#### Supplemental Investigation Report

Swivelier Company Site Village of Nanuet, Clarkstown Township Rockland County, New York

NYSDEC Site #3-44-036 Work Assignment #D002925-27.3



Prepared for:

# New York State Department of Environmental Conservation 50 Wolf Road, Albany, New York 12233

John P. Cahill Commissioner

Prepared by:

CDM Camp Dresser & McKee
100 Crossways Park Drive West
Woodbury, New York 11797-2012

July 2000



## Camp Dresser & McKee

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August 31, 2000

Mr. Michael Mason
Project Manager
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Subject:

State Superfund Standby Contract

Work Assignment #D002925-27.3 Swivelier Company site #3-44-036 Supplemental Investigation

Dear Mr. Mason:

Camp Dresser & McKee is pleased to submit three (3) copies of the Supplemental Investigation Report for the above referenced project.

If you have any questions, please do not hesitate to call

Very truly yours,

CAMP DRESSER & McKEE

Brian Farrelly, P.E. Project Manager

cc: File 2.1.2 (w/o attachments

L. Guterman

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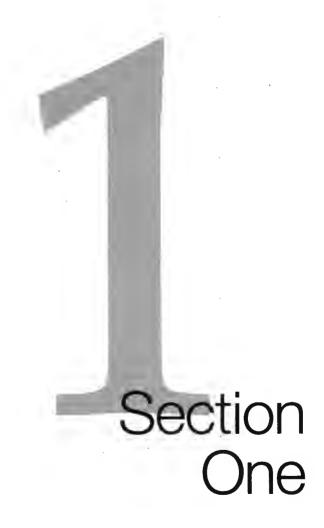
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## 1.0 Introduction

Camp Dresser & McKee (CDM) conducted a Supplemental Investigation at the Swivelier Property to determine if there was evidence that non-aqueous phase trichloroethene had migrated from the source area into the underlying fractured rock aquifer. The investigation was conducted in response to the results of a post remediation groundwater monitoring event completed in November 1999. This monitoring event identified significant levels of TCE in the sample collected from a new bedrock monitoring well located offsite and immediately downgradient of the Site. The Supplemental Investigation consisted of a re-evaluation of the existing site data, the installation of a new exploratory boring in the source area, a new monitoring well completed in the fractured rock aquifer immediately downgradient of the source area, and the collection and analysis of samples from a selected group of monitoring wells. The investigation was conducted between April 19, 2000 and May 25, 2000.



# 2.0 Background

CDM performed a Remedial Investigation and Feasibility Study of the Swivelier Property from 1994 through 1996. Based on the recommendations of the Feasibility Study, CDM performed "hot spot" excavation and removal activities at the source area in June 1999 (see Figure 2-1). Sections of a former discharge pipe were uncovered during excavation activities between the Swivelier Building and the former discharge point, a nearby streambed. When the pipe was unearthed, sections of it were observed to be filled with contaminated sludge. Soil was excavated to the water table in accordance with the remediation plan. However, post excavation sampling, conducted in November 1999, indicated that TCE concentrations approaching the percent-range (1,100 mg/kg) remained at the water table in a small area approximately five feet from the end of the discharge pipe. The area was estimated to be approximately 10 feet by 10 feet in size.

As part of the remedial activities, additional monitoring wells were installed to supplement the existing groundwater monitoring system established during the Remedial Investigation. The additional wells, MW-9S, MW-9DI, and MW-9D, monitored three distinct depth intervals at a location just beyond the downgradient site boundary. All of the site-related monitoring wells were sampled following the completion of the new well cluster. In general, the analytical results for the existing monitoring wells were consistent with the results of previous rounds of sampling. However, analytical data from the new bedrock well, MW-9D, indicated the presence of trichloroethene (TCE) at a concentration of 13,300 ug/l. A summary of the analytical results for the November 1999 round of sampling is presented in Table 2-1. The validated analytical results for the November 1999 sampling event are presented in Appendix A.

The TCE concentration detected in MW-9D is approximately one percent of its solubility limit in water, suggesting the likely presence of a non-aqueous phase liquid. Monitoring well MW-9D, located to the southwest of the site, is almost directly between the former discharge point and the "LA Woman" well which was found to contain a TCE groundwater concentration of 5400 ug/l in 1991 (see Figure 2-2).

In addition to the high levels of TCE found in MW-9D, TCE concentrations in deep-intermediate well (MW-8DI), located along the drainage ditch south of the source area, increased from 2 ug/l during the remedial investigation to 160 ug/l in the November 1999 sampling event. The analytical data also indicated that low levels of TCE, on the order of 20 ug/l, were migrating to the south, perhaps beneath the drainage swale in the shallow water-bearing unit.

Significant levels of BTEX and MTBE were also found in MW-5S to the west of the site. However, is appears that these gasoline-related compounds are most likely associated with the automobile junkyard that is located adjacent to the Swivelier Site.

