ELECTRONIC REPORTING TOOL (ERT)

USERS GUIDE

Version 3.0

March 22, 2007

1.0 Introduction

This application is used to electronically create and submit stationary source sampling test plans to a regulatory agency, and, after approval, to calculate and submit the test results as an electronic report to the regulatory agency. It also has the ability to create an XML export file for WebFIRE.

The ERT is a Microsoft Access database application that has 3 parts: 1) The Application; 2) the Project Data Set; and 3) an Excel Spreadsheet. The Application is the part that you will run and has all the screens, reports, calculations and other items necessary to create and distribute the Test Plan and Test Report. The Project Data Set (PDS) is also a Microsoft Access Database that contains the Test Plan and Test Report Data. This is the file that will be exchanged between the source test contractor, the client and the State Agency. Each PDS contains information for one test report. When the ERT is started initially, you are prompted to name the PDS that is created automatically in a "ProjectData" directory by the ERT. Thereafter, the last PDS used is remembered by the ERT when restarted. There is no limit on the number of PDS files but only one PDS can be opened at a time. The Excel Spreadsheet is the final part of the ERT. This spreadsheet can be used in the field (or office) to enter the run information. The ERT has the ability to import data from this spreadsheet into the selected PDS.

The basic work flow is as follows:

- Create the Test Plan
- Print and attach draft Test Plan into PDS (optional)
- Test Plan (via PDS file) is submitted to the Agency
- Agency approves or returns (via PDS file) to submitter for revisions
- Test Plan (via PDS file) is revised and re-submitted to the Agency
- Field data is entered into the ERT Excel Spreadsheet (optional)
- After test is performed, field test and process data are entered into PDS
- PDS file is submitted to Agency
- Agency reviews PDS

2.0 Getting Started

If you have Microsoft Access version 2000 or later:

> To run ERT, copy ERT3.mdb to any folder (we suggest "c:\program files\ERT") and double click on ERT3.mdb.

If you do NOT have Microsoft Access:

> You need to install the Microsoft Access Runtime. To do this, double click on the "Setup.exe" file in the "ERT Runtime" folder. This will install the Microsoft Access Runtime files as well as the ERT3.mdb file on your computer. To then start ERT, simply double click on the ERT3.mdb icon on your desktop or select it from your Start/Programs menu.

The CD folder "ProjectData" contains an example data set and an example spreadsheet. To use the example project data set, copy the file "Example Data v3.mdb" to any folder (c:\program files\ERT\ProjectData"). You can then select this project data set from within ERT. To use the example spreadsheet, copy the file "ERT v3 M5 QA Data.xls" to the above folder. You can then select it from within ERT when importing data.

To start ERT, double click the ERT icon in the Start menu.

Depending on how your version of Access is configured, you may see a Security Warning screen when you try to start ERT (See Figure 1).

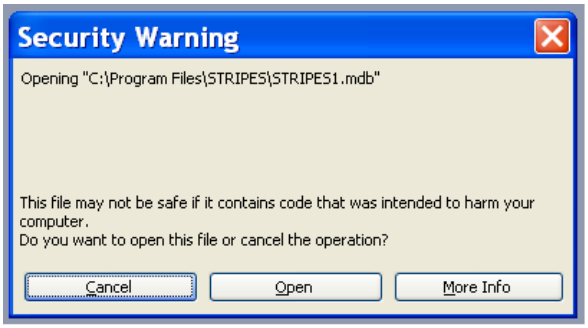

Figure 1. Security Warning

If this warning (or a similar one) appears, click the “Open” button to continue loading the ERT into Access.

The first time the ERT loads, it is necessary to select or create a Project Data Set (PDS) file. To create a PDS file, see Figure 2.

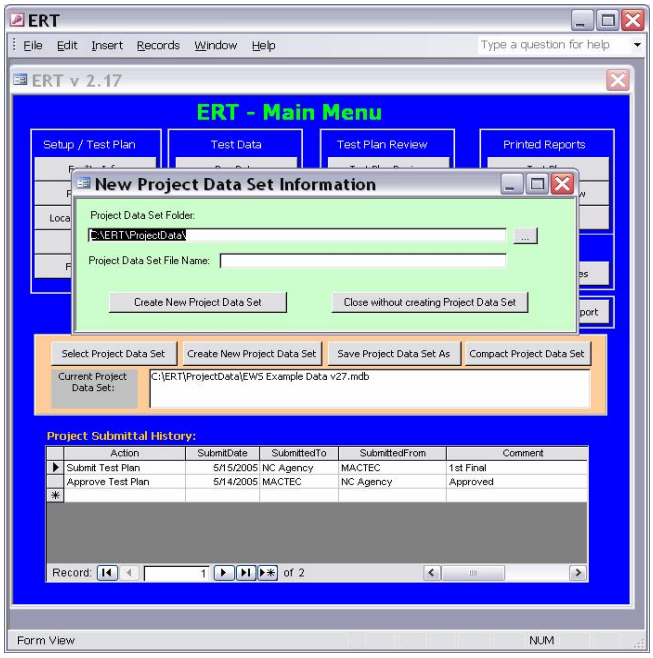

Figure 2. Create Project Data Set

You may either enter a name OR click Cancel. A new window will appear confirming creation of a new data set. Click the "Ok" button to continue. The ERT welcome screen will be displayed (Figure 3). Click the "Continue" button to access the main menu page.

Figure 3. ERT Welcome Screen

3.0 Using ERT

Figure 4 illustrates the ERT Main Menu page. There are six groups of controls and information windows:

1) Setup / Test Plan
2) Test Data
3) Test Plan Review / Test Data Review
4) Printed Reports / Test Report
5) Emission Factor Export
6) Project Data Set
7) Project Submittal History.

If you are working with a new (empty) Project Data Set (PDS) you will only be able to access the Setup functions of the ERT. After you have completed entering the setup information you will be able to access the other menu items. If you have already entered data into a PDS (or will be working with the example data set provided on the web site) and it has not already loaded, click the "Create New Project Data Set" button and follow the file select dialog instructions.

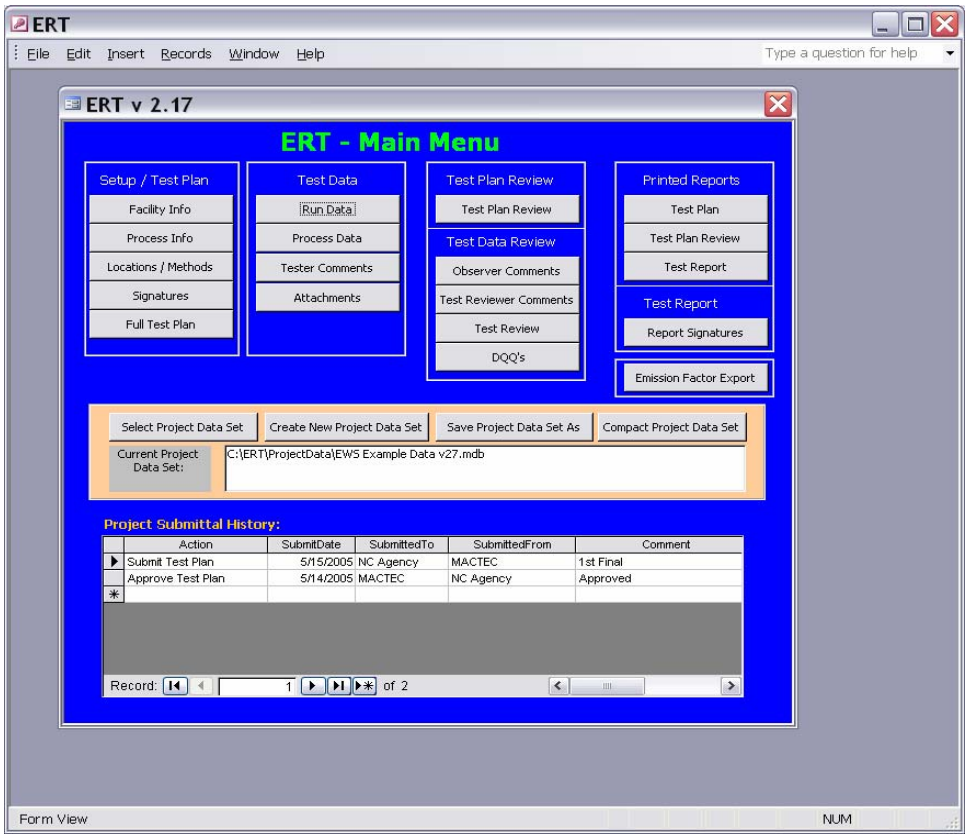

Figure 4. Main Menu

3.1 Test Plan

To begin the data entry process, click on the “Facility Info” or “Full Test Plan” button. The screen shown in Figure 5 will appear. This screen contains a series of data entry tabs that cover the information required for a test plan. There are 10 tabs or sections in the Test Plan module:

1 Facility/Tester
2 Permit/SCC
3 Regulations
4 Process/APCD
5 Locations/Methods
6 Methods cont.
7 Audit/Calibrations
8 Schedule
9 Signature
10 Attach.

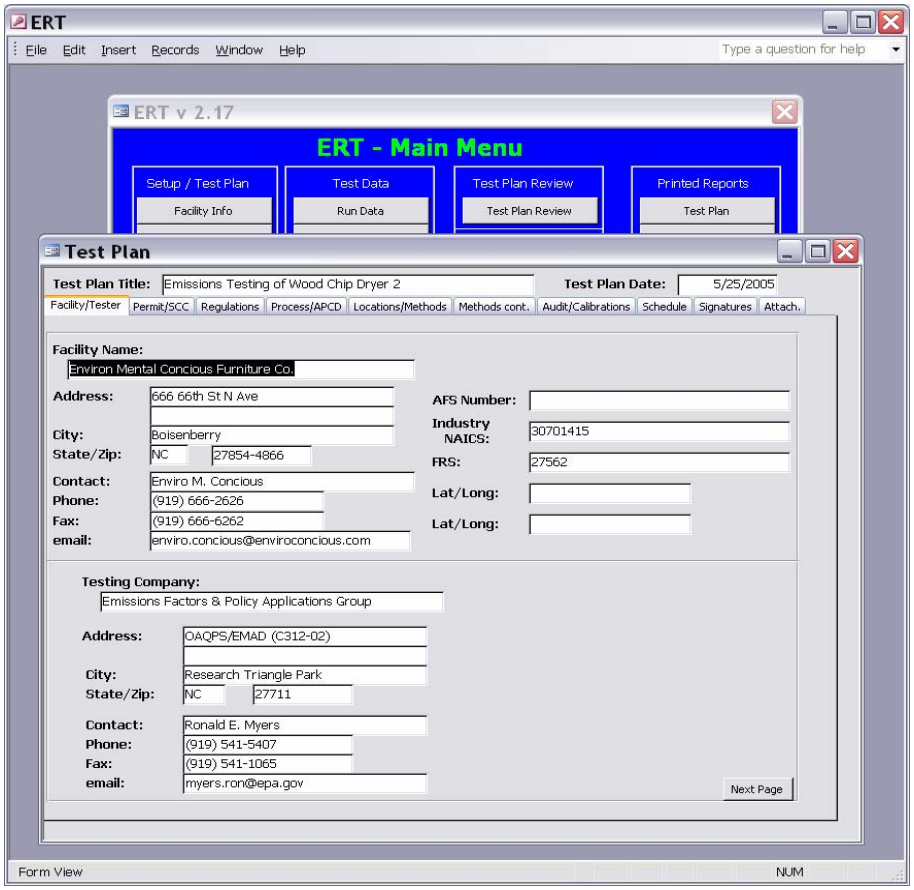

Figure 5. Test Plan - Facility/Tester Tab Screen

The information requested has been selected to adequately characterize a facility, the regulatory use of the data, and what tests are to be performed. In general, providing this information will give the test plan reviewer enough information to evaluate the test plan without needing additional information. However, it is not possible to create a generic list of information that includes all the information for all test plan scenarios. It is recommended that liberal use of comments and attachments be used to provide information in the test plan to facilitate review whenever possible. It is also recommended that all sections be completed fully to speed the test plan review and approval process. You may access specific sections of the Test Plan data entry form by clicking the other control buttons on the ERT Main Menu (e.g. Locations/Methods).

