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Management of PFAS Data - What Is The Same, What Is Different



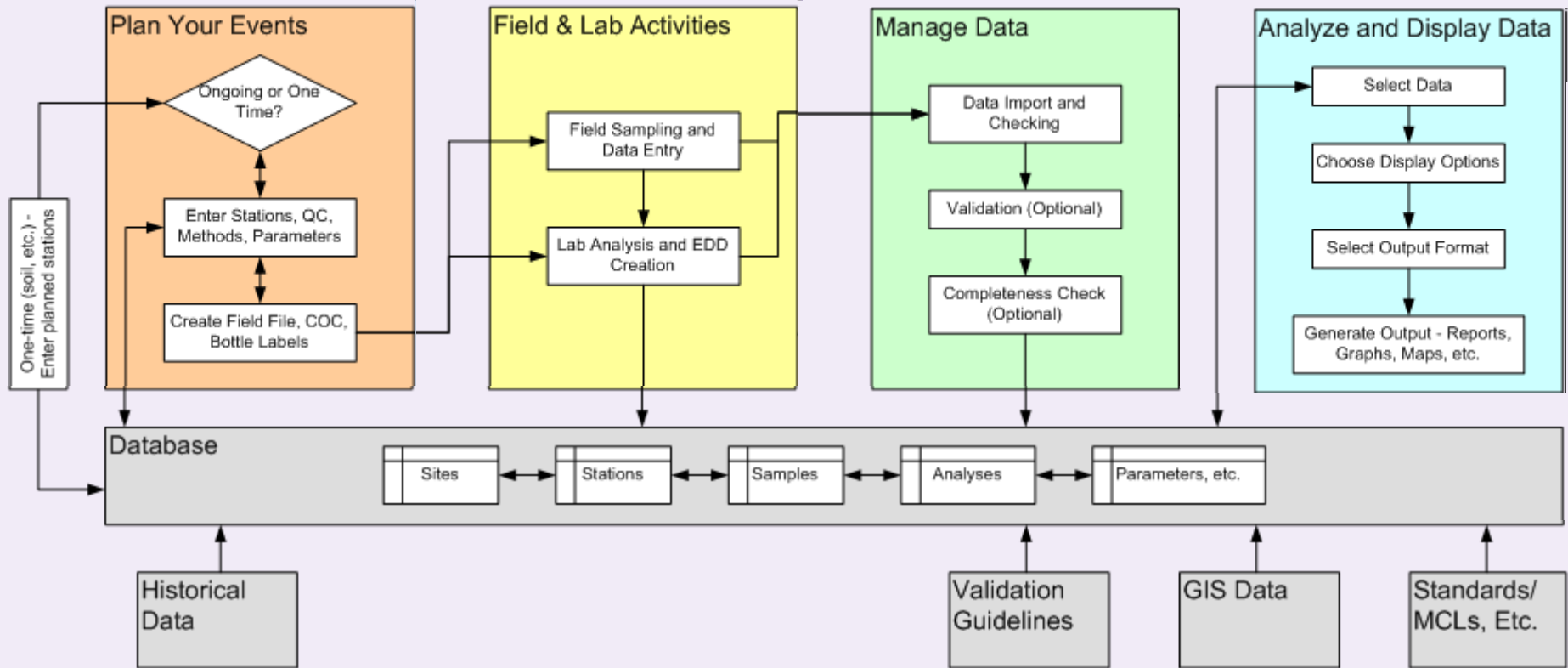
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Denver, CO
June 25, 2026

- ① High level view of the process
- ① Setting up the database
- ① Managing field events
- ① Importing lab and other data
- ① Data review and validation
- ① Data selection and formatting
- ① Displays
- ① Mapping and GIS
- ① Managing PFAS Data
- ① Data Portals
- ① Business justification

High level view of the process

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Plan your sample events

Manage field and lab activities

Manage data and quality

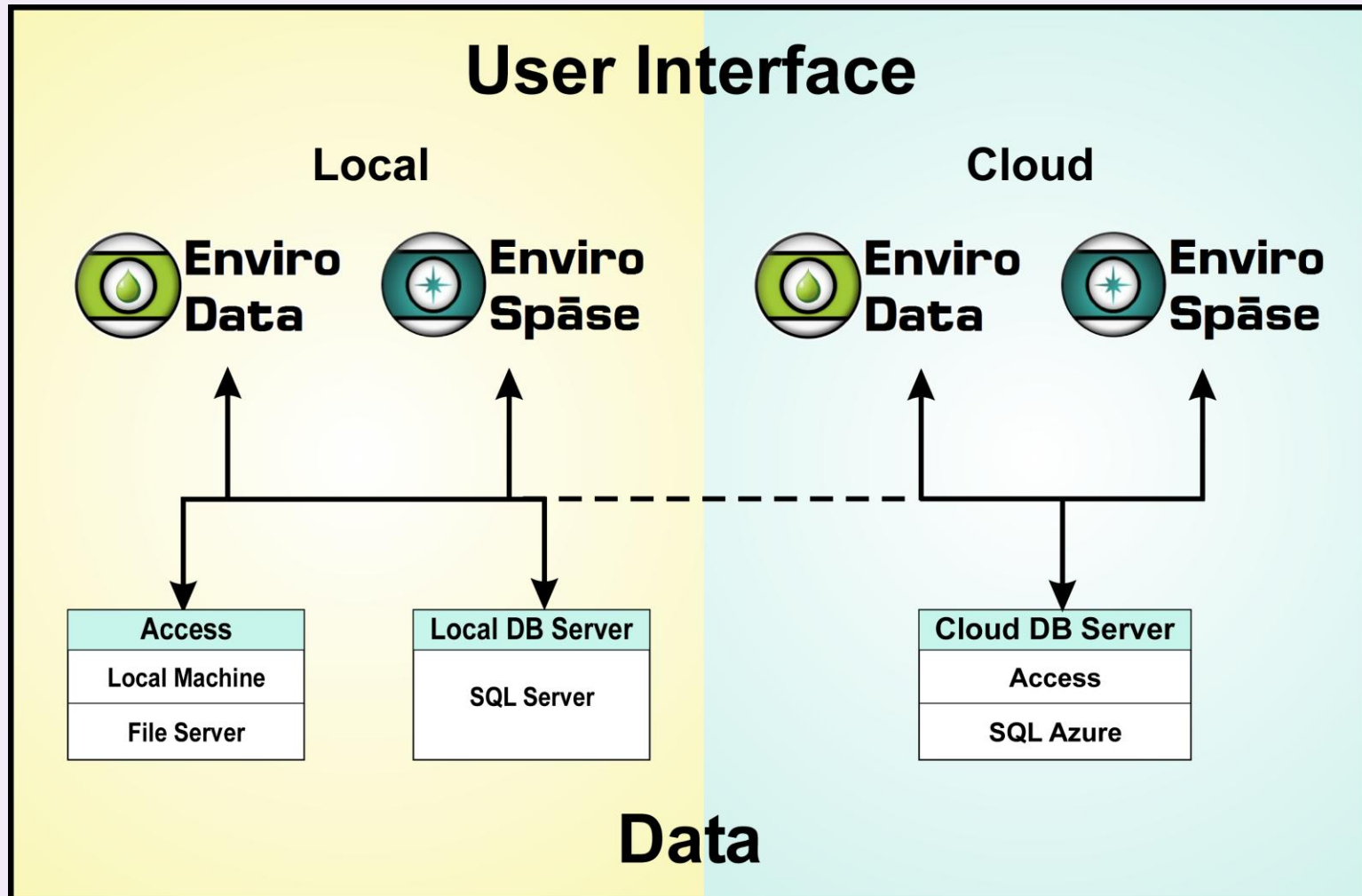
Store in a robust repository

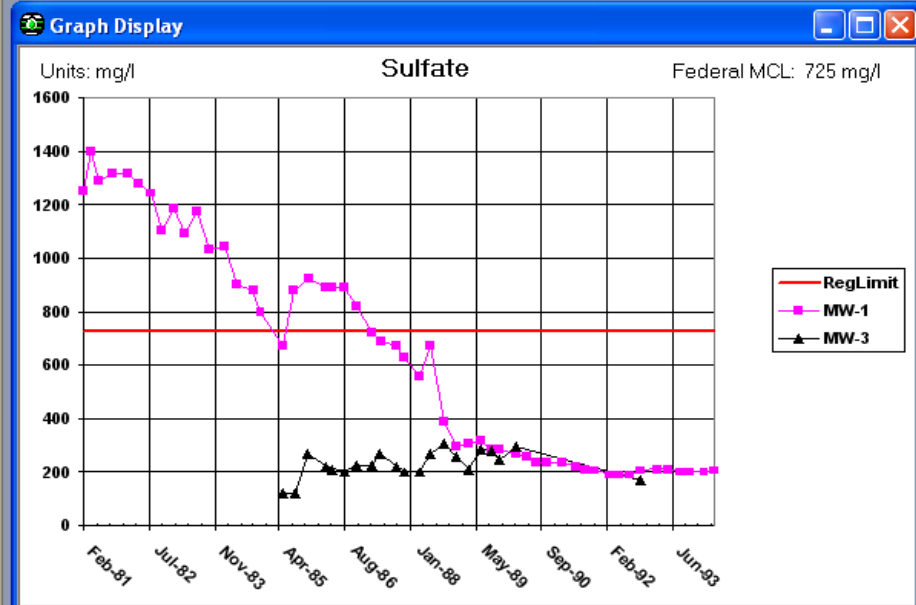
Analyze and display data

It's all in one location



Implementation Options





Tree View

- Rad Industries
 - A2 - Soil boring
 - AA1 - Soil boring
 - AA2 - Soil boring
 - AA3 - Soil boring
 - Soil - Date: 9/1/1995 - Depth: 725.96; 724.46
 - Ra-226 - soil: 2.3 pCi/g - Flag: v
 - Th-232 - soil: 1.4 pCi/g - Flag: v
 - Total Radium-soil: 3.7 pCi/g - Flag: v
 - U-238: 2 pCi/g - Flag: u
 - B1 - Soil boring
 - B2 - Soil boring
 - B3 - Soil boring
 - B4 - Soil boring
 - B5 - Soil boring
 - B6 - Soil boring
 - BB1 - Soil boring
 - BB2 - Soil boring
 - BB3 - Soil boring
 - Blank - Unknown
 - C2 - Soil boring
 - D4 - Soil boring
 - D4A - Soil boring