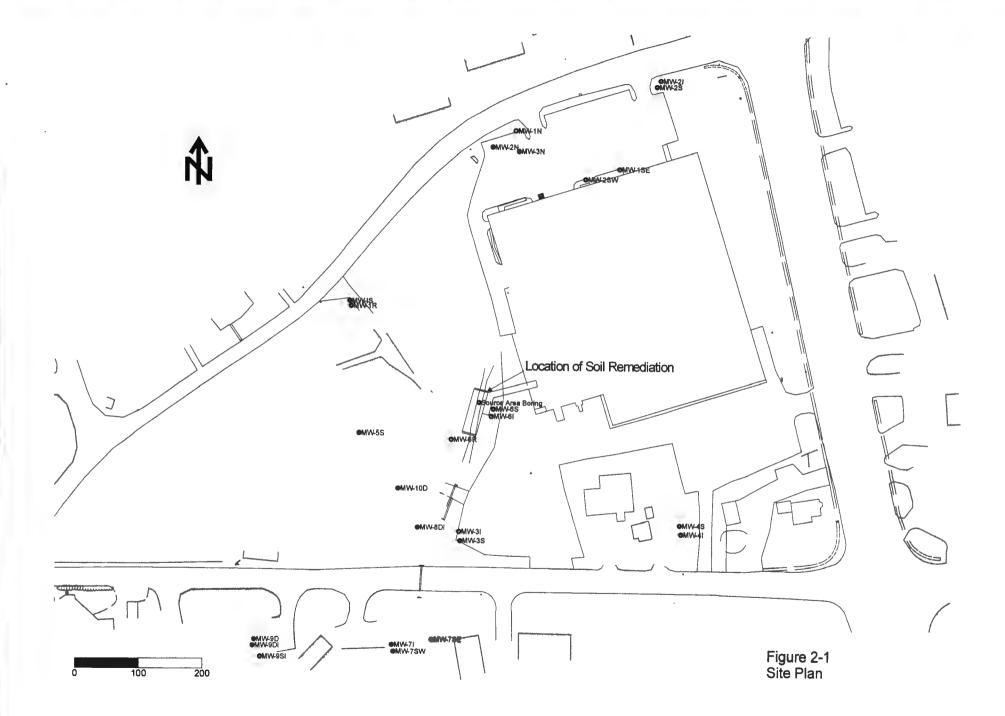


Table 2-1 Results of Monitoring Well Sampling November 1999

Client Sample ID	NYSDEC	MW-1RI	1414/ 46	MW 40E	*****	*****						,			
Lab Sample ID	1	90078	MW-1S 90079	MW-1SE	MW 21	MW 2S	MW 3I	MW 3S	MW-3N	MW-4I	MW-4S	MW-5S	MW-6S	MW-61	MW-6IDL
Sample Collection Date		11/9/99		90065	89847	89850	89845	89846	90066	90076	90074	90068	90073	90070	90070DL
Sample Receipt Date	Value		11/9/99	11/8/99	11/5/99	11/5/99	11/5/99	11/5/99	11/8/99	11/9/99	11/9/99	11/8/99	11/8/99	11/8/99	11/8/99
Units		11/9/99	11/9/99	11/9/99	11/5/99	11/5/99	11/5/99	11/5/99	11/9/99	11/9/99	11/9/99	11/9/99	11/9/99	11/9/99	11/9/99
Dillution Factor	1	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Dilidion Factor	i	1	1	1	1	1	1	1	1	1	1	100	1	1	100
		CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q
													00110 Q	CONC Q	CONC Q
Acetone	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		180 <sup>1.</sup>	1 .
1,1-Dichloroethene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND		1100 <sup>1.</sup> D
cis-1,2-Dichloroethene		ND	ND	ND	ND	ND	ND ND	24	32	ND	ND .	1	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	ND	280	2,400 D
Trichloroethene	5	ND	ND	ND	ND	ND	18 <sup>1.</sup>	22 <sup>1.</sup>		!		ND	ND	ND	ND
Tetrachloroethene	5	ND	ND ND	ND	ND	ND	ND I	ND	ND ND	ND	ND	ND	ND	130 <sup>1.</sup>	1000 <sup>1.</sup> D
Benzene	0.7	ND	ND ND	ND	ND	ND	ND ND	ND ND	[	ND	ND	ND	ND	ND	ND
Toluene	5	ND	ND	ND	ND	ND	i		ND	ND	ND	ND.	ND	ND	ND
m+ p-Xylenes	5						ND	ND	ND	ND	ND	1,300 <sup>1.</sup> D	ND	ND	ND
	I	ND	ND	ND	ND	ND	ND	ND	14 <sup>1.</sup>	ND	ND	2,800 <sup>1.</sup>	ND	ND	ND
o-xylene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,500 <sup>1.</sup>	ND	ND	ND
														l	<u> </u>
Client Sample ID	1	MW-6R	MW 7SE	MW 7SW	MW-71	MW-8DI	MW 9IS	MW 9ID	MW 9D	MW 9DDL	MW DUP	MW-DUP	MW-FB	TRIP BLANK	TRIP BLANK
Lab Sample ID		90067	89844	89842	89843	90077	89840	89841	89839	89839DL	89848	90069	90075	89849	90080
Sample Collection Date	Value	11/8/99	11/5/99	11/4/99	11/5/99	11/9/99	11/4/99	11/4/99	11/4/99	11/4/99	11/5/99	11/8/99	11/9/99		
Sample Receipt Date Units		11/9/99	11/5/99	11/5/99	11/5/99	11/9/99	11/5/99	11/5/99	11/5/99	11/5/99	11/5/99	11/9/99	11/9/99	11/5/99	11/9/99
[		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Dillution Factor		1	1	1	1	1	1	1	1	100	1	1	1	1 1	1
		CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q	CONC Q
													00110 Q	CONC Q	CONC Q
Acetone	50	ND									1			ND	
	30	ND ,	ND	100	ND .	ND	ND I	ND I	ND .	ו אח ו	68 I	NID I			
Vinyl Chloride	2	ND	ND ND	100 ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	68 <sup>1.</sup>	ND ND	ND ND		ND
Vinyl Chloride 1,1-Dichloroethene	1			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
'	2	ND	ND		- 1		ND ND	ND ND	ND <b>10<sup>1.</sup></b> J	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
1,1-Dichloroethene	2 5	ND ND 56	ND ND 16	ND ND ND	ND ND ND	ND ND 33	ND ND ND	ND ND ND	ND 10 <sup>1.</sup> J 1,300 E	ND ND 1,100 D	ND ND ND	ND ND 54	ND ND ND	ND ND ND	ND ND ND
