EarthSoft

EQuIS Professional- Reporting and Graphing

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Reporting

The Analytical Results Report

The **Analytical Results** report is the core function for reporting analytical data in EQuIS Professional. It can be generated on its own, or within many of the other reports.

In this exercise, choices for parameter selections are explored in the Analytical Results report and tools available in the standard reports will be reviewed.

This exercise uses data from the **Kin Buc Inc SLF** Facility.

1. Launch EQuIS Professional and login to the **Kin Buc Inc SLF** Facility.
2. From the **Report** group of the **Home** EQuIS Ribbon, select **Reports**.

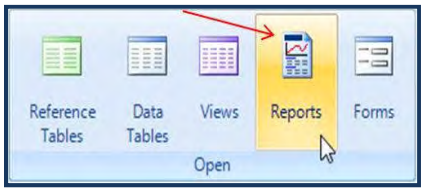


Figure 1: Reports in the Open Group

The Report Window opens. Notice the function icon next to the **Analytical Results** report. This implies that the report is stored as a function within the database.

3. Double-click on the **Analytical Results** report to open it.

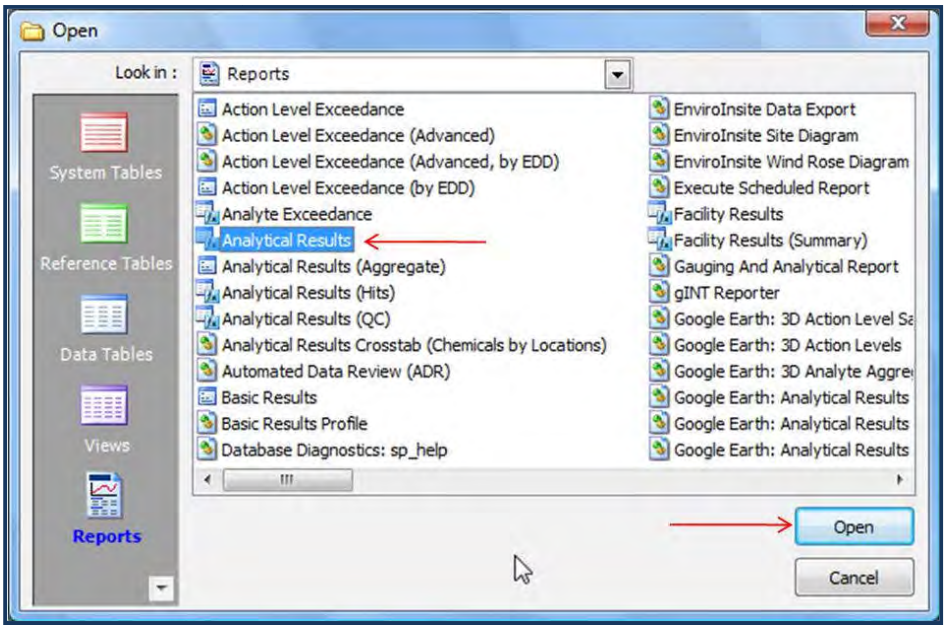


Figure 2: Open Analytical Results Report

4. After reviewing the options available in **Table 1** for possible parameter selections, click on the ellipse ... to the right of the parameters to select the following:

Parameter	Selection
Sample Type	N
Sample Matrix	WG
Detect Flag (s)	Y

To save, open, and run reports:

1. To *save report parameters locally*, click **Save** above **Pick Reports**:

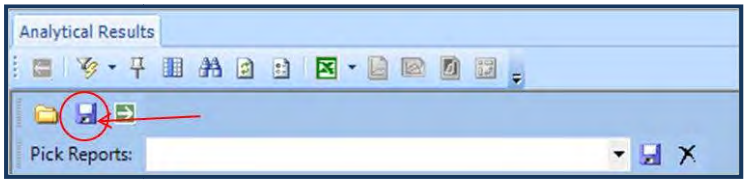


Figure 3: Save Report Parameters Locally

2. To *open the locally saved parameters*, click the **Folder** above **Pick Reports**.

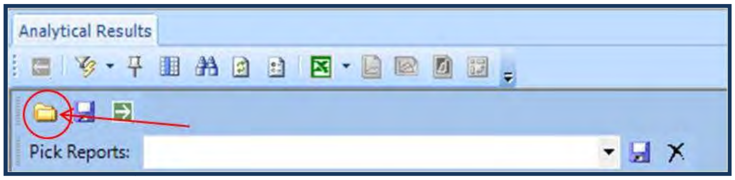


Figure 4: Open Locally Saved Report Parameters

3. To *save report parameters to the database*, give the pick report a descriptive name in the text box (such as “All_detects_1s_WG) and click **Save** .

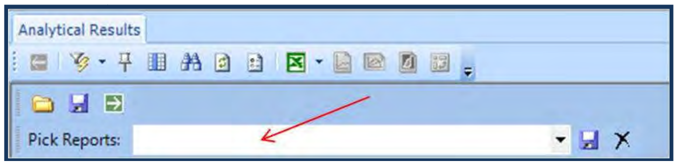


Figure 5: Save report Parameters to the Database

4. To *run the report*, click **Go** above Pick **Reports**. The results are returned in grid format.

FACILITY_ID	FACILITY_CODE	SYS_LOC_CODE	LOC_NAME	LOC_GROUP	LOC_REPORT_ORDER	SYS_SAMPLE_CODE	SAMPLE_NAME	SAMPLE_DATE	SAMPLE_TYPE_CODE
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G120911	GEI-10G	12/9/2011 9:25...	N
1482	110001535134	GEI-10G				GEI10G102110	GEI-10G	10/21/2010 11:...	N
1482	110001535134	GEI-10G				GEI10G102110	GEI-10G	10/21/2010 11:...	N

Figure 6: Analytical Results Report

Table 1: Description of Analytical Results report parameter options:

Parameter	Purpose
(Location) Individual(s)	Select one or more SYS_LOC_CODES to be included in the report. Comes from DT_LOCATION.SYS_LOC_CODE.
(Location) Group(s)	Select one or more location groups to be included in the report. Comes from RT_GROUP.GROUP_CODE when RT_GROUP.GROUP_TYPE= SYS_LOC_CODE.
(Sample) Type(s)	Select one or more SAMPLE_TYPE_CODES to be included in the report. Comes from RT_SAMPLE_TYPE.SAMPLE_TYPE_CODE.
(Sample Date Range) Start	Select the earliest sample_date to be used by the report. The default is the earliest date found in DT_SAMPLE.SAMPLE_DATE.
(Sample Date Range) End	Select the latest SAMPLE_DATE to be used by the report. The default is the most recent date found in DT_SAMPLE.SAMPLE_DATE.
(Sample) Matrix(es)	Select one or more matrix codes to be included in the report. Comes from RT_MATRIX.MATRIX_CODE.
(Sample) Task(s)	Select one or more sample tasks to be included in the report. Comes from DT_SAMPLE.TASK_CODE.
(Sample) Delivery Group(s)	Select one or more SDGs to be included in the report. Comes from DT_SDG.SDG_NAME.
(Sample Depth) Minimum Start Depth	Select the lowest depth that the sampling took place to be used by the report.
(Sample Depth) Maximum End Depth	Select the highest depth that the sampling took place to be used by the report.
(Sample Depth) Unit	Select the units that the depths should be reported at. Note that for conversions to work properly, RT_UNIT_CONVERSION_FACTOR must be filled out ahead of time for any units involved. Otherwise, comes from DT_SAMPLE.DEPTH_UNIT.
(Test) Method(s)	Select one or more analytic test methods to be included in the report. Comes from RT_ANALYTIC_METHOD.ANALYTIC_METHOD.
(Test) Fraction(s)	Select one or more fractions to be included in the report. Comes from