You may move from one section to the next by clicking the "Next Page" button located in the bottom right corner of the screen or clicking on the desired Tab of the data entry form. You will generally have two options for entering data in the form, either typing in the spaces provides or using the cut and paste method to extract information from other electronic documents.

The Facility/Tester screen or tab shown in Figure 5 previously is where the basic information is input such as facility name and address and the testing company name and address, along with contact information for the facility and testing company.

The Permit/SCC tab screen is shown in Figure 6 and is where permit information may be input, including process rate information. Also, this is where the SCC code is selected by clicking on the "Select SCC from list" button which allows the user to determine the SCC code via a series of drop-down menus for each of four levels as shown in Figures 6a, 6b, 6c, and 6d.

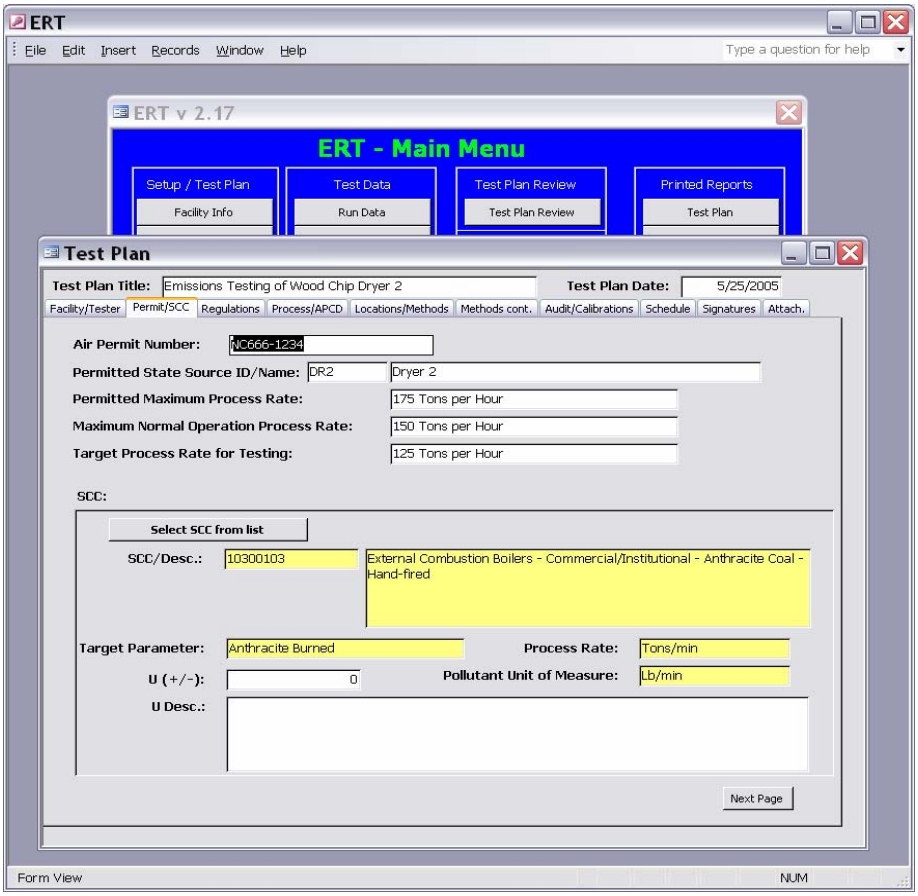

Figure 6. Test Plan - Permit/SCC Tab Screen

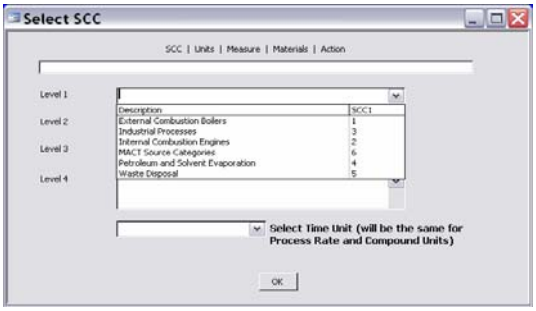

Figure 6a. Select SCC Level 1 Screen

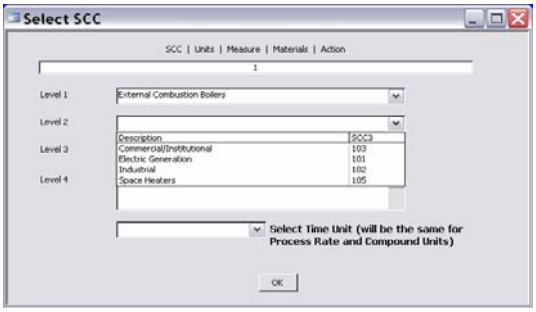

Figure 6b. Select SCC Level 2 Screen

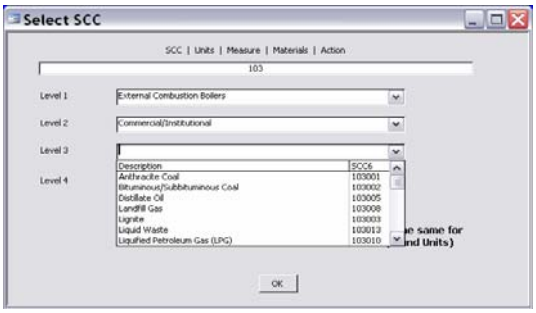

Figure 6c. Select SCC Level 3 Screen

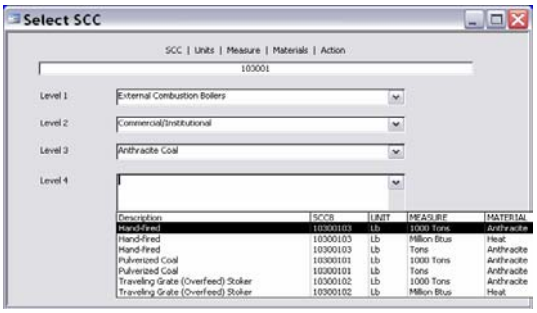

Figure 6d. Select SCC Level 4 Screen

The purpose of the testing and the regulations pertaining to the testing are input in Items 1, 2, and 3 on the Regulations tab screen shown in Figure 7.

Figure 8 shows the Process/APCD tab screen where information on the process and air pollution control devices is input in Items 4a, 4b, 5a, and 5b. The first record or parameter in Item 4a will be automatically entered using the SCC code information. This parameter will be used to calculate the emission factor for EPA's WebFIRE program. Item 4a is also used to specify what process operational data must be monitored and recorded during the testing. If process samples are to be analyzed, Item 4b is where the analyses to be performed are input.

Items 5a and 5b are where the process and control devices are documented. Clicking in the Item 5b Control Device Parameter record will bring up a drop down menu from which the control device may be selected, as shown in Figure 8

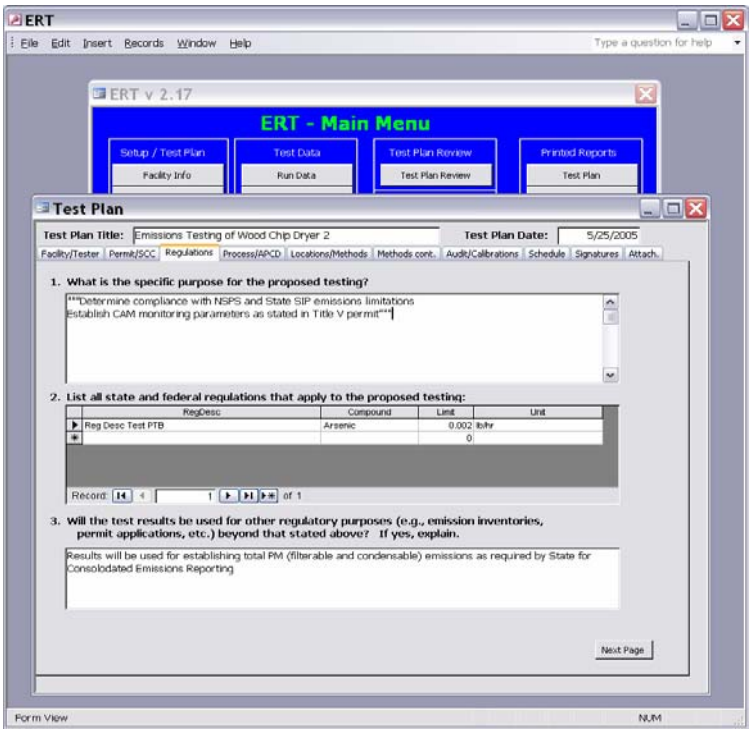

Figure 7. Test Plan - Regulations Tab Screen

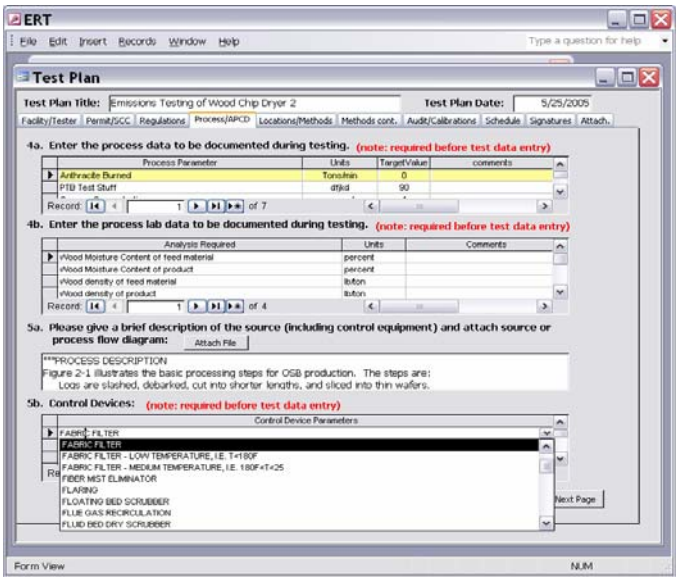

Figure 8. Test Plan – Process/APCD Tab Screen

The sampling locations and sampling methods are input in Items 6, 7a, and 7b on the Locations/Methods tab as shown completed in Figure 9. If the location entered in Item 6 is too long, a warning message is displayed that the input is too long.

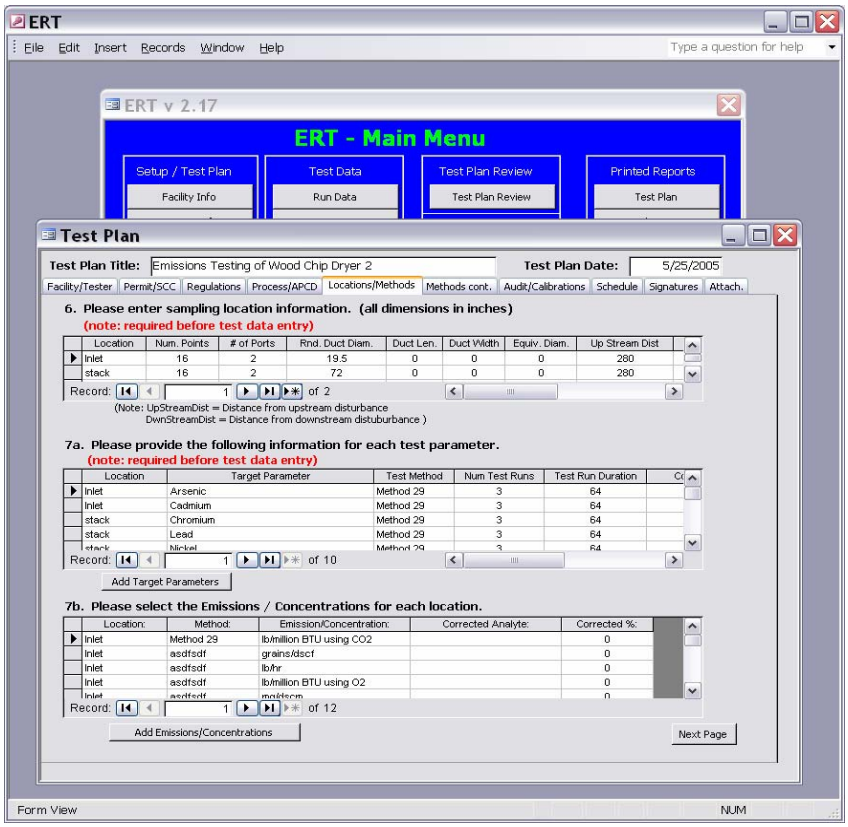

Figure 9. Test Plan – Locations/Methods Tab Screen

Figures 9a and 9b show the drop down menus from which the methods and compounds are selected and specified for Item 7a once the location information is input in Item 6. Click on the "Add Target Parameters" to open the screen displayed in Figure 9a. Click on the drop down button in the "Select Location" cell and choose the sampling location where the method will be used. Once the location is selected, select the method from the drop down list of methods as shown in Figure 9a. Be sure to input the number of runs and the run time duration for the selected method.

