

STORET Version 2.0.7

Report Module

User Guide

STORET

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INTRODUCTION

The STORET Report Module is intended for use with a STORET database installed on a stand-alone workstation or a dedicated server. The STORET Report Module generates pre-formatted reports for viewing and/or printing, and produces data exports as delimited text files of information managed in a STORET database. Pre-formatted reports may be printed or converted into a variety of output file types. Exported data in flat file format may be analyzed through third-party applications like spreadsheets and Geographic Information Systems (GIS). This user guide provides detailed information on how to use the STORET Report Module.

System Requirements

The following may be required to install and run the STORET Report Module provided on the STORET v2.0 Compact Disk (CD), Disk 1.

Minimum Hardware Requirements:

- C 250 megabytes (MB) of free space on your hard drive.
- C Pentium II 200 megahertz (MHz) processor.
- C 128 MB Random Access Memory (RAM).
- C CD-Read Only Memory (ROM) drive.

Minimum Software Requirements:

- C Windows 98 SE, Windows NT v4.0, Windows 2000, or Windows XP.
- C Connectivity to a STORET v2.0 database.
- C Oracle 8i database version 8.1.7.0.0 or higher.
- C At least one installed print driver.
- C Oracle 8i or higher Client with Oracle Provider for Object Linking and Embedding (OLE) Database (DB).

It is not necessary to have the STORET Data Entry Module nor a STORET database installed on your computer to install and run the STORET Report Module. The STORET Report Module can operate in a client-server environment.

Installation

Please see the *STORET v2.0 Installation Guide* for assistance installing the STORET Report Module provided on the STORET v2.0 Compact Disk (CD), Disk 1. For STORET Report Module upgrades, use the installation instructions provided with those software packages.

Upgrades

Upgrades to the STORET Report Module are currently intended for distribution via the Environmental Protection Agency (EPA) STORET web site:
<http://www.epa.gov/storet/updates.html>.

Opening the STORET Report Module

1. If running the STORET database locally, make sure the STORET database is started. You may do this from the STORET Data Entry Module v2.0 Program Group.
2. From Windows <Start>, select <Programs>, program group <STORET Report Module v2.0>, then <STORET Report Module v2.0>.
3. Connect to your local or server STORET database by entering the user name, password and database name (storuser, storuser, storet respectively by default). Due to varied Oracle configurations, entering a database name may not be necessary, or may cause problems connecting.

MAIN MENU (RPT1)

The Main Menu is displayed upon opening the STORET Report Module (Exhibit 1). The version number of the STORET Report Module is shown on this screen. From here, the two different report types, Printed Reports or File Exports, can be selected by clicking the respective buttons. The available reports will be different between the Printed Reports and File Exports. The online help system is available by clicking on the <Help> button. To exit the STORET Report Module, click the <Exit> button or the <X> in the upper right hand corner. Clicking <X> from any window in the STORET Report Module will close the STORET Report Module. Returning back to the Main Menu while using the STORET Report Module will allow you to change to a different report type.



Exhibit 1. RPT1 Main Menu

Printed Reports

The Printed Reports selection provides a list of pre-formatted reports. Printed reports may be sent directly to an available printer or previewed with an on-screen viewer. Previewing a report allows you to verify that the desired data has been retrieved and perform selective printing of only the pertinent pages. Previewed reports may also be converted to a file and saved using one of several available file types. More about the available printing and file generation options may be found under the “Report Parameters” section of this user guide.

File Exports

File Exports are tilde (i.e., ~) delimited flat files that can be imported into spreadsheets, other databases, or third party analytical software. The File Exports are structured to allow data to be imported into any viewing application with which you are comfortable (e.g., Excel, Quattro Pro, ArcView). The File Exports may be manipulated to satisfy scientific, analytical, statistical, management, or administrative questions.

Help

The Help button will open the online help system. The online help is similar to other Windows-based help systems and provides Content and Indexed keyword methods for finding the appropriate help information. Clicking a Help button on any screen will display the Content/Index tab set of the online help with the Content tab selected. A help topic in the

Content list is available for each of the screens that comprise the STORET Report Module. A question mark icon indicates there is help text directly associated, while closed book icons specify topics that have additional choices available. Each help text screen may also provide a link to related topics and/or examples. The Index tab will display a list of related keywords in alphabetical order. Selecting a keyword will open a help text screen or a list of topic matches, depending on how many topics are related to the chosen keyword.

REPORT SELECTION (RPT2)

The Report Selection screen functionality and layout will be the same whether you choose Printed Reports or File Exports (Exhibit 2); the actual list of reports available for the two types will be different. Select a report by highlighting the report and clicking <Accept>, or by double-clicking on the report. After selecting a report, you will automatically be taken to the Report Parameters window.