	RT_FRACTION.FRACTION
(Test) Column Number(s)	Select one or more column numbers to be included in the report. Comes from DT_TEST.COLUMN_NUMBER.
(Test) Type(s)	Select one or more test types to be included in the report. Comes from RT_TEST_TYPE.TEST_TYPE.
(Test) Lab Matrix(es)	Select one or more lab matrices to be included in the report. Comes from DT_TEST.LAB_MATRIX_CODE.
(Test) Prep Method(s)	Select one or more prep methods to be included in the report. Comes from DT_TEST.PREP_METHOD.
(Result) Analyte Individual(s)	Select one or more analytes to be included in the report. Comes from RT_ANALYTE.CAS_RN.
(Result) Analyte Group(s)	Select one or more analyte groups to be included in the report. Comes from RT_MTH_ANL_GROUP.METHOD_ANALYTE_GROUP_CODE.
(Result) Unit	Select the units in which the results should be reports. Note that for conversions to work properly, RT_UNIT_CONVERSION_FACTOR must be filled out ahead of time, and the units are limited to those where RT_UNIT.UNIT_TYPE= cpv or cpw. Otherwise, comes from DT_RESULT.RESULT_UNIT.
(Result) Type(s)	Select one or more result types to be included in the report. Comes from RT_RESULT_TYPE.RESULT_TYPE.
(Result) Detect Flag(s)	Select to include either Non-Detects (y) or Detects (n) in the report. Otherwise, leave blank to include both.
(Result) Non-Detect Multiplier	Change to multiply Non-Detects by values other than 1.0 (which will return the detect limit). This is useful when creating contours, to ensure Non-Detects are placed at the “0” contour.
(Result) Non-Detect Symbol	Change to display Non-Detects will a symbol or text other than “<” in the report, such as “ND”, which requires a change to “ND ?.”
(Result) Reportable	Select to include reportable or non-reportable results. Comes from DT_RESULT.REPORTABLE_RESULT.
(Result) Reporting Limit	Select to choose which detection limit is used when displaying Non-Detects. Otherwise, leave as REPORTING_DETECTION_LIMIT.

Create XY Charts

In this exercise, create an XY Chart to display how analyte concentrations or water levels change over time. These charts are referred to as Trend Plots.

To create an XY chart:

1. From the previously run **Analytical Results** report, click **Filter** in the **Analytical Results** Toolbar to filter the report values.

> Once the filter has been selected, it is possible to filter selections on a column-by-column basis by clicking the drop-down arrow buttons in the first row that appears under the column headers, and then selecting values from the drop-down menu. Filtering is only valid for the current reports' session. If EQuIS is restarted or the current workspace is closed, it is necessary to recreate the filter.

2. Click the drow-down arrow in both the **SYS_LOC_CODE** and **CHEMICAL_NAME** columns and filter the report for W-2R and 1,1-DICHLOROETHANE, respectively.

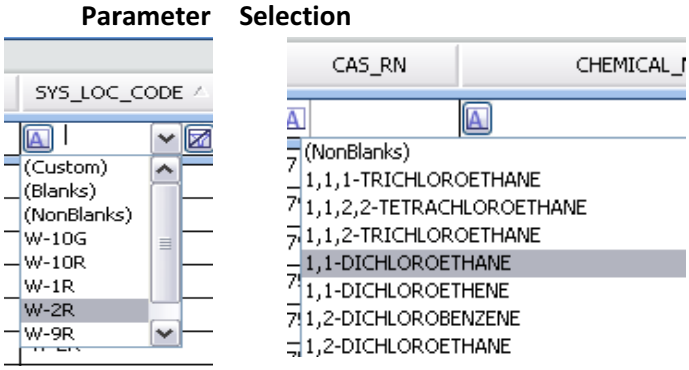


Figure 7: Parameters for XY Chart

3. Click **XY Chart** in the **Analytical Results** Toolbar to create the report. This displays a blank graph and its **Data** pane.

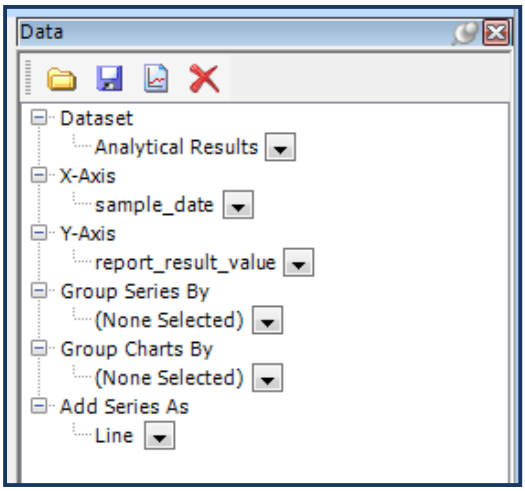


Figure 8: Data Pane for XY Chart

4. From the **Data** pane, ensure the following default values are selected:

Parameters	Selection
Dataset	Analytical Results
X-Axis	SAMPLE_DATE
Y-Axis	REPORT_RESULT_VALUE

5. Click **Add Series** in the **Data** pane  .

   The Trend Plot is displayed:

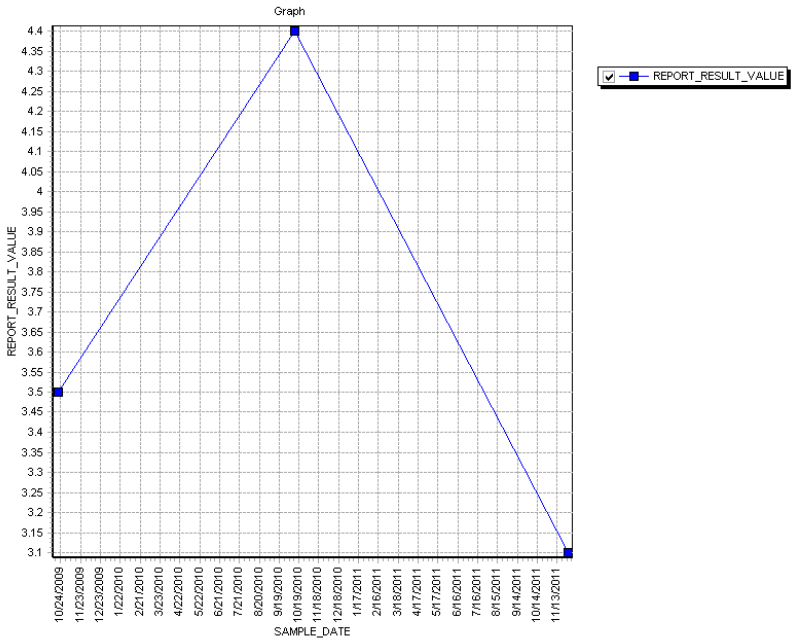


Figure 9: XY Chart (Trend Plot) for Location W-2R

To save and retrieve an XY chart:

1. Click **Save selections to file** in the **Data** pane to save the parameters.

   This opens an Explorer window where the parameters are saved as an .xml file.

2. To run the report, click **Load selections from file** and browse to the file location.

Create XY Charts with Multiple Axes

In this exercise, create an XY Chart with multiple parameters.

To create an XY chart with multiple axes:

1. Click **Reports** in the **Open** group of the Home EQuIS Toolbar.
2. Select the **Analytical Results** report and then click **Open**.
3. Click and select the following:

Parameter	Selection
Sample Type	N
Sample Matrix(es):	WG
Fraction	D
Analyte Group (s):	METALS
Result Unit:	ug/l

Report parameters can be saved locally or to the database. To save locally, click **Save** above the **Pick Reports** field. To save to the database, click **Save** to the right of the **Pick Reports** field.

4. Click **Go**.
5. Click **Filter** on the **Analytical Results** Toolbar to filter the report values.
6. Filter the report by the following value: SYS_LOC_CODE = **W-2R**.

