

## INTRODUCTION

**Enviro Data** is a data management system for capturing, managing and displaying site analytical and other related data. It is an excellent learning tool for site environmental data management concepts. This document describes the **Enviro Data** system and how to use it. It describes how to create and attach to a database, select data, create lists, reports, maps and graphs, and how to create subset data sets which can be taken or sent to remote locations, or used locally for performance reasons. It also describes how to use the keyboard shortcuts available in Microsoft Windows and Microsoft Access.

Geotech Computer Systems, Inc. (Geotech) created **Enviro Data** to suit our clients' current and future needs. The purpose of this software is to provide a way to electronically import data from the field, analytical laboratories and consultants, manually input data, edit and otherwise manipulate the data, and create a variety of reports and other displays. The software can be installed on individual Users' computers, and the database can run on a User's computer or on a server computer. System Administrators, Data Administrators, other Staff members, and project managers should be trained on the theory behind the system, issues related to computerized data management, and how to operate the system and customize and enhance it as their needs change. The system also provides the capability to create subsets of data that are then transmitted to other locations.

The data model (data elements to be stored) for **Enviro Data** was developed jointly by Geotech, our clients' labs and contractors, and our clients. **Enviro Data** is based on the client-server model of networked computing. In this model, software operating on desktop computers communicates with a database program running on a server computer across a network. A computer (the *client*) resides on the desk of each User. This client computer is connected to a computer shared by many Users (the *server*) via network hardware and cabling. The client computer, or *front-end*, runs the software that provides the user interface and any local processing for the client-server system. The server provides three primary services to the clients: *database services*, *file services* and *print services*. One computer can provide these services, or the duties of each service can be split among several machines. **Enviro Data** uses mostly database services, and the services are provided by a database server, which runs the *back-end* or server-side component of the data management system. **Enviro Data** uses Microsoft Access for the client (front-end) and Microsoft SQLServer or Oracle for the server (back-end).

The Access user interface for this system contains the menus, forms, reports and program modules to operate the system. With this program, database Users and Administrators can import, manipulate and retrieve site analytical data. For consistency and quality, Data Administrators should do all data importing, editing, and other miscellaneous administrative duties. Users should only be able to view data, not edit it.

There are two types of administration required for the current **Enviro Data** System. These are System Administration and Data Administration. An individual can provide more than one administrative function.

A System Administrator manages the SQLServer database. Often this task is performed by an Information Services (IS) staff member. Assistance can be provided from Geotech as requested by our clients. The System Administrator is responsible for general maintenance of the computer system, administration of Users, database maintenance and system backup. Data Administrators are responsible for maintenance of the data. Staff designated as Data Administrators are responsible for data import, editing and working with project managers on data review. Data importing can be done one of two ways,

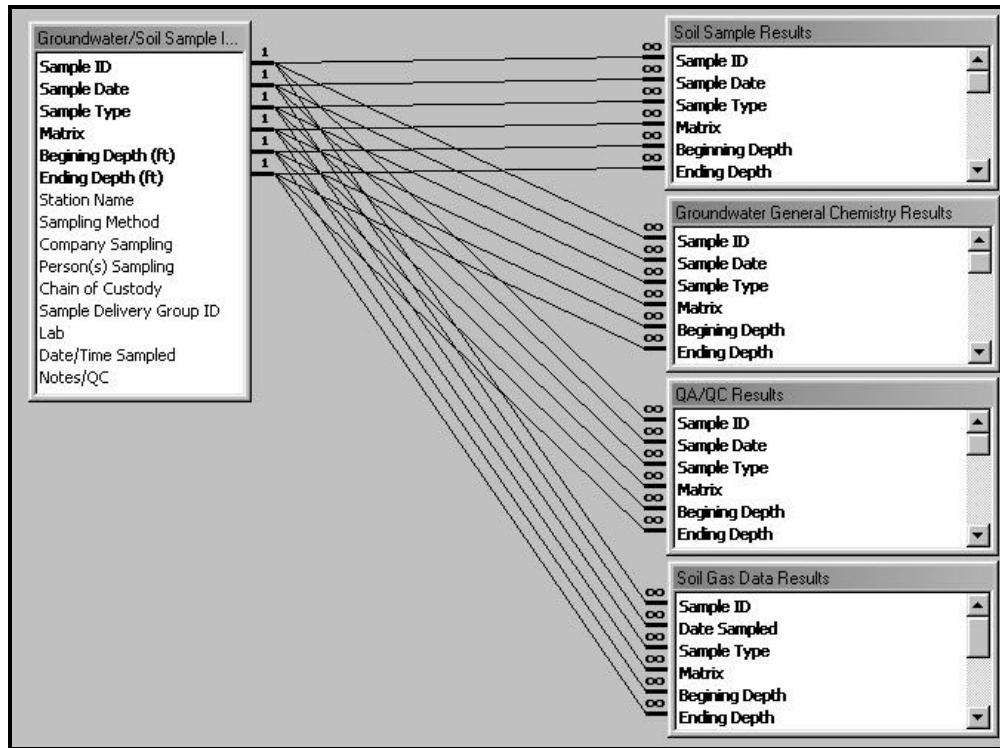
electronic or manual. The system provides automated import for analytical laboratory data submitted in one of the approved electronic data formats.

### DATA MODEL EXERCISES

These exercises are intended to reinforce the material presented in the lecture.

#### DATABASE REDESIGN EXERCISE

You receive a database with this design:



Describe the problem with this database:

---

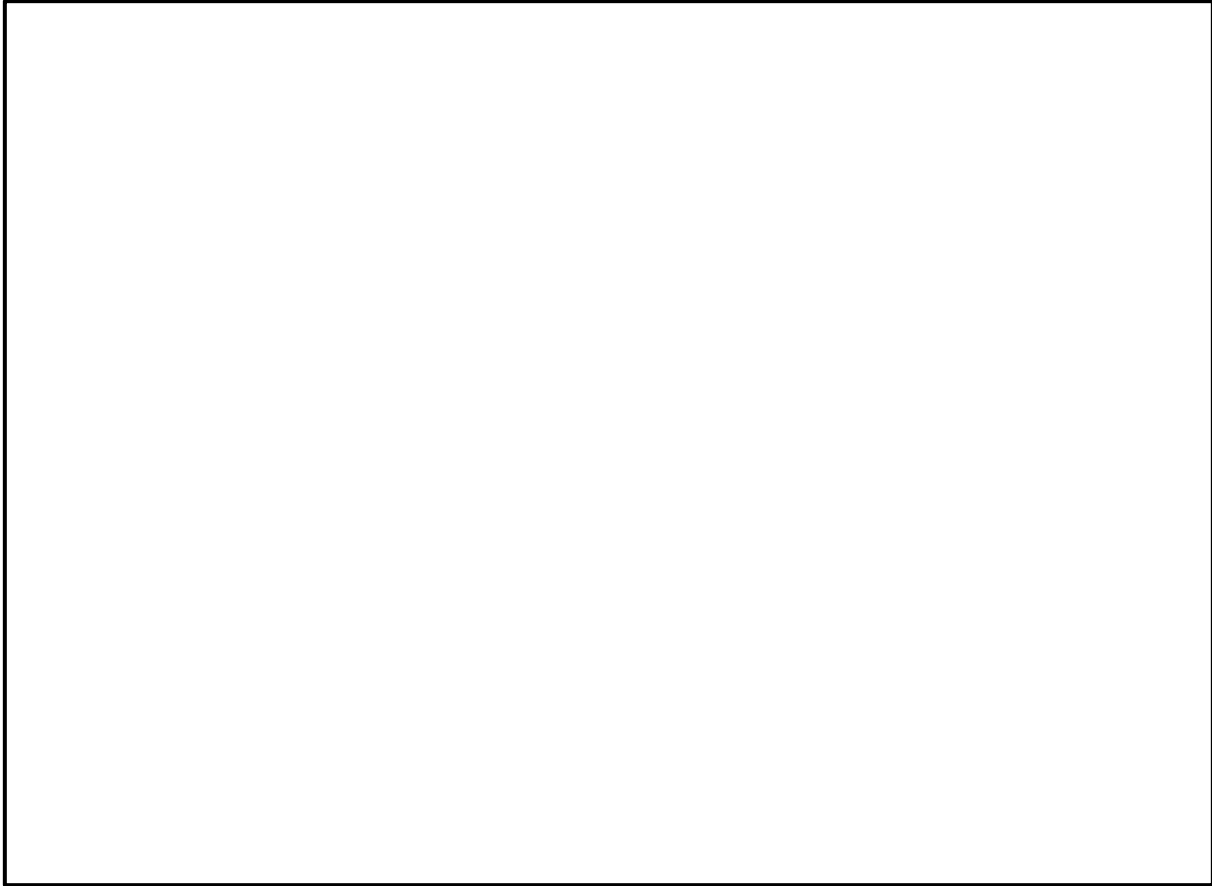
---

---

---

---

Redraw the design to eliminate the problem:

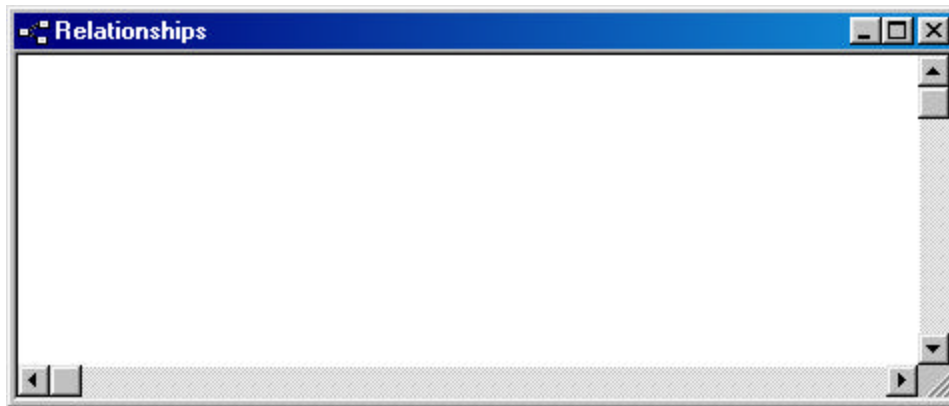


**DATA NORMALIZATION EXERCISE**

You need to manage data for satellite accumulation areas for hazardous materials. You receive a database with this design:

AreaName	Location	DrumNumber	DrumSize	ItemDescription	ItemAmount
SAA 1	Factory Floor	121	55	Batteries	5 lbs
SAA 1	Factory Floor	121	55	Smoke det.	3 lbs
SAA 1	Factory Floor	122	55	Cutting oil	10 gal
SAA 1	Factory Floor	122	55	Cutting oil	10 gal
SAA 1	Factory Floor	122	55	Lube oil	15 gal
SAA 1	Factory Floor	122	55	Cutting oil	5 gal
SAA 2	Store Room	132	30	Rags	10 lbs
SAA 2	Store Room	132	30	Soiled rug	15 lbs
SAA 2	Store Room	135	30	Aprons	5 lbs
SAA 2	Store Room	135	30	Rags	5 lbs
SAA 2	Store Room	135	30	Gloves	10 lbs
SAA 3	Loading Dock	214	55	Boxes	5 lbs

Draw an entity-relationship diagram for a normalized version of this database:



Design an SQL statement to display the data as it was originally presented:

---

---

---

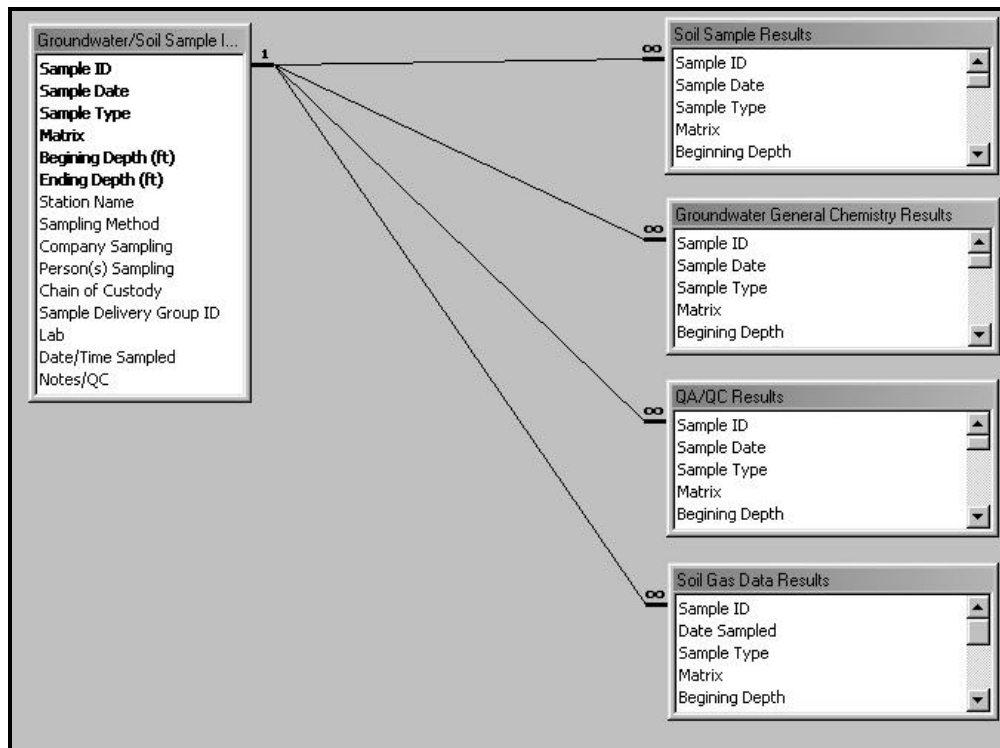
---

**DATABASE REDESIGN EXERCISE SOLUTION**

Description of the problem:

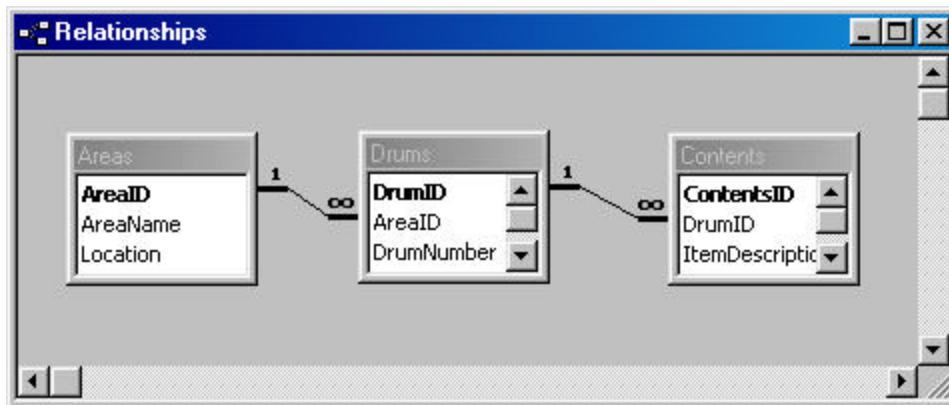
There is no reason for the redundant fields, either in the tables or the relationships. The fields Sample Date, Sample Type, Matrix, Beginning Depth and Ending Depth need only be in the Groundwater/Soil Sample table and not in Soil Sample Results, Groundwater General Chemistry Results, QA/QC Results, and Soil Gas Data Results. (It might also be possible to combine these four tables into one, but we can't tell without seeing whether the other fields are the same or different.)

Revised design:



DATA NORMALIZATION EXERCISE SOLUTION

Entity-relationship diagram:



SQL Statement:

```

SELECT Areas.AreaName, Areas.Location, Drums.DrumNumber,
Drums.DrumSize, Contents.ItemDescription, Contents.ItemAmount
FROM (Areas INNER JOIN Drums ON Areas.AreaID = Drums.AreaID) INNER
JOIN Contents ON Drums.DrumID = Contents.DrumID;
    
```

Result of SQL Statement:

AreaName	Location	DrumNumber	DrumSize	ItemDescription	ItemAmount
SAA 1	Factory Floor	121	55	Batteries	5 lbs
SAA 1	Factory Floor	121	55	Smoke det.	3 lbs
SAA 1	Factory Floor	122	55	Cutting oil	10 gal
SAA 1	Factory Floor	122	55	Cutting oil	10 gal
SAA 1	Factory Floor	122	55	Lube oil	15 gal
SAA 1	Factory Floor	122	55	Cutting oil	5 gal
SAA 2	Store Room	132	30	Rags	10 lbs
SAA 2	Store Room	132	30	Soiled rug	15 lbs
SAA 2	Store Room	135	30	Aprons	5 lbs
SAA 2	Store Room	135	30	Rags	5 lbs
SAA 2	Store Room	135	30	Gloves	10 lbs
SAA 3	Loading Dock	214	55	Boxes	5 lbs

## Enviro Data TUTORIAL

This tutorial is intended to give you, the **Enviro Data** User or Data Administrator, an overview of **Enviro Data**. It can be used as a hands-on guide to working with this program, and to learn the concepts of site environmental data management. This section provides basic instructions on opening the **Enviro Data** program and associated databases, selecting data from the analytic data tables, and presenting the information in lists, reports, graphs, and maps. It then proceeds to data administration functions such as importing and editing data. Section 4 of this manual provides a detailed reference for the **Enviro Data** functions outlined in this section, along with many others, and you should refer there for more information.

**Note:** In this section and in subsequent sections of this document, certain typefaces are used to reference different objects in the system. These typefaces are listed in the following table:

Typeface	Example	Database Object
Underlined, bold, upper case	<b><u>MAIN MENU</u></b>	Application forms and Access dialog boxes
Underlined, bold	<b><u>Samples</u></b>	Filter Criteria Boxes
Underlined, italic	<i><u>Edit</u></i>	Specific buttons or selection fields on screens
Bold	<b>Samples</b>	Table names
Italic	<i>SampleTop</i>	Field names
Underlined	<u>Number of Samples</u>	Other objects on application screens

When Access options are referenced, they are displayed as they appear on the screen with select letters, called accelerator keys, underlined where possible (i.e. File/Print or Tools/Copy). Accelerator keys can be used by pressing the Alt key on the keyboard together with the underlined letter to execute the desired menu choice. Buttons or options without accelerator keys underlined are referred to with the entire word underlined (i.e. Open or OK buttons).

### USING Enviro Data

Once you have installed **Enviro Data**, you can follow the steps in this section to start to learn about how the program operates and what it can do for you.

#### Opening Enviro Data

Opening the **Enviro Data** program involves starting Microsoft Access and opening the program database file. This section describes how to do that, and covers attaching to the settings and data databases if necessary.

1. Open the **Enviro Data** application by double clicking on the **Enviro Data** icon on your desktop. You can also open **Enviro Data** by clicking on the Access icon. If you start Access from the Access icon, select Open Existing Database and then choose EnvDProg.mdb. Click Open. This file contains the **Enviro Data** program code. The location of this file is determined by the choices you made during the installation process, or will be supplied by your System Administrator. Double clicking on the **Enviro Data** icon will open EnvDProg.mdb for you automatically. If you are attaching to SQLServer, the LOG ON box appears. Type in your username and password to continue.

2. The first time you open **Enviro Data**, if you have installed a new version, or if the data files have been moved, you may need to attach two databases to the program, a settings database and a data database file. If the program cannot locate the setting database it prompts you to attach to a settings file by opening the **ATTACH SETTINGS** form, shown in Figure 1.



Figure 1 - Attach Settings dialog box of **ATTACH DATABASE**

3. To attach the settings file, Settings.mdb, you can either click on the *Select Settings File* button and select the settings file using the **OPEN** dialog box, or you can type the path and filename directly into the **ATTACH SETTINGS** form and click the *Attach Settings* button. The Settings.mdb file should be located on the client computer or in a User folder on the server. If you are unable to locate the Settings.mdb file, contact Geotech Computer Systems or your System Administrator. This step can be skipped if the **ATTACH SETTINGS** form does not appear.

After selecting the settings file, the **ATTACH DATABASE** form, which is shown in Figure 2, may appear. The database attachment process is shown below.

### **Attach Database**

With **Enviro Data** you can store all of your data in one big database, or store particular sites or groups of sites in individual databases. To use a particular database, you “attach” to that database. This section describes how to do that.