1,1-Dichloroethene cis-1,2-Dichloroethene Bromodichloromethane	2 5 - 50	ND ND 56 ND	ND ND 16 ND	ND ND ND	ND ND ND ND	ND ND 33 ND	ND ND ND ND	ND ND ND ND	ND 10 <sup>1.</sup> J 1,300 E 80 <sup>1.</sup>	ND ND 1,100 D	ND ND ND ND	ND ND 54 ND	ND ND	ND ND	ND ND
1,1-Dichloroethene cis-1,2-Dichloroethene Bromodichloromethane Trichloroethene	2 5 - 50 5	ND ND 56 ND 200	ND ND 16 ND ND	ND ND ND ND	ND ND ND ND ND	ND ND 33 ND 160 <sup>1.</sup>	ND ND ND ND ND	ND ND ND ND 68 <sup>1</sup>	ND 10 <sup>1.</sup> J 1,300 E 80 <sup>1.</sup> 7,900 <sup>1.</sup> E	ND ND 1,100 D	ND ND ND	ND ND 54	ND ND ND	ND ND ND	ND ND ND
1,1-Dichloroethene cis-1,2-Dichloroethene Bromodichloromethane Trichloroethene Tetrachloroethene	2 5 - 50 5	ND ND 56 ND 200 ND	ND ND 16 ND ND	ИО ИО ИО ИО ИО	ND ND ND ND ND	ND ND 33 ND 160 <sup>1.</sup> ND	ND ND ND ND	ND ND ND ND	ND 10 <sup>1.</sup> J 1,300 E 80 <sup>1.</sup>	ND ND 1,100 D	ND ND ND ND	ND ND 54 ND	ND ND ND ND	ND ND ND ND	ND ND ND ND
1,1-Dichloroethene cis-1,2-Dichloroethene Bromodichloromethane Trichloroethene	2 5 - 50 5	ND ND 56 ND 200 ND 13 <sup>1</sup> .	ND ND 16 ND ND	ND ND ND ND	ND ND ND ND ND	ND ND 33 ND 160 <sup>1.</sup>	ND ND ND ND ND	ND ND ND ND 68 <sup>1</sup>	ND 10 <sup>1.</sup> J 1,300 E 80 <sup>1.</sup> 7,900 <sup>1.</sup> E	ND ND 1,100 D ND 13,300 <sup>1</sup> D	ND ND ND ND ND	ND ND 54 ND 190 <sup>1.</sup>	ND ND ND ND	ND ND ND ND ND	ND ND ND ND ND
1,1-Dichloroethene cis-1,2-Dichloroethene Bromodichloromethane Trichloroethene Tetrachloroethene	2 5 - 50 5 5 0.7 5	ND ND 56 ND 200 ND	ND ND 16 ND ND	ИО ИО ИО ИО ИО	ND ND ND ND ND	ND ND 33 ND 160 <sup>1.</sup> ND	ND ND ND ND ND	ND ND ND 68 <sup>1</sup> - ND	ND 10 <sup>1.</sup> J 1,300 E 80 <sup>1.</sup> 7,900 <sup>1.</sup> E 21 <sup>1.</sup>	ND ND 1,100 D ND 13,300 <sup>1</sup> D	ND ND ND ND ND ND	ND 54 ND 190 <sup>1</sup> ND 13 <sup>1</sup>	ND ND ND ND ND ND ND ND ND	ND ND ND ND ND ND ND ND	ND ND ND ND ND ND
1,1-Dichloroethene cis-1,2-Dichloroethene Bromodichloromethane Trichloroethene Tetrachloroethene Benzene	2 5 - 50 5 5 0.7	ND ND 56 ND 200 ND 13 <sup>1</sup> .	ND ND 16 ND ND ND	ND ND ND ND ND	ND ND ND ND ND ND ND ND	ND ND 33 ND 160 <sup>1.</sup> ND ND	ND ND ND ND ND ND ND ND	ND ND ND 68 <sup>1</sup> . ND	ND 10 <sup>1.</sup> J 1,300 E 80 <sup>1.</sup> 7,900 <sup>1.</sup> E 21 <sup>1.</sup> ND	ND ND 1,100 D ND 13,300 <sup>1</sup> D ND ND ND ND	ND	ND 54 ND 190 <sup>1.</sup> ND 13 <sup>1.</sup> 6.9 <sup>1.</sup> J	ND ND ND ND ND ND ND ND	ND	ND ND ND ND ND ND ND ND ND
1,1-Dichloroethene cis-1,2-Dichloroethene Bromodichloromethane Trichloroethene Tetrachloroethene Benzene Toluene	2 5 - 50 5 5 0.7 5	ND ND 56 ND 200 ND 13 <sup>1</sup> 6.9 <sup>1</sup> J	ND ND 16 ND ND ND ND ND	ND ND ND ND ND ND ND	ND ND ND ND ND ND ND ND	ND ND 33 ND 160 <sup>1.</sup> ND ND	ND ND ND ND ND ND ND ND	ND ND ND 68 <sup>1</sup> ND ND ND	ND 10 <sup>1.</sup> J 1,300 E 80 <sup>1.</sup> 7,900 <sup>1.</sup> E 21 <sup>1.</sup> ND ND	ND ND 1,100 D ND 13,300 <sup>1</sup> D ND	ND ND ND ND ND ND	ND 54 ND 190 <sup>1</sup> ND 13 <sup>1</sup>	ND ND ND ND ND ND ND ND ND	ND ND ND ND ND ND ND ND	ND ND ND ND ND ND