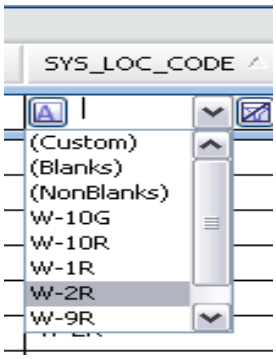


Figure 10: Filter SYS_LOC_CODE for Location W-2R

7. Click **XY Charts** on the **Analytical Results** Toolbar.

8. In the **Data** pane, select the following:

Dataset:	Analytical Results
X-Axis:	SAMPLE_DATE
Y-Axis	REPORT_RESULT_VALUE
Group Series by:	CHEMICAL_NAME

The **Group Series by** option allows the defining of field(s) that will be on a graph. In this case, this separates the chemicals by name.

9. Click **Add Series** in the **Data** pane to display the trend plot.

10. Click **Save** on the **Data** Toolbar, and save as **CHART_XY**.

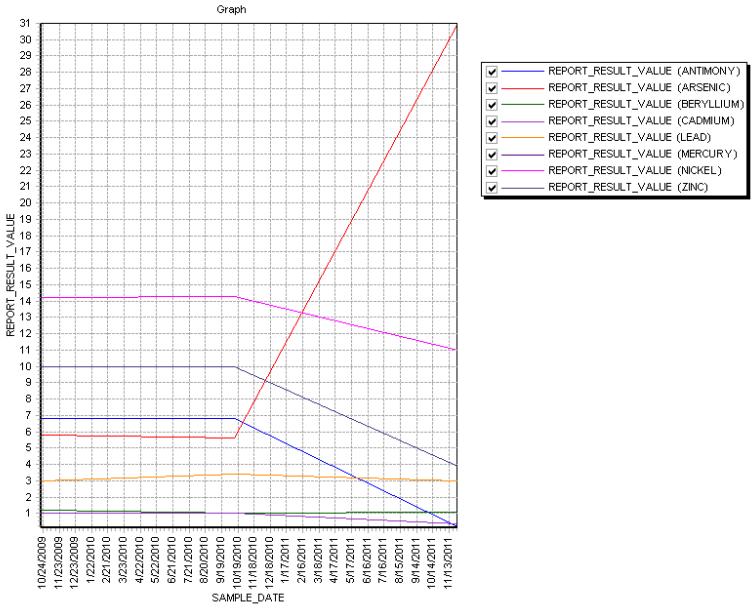


Figure 11: XY Chart with Multiple Axes

The graph for **Arsenic** is not displayed on the XY Chart because the scale on the left side axis is too small. The range can also be displayed on the right-hand axis.

To display the range on the right-hand axis:

1. Click **Arsenic** in the legend to clear the check box.

2. Right-click **Arsenic** and select **Advanced** > **All "Arsenic" Series**.

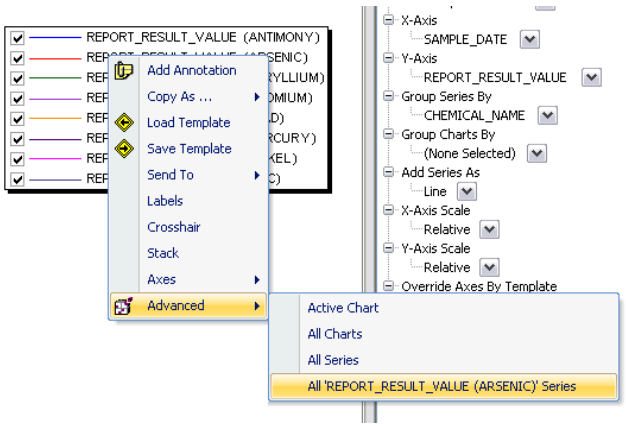


Figure 12: Select Advanced > All Series

This re-selects **Arsenic** on this graph and allows to use advanced data parameters.

3. Click the **Advanced** tab at the bottom of the **Data** pane, scroll down and expand **Misc**, if needed.

4. Find **VertAxis**, and select **Right** from the adjacent drop-down.

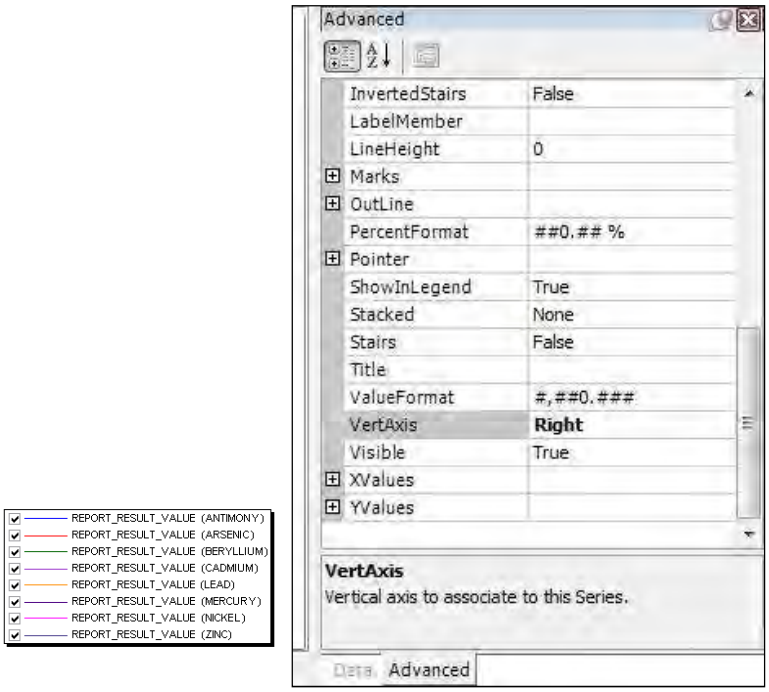


Figure 13: Select VertAxis > Right

This changes the vertical axis for the **Arsenic** graph so it is possible to view the results. The right axis, previously unused, is now the vertical axis for **Arsenic**.

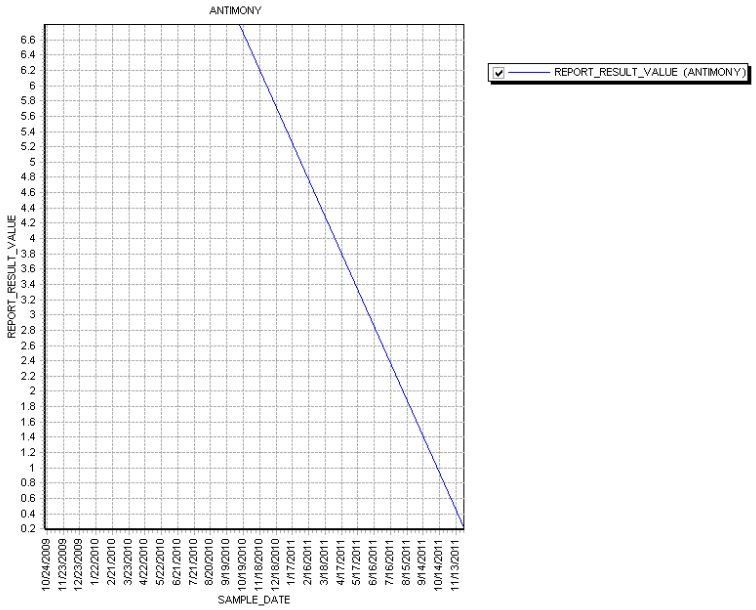


Figure 14: Revised XY Chart with Right Vertical Axis

It is possible to change the way the graphs display their result values.

