 4 TO DataCols1
            WriteLabel Row, I, 16, MID$(LTRIM$(RTRIM$(GeochemParam(I - 2))), 1,
3) + " (mg/L) "
          NEXT
        END IF
      END IF
      L = 0
      FOR I = DataCols1 + 1 TO DataCols1 + (CCL(12) * 2) STEP 2
        L = L + 1
        SPP$ = " "
        IF L > 9 THEN SPP$ = ""
        NextLabel1$ = LTRIM$(RTRIM$(STR$(L))) + ":" + SPP$ + "S rem. (kg)"
        WriteLabel Row, I, 16, NextLabel1$
        NextLabel2$ = LTRIM$(RTRIM$(STR$(L))) + ":" + SPP$ + "NP rem. (kg)"
        WriteLabel Row, I + 1, 16, NextLabel2$
      NEXT
      WriteLabel Row, DCols - 1, 16, "Pump #2 (m^3/d)"
      WriteLabel Row, DCols, 16, "Water Level (m)"
    DO WHILE NOT EOF(2)
      Row = Row + 1
      J = 1
      INPUT #2, Zed(J)
      ThisYear = INT(Zed(J))
      WriteInteger Row, 0, 16, ThisYear          'it's okay to skip a column
      TimeRemain = Zed(J) - CSNG(ThisYear)
      IF CCL(5) = 0 THEN
        IF ThisYear > LastYear THEN
          Leap = (2000 - ThisYear) MOD 4
          IF Leap = 0 THEN
            Leap = 1
            TimeConvert = .002732
          ELSE
            Leap = 0
            TimeConvert = .00274
          END IF
          LastYear = ThisYear
        END IF
      END IF
      TestInterval = CINT(TimeRemain / TimeConvert)
      WriteInteger Row, 1, 16, TestInterval
      FOR J = 2 TO DCols
        LOCATE 12, 10
        PRINT "Writing Row and Col: "; Row; J
        INPUT #2, Zed(J)
        WriteNumber Row, J, 16, "N1", CDBL(Zed(J))
      NEXT
    LOOP
    CLOSE #2

    '---- Write the "End of File" record and close the file
    Temp = 1            'OpCode for End of File
    PUT FileNum, , Temp
    Temp = 0            'its Data length is zero
    PUT FileNum, , Temp
    CLOSE #FileNum
  END IF


END SUB

REM $STATIC
SUB ValidCheck ()
REM checks that the user has completed the simulation

  IF CCL(0) = 39 THEN  ' check if simulations were performed
    IF CCL(39) = 1 THEN
      File0 = TempName(11, 1)
      File1 = TempName(10, 0)
    ELSE
      MSG$ = "You have not yet simulated operation.  Press 'OK' to return to main menu,
then Simulate Operation."
      MSGBOX MSG$
      CCL(0) = -1
      EXIT SUB
    END IF
  ELSEIF CCL(0) = 40 THEN
    IF CCL(40) = 1 THEN
      File0 = TempName(11, 2)
      File1 = TempName(11, 0)
    ELSE
      MSG$ = "You have not yet simulated closure.  Press 'OK' to return to main menu,
then Simulate Closure."
      MSGBOX MSG$
      CCL(0) = -1
      EXIT SUB
    END IF
  ELSE
    MSG$ = "You have not yet performed the required simulations.  Press 'OK' to return to
main menu."
    MSGBOX MSG$
    CCL(0) = -1
    EXIT SUB
  END IF

END SUB

REM $DYNAMIC
SUB WriteColWidth (Column, ColWidth)
  ' for Lotus output
  IF NOT ColNum(Column) THEN          'if width record not already written
    IF ColWidth = 0 THEN ColWidth = 16 'default to 9 if no value
    Temp = 8
    PUT FileNum, , Temp
    Temp = 3
    PUT FileNum, , Temp
    PUT FileNum, , Column
    Temp$ = CHR$(ColWidth)
    PUT FileNum, , Temp$
    ColNum(Column) = -1               'show we did this one for later
  END IF

END SUB

SUB WriteInteger (Row, Column, ColWidth, Integ)
```

```
  ' for Lotus output
  Temp = 13              'OpCode for an integer
  PUT FileNum, , Temp
  Temp = 7               'Length + 5 byte header
  PUT FileNum, , Temp
  Temp$ = CHR$(127)      'the format portion of the header
  PUT FileNum, , Temp$   '(use CHR$(255) for a protected field)
  PUT FileNum, , Column
  PUT FileNum, , Row
  PUT FileNum, , Integ

  CALL WriteColWidth(Column, ColWidth)

END SUB

SUB WriteLabel (Row, Column, ColWidth, MSG$)
  ' for Lotus output
  IF LEN(MSG$) > 240 THEN MSG$ = LEFT$(MSG$, 240)    '240 is maximum length

  Temp = 15              'OpCode for a label
  PUT FileNum, , Temp
  Temp = LEN(MSG$) + 7   'Length + 5-byte header + "'" + CHR$(0) byte
  PUT FileNum, , Temp
  Temp$ = CHR$(127)      '127 is default format for unprotected cell
  PUT FileNum, , Temp$
  PUT FileNum, , Column
  PUT FileNum, , Row
  Temp$ = CHR$(34) + MSG$ + CHR$(0) ' NOTE:  means label will be left aligned

  PUT FileNum, , Temp$
  CALL WriteColWidth(Column, ColWidth)

END SUB

SUB WriteNumber (Row, Column, ColWidth, Fmt$, Number#)
  ' for Lotus output
  IF LEFT$(Fmt$, 1) = "F" THEN              'fixed ...
    Fmat$ = CHR$(0 + VAL(RIGHT$(Fmt$, 1)))    'number of decimal places
  ELSEIF LEFT$(Fmt$, 1) = "C" THEN          'currency ...
    Fmat$ = CHR$(32 + VAL(RIGHT$(Fmt$, 1)))   'number of decimal places
  ELSEIF LEFT$(Fmt$, 1) = "P" THEN          'percent ...
    Fmat$ = CHR$(48 + VAL(RIGHT$(Fmt$, 1)))   'number of decimal places
  ELSE
    Fmat$ = CHR$(127)                       'use default format
   'Fmat$ = CHR$(255)                       'optional to protect cell
  END IF

  Temp = 14
  PUT FileNum, , Temp
  Temp = 13
  PUT FileNum, , Temp
  PUT FileNum, , Fmat$
  PUT FileNum, , Column
  PUT FileNum, , Row
  PUT FileNum, , Number#

  CALL WriteColWidth(Column, ColWidth)

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-PRGR.FRM FORM MODULE
' GRAPHICS PRINTER SELECTION
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

'$FORM Form1


Version 1.00
BEGIN Form PrintForm1
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Print Graphics"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(25)
        Left         = Char(0)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(0)
        Visible      = -1
        Width        = Char(80)
        WindowState  = 0
        BEGIN Frame Frame1
                BackColor    = QBColor(7)
                Caption      = "Choose a printer:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(7)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 16
                Tag          = ""
                Top          = Char(3)
                Visible      = -1
                Width        = Char(37)
                BEGIN OptionButton optPrintEpson
                        BackColor    = QBColor(7)
                        Caption      = "&Epson/IBM dot-matrix compatible"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(3)
                        Left         = Char(0)
                        MousePointer = 0
                        TabIndex     = 1
                        TabStop      = 0
                        Tag          = ""
                        Top          = Char(3)
                        Value        = 0
                        Visible      = -1
                        Width        = Char(36)
                END
                BEGIN OptionButton optPrintHP
                        BackColor    = QBColor(7)
                        Caption      = "&HP LaserJet compatible ------>"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(3)
                        Left         = Char(0)
                        MousePointer = 0
                        TabIndex     = 0
                        TabStop      = -1
                        Tag          = ""
                        Top          = Char(0)
                        Value        = -1
                        Visible      = -1
                        Width        = Char(35)
                END
        END
        BEGIN Frame Frame3
                BackColor    = QBColor(7)
                Caption      = "If HP IIp or III compatible, choose:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(5)
                Left         = Char(38)
                MousePointer = 0
                TabIndex     = 18
                Tag          = ""
                Top          = Char(6)
                Visible      = -1
                Width        = Char(40)
                BEGIN OptionButton optPrintLandscape
                        BackColor    = QBColor(7)
                        Caption      = "&Landscape"
                        DragMode     = 0
```

```
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(21)
                MousePointer = 0
                TabIndex    = 15
                TabStop     = 0
                Tag         = ""
                Top         = Char(0)
                Value       = 0
                Visible     = -1
                Width       = Char(13)
        END
        BEGIN OptionButton optPrintPortrait
                BackColor   = QBColor(7)
                Caption     = "&Portrait"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(3)
                MousePointer = 0
                TabIndex    = 14
                TabStop     = -1
                Tag         = ""
                Top         = Char(0)
                Value       = -1
                Visible     = -1
                Width       = Char(12)
        END
END
BEGIN Frame Frame4
        BackColor   = QBColor(7)
        Caption     = "Choose a printer port:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(4)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 19
        Tag         = ""
        Top         = Char(11)
        Visible     = -1
        Width       = Char(37)
        BEGIN OptionButton optPrintLPT3
                BackColor   = QBColor(7)
                Caption     = "LPT&3"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(26)
                MousePointer = 0
                TabIndex    = 4
                TabStop     = 0
                Tag         = ""
                Top         = Char(0)
                Value       = 0
                Visible     = -1
                Width       = Char(9)
        END
        BEGIN OptionButton optPrintLPT2
                BackColor   = QBColor(7)
                Caption     = "LPT&2"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(13)
                MousePointer = 0
                TabIndex    = 3
                TabStop     = 0
                Tag         = ""
                Top         = Char(0)
                Value       = 0
                Visible     = -1
                Width       = Char(9)
        END
        BEGIN OptionButton optPrintLPT1
                BackColor   = QBColor(7)
                Caption     = "LPT&1"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(0)
                MousePointer = 0
                TabIndex    = 2
                TabStop     = -1
                Tag         = ""
                Top         = Char(0)
                Value       = -1
                Visible     = -1
                Width       = Char(10)
        END
END
BEGIN Frame Frame5
        BackColor   = QBColor(7)
        Caption     = "Translate colors to:"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(6)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 20
        Tag         = ""
        Top         = Char(16)
        Visible     = -1
        Width       = Char(37)
        BEGIN OptionButton optPrintTile
                BackColor   = QBColor(7)
                Caption     = "&Tile patterns"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(1)
                MousePointer = 0
                TabIndex    = 6
                TabStop     = 0
                Tag         = ""
                Top         = Char(2)
                Value       = 0
                Visible     = -1
                Width       = Char(21)
        END
        BEGIN OptionButton optPrintBlack
                BackColor   = QBColor(7)
                Caption     = "Solid &black lines"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(1)
                MousePointer = 0
                TabIndex    = 5
                TabStop     = -1
                Tag         = ""
                Top         = Char(0)
                Value       = -1
                Visible     = -1
                Width       = Char(22)
        END
END
BEGIN Label Label1
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "** Turn your printer on now. **"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(21)
        MousePointer = 0
        TabIndex    = 21
        Tag         = ""
```

```
            Top         = Char(0)
            Visible     = -1
            Width       = Char(32)
END
BEGIN Frame Frame2
            BackColor   = QBColor(7)
            Caption     = "Choose graph size (default=Large):"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(4)
            Left        = Char(38)
            MousePointer = 0
            TabIndex    = 17
            Tag         = ""
            Top         = Char(2)
            Visible     = -1
            Width       = Char(40)
            BEGIN OptionButton optPrint075
                        BackColor   = QBColor(7)
                        Caption     = "&XLrg"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(3)
                        Left        = Char(0)
                        MousePointer = 0
                        TabIndex    = 10
                        TabStop     = 0
                        Tag         = ""
                        Top         = Char(0)
                        Value       = 0
                        Visible     = -1
                        Width       = Char(8)
            END
            BEGIN OptionButton optPrint300
                        BackColor   = QBColor(7)
                        Caption     = "&Sml"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(3)
                        Left        = Char(31)
                        MousePointer = 0
                        TabIndex    = 13
                        TabStop     = 0
                        Tag         = ""
                        Top         = Char(0)
                        Value       = 0
                        Visible     = -1
                        Width       = Char(7)
            END
            BEGIN OptionButton optPrint150
                        BackColor   = QBColor(7)
                        Caption     = "&Medium"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(3)
                        Left        = Char(20)
                        MousePointer = 0
                        TabIndex    = 12
                        TabStop     = 0
                        Tag         = ""
                        Top         = Char(0)
                        Value       = 0
                        Visible     = -1
                        Width       = Char(10)
            END
            BEGIN OptionButton optPrint100
                        BackColor   = QBColor(7)
                        Caption     = "Lar&ge"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(3)
                        Left        = Char(9)
                        MousePointer = 0
                        TabIndex    = 11
                        TabStop     = -1
                        Tag         = ""
                        Top         = Char(0)
                        Value       = -1
                        Visible     = -1
                        Width       = Char(10)
            END
END
BEGIN CommandButton cmdPrintOK
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&OK"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(62)
            MousePointer = 0
            TabIndex    = 7
            TabStop     = -1
            Tag         = ""
            Top         = Char(13)
            Visible     = -1
            Width       = Char(12)
END
BEGIN CommandButton cmdPrintQuit
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Quit"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(62)
            MousePointer = 0
            TabIndex    = 9
            TabStop     = -1
            Tag         = ""
            Top         = Char(19)
            Visible     = -1
            Width       = Char(12)
END
BEGIN CommandButton cmdPrintHelp
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Help"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(62)
            MousePointer = 0
            TabIndex    = 8
            TabStop     = -1
            Tag         = ""
            Top         = Char(16)
            Visible     = -1
            Width       = Char(12)
END
```

```
REM $DYNAMIC
SUB cmdPrintHelp_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Graph Simulation Results")
  END IF
END SUB

SUB cmdPrintOK_Click ()

IF optPrintLPT1.Value = -1 THEN
  GrPrint(4) = 1
ELSEIF optPrintLPT2.Value = -1 THEN
  GrPrint(4) = 2
ELSE
  GrPrint(4) = 3
END IF

IF optPrintBlack.Value = -1 THEN
  GrPrint(5) = 0
ELSE
```

```
    GrPrint(5) = -1
END IF

IF optPrintHP.Value = -1 THEN          'LaserJet or compatible printer
   GrPrint(1) = 0
   IF optPrint075.Value = -1 THEN
      GrPrint(2) = 75
   ELSEIF optPrint100.Value = -1 THEN
      GrPrint(2) = 100
   ELSEIF optPrint150.Value = -1 THEN
      GrPrint(2) = 150
   ELSE
      GrPrint(2) = 300
   END IF
   LPTNo = INT(GrPrint(4))
   CALL BLPrint(LPTNo, CHR$(27) + "E", ErrCount)          'reset the printer

  '--- if you want landscape printing AND you have a IIp or series III
   IF optPrintLandscape.Value = -1 THEN
      GrPrint(3) = 1
      CALL BLPrint(LPTNo, CHR$(27) + "*r0F", ErrCount)
      CALL BLPrint(LPTNo, CHR$(27) + "&l1O", ErrCount)
   ELSE
      GrPrint(3) = 0
   END IF

ELSE
   GrPrint(1) = 1
   GrPrint(2) = 0         'Epson/IBM or compatible printer
   CALL BLPrint(LPTNo, CHR$(27) + "@", ErrCount)          'reset the printer
END IF

PrintForm1.HIDE

END SUB

SUB cmdPrintQuit_Click ()
   PrintForm1.HIDE
END SUB

SUB Form_Load ()

IF GrPrint(4) = 3 THEN
   optPrintLPT3.Value = -1
ELSEIF GrPrint(4) = 2 THEN
   optPrintLPT2.Value = -1
ELSE
   optPrintLPT1.Value = -1
END IF

IF GrPrint(5) = 0 THEN
   optPrintBlack.Value = -1
ELSE
   optPrintTile.Value = -1
END IF

IF GrPrint(1) = 0 THEN          'LaserJet or compatible printer
   optPrintLandscape.Enabled = True
   optPrintPortrait.Enabled = True
   optPrint075.Enabled = True
   optPrint100.Enabled = True
   optPrint150.Enabled = True
   optPrint300.Enabled = True
   optPrintHP.Value = -1
   IF GrPrint(2) = 75 THEN
      optPrint075.Value = -1
   ELSEIF GrPrint(2) = 300 THEN
      optPrint300.Value = -1
   ELSEIF GrPrint(2) = 150 THEN
      optPrint150.Value = -1
   ELSE
      optPrint100.Value = -1
   END IF

   IF GrPrint(3) = 1 THEN
      optPrintLandscape.Value = -1
   ELSE
      optPrintPortrait.Value = -1
   END IF

ELSE
   optPrintEpson.Value = -1
   optPrint075.Value = -1
   optPrintLandscape.Enabled = False
   optPrintPortrait.Enabled = False
   optPrint075.Enabled = False
   optPrint100.Enabled = False
   optPrint150.Enabled = False
   optPrint300.Enabled = False
END IF

END SUB

SUB optPrintEpson_Click ()
   optPrintLandscape.Enabled = False
   optPrintPortrait.Enabled = False
   optPrint075.Enabled = False
   optPrint100.Enabled = False
   optPrint150.Enabled = False
   optPrint300.Enabled = False

END SUB

SUB optPrintHP_Click ()
   optPrintLandscape.Enabled = True
   optPrintPortrait.Enabled = True
   optPrint075.Enabled = True
   optPrint100.Enabled = True
   optPrint150.Enabled = True
   optPrint300.Enabled = True

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-PROG.FRM FORM MODULE
' BASICALLY A BLANK FORM TO SHOW PROGRESS OF CALCULATIONS
' ************************************

'$INCLUDE: 'MW-COMDF.BI'

'$FORM ProgGauge


Version 1.00
BEGIN Form ProgForm
            AutoRedraw   = 0
            BackColor    = QBColor(7)
            BorderStyle  = 2
            Caption      = ""
            ControlBox   = -1
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(22)
            Left         = Char(3)
            MaxButton    = -1
            MinButton    = -1
            MousePointer = 0
            Tag          = ""
            Top          = Char(2)
            Visible      = -1
            Width        = Char(74)
            WindowState  = 0
            BEGIN Label Label3
                        Alignment    = 0
                        AutoSize     = 0
                        BackColor    = QBColor(7)
                        BorderStyle  = 0
                        Caption      = ""
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(1)
                        Left         = Char(1)
                        MousePointer = 0
                        TabIndex     = 2
                        Tag          = ""
                        Top          = Char(4)
```

```
        Visible     = -1
        Width       = Char(69)
END
BEGIN Label Label4
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = ""
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 3
        Tag         = ""
        Top         = Char(5)
        Visible     = -1
        Width       = Char(69)
END
BEGIN Label Label5
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = ""
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 4
        Tag         = ""
        Top         = Char(6)
        Visible     = -1
        Width       = Char(69)
END
BEGIN Label Label6
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = ""
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 5
        Tag         = ""
        Top         = Char(7)
        Visible     = -1
        Width       = Char(69)
END
BEGIN Label Label7
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = ""
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 6
        Tag         = ""
        Top         = Char(8)
        Visible     = -1
        Width       = Char(69)
END
BEGIN CommandButton ProgOK
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "&OK"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(29)
        MousePointer = 0
        TabIndex    = 8
        TabStop     = -1
        Tag         = ""
        Top         = Char(15)
        Visible     = -1
        Width       = Char(12)
END
BEGIN Label Label2
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = ""
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 1
        Tag         = ""
        Top         = Char(3)
        Visible     = -1
        Width       = Char(69)
END
BEGIN Label Label1
        Alignment   = 2
        AutoSize    = -1
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "Label1"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(17)
        MousePointer = 0
        TabIndex    = 0
        Tag         = ""
        Top         = Char(1)
        Visible     = -1
        Width       = Char(6)
END
BEGIN Label Label8
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = ""
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 7
        Tag         = ""
        Top         = Char(9)
        Visible     = -1
        Width       = Char(68)
END
BEGIN Label Label9
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = ""
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(1)
        MousePointer = 0
        TabIndex    = 9
        Tag         = ""
```

```
            Top         = Char(10)
            Visible     = -1
            Width       = Char(69)
        END
END

REM $DYNAMIC
SUB ProgOK_Click ()
  ProgForm.HIDE
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-QUE1.FRM FORM MODULE
' EDIT OLD DATA OR ENTER NEW DATA
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'


Version 1.00
BEGIN Form Form4
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Edit or Replace Existing Data"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(13)
        Left         = Char(4)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(6)
        Visible      = -1
        Width        = Char(70)
        WindowState  = 0
        BEGIN Label Label1
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "Data Already Exist: Do you want to edit these
existing data or replace the data?"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(4)
            MousePointer = 0
            TabIndex    = 4
            Tag         = ""
            Top         = Char(2)
            Visible     = -1
            Width       = Char(61)
        END
        BEGIN CommandButton cmdExistingReplace
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Replace Data"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(19)
            MousePointer = 0
            TabIndex    = 1
            TabStop     = -1
            Tag         = ""
            Top         = Char(8)
            Visible     = -1
            Width       = Char(15)
        END
        BEGIN CommandButton cmdExistingQuit
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Quit"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(54)
            MousePointer = 0
            TabIndex    = 3
            TabStop     = -1
            Tag         = ""
            Top         = Char(8)
            Visible     = -1
            Width       = Char(12)
        END
        BEGIN CommandButton cmdExistingHelp
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Help"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(38)
            MousePointer = 0
            TabIndex    = 2
            TabStop     = -1
            Tag         = ""
            Top         = Char(8)
            Visible     = -1
            Width       = Char(12)
        END
        BEGIN CommandButton cmdExistingEdit
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Edit Data"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(3)
            MousePointer = 0
            TabIndex    = 0
            TabStop     = -1
            Tag         = ""
            Top         = Char(8)
            Visible     = -1
            Width       = Char(14)
        END
END

REM $DYNAMIC
SUB cmdExistingEdit_Click ()
  CCL(CCL(0)) = 1
  Form4.HIDE
  UNLOAD Form4
END SUB

REM $STATIC
SUB cmdExistingHelp_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Entering Data")
  END IF
END SUB

REM $DYNAMIC
SUB cmdExistingQuit_Click ()
  CCL(CCL(0)) = CCL(CCL(0)) - 50
  Form4.HIDE
  UNLOAD Form4
END SUB

SUB cmdExistingReplace_Click ()
  MSG$ = "Replace Existing Data: Are you sure?"
  A% = MSGBOX(MSG$, 3, "Reconfirm Choice")
  IF A% = 6 THEN
    CCL(CCL(0)) = 0
  END IF
  Form4.HIDE
  UNLOAD Form4
```

```
END SUB

' ***************************************
' MINEWALL 2.0
' MW-QUE2.FRM FORM MODULE
' REPEAT DATA YEARLY OR ENTER YEAR-BY-YEAR
' ***************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'


Version 1.00
BEGIN Form Form5
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Repeat Data Yearly or Enter Data Year-By-Year"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(17)
        Left         = Char(2)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(5)
        Visible      = -1
        Width        = Char(76)
        WindowState  = 0
        BEGIN Label Label2
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "WARNING: Choosing Year-By-Year can generate
huge data files that can exceed a computer's hard-disk storage.  If this is exceeded, an
unrecoverable error will occur and data will be lost!"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(3)
                MousePointer = 0
                TabIndex     = 5
                Tag          = ""
                Top          = Char(8)
                Visible      = -1
                Width        = Char(67)
        END
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "You are about to enter data for each year of the
simulation.  You can either (1) enter one year's worth of data and then repeat these data each
year or (2) enter unique values year-by-year for each year of the simulation.  Choose one
below."
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(4)
                Left         = Char(3)
                MousePointer = 0
                TabIndex     = 4
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(67)
        END
        BEGIN CommandButton cmdYearByYear
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Year-By-Year"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(22)
                MousePointer = 0
                TabIndex     = 1
                TabStop      = -1
                Tag          = ""
                Top          = Char(12)
                Visible      = -1
                Width        = Char(16)
        END
        BEGIN CommandButton cmdRepeatYearly
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Repeat Yearly"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(2)
                MousePointer = 0
                TabIndex     = 0
                TabStop      = -1
                Tag          = ""
                Top          = Char(12)
                Visible      = -1
                Width        = Char(16)
        END
        BEGIN CommandButton cmdRepeatQuit
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Quit"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(59)
                MousePointer = 0
                TabIndex     = 3
                TabStop      = -1
                Tag          = ""
                Top          = Char(12)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdRepeatHelp
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Help"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(43)
                MousePointer = 0
                TabIndex     = 2
                TabStop      = -1
                Tag          = ""
                Top          = Char(12)
                Visible      = -1
                Width        = Char(12)
        END
END

REM $DYNAMIC
SUB cmdRepeatHelp_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Entering Data")
  END IF
END SUB

SUB cmdRepeatQuit_Click ()
  CCL(CCL(0)) = CCL(CCL(0)) + 5
  UNLOAD Form5
END SUB

DEFSNG A-Z
SUB cmdRepeatYearly_Click ()
  CCL(CCL(0)) = 1
  UNLOAD Form5
```

```
END SUB

DEFINT A-Z
SUB cmdYearByYear_Click ()
   CCL(CCL(0)) = 2
   UNLOAD Form5
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-REPOR.BAS CODE MODULE
' OUTPUT CONTROL FOR REPORT
' ************************************

'$INCLUDE: 'MW-COMDF.BI'

DECLARE SUB MinewallReport ()
DECLARE SUB FClose (Handle%)
DECLARE SUB FCreate (FileName$)
DECLARE SUB FOpen (FileName$, Handle%)
DECLARE FUNCTION DOSError% ()
DECLARE FUNCTION ErrorMsg$ (ErrNumber%)
DECLARE FUNCTION Exist% (FileName$)
DECLARE FUNCTION WhichError% ()
DECLARE SUB Pause (Ticks%)
DECLARE SUB FileSave (InputFileName AS STRING, InputPathName AS STRING,
DefaultExt AS STRING, DialogTitle AS STRING, ForeColor AS INTEGER, BackColor AS
INTEGER, Flags AS INTEGER, Cancel AS INTEGER)
DECLARE SUB XmsRelMem (BYVAL Handle)
DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)

'$FORM ReportForm1
'$FORM WaitForm

REM $DYNAMIC
SUB MinewallReport ()
   REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
   REDIM GeochemRate1(NumRowsSpr, NumColsSpr) AS Strlen,
GeochemRate2(NumRowsSpr, NumColsSpr) AS STRING * 16
   DataCols0 = CCL(4) + 2 + (CCL(12) * 2) + 2
   DataCols1 = CCL(4) + 2
   DIM Zed(DataCols0) AS SINGLE' width of TEMPOP file
   DIM TempLabels(10) AS STRING, TimeConvert AS SINGLE, TimeRemain AS SINGLE
   DIM Header AS STRING, Entry AS STRING * 16, Delimit AS STRING, Leap AS
INTEGER, S AS INTEGER
   REDIM XYFlag(10) AS SINGLE  ' just used for passing a few values

   IF CCL(0) = 39 THEN  ' check if simulations were performed
      IF CCL(39) < 1 THEN
         MSG$ = "You have not yet simulated operation.  Press 'OK' to return to main menu,
then Simulate Operation."
         MSGBOX MSG$
         CCL(0) = -1
         EXIT SUB
      END IF
      IF CCL(3) = 1 AND CCL(40) < > 1 THEN
         MSG$ = "You have not yet simulated closure.  Press 'OK' to return to main menu,
then Simulate Closure."
         MSGBOX MSG$
         CCL(0) = -1
         EXIT SUB
      END IF
   ELSEIF CCL(0) = 40 THEN
      IF CCL(40) < 1 THEN
         MSG$ = "You have not yet simulated closure.  Press 'OK' to return to main menu,
then Simulate Closure."
         MSGBOX MSG$
         CCL(0) = -1
         EXIT SUB
      END IF
      IF CCL(3) = 1 AND CCL(39) < > 1 THEN
         MSG$ = "You have not yet simulated operation.  Press 'OK' to return to main menu,
then Simulate Operation."
         MSGBOX MSG$
         CCL(0) = -1
         EXIT SUB
      END IF
   ELSE
      MSG$ = "You have not yet performed the required simulations.  Press 'OK' to return to
main menu."
      MSGBOX MSG$
      CCL(0) = -1
      EXIT SUB
   END IF
   IF CCL(0) = -1 THEN EXIT SUB
   ' ask if user wants input and/or results
   OldCCL = CCL(0)
   ReportForm1.SHOW 1
   UNLOAD ReportForm1
   IF CCL(0) = -1 THEN EXIT SUB
   Info1 = CCL(0)
   CCL(0) = OldCCL
   DataExtension$ = "*.REP"
   Loct = INSTR(1, InputFileName, ".")
   IF Loct > 0 THEN
      Ex$ = "REP"
      TDN$ = LTRIM$(RTRIM$(MID$(InputFileName, 1, Loct)))
      TDN$ = TDN$ + LTRIM$(RTRIM$(Ex$))
      InputDataName = TDN$
   ELSE
      InputDataName = ""
   END IF
   CALL FileSave(InputDataName, InputPathName, DataExtension$, "Create a Data File with
Output Results", 0, 7, 0, Cancel%)
   IF Cancel = -1 THEN EXIT SUB
   InputDataName = InputPathName + "\" + InputDataName
   IF Exist%(InputDataName) = 0 THEN
      CALL FCreate(InputDataName)
   END IF
   CALL FOpen(InputDataName, Handle%)
   IF DOSError% THEN
      BEEP
      MSG$ = ErrorMsg$(WhichError%)
      MSGBOX MSG$
      EXIT SUB
   END IF
   CALL FClose(Handle%)
   OPEN InputDataName FOR OUTPUT AS #1
   WIDTH #1, 255

   NL$ = CHR$(13) + CHR$(10)
   IF CCL(5) = 0 THEN
      AABB$ = "DAY"
      TimeConvert = .00274  '=0.002732 for leap year
      NumRows = 366 + 2
      A$ = "Day "
   ELSEIF CCL(5) = 1 THEN
      AABB$ = "WEEK"
      TimeConvert = .01923
      NumRows = 52 + 2
      A$ = "Week "
   ELSE
      AABB$ = "MONTH"
      TimeConvert = .08333333#
      NumRows = 12 + 2
      A$ = "Month"
   END IF
   CLS

   PRINT #1, " *** MINEWALL 2.0 REPORT ***"
   PRINT #1, ""
   PRINT #1, Title$
   PRINT #1, ""
   PRINT #1, "Printed on "; DATE$; "    at "; TIME$
   PRINT #1, ""
   IF Info1 = 1 OR Info1 = 3 THEN  ' echo input data
      LOCATE 12, 20
      MSG$ = "Writing Input Data ."
      PRINT MSG$
      PRINT #1, ""
      PRINT #1, ""
      PRINT #1, ""
      PRINT #1, "*** INPUT DATA ***"
      PRINT #1, ""
      CCL(1) = 1
      NumReps = 1
```

