State of Nevada
Nevada Division of Environmental Protection
Remediation of the BMI Complex
901 So. Stewart Street, Suite 4001, Carson City NV 89701-5249

protecting the future for generations

http://ndep.gisdt.org/

GiSdT INTERFACE USER MANUAL

THE HOME PAGE

REMEDIATION OF THE BMI
COMPLEX

▸ Overview
▸ History
▸ What's New
▸ How to use this site

*The home page contains general information about the BMI Complex, Common Areas, and Vicinity Database (BMIdbase) website. The table of contents at the upper left of the home page has links to individual topics of interest. The **Overview** link brings you to the main menu page. **History** displays a brief summary of the BMI Complex Site's history. **What's New** reports the chronology of additions or changes to the site, as well as the last modified date. **How to use this site** links to online documentation and other help resources.*
*You can return to the home page at any time by clicking **Home** in the main menu toolbar.*

OVERHEAD MENUS

Home   ▼   Data   ▼   Data Analysis   ▼   User Feedback
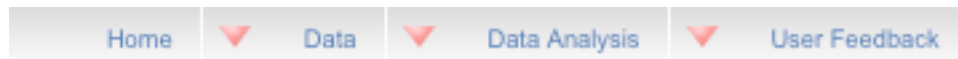
The overhead menus are the site's main navigation system. These menus are available everywhere on the site, and allow you to navigate between pages with a single click. Menus with an inverted red triangle are drop-down menus; to see the available options, mouse over the item with the triangle and the menu options will appear below.

The   Home   menu item takes you to back to the home page (http://ndep.gisdt.org/).

The   ▼ Data   menu allows you to perform several different kinds of data queries. The data query interface is explained in detail in the Data Queries section below.

The   ▼ Data Analysis   menu allows you to perform several different kinds of data analyses. Details of the analysis interfaces can be found in the Data Analysis section below.

The menu allows you to access an issue-tracking database where you can report issues with or request enhancements to the site's functionality. Details can be found in the Troubleshooting & Error Messages section below.

DATA QUERIES

Data Sets

The BMIdbase provides access to three distinct data sets: chemical concentration data, background chemical concentration data, and groundwater level data. Each data set has its own query interface page, but the functionality provided by the interface is the same for each data set, with small exceptions noted in the sections describing each specific page.

The GiSdT Data Query Interface

The GiSdT data query interface allows you to query the BMIdbase by applying a series of successive filters. The introductory text describes the hierarchy of filters that can be used to customize your data query. The filter options are dynamic, meaning that as you make your selections, subsequent menus refresh to provide only available sub-selection choices.

The "organize your query by" drop-down gives you a list of potential query approaches. Once you select an approach, you see a list of fields on which you can filter. Selections made higher up in the hierarchy will affect listings lower down.

Query results will be saved to a file with the name you have chosen which will be stored in your workspace (see the section "Your Workspace" below). Results can be downloaded to your computer by clicking on the results file link in the original results display, or by clicking on the link to the file in the "Downloadable Data" folder.

## Step by Step Query Instructions

1. Navigate to one of the data query pages via the page via the   menu.

2. Enter a name for your query in the text box (no extension necessary, e.g., "query1"):

The query will over-write any existing data query with the same name. The "Clean Up Workspace" button under the Workspace panel on the right allows the user to clean out individually-selected old queries.

3. Select a series of filters to apply to your query by clicking on an item in the list:
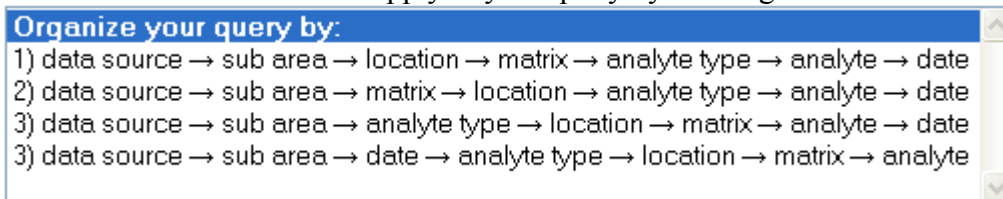
A progress bar will display as the interface dynamically queries the database to populate the filter lists.