Once the method has been selected, a screen with the compounds associated with the method opens, allowing the user to select the compound(s). Figure 9b shows the available compounds for Method 29 and then the selected compounds of Arsenic and Cadmium. Double clicking on the compound or highlighting a compound and then clicking the ">" pointer will move the compound to the "Selected Compounds" area.

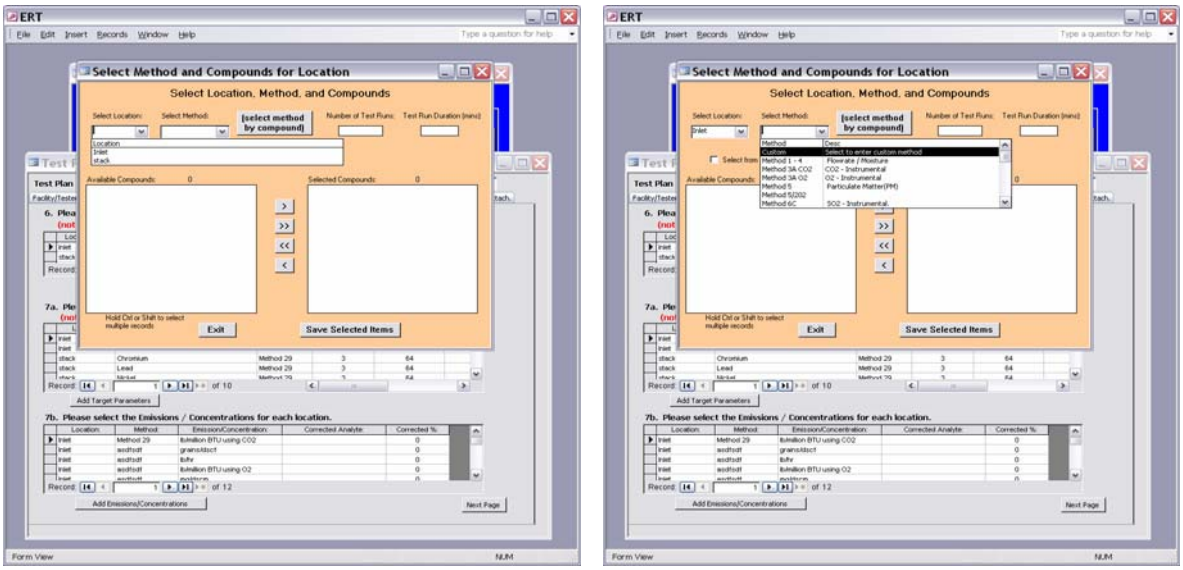

Figure 9a. Select Method for Location Screens

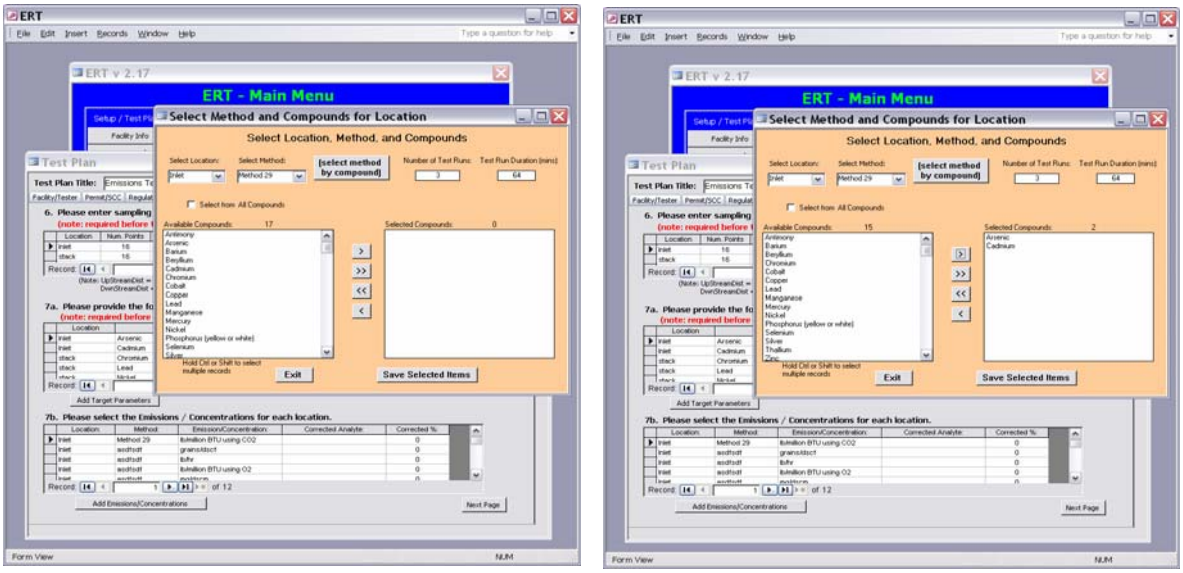

Figure 9b. Select Compounds for Location Screens

Item 7b is used to select the calculation units to be displayed. Figure 9c shows the various screens with drop down menus and selection areas similar to those in Item 7a.

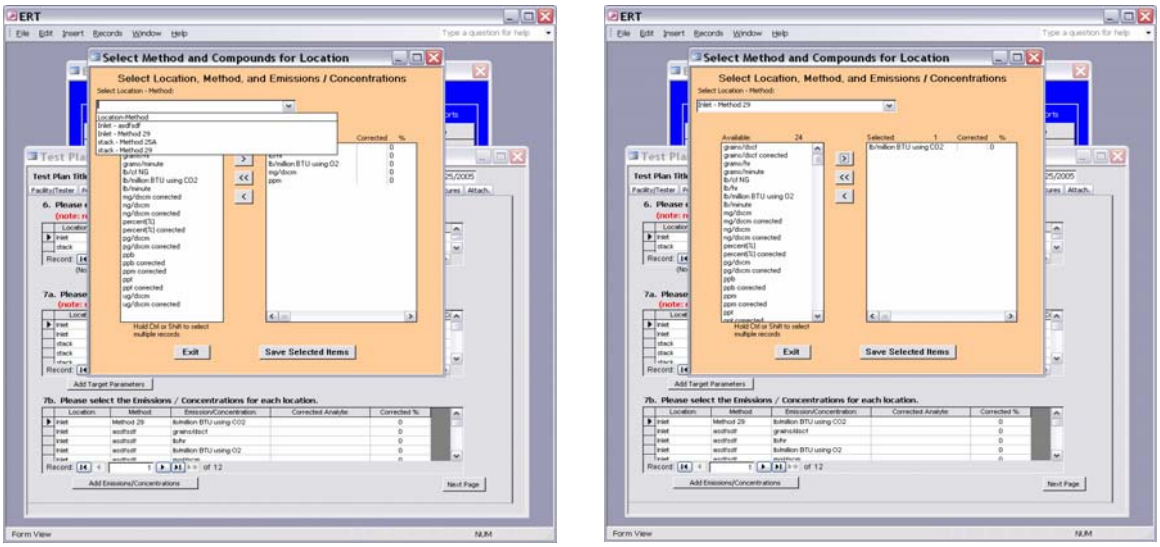

Figure 9c. Select Emissions/Concentrations for Location/Method Screens

The next tab screen is for Items 8, 9, 10, and 11 in "Methods cont." as shown in Figure 10. These have boxes which the user checks to answer the Item question. Also available to the user is the ability to type in explanations for each item or to attach electronic files of sketches, drawings, etc. These are used to input any deviations from methods, whether the sampling location meets EPA Method 1 dimensional criteria, and cyclonic flow check information. Item 11 documents how the oxygen content will be determined; Figure 10 also shows the drop down menu with the available procedures.

Figure 11 shows the Audit/Calibrations tab screen for Items 12, 13, 14, 15, and 16. These have boxes which the user checks to answer the Item question. Also available to the user is the ability to type in explanations for each item. Item 16 is used to input information on the calibration gases to be used for any instrumental methods that will be used. For the test plan, the information may be incomplete; however, once the test is completed, this Item MUST be completed accurately since the instrumental test methods data processing uses the "CertValue" in calculating the concentrations. For cylinders having more than one calibration gas, input the cylinder once for each gas and include a prefix or suffix with the cylinder ID; Figure 11 shows an example for carbon dioxide.

