August 23, 2005

Mr. Matt Gamble
Solid Waste Section
Division of Waste Management
North Carolina Department of Environment and Natural Resources
401 Oberlin Road, Suite 150
Raleigh, NC 27605

Re: Groundwater Sampling and Analysis
Cherokee County Subtitle D Landfill
MESC0 Project No. G05007.0

Dear Mr. Gamble:

The Cherokee County Subtitle D Landfill located in Marble NC was sampled and analyzed as part of the semi-annual detection monitoring program on February 23, 2005. Pace Analytical of Asheville, NC sampled and analyzed the background well MW-1 and compliance wells MW-2, MW-3, MW-4, MW-5, MW-6S, MW-6D, MW-7, MW-8, MW-9. The surface waters (SW-1, SW-2, and SW-3) were sampled concurrently and are reported as part of the Cherokee County Closed Landfill. Beginning with the next scheduled sampling event SW-2 will be sampled and reported correctly as part of the Subtitle D Landfill. An initial groundwater investigation report was submitted to the Section on June 13, 2004 and a subsequent progress report was submitted on May 19, 2005 which summarized the conditions and proposed further investigation actions for the effective characterization/delineation of the contaminants found in the MW-6S/D region. The results of the lab analysis and the statistical analysis results are included herein.

All detected constituents were analyzed for regulatory exceedance with reference to North Carolina Groundwater Standards. The results are shown in the enclosed table titled "Exceedance Scan". The following table summarize those constituents that exceeded the Standard.

Table 1. Exceedance Summary

Well	Chromium	Lead	Benzene	DCM
MW-1		x		
MW-3	x	x		
MW-4	x	x		
MW-6S			x	x

x=concentration greater than standard

Low levels of Inorganic constituents (Metals) were detected within several of the monitoring locations. However only chromium and lead were detected within compliance wells MW-3 and MW-4 above the Standard. A water sample obtained from MW-1 also contained levels of lead above the Standard and both lead and chromium were detected within MW-8 and MW-9 during the baseline sampling events for the phase 2 cell indicating that lead and chromium are naturally inherent in the groundwater. Volatile organic constituents (VOCs) continue to be detected within the compliance cluster wells MW-6S and

MW-6D. Water samples obtained from compliance well MW-6S continues to contain both chlorinated purgeable halocarbons and purgeable aromatics with concentrations of benzene and dichloroethane detected above the MCL during this sampling event . The number and concentrations of VOCs have decreased within MW-6S compared to the previous sampling event conducted in August 2005 with the exception of cis-1,2-dichloroethene which increased slightly but still remains below the Standard. The adjacent deeper counterpart MW-6D has contained a single VOC detection each of the last 3 sampling events. Cis-1,2-dichloroethene has been found in increasing concentrations within MW-6D since February 2004 but the levels still remain well below the MCL. Cis-1,2-dichloroethene is likely an intermediate compound originating from the degradation of tetrachloroethylene and trichloroethylene which has historically been detected within MW-6S. The presence of the intermediate breakdown product and the absence of the parent compounds within MW-6D may be an indication that the DNAPLs are undergoing natural attenuation prior to migrating vertically in the immediate vicinity.

Water levels were obtained from piezometers P2-5S, P2-5D, and P-4 to supplement the water elevations from the monitoring wells to construct a more accurate potentiometric surface. The leachate lagoon was reported to be dry during this sampling event therefore was not sampled.

MESCO also completed the statistical analysis as required by the Solid Waste Section. The purpose of these analyses is to determine, in comparison to background levels, statistical significance of constituents detected during this sampling event.

Statistical Analysis Methodology

Metals

An inter-well statistical analysis was conducted upon metals detected during this sampling event. Monitoring well MW-1 was defined as the background well, and an upper tolerance limit (UTL) with 95% coverage was computed for each detected constituent from the background data at a 95% level of confidence. For each tested constituent, an appropriate statistical analysis method was selected based on the percentages of non-detects (%ND) in the historical background data. The following table (Table 1) summarizes the methods used for four different %ND ranges.

Table 1. Statistical Analysis Methods for Various %ND Ranges

%ND	Analysis Method	ND Substitution
%ND<15%	Parametric tolerance limit	1/2 ND
15%<%ND<50%	Parametric tolerance limit	Cohen or 1/2 ND
50%<%ND<90%	Non-parametric tolerance limit	1/2 ND
90%<%ND	Poisson tolerance limit	-

NOTE: For parametric tolerance interval, normality of the background data was checked by the Shapiro-Wilks normality test, as the method requires that the data be normally distributed.

A total of 9 metals were tested for statistical significance. For selenium, the Poisson tolerance limit was utilized with no ND substitution since the parameter had a 90% non-detection rate within the background well. For beryllium, lead, nickel, chromium, vanadium and zinc the parametric tolerance limit with 1/2 ND adjustment was used on the original data or the log of the original data as its %ND was less than 50% and the data was normal or "log-normally" distributed. For the remaining metals, the non-parametric tolerance interval method with ½ ND substitution was utilized because the data was not normally distributed within the background well.

VOCs

All historical VOC detections in the background well MW-1 was pooled in order to determine the total number of detections, from which the expected number of detections in a single down gradient monitoring point (y^*) was derived by utilizing the Poisson prediction interval. The parameter y^* is defined by the following equation:

$$y^* = cy + \frac{t^2 c}{2} + tc\sqrt{y\left(1+\frac{1}{c}\right)+\frac{t^2}{4}}$$

where

$c = 1/n$ (n =number of background samples)
t = one-sided value of students t -Statistic at 95% confidence [a]
y = number of events observed in n previous samples
y^* = expected number of events in a single future sample

[a] Gibbons, R.D., 1994, Statistical methods for groundwater monitoring: John Wiley & Sons, Inc., p.12.

For each monitoring location showing any VOC detections, the number of detected VOCs was counted with each detection being considered a "hit". The number was then compared with the expected number of detections derived from the background VOC data. The value of Student's t -Statistic was derived from tabulated values included in Gibbons (1994).

Results

Historical data compiled for monitoring well MW-1 was used as the baseline. Data distributions were reviewed using time series and box and whiskers plots (enclosed charts). None of the detected metals were found to have increased in concentration according to interwell analyses.

Volatile Organic Compounds (VOCs) were detected within the cluster compliance wells MW-6S and MW-6D located south east of the phase 1 landfill. The shallower compliance well MW-6S contained 5 VOCs with 2 found in concentrations above the Standard. The deeper counterpart contained only a single VOC detection in a concentration below the Standard. Based upon the historical VOC detections within the background well every well that contained 2 or more VOC detection is considered to be statistically significant according to the Poisson Prediction Interval at a 95% confidence level. Therefore the groundwater in the region monitored by MW-6S is considered to be impacted at a 95% confidence level. The VOC concentrations within MW-6S are within historical levels and an upward trend is not evident at this time.

Conclusion

Although the upper most aquifer monitored by MW-6S contains statistically significant concentrations of VOCs there is no potential groundwater receptors located downgradient between the landfill and the Valley River. The discharge feature separates the landfill property from the closest residences and at residential pumping rates none of the supply wells are to be considered at risk of significant contamination by groundwater originating from the Subtitle D Landfill facility. Further the residential supply wells located across the river and the river itself (SW-4) are sampled semiannually and will continue to be as part of the assessment monitoring program for the Cherokee County Closed Landfill facility. Based upon the information gathered so far there does not appear to be an immanent threat that humans will come into contact with the groundwater in this region. The additional proposed monitoring well(s) presented in the progress report dated May 19, 2005 has yet to be installed. The Subtitle D landfill is scheduled to be sampled again in August 2005 and the results and statistical analysis will be submitted upon completion. MESCO intends to conduct another site visit in early September at which

time a slug test will be conducted upon MW-8 to determine the hydraulic conductivity values of the screened interval. The area surrounding MW-6S/D including the storm water penetration repair will also be further inspected and access procured to install the additional monitoring well(s). Please contact me by phone at (919) 772-5393 or by email at jpfohl@mesco.com if you have any questions or comments.

Sincerely,
MUNICIPAL ENGINEERING SERVICES CO., P.A.

