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Computer Systems, Inc.

# Managing Groundwater and Other Data from the Field to the Map

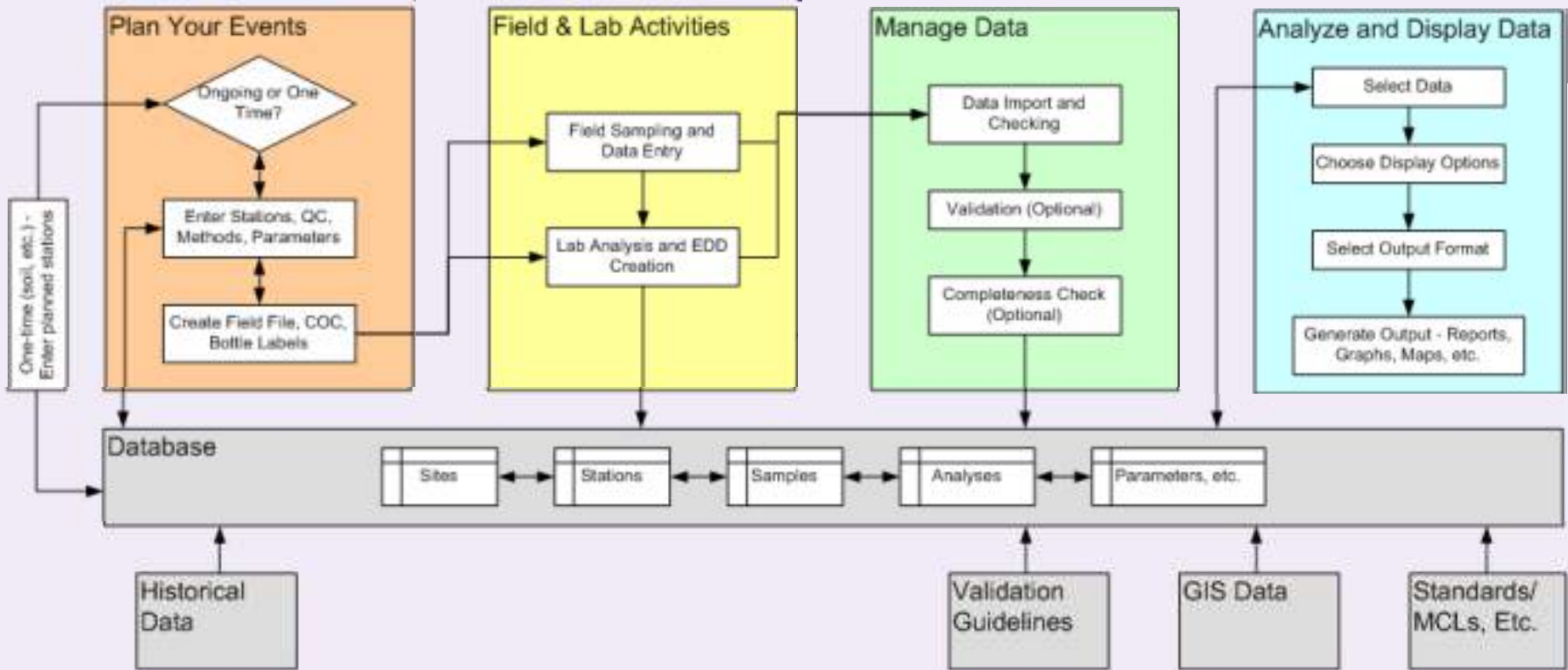


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# High Level View of the Process

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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**