```
    IF CCL(3) = 1 THEN NumReps = 2
    FOR I = 1 TO NumReps
      IF CCL(3) < 2 AND I = 1 THEN
        BA$ = "OPERATION:"
        S = 0
      ELSE
        BA$ = "CLOSURE:"
        S = 1
      END IF
      PRINT #1, BA$
      IF CCL(5) = 0 THEN
        BZ$ = "Daily"
        BB$ = "Starting Day/Month/Year is" + STR$(SimTime_Array(S * 6 + 1) + 1) +
"/" + STR$(SimTime_Array(S * 6 + 2) + 1) + "/" + STR$(SimTime_Array(S * 6 + 3) +
1960)
        BC$ = "Ending Day/Month/Year is" + STR$(SimTime_Array(S * 4) + 1) + "/"
+ STR$(SimTime_Array(S * 6 + 5) + 1) + "/" + STR$(SimTime_Array(S * 6 + 6) + 1960)
      ELSEIF CCL(5) = 1 THEN
        BZ$ = "Weekly"
        BB$ = "Starting Week/Year is" + STR$(SimTime_Array(S * 6 + 1) + 1) + "/"
+ STR$(SimTime_Array(S * 6 + 3) + 1960)
        BC$ = "Ending Week/Year is" + STR$(SimTime_Array(S * 6 + 4) + 1) + "/"
+ STR$(SimTime_Array(S * 6 + 6) + 1960)
      ELSE
        BZ$ = "Monthly"
        BB$ = "Starting Month/Year is" + STR$(SimTime_Array(S * 6 + 2) + 1) + "/"
+ STR$(SimTime_Array(S * 6 + 3) + 1960)
        BC$ = "Ending Month/Year is" + STR$(SimTime_Array(S * 6 + 5) + 1) + "/"
+ STR$(SimTime_Array(S * 6 + 6) + 1960)
      END IF
      MSG$ = "Simulations were performed on a " + BZ$ + " Basis:"
      PRINT #1, MSG$
      PRINT #1, "   "; BB$
      PRINT #1, "   "; BC$
    NEXT
    LOCATE 12, 20
    MSG$ = MSG$ + "."
    PRINT MSG$
    PRINT #1, ""
    PRINT #1, "Geochemical Parameters in this simulation were:"
    FOR I = 1 TO CCL(4) STEP 10
      III = I + 10 - 1
      IF III > CCL(4) THEN III = CCL(4)
      M$ = ""
      FOR II = I TO III
        M$ = M$ + GeochemParam(II)
      NEXT
      PRINT #1, M$
      IF III = CCL(4) THEN EXIT FOR
    NEXT
    LOCATE 12, 20
    MSG$ = MSG$ + "."
    PRINT MSG$
    PRINT #1, ""
    PRINT #1, "Geochemical/Rock Units and their physicochemical characteristics were:"
    NumRows = 16 + CCL(7)
    NumCols = CCL(12) + 1
    FOR I = 2 TO NumRows
      M$ = ""
      FOR J = 1 TO NumCols
        M$ = M$ + GeochemName(I, J)
      NEXT
      PRINT #1, M$
    NEXT
    PRINT #1, ""
    PRINT #1, "For each Geochemical Unit, the FACTOR in the rate-control equation was:"
    PRINT #1, "  Unit",
    FOR I = 1 TO CCL(12) - 1
      PRINT #1, I,
    NEXT
    PRINT #1, CCL(12)
    PRINT #1, " Factor",
    FOR I = 1 TO CCL(12) - 1
      PRINT #1, GeochemPower(I),
    NEXT
    PRINT #1, GeochemPower(CCL(12))
    PRINT #1, ""
    PRINT #1, "Periodic, non-regular fracture flushing over an annual period was:"
    NumCols = CCL(12) + 1
    M$ = "    Time    "
    FOR J = 2 TO CCL(12) + 1
      M$ = M$ + "  Unit " + STR$(J - 1)
    NEXT
    PRINT #1, M$
    M$ = ""
    FOR I = 3 TO NumRowsSpr
      IF CCL(3) = 2 THEN
        M$ = TimeParam(I - 2, 2)
      ELSE
        M$ = TimeParam(I - 2, 1)
      END IF
      FOR J = 2 TO CCL(12) + 1
        M$ = M$ + "      " + STR$(FractureFlush(I, J))
      NEXT
      PRINT #1, M$
    NEXT
    LOCATE 12, 20
    MSG$ = MSG$ + "."
    PRINT MSG$
    PRINT #1, ""
    IF CCL(6) = 2 THEN
      PRINT #1, "The following rates are decreased to "; SubmergenceFactor; " % when the
Units are submerged"
    ELSE
      PRINT #1, "The following rates are linked to available DO in the adjacent waters when
submerged"
    END IF
    PRINT #1, ""
    PRINT #1, "For each Geochemical Unit, the following rate information was used:"
    NumRows = NumRowsSpr
    NumCols = CCL(4) + 2
    NumEls = (NumRows + 1) * (NumCols + 1)
    FOR L = 1 TO CCL(12)
      PRINT #1, "  UNIT #"; L
      PRINT #1, "    Inputted Data:"
      CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(L))
      FOR I = 2 TO NumRows
        M$ = ""
        FOR J = 1 TO NumCols
          M$ = M$ + GeochemRate1(I, J).AA
        NEXT
        PRINT #1, M$
      NEXT
      PRINT #1, "    Adjusted Fresh Rates (at time of initial exposure):"
      CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(10 + L))
      FOR I = 1 TO NumRows
        M$ = ""
        FOR J = 1 TO NumCols
          M$ = M$ + GeochemRate1(I, J).AA
        NEXT
        PRINT #1, M$
      NEXT
      ' PRINT #1, "    Adjusted Fresh Rates (at time of initial exposure)"
      PRINT #1, ""
    NEXT
    PRINT #1, ""
    PRINT #1, "Rate Acceleration Factor for each Unit when NP was depleted was:"
    FOR I = 1 TO CCL(12)
      PRINT #1, "Unit #"; I, RateAccel(I)
    NEXT
    LOCATE 12, 20
    MSG$ = MSG$ + "."
    PRINT MSG$
    PRINT #1, ""
    PRINT #1, "Mine dimensions and distribution of Geochemical Units in the mine were:"
    NumCols = 4 + CCL(12)
    NumRows = PitPoints(4) + 2
    FOR I = 1 TO NumRows
      M$ = ""
      FOR J = 1 TO NumCols
        M$ = M$ + PitDims(I, J)
      NEXT
      PRINT #1, M$
    NEXT
    LOCATE 12, 20
    MSG$ = MSG$ + "."
    PRINT MSG$
    PRINT #1, ""
```

```
    PRINT #1, "Characteristics of the Layers during Operation (Mine Bottom) and During
Closure (others), if selected, were:"
    NumRows = 17
    NumCols = CCL(10) + 2
    DIM TempArray(NumRows, NumCols) AS STRING * 1(
    TempArray(2, 1) = "LAYER NUMBER:"
    TempArray(3, 1) = "LAYER NAME:"
    TempArray(4, 1) = "FLOWS:..."
    TempArray(5, 1) = " -Precip (%)"
    TempArray(6, 1) = " -Evap (%)"
    TempArray(7, 1) = " -Runoff (%)"
    TempArray(8, 1) = " -Sat Flow (%)"
    TempArray(9, 1) = " -Pump#1 (%)"
    TempArray(10, 1) = " -Pump#2 (%)"
    ' TempArray(11, 1) = "TURNOVER?"
    TempArray(12, 1) = "CHEM:..."
    TempArray(13, 1) = " -Mass Balance"
    TempArray(14, 1) = " -Set Value"
    TempArray(15, 1) = " -Equilibrium"
    TempArray(16, 1) = " -Kinetic"
    TempArray(17, 1) = " -Empirical"
    TempArray(2, 2) = STR$(0)
    TempArray(3, 2) = "Mine Bottom"
    FOR I = 5 TO 10
      TempArray(I, 2) = "100"
    NEXT
    FOR I = 11 TO NumRows
      IF LayerData(I, 0) = 1 THEN TempArray(I, 2) = "Y"
    NEXT
    FOR J = 1 TO CCL(10)
      TempArray(2, J + 2) = STR$(J)
    NEXT
    FOR J = 3 TO NumCols
      TempArray(3, J) = LayerName(J - 2)
    NEXT
    FOR I = 4 TO NumRows
      FOR J = 3 TO NumCols
        IF I < 11 THEN
          TempArray(I, J) = STR$(LayerData(I, J - 2))
        ELSE
          IF LayerData(I, J - 2) = 1 THEN TempArray(I, J) = "Y"
        END IF
      NEXT
    NEXT
    FOR I = 2 TO NumRows
      M$ = ""
      FOR J = 1 TO NumCols
        M$ = M$ + TempArray(I, J)
      NEXT
      PRINT #1, M$
    NEXT
    ERASE TempArray

    ' "Entering GeochemControls"

    PRINT #1, ""
    PRINT #1, "The geochemical controls for each Parameter in each layer were:"
    LayerElSize = 4
    NumRows = CCL(4) + 1
    NumCols = CCL(10) + 1 + 1
    LayerNumEls = CCL(4) * 5 + 1
    DIM LayerChem(LayerNumEls) AS SINGLE
    DIM TempArray(NumRows, NumCols) AS STRING * 16
    TempArray(1, 1) = "LAYER NUMBER:"
    FOR J = 0 TO CCL(10)
      TempArray(1, J + 2) = STR$(J)
    NEXT
    FOR I = 2 TO NumRows
      TempArray(I, 1) = GeochemParam(I - 1)
    NEXT
    FOR K = 1 TO NumReps
      LOCATE 12, 20
      MSG$ = MSG$ + "."
      PRINT MSG$
      NumLayers = CCL(10)
      IF K = 1 AND CCL(3) < 2 THEN NumLayers = 1
      FOR J = 1 TO NumLayers
        Layer = J
        IF K = 1 AND CCL(3) < 2 THEN Layer = 0
        ' MSGBOX "About to do GeochemControls for Layer =" + STR$(Layer)

        CALL Xms2Array(SEG LayerChem(0), LayerElSize, LayerNumEls,
XmsLayerName(Layer))
        Param = 0
        FOR JJJ = 2 TO LayerNumEls - 1 STEP 5
          Param = Param + 1
          SELECT CASE INT(LayerChem(JJJ))
          CASE 1
            TempArray(Param + 1, Layer + 2) = "Mass balance"
          CASE 2
            TempArray(Param + 1, Layer + 2) = "Equilibrium"
          CASE 3
            TempArray(Param + 1, Layer + 2) = MID$(STR$(LayerChem(JJJ + 1)),
1, 10) + "mg/L"
          CASE 4
            M$ = CHR$(127) + CHR$(61) + MID$(STR$(LayerChem(JJJ + 1)), 1, 5)
+ MID$(GeochemParam(INT(LayerChem(JJJ + 2))), 1, 3) + "^" +
MID$(STR$(LayerChem(JJJ + 3)), 1, 5)
            TempArray(Param + 1, Layer + 2) = M$
          CASE 5
            MM$ = "pH+"
            IF GeochemCount(INT(LayerChem(JJJ - 1)), 1) = 1 THEN MM$ = "Ac+"
            M$ = "L=" + MID$(STR$(LayerChem(JJJ + 1)), 1, 5) + MM$ +
MID$(STR$(LayerChem(JJJ + 2)), 1, 5)
            TempArray(Param + 1, Layer + 2) = M$
          END SELECT
        NEXT JJJ
      NEXT J
    NEXT K
    FOR I = 1 TO NumRows
      M$ = ""
      FOR J = 1 TO NumCols
        M$ = M$ + TempArray(I, J)
      NEXT
      PRINT #1, M$
    NEXT
    ERASE TempArray
    ERASE LayerChem

    PRINT #1, ""
    PRINT #1, "The information used for each of the flows was:"
    FOR LL = 13 TO 18
      LOCATE 12, 20
      MSG$ = MSG$ + "."
      PRINT MSG$
      FOR K = 1 TO NumReps
        CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumElsSpr, XmsName(LL,
K))
        IF K = 1 THEN PRINT #1, MinewallArray1(1, 1).AA
        PRINT #1, MinewallArray1(1, 2).AA
        MinewallArray1(2, 1).AA = "Time"
        MinewallArray1(2, 2).AA = "Flow (m^3/d)"
        IF LL = 13 THEN MinewallArray1(2, 2).AA = "Precip (m/d)"
        FOR J = 3 TO NumColsSpr
          MinewallArray1(2, J).AA = GeochemParam(J - 2)
        NEXT
        FOR I = 2 TO NumRowsSpr
          M$ = ""
          FOR J = 1 TO NumColsSpr
            M$ = M$ + MinewallArray1(I, J).AA
          NEXT
          PRINT #1, M$
        NEXT
      NEXT K
      PRINT #1, ""
    NEXT LL
    IF CCL(31) = 1 THEN
      M$ = "During Operation, Pump #2 was adjusted to obtain no net accumulation of
water"
    ELSE
      M$ = "During Operation, Pump #2 was NOT adjusted to obtain no net accumulation
of water "
    END IF
    PRINT #1, M$
    IF CCL(32) > 0 THEN
      M$ = "During Closure, Pump #2 was adjusted to maintain a final water level of" +
STR$(CCL(32)) + " meters"
    ELSE
      M$ = "During Closure, Pump #2 was NOT adjusted to maintain a final water level
```

```
and the equilibrium level was used"
      END IF
      MSG$ = "Writing of Input Data: COMPLETED                    "
      LOCATE 12, 20
      PRINT MSG$
    END IF

    IF Info1 > 1 THEN  ' write simulation results
        PRINT #1, ""
        PRINT #1, ""
        PRINT #1, ""
        PRINT #1, "** SIMULATION RESULTS **"
        PRINT #1, ""
     ICount = 0
     NLine = 13
     NumLoops = 1
     IF CCL(3) = 1 THEN NumLoops = 2
     DO
      ICount = ICount + 1
      NLine = NLine + 1
      IF CCL(3) = 2 THEN
        ICount = 2
        NLine = 14
      END IF
      IF ICount = 1 THEN 'print operation
        PRINT #1, "* OPERATION *"
        LOCATE NLine, 15
        MSG$ = "Writing Operation Simulation Results ."
        PRINT MSG$
      ELSE
        PRINT #1, "* CLOSURE *"
        LOCATE NLine, 15
        MSG$ = "Writing Closure Simulation Results ."
        PRINT MSG$
      END IF
      BotLayer = 0
      NumLayers = CCL(10)
      IF ICount = 1 THEN
        NumLayers = 0
        BotLayer = -1
      END IF
      FOR Layer = BotLayer TO NumLayers
       REM do loadings first
        IF ICount = 1 THEN
          IF Layer = -1 THEN
            PRINT #1, " Non-cumulative Total Loadings and Flows Per Time Interval:"
            OPEN TempName(11, ICount) FOR INPUT AS #5
          ELSE
            PRINT #1, " Non-cumulative Flows and Concentrations Per Time Interval for
Mine Bottom Sump(s)"
            OPEN TempName(10, 0) FOR INPUT AS #5
          END IF
          PRINT #1, "     YEAR     ", A$ + SPACE$(11), "Flow (m^3/int)",
        ELSE
          IF Layer = 0 THEN
            PRINT #1, " Cumulative Total Loadings and Volumes Per Time Interval:"
            OPEN TempName(11, 2) FOR INPUT AS #5
          ELSE
            PRINT #1, " Cumulative Flows and Concentrations Per Time Interval for Layer
"; Layer; ": "; LayerName(Layer)
            OPEN TempName(11, 0) FOR INPUT AS #5
          END IF
          PRINT #1, "     YEAR     ", A$ + SPACE$(11), "Vol (m^3/Lyr) ",
        END IF
        XYFlag(3) = 0
        DataCols0 = CCL(4) + 2 + (CCL(12) * 2) + 2
        DataCols1 = CCL(4) + 2
        DCols = DataCols0
        Header = ""
        PRINT #1, MID$(LTRIM$(RTRIM$(GeochemParam(1))), 1, 3) + "          ",
        FOR I = 4 TO DataCols1
          IF ICount = 1 THEN
            IF Layer = -1 THEN
              PRINT #1, MID$(LTRIM$(RTRIM$(GeochemParam(I - 2))), 1, 3) +
"(mg/interval)",
            ELSE
              PRINT #1, MID$(LTRIM$(RTRIM$(GeochemParam(I - 2))), 1, 3) +
"(mg/L)     ",
            END IF
          ELSE
            IF Layer = 0 THEN
              PRINT #1, MID$(LTRIM$(RTRIM$(GeochemParam(I - 2))), 1, 3) +
"(mg/Interval)",
            ELSE
              PRINT #1, MID$(LTRIM$(RTRIM$(GeochemParam(I - 2))), 1, 3) +
"(mg/L)     ",
            END IF
          END IF
        NEXT
        L = 0
        FOR I = DataCols1 + 1 TO DataCols1 + (CCL(12) * 2) STEP 2
          L = L + 1
          SPP$ = " "
          IF L > 9 THEN SPP$ = ""
          PRINT #1, LTRIM$(RTRIM$(STR$(L))) + ":" + SPP$ + "S mm. (kg)",
          PRINT #1, LTRIM$(RTRIM$(STR$(L))) + ":" + SPP$ + "NP mm. (kg)",
        NEXT
        PRINT #1, "Pump #2 (m^3/d)", "Water Elevation (m)"
        Row = 0
        S = 0
        IF CCL(0) = 40 THEN S = 6
        LastYear = SimTime_Array(S + 3)
        LOCATE NLine, 15
        MSG$ = MSG$ + "."
        PRINT MSG$
        DO WHILE NOT EOF(5)
          Row = Row + 1
          J = 1
          INPUT #5, Zed(J)
          ThisYear = INT(Zed(J))
          TimeRemain = Zed(J) - CSNG(ThisYear)
          Entry = STR$(ThisYear)
          PRINT #1, Entry,
          IF XYFlag(3) = 1 THEN PRINT #1, CHR$(44);
          IF CCL(5) = 0 THEN
            IF ThisYear > LastYear THEN
              Leap = (2000 - ThisYear) MOD 4
              IF Leap = 0 THEN
                Leap = 1
                TimeConvert = .002732
              ELSE
                Leap = 0
                TimeConvert = .00274
              END IF
              LastYear = ThisYear
            END IF
          END IF
          ' MSGBOX "At Row =" + STR$(Row) + "  TimeConvert and TimeRemain=" +
STR$(TimeConvert) + STR$(TimeRemain)
          TestInterval = CINT(TimeRemain / TimeConvert) + 1
          Entry = STR$(TestInterval)
          PRINT #1, Entry,
          FOR J = 2 TO DCols - 1
            INPUT #5, Zed(J)
            Entry = STR$(Zed(J))
            PRINT #1, Entry,
          NEXT
          INPUT #5, Zed(DCols)
          Entry = STR$(Zed(DCols))
          PRINT #1, Entry
        LOOP
        LOCATE NLine, 15
        MSG$ = MSG$ + "."
        PRINT MSG$
        CLOSE #5
      NEXT Layer
      IF ICount = 1 THEN
        MSG$ = "Writing of Operation Simulation Results: COMPLETED          "
      ELSE
        MSG$ = "Writing of Closure Simulation Results: COMPLETED          "
      END IF
      LOCATE NLine, 15
      PRINT MSG$
      REM Simulation results finished
     LOOP UNTIL ICount = NumLoops
    END IF 'Info1
    CLOSE #1
    RESET
    REDIM MinewallArray1(1, 1) AS Strlen, MinewallArray2(1, 1) AS STRING * 16
    REDIM GeochemRate1(1, 1) AS Strlen, GeochemRate2(1, 1) AS STRING * 16
```

```
    Pause (20)

END SUB

------------------------------------------------------------

' ************************************
' MINEWALL 2.0
' MW-REPT1.FRM FORM MODULE
' CHOOSE INFORMATION TO INCLUDE IN REPORT
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'


Version 1.00
BEGIN Form ReportForm1
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Write Report"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(22)
        Left         = Char(5)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(70)
        WindowState  = 0
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "For the report, you have a choice of including the
input data, the results of the simulation, or both.  Choose below by checking one or two boxes.
The next screen will allow you to give a distinctive name to the report."
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(4)
                Left         = Char(3)
                MousePointer = 0
                TabIndex     = 0
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(62)
        END
        BEGIN Label Label2
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "Because of the number of geochemical parameters
and other information, the width of the report will likely exceed 80 columns and possibly 200
columns.  Consequently, you should retrieve the report into a word processor and adjust the font
size to fit your printer."
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(5)
                Left         = Char(3)
                MousePointer = 0
                TabIndex     = 1
                Tag          = ""
                Top          = Char(6)
                Visible      = -1
                Width        = Char(63)
        END
        BEGIN CheckBox chkReport1Check1
                BackColor    = QBColor(7)
                Caption      = "Include &input data"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(3)
                MousePointer = 0
                TabIndex     = 2
                TabStop      = -1
                Tag          = ""
                Top          = Char(12)
                Value        = 0
                Visible      = -1
                Width        = Char(29)
        END
        BEGIN CheckBox chkReport1Check2
                BackColor    = QBColor(7)
                Caption      = "Include &simulation results"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(35)
                MousePointer = 0
                TabIndex     = 3
                TabStop      = -1
                Tag          = ""
                Top          = Char(12)
                Value        = 0
                Visible      = -1
                Width        = Char(30)
        END
        BEGIN CommandButton cmdReport1Quit
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Quit"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(50)
                MousePointer = 0
                TabIndex     = 6
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdReport1OK
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&OK"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(6)
                MousePointer = 0
                TabIndex     = 4
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdReport1Help
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Help"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(28)
                MousePointer = 0
                TabIndex     = 5
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
```

```
        END
END

REM $DYNAMIC
SUB cmdReport1Help_Click ()
   IF HelpLoaded = -1 THEN
      CALL HelpShowTopic("Write Simulation Report")
   END IF
END SUB

SUB cmdReport1OK_Click ()
   Choice1 = 0
   IF chkReport1Check1.Value = 1 THEN
      Choice1 = 1
   END IF
   IF chkReport1Check2.Value = 1 THEN
      Choice1 = Choice1 + 2
   END IF
   CCL(0) = Choice1
   IF CCL(0) = 0 THEN CCL(0) = -1
   ReportForm1.HIDE

END SUB

SUB cmdReport1Quit_Click ()
   CCL(0) = -1
   ReportForm1.HIDE
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-SATFM.FRM FORM MODULE
' ADJUSTMENT OF SATURATED FLOW AS LEVEL RISES
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

Version 1.00
BEGIN Form SatForm
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Adjustment of Saturated Flow During Closure"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(22)
        Left         = Char(6)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(65)
        WindowState  = 0
        BEGIN CommandButton cmdSatHelp
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Help"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(44)
                MousePointer = 0
                TabIndex     = 5
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdSatOK
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&OK"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(7)
                MousePointer = 0
                TabIndex     = 4
                TabStop      = -1
                Tag          = ""
                Top          = Char(17)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN OptionButton optSatNoChange
                BackColor    = QBColor(7)
                Caption      = "&No change; use earlier data as entered"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 0
                TabStop      = 0
                Tag          = ""
                Top          = Char(7)
                Value        = 0
                Visible      = -1
                Width        = Char(57)
        END
        BEGIN OptionButton optSatPower
                BackColor    = QBColor(7)
                Caption      = "Flow decreases at a &power (enter below) of
remaining height to equilibrium"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 2
                TabStop      = 0
                Tag          = ""
                Top          = Char(11)
                Value        = 0
                Visible      = -1
                Width        = Char(63)
        END
        BEGIN TextBox txtSatPower
                BackColor    = QBColor(7)
                BorderStyle  = 1
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(39)
                MousePointer = 0
                MultiLine    = 0
                ScrollBars   = 0
                TabIndex     = 3
                TabStop      = -1
                Tag          = ""
                Text         = "1.0"
                Top          = Char(13)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN Label Label2
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "Power:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(32)
                MousePointer = 0
                TabIndex     = 7
```

```
            Tag         = ""
            Top         = Char(14)
            Visible     = -1
            Width       = Char(7)
        END
        BEGIN OptionButton optSatLinear
            BackColor   = QBColor(7)
            Caption     = "Flow decreases &linearly as water level rises to
equilibrium"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(0)
            MousePointer = 0
            TabIndex    = 1
            TabStop     = -1
            Tag         = ""
            Top         = Char(9)
            Value       = -1
            Visible     = -1
            Width       = Char(63)
        END
        BEGIN Label Label1
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "During closure, water level in the mine may rise.
This can cause the flow of saturated groundwater into the mine to decrease as the level rises and
hydraulic gradient decreases.                                    Choose an option
below for calculating the decreasing rate of flow."
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(7)
            Left        = Char(0)
            MousePointer = 0
            TabIndex    = 6
            Tag         = ""
            Top         = Char(1)
            Visible     = -1
            Width       = Char(63)
        END
END


REM $DYNAMIC
SUB cmdSatHelp_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Saturated Flow")
  END IF
END SUB

DEFSNG A-Z
SUB cmdSatOK_Click ()
  IF optSatNoChange.Value = True THEN
    CCL(33) = 0
    SatPower = 0!
  END IF
  IF optSatLinear.Value = True THEN
    CCL(33) = 1
    SatPower = 1!
  END IF
  IF optSatPower.Value = True THEN
    CCL(33) = 2
    SatPower = VAL(txtSatPower.Text)
  END IF
  SatForm.HIDE
  UNLOAD SatForm
END SUB

DEFINT A-Z
SUB Form_Load ()
  IF CCL(33) = 0 THEN
    optSatNoChange.Value = True
  ELSEIF CCL(33) = 1 THEN
    optSatLinear.Value = True
  ELSE
    optSatPower.Value = True
    txtSatPower.Text = STR$(SatPower)
  END IF
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-SETSP.BAS CODE MODULE
' SETS UP INPUT TO SPREADSHEET FOR H=13 TO 18
' ************************************

DEFINT A-Z

'$INCLUDE: 'MW-COMDF.BI'

DECLARE SUB SpreadNew (Wks() AS STRING * 16, Frmt$(), ColWdths%(), Wdth%,
Rows%, Action%)
DECLARE SUB RunSpr (NumRows%, NumCols%, ArrayName() AS STRING * 16)
DECLARE SUB SetupSpread ()
DECLARE SUB Pause (Ticks%)
DECLARE SUB MinewallXMS ()

DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB XmsRelMem (BYVAL Handle)
DECLARE FUNCTION Exist% (FileName$)
DECLARE SUB FCopy (Source$, Dest$, Buffer$, ErrCode%)


'$FORM Form1
'$FORM Form4
'$FORM Form5
'$FORM SatForm

REM $DYNAMIC
SUB SetupSpread ()
  NumCols = NumColsSpr
  NumRows = NumRowsSpr
  NumElsSpr = (NumRowsSpr + 1) * (NumColsSpr + 1)
  NumEls = NumElsSpr
  DIM Zed(NumCols) AS SINGLE
  IF CCL(5) = 0 THEN
    A$ = "Day"
  ELSEIF CCL(5) = 1 THEN
    A$ = "Week"
  ELSE
    A$ = "Month"
  END IF
REM If data already exist, ask if old data should be erased or just edited
  IF CCL(CCL(0)) > 0 THEN
    Form4.SHOW 1
    IF CCL(CCL(0)) < 0 THEN
      CCL(CCL(0)) = CCL(CCL(0)) + 50
      EXIT SUB
    END IF
  END IF
REM If new data to be entered
  IF CCL(CCL(0)) = 0 THEN
    FOR K = 1 TO NumReps
      FOR I = 1 TO 2
        IF XmsName(CCL(0), I) > 0 THEN CALL XmsRelMem(XmsName(CCL(0), I))
      NEXT
      MinewallArray2(2, 1) = A$
      IF K = 1 THEN
        IF CCL(3) < 2 THEN
          MinewallArray2(1, 2) = "* OPERATION"
          TimeRound = 1
        ELSE
          MinewallArray2(1, 2) = "* CLOSURE"
          TimeRound = 2
        END IF
      ELSE
        MinewallArray2(1, 2) = "* CLOSURE"
        TimeRound = 2
      END IF
      FOR R = 3 TO NumRows
        MinewallArray2(R, 1) = TimeParam(R - 2, TimeRound)
      NEXT
      FOR I = 1 TO CCL(4)
```

```
        MinewallArray2(2, I + 2) = GeochemParam(I)
      NEXT
      ThisYear = 1960! + SimTime_Array((TimeRound - 1) * 6 + 3)
      MinewallArray2(1, 3) = "* YEAR = " + STR$(ThisYear)
      MSG$ = "In order to assist data entry, prepare to enter one default value (including zero)
for each parameter.  Each default value will then be initially attributed to every time period.
You can then change it as desired."
      A% = MSGBOX(MSG$, 1)
      IF A% = 2 THEN
        EXIT SUB
      ELSE
        FOR CC = 2 TO NumCols
          MinewallArray2(3, CC) = "0.0"
          FOR RR = 4 TO NumRows
            MinewallArray2(RR, CC) = ""
          NEXT
        NEXT
        MinewallArray2(4, 2) = "** Only Enter"
        MinewallArray2(4, 3) = "Seed Values On"
        MinewallArray2(4, 4) = "The Line Above"
        CALL RunSpr(NumRows, NumCols, MinewallArray2())
        FOR RR = 4 TO NumRows
          FOR CC = 2 TO NumCols
            MinewallArray2(RR, CC) = MinewallArray2(3, CC)
          NEXT
        NEXT
      END IF
      FOR RR = 3 TO NumRows
        FOR CC = 2 TO NumCols
          IF MinewallArray2(RR, CC) = "" THEN MinewallArray2(RR, CC) = "0.0"
        NEXT
      NEXT
      LOAD Form5
      Form5.SHOW 1
      IF CCL(CCL(0)) > 2 THEN
        CCL(CCL(0)) = CCL(CCL(0)) - 5
        Form1.mnuInputTime.Checked = True
        EXIT SUB
      ELSEIF CCL(CCL(0)) = 1 THEN ' repeat yearly
        CALL RunSpr(NumRows, NumCols, MinewallArray2())
        FOR I = 1 TO NumRows
          FOR J = 1 TO NumCols
            MinewallArray1(I, J).AA = MinewallArray2(I, J)
          NEXT
        NEXT
        CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumEls, XmsName(CCL(0),
TimeRound))
        CALL MinewallXMS

      ELSEIF CCL(CCL(0)) = 2 THEN ' simulate year-by-year
        FOR I = 1 TO NumRows  ' store default "seed" in Array1
          FOR J = 1 TO NumCols
            MinewallArray1(I, J).AA = MinewallArray2(I, J)
          NEXT
        NEXT
        OPEN TempName(CCL(0), TimeRound) FOR OUTPUT AS #1
        REM *** Start loop
        FOR TLoop = 1 TO TimeTrack(1, TimeRound)
          ' do leap-year stuff
          S = (TimeRound - 1) * 6
          ThisYear = 1960! + SimTime_Array((TimeRound - 1) * 6 + 3) + TLoop - 1
          TestYear = ThisYear
          LeapYear = 0
          TimeFlag2 = 0
          IF CCL(5) = 0 OR CCL(5) = 2 THEN 'daily or monthly simulation
            IF SimTime_Array(S + 2) > 2 THEN
              TestYear = TestYear + 1
              TimeFlag2 = 1
            END IF
          ELSE 'weekly
            IF SimTime_Array(S + 1) > 8 THEN
              TestYear = TestYear + 1
              TimeFlag2 = 1
            END IF
          END IF
          LeapTest = (2000 - CINT(TestYear)) MOD 4
          IF LeapTest = 0 THEN
            LeapYear = 1
          END IF
          NewRows = NumRows
          IF CCL(5) = 0 THEN NewRows = NewRows + LeapYear - 1
          TestYear = ThisYear
          MinewallArray2(1, 3) = "* YEAR = " + STR$(ThisYear)
          FOR I = 3 TO NumRowsSpr
            FOR J = 1 TO NumColsSpr
              MinewallArray2(I, J) = MinewallArray1(I, J).AA
            NEXT J
            IF I = NumRowsSpr AND LeapYear = 0 THEN
              FOR J = 1 TO NumColsSpr
                MinewallArray2(NumRowsSpr, J) = "0"
              NEXT
            END IF
          NEXT I
          ' allow user to change values then send to tempfile
          CALL RunSpr(NumRows, NumCols, MinewallArray2())
          ' zero the values after cutoff date in last year
          IF TLoop = TimeTrack(1, TimeRound) THEN
            IF CCL(5) = 0 THEN 'daily
              Cutoff = 0
              StopMonth = SimTime_Array(S + 5)
              FOR I = 0 TO StopMonth
                Cutoff = Cutoff + MonthlyDays(I)
                IF I = 1 AND LeapYear = 0 THEN Cutoff = Cutoff - 1
              NEXT
              Cutoff = Cutoff - (MonthlyDays(StopMonth) - SimTime_Array(S + 4))
              IF StopMonth = 1 AND LeapYear = 0 THEN Cutoff = Cutoff + 1
            ELSEIF CCL(5) = 1 THEN  'weekly
              Cutoff = SimTime_Array(S + 4) + 1
            ELSE  'Monthly
              Cutoff = SimTime_Array(S + 5) + 1
            END IF
            Flag = 0
            IF TestYear = ThisYear THEN Flag = 1
            FOR I = 4 TO NumRows
              IF TimeCount(I - 2, TimeRound) < TimeCount(I - 3, TimeRound) THEN
Flag = 1
              IF TimeCount(I - 2, TimeRound) > Cutoff AND Flag = 1 THEN
                FOR J = 1 TO NumCols
                  MinewallArray2(I, J) = "0"
                NEXT
              END IF
            NEXT
          END IF
          ' send results to tempfile; last row is all "0" if not a leap year
          FOR I = 3 TO NumRowsSpr
            FOR J = 1 TO NumCols - 1
              PRINT #1, VAL(MinewallArray2(I, J));
            NEXT
            PRINT #1, VAL(MinewallArray2(I, NumCols))
          NEXT
        NEXT TLoop  ' get the next year
        CLOSE #1
      END IF
      IF CCL(0) = 14 AND TimeRound = 2 THEN
        SatForm.SHOW 1
      END IF
      IF CCL(0) = 18 THEN
        IF TimeRound = 1 THEN
          CCL(31) = 0
          MSG$ = "During operation, do you want the flow values adjusted as necessary" +
CHR$(13) + CHR$(10)
          MSG$ = MSG$ + " to maintain a dry pit bottom?"
          X% = MSGBOX(MSG$, 4, "Adjust Pumping #2 During Operation?")
          IF X% = 6 THEN
            CCL(31) = 1
          END IF
        END IF
        IF TimeRound = 2 THEN
          IF CCL(18) = 0 THEN CCL(32) = VAL(PitDims(PitPoints(3), 2))
          MSG$ = "During closure, do you want the flow values adjusted as necessary" +
CHR$(13) + CHR$(10)
          MSG$ = MSG$ + " to/from a Layer to maintain a particular pit-water elevation?"
          X% = MSGBOX(MSG$, 4, "Adjust Pumping #2 During Closure?")
          IF X% = 6 THEN
            A$ = INPUTBOX$("In the box, enter the elevation to be maintained during
closure.  It must lie between Equilibrium Level and Pit Bottom under Pit Layout", "Maintenance
of Pit-Water Elevation During Closure", STR$(CCL(32)))
            CCL(32) = VAL(A$)
            CCL(32) = CCL(32) + 9999
          ELSE
```