Jonathan Pfohl
Environmental Specialist

Enclosures
cc: Mr. Robert Allen
Cherokee County

Exceedance Scan
Cherokee County Subtitle D Landfill

Well ID	Parameter Name [1]	Sample Date	Result	Unit	PQL [2]	MCL [3]	Exceedance
MW-1	Barium, total	2/23/2005	0.1	mg/l	0.01	2	
MW-1	Beryllium, total	2/23/2005	0	mg/l	0	-	
MW-1	Chromium, total	2/23/2005	0.04	mg/l	0	0.05	
MW-1	Cobalt, total	2/23/2005	0.04	mg/l	0.01	-	
MW-1	Copper, total	2/23/2005	0.05	mg/l	0	1	
MW-1	**Lead, total**	**2/23/2005**	**0.02**	**mg/l**	**0.01**	**0.02**	**0.01**
MW-1	Nickel, total	2/23/2005	0.02	mg/l	0.01	0.1	
MW-1	Tin, total	2/23/2005	0.01	mg/l	0.01	-	
MW-1	Vanadium	2/23/2005	0.02	mg/l	0.01	-	
MW-1	Zinc, total	2/23/2005	0.06	mg/l	0.01	2.1	
MW-2	Barium, total	2/23/2005	0.02	mg/l	0.01	2	
MW-2	Chromium, total	2/23/2005	0	mg/l	0	0.05	
MW-3	Arsenic, total	2/23/2005	0.01	mg/l	0.01	0.05	
MW-3	Barium, total	2/23/2005	0.32	mg/l	0.01	2	
MW-3	Beryllium, total	2/23/2005	0	mg/l	0	-	
MW-3	**Chromium, total**	**2/23/2005**	**0.05**	**mg/l**	**0**	**0.05**	**0**
MW-3	Cobalt, total	2/23/2005	0.03	mg/l	0.01	-	
MW-3	Copper, total	2/23/2005	0.02	mg/l	0	1	
MW-3	**Lead, total**	**2/23/2005**	**0.03**	**mg/l**	**0.01**	**0.02**	**0.01**
MW-3	Nickel, total	2/23/2005	0.03	mg/l	0.01	0.1	
MW-3	Vanadium	2/23/2005	0.02	mg/l	0.01	-	
MW-3	Zinc, total	2/23/2005	0.12	mg/l	0.01	2.1	
MW-4	Arsenic, total	2/23/2005	0.01	mg/l	0.01	0.05	
MW-4	Barium, total	2/23/2005	0.62	mg/l	0.01	2	
MW-4	Beryllium, total	2/23/2005	0	mg/l	0	-	
MW-4	**Chromium, total**	**2/23/2005**	**0.06**	**mg/l**	**0**	**0.05**	**0.01**
MW-4	Cobalt, total	2/23/2005	0.02	mg/l	0.01	-	
MW-4	Copper, total	2/23/2005	0.02	mg/l	0	1	
MW-4	**Lead, total**	**2/23/2005**	**0.02**	**mg/l**	**0.01**	**0.02**	**0.01**
MW-4	Nickel, total	2/23/2005	0.05	mg/l	0.01	0.1	
MW-4	Vanadium	2/23/2005	0.03	mg/l	0.01	-	
MW-4	Zinc, total	2/23/2005	0.18	mg/l	0.01	2.1	
MW-5	Barium, total	2/23/2005	0.01	mg/l	0.01	2	
MW-6D	Barium, total	2/23/2005	0.01	mg/l	0.01	2	
MW-6D	Copper, total	2/23/2005	0	mg/l	0	1	
MW-6S	Barium, total	2/23/2005	0.28	mg/l	0.01	2	
MW-6S	Cobalt, total	2/23/2005	0.03	mg/l	0.01	-	
MW-6S	Nickel, total	2/23/2005	0.02	mg/l	0.01	0.1	
MW-6S	Selenium, total	2/23/2005	0.01	mg/l	0.01	0.05	
MW-6S	Zinc, total	2/23/2005	0.05	mg/l	0.01	2.1	
MW-7	Barium, total	2/23/2005	0.04	mg/l	0.01	2	
MW-7	Chromium, total	2/23/2005	0	mg/l	0	0.05	
MW-7	Cobalt, total	2/23/2005	0.02	mg/l	0.01	-	
MW-7	Copper, total	2/23/2005	0	mg/l	0	1	
MW-7	Zinc, total	2/23/2005	0.03	mg/l	0.01	2.1	
MW-8	Barium, total	2/23/2005	0.01	mg/l	0.01	2	
MW-8	Chromium, total	2/23/2005	0	mg/l	0	0.05	
MW-9	Barium, total	2/23/2005	0.04	mg/l	0.01	2	
MW-9	Zinc, total	2/23/2005	0.01	mg/l	0.01	2.1	

Well ID	Parameter Name [1]	Sample Date	Result	Unit	PQL [2]	MCL [3]	Exceedance
EB	Acetone	2/21/2005	30	ug/l	25	700	
MW-6D	cis-1,2-Dichloroethene	2/23/2005	21	ug/l	5	70	
MW-6S	1,4-Dichlorobenzene	2/23/2005	12	ug/l	5	75	
MW-6S	**Benzene**	**2/23/2005**	**6.3**	**ug/l**	**5**	**1**	**5.3**
MW-6S	cis-1,2-Dichloroethene	2/23/2005	30	ug/l	5	70	
MW-6S	**Dichloromethane**	**2/23/2005**	**8.9**	**ug/l**	**5**	**5**	**3.9**
MW-6S	Xylene	2/23/2005	15	ug/l	5	530	

[1] Table only contains detected constituents.

[2] PQL = Practical Quantitation Limit

[3] MCL = Maximum Contaminant Level (North Carolina Groundwater Standard)

Hydrologic Properties at Monitoring Well Locations
Cherokee County Subtitle D Landfill

Monitoring Well	Hydraulic Conductivity (cm/sec)	Effective Porosity (%)	Hydraulic Gradient	Flow Rate (ft/yr)	Flow Direction	Water Table Depth (ft)	Water Table Elev. (ft)
MW-1	3.04E-06	5.00	0.10	7	S33E	98.67	1704.93
MW-2	1.97E-04	16.00	0.04	47	N43E	55.33	1636.01
MW-3	1.18E-04	10.00	0.12	143	N88E	34.69	1654.72
MW-4	1.71E-04	16.00	0.05	55	N78W	16.55	1646.79
MW-5	1.66E-03	15.00	0.06	729	S78E	6.22	1631.92
MW-6S	4.15E-05	15.00	0.05	15	S26E	14.70	1646.47
MW-7	5.80E-05	16.00	0.13	48	S9W	18.45	1631.17
MW-8	na	na	na	na	S21E	10.75	1631.27
MW-9	2.84E-04	14.00	0.06	124	S8E	22.13	1642.75

NOTE: Effective Porosity value for MW-5 & MW-6S taken from table in Applied Hydrogeology of Fractured Rocks, Singhal & Gupta (1999)
All other values for effective porosity are derived from the Design Hydrogeologic Study for the Cherokee County Subtitle D Landfill.
Hydraulic Conductivities were obtained from slug tests performed by Municipal Engineering on each monitoring well and data from the Design Hydrogeologic Study.
Hydrologic Gradient taken from the February 23, 2005 sampling event.

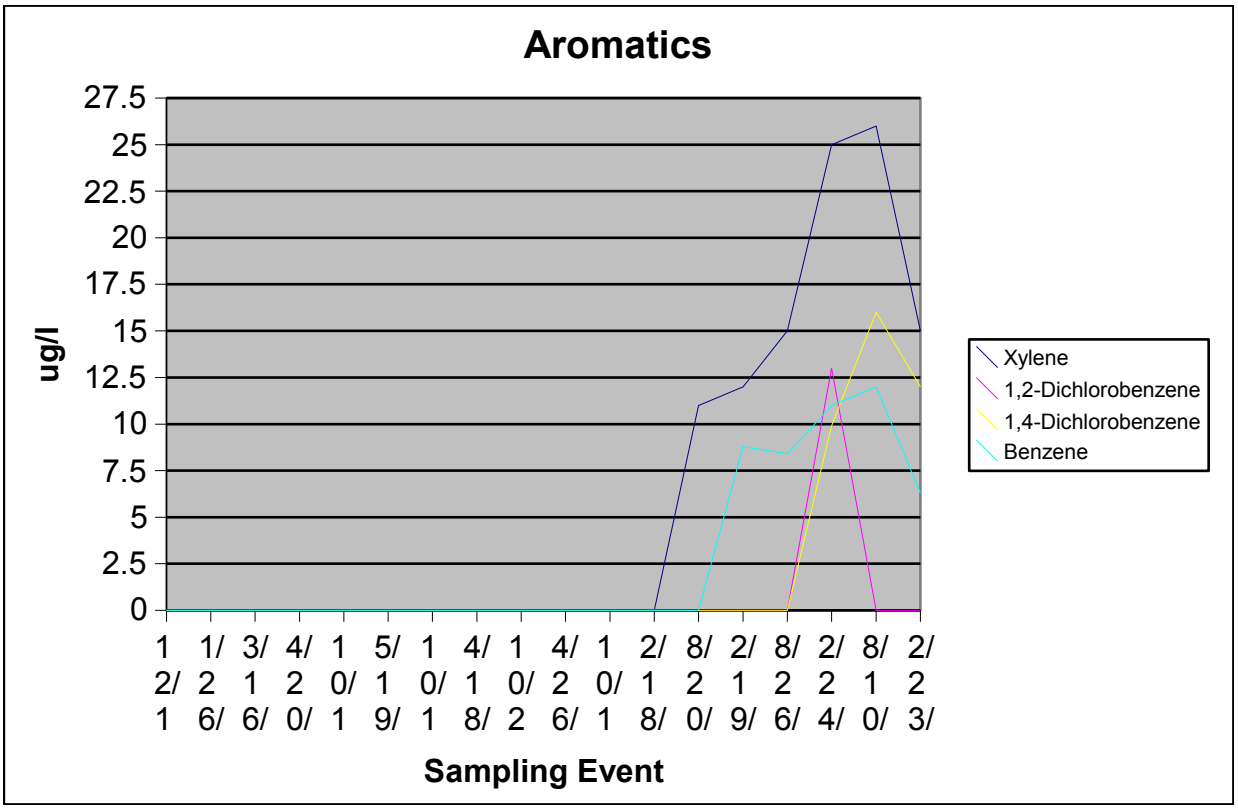
Flow rate (Q) is defined by the equation:

where

$$Q = -\frac{K}{n_e} \cdot \frac{dh}{dl}$$

K = hydraulic conductivity
ne = effective porosity
dh = head difference
dl = horizontal distance