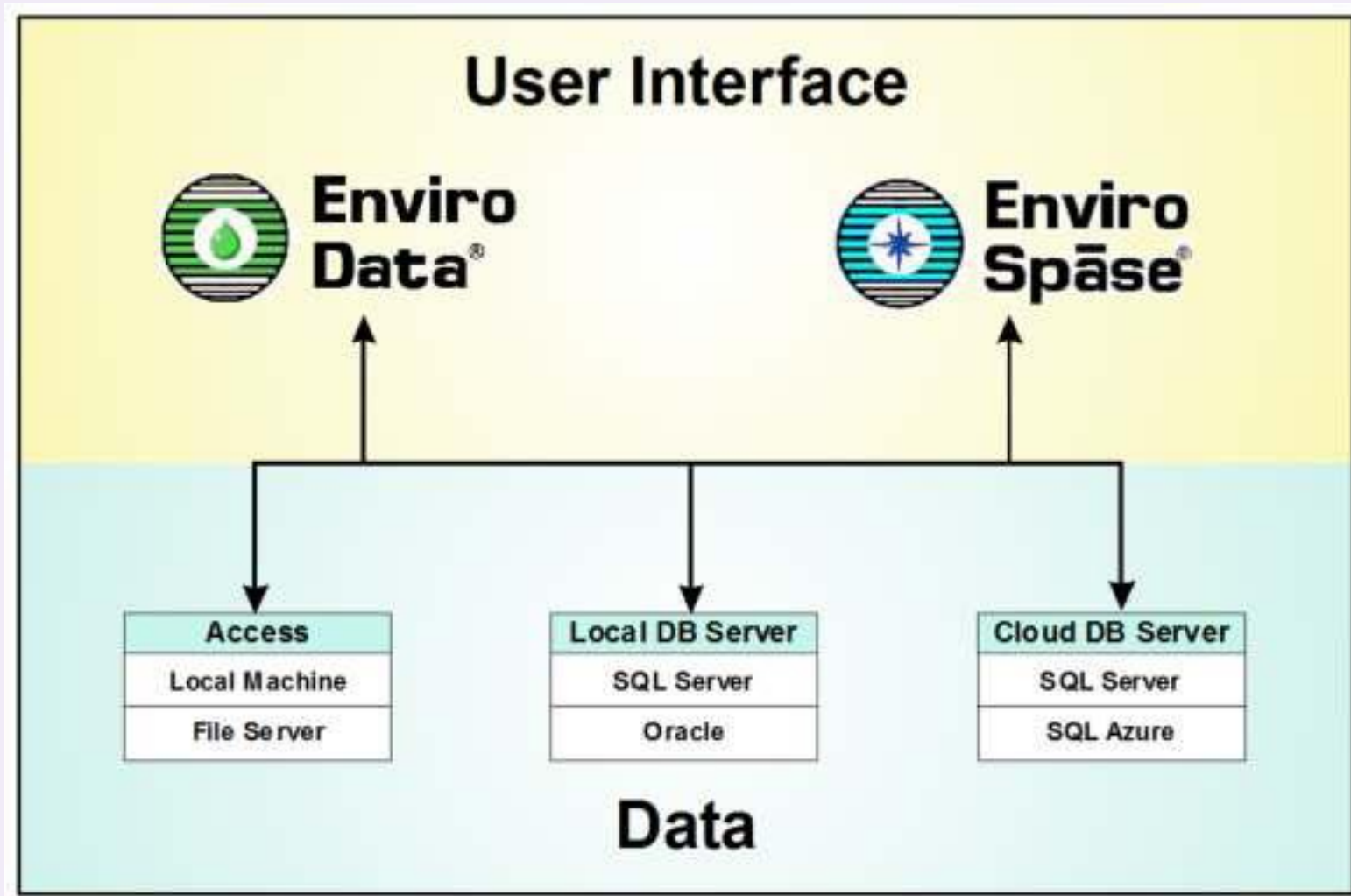


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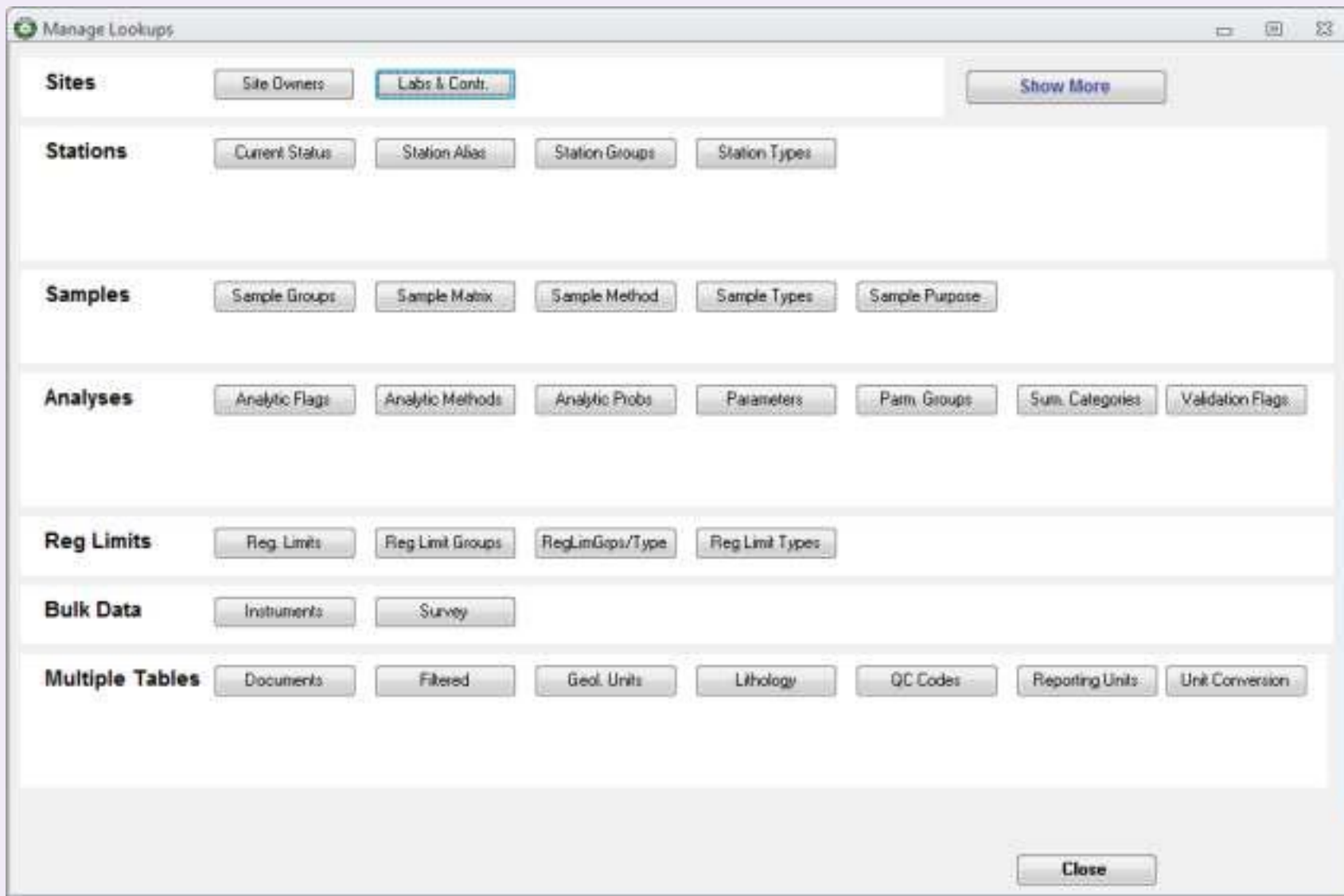
# Storage Options

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# Lookup Tables

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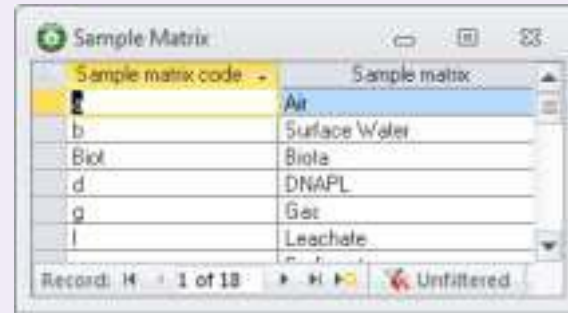


# Lookup Tables

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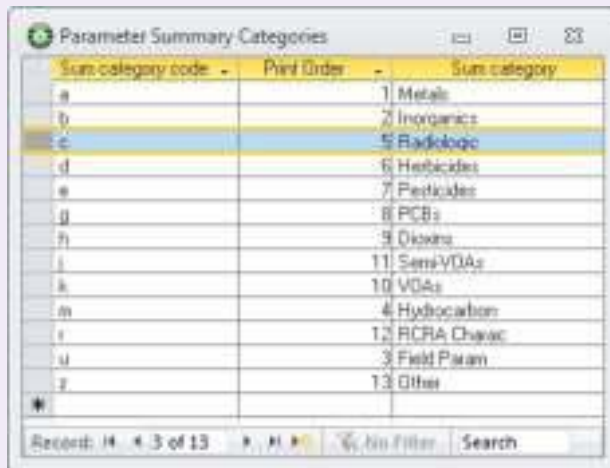
Sample Matrix dialog box. Fields: Sample matrix code: a, Sample matrix: Air. Buttons: Datasheet, Close. Status: Record: 1 of 18, Unfiltered.