```
            CCL(32) = 0
          END IF
        END IF
      END IF
    NEXT K

  ELSE ' Edit existing data

    FOR K = 1 TO NumReps
      MinewallArray2(2, 1) = A$
      IF K = 1 THEN
        IF CCL(3) < 2 THEN
          MinewallArray2(1, 2) = "* OPERATION"
          TimeRound = 1
        ELSE
          MinewallArray2(1, 2) = "* CLOSURE"
          TimeRound = 2
        END IF
      ELSE
        MinewallArray2(1, 2) = "* CLOSURE"
        TimeRound = 2
      END IF
      FOR R = 3 TO NumRows
        MinewallArray2(R, 1) = TimeParam(R - 2, TimeRound)
      NEXT
      FOR I = 1 TO CCL(4)
        MinewallArray2(2, I + 2) = GeochemParam(I)
      NEXT
      ThisYear = 1960! + SimTime_Array((TimeRound - 1) * 6 + 3)
      MinewallArray2(1, 3) = "* YEAR = " + STR$(ThisYear)
      IF CCL(CCL(0)) = 1 THEN ' repeated yearly
        IF XmsName(CCL(0), TimeRound) < > 0 THEN 'previous data exist for this
TimeRound
          CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumEls,
XmsName(CCL(0), TimeRound))
          CALL XmsRelMem(XmsName(CCL(0), TimeRound))
          FOR I = 3 TO NumRows
            FOR J = 2 TO NumCols
              MinewallArray2(I, J) = MinewallArray1(I, J).AA
            NEXT
          NEXT
        ELSE 'no previous data for this TimeRound
          FOR I = 3 TO NumRows
            FOR J = 2 TO NumCols
              MinewallArray2(I, J) = ""
            NEXT
          NEXT
        END IF
        CALL RunSpr(NumRows, NumCols, MinewallArray2())
        FOR I = 1 TO NumRows
          FOR J = 1 TO NumCols
            MinewallArray1(I, J).AA = MinewallArray2(I, J)
          NEXT
        NEXT
        CALL Array2Xms(SEG MinewallArray1(0, 0), ElSize, NumEls, XmsName(CCL(0),
TimeRound))
        CALL MinewallXMS
        CCL(CCL(0)) = 1
      ELSEIF CCL(CCL(0)) = 2 THEN ' edit year-by-year data
        FOR I = 1 TO NumRows ' store default "send" in Array1
          FOR J = 1 TO NumCols
            MinewallArray1(I, J).AA = MinewallArray2(I, J)
          NEXT
        NEXT
        FThere = Exist(TempName(CCL(0), TimeRound))
        IF FThere = -1 THEN ' file exists
          CALL FCopy(TempName(CCL(0), TimeRound), TempName(11, TimeRound),
SPACE$(512), ErrCode%)
          OPEN TempName(CCL(0), TimeRound) FOR OUTPUT AS #1
          OPEN TempName(11, TimeRound) FOR INPUT AS #2
          REM *** Start loop
          FOR TLoop = 1 TO TimeTrack(1, TimeRound)
            ThisYear = 1960! + SimTime_Array((TimeRound - 1) * 6 + 3) + TLoop - 1
            MinewallArray2(1, 3) = "* YEAR = " + STR$(ThisYear)
            FOR I = 3 TO NumRowsSpr
              FOR J = 1 TO NumCols
                INPUT #2, Zed(J)
              NEXT
              FOR J = 2 TO NumCols
                MinewallArray2(I, J) = STR$(Zed(J))
              NEXT
            NEXT
            CALL RunSpr(NumRows, NumCols, MinewallArray2())
            ' send results to tempfile
            FOR I = 3 TO NumRowsSpr
              FOR J = 1 TO NumCols - 1
                PRINT #1, VAL(MinewallArray2(I, J));
              NEXT
              PRINT #1, VAL(MinewallArray2(I, NumCols))
            NEXT
          NEXT TLoop ' get the next year
          CLOSE #1
          CLOSE #2
        ELSE ' file does not exist, so show blank spreadsheet
          OPEN TempName(CCL(0), TimeRound) FOR OUTPUT AS #1
          REM *** Start loop
          FOR TLoop = 1 TO TimeTrack(1, TimeRound)
            ThisYear = 1960! + SimTime_Array((TimeRound - 1) * 6 + 3) + TLoop - 1
            MinewallArray2(1, 3) = "* YEAR = " + STR$(ThisYear)
            CALL RunSpr(NumRows, NumCols, MinewallArray2())
            ' send results to tempfile
            FOR I = 3 TO NumRowsSpr
              FOR J = 1 TO NumCols - 1
                PRINT #1, VAL(MinewallArray2(I, J));
              NEXT
              PRINT #1, VAL(MinewallArray2(I, NumCols))
            NEXT
          NEXT TLoop ' get the next year
          CLOSE #1
          CLOSE #2
        END IF
      END IF
      IF CCL(0) = 14 AND TimeRound = 2 THEN
        SatForm.SHOW 1
      END IF
      IF CCL(0) = 18 THEN
        IF TimeRound = 1 THEN
          CCL(31) = 0
          MSG$ = "During operation, do you want the flow values adjusted as necessary" +
CHR$(13) + CHR$(10)
          MSG$ = MSG$ + " to maintain a dry pit bottom?"
          X% = MSGBOX(MSG$, 4, " Option to Adjust Pumping #2 During Operation")
          IF X% = 6 THEN
            CCL(31) = 1
          END IF
        END IF
        IF TimeRound = 2 THEN
          IF CCL(32) < > 0 THEN CCL(32) = CCL(32) - 9999
          MSG$ = "During closure, do you want the flow values adjusted as necessary" +
CHR$(13) + CHR$(10)
          MSG$ = MSG$ + " to maintain a particular pit-water elevation?"
          X% = MSGBOX(MSG$, 4, " Option to Adjust Pumping #2 During Closure")
          IF X% = 6 THEN
            A$ = INPUTBOX$("In the box, enter the elevation to be maintained during
closure. It must lie between Equilibrium Level and Pit Bottom under Pit Layout", "Maintenance
of Pit-Water Elevation During Closure", STR$(CCL(32)))
            CCL(32) = VAL(A$)
            CCL(32) = CCL(32) + 9999
          ELSE
            CCL(32) = 0
          END IF
        END IF
      END IF
    NEXT
  END IF

END SUB
```

```
' ***************************************
' MINEWALL 2.0
' MW-SIMUL.BAS
' CODE MODULE
' SIMULATION OF OPERATION AND CLOSURE
' ***************************************

'$INCLUDE: 'MW-COMDF.BI'

COMMON SHARED /ConcCalc1/ Layer AS INTEGER, NewRows AS INTEGER
```

```
COMMON SHARED /ConcCalc2/ Conc1() AS SINGLE, WaterData() AS SINGLE
COMMON SHARED /ConcCalc3/ MaxElev AS SINGLE, MaxVolume AS SINGLE, MaxArea
AS SINGLE
COMMON SHARED /ConcCalc4/ RemAmount() AS SINGLE, UnAmount() AS SINGLE
COMMON SHARED /ConcCalc5/ DORatio() AS SINGLE

'$FORM Form1
'$FORM ProgForm
'$FORM ProgGauge

DECLARE SUB MinewallSimulate ()
DECLARE SUB NextData (H%, TimeRound%)
DECLARE SUB ReassignData (H%)
DECLARE SUB MinewallLayerWater ()
DECLARE SUB MinewallXMS ()
DECLARE SUB MinewallChemistry (NewRows%, Layer%)

DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB XmsRelMem (BYVAL Handle)
DECLARE SUB StuffBuf (M$)
DECLARE SUB Pause (Ticks%)
DECLARE FUNCTION Exist% (FileName$)


DIM SHARED OpenFileNum() AS INTEGER
DIM SHARED CalcSide() AS SINGLE
DIM SHARED DORatio() AS SINGLE

REM $DYNAMIC
SUB MinewallSimulate ()
  IF CCL(0) = 39 THEN
    Cchoice = 40
    MLB1$ = "Operation"
    MLB2$ = "Closure"
  ELSE
    Cchoice = 39
    MLB1$ = "Closure"
    MLB2$ = "Operation"
  END IF
  NL$ = CHR$(10) + CHR$(13)
  IF CCL(0) = 40 AND CCL(39) < 1 THEN
      Msg$ = "You have to simulate Operation first."
      MSGBOX Msg$, 0, "PROBLEM!"
      IF MenuPop = 1 THEN
        M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
        CALL StuffBuf(M$)
      END IF
      Form1.Top = 0
      Form1.Left = 0
      Form1.SHOW
      CCL(CCL(0)) = -1
      EXIT SUB
   END IF
   IF CCL(CCL(0)) = 1 THEN
     Msg$ = "You have already performed this simulation at least once this session." + NL$
     Msg$ = Msg$ + "If you have not changed the input data, there is no need to run it
again." + NL$ + NL$
     Msg$ = Msg$ + "Do you wish to simulate " + MLB1$ + " again?"
     IF CCL(3) > 0 AND CCL(Cchoice) > 0 THEN Msg$ = Msg$ + NL$ + "  (If yes,
you should also simulate " + MLB2$ + " again.)"
     A = MSGBOX(Msg$, 4, "Simulate " + MLB1$ + " Again?")
     IF A = 7 THEN
       IF MenuPop = 1 THEN
         M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(24)
         CALL StuffBuf(M$)
       END IF
       Form1.Top = 0
       Form1.Left = 0
       Form1.SHOW
       'CCL(CCL(0)) = -1
       EXIT SUB
     END IF
  END IF
  IF CCL(2) = 0 THEN ' PIT SIMULATION
    MLB3$ = "Open Pit Mine"
  ELSE
    MLB3$ = "Underground Working(s)"
  END IF
  Count1 = 0   'check to see if all input was entered
  Count2 = 8
  FOR I = 11 TO 18
    IF CCL(I) > 0 THEN
      Count1 = Count1 + 1
    END IF
  NEXT
  IF Count1 <> Count2 THEN
     Msg$ = "Not all input data have been entered!" + CHR$(10) + CHR$(13)
     Msg$ = Msg$ + "Return to the Input Data menu and select all those" + CHR$(10) +
CHR$(13)
     Msg$ = Msg$ + "   items which are enabled (not grayed out) and not checked with a '"
+ CHR$(254) + "'"
     MSGBOX Msg$, 0, "PROBLEM - Cannot Run the Simulation"
     Form1.Top = 0
     Form1.Left = 0
     Form1.SHOW
     CCL(CCL(0)) = -1
     EXIT SUB
  END IF
  ' OK to simulate
  IF CCL(0) = 39 THEN 'Operation
     IF Exist("TEMPMSOP.MWL") = -1 THEN KILL ("TEMPMSOP.MWL")
     IF Exist("TEMPPB.MWL") = -1 THEN KILL ("TEMPPB.MWL")
  ELSE   'Closure
     IF Exist("TEMPMSCL.MWL") = -1 THEN KILL ("TEMPMSCL.MWL")
     IF Exist("TEMPLY*.MWL") = -1 THEN KILL ("TEMPLY*.MWL")
  END IF
  DIM Mult1 AS SINGLE, Mult2 AS SINGLE
  IF CCL(5) = 0 THEN
     A$ = "Day"
     Mult1 = 1000!
     Mult2 = 365!
  ELSEIF CCL(5) = 1 THEN
     A$ = "Week"
     Mult1 = 100!
     Mult2 = 52!
  ELSE
     A$ = "Month"
     Mult1 = 100!
     Mult2 = 12!
  END IF
  TimeRound = 1
  IF CCL(0) = 40 THEN TimeRound = 2
  S = (TimeRound - 1) * 6 'for SimTime_Array to calculate start year
  NumRows = NumRowsSpr
  NumCols = NumColsSpr + 1 + (CCL(12) * 2)  'allows all params+pumps#2+each unit
  NumEls = (NumRowsSpr + 1) * (NumColsSpr + 1)
  ElSize = 16
  ' REDIM arrays
  REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen
  REDIM MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
  REDIM GeochemRate1(NumRowsSpr, NumColsSpr) AS Strlen
  REDIM GeochemRate2(NumRowsSpr, NumColsSpr) AS STRING * 16
  REDIM XmsLayerConc(CCL(10)) AS INTEGER
  REDIM Conc1(NumRowsSpr, NumCols) AS SINOLE
  REDIM WaterData(NumRowsSpr, CCL(10) + 1, 4 + CCL(12)) AS SINGLE
  REDIM UnAmount(NumRowsSpr, CCL(7) + 10) AS SINGLE
  REDIM RemAmount(NumRowsSpr, CCL(7) + 10) AS SINGLE
  REDIM OpenFileNum(20) AS INTEGER
  REDIM CalcSide(NumRowsSpr, NumColsSpr + 1 + (CCL(12) * 2)) AS SINGLE
  REDIM CalcArray(NumRowsSpr, NumCols) AS SINGLE
  ' DIM variables
  DIM AnnualFlush(NumRowsSpr, CCL(12) + 1) AS INTEGER
  DIM NumDays AS LONG, ThisYear AS SINGLE, TestYear AS SINGLE, PreviousDays AS
SINGLE, Years AS SINGLE, Factor AS SINGLE, ProgPart AS SINGLE
  DIM LateralArea AS SINGLE, SlopeArea AS SINGLE, FlatArea AS SINGLE, Angle AS
SINGLE, Weight AS SINGLE, Amount AS SINGLE, ParamAmount AS SINGLE, LoadFactor
AS SINGLE, Flow AS SINGLE, Adjust AS SINGLE, RatioPump1 AS SINGLE
  DIM ZeroCheck AS SINGLE, Zed AS SINGLE, Unflooded AS SINGLE, AvailDO AS
SINGLE, Ratio AS SINGLE, JM AS INTEGER
  DIM LeapYear AS INTEGER, RateAcceleration AS SINGLE, TotalSurf AS SINGLE, Offset
AS INTEGER, Cutoff AS INTEGER
  DIM GeochemHolder AS SINGLE, SumAvail AS SINGLE, AvailConc AS SINGLE,
SO4Factor AS SINGLE
  DIM Factor2 AS SINGLE, Factor3 AS SINGLE, CalcColumn AS INTEGER
  DIM UnfloodedPortion(100, CCL(12), CCL(7) + 10) AS SINGLE
  DIM Reactive(100, CCL(12), CCL(7) + 10) AS SINGLE
  DIM StartYear AS INTEGER, EndYear AS INTEGER, NumYears AS INTEGER, LeapDays
AS INTEGER
  DIM Volume AS SINGLE, DelVol AS SINGLE, DelElev AS SINGLE, Ratio2 AS SINGLE
```

```
  DIM II AS INTEGER, III AS INTEGER, J AS INTEGER, GU  AS INTEGER, IJK AS
INTEGER
  FOR I = 1 TO CCL(4)
    IF GeochemCount(I, 1) = 12 THEN REDIM DORatio(NumRowsSpr, CCL(10)) AS
SINGLE
  NEXT
  FOR I = 1 TO NumRowsSpr ' clear array
    FOR Lay = 0 TO CCL(10) + 1
      FOR J = 1 TO CCL(12) + 4
        WaterData(I, Lay, J) = 0!
      NEXT
    NEXT
    FOR Lay = 0 TO CCL(10) + 1' set Top & Bottom Elev's and Lateral Area for Layers 0
(Bottom) and 1
      WaterData(I, Lay, 1) = VAL(PitDims(PitPoints(4) + 2, 2))
      WaterData(I, Lay, 2) = VAL(PitDims(PitPoints(4) + 2, 2))
      WaterData(I, Lay, 4) = VAL(PitDims(PitPoints(4) + 2, 4))
    NEXT
  NEXT
  ' assign MaxElev and MaxVolume
  MaxVolume = VAL(PitDims(PitPoints(3) + 2, 3))
  MaxElev = VAL(PitDims(PitPoints(3) + 2, 2))
  MaxArea = VAL(PitDims(PitPoints(3) + 2, 4))
  IF CCL(32) < > 0 AND TimeRound = 2 THEN 'Pump#2 will regulate level
    MaxElev = CSNG(CCL(32) - 9999)
    FOR IJK = PitPoints(3) + 2 TO PitPoints(4) + 2
      III = IJK
      IF MaxElev > VAL(PitDims(IJK, 2)) THEN EXIT FOR
    NEXT
    IF III = PitPoints(3) + 2 THEN 'exceeds equilibrium level
      MaxElev = VAL(PitDims(PitPoints(3) + 2, 2))
    ELSEIF III = PitPoints(4) + 2 THEN 'below bottom of mine
      MaxElev = VAL(PitDims(PitPoints(3) + 2, 2))
    ELSE
      MaxVolume = ((VAL(PitDims(III - 1, 3)) - VAL(PitDims(III, 3))) / (VAL(PitDims(III
- 1, 2)) - VAL(PitDims(III, 2))))
      MaxVolume = MaxVolume * (MaxElev - VAL(PitDims(III, 2))) + VAL(PitDims(III,
3))
      MaxArea = ((VAL(PitDims(III - 1, 4)) - VAL(PitDims(III, 4))) / (VAL(PitDims(III -
1, 2)) - VAL(PitDims(III, 2))))
      MaxArea = MaxArea * (MaxElev - VAL(PitDims(III, 2))) + VAL(PitDims(III, 4))
    END IF
  END IF

  ' initialize UnfloodedPortion
  FOR I = 1 TO 100
    FOR Unit = 1 TO CCL(12)
      FOR J = 1 TO CCL(7) + 10
        UnfloodedPortion(I, Unit, J) = .01  'Later: stores accumulation in each 1% of Unit
as mg/l %
        Reactive(I, Unit, J) = .01  'Later: stores available reactive amount in each 1% of
Unit as mg/l %
      NEXT
    NEXT
  NEXT

  ProgForm.HIDE
  ProgGauge.HIDE
  ' now check to see if initialization of Geochemical Units has already been done
  ProgForm.Caption = MLB3$  'set up progress forms
  ProgForm.Label1.Caption = "Simulating " + MLB1$ + ":"
  Msg$ = "Initializing Geochemical Units ..."
  ProgForm.Label2.Caption = Msg$
  ProgMsg1$ = "Percent completed: "
  ProgMsg2$ = ""
  ProgGauge.Caption = Msg$
  ProgCount = 0
  ProgMsg3$ = STR$(CINT(ProgCount * 100)) + "%"
  ProgGauge.ProgLabel1.Caption = ProgMsg1$ + ProgMsg3$
  ProgGauge.ProgLabel2.Caption = ProgMsg2$
  GaugeMin = 1
  ProgGauge.ProgLabel3.Caption = LTRIM$(STR$(GaugeMin))
  GaugeMax = CCL(12)
  ProgGauge.ProgLabel4.Caption = "  " + LTRIM$(RTRIM$(STR$(GaugeMax)))
  GaugeInt = (GaugeMax - GaugeMin) + 1
  ProgForm.SHOW 0

 InitFlag = 0
 IF CCL(0) = 40 AND CCL(3) < 2 THEN InitFlag = 1
 IF InitFlag = 0 THEN
  REDIM GeochemInventory(CCL(12), CCL(7) + 10) AS SINGLE
  REDIM GeochemAccum(CCL(12), CCL(7) + 10, 3) AS SINGLE
  ProgGauge.SHOW

  REM Do past-to-present geochemical inventory for each unit
  FOR M = 1 TO CCL(12)
    UnitNum = M + 1  'some arrays are offset by 1 due to labels
    S = (TimeRound - 1) * 6
    PreviousDays = VAL(GeochemName(6, UnitNum)) * 365!
    LeapDays = 0
    NumYears = VAL(GeochemName(6, UnitNum))
    Years = CSNG(VAL(GeochemName(6, UnitNum)))
    EndYear = 1960 + SimTime_Array(S + 3)
    StartYear = 1960 + SimTime_Array(S + 6)
    FOR I = StartYear TO EndYear
      LeapTest = (2000 - I) MOD 4
      IF LeapTest = 0 THEN LeapDays = LeapDays + 1
    NEXT I
    IF LeapTest = 0 THEN
      IF CCL(5) = 1 THEN
        IF SimTime_Array(S + 4) < 7 THEN LeapDays = LeapDays - 1
      ELSE
        IF SimTime_Array(S + 5) < 1 THEN LeapDays = LeapDays - 1
      END IF
    END IF
    LeapTest = (2000 - StartYear) MOD 4
    IF LeapTest = 0 THEN
      IF CCL(5) = 1 THEN  'weekly simulation
        IF SimTime_Array(S + 1) > 7 THEN LeapDays = LeapDays - 1
      ELSE
        IF SimTime_Array(S + 2) > 1 THEN LeapDays = LeapDays - 1
      END IF
    END IF
    ' set no. days leading up to start of simulation
    PreviousDays = PreviousDays + CSNG(LeapDays)
    GeochemInventory(M, 1) = PreviousDays
    IF GeochemInventory(M, 1) = 0 THEN GeochemInventory(M, 1) = 1
      ' calculate area (m^2/unit)
    LateralArea = VAL(GeochemName(7, UnitNum))
    FlatArea = LateralArea * (100! - VAL(GeochemName(8, UnitNum))) / 100!
    SlopeArea = LateralArea * VAL(GeochemName(8, UnitNum)) / 100!
    Angle = VAL(GeochemName(9, UnitNum))
    SlopeArea = SlopeArea / SIN(1.5708 - Angle * .0174533#)
    LateralArea = FlatArea + SlopeArea
    GeochemInventory(M, 5) = LateralArea
    ' calculate total areas flushed regularly, annually, and not at all (m^2/unit)
    GeochemInventory(M, 2) = LateralArea * VAL(GeochemName(10, UnitNum)) *
VAL(GeochemName(11, UnitNum)) / 100!
    GeochemInventory(M, 3) = LateralArea * VAL(GeochemName(10, UnitNum)) *
VAL(GeochemName(12, UnitNum)) / 100!
    GeochemInventory(M, 4) = LateralArea * VAL(GeochemName(10, UnitNum)) *
VAL(GeochemName(13, UnitNum)) / 100!
    ' calculate reactive weight in kg per m^2 including fractures
    Weight = VAL(GeochemName(5, UnitNum)) * VAL(GeochemName(16, UnitNum))
'reactive t of rock per m^2 of wall
    Weight = Weight * 1000!  'reactive kg of rock per m^2 of wall
    SELECT CASE VAL(GeochemName(4, UnitNum))  'rate control
      ' (M,6) is reduction factor in fresh factor to present
      ' (M,7) is cumulative consumption factor normalized to unit fresh rate
      CASE 1
        GeochemInventory(M, 6) = GeochemInventory(M, 1) ^ GeochemPower(M)
        Amount = 0!
        FOR I = 1 TO GeochemInventory(M, 1)
          Amount = Amount + CSNG(I) ^ GeochemPower(M)
        NEXT
        GeochemInventory(M, 7) = Amount
      CASE 2
        GeochemInventory(M, 6) = 10! ^ (GeochemInventory(M, 1) * GeochemPower(M))
        Amount = 0!
        FOR I = 1 TO GeochemInventory(M, 1)
          Amount = Amount + 10! ^ (CSNG(I) * GeochemPower(M))
        NEXT
        GeochemInventory(M, 7) = Amount
      CASE 3
        ZeroCheck = CSNG(LOG(GeochemInventory(M, 1) * GeochemPower(M)) /
LOG(10))
        GeochemInventory(M, 6) = 1! / Amount
        Amount = 0!
        FOR I = 2 TO GeochemInventory(M, 1)
          IF GeochemPower(M) <= 0 THEN
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```
            ZeroCheck = 1!
          ELSE
            ZeroCheck = (LOG(CSNG(I) * GeochemPower(M)) / LOG(10))
          END IF
          Amount = Amount + 1! / ZeroCheck
        NEXT
        GeochemInventory(M, 7) = Amount
      END SELECT
      ' calculate original amount of reactive sulfide as mg sulfur/geochemical Unit
      GeochemInventory(M, 8) = (Weight * 1000000! * VAL(GeochemName(14, UnitNum)) /
100!) * VAL(GeochemName(10, UnitNum)) * GeochemInventory(M, 5)
        ' calculate original amount of reactive acidity based on S (S*3.125)
      GeochemInventory(M, 9) = GeochemInventory(M, 8) * 3.125
        ' calculate original amount of reactive NP as mg CaCO3/Unit
      GeochemInventory(M, 10) = (Weight * 1000000! * VAL(GeochemName(15, UnitNum)) /
1000!) * VAL(GeochemName(10, UnitNum)) * GeochemInventory(M, 5)
      IF GeochemInventory(M, 10) = 0! THEN RateAccel(M) = 1!
        ' calculate original amount of each leachable parameter as mg X/Unit
      FOR I = 1 TO CCL(7)
        GeochemInventory(M, I + 10) = (Weight * VAL(GeochemName(16 + I, UnitNum)))
* VAL(GeochemName(10, UnitNum)) * GeochemInventory(M, 5)
      NEXT I
      NCols = NumColsSpr
      NumEls = (NumRowsSpr + 1) * (NumColsSpr + 1)
      ' call rates for each unit from XMS, adjust them to fresh rates, and send the new array to
XMS
      CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(M))
      Factor! = 1! 'adjust for fresh vs. aged rates (CCL(8))
      IF CCL(8) = 2 THEN
        Factor = GeochemInventory(M, 6)
        IF Factor > 0! THEN Factor = 1! / Factor
      END IF
      FOR J = 3 TO NumColsSpr
        GeochemRate2(0, J) = ""
      NEXT J
      FOR I = 3 TO NumRowsSpr ' adjust all rates to fresh values
        FOR J = 3 TO NumColsSpr
          ParamAmount = VAL(GeochemRate1(I, J).AA) * Factor
          ' if NP/SO4 inputted, then change to ratio
          IF J = 5 AND CCL(9) = 2 THEN ParamAmount = 1.042 *
VAL(GeochemRate1(I, J - 2).AA) * VAL(GeochemRate1(I, J).AA) * Factor
          GeochemRate1(I, J).AA = STR$(ParamAmount)
          GeochemRate2(0, J) = STR$(VAL(GeochemRate2(0, J)) + ParamAmount)
        NEXT
      NEXT
      FOR J = 3 TO NumColsSpr
        GeochemRate2(0, J) = STR$(VAL(GeochemRate2(0, J)) / (NumRowsSpr - 2))
'average yearly rate
      NEXT J
      I = 0
      JT = 10
      FOR J = 3 TO NCols  'calculate loadings for all parameters
       CountNum = GeochemCount(J - 2, 1)
       IF CountNum = 7 THEN
         ' not important; set to zero under Geochem Units by adding to SO4
       ELSEIF CountNum < 4 OR CountNum > 35 THEN
         ' nothing done; these parameters do not accumulate
       ELSEIF CountNum > 7 AND CountNum < 14 THEN
         ' nothing done: these parameters do not accumulate
       ELSE
         SO4Factor = 1!
         ' accumulating parameters; calculate loadings
         IF CountNum = 6 THEN 'SO4
           JJ = 8
           JK = 3
           SO4Factor = .3333
         ELSEIF CountNum = 5 THEN 'acidity
           JJ = 9
           JK = 4
         ELSEIF CountNum = 4 THEN ' NP
           JJ = 10
           JK = 5
         ELSE 'leachable parameter
           JK = J
           JT = JT + 1
           JJ = JT
         END IF
         ' store accumulations until CalcArray determined
         FOR NNN = 1 TO 3
           NN = 4 - NNN 'due to possible input errors, calculate NOT FLUSHED first
           ' calculate ParamAmount cumul consumption to start of simulation based full area of
unit and fresh rate
           ParamAmount = GeochemInventory(M, 7) * GeochemInventory(M, NN + 1) *
VAL(GeochemRate2(0, JK)) * SO4Factor
           IF GeochemInventory(M, JJ) <= 0! THEN ' no inventory to start with
             ParamAmount = 0!
             GeochemInventory(M, JJ) = 0!
           ELSEIF GeochemInventory(M, JJ) < ParamAmount THEN ' consumption of
inventory prior to simulation; limited accumulation
             ParamAmount = GeochemInventory(M, JJ)
             GeochemInventory(M, JJ) = 0!
           ELSE ' excess inventory; full accumulation
             GeochemInventory(M, JJ) = GeochemInventory(M, JJ) - ParamAmount
           END IF
           GeochemAccum(M, JJ, NN) = GeochemAccum(M, JJ, NN) + ParamAmount /
SO4Factor
         NEXT
         GeochemAccum(M, JJ, 1) = 0! ' no accumulation yet for regular flush
         GeochemAccum(M, JJ, 2) = 0! ' no accumulation yet for periodic flush
         ' distribute total geochemical inventory to Reactive as 1% increments
         ' distribute accumulated amounts to Unflooded Portion as 1% increments
         FOR NNN = 1 TO 100
           Reactive(NNN, M, JJ) = Reactive(NNN, M, JJ) * GeochemInventory(M, JJ)
           UnfloodedPortion(NNN, M, JJ) = UnfloodedPortion(NNN, M, JJ) *
GeochemAccum(M, JJ, 3)
         NEXT NNN
       END IF 'CountNum
      NEXT J
      ' store fresh rates to XMS
      CALL Array2Xms(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(10 + M))
      CALL MinewallXMS
      ProgCount = ProgCount + 1
      ProgPart = CSNG(ProgCount) / CSNG(CCL(12))
      ProgMsg3$ = STR$(CINT(ProgPart * 100!)) + "%"
      ProgGauge.ProgLabel1.Caption = ProgMsg1$ + ProgMsg3$
      ProgMsg2$ = STRING$(CINT(ProgPart * 50!), CHR$(177))
      ProgGauge.ProgLabel2.Caption = ProgMsg2$
      ProgGauge.REFRESH
      CALL Pause(10)
    NEXT M
    ' set up the once-a-year type flush
    FOR I = 3 TO NumRowsSpr
      FOR J = 2 TO CCL(12) + 1
        AnnualFlush(I, J) = FractureFlush(I, J)
      NEXT
    NEXT
  ELSE  'InitFlag=1 so adjust FractureFlush and GeochemRate arrays to reflect
  '       new starting dates between Operation and Closure;  change back to original at end
    IF CCL(5) = 0 THEN 'daily simulation
      ' not available in this version
    ELSEIF CCL(5) = 1 THEN 'weekly simulation
      Offset = SimTime_Array(7) - SimTime_Array(1)
    ELSEIF CCL(5) = 2 THEN 'monthly simulation
      Offset = SimTime_Array(8) - SimTime_Array(2)
    END IF
    ' set up the once-a-year type flush
    FOR I = 3 TO NumRowsSpr
      II = I + Offset
      IF II > NumRowsSpr THEN II = 2 + (II - NumRowsSpr)
      IF II < 3 THEN II = NumRowsSpr - (2 - II)
      FOR J = 1 TO CCL(12) + 1
        AnnualFlush(I, J) = FractureFlush(II, J)
      NEXT
    NEXT

    ' now do GeochemRate arrays
    FOR L = 1 TO CCL(12)
      CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(10 + L))
      CALL XmsRelMem(XmsGeochemRateName(10 + L))
      FOR I = 3 TO NumRowsSpr
        II = I + Offset
        IF II > NumRowsSpr THEN II = 2 + (II - NumRowsSpr)
        IF II < 3 THEN II = NumRowsSpr - (2 - II)
        FOR J = 1 TO NumColsSpr
          GeochemRate2(I, J) = GeochemRate1(II, J).AA
        NEXT
      NEXT
```

```
      FOR I = 3 TO NumRowsSpr
        FOR J = 1 TO NumColsSpr
          GeochemRate1(I, J).AA = GeochemRate2(II, J)
        NEXT J
      NEXT I
      CALL Array2Xms(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(10 + L))
      CALL MinewallXMS
    NEXT L
    ' reassign portion of GeochemInventory to Reactive and GeochemAccum to Unflooded
    FOR M = 1 TO CCL(12)
      JT = 10
      FOR J = 3 TO CCL(4) + 2 'calculate loadings for all parameters
       CountNum = GeochemCount(J - 2, 1)
       IF CountNum = 7 THEN
         ' not important; set to zero under Geochem Units by adding to SO4
       ELSEIF CountNum < 4 OR CountNum > 35 THEN
         ' nothing done; these parameters do not accumulate
       ELSEIF CountNum > 7 AND CountNum < 14 THEN
         ' nothing done: these parameters do not accumulate
       ELSE
         SO4Factor = 1!
         ' accumulating parameters; calculate loadings
         IF CountNum = 6 THEN  'SO4
           JJ = 8
         ELSEIF CountNum = 5 THEN  'acidity
           JJ = 9
         ELSEIF CountNum = 4 THEN  ' NP
           JJ = 10
         ELSE  'leachable parameter
           JT = JT + 1
           JJ = JT
         END IF
         ' distribute total geochemical inventory to Reactive as 1% increments
         ' distribute accumulated amounts to Unflooded Portion as 1% increments
         FOR NNN = 1 TO 100
           Reactive(NNN, M, JJ) = Reactive(NNN, M, JJ) * GeochemInventory(M, JJ)
           UnfloodedPortion(NNN, M, JJ) = UnfloodedPortion(NNN, M, JJ) *
GeochemAccum(M, JJ, 3)
         NEXT NNN
       END IF
      NEXT J
    NEXT M

END IF  'InitFlag
    ProgGauge.HIDE
    Msg$ = "Initialization of Geochemical Units: COMPLETED"
    ProgForm.Label2.Caption = Msg$