Figure 1. Time Series of all Aromatics detected within MW-6S

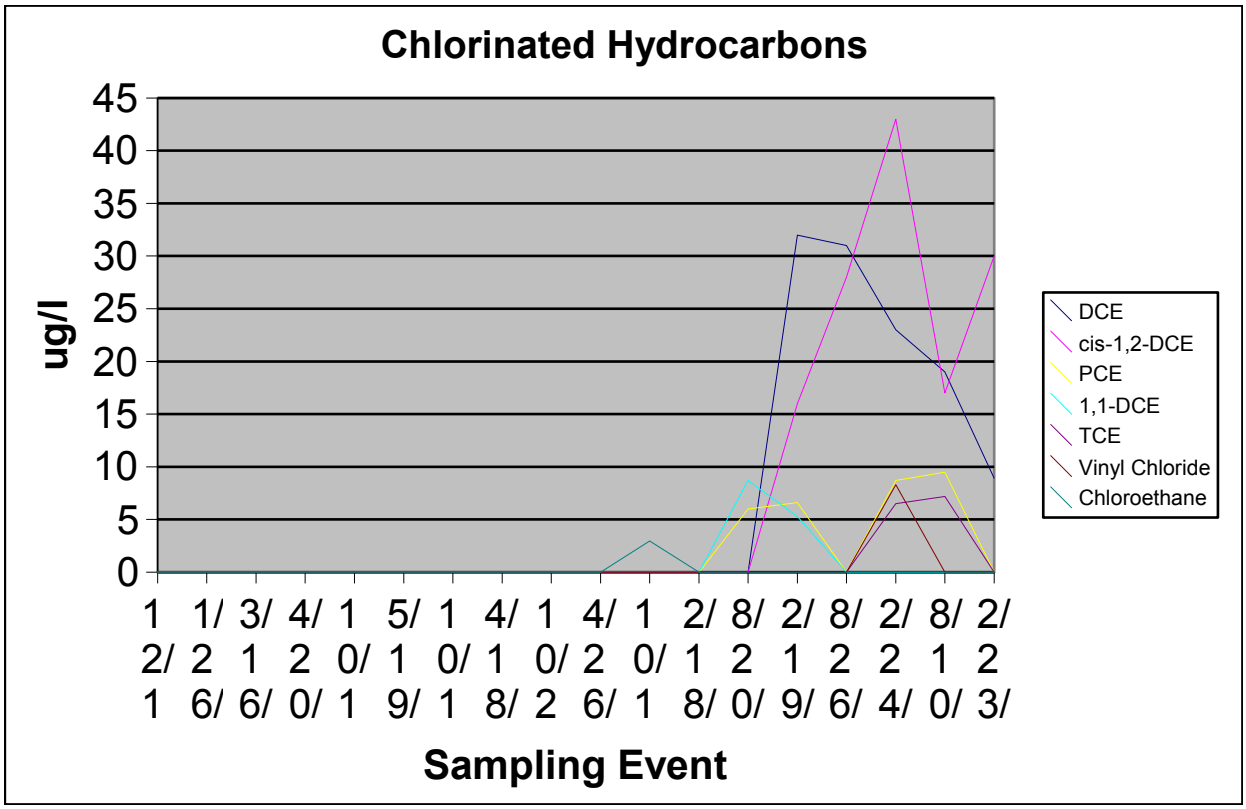


Aromatics

Sample Date	Xylene	1,2-Dichlorobenzene	1,4-Dichlorobenzene	Benzene
12/15/1997	ND	ND	ND	ND
1/26/1998	ND	ND	ND	ND
3/16/1998	ND	ND	ND	ND
4/20/1998	ND	ND	ND	ND
10/19/1998	ND	ND	ND	ND
5/19/1999	ND	ND	ND	ND
10/18/1999	ND	ND	ND	ND
4/18/2000	ND	ND	ND	ND
10/23/2000	ND	ND	ND	ND
4/26/2001	ND	ND	ND	ND
10/15/2001	ND	ND	ND	ND
2/18/2002	ND	ND	ND	ND
8/20/2002	11	ND	ND	ND
2/19/2003	12	ND	ND	**8.8**
8/26/2003	15	ND	ND	**8.4**
2/24/2004	25	13	9.9	**11**
8/10/2004	26	ND	16	**12**
2/23/2005	15	ND	12	**6.3**

Bold = Above MCL

Figure 2. Time Series of all Chlorinated Hydrocarbons detected within MW-6S

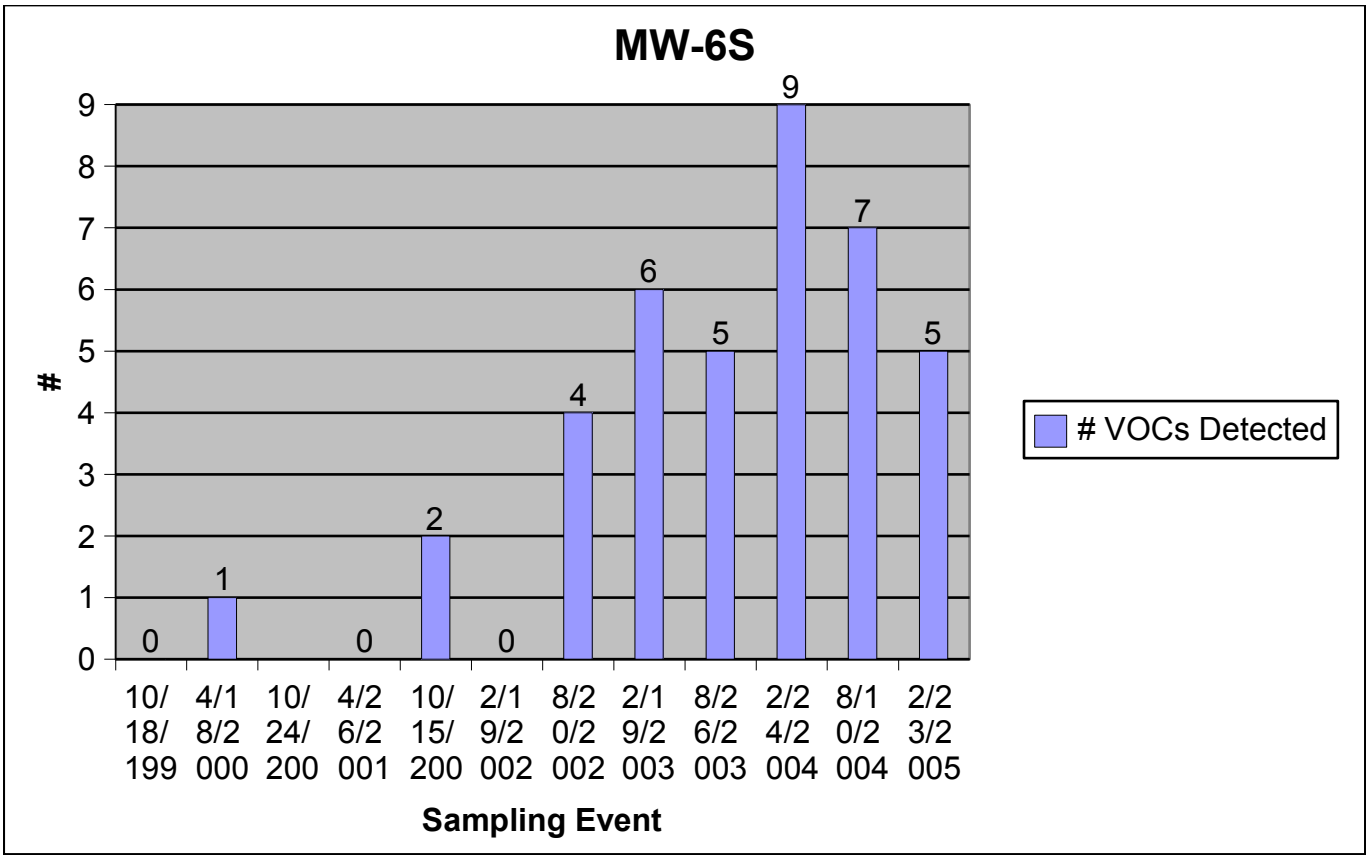


Chlorinated Hydrocarbons

Sample Date	DCE	cis-1,2-DCE	PCE	1,1-DCE	TCE
12/15/1997	ND	ND	ND	ND	ND
1/26/1998	ND	ND	ND	ND	ND
3/16/1998	ND	ND	ND	ND	ND
4/20/1998	ND	ND	ND	ND	ND
10/19/1998	ND	ND	ND	ND	ND
5/19/1999	ND	ND	ND	ND	ND
10/18/1999	ND	ND	ND	ND	ND
4/18/2000	ND	ND	ND	ND	ND
10/23/2000	ND	ND	ND	ND	ND
4/26/2001	ND	ND	ND	ND	ND
10/15/2001	ND	ND	ND	ND	ND
2/18/2002	ND	ND	ND	ND	ND
8/20/2002	ND	ND	**6**	8.7	ND
2/19/2003	**32**	16	**6.6**	5.3	ND
8/26/2003	**31**	28	ND	ND	ND
2/24/2004	**23**	43	**8.7**	ND	**6.5**
8/10/2004	**19**	17	**9.5**	ND	**7.2**
2/23/2005	**8.9**	30	ND	ND	ND

Bold = Above MCL

Time Series Plots for All Historical Detected VOCs (MW-6S)
Cherokee County Subtitle D Landfill



Cherokee County Subtitle D Landfill February 23, 2005

WELL #	TOP OF PIPE ELEVATION (FT)	DEPTH TO WATER (FT)	WATER ELEVATION (FT)
MW-1	1803.6	98.67	1704.93
MW-2	1691.34	55.33	1636.01
MW-3	1689.41	34.69	1654.72
MW-4	1663.34	16.55	1646.79
MW-5	1638.14	6.22	1631.92
MW-6S	1661.17	14.7	1646.47
MW-6D	1658.12	23.21	1634.91
MW-7	1649.62	18.45	1631.17
MW-8	1642.02	10.75	1631.27
MW-9	1664.88	22.13	1642.75
P2-5S	1780.18	86.48	1693.7
P-4	1679.2	6.27	1672.93

Inter-Well Analysis Summary
Cherokee County Subtitle D Lined Landfill

Background Well: MW-1

Arsenic, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
77.78	no	Non-parametric tolerance interval	1/2ND	11	ug/l