Site: Rad Industries

		Deep	Deep	Deep	Station Group ->	Deep	Deep	
		Sample ID ->			Date ->	5/20/1982	7/27/1982	10/1
		Depth ->						
Analyte	Units	Federal MCL	Primary	Safe Drinking Water	State Drinking Water Levels			
Metals								
Calcium	mg/l	NA	NA	NA	NA	150	170	180
Iron (Ferrous)	mg/l	NA	0.1	NA	NA	2.6	0.074	0.95
Potassium	mg/l	NA	NA	NA	NA	4.2	3.2	3.8
Sodium	mg/l	NA	NA	NA	NA	120	86	110
Inorganics								
Chloride	mg/l	NA	NA	NA	NA	230	190	200
Nitrate	mg/l	NA	2	NA	NA	1	<1	<1
Sulfate	mg/l	725	800	350	1000	370	280	350
Field Param								
Field pH	su.	NA	NA	NA	8.4	7.2	7	7.7
Other								
Total Dissolved Solids	mg/l	NA	NA	NA	NA	1120	1020	1060

Manage Lookups

Sites

Site Owners
Labs & Contr.

Show More

Stations

Current Status
Station Alias
Station Groups
Station Types

Samples

Sample Groups
Sample Matrix
Sample Method
Sample Types
Sample Purpose

Analyses

Analytic Flags
Analytic Methods
Analytic Probs
Parameters
Parm. Groups
Sum. Categories
Validation Flags

Reg Limits

Reg. Limits
Reg Limit Groups
RegLimGrps/Type
Reg Limit Types

Bulk Data

Instruments
Survey

Multiple Tables

Documents
Filtered
Geol. Units
Lithology
QC Codes
Reporting Units
Unit Conversion

Close

Edit Regulatory Limits

Filter Limits by... *Regulatory Limit Type:* [dropdown] **Actions:** [dropdown]

Regulatory Type Group: [dropdown]

Sample Matrix: [dropdown]

All Sites Site-Specific

Parameter	Matrix	Limit	FilterCode	Lower Lir
Arsenic (As)	Water	25	z	ug
Arsenic (As)	Water	100	z	ug
Arsenic (As)	Water	2	z	ug
Arsenic (As)	Water	30	z	ug
Benzene	Water	0.5	z	ug
Benzene	Soil	10	z	ug
Benzo(a)pyrene	Water	0.1	z	ug
Chromium	Water	10	z	ug
Chromium	Water	10	z	ug
Copper	Water	50	z	ug
Copper	Water	50	z	ug
Fluoride	Water	0.1	z	mC
Fluoride	Water	0.1	z	mC
Gross Alpha	Water	1	z	pC
Iron (Ferrous)	Water	100	z	ug
Lead (Pb)	Water	1	z	ug
Lead (Pb)	Water	1	z	ug

Record: [dropdown] [dropdown] [dropdown] No Filter Search [dropdown]

Import Regulatory Limit Records from Parameters: **Delete Regulatory Limit Records:** **Export Reg.Limits One Site** **Export Reg.Limits Global**

confirm each record? ☐

Record: [dropdown] 1 of 3 [dropdown] [dropdown] [dropdown] No Filter Search [dropdown]

COC # <u>OWR 01</u>		Chain of Custody		Lab <u>Lab Contract</u> <u>OWR 01</u>		Page 1 of 1									
Client <u>Site Name</u> <u>Red Industries</u>	W. O. <u>Contract Name</u> <u>None</u>	TAT <u>5 Days</u>			Lab Phone <u>303.740.9999</u>										
Lab <u>David Rich</u>	Results To: <u>Contract Phone</u>														
Phone <u>303.740.9999</u>	Phone <u></u>														
Fax <u>303.740.1800</u>	Fax <u></u>														
Address <u>2448 S. Alton Way, Suite</u>	Address <u></u>														
City <u>Englewood</u>	City <u></u>														
State <u>CO</u> Zip <u>80112</u>	State <u></u> Zip <u></u>														
Sample ID		Matrix		Date-Time Collected		Filtered Analysis									
MW-1_2009-08-01_00		Water		4/1/09											
MW-1_2009-08-01_00		Water		4/1/09											
MW-1_2009-08-01_DUP_00		Water		4/1/09											
MW-1_2009-08-01_WB_00		Water		4/1/09											
MW-2_2009-08-01_HB_00		Water		4/1/09											
SB-2_2009-08-01_00		Water		4/1/09											
SB-2_2009-08-01_04		Water		4/1/09											
SB-2_2009-08-01_08		Water		4/1/09											
SB-2_2009-08-01_09		Water		4/1/09											
SB-2_2009-08-01_10		Water		4/1/09											
Remarks/Comments		Lab Use Only		Temp of Cooler when Recd											
				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">F</td> <td style="width: 25%;">C</td> <td style="width: 25%;">F</td> <td style="width: 25%;">C</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>				F	C	F	C				
F	C	F	C												
		Ref. by (name & sig)													





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Import Wizard - Select File and Format for Import

This wizard will guide you through selecting, checking, cleaning up, and importing a data file. It will help you document what you did, and allow you to roll back an import later if necessary. To begin, choose a file type and format below, then type in or select the file path and name.

File Type and Format: **DTS 2012 Excel**

File Path and Name: **DTS 2012 Excel**

Enviro Data Crosstab
 EQUiS Excel Import
 EQUiS Text Import
 EQUiSR4
 ERPIMS Lab Data (Lab Submission File)
 ERPIMS Text Import
 Field File Excel
 Gas Data Excel
 Geoscience Excel Import
 Groundwater Data Import
 Historical Data Import
 IHS Oil Production Data Import
 IHS Oil Well Data Import
 Import By Field Sample ID
 Meteorological Data Import

Delivery Group Project

Select Manage Multiple Files

Or Use one of these choices to edit the import table, resume the most recent import, or undo any previous one.

Edit ImportFile Table Resume Last Import Undo A Previous Import

Next > Finish Close

- ① Paper data, including scanned PDFs, provides a challenge for importing
- ① Problems include:
 - ① Skewed pages
 - ① Punch holes
 - ① Writing on the page
- ① AI can help cure problems
- ① And of course, the completed data must be checked for accuracy

Subject: **DEPO-OEA**
 Order: **0206138 SANT01** Receipt: **06-10-02**

Sample: **DEPO-SW33** Collected: **06-10-02 8:30:00** By: **JC**
 Matrix: **W**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
0206138-01A	SB.2002.270.1	EPA 904	Radium-228	0.30+/-0.28	pCi/L	1	0.78	S	07-15-02	07-15-02
0206138-01A	SB.2002.271.1	EPA 905	Strontium-90	0.60+/-0.54	pCi/L	1	1.46	S	07-02-02	07-02-02
0206138-01A	SB.2002.272.1	EPA 906	Tritium	ND	pCi/L	1	70.26	S	06-27-02	06-27-02