1. To attach to an Access database file (which must be in **Enviro Data** format), click on *Attach Database* on the **MAIN MENU**. The **ATTACH DATABASE** form, shown in Figure 2, will be displayed. Then click on *Select Subset File* and select the database using the **OPEN** dialog box or type in the path and file name and click on *Attach Subset*. To use the tutorial database, use “EnvDData.mdb”.

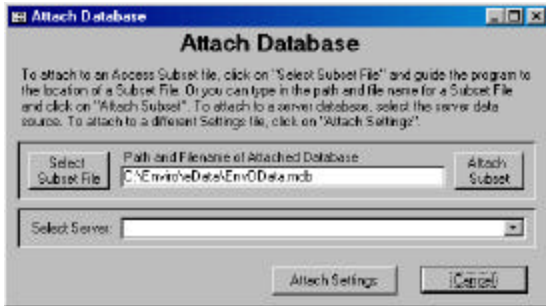


Figure 2 - **ATTACH DATABASE** dialog box

To attach to the **Enviro Data** database in SQLServer, click on the *Select Server* combo box and select the appropriate database. Enter the User name and password assigned by the System Administrator to log into the database.

After you attach to an Access or server database, the **Enviro Data MAIN MENU** appears on your screen. A copy of this screen is shown in Figure 3. At this point you are attached and ready to go on with using **Enviro Data**.

## **Overview of the Data Model**

After opening the program and a data database, you might want to learn a little about the database design. This section will show you how to get an overview of the database using the **RELATIONSHIPS** window, and how to view the structure of a table to see the data that it contains. Then we will move on to the features of the software.

1. First we will look at the **RELATIONSHIPS** window. On the Access main menu bar, click on Tools/Relationships. The **RELATIONSHIPS** window will be displayed. The boxes represent the tables in the database. The line at the top of the box shows the name of the table. The lines in the lower part of the box show the names of the fields in the table. The lines between the boxes show the relationships between the tables. Close the **RELATIONSHIPS** window when you have finished looking at it.
2. Next we will look at the structure of a data table. Open the **DATABASE** window by pressing function key F11. Choose a table such as **Sites**, and click on Design. You will be warned that you will not be able to modify the structure. Click on Yes to proceed. The three columns show the field name, data type, and a description of the data that the field is to contain. If you click on a field, the lower part of the screen shows more details about the field. Click on File/Close to close the table design window. Minimize (but don't close) the **DATABASE** window by clicking on the minimize button (☐) in the upper right corner.

## **Main Menu**

The **MAIN MENU** form takes you to the major features of the program. This form is shown in Figure 3.

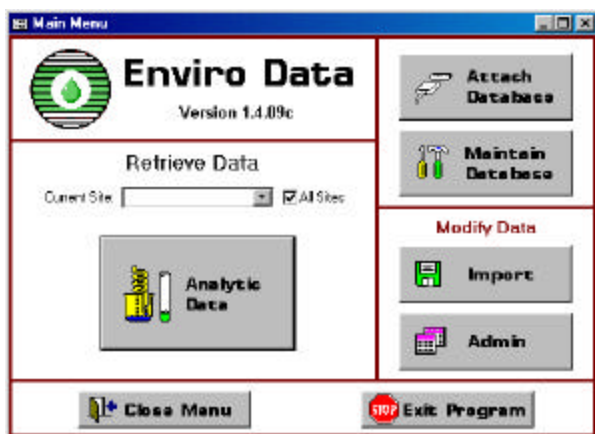


Figure 3 - MAIN MENU of **Enviro Data**

The features shown on the MAIN MENU will be described in the next section. Note that if you are a User and not a Data administrator, some of the buttons, and thus some of the program functions, will not be available to you.

Above the MAIN MENU, you will see the **Enviro Data TOUR** form. This tour is supplied to help walk you through the main features of **Enviro Data**, and appears when the program is first opened. This written tutorial was created for the beginning user to learn the fundamental processes and functions of **Enviro Data** by reading along within the manual and following on screen. It is built to be used while attached to the tutorial database, EnvDDData.mdb. The **Enviro Data TOUR** was created to offer any user the option to learn **Enviro Data** on-screen, with or without following along in the Tutorial. If you close Enviro Data anytime during the tour, it will remember where you left off, and start in the same place upon re-opening. Or you can close the tour form by clicking on the 'x' in the upper right hand corner of the form and continue using the program. It will reappear the next time you open the program. To close the tour for good, just select the End Tour button and choose Yes.

## **Maintain Database**

Before we dig into working with the data, let's first look at some features of the software that help you work with your data. Some of these features are accessible from the MAINTAIN DATABASE form.

1. Click on Maintain Database on the MAIN MENU. The MAINTAIN DATABASE form will be displayed. We will look at some of the options on this form.

## **Lookups Report**

The program contains a report that shows you the data in the tables that provide code expansions and other supporting information for working with the data in the main data tables.

1. Click on Lookups Report on the MAINTAIN DATABASE form. The program will display the LOOKUPS REPORT.
2. To zoom out to see the whole page, click in the middle of the report. Use the record selectors along the bottom of the report window to move to other pages.
3. Close the LOOKUPS REPORT.

### *Activity Report*

The software maintains a record of changes made to the data. Later we will see the screen that gathers this data. Now we will look at selecting and reporting this data.

1. Click on *Activity Report* on the **MAINTAIN DATABASE** form. The program will display the **ACTIVITY REPORT** selection screen.
2. Enter some selection criteria to select specific activities to report. Select “drdave” for administrator from the drop down list and select “Rad Industries” for the Site. Then click on *Display Report*. This report shows activities that were performed which may have resulted in changes to the data in the database.
3. Close the **ACTIVITY LOG** and the **ACTIVITY REPORT** selection screen.

### *Database Statistics*

Sometimes it's useful to look at an overview of the data of the database to see what data is present. Data about what data is there is sometimes called “metadata”.

1. Click on *Database Statistics* on the **MAINTAIN DATABASE** form. The program will display the **DATABASE STATISTICS** selection screen.
2. Leave “All Sites” selected. Then click on *Display Report*. The first page of the report shows general information on each site. The remaining pages show more detailed overview information on each site and the stations and samples for that site.
3. Close the **DATABASE STATISTICS REPORT** and the selection screen.

### *Samples Due*

The program can help you track which stations have samples due in the near future. It is based on the most recent sample for each station, and the sampling interval defined in the **Stations** table.

1. Click on *Samples Due* on the **MAINTAIN DATABASE** form. The program will display the **SAMPLES DUE REPORT**. This report shows stations for which sampling is overdue.
2. Close the **SAMPLES DUE REPORT**. Close the **MAINTAIN DATABASE** form.

### **Analytic Data**

The bulk of the activities involved in working with data in **Enviro Data** are accessed through the **SELECT DATA** form. The following sections cover many aspects of working with this form.

#### ***Selecting Data***

When you are working with a large database, you can improve performance by keeping your selection set small. If you are working with only one site, for example, you should choose the site before you move on to working with stations, and so on. This example will follow this approach.

1. To start working with data, first select a site to retrieve. You should select a site from the **MAIN MENU** using the dropdown box in the *Current Site* selection field. You can work with more than one site at a time, but if you are working with one it is better to select it on the **MAIN MENU** before

opening the **SELECT DATA** form to speed up operation. Then click on the *Analytic Data* button in the **MAIN MENU** and the **SELECT DATA** form appears. This screen is divided into 3 sections: the Filter Criteria Boxes, the Status Bar, and the Action Menu.

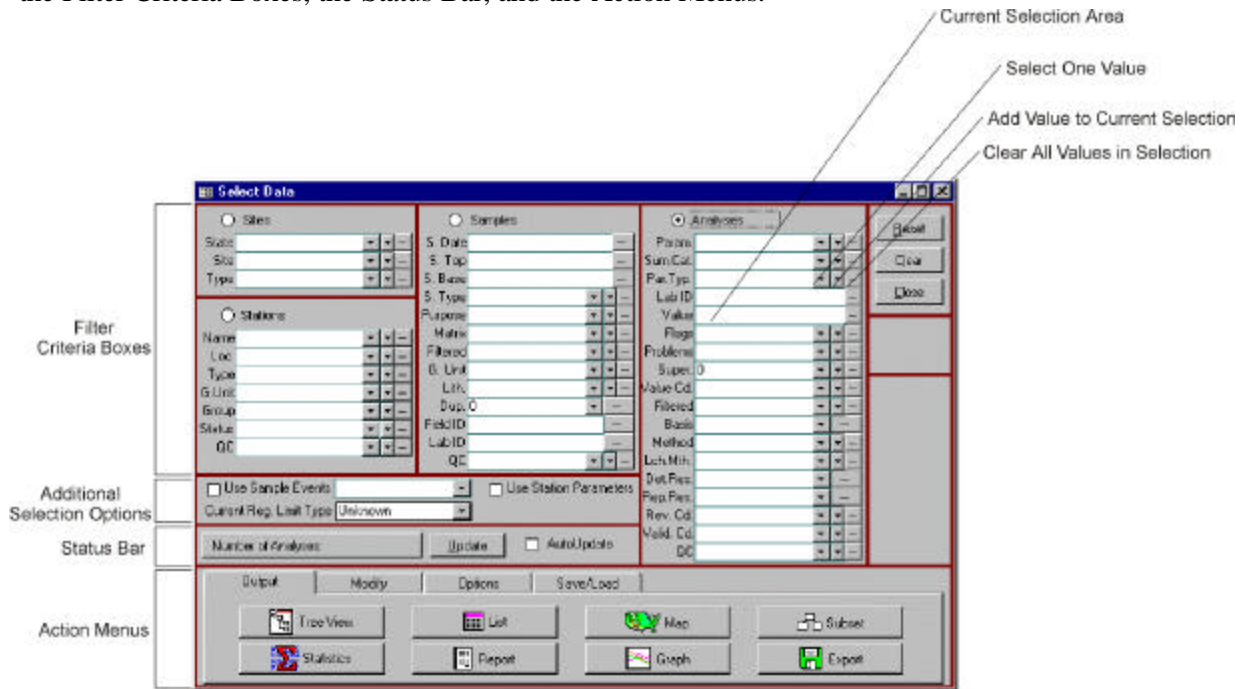


Figure 4 - **SELECT DATA** form

## Sites

1. The Filter Criteria Boxes display a set of selection criteria on the screen as the **Sites**, **Stations**, **Samples**, and **Analyses** option buttons are selected. Select the **Sites** option button in the Filter Criteria Boxes then click on *Update*. Notice the Number of Records listed on the Status Bar. This number changes depending on the option selected (e.g. Number of Sites). In the **Sites** Filter Criteria Box, click on the arrow to the right of *Site* selection field. Select "*Rad Industries*" from the list, and click *List* (under Output in the Action Menus) to see the new data set. We'll look in more detail at the features of the list window later. After you have looked at it, close the list window.