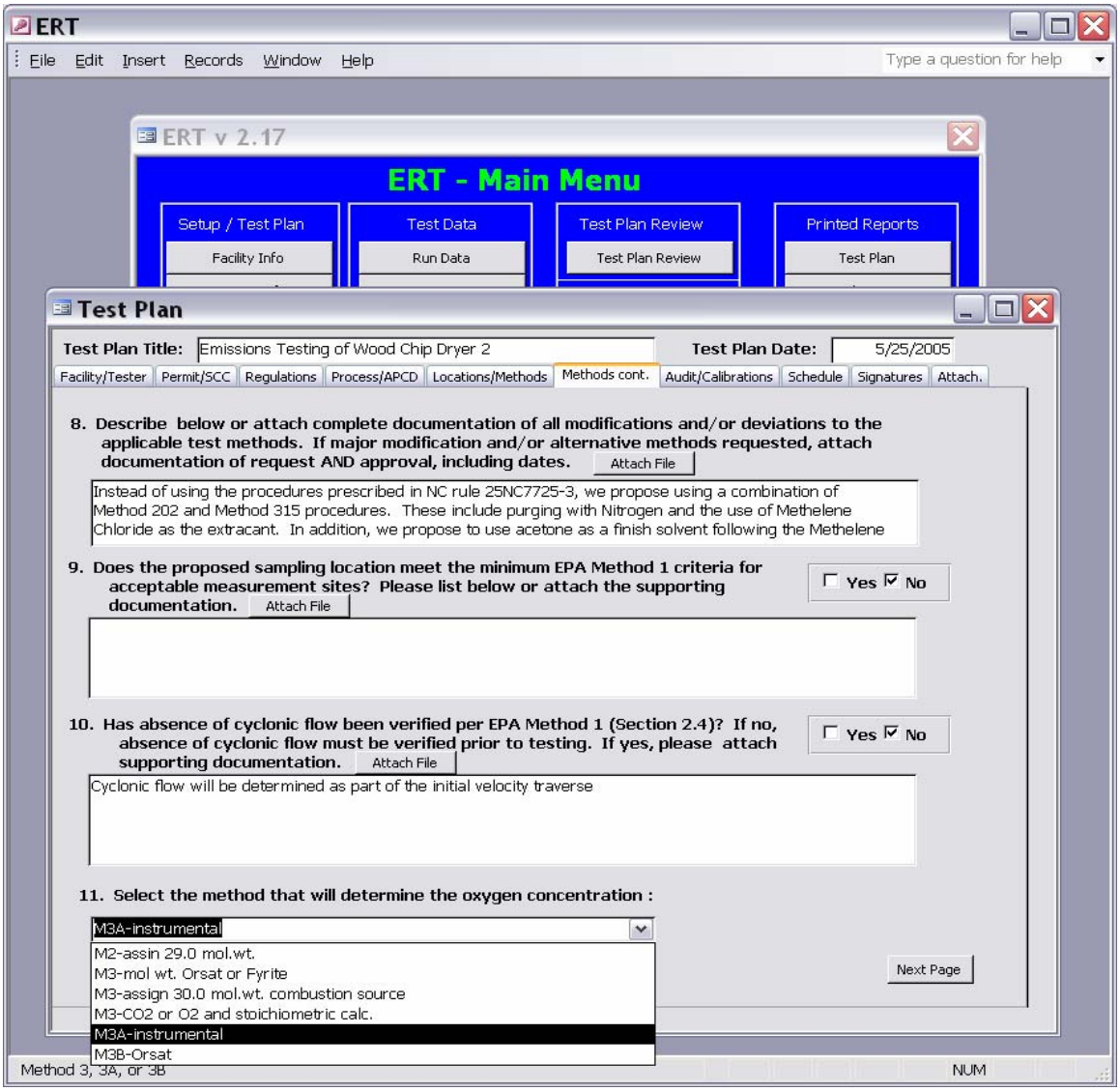

Figure 10. Test Plan – Methods cont. Tab Screen

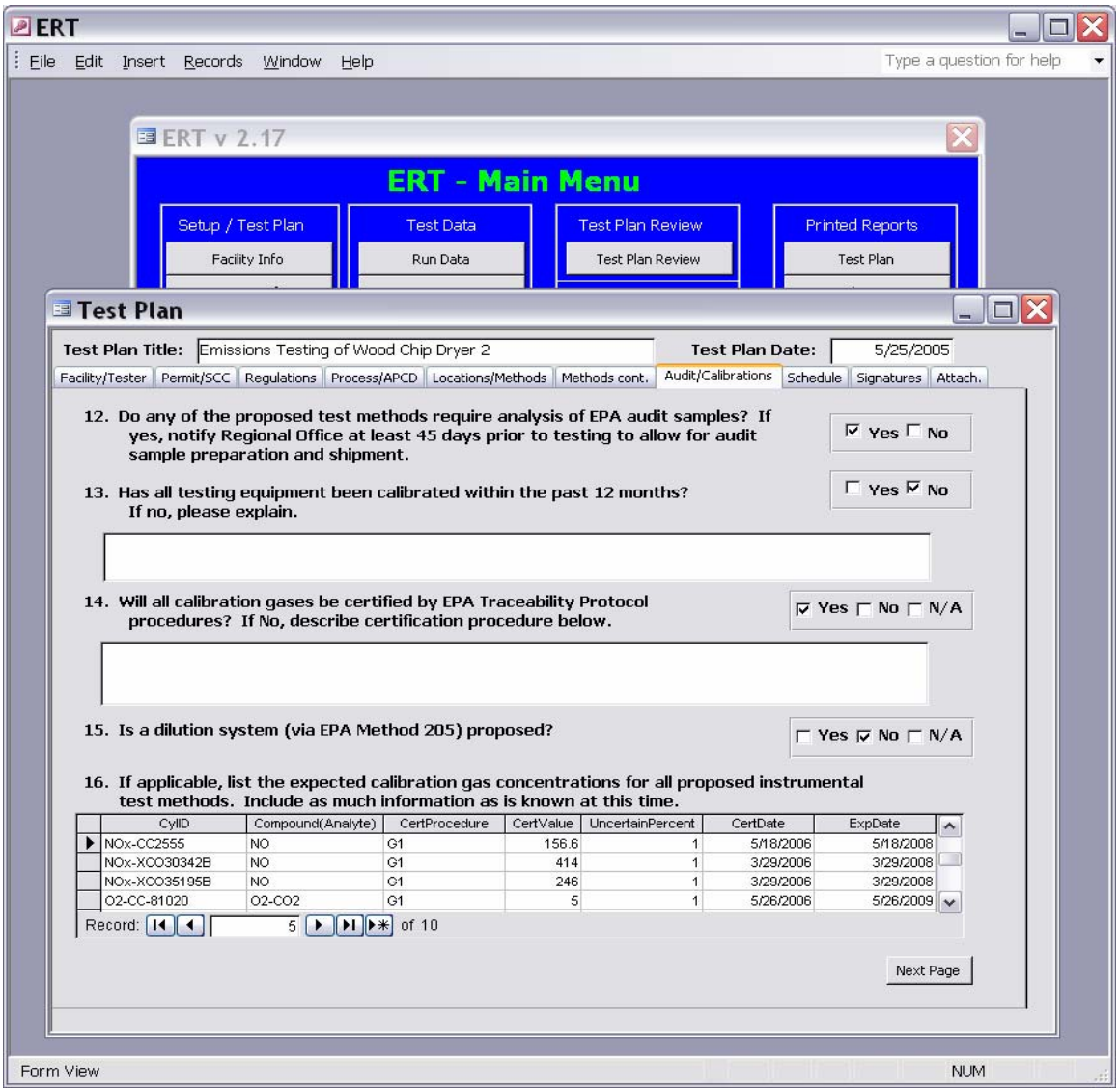

Figure 11. Test Plan – Audit/Calibrations Tab Screen

The Schedule tab screen is shown in Figure 12 and includes Items 17, 18, and 19. These items include information on scheduling and safety issues.

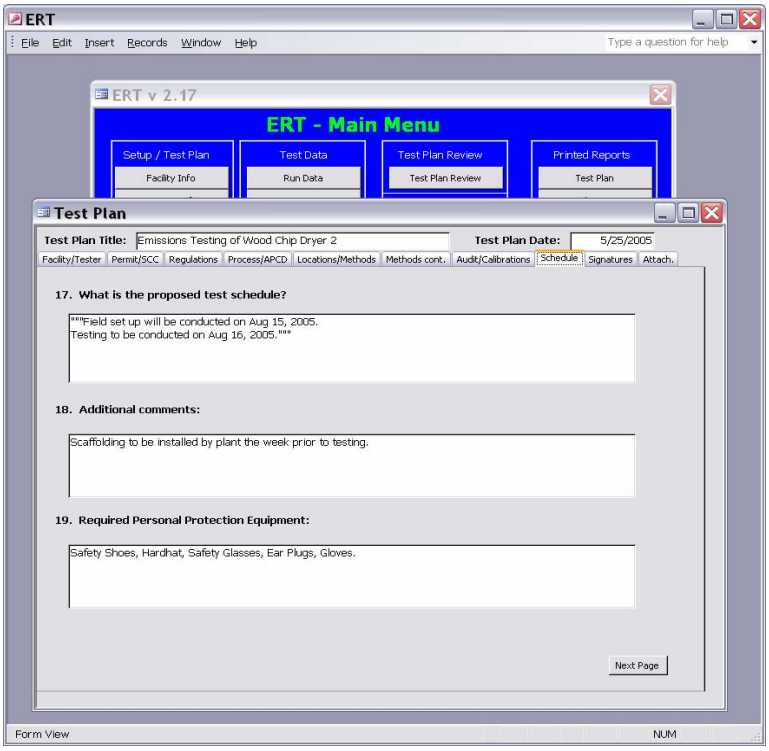

Figure 12. Test Plan – Schedule Tab Screen

Figure 13 is where the representatives of the facility and the testing company are identified, including title and the date the formed is "signed". Note that this is NOT an electronic or digital signature.

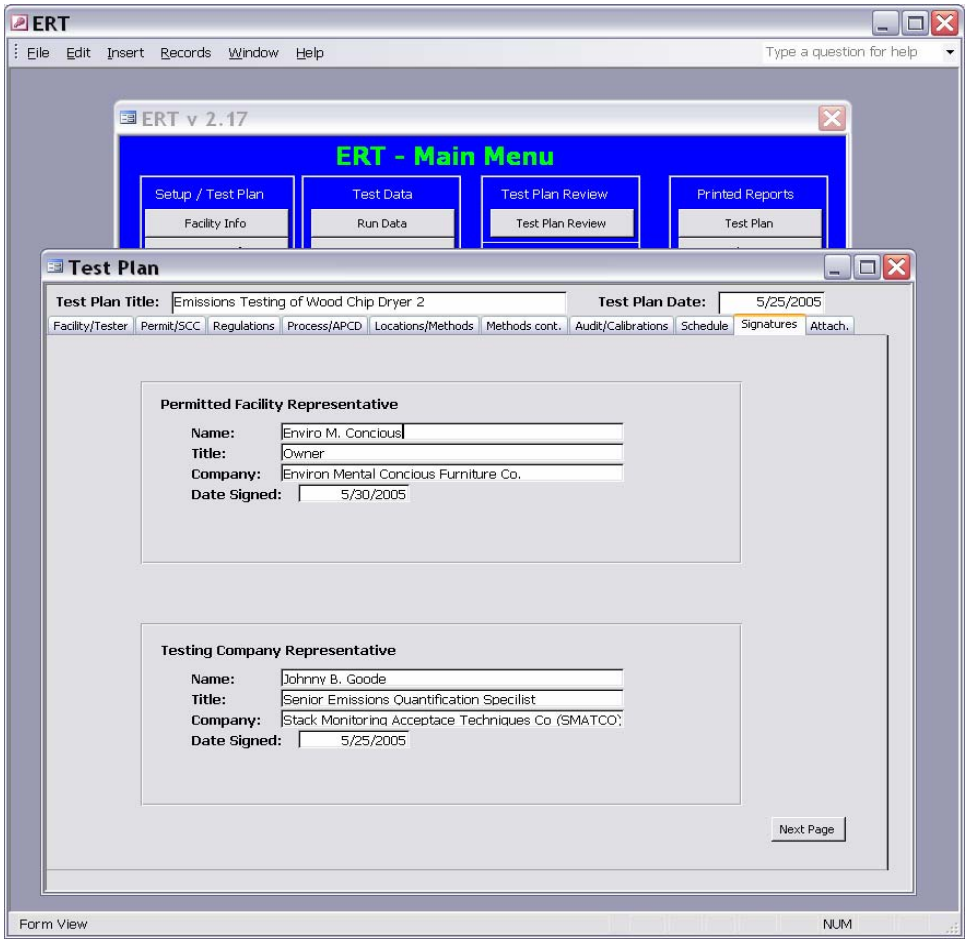

Figure 13. Test Plan – Signatures Tab Screen

The final Test Plan tab screen is the Attach. Or "Attachments" screen. Figure 14 shows the screen. Several of the questions in the Test Plan section allow the user to import files as attachments to the test plan. This permits inclusion of detailed descriptions of information required for a facility or alternatives to specified methods. These information files may also contain approvals for use of modifications or alternatives.

To attach a file from one of the other input windows such as shown in Figure 8, click on the "Attach File" button. The window shown in Figure 14a will appear. To attach the file, Right click on the column labeled Filename, the screen shown in Figure 14b will appear. Click on the "Insert Object…." item shown in the menu. Another screen will appear (Figure 14c), click the "Create From File" option, select a file name, and click "Ok" to continue.