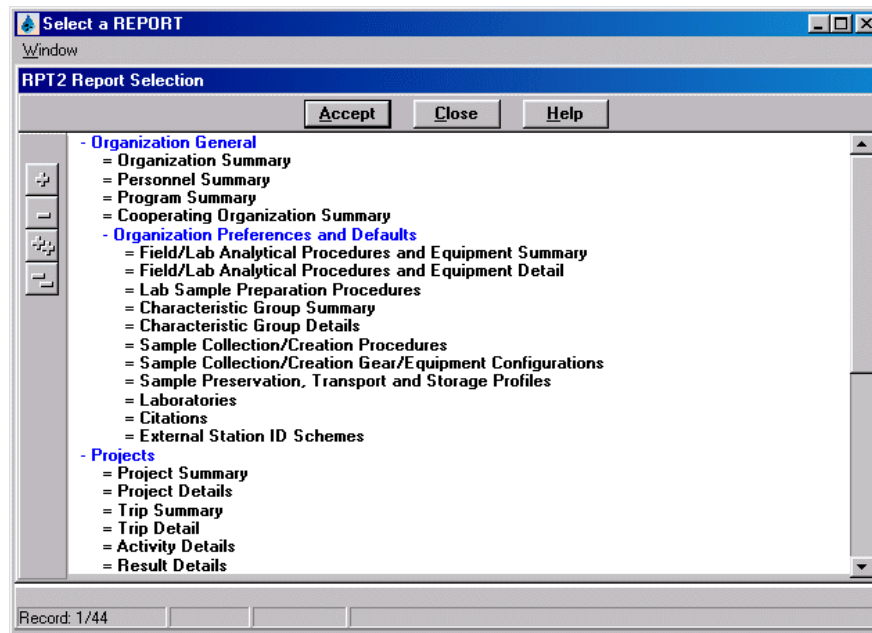


Exhibit 2. RPT2 Report Selection

The list of reports under Printed Reports are organized by category. Report categories and subcategories are represented in blue text. Categories or subcategories may be expanded or collapsed to show or hide subtending choices by highlighting the category or subcategory and clicking one of the plus or minus buttons on the left. All categories and subcategories are fully expanded whenever you access the Report Selection window.

REPORT PARAMETERS (RPT3)

The Report Parameters screen is the central hub for all report parameter selection activity (Exhibit 3). Depending upon the chosen report, one or more parameter buttons may become available to provide data filtering and restriction capability. Available parameters have been predetermined for each report. The following table (Exhibit 4) shows the available parameters for every Printed Report and File Export.

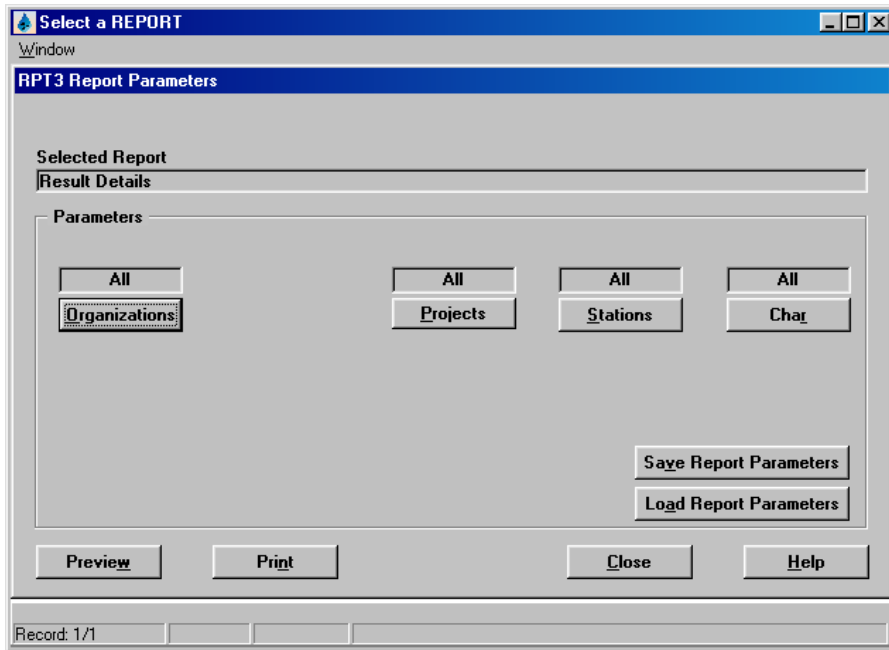


Exhibit 3. RPT3 Report Parameters

Report	Org	Trip	Project	Station	ADL ³ Installation	ADL ³ Operating Period	Activity Date Range	Location	Char	Char Range
	Filters						Restricters			
Organization Summary	X									
Personnel Summary	X									
Program Summary	X									
Cooperating Organization Summary	X									
Field/Lab Analytical Procedures and Equipment Summary	X									
Field/Lab Analytical Procedures and Equipment Detail	X									
Lab Sample Preparation Procedures	X									
Characteristic Group Summary	X									
Characteristic Group Details	X									
Sample Collection/Creation Procedures	X									
Sample Collection/Creation Gear/Equipment Configurations	X									
Sample Preservation, Transport and Storage Profiles	X									
Laboratories	X									
Citations	X									
External Station ID Schemes	X									
Project Summary	X		X							
Project Details	X		X							
Station Summary	X		X	X						
Station Details	X		X	X						
Trip Summary	X	X ¹	X ²							
Trip Detail	X	X ¹	X ²							
Activity Detail	X	X ¹	X ²	X						
Result Detail	X	X ¹	X ²	X						X
Result Inventory Summary	X	X ¹	X ²	X			X			X
Result Inventory Summary by Station	X	X ¹	X ²	X			X			X
Automated Data Logger Summary	X				X	X	X			
Automated Data Logger Detail	X				X	X	X			
Automated Data Logger Result Inventory Summary	X				X	X	X			
Automated Data Logger Result Inventory Summary by Station	X				X	X	X			
Unassigned Activities to Projects	X	X					X			
Reference Table Chemical Names				None						None
Reference Table Chemical Names without Parameter Codes				None						None
Reference Table Permitted Value Characteristics				None						None
Reference Table Permitted Values				None						None
Reference Table Physical Characteristics				None						None
Reference Table Physical Characteristics without Parameter Codes				None						None