Notes:

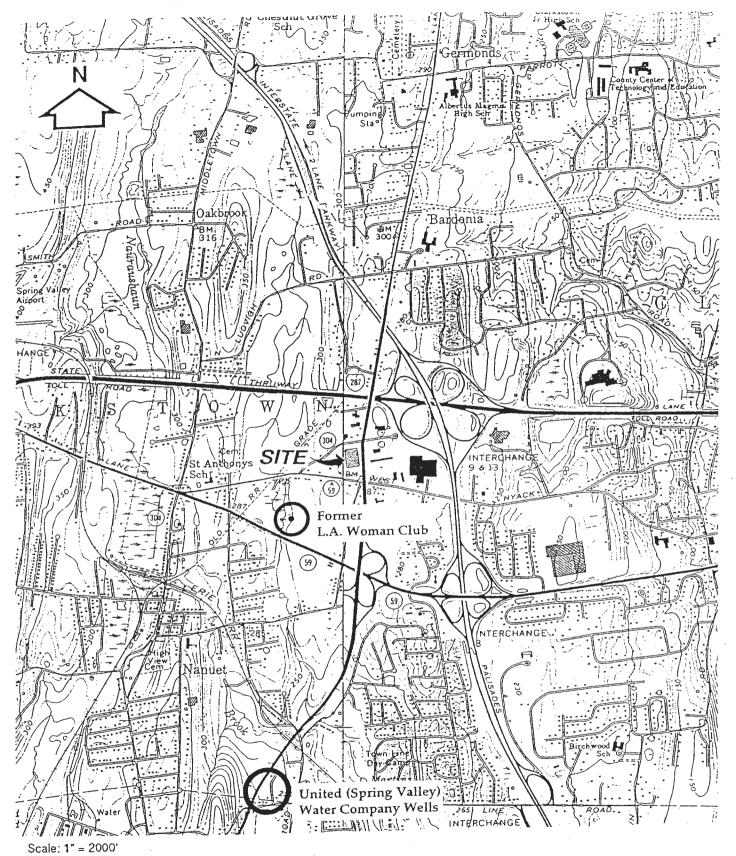
ND - Compound not detected in sample

J - Concentration is estimated

Q - Qualifier

ug/l - Micrograms per liter

1. - Results in bold print exceed NYSDEC Guidance Value

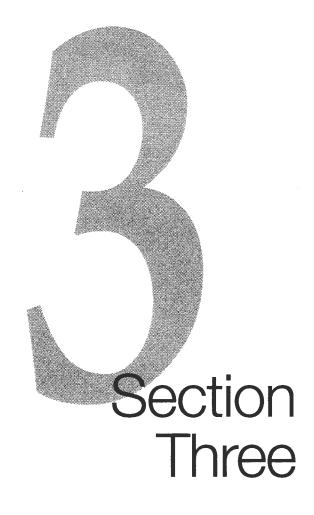


000.0.