For example:

ValueFormat **Colors**

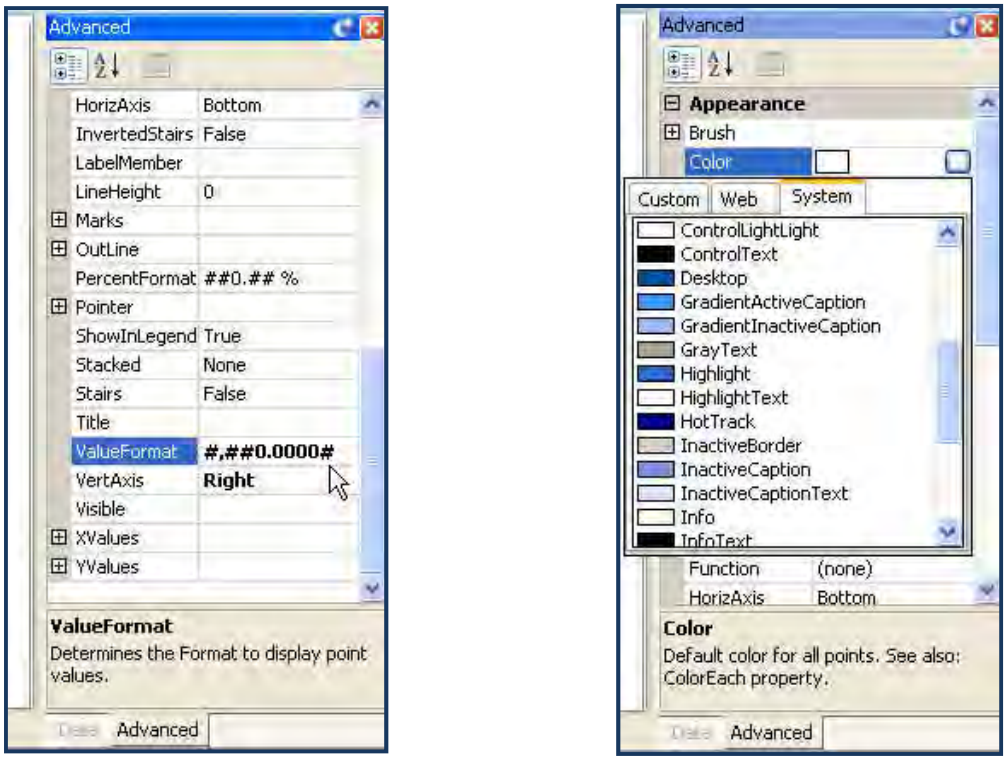


Figure 15: Options to Change Display Values for Charts

- Edit the **ValueFormat** field to display the significant digits required.
- Change the **Color** or **LinePen** style.

To display the chemicals on their own tabs:

1. Select the remove series button, which clears the current graph.
2. Leave the other selections and change "**Group Charts by**" to **CHEMICAL_NAME.**
3. Click **Add Series**  in the **Data** pane to display the trend plot.

   Each Chemical is now displayed on its own tab.

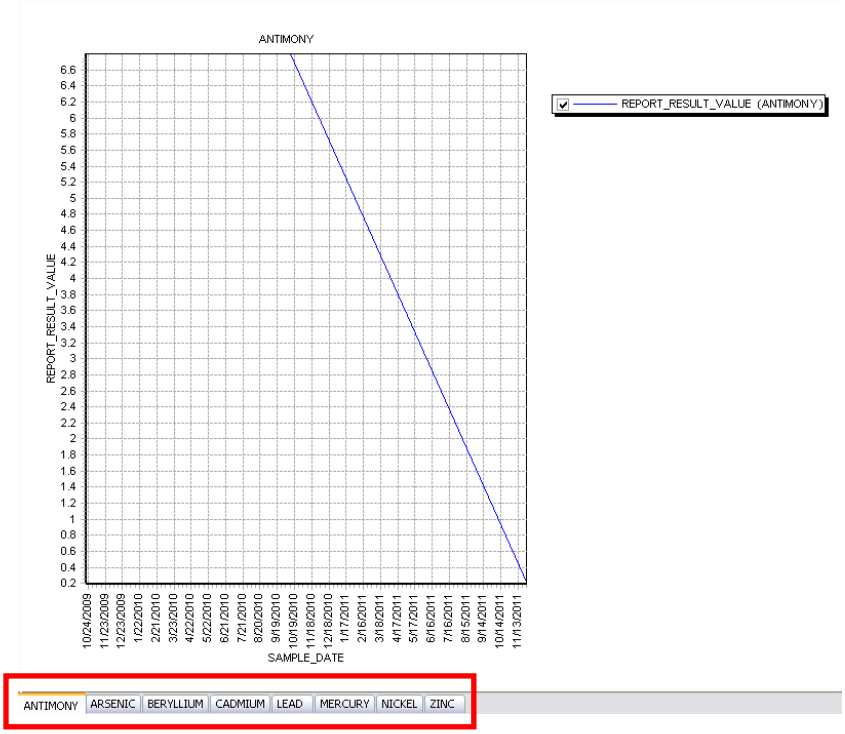


Figure 16: Chart with Chemicals on Separate Tabs

The Action Level Exceedance Report

The **Action Level Exceedance** report compares values from a saved Analytical Results pick report against one or more action levels.

1. Open an **Analytical Results** report and select the following:

Parameter	Selection
Location Group(s)	W_Wellslls
Sample Type	N
Sample Matrix(es)	WG
Result Analyte Group(s)	METALS
Result Unit	ug/l

2. Type **METALS** to save the parameters in the **Pick Reports** box:

Figure 17: Pick Reports Box

3. Click **Save** next to the **Pick Reports** box.

   This makes this report available for use in the **Action Level Exceedance** report.

4. Click **Go** to ensure that the report returns results.

To generate the action level exceedance report:

1. Click **Reports** in the **Open** group of the EQuIS Home Toolbar and select **Action Level Exceedance**.

2. After reviewing the possible parameter selections in **Table 2**, select the following parameters:

Parameter	Selection
Saved Analytical Results Report	Metals
Action Level(s)	EPA_2009_RESID_GW
Exceedance Flag	X

Table 2: Description of Action Level Exceedance report parameter options:

Parameter	Purpose
Saved Analytical Results Report	Select a previously saved Analytical Results report to compare to any action levels. Note that only Analytical Results reports saved as Pick Reports will be listed.
Action Level(s)	Select one or more action levels to compare to the Analytical Results. Comes from DT_ACTION_LEVEL.ACTION_LEVEL_CODE.
(Comparison) Operator	Select the operator to be used when comparing action levels to concentrations. The default is >= which means that any results greater than or equal to the action level will be flagged as exceedances.
(Comparison) Unit	Select the unit to be used when reporting action levels and concentrations. If REPORT_RESULT_UNIT is selected, the units chosen in the Saved Analytical Results Report will be used. If ACTION_LEVEL_UNIT is selected, the units defined in DT_ACTION_LEVEL_PARAMETER.UNIT will be used. If no units are chosen, the unit comes from DT_RESULT.UNIT.
Exceedance Flag	Enter in the text to be used to denote an exceedance. If a flag is entered, both exceedances and non-exceedances will be displayed, and exceedances will be flagged. If the Exceedance Flag is not entered, only results that meet the "Comparison" value are shown in the report. Note that if the exceedance flag is also defined in DT_ACTION_LEVEL.EXCEEDANCE_FLAG or DT_ACTION_LEVEL_PARAMETER.EXCEEDANCE_FLAG, the exceedance flag defined in those tables will automatically be used.

3. Type **Metals_GW_2009_Resid_AL** to save the parameters in the **Pick Reports** field, and then click **Save** to save the report.

4. Click **Go** above **Pick Reports**.

5. Find the **FLAG** column in the report.

6. Click **Filter** on the **Action Level Exceedance** Toolbar, and then click **Filter** on the **FLAG** column header.

7. Select **X** from the drop-down menu.

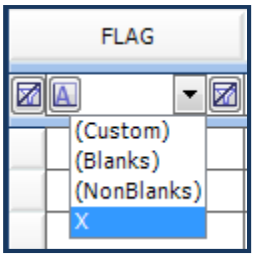


Figure 18: Setting Exceedance Values

Any of the values with **x** in this column are exceedances.

8. To display all of the report records again, in the **FLAG** column header select the remove filter button  from the filter bar.