4. Select data filters to reduce query results to the desired data types (e.g., location, media, analyte name, data source, result detect status, etc.). The filter options are dynamic, meaning that as you make your selections, subsequent menus refresh to provide only available sub-selection choices. This means that choices must be highlighted from left to right, since selecting a value will reset all subsequent filter lists. To select multiple values within a given list, hold the SHIFT or CTRL keys.
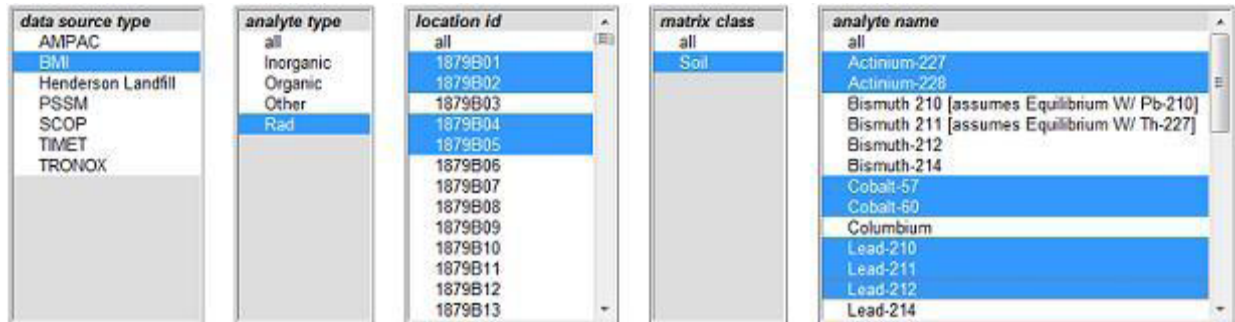
5. Press the   **Submit Query**   button.

6. Query results will appear below the introductory text with a summary of the query parameters used and a link to the query results:

To select multiple values within a given field, hold the SHIFT or CTRL keys.

Query Result
Results for Query "query1"
Your results are in the file query1.csv
This is a comma separated value (csv) file.
Your query returned 2222 rows
Your search criteria were WHERE analyte_name IN ('Arsenic') AND analyte_type IN ('Inorganic') AND data_source_type IN ('BRC') AND matrix IN ('SOIL')

Query Name

7. Click the results file link to save file to your computer or to open with Microsoft Excel. The file format is comma-separated values text (.csv).

Query results are stored in the ⊞ 🗀 Data Queries folder in your workspace so that you can navigate back to them at any time

Concentrations Data Query

Concentration Data Query

The "Concentration Data Query" page provides access to the main query interface for chemical concentration data. Further guidelines can be found in the "The GiSdT Data Query Interface," while detailed instructions to create a query can be found in the "Step by Step Query Instructions" section of this document.

Groundwater Level Data Query

Groundwater Level Data Query

The "Groundwater Level Data Query" page provides the same functionality as the "Concentration Data Query" page, but queries the groundwater level data instead of the chemical concentration data.

Background Data Query

Background Data Query .

The "Background Query" page provides the same functionality as the "Concentration Data Query" page, but queries the background data instead of the chemical concentration data. Only one query scenario is provided for the background data, so there is no "Organize Your Query By:" select list.

DATA ANALYSIS

The Data Analysis menu provides access to two interactive maps, one for exploring chemical concentration data and the other for exploring groundwater level data, and a boxplot interface.

The Interactive Map

The Interactive Map interface allows you to analyze the data using an interactive map of the BMI complex site. Once you have specified the data to be analyzed using the query interface described in the "Data Queries" section, you can plot sample sites, create contours, or create a bubble plot of the data.

The site provides two interactive maps, one for chemical concentrations data and one for groundwater level data. Both maps allow you to plot sample locations and click on the locations to get additional data, and to create contour plots. In addition, the chemical concentrations map allows you to create bubble plots and generates summary statistics.

Specifying the Data to be Analyzed

The query interface provides hierarchy of filters that can be used to specify the data to be analyzed. The filter options are dynamic, meaning that as you make your selections, subsequent menus refresh to provide only available sub-selection choices. To select multiple values within a given field, hold the SHIFT or CTRL keys. For more details, see "The GiSdT Data Query Interface." Once you have specified the data to be analyzed, you can use the buttons to the right of the map to specify the analysis to perform.

Plotting Sampling Sites

Whenever you run an analysis, the tool will generate an additional feature layer that plots on the map all the sampling sites for the data specified by the query filters. This layer is hidden by default. To display it, check "Sites" under the "Analysis Layers" tree which appears in the map sidebar when you run an analysis.