## Stations

1. Select the *Stations* button in the Filter Criteria Boxes, and the **Stations** selection criteria filters appear. Select various criteria and click on *Update*. Notice the change in the number of records listed on the Status Bar which meet the criteria. In the **Stations** Filter Criteria Box, click on the arrow to the right of *Type* selection field. Select "*Monitoring well*" from the list, and click *List* (under Output in the Action Menus) to see the new data set. If the selection criteria query finds no records to fulfill the requirements, a message box appears stating that "No records were returned from the criteria you specified." Stations displayed are limited to the selected site. Close the list window.

## Samples

1. Select the *Samples* button in the Filter Criteria Boxes and click on *List* to see the new data set. In this case, samples displayed are limited to monitoring wells at the selected site. The scroll bars and arrows

may be used to view other areas of the table that go beyond the limits of the monitor screen. Close the list window.

2. Samples results can be limited by entering criteria in any or all of the Filter Criteria Boxes listed under samples. Select “*Water*” from the (Sample) Matrix dropdown list. Click on *List*. The samples retrieved are limited to water samples for the selected stations, and the selected site. Close the list window.

### Analyses

1. Select the *Analyses* button in the Filter Criteria Boxes on the upper right of the screen. Select a parameter, such as “*Sulfate*”, from the Param. option. You can click in the field and type in the first few letters of the name, and the correct one should appear. The parameter dropdown list comes from the **Parameters** table. It is not restricted by the selections already made. Click on *Update* to see the number of analyses.
2. Results can be limited by entering criteria for other data types. Click in the value field and type in a value, such as “*1000*”, and click on *Update*. Only analyses with that value are reported. Put a ‘<’ sign in front of the value, and click on *Update*. Note the additional records returned.
3. To view a report of the selected analyses, click on *Output* then *Report* and *Preview/Print*. The report option will be discussed in more detail later. When you are done, close the report window. Clear the value field by clicking on the ‘-’ to the right and click on update. Notice the number of records listed on the Status Bar.

### *Query Basics*

The **SELECT DATA** form is a very powerful and flexible way to work with your data. This form is described in detail in the reference section of this software manual. This section will highlight a few of the capabilities of this form.

### *Auto Expansion*

Some of the fields can expand automatically to allow you to type in a minimum of characters, and yet still perform the query as you wish.

1. Click on *Reset*, and then select “Refining Inc.” as the site.
2. Click on the **Samples** radiobutton. Enter “86” in the *S.Date* field. Then click on *Update* to count the records. Note that the form has expanded the year into a full date range, and then used that date range for your query. (There doesn’t happen to be any data for that year for that site.)
3. Try entering “last year” for the sample date and counting the results.

### *Modifiers*

The selection screen allows you to use “modifiers” to change the interpretation of data that you enter in the criteria boxes. These modifiers are described in detail later. The following is a brief example of this feature.

1. Click on *Reset* and then the **Analyses** radiobutton. If you have AutoUpdate enabled, you will see that a large number of records have been selected.

2. Enter “120000” for value and click on Update. Two records are now selected, those with exactly that value.
3. Now enter “>=120000” for value and click on Update. Several more records will be added, now representing those greater than or equal to that value.

### *Default Values*

The program tries to make it easy to start over from scratch with values in the selection screen which are most likely to give you the records that you want to see.

1. Click on Reset. The contents of the selection criteria boxes will be changed to their original values, and the **Sites** panel will be displayed. As you move between the different criteria panels, the values will be set to the defaults for the form. Another section of this document describes how to change these defaults.

### **Update/Auto Update**

You might be tired of clicking on Update each time you make a change. If you check the box next to AutoUpdate, then the count will be updated automatically each time you make a change. This option works well for small databases, but can significantly degrade performance on large databases, so use it with caution.

1. Check the box next to AutoUpdate. Make some changes, like switching between the **Sites** and **Stations** radiobuttons, and choosing some data in some of the selection fields. Note that the number of selected items changes automatically when the box is checked.

### **Save/Load**

You might put a significant amount of effort into defining a selection set with the **SELECT DATA** form. The software lets you save a selection set with a name for later use.

1. A set of selection options can be saved for future retrievals. Click on Save/Load in the Action Menus and click in the Saved Criteria box. Expand the criteria box with the  button. Choose “Sulfate Graph”. Note how the software fills in entries for you. This selection set can be edited or deleted by clicking on Edit Saved Criteria.

### **Options**

The software has some other options for changing how data is displayed.

### *List/Range Specifiers*

The selection process provides you with a method to describe lists and ranges of data in a simple way. This is done using “delimiters” to separate data elements in each selection field. You can set these delimiter characters so that they don’t conflict with characters that may be present in your data.

1. First, you should clear the form and reset it to its starting state. Click on Reset to clear any data and display the **Sites** criteria box. Click on the Options tab. Note that the list specifier is set to a comma and the range specifier is set to a colon.

2. Click on the **Stations** radiobutton. We will select two stations for display. Expand the *Name* field by clicking on the left  button. Type in “MW”, and then click on “MW-2” to select it from the list. Now click on the middle  button, repeating the process but selecting “MW-4”. The form has added the second station name, with a comma (the list specifier) between the two station names. Click on Update to count the records, and it should display two stations, because we gave it a list of two.
3. Now change the comma to a colon. Click on Update to count the records, and it should display four stations, because we gave it a range that includes that many.

### Show SQL

Behind the scenes, **Enviro Data** is taking the selections that you enter and converting them to Structured Query Language (SQL), which is the selection language understood by Access and other database programs. If you wish, you can see the queries that the program is creating.

1. First, you should clear the form and reset it to its starting state. Click on Reset to clear any data and display the **Sites** criteria box. Select “CO” for **State** to select just the sites in that state.
2. Click on the Options tab, and click on Show SQL. The program will display the current SQL statement, as shown in Figure 5.



Figure 5 - **SHOW SQL** form

3. Click on Show SQL again to close the window.

### Output

After making your selections, **Enviro Data** allows you to view your data in a variety of ways. These are accessed through the Output tab.

### Tree View

If you want to quickly get to one specific result, the **TREE VIEW** form is often the best way. Unlike other output options, this display is not based on the selections that you have made, but rather works with all of the data in your database.

1. Click on the Tree View button. The **TREE VIEW** form will be displayed.
2. Click on the  button to the left of “Refining Inc.”. Then click on the  button to the left of “MW-14” and of the “3/16/99” sample. Watch how the branches expand to display the data. The result of this is shown in Figure 6.

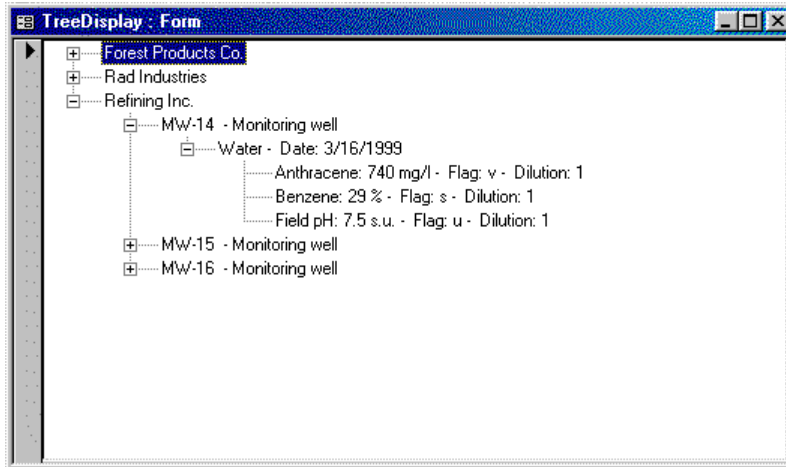


Figure 6 - **TREE VIEW** form

3. Close the **TREE VIEW** form.

### List

The simplest output option is the *List* display. It lets you quickly look at your data, and easily move it to other applications.

1. First, click on *Reset* to clear any data and display the **Sites** criteria box, and then select the **Stations** panel. Then click on *List*. You will see a grid-like view of your data.
2. Highlight the *Station Name* column and click the right mouse button to display a selection box. Choose *Sort Ascending* to reorder the data display. Unlike Excel, you do not need to highlight all rows/columns to reorder the table, only the ones you wish to reorder on.
3. Double click on the line between *X Coord* and *Y Coord* to automatically set the column width to match the data. Repeat for the line after *Y Coord*.
4. Grab the line to the right of *Datum* and drag it to the left until the column goes away.
5. Click on the *Station Name* column. Then click and drag the column name to the left of the *Site Name*. This will reorder the columns.
6. Drag across the column headers for *Site Name*, *Station Name*, *X Coord.*, *Y Coord.*, and *Ground* so that the columns are highlighted. Click on *Edit/Copy* to copy these columns to the clipboard. Open your word processor and click on *Edit/Paste*. It's that easy to move data into your document.
7. Close the list window and choose 'No' to the *Save Changes* prompt.

### Report

While the *List* option is a quick way to view data, you may want a more formal, formatted report for printing. The *Report* option provides this. The program comes with several standard and custom reports, and you can add your own as well. These include Graph Reports, Periodic Regulatory Reports, Regulatory Reports, an Analyses with Regulatory Limits Report, a Summary Water Report, and a Well Information Report.

Standard reports provide the most basic output for each data level, and include: Standard Sites, Stations, Samples, and Analyses Reports. Also, a basic Statistics Report is available at all criteria levels.

1. First, click on Reset to clear any data and display the **Sites** criteria box.
2. Click on Report to see the sites in report format. The **SELECT REPORT** form appears. Reports for **Sites** are the only options available at this point, because only the **Sites** Filter Criteria Box is selected. Options for **Stations**, **Samples**, and **Analyses** appear as selection criteria are added. Select one of the reports and click on Preview/Print. Select File, Print from the Access menu bar, if you wish to print this report. Close the report window (Click on  box in upper right hand corner) to return to the **SELECT DATA** form.