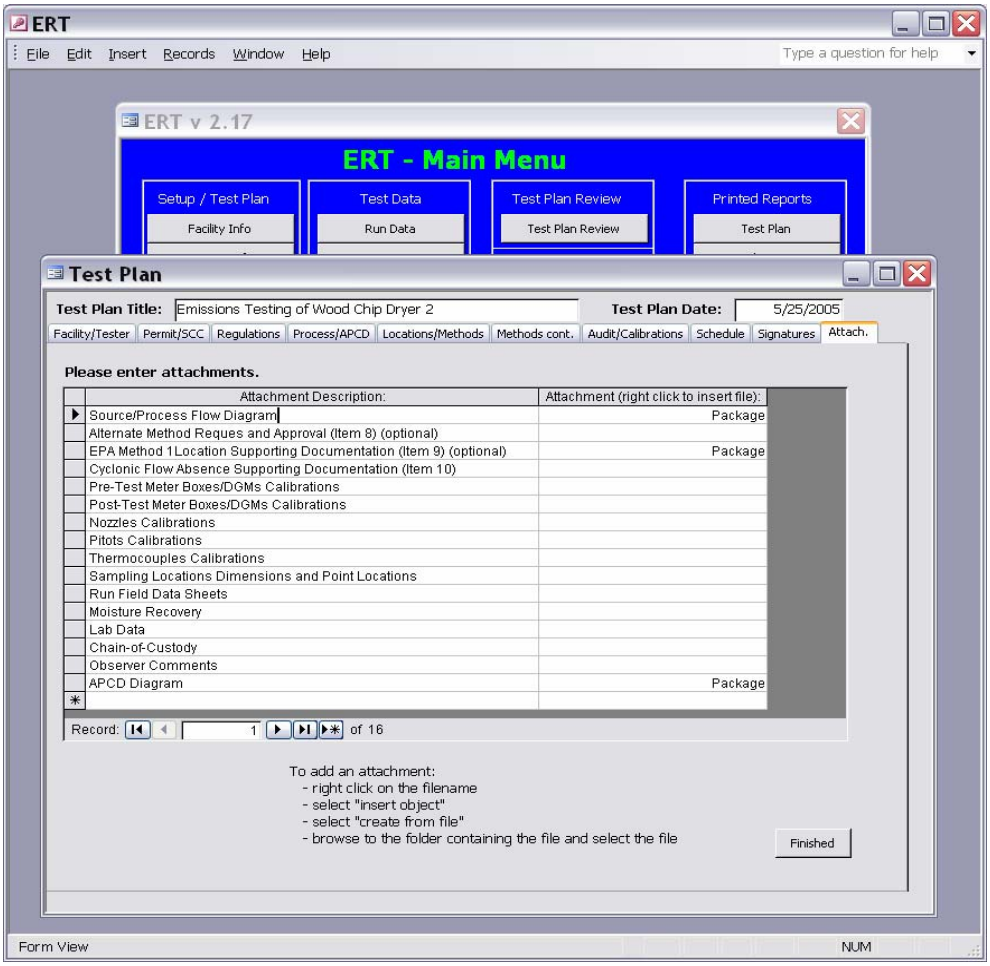

Figure 14. Test Plan – Attach. (Attachments) Tab Screen

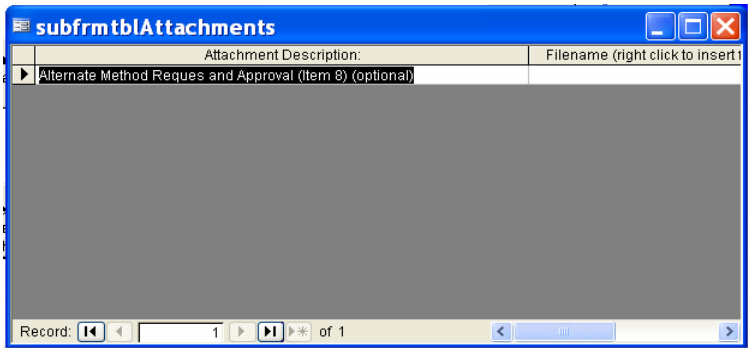

Figure 14a. Attach Methods Alternative Description File

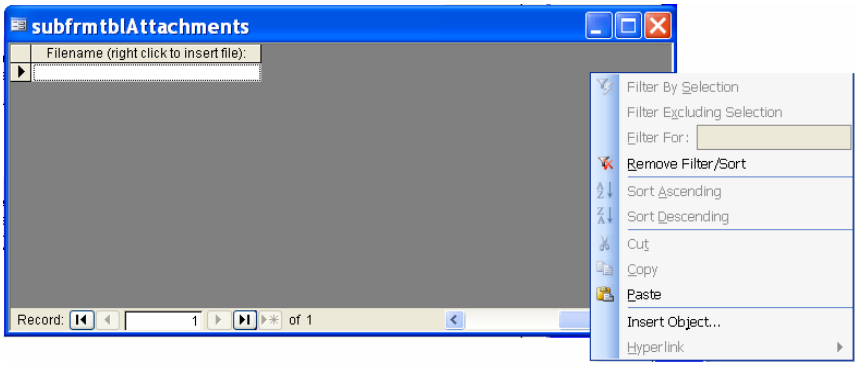

Figure 14b. File Attachments (cont.)

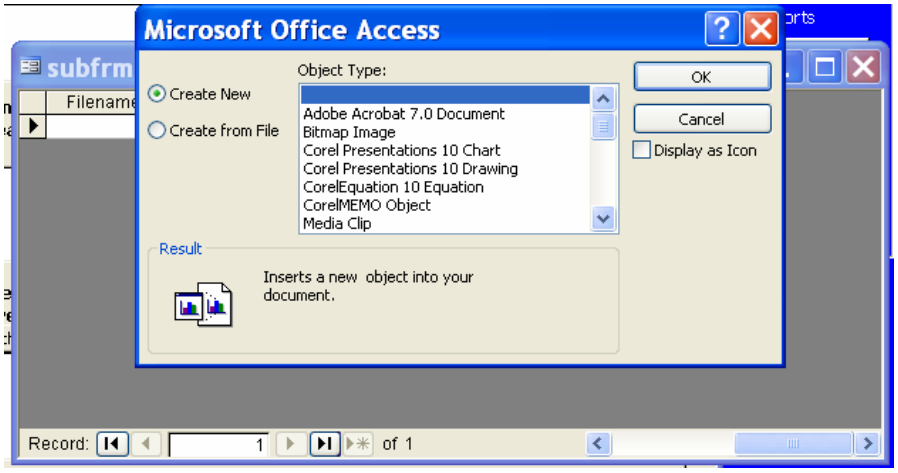

Figure 14c. File Attachments (cont.)

Once text information has been entered, additional files (such as drawings or spreadsheets) may be included as attachments to the test plan. The final tab of the Test Plan data entry forms contains a list of standard attachments to be included with the test plan and/or test report. Attach files using the same procedures described above for alternative or modified methods. **(Note: Many of the requested files will be part of the test report and are not required or available for the test plan.)**

When the data has been completed, click the "Finished" button or close the window. **(Note: If you started to attach a file and cancelled the action, you may see an error message when you click "Finished". Click "Ok" to close the error message and continue.)** To generate a hardcopy of the Test Plan, click the "Test Plan" button in the

Printed Reports section. A window displaying the plan, formatted for printing, is displayed (see Figure 15).

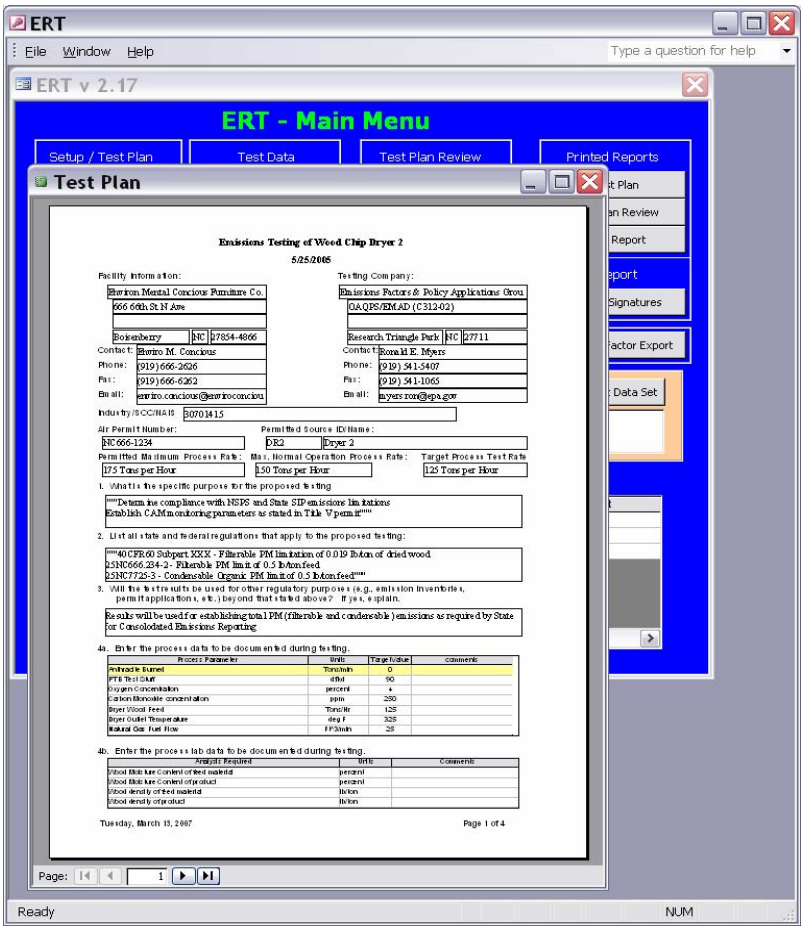

Figure 15. Printing the Test Plan

At this point you would submit the Test Plan to the appropriate regulatory agency for review. A project submittal history is provided at the bottom of the ERT Main Menu. Click on the first column of the empty line in the Project Submittal History table. A list of choices will be displayed (Figure 16). To print, right click on the display and select print.

Click on one of these choices to select it. Enter the required information in the other columns to complete the Submittal History.

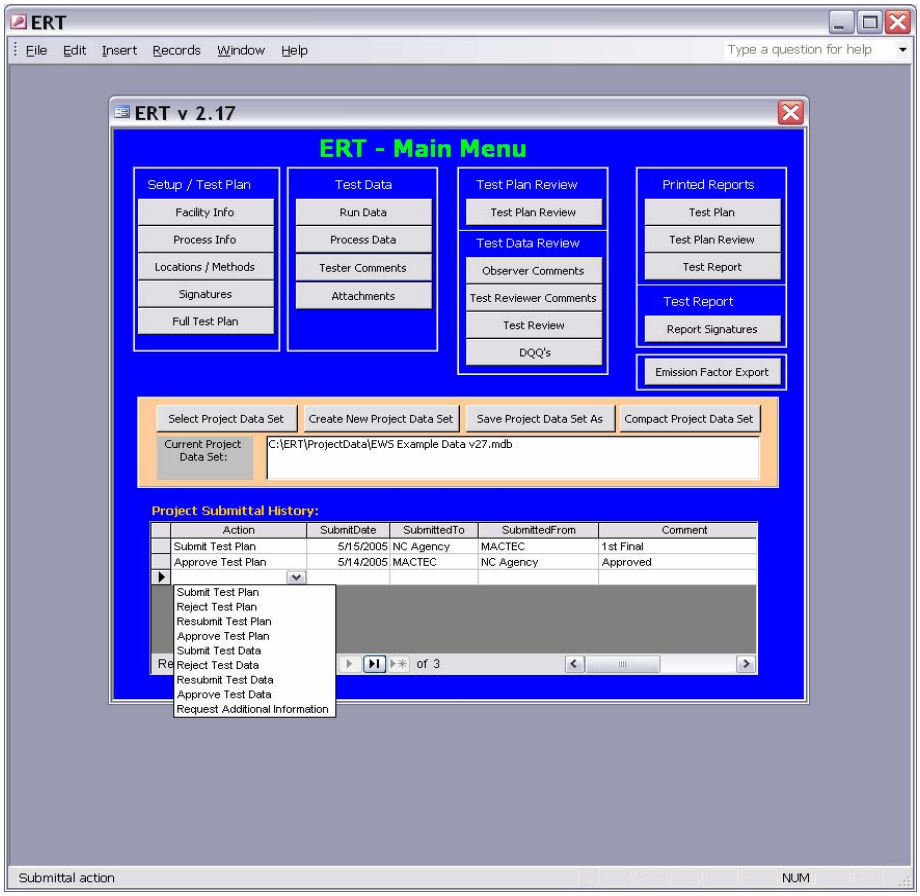

Figure 16. Completing the Submittal History

3.2 Entering Isokinetic Method Test Data

ERT separates methods into two basic categories – isokinetic and instrumental. For an isokinetic method, to complete the Test Data Section you may either Import the data from a spreadsheet or manually enter the data. For an instrumental method, you must enter the data manually.

To Import the data, it must be entered into the sample isokinetic field data spreadsheet that was provided with ERT. Enter the data into the spreadsheet and save the spreadsheet. (Remember the location of the saved spreadsheet.) Click on the "Add New Run Data" button in the Test Data section. A new screen will appear to direct you through the remainder of the data import process (Figure 17).

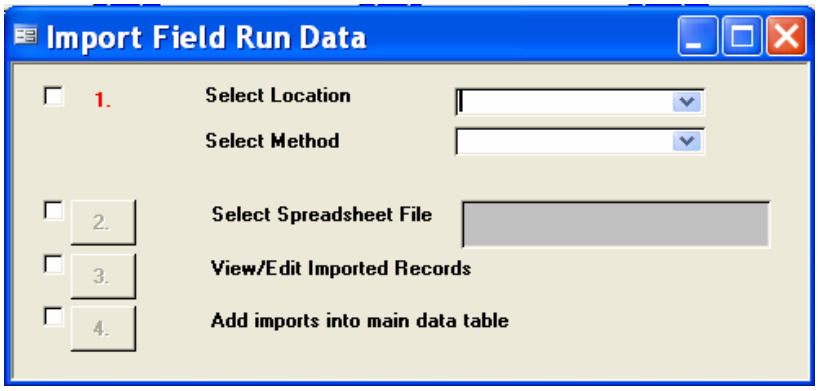

Figure 17. Importing Isokinetic Field Data

First, select which location this data set is for, then, select which Method (type of test) the data covers. Both of these selections are lists that correspond to the information contained in the Test Plan. Once both the Location and Method have been selected, you may select the spreadsheet that contains the data. You may either type the name in the box or click on the button with the caption "2." to display a select file dialog box. **(Note: If you start to select a file and click cancel you will see an error message. To continue, click "END" and the ERT will resume.)** Two new windows will appear, one containing header information from the spreadsheet and a second containing the run data. You may close these screens by clicking on the "X" in the upper right hand corner of the window or leave them open for review. To finish the data import, click the "Add imports into main data table" button. A message indicating the import was successful will be displayed, click "Ok" to continue. Close the Data Import screen by clicking on the "X" in the upper right hand corner of the window.