Rows: 415 retrieved, 415 visible, 0 selected

FLAG	action_level_code	action_level_note	action_level	al_result_text	al_result_value	action_level_min	action_level_unit
X	CLEANWATER IND...		0.002	40	40		ug/l
X	CLEANWATER IND...		0.002	< 0.005	0.005		ug/l
X	CLEANWATER IND...		0.002	< 0.005	0.005		ug/l
X	CLEANWATER IND...		0.002	< 0.005	0.005		ug/l
X	CLEANWATER IND...		0.002	< 0.005	0.005		ug/l
X	CLEANWATER IND...		0.002	< 0.005	0.005		ug/l
	CLEANWATER IND...		130	50	50		ug/l
	CLEANWATER IND...		130	< 0.0050	0.005		ug/l
	CLEANWATER IND...		130	< 0.0050	0.005		ug/l
	CLEANWATER IND...		130	< 0.0050	0.005		ug/l
	CLEANWATER IND...		130	< 0.0050	0.005		ug/l
	CLEANWATER IND...		130	< 0.0050	0.005		ug/l
	CLEANWATER IND...		150	70	70		ug/l
	CLEANWATER IND...		150	< 0.0050	0.005		ug/l
	CLEANWATER IND...		150	< 0.0050	0.005		ug/l
	CLEANWATER IND...		150	< 0.0050	0.005		ug/l

Figure 19: Action Level Exceedance Report

Add Action Levels to XY Charts

To add the Action Levels to XY charts:

1. In EQuIS Professional, click **Reports** in the **Open** group of the EQuIS Home Toolbar.
2. Select the **Analytical Results** report and then click **Open**.
3. Click and select the following:

Parameters	Selection
Location Group	W_Wells
Sample Type	N
Sample Matrix(es)	WG
Result Analyte Individual(s)	Arsenic
Result Units	ug/l

4. Type **TCE WG ug/l** in the blank **Pick Reports** field to save the query parameters, and click **Save** .

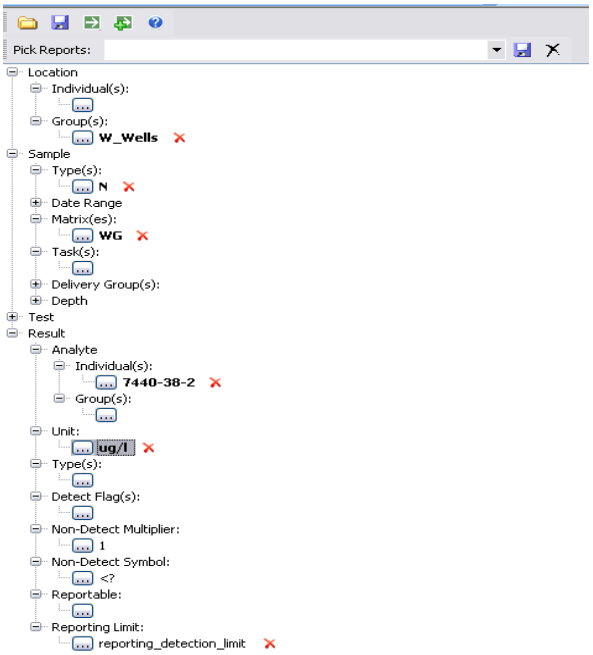


Figure 20: Report Parameters XY Charts

5. Click **Go** to run the report. The results will be returned in grid format.
6. Click **Reports** in the **Open** group of the EQuIS Home Toolbar.

7. Select the **Action Level Exceedance** report and then click **Open**.

8. Click … and select the following:

Parameters	Selection
Saved Analytical Results Report	*Metals*
Action Level (s)	EPA_2009_RESID_GW
Exceedance Flag	xxx

9. Click **Go** to run the report.

10. Click **XY Chart** on the **Action Level Exceedance** menu.

11. In the **Data** pane, select the following:

Parameter	Selection
Dataset	Action Level Exceedance
X-Axis	SAMPLE_DATE
Y-Axis	REPORT_RESULT_VALUE
Group Series by	CHEMICAL_NAME
Group Charts by	SYS_LOC_CODE

Setting the parameter **Group Charts** = SYS_LOC_CODE sorts the results by putting multiple tabs at the bottom of the Trend Plot. Select each tab to view the **Analytical Results XY Chart** for that chemical.

12. Click **Add Series** in the **Data** pane to display the trend plot.

13. Select **W-2R**.

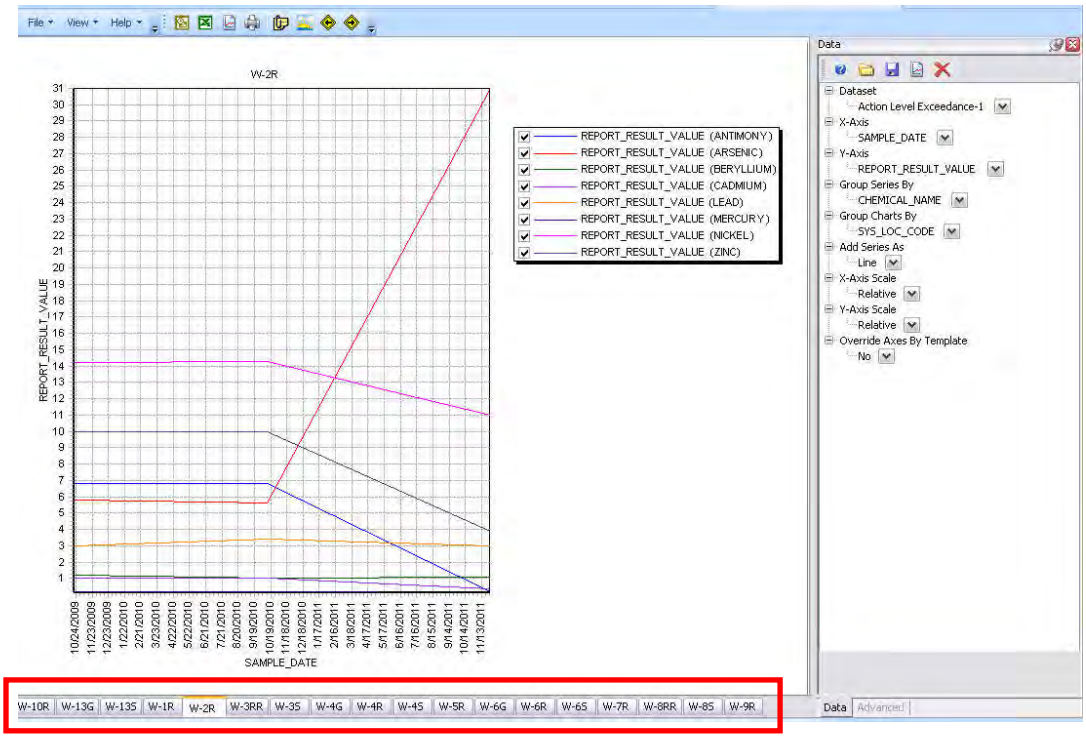


Figure 21: Select Location B-75 from Analytical Results XY Chart

14. In the **Data** pane, select the following:

Parameter	Selection
Dataset	Action Level Exceedance
X-Axis	SAMPLE_DATE
Y-Axis	ACTION_LEVEL
Group Series by	ACTION_LEVEL_CODE
Group Charts by	SYS_LOC_CODE

15. Click **Add Series** in the **Data** pane to display the trend plot. The analytical results are present, but the left axes needs to be adjusted to make the **Action Level** visible.