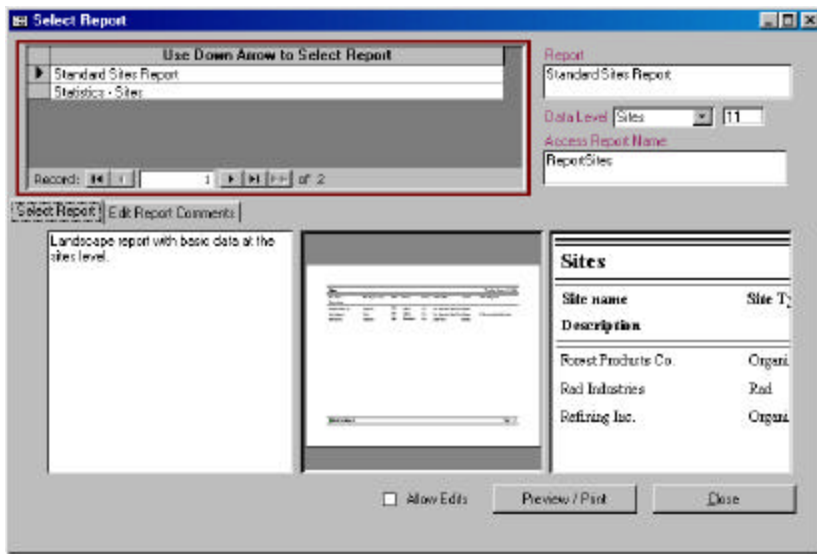


Figure 7 - **SELECT REPORT** form for Sites.

Custom reports provide more specific output formats for various uses. Custom Reports are constantly being added to the program. Here is an example:

1. Click on Reset to clear any data and click on the radio button to display the **Analyses** criteria box. Enter the following selections: *Site*: “Rad Industries”; *Name*: “MW-1, MW-3”; *Sum.Cat.*: “Metals”.
2. Click on Report, and then “Regulatory Report by Parameter”. If you wish you can print the report, or save it in one of several different formats for importing into other applications.
3. Close the report when you are done.

The custom reports have specific data level requirements. That means that, depending on what criteria boxes are displayed, you will see different custom reports. The program lets you create your own custom reports and add them to the menu. This capability is described in a later section.

### Map

**Enviro Data** has a built-in mapping feature to allow you view simple maps of your data. You can display the data with colored circles (“bubbles”) whose color is based on the value of a parameter at that station. The cutoffs for the colors can be entered by hand, or selected automatically based on regulatory limits entered in the database.

1. Click on the Save/Load tab and select “Radium Map”.
2. Click on Map. Because there can be multiple results for each station, the program asks you to pick which value to use. Click on Max Value.
3. Enter cutoff values of 1, 10, 100, and 1000. Then click on Display Map.
4. Shift-drag with the left mouse button across some of the bubbles to zoom in. Control-drag to pan. Click the right mouse button and select “Reset” to zoom back out.
5. Zoom in so that only a few stations are shown. Click on Show Station Names w/ Values, and then on Draw. This will add the station names to the values.
6. Click on Clear, and then on Draw Stations. This displays all of the stations for which there are map coordinates. It will often show more stations than those displayed with Draw, since that option only shows stations with analytic results. Close the map when you are done.

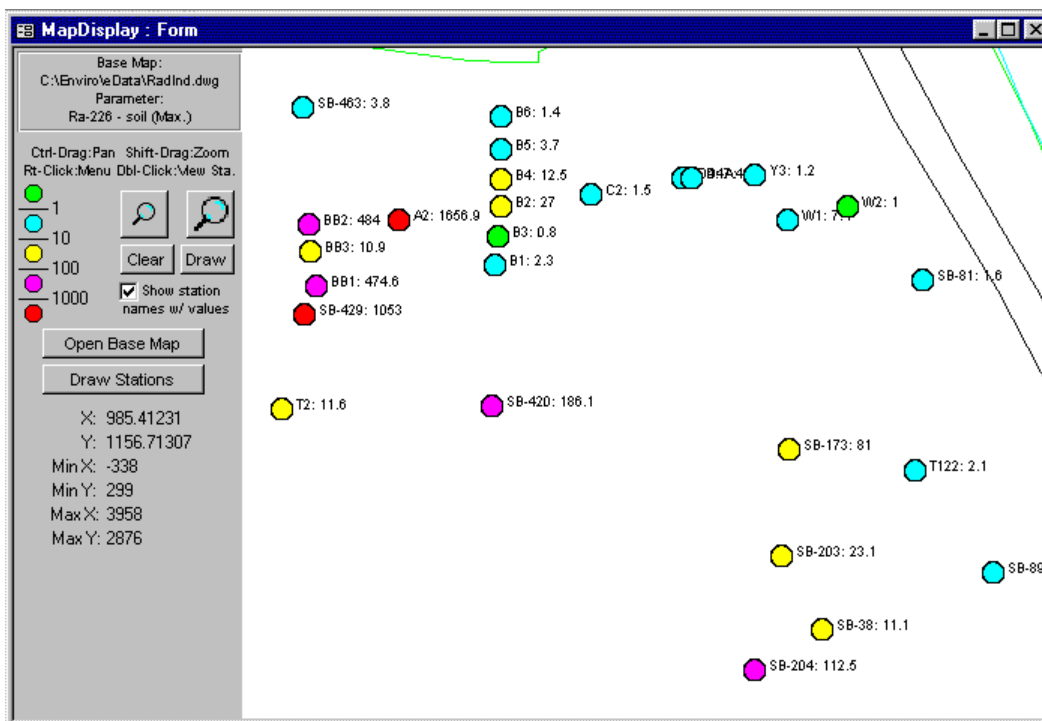


Figure 8 - **MAP DISPLAY** form

### Graph

The program has an option for displaying a simple time-sequence graph. You can display one parameter for multiple stations, or multiple parameters for one station. The program will display a regulatory limit if you choose a single parameter, and if one has been defined for that parameter. It will also look at the data being retrieved, and if the units are not consistent for the data being returned, it will offer to use the unit conversion feature of the software to convert to consistent units. An example graph is shown in Figure 9.

1. Click on the Save/Load tab and select “Sulfate Graph”.
2. Click on the Graph button. You can print the graph if you wish. Then close the **GRAPH** window.

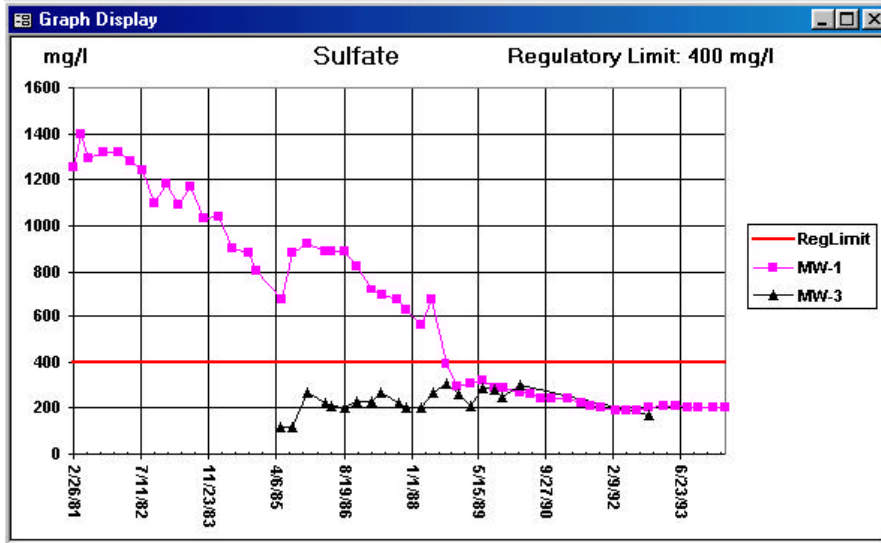


Figure 9 - Graph of selected parameter with Regulatory Limit posted.

### Subset

The program allows you to make a database file that contains only the data that you have selected. This may be useful when you want to take a subset of data on the road, or you may do it for performance reasons when the parent database is very large.

1. To create a subset database from the criteria selected in the **SELECT DATA** form, click on Output, then Subset. Choose the path and directory to store the subset file. The program database directory must contain a copy of an Access database file called BlankDB.mdb. Type in a filename for the subset to be created, then click on Save. Close the **SELECT DATA** screen. The **MAIN MENU** appears. Click on the Attach Database button to attach to the data subset you just created. Click on the Select Subset File button and locate the path and filename for the subset you just created. Click Open on the **OPEN FILE DIALOG** form. The program attaches the files and returns to the **MAIN MENU**.
2. Click on Analytic Data on the **MAIN MENU** to go to the **SELECT DATA** form. Click the Analyses button in the Filter Criteria Boxes, and List (under Output) to display a list of the data subset.
3. Don't forget to re-attach to your original database when you are finished looking at the subset.

### Export

The program allows you to export data in a variety of formats for use by other programs. In this example we will export data for use by a contouring program.

1. Click on Analytic Data on the **MAIN MENU** to go to the **SELECT DATA** form. Click on the Save/Load tab and select "Radium Map".
2. Click on Export on the Output tab. Choose "XYZ ASCII File" and click on Next.
3. As with the internal map, you need to tell the program which value to select for each station for export. Click on Max. Value.

4. Enter a file name like “Radium.dat” and click on Save.
5. Use Windows Notepad or another editor to open the file to look at the format. Close Notepad and the SELECT DATA form.

### MODIFYING DATA

The previous sections covered activities that can be performed by all users. Some organizations provide different data access privileges to different classes of users, based on their responsibilities on projects. **Enviro Data** supports a distinction between “Users” and “Data Administrators”, with Users having read-only privileges, while Data Administrators can both read and write data. The following exercises require Data Administrator privileges.

#### Activity Log

**Enviro Data** helps you track activities that may have resulted in changes to data in the database. This is done through the ACTIVITY LOG form.

#### Filling Out the Form

The ACTIVITY LOG form appears whenever you complete an operation that may have changed data.