Sample Matrix dialog box showing a table of sample matrix codes and descriptions.

Sample matrix code	Sample matrix
a	Air
b	Surface Water
Biota	Biota
d	DNAPL
g	Gas
l	Leachate

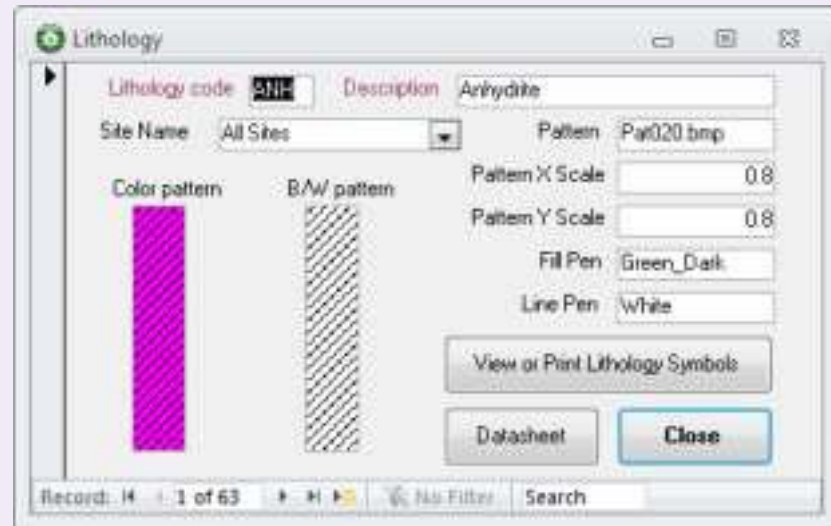
Status: Record: 1 of 18, Unfiltered.



Parameter Summary Categories dialog box showing a table of parameter categories.

Sum category code	Print Order	Sum category
a	1	Metals
b	2	Inorganics
c	5	Radionuclides
d	6	Herbicides
e	7	Pesticides
g	8	PCBs
h	9	Dioxins
i	11	SemiVOCs
k	10	VOCs
m	4	Hydrocarbon
r	12	RCRA Charac
u	3	Field Param
z	13	Other

Status: Record: 3 of 13, No Filter, Search.



Lithology dialog box. Fields: Lithology code: ANH, Description: Anhydrite, Site Name: All Sites, Pattern: Pat020.bmp, Pattern X Scale: 0.8, Pattern Y Scale: 0.8, Fill Pen: Green\_Dark, Line Pen: White. Buttons: View or Print Lithology Symbols, Datasheet, Close. Status: Record: 1 of 63, No Filter, Search.



# Regulatory Limits

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**Edit Regulatory Limits**

Filter Limits by...  Regulatory Limit Type:  Actions:

Regulatory Type Group:

Sample Matrix:

All Sites  Site-Specific

Parameter	Regulatory Limit Type	Matrix	Limit	FilterCode	Lower Lir
Arsenic (As)	Calculate Percentile	Water	25	z	ug
Arsenic (As)	Federal MCL	Water	100	z	ug
Arsenic (As)	Guidance	Water	2	z	ug
Arsenic (As)	None	Water	30	z	ug
Arsenic (As)	Permit	Water	0.5	z	ug
Benzene	Primary	Soil	10	z	ug
Benzene	Safe Drinking Water Standards	Water	0.1	z	ug
Benzo(a)pyrene	State Drinking Water Levels	Water	10	z	ug
Chromium	State Drinking Water Levels	Water	10	z	ug
Chromium	Primary	Water	50	z	ug
Copper	Primary	Water	50	z	ug
Fluoride	Guidance	Water	0.1	z	mg
Fluoride	Guidance	Water	0.1	z	mg
Gross Alpha	Federal MCL	Water	1	z	pC
Iron (Ferrous)	Primary	Water	100	z	ug
Lead (Pb)	Federal MCL	Water	1	z	ug
Lead (Dil)	Unknown	Water	1	z	ug

Record: 1 of 4 | Search: 4

Import Regulatory Limit Records from Parameters:   confirm each record?

Delete Regulatory Limit Records:

Export Reg Limits:

Record: 1 of 3 | Search:





# Importing lab and other data

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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
- ERPMS Lab Data (Lab Submission File )
- ERPMS 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:

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





# Quality Control - Consistency Checking

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Import Wizard - Match Station Names

This screen will help you match station names in the import file with those in the database.

Site in Import File	Station in Import File	Change To
Refining Inc.	MW14	CRK 15.0 EFK 6.3 EFK 13.8 EFK 18.2 EFK 23.4 EFK 24.2 K720SLOUGH KAP 0.2 KBP 0.1 MK 0.2 MW-14 MW-15 MW-16 PCK 1.6 WCK 2.3 WCK 2.9

Record: 1 of 1 | No Filter | Search

Import Results

All of your data was handled successfully.

ImportFile records: 18  
Deleted records: 0

Imported records: 18  
Imported to Samples table only: 0

Highest duplicate: 1  
Highest superseded: 3

Activity Log

Name: oldave Activity Date: 5/31/2018

Site Modified: Refining Inc.

Please Describe What You Did:  
Imported 18 out of 18 Water data Analyses records for sample dates 6/15/1999 to 6/16/1999 from file UnsuccessfulImport2012.xls. Imported by DRDAVE\DESKTOP on 5/31/2018 8:37:59 PM



# Data review and validation

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The screenshot displays the 'Validate Data' application window. At the top, there are tabs for 'Data' and 'Tasks and Reports'. The main area contains a table with columns: TaskCategory, Description, Run, Clear Flags, Order, Completed, Bias Flag, QCQuery, DataQuery, and DetectC. The table lists various tasks such as 'Results < MDL', 'Accuracy' (LCS / LCSD Recovery, MS / MSD Recovery, Surrogate Recovery), 'Precision' (Field Duplicate RPDs, LCS/LCSD RPDs, MS/MSD RPDs), and 'Representativeness' (Detects < RL, Holding Times). Below the table is a navigation bar with 'Records: 1 of 11' and search filters. The interface includes several control panels: a 'Flag Data' and 'Clear Flags' section; a 'Select All' / 'Un-Select All' section; a 'Flag Tasks' / 'Clear Tasks' section; an 'Update Analyses Table' section; an 'Update hull FlagCode with Validation Code' section; a 'Clear Temp Validation Codes' section; a 'Refresh Temp Valid. Codes' section; a 'Reports' list with 'EDD Reporting Limits Outliers' selected; a 'Project Detection Limits' dropdown set to 'Refining Inc.'; a 'Lab' dropdown; a 'Det. Limit Types' section; a 'Valid Detect Limit' section; a 'Run Query' button; and a 'Custom Queries' table with one entry: Order 0, Description, Selected. At the bottom, there are buttons for 'Edit Projects', 'Delivery Groups', and 'Primary Samples'.