To enter Laboratory and Process Data, click on the appropriate button in the Test Data section. This will open the test data form, allowing entry of all data into the ERT. Figure 18 shows the laboratory data entry form.

To enter laboratory results for each run, first verify the Run Number and Method in the middle of the form. Enter the mass collected and select the units by clicking on the cell and selecting the appropriate units. To select the next run, look at the bottom left hand corner of the form. You will see two lines similar to Figure 19.

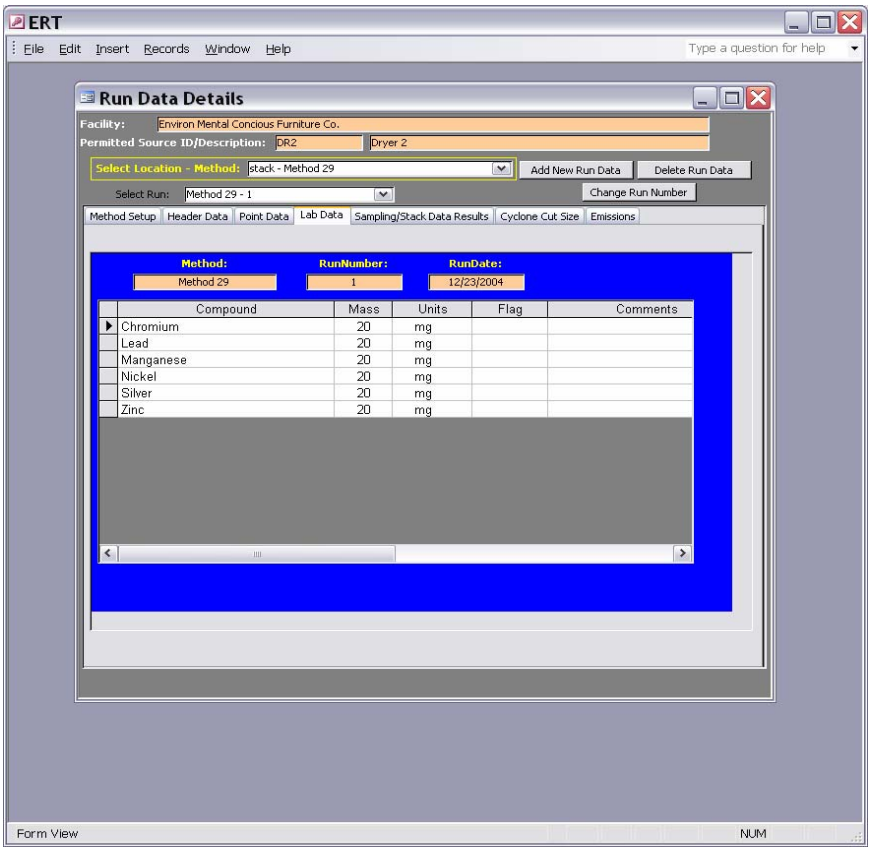

Figure 18. Lab Data Entry

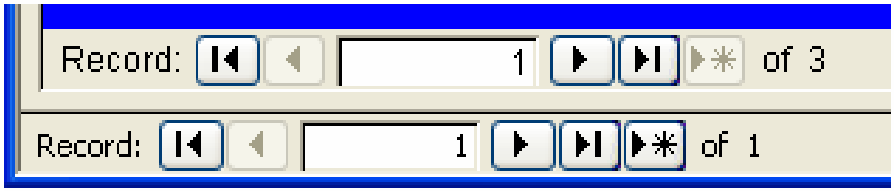

Figure 19. Advance to Next Point

Click on the symbol located on the upper line. The Run number will change to the selected Record for data entry. If more than one method has been used, use the symbol on the second line to move to the next Method you need to enter lab data for. Repeat this data entry for any process data associated with the test.

(Note: It is possible to cut and paste data from other spreadsheets or tables, but the process is not straight forward and is not recommended in this version of ERT. The need for other data transfer tools is recognized and future versions will address alternative data entry methods.)

To review data entry, select specific areas by clicking the tabs located at the top of each form (e.g. “Header Data”, “Point Data”, “Lab Data”, etc.). Check the information contained on each page and for each run and method, correcting information or completing the data sets as necessary. Emissions results will be calculated from the data entered in the previous tables, missing data will cause either an error message to be displayed in some or all of the results or erroneous data will be displayed, depending on what has been omitted.

You may add additional runs or delete runs using the “Add New Run Data” and “Delete Run Data” buttons located in the upper area of the form, next to the location description. Additional information files, such as calibration reports, Chain-of-Custody forms, field data sheets, may be attached to the report by clicking on the “Attachments” button and following the same procedures described in Section 3.1.

3.3 Entering Instrumental Method Test Data

Entering instrumental test method data must be performed manually and begins with a revisit to the Test Plan Audit/Calibrations tab where the calibration gases certified cylinders information must be updated or input in Item 16 as shown in Figure 20.

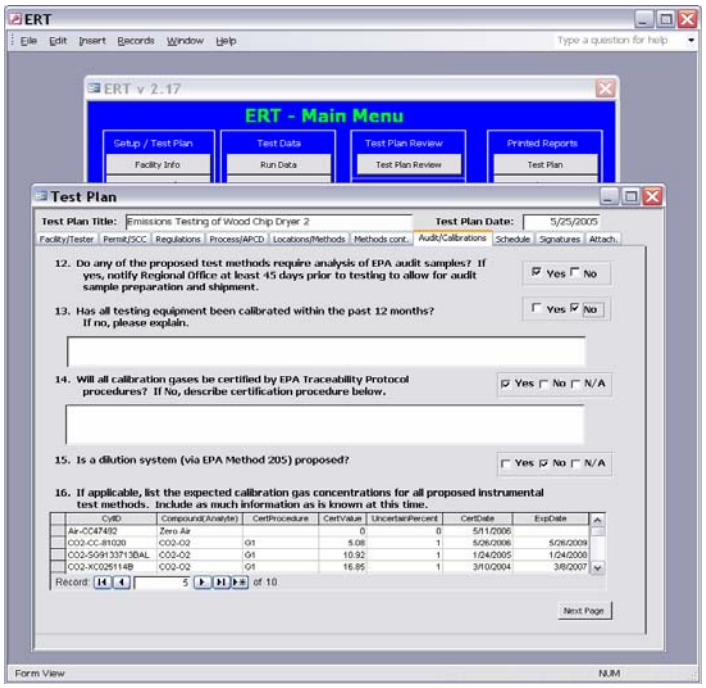

Figure 20. Test Plan – Audit/Calibrations Tab Screen

Once this has been updated, the procedure is similar to inputting isokinetic data with the exception that the tabs in the Run Data Details screen shown in Figure 21 differs from those of the isokinetic methods screen.

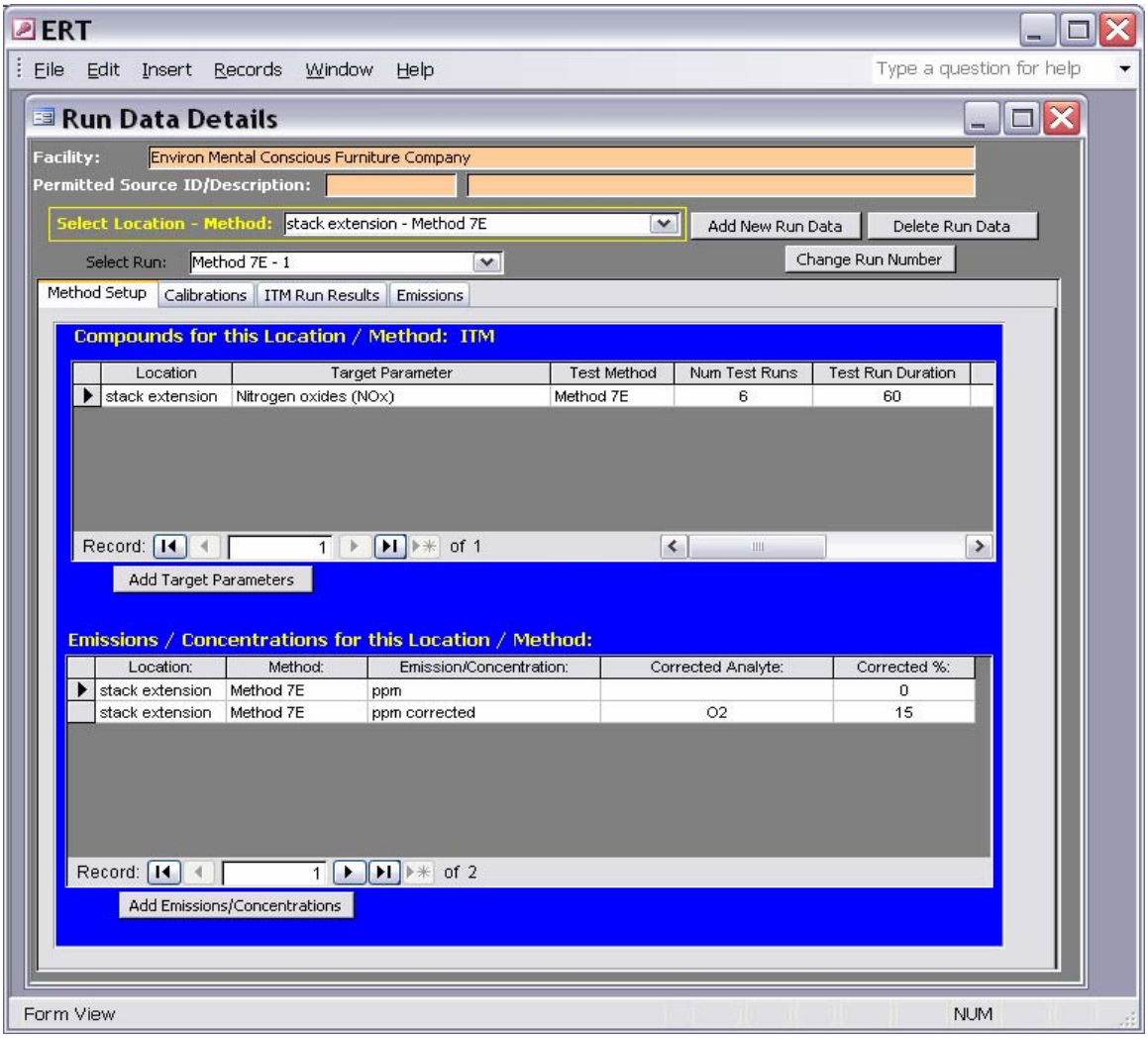

Figure 21. Run Data – Instrumental Method Setup Screen

Be sure to input the Span value before inputting the responses; otherwise a non fatal error message is generated which may be ignored.