REM ************************
REM ************************
REM Big Time Loop for Each MineInterval (day, week, or month)
    Msg$ = "Running Time Loop ..."
    ProgMsg2$ = ""
    ProgForm.Label3.Caption = Msg$
    ProgGauge.Caption = Msg$
    S = (TimeRound - 1) * 6
    ThisYear = SimTime_Array(S + 3) + 1900
    ProgGauge.ProgLabel5.Caption = "Year=" + STR$(ThisYear)
    ProgCount = 0
    ProgMsg3$ = STR$(CINT(ProgCount * 100)) + "%"
    ProgGauge.ProgLabel1.Caption = ProgMsg1$ + ProgMsg3$
    ProgGauge.ProgLabel2.Caption = ProgMsg2$
    GaugeMin = 1900 + SimTime_Array(S + 3)
    ProgGauge.ProgLabel3.Caption = LTRIM$(STR$(GaugeMin))
    GaugeMax = 1900 + SimTime_Array(S + 6)
    ProgGauge.ProgLabel4.Caption = " " + LTRIM$(RTRIM$(STR$(GaugeMax)))
    GaugeInt = (GaugeMax - GaugeMin) + 1
    ProgForm.REFRESH
    ProgGauge.SHOW
    Pump1Flag = 0
    Pump2Flag = 0
REM *** Start loop
    FOR TLoop = 1 TO TimeTrack(1, TimeRound)
      ' clear CalcArray, and CalcSide if Operation (no accumulation)
      IF TimeRound = 1 THEN ' clear CalcSide on each iteration through loop
        REDIM CalcSide(NumRowsSpr, NumColsSpr + 1 + (CCL(12) * 2)) AS SINGLE
      ELSE  ' REDIM CalcSide only once if Closure; otherwise clear all except Row 2 which
contains last year's final loadings
        IF TLoop = 1 THEN
          REDIM CalcSide(NumRowsSpr, NumColsSpr + 1 + (CCL(12) * 2)) AS SINGLE
        ELSE
          FOR I = 3 TO NumRowsSpr
            FOR J = 2 TO NumColsSpr
              CalcSide(I, J) = 0!
            NEXT J
          NEXT I
        END IF
      END IF
      REDIM CalcArray(NumRowsSpr, NumCols) AS SINGLE
      ' do leap-year stuff
      S = (TimeRound - 1) * 6
      ThisYear = 1900! + SimTime_Array(S + 3) + TLoop - 1
      TestYear = ThisYear
      LeapYear = 0
      TimeFlag2 = 0
      IF CCL(5) = 0 OR CCL(5) = 2 THEN 'daily or monthly simulation
        IF SimTime_Array(S + 2) > 1 THEN
          TestYear = TestYear + 1
          TimeFlag2 = 1
        END IF
      ELSE 'weekly
        IF SimTime_Array(S + 1) > 7 THEN
          TestYear = TestYear + 1
          TimeFlag2 = 1
        END IF
      END IF
      IF Mult2 > 300! THEN Mult2 = 365!
      LeapTest = (2000 - CINT(TestYear)) MOD 4
      IF LeapTest = 0 THEN
        LeapYear = 1
        IF Mult2 > 300! THEN Mult2 = 366!
      END IF
      NewRows = NumRows
      IF CCL(5) = 0 THEN NewRows = NewRows + LeapYear - 1
      Mult1 = 1! / Mult2
      CalcArray(3, 1) = ThisYear + (CSNG(TimeCount(1, TimeRound)) * Mult1)
      TestYear = ThisYear
      ' put fractional time labels into the first col of CalcArray
      FOR I = 4 TO NumRows
        IF TimeCount(I - 2, TimeRound) > TimeCount(I - 3, TimeRound) THEN
          CalcArray(I, 1) = TestYear + (CSNG(TimeCount(I - 2, TimeRound)) * Mult1)
          CalcSide(I, 1) = CalcArray(I, 1)
        ELSE
          TestYear = ThisYear + 1
          CalcArray(I, 1) = TestYear + (CSNG(TimeCount(I - 2, TimeRound)) * Mult1)
          CalcSide(I, 1) = CalcArray(I, 1)
        END IF
      NEXT
      ' set LoadFactor to no. of days in each time interval
      IF CCL(5) = 0 THEN
        LoadFactor = 1!
      ELSEIF CCL(5) = 1 THEN
        LoadFactor = 7.019231
        IF LeapYear = 1 THEN LoadFactor = 7.038462
      ELSE
        LoadFactor = 30.417  ' will be adjusted below for each month
      END IF
      IMonth = SimTime_Array(S + 2)
      FOR I = 3 TO NewRows  ' calculate total (+) flow and loadings
        IF LoadFactor > 10! THEN ' reset monthly LoadFactor based on no. of days in a
month
          IF IMonth > 11 THEN IMonth = 0
          LoadFactor = CSNG(MonthlyDays(IMonth))
          IF IMonth = 1 AND LeapYear = 0 THEN LoadFactor = LoadFactor - 1!
          IMonth = IMonth + 1
        END IF
        CalcArray(I, 0) = LoadFactor  ' assign LoadFactor to I,0 for later use by several loops
and MinewallChemistry
        CalcSide(I, 0) = LoadFactor
      NEXT
      'set un-needed times at end of simulation to zero
      IF TLoop = TimeTrack(1, TimeRound) THEN
        IF CCL(5) = 0 THEN  'daily
          ' not available in this version
        ELSEIF CCL(5) = 1 THEN  'weekly
          Cutoff = SimTime_Array(S + 4) + 1 * 3
        ELSE  'Monthly
          Cutoff = SimTime_Array(S + 5) + 1  '3
        END IF
```

```
        Flag = 0
        IF TestYear = ThisYear THEN Flag = 1
        FOR I = 4 TO NumRows
          IF TimeCount(I - 2, TimeRound) < TimeCount(I - 3, TimeRound) THEN Flag =
1
          IF TimeCount(I - 2, TimeRound) > Cutoff AND Flag = 1 THEN
            CalcArray(I, 1) = 0
            CalcArray(I, 0) = 0
            CalcSide(I, 1) = 0
            CalcSide(I, 0) = 0
          END IF
        NEXT
      END IF

REM Loop for Evap, Runoff, and Sat Flows
    FOR H = 14 TO 16     ' Sum up Flows and Loadings for Spreadsheet Arrays, except
Pump #1 and #2 and Precip
      CALL NextData(H, TimeRound)
      FOR I = 3 TO NewRows  ' calculate total (+) flow and loadings
        LoadFactor = CalcArray(I, 0)
        IF LoadFactor = 0 THEN EXIT FOR
        Flow = VAL(MinewallArray2(I, 2)) * LoadFactor
        ' if closure, adjust Sat Flow (H=14) by CCL(33)
        IF H = 14 AND TimeRound = 2 THEN
          IF CCL(33) > 0 THEN
            IF CCL(33) = 1 THEN SatPower = 1!
            Ratio = VAL(PitDims(PitPoints(3) + 2, 2)) - WaterData(I, 1, 1)
            IF Ratio > 0! THEN
              Flow = Flow * (Ratio / (VAL(PitDims(PitPoints(3) + 2, 2)) -
VAL(PitDims(PitPoints(4) + 2, 2)))) ^ SatPower
            ELSE
              Flow = 0!
            END IF
          END IF
        END IF
        CalcArray(I, 2) = CalcArray(I, 2) + Flow
        FOR J = 3 TO NumColsSpr
          CalcArray(I, J) = CalcArray(I, J) + VAL(MinewallArray2(I, J)) * Flow * 1000!
        NEXT J
      NEXT I
      CALL ReassignData(H)
    NEXT H

REM Code for precipitation, H=13
      H = 13     ' Sum up Flows and Loadings
      CALL NextData(H, TimeRound)
      FOR I = 3 TO NewRows  ' calculate total (+) flow and loadings
        ' calculate flow to m^3/day based on area of pit bottom
        ' ***** if closure, adjust based on area of open water
        LoadFactor = CalcArray(I, 0)
        IF LoadFactor = 0 THEN EXIT FOR
        LateralArea = VAL(PitDims(PitPoints(1) + 2, 4))
        Flow = VAL(MinewallArray2(I, 2)) * LateralArea * LoadFactor
        CalcArray(I, 2) = CalcArray(I, 2) + Flow
        FOR J = 3 TO NumColsSpr  'calculate loadings from mg/L concs
          CalcArray(I, J) = CalcArray(I, J) + VAL(MinewallArray2(I, J)) * Flow * 1000!
        NEXT J
      NEXT I
      CALL ReassignData(H)


REM Code for GeochemUnit Rate FLOW ONLY  (loadings come later)
      ' first sum all flows to obtain a trial water level
      H = 11  'temporary ID to assign flows only
      FOR GUnit = 1 TO CCL(12)
        AUnit = GUnit + 1
        CALL Xms2Array($EG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(10 + GUnit))
        Flag = 0
        J = 2
        FOR I = 3 TO NumRowsSpr
          ' re-assign time labels for non-leap year
          J = 2
          GeochemRate2(I, J) = GeochemRate1(I, J).AA
          IF VAL(GeochemRate2(I, J)) > 0! THEN Flag = 1
        NEXT I
        ' do calculations interval-by-interval for one year if flows were inputted
        IF Flag = 1 THEN
         FOR I = 3 TO NewRows
          IF VAL(GeochemRate2(I, 2)) > 0! THEN 'if flow is > 0, use it
            LoadFactor = CalcArray(I, 0)
            IF LoadFactor = 0 THEN EXIT FOR
            ' calculate amount of Unit still exposed and adjust flow accordingly
            Unflooded = 1!
            ' first calculate total % flooded by all Layers
            IF TimeRound = 2 THEN  'change Unflooded only if Closure
              Layer = 1  'only 1 layer allowed in this version
              Unflooded = 1! - (WaterData(NewRows, Layer, 4 + GUnit) / 100!)
              IF Unflooded < 0! THEN
                Unflooded = 0!
                WaterData(I, Layer, 4 + GUnit) = 100!
              END IF
            END IF
            Flow = VAL(GeochemRate2(I, 2)) * LoadFactor * Unflooded
            CalcArray(I, 2) = CalcArray(I, 2) + Flow
          END IF 'VAL(GeochemRate2
         NEXT I
        END IF  'Flag=1
      NEXT GUnit
      CALL ReassignData(H)  'only needs to be called once for all units


      H = 17  'Pump #1 options
      CALL NextData(H, TimeRound)
      FOR I = 3 TO NewRows  ' calculate total (+) flow and loadings
        LoadFactor = CalcArray(I, 0)
        IF LoadFactor = 0 THEN EXIT FOR
        Flow = VAL(MinewallArray2(I, 2)) * LoadFactor
        Pump1Flag = 0
        FOR J = 3 TO NumColsSpr
          IF VAL(MinewallArray2(I, J)) > 0! THEN Pump1Flag = 1  'at least one conc was
inputted
        NEXT
        Ratio = CalcSide(I, 2)
        IF Flow < 0! AND Flow < (-Ratio) THEN Flow = (-Ratio)
        IF Pump1Flag = 0 THEN 'user wants to change flows and loadings from the mine with
composite concs
          IF Ratio < > 0 THEN ' a flow is available for removal
            Ratio = (Ratio + Flow) / Ratio
            FOR J = 2 TO NumColsSpr
              CalcSide(I, J) = CalcSide(I, J) * Ratio
            NEXT
          END IF
        ELSE      'user wants to change flow with predetermined concs
          CalcArray(I, 2) = CalcArray(I, 2) + Flow
          CalcSide(I, 2) = CalcSide(I, 2) + Flow
          FOR J = 3 TO NumColsSpr
            CalcArray(I, J) = CalcArray(I, J) + VAL(MinewallArray2(I, J)) * Flow * 1000!
            CalcSide(I, J) = CalcSide(I, J) + CalcArray(I, J)
          NEXT J
        END IF
      NEXT I
      'reassignment of CalcArray to CalcSide for later cumulative calculations already done above
      '  do not call ReassignData
      '  clear CalcArray
      FOR I = 3 TO NumRows
        FOR J = 2 TO NumCols
          CalcArray(I, J) = 0!
        NEXT
      NEXT


      H = 18   ' Pump #2 options
      Pump2Flag = 0
      IF CCL(31) > 0 AND TimeRound = 1 THEN ' Balance net accumulation to zero near end
of loop
        Pump2Flag = 2
      ELSEIF CCL(32) < > 0 AND TimeRound = 2 THEN  'adjust water level later
        Pump2Flag = 1
      ELSE  ' just add in the effect of Pump #2
        CALL NextData(H, TimeRound)
        FOR I = 3 TO NewRows ' calculate total (+) flow and loadings
          LoadFactor = CalcArray(I, 0)
          IF LoadFactor = 0 THEN EXIT FOR
          Flow = VAL(MinewallArray2(I, 2)) * LoadFactor
          Flag = 0
          FOR J = 3 TO NumColsSpr
            IF VAL(MinewallArray2(I, J)) > 0 THEN Flag = 1  'at least one conc was
inputted
          NEXT
```

```
        Ratio = CalcSide(I, 2)
        IF Flow < 0! AND Flow < (-Ratio) THEN Flow = (-Ratio)
        IF Flag = 0 THEN 'user wants to change flows and loadings from the mine with
composite concs
          IF Ratio < > 0! THEN Ratio = (Ratio + Flow) / Ratio
          FOR J = 2 TO NumColsSpr
            CalcSide(I, J) = CalcSide(I, J) * Ratio
          NEXT
        ELSEIF Flow > 0! THEN 'user wants to change flow with predetermined concs
          CalcArray(I, 2) = CalcArray(I, 2) + Flow
          CalcSide(I, 2) = CalcSide(I, 2) + Flow
          FOR J = 3 TO NumColsSpr
            CalcArray(I, J) = CalcArray(I, J) + VAL(MinewallArray2(I, J)) * Flow * 1000
            CalcSide(I, J) = CalcSide(I, J) + CalcArray(I, J)
          NEXT J
        END IF
      NEXT I
      'clear CalcArray
      FOR I = 3 TO NumRows
        FOR J = 2 TO NumCols
          CalcArray(I, J) = 0!
        NEXT
      NEXT
    END IF

REM If Closure, calculate new water levels and new %flooded for each GeochemUnit
    IF TimeRound = 2 THEN
      ' For each Layer, calculates new values of Top & Bottom Elev, Volume, Area, and %
of each Unit submerged
      ' For cumulative volumes and loadings, last year's final loadings were stored in Row 2
      I = 2
      FOR J = 2 TO NumColsSpr
        CalcArray(I, J) = CalcSide(I, J)
      NEXT J
      FOR I = 3 TO NumRowsSpr
        FOR J = 2 TO NumColsSpr
          CalcArray(I, J) = CalcArray(I - 1, J) + CalcSide(I, J)
        NEXT J
      NEXT I
      CALL MinewallLayerWater
      're-assign adjusted volumes and loadings to CalcSide
      FOR I = 2 TO NumRowsSpr
        FOR J = 2 TO NumColsSpr
          CalcSide(I, J) = CalcArray(I, J)
        NEXT J
      NEXT I
      'clear CalcArray
      FOR I = 2 TO NumRowsSpr
        FOR J = 2 TO NumCols
          CalcArray(I, J) = 0!
        NEXT
      NEXT
    END IF  'TimeRound=2


REM Code for GeochemUnit Rate calculations  (all rates have been adjusted to fresh during
initialization)
    ' flows already added above, so just get loadings
    H = 12  ' Units ID
    NCols = CCL(4) + 2
    NumEls = (NumRowsSpr + 1) * (NCols + 1)
    FOR GUnit = 1 TO CCL(12)
      AUnit = GUnit + 1
      TotalSurf = GeochemInventory(GUnit, 2) + GeochemInventory(GUnit, 3) +
GeochemInventory(GUnit, 4)
      NumDays = CLNG(GeochemInventory(GUnit, 1))
      NumDays2 = CLNG(GeochemInventory(GUnit, 1))
      CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(10 + GUnit))
      FOR I = 3 TO NumRowsSpr
        ' re-assign arrays to start
        FOR J = 2 TO NCols
          GeochemRate2(I, J) = GeochemRate1(I, J).AA
        NEXT J
      NEXT I
      ' do calculations interval-by-interval over one year for each GeochemUnit
      FOR I = 3 TO NewRows
        LoadFactor = CalcArray(I, 0)
        IF LoadFactor = 0 THEN EXIT FOR
        NumDays = NumDays + CLNG(LoadFactor / 2!)
        NumDays2 = NumDays2 + CLNG(LoadFactor)
        ' adjust weekly simulations
        IF CCL(5) = 1 THEN  'adjust weekly simulations for number of days; monthly
already adjusted
          IF TimeCount(I - 2, TimeRound) = 9 AND LeapYear = 1 THEN NumDays2
= NumDays2 + 1'Leap Day
          IF TimeCount(I - 2, TimeRound) = 52 THEN NumDays2 = NumDays2 + 1'
extra day at end of year for 52 weeks of 7 days
        END IF
        ' calculate amount of unit unflooded
        Layer = 0
        Unflooded = 1!
        IF TimeRound = 2 THEN  ' calculated %flooded of Unit only if Closure
          Layer = 1  'only 1 layer allowed in this version
          Unflooded = 1! - (WaterData(I, Layer, 4 + GUnit) / 100!)
          IF Unflooded < 0! THEN
            Unflooded = 0!
            WaterData(I, Layer, 4 + GUnit) = 100!
          END IF
        END IF
        IF VAL(GeochemRate2(I, 2)) > 0! THEN Flow = VAL(GeochemRate2(I, 2)) *
LoadFactor * Unflooded
        SELECT CASE VAL(GeochemName(4, AUnit))
          CASE 1
            Amount = LoadFactor * CSNG(NumDays ^ GeochemPower(GUnit))
          CASE 2
            Amount = LoadFactor * CSNG(10! ^ (NumDays * GeochemPower(GUnit)))
          CASE 3
            ' Amount = CSNG(LOG(NumDays * GeochemPower(GUnit)) / LOG(10))
            IF GeochemPower(GUnit) <= 0 THEN
              Amount = 1!
            ELSE
              Amount = CSNG(LOG(NumDays * GeochemPower(GUnit)) / LOG(10))
            END IF
            IF Amount > 0! THEN
              Amount = LoadFactor / Amount
            ELSE
              Amount = 0
            END IF
        END SELECT

        ' adjust for Rate Acceleration if NP has been depleted
        RateAcceleration = 1!
        IF GeochemInventory(GUnit, 10) = 0 THEN RateAcceleration = RateAccel(GUnit)
        Amount = Amount * RateAcceleration
        ' adjust Amount for unflooded portion while reducing remaining Amount for
submerged rate
        UnAmount(I, 0) = Amount * Unflooded
        RemAmount(I, 0) = Amount - UnAmount(I, 0)

        IF CCL(6) = 2 THEN  'submerged rates controlled by simple factor (as %)
          RemAmount(I, 0) = RemAmount(I, 0) * SubmergenceFactor / 100!
        ELSE  'controlled by DO
          LPK = 0
          FOR LPM = 1 TO CCL(4)
            IF GeochemCount(LPM, 1) = 12 THEN LPK = LPM + 2
          NEXT
          IF LPK = 0 THEN  ' no DO entered by user
            RemAmount(I, 0) = 0
          ELSE  ' get DO
            ' 1.6 is a conversion factor for DO from SO4 * requested
RemAmount(I,0)*Area*%Unflooded*UnfloodedRate
            ParamAmount = 1.6 * RemAmount(I, 0) * VAL(GeochemName(10, AUnit))
* GeochemInventory(M, 5) * VAL(GeochemRate2(I, 3))
            ConcElSize = 4
            ConcNumEls = (NewCols + 1) * (NumRowsSpr + 1)
            AvailDO = 0!
            Conc1(I, LPK) = 0!
            IJK = 1'only 1 layer allowed in this version
            IF WaterData(I, IJK, 4 + GUnit) > 0! THEN  ' this Layer can contribute its
DO
              Conc1(I, LPK) = CalcSide(I, LPK) / (WaterData(I, IJK, 3) * 1000!)
'calculate DO concentration from loading and Layer Volume
              IF Conc1(I, LPK) < 0! THEN Conc1(I, LPK) = 0!
              AvailDO = AvailDO + WaterData(I, IJK, 3) * Conc1(I, LPK) * 1000! *
(WaterData(I, IJK, 4 + GUnit) / (100! * (1! - Unflooded)))
            END IF
            IF AvailDO < ParamAmount THEN ' not enough DO
              RemAmount(I, 0) = AvailDO / (1.6 * VAL(GeochemName(10, AUnit)) *
GeochemInventory(M, 5) * VAL(GeochemRate2(I, LPK)))
```

```
                ParamAmount = AvailDO
              END IF
              IJK = 1  ' only 1 layer allowed in this version
              IF WaterData(I, IJK, 4 + GUnit) > 0! THEN  ' this Layer can contribute its
DO
                AvailConc = Conc1(I, LPK) * (WaterData(I, IJK, 4 + GUnit) / (100! *
(1! - Unflooded)))
                AvailDO = WaterData(I, IJK, 3) * AvailConc * 1000!
                IF ParamAmount <= 0! THEN
                  ParamAmount = 0!
                  DORatio(I, IJK) = 1!
                ELSE
                  DORatio(I, IJK) = AvailDO / ParamAmount
                END IF
                ParamAmount = ParamAmount - AvailDO
                IF ParamAmount > 0! THEN  ' still more DO must be subtracted from
the next above Layer
                  Conc1(I, LPK) = Conc1(I, LPK) - AvailConc
                ELSE
                  Conc1(I, LPK) = Conc1(I, LPK) * DORatio(I, IJK)
                END IF
                CalcSide(I, LPK) = Conc1(I, LPK) * WaterData(I, IJK, 3) * 1000!
'calculate new DO loading
              END IF
            END IF
          END IF

          'recalculate total amount (in days) from unflooded and flooded portions
          Amount = UnAmount(I, 0) + RemAmount(I, 0)
          IF Amount <> 0 THEN
            UnAmount(I, 0) = UnAmount(I, 0) / Amount' save for later use
            RemAmount(I, 0) = RemAmount(I, 0) / Amount' save for later use
          END IF
          JK = 3
          JM = 10
          JT = 2
          FOR J = 3 TO NCols  'calculate loadings for all parameters
            CountNum = GeochemCount(J - 2, 1)
            IF CountNum = 7 THEN
              ' not important: set to zero under Geochem Units by adding SO4
              JK = JK + 1
            ELSEIF CountNum < 4 THEN  'pH, Eh, Temp
              CalcArray(I, JK) = CalcArray(I, JK) + VAL(GeochemRate2(I, JK + 3)) *
Flow * 1000!
              JK = JK + 1
              JT = J
            ELSEIF CountNum > 7 AND CountNum < 14 THEN  ' just calculate loading
from concs
              CalcArray(I, J) = CalcArray(I, J) + VAL(GeochemRate2(I, J)) * Flow * 1000!
              JK = JK + 1
            ELSEIF CountNum > 35 THEN  ' just calculate loading from concs
              CalcArray(I, J) = CalcArray(I, J) + VAL(GeochemRate2(I, J)) * Flow * 1000!
              JK = JK + 1
            ELSE  'SO4, acidity, NP, or leachable parameter
              SO4Factor = 1!
              IF CountNum = 6 THEN  'SO4
                JJ = 8
                JK = 3
                SO4Factor = .33333
              ELSEIF CountNum = 5 THEN 'Acidity
                JJ = 9
                JK = 4
              ELSEIF CountNum = 4 THEN 'NP
                JJ = 10
                JK = 5
              ELSE
                JK = J
                JM = JM + 1
                JJ = JM
              END IF
              Factor2 = CSNG(CINT(Unflooded * 100!) - 1)
              FOR NN = 1 TO 3  'store accumulations until CalcArray determined
                ' ParamAmount = Amount (from LoadFactor [interval days] and fresh-rate
adjustment and Unflooded %)
                '      * Area flushed [1=reg,2=ann,3=not during op] * rate) * SO4Factor :
in units of mg/unit
                ParamAmount = Amount * UnAmount(I, 0) * GeochemInventory(GUnit, NN
+ 1) * VAL(GeochemRate2(I, JK)) * SO4Factor
                IF Factor2 > 0 THEN
                  Factor = ParamAmount / Factor2
                ELSE
                  Factor = 0
                END IF
                SumAvail = 0!
                TopFlooded = CINT((1! - Unflooded) * 100!)
                FOR IJK = TopFlooded + 1 TO 100
                  IF Factor >= Reactive(IJK, GUnit, JJ) THEN 'full amount cannot be
removed
                    Factor3 = Reactive(IJK, GUnit, JJ)
                  ELSE  'sufficient amount to remove
                    Factor3 = Factor
                  END IF
                  SumAvail = SumAvail + Factor3
                  IF NN = 3 THEN UnfloodedPortion(IJK, GUnit, JJ) =
UnfloodedPortion(IJK, GUnit, JJ) + Factor3
                  Reactive(IJK, GUnit, JJ) = Reactive(IJK, GUnit, JJ) - Factor3
                NEXT IJK
                IF SumAvail < 0! THEN SumAvail = 0!
                UnAmount(I, J) = UnAmount(I, J) + SumAvail / SO4Factor
                ' IF NN = 1 AND SumAvail = 0 THEN UnAmount(I, JJ) = 0!  'no accum
on depleted reg-flush surfaces
                GeochemInventory(GUnit, JJ) = GeochemInventory(GUnit, JJ) - SumAvail
                GeochemAccum(GUnit, JJ, NN) = GeochemAccum(GUnit, JJ, NN) +
SumAvail / SO4Factor
                ' assign remaining amounts of S and NP to CalcArray in kg/unit
                CalcColumn = NumColsSpr + (2 * (GUnit - 1))
                IF JJ = 8 THEN
                  CalcArray(I, CalcColumn + 1) = GeochemInventory(GUnit, JJ) /
1000000!
                ELSEIF JJ = 10 THEN
                  CalcArray(I, CalcColumn + 2) = GeochemInventory(GUnit, JJ) /
1000000!
                END IF
              NEXT NN
              ' periodic flush; assign parameter number to NN
              NN = 1
              FOR NT = 1 TO CCL(4)
                IF GeochemCount(NT, 1) = CountNum THEN NN = NT
              NEXT NT
              CalcArray(I, NN + 2) = CalcArray(I, NN + 2) + GeochemAccum(GUnit, JJ,
1)
              GeochemAccum(GUnit, JJ, 1) = 0!
              IF AnnualFlush(I, AUnit) <> 0 THEN ' add part/whole of
GeochemAccum(GUnit, JJ,2)
                CalcArray(I, NN + 2) = CalcArray(I, NN + 2) + GeochemAccum(GUnit,
JJ, 2)
                GeochemAccum(GUnit, JJ, 2) = 0!
              END IF
              ' now do Unflooded distribution and flooding if Closure
              IF TimeRound = 2 THEN
                ' release any accumulated amounts from newly flooded surfaces
                ParamAmount = 0!
                FOR IJK = 1 TO TopFlooded
                  ParamAmount = UnfloodedPortion(IJK, GUnit, JJ) + ParamAmount
                  UnfloodedPortion(IJK, GUnit, JJ) = 0!
                NEXT IJK
                IF ParamAmount > 0 THEN
                  CalcArray(I, NN + 2) = CalcArray(I, NN + 2) + ParamAmount
                  GeochemAccum(GUnit, JJ, 3) = GeochemAccum(GUnit, JJ, 3) -
ParamAmount
                  IF GeochemAccum(GUnit, JJ, 3) < 0 THEN GeochemAccum(GUnit, JJ,
3) = 0
                END IF
                ' now do reactions in flooded portion of unit
                ParamAmount = Amount * RemAmount(I, 0) * TotalSurf *
VAL(GeochemRate2(I, JK)) * SO4Factor
                IF Factor2 < 100 THEN
                  Factor = ParamAmount / (100! - Factor2)
                ELSE
                  Factor = 0
                END IF
                SumAvail = 0!
                FOR IJK = 1 TO TopFlooded
                  IF Factor >= Reactive(IJK, GUnit, JJ) THEN 'full amount cannot be
removed
                    Factor3 = Reactive(IJK, GUnit, JJ)
                  ELSE  'sufficient amount to remove
                    Factor3 = Factor
                  END IF
                  SumAvail = SumAvail + Factor3
```

```
                Reactive(IJK, GUnit, JJ) = Reactive(IJK, GUnit, JJ) - Factor3
              NEXT IJK
              IF SumAvail < 0! THEN SumAvail = 0!
              RemAmount(I, JJ) = RemAmount(I, JJ) + SumAvail / SO4Factor
              GeochemInventory(GUnit, JJ) = GeochemInventory(GUnit, JJ) - SumAvail
              GeochemAccum(GUnit, JJ, 1) = GeochemAccum(GUnit, JJ, 1) + SumAvail
/ SO4Factor
              CalcArray(I, NN + 2) = CalcArray(I, NN + 2) + GeochemAccum(GUnit,
JJ, 1)
              GeochemAccum(GUnit, JJ, 1) = 0!
              CalcColumn = NumColsSpr + (2 * (GUnit - 1))
              IF JJ = 8 THEN
                CalcArray(I, CalcColumn + 1) = GeochemInventory(GUnit, JJ) /
1000000!
              ELSEIF JJ = 10 THEN
                CalcArray(I, CalcColumn + 2) = GeochemInventory(GUnit, JJ) /
1000000!
              END IF
            END IF 'CCL(0)=40
          END IF 'CountNum
        NEXT J
      NEXT I 'Run/time loop for 1-year period
      ' calculate cumulative loadings in mine if Closure
      IF TimeRound = 2 THEN
        FOR I = 3 TO NumRowsSpr
          FOR J = 3 TO NumColsSpr
            CalcArray(I, J) = CalcArray(I, J) + CalcArray(I - 1, J)
          NEXT J
        NEXT I
      END IF
      FOR I = 1 TO NumRowsSpr
        FOR J = 1 TO CCL(7) + 10
          SumAvail = UnAmount(I, J) + RemAmount(I, J)
          IF SumAvail > 0 THEN
            UnAmount(I, J) = UnAmount(I, J) / SumAvail
            RemAmount(I, J) = RemAmount(I, J) / SumAvail
          ELSE
            UnAmount(I, J) = 0!
            RemAmount(I, J) = 0!
          END IF
        NEXT
      NEXT
      CALL ReassignData(H)
      GeochemInventory(GUnit, 1) = GeochemInventory(GUnit, 1) + 365! +
CSNG(LeapYear)
    NEXT GUnit


  IF Pump2Flag = 2 THEN 'balance inflow during operation if CCL(31)=1
    H = 18  ' Pump #2 options
    CCL(18) = 1
    ' Calculate balanced flow, assign concs
    FOR I = 3 TO NewRows ' assign flows and concs to Pump #2
      LoadFactor = CalcArray(I, 0)
      IF LoadFactor = 0 THEN EXIT FOR
      Adjust = CalcSide(I, 2) * (-1!)
      CalcArray(I, NumCols) = Adjust 'the last col is required Pump#2 balance
      MinewallArray1(I, 2).AA = STR$(CalcArray(I, NumCols))
      FOR J = 3 TO NumColsSpr
        IF Adjust = 0! THEN
          MinewallArray1(I, J).AA = STR$(0!)
        ELSE
          MinewallArray1(I, J).AA = STR$(CalcSide(I, J) / (Adjust * 1000!))
        END IF
      NEXT J
    NEXT I
    FOR I = 1 TO NewRows ' assign flows and concs to Pump #2
      FOR J = 1 TO NumColsSpr
        MinewallArray2(I, J) = MinewallArray1(I, J).AA
      NEXT J
    NEXT I
    FOR I = 3 TO NumRowsSpr
      CalcSide(I, NumCols) = CalcSide(I, NumCols) + CalcArray(I, NumCols)
    NEXT
  END IF 'Pump2Flag


  ' at end of TLoop, fill in zeros to excess locations
  IF TLoop = TimeTrack(1, TimeRound) THEN
    FOR I = 3 TO NumRows
      IF CalcSide(I, 0) = 0 THEN
        FOR J = 1 TO NumColsSpr
          CalcSide(I, J) = 0
        NEXT
      END IF
    NEXT
  END IF


  ' Now, send this year's loadings out to tempfile
  OpenFileNum(11) = FREEFILE
  OPEN TempName(11, TimeRound) FOR APPEND AS #OpenFileNum(11)
  Layer = 0
  IF TimeRound = 2 THEN Layer = 1
  I = 2
  DO
    I = I + 1
    CalcSide(I, 1) = CalcArray(I, 1)
    IF CalcSide(I, 0) = 0 THEN EXIT DO
    FOR J = 1 TO NumCols
      PRINT #OpenFileNum(11), CalcSide(I, J);
    NEXT
    PRINT #OpenFileNum(11), WaterData(I, Layer, 1)
  LOOP UNTIL I = NewRows
  CLOSE #OpenFileNum(11)
  OpenFileNum(11) = 0


  ' ***** do chemistry on all Layers (Conc1's)
  Layer = 0
  IF TimeRound = 2 THEN Layer = 1 'only 1 layer allowed in this version
  FOR I = 3 TO NumRowsSpr
      FOR J = 3 TO NumCols
        IF CalcSide(I, 0) = 0 THEN
          Conc1(I, J) = 0
        ELSE
          IF J > NumColsSpr THEN ' just copy Pump#2 and layer data
            Conc1(I, J) = CalcSide(I, J)
          ELSE 'calculate concs from flow
            IF CalcSide(I, 2) > 0 THEN
              Conc1(I, J) = CalcSide(I, J) / (CalcSide(I, 2) * 1000!)
            ELSE
              Conc1(I, J) = 0
            END IF
          END IF
        END IF
      NEXT J
      Conc1(I, 0) = CalcArray(I, 0)
      Conc1(I, 1) = CalcArray(I, 1)
      Conc1(I, 2) = CalcSide(I, 2)
  NEXT I
  ' do chemical controls on Conc1
  CALL MinewallChemistry(NewRows%, Layer%)
  CALL XmsRelMem(XmsLayerConc(Layer))
  CALL Array2Xms(SEG Conc1(0, 0), ConcElSize, ConcNumEls, XmsLayerConc(Layer))
'store adjusted concs
    ' store last interval's recalculated loadings into Row 2 for next year
    CalcSide(2, 2) = CalcSide(NumRowsSpr, 2)
    FOR J = 3 TO NumColsSpr
      CalcSide(2, J) = Conc1(NumRowsSpr, J) * CalcSide(NumRowsSpr, 2) * 1000!
    NEXT J


  ' ***** write all Layers (Conc1) to tempfiles by APPENDing
    NumLayers = 1  ' only 1 layer available in this version
    FOR Lay = 1 TO NumLayers
      Layer = Lay
      IF TimeRound = 1 THEN Layer = 0
      OpenFileNum(Layer) = FREEFILE
      OPEN TempName(Layer + 10, 0) FOR APPEND AS #OpenFileNum(Layer)
      I = 2
      DO
        I = I + 1
        IF CalcSide(I, 0) = 0 THEN EXIT DO
        PRINT #OpenFileNum(Layer), Conc1(I, 1);
        FOR J = 2 TO NumCols
          PRINT #OpenFileNum(Layer), Conc1(I, J);
        NEXT
        PRINT #OpenFileNum(Layer), WaterData(I, Layer, 1)
      LOOP UNTIL I = NewRows
```

```
      CLOSE #OpenFileNum(Layer)
      OpenFileNum(Layer) = 0
    NEXT


  ' now reset cumulative WaterData for next year
  FOR I = 1 TO NumRowsSpr - 1' set all values to those of last time period of year
    FOR Lay = 0 TO CCL(10) + 1
      FOR J = 1 TO CCL(12) + 4
        WaterData(I, Lay, J) = WaterData(NumRowsSpr, Lay, J)
      NEXT
    NEXT
  NEXT