When you mouse over a point representing a sampling site, the point is highlighted and a popup appears next to the point with additional information about the site, in the form of a colon-separated string containing the data source and location identifier. Because some location ids appear in more than one data source, more than one description may apply. For example, in the following image from the groundwater level interactive map, the query specified all wells in all data sources, and well MW-U appears in both the PSSM and AMPAC data.
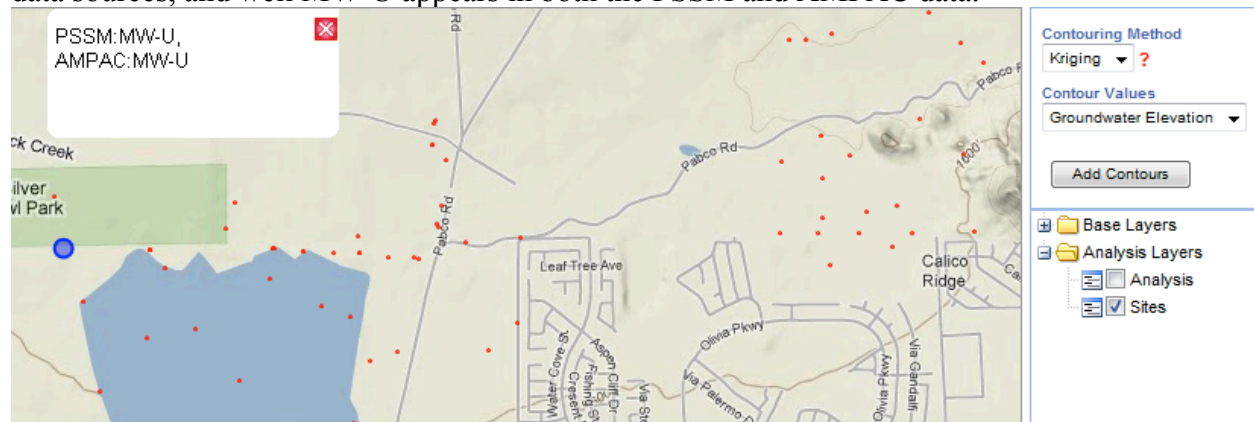
The popup stays visible and the point remains highlighted until another point is moused over or the popup is closed using the x in the upper right hand corner.

Retrieving Additional Data for a Location

To see a table with the data from the query that corresponds to an individual site, click on the point representing the site. A progress bar will appear above the map, followed by a message indicating that the query has been completed. You can then scroll down to view a table with the data for that site as filtered by the query parameters specified above the map.
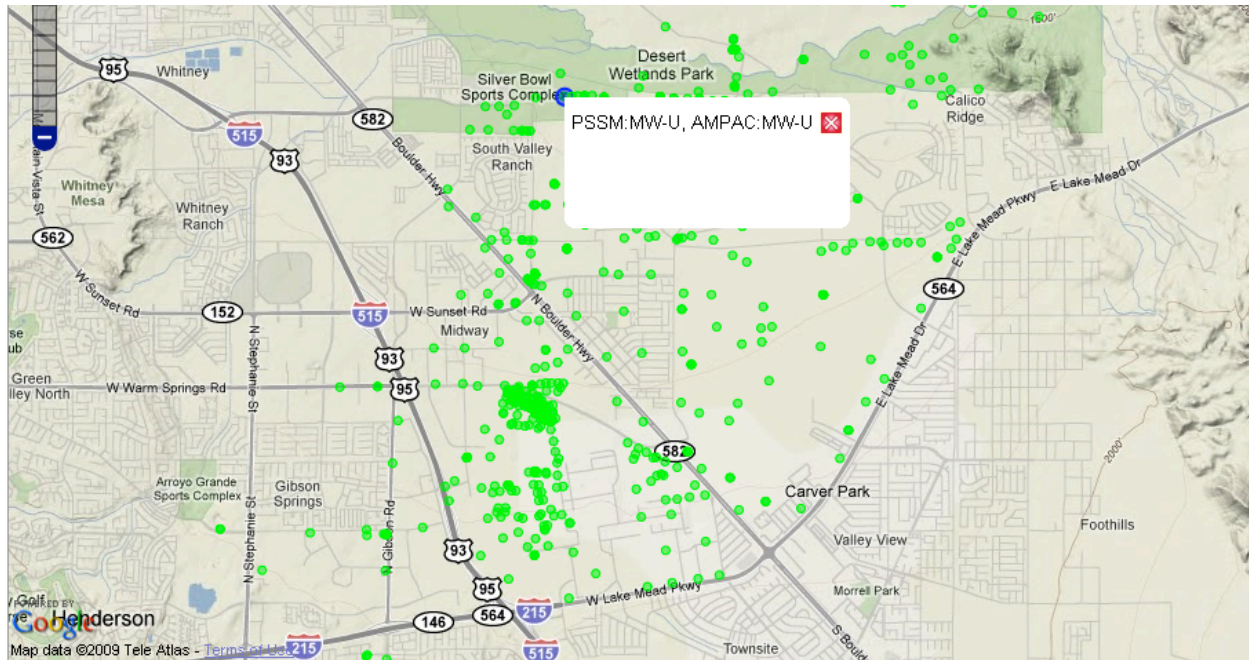
data_source	location_id	well_owner	water_bearing_zone	lithology	northing	easting	measurement_date	dtw	toc	gw_elevation
PSSM	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2007-01-11	16.92	1590.96	1574.04
PSSM	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2007-01-17	15	1590.96	1575.96
PSSM	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2007-04-18	14.18	1590.96	1576.78
PSSM	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2007-04-17	14.37	1590.96	1576.59
PSSM	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2006-11-14	15.00	1590.96	1575.96
AMPAC	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2005-01-06	13.80	1591.5	
AMPAC	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2004-11-20	17.20	1591.5	
AMPAC	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2005-01-02	14.60	1591.5	
AMPAC	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2005-03-30	14.20	1591.5	
AMPAC	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2004-12-03	16.60	1591.5	
AMPAC	MW-U	AMPAC	Shallow	Qal/xMCf/UMCf	26733219	826312.0	2004-04-13	16.40	1591.5	1575.10