Well	Result	Significance
MW-3	7.3	no
MW-4	9.4	no

Barium, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
11.11	no	Non-parametric tolerance interval	1/2ND	3000	ug/l

Well	Result	Significance
MW-3	320	no
MW-4	620	no
MW-6S	280	no

Beryllium, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
33.33	log normal	Parametric Tolerance interval	1/2ND	2.487	log[ug/l]

Well	Result	Significance
MW-3	1.31	no
MW-4	1.44	no

Chromium, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	
5.56	normal	Parametric Tolerance interval	1/2ND	100.821	ug/l

Well	Result	Significance
MW-3	52	no
MW-4	61	no

Lead, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
22.22	log normal	Parametric Tolerance interval	1/2ND	4.89283	log[ug/l]

Well	Result	Significance
MW-3	3.33	no

Nickel, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
22.22	log normal	Parametric Tolerance interval	1/2ND	73.369	log[ug/l]

Well	Result	Significance
MW-3	28	no
MW-4	45	no

Selenium, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
94.44	-	Poisson Tolerance Limit	ND	23.0	ug/l

Well	Result	Significance
MW-6S	5.8	no

Vanadium

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
16.67	normal	Parametric Tolerance interval	1/2ND	91.677	ug/l

Well	Result	Significance
MW-3	24	no
MW-4	30	no

Zinc, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
0.00	normal	Parametric Tolerance interval	1/2ND	268.427	ug/l

Well	Result	Significance
MW-3	120	no
MW-4	180	no

NOTE: Bold-faced monitoring points indicate detected levels exceed North Carolina Groundwater Standard.

Summary of Pooled Appendix I VOCs in Background Well (MW-1)
Cherokee County Subtitle D Lined Landfill

Constituent	Samples	NDs	% NDs
1,1,1,2-Tetrachloroethane	18	18	100.00
1,1,1-Trichloroethane	18	18	100.00
1,1,2,2-Tetrachloroethane	18	18	100.00
1,1,2-Trichloroethane	18	18	100.00
1,1-Dichloroethane	18	18	100.00
1,1-Dichloroethene	18	18	100.00
1,2,3-Trichloropropane	18	18	100.00
1,2-Dibromo-3-chloropropane	18	18	100.00
1,2-Dibromoethane	18	18	100.00
1,2-Dichlorobenzene	18	18	100.00
1,2-Dichloroethane	18	18	100.00
1,2-Dichloropropane	18	18	100.00
1,4-Dichlorobenzene	18	18	100.00
2-Butanone	18	18	100.00
2-Hexanone	18	18	100.00
4-Methyl-2-Pentanone	18	18	100.00
Acetone	18	18	100.00
Acrylonitrile	18	18	100.00
Benzene	18	18	100.00
Bromochloromethane	18	18	100.00
Bromodichloromethane	18	18	100.00
Bromoform	18	18	100.00
Bromomethane	18	17	94.44
Carbon disulfide	18	15	83.33
Carbon tetrachloride	18	18	100.00
Chlorobenzene	18	18	100.00
Chloroethane	18	18	100.00
Chloroform	18	18	100.00
Chloromethane	18	18	100.00
cis-1,2-Dichloroethene	18	18	100.00
cis-1,3-Dichloropropene	18	18	100.00
Chlorodibromomethane	18	18	100.00
Dibromomethane	18	18	100.00
Ethylbenzene	18	18	100.00
Iodomethane	18	18	100.00
Dichloromethane	18	18	100.00
Styrene	18	18	100.00
Tetrachloroethylene	18	18	100.00
Toluene	18	18	100.00
trans-1,2-Dichloroethene	18	18	100.00
trans-1,3-Dichloropropene	18	18	100.00
trans-1,4-Dichloro-2-butene	18	18	100.00
Trichloroethylene	18	18	100.00
Trichlorofluoromethane	18	18	100.00
Vinyl acetate	18	18	100.00
Vinyl chloride	18	18	100.00
Xylene	18	18	100.00
Total	**846**	**842**	**99.53**

Poisson Prediction Interval Based upon Pooled Background Appendix I VOCs
Cherokee County Subtitle D Lined Landfill

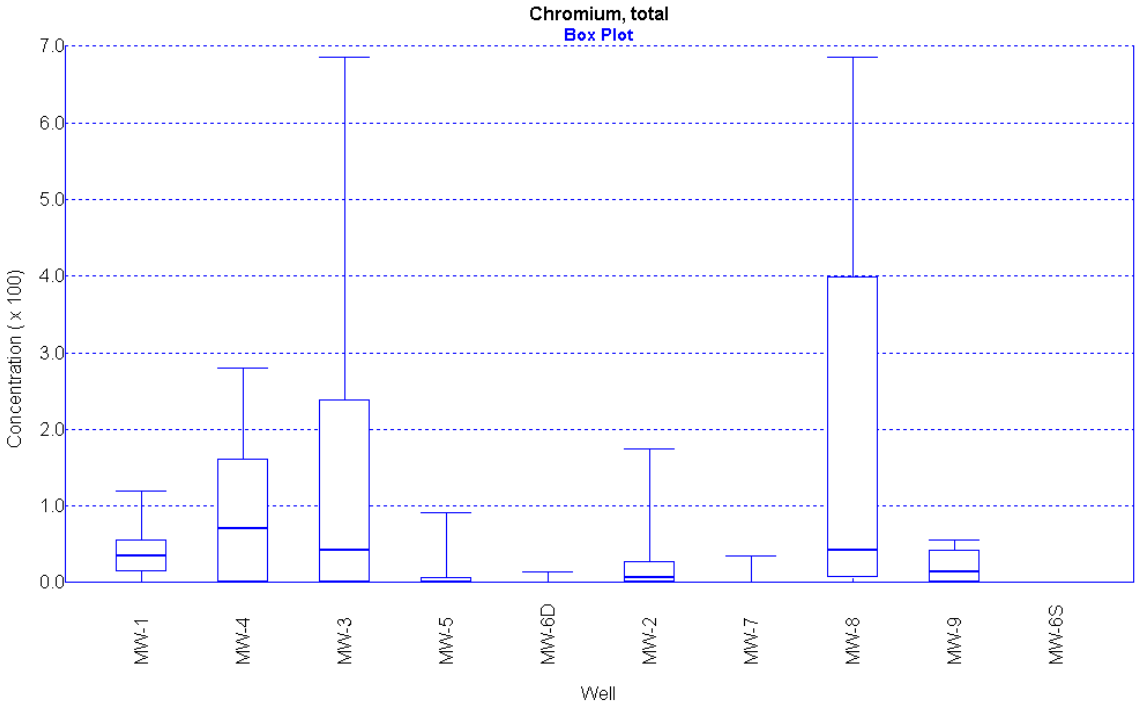
All detected VOCs (Background Well: MW-1)

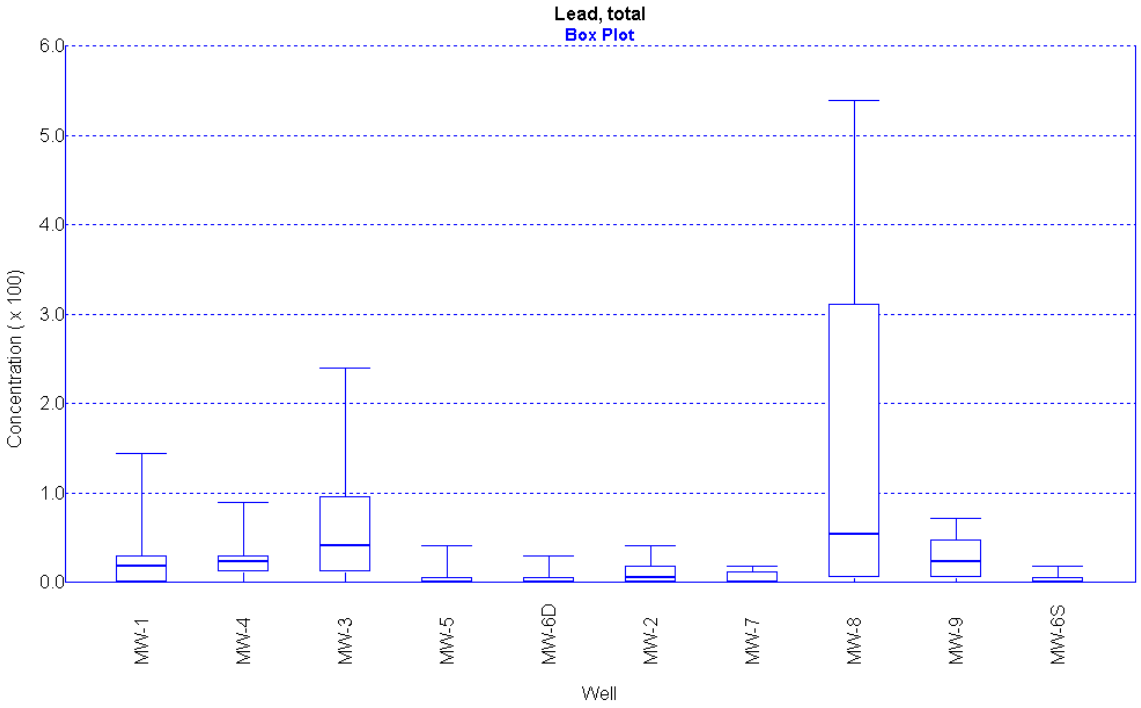
Constituent	MW-6S	MW-6D
Benzene	**x**	
1,4-Dichlorobenzene	x	
cis-1,2-Dichloroethene	x	x
Dichloromethane	**x**	
Xylene	x	
Detection(s) per Scan	5.00	1.00