Exhibit 4. Report Parameters

Report	Org	Trip	Project	Station	ADL ³ Installation	ADL ³ Operating Period	Activity Date Range	Location	Char	Char Range
Filters						Restricters				
Reference Table Taxonomic Hierarchy									X	
Reference Table Taxonomic Names									X	
Export: Automated Data Logger Detail	X				X	X	X			
Export: Station Summary	X		X	X						
Export: Station Summary Export (Web Default)	X		X	X				X		
Export: Results Physical/Chemical Small Export	X		X	X			X		X	
Export: Results Physical/Chemical Medium Export	X		X	X			X		X	
Export: Results Physical/Chemical Large Export	X		X	X			X		X	
Export: Results Physical/Chemical Giant Export	X		X	X			X	X	X	
Export: Results Physical/Chemical Export (Web Default)	X		X	X			X	X	X	X
Export: Results Biological Small Export	X		X	X			X		X	
Export: Results Biological Medium Export	X		X	X			X		X	
Export: Results Biological Large Export	X		X	X			X		X	
Export: Results Biological Giant Export	X		X	X			X	X	X	
Export: Results Biological Export (Web Default)	X		X	X			X	X	X	X
Export: Results Multi-Taxon Population Census Export	X		X	X			X	X	X	
Export: Results Habitat Assessment Export	X		X	X			X	X	X	
Export: Results Habitat Assessment Export (Web Default)	X		X	X			X	X	X	X
Export: Reference Table Chemical Names Export					None				None	
Export: Reference Table Chemical Names without Parameter Codes Export					None				None	
Export: Reference Table Taxonomic Hierarchy Export									X	

- 1 - Trip parameter not available when generated from the Projects category.
- 2 - Project parameter not available when generated from the Trips category.
- 3 - Automated Data Logger.

Exhibit 4. Report Parameters (continued)

Filters and Restricters

The report parameters fall into two general types: filters and restricters. Parameters that are filters select directly from the data entered in the STORET database. For example, the <Stations> parameter will allow selection of the Stations in the database. Parameters that are restricters are not related directly to data entered. For example, the <Date Range> parameter on various reports provides the capability to designate an Activity time period from which you would like to retrieve data. The database may or may not have Activities performed during the designated time period, therefore, designating an Activity time period for which no Activities occurred would produce a null report (i.e., a report with titles and page headers, but no data). View the above table (Exhibit 4) to determine which parameters are filters and which are restricters.

Operators

The logical operator across all parameters, both filters and restricters, is AND. The logical operator within a parameter (i.e., selecting multiple Stations), is OR. For example, you want to get all the result data on water temperature on a given section of stream with 10 stations. You could go directly to the <Station> parameter and select the Stations on that particular section of stream. Then go to the <Characteristic> parameter, search for temperature, and choose “temperature, water”. When the Result Detail report is run, the only data appearing on the report would be for the selected Stations that have “temperature, water” readings. If only two of the ten selected Stations have “temperature, water” data, then only two Stations and their data will appear on the report. If none of the ten selected Stations have “temperature, water” data, then a blank report is generated.

Built-in Filtering

Due to the hierarchical nature of STORET data, the STORET Report Module has built-in functionality to reduce the possibility of generating a null report when using the filter parameters. The available selections for a given parameter are based on the selections of previous parameters. For example, if one Organization is selected, only those Projects associated with that Organization are available for selection. If one of those Projects is selected, only the Stations associated with that Project are available for selection. With this utility a user can see a list of Stations associated with a Project before running a report. The built-in filtering reduces the list of available selections based on known data associations to assist in easier and quicker selection.

All versus Selected Indicator Field

Above each parameter button is a field which indicates whether “All” or “Selected” data is being retrieved for that parameter. The default for each parameter is to provide “All” the data. If you have made one or more selections for a given parameter, the indicator field will change to “Selected”. This indicator acts as a reminder for when selections have been made, or when re-

selection is necessary. Selecting all available choices will change the indicator to “All”. For system performance purposes, it is not recommended to select all the choices when all data regarding a parameter are desired.

Save Report Parameters

The Report Module allows the user to save parameters selections to a file. After making selections, press the <**Save Report Parameters**> button to save the selections for later use. When the Save Parameters button is clicked, a window will appear that will allow you to save the file to the location of your choice and designate a file name. The default file name is “Par.TXT”. These files may be freely renamed or overwritten and reused. There is no dependency between the parameter file name and system functionality. Note that longer file names may cause an error on some operating systems.