Creating Contours

Use the Add Contours button to perform a contour analysis of the data specified by the query parameters. The Kriging drop-down menu allows you to specify the contouring method: currently only kriging is supported. On the concentrations interactive map, the contour lines represent chemical concentrations. On the groundwater level map, the default is for the contour lines to represent groundwater elevation. However, you can use the Groundwater Elevation drop-down menu to specify depth to water instead.

When you mouse over a contour line, the line is highlighted and a popup window appears at the top of the map. Since contour lines are often not continuous, the highlighting makes it easier to see the entire line. The popup contains the value that the contour line represents. If both the

analysis and sites layers are being displayed, the sites layer is "on top" and mouseover will only work for sites; therefore, make sure that sites are not displayed if you want to mouse over the contours.
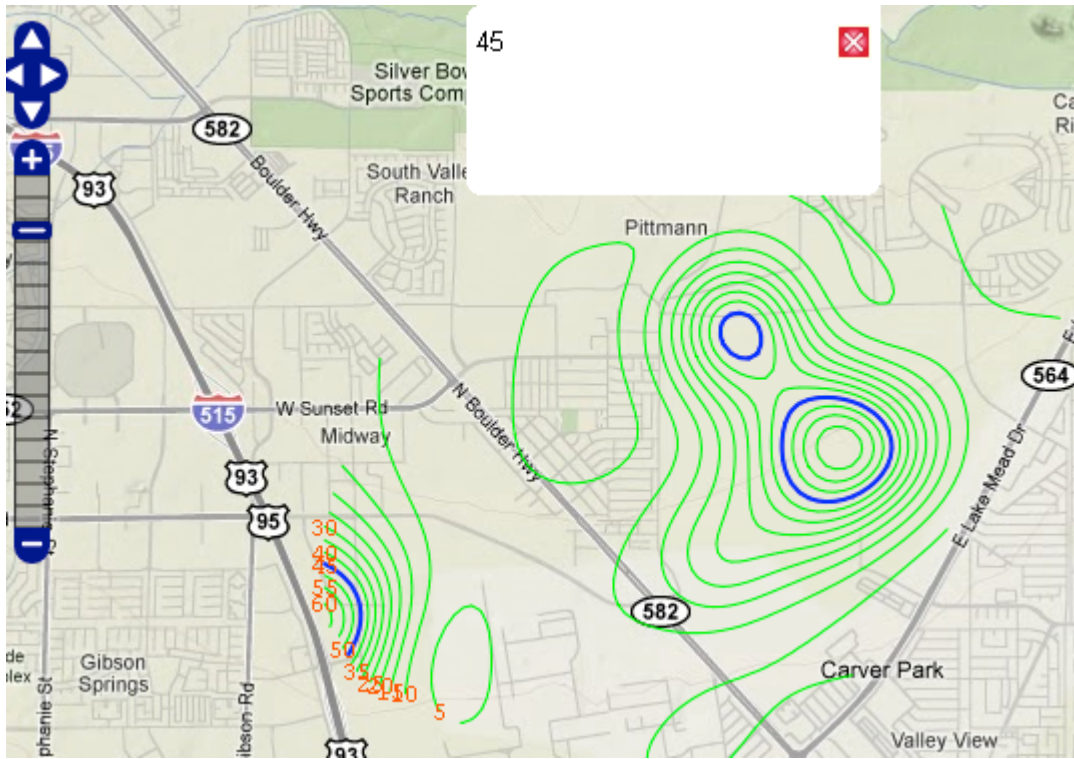
The popup stays visible and the contour line remains highlighted until another line is moused over or the popup is closed using the x in the upper right hand corner.