Base Map: Nyack-Park Ridge Quadrangle New Jersey - New York USGS. 7.5 Minute Series (Topographic)

Figure 2-2 Offsite Wells Impacted by TCE

Based on these new data, it was concluded that a significant amount of TCE may have entered the streambed as a non-aqueous phase liquid between the years 1956 to 1980, and migrated downward through the water bearing unit by gravity flow. TCE is denser than water and when it remains in a separate phase, is referred to as a DNAPL, or dense non-aqueous phase liquid. A DNAPL will tend to migrate downward through permeable strata, driven primarily by the force of gravity, independent of the hydraulic head distribution of groundwater. Current research indicates that a DNAPL will not spread laterally to a significant degree until a physical barrier to downward migration is encountered, such as a layer of low permeability clay, lodgment till, a till with a significant percentage of clay and silt particles, or the bedrock surface. DNAPL can collect in depressions in the bedrock surface and enter the fractured rock aquifer system through vertical or high angle fractures that intersect the surface. When it reaches a barrier to downward migration, NAPL will act as a subsurface source of contamination, slowly dissolving into groundwater that comes in contact with it. Groundwater in the immediate area of a DNAPL source will typically exhibit dissolved phase concentrations on the order of one percent or more of the compound's solubility limit in water.



## 3.0 Scope of Work

CDM developed a scope of work for the Supplemental Investigation in cooperation with the New York State Department of Environmental Conservation (NYSDEC). The objectives of the investigation were to determine if there was evidence that DNAPL migrated downward within a relatively limited distance from the source area, and to determine if the high levels of TCE detected in MW-9D were related to the source area identified at the Swivelier Site.

#### 3.1 Evaluation of Existing Data

The stratigraphic data collected in the soil remediation phase was incorporated into the existing conceptual model of subsurface geologic and hydrogeology. Groundwater level contour maps were prepared from the November 1999 round of synoptic measurements. A review of the remedial investigation data was also conducted in light of the new data. Geologic cross sections were updated with the new stratigraphic information collected in the field investigations and final cross sections were developed.

#### 3.2 Geophysical Logging

Natural gamma logs were produced for five existing wells, MW-9D, MW-6R, MW-6I, MW-8I and MW-4I; and the new monitoring well MW-10D to provide a continuous record of stratigraphy at these locations. The gamma logs were used in combination with lithologic logs, produced from direct observation of split spoon soil samples, to evaluate the stratigraphy at the site. The depth, aerial extent, and dip of potential confining layers were identified from these data. The results of this evaluation were incorporated into the existing conceptual model of stratigraphy and used to refine the location of the proposed new monitoring well at location MW-10.

Natural gamma logs are a measure of the relative levels of gamma radiation produced by the minerals that make up the subsurface soil and rock formations. Gamma radiation is primarily produced by the element Potassium-40. Potassium-40 is found in relatively high concentrations in clay minerals. Silt and sand are composed primarily of the quartz and other silicate minerals. Consequently, the log is used as a measure of the clay content of a formation, which is then correlated with the relative permeability of the formation material.

#### 3.3 Test Boring Installation

CDM installed a boring in the source area to evaluate the migration of TCE from the shallow source area soils to the fractured rock aquifer. The boring was located in the stream bed at the end of the discharge pipe where post excavation activities indicated that significant levels of TCE remained in the soil below the water table. The location of the source area boring (SB-1) is shown on Figure 2-1. Split spoon samples were collected continuously from the ground surface to a depth of 82 feet, where split spoon refusal

was encountered. Samples were described by an onsite geologist and field screened with a PID and FID to record levels of total organic vapors. Screening with a hydrophobic dye was also conducted to identify the presence of NAPL.

The stream was temporarily diverted while the boring was completed using an all terrain vehicle-mounted rig to access the location. The boring was drilled by the standard rotary method to minimize the amount of soil cuttings removed from the hole and to contain organic vapors. Level B respiratory protection was used in the work zone because of the levels of vinyl chloride that were measured during soil remediation activities.

#### 3.4 Monitoring Well Installation

CDM installed a new monitoring well (MW-10D) on the Swivelier property, at a location directly between the source area and MW-9D, as shown on Figure 2-1. Split spoon soil samples were collected at five-foot intervals to a depth of 100 feet. The boring was then cored through the transition zone between the weathered (saprolitic) rock and competent rock from 100 to 110 feet. Four-inch PVC casing was installed to a depth of 110 feet and securely grouted in place. After the casing had been securely grouted in place, the well cored to a total depth of 130 feet, and completed as an open hole rock well. Both soil and rock core samples were described by an onsite geologist and screened for VOC's and NAPL as discussed above. The well was developed by surging and interrupted overpumping using a 3-inch submersible pump. Development water was contained in 55-gallon steel drums and disposed of by the NYSDEC.