TaskCategory	Description	Run	Clear Flags	Order	Completed	Bias Flag	QCQuery	DataQuery	DetectC
	Results < MDL	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>			
Accuracy	LCS / LCSD Recovery	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>			
Accuracy	MS / MSD Recovery	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>			
Accuracy	Surrogate Recovery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>	Val_SurrExceer		
Precision	Field Duplicate RPDs	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>			
Precision	LCS/LCSD RPDs	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>			
Precision	MS/MSD RPDs	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>			
Representativeness	Detects < RL	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>			Val_DetectsBe
Representativeness	Holding Times (Sample to Analysis Date)	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>			



# Laboratory Report Data Review e-Checklist

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Quality  
Control  
e-Checklist

1	<b>Laboratory Report ID:</b>			
2				
3	Laboratory Name:	Phoenix	Report Package Date:	
4	Project Name:		Review Date:	
5	SDG:	GBV16132		
6	Reviewer Name:		No. of Environ. Sples?	
7	Parameters:	Hydrocarbon, MA VPH, Metals, Other, PCBs, Pesticides, Semi-VOCs,	No. of QC Sples?	
8	Method IDs:	CTETPH 8015D, MA VPH 5/2004, SW6010C, SW7470A, SW7471B,	Rejected Results?	
9	Matrix:			
10	<b>*Attach copy of lab report showing sample IDs and corresponding lab IDs (Att 1)</b>		Yes	No
10			N/A	Comment
31	<b>Laboratory Method Blanks and Field Blanks</b>			
32	1	Were appropriate types of laboratory method blanks analyzed?	X	
33	2	Were the laboratory method blanks analyzed at the appropriate frequency?		
34	3	Was the method blank free of contamination (i.e., less than the MDL or RL)?		X
35	4	Did the method blank contamination affect the final results? If so, note on page 2.		X
36	5	Was a trip blank required and submitted with the samples?		X
37	6	Was the trip blank free of contamination (i.e., less than the MDL or RL)?		X
38	7	Did the trip blank contamination affect the final results? If so, note on page 2.		X
39	8	Was an equipment blank required and submitted with the samples?		X
40	9	Was the equipment blank free of contamination (i.e., less than the MDL or RL)?		X
41	10	Did the equipment blank contamination affect the final results? If so, note on page 2.		X
42	11	Were Continuous Calibration Blanks (CCBs) analyzed?		X
43	12	Were CCBs within the control window?		
44	13	Did the CCB contamination affect the final results? If so, note on page 2.		
45	<b>Surrogates</b>			
46	1	Were surrogates added prior to extraction for all appropriate methods?	X	
47	2	Were surrogate percent recoveries within laboratory control limits?	X	
48	3	Did the surrogate percent recoveries affect the final results? If so, note on page 2.		X
49	<b>Laboratory Control Samples</b>			
50	1	Were Laboratory Control Sample (LCS) analyzed at a frequency of one per batch?	X	
51	2	Were LCSs spiked with appropriate list of target compounds?		X
52	3	Were LCS percent recoveries within laboratory control limits?		X
53	4	Did the LCS percent recoveries affect the final results? If so, note on page 2.	X	
54	5	If performed, was LCS Duplicate data provided?	X	
55	6	Were the LCS/LCSD RPD values within laboratory control limits?		X
56	<b>Matrix Spikes</b>			
57	1	Were MS/MSDs analyzed at a frequency of one per batch?	X	
58	Sample used/methods: B-113 6-6.7 MS, B-114 0.5-2 MS, B-121 0-2 MS, B-121 0-2 MS, B-125 5-6.5 MS,			
59	2	Were MS/MSDs performed on a project sample selected by the laboratory?	X	
60	Sample used/methods: B-113 6-6.7 MS, B-113 6-6.7 MS, B-114 0.5-2 MS, B-121 0-2 MS, B-121 0-2			
61	3	Were MS/MSDs spiked with appropriate list of target compounds?		X
62	4	Were MS/MSD percent recoveries within laboratory control limits?		X
63	5	Did the MS/MSD percent recoveries affect the final results? If yes, narrate.		X
64	6	Were the MS/MSD RPD values within laboratory control limits?		X
65	7	Did the MS/MSD RPDs affect the final results? If so, note on page 2.		X
66	<b>Field and Laboratory Duplicates</b>			
67	1	Was a field duplicate submitted with this SDG?		X

# Data selection

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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-t; 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:

- Regulatory limits
- Values and flags
- Unit conversion
- Date display
- Calculated parameters
- Non-detects
- Significant figures
- Graph display options
- Custom queries

Display/Graphing Options

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

Display Set: Standard

Detected Value Options:  Value Only  Use Analytic Flags Table  Value and Validation Flag  Use Validation Flags Table

Edit Analytic Flags Edit Validation Flags

Non-detect Options:  Use Analytic Flags Table  Display Detection Limit  Display % Detection Limit  Display Value  Display 0

Value And Validation Flag  Use Validation Flags Table Use Detect Type: Detect

Display Options  All Dilutions in Same Report Column  Use Scientific Notation Values > 10 Values < 1

Add delimiters to large numbers  Append Leach Method to Parameter Name

Un-Alias Parameters  Append Filtered Code to Parameter Name

Un-Alias Stations: Alias Type

Append Dilution to Parameter Name  Run Custom Queries

Number of Decimals  Exact Value  Auto  Max # Decimals:

Unit Conversion  Yes  No  Ask  Unit Conversion

Date Options  Date  Date & Time

Regulatory Limits: Display Limits?  Yes  No  Ask Selected Limit: Standard Report Group