Load Report Parameters


The Report Module allows the user to populate report parameters with selections previously saved. This functionality will save time associated with making individual selections, and reduces the possibility of error. To load a saved parameter file, click the <**Load Report Parameters**> button. A window will appear that will allow you to navigate to the location of the file and select the file for loading. Parameters may also be changed after they are loaded. This flexibility allows users to reuse a base set of parameters, and change those initial selections to fit current needs. For example, after hand-selecting several dozen Stations, a handful of Characteristics, and choosing to get an export of result data for Activities during the month of August, the selections may be saved. Next month, you may want to get result data from those same Stations and Characteristics. The saved parameter selections can be loaded from the file, the Activity date range changed to September, and the result export run without having to re-select a long list of Stations and/or Characteristics.

The usefulness of the saved parameters file does not end with a single report. The files are not report specific and, therefore, can be reused for any other report. Reports that share the same parameters will have those parameter selections populated, while reports that do not share the same parameters will have those parameters ignored without any ill effects. For example, you select an Organization and some Stations to generate a Station Summary report. After examining the report, you determine that these are indeed the Stations that are needed and save the parameter file. Now, wanting to get a Result Detail report from those Stations, the Result Detail report can be selected and the same parameter file loaded. The Organization and Station selections will be automatically populated for the Result Detail report. You can then either run the report, or make additional parameter selections and modifications. The same process is true in reverse. If parameter selections were saved from Organizations, Stations, and Characteristics for generating a Result Detail report, that saved parameter file could be loaded to run the Station Summary report. The selected Organizations and Stations would be loaded; the Characteristic selections, inapplicable for the Station Summary report, would be ignored.

Preview

For Printed Reports, clicking the <**Preview**> button will open a new window and display the generated report. The Previewer allows a variety of functions such as:

- C Viewing each page of the report.
- C Sending the report to a printer other than the Windows default.
- C Printing selected pages.
- C Generating a Portable Document Format (PDF) file.
- C Generating a Hypertext Markup Language (HTML) or HTML Style Sheet file.
- C Generating a Rich Text Format (RTF) file.
- C Generating a Postscript file.
- C Generating a delimited Text (TXT) file.
- C Generating an Extensible Markup Language (XML) file.
- C Zooming in or out for easier viewing.

Documents and graphics stored in the database may be retrieved by pressing the  button on reports while in the Previewer. A dialog box will appear allowing the document or graphic to be saved to a file. The default file name is the same as title of the graphic stored in the database. Documents and Graphics may be present for Projects, Stations, Station Visits, Activities, Results, Citations, and Operating Periods.

It should be noted that the Previewer occasionally displays portions of a report imperfectly. The actual data should appear correctly, if generated physically (e.g., sent to printer, or a PDF). Some Oracle provided features such as Mail, Distribute, and the Oracle Help (i.e., ?), may not work properly in this application, or be active.

Print

For Printed Reports, clicking <**Print**> will generate the report and send it immediately to the default printer set in your Windows printer settings.

Export

For File Exports, clicking <**Export**> will generate the file and provide a window that will allow you to save the file to the location of your choice and designate a file name. The default file name is an abbreviated name of the report which can be renamed, and has a “.txt” extension. Note that longer file names may cause an error on some operating systems.

SELECTION LIST (RPT4)

The Selection List window is launched after selecting any of the parameters except for <Location> and <Date Range>. This screen provides the functionality to make selections from the list of all available choices for the given parameter (Exhibit 5). The bottom box lists all the available choices while the top box lists the items selected. When a report is run, only the selections in the top box will be considered as criteria for showing data in the report.

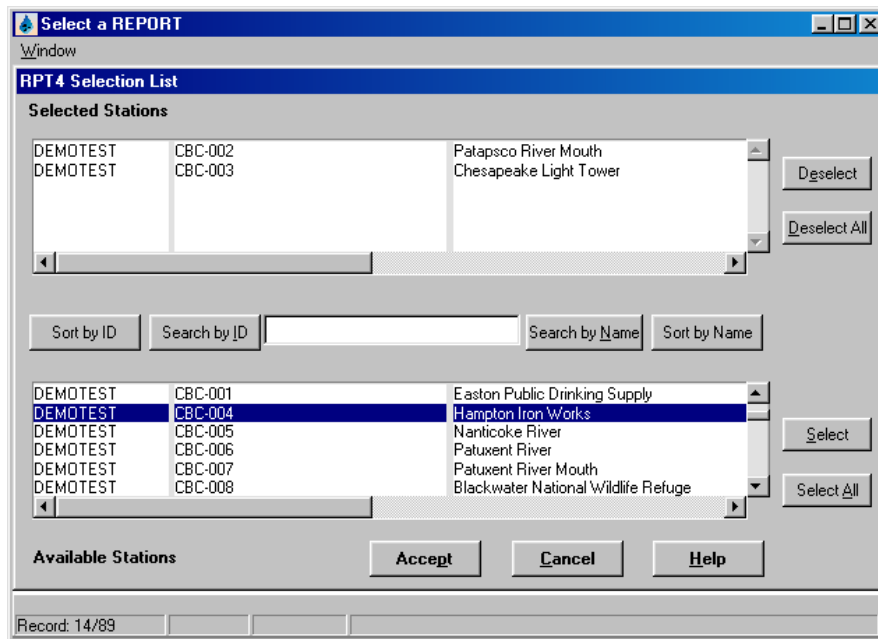


Exhibit 5. RPT4 Selection List

The columns displayed in both boxes are ordered from left to right as Organization ID, parameter ID, parameter name or date/time. The parameter ID and name depend upon the parameter (e.g., Station, Project) selected on the Report Parameter screen. The date/time parameter is displayed instead of parameter name for the Trip and Automated Data Logger parameters. Other unique display formats are as follows:

- C Characteristics - Characteristics are not immediately displayed in the “Available” list and must be searched. Enter at least the first few letters of the desired Characteristic name and press <Search by Name> to retrieve a Characteristic list. All Characteristics beginning with the letters entered will be displayed. Enter more letters of the Characteristic name to narrow the search. Characteristics are not associated with any IDs, therefore none are displayed.

