



Water Supply and Wastewater Applications

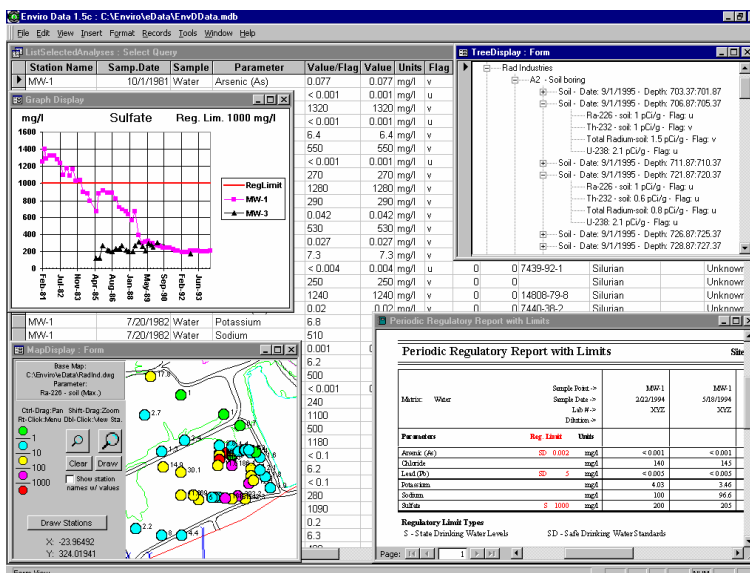
Enviro Data is a program for storing and displaying environmental quality data. It has applications in a variety of areas including facility operations, site investigation, remediation, potable water supply, and wastewater monitoring. This document discusses the application of Enviro Data for potable water supply and wastewater to save time, improve work quality, and minimize drudgery.

As the water supply and wastewater fields continue to diversify, and as sources and usage of water become more complex, it is critical to have an efficient tool to manage

constituent concentration and other information about the water for effective decision making and potential regulatory compliance. For example, wastewater reuse programs make tracking of water quality more important than ever before. The primary application of Enviro Data is for storing the results of field and laboratory measurements and analyses. It also stores supporting information to help understand the water quality data in the proper context. It then makes it easy to analyze and display the data in a variety of useful formats, or move it to other programs for further analysis and display, for example to a geographic information system to create water quality maps.

Enviro Data lets you import analytical and other data from laboratory data files or printed forms, review the quality of the data, and then store the data in the database. You can configure the data to be stored to suit your specific project needs. For example, if you need to track constituents at various locations in your water supply system, Enviro Data can be configured for the specific constituents of interest, and notify you when certain ones exceed specific limits. If the goal is to track the efficiency of a treatment process, Enviro Data lets you input data for samples before and after the process, and perform statistical comparisons of the two sets of data. You may need to analyze the distribution in space and time of certain constituents, for example to determine the source of an increase in a particular contaminant. The software lets you display graphs and maps of the data to nail down the time and place of the increase, to help you look for the cause. Enviro data can even notify you of exceedences immediately upon import, which is of great value for samples taken for Homeland Security purposes.

One Geotech client uses Enviro Data to manage the quality of produced water from natural gas wells as it is released to the streams in the areas. Measurements taken in the field are



combined with laboratory analyses to ensure that the quality of the water meets permit requirements at all times.

Another client is integrating Enviro Data with the laboratory information management system at their sewage treatment plant to help them analyze and report the data better from month to month, and to provide archival storage for the data over time. This will greatly increase efficiency over their existing system, which is based on paper reports.

A strong point in Enviro Data is in letting you compare your data to limits. You can have as many limit types as you wish, assign limits to types based on parameter, matrix and site (project), and even group limits into user-defined limit groups, allowing you to manage various limits and alerts. Many of the reports and graphs can use one or more of these limits for comparison. The report shown in the following figure can compare results to up to four limits at once and color-code exceedences, which is useful for risk-based criteria and other advanced approaches.