Field Data Options  Columns  Rows Offset Type: Colour1

Calculated Parameters  Calculate Parameters

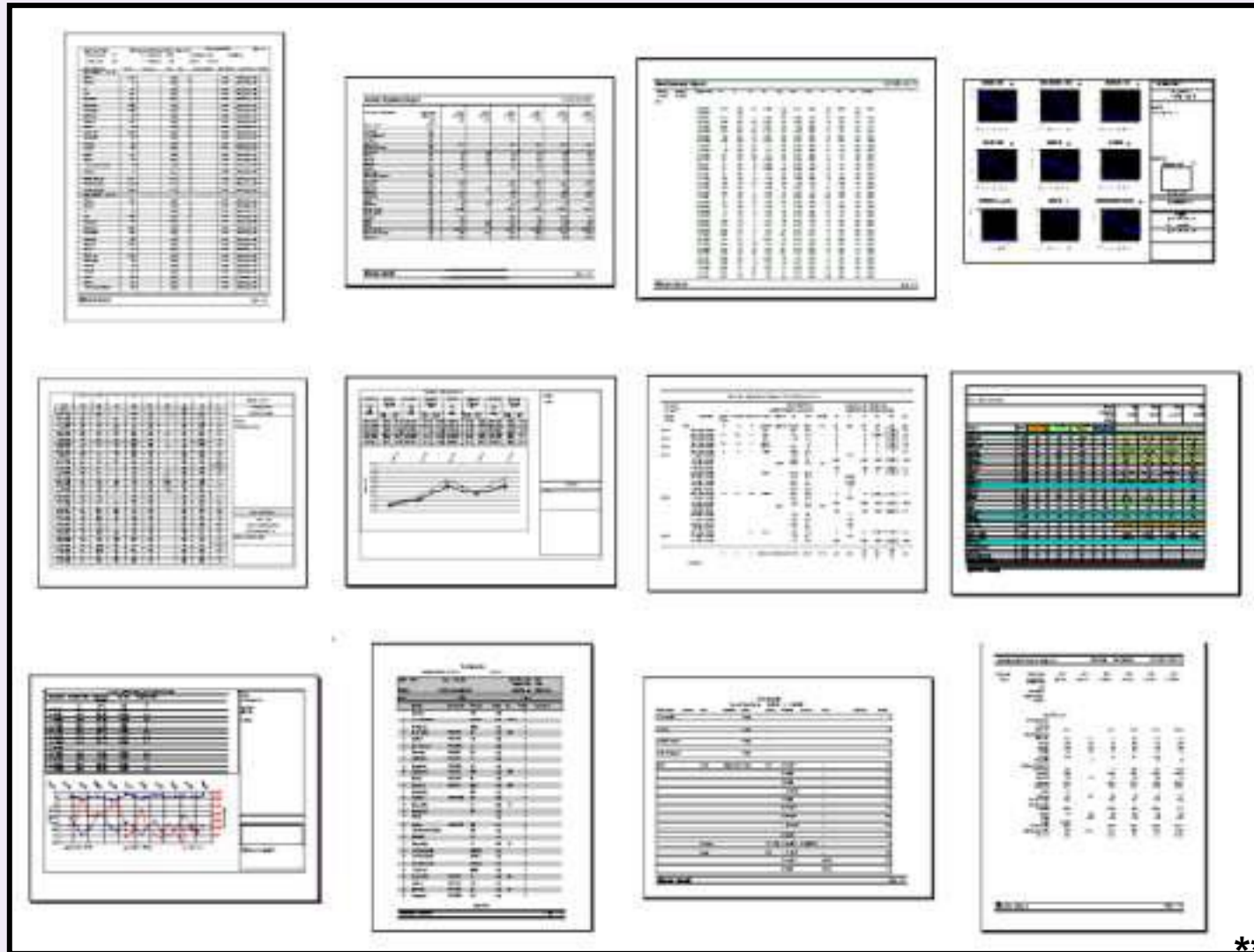
Records: 1 of 2 No filter Search

Back Close



# Report Examples

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\*1 edited



**Export Crosstab**

# Sites:  # Samples:

# Stations:  # Analyses:

Go to a Crosstab Format:

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:

Show SQL

Progress:

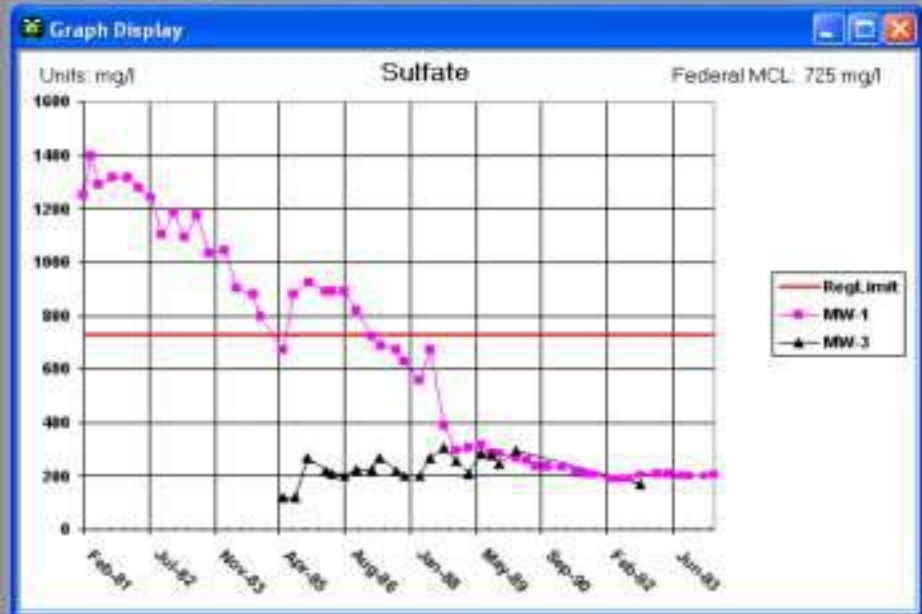
Start:  End:

Record: 1 of 6



1	Crosstab Report														
2	Station Name	Reporting Units	Federal MCL	Primary	Safe Drinking Water Standards	State Drinking Water Levels	MW-1	MW-1	MW-1	MW-1	Summary Statistics				
3	Sample Date						2/8/1984	5/10/1984	9/14/1984	11/13/1984					
4	QC Code						0	0	0	0	Results	Non-Detects	Minimum	Maximum	Mean**
5	<b>Field Param</b>														
6	Field pH	s.u.				7.1-8.4	7.70	7.10	7.10	7.20	4	0	7.1	7.7	7.2
7	<b>Inorganics</b>														
8	Bicarbonate	mg/l					520	550	470	560	4	0	470	560	525
9	Chloride	mg/l					250	260	230	190	4	0	190	260	232.5
10	Fluoride	mg/l					<1.00	<1.00	<1.00	<1.00	4	4	<1	<1	<1
11	Nitrate	mg/l		2			<1.00	2.00	2.00	<1.00	4	2	<1	2	1.2
12	Sulfate	mg/l	725	800	350	1000	1040	900	880	800	4	0	800	1040	905
13	<b>Metals</b>														
14	Arsenic (As)	mg/l	0.025	0.1	0.002	0.03	<0.11	<0.11	<0.11	<0.06	4	4	<0.06	<0.11	<0.11
15	Calcium	mg/l					180	170	203	180	4	0	170	203	183.2
16	Iron (Ferrous)	mg/l		0.1			0.2	3.2	3.7	4.8	4	0	0.2	4.8	2.9
17	Lead (Pb)	mg/l	0.001	0.004	0.005	0.0025	<0.068	<0.068	0.14	<0.08	4	3	<0.068	0.14	0.06
18	Magnesium	mg/l					94	100	107	100	4	0	94	107	100.2
19	Manganese	mg/l	0.0105	0.015	0.02	0.00225	0.077	0.066	0.076	0.066	4	0	0.066	0.066	0.07
20	Molybdenum	mg/l					0.02	<0.018	0.034	0.008	4	1	<0.018	0.034	0.01
21	Potassium	mg/l					5.20	6.20	5.61	20	4	0	5.2	20	9.2
22	Selenium	mg/l					<0.10	<0.10	<0.10	<0.08	4	4	<0.08	<0.1	<0.1
23	Sodium	mg/l					390	430	390	460	4	0	390	460	417.5
24	UTotal - sol	mg/l					0.003	0.01	0.003	0.003	4	0	0.003	0.01	0.004
25	<b>Other</b>														
26	Total Dissolved Solids	mg/l					2220	2230	2220	2200	4	0	2200	2230	2217.5
27	<b>Radiologic</b>														
28	Gross Alpha	pCi/l	1				<10.00	<10.00	<10.00	<10.00	4	4	<10	<10	<10
29	Ra-226 - soluble	mg/l			0.4375		0.32		0.035	0.0525	3	0	0.035	0.32375	0.1
30	Ra-228 - soluble	mg/l					0.59	0.36	0.33	0.27	4	0	0.27125	0.595	0.3
31	Th-230 - soluble	mg/l					0.025375	0.028675	0.041125	0.35	4	0	0.025375	0.35175	0.1
32															
33	** 1/2 RL used to calculate the mean wherer non-detect data occurred.														





### Map

Base Map: CAD/JC/EnviroData2008/RadInd/shw  
Image: C:\EnviroData2008\erwdata.bmp  
Parameter: Ra-226 - soil (Max.)

Legend:  
 1 (Green)  
 10 (Cyan)  
 100 (Yellow)  
 1000 (Magenta)  
 10000 (Red)

Buttons: Clear, Refresh, Full Extent, Draw Stations, Draw Image

Show Sta. Name

Coordinates:  
 Min X: -420  
 Max X: 4116  
 Min Y: 278  
 Max Y: 2868

Export to Clipboard:  SHP,  BMP

- ### 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: v
    - Soil - Date: 9/1/1995 - Depth: 730.96 729.45
    - Soil - Date: 9/1/1995 - Depth: 735.96 734.45
    - Soil - Date: 9/1/1995 - Depth: 740.96 739.45
    - 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

Sample ID	Deep	Deep	Deep	Station Group	Deep	Deep		
Date	5/20/1982	7/27/1982	8/01					
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	0.3	NA	NA	2.6	0.074	0.92
Potassium	mg/l	NA	NA	NA	NA	4.2	3.2	3.8
Sodium	mg/l	NA	NA	NA	NA	130	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	500	280	350
Field Parameters								
Field pH	na	NA	NA	NA	8.4	7.2	7	7.7
Other								
Total Dissolved Solids	mg/l	NA	NA	NA	NA	1120	1020	1060

Enviro Data Web Select Data - Microsoft Internet Explorer

File Edit View Favorites Tools Help



# Geotech Data Management Graphics



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[Support](#)
[Links](#)

## Web Output Select Data

**Site**

Select Site  
Forest Products Co.  
Red 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:   
Ex: 1/1/1980-12/31/1985, or single date

**Sample Top**

Select Top  
0  
526.91  
527.2  
528.2

**Sample Base**

Select Base  
0  
521.91  
522.2  
523.2

**Parameter**

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

**Summary Category**

Select Category  
Field Param  
Inorganics  
**Metals**  
Other

**Value**

can use >, <, <=, >=

**Instructions:**

Select the options for the data that you would like to retrieve.

For example, select MW-1 and MW-3 for Station (use the Control key to select more than one), and Sulfate for Parameter. Then click on Search.

As another example, to show all the metals greater than 100 mg/l in the monitoring wells, select GW Monitoring for Station Group, Metals for Summary Category, and >100 for Value. Then click on Search.

Feel free to try other combinations. Note that if you don't make any selections, you will retrieve about 10,000 records, and it may take a minute or so.