- C Automated Data Logger Installation IDs - The ordered columns display the Organization ID in the first column, Installation ID in the second column, and the Installation Date and Start Time in the third column. The column displaying the Date and Time may be sorted on or searched against to help find and select the appropriate records.
- C Automated Data Logger Operating Periods - The ordered columns display the Organization ID in the first column, Log File Name in the second column, and a concatenation of the Operating Period Start Date, Start Time, Stop Date, and Stop Time, in the third column. The column displaying the Date and Time may be sorted on or searched against to help find and select the appropriate records.
- C Trips - The ordered columns display the Organization ID in the first column, Trip ID in the second column, and a concatenation of the Trip Start Date and Start Time in the third column. The column displaying the Date and Time may be sorted on or searched against to help find and select the appropriate records.

For system performance reasons, it is not recommended to select all available choices when all data regarding a parameter is desired. In general, actively selecting more than 300 selections for any one parameter may cause system performance problems. For example, if you want all results in a Result Detail report for a specific Characteristic, select the Characteristic, but leave the default “all” for other parameter selections. System performance would be compromised by actively selecting all Organizations, Projects, and Trips along with the Characteristic.

Depending upon the parameter, subsequent filter parameter selections may be reduced if all choices are actively selected. For example, a database may contain 500 total Stations but only 200 Stations have Projects assigned to them. The other 300 are therefore unuseable for Trips and subsequent Activities. Actively selecting all Projects will make available for selection the 200 Stations assigned to Projects, rather than all 500 Stations in the database.

Sort by ID

Click the <**Sort by ID**> button to sort the list of available selections by the parameter ID.

Sort by Name

Click the <**Sort by Name**> button to sort the list of available selections by the parameter name.

Search by ID, Search by Name

The search utility allows searching by ID or Name from the list of available selections. This utility is most useful when the list of available selections is very large (e.g., thousands of available selections). The specific ID or Name will depend upon which parameter has been chosen. For example, if you have chosen the Station parameter, then the Search function will operate against

the Station ID or Station Name. If you have chosen the Project parameter, then the Search function will operate against the Project ID or Project Name.

To use the Search function, type into the entry field the first few characters, numbers, or letters for the ID or Name then click **<Search by ID>** or **<Search by Name>**. The search is not case sensitive. When the search function is executed, the available selections will be automatically sorted by parameter ID or Name, depending on which search you chose. Searches can be further narrowed by increasing the amount of search criteria. For example, to find all the Stations for a single Organization beginning with the Station name “Potomac”, enter the letter “P” into the entry window, and click **<Search by Name>**. The cursor will highlight the first Station name in the available selections beginning with the letter “P” and list the Stations alphabetically by name. There may be numerous Stations that begin with “P”, such as in Patapsco or Patuxent, which will appear alphabetically before the “Potomac” Stations. To narrow the search and bring you closer to the Stations beginning with the name “Potomac”, you may type in additional search characters such as “Po” or “Pot” and click **<Search by Name>** again. Scrolling down the list would also eventually bring you to the “Potomac” Stations.

Select

To make a selection from the available choices for a parameter, highlight a row in the “Available” list and click **<Select>**. This will remove the selection from the “Available” list and place it in the “Selected” list. A double-click on a row will also move the selection. In order to make a group selection, highlight a row then press and hold the **<Shift>** or **<Ctrl>** key while clicking other rows. Holding the **<Ctrl>** key will select only the additional rows directly highlighted. Holding the **<Shift>** key will select all rows between the first highlighted row and the second highlighted row.

Select All

Clicking the **<Select All>** button moves all rows in the “Available” list to the “Selected” list.

Deselect

To remove a few selections from all the selected choices for a parameter, highlight a row or group of rows in the Selected list and click **<Deselect>**. This will remove the selection from the “Selected” list and put it in the “Available” list.

Deselect All

Clicking the **<Deselect All>** button moves all rows in the “Selected” list to the “Available” list.

Accept

After completing the selection process, clicking <Accept> will return to the Report Parameters window for report generation.

STATIONS BY LOCATION (RPT6)

The Station by Location feature allows you to retrieve data based on a geographical area defined by maximum and minimum latitude and longitude coordinates (Exhibit 6). The northern, southern, eastern, and western latitude and longitude boundaries define vertical and horizontal lines, respectively, that create the search area. Data will be retrieved for Stations whose Point of Record is in or on the boundary of the defined area. When a boundary is entered, let's say a northern boundary, an imaginary line is drawn around the world at that latitude. Any Station's Point of Record above this line will not be included in the report. Any Station's Point of Record on or below this line will be included in the report.