Creating a Bubble Plot (Concentrations Map Only)

Use the [Add Bubbles] button to create a bubble plot. Use the radio buttons above the button to choose the aggregation method:

Aggregate multiple depth
values at a site using the
⊙ mean
○ maximum

Depending on which interactive map you are using, the bubbles represent chemical concentration or groundwater levels.

When you mouse over a bubble, the site point is highlighted and a popup window appears at the top of the map. The popup contains the concentration that the bubble represents, the number of samples taken at the site represented by the bubble, and a colon-separated string containing the data source and location identifier. If both the analysis and sites layers are being displayed, the sites layer is "on top" and mouseover will only work for sites; therefore, make sure that sites are not displayed if you want to mouse over the bubbles.
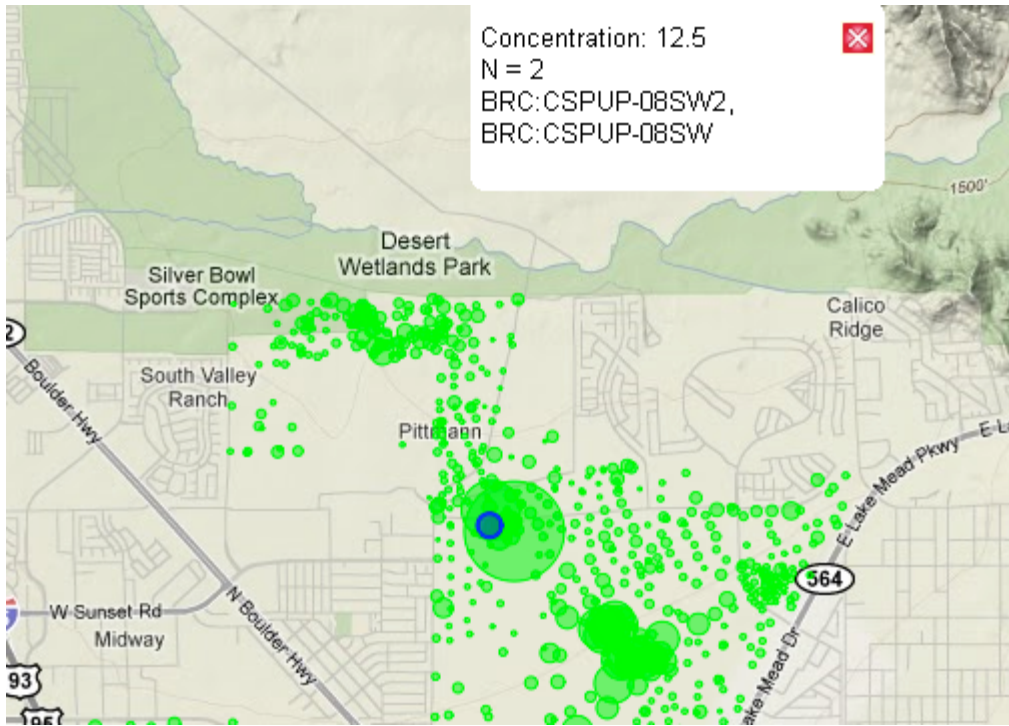
The popup stays visible and the bubble remains highlighted until another bubble is moused over or the popup is closed using the x in the upper right hand corner.