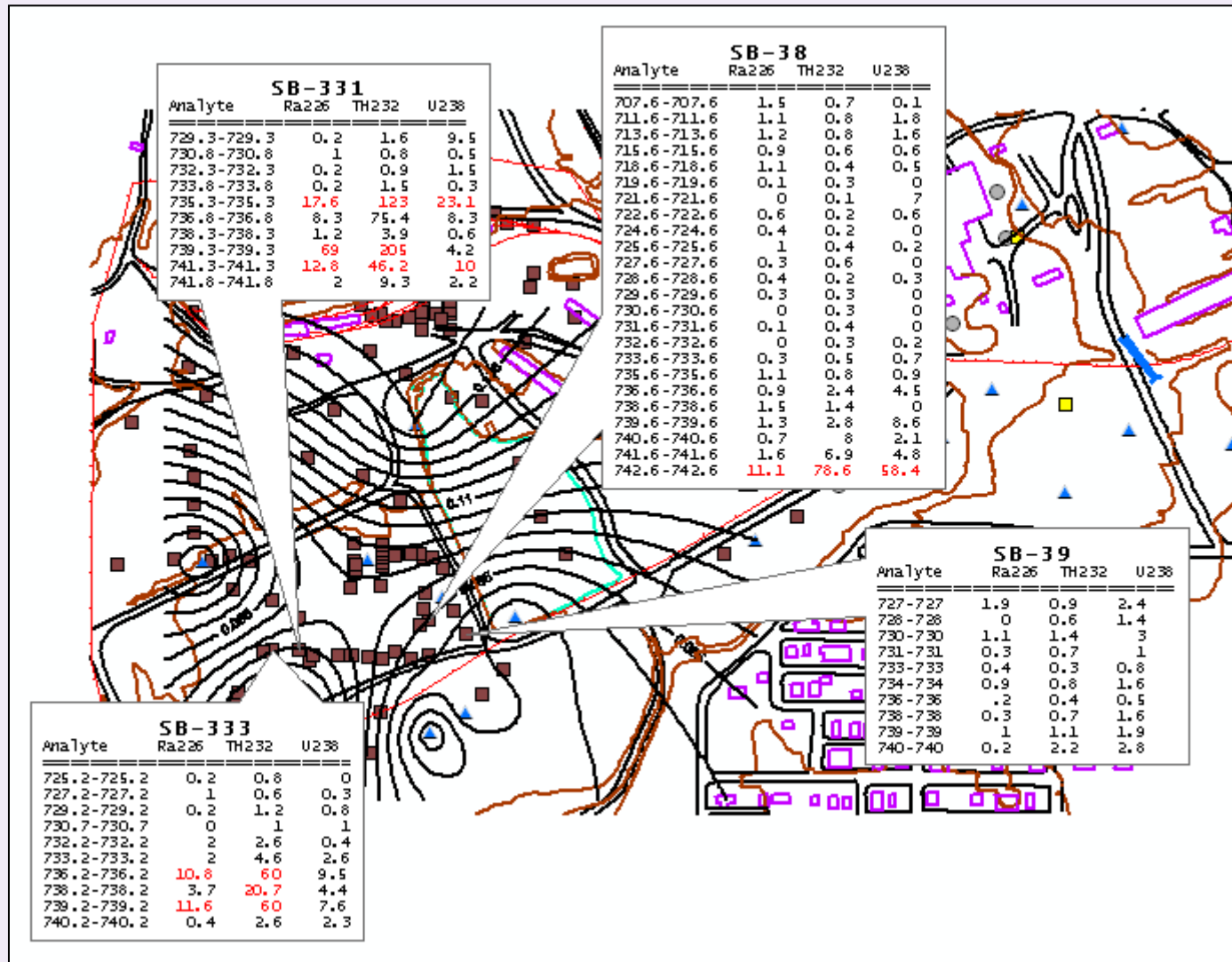
Internet



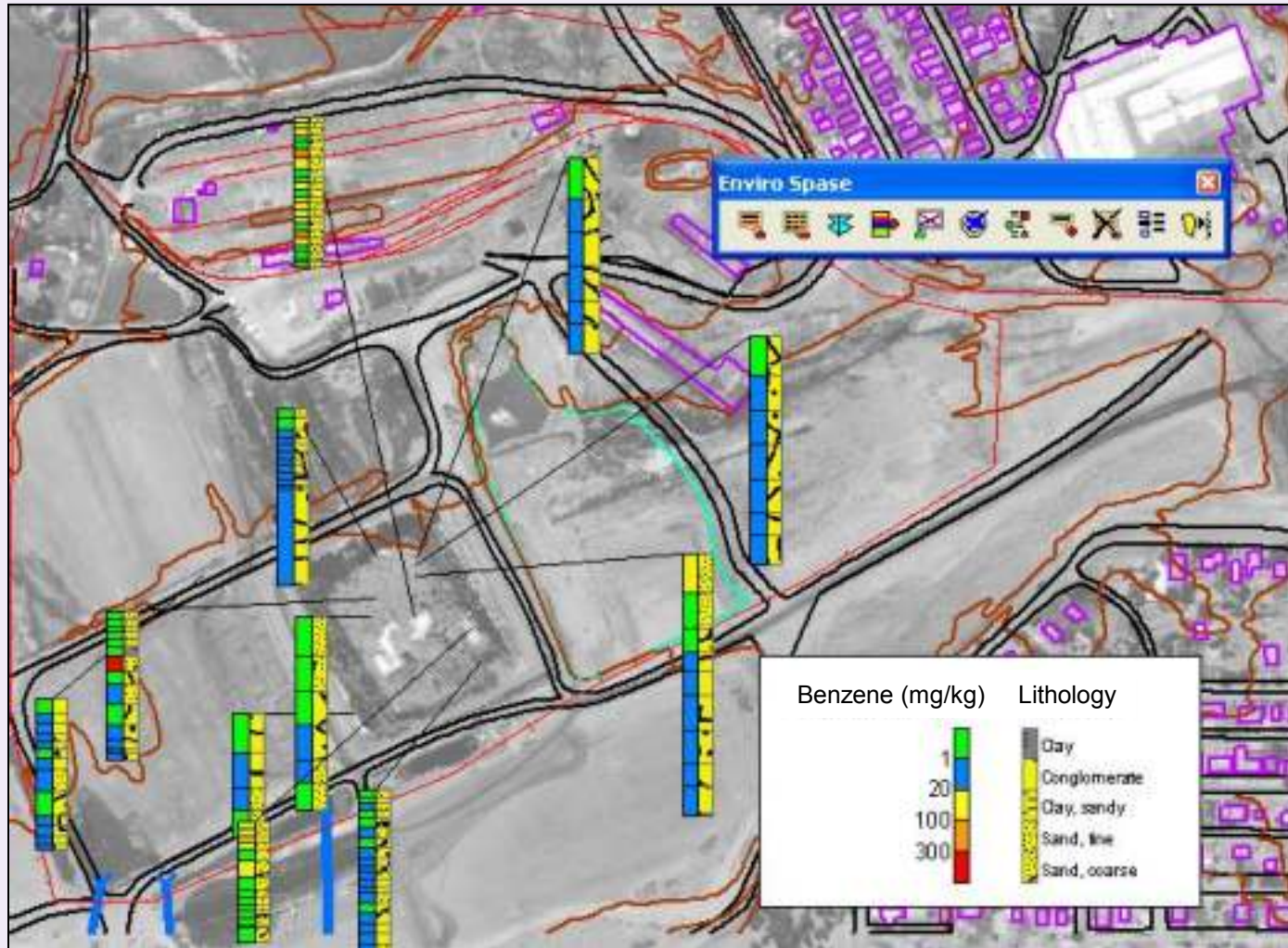
- You need a base map or image
- Sample locations must have coordinates
- And both have to match
- GIS software like ArcGIS makes the maps
- Specialized software can make environmental-specific displays
- Integration between the EDMS and the GIS can save time and improve quality