The screenshot shows a software dialog box titled "Select a REPORT" with a sub-header "RPT6 Stations by Location". Inside the dialog, there are four sets of input fields for defining geographical limits: "North Limit" (90 0 0), "West Limit" (180 0 0), "East Limit" (0 0 0), and "South Limit" (0 0 0). Each set includes a dropdown menu for direction (North, West, East, South). Between the West and East limit fields, there are up and down arrow buttons. At the bottom of the dialog are four buttons: "Default", "Accept", "Cancel", and "Help". A status bar at the bottom left indicates "Record: 1/1".

Exhibit 6. RPT6 Station by Location

There can be many location points other than the Point of Record that are associated with the Station (e.g., Sampling, Boundary, Transect Sampling). None of these other point types are considered when determining if a Station and its associated data will be included in a report. However, all data, even for those points falling outside of the defined area, will be included in the report if the Station's Point of Record has been included. The following graphic (Exhibit 7) is a pictorial example representing boundary limits and fictitious Station location points on the state of Texas.

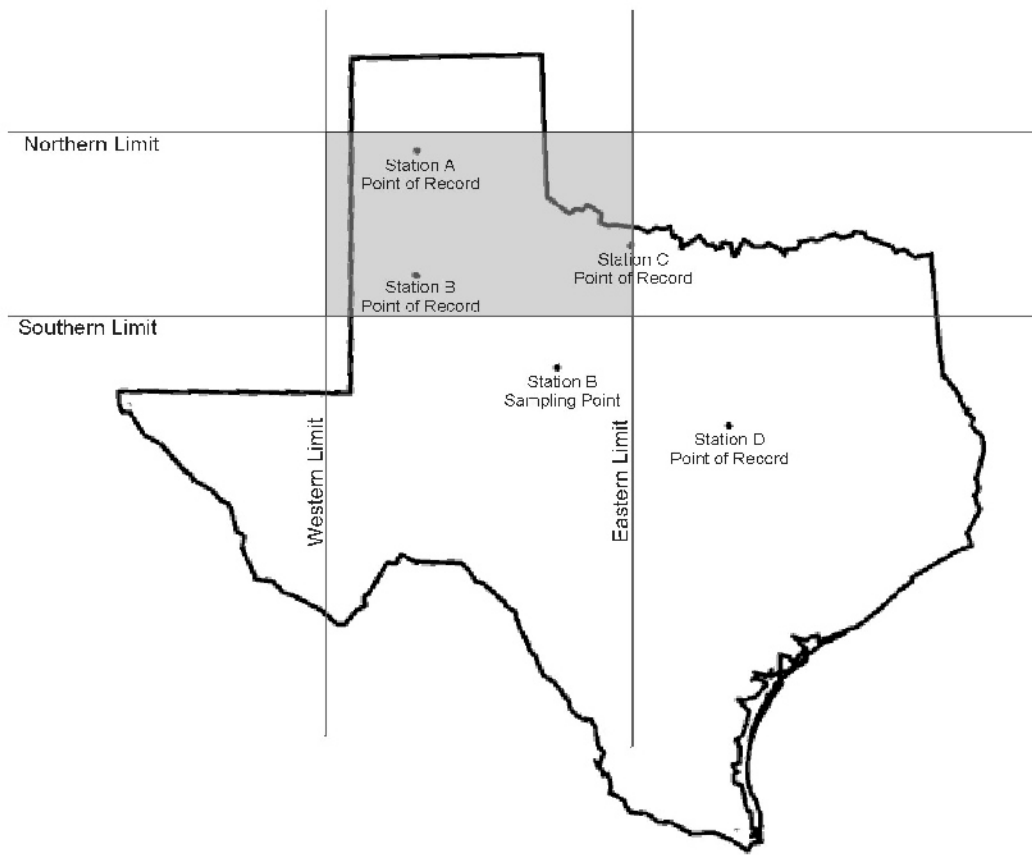


Exhibit 7. Station Location Points

In the example, the shaded area represents the geographical area defined by the four boundary limits. There are four data retrieval scenarios depicted as follows:

- The Point of Record for Station A is entirely within the defined geographic area. All sampling information associated with Station A will be included in the report.
- The Point of Record for Station B is entirely within the defined geographic area. All sampling information associated with Station B will be included in the report. This includes the Sampling Point for Station B because the Point of Record for Station B is within the defined geographic area.
- The Point of Record for Station C is on the boundary of the defined geographic area. All sampling information associated with Station C will be included in the report. If there were Sampling Points for Station C, they would also be included regardless of their location.

- C The Point of Record for Station D is outside the defined geographic area. All sampling information associated with Station D will not be included in the report. If there were Sampling Points for Station D, they would not be included regardless of their location.

Each boundary limit requires a Degree, Minute, and Second entry. Position the cursor into the field you want to change and enter the desired value. The up and down arrows in the center of the screen will increase or decrease the value of the field in which the cursor is placed. The default values represent the entire Northwest hemisphere. After entering new coordinate values, click the <**Accept**> button to return to the Report Parameters screen. Clicking <**Default**> will reset the coordinates to the Northwest hemisphere and return to the Report Parameters screen.