#### 3.5 Surveying

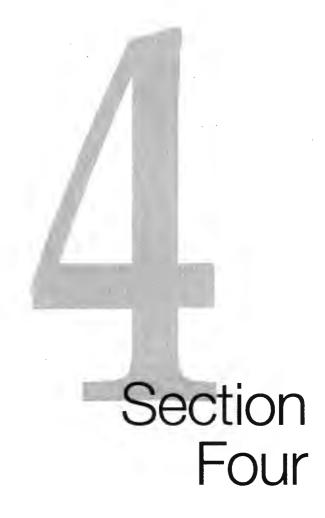
The location and elevation of the new monitoring well (MW-10D), existing wells (MW-3S, MW-3I, MW-6S, MW-6I, MW-6R, MW-7S-E, MW-7S-W, MW-9SI, MW-9DI, and MW-9D, and the source area boring were surveyed by a New York State-licensed surveyor. The new locations were plotted on the existing site plan. A copy of the new site plan is presented in Appendix B.

#### 3.6 Groundwater Quality and Level Monitoring

Groundwater quality samples were collected from five existing wells (MW-9D, MW-9I, MW-6R, MW-6I, MW-8I) and the new well (MW-10D) to evaluate the connection between the source area and MW-9D. The samples were collected on May 24 and 25, 2000, and analyzed for volatile organic compounds plus a library search. A blind field duplicate sample (MW-11D) was collected from MW-10D. Matrix spike and matrix spike duplicate samples were collected from MW-6I. A field blank and trip blanks, one per shipment, were also collected. The samples were analyzed under a two-week turnaround schedule by Chemtech of Edison, New Jersey. Third party data validation was performed by Chemworld Environmental, Inc. of Rockville, Maryland. Temperature, pH, dissolved oxygen, Eh, turbidity, and specific conductance were

measured in the field at the time of sample collection. Purge water from the wells was contained in 55-gallon steel drums and will be disposed of offsite by the NYSDEC.

A complete round of synoptic groundwater level measurements was collected prior to sample collection. Water levels were measured from the top of the well casing using an electronic water level recorder. Depth to water measurements were converted to elevation using the new survey.



# 4.0 Investigation Results

#### 4.1 Hydrogeologic Setting

#### 4.1.1 Stratigraphy

The subsurface stratigraphy at the Site was initially characterized during the Remedial Investigation/Feasibility Study. The remedial investigation indicated that there was approximately 100 feet of unconsolidated deposits of recent alluvial and glacial origin overlying bedrock consisting of Triassic Age siltstone and sandstone of the Passaic Formation.

The Remedial Investigation characterized the unconsolidated material into distinct stratigraphic units. The uppermost layer was comprised of 5 to 10 feet of undifferentiated fill material overlying a thin layer of silty clay, possibly the floodplain deposits of local surface water bodies. Vegetative material indicating the original ground surface was observed at the surface of the clay layer. These units were not encountered in the source area boring because they were either not deposited or excavated during source area remediation. Below the clay, 10 to 15 feet of relatively permeable water-bearing sands; possibly recent alluvium or glacial outwash, was observed. This water bearing sand comprised the "shallow water bearing unit". Monitoring wells screened within this unit were given an "S" designation. A 5-foot layer of silt and clay at the base of the sands marked the lower limit of the unit.

Approximately 75 to 80 feet of till was observed between the layer of silt and clay, and the bedrock surface. The till was found to vary considerably in grain size and texture. Relatively permeable sandy units were encountered between the depths of 40 and 60 feet, and 80 to 90 feet. The unit was otherwise composed of a dense combination of sand, silt, gravel, and cobble sized material, typical of a lodgment till. This material appeared to be moist, but almost devoid of free water. Monitoring wells screened within the sandy till units were originally given an "I" designation. The till unit was differentiated in the second phase of the remedial investigation into shallow intermediate "SI", and deep intermediate "DI" monitoring zones.

The upper 10 to 20 feet of rock was found to be chemically weathered to a saprolitic texture. Competent siltstone and sandstone of the Passaic Formation was observed below the weathered zone. Bedrock monitoring wells were typically cased to a depth of 5 feet into competent rock and completed with open-hole construction. Bedrock monitoring wells were given the designations "R", or "D" depending on the phase of the investigation that they were installed. The depth of competent rock appeared to vary on the order of 25 feet throughout the Site. This resulted in the monitoring intervals of the bedrock wells ranging over this distance. Monitoring well MW-9D, where the mg/l concentrations of TCE were detected, was the shallowest of the existing wells. The top of the monitoring interval in MW-9D was more than 20 feet shallower than MW-6R, the well closest to the source area. MW-9D also encountered a water-bearing fracture at a relatively shallow depth. MW-10D, the new well installed during this investigation

encountered competent rock at a depth 10 feet shallower than MW-6R, and shallow water bearing fractures.