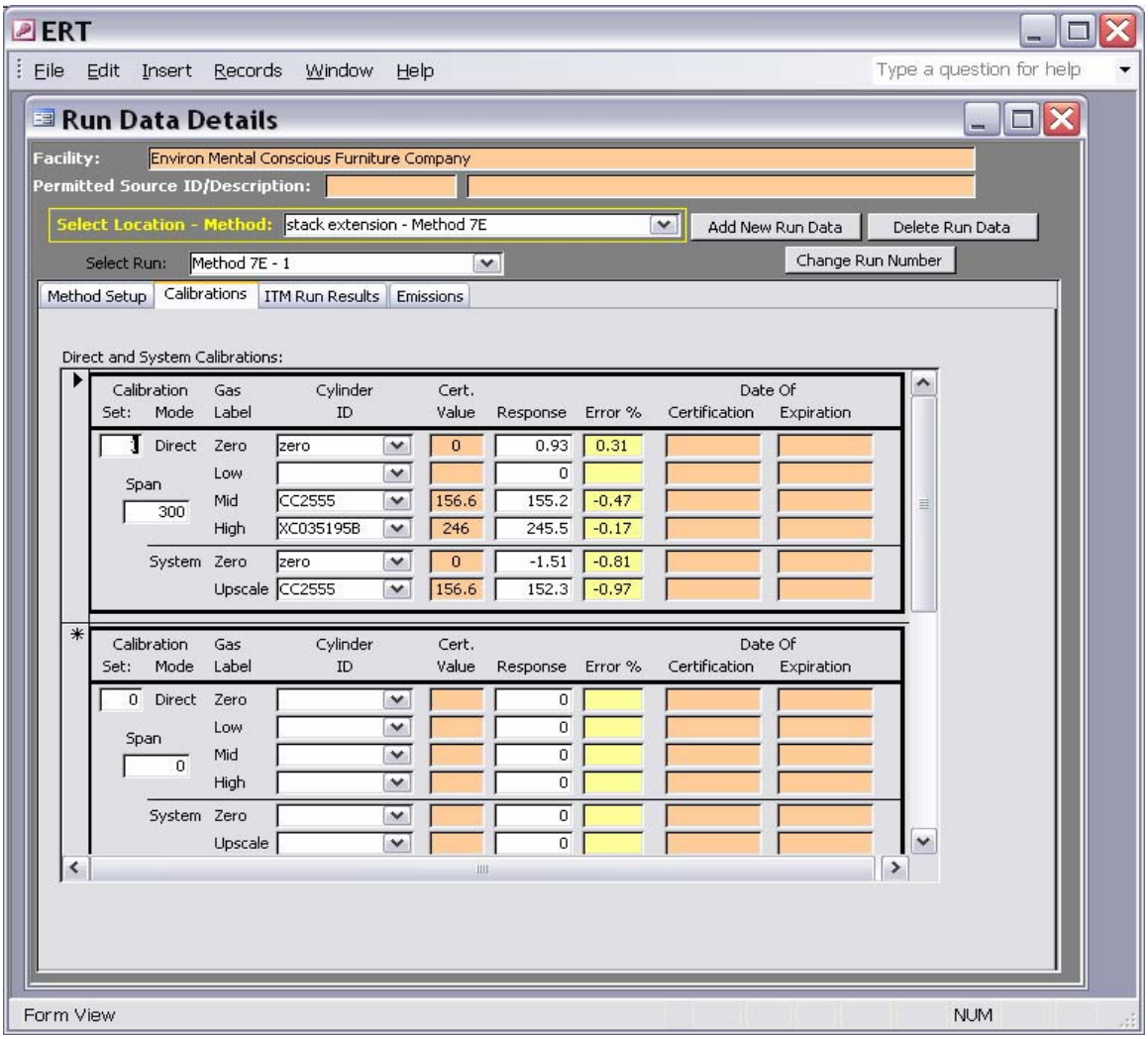

Figure 22. Run Data – Calibrations Screen

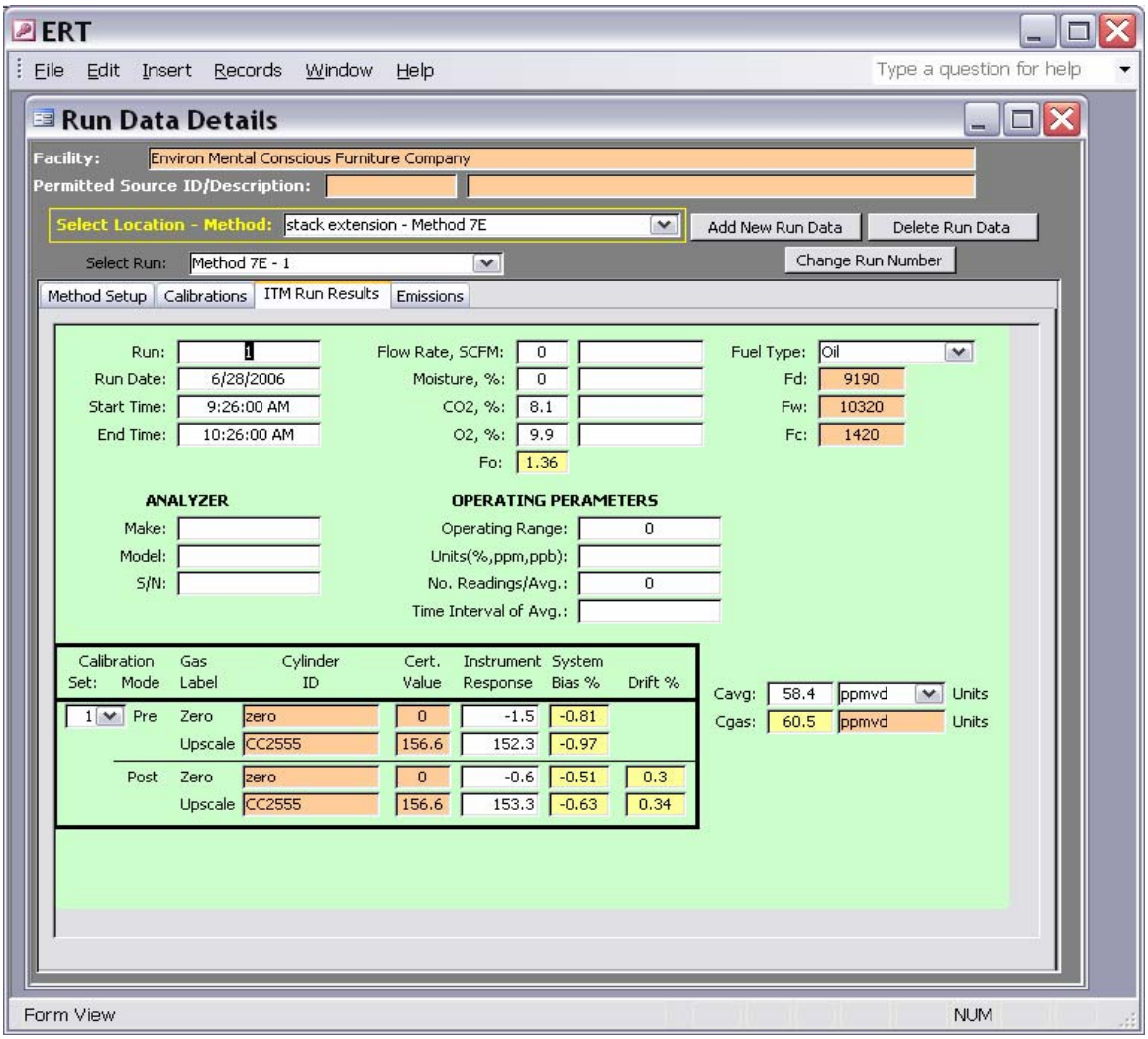

Figure 23. Run Data – ITM Run Results Screen

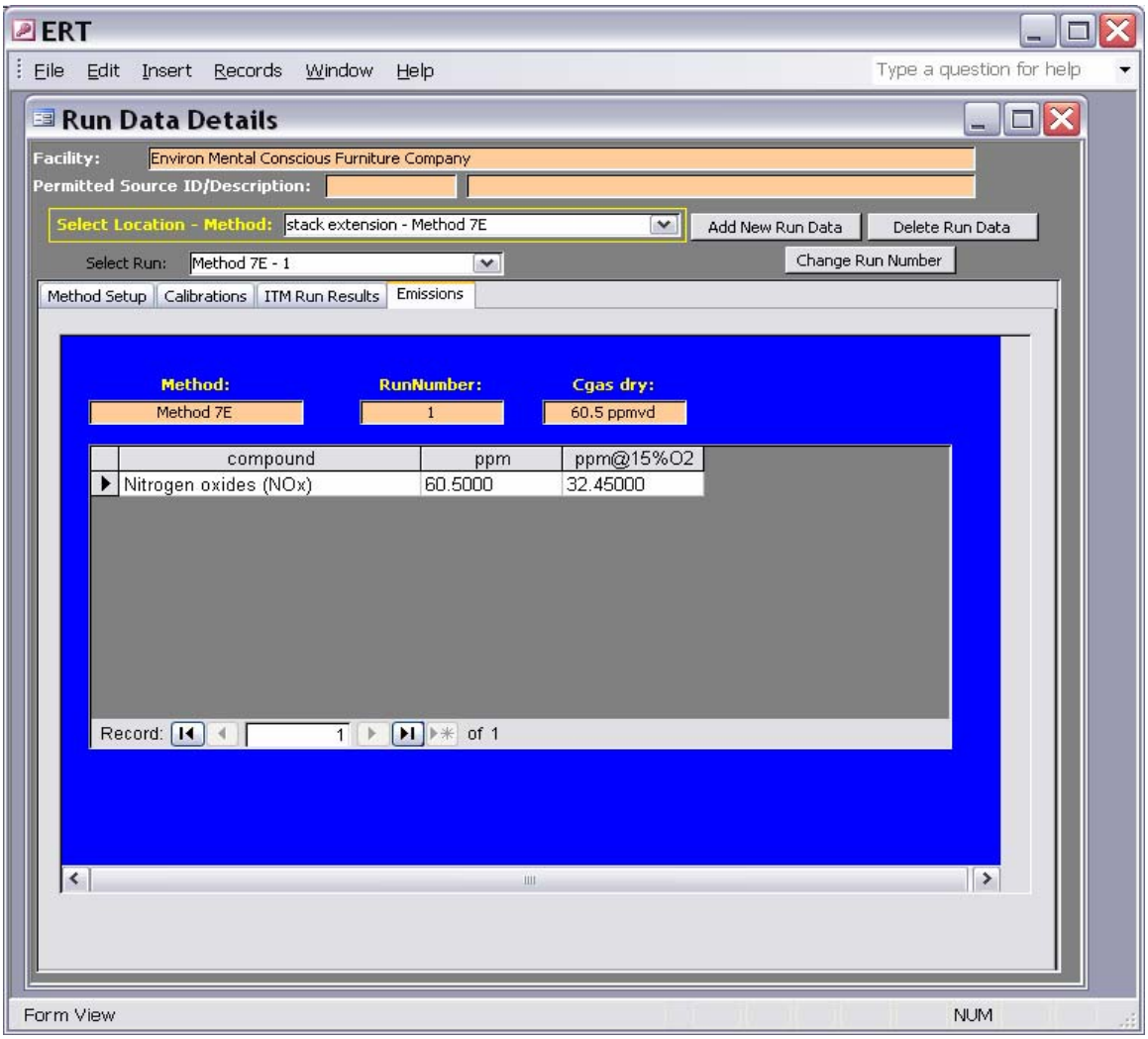

Figure 24. Run Data – Emissions Screen

3.4 Test Plan and Data Review

Upon receipt of a completed Test Plan, the reviewer would access the data base by selecting the appropriate file name and clicking the "Test Plan Review" button. The test plan will be displayed in a window that contains several check boxes associated with key elements of the test plan (see Figure 25).

The reviewer will determine if the information contained in each section is acceptable and check the appropriate box. The reviewer may then return the Test Plan and any associated comments to the originator to address comments or to indicate acceptance of the Test Plan. The reviewer would update the Submittal History with appropriate comments and status after each review.