Total number of sampling events [n] = 18
Total number of detections in background wells [y] = 4
Number of comparisons (downgradient wells) [k] = 9
One-sided value of Student's t-statistic (95% confidence) [t] = 2.83
Expected number of detections in a single future sample [y*] = **1.8359**

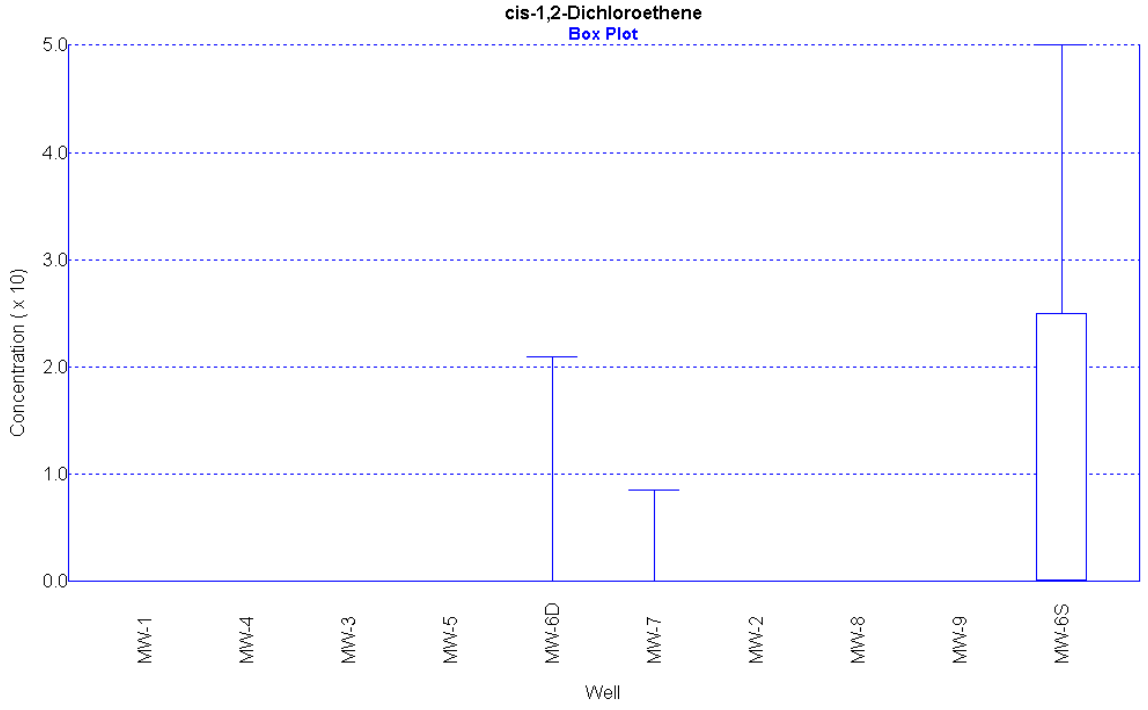
Statistically Significant VOC detections within MW-6S at a 95% confidence level

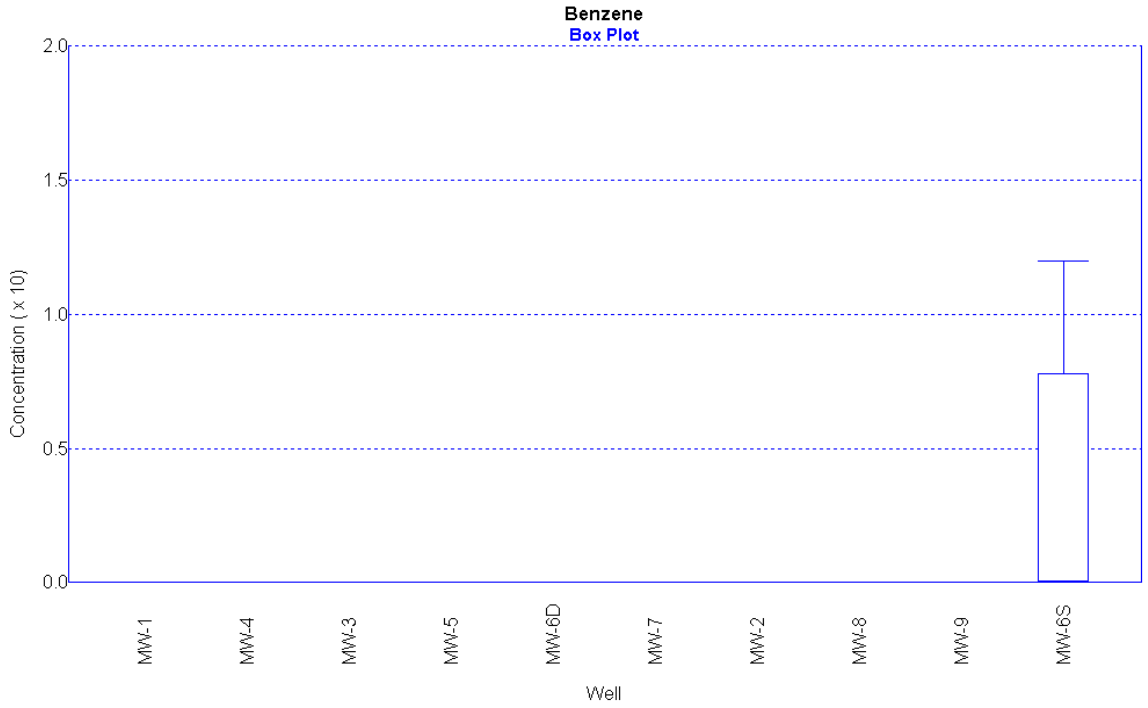
Box Plots for Select Constituents
Cherokee County Subtitle D Lined Landfill



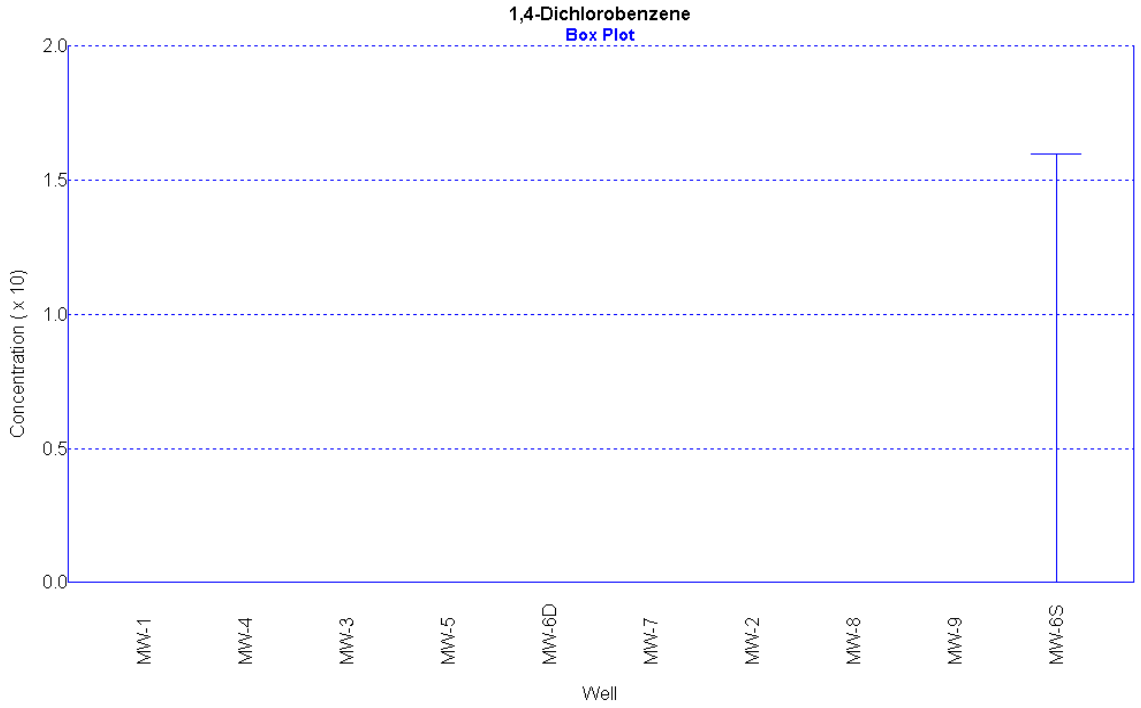


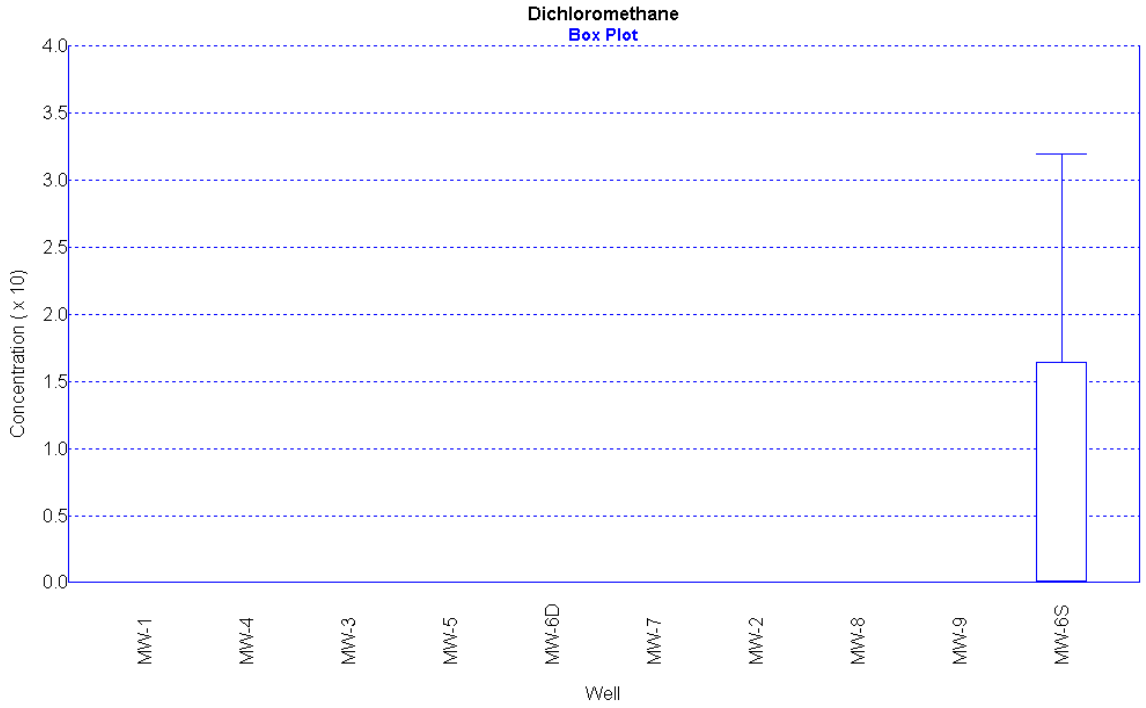
Box Plots for Select Constituents (VOCs)
Cherokee County Subtitle D Lined Landfill