  ProgCount = ProgCount + 1
  ProgPart = CSNG(ProgCount) / CSNG(TimeTrack(1, TimeRound))
  ProgMsg3$ = STR$(CINT(ProgPart * 100!)) + "%"
  ProgGauge.ProgLabel1.Caption = ProgMsg1$ + ProgMsg3$
  ProgMsg2$ = STRING$(CINT(ProgPart * 50!), CHR$(177))
  ProgGauge.ProgLabel2.Caption = ProgMsg2$
  ProgGauge.ProgLabel5.Caption = "Year=" + STR$(ThisYear + 1)
  ProgGauge.REFRESH

'start big time loop again for another year
NEXT TLoop


IF InitFlag = 1 THEN  'reset FractureFlush and GeochemRate arrays back to original
  FOR L = 1 TO CCL(12)
    CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(10 + L))
    CALL XmsRelMem(XmsGeochemRateName(10 + L))
    Offset = (-Offset)
    FOR I = 3 TO NumRowsSpr
      II = I + Offset
      IF II > NumRowsSpr THEN II = 2 + (II - NumRowsSpr)
      IF II < 3 THEN II = NumRowsSpr - (2 - II)
      FOR J = 1 TO NumColsSpr
        GeochemRate2(I, J) = GeochemRate1(II, J).AA
      NEXT
    NEXT
    FOR I = 3 TO NumRowsSpr
      FOR J = 1 TO NumColsSpr
        GeochemRate1(I, J).AA = GeochemRate2(II, J)
      NEXT J
    NEXT I
    CALL Array2Xms(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(10 + L))
    CALL MinewallXMS
  NEXT L
END IF
IF TimeRound = 1 THEN
  TimeTrack(2, TimeRound) = TimeTrack(2, TimeRound + 1)
  Msg$ = "SIMULATION OF OPERATION COMPLETED.  PRESS 'OK' TO RETURN
TO MAIN MENU"
ELSE
  Msg$ = "SIMULATION OF CLOSURE COMPLETED.  PRESS 'OK' TO RETURN TO
MAIN MENU"
END IF
CCL(CCL(0)) = 1
ProgGauge.HIDE
MSG1$ = "Time Stepping: COMPLETED"
ProgForm.Label3.Caption = MSG1$
ProgGauge.HIDE
ProgForm.REFRESH
UNLOAD ProgGauge
ProgForm.HIDE
ProgForm.Label5.Caption = Msg$
ProgForm.SHOW 1
UNLOAD ProgForm

END SUB

REM $STATIC
SUB NextData (H, TimeRound)
  ElSize = 16
  NumEls = (NumRowsSpr + 1) * (NumColsSpr + 1)
  CALL Xms2Array(SEG MinewallArray1(0, 0), ElSize, NumEls, XmsName(H,
TimeRound))
  IF CCL(H) = 1 THEN  'Repeat yearly data
    FOR I = 3 TO NumRowsSpr
      FOR J = 1 TO NumColsSpr
        MinewallArray2(I, J) = MinewallArray1(I, J).AA
      NEXT J
    NEXT I
  ELSE  ' year-by-year
    IF OpenFileNum(H) = 0 THEN
      OpenFileNum(H) = FREEFILE
      OPEN TempName(H, TimeRound) FOR INPUT AS OpenFileNum(H)
    END IF
    FOR I = 3 TO NumRowsSpr
      FOR J = 1 TO NumColsSpr
        INPUT #7, Zed
        MinewallArray2(I, J) = STR$(Zed)
      NEXT
    NEXT
  END IF

END SUB

SUB ReassignData (H)
  'reassign CalcArray to CalcSide for later cumulative calculations
  NumCols = NumColsSpr + 1 + (CCL(12) * 2)
  JL = 2
  IF H = 12 AND TimeRound = 2 THEN JL = 3  ' do not sum layer volumes already
calculated
  FOR I = 3 TO NewRows
    FOR J = JL TO NumColsSpr
      CalcSide(I, J) = CalcSide(I, J) + CalcArray(I, J)
    NEXT
    FOR J = NumColsSpr + 1 TO NumCols
      IF CalcArray(I, J) < > 0 THEN CalcSide(I, J) = CalcArray(I, J)
    NEXT
  NEXT
  FOR I = 3 TO NumRows
    FOR J = 2 TO NumCols
      CalcArray(I, J) = 0!
    NEXT
  NEXT
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-SPRED.BAS CODE MODULE
' INPUT SPREADSHEET
' ORIGINAL CODE FOR NewSpread WRITTEN BY CRESCENT SOFTWARE, AND
'   CODE ADAPTED, ADJUSTED, AND EXPANDED FOR MOUSE CONTROL
' ************************************

DEFINT A-Z

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

DECLARE SUB SpreadNew (Wks() AS STRING * 16, Fmt$(), ColWdths%(), Width%,
Rows%, Action%)
DECLARE SUB RunSpr (NumRows%, NumCols%, ArrayName() AS STRING * 16)
DECLARE SUB Pause (Ticks%)
DECLARE SUB MinewallXMS ()

DECLARE SUB MouseBorder (row1%, col1%, row2%, col2%)
DECLARE SUB MouseDriver (m0%, m1%, m2%, m3%)
DECLARE SUB MouseHide ()
DECLARE SUB MouseInit ()
DECLARE SUB MousePoll (row%, col%, lButton%, rButton%)
DECLARE SUB MouseShow ()
DECLARE SUB ScrSettings (sMode AS INTEGER, sWidth AS INTEGER)
DECLARE SUB SetHigh ()

DECLARE SUB Box0 (UlRow, UlCol, BrRow, BrCol, LineType, Clr)
DECLARE SUB ClearScr0 (UlRow, UlCol, BrRow, BrCol, Clr)
DECLARE SUB Editor (Edited$, EdLen, SCode, NumOnly, CapsOnly, OrigClr, EdClr,
UlRow, LCol)
DECLARE SUB PaintBox0 (UlRow, UlCol, BrRow, BrCol, Clr)
DECLARE SUB QPrint0 (Printed$, Clr)
DECLARE SUB ScrnSave0 (UlRow, UlCol, BrRow, BrCol, SEG Address)
DECLARE SUB ScrnRest0 (UlRow, UlCol, BrRow, BrCol, SEG Address)
```

```
DECLARE SUB ScrollU (UlRow, UlCol, BrRow, BrCol, NLines, Page)
DECLARE SUB ScrollD (UlRow, UlCol, BrRow, BrCol, NLines, Page)
DECLARE SUB ScrollL (UlRow, UlCol, BrRow, BrCol, NLines, Page)
DECLARE SUB ScrollR (UlRow, UlCol, BrRow, BrCol, NLines, Page)
DECLARE SUB StuffBuf (Ky$)
DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB XmsRelMem (BYVAL Handle)

DECLARE FUNCTION ArraySize% (UlRow, UlCol, BrRow, BrCol)
DECLARE FUNCTION Exist% (FileName$)
DECLARE FUNCTION FUsing$ (Number$, Mask$)
DECLARE FUNCTION Monitor% ()
DECLARE FUNCTION MinInt% (Arg1%, Arg2%)

'$FORM Form4
'$FORM Form5
'$FORM SatForm

DIM Wks() AS STRING * 16, Frmt() AS STRING, ColWdths() AS INTEGER

REM $DYNAMIC
SUB RunSpr (NumRows%, NumCols%, ArrayName() AS STRING * 16)

COLOR 2, 0                          'use green on black for screen color
CLS                                 'clear the screen

'---- Set up window display parameters
M = Monitor%                        'see what type of monitor is present
    WIDTH , 25                      'use 50 line mode
    WindRows = 22                   'make display window include 41 lines
    BotLin = 25                     'set the bottom line number for later
    WindRow = 1                     'display window on line 1

'----- Set up for spreadsheet data
Rows = NumRows                      'maximum number of spread sheet rows
Cols = NumCols                      'ditto for columns

IF WindRows > Rows + 2 THEN WindRows = Rows + 2

REDIM Wks(Rows, Cols) AS STRING * 16     'init worksheet data array
REDIM Frmt(Rows, Cols) AS STRING         'init array of formatting strings
REDIM ColWdths(Cols) AS INTEGER          'init table of column widths

'---- Fill In Array
 Wks$(1, 1) = ArrayName$(1, 1)
 Wks$(2, 1) = ArrayName$(2, 1)
 FOR R = 1 TO Rows                  'read each row of data
   FOR C = 1 TO Cols                'read each column of data
     Wks$(R, C) = ArrayName$(R, C)
   NEXT
 NEXT

'---- Set column widths
ColWdths(1) = 20                    'A column
FOR N = 2 TO Cols
  ColWdths(N) = 16
NEXT


COLOR 15, 0                         'bright white on black for messages
Action = 0                          'init action flag
WindWdth = 78                       'make the window 72 characters wide


   LOCATE BotLin, 1                 'print instructions on bottom line
   PRINT "Press the slash key (/) when input is complete or F1 for help";
   LOCATE 25, 22
   CALL QPrint0("/", 12)
   COLOR 15, 0

   '---- Display the Spreadsheet and allow the User to edit it.
   '---- Note: Sub will return when the user presses the "/" key or clicks on the "/" with the
mouse
   LOCATE WindRow, 1
   CALL SpreadNew(Wks(), Frmt$(), ColWdths(), WindWdth, WindRows, Action)
   CLS

' --- Rewrite Array for Any Changes
   FOR R = 3 TO Rows
     FOR C = 2 TO Cols
       T! = VAL(Wks$(R, C))
       S$ = STR$(T!)
       ArrayName$(R, C) = S$
     NEXT
   NEXT
   CLS
   REDIM Wks(1, 1) AS STRING * 16        'init worksheet data array
   REDIM Frmt(1, 1) AS STRING            'init array of formatting strings
   REDIM ColWdths(1) AS INTEGER          'init table of column widths

   CALL Pause(5)

END SUB

REM $STATIC
SUB SpreadNew (Wks() AS STRING * 16, Frmt$(), ColWdths(), Wdth, Rows, Action)

   SELECT CASE Monitor%                 'determine the monitor type
     CASE 3, 5, 7, 9, 10, 12            'CGA, EGA, VGA monitors
       BorderClr = 48                   'border color black on cyan
       WorkClr = 31                     'worksheet use white on blue
       HiClr = 112                      'hi-lite use black on white
     CASE ELSE                          'all other monitors
       BorderClr = 112                  'black on white borders
       WorkClr = 7                      'white on black cells
       HiClr = 112                      'black on white hi-lite
   END SELECT


   '---- Init parameters and save the screen
   IF Action = 0 OR Action = 1 THEN     'if flag set to init window,
     UlRow = CSRLIN                     'save the current cursor line
     MsMinLength = UlRow
     UlCol = 1 ' POS(0)                 '  and column positions
     BrRow = UlRow + Rows + 1           'calc window bottom row number
     MsMaxLength = BrRow
     BrCol = UlCol + Wdth + 1           'ditto for right column
     MsMaxWidth = BrCol
     Lin$ = SPACE$(BrCol - UlCol - 1)   'buffer for composing data
     NumTable$ = "+-.0123456789"        'table of numeric characters
     DispCode$ = "^^^" + CHR$(34)       'table of string justifiers
     Status$ = SPACE$(5)                'buffer for status messages

                                        'clear the window area
     ClearScr0 UlRow, UlCol, BrRow, BrCol, WorkClr
                                        'draw the window frame
     Box0 UlRow, UlCol, BrRow, BrCol, 2, WorkClr
     LOCATE UlRow, BrCol - 7            'print frame for status msg.
     QPrint0 "=|     |=", -1
     LOCATE UlRow, 1
     QPrint0 "H", 12
     LOCATE 24, 1
     QPrint0 "E", 12
     'paint row & column borders
     PaintBox0 UlRow + 2, UlCol + 1, UlRow + 2, BrCol - 1, BorderClr
                                        'paint worksheet area
     PaintBox0 UlRow + 3, UlCol + 1, BrRow - 1, UlCol + 4, BorderClr

     WkCol = 2                          'current cell column
     WkRow = 3                          'current cell row
     UlCelRow = 1                       'upper left cell row
     UlCelCol = 1                       'upper left cell column

     Action = 2                         'set window flag to idle
   END IF

   IF Action = 5 THEN                   'Flag = 5 means pop window
                                        'restore the screen
     Action = 1                         'reset flag
     EXIT SUB                           'bail out
   END IF

   REDIM ColPtrs(UBOUND(Wks$, 2))       'column beginning positions
   REDIM ColBuf$(UBOUND(Wks$, 2))       'buffer for cell contents

   LOCATE , , 0                         'turn the cursor off

   HeadWdth = 0                         'accumulates header width
   Ptr = 0                              'column beginning pos. pointer
```

```
FOR N = 1 TO UBOUND(Wks$, 2)              'for each column,
   HeadWdth = HeadWdth + ColWdths(N)      'accumulate header width
   ColPtrs(N) = Ptr + 1                   'save char. pointer for column
   ColBuf$(N) = SPACE$(ColWdths(N))       'make buffer width of cell
   Ptr = Ptr + ColWdths(N)                'increment pointer
NEXT
Head$ = SPACE$(HeadWdth + 8)              'make the header string

FOR N = 1 TO UBOUND(Wks$, 2)              'compose column letter labels
   IF N > 26 THEN                         'two letter column labels
     Ltr$ = CHR$(((N - 1) \ 26) + 64) + CHR$(((N - 1) MOD 26) + 65)
   ELSE                                   'one letter column labels
     Ltr$ = CHR$(N + 64)
   END IF                                 'insert label in header string
   MID$(Head$, ColPtrs(N) + ((ColWdths(N) - LEN(Ltr$)) \ 2)) = Ltr$
NEXT

GOSUB QPPrintHdr                          'print the column header
GOSUB QPPrintCell                         'display current cell contents
GOSUB QPCalcAll                           'do cell calculations
GOSUB QPHiLite                            'hi-lite the current cell


'---- Main key processing loop
DO
   LSET Status$ = "READY"                 'show READY status indicator
   LOCATE UlRow, BrCol - 6, 0
   QPrint0 Status$, BorderClr
                                          'locate cursor on cell
   LOCATE UlRow + 1, UlCol + LEN(CellAddr$) + 2, 1 'contents window
   Ky$ = ""
   M$ = ""
   MFlag = 0
   DO                                     'wait for key strokes
    IF MousePresent = 1 THEN
     CALL MouseShow
     CALL MousePoll(MsRowNew%, MsColNew%, MsButton%, MsButton2%)
     IF MsButton% = -1 THEN
       MK = 1
       Ky = -100
       IF MsRowNew = 1 THEN
         IF MsColNew = 1 THEN
           Ky = 71
         ELSE
           Ky = 73
         END IF
       ELSEIF MsRowNew > 1 AND MsRowNew < 4 THEN
         Ky = 73
       ELSEIF MsRowNew = 25 THEN
         IF MsColNew = 22 THEN ' col for / key
           Ky$ = "/"
           Ky = -100
           EXIT DO
         ELSE
           Ky = 81
         END IF
       ELSEIF MsRowNew = 24 THEN
         IF MsColNew = 1 THEN 'go to end
           Ky = 79
         ELSE
           Ky = 81
         END IF
       ELSEIF MsRowNew >= MsMaxLength THEN
         Ky = 81
       ELSE
         MsMove = MsRowNew - OUlR
         IF MsMove > 0 THEN
           MK = MsMove
           Ky = 80
         ELSEIF MsMove < 0 THEN
           MK = -MsMove
           Ky = 72
         ELSE
           Ky = -100
         END IF
       END IF
       M$ = ""
       IF Ky > -99 THEN
         IF Ky = 71 THEN
           M$ = CHR$(0) + CHR$(75) + CHR$(80) + CHR$(Ky) + CHR$(0) +
CHR$(80) + CHR$(0) + CHR$(80) + CHR$(0) + CHR$(77)
         ELSEIF Ky = 79 THEN
           FOR II = 1 TO 20
             M$ = M$ + CHR$(0) + CHR$(81)
           NEXT
         ELSE
           FOR MM = 1 TO MK
             M$ = M$ + CHR$(0) + CHR$(Ky)
           NEXT
         END IF
       END IF
     ' check MsColNew
       ML = 1
       Ky = -100
       IF MsColNew = 1 THEN
         IF MsRowNew = 1 THEN
           ' already sent HOME above'
           Ky = -100
         ELSEIF MsRow = 24 THEN
           ' already sent to END above
           Ky = -100
         ELSE
           Ky = 115
         END IF
       ELSEIF MsColNew > 1 AND MsColNew < 6 THEN
         Ky = 115
       ELSEIF MsColNew >= MsMaxWidth THEN
         Ky = 116
       ELSE
         IF MsColNew < OUIC THEN
           MsDist = OUIC - MsColNew
           ML = 1
           Ky = 75
           II = 0
           DO WHILE II < 10
             II = II + 1
             IF OWkCol - II < 1 THEN EXIT DO
             MX = ColWdths(OWkCol - II) - 1
             IF MsDist > MX THEN
               ML = ML + 1
               MsDist = MsDist - MX
             ELSE
               EXIT DO
             END IF
           LOOP
         ELSEIF MsColNew > OUIC + ColWdths(OWkCol) - 1 THEN
           MsDist = MsColNew - (OUIC + ColWdths(OWkCol))
           ML = 1
           Ky = 77
           II = 0
           DO WHILE II < 10
             II = II + 1
             IF OWkCol + II > UBOUND(Wks$, 2) THEN EXIT DO
             MX = ColWdths(OWkCol + II)
             IF MsDist > MX THEN
               ML = ML + 1
               MsDist = MsDist - MX
             ELSE
               EXIT DO
             END IF
           LOOP
         ELSE
           Ky = -100
         END IF
       END IF
       IF Ky > -99 THEN
         FOR MM = 1 TO ML
           M$ = M$ + CHR$(0) + CHR$(Ky)
         NEXT
       END IF
       IF M$ <> "" THEN
         K$ = CHR$(0) + CHR$(80)
         CALL StuffBuf(K$)
         MFlag = 1
       END IF
     ELSE
       Ky$ = ""
       Ky$ = INKEY$
     END IF
   ELSE
```

```
    Ky$ = ""
    Ky$ = INKEY$
  END IF
 LOOP WHILE LEN(Ky$) = 0
 IF MFlag = 1 THEN Ky$ = M$
 IF MousePresent = 1 THEN CALL MouseHide
 IF Ky$ = CHR$(9) THEN                  'make Tab char. into extended
   Ky$ = CHR$(0) + Ky$                  '  Character
   GOTO QPExtKey                        'jump to 2 char key processing
 END IF

 IF LEN(Ky$) = 1 THEN                   'single char. key processing
                                        'if not a control key
   IF Ky$ <> "/" AND Ky$ <> CHR$(13) AND Ky$ <> CHR$(27) THEN
                                        '  they must be entering data
     IF INSTR(NumTable$, Ky$) OR LEN(Frmt$(WkRow, WkCol)) THEN    'is it a
number?
       LSET Status$ = "VALUE"           'set "VALUE" in status box
       Num = 1                          'set # only flag for editor
     ELSE                               'no
       LSET Status$ = "LABEL"           'set "LABEL" in status box
       Num = 0                          'alpha/# flag for editor
     END IF
     LOCATE UlRow, BrCol - 6, 0         'print the status indicator
     QPrint0 Status$, BorderClr         'get edit line length
     EdLen = BrCol - UlCol - LEN(CellAddr$) - 2
     Ed$ = SPACE$(EdLen)                'make a buffer for editing
     StuffBuf Ky$                       'stuff key back in kbd buffer
     LOCATE , , 0                       'turn the cursor off (Editor
                                        'will turn it back on) - this
                                        'is necessary for PS2 W/VGA
                                        'let user edit the cell
     Editor Ed$, EdLen, XCode, Num, 0, 31, 112, UlRow + 1, UlCol +
LEN(CellAddr$) + 2
     GOTO QPCellEdit                    'handle the new cell contents
   END IF
 END IF

QPExtKey:                               'handle extended key codes
 MsFlag = 0
 DO 'process multiple keys if mouse active
  IF LEN(Ky$) < 2 THEN
   MsFlag = 1
  ELSE
   IF LEN(Ky$) = 2 THEN                 'get value of code
     Ky = ASC(RIGHT$(Ky$, 1))
     MsFlag = 1
   ELSE
     VarLen = LEN(Ky$)
     Ky = ASC(RIGHT$(Ky$, 1))
     Ky$ = MID$(Ky$, 1, VarLen - 2)
   END IF

   SELECT CASE Ky                       'branch according to code

   '---- DOWN Arrow key pressed
   CASE 80
     IF WkRow < UBOUND(Wks$, 1) THEN 'if not at bottom of array
                                    'erase the hi-lite
       PaintBox0 OUlR, OUlC, OUlR, OUlC + ColWdths(OWkCol) - 1, WorkClr
       WkRow = WkRow + 1            'increment the row number
       GOSUB QPPrintCell            'display new row's contents
                                    'if new row off bottom of page,
       IF WkRow - UlCelRow = Rows - 2 THEN
         UlCelRow = UlCelRow + 1    'increment upper left cell #
                                    'scroll the screen up
         ScrollU UlRow + 3, UlCol + 1, BrRow - 1, BrCol - 1, 1, 0
         R = UlCelRow + Rows - 3    'set pointer to bottom row #
         GOSUB QPComposeLn          'compose the bottom line
         LOCATE BrRow - 1, UlCol + 1
         QPrint0 Lin$, -1           'print the new bottom line
       END IF
       GOSUB QPHiLite               'hi-lite the new cell
     ELSE
       MsFlag = 1

     END IF

   '---- UP Arrow key pressed
   CASE 72
     IF WkRow > 1 THEN              'if not at top of array
                                    'erase the hi-lite
       PaintBox0 OUlR, OUlC, OUlR, OUlC + ColWdths(OWkCol) - 1, WorkClr
       WkRow = WkRow - 1            'decrement the row number
       GOSUB QPPrintCell            'display new row's contents
       IF WkRow < UlCelRow THEN     'if new row off top of page,
         UlCelRow = UlCelRow - 1    'decrement upper left cell #
                                    'scroll the screen down
         ScrollD UlRow + 3, UlCol + 1, BrRow - 1, BrCol - 1, 1, 0
         R = UlCelRow               'set pointer to top row #
         GOSUB QPComposeLn          'compose the top line
         LOCATE UlRow + 3, UlCol + 1
         QPrint0 Lin$, -1           'print the new top line
       END IF
       GOSUB QPHiLite               'hi-lite the new cell
     ELSE
       MsFlag = 1
     END IF

   '---- LEFT Arrow key pressed
   CASE 75
     IF WkCol > 1 THEN              'if not at first (A) column
                                    'erase the Hi-lite
       PaintBox0 OUlR, OUlC, OUlR, OUlC + ColWdths(OWkCol) - 1, WorkClr
       WkCol = WkCol - 1            'decrement the column number
       GOSUB QPPrintCell            'display new cell's contents
       IF WkCol < UlCelCol THEN     'if off left side of page,
                                    'scroll the screen right
         ScrollR UlRow + 3, UlCol + 5, BrRow - 1, BrCol - 1, ColWdths(WkCol), 0
         UlCelCol = UlCelCol - 1    'decrement upper left cell Col
         GOSUB QPPrintHdr           're-print the header
         GOSUB QPPrintWork          're-print the worksheet
       END IF
       GOSUB QPHiLite               'hi-lite the new cell
     ELSE
       MsFlag = 1
     END IF

   '---- RIGHT Arrow key pressed
   CASE 77
     IF WkCol < UBOUND(Wks$, 2) THEN 'if not at last column
                                    'erase the hi-lite
       PaintBox0 OUlR, OUlC, OUlR, OUlC + ColWdths(OWkCol) - 1, WorkClr
       WkCol = WkCol + 1            'increment the column number
       GOSUB QPPrintCell            'display new cell's contents
                                    'if off right of page,
       IF ColPtrs(WkCol) + ColWdths(WkCol) - ColPtrs(UlColCol) > BrCol - UlCol -
5 THEN
                                    'scroll the screen left
         ScrollL UlRow + 3, UlCol + 5, BrRow - 1, BrCol - 1, ColWdths(UlColCol),
0
         UlCelCol = UlCelCol + 1    'increment upper left cell Col.

         DO WHILE ColPtrs(WkCol) + ColWdths(WkCol) - ColPtrs(UlColCol) >
BrCol - UlCol - 5
           UlCelCol = UlCelCol + 1
         LOOP

         GOSUB QPPrintHdr           're-print the header
         GOSUB QPPrintWork          're-print the worksheet
       END IF
       GOSUB QPHiLite               'hi-lite the new cell
     ELSE
       MsFlag = 1
     END IF

   '---- Page UP key pressed
   CASE 73
     IF UlCelRow - Rows - 2 < 1 THEN 'if not a full page above us
       WkRow = WkRow - UlCelRow + 1 'calculate new cell row
       UlCelRow = 1                 'set upper left cell row to 1
     ELSE                           'otherwise decrement upper
       UlCelRow = UlCelRow - Rows + 2 '  left cell by a page
       WkRow = WkRow - Rows + 2     'decrement cell row by a page
     END IF
     GOSUB QPPrintCell              'display new cell's contents
     GOSUB QPPrintWork              're-print the worksheet
     GOSUB QPHiLite                 'hi-lite the new cell

   '---- Page DOWN key pressed
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    CASE 81                         'if not a full page below us
      IF UlCelRow + ((Rows - 2) * 2) > UBOUND(Wks$, 1) THEN
        Tmp = WkRow - UlCelRow      'save cell row's offset in page
                                    'calc upper left cell address
        UlCelRow = UBOUND(Wks$, 1) - Rows + 3
        WkRow = UlCelRow + Tmp      'set new cell's address
      ELSE                          'otherwise increment upper left
        UlCelRow = UlCelRow + Rows - 2 ' cell's row number by a page
        WkRow = WkRow + Rows - 2    'ditto for cell's row
      END IF
      GOSUB QPPrintCell             'display new cell's contents
      GOSUB QPPrintWork             're-print the worksheet
      GOSUB QPHiLite                'hi-lite the new cell

    '--- Ctrl RIGHT Arrow or TAB key (Page Right)
    CASE 116, 9
      UlCelCol = C                  'set upper left cell to new
                                    ' page then look for end of
      GOSUB ChkUlCelCol

      PaintBox0 OUlR, OUlC, OUlR, OUlC + ColWdths(OWkCol) - 1, WorkClr
      WkCol = UlCelCol              'set cell to upper left column
      GOSUB QPPrintCell             'display new cell's contents
      GOSUB QPPrintHdr              're-print the header
      GOSUB QPPrintWork             're-print the worksheet
      GOSUB QPHiLite                'hi-lite the new cell

    '----- Ctrl LEFT Arrow or Shift TAB key (Page Left)
    CASE 115, 15
      LnWdth = 0                    'looking backwards from current
      FOR C = UlCelCol - 1 TO 1 STEP -1 ' page
        LnWdth = LnWdth + ColWdths(C) 'add up column widths until
        IF LnWdth + 4 > LnLin THEN EXIT FOR ' we have a full page
      NEXT
      UlCelCol = C + 1              'set upper left column #
                                    'erase the hi-lite
      PaintBox0 OUlR, OUlC, OUlR, OUlC + ColWdths(OWkCol) - 1, WorkClr
      WkCol = UlCelCol              'set cell col. to upper left
      GOSUB QPPrintCell             'display new cell's contents
      GOSUB QPPrintHdr              're-print the header
      GOSUB QPPrintWork             're-print the worksheet
      GOSUB QPHiLite                'hi-lite the new cell


    ' ___ F1 key (Help)
    CASE 59
      REDIM ScrBuf(ArraySize%(1, 1, 25, 80))
      'IF MousePresent = 1 THEN CALL MouseHide
      ScrnSave0 1, 1, 25, 80, ScrBuf(1)
      CALL HelpShowTopic("Spreadsheets")
      ScrnRest0 1, 1, 25, 80, ScrBuf(1)
      'IF MousePresent = 1 THEN CALL MouseShow



    '--- F2 function key (Edit Cell)
    CASE 60
      LSET Status$ = "EDIT"         'set the status msg. to EDIT
      LOCATE UlRow, BrCol - 6, 0    'print it
      QPrint0 Status$, BorderClr
                                    'calc the edit window size
      EdLen = BrCol - UlCol - LEN(CellAddr$) - 2
      Ed$ = SPACE$(EdLen)           'make an edit buffer string
      LSET Ed$ = Wks$(WkRow, WkCol) 'put the cell's contents in it
      LOCATE , , 0                  'turn the cursor off
                                    'call the editor routine
      Editor Ed$, EdLen, XCode, 0, 0, 31, 112, UlRow + 1, UlCol + LEN(CellAddr$)
+ 2

      GOTO QPCellEdit               'update cell contents and
                                    ' re-calc
    '--- F5 function key (GOTO cell address)
    CASE 63                         'compose the column letter
      GOSUB QPMakeCellAd            'make cell address string
      OWkRow = WkRow
      OWkCol = WkCol
      DO                            'prompt the user for address
        LSET Lin$ = "Enter address to go to: "
        LOCATE UlRow + 1, UlCol + 1
        QPrint0 Lin$, -1            'print the prompt
        EdLen = BrCol - UlCol - 24  'calculate edit line length
        Ed$ = SPACE$(EdLen)
        Ok = 0                      'put current address in edit
        LSET Ed$ = CellAddr$        ' string
        LOCATE , , 0                'turn cursor off
                                    'call the editor routine
        Editor Ed$, EdLen, XCode, 0, 0, 31, 112, UlRow + 1, UlCol + 24
        IF XCode <> 2 THEN          'if user didn't press Escape
          Ed$ = UCASE$(LTRIM$(RTRIM$(Ed$))) 'chop if up
          EdLtr$ = ""               'parse up the address into
          FOR N = 1 TO LEN(Ed$)     ' column letter and row #
            IF MID$(Ed$, N, 1) < "A" THEN
              EdLtr$ = LEFT$(Ed$, N - 1)
              WkRow = VAL(MID$(Ed$, N))
              EXIT FOR
            END IF
          NEXT

          IF LEN(EdLtr$) = 1 THEN 'single char. column letter
            WkCol = ASC(EdLtr$) - 64
          ELSEIF LEN(EdLtr$) = 2 THEN 'double char. column letter
            WkCol = ((ASC(EdLtr$) - 64) * 26) + (ASC(MID$(EdLtr$, 2)) - 64)
          END IF
                                    'handle bad addresses
          IF N > LEN(Ed$) OR EdLtr$ = "" OR WkRow < 1 OR WkRow >
UBOUND(Wks$, 1) OR WkCol > UBOUND(Wks$, 2) THEN
            BEEP                    'tell the user it's bad
            LSET Lin$ = "Illegal cell or range address.  Press any key to continue."
            LOCATE UlRow + 1, UlCol + 1
            QPrint0 Lin$, -1
            K$ = INPUT$(1)          'wait for user to acknowlege
                                    'bail out if they Escaped
            IF K$ = CHR$(27) THEN XCode = 2
          ELSE                      'no problem,
            Ok = -1                 'set OK flag to true
          END IF
        END IF

      LOOP WHILE NOT Ok AND XCode <> 2 'go back for more if not okay
      IF XCode = 2 THEN
        WkRow = OWkRow
        WkCol = OWkCol
      END IF
                                    'erase the hi-lite
      PaintBox0 OUlR, OUlC, OUlR, OUlC + ColWdths(OWkCol) - 1, WorkClr
      GOSUB QPPrintCell             'display new cell's contents
      DoWork = 0                    'flag to re-print worksheet
                                    'check current row range
      IF WkRow < UlCelRow OR WkRow > UlCelRow + Rows - 3 THEN
                                    'out of bounds, set upper left
        UlCelRow = MinInt(WkRow, UBOUND(Wks$, 1) - Rows + 3)
        DoWork = -1                 ' row number and flag to reprint
      END IF
                                    'check current column range
      IF WkCol < UlCelCol OR WkCol >= C THEN
                                    'out of bounds, set upper left
        UlCelCol = WkCol
        GOSUB ChkUlCelCol
        GOSUB QPPrintHdr            ' col. number and flag to
        DoWork = -1                 ' re-print
      END IF
      IF DoWork THEN GOSUB QPPrintWork 're-print worksheet
      GOSUB QPHiLite                'hi-lite current cell

    '--- HOME key pressed
    CASE 71                         'erase the cell hi-lite
      PaintBox0 OUlR, OUlC, OUlR, OUlC + ColWdths(OWkCol) - 1, WorkClr
      UlCelRow = 1                  'set upper left address to 1
      UlCelCol = 1
      WkRow = 1                     'set current cell address to 1
      WkCol = 1
      GOSUB QPPrintHdr              're-print the header
      GOSUB QPPrintCell             'display new cell's contents
      GOSUB QPPrintWork             're-print the worksheet
      GOSUB QPHiLite                'hi-lite the new cell

    '--- F9 function key (Re-Calc.)
    CASE 67
      GOSUB QPCalcAll               're-calculate whole worksheet