1. From the MAIN MENU, select Admin., then Data Utility. Click on Stations. The STATIONS form will be displayed.
2. Close the STATIONS form by clicking on Done. The ACTIVITY LOG form will appear.
3. Describe what you did by entering something like “Looked at Stations form but made no changes”. The window will not close until you have entered your activity. The User Name entry is pulled from the User Name field in the Settings table. If “User” appears, go to Edit Settings on the ADMINISTRATION form, and enter your name under *Control Text* following “UName” in the **Control** table. Close the ACTIVITY LOG form by clicking on Done. Close the ADMINISTRATION form by clicking on Close.

Printing the Analytic Report was discussed in a previous section of the tutorial.

#### Import

The import process is discussed in detail in the System Reference section of the documentation. This tutorial highlights some of the important import options, and walks you through both successful and unsuccessful imports, to demonstrate the common problems encountered during the import process.

#### Import Wizard Options

The program displays a series of screens to walk you through the import process. We call these screens the Import Wizard.

## Page 1 Key Options

Click on the **Import** button on the **MAIN MENU**. On the first screen, you can start a new import, edit the **Import File** table from a previous import, resume a previous import, or undo a previous import. The form is shown in Figure 10.

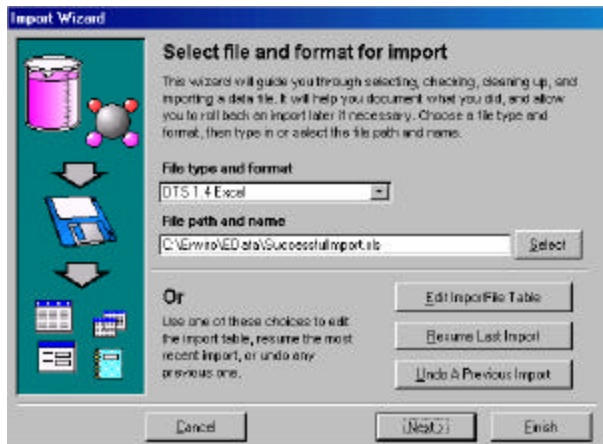


Figure 10 - **IMPORT WIZARD** form for file selection.

To view the other screens in the import wizard:

1. Select “DTS 1.4 Excel” for the file format.
2. Select the “SuccessfulImport.xls” file from the program directory (default C:\Enviro\EData).
3. Click *Next*.

## Page 2 Key Options

The second page of the import wizard contains options for checking data prior to import. Default selections are provided with the program files, however, you can make different selections depending on your data needs. The second page is shown in Figure 11.

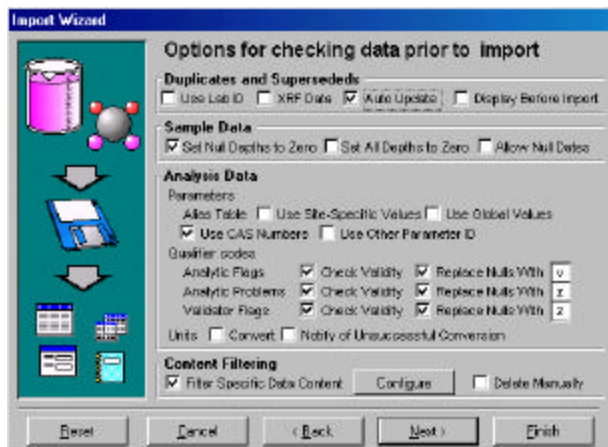


Figure 11 - **IMPORT WIZARD** form for checking options.

The program identifies unique samples based on station, sample date, sample matrix, filtered sample, and sample top and sample bottom. This system allows the Data Administrator to import multiple samples related to one sampling event, or make multiple imports of analyses from a given sampling event. Re-analyses or analyses delivered at different times are matched to the correct sample event by the import code using the unique fields listed above.

The Duplicates and Supersededs section of this form tells the program how to help with importing duplicate samples as well as multiple sets of analyses for a given sample, including the original analyses, dilutions, reanalyses, QC data, etc. Select *Auto Update* to have the program set the duplicate and superseded flags so that more than one like sample and analysis data set can be imported.

The Sample Data section allows you to update depths at import time instead of having to edit the import file. You can also tell the program to allow data with null sample depths to import, which bypasses one of the mandatory import checks.

The Analysis Data section deals with the requirements of a relational database system. Many fields in the database are linked to lookup tables that help to maintain consistency in data reporting. These fields must not be blank in the data going into the database. The qualifier codes section of this page sets required codes such as analytic flag (often left blank by labs for valid data), analytic problems (often not included in lab EDDs), and validator flags, to database consistent flags, such as “v” for detected value, and “z” for unknown. If the *Check Validity* option is selected, the program compares flags reported in the import file to flags listed in the database.

Content filtering allows you to flag or delete data that you know is suspect, and that you want to view or delete before import, or to flag data that may require further research before import.

The *Units* option allows you to convert to consistent units the reporting units for data being imported at the time of import. This option requires that a conversion between the reported units and the converted units be entered into the **UnitsConversion** table.

1. Select the defaults for these options, and click on Next to view the next page of the wizard.

### **Page 3 Key Options**

The third page of the import wizard displays *Options after Checking*. The program imports the selected data file into a temporary table, and performs the checks as requested on the previous page. These checks may be successful or unsuccessful. The third options page of the wizard is shown in Figure 12.

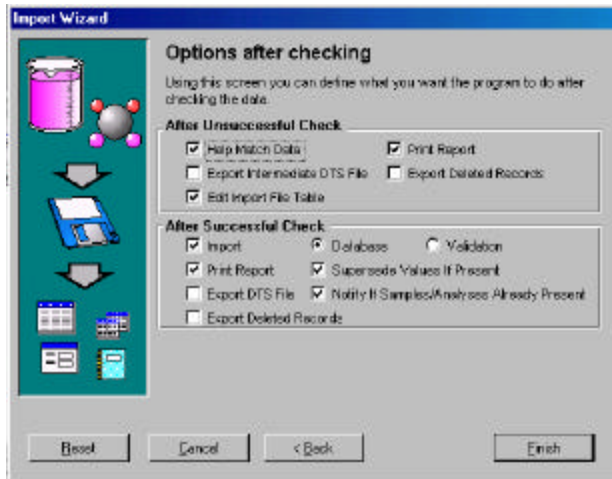


Figure 12 - **DATABASE IMPORT WIZARD** form for options after checking.

Options available after an unsuccessful check include:

Tell the program to help you match data, including parameter names, station names, and reporting units,

Display the import table to allow you to edit problem records,

Export an intermediate file in Data Transfer Standard (DTS) format to send to a laboratory or other parties for checking, or

Export deleted records to a text file.

Options available after a successful check include:

Print a report, to check that the data was imported correctly,

Import (you can run the data checks without importing the data if you wish),

Notify if samples or analyses are already present, in case the data has been previously imported,

Supersede values if present. If the data you are importing are re-analyses, this option should be selected.

Next we will perform some sample imports.

1. Click on *Cancel* to return to the **MAIN MENU**.

### ***Import Stations***

In **Enviro Data**, stations are imported in a separate step from the samples and analyses. First we will inspect a file containing some stations for import, and then we will import those stations into the sample database.

1. From Excel, open the file ImportStationExample.xls located in the program folder (default is C:\Enviro\Edata).

Note the fields that are populated. Due to the relational structure of the program, all required fields must be populated before stations can be imported.

1. To begin a new import, return to the **Enviro Data MAIN MENU**.
2. Click on Import.
3. Click on the right arrow below File Type And Format to select a formatted data import from the drop down list.
4. Select Stations Excel.
5. Then browse to the program folder and select “ImportStationExample.xls”.
6. The station import does not use any of the options on the following screens, so select Finish.

The import notifies you that three stations out of three in the file have been imported.

### ***Import Samples and Analyses***


Next we'll walk you through a successful and an unsuccessful import, to show the various features of the import process.

1. Prior to import, check your data file for obvious errors.
2. Open up the SuccessfulImport.xls file in Excel.
3. Note that there is a header row in this format. A header row is required for the Excel format import.
4. Note the fields that are populated. As with the station import, the relational structure of the database requires that some fields be populated at import time.
5. Close Excel, and select No if prompted to save changes.

### ***Successful Import***

Now we'll import samples and analyses into the sample database. The first file we'll import shows the results of a successful import.

1. Click on the Import button.
2. Select “DTS 1.4 Excel format” and the “SuccessfulImport.xls” file.
3. Accept the default options and click Finish. The progress meter at the bottom of the form shows the checks that the program is performing.
4. At the end of the import, the import results screen tells you that 15 records were imported out of 15 in the import file. The highest duplicate and superseded numbers are also displayed as data checks.
5. Click on OK.

The Data Review report lists the data that was imported, and posts the import results screen at the end. Print the report if you'd like by selecting File/ Print. Close the report by clicking on the  at the upper right corner of the report form.

The **ACTIVITY LOG** form appears, and the program inserts the number of records imported, the sample dates, and the import file name into the activity description field.

Click Done on the ACTIVITY LOG form. The program returns you to the MAIN MENU.

### *Problem Import*

Import attempts are not always successful, but **Enviro Data** helps you work through many typical import problems.

### *Unsuccessful Import*

Now we'll try an unsuccessful import file.

1. Click on Import.
2. Select "DTS 1.4 Excel format" and the "UnsuccessfulImport.xls" file.
3. Click Next to go to the second page of the Import Wizard.
4. Click Configure in the Content Filter section of the page.
5. Select "Refining Inc." for the *Site*, then select "LongName" under *Data Field* (this is field that contains the parameter name in **Enviro Data**). Type in "Anthracene" under *Data Value*, and click in the checkbox under *Delete*. Select "Contains" under the *Compare* field. This will cause the program to delete the Anthracene records before import. You have the option to export the deleted records to a text file if you like.
6. Click Back to return to the Import Wizard option screens. Enter your activity in the ACTIVITY LOG and click Done.
7. Click Next to move to Options After Checking. Under After Unsuccessful Check, click in the checkbox next to the Edit Import File Table. Then click on Finish.

The first screen that appears is Match Station Names. The Old Name is "MW14".

Click on the dropdown list under *Change To:* to view station names from the database **Stations** table.

Select MW-14 from the list.