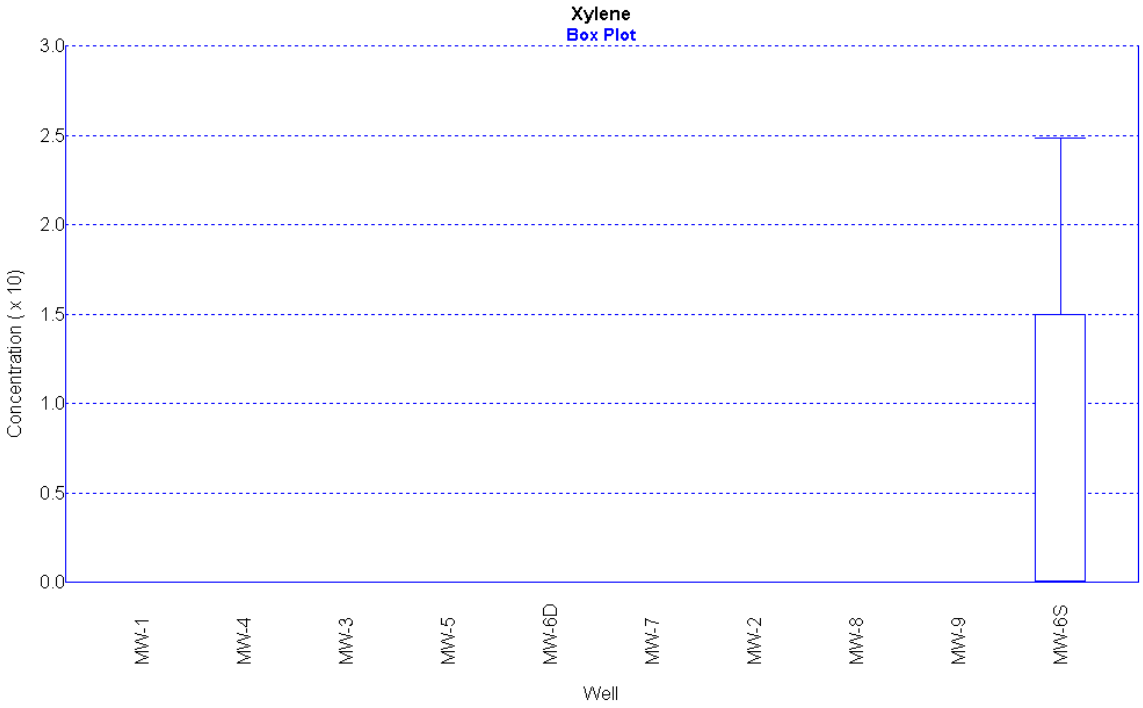


Box Plots for Select Constituents (VOCs)
Cherokee County Subtitle D Lined Landfill

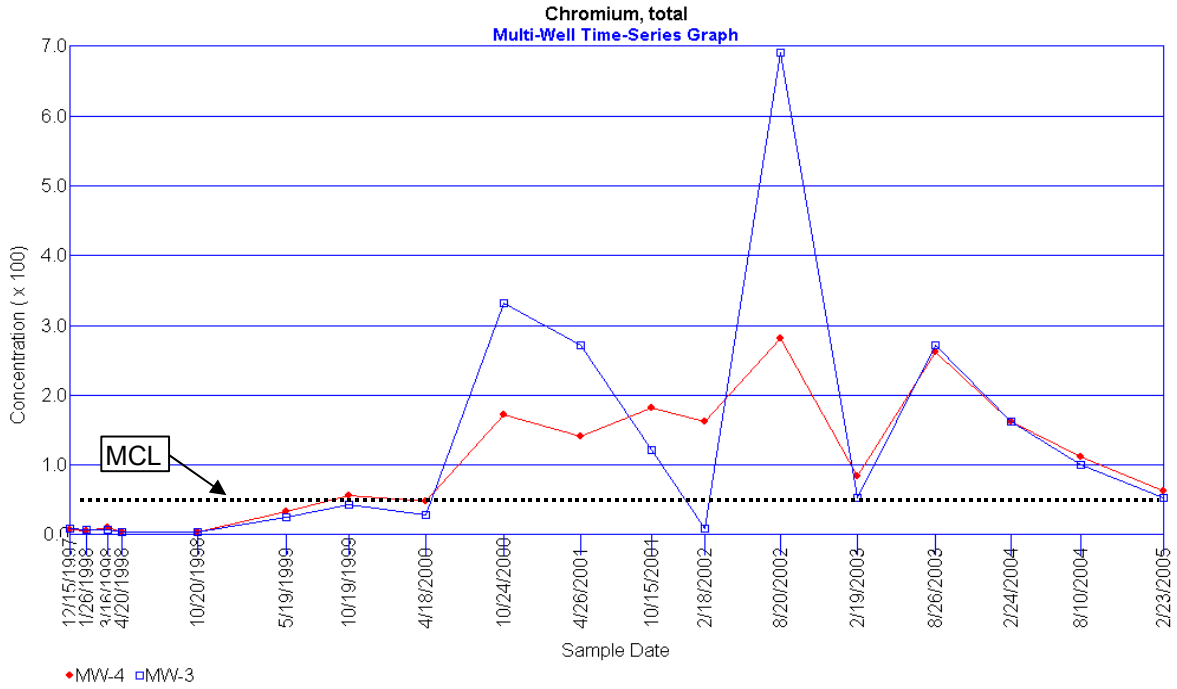


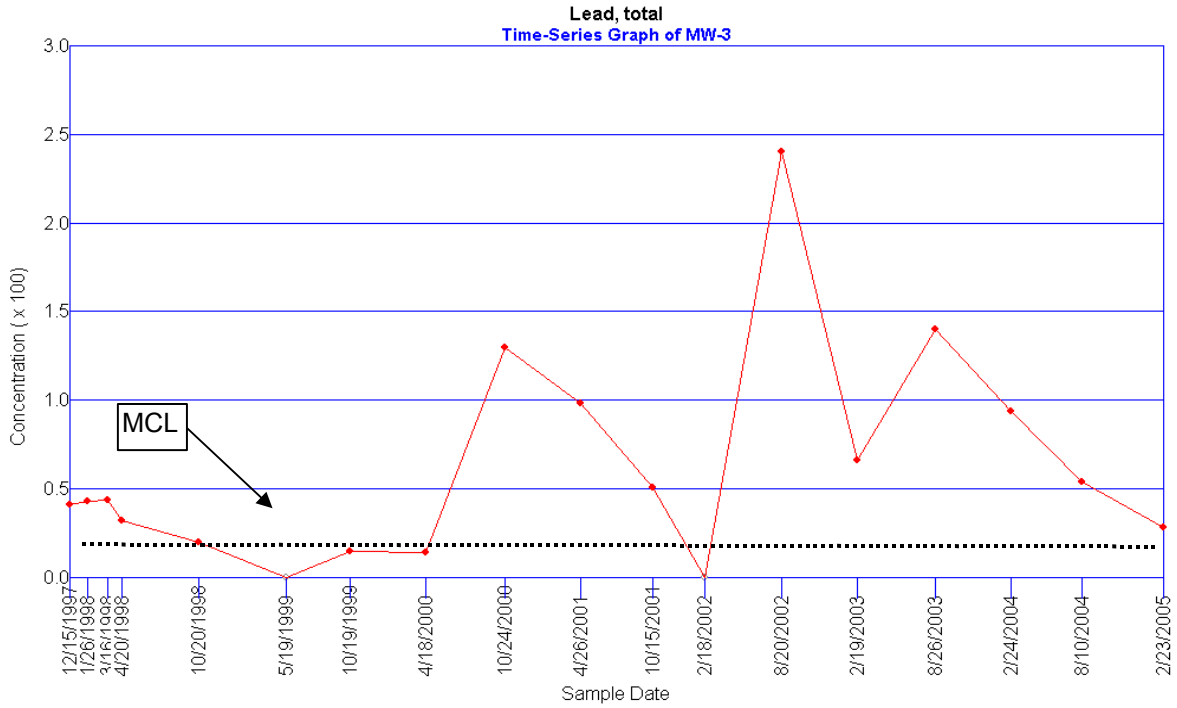


Box Plots for Select Constituents (VOCs)
Cherokee County Subtitle D Lined Landfill