#### 4.1.2 Geophysical Logging

The natural gamma logs for monitoring wells MW-1D, MW-4I, MW-6I, MW-6R, MW-8I, and MW-9D, andMW-10D, showed relatively comparable gamma signatures. The logs indicated that the shallow water bearing sand unit had variable percentages of clay, particularly near the base of the unit where it graded into a silt and clay layer. Copies of the Geophysical Logs are presented in Appendix C. The shallow sand unit appeared to have relatively higher percentages of clay near the source area, as shown on the log for MW-6I, compared to MW-8I located south of the source area.

The percentage of clay decreased in the underlying till unit below the silt and clay layer. Monitoring well MW-6I appeared to have a relatively low percentage of clay through upper section of till between 25 to 55 feet below the ground surface. The lower section of till, between the depths of 60 and 100 feet, showed relatively lower percentages of clay to the southwest of the source area as shown in the logs for MW-8I, MW-9D, and MW-10D. This indicates that a preferential pathway to depth may exist between the source area and MW-9D where the high levels of TCE were found.

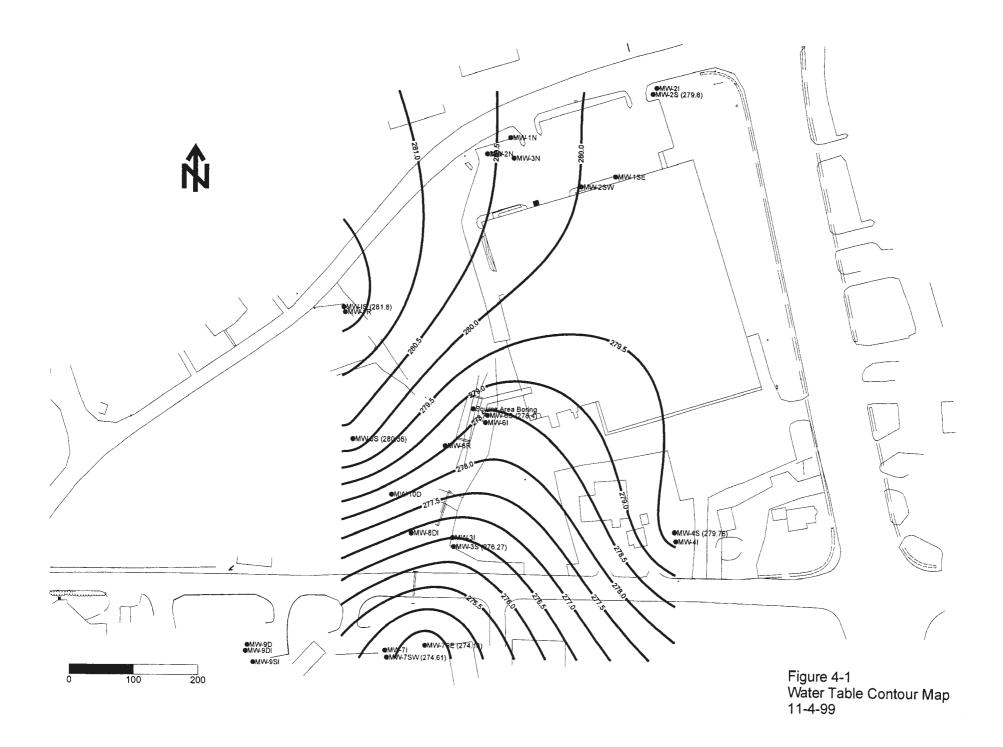
The bedrock surface is difficult to identify on the gamma logs because the rock is similar in composition to the basal layers of the till. However, it appears that the surface of the weathered zone ranges in depth between 95 feet and 110 feet below the ground surface. It also appears that this surface drops in elevation between MW-6D, MW-10D, and MW-9D.

#### 4.1.3 Groundwater Flow

Contour maps of hydraulic head measurements made in the shallow, shallow intermediate, and bedrock monitoring zones were prepared for the November 1999 and May 2000 events. A summary of location, elevation, and water levels is presented in Table 4-1. Contour maps are presented in Figures 4-1 through 4-6. The data indicate that groundwater within the shallow water bearing unit flows toward the drainage swale from both the east and west portions of the Site (see Figures 4-1 and 4-2). Groundwater within this unit flows to the southwest from the southwest corner of the Swivelier building where the drainage pipe was located. Flow is to the southeast from western side of the swale similar to the general slope of the ground surface in that area. The unit is probably responsible for base flow with in the swale where it is not separated by the shallow clay unit. The elevation of the base of the swale was 1 to 2 feet below the water