    CASE ELSE                       'no other keys valid
```

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        'BEEP                          'unREM to beep at bad keys

      END SELECT
     END IF
    LOOP UNTIL MaFlag = 1' until all input is handled
  LOOP UNTIL Ky$ = "/" OR Ky$ = CHR$(27)    'go back for more unless the
                                  ' "/" key or Escape pressed
  IF MousePresent = 1 THEN CALL MouseHide
  EXIT SUB                         'bail out

'---- Hi-lite the current cell and save coordinates for later
QPHiLite:
  UlR = WkRow - UlCelRow + UlRow + 3        'screen row number
                                  'left character column number
  UlC = ColPtrs(WkCol) - ColPtrs(UlCelCol) + UlCol + 5
                                  'paint the hi-lite
  PaintBox0 UlR, UlC, UlR, UlC + ColWdths(WkCol) - 1, HiClr

  OUlR = UlR                       'save row number
  OUlC = UlC                       'save column number
  OWkCol = WkCol                   'save worksheet column number

RETURN


'---- Compose a cell address string from the row and column numbers
QPMakeCellAd:
  IF WkCol > 26 THEN                    '2 character label
    Ltr$ = CHR$(((WkCol - 1) \ 26) + 64) + CHR$(((WkCol - 1) MOD 26) + 65)
  ELSE
    Ltr$ = CHR$(WkCol + 64)             '1 character label
  END IF
  CellAddr$ = Ltr$ + LTRIM$(STR$(WkRow))    'add row # to column letter
RETURN


'---- Print the column header labels
QPPrintHdr:
  LOCATE UlRow + 2, UlCol + 5
  QPPrint0 MID$(Head$, ColPtrs(UlCelCol), BrCol - UlCol - 7), -1
RETURN


'---- Print the current cell's contents on top line of window
QPPrintCell:
  LOCATE UlRow + 1, UlCol + 1           'move to top line of window

  GOSUB QPMakeCellAd                    'make the cell address string
  LSET Lin$ = CellAddr$                 'add cell contents to it
  MID$(Lin$, LEN(CellAddr$) + 2) = Wks$(WkRow, WkCol)
  QPPrint0 Lin$, -1                     'print it
RETURN


'---- Check a new right cell for out of bounds
ChkUlCelCol:
  FOR C = UlCelCol + 1 TO UBOUND(Wks$, 2) ' that page.
    LnPs = ColPtrs(C) - ColPtrs(UlCelCol) + 5
    IF LnPs > LnLin THEN EXIT FOR
  NEXT
  IF C > UBOUND(Wks$, 2) THEN    'if past end of array, work
    LnWdth = 0                   ' backwards from there.
    FOR C = UBOUND(Wks$, 2) TO 1 STEP -1
      LnWdth = LnWdth + ColWdths(C)
      IF LnWdth + 5 > LnLin THEN EXIT FOR
    NEXT
    UlCelCol = C + 1             'reset upper left column
  END IF                         'erase the cell hi-lite
RETURN



'---- Print a page of the worksheet's contents
QPPrintWork:
  LSET Status$ = ""                     'clear the status box
  LOCATE UlRow, BrCol - 6, 0
  QPPrint0 Status$, BorderClr

  ScrRow = UlRow + 3                    'calc. the screen row to start
  LnLin = LEN(Lin$)                     'get the length of a line
  FOR R = UlCelRow TO UlCelRow + Rows - 3    'for each worksheet row,
    GOSUB QPComposeLn                   'compose a line of data
    LOCATE ScrRow, UlCol + 1
    QPPrint0 Lin$, -1                   'print the row
    ScrRow = ScrRow + 1                 'increment the screen row #
  NEXT
RETURN


'---- Compose a line of spread sheet data
QPComposeLn:
  LSET Lin$ = LTRIM$(STR$(R))           'clear line to worksheet row #
  FOR C = UlCelCol TO UBOUND(Wks$, 2)   'start at upper left column
                                  'calculate offset into line
    LnPs = ColPtrs(C) - ColPtrs(UlCelCol) + 5
                                  'if it's past line the length,
    IF LnPs + ColWdths(C) - 1 > LnLin THEN EXIT FOR ' bail out
    IF LEN(Wks$(R, C)) THEN             'if anything in cell array,
      LSET ColBuf$(C) = ""              ' clear the column's buffer
      MID$(Lin$, LnPs, ColWdths(C)) = ColBuf$(C) 'clear it's part of $

      SELECT CASE LEFT$(Wks$(R, C), 1)  'branch according to left char

        CASE ""                         'left justified string
          MID$(Lin$, LnPs) = MID$(Wks$(R, C), 2)

        CASE "^"                        'centered string
          Offset = (ColWdths(C) - LEN(Wks$(R, C))) \ 2
          IF Offset < 0 THEN Offset = 0
          MID$(Lin$, LnPs + Offset) = MID$(Wks$(R, C), 2)

        CASE CHR$(34), ">"              'right justified string
          Offset = ColWdths(C) - LEN(Wks$(R, C))
          IF Offset < 0 THEN Offset = 0
          MID$(Lin$, LnPs + Offset) = MID$(Wks$(R, C), 2)

        CASE ELSE                       'must be a number
          IF LEN(Fmt$(R, C)) THEN       'is there a formatting string?
            Fmt$ = FUsing$(Wks$(R, C), Fmt$(R, C))  'yes, format it
                                  'see if it fits in cell
            IF LEFT$(Fmt$, 1) = "%" OR ColWdths(C) - LEN(Fmt$) < 0 THEN
              Fmt$ = STRING$(ColWdths(C) - 1, "*")
            END IF                      'put it in line
            MID$(Lin$, LnPs + ColWdths(C) - LEN(Fmt$) - 1) = Fmt$
          ELSE                          'no formatting string
            Temp$ = LTRIM$(Wks$(R, C))
            MPos = ColWdths(C) - LEN(Temp$) - 1'Does it fit?
            IF MPos <= 0 THEN           'no make it all stars
              MID$(Lin$, LnPs) = STRING$(ColWdths(C) - 1, "*")
            ELSE                        'put it in the line
              MID$(Lin$, LnPs + MPos) = Temp$
            END IF
          END IF
        END SELECT
      END IF
  NEXT
RETURN


'---- Process edited cell
QPCellEdit:
  Ky$ = ""                              'clear the key pressed
  IF XCode <> 2 THEN                    'if user didn't press Escape
    Ed$ = LTRIM$(RTRIM$(Ed$))           'chop up the edited string
    IF FRE(Wks$(1, 1)) < LEN(Ed$) + 400 THEN 'if there isn't enough string
      BEEP                              ' space, inform the user
      LSET Lin$ = "Out of memory!  Press any key to continue."
      LOCATE UlRow + 1, UlCol + 1
      QPPrint0 Lin$, -1
      K$ = INPUT$(1)                    'wait for a key press
    ELSE
      IF LEN(Ed$) = 0 THEN              'if it's a nul $ make cell nul
        Wks$(WkRow, WkCol) = ""
                                  'is it a number?
      ELSEIF INSTR(NumTable$, LEFT$(Ed$, 1)) THEN
        Wks$(WkRow, WkCol) = STR$(VAL(Ed$))'yes, make a numeric string
                                  'no justification string?
      ELSEIF INSTR(DispCode$, LEFT$(Ed$, 1)) = 0 THEN
        Wks$(WkRow, WkCol) = "" + Ed$   'make it left justified
```

```
      ELSE
        Wks$(WkRow, WkCol) = Ed$          'all set, just assign it
      END IF

      GOSUB QPPrintCell                   'display contents in window
      GOSUB QPCalc1                       'recalculate based on this cell
    END IF

    SELECT CASE XCode                     'branch according to editor
                                        ' exit code
      CASE 0, 4                           'Enter, Tab - do nothing
      CASE 1                              'Up arrow,
        Ky$ = CHR$(0) + CHR$(72)          'make "Ky$" into an Up arrow
      CASE 3                              'Down arrow
        Ky$ = CHR$(0) + CHR$(80)          'make "Ky$" into a Down arrow
      CASE ELSE                           'nothing else valid
        'BEEP                             'unREM to beep at bad keys
    END SELECT

  ELSE
    GOSUB QPPrintCell                     'Escape pressed, reprint old
  END IF                                ' cell contents
GOTO QPExtKey                           'go back to extended key
                                      ' processing


'---- Re-calculate the entire worksheet
QPCalcAll:
  GOSUB QPPrintWork                       're-print the worksheet page
  GOSUB QPPrintCell                       'and the cell at the top line

RETURN


'---- Re-calculate the worksheet based on a change in one cell
QPCalc1:
  GOSUB QPPrintWork                       'reprint the worksheet page
  GOSUB QPPrintCell                       'and the cell at the top line

IF MousePresent = 1 THEN CALL MouseHide
RETURN

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-SUBS.BAS CODE MODULE
' HOLDS SOME SMALL PROCEDURES CALLED BY
'   OTHER, LARGE PROCEDURES
' ************************************

'$INCLUDE: 'MW-COMDF.BI'

DECLARE SUB MinewallXMS ()


REM $DYNAMIC
SUB MinewallXMS ()
  ' determines if there was sufficient XMS to receive the array
  ' if not, end MINEWALL
    MsgXms2$ = "A BIG PROBLEM HAS OCCURRED!"
    NL$ = CHR$(10) + CHR$(13)
    IF XMSError = 160 OR XMSError = 161 THEN
      MsgXms1$ = "There is no more free extended (XMS) memory," + CHR$(10) +
NL$
      MsgXms1$ = MsgXms1$ + "so MINEWALL 2.0 must halt.  " + NL$ + NL$
      MsgXms1$ = MsgXms1$ + "Press the OK button to return to DOS." + NL$
      MsgXms1$ = MsgXms1$ + "Then run MINEWALL again with a lower time" +
NL$
      MsgXms1$ = MsgXms1$ + "frequency (e.g., weekly instead of daily)" + NL$
      MsgXms1$ = MsgXms1$ + "and/or less geochemical parameters."
      MSGBOX MsgXms1$, 0, MsgXms2$
      END
    ELSEIF XMSError > 0 THEN
      MsgXms1$ = "There has been an unspecified error in extended (XMS) memory,"
      MsgXms1$ = MsgXms1$ + "so MINEWALL 2.0 must halt.  " + NL$ + NL$
      MsgXms1$ = MsgXms1$ + "Press the OK button to return to DOS." + NL$
      MSGBOX MsgXms1$, 0, MsgXms2$
    END
  END IF

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-TIME.FRM FORM MODULE
' GET MONTHLY/WEEKLY/DAILY AND OPERATION/CLOSURE/BOTH
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

DECLARE SUB cmdTimeHelp_Click ()
DECLARE SUB cmdTimeOK_Click ()
DECLARE SUB cmdTimeQuit_Click ()

DECLARE SUB MinewallTimeLabel ()
DECLARE SUB MinewallClear ()
DECLARE SUB StuffBuf (M$)

'$FORM Time3
'$FORM Time2
'$FORM Form3
'$FORM WaitForm


Version 1.00
BEGIN Form Form2
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Time Criteria for MINEWALL Simulations"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(25)
        Left         = Char(0)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(0)
        Visible      = -1
        Width        = Char(78)
        WindowState  = 0
        BEGIN Frame Frame1
                BackColor    = QBColor(7)
                Caption      = "Time Discretization"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(10)
                Left         = Char(0)
                MousePointer = 0
                TabIndex     = 9
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(23)
                BEGIN Label Label1
                        Alignment    = 0
                        AutoSize     = 0
                        BackColor    = QBColor(7)
                        BorderStyle  = 0
                        Caption      = " Simulate each:"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(1)
                        Left         = Char(3)
                        MousePointer = 0
                        TabIndex     = 10
                        Tag          = ""
                        Top          = Char(0)
                        Visible      = -1
                        Width        = Char(16)
```

```
        END
        BEGIN OptionButton Option1
                BackColor   = QBColor(7)
                Caption     = "&Day"
                DragMode    = 0
                Enabled     = 0
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(0)
                MousePointer = 0
                TabIndex    = 0
                TabStop     = 0
                Tag         = ""
                Top         = Char(1)
                Value       = 0
                Visible     = -1
                Width       = Char(12)
        END
        BEGIN OptionButton Option2
                BackColor   = QBColor(7)
                Caption     = "&Week"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(0)
                MousePointer = 0
                TabIndex    = 1
                TabStop     = 0
                Tag         = ""
                Top         = Char(3)
                Value       = 0
                Visible     = -1
                Width       = Char(12)
        END
        BEGIN OptionButton Option3
                BackColor   = QBColor(7)
                Caption     = "&Month"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(0)
                MousePointer = 0
                TabIndex    = 2
                TabStop     = -1
                Tag         = ""
                Top         = Char(5)
                Value       = -1
                Visible     = -1
                Width       = Char(12)
        END
END
BEGIN Frame Frame3
        BackColor   = QBColor(7)
        Caption     = "Time Periods"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(9)
        Left        = Char(0)
        MousePointer = 0
        TabIndex    = 11
        Tag         = ""
        Top         = Char(11)
        Visible     = -1
        Width       = Char(23)
        BEGIN OptionButton optPeriodOperation
                BackColor   = QBColor(7)
                Caption     = "O&peration Only"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(0)
                MousePointer = 0
                TabIndex    = 3
                TabStop     = 0
                Tag         = ""
                Top         = Char(0)
                Value       = 0
                Visible     = -1
                Width       = Char(19)
        END
        BEGIN OptionButton optPeriodClosure
                BackColor   = QBColor(7)
                Caption     = "&Closure Only"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(0)
                MousePointer = 0
                TabIndex    = 4
                TabStop     = 0
                Tag         = ""
                Top         = Char(2)
                Value       = 0
                Visible     = -1
                Width       = Char(17)
        END
        BEGIN OptionButton optPeriodBoth
                BackColor   = QBColor(7)
                Caption     = "&Both"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(0)
                MousePointer = 0
                TabIndex    = 5
                TabStop     = -1
                Tag         = ""
                Top         = Char(4)
                Value       = -1
                Visible     = -1
                Width       = Char(12)
        END
END
BEGIN CommandButton cmdTimeHelp
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "&Help"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(45)
        MousePointer = 0
        TabIndex    = 8
        TabStop     = -1
        Tag         = ""
        Top         = Char(20)
        Visible     = -1
        Width       = Char(12)
END
BEGIN CommandButton cmdTimeOK
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "&OK"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(17)
        MousePointer = 0
        TabIndex    = 6
        TabStop     = -1
        Tag         = ""
        Top         = Char(20)
        Visible     = -1
        Width       = Char(12)
END
BEGIN CommandButton cmdTimeQuit
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "&Quit"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
```

```
                Height      = Char(3)
                Left        = Char(31)
                MousePointer = 0
                TabIndex    = 7
                TabStop     = -1
                Tag         = ""
                Top         = Char(20)
                Visible     = -1
                Width       = Char(12)
        END
END

REM $DYNAMIC
DEFSNG A-Z
SUB cmdTimeHelp_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Time Criteria")
  END IF
END SUB

REM $STATIC
DEFINT A-Z
SUB cmdTimeHelp_GotFocus ()
  cmdTimeHelp_Click
END SUB

REM $DYNAMIC
DEFSNG A-Z
SUB cmdTimeOK_Click ()
  CCL(0) = 1
  CALL MinewallClear
  NumReps = 1
  IF optPeriodOperation.value = True THEN CCL(3) = 0
  IF optPeriodBoth.value = True THEN
    CCL(3) = 1
    NumReps = 2
  END IF
  IF optPeriodClosure.value = True THEN CCL(3) = 2
  ' *** Disable daily simulation in this version
  Option1.value = False
  ' ***
  IF Option1.value = True THEN
    CCL(5) = 0
    IF Time2.Combo1.ListIndex > 11 THEN Time2.Combo1.ListIndex = 11
    IF Time2.Combo0.ListIndex > MonthlyDays(Time2.Combo1.ListIndex) THEN
Time2.Combo0.ListIndex = MonthlyDays(Time2.Combo1.ListIndex)
  ELSEIF Option2.value = True THEN
    CCL(5) = 1
    IF Time2.Combo0.ListIndex > 51 THEN Time2.Combo0.ListIndex = 51
  ELSE
    CCL(5) = 2
    IF Time2.Combo1.ListIndex > 11 THEN Time2.Combo1.ListIndex = 11
  END IF
  ChangeFlag = 0
  IF Time2.Combo5.ListIndex < = Time2.Combo2.ListIndex THEN Time2.Combo5.ListIndex
= Time2.Combo5.ListIndex + 1
  IF Time2.Combo5.ListIndex = Time2.Combo2.ListIndex + 1 THEN ChangeFlag = 1
  IF CCL(5) = 0 AND ChangeFlag = 1 THEN 'make sure sim period is at least one year
    IF Time2.Combo4.ListIndex < Time2.Combo1.ListIndex THEN
      Time2.Combo4.ListIndex = Time2.Combo1.ListIndex
    END IF
    IF Time2.Combo4.ListIndex = Time2.Combo1.ListIndex THEN
      IF Time2.Combo3.ListIndex < = Time2.Combo0.ListIndex THEN
Time2.Combo3.ListIndex = Time2.Combo0.ListIndex + 1
    END IF
  ELSEIF CCL(5) = 1 AND ChangeFlag = 1 THEN
    IF Time2.Combo3.ListIndex < = Time2.Combo0.ListIndex THEN
Time2.Combo3.ListIndex = Time2.Combo0.ListIndex + 1
  ELSEIF CCL(5) = 2 AND ChangeFlag = 1 THEN
    IF Time2.Combo4.ListIndex < = Time2.Combo1.ListIndex THEN
Time2.Combo4.ListIndex = Time2.Combo1.ListIndex + 1
  END IF
  SimTime_Array(1) = Time2.Combo0.ListIndex
  SimTime_Array(2) = Time2.Combo1.ListIndex
  SimTime_Array(3) = Time2.Combo2.ListIndex
  SimTime_Array(4) = Time2.Combo3.ListIndex
  SimTime_Array(5) = Time2.Combo4.ListIndex
  SimTime_Array(6) = Time2.Combo5.ListIndex
  IF CCL(3) = 1 THEN
    IF CCL(5) = 0 THEN
      'IF Time2.Combo3.ListIndex < 28 THEN
      '  Time3.Combo0.ListIndex = Time2.Combo3.ListIndex + 1
      '  Time3.Combo1.ListIndex = Time2.Combo4.ListIndex
      '  Time3.Combo2.ListIndex = Time2.Combo5.ListIndex
      'ELSE
      '  Time3.Combo0.ListIndex = Time2.Combo3.ListIndex + 1
      '  Time3.Combo1.ListIndex = Time2.Combo4.ListIndex
      '  IF Time3.Combo0.ListIndex > MonthlyDays(Time2.Combo4.ListIndex) - 1 THEN
      '    Time3.Combo0.ListIndex = 0
      '    Time3.Combo1.ListIndex = Time3.Combo1.ListIndex + 1
      '  END IF
      '  Time3.Combo2.ListIndex = Time2.Combo5.ListIndex
      '  IF Time3.Combo1.ListIndex > 11 THEN
      '    Time3.Combo1.ListIndex = 0
      '    Time3.Combo2.ListIndex = Time3.Combo2.ListIndex + 1
      '  END IF
      'END IF
    ELSEIF CCL(5) = 1 THEN
      Time3.Combo0.ListIndex = Time2.Combo3.ListIndex + 1
      Time3.Combo1.ListIndex = -1
      Time3.Combo2.ListIndex = Time2.Combo5.ListIndex
      IF Time3.Combo0.ListIndex > 51 THEN
        Time3.Combo0.ListIndex = 0
        Time3.Combo2.ListIndex = Time3.Combo1.ListIndex + 1
      END IF
    ELSEIF CCL(5) = 2 THEN
      Time3.Combo0.ListIndex = -1
      Time3.Combo1.ListIndex = Time2.Combo4.ListIndex + 1
      Time3.Combo2.ListIndex = Time2.Combo5.ListIndex
      IF Time3.Combo1.ListIndex > 11 THEN
        Time3.Combo1.ListIndex = 0
        Time3.Combo2.ListIndex = Time3.Combo1.ListIndex + 1
      END IF
    END IF
  END IF
  SimTime_Array(7) = Time3.Combo0.ListIndex
  SimTime_Array(8) = Time3.Combo1.ListIndex
  SimTime_Array(9) = Time3.Combo2.ListIndex
  SimTime_Array(10) = Time3.Combo3.ListIndex
  SimTime_Array(11) = Time3.Combo4.ListIndex
  SimTime_Array(12) = Time3.Combo5.ListIndex
  CALL MinewallTimeLabel
  Time2.HIDE
  Time3.HIDE
  Form2.HIDE
  UNLOAD Time2
  UNLOAD Time3
  UNLOAD Form2
  WaitForm.HIDE
  UNLOAD WaitForm
  Form1.HIDE
  Form1.mnuInputTime.Checked = True
  Form1.mnuInputTitle.Checked = True
  Form1.mnuInputTime.Enabled = True
  Form1.mnuInputGeochemParam.Enabled = True
  IF MenuPop = 1 THEN
    M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
    CALL StuffBuf(M$)
  END IF
  Form1.Top = 0
  Form1.Left = 0
  Form1.SHOW
END SUB

SUB cmdTimeOK_GotFocus ()
  cmdTimeOK_Click
END SUB

REM $STATIC
DEFINT A-Z
SUB cmdTimeQuit_Click ()
  CCL(0) = -1
  Time2.HIDE
  Time3.HIDE
  Form2.HIDE
  UNLOAD Time2
  UNLOAD Time3
  UNLOAD Form2
  WaitForm.HIDE
  UNLOAD WaitForm
```

```
    IF MenuPop = 1 THEN
        M$ = CHR$(0) + CHR$(56) + CHR$(0) + CHR$(23)
        CALL StuffBuf(M$)
    END IF
    Form1.Top = 0
    Form1.Left = 0
    Form1.SHOW

END SUB

SUB cmdTimeQuit_GotFocus ()
    cmdTimeQuit_Click
END SUB

REM $DYNAMIC
DEFSNG A-Z
SUB Form_Load ()
    LOAD WaitForm
    WaitForm.SHOW
REM *** Turnoff Daily Option In This Version
    IF CCL(5) = 0 THEN CCL(5) = 2
    Option1.Enabled = False
REM ***
    IF CCL(3) = 0 THEN optPeriodOperation.value = True
    IF CCL(3) = 1 THEN optPeriodBoth.value = True
    IF CCL(3) = 2 THEN optPeriodClosure.value = True
    'IF CCL(5) = 0 THEN
    '    IF SimTime_Array(6) > 0 OR SimTime_Array(12) > 0 THEN
    '        Option1.value = True
    '    ELSE
    '        Option3.value = True
    '    END IF
    'END IF
    IF CCL(5) = 1 THEN Option2.value = True
    IF CCL(5) = 2 THEN Option3.value = True
END SUB

SUB Option1_Click ()
'   CCL(5) = 0
'   Time2.Label1.Caption = "day:"
'   Time2.Label1.Enabled = False
'   Time2.Combo0.Enabled = False
'   Time2.Label2.Enabled = True
'   Time2.Combo1.Enabled = True
'   Time2.Label4.Caption = "day:"
'   Time2.Label4.Enabled = False
'   Time2.Combo3.Enabled = False
'   Time2.Label5.Enabled = True
'   Time2.Combo4.Enabled = True
'   Time3.Label1.Caption = "day:"
'   Time3.Label1.Enabled = False
'   Time3.Combo0.Enabled = False
'   Time3.Label2.Enabled = True
'   Time3.Combo1.Enabled = True
'   Time3.Label4.Caption = "day:"
'   Time3.Label4.Enabled = False
'   Time3.Combo3.Enabled = False
'   Time3.Label5.Enabled = True
'   Time3.Combo4.Enabled = True
'   IF CCL(3) > 0 THEN Time3.SHOW
'   IF CCL(3) < 2 THEN Time2.SHOW
END SUB

SUB Option1_GotFocus ()
'   CCL(5) = 0
'   IF CCL(3) > 0 THEN Time3.SHOW
'   IF CCL(3) < 2 THEN Time2.SHOW
END SUB

SUB Option2_Click ()
    CCL(5) = 1
    Time2.Label1.Caption = "week:"
    Time2.Label1.Enabled = True
    Time2.Combo0.Enabled = True
    Time2.Label2.Enabled = False
    Time2.Combo1.Enabled = False
    Time2.Label4.Caption = "week:"
    Time2.Label4.Enabled = True
    Time2.Combo3.Enabled = True
    Time2.Label5.Enabled = False
    Time2.Combo4.Enabled = False
    Time3.Label1.Caption = "week:"
    Time3.Label1.Enabled = True
    Time3.Combo0.Enabled = True
    Time3.Label2.Enabled = False
    Time3.Combo1.Enabled = False
    Time3.Label4.Caption = "week:"
    Time3.Label4.Enabled = True
    Time3.Combo3.Enabled = True
    Time3.Label5.Enabled = False
    Time3.Combo4.Enabled = False
    IF CCL(3) > 0 THEN Time3.SHOW
    IF CCL(3) < 2 THEN Time2.SHOW
END SUB

SUB Option2_GotFocus ()
    CCL(5) = 1
    IF CCL(3) > 0 THEN Time3.SHOW
    IF CCL(3) < 2 THEN Time2.SHOW
END SUB

SUB Option3_Click ()
    CCL(5) = 2
    Time2.Combo0.Enabled = False
    Time2.Label1.Enabled = False
    Time2.Combo1.Enabled = True
    Time2.Label2.Enabled = True
    Time2.Combo3.Enabled = False
    Time2.Label4.Enabled = False
    Time2.Combo4.Enabled = True
    Time2.Label5.Enabled = True
    Time3.Combo0.Enabled = False
    Time3.Label1.Enabled = False
    Time3.Combo1.Enabled = True
    Time3.Label2.Enabled = True
    Time3.Combo3.Enabled = False
    Time3.Label4.Enabled = False
    Time3.Combo4.Enabled = True
    Time3.Label5.Enabled = True
    IF CCL(3) > 0 THEN Time3.SHOW
    IF CCL(3) < 2 THEN Time2.SHOW
END SUB

SUB Option3_GotFocus ()
    CCL(5) = 2
    IF CCL(3) > 0 THEN Time3.SHOW
    IF CCL(3) < 2 THEN Time2.SHOW
END SUB

SUB optPeriodBoth_Click ()
    CCL(3) = 1
END SUB

SUB optPeriodBoth_GotFocus ()
    Time3.SHOW
    Time2.SHOW
END SUB

SUB optPeriodClosure_Click ()
    CCL(3) = 2
END SUB

SUB optPeriodClosure_GotFocus ()
    Time2.HIDE
    Time3.SHOW
END SUB

SUB optPeriodOperation_Click ()
    CCL(3) = 0
END SUB

SUB optPeriodOperation_GotFocus ()
    Time3.HIDE
    Time2.SHOW
END SUB

' ***********************************
' MINEWALL 2.0
```

```
' MW-TIME2.FRM FORM MODULE
' GET START AND STOP TIMES OF OPERATION
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
DECLARE FUNCTION MonthName (M%) AS STRING
'$FORM Form2

Version 1.00
BEGIN Form Time2
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Start and End of [Partial] Operation"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(9)
        Left         = Char(25)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(52)
        WindowState  = 0
        BEGIN ComboBox Combo0
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(4)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 0
                TabStop      = -1
                Tag          = ""
                Top          = Char(2)
                Visible      = -1
                Width        = Char(14)
        END
        BEGIN ComboBox Combo1
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(23)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 1
                TabStop      = -1
                Tag          = ""
                Top          = Char(2)
                Visible      = -1
                Width        = Char(13)
        END
        BEGIN ComboBox Combo2
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(38)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 2
                TabStop      = -1
                Tag          = ""
                Top          = Char(2)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN ComboBox Combo3
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(4)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 3
                TabStop      = -1
                Tag          = ""
                Top          = Char(6)
                Visible      = -1
                Width        = Char(14)
        END
        BEGIN ComboBox Combo4
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(23)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 4
                TabStop      = -1
                Tag          = ""
                Top          = Char(6)
                Visible      = -1
                Width        = Char(13)
        END
        BEGIN ComboBox Combo5
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(38)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 5
                TabStop      = -1
                Tag          = ""
                Top          = Char(6)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "day or week:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(4)
                MousePointer = 0
                TabIndex     = 6
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(13)
        END
        BEGIN Label Label2
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "month:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(23)
                MousePointer = 0
                TabIndex     = 7
```

```
            Tag         = ""
            Top         = Char(1)
            Visible     = -1
            Width       = Char(12)
END
BEGIN Label Label3
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "year:"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(38)
            MousePointer = 0
            TabIndex    = 8
            Tag         = ""
            Top         = Char(1)
            Visible     = -1
            Width       = Char(12)
END
BEGIN Label Label4
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "day or week:"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(4)
            MousePointer = 0
            TabIndex    = 9
            Tag         = ""
            Top         = Char(5)
            Visible     = -1
            Width       = Char(13)
END
BEGIN Label Label5
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "month:"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(23)
            MousePointer = 0
            TabIndex    = 10
            Tag         = ""
            Top         = Char(5)
            Visible     = -1
            Width       = Char(12)
END
BEGIN Label Label6
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "year:"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(38)
            MousePointer = 0
            TabIndex    = 11
            Tag         = ""
            Top         = Char(5)
            Visible     = -1
            Width       = Char(12)
END
BEGIN Label Label7
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "START TIME"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(1)
            MousePointer = 0
            TabIndex    = 12
            Tag         = ""
            Top         = Char(0)
            Visible     = -1
            Width       = Char(14)
      END
      BEGIN Label Label8
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "STOP TIME"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(1)
            MousePointer = 0
            TabIndex    = 13
            Tag         = ""
            Top         = Char(4)
            Visible     = -1
            Width       = Char(14)
      END
END

REM $DYNAMIC
DEFSNG A-Z
SUB Form_Load ()
  DEFINT A-Z
  FOR I = 1 TO 52
    A$ = STR$(I)
    Combo0.ADDITEM A$
    Combo3.ADDITEM A$
  NEXT
  FOR I = 1 TO 12
    A$ = MonthName$(I)
    Combo1.ADDITEM A$
    Combo4.ADDITEM A$
  NEXT
  FOR J = 1960 TO 2460
    A$ = STR$(J)
    Combo2.ADDITEM A$
    Combo5.ADDITEM A$
  NEXT
  IF Form1.mnuInputTime.Checked = False THEN
    FOR I = 7 TO 12
      SimTime_Array(I) = 0
    NEXT
  END IF
  Time2.Combo0.ListIndex = SimTime_Array(1)
  Time2.Combo1.ListIndex = SimTime_Array(2)
  Time2.Combo2.ListIndex = SimTime_Array(3)
  Time2.Combo3.ListIndex = SimTime_Array(4)
  Time2.Combo4.ListIndex = SimTime_Array(5)
  Time2.Combo5.ListIndex = SimTime_Array(6)
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-TIME3.FRM FORM MODULE
' GET TIMES FOR START AND STOP OF CLOSURE
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
DECLARE FUNCTION MonthName (M%) AS STRING
'$FORM Form2

Version 1.00
```

```
BEGIN Form Time3
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 1
        Caption      = "Start and End Times of Closure"
        ControlBox   = 0
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(9)
        Left         = Char(25)
        MaxButton    = 0
        MinButton    = 0
        MousePointer = 0
        Tag          = ""
        Top          = Char(12)
        Visible      = -1
        Width        = Char(52)
        WindowState  = 0
        BEGIN ComboBox Combo0
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(4)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 0
                TabStop      = -1
                Tag          = ""
                Top          = Char(2)
                Visible      = -1
                Width        = Char(14)
        END
        BEGIN ComboBox Combo1
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(23)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 1
                TabStop      = -1
                Tag          = ""
                Top          = Char(2)
                Visible      = -1
                Width        = Char(13)
        END
        BEGIN ComboBox Combo2
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(38)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 2
                TabStop      = -1
                Tag          = ""
                Top          = Char(2)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN ComboBox Combo3
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(4)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 3
                TabStop      = -1
                Tag          = ""
                Top          = Char(6)
                Visible      = -1
                Width        = Char(14)
        END
        BEGIN ComboBox Combo4
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(23)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 4
                TabStop      = -1
                Tag          = ""
                Top          = Char(6)
                Visible      = -1
                Width        = Char(13)
        END
        BEGIN ComboBox Combo5
                BackColor    = QBColor(7)
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(38)
                MousePointer = 0
                Sorted       = 0
                Style        = 2
                TabIndex     = 5
                TabStop      = -1
                Tag          = ""
                Top          = Char(6)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "day or week:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(4)
                MousePointer = 0
                TabIndex     = 6
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(13)
        END
        BEGIN Label Label2
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "month:"
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(1)
                Left         = Char(23)