DATE SELECTION (RPT7)

The Date Selection parameter allows you to specify a single date, multiple dates, a date range, or multiple date ranges, in any combination (Exhibit 8). One method to add dates is to click the <**From Date**> and <**To Date**> buttons. This will invoke a calendar based selection screen. See section From Date/To Date (RPT5) for information about using the calendar. Optionally, you may directly enter dates into the From Date and To Date data entry fields. Pressing the associated From Date or To Date button after direct entry will take you to the calendar window and show the day, month, and year entered in a calendar based format. When a From Date and To Date have been specified using either method, click the <**Add**> button to move the dates into the top list box. The list box lists the selected dates that will be used as criteria for data selection. If direct entry has been performed, you should verify that the date format in the top box has been correctly interpreted into the MM/DD/YYYY,MM/DD/YYYY format. Although the system will properly interpret many different date entry formats, this verification step is still recommended. For example, entering the date “8/5/93” will yield the date “08/05/0093”. The year in this case is probably not what you had in mind, and should be modified. Dates added to the list box can be manually edited, though doing so will circumvent the data entry checks, and is therefore not recommended.

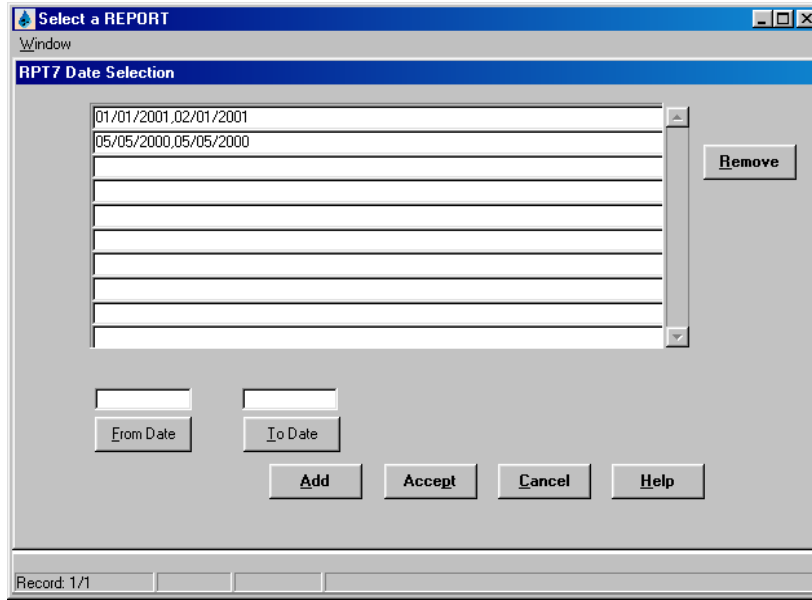


Exhibit 8. RPT7 Date Selection

To enter a single date, enter the same date in the From Date and To Date fields, and click <Add>. To enter a date range, enter the beginning date in the From Date and the ending date into the To Date field, and click <Add>. Any number of combinations of dates and date ranges may be entered. When all entries have been made, click <Accept> to load all the dates as report selection criteria and return to the Report Parameters screen.

If only a From Date is entered when you click <Add>, the default To Date will be today's date. If only a To Date is entered when you click <Add>, the default From Date will be January 1, 1950. Removing selected dates may be done by putting the cursor in the row of the top box with the undesired date and clicking <Remove>.

FROM DATE/TO DATE (RPT5)

The calendar-based date selection feature facilitates choosing dates for the date parameters (Exhibit 9). Select a date by highlighting the desired day and clicking <OK>. To move chronologically forward or backward one month at a time, click the > or < buttons, respectively. You may also move chronologically forward or backward one year at a time by clicking the >> or << buttons, respectively. The From Date and To Date calendar defaults to today's date.

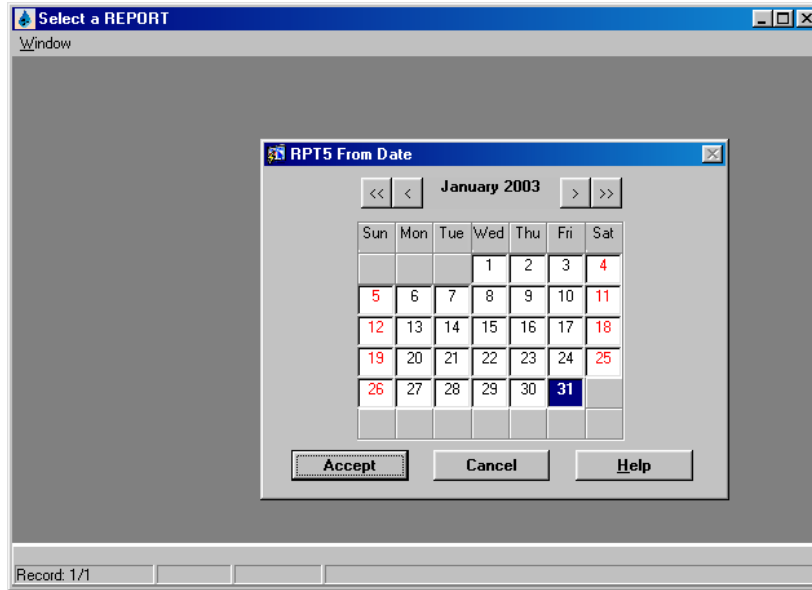


Exhibit 9. RPT5 From Date/To Date

CHARACTERISTIC RANGE VALUES (RPT8)