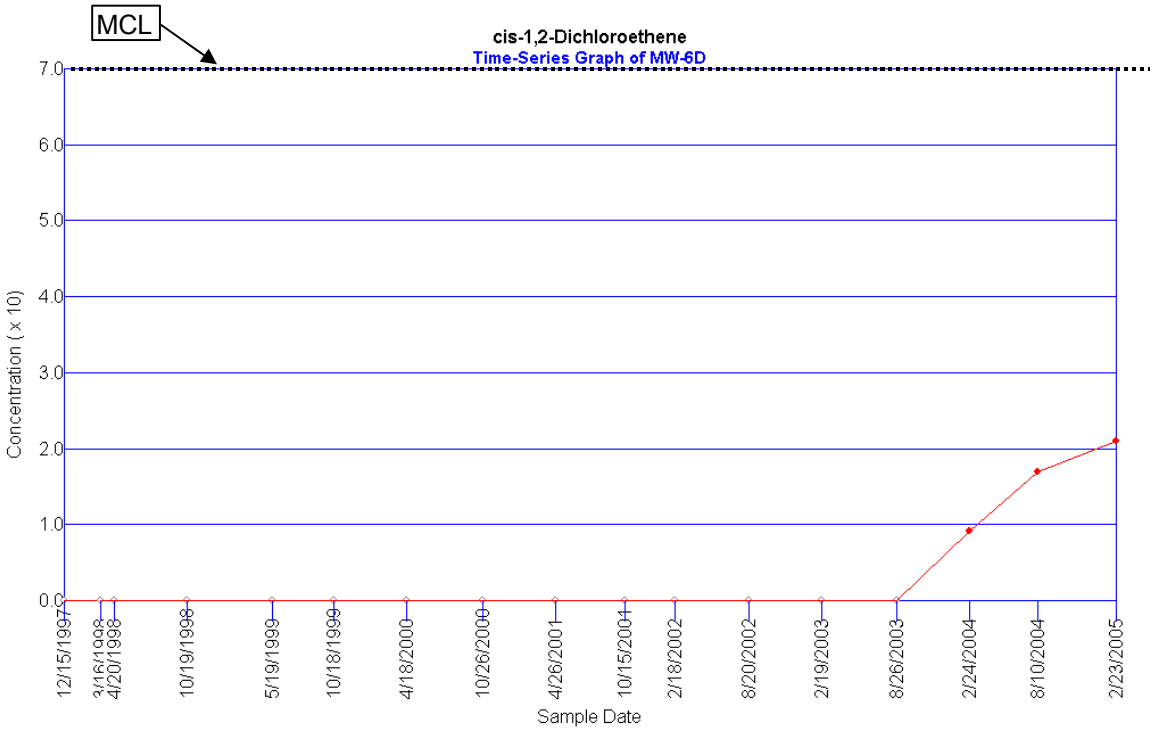


Time Series Plots for Select Constituents (Metals)
Cherokee County Subtitle D Lined Landfill

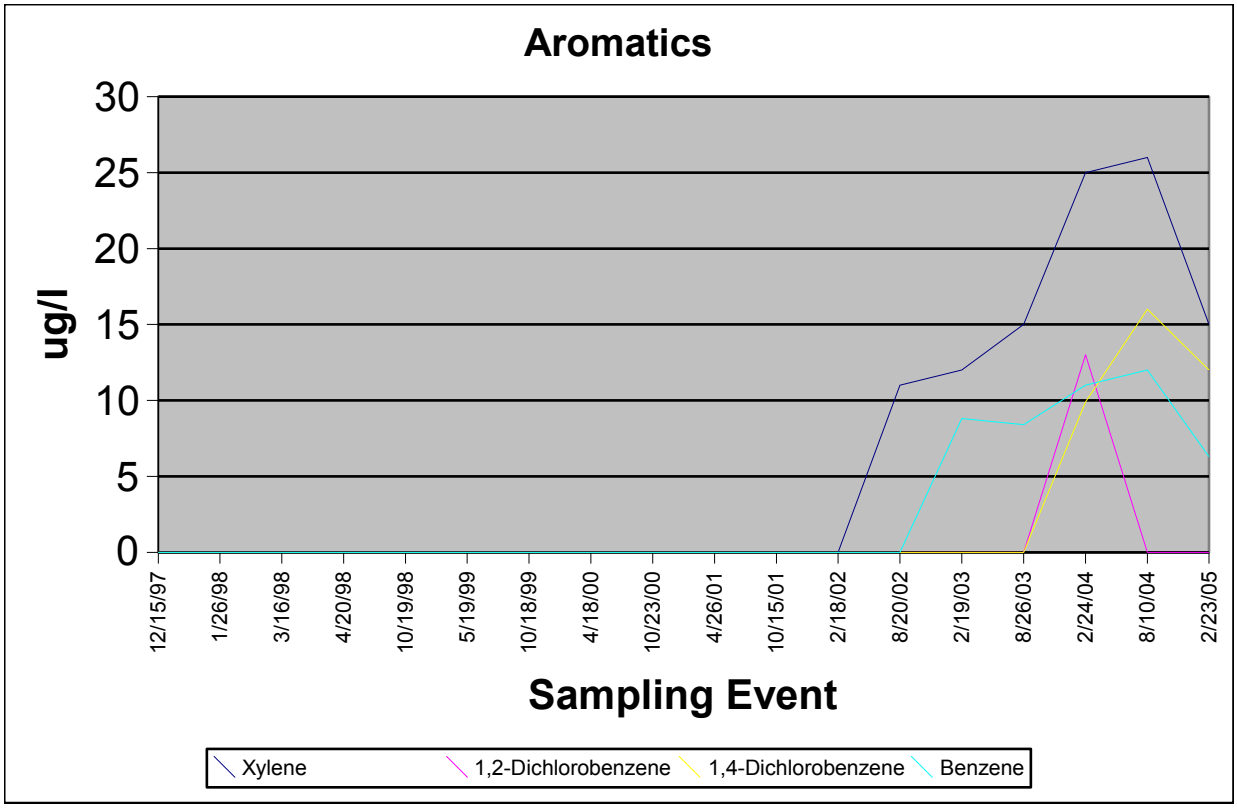




Time Series Plots for Select Constituents (VOCs)
Cherokee County Subtitle D Lined Landfill



Time Series Plots for All Historical Detected Aromatic VOCs (MW-6S)
Cherokee County Subtitle D Landfill

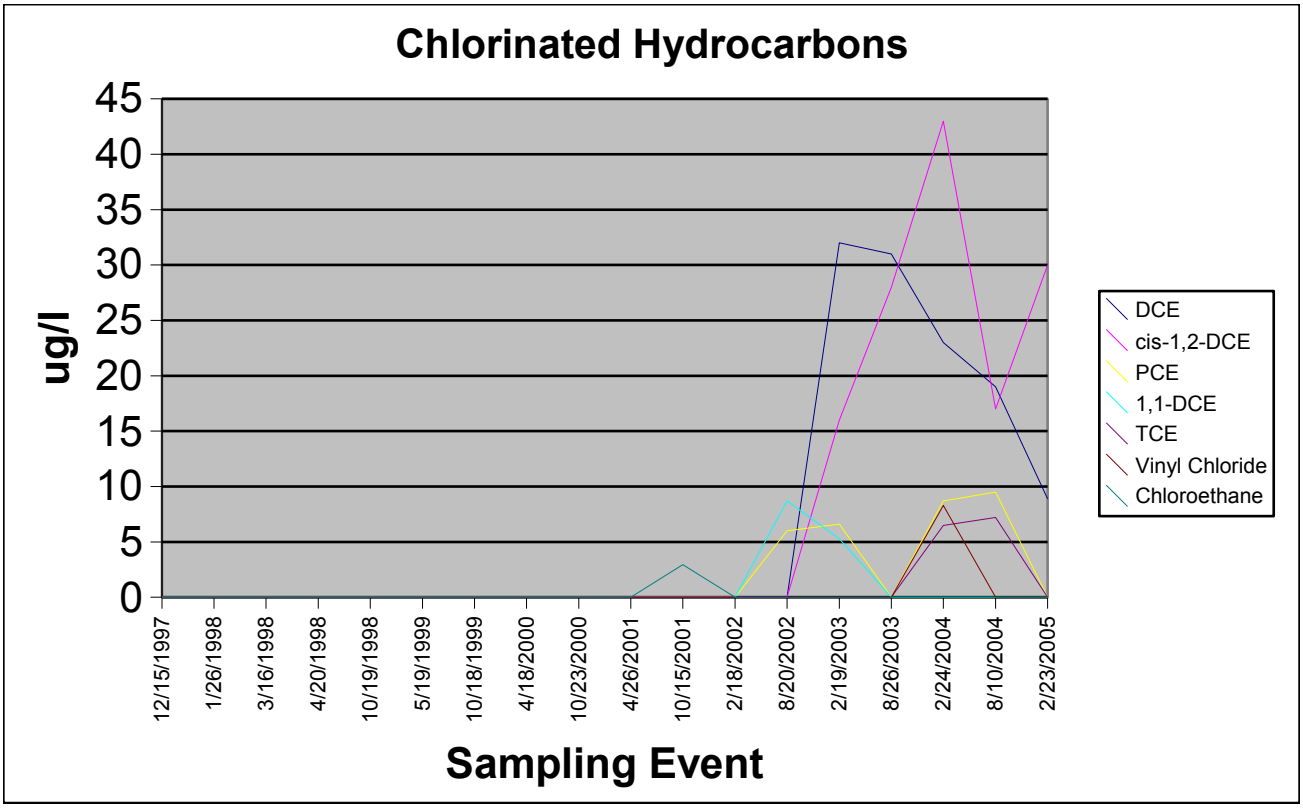


Aromatics

Sample Date	Xylene	1,2-Dichlorobenzene	1,4-Dichlorobenzene	Benzene
12/15/1997	ND	ND	ND	ND
1/26/1998	ND	ND	ND	ND
3/16/1998	ND	ND	ND	ND
4/20/1998	ND	ND	ND	ND
10/19/1998	ND	ND	ND	ND
5/19/1999	ND	ND	ND	ND
10/18/1999	ND	ND	ND	ND
4/18/2000	ND	ND	ND	ND
10/23/2000	ND	ND	ND	ND
4/26/2001	ND	ND	ND	ND
10/15/2001	ND	ND	ND	ND
2/18/2002	ND	ND	ND	ND
8/20/2002	11	ND	ND	ND
2/19/2003	12	ND	ND	**8.8**
8/26/2003	15	ND	ND	**8.4**
2/24/2004	25	13	9.9	**11**
8/10/2004	26	ND	16	**12**
2/23/2005	15	ND	12	**6.3**