16. Right-click in the white space of the chart, and select **Advanced> Active Chart**.

17. Click the **Advanced** tab on the right of the **Data** pane.

    a. Expand the **Axes** node.

    b. Expand the **Left** node.

    c. Change the following parameters:

Parameter	Selection
AutomaticMax	False
Maximum	50

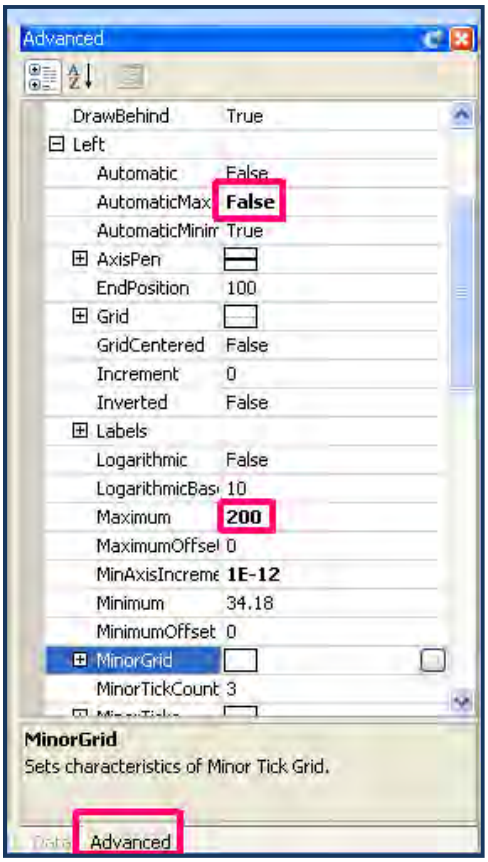


Figure 22: Advanced Options for Chart

After the options from the **Advanced** tab have been set, the chart should appear as in **Error! Reference source not found.**23:

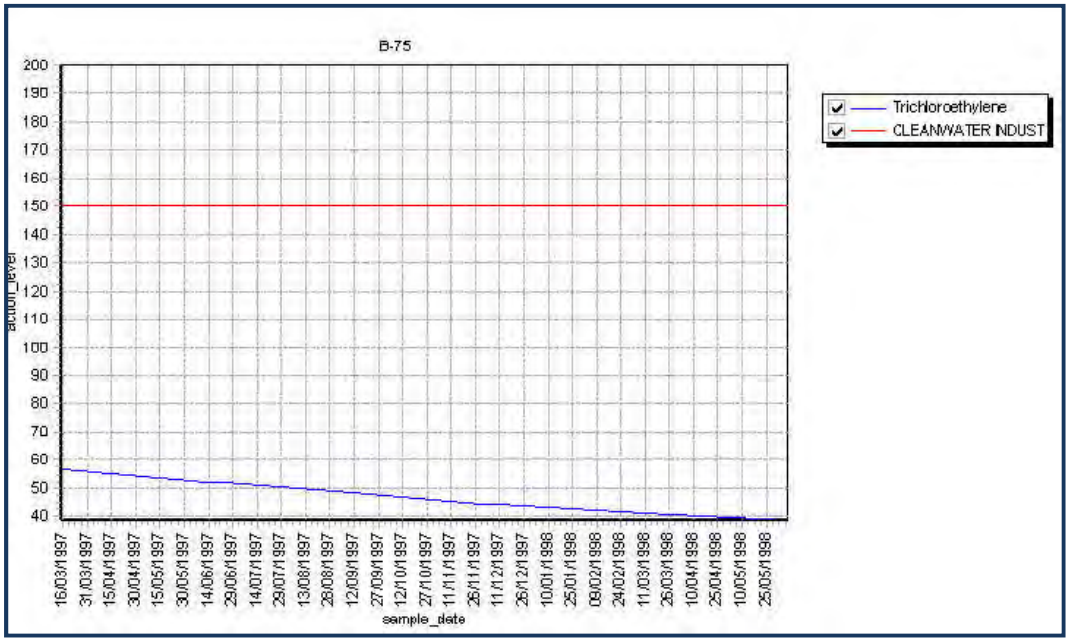


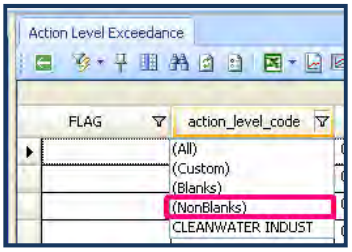
Figure 23: XY Chart for Location B-75

Troubleshooting Tip:

If **Action Levels** have not been established for all of the chemicals included in the query, one or more errors may appear. One such error, "**Conversion from type "DBNull" to type "String" is not valid**" indicates that null values cannot be plotted on an XY Chart. *Ignore the error*.

To avoid this error, filter the date:

1. Return to the **Action Level Exceedance** Tab and click **Filter**  .
2. In the ACTION_LEVEL_CODE column, click the filter button and select **Non Blanks**.



3. Run the report again.

The Water Levels Report

The Water Levels report conveys information about water levels, LNAPLs, and DNAPLs stored in the DT_WATER_LEVEL table.

1. Click **Reports**  in the **Open** group of the EQuIS Home Toolbar.

2. Select the **Water Levels** report, click **Open**, and after reviewing **Table 3**, choose the following reporting parameters:

Parameters	Selection
Location Individual (s)	W-3RR
Sample Date Range Start	
Sample Date Range End	

3. Click **Go**  above **Pick Reports**.

Rows: 15 retrieved, 15 visible, 0 selected

measurement_date	reference_elev	water_level	exact_elev	measured_depth_of_well	depth_unit	batch_number	technician	dry_indicator_yn
1/12/1997 6:47:00...	206.462	192.436	192.436	20	m	NA		N
2/11/1997 4:46:00...	206.462	197.331	197.331	20	m	NA		N
3/13/1997 8:20:00...				20	m			
3/13/1997 8:20:00...	206.462	192.463	192.463	20	m	NA		N
4/12/1997 6:52:00...	206.462	191.692	191.692	20	m	NA		N
5/12/1997 4:03:00...				20	m			
5/12/1997 4:03:00...	206.462	190.963	190.963	20	m	NA		N
6/11/1997 11:54:00...				20	m			
6/11/1997 11:54:00...	206.462	188.927	188.927	20	m	NA		N
7/11/1997 9:38:00...				20	m			
7/11/1997 9:38:00...	206.462	198.169	198.169	20	m	NA		N
8/10/1997 5:17:00...				20	m			
8/10/1997 5:17:00...	206.462	194.447	194.447	20	m	NA		N
9/9/1997 2:00:00 AM	206.462	197.385	197.385	20	m	NA		N
12/15/1997 12:50:0...	206.462	195.550	195.55	20	m	NA		N

Figure 24: Water Levels Report

Table 3: Description of the Water Levels report parameter options:

Parameter	Purpose
(Location) Individual(s)	Select one or more SYS_LOC_CODES to be included in the report. Comes from DT_WATER_LEVEL.SYS_LOC_CODE.
(Location) Group(s)	Select one or more location groups to be included in the report. Comes from RT_GROUP.GROUP_CODE when RT_GROUP.GROUP_TYPE= SYS_LOC_CODE.
(Water Level Date Range) Start	Select the earliest measurement date to be used by the report. The default is the earliest date found in DT_WATER_LEVEL.MEASUREMENT_DATE.
(Water Level Date Range) End	Select the latest measurement date to be used by the report. The default is the most recent date found in DT_WATER_LEVEL.MEASUREMENT_DATE.
(Water Level) Task(s)	Select one or more tasks to be included in the report. Comes from DT_WATER_LEVEL.TASK_CODE.
(Water Level) Reported Value	Select the desired water level elevation to be reported. If WATER_LEVEL_ELEV is selected, comes from DT_WATER_LEVEL.WATER_LEVEL_ELEV. If corrected elevation is selected, comes from DT_WATER_LEVEL.CORRECTED_ELEVATION. No calculations are done if one of these two options is selected. If calculate is select, the water levels are calculated based upon the other parameters below.
(Water Level Calculation) Elevation	Select the reference elevation to be used when calculating the water level elevation. By default, the water level depth (see below) will be subtracted from this elevation, unless DT_WATER_LEVEL.DIP_OR_ELEVATION is populated with “elevation”. This parameter is only applied if the (Water Level) Reported Value is set to calculate.
(Water Level Calculation) Depth	Select the depth to be used when calculating the water level elevation. By default, the water level depth will be subtracted from the reference elevation (see above), unless DT_WATER_LEVEL.DIP_OR_ELEVATION is populated with “elevation”. This parameter is only applied if the (Water Level) Reported Value is set to calculate. If “calculate” is selected, the depth will be calculated based upon any product (LNAPL or DNAPL) present and its respective density.