F	G	I	J	L	M	O	P	Q	S	T	U	V	W	X
project	order	sample_id	matrix	collected	test_meth	analyst	lab_sample_id	run_sequence	parameter	result	units	dilution_factor	detection_qualifier	
0206138	0206138 S	DEPO-SW33	W	JC	Eichrom	SM	0206138-01A	SB.2002.267.1	Plutonium-238	-0.005+/-0.01	pCi/L	1	0.05	S
0206138	0206138 S	DEPO-SW33	W	JC	Eichrom	SM	0206138-01A	SB.2002.267.1	Plutonium-239/240	-0.02+/-0.02	pCi/L	1	0.07	S
0206138	0206138 S	DEPO-SW33	W	JC	Eichrom	SM	0206138-01A	SB.2002.267.1	Uranium-234	0.18+/-0.07	pCi/L	1	0.08	S
0206138	0206138 S	DEPO-SW33	W	JC	Eichrom	SM	0206138-01A	SB.2002.267.1	Uranium-235	0.02+/-0.03	pCi/L	1	0.05	S
0206138	0206138 S	DEPO-SW33	W	JC	Eichrom	SM	0206138-01A	SB.2002.267.1	Uranium-238	0.07+/-0.05	pCi/L	1	0.09	S
0206138	0206138 S	DEPO-SW33	W	JC	EPA 900	SM	0206138-01A	SB.2002.268.1	Gross Alpha	0.31+/-0.32	pCi/L	1	0.89	S
0206138	0206138 S	DEPO-SW33	W	JC	EPA 900	SM	0206138-01A	SB.2002.268.1	Gross Beta	1.72+/-0.46	pCi/L	1	1.18	S
0206138	0206138 S	DEPO-SW33	W	JC	EPA 901	KCE	0206138-01A	SB.2002.266.1	Americium-241	0.77+/-2.47	pCi/L	1	2.88	S
0206138	0206138 S	DEPO-SW33	W	JC	EPA 901	KCE	0206138-01A	SB.2002.266.1	Beryllium-7	8.01+/-11.02	pCi/L	1	12.73	S
0206138	0206138 S	DEPO-SW33	W	JC	EPA 901	KCE	0206138-01A	SB.2002.266.1	Cerium-141	-2.14+/-2.42	pCi/L	1	2.37	S
0206138	0206138 S	DEPO-SW33	W	JC	EPA 901	KCE	0206138-01A	SB.2002.266.1	Cerium-144	-2.29+/-18.27	pCi/L	1	9.87	S
0206138	0206138 S	DEPO-SW33	W	JC	EPA 901	KCE	0206138-01A	SB.2002.266.1	Cesium-134	-4.79+/-24.53	pCi/L	1	19.96	S
0206138	0206138 S	DEPO-SW33	W	JC	EPA 901	KCE	0206138-01A	SB.2002.266.1	Cesium-137	0.19+/-1.49	pCi/L	1	1.74	S

Project

Validation Data

Delivery Grp

SDG-43417

Analytic Method

Analytical Batch

Validation Program

NFG

Select Data

QC Tasks

Validated Analyses

Validation Checklist

Reports and Other Tasks

QC Task	Run	Completed	DetectCode	NonDetectCode	Reason Code
Field Duplicate RPDs	☒	☐	J	UJ	Field Duplicate RPD
Headspace not achieved	☒	☐	J	UJ	Air bubble present
Holding Times (Extract to Analysis Date)	☒	☐	J	UJ	past the hold time
Holding Times (Sample to Analysis Date)	☒	☐	J	UJ	past the hold time
Holding Times (Sample to Extract Date)	☒	☐	J	UJ	past the hold time
LCS / LCSD Exceeds Rejection Limits	☒	☐	J	UJ	LCS %R less than 10%
LCS / LCSD Recovery < LCL	☒	☐	J	UJ	LCS %R below the LCL
LCS / LCSD Recovery > UCL	☒	☐	J	UJ	LCS %R above the UCL
LCS/LCSD RPDs	☒	☐	J	UJ	LCSD RPD >CL
MDL Dilution Results in ND	☒	☐		UJ	Dilution results in MDL detection
MDL/LOD Exceeds Reg Limit	☒	☐		UJ	MDL >= Primary MCL
Method Blank Detections (MULTIPLIER=10)	☒	☐	B		Method Blank > Reporting Limit
MS / MSD < LCL	☒	☐	J	UJ	MS/MSD %R below the LCL
MS / MSD Recovery >UCL	☒	☐	J	UJ	MS/MSD %R above the UCL
MS/MSD RPDs	☒	☐	J	UJ	MS/MSD RPD >CL
Rinsate Blank > ReportingLimit (U-flag Result < RL)	☒	☐	J		Equipment Blank > Reporting Limit

Record: 12 of 19

No Filter

Search

View Task Details

Acceptance Criteria

☐ EDD
 ☐ Control Limits Table
 ☒ Strictest

Validation Notes

Select All

Un-Select All

Flag Data

Edit Validation Criteria

Set Primary Samples

QC Detect. Limits

Update Analyses Table

Clear Temp Validation Codes

Refresh Temp Valid. Codes

Update Null FlagCode with Validation Code

☐ Replace Existing Validation Codes

Detection Limit Exceeds Reg Limit

Detection Limit Type

Detect

Reg Limit Type

Choose which tests to run

Project	Validation Data	Delivery Grp	SDG-43417	Analytic Method		Analytical Batch		Validation Program	NFG
Select Data	QC Tasks	Validated Analyses	Validation Checklist	Reports and Other Tasks					
AnalyticMethod	Analytical Batch	QCSampleCode	LabSampleID	LongName	Temp Validation Code	Reason	DetectedRes		
16	442648	MS	2429639	Selenium (Dissolved)	J	MS_LCL(%R=53)	Y		
16	442648	MSD	2429640	Selenium (Dissolved)	J	MS_LCL(%R=52)	Y		
16	442648	MSD	2429640	Molybdenum (Dissolved)	J	MS_LCL(%R=48)	Y		
16	442651	MSD	2429674	Fluoride	J	MS_RPD(RPD=27.7);(%R=113)	Y		
16	442482	MS	2428774	Arsenic	J	MS_UCL(%R=321)	Y		
16	442651	MS	2429673	Fluoride	J	MS_UCL(%R=147)	Y		
16	442653	MS	2429684	Fluoride	J	MS_UCL(%R=123)	Y		
16	442651	MS	2429673	Sulfate	J	MS_UCL(%R=117)	Y		
16	442653	MSD	2429687	Sulfate	J	MS_UCL(%R=117)	Y		
16	442651	MS	2429673	Chloride	J	MS_UCL(%R=116)	Y		
16	442653	MSD	2429687	Chloride	J	MS_UCL(%R=116)	Y		
16	442653	MSD	2429685	Fluoride	J	MS_UCL(%R=114)	Y		
16	442653	MS	2429686	Sulfate	J	MS_UCL(%R=113)	Y		
16	442653	MS	2429686	Chloride	J	MS_UCL(%R=113)	Y		
16	442651	MSD	2429676	Chloride	J	MS_UCL(%R=111)	Y		
16	442651	MSD	2429676	Sulfate	J	MS_UCL(%R=111)	Y		
16	442651	O	92407161004	Chloride	J	MS_UCL	Y		
16	442651	O	92407161004	Sulfate	J	MS_UCL	Y		
16	442625	MSD	2429445	Chromium, Hexavalent	J	MS_LCL(%R=89)	Y		
16	442625	MS	2429442	Chromium, Hexavalent	J	MS_LCL(%R=88)	Y		
16	442625	MSD	2429443	Chromium, Hexavalent	J	MS_LCL(%R=84)	Y		
16	442653	MS	2429684	Chloride	J	MS_LCL(%R=83)	Y		
Record: 14									

Review the flagged data

 Select Data

Analytic Flags Help

Display Options

Back

Refresh Selected Data

Reset

Clear

Sites

Name	Rad Industries			
State				
Type				
Owner				

Stations

General Location Info. Regulatory Info.

Station Group				
Name	MW-1; MW-3			
Type				
Type2				
Geologic Unit				
Station Status				
QC Type				
PRP				
Enviro. Status				
Land Use				
Water Use				

Samples

Sample Group				
Sample Event				
Date	01/01/1990 :12/31/1990			
Top Depth				
Base Depth				
Type				
Purpose				
Matrix				
Filtered				
Geologic Unit				
Lithology				
Duplicate	0			
Field ID				
QC				
Collect. Agency				
Task Number				
Taxonomy				
Gender				
Life Stage				
TissueType				
Weight Volume				

Analyses

General Additional Data * Display All Results *

Parameter Group				
Parameter	Sulfate			
Alt Param ID				
Param Type				
Lab				
Value				
Flags				
Problems				
Superseded	0			
Value Code				
Filtered				
Method				
Detected?				
Reportable?				
Validation Cd				
QC				
Batch				
Sum Category				
Analysis Group				
Delivery Grp				
Extracted?				
Report. Agency				