# Crosstab Callouts From the Database 21/26

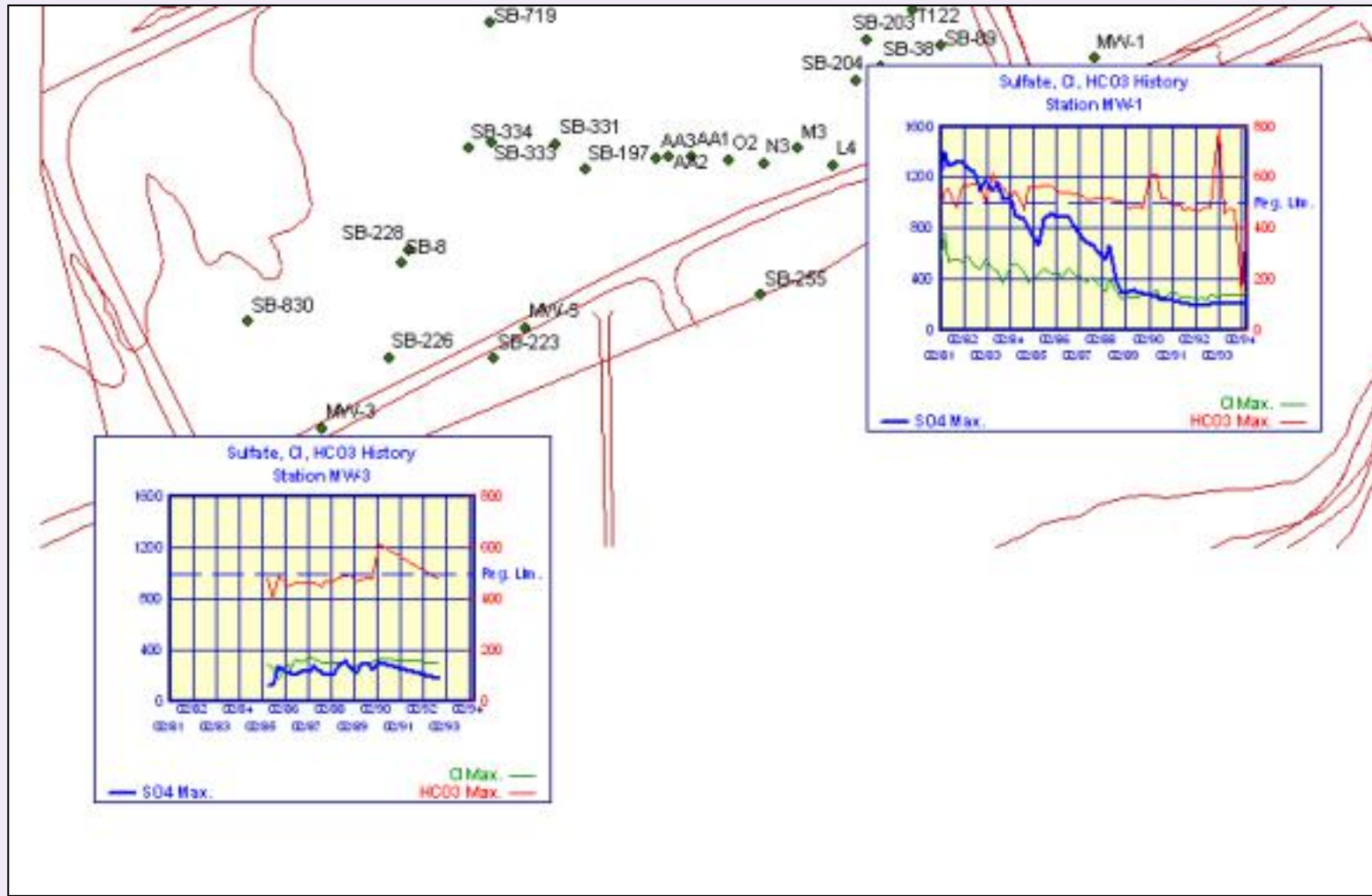


# Soil Borings with Values from the Database



# Time Sequence Graphs on the Map

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# Benefits of better data management

24/26

**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.

An Indian tribe needed to make nine 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.



- ① **Environmental investigation and remediation projects are inherently complex**
- ① **Efficient data management can reduce cost and improve quality**
- ① **Implementing a centralized data management system makes sense for most environmental projects**
- ① **Tools to do this are affordable and have a high return on investment**
- ① **Is it time to retire your spreadsheet?**





# Enviro Data<sup>®</sup>

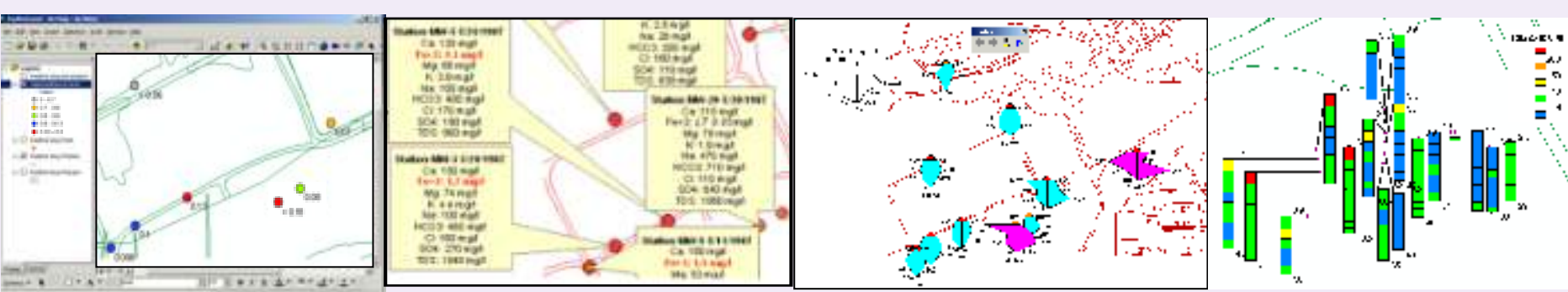
26/26

Relational Management of Site Environmental Data



# Enviro Spāse

Display and Analysis of Site Environmental Data



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