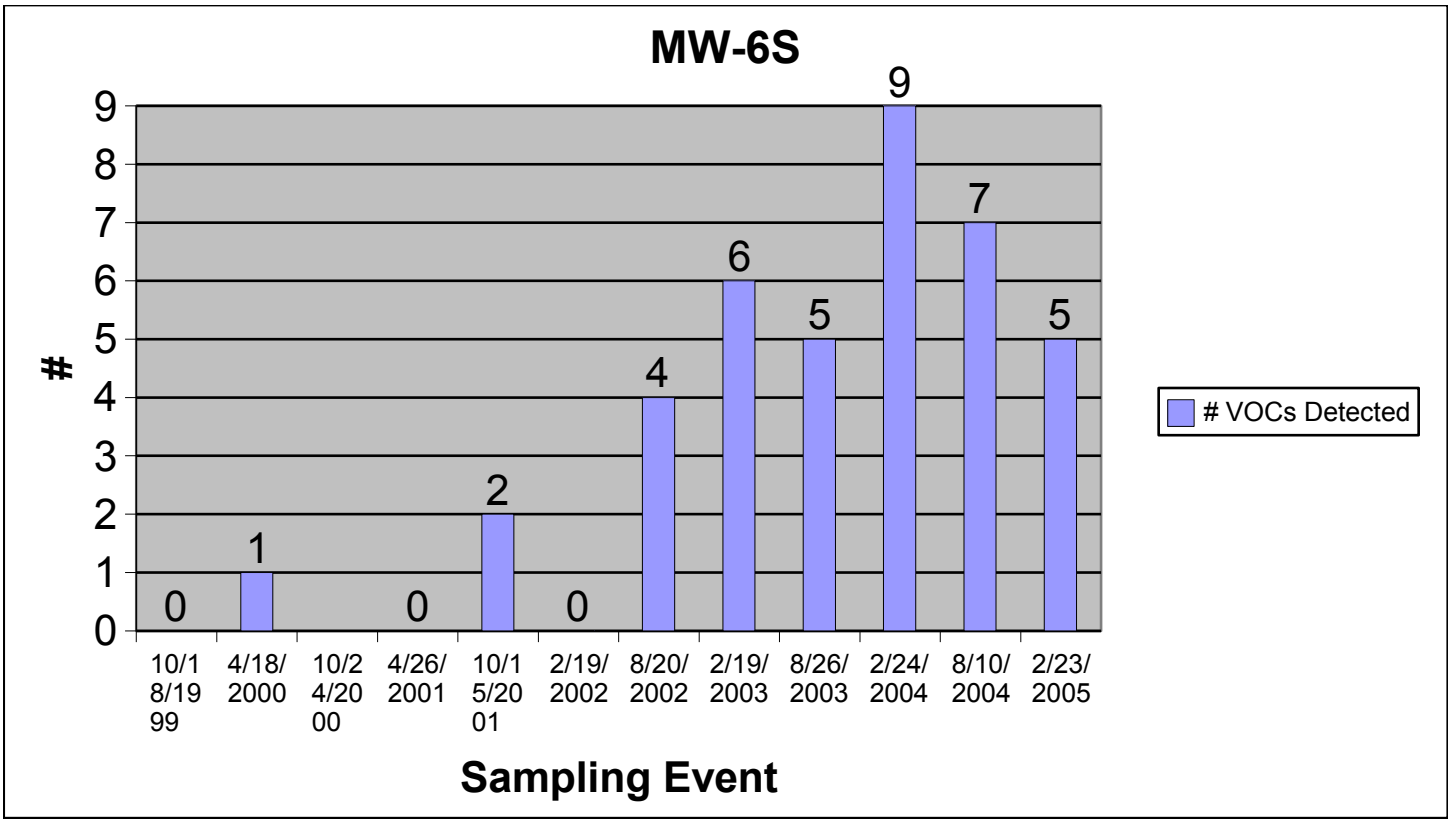
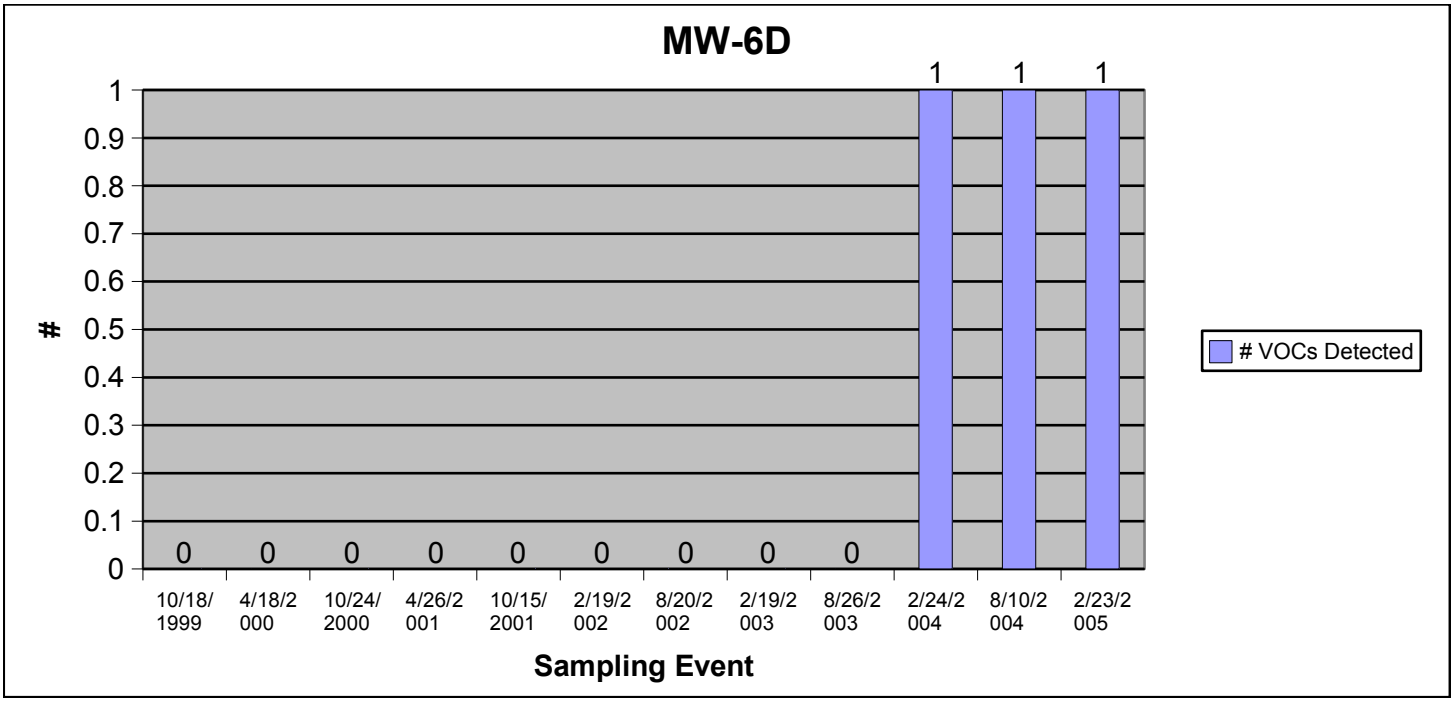
Bold = Above MCL

Time Series Plots for All Historical Detected Chlorinated VOCs (MW-6S)
Cherokee County Subtitle D Landfill



Chlorinated Hydrocarbons

Sample Date	DCE	cis-1,2-DCE	PCE	1,1-DCE	TCE	Chloroethane
12/15/1997	ND	ND	ND	ND	ND	ND
1/26/1998	ND	ND	ND	ND	ND	ND
3/16/1998	ND	ND	ND	ND	ND	ND
4/20/1998	ND	ND	ND	ND	ND	ND
10/19/1998	ND	ND	ND	ND	ND	ND
5/19/1999	ND	ND	ND	ND	ND	ND
10/18/1999	ND	ND	ND	ND	ND	ND
4/18/2000	ND	ND	ND	ND	ND	ND
10/23/2000	ND	ND	ND	ND	ND	ND
4/26/2001	ND	ND	ND	ND	ND	ND
10/15/2001	ND	ND	ND	ND	ND	2.95
2/18/2002	ND	ND	ND	ND	ND	ND
8/20/2002	ND	ND	**6**	8.7	ND	ND
2/19/2003	**32**	16	**6.6**	5.3	ND	ND
8/26/2003	**31**	28	ND	ND	ND	ND
2/24/2004	**23**	43	**8.7**	ND	**6.5**	ND
8/10/2004	**19**	17	**9.5**	ND	**7.2**	ND
2/23/2005	**8.9**	30	ND	ND	ND	ND

Bold = Above MCL

Time Series Plots for All Historical Detected VOCs (MW-6S & MW-6D)
Cherokee County Subtitle D Landfill