Update

Number of Analyses: 5

☐ AutoUpdate
 ☐ Dynamic Filtering

Output

Save/Load

Modify

Other Options

List

Report

Export

Graph

Map

Enviro Space

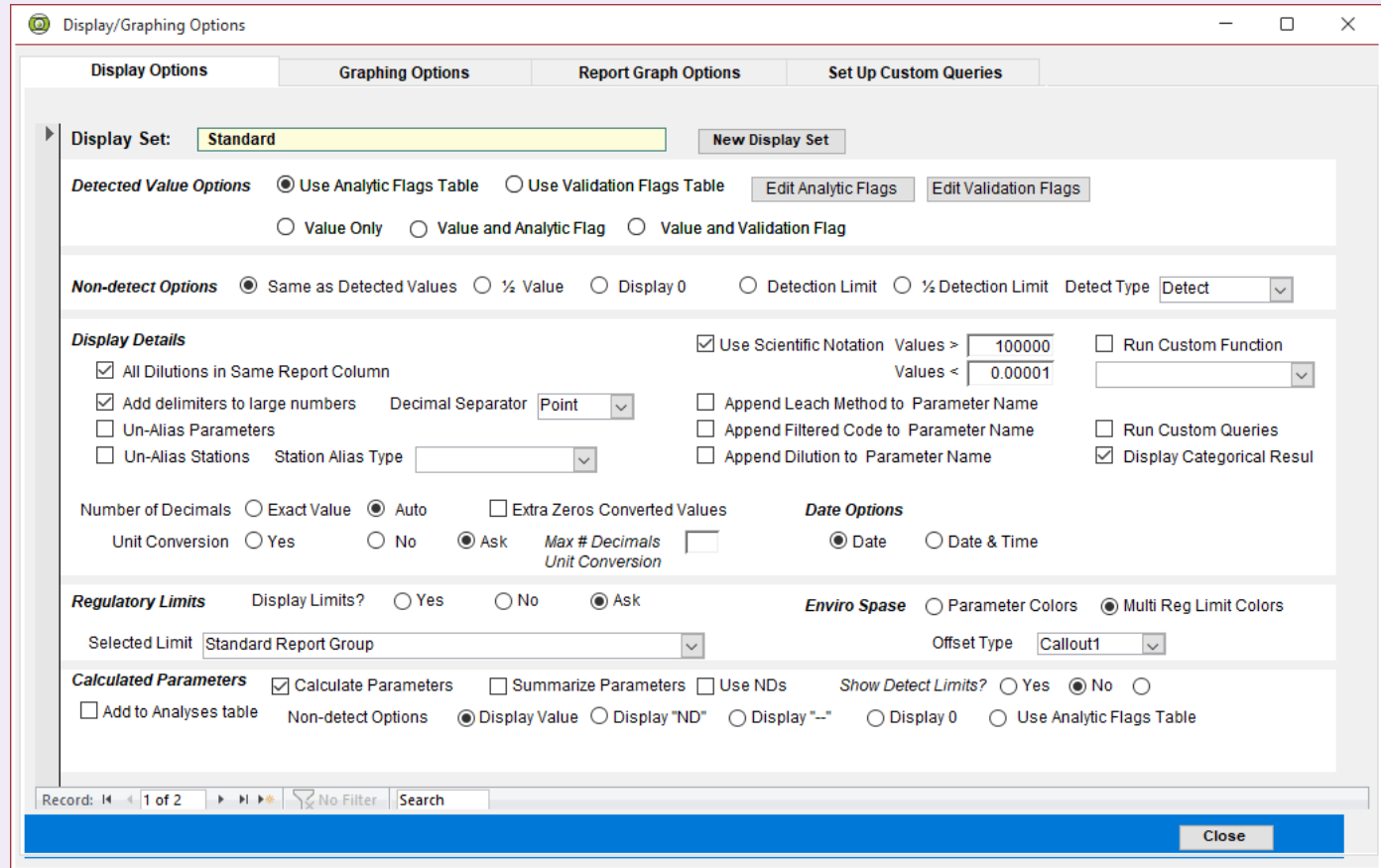
Close

Display options determine how your results are displayed

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Example options:

- ➊ Regulatory limits
- ➋ Values and flags
- ➌ Non-detects
- ➍ Unit conversion
- ➎ Calculated parameters
- ➏ Trailing zeros
- ➐ Graph display options
- ➑ Custom queries



Display/Graphing Options

Display Options | Graphing Options | Report Graph Options | Set Up Custom Queries

Display Set: **Standard** New Display Set

Detected Value Options ☒ Use Analytic Flags Table ☐ Use Validation Flags Table Edit Analytic Flags Edit Validation Flags

☐ Value Only ☐ Value and Analytic Flag ☐ Value and Validation Flag

Non-detect Options ☒ Same as Detected Values ☐ 1/2 Value ☐ Display 0 ☐ Detection Limit ☐ 1/2 Detection Limit Detect Type: **Detect**

Display Details

☒ All Dilutions in Same Report Column ☒ Use Scientific Notation Values > **100000** Values < **0.00001** ☐ Run Custom Function

☒ Add delimiters to large numbers Decimal Separator: **Point** ☐ Append Leach Method to Parameter Name

☐ Un-Alias Parameters ☐ Append Filtered Code to Parameter Name ☐ Run Custom Queries

☐ Un-Alias Stations Station Alias Type: ☐ Append Dilution to Parameter Name ☒ Display Categorical Result

Number of Decimals ☐ Exact Value ☒ Auto ☐ Extra Zeros Converted Values **Date Options** ☒ Date ☐ Date & Time

Unit Conversion ☐ Yes ☐ No ☒ Ask Max # Decimals Unit Conversion:

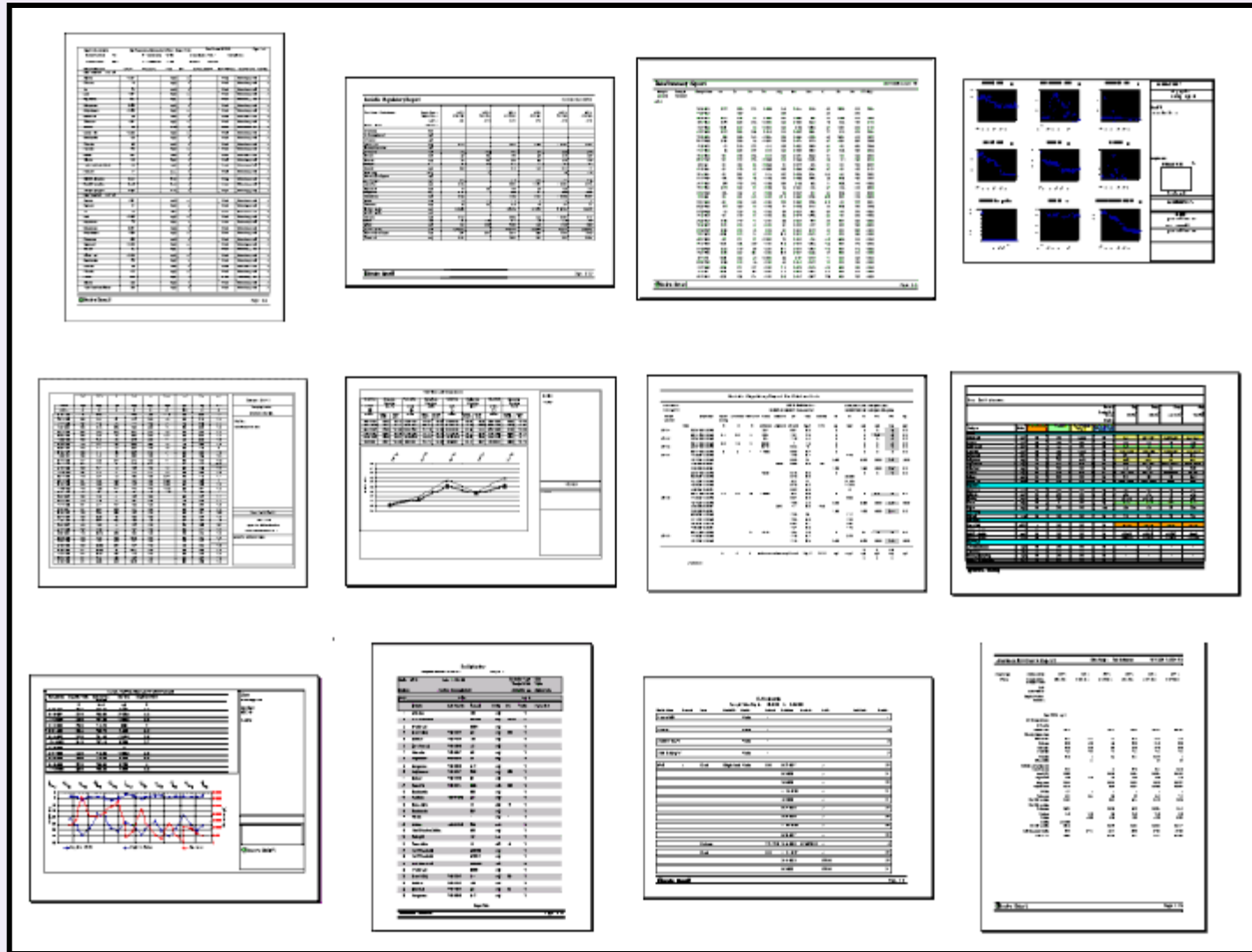
Regulatory Limits Display Limits? ☐ Yes ☐ No ☒ Ask **Enviro Spase** ☐ Parameter Colors ☒ Multi Reg Limit Colors

Selected Limit: **Standard Report Group** Offset Type: **Callout1**

Calculated Parameters ☒ Calculate Parameters ☐ Summarize Parameters ☐ Use NDs Show Detect Limits? ☐ Yes ☒ No ☐

☐ Add to Analyses table Non-detect Options ☒ Display Value ☐ Display "ND" ☐ Display "--" ☐ Display 0 ☐ Use Analytic Flags Table

Record: 1 of 2 No Filter Search Close



Export Crosstab

Sites # Samples
 # Stations # Analyses

[Go to a Crosstab Format](#)

Crosstab format name

Crosstab Data **Grouping / Formatting** Instructions

Column Fields

Enviro Data Column	Display Column Name	Order
StationName	Station Name	1
SampleDate_D	Sample Date	2
*		0

Record: 1 of 2

Value Fields

Enviro Data Column	Display Column Name	Order
ValueAndFlag	Result	0
*		0

Record: 1 of 1

Row Fields

Enviro Data Column	Display Column Name	Order	Form
LongName	Parameter	1	
ReportingUnits	Units	2	
*		0	

Record: 1 of 2

Worksheet Fields

☐ Enable grouping data by worksheet

Enviro Data Column	Order
*	0

Record: 1 of 1

Report Title

Progress

Finish

Delete

Edit Available

Clone

Refresh Selected

☐ Show SQL

Start:

End:

Exit

Record: 1 of 6



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Crosstab Wizard setup

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Crosstab Wizard output

AI Queries

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Ask AI

Note: The Ask AI utility is in the development and testing phase. AI can make mistakes, but we are continually improving its accuracy and usability. Please contact Support@Geotech.com with comments, suggestions and questions.