The Characteristic Range parameter provides the ability to define range/tolerance values for Characteristics. These Range Values are interrogated against Result Values to retrieve data within the defined range or outside the defined range; as in the case to identify outliers. This feature may also be applied by defining a single boundary limit to retrieve all data either above or below the limit. Ranges may be established for multiple Characteristics. Range Values must be numeric. Range Values for Characteristics that resolve to a textual result (e.g., General Observation (text), LifeStage (choice list), *Non-Detect) will not be used for evaluation (Note: This is true even for Single Taxon Frequency Class - Biological counts which apply “choice list” Characteristics for Class Descriptors.).

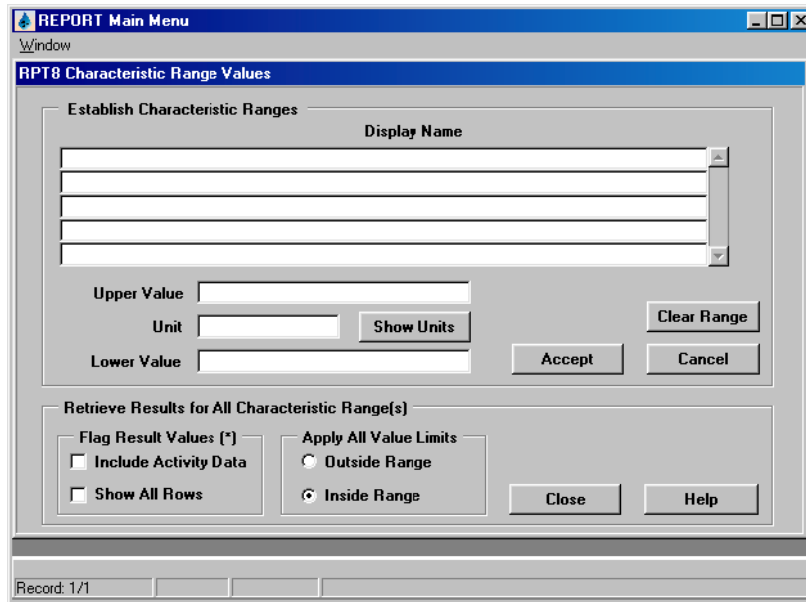


Exhibit 10. RPT8 Characteristic Range Values

To enter or change a range/limit for a Characteristic, highlight a Characteristic and provide an Upper and/or Lower Value with an associated Unit, and press **<Accept>**. To delete a range/limit for a Characteristic, highlight a Characteristic and press **<Clear Range>**. Pressing **<Cancel>** will drop any “un-Accepted” range modifications or entries. The Characteristic list is derived from Characteristic parameter selections. Units are derived from the reference table Unit of Measure (UOM) table. The available/valid units, whether directly entered or selected from the **<Show Units>** list of values, are restricted to units whose type match the Characteristic UOM Type. The system will perform unit conversion against any convertible result value to either filter or flag the data output. For example, a Fish Fork Length range is established as being between an Upper Value of 3 centimeters (cm) and a Lower value of 2 cm. Fish Fork Length Result Values recorded in millimeters (mm) less than 30 millimeters and greater than 20 mm will be converted and will “satisfy” the range criteria.

By default, Range Values are interrogated against Result Values that are less than the Upper Range and greater than the Lower Range (i.e., **<Inside Range>**). Result Values not satisfying the range criteria are eliminated from the report. You may opt to reverse the operation and interrogate Result Values that are greater than the Upper Range or less than the Lower Range (i.e., **<Outside Range>**). In either case, there is no “equal to” component of the operators against Result Values; Result Values must be greater than or less than a Range Value.

Checking the **<Show All Rows>** checkbox alleviates the filtering of data based on Range Values. Data retrieval will be performed as if Range Values were not specified; however, Result Values

satisfying the range criteria are flagged by a preceding asterisk. This should not be confused with textual Result Values that begin with an asterisk (e.g., *Non-Detect).

If further measurement/observation data is needed regarding an Activity where a range criteria is “satisfied”, you may check the <**Include Activity Data**> checkbox to include on your report the additional measurement/observation data recorded during that Activity. Result Values satisfying the range criteria are flagged by a preceding asterisk.

Range Value interrogation will be handled differently for Single Taxon Frequency Class – Physical Results. Lower Range values will be evaluated against `TSRRCI.lower_bnd_amt` values, and Upper Range values will be evaluated against `TSRRCI.upper_bnd_amt` values. This is in contrast to other interrogations which use `TSRRSULT.value_text`.

ABOUT THE STORET REPORT MODULE

The STORET Report Module was built using Oracle Developer 6i Forms Builder version 6.0.8.8.0 and Reports Builder version 6.0.8.8.3. The Oracle Forms Runtime version 6.0.8.8.0 and Reports Runtime version 6.0.8.8.3 are necessary for running the STORET Report Module and are included as part of the STORET Report Module v2.0 installation. The Help system was developed using the Oracle Help utilities provided with the Oracle Forms Builder and utilizes the default Oracle table construct for storing the Help text and indices.