                MousePointer = 0
                TabIndex     = 7
                Tag          = ""
                Top          = Char(1)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN Label Label3
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
```

```
            BorderStyle  = 0
            Caption      = "year:"
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(1)
            Left         = Char(38)
            MousePointer = 0
            TabIndex     = 8
            Tag          = ""
            Top          = Char(1)
            Visible      = -1
            Width        = Char(12)
      END
      BEGIN Label Label4
            Alignment    = 0
            AutoSize     = 0
            BackColor    = QBColor(7)
            BorderStyle  = 0
            Caption      = "day or week:"
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(1)
            Left         = Char(4)
            MousePointer = 0
            TabIndex     = 9
            Tag          = ""
            Top          = Char(5)
            Visible      = -1
            Width        = Char(13)
      END
      BEGIN Label Label5
            Alignment    = 0
            AutoSize     = 0
            BackColor    = QBColor(7)
            BorderStyle  = 0
            Caption      = "month:"
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(1)
            Left         = Char(23)
            MousePointer = 0
            TabIndex     = 10
            Tag          = ""
            Top          = Char(5)
            Visible      = -1
            Width        = Char(12)
      END
      BEGIN Label Label6
            Alignment    = 0
            AutoSize     = 0
            BackColor    = QBColor(7)
            BorderStyle  = 0
            Caption      = "year:"
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(1)
            Left         = Char(38)
            MousePointer = 0
            TabIndex     = 11
            Tag          = ""
            Top          = Char(5)
            Visible      = -1
            Width        = Char(12)
      END
      BEGIN Label Label7
            Alignment    = 0
            AutoSize     = 0
            BackColor    = QBColor(7)
            BorderStyle  = 0
            Caption      = "START TIME"
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(1)
            Left         = Char(1)
            MousePointer = 0
            TabIndex     = 12
            Tag          = ""
            Top          = Char(0)
            Visible      = -1
            Width        = Char(14)
      END
      BEGIN Label Label8
            Alignment    = 0
            AutoSize     = 0
            BackColor    = QBColor(7)
            BorderStyle  = 0
            Caption      = "STOP TIME"
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(1)
            Left         = Char(1)
            MousePointer = 0
            TabIndex     = 13
            Tag          = ""
            Top          = Char(4)
            Visible      = -1
            Width        = Char(14)
      END
END

REM $DYNAMIC
DEFSNG A-Z
SUB Form_Load ()
  DEFINT A-Z
  FOR I = 1 TO 52
    A$ = STR$(I)
    Combo0.ADDITEM A$
    Combo3.ADDITEM A$
  NEXT
  FOR I = 1 TO 12
    A$ = MonthName$(I)
    Combo1.ADDITEM A$
    Combo4.ADDITEM A$
  NEXT
  FOR J = 1960 TO 2460
    A$ = STR$(J)
    Combo2.ADDITEM A$
    Combo5.ADDITEM A$
  NEXT
  IF Form1.mnuInputTime.Checked = False THEN
    FOR I = 7 TO 12
      SimTime_Array(I) = 0
    NEXT
  END IF
  Time3.Combo0.ListIndex = SimTime_Array(7)
  Time3.Combo1.ListIndex = SimTime_Array(8)
  Time3.Combo2.ListIndex = SimTime_Array(9)
  Time3.Combo3.ListIndex = SimTime_Array(10)
  Time3.Combo4.ListIndex = SimTime_Array(11)
  Time3.Combo5.ListIndex = SimTime_Array(12)
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-TIMLB.BAS CODE MODULE
' PROVIDES LABELS FOR TIME INTERVALS
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$FORM Form2
'$FORM Time3
'$FORM Time2

REM $DYNAMIC
SUB MinewallTimeLabel ()
  DIM CCLFlag AS INTEGER, MineYears AS INTEGER, MineDiff AS INTEGER, LeapTest
AS INTEGER, LeapDays AS INTEGER
  DIM MineIntervals AS INTEGER, MineAdd AS INTEGER, I AS INTEGER, J AS
INTEGER, N AS INTEGER
  CCLFlag = 0
  IF CCL(5) = 0 THEN
  ' Daily simulation disabled in this version
```

```
    ELSEIF CCL(5) = 1 THEN   ' weekly simulation
      NumRowsSpr = 54
      NumColsSpr = CCL(4) + 2
      'REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
      NumElsSpr = (NumRowsSpr + 1) * (NumColsSpr + 1)
      ElSize = 16
      REDIM TimeParam(60, 2) AS STRING * 16, TimeCount(60, 2) AS INTEGER,
TimeTrack(2, 2) AS LONG
      FOR M = 1 TO NumReps
        IF CCL(3) < 2 THEN
          IF M = 1 THEN ' Operation
            L = 1
          ELSE ' Closure
            L = 2
          END IF
        ELSE ' Closure
          L = 2
        END IF
        S = (L - 1) * 6
        MineYears = SimTime_Array(S + 6) - SimTime_Array(S + 3)  ' calculate numbers
of time loops
        MineDiff = SimTime_Array(S + 4) - SimTime_Array(S + 1)
        LeapDays = 0
        ' now test for number of leap years in simulation period
        FOR I = (1960 + SimTime_Array(S + 3)) TO (1960 + SimTime_Array(S + 6))
          LeapTest = (2000 - I) MOD 4
          IF LeapTest = 0 THEN LeapDays = LeapDays + 1
        NEXT I
        IF LeapTest = 0 AND SimTime_Array(S + 5) < 1 THEN LeapDays = LeapDays -
1
        IF ((1960 + SimTime_Array(S + 2)) MOD 4 = 0) AND (SimTime_Array(S + 2) >
1) THEN LeapDays = LeapDays - 1
        IF MineDiff < 0 THEN  ' back up 1 yr
          MineYears = MineYears - 1
          MineIntervals = 52 * MineYears
          MineDiff = 52 + MineDiff
          MineIntervals = MineIntervals + MineDiff
          TimeTrack(1, L) = CLNG(MineYears + 1)
          TimeTrack(2, L) = CLNG(MineIntervals) * 7& + CLNG(LeapDays)
        ELSEIF MineDiff = 0 THEN
          MineIntervals = 52 * MineYears
          TimeTrack(1, L) = CLNG(MineYears * 1)
          TimeTrack(2, L) = CLNG(MineIntervals) * 7& + CLNG(LeapDays)
        ELSE
          MineIntervals = 52 * MineYears
          TimeTrack(2, L) = CLNG(MineYears) * 365&
          MineIntervals = MineIntervals + MineDiff
          MineYears = MineYears + 1
          TimeTrack(1, L) = CLNG(MineYears)
          TimeTrack(2, L) = CLNG(MineIntervals) * 7& + CLNG(LeapDays)
        END IF
        I = SimTime_Array(S + 1)
        FOR N = 1 TO 52
          I = I + 1
          IF I > 52 THEN I = 1
          TimeParam(N, L) = STR$(I)
          TimeCount(N, L) = I
        NEXT
      NEXT M
    ELSE   ' monthly simulation
      NumRowsSpr = 14
      NumColsSpr = CCL(4) + 2
      'REDIM MinewallArray1(NumRowsSpr, NumColsSpr) AS Strlen,
MinewallArray2(NumRowsSpr, NumColsSpr) AS STRING * 16
      NumElsSpr = (NumRowsSpr + 1) * (NumColsSpr + 1)
      ElSize = 16
      REDIM TimeParam(15, 2) AS STRING * 16, TimeCount(15, 2) AS INTEGER,
TimeTrack(2, 2) AS LONG
      FOR M = 1 TO NumReps
        IF CCL(3) < 2 THEN
          IF M = 1 THEN ' Operation
            L = 1
          ELSE ' Closure
            L = 2
          END IF
        ELSE ' Closure
          L = 2
        END IF
        S = (L - 1) * 6
        LeapDays = 0
        MineYears = SimTime_Array(S + 6) - SimTime_Array(S + 3)  ' calculate numbers
of time loops
        MineDiff = SimTime_Array(S + 5) - SimTime_Array(S + 2)
        ' now test for number of leap years in simulation period
        FOR I = (1960 + SimTime_Array(S + 3)) TO (1960 + SimTime_Array(S + 6))
          LeapTest = (2000 - I) MOD 4
          IF LeapTest = 0 THEN LeapDays = LeapDays + 1
        NEXT I
        IF LeapTest = 0 AND SimTime_Array(S + 5) < 1 THEN LeapDays = LeapDays -
1
        IF ((1960 + SimTime_Array(S + 2)) MOD 4 = 0) AND (SimTime_Array(S + 2) >
1) THEN LeapDays = LeapDays - 1
        IF MineDiff < 0 THEN  ' back up 1 yr because the last year is less than 12 months
          MineYears = MineYears - 1
          MineIntervals = 12 * MineYears
          TimeTrack(2, L) = CLNG(MineYears) * 365&
          MineDiff = 12 + MineDiff
          MineIntervals = MineIntervals + MineDiff
          FOR MineAdd = SimTime_Array(S + 2) TO 11
            TimeTrack(2, L) = TimeTrack(2, L) + CLNG(MonthlyDays(MineAdd))
          NEXT MineAdd
          FOR MineAdd = 0 TO SimTime_Array(S + 5)
            TimeTrack(2, L) = TimeTrack(2, L) + CLNG(MonthlyDays(MineAdd))
          NEXT MineAdd
          TimeTrack(1, L) = CLNG(MineYears + 1) ' re-adjust for complete loop
          TimeTrack(2, L) = TimeTrack(2, L) + CLNG(LeapDays)
        ELSEIF MineDiff = 0 THEN ' simulation starts and ends on same month
          MineIntervals = 12 * MineYears
          TimeTrack(1, L) = CLNG(MineYears)
          TimeTrack(2, L) = CLNG(MineYears) * 365& + CLNG(LeapDays)
        ELSE ' simulation ends at least one month after starting month
          MineIntervals = 12 * MineYears
          TimeTrack(2, L) = CLNG(MineYears) * 365&
          MineYears = MineYears + 1
          MineIntervals = MineIntervals + MineDiff
          FOR MineAdd = SimTime_Array(S + 2) TO SimTime_Array(S + 5)
            TimeTrack(2, L) = TimeTrack(2, L) + CLNG(MonthlyDays(MineAdd))
          NEXT MineAdd
          TimeTrack(1, L) = CLNG(MineYears)
          TimeTrack(2, L) = TimeTrack(2, L) + CLNG(LeapDays)
        END IF
        I = SimTime_Array(S + 2)
        FOR N = 1 TO 12
          I = I + 1
          IF I > 12 THEN I = 1
          TimeParam(N, L) = STR$(I)
          TimeCount(N, L) = I
        NEXT
      NEXT M
    END IF
    IF CCL(3) > 0 THEN REDIM LayerTurnover(NumRowsSpr, 1) AS INTEGER
END SUB
```

```
' ********************************
' MINEWALL 2.0
' MW-TITLE.FRM FORM MODULE
' GET TITLE OF SIMULATION AND PIT OR UNDERGROUND MINE
' ********************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'


Version 1.00
BEGIN Form Form3
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 1
        Caption      = "Title and Type of Simulation"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(20)
        Left         = Char(2)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
```

```
        Tag         = ""
        Top         = Char(3)
        Visible     = -1
        Width       = Char(76)
        WindowState = 0
        BEGIN Label Label1
                Alignment   = 0
                AutoSize    = 0
                BackColor   = QBColor(7)
                BorderStyle = 0
                Caption     = " Title:"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(1)
                Left        = Char(1)
                MousePointer = 0
                TabIndex    = 6
                Tag         = ""
                Top         = Char(0)
                Visible     = -1
                Width       = Char(12)
        END
        BEGIN Label Label2
                Alignment   = 0
                AutoSize    = 0
                BackColor   = QBColor(7)
                BorderStyle = 0
                Caption     = " Type:"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(1)
                Left        = Char(2)
                MousePointer = 0
                TabIndex    = 7
                Tag         = ""
                Top         = Char(6)
                Visible     = -1
                Width       = Char(12)
        END
        BEGIN Frame Frame1
                BackColor   = QBColor(7)
                Caption     = "Choose one:"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(8)
                Left        = Char(2)
                MousePointer = 0
                TabIndex    = 8
                Tag         = ""
                Top         = Char(7)
                Visible     = -1
                Width       = Char(56)
                BEGIN OptionButton optBoth
                        BackColor   = QBColor(7)
                        Caption     = "&Both Pit and Underground:
Hydraulically Connected"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(3)
                        Left        = Char(0)
                        MousePointer = 0
                        TabIndex    = 3
                        TabStop     = 0
                        Tag         = ""
                        Top         = Char(4)
                        Value       = 0
                        Visible     = -1
                        Width       = Char(54)
                END
                BEGIN OptionButton optUGOnly
                        BackColor   = QBColor(7)
                        Caption     = "&Underground Mine Only"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(3)
                        Left        = Char(0)
                        MousePointer = 0
                        TabIndex    = 2
                        TabStop     = 0
                        Tag         = ""
                        Top         = Char(2)
                        Value       = 0
                        Visible     = -1
                        Width       = Char(25)
                END
                BEGIN OptionButton optPitOnly
                        BackColor   = QBColor(7)
                        Caption     = "Open &Pit Only"
                        DragMode    = 0
                        Enabled     = -1
                        ForeColor   = QBColor(0)
                        Height      = Char(3)
                        Left        = Char(0)
                        MousePointer = 0
                        TabIndex    = 1
                        TabStop     = -1
                        Tag         = ""
                        Top         = Char(0)
                        Value       = -1
                        Visible     = -1
                        Width       = Char(18)
                END
        END
        BEGIN Label Label3
                Alignment   = 0
                AutoSize    = 0
                BackColor   = QBColor(7)
                BorderStyle = 0
                Caption     = "Label3"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(1)
                Left        = Char(46)
                MousePointer = 0
                TabIndex    = 9
                Tag         = ""
                Top         = Char(0)
                Visible     = -1
                Width       = Char(16)
        END
        BEGIN Label Label4
                Alignment   = 0
                AutoSize    = 0
                BackColor   = QBColor(7)
                BorderStyle = 0
                Caption     = "Label4"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(1)
                Left        = Char(62)
                MousePointer = 0
                TabIndex    = 10
                Tag         = ""
                Top         = Char(0)
                Visible     = -1
                Width       = Char(12)
        END
        BEGIN TextBox Text1
                BackColor   = QBColor(7)
                BorderStyle = 1
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(4)
                Left        = Char(2)
                MousePointer = 0
                MultiLine   = -1
                ScrollBars  = 0
                TabIndex    = 0
                TabStop     = -1
                Tag         = ""
                Text        = "Enter Title Here"
                Top         = Char(1)
```

```
            Visible     = -1
            Width       = Char(61)
        END
        BEGIN CommandButton cmdTitleHelp
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&Help"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(48)
            MousePointer = 0
            TabIndex    = 5
            TabStop     = -1
            Tag         = ""
            Top         = Char(15)
            Visible     = -1
            Width       = Char(12)
        END
        BEGIN CommandButton cmdTitleOK
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&OK"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(15)
            MousePointer = 0
            TabIndex    = 4
            TabStop     = -1
            Tag         = ""
            Top         = Char(15)
            Visible     = -1
            Width       = Char(12)
        END
END

REM $DYNAMIC
SUB cmdTitleHelp_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Title")
  END IF
END SUB

DEFSNG A-Z
SUB cmdTitleOK_Click ()
  Title$ = Text1.Text
  IF optPitOnly.Value = True THEN CCL(2) = 0
  IF optBoth.Value = True THEN CCL(2) = 1
  IF optUGOnly.Value = True THEN CCL(2) = 2
  Form1.mnuInputTitle.Checked = -1
  Form3.HIDE
END SUB

SUB Form_Load ()
  IF CCL(2) = 1 THEN CCL(2) = 1
    optBoth.Value = False
    optBoth.Enabled = False
  IF CCL(2) = 0 THEN
    optPitOnly.Value = True
  ELSE
    optPitOnly.Value = False
  END IF
  IF CCL(2) = 1 THEN
    optBoth.Value = True
  ELSE
    optBoth.Value = False
  END IF
  IF CCL(2) = 2 THEN
    optUGOnly.Value = True
  ELSE
    optUGOnly.Value = False
  END IF
  Text1.Text = Title$
  Label3.Caption = DATE$
  Label4.Caption = TIME$
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-UNIT1.FRM FORM MODULE
' GETS NUMBER OF GEOCHEMICAL UNITS
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'


Version 1.00
BEGIN Form Unit1
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Geochemical Units - Number"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(13)
        Left         = Char(14)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(7)
        Visible      = -1
        Width        = Char(50)
        WindowState  = 0
        BEGIN ComboBox Combo1
            BackColor    = QBColor(7)
            DragMode     = 0
            Enabled      = -1
            ForeColor    = QBColor(0)
            Height       = Char(1)
            Left         = Char(16)
            MousePointer = 0
            Sorted       = 0
            Style        = 2
            TabIndex     = 0
            TabStop      = -1
            Tag          = ""
            Top          = Char(2)
            Visible      = -1
            Width        = Char(13)
        END
        BEGIN CommandButton cmdUnit1Help
            BackColor    = QBColor(7)
            Cancel       = 0
            Caption      = "&Help"
            Default      = 0
            DragMode     = 0
            Enabled      = -1
            Height       = Char(3)
            Left         = Char(34)
            MousePointer = 0
            TabIndex     = 3
            TabStop      = -1
            Tag          = ""
            Top          = Char(8)
            Visible      = -1
            Width        = Char(12)
        END
        BEGIN CommandButton cmdUnit1Cancel
            BackColor    = QBColor(7)
            Cancel       = 0
            Caption      = "&Quit"
            Default      = 0
            DragMode     = 0
            Enabled      = -1
            Height       = Char(3)
            Left         = Char(18)
            MousePointer = 0
            TabIndex     = 2
            TabStop      = -1
            Tag          = ""
            Top          = Char(8)
            Visible      = -1
```

```
            Width       = Char(12)
        END
        BEGIN CommandButton cmdUnit1OK
            BackColor   = QBColor(7)
            Cancel      = 0
            Caption     = "&OK"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(1)
            MousePointer = 0
            TabIndex    = 1
            TabStop     = -1
            Tag         = ""
            Top         = Char(8)
            Visible     = -1
            Width       = Char(12)
        END
        BEGIN Label Label1
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "How many Geochemical Units are there?"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(5)
            MousePointer = 0
            TabIndex    = 4
            Tag         = ""
            Top         = Char(1)
            Visible     = -1
            Width       = Char(41)
        END
END

REM $DYNAMIC
SUB cmdUnit1Cancel_Click ()
  CCL(CCL(0)) = -1
  Unit1.Combo1.ListIndex = -1
  Unit1.HIDE
  UNLOAD Unit1
END SUB

REM $STATIC
SUB cmdUnit1Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic(HlpName)
  END IF
END SUB

REM $DYNAMIC
SUB cmdUnit1OK_Click ()
  T = Unit1.Combo1.ListIndex + 1
  IF CCL(CCL(0)) > 0 THEN
    IF T = CCL(CCL(0)) THEN
      CCL(0) = 0
    ELSE
      CCL(CCL(0)) = 0
      CCL(0) = -9
    END IF
  ELSE
    CCL(CCL(0)) = T
  END IF
  Unit1.HIDE
  UNLOAD Unit1

END SUB

DEFSNG A-Z
SUB Form_Load ()
  I = 10
  IF CCL(0) = 10 THEN I = 1
  FOR J = 1 TO I
    A$ = STR$(J)
    Combo1.ADDITEM A$
  NEXT
  T = CCL(CCL(0))
  IF T < 1 THEN T = 1
  Unit1.Combo1.ListIndex = T - 1

END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-UNIT2.FRM FORM MODULE
' UNIT NAMES AND RATE CONTROLS
' ************************************

'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

Version 1.00
BEGIN Form Unit2
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Geochemical Units - Unit Names and Types of Reactions"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(22)
        Left         = Char(2)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(2)
        Visible      = -1
        Width        = Char(76)
        WindowState  = 0
        BEGIN Label lblUnit2Label2
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "Choose a relationship below between
geochemical-reaction rates and time       in days for this Unit.  Enter maximum depth of
oxidation 'd' on a       following screen."
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(0)
            MousePointer = 0
            TabIndex    = 11
            Tag         = ""
            Top         = Char(3)
            Visible     = -1
            Width       = Char(73)
        END
        BEGIN Label Label1
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "FACTOR ="
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(36)
            MousePointer = 0
            TabIndex    = 12
            Tag         = ""
            Top         = Char(7)
            Visible     = -1
            Width       = Char(9)
        END
        BEGIN Label Label2
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "FACTOR ="
```

```
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(36)
        MousePointer = 0
        TabIndex    = 13
        Tag         = ""
        Top         = Char(10)
        Visible     = -1
        Width       = Char(9)
END
BEGIN Label Label3
        Alignment   = 0
        AutoSize    = 0
        BackColor   = QBColor(7)
        BorderStyle = 0
        Caption     = "FACTOR ="
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(1)
        Left        = Char(36)
        MousePointer = 0
        TabIndex    = 14
        Tag         = ""
        Top         = Char(13)
        Visible     = -1
        Width       = Char(9)
END
BEGIN TextBox txtUnit2Name
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(40)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 0
        TabStop     = -1
        Tag         = ""
        Text        = ""
        Top         = Char(0)
        Visible     = -1
        Width       = Char(12)
END
BEGIN TextBox txtUnit2Factor1
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(45)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 2
        TabStop     = -1
        Tag         = ""
        Text        = "-0.1"
        Top         = Char(6)
        Visible     = -1
        Width       = Char(12)
END
BEGIN OptionButton optUnit2Option2
        BackColor   = QBColor(7)
        Caption     = "Rate ~ &10^(FACTOR*Time)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(2)
        MousePointer = 0
        TabIndex    = 3
        TabStop     = 0
        Tag         = ""
        Top         = Char(9)
        Value       = 0
        Visible     = -1
        Width       = Char(30)
END
BEGIN TextBox txtUnit2Factor2
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(45)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 4
        TabStop     = -1
        Tag         = ""
        Text        = "-1.0"
        Top         = Char(9)
        Visible     = -1
        Width       = Char(12)
END
BEGIN OptionButton optUnit2Option3
        BackColor   = QBColor(7)
        Caption     = "Rate ~ 1/&log10(FACTOR*Time)"
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(2)
        MousePointer = 0
        TabIndex    = 5
        TabStop     = 0
        Tag         = ""
        Top         = Char(12)
        Value       = 0
        Visible     = -1
        Width       = Char(33)
END
BEGIN TextBox txtUnit2Factor3
        BackColor   = QBColor(7)
        BorderStyle = 1
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(3)
        Left        = Char(45)
        MousePointer = 0
        MultiLine   = 0
        ScrollBars  = 0
        TabIndex    = 6
        TabStop     = -1
        Tag         = ""
        Text        = "+1.0"
        Top         = Char(12)
        Visible     = -1
        Width       = Char(12)
END
BEGIN CommandButton cmdUnit2OK
        BackColor   = QBColor(7)
        Cancel      = 0
        Caption     = "This Unit &Done"
        Default     = 0
        DragMode    = 0
        Enabled     = -1
        Height      = Char(3)
        Left        = Char(7)
        MousePointer = 0
        TabIndex    = 8
        TabStop     = -1
        Tag         = ""
        Top         = Char(17)
        Visible     = -1
        Width       = Char(16)
END
BEGIN CommandButton cmdUnit2Help
        BackColor   = QBColor(7)
        Cancel      = 0
```

```
            Caption     = "&Help"
            Default     = 0
            DragMode    = 0
            Enabled     = -1
            Height      = Char(3)
            Left        = Char(34)
            MousePointer = 0
            TabIndex    = 9
            TabStop     = -1
            Tag         = ""
            Top         = Char(17)
            Visible     = -1
            Width       = Char(12)
      END
      BEGIN Label lblUnit2Label1
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "Enter Name of Unit              :"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(1)
            Left        = Char(0)
            MousePointer = 0
            TabIndex    = 10
            Tag         = ""
            Top         = Char(1)
            Visible     = -1
            Width       = Char(40)
      END
      BEGIN Label Label4
            Alignment   = 0
            AutoSize    = 0
            BackColor   = QBColor(7)
            BorderStyle = 0
            Caption     = "Rate Acceleration Factor (RAF) if Unit initially
contains NP and the NP is later depleted (1.0 if no initial NP):   RAF="
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(2)
            Left        = Char(0)
            MousePointer = 0
            TabIndex    = 15
            Tag         = ""
            Top         = Char(15)
            Visible     = -1
            Width       = Char(60)
      END
      BEGIN TextBox txtUnit2Factor4
            BackColor   = QBColor(7)
            BorderStyle = 1
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(61)
            MousePointer = 0
            MultiLine   = 0
            ScrollBars  = 0
            TabIndex    = 7
            TabStop     = -1
            Tag         = ""
            Text        = "1.0"
            Top         = Char(15)
            Visible     = -1
            Width       = Char(12)
      END
      BEGIN OptionButton optUnit2Option1
            BackColor   = QBColor(7)
            Caption     = "Rate  ~  &Time^(FACTOR)"
            DragMode    = 0
            Enabled     = -1
            ForeColor   = QBColor(0)
            Height      = Char(3)
            Left        = Char(2)
            MousePointer = 0
            TabIndex    = 1
            TabStop     = -1
            Tag         = ""
            Top         = Char(6)
            Value       = -1
            Visible     = -1
            Width       = Char(26)
      END
END

REM $DYNAMIC
SUB cmdUnit2Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Pit - Rock/Geochemical Units")
  END IF
END SUB

SUB cmdUnit2OK_Click ()
  UnitNum = CCL(0)
  IF optUnit2Option1.Value = True THEN
    CCL(0) = 1
    GeochemPower(UnitNum) = VAL(txtUnit2Factor1.Text)
  END IF
  IF optUnit2Option2.Value = True THEN
    CCL(0) = 2
    GeochemPower(UnitNum) = VAL(txtUnit2Factor2.Text)
  END IF
  IF optUnit2Option3.Value = True THEN
    CCL(0) = 3
    GeochemPower(UnitNum) = VAL(txtUnit2Factor3.Text)
  END IF
  GeochemName(2, UnitNum + 1) = Unit2.txtUnit2Name.Text
  GeochemName(3, UnitNum + 1) = STR$(UnitNum)
  SELECT CASE CCL(0)
    CASE 1
      GeochemName(4, UnitNum + 1) = "1: T^[F]"
    CASE 2
      GeochemName(4, UnitNum + 1) = "2: 10^[F*T]"
    CASE 3
      GeochemName(4, UnitNum + 1) = "3: 1/log(F*T)"
  END SELECT
  RateAccel(UnitNum) = VAL(Unit2.txtUnit2Factor4.Text)

  Unit2.HIDE
  EXIT SUB
END SUB

REM $STATIC
SUB Form_Load ()
  UnitNum = CCL(0)
  Unit2.txtUnit2Name.Text = ""
  Unit2.lblUnit2Label1.Caption = "Enter A Name For Unit " + STR$(UnitNum) + " :"
  Unit2.txtUnit2Name.Text = GeochemName(2, UnitNum + 1)
  T = VAL(GeochemName(4, UnitNum + 1))
  SELECT CASE T
    CASE 1
      Unit2.optUnit2Option1.Value = True
      Unit2.txtUnit2Factor1.Text = STR$(GeochemPower(UnitNum))
      Unit2.txtUnit2Factor2.Text = ""
      Unit2.txtUnit2Factor3.Text = ""
    CASE 2
      Unit2.optUnit2Option2.Value = True
      Unit2.txtUnit2Factor2.Text = STR$(GeochemPower(UnitNum))
      Unit2.txtUnit2Factor1.Text = ""
      Unit2.txtUnit2Factor3.Text = ""
    CASE 3
      Unit2.optUnit2Option3.Value = True
      Unit2.txtUnit2Factor3.Text = STR$(GeochemPower(UnitNum))
      Unit2.txtUnit2Factor1.Text = ""
      Unit2.txtUnit2Factor2.Text = ""
  END SELECT
  Unit2.txtUnit2Factor4.Text = STR$(RateAccel(UnitNum))
END SUB
```

```
' ************************************
' MINEWALL 2.0
' MW-UNIT3.FRM FORM MODULE
' FRESH/AGED RATES AND RATE/RATIO
' ************************************
```

```
'$INCLUDE: 'MW-COMDF.BI'
'$INCLUDE: 'MW-HELP.BI'

Version 1.00
BEGIN Form Unit3
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Age of Oxidation Rates and Relationship of NP to Oxidation
Rates"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(25)
        Left         = Char(1)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 0
        Tag          = ""
        Top          = Char(0)
        Visible      = -1
        Width        = Char(77)
        WindowState  = 0
        BEGIN CommandButton cmdUnit3Help
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&Help"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(54)
                MousePointer = 0
                TabIndex     = 5
                TabStop      = -1
                Tag          = ""
                Top          = Char(20)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN CommandButton cmdUnit3OK
                BackColor    = QBColor(7)
                Cancel       = 0
                Caption      = "&OK"
                Default      = 0
                DragMode     = 0
                Enabled      = -1
                Height       = Char(3)
                Left         = Char(9)
                MousePointer = 0
                TabIndex     = 4
                TabStop      = -1
                Tag          = ""
                Top          = Char(20)
                Visible      = -1
                Width        = Char(12)
        END
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "You will soon type in unsaturated flows,
concentrations, and reaction rates for each unit. For the sulfide-oxidation rate, is the rate for
fresh surface or for aged surface? If aged, the fresh rate will be obtained from the Years
Exposed entered on the previous screen."
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(4)
                Left         = Char(2)
                MousePointer = 0
                TabIndex     = 6
                Tag          = ""
                Top          = Char(0)
                Visible      = -1
                Width        = Char(70)
        END
        BEGIN Frame Frame1
                BackColor    = QBColor(7)
                Caption      = ""
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(4)
                Left         = Char(4)
                MousePointer = 0
                TabIndex     = 8
                Tag          = ""
                Top          = Char(4)
                Visible      = -1
                Width        = Char(66)
                BEGIN OptionButton optUnit3RateAged
                        BackColor    = QBColor(7)
                        Caption      = "Rates from &aged samples"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(3)
                        Left         = Char(33)
                        MousePointer = 0
                        TabIndex     = 1
                        TabStop      = 0
                        Tag          = ""
                        Top          = Char(0)