Ask a Question

Which wells have sulfate >1000

AI Query

Answer

OK - 28 row(s).

Examples / Saved Queries

QuerySQL

*

Station Nam	Samp. Date	Analyte	ResultValue	ValueAndFl	ReportUnits			
MW-1	2/26/1981	Sulfate	1255000.0000		ul			
MW-1	4/20/1981	Sulfate	1400.0000		ml			
MW-1	6/19/1981	Sulfate	1290.0000		ml			
MW-1	10/1/1981	Sulfate	1320.0000		ml			
MW-1	1/27/1982	Sulfate	1320.0000		ml			
MW-1	4/27/1982	Sulfate	1280.0000		ml			
MW-1	7/20/1982	Sulfate	1240.0000		ml			
MW-1	10/13/1982	Sulfate	1100.0000		ml			
MW-1	1/18/1983	Sulfate	1180.0000		ml			
MW-1	4/13/1983	Sulfate	1090.0000		ml			

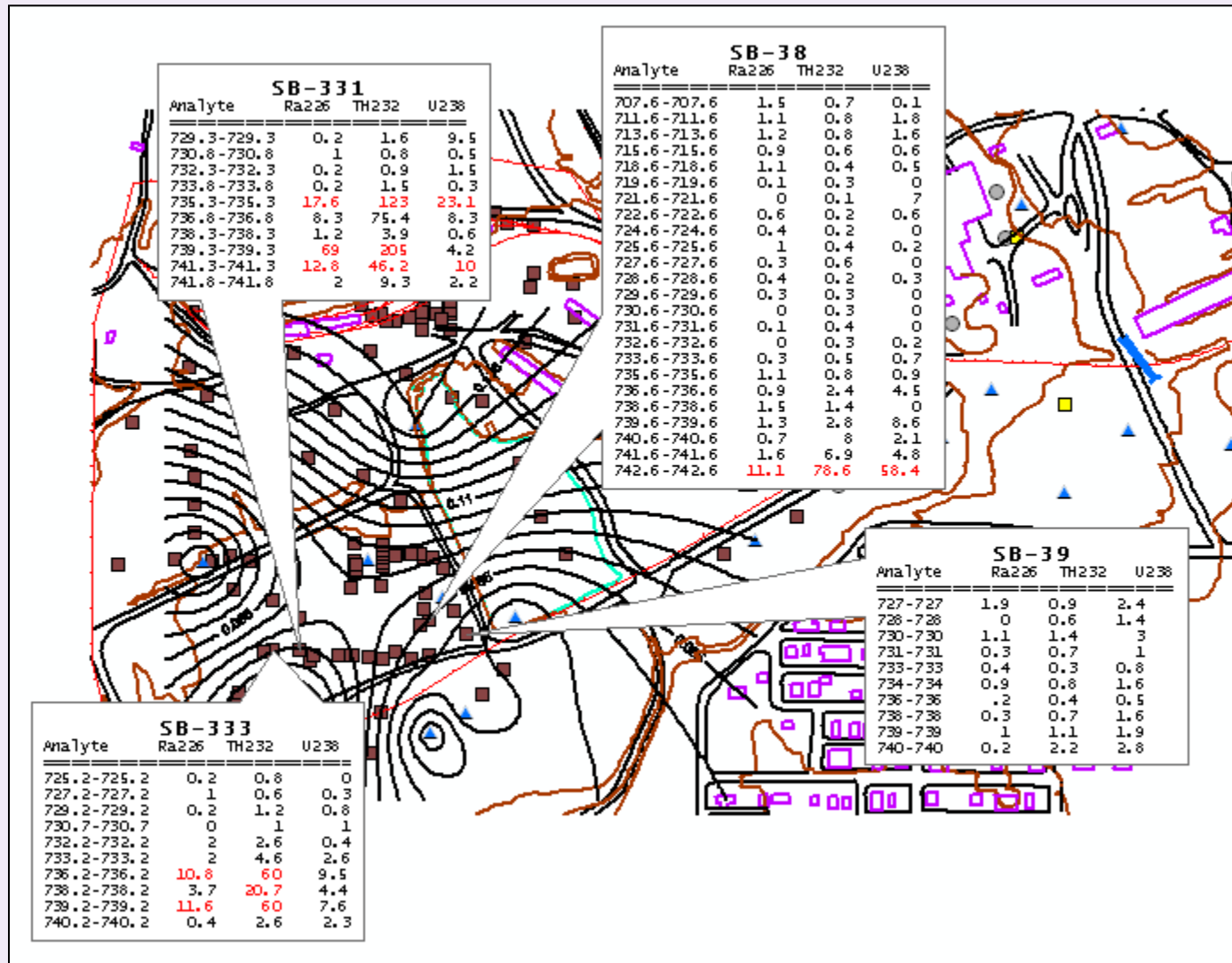
Record: 1 of 28

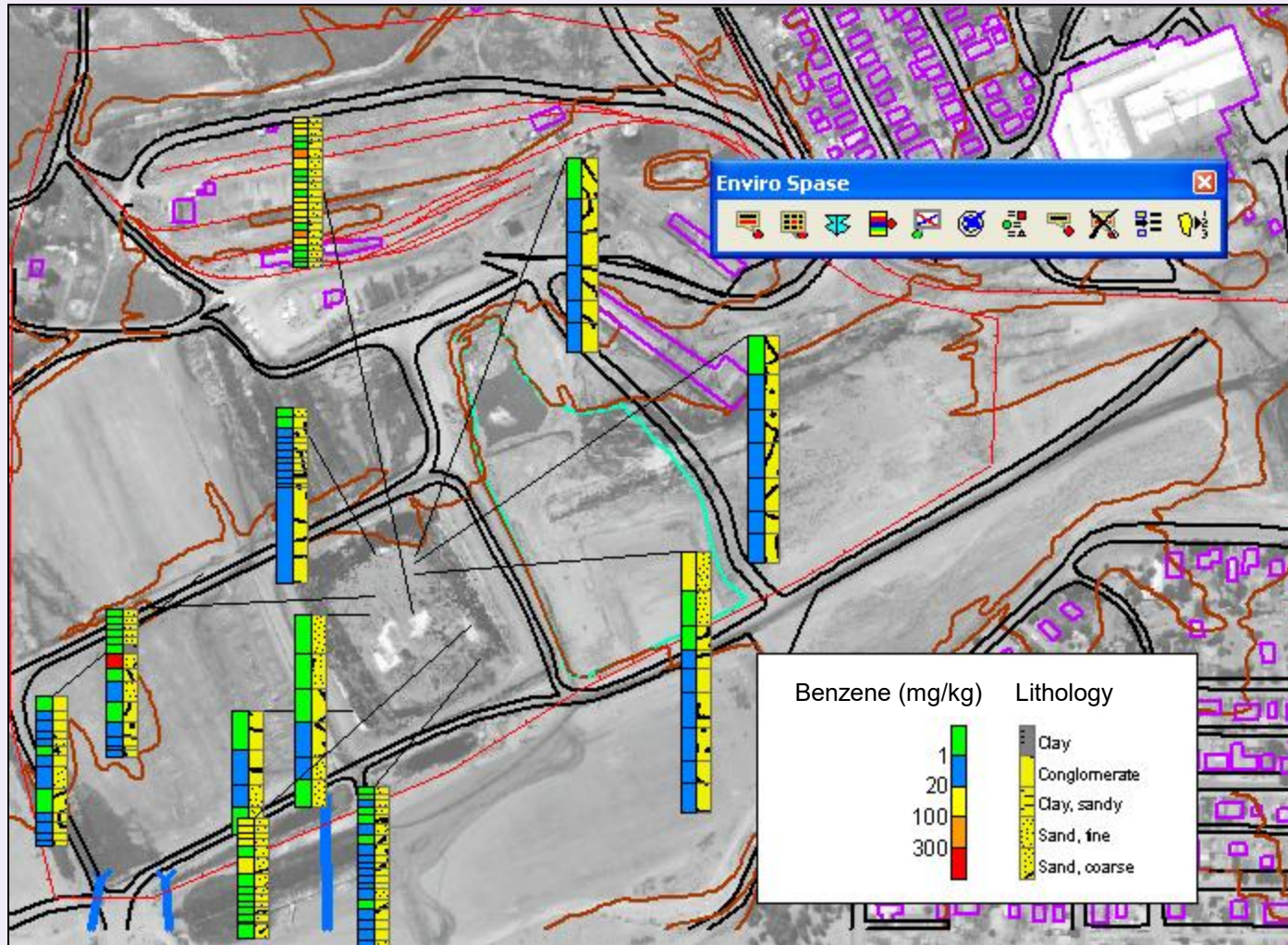
No Filter

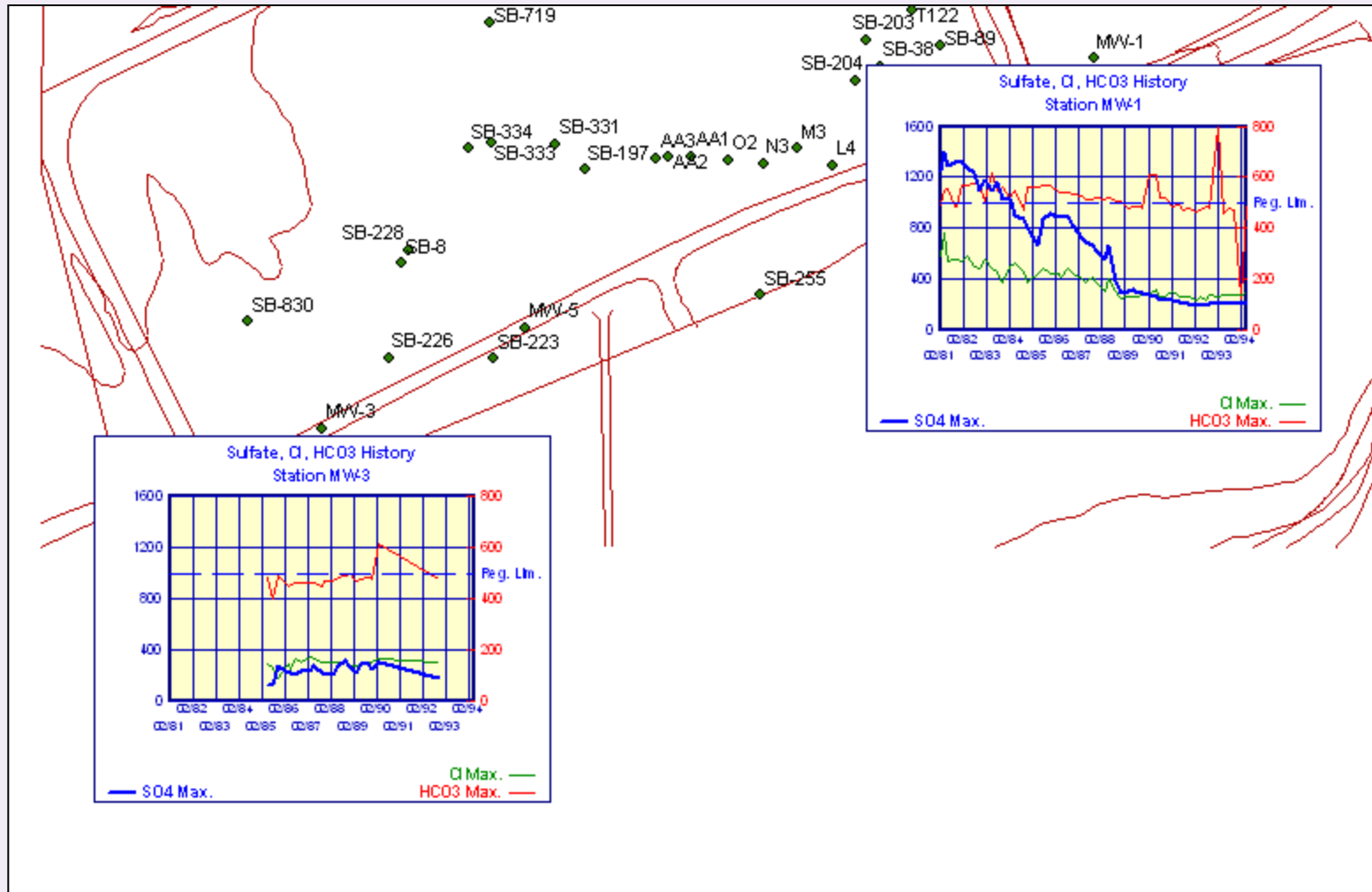
Search



- You need a base map or image
- Sample locations must have coordinates
- And both have to match
- GIS software like ArcGIS makes the maps
- Specialized software can make environmental-specific displays
- Integration between the EDMS and the GIS can save time and improve quality



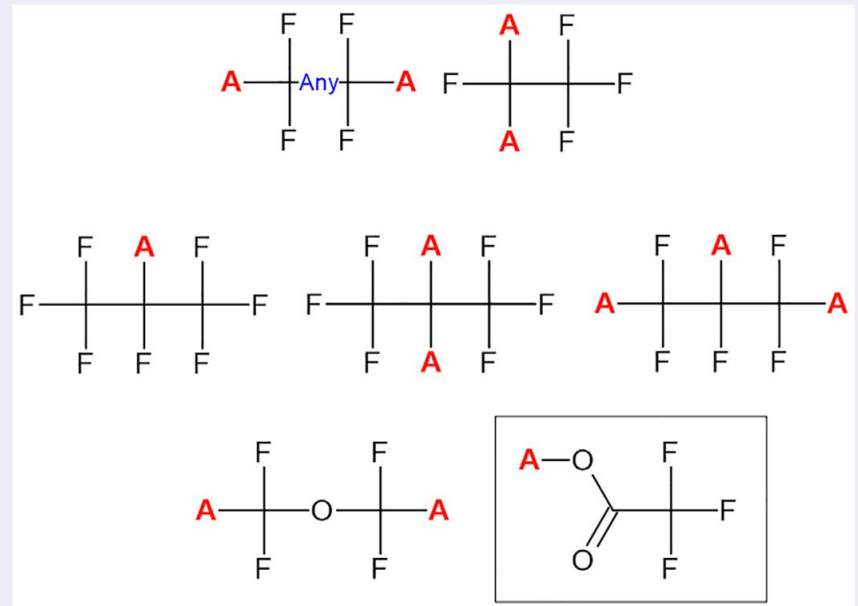




Managing PFAS Data

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- PFAS (Per- and Polyfluoroalkyl Substances) are a family of thousands of chemicals that vary widely in their chemical and physical properties, as well as their potential risks to human health and the environment (ITRC)
- There are about 10,000 known PFAS compounds
- Our clients have been managing PFAS data in the database since at least 2015, and are now starting to use automated data validation
- Managing PFAS data is like other data but with some differences
- Taking samples requires special equipment (e.g. no Teflon)
- New methods and parameters must be added to the database
- Note that some PFAS compounds have very long names (>30 chars.)
- There are some differences in validation
- Selection and display are similar to other data



Example PFAS Structures (Source: NIH)

- **There are some differences in validation**
 - **Most validation for PFAS is the same as for other compounds but there are some differences**
 - **For example, for method 527 if internal standards are not applied to every sample, standard, blank and QC, then the data can be rejected**



Managing PFAS Data

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Example PFAS data

Select Data QC Tasks Validated Analyses Validation Checklist Reports and Other Tasks