Combine Data from Multiple Reports

This exercise demonstrates how to combine data from two different reports into one XY Chart. This exercise combines data from the **Analytical Results** report with data from the **Water Levels** report, allowing the water levels on analytical results to be viewed.

1. Using the **Springfield Tutorial** database, click **Reports**  in the **Open** group of the EQuIS Home Toolbar.

2. Select the **Analytical Results** report and then click **Open**.

3. Click the ellipses  and select the following reporting parameters:

Parameter	Selection
Location Individual(s):	W-3RR
Sample Type	N
Matrix (es):	WG
Result Analyte Individual (s):	Arsenic
Result Unit:	ug/l

4. Click **Go**  above **Pick Reports**.

5. Click **Reports**  in the **Open** group of the EQuIS Home Toolbar to select a second report.

6. Select the **Water Levels** report, click **Open**, and then choose the following reporting parameters:

Parameters	Selection
Location Individual (s)	W-3RR

7. Click **Go**  above **Pick Reports**.

8. Click **XY Charts**  in the Toolbar below the **Water Levels** tab to create a chart for this data.

9. In the **Data** pane, make the following selections:

Parameters	Selection
Dataset	Water Levels
X-Axis	MEASUREMENT_DATE
Y-Axis	WATER_LEVEL_DEPTH
Group Series by	SYS_LOC_CODE

10. Click **Add Series** icon in the **Data** pane to display the XY Chart.

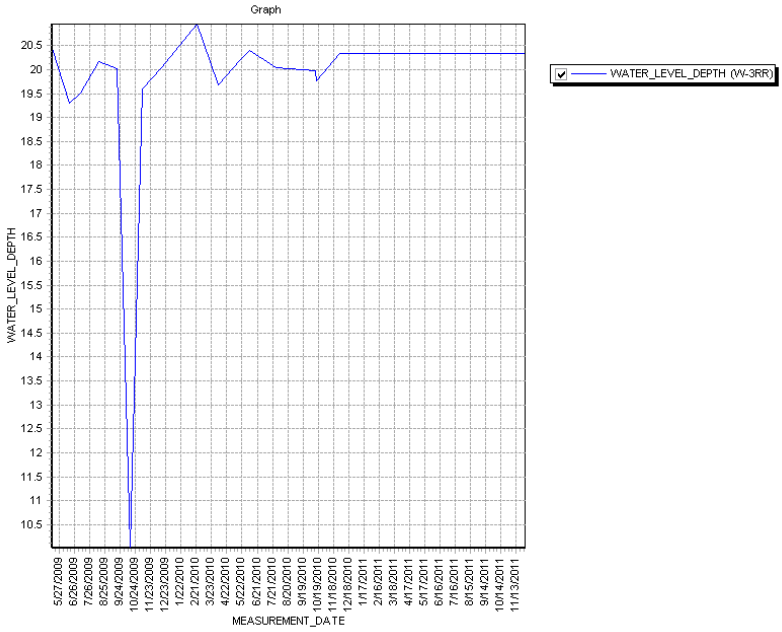


Figure 25: Water Level Chart

11. From the **Data** pane, select the following:

Parameters	Selection
Dataset	Analytical Results
X-Axis	SAMPLE_DATE
Y-Axis	RESULT_RESULT_VALUE
Group Series by	CHEMICAL_NAME

12. Click **Add Series** in the **Data** pane to display the **Analytical Results** in the XY Chart.

    Notice that the **Water Levels** and the **Analytical Results** series do not display well together in the graph. Trends from the **Analytical Results** report are not immediately discernible. To make the chart easier to use, associate the **Water Levels** series with the right axis.

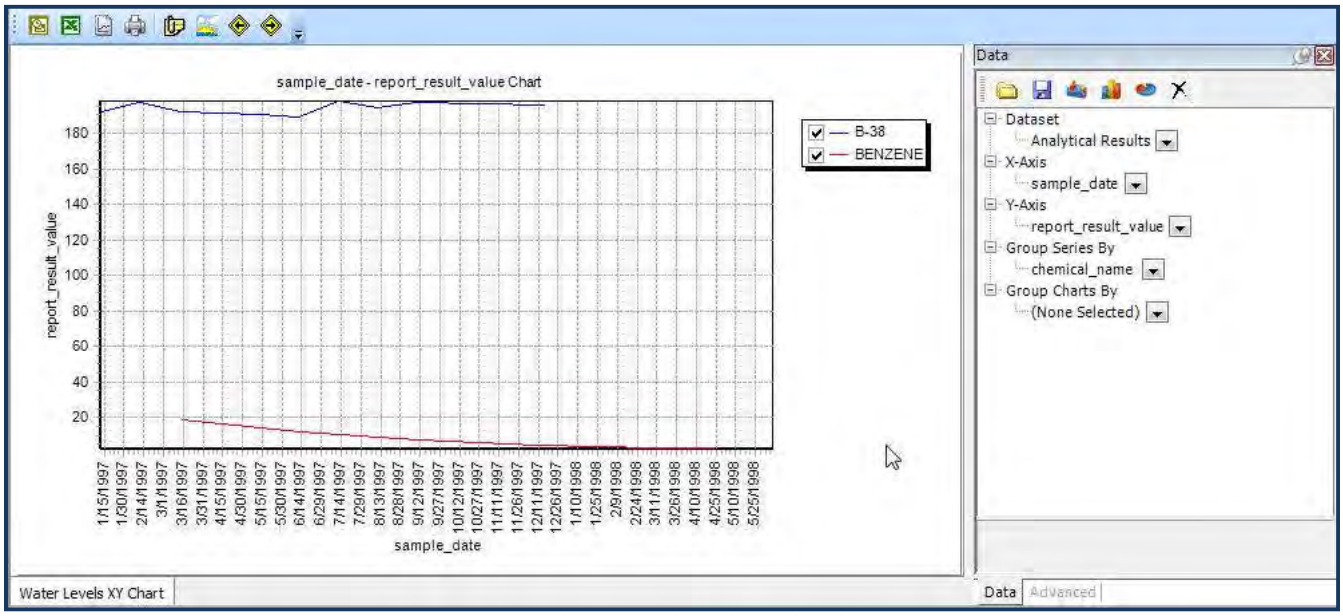


Figure 26: Water Levels and Analytical Results Chart

To associate a series with a particular axis:

1. Change the graphing options for **W-3RR** (the water level).

2. Click **W-3RR** in the legend to deselect and clear the association with the **Water Level**.

3. Right-click **W-3RR** in the legend, and select **Advanced**.

4. Then select **"All W-3RR Series"** from the sub-menu.

   This re-selects the series so the advanced data parameters can be selected from the **Advanced** tab.

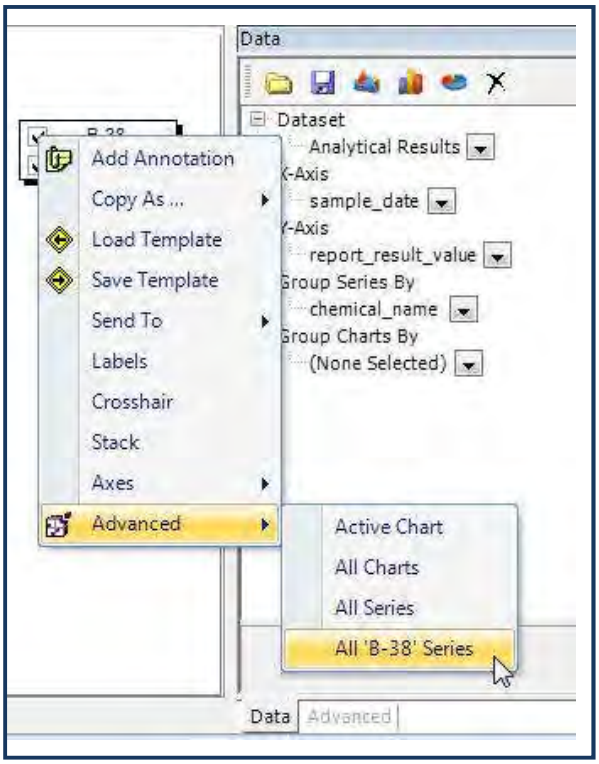


Figure 27: Select to Associate a Particular Axis

5. Click the **Advanced** tab at the bottom of the **Data** pane, scroll down to the **VertAxis** row in the **Misc** section, and note the default **VertAxis** value is **Left**.