Validated Results (Test Site)										
Site: AA										
						Cluster ->	ZZ	ZZ	ZZ	ZZ
						Sample ID ->	AA-BB-003	AA-BB-005	AA-BB-006	AA-BB-006
						Date ->	10/9/2001	10/25/2001	10/17/2001	1/14/2002
						Depth ->				
Analyte	Units	Base Background	BTAG Sediment	Industrial Sediment RBCs	Residential Sediment RBC					
Pesticides										
4,4'-DDD	ug/kg	8.3	16	NA	NA	29 v / 20	60 U / 60	50 J / 7.5	-	
4,4'-DDE	ug/kg	11	2.2	NA	NA	37 v / 20	60 U / 60	31 v / 7.5	-	
4,4'-DDT	ug/kg	15.4	1.58	NA	NA	20 U / 20	60 U / 60	7.5 U / 7.5	-	
ALDRIN	ug/kg	NA	NA	340	38	10 U / 10	29 U / 29	3.7 U / 3.7	-	
ALPHA-BHC	ug/kg	NA	NA	NA	NA	10 U / 10	29 U / 29	3.7 U / 3.7	-	
ALPHA-CHLORDANE	ug/kg	5	NA	NA	NA	10 U / 10	29 U / 29	3.7 U / 3.7	-	
BETA-BHC	ug/kg	NA	NA	NA	NA	10 U / 10	29 U / 29	3.7 U / 3.7	-	
DELTA-BHC	ug/kg	NA	NA	NA	NA	10 U / 10	29 U / 29	3.7 U / 3.7	-	
DIELDRIN	ug/kg	NA	NA	360	40	20 U / 20	60 U / 60	7.5 U / 7.5	-	
ENDOSULFAN I	ug/kg	NA	NA	NA	NA	10 U / 10	29 U / 29	3.7 U / 3.7	-	
ENDOSULFAN II	ug/kg	NA	NA	NA	NA	20 U / 20	60 U / 60	7.5 U / 7.5	-	
ENDOSULFAN SULFATE	ug/kg	NA	NA	NA	NA	20 U / 20	60 U / 60	7.5 U / 7.5	-	
ENDRIN	ug/kg	NA	NA	610000	23000	20 U / 20	60 U / 60	7.5 U / 7.5	-	
ENDRIN ALDEHYDE	ug/kg	NA	NA	NA	NA	20 U / 20	60 U / 60	7.5 U / 7.5	-	
ENDRIN KETONE	ug/kg	NA	NA	NA	NA	20 U / 20	60 U / 60	7.5 U / 7.5	-	
gamma-BHC (Lindane)	ug/kg	3.14	NA	NA	NA	10 U / 10	29 U / 29	3.7 U / 3.7	-	
GAMMA-CHLORDANE	ug/kg	NA	NA	NA	NA	10 U / 10	29 U / 29	3.7 U / 3.7	-	
HEPTACHLOR	ug/kg	3.14	NA	1300	140	10 U / 10	29 U / 29	3.7 U / 3.7	-	
HEPTACHLOR EPOXIDE	ug/kg	NA	NA	630	70	10 U / 10	29 U / 29	3.7 U / 3.7	-	
METHOXYCHLOR	ug/kg	NA	NA	1E+07	390000	100 U / 100	290 U / 290	37 U / 37	-	
TOXAPHENE	ug/kg	NA	NA	52000	580	200 U / 200	590 U / 590	74 U / 74	-	
PCBs										
AROCLOR-1016	ug/kg	NA	22.7	82000	5500	20 U / 20	29 U / 29	37 U / 37	-	
AROCLOR-1221	ug/kg	NA	22.7	2900	320	20 U / 20	29 U / 29	37 U / 37	-	
AROCLOR-1232	ug/kg	NA	22.7	2900	320	20 U / 20	29 U / 29	37 U / 37	-	
AROCLOR-1242	ug/kg	NA	22.7	2900	320	20 U / 20	29 U / 29	37 U / 37	-	
AROCLOR-1248	ug/kg	NA	22.7	2900	320	20 U / 20	29 U / 29	37 U / 37	-	
AROCLOR-1254	ug/kg	NA	22.7	2900	320	20 U / 20	29 U / 29	37 U / 37	-	
AROCLOR-1260	ug/kg	NA	22.7	2900	320	20 U / 20	29 U / 29	37 U / 37	-	

Bold-exceeds 2 criteria Bold/Italics-3 Underline-4



Water supply and wastewater utilities are coming under increasing monitoring and reporting regulatory requirements. Enviro Data can help manage applicable regulatory permits and be configured to print out required monitoring report forms. Enviro Data is used by government agencies around the country, such as Pima County (AZ) Wastewater, and Miami Dade and Lake Counties (FL). It is in use in many of the major environmental engineering companies, including URS, Foster Wheeler, WestonSolutions, ERM, and Arcadis. It is also in use at major industrial companies such as ConocoPhillips and Kerr-McGee. These organizations have adopted Enviro Data because of its cost-effective power and ease-of-use, along with open-system flexibility not found in any other off-the-shelf or home-grown solutions. In summary, our clients, both in the water supply/wastewater and other parts of the industry, have found Enviro Data to be a superior solution for their data management needs.