SampleDate	LabSampleID	QCAAnalysisC	LongName	FlagCode	Temp Validation Code	Reason	Value	Final Value	Detector	Detect
11/29/2023	20298711004	TAR	PFMPA	U	UJ	SURR_LCL	3.5		N	
11/29/2023	20298711002	TAR	PFMPA	U	UJ	SURR_LCL	3.5		N	
11/29/2023	20298711001	TAR	PFMPA	U	UJ	SURR_LCL	3.5		N	
11/28/2023	20298711012	TAR	PFMPA	U	UJ	SURR_LCL	3.5		N	
11/29/2023	20298711007	TAR	Perfluorobutanesulfonic acid (PFBS)	J	J	SURR_LCL	3.2		Y	
11/29/2023	20298711008	TAR	Perfluorobutanesulfonic acid (PFBS)	J	J	SURR_LCL	3.2		Y	
11/29/2023	20298711010	TAR	Perfluorobutanesulfonic acid (PFBS)	J	J	SURR_LCL	2.9		Y	
11/29/2023	20298711001	TAR	Perfluorobutanesulfonic acid (PFBS)	J	J	SURR_LCL	1.8		Y	
11/29/2023	20298711005	TAR	Perfluorobutanesulfonic acid (PFBS)	J	J	SURR_LCL	1.7		Y	
11/29/2023	20298711002	TAR	Perfluorobutanesulfonic acid (PFBS)	J	J	SURR_LCL	1.7		Y	
11/29/2023	20298711007	TAR	Perfluorobutanoic acid (PFBA)		J	SURR_LCL	39.1		Y	
11/29/2023	20298711001	TAR	Perfluorobutanoic acid (PFBA)		J	SURR_LCL	114		Y	
11/29/2023	20298711005	TAR	Perfluorobutanoic acid (PFBA)		J	SURR_LCL	45.3		Y	
11/29/2023	20298711008	TAR	Perfluorobutanoic acid (PFBA)		J	SURR_LCL	26.2		Y	

PFAS Validation

Analyses Samples Stations Sites

Station Name	Samp.Date	FilteredAnalDesc	FieldSampleID	Parameter	Detected	Value	Det. Lim.	FlagCor	
CA_Effluent	11/28/2023	Unknown	1701187136	Perfluorooctanoic acid (PFOA)	Y	3.1	3.7 J		53'
CA_Influent	11/28/2023	Unknown	1701186513	Perfluorooctanoic acid (PFOA)	Y	0.9	3.4 J		53'
CA_Influent	11/28/2023	Unknown	1701186513	Perfluorooctanoic acid (PFOA)	Y	6.2	10 J		53'
BA_Blank	11/28/2023	Unknown	1701196110	Perfluorooctanesulfonic acid (PFNA)	N	0.67	3.5 U		53'
BA_Effluent	11/28/2023	Unknown	1701195539	Perfluorooctanesulfonic acid (PFNA)	Y	2.8	3.7 J		53'
BA_Effluent	11/28/2023	Unknown	1701195539	Perfluorooctanesulfonic acid (PFNA)	Y	3.4	12.5 J		53'
BA_Influent	11/28/2023	Unknown	1701195352	Perfluorooctanesulfonic acid (PFNA)	Y	2.7	3.7 J		53'
BA_Influent	11/28/2023	Unknown	1701195352	Perfluorooctanesulfonic acid (PFNA)	Y	4.2	10 J		53'
BA_Influent	11/28/2023	Unknown	1701195573	Perfluorooctanesulfonic acid (PFNA)	Y	3.6	3.6 V		53'
BA_Influent	11/28/2023	Unknown	1701195573	Perfluorooctanesulfonic acid (PFNA)	Y	4	10 J		53'
BR_Effluent	11/28/2023	Unknown	1701181739	Perfluorooctanesulfonic acid (PFNA)	Y	4.2	3.5 V		53'
BR_Influent	11/28/2023	Unknown	1701182393	Perfluorooctanesulfonic acid (PFNA)	N	1.9	10 U		53'
BR_Influent	11/28/2023	Unknown	1701182393	Perfluorooctanesulfonic acid (PFNA)	Y	3.1	4.7 J		53'