                        Value        = 0
                        Visible      = -1
                        Width        = Char(29)
                END
                BEGIN OptionButton optUnit3RateFresh
                        BackColor    = QBColor(7)
                        Caption      = "Rates from &fresh surfaces"
                        DragMode     = 0
                        Enabled      = -1
                        ForeColor    = QBColor(0)
                        Height       = Char(3)
                        Left         = Char(0)
                        MousePointer = 0
                        TabIndex     = 0
                        TabStop      = -1
                        Tag          = ""
                        Top          = Char(0)
                        Value        = -1
                        Visible      = -1
                        Width        = Char(30)
                END
        END
        BEGIN Label Label2
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "You have the option of directly providing a rate of
NP consumption or basing the NP rate on a ratio with the oxidation rate."
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(2)
                Left         = Char(2)
                MousePointer = 0
                TabIndex     = 7
                Tag          = ""
                Top          = Char(8)
                Visible      = -1
                Width        = Char(70)
        END
        BEGIN Frame Frame3
                BackColor    = QBColor(7)
                Caption      = ""
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(4)
                Left         = Char(4)
                MousePointer = 0
                TabIndex     = 11
                Tag          = ""
                Top          = Char(16)
                Visible      = -1
                Width        = Char(66)
```

```
        BEGIN OptionButton optUnit3Sub
                BackColor   = QBColor(7)
                Caption     = "Submergence Factor (%)="
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(23)
                MousePointer = 0
                TabIndex    = 13
                TabStop     = 0
                Tag         = ""
                Top         = Char(0)
                Value       = 0
                Visible     = -1
                Width       = Char(27)
        END
        BEGIN TextBox txtUnit3SubFact
                BackColor   = QBColor(7)
                BorderStyle = 1
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(51)
                MousePointer = 0
                MultiLine   = 0
                ScrollBars  = 0
                TabIndex    = 14
                TabStop     = -1
                Tag         = ""
                Text        = "25.0"
                Top         = Char(0)
                Visible     = -1
                Width       = Char(12)
        END
        BEGIN OptionButton optUnit3DO
                BackColor   = QBColor(7)
                Caption     = "Link to DO"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(0)
                MousePointer = 0
                TabIndex    = 12
                TabStop     = -1
                Tag         = ""
                Top         = Char(0)
                Value       = -1
                Visible     = -1
                Width       = Char(14)
        END
END
BEGIN Frame Frame2
        BackColor   = QBColor(7)
        Caption     = ""
        DragMode    = 0
        Enabled     = -1
        ForeColor   = QBColor(0)
        Height      = Char(4)
        Left        = Char(4)
        MousePointer = 0
        TabIndex    = 9
        Tag         = ""
        Top         = Char(10)
        Visible     = -1
        Width       = Char(66)
        BEGIN OptionButton optUnit3NPSO4
                BackColor   = QBColor(7)
                Caption     = "NP/SO4 &ratio"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(33)
                MousePointer = 0
                TabIndex    = 3
                TabStop     = 0
                Tag         = ""
                Top         = Char(0)
                Value       = 0
                Visible     = -1
                Width       = Char(18)
        END
        BEGIN OptionButton optUnit3NPRate
                BackColor   = QBColor(7)
                Caption     = "&NP rate"
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(3)
                Left        = Char(0)
                MousePointer = 0
                TabIndex    = 2
                TabStop     = -1
                Tag         = ""
                Top         = Char(0)
                Value       = -1
                Visible     = -1
                Width       = Char(12)
        END
        BEGIN Label Label3
                Alignment   = 0
                AutoSize    = 0
                BackColor   = QBColor(7)
                BorderStyle = 0
                Caption     = "You have the option of specifying a Factor at which
rates will operate (% of following full rates) if submerged, or link the rates to diss. O2."
                DragMode    = 0
                Enabled     = -1
                ForeColor   = QBColor(0)
                Height      = Char(2)
                Left        = Char(2)
                MousePointer = 0
                TabIndex    = 10
                Tag         = ""
                Top         = Char(14)
                Visible     = -1
                Width       = Char(72)
        END
END

REM $DYNAMIC
SUB cmdUnit3Help_Click ()
  IF HelpLoaded = -1 THEN
    CALL HelpShowTopic("Pit - Rock/Geochemical Units")
  END IF
END SUB

SUB cmdUnit3OK_Click ()
  IF optUnit3RateFresh.Value = True THEN CCL(8) = 1
  IF optUnit3RateAged.Value = True THEN CCL(8) = 2
  IF optUnit3NPRate.Value = True THEN CCL(9) = 1
  IF optUnit3NPSO4.Value = True THEN CCL(9) = 2
  IF optUnit3DO.Value = True THEN CCL(6) = 1
  IF optUnit3Sub.Value = True THEN CCL(6) = 2
  SubmergenceFactor = VAL(txtUnit3SubFact.Text)
  Unit3.HIDE
  UNLOAD Unit3

END SUB

SUB Form_Load ()
  IF CCL(8) = 2 THEN
    Unit3.optUnit3RateFresh.Value = False
    Unit3.optUnit3RateAged.Value = True
  ELSE
    Unit3.optUnit3RateAged.Value = False
    Unit3.optUnit3RateFresh.Value = True
  END IF
  IF CCL(9) = 2 THEN
    optUnit3NPRate.Value = False
    optUnit3NPSO4.Value = True
  ELSE
    optUnit3NPSO4.Value = False
    optUnit3NPRate.Value = True
  END IF
  IF CCL(6) = 2 THEN
```

```
    optUnit3DO.Value = False
    optUnit3Sub.Value = True
    txtUnit3SubFact.Text = STR$(SubmergenceFactor)
    txtUnit3SubFact.Enabled = True
  ELSE
    optUnit3DO.Value = True
    optUnit3Sub.Value = False
    txtUnit3SubFact.Text = STR$(SubmergenceFactor)
    txtUnit3SubFact.Enabled = False
  END IF
END SUB

REM $STATIC
SUB optUnit3DO_Click ()
    txtUnit3SubFact.Enabled = False

END SUB

SUB optUnit3Sub_Click ()
    txtUnit3SubFact.Enabled = True
END SUB
```

```
' ***************************************
' MINEWALL 2.0
' MW-UNITS.BAS CODE MODULE
' INPUT/EDIT OF GEOCHEMICAL/ROCK UNITS
' ***************************************

'$INCLUDE: 'MW-COMDF.BI'

DECLARE SUB RunSpr (NumRows%, NumCols%, ArrayName() AS STRING * 16)
DECLARE SUB MinewallUnits ()
DECLARE SUB MinewallXM$ ()
DECLARE SUB Array2Xms (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB Xms2Array (SEG Element AS ANY, ElSize, NumEls, Handle)
DECLARE SUB XmsRelMem (BYVAL Handle)
'DECLARE FUNCTION Null% (A$)

'$FORM Unit1
'$FORM Unit2
'$FORM Unit3
'$FORM Form4

REM $DYNAMIC
SUB MinewallUnits ()
  NumRows = 16 + CCL(7)
  NumCols = CCL(12) + 1
  OldCCL = CCL(12)
  CCL(0) = 12
REM If data already exist, ask if old data should be erased or just edited
  IF CCL(12) > 0 THEN
    CCL(0) = 12
    Form4.SHOW 1
    IF CCL(12) < 0 THEN
      CCL(12) = CCL(12) + 50
      EXIT SUB
    ELSEIF CCL(12) > 0 THEN
      CCL(12) = OldCCL
    END IF
  END IF
  CCL(0) = 12

 IF CCL(12) < 1 THEN  ' If no units yet chosen
  LOAD Unit1
  Unit1.SHOW 1
REM Get number of units
  IF CCL(12) < 1 THEN EXIT SUB
  NumRows = 16 + CCL(7)
  NumCols = CCL(12) + 1
  REDIM GeochemName(NumRows, NumCols) AS STRING * 16
  GeochemName(1, 1) = "* GEOCHEM UNITS"
  GeochemName(2, 1) = "Unit Name"
  GeochemName(3, 1) = "Unit #"
  GeochemName(4, 1) = "Rate - Control"
  GeochemName(5, 1) = "- max 'd', m"
  GeochemName(6, 1) = "Years Exposed"
  GeochemName(7, 1) = "Lat. Area, m^2"
  GeochemName(8, 1) = "- %Area Sloping"
  GeochemName(9, 1) = "- Slope Angle"
  GeochemName(10, 1) = "Ratio Total/Wall"
  GeochemName(11, 1) = "%Surf Flush Reg"
  GeochemName(12, 1) = "%Surf Flush Per"
  GeochemName(13, 1) = "%Surf Not Flushd"
  GeochemName(14, 1) = "Reactive %S"
  GeochemName(15, 1) = "React ppt CaCO3"
  GeochemName(16, 1) = "Spec. Grav."
  FOR J = 1 TO CCL(7)
    SELECT CASE GeochemLeach(J, 1)
      CASE 14
        GeochemName(J + 16, 1) = "React Al (ppm)"'#14
      CASE 15
        GeochemName(J + 16, 1) = "React Ag (ppm)"
      CASE 16
        GeochemName(J + 16, 1) = "React As (ppm)"
      CASE 17
        GeochemName(J + 16, 1) = "React Ca (ppm)"
      CASE 18
        GeochemName(J + 16, 1) = "React Cd (ppm)"
      CASE 19
        GeochemName(J + 16, 1) = "React Co (ppm)"
      CASE 20
        GeochemName(J + 16, 1) = "React Cr (ppm)"'#20
      CASE 21
        GeochemName(J + 16, 1) = "React Cu (ppm)"
      CASE 22
        GeochemName(J + 16, 1) = "React Fe (ppm)"
      CASE 23
        GeochemName(J + 16, 1) = "React Hg (ppm)"
      CASE 24
        GeochemName(J + 16, 1) = "React K  (ppm)"
      CASE 25
        GeochemName(J + 16, 1) = "React Mg (ppm)"'#25
      CASE 26
        GeochemName(J + 16, 1) = "React Mn (ppm)"
      CASE 27
        GeochemName(J + 16, 1) = "React Mo (ppm)"
      CASE 28
        GeochemName(J + 16, 1) = "React Na (ppm)"
      CASE 29
        GeochemName(J + 16, 1) = "React Ni (ppm)"
      CASE 30
        GeochemName(J + 16, 1) = "React Pb (ppm)" '#30
      CASE 31
        GeochemName(J + 16, 1) = "React Ra (ppm)"
      CASE 32
        GeochemName(J + 16, 1) = "React Sr (ppm)"
      CASE 33
        GeochemName(J + 16, 1) = "React Th (ppm)"
      CASE 34
        GeochemName(J + 16, 1) = "React U  (ppm)"
      CASE 35
        GeochemName(J + 16, 1) = "React Zn (ppm)" '#35
    END SELECT
  NEXT
  FOR N = 1 TO CCL(12)
    CCL(0) = N
    Unit2.SHOW 1
    UNLOAD Unit2
  NEXT
  Form1.HIDE
  CALL RunSpr(NumRows, NumCols, GeochemName())

REM Input of annual flushing intervals
  NumCols = CCL(12) + 1
  IF CCL(5) = 0 THEN
    NumRows = 366 + 2
    A$ = "Day"
  ELSEIF CCL(5) = 1 THEN
    NumRows = 52 + 2
    A$ = "Week"
  ELSE
    NumRows = 12 + 2
    A$ = "Month"
  END IF
  REDIM FractureFlush(NumRowsSpr, CCL(12) + 1) AS INTEGER
  DIM TempArray(NumRowsSpr, CCL(12) + 1) AS STRING * 16
  TempArray(1, 1) = "* PER. FLUSHES"
  TempArray(2, 1) = A$
```

```
    FOR I = 1 TO CCL(12)
      TempArray(2, I + 1) = "Unit #" + STR$(I)
    NEXT
    NX = 1
    IF CCL(3) = 2 THEN NX = 2
    FOR I = 3 TO NumRows
      TempArray(I, 1) = TimeParam(I - 2, NX)
    NEXT
    CALL RunSpr(NumRows, NumCols, TempArray())
    FOR J = 2 TO NumCols
      N = 0
      FOR I = 3 TO NumRows
        IF VAL(TempArray(I, J)) < 1 THEN
          FractureFlush(I, J) = 0
        ELSE
          FractureFlush(I, J) = 1
          N = N + 1
        END IF
      NEXT
      IF N = 0 THEN
        N = 1
        FractureFlush(NumRows, J) = 1
      END IF
      FractureFlush(0, J) = N
    NEXT
    ERASE TempArray

REM Input of fresh-aged rates and NP/SO4 relationship
    Unit3.SHOW 1

REM input of rates
    NumCols = CCL(4) + 2
    NumEls = (NumRows + 1) * (NumCols + 1)
    REDIM GeochemRate1(NumRows, NumCols) AS Strlen, GeochemRate2(NumRows,
NumCols) AS STRING * 16
    FOR C = 1 TO CCL(12)
      GeochemRate2(1, 1) = "* FLO/CONC/RATE"
      GeochemRate2(1, 2) = "Unit #" + STR$(C)
      GeochemRate2(2, 1) = A$
      GeochemRate2(2, 2) = "Flow (m^3/d)"
      GeochemRate2(2, 3) = "SO4 mg/m^2/d"
      GeochemRate2(2, 4) = "Acid mg/m^2/d"
      IF CCL(9) = 1 THEN
        GeochemRate2(2, 5) = "NP mg/m^2/d"
      ELSE
        GeochemRate2(2, 5) = "NP/SO4 Ratio"
      END IF
      FOR I = 3 TO NumRows
        NX = 1
        IF CCL(3) = 2 THEN NX = 2
        GeochemRate2(I, 1) = TimeParam(I - 2, NX)
      NEXT
      T = 0
      BB = 0
      FOR R = 1 TO CCL(4)
        J = R + 5 - T
        IF GeochemCount(R, 1) < 4 OR GeochemCount(R, 1) > 7 THEN
          GeochemRate2(2, J) = GeochemParam(R)
        ELSE
          T = T + 1
        END IF
        IF GeochemCount(R, 1) = 7 THEN
          GeochemRate2(2, J) = MID$(GeochemParam(R), 1, 3) + " mg/m^2/d"
          BB = J
        END IF
        IF GeochemCount(R, 1) > 13 AND GeochemCount(R, 1) < 36 THEN
          GeochemRate2(2, J) = MID$(GeochemParam(R), 1, 2) + " mg/m^2/d"
        END IF
      NEXT

      MSG$ = "In order to assist data entry, prepare to enter one default value (including zero)
for each parameter. Each default value will then be initially attributed to every time period.
You can then change it as desired."
      A% = MSGBOX(MSG$, 1)
      IF A% = 2 THEN
        Form1.SHOW
        EXIT SUB
      ELSE
        FOR CC = 2 TO NumCols
          GeochemRate2(3, CC) = "0.0"
          FOR RR = 4 TO NumRows
            GeochemRate2(RR, CC) = ""
          NEXT
        NEXT
        GeochemRate2(4, 2) = "** Only Enter"
        GeochemRate2(4, 3) = "Seed Values On"
        GeochemRate2(4, 4) = "The Line Above"

        CALL RunSpr(NumRows, NumCols, GeochemRate2())
        FOR RR = 4 TO NumRows
          FOR CC = 2 TO NumCols
            GeochemRate2(RR, CC) = GeochemRate2(3, CC)
          NEXT
        NEXT
      END IF
      FOR RR = 3 TO NumRows
        FOR CC = 2 TO NumCols
          IF GeochemRate2(RR, CC) = "" THEN GeochemRate2(RR, CC) = "0.0"
        NEXT
      NEXT

      CALL RunSpr(NumRows, NumCols, GeochemRate2())
      FOR I = 1 TO NumRows
        FOR J = 1 TO NumCols
          GeochemRate1(I, J).AA = GeochemRate2(I, J)
          IF J = BB THEN
            BC! = VAL(GeochemRate1(I, 3).AA)
            BD! = VAL(GeochemRate1(I, J).AA) * 31 + BC
            GeochemRate1(I, 3).AA = STR$(BD)
            GeochemRate1(I, J).AA = "0.0"
          END IF
        NEXT
      NEXT
      CALL Array2Xms(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(C))
      CALL MinewallXMS
    NEXT

  ELSE ' If units chosen previously

    NumRows = 16 + CCL(7)
    NumCols = CCL(12) + 1
    OldCCL = CCL(12)
    LOAD Unit1
    Unit1.SHOW 1
REM Get number of units
    IF CCL(12) < 1 THEN
      CCL(12) = 0
      EXIT SUB
    END IF
    IF CCL(0) < 0 THEN
      Form1.mnuInputPitLayout.checked = False
      CCL(11) = 0
      NumRows = 16 + CCL(7)
      NumCols = CCL(12) + 1
      REDIM PRESERVE GeochemName(NumRows, NumCols) AS STRING * 16
    END IF
    IF OldCCL > CCL(12) THEN 'less units needed, so release just the excess units
      FOR I = CCL(12) + 1 TO OldCCL
        CALL XmsRelMem(XmsGeochemRateName(I))
      NEXT
    END IF
    GeochemName(1, 1) = "* GEOCHEM UNITS"
    GeochemName(2, 1) = "Unit Name"
    GeochemName(3, 1) = "Unit #"
    GeochemName(4, 1) = "Rate - Control"
    GeochemName(5, 1) = "- max 'd', m"
    GeochemName(6, 1) = "Years Exposed"
    GeochemName(7, 1) = "Lat. Area, m^2"
    GeochemName(8, 1) = "- %Area Sloping"
    GeochemName(9, 1) = "- Slope Angle"
    GeochemName(10, 1) = "Ratio Total/Wall"
    GeochemName(11, 1) = "%Surf Flush Reg"
    GeochemName(12, 1) = "%Surf Flush Per"
    GeochemName(13, 1) = "%Surf Not Flushd"
    GeochemName(14, 1) = "Reactive %S"
    GeochemName(15, 1) = "React ppt CaCO3"
    GeochemName(16, 1) = "Spec. Grav."
    FOR J = 1 TO CCL(7)
      SELECT CASE GeochemLeach(J, 1)
```

```
        CASE 14
          GeochemName(J + 16, 1) = "React Al (ppm)"'#14
        CASE 15
          GeochemName(J + 16, 1) = "React Ag (ppm)"
        CASE 16
          GeochemName(J + 16, 1) = "React As (ppm)"
        CASE 17
          GeochemName(J + 16, 1) = "React Ca (ppm)"
        CASE 18
          GeochemName(J + 16, 1) = "React Cd (ppm)"
        CASE 19
          GeochemName(J + 16, 1) = "React Co (ppm)"
        CASE 20
          GeochemName(J + 16, 1) = "React Cr (ppm)"'#20
        CASE 21
          GeochemName(J + 16, 1) = "React Cu (ppm)"
        CASE 22
          GeochemName(J + 16, 1) = "React Fe (ppm)"
        CASE 23
          GeochemName(J + 16, 1) = "React Hg (ppm)"
        CASE 24
          GeochemName(J + 16, 1) = "React K  (ppm)"
        CASE 25
          GeochemName(J + 16, 1) = "React Mg (ppm)"'#25
        CASE 26
          GeochemName(J + 16, 1) = "React Mn (ppm)"
        CASE 27
          GeochemName(J + 16, 1) = "React Mo (ppm)"
        CASE 28
          GeochemName(J + 16, 1) = "React Na (ppm)"
        CASE 29
          GeochemName(J + 16, 1) = "React Ni (ppm)"
        CASE 30
          GeochemName(J + 16, 1) = "React Pb (ppm)" '#30
        CASE 31
          GeochemName(J + 16, 1) = "React Ra (ppm)"
        CASE 32
          GeochemName(J + 16, 1) = "React Sr (ppm)"
        CASE 33
          GeochemName(J + 16, 1) = "React Th (ppm)"
        CASE 34
          GeochemName(J + 16, 1) = "React U  (ppm)"
        CASE 35
          GeochemName(J + 16, 1) = "React Zn (ppm)" '#35
      END SELECT
    NEXT
    FOR N = 1 TO CCL(12)
      CCL(0) = N
      Unit2.SHOW 1
      UNLOAD Unit2
    NEXT
    UNLOAD Unit2
    Form1.HIDE
    CALL RunSpr(NumRows, NumCols, GeochemName())

REM Check of annual flushing intervals
    NumCols = CCL(12) + 1
    IF CCL(5) = 0 THEN
      NumRows = 366 + 2
      A$ = "Day"
    ELSEIF CCL(5) = 1 THEN
      NumRows = 52 + 2
      A$ = "Week"
    ELSE
      NumRows = 12 + 2
      A$ = "Month"
    END IF
    DIM TempArray(NumRowsSpr, CCL(12) + 1) AS STRING * 16
    TempArray(1, 1) = "* PER. FLUSHES"
    TempArray(2, 1) = A$
    FOR I = 1 TO CCL(12)
      TempArray(2, I + 1) = "Unit #" + STR$(I)
    NEXT
    NX = 1
    IF CCL(3) = 2 THEN NX = 2
    FOR I = 3 TO NumRows
      TempArray(I, 1) = TimeParam(I - 2, NX)
    NEXT
    FOR I = 3 TO NumRows
      FOR J = 2 TO OldCCL + 1
        TempArray(I, J) = STR$(FractureFlush(I, J))
      NEXT
    NEXT
    REDIM FractureFlush(NumRowsSpr, CCL(12) + 1) AS INTEGER
    CALL RunSpr(NumRows, NumCols, TempArray())
    FOR J = 2 TO NumCols
      N = 0
      FOR I = 3 TO NumRows
        IF VAL(TempArray(I, J)) < 1 THEN
          FractureFlush(I, J) = 0
        ELSE
          FractureFlush(I, J) = 1
          N = N + 1
        END IF
      NEXT
      IF N = 0 THEN
        N = 1
        FractureFlush(NumRows, J) = 1
      END IF
      FractureFlush(0, J) = N
    NEXT
    ERASE TempArray

REM Input of fresh-aged rates and NP/SO4 relationship
    Unit3.SHOW 1

REM input of rates
    NumCols = CCL(4) + 2
    NumEls = (NumRows + 1) * (NumCols + 1)
    REDIM GeochemRate1(NumRows, NumCols) AS Strlen, GeochemRate2(NumRows,
NumCols) AS STRING * 16
    FOR C = 1 TO CCL(12)
      IF C > OldCCL THEN 'more units requested
        FOR I = 3 TO NumRows
          FOR J = 2 TO NumCols
            GeochemRate1(I, J).AA = "0.0"
          NEXT
        NEXT
      ELSE
        CALL Xms2Array(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(C))
        CALL XmsRelMem(XmsGeochemRateName(C))
      END IF
      FOR I = 3 TO NumRows
        FOR J = 2 TO NumCols
          GeochemRate2(I, J) = GeochemRate1(I, J).AA
        NEXT
      NEXT

      GeochemRate2(1, 1) = "* FLO/CONC/RATE"
      GeochemRate2(1, 2) = "Unit #" + STR$(C)
      GeochemRate2(2, 1) = A$
      GeochemRate2(2, 2) = "Flow (m^3/d)"
      GeochemRate2(2, 3) = "SO4 mg/m^2/d"
      GeochemRate2(2, 4) = "Acid mg/m^2/d"
      IF CCL(9) = 1 THEN
        GeochemRate2(2, 5) = "NP mg/m^2/d"
      ELSE
        GeochemRate2(2, 5) = "NP/SO4 Ratio"
      END IF
      FOR I = 3 TO NumRows
        NX = 1
        IF CCL(3) = 2 THEN NX = 2
        GeochemRate2(I, 1) = TimeParam(I - 2, NX)
      NEXT
      T = 0
      FOR R = 1 TO CCL(4)
        J = R + 5 - T
        IF GeochemCount(R, 1) < 4 OR GeochemCount(R, 1) > 7 THEN
          GeochemRate2(2, J) = GeochemParam(R)
        ELSE
          T = T + 1
        END IF
        IF GeochemCount(R, 1) = 7 THEN
          GeochemRate2(2, J) = MID$(GeochemParam(7), 1, 3) + " mg/m^2/d"
          BB = J
        END IF
        IF GeochemCount(R, 1) > 13 AND GeochemCount(R, 1) < 36 THEN
          GeochemRate2(2, J) = MID$(GeochemParam(R), 1, 2) + " mg/m^2/d"
        END IF
```

```
    NEXT
    CALL RunSpr(NumRows, NumCols, GeochemRate2())
    FOR I = 1 TO NumRows
      FOR J = 1 TO NumCols
        GeochemRate1(I, J).AA = GeochemRate2(I, J)
        IF J = BB THEN
          BC! = VAL(GeochemRate1(I, 3).AA)
          BD! = VAL(GeochemRate1(I, J).AA) + BC
          GeochemRate1(I, 3).AA = STR$(BD)
          GeochemRate1(I, J).AA = "0.0"
        END IF
      NEXT
    NEXT
    CALL Array2Xms(SEG GeochemRate1(0, 0), ElSize, NumEls,
XmsGeochemRateName(C))
    CALL MinewallXMS
  NEXT
 END IF
 REDIM GeochemRate1(1, 1) AS Strlen, GeochemRate2(1, 1) AS STRING * 16


END SUB
```

```
' ********************************************
' MINEWALL 2.0
' MW-WAIT.FRM FORM MODULE
' SHOWS "PLEASE WAIT"
' ********************************************

'$INCLUDE: 'MW-COMDF.BI'


Version 1.00
BEGIN Form WaitForm
        AutoRedraw   = 0
        BackColor    = QBColor(7)
        BorderStyle  = 2
        Caption      = "Lots of Things Are Happening!"
        ControlBox   = -1
        Enabled      = -1
        ForeColor    = QBColor(0)
        Height       = Char(12)
        Left         = Char(18)
        MaxButton    = -1
        MinButton    = -1
        MousePointer = 11
        Tag          = ""
        Top          = Char(8)
        Visible      = -1
        Width        = Char(40)
        WindowState  = 0
        BEGIN Label Label1
                Alignment    = 0
                AutoSize     = 0
                BackColor    = QBColor(7)
                BorderStyle  = 0
                Caption      = "   Please Wait!      This should take less    than
15 seconds."
                DragMode     = 0
                Enabled      = -1
                ForeColor    = QBColor(0)
                Height       = Char(3)
                Left         = Char(7)
                MousePointer = 0
                TabIndex     = 0
                Tag          = ""
                Top          = Char(4)
                Visible      = -1
                Width        = Char(23)
        END
END
```

```
' ********************************************
' MINEWALL 2.0
  MW-COMDF.BI
' INCLUDE FILE WITH COMMON STATEMENTS
' THIS FILE IS INCLUDED IN ALL MW 2.0 MODULES
' ********************************************

DEFINT A-Z
'$DYNAMIC
'$FORM Form1
TYPE Strlen
   AA AS STRING * 16
END TYPE
COMMON SHARED /ProgCont/ CCL() AS INTEGER, Wks() AS STRING * 16, TimeParam()
AS STRING * 16, TimeCount() AS INTEGER, TimeTrack() AS LONG, SprLabel() AS
STRING, InputDataName AS STRING, InputPathName AS STRING, InputFileName AS
STRING
COMMON SHARED /ProgCont2/ MinewallMemory AS SINGLE, MinewallDiskSpace AS
SINGLE, MenuPop AS INTEGER, MousePresent AS INTEGER
COMMON SHARED /ProgInp/ Title AS STRING, SimTime_Array() AS INTEGER,
MinewallArray1() AS Strlen, MinewallArray2() AS STRING * 16, GeochemRate1() AS Strlen,
GeochemRate2() AS STRING * 16, HelpLoaded AS INTEGER, HlpName AS STRING
COMMON SHARED /ProgInp2/ XmsName() AS INTEGER, XmsGeochemRateName() AS
INTEGER, NumEls AS INTEGER, NumElsSpr AS INTEGER, NumRowsSpr AS INTEGER,
NumColsSpr AS INTEGER, ElSize AS INTEGER, NPSO4Ratio AS SINGLE, NumReps AS
INTEGER, SatPower AS SINGLE
COMMON SHARED /ProgInp3/ GeochemParam() AS STRING * 16, GeochemName() AS
STRING * 16, GeochemLeach() AS INTEGER, GeochemCount() AS INTEGER,
GeochemPower() AS SINGLE, MonthlyDays() AS INTEGER, FractureFlush() AS INTEGER,
SubmergenceFactor AS SINGLE
COMMON SHARED /ProgInp4/ PitDims() AS STRING * 16, PitPoints() AS INTEGER,
TempName() AS STRING, LayerName() AS STRING * 16, LayerData() AS SINGLE,
LayerTurnover() AS INTEGER, XmsLayerName() AS INTEGER, RateAccel() AS SINGLE,
TimeRound AS INTEGER
COMMON SHARED /ProgOut/ GeochemInventory() AS SINGLE, CalcArray() AS SINGLE,
GeochemAccum() AS SINGLE, XmsLayerConc() AS INTEGER
COMMON SHARED /ProgChart1/ ChX() AS SINGLE, ChY() AS SINGLE, SeriesLabels() AS
STRING, GraphSim() AS INTEGER, GraphChoice() AS INTEGER, ChoiceTotal AS INTEGER
COMMON SHARED /ProgChart2/ YMax() AS SINGLE, YMin() AS SINGLE, YMaxTotal AS
SINGLE, YMinTotal AS SINGLE, XYFlag() AS SINGLE, GrPrint() AS SINGLE

CONST False = 0
CONST True = NOT False
```

```
' MW-HELP.BI
' Procedure declarations for Help Toolkit.
'


' Public routines.
DECLARE SUB HelpRegister (HelpFile$, Success AS INTEGER)
DECLARE SUB HelpShowTopic (ProvidedTopic$)
DECLARE SUB HelpClose ()
DECLARE SUB HelpSetOptions (bcolor AS INTEGER, fcolor AS INTEGER, dbcolor AS
INTEGER, dfcolor AS INTEGER, buttoncolor AS INTEGER, SelectColor AS INTEGER, Flags
AS INTEGER)
DECLARE SUB HelpSearch ()

' Private routines.
DECLARE SUB HelpPrintText (TopLine AS INTEGER, LeftPos AS INTEGER)
DECLARE FUNCTION HelpMax (int1 AS INTEGER, int2 AS INTEGER) AS INTEGER
DECLARE FUNCTION HelpMin (int1 AS INTEGER, int2 AS INTEGER) AS INTEGER
DECLARE SUB cmdOK_Click ()
DECLARE SUB cmdButtonBar_Click (Index AS INTEGER)
DECLARE SUB Form_Unload (Cancel AS INTEGER)
```

```
' MW-CHART.BI
' Include file for the Presentation Graphics ToolKit charting routines.
'
' This file should be included in any application
' using the Presentation Graphics charting routines.
' It contains declarations for all of the
' user-accessible routines as well as type definitions
' for the ChartEnvironment datatype used by most
' of the routines.  Also included are constant
' definitions for some of the parameters that must be
' specified when using the charting routines.
'
' Copyright (C) 1987-1992 Microsoft Corporation
'

TYPE TitleType
```

```
  Title      AS STRING * 70    ' Title text
  TitleFont  AS INTEGER        ' Font for title text
  TitleColor AS INTEGER        ' Color of title
  Justify    AS INTEGER        ' 1=Left, 2=Center, 3=Right
END TYPE

TYPE AxisType
  Grid       AS INTEGER        ' 0=No, 1=Yes
  GridStyle  AS INTEGER        ' Style number for grid lines
  AxisTitle  AS TitleType      ' Axis title
  AxisColor  AS INTEGER        ' Color of axis
  Labeled    AS INTEGER        ' 0=No tic marks, etc, 1=Tics, etc
  RangeType  AS INTEGER        ' 1=Linear, 2=Log
  LogBase    AS SINGLE         ' Base for log axis
  AutoScale  AS INTEGER        ' 0=Manual, 1=Auto scale
  ScaleMin   AS SINGLE         ' Minimum scale value
  ScaleMax   AS SINGLE         ' Maximum scale value
  ScaleFactor AS SINGLE        ' Factor for scaling values on axis
  ScaleTitle AS TitleType      ' Title for scale factor
  TicFont    AS INTEGER        ' Font for tic labels
  TicInterval AS SINGLE        ' Distance between tics in world coordinates
  TicFormat  AS INTEGER        ' 1=Normal, 2=Exponential format labels
  TicDecimals AS INTEGER       ' Number of decimals in value label
END TYPE

TYPE RegionType
  X1         AS INTEGER        ' Left side of window (in pixels)
  Y1         AS INTEGER        ' Top of window (in pixels)
  X2         AS INTEGER        ' Right side of window (in pixels)
  Y2         AS INTEGER        ' Bottom of window (in pixels)
  Background AS INTEGER        ' Background color
  Border     AS INTEGER        ' 0=No border, 1=Border
  BorderStyle AS INTEGER       ' Style number for border LINE
  BorderColor AS INTEGER       ' Color to draw border in
END TYPE

TYPE LegendType
  Legend     AS INTEGER        ' 0=No legend, 1=Legend
  Place      AS INTEGER        ' 1=Overlay, 2=Bottom, 3=Right
  TextColor  AS INTEGER        ' Color of text in legend
  TextFont   AS INTEGER        ' Font for legend text
  AutoSize   AS INTEGER        ' 0=Manual, 1=Auto
  LegendWindow AS RegionType   ' Legend window specification
END TYPE

TYPE ChartEnvironment
  ChartType  AS INTEGER        ' 1=Bar, 2=Column, 3=Line, 4=Scatter, 5=Pie
  ChartStyle AS INTEGER        ' Depends on type
  DataFont   AS INTEGER        ' Font to use for plot characters
  ChartWindow AS RegionType    ' Overall chart window
  DataWindow AS RegionType     ' Data portion of chart
  MainTitle  AS TitleType      ' Main title options
  SubTitle   AS TitleType      ' Second line title options
  XAxis      AS AxisType       ' X-axis options
  YAxis      AS AxisType       ' Y-axis options
  Legend     AS LegendType     ' Legend options
END TYPE


DECLARE SUB DefaultChart (Env AS ChartEnvironment, ChartType AS INTEGER,
ChartStyle AS INTEGER)

DECLARE SUB AnalyzeChart (Env AS ChartEnvironment, Cat$(), Value() AS SINGLE, N AS
INTEGER)
DECLARE SUB AnalyzeChartMS (Env AS ChartEnvironment, Cat$(), Value() AS SINGLE, N
AS INTEGER, First AS INTEGER, Last AS INTEGER, SeriesLabel$())
DECLARE SUB AnalyzePie (Env AS ChartEnvironment, Cat$(), Value() AS SINGLE, Expl()
AS INTEGER, N AS INTEGER)
DECLARE SUB AnalyzeScatter (Env AS ChartEnvironment, ValX() AS SINGLE, ValY() AS
SINGLE, N AS INTEGER)
DECLARE SUB AnalyzeScatterMS (Env AS ChartEnvironment, ValX() AS SINGLE, ValY()
AS SINGLE, N AS INTEGER, First AS INTEGER, Last AS INTEGER, SeriesLabel$())

DECLARE SUB Chart (Env AS ChartEnvironment, Cat$(), Value() AS SINGLE, N AS
INTEGER)
DECLARE SUB ChartMS (Env AS ChartEnvironment, Cat$(), Value() AS SINGLE, N AS
INTEGER, First AS INTEGER, Last AS INTEGER, SeriesLabel$())
DECLARE SUB ChartScatter (Env AS ChartEnvironment, ValX() AS SINGLE, ValY() AS
SINGLE, N AS INTEGER)
DECLARE SUB ChartScatterMS (Env AS ChartEnvironment, ValX() AS SINGLE, ValY() AS
SINGLE, N AS INTEGER, First AS INTEGER, Last AS INTEGER, SeriesLabel$())
DECLARE SUB ChartPie (Env AS ChartEnvironment, Cat$(), Value() AS SINGLE, Expl() AS
INTEGER, N AS INTEGER)


'-- Text routines:
DECLARE SUB DefaultFont (SEG Segment%, SEG Offset%)
DECLARE SUB LabelChartH (Env AS ChartEnvironment, X AS INTEGER, Y AS INTEGER,
Font AS INTEGER, TxtColor AS INTEGER, TxtString$)
DECLARE SUB LabelChartV (Env AS ChartEnvironment, X AS INTEGER, Y AS INTEGER,
Font AS INTEGER, TxtColor AS INTEGER, TxtString$)

'-- Screen-mode routines:
DECLARE SUB ChartScreen (N AS INTEGER)


'-- Palette routines:
DECLARE SUB GetPaletteDef (PaletteC() AS INTEGER, PaletteS() AS INTEGER, PaletteP$(),
PaletteCh() AS INTEGER, PaletteB() AS INTEGER)
DECLARE SUB SetPaletteDef (PaletteC() AS INTEGER, PaletteS() AS INTEGER, PaletteP$(),
PaletteCh() AS INTEGER, PaletteB() AS INTEGER)
DECLARE SUB ResetPaletteDef ()
DECLARE FUNCTION GetPattern$ (Bits%, PatternNum%)
DECLARE FUNCTION MakeChartPattern$ (RefPattern$, FG AS INTEGER, BG AS
INTEGER)

'-- COMMON declaration for the error variable:
COMMON SHARED /ChartLib/ ChartErr AS INTEGER


'-- Constant definitions for setting charting parameters:
CONST cPalLen = 15              ' Length of charting palette

CONST cMissingValue = -3.4E+38  ' Denotes "missing" value in data

CONST cNo = 0
CONST cYes = NOT cNo

CONST cLeft = 1             ' title placement
CONST cCenter = 2
CONST cRight = 3

CONST cCategory = 1          ' category axis
CONST cValue = 2             ' value axis

CONST cDecFormat = 1         ' tic labels in decimal format
CONST cExpFormat = 2         ' tic labels in exp format

CONST cLinear = 1            ' linear axis
CONST cLog = 2               ' log axis

CONST cOverlay = 1           ' Legend.Place
CONST cBottom = 2

CONST cBar = 1               ' bar chart
CONST cPlain = 1             ' unstacked data
CONST cStacked = 2           ' stacked data

CONST cColumn = 2            ' column chart

CONST cLine = 3              ' line chart
CONST cLines = 1             ' Lines connecting points
CONST cNoLines = 2           ' No lines connecting points

CONST cScatter = 4           ' scatter chart

CONST cPie = 5               ' pie chart
CONST cPercent = 1           ' Displays slice percent
CONST cNoPercent = 2         ' Does not display slice percent

' Constant definitions for error messages (number greater than 100
' are "fatal" errors and will cause charting routines to exit):
CONST cBadDataWindow = 105      ' DataWindow calculated too small
CONST cBadLegendWindow = 110    ' LegendWindow coordinates invalid
CONST cBadLogBase = 15          ' LogBase <= 0
CONST cBadScaleFactor = 20      ' ScaleFactor = 0
CONST cBadScreen = 25           ' Invalid screen mode
CONST cBadStyle = 30            ' Invalid chart style
CONST cBadType = 135            ' Invalid chart type
CONST cTooFewSerie = 155        ' Too few series (First > Last)
```

```
CONST cTooSmallN = 160          ' No data in series (N=0)
CONST cBadPalette = 165         ' Palette not dimensioned correctly
CONST cPalettesNotSet = 170     ' Palette not init'd (GetPaletteDef)
CONST cNoFontSpace = 175        ' No room to load default font
CONST cCLUnexpectedOff = 200    ' Added to ERR for unexpected error
```