6. Change the **VertAxis** value to **Right**.

   This action associates the **W-3RR Water Level** series with the right axis so it can be viewed along with the **Analytical Result** trend lines.

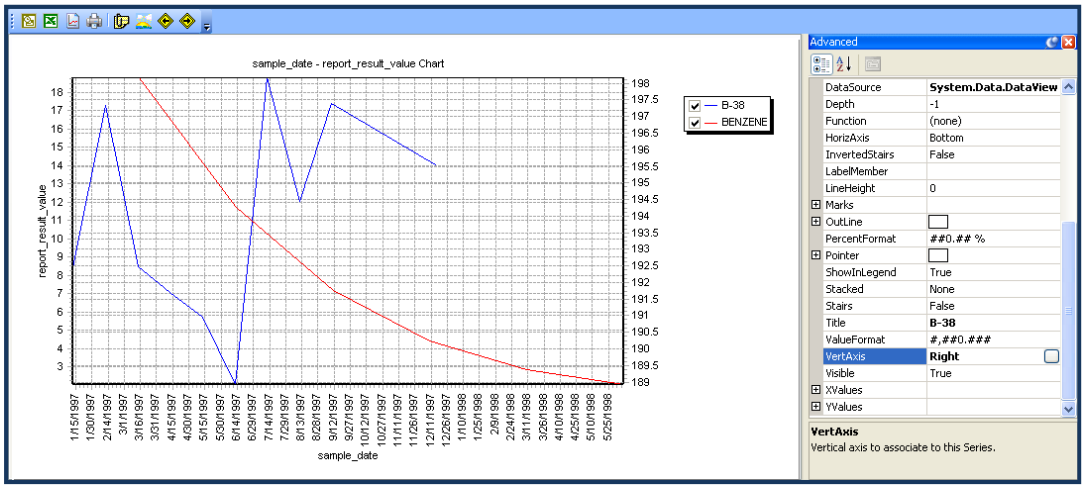


Figure 28: Associate Water Level with the Right Axis

Create Contour Chart from Water Levels Report

In this exercise, create a contour (XYZ Chart) from a **Water Levels** report. This exercise may be applied to any of the Standard Reports included in EQuIS.

To create a contour chart for water levels:

1. Click **Reports** from the **Open** tab on the EQuIS Home Toolbar.
2. Select the **Water Levels** report and click **Open**.
3. From the **Data** pane, select the following:

Parameter	Selection
Group(s)	
Start Date	
End Date	
Reported Value	WATER_LEVEL_ELEV
Elevation	HISTORICAL_REFERENCE_ELEV
Depth	WATER_LEVEL_DEPTH

Leave the **Elevation** and **Depth** parameters at their default values (as shown). These parameters are only relevant if **calculate** is selected for the **Reported Value**.

4. Click **Save** to the right of the **Pick Reports** field, and save as **MONIT_WATER_LEVELS**.

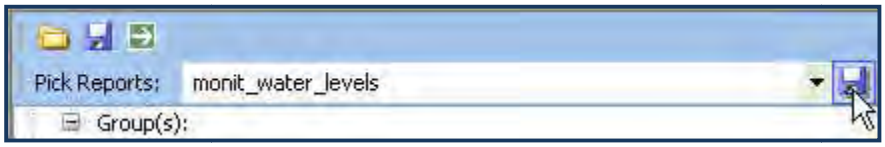


Figure 29: Save as a Pick Report

5. Click **Go** to run the report.

   Notice the two columns, EXACT_ELEV and WATER_LEVEL, that are the core output of this report. The EXACT_ELEV column is a numeric value and WATER_LEVEL is the same value (as text) reported with the appropriate amount of significant figures.

6. Click **XYZ Charts**.
7. From the **Data** pane, select the following:

Parameter	Selection
Dataset	Water Levels
X Value	X_COORD
Y Value	Y_COORD
Value	EXACT_ELEV
Grid Size	100
P Value	10

8. Click **Contour** on the **Data** Toolbar.

   A contour chart is displayed that depicts three different variables of each piece of water level data: the X-Coordinate, the Y-Coordinate and the **Exact Elevation** (shown in the legend).

To enhance the reports' appearance:

1. Click the **Advanced** tab of the **Data** pane.

2. Select the **Legend** ⊞ node.

3. Scroll down and select the **Title** ⊞ node.

4. Scroll down to the **Text** box and enter **Exact Elevation** (in m).

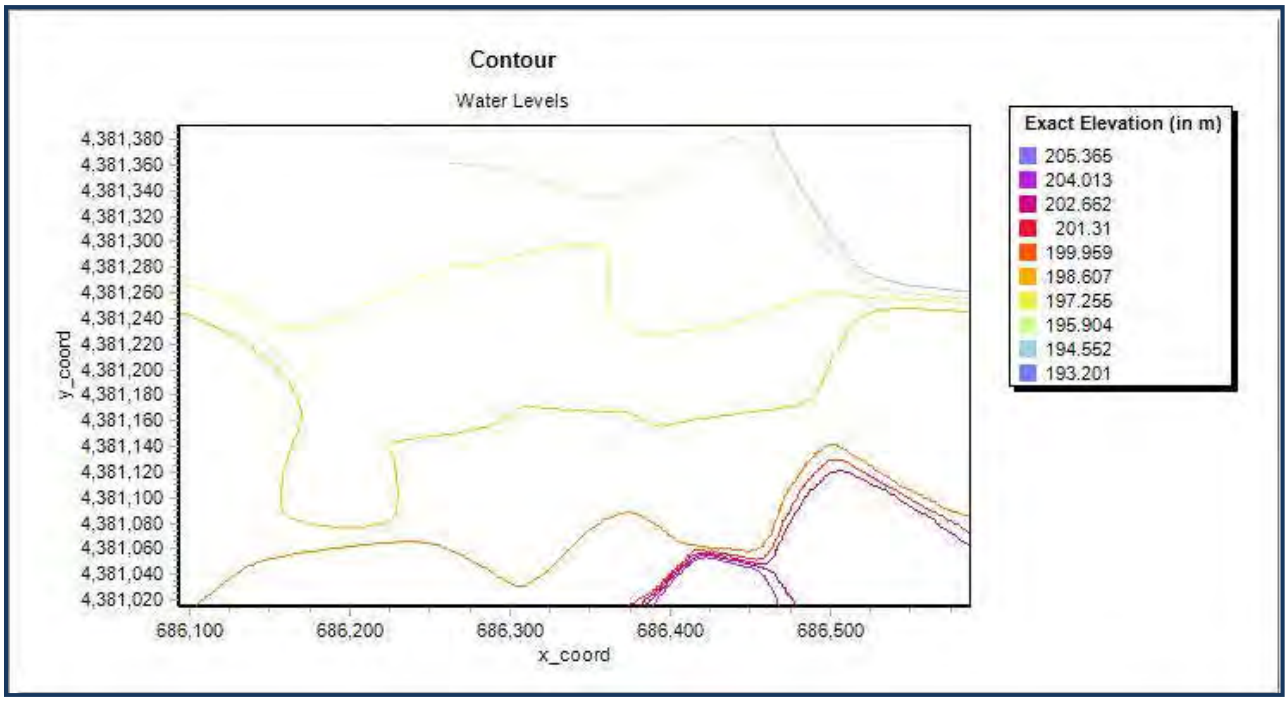


Figure 30: Enhance Water Levels Contour Chart