PFAS Display



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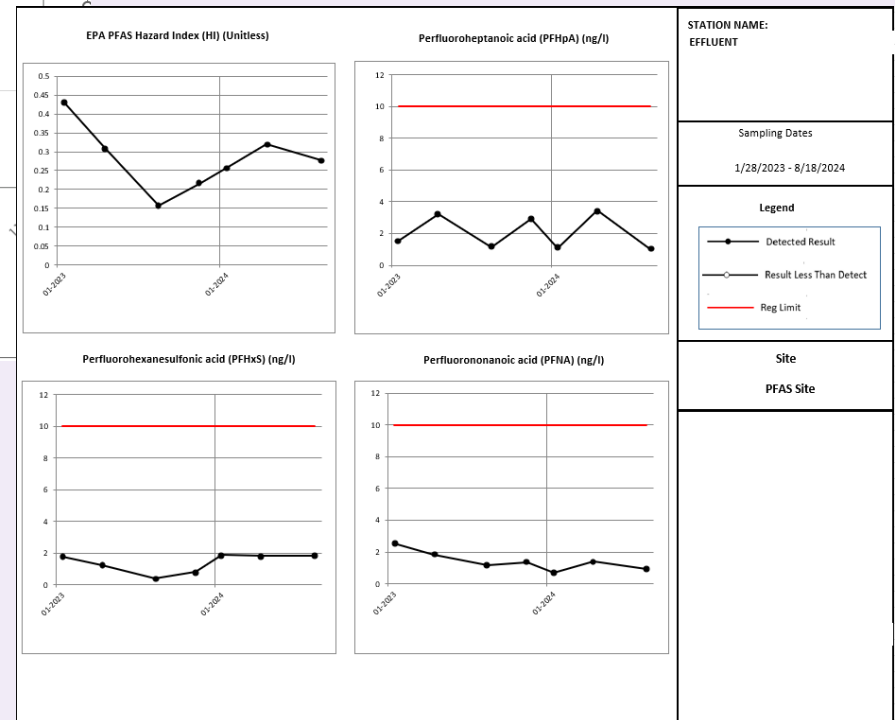
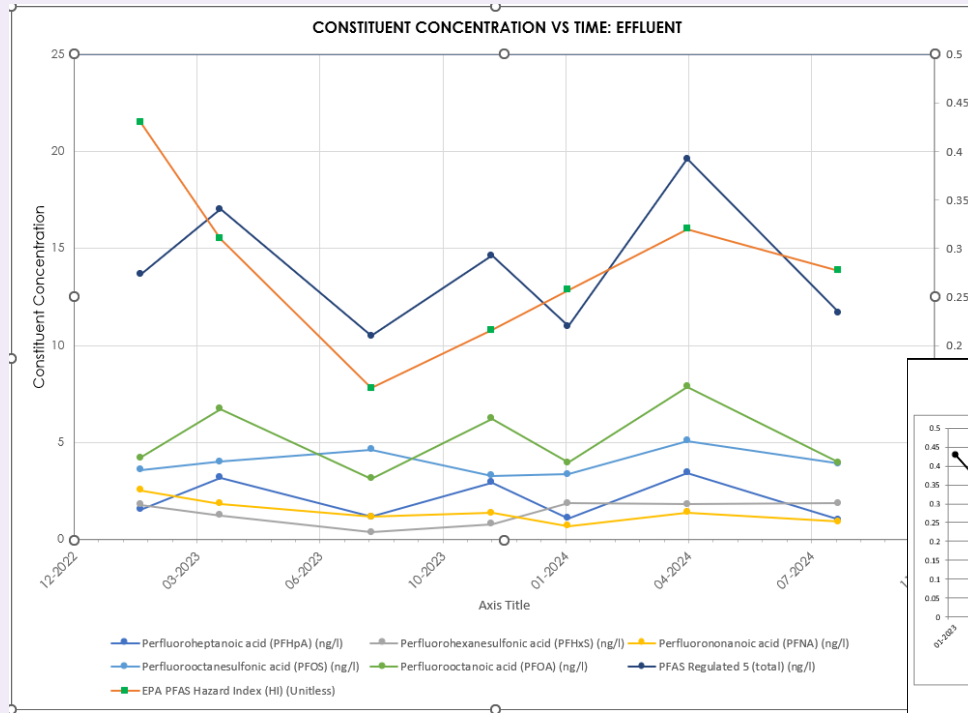
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Managing PFAS Data

27/36



PFAS Graphs



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- ➊ Sometimes it's helpful to distribute data to a large number of users
- ➋ This could be the public, or individuals within an organization
- ➌ Start by building a database for the project
- ➍ Set up a website for data selection and display
- ➎ Arrange for appropriate security
- ➏ Provide the data from the database to the website

Select Data

Site
Select
MEDLEY LANDFILL
NORTH DADE LF
SOUTH DADE LF

Sample Date
Date Range:
Ex: 1/1/1980:12/31/1985,
or single date

Parameter
WATER LEVEL RELATIVE TO ME
Water Temp. (FIELD)
XYLENES
ZINC

Stations
MW15I
MW-15IR
MW15S
MW-15SSR

Sample Top
Select
0

Summary Category
Select
Dioxins
Field Param
Herbicides

Station Group
Select
Background
Compliance
Detection

Sample Base
Select
0

Value

can use >, <, <=, >=
Display the data as:

MW-15SSR and MW-1DR2 with Zinc

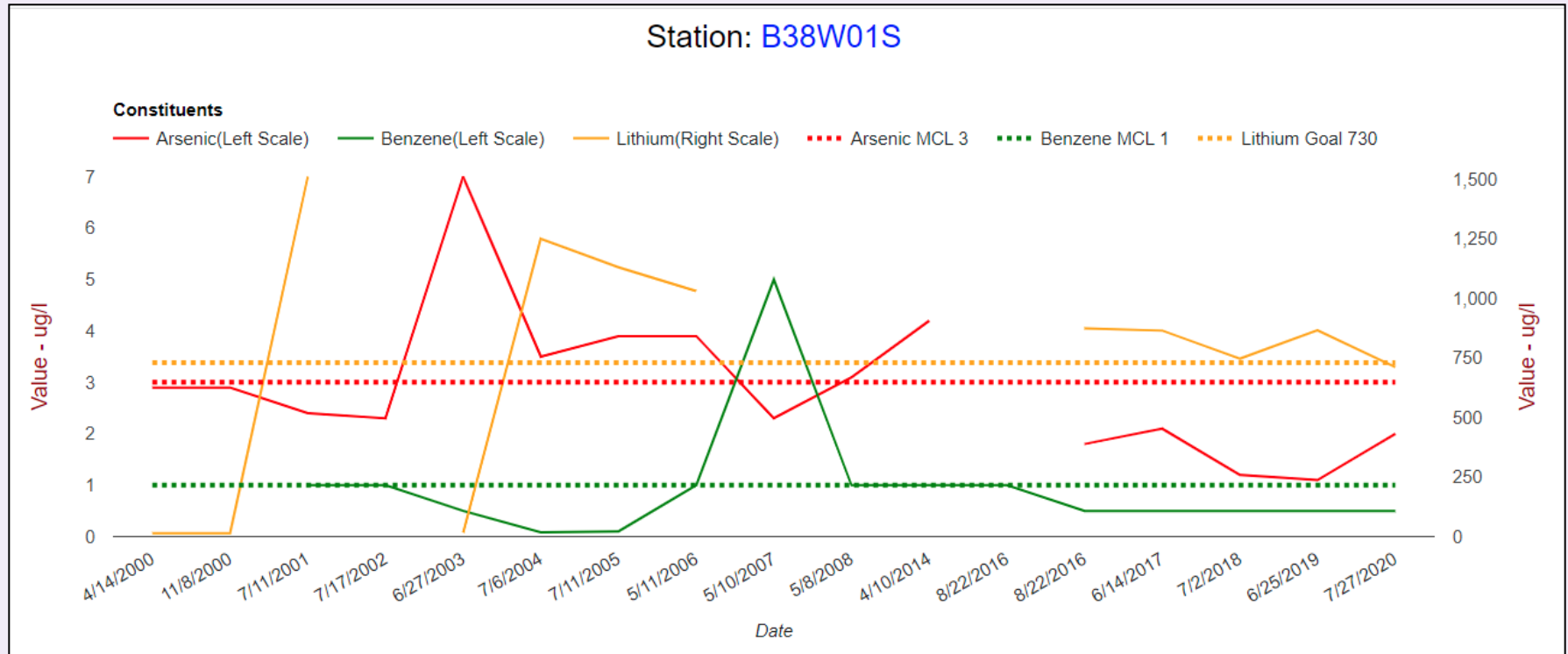
Save this search?
Or use a saved search:

Instructions:
Select the options for the data that you would like to retrieve.
One example that will show some flags on the map is:
Select in Sites Medley Landfill, in stations scroll down to and select MW-15SSR and a few stations after (hold the shift key to multi-select).
Click List or Map.