Summary Statistics and Boxplot (Concentrations Map Only)

When you run any of the three analysis tools on the Concentrations Interactive Map page, summary statistics and a boxplot are automatically generated for the data that you specified using the data filters. The summary statistics appear in a table above the map. The table also includes a link to a boxplot which will appear in a separate browser window when the link is clicked.

Map Navigation

As mentioned above, the map will automatically zoom to the extent necessary for viewing all the data whenever an analysis is performed. To further explore your results, you may wish to use the map's navigation features to pan or zoom in or out.

Panning and Zooming

To pan, you can click on the map and hold down the mouse button to "drag" the map in any direction. You can also use the pan control, shown at left. To zoom, you can hold down the SHIFT key while clicking on the map and drag to form a rectangle around a set of features that you would like to investigate more closely. When you release the mouse button, the map will zoom in on the area described by the rectangle. You can also zoom using the slider control, shown at right.

Switching Base Layers

The map is equipped with several available base layers. You can switch the base layer using the Base Layers control to the right of the map. The Google Physical map is the default because it provides information about both streets and geographical features, and its design makes it easy to see plotted features. However, the Google Physical map has less zoom capability that several of Google's other maps. If you want to zoom in beyond the capabilities of the Google Physical map, switch the base layer to use the Google Hybrid map (which combines satellite imagery with street information) or the Google Streets map. Once you have switched base layers, you will see that extra levels of zoom are available on the zoom slider control.
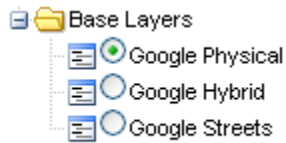
The Boxplot Interface

The Concentration Boxplot menu item takes you to an interface that lets you create boxplots from data queries that you have performed using the Data Query pages.
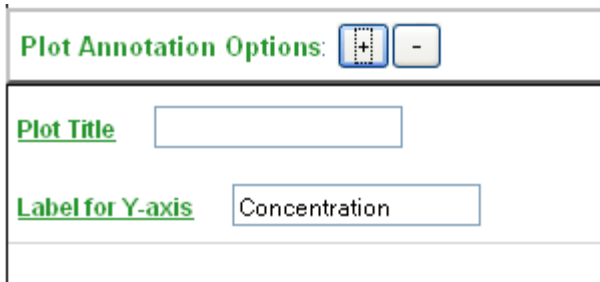
The "Dataset" select box lists the names of all the queries that you have performed. Once you select a dataset, the "Grouping1" select box will appear with a list of field names which you can use to group your data (choose "none" to draw a boxplot of the entire dataset). The boxplots will be drawn side-by-side for the levels of the "Grouping 1" variable. If you select a "Grouping 1" variable, you may also select a "Grouping 2" variable. Separate plots will be created for each level of the Grouping 2" variable.

Note: it is advisable to use a data query for which the grouping variables do not have

too many levels, or the resulting plots may be drawn too small to be visible.

A "Plot Name" must be supplied for storing the results. Results are stored in the ⊞ 📁 EDA folder in your workspace so that you can navigate back to them at any time. If the plot name is the same as an already existing plot, the old plot will be over-written. Old results can also be removed by using the "Cleanup Workspace" button.

Customized plot annotation options may be supplied. A main title to be placed at the top of the boxplot may be supplied (defaults to no title), and a label for the y-axis may be supplied (defaults to "Concentration").

YOUR WORKSPACE

- *The Workspace is a user-specific repository for query and analysis results. This repository is physically located on a remote server.*

- *The EDA folder contains the results of any saved data analyses. Click on a result name view the analyses.*

- *The DataQueries folder contains summaries of user-performed queries, including filters applied. The summary page contains a link to query results, which may be saved or opened as comma separated value file.*

- *The "Clean Up Workspace" button allows you to delete old queries and EDA results that you no longer need. Clicking on the button takes you to a "Workspace Management" page where you can select individual files to delete.*

TROUBLESHOOTING & ERROR MESSAGES

My query or analysis generates an error message that I don't understand:

To report bugs or problems with the database, please use the ▼ User Feedback menu and select Report Issue/Request Enhancement . This menu item will take you to the BMIdbase Feedback Database, which is powered by the open-source Bugzilla issue-tracking system. Here you can provide a detailed description of the issue you encountered or the enhanced functionality you would like to see. Your report will be acknowledged, and your issues will be addressed as soon as possible.