The program asks you to confirm the change. Select Yes.

If the correct station is not on the list, use the Add Station button to open the **STATIONS** edit screen and enter a new station in the **Stations** table.

The next screen that appears is labeled Confirm Change Based on CAS Number. The program did not find a match with the parameter name "Benzene – total" in the **Parameters** table. It has found a match, Benzene, with the reported CAS number.

This screen prompts you to change the parameter name to the name in the database corresponding to the reported CAS number. Click Yes to accept the change.

The next screen that appears is Match Parameter Names. pH is shown under *Old Parameter Name*. The corresponding parameter name in the **Parameters** table is "Field pH", however, since there is no associated CAS number with pH, the program is unable to propose a match.


1. Click on the combo box under *Change To*: to view the list of parameters in the **Parameters** table.
2. Type in “Field”, then open and select Field pH from the list.
3. The program asks you to confirm the change. Select Yes.

The next screen that appears is Match Reporting Unit Names. The *Old Name* is shown as “ug”. There is no corresponding unit in the **Reporting Units** lookup table in **Enviro Data**.

1. Use the dropdown box under *Change To*: to select the correct unit, ug/l, and confirm the change.

### *Edit Import File*

The *Edit Import File* screen appears next. This table displays all of the information for all of the records in the import file. Note that the first several records say “No problems” under Import Problem.

1. Click on the Problems Only button. Now the first record lists a Sample Matrix problem. See that there is a “W” entered in the sample matrix field, while the record with “No Problems” has “Water” entered as the matrix. “W” is the code for water in the **Sample Matrix** lookup table, however, the program is expecting the description, “Water”, in the import file, not the code.
2. Type “Water” into the Sample Matrix field for this record. NOTE: Editing the flag here does not change the data in the original import file, only in the temporary import file created at the start of the import.
3. Click on Finish.
4. An Import Errors report is generated by the program, which shows the records that did not meet the consistency checks for entry into the database. This report can be printed to track data that was corrected during import.
5. Close the report by clicking on the  at the right corner of the report, and you are returned to the **MAIN MENU**.

### **Resume Last Import**

1. Click Import again.
2. Then click Resume Last Import. The import begins from the **Edit Import File** temporary table, and checks that the changes you made are consistent with database entries. The *Import Results* screen appears on successful completion of the import, and notes that three records were deleted from the import file.
3. Click on OK. The **ACTIVITY LOG** and associated activity appears.
4. Click on Done. Notice that the Data Review report does not contain any Anthracene records.

### *Content Specific Filtering*

If you had selected “Mark” instead of “Delete” under *Content Specific Filtering*, the Anthracene analyses would have been displayed in the **Edit Import** table for you to view. You have the option of selecting records for deletion from the **Edit Import** table. Or, if the records are satisfactory, rerun the import and uncheck the *Content Specific Filtering* option. The records are then imported.

### ***Edit ImportFile Table***

If you encounter problems in an import file that require additional research, you can view and print the Import Errors report, discontinue the import, and even close down the program. When you return to this import, you can move directly to the Import File table by selecting Import, then Edit ImportFile Table. If you import another file in the meantime, however, you must start the import of the problem file at the beginning, unless you save the partially edited data to a DTS file. In that case, you can re-import the saved file and proceed from there.

### ***Undo Previous Import***

To undo the import just completed,

1. Click on Import, then Undo Previous Import. The Undo Import screen lists important information about the imports that you've made.
2. Select the most recent import, with sample dates of September 1999. Click Undo Selected Import, and confirm the choice.
3. The **ACTIVITY LOG** appears with information about the deleted file entered by the program. Click on Done. The September 1999 data has been deleted from the database.

### **Admin**


**Enviro Data** provides a variety of tools to help you work with your data. Depending on the task to be accomplished, some of these activities require manual entries, while others provide varying degrees of automation.

### **Edit**

Changes to data are usually made through editing forms. These forms reflect the structure of the database, with forms for Sites, Stations, Samples and Analyses (primary data), as well as for lookup and other data. For the forms for editing the primary data, there are two ways to display them, unselected and selected. We will go through both ways in these exercises.

### **Sites**

The highest level of primary data is Sites. We will view this data without making a selection.

1. From the **MAIN MENU**, select Admin. Then click on Sites.
2. The **SITES** form initially displays in form view. It has three tabs for different data elements related to Sites. Form view lets you easily see all of the data for one site.
3. Switch to datasheet view by clicking on the Datasheet button in the upper left corner. Datasheet view lets you see data for many sites at once, and lets you choose one for editing. Double click on the gray box to the left of "Refining Inc." to choose that record and return to datasheet view.
4. You can move between records using the record selectors at the bottom of the form. Move up one record to "Rad Industries" by clicking on the  button.
5. The form has three tabs. The Site Data tab, which is displayed when you enter the form, has general information about the site.

6. Click on the Link Labs & Contractors tab to view that data. This tab lets you assign laboratories and contractors to each site, so you can create a reference file for them to test imports against.
7. Click on the Regulatory Limits tab to view that data. This tab is used to assign regulatory limits and numbers of expected observations for each parameter for each site and sample matrix. It has two tabs, Site-Specific and All Sites. Limits can be assigned that apply to all sites in the database, or just to one site. Click on the Site Data tab to return to the site general data.

### *Deleting Records*

You can delete records from the editing forms, either in form view or in datasheet view.

1. In form view, click on the gray bar to the left of the site data. This selects the record. Press the Delete key on the keyboard, or click on Edit/Delete Record. Access will display an error, because of “Referential Integrity”. In this case, it is complaining that records in the **SiteLabLink** table refer to this site. It could also happen if child records are present in the **Stations** table. To overcome this, you would need to delete the child records (and their children, if present, etc.) before you could complete the deletion of the record. This process helps you protect your data from “orphan records”, where the child is there, but the parent is gone. Click on OK to confirm that a record won’t be changed.
2. Close the SITES form, edit the ACTIVITY LOG form, and close it. Close the ADMINISTRATION form to return to the MAIN MENU.

If you wish, you can use a similar process for editing the **Stations** and **Samples** tables.

### *Analyses*

To edit a record in the **Analyses** table, we will go through the selection process. This is a good idea, especially in large databases, because you don’t usually need to access all of the analyses records to edit the ones that need changing.

1. On the MAIN MENU form, click on Analytic Data. This will bring up the SELECT DATA form.
2. Click on the Save/Load tab, and select “Sulfate Graph”.
3. Click on the Modify tab and click on Edit. Then click on Analyses. This will display the ANALYSES form. At this point you can edit any data in the form.

### *Choosing a Sample*

One aspect of this form deserves special mention. That is choosing a sample for the analysis. The form helps you select a sample by displaying a combo box from which you can select a sample.

1. Click on the  button under Sample near the top of the form. This will display a scrollable list of samples from which you can select the correct one for this analysis. Don’t make any changes. Press the Escape key to close the list.
2. Close the ANALYSES form, and fill out and close the ACTIVITY LOG form. Close the SELECT DATA form.

### Lookups

**Enviro Data** contains a set of tables to assist with data consistency through referential integrity. These tables are called “lookup tables” and contain coded values. The software comes with some data in these tables, and the Data Administrator can make changes as necessary to suit project needs.

1. From the **MAIN MENU** form, click on *Admin*, then *Station Types*. Click on *Datasheet*. You will see a list of the station types currently in the database. Close the **STATION TYPES** form. Fill out the **ACTIVITY LOG** form and close it.
2. Click on *Parameters*. This is a more involved form, since there is quite a bit of additional information that is carried along with the parameter name and number. Look at the fields. Then close the **PARAMETERS** form. Fill out the **ACTIVITY LOG** form and close it. Close the **ADMINISTRATION** form.

One warning about the lookups is that care should be taken in editing the data, since data in the primary tables may depend on these values. Referential integrity will prevent you from deleting a lookup value that is needed by data in a primary table. The software has no way to prevent you from making a valid, but incorrect, change. If you change “mw” in the **StationTypes** table to mean “Soil Boring” instead of “Monitoring Well”, then stations with that code will now be incorrectly labeled.

### Other Modifications

There are a number of other data management functions that the software helps you perform. This section will cover just a couple of these functions.

### Data Review

In addition to helping you manage your data, **Enviro Data** also helps you keep track of what level of data review each data item has had. You can do this by selecting a set of data, and then changing the review status for that set of data.

1. In the **SELECT DATA** form, click on *Reset*. Display the **Analyses** panel. Enter a *S. Date* of “00” and click on *Update*. Click on the **Modify** tab, and select *Review*. This form shows the current review status of the data, and allows you to change the review status for the selected records. We won't change anything here.
2. Click on *Close*, then fill out and close **ACTIVITY LOG**.

### Duplicated Records

The software also helps you identify and clean out any duplicated records at the samples and analyses levels.

1. Using your previous selection, click on *Duplicates*. Any duplicated records at the samples level will be displayed. You can move analyses between samples, and then delete unnecessary samples using this screen. Click on *Continue*.
2. Any duplicated records at the analyses level will be displayed. The software will suggest which records should be deleted. You can change these selections if you wish. Click on *Cancel*.

Hopefully these few exercises will give you a feel for what can be done with **Enviro Data**. The next section will cover some concepts that you might find helpful in working with the program. The section after that covers all of the features of the software in detail.

## APPENDIX A - USING THE KEYBOARD

This section describes the use of the keyboard in Microsoft Access, which is the program used to enter data into the database management system. It is arranged according to the way the keys are used.

### EDITING KEYS

You can use these keys in most windows and views. The F2 key is an exception, as noted below.

#### To switch between modes:

F2	Switch between editing mode (with insertion point displayed) and navigation mode.
----	---

#### To copy, cut, paste or delete:

Ctrl+C	Copy the selection onto the Clipboard.
Ctrl+V	Paste the contents of the Clipboard at the insertion point.
Ctrl+X	Cut the selection and copy it onto the Clipboard.
Backspace	Delete the selection or the character to the left of the insertion point.
Delete	Delete the selection or the character to the right of the insertion point.

#### To undo changes:

Ctrl+Z or Alt+Backspace	Undo typing.
Esc	Undo changes in the current field or current record; if both have been changed, press Esc twice to undo changes first in the current field and then in the current record.