Tree View
This option displays the data in a hierarchical view. You can expand the nodes by clicking on the line. Unlike the other output options, the Tree View displays all the data in the database, not just the data you have selected with the filter criteria. This can be handy to quickly find the results of one sample or analysis.

Selection Results

Site Name	Station Name	Sample Date	Parameter	Value	Units	Det. Lim	Flag	Dup.	Sup.	Dilution
MEDLEY LANDFILL	MW-15SSR	4/9/2019	PH, FIELD	11.26	PSI		D	0	0	1
MEDLEY LANDFILL	MW-15SSR	10/8/2019	PH, FIELD	11.24	PSI		D	0	0	1
MEDLEY LANDFILL	MW-15SSR	10/8/2019	SPEC. CONDUCTANCE (FIELD)	543	umhos/cm		D	0	0	1
MEDLEY LANDFILL	MW-15SSR	4/9/2019	SPEC. CONDUCTANCE (FIELD)	950	umhos/cm		D	0	0	1
MEDLEY LANDFILL	MW-15SSR	4/9/2019	TURBIDITY, FIELD	5.21	NTUs		D	0	0	1
MEDLEY LANDFILL	MW-15SSR	10/8/2019	TURBIDITY, FIELD	7.22	NTUs		D	0	0	1
MEDLEY LANDFILL	MW-15SSR	10/8/2019	Water Temp. (FIELD)	30.7	Deg C		D	0	0	1
MEDLEY LANDFILL	MW-15SSR	4/9/2019	Water Temp. (FIELD)	30	Deg C		D	0	0	1
MEDLEY LANDFILL	MW1DR2	4/8/2015	PH, FIELD	7.13	PSI		D	0	0	1
MEDLEY LANDFILL	MW1DR2	10/8/2015	PH, FIELD	7.29	PSI		D	0	0	1
MEDLEY LANDFILL	MW1DR2	4/7/2016	PH, FIELD	7.01	PSI		D	0	0	1
MEDLEY LANDFILL	MW1DR2	10/20/2016	PH, FIELD	7.17	PSI		D	0	0	1
MEDLEY LANDFILL	MW1DR2	4/6/2017	PH, FIELD	7.12	PSI		D	0	0	1
MEDLEY LANDFILL	MW1DR2	10/9/2017	PH, FIELD	7.58	PSI		D	0	0	1
MEDLEY LANDFILL	MW22WT	10/21/2016	WATER LEVEL RELATIVE TO MEAN SEA LEVEL (FEET)	3.9	ft		D	0	0	1
MEDLEY LANDFILL	MW22WT	4/5/2017	Water Temp. (FIELD)	27.8	Deg C		D	0	0	1
MEDLEY LANDFILL	MW22WT	10/21/2016	Water Temp. (FIELD)	26.4	Deg C		D	0	0	1
MEDLEY LANDFILL	MW22WT	4/7/2016	Water Temp. (FIELD)	28.8	Deg C		D	0	0	1
MEDLEY LANDFILL	MW22WT	10/5/2018	Water Temp. (FIELD)	27.4	Deg C		D	0	0	1
MEDLEY LANDFILL	MW22WT	4/5/2018	Water Temp. (FIELD)	26.9	Deg C		D	0	0	1
MEDLEY LANDFILL	MW22WT	10/10/2017	Water Temp. (FIELD)	27.7	Deg C		D	0	0	1
MEDLEY LANDFILL	MW22WT	10/7/2019	Water Temp. (FIELD)	28	Deg C		D	0	0	1
MEDLEY LANDFILL	MW22WT	4/5/2019	Water Temp. (FIELD)	27	Deg C		D	0	0	1
MEDLEY LANDFILL	MW22WT	10/12/2015	Water Temp. (FIELD)	29.3	Deg C		D	0	0	1



Site

Select Site
Forest Products Co.
Rad Industries
Refining Inc.

Station

Select Station
A2
AA1
AA2
AA3

Station Group

Select Station Group
Basement Wells
Factory Site
GW Monitoring
Soil Investigation

Sample Date

Date Range

Parameter

Select Parameter
2,4-Dinitrotoluene
2-Picoline
Anthracene
Arsenic (As)

Summary Category

Select Category
Field Perom
Inorganics
Metals
Other

Value

09a-2123
Systematic

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Site-Wide Documents

Initial Aerial Survey

Soil ROD

Groundwater ROD

Site Contacts

Freg. Asked Questions

Station ID	Depth	Parameter	Date	Value	Cleanup Goals
09a-2123	0-0.5	Ra-226	9/6/2018	0.476	16.64
09a-2123	0-0.5	Ra-226+Th-232	9/6/2018	0.979	16.64
09a-2123	0-0.5	Th-232	9/6/2018	0.503	
09a-2123	0-0.5	U-238	9/6/2018	0.291	61.33

Legend

Excavation Design Actual Excavation Compliant Non-Compliant

GeoProbe Systematic Grab Bias Doc Control

Property Status

Surveyed, below applicable criteria
Remediated, below applicable criteria
Active Remediation
Not FUSRAP

Historical Sample Points may not be survey grade.

Boundary Colors

Main Property Outline Excavation Design Outline Actual Excavation Outline Inaccessible Area

Decrease overhead - One industrial company was able to save \$12,000 per year on just one project by moving the data management tasks to a much less expensive clerical person.

Lower operating cost - Another used data management to get their regulator to approve less-frequent sampling intervals for about two of their wells per year, resulting in a savings of \$9,000 each year, cumulative from year to year.

Increase efficiency – For one organization, the time to process an electronic deliverable decreased from an average of 30 minutes to 5 minutes, resulting in an annual savings of \$5,000 per year on each project.

A Native American tribe needed to make nine hundred graphs/year for their EPA PM. With Excel, it took 3 months. With a database with integrated graphing, it took 10 minutes.

Increase revenue - A consulting company client was able to use their Enviro Data software and expertise to land a \$300,000 data management task from one of their clients.

Cost Items	Example	Your company
Software - 1 eData Single Use	\$4,800	
Maintenance, 3 years	2,880	
GCS training, one day	1,440	
Staff learning curve, 3 days	2,400	
Total Cost	\$11,520	
Cost Savings		
Data loading - 180 hours @ \$125/hour	\$22,500	
Analysis - 180 hours	\$22,500	
Reporting - 180 hours	\$22,500	
Total Savings	\$67,500	
Payback	\$67500/11520	5.86:1
Plus intangibles		
Work quality		
Client satisfaction		
Staff morale		

Assumptions

Basic implementation (shown): One user, Access back end. Software use 10 hours/week at @125 per hour gives a return of 5.86:1.

Comprehensive implementation: Three administrative users plus five read-only project staff, similar assumptions, gives a return of 6.9:1.

- ❶ Environmental investigation and remediation are inherently complex
- ❷ Implementing a centralized data management system makes sense for most environmental projects
- ❸ Environmental data management software continues to improve, providing greater value over time
- ❹ Integrating validation with data management can greatly reduce cost and improve quality
- ❺ Is it time to retire your spreadsheet?



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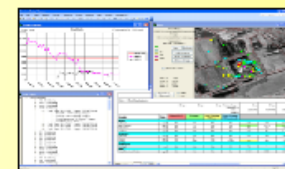
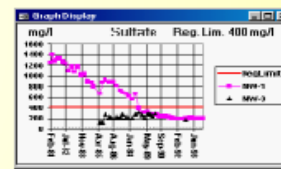
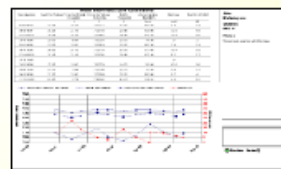
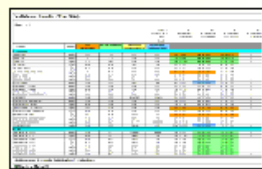
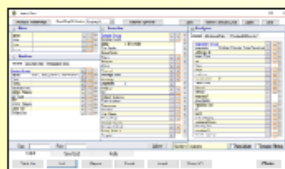
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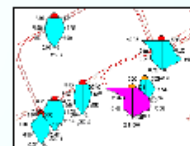
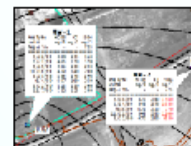
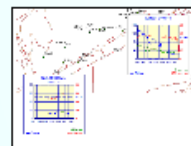
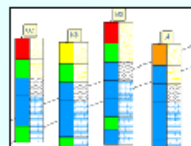
Enviro Data

Relational Management of
Site Environmental Data



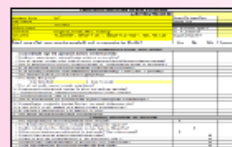
Enviro Spāse

Display and Analysis of
Site Environmental Data



Enviro Cloud

Enviro Software
As a Service



Enviro Portal

Show Your Data
in a Browser