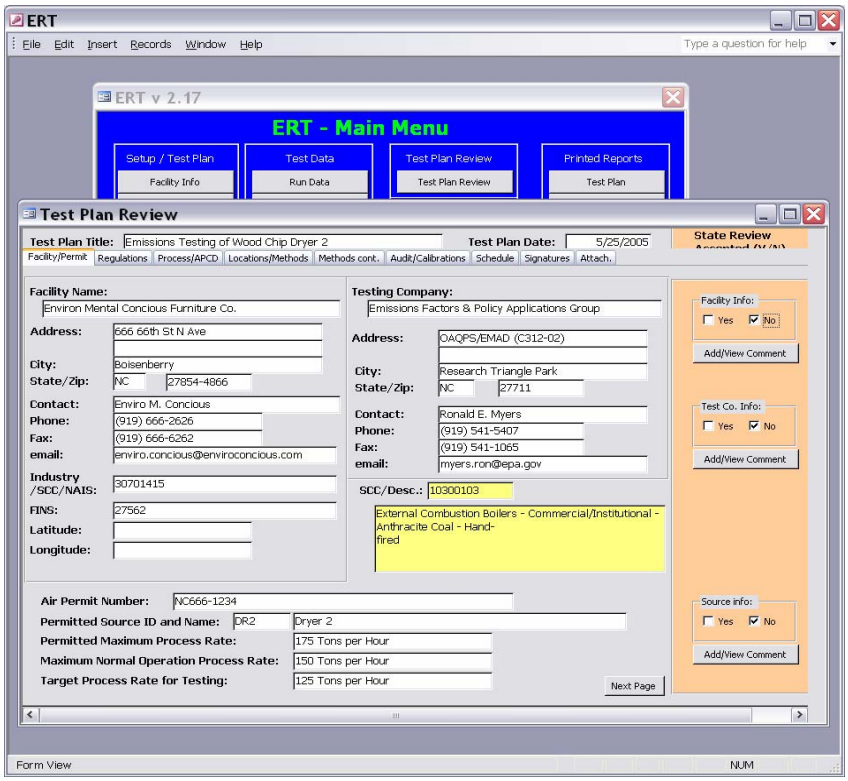

Figure 25. Test Plan Review

Test data review is performed by clicking the Test Review button in the “Test Data Review” section. A comment screen similar to Figure 26 will appear for some items and other screens will display tabular data for review similar to Figures 27a and 27b. The reviewer may select Run data, Laboratory data, or Process data by clicking “Run DQQ” and/or “Process DQQ” buttons. Navigation through the Run and Method data is similar to the data entry steps described in Section 3.2

When the Test Report review has been completed, the reviewer must update the Submittal History and return the report to the test contractor for appropriate actions.

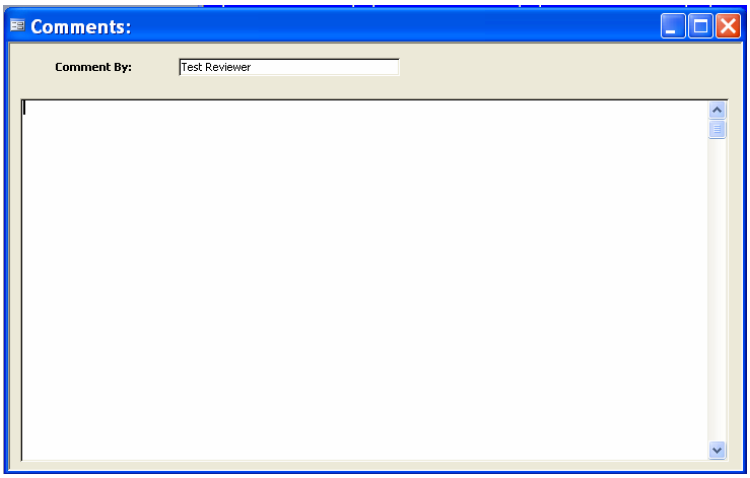

Figure 26. Reviewer Comments

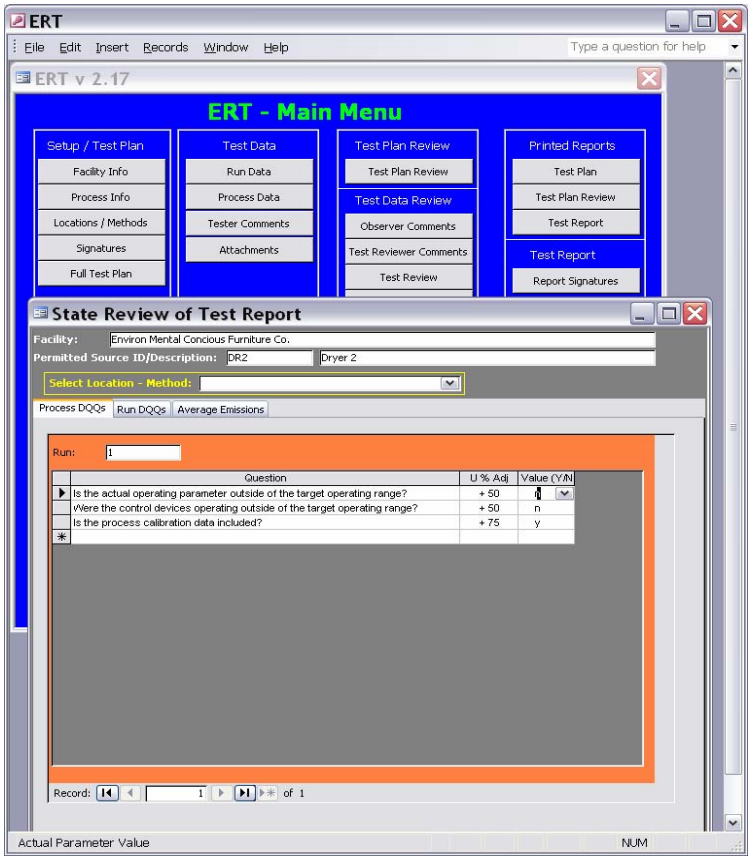

Figure 27a. Data Review Tables

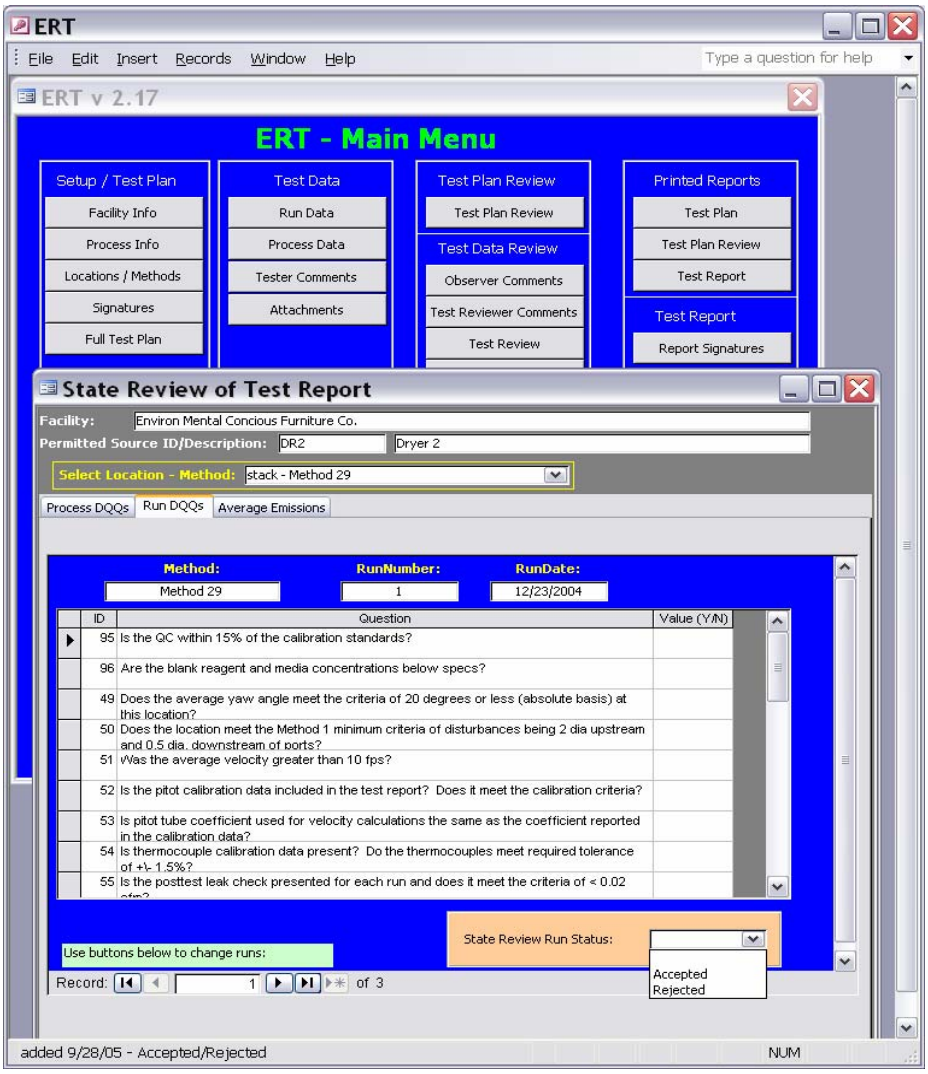

Figure 27b. Run Data Review

3.5 Emission Factor Export

ERT has the ability to create emission factors based on process and run data. It also has the ability to create an XML export file that can be imported into EPA's WebFIRE program. Figure 28 shows the screen where the process run data is associated with the appropriate test run data.

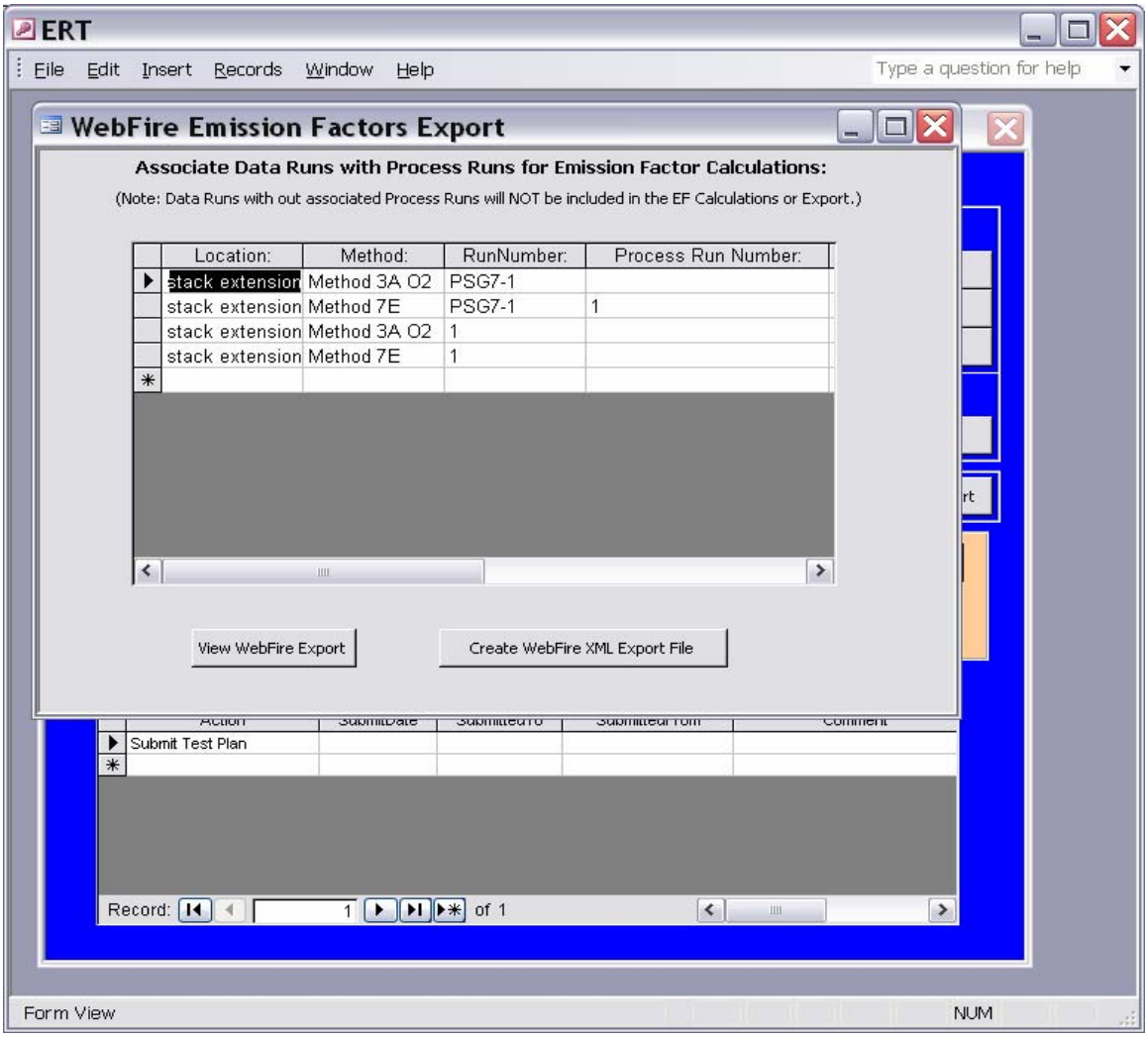

Figure 28. Emission Factor Export Screen