#### To move the insertion point within a field or line (in editing mode):

Right Arrow	Move one character to the right.
Ctrl+Right Arrow	Move one word to the right.
End	Move to the end of the line.
Ctrl+End	Move to the end of the field in multiple-line fields.
Left Arrow	Move one character to the left.
Ctrl+Left Arrow	Move one word to the left.
Home	Move to the beginning of the line.

Ctrl+Home	Move to the beginning of the field in multiple-line fields.
-----------	---

### FUNCTION KEYS

#### Global function keys

F1	Display Help for the <b>Enviro Data</b> system.
Shift+F1	Display the question mark pointer. Move the pointer to the item you want help on, such as a toolbar, and click for context-sensitive Help.
Ctrl+F4	Close the active window.
Alt+F4	Quit Microsoft Access or close a dialog box.
Ctrl+F6	Cycle between open windows.
F11 or Alt+F1	Bring the Database window to the front.
F12 or Alt+F2	Open the Save As dialog box.
Shift+F12 or Alt+Shift+F2	Save a database object.
Alt+Spacebar	Displays the Control menu.

#### Function keys used in Datasheet view and Form view

F2	Switch between editing mode (with insertion point displayed) and navigation mode.
F4	Open a combo box or list box.
Shift+F4	Find the next occurrence of the text specified in the Find or Replace dialog box when the dialog box is closed.
F5	Move to the record number box; then type the number of the record you want to go to and press Enter.
F6	Cycle forward through the header, detail section, and footer of a form in Form view.
Shift+F6	Cycle back through the footer, detail section, and header of a form in Form view.
F7	Open the Find dialog box.

## Enviro Data – Course Notes

Shift+F7	Open the Replace dialog box.
F8	Turn Extend mode on; pressing F8 repeatedly extends the selection to the word, the field, the record, and all records.
Shift+F8	Reverse the F8 selection; press Esc to cancel Extend mode.
F9	Recalculate the fields in the window.
Shift+F9	Requery the underlying tables; pressing Shift+F9 in a subform requeries the underlying table for the subform only.

### NAVIGATION KEYS - DATASHEETS AND GRIDS

You can use these keys to navigate in datasheets and in grids, such as the grid in a table's Design view, the QBE grid, and the Filter window grid (although in grids you work with cells and rows rather than fields and records). To navigate in Form view, use the Form view navigation keys.

#### To move between areas in the Query or Filter window

F6	Switch between the upper and lower portions of the window.
----	--

#### To go to a specific record in a datasheet

F5	Move to the record number box; then type the number of the record you want to go to and press Enter.
----	--

#### To switch between modes

F2	Switch between editing mode (with insertion point displayed) and navigation mode.
----	---

#### To navigate between fields and records (in navigation mode)

Tab, Right Arrow, or Enter	Move to the next field. Note: The Enter key will behave differently if you have changed the default using the View menu Options command.
End	Move to the last field in the current record.
Shift+Tab or Left Arrow	Move to the previous field.
Home	Move to the first field in the current record.

Down Arrow	Move to the current field in the next record.
Ctrl+Down Arrow	Move to the current field in the last record.
Ctrl+End	Move to the last field in the last record.
Up Arrow	Move to the current field in the previous record.
Ctrl+Up Arrow	Move to the current field in the first record.
Ctrl+Home	Move to the first field in the first record.

#### When there is more data than can be displayed in one screen

Page Down	Move down one screen.
Page Up	Move up one screen.
Ctrl+Page Down	Move right one screen.
Ctrl+Page Up	Move left one screen.

#### To navigate in a combo box or list box

F4 or Alt+Down Arrow	Open a combo box or list box.
Down Arrow	Move down one line.
Page Down	Move down one set of values.
Up Arrow	Move up one line.
Page Up	Move up one set of values.
Right Arrow	Move right one column.
End	Move to the last column.
Left Arrow	Move left one column.
Home	Move to the first column.
Tab	To exit the box.
Down Arrow	Move down one line.
Up Arrow	Move up one line.
End	Move to the end of the current line.
Ctrl+End	Move to the end of the last line.
Home	Move to the beginning of the current line.
Ctrl+Home	Move to the beginning of the first line.

### NAVIGATION KEYS - FORM VIEW

You can use these keys to navigate in Form view. To navigate in datasheets and grids, use the datasheet and grid navigation keys.

#### To navigate between sections of a form

F6	Cycle forward through the header, detail section, and footer of a form.
----	---

## Enviro Data – Course Notes

Shift+F6	Cycle back through the footer, detail section, and header of a form.
----------	--

### To navigate in forms with more than one page

Page Down	Move down one page. At end of record, moves to top of next record.
Page Up	Move up one page. At top of record, moves to top of previous record.
F5	Move to the record number box; then type the number of the record you want to go to and press Enter.

### To switch between modes

F2	Switch between editing mode (with insertion point displayed) and navigation mode.
----	---

### To navigate between fields and records (in navigation mode)

Tab, Right Arrow, or Enter	Move to the next field. Note: The Enter key will behave differently if you have changed the default using the View menu Options command.
Ctrl+Tab	Exit the subform and move to the next field in the master form; if not in a subform, move to the next field.
Shift+Tab	Move to the previous field.
Ctrl+Shift+Tab	Exit the subform and move to the previous field in the master form; if not in a subform, move to the previous field.
Ctrl+Shift+Home	Move to the first field in the master form.
End	Move to the last field in the current record.
Ctrl+End	Move to the last field in the last record.
Home	Move to the first field in the current record.
Ctrl+Home	Move to the first field in the first record.
Ctrl+Page Down	Move to the current field in the next record.
Ctrl+Page Up	Move to the current field in the previous record.

### To navigate in a combo box or list box

F4 or Alt+Down Arrow	Open a combo box or list box.
Down Arrow	Move down one line.
Page Down	Move down one set of values.
Up Arrow	Move up one line.
Page Up	Move up one set of values.
Tab	To exit the box.

### To navigate in a text box

Down Arrow	Move down one line.
Up Arrow	Move up one line.
End	Move to the end of the current line.
Ctrl+End	Move to the end of the last line.
Home	Move to the beginning of the current line.
Ctrl+Home	Move to the beginning of the first line.

## PRINT PREVIEW KEYS

You can use these keys to see how a form, datasheet, report, or module will appear when printed.

### To select the Print Preview tool bar buttons

P	Print the active object.
S	Open the Setup dialog box.
Z	Zoom in for a magnified view of part of the page.
C or Esc	Cancel Print Preview.

### To view different pages in Print Preview

F5	Move to the page number box; then type the page number you want to go to and press Enter.
Page Down or Down Arrow	Move to the next page.
Page Up or Up Arrow	Move to the previous page.

### To view different parts of the current page using the Zoom feature

Down Arrow	Scroll down in small increments.
Page Down	Scroll down in large increments.
Ctrl+Down Arrow	Move to the bottom of the page.
Up Arrow	Scroll up in small increments.
Page Up	Scroll up in large increments.
Ctrl+Up Arrow	Move to the top of the page.
Right Arrow	Scroll to the right in small increments.

## Enviro Data – Course Notes

Ctrl+Right Arrow or End	Move to the right edge of the page.
Ctrl+End	Move to the lower-right corner of the page.
Left Arrow	Scroll to the left in small increments.
Ctrl+Left Arrow or Home	Move to the left edge of the page.
Ctrl+Home	Move to the upper-left corner of the page.

### SELECTION KEYS

You can use these keys in Datasheet and Form view and in grids, such as the grid in a table's Design view, the QBE grid, and the Filter window grid (although in grids you work with cells and rows rather than fields and records). The keys for selecting text within a field are also available in a report's Design view.

#### To switch between modes

F2	Switch between editing mode (with insertion point displayed) and navigation mode.
----	---

#### To select text within a field (in editing mode)

Shift+Right Arrow	Extend the selection or deselect one character to the right.
Ctrl+Shift+Right Arrow	Extend the selection or deselect one word to the right.
Shift+Left Arrow	Extend the selection or deselect one character to the left.
Ctrl+Shift+Left Arrow	Extend the selection or deselect one word to the left.

#### To select a field

F2	Select the current field if you are in editing mode.
Tab or Enter	Select the next field. Note: The Enter key will behave differently if you have changed the default using the View menu Options command.

#### To select a record

Shift+Spacebar	Select the current record or cancel the record selection (in navigation mode only).
Up Arrow	Select the previous record (if the current record is selected).

Down Arrow	Select the next record (if the current record is selected).
------------	---

#### To select a column

Ctrl+Spacebar	Select the current column or cancel the column selection (in navigation mode only). Applies to datasheets and grids, except the grid in a table's Design view.
Right Arrow	Select the column to the right (if the current column is selected).
Left Arrow	Select the column to the left (if the current column is selected).

#### To select fields and records using Extend mode

F8	Turn Extend mode on; EXT appears in the status bar. Once Extend mode is on, pressing F8 repeatedly extends the selection to the word, the field, the record (datasheets and Form view), and all records (datasheets and Form view). Note: In Form view (Single setting), there is no indicator to show when all records have been selected.
Shift+F8	Reverse the F8 selection.
Esc	Cancel Extend mode.

### SHORTCUT KEYS FOR DATA ENTRY

You can use these keys in Form view and in datasheets to speed data entry.

Ctrl+; (semicolon)	Insert the current date.
Ctrl+: (colon)	Insert the current time.
Ctrl+Alt+Spacebar	Insert the default value for a field.
Ctrl+' (single quote) or Ctrl+" (double quote)	Insert the value from the same field in the previous record.
Ctrl+Enter	Insert a new line in a field, a label, or the Zoom box.
Ctrl++(plus sign)	Add a new record.
Ctrl+-(minus sign)	Delete the current record.
Shift+Enter	Save changes to the current record.
Spacebar	Toggle the value in a check box or option button.

**SHORTCUT KEYS FOR  
RE-ARRANGING COLUMNS**

You can use these keys to move a selected column in Datasheet view, the QBE grid, or the Filter window. First, select the column you want to move by clicking the field selector in Datasheet view or the column selector in the QBE grid or the Filter window.

Ctrl+F8	Turn on Move mode; MOV appears in the status bar.
Right Arrow	Move the selected column to the right one column.
Left Arrow	Move the selected column to the left one column.
Esc	Cancel Move mode.