Table 4-1 Summary of Groundwater Level Measurements

WELL I.D.	Horizontal (			Well Elevations		Depth to G	roundwater	Groundwater Elevation		
WELL I.D.	North	East	Ground Surface	Top of Steel Casing	Top of PVC Casing	11/4/99	5/24/00	11/4/99	5/24/00	
MW-IS	399773.29	592938.42			288.34	6.54	4.63	281.8	202.74	
MW-1R	399765.54	592940.77			288.48	22.04	19.74	266.44	283.71 268.74	
MW-2S	400109.75	593417.72			289.66	10.06	9.68	279.6	279.98	
MW-2I	400119.48	593423.82			290.33	11.84	11.3	278.49		
MW-3S	399400.773	593111.469	279.17	281.4	281.2	4.93	4.24	276.27	279.03	
MW-3I	399414.923	593109.696	279.32	282.13	281.56	7.31	6.68	274.25	276.96	
/IW-4S	399426.67	593456.7			285.41	5.65	5.2	279.76	274.88	
/IW-41	399413.08	593458.92			285.56	7.88	7.51	279.76	280.21	
MW-5S	399567.12	592953.59			287.23	6.87	7.37	280.36	278.05	
/IW-6S	399605.587	593163.266	282.14	284.47	283.86	5.46	4.98	278.4	279.86	
/W-6I	399594.314	593160,312	281.99	284.43	283.9	14.45	12.62	269.45	278.88	
/IW-6R	399558.192	593097.342	283.78	286.28	286.24	19.45	17.59	266.79	271.28	
MW-7SE	399247.064	593067.149	276.85	279.05	278.85	4.69	4.54	274.16	268.65	
/W-7SW	399228.066	593007.71	279.15	282.35	282.03	7.42	7.45	274.61	274.31	
MW-71	399238.883	593005.177	279.26	281.63	281.53	7.48	7.62	274.05	274.58	
/IW-8DI	399421.146	593044.762	278.59	282.05	281.53	15.1	12.76	266.43	273.91	
/W-9SI	399218.864	592795.237	284.3	287.42	287	11.73	11.77	275.27	268.77	
MW-9DI	399236.384	592783.197	284.7	288.22	287.92	23.17	20.22	264.75	275.23	
MW-9D	399245.7464	592785.9688	285.06	287.83	287.5	21.91	18.9	265.59	267.7	
MW-10D	399481.168	593014.053	281.28	283.59	283.59	21.01	15.05	200.59	268.6	
MW-1SE	399981.52	593359.77			284.8	6.15	3.71	278.65	268.54	
MW-2SW	399965.22	593306.63			283.37	5.07	4.9		281.09	
/W-1N	400039.97	593196.73			285.66	7.22	6.99	278.3	278.47	
MW-3N	400008.27	593202.17			280.68	2.21	3.51	278.44	278.67	
MW-2N	400014.52	593160.95			282.78	4.34	4.23	278.47	277.17	
Source Area Boring	399615.528	593140.825	277,49		202.10	4.04	4.23	278.44	278.55	



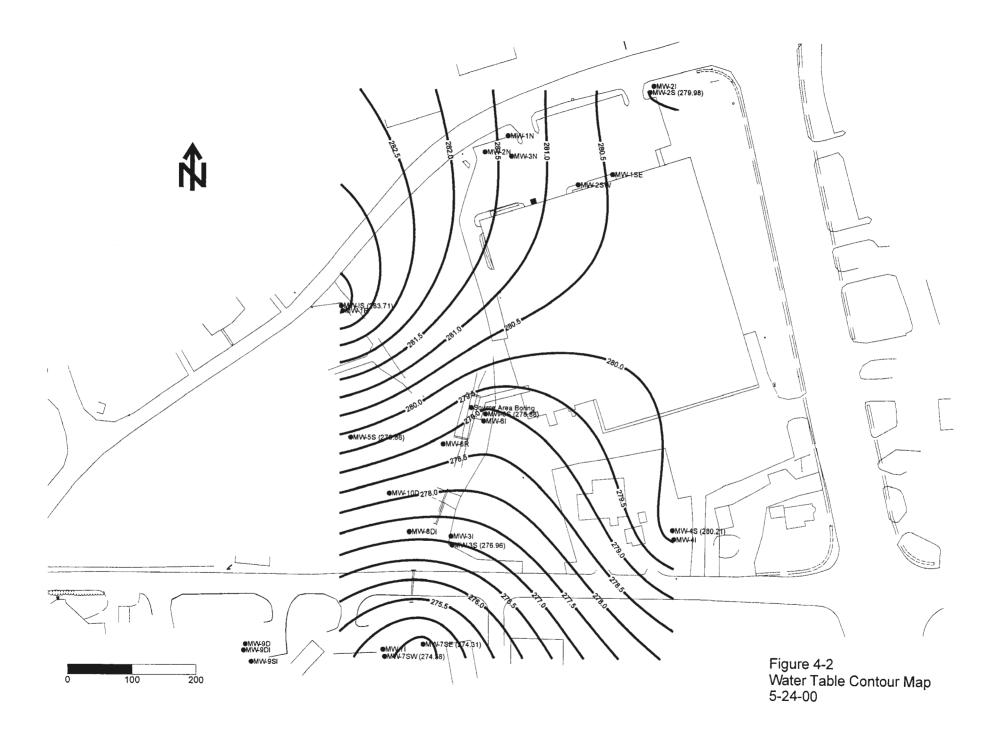


table in surrounding shallow wells during both the November 1999 and May 2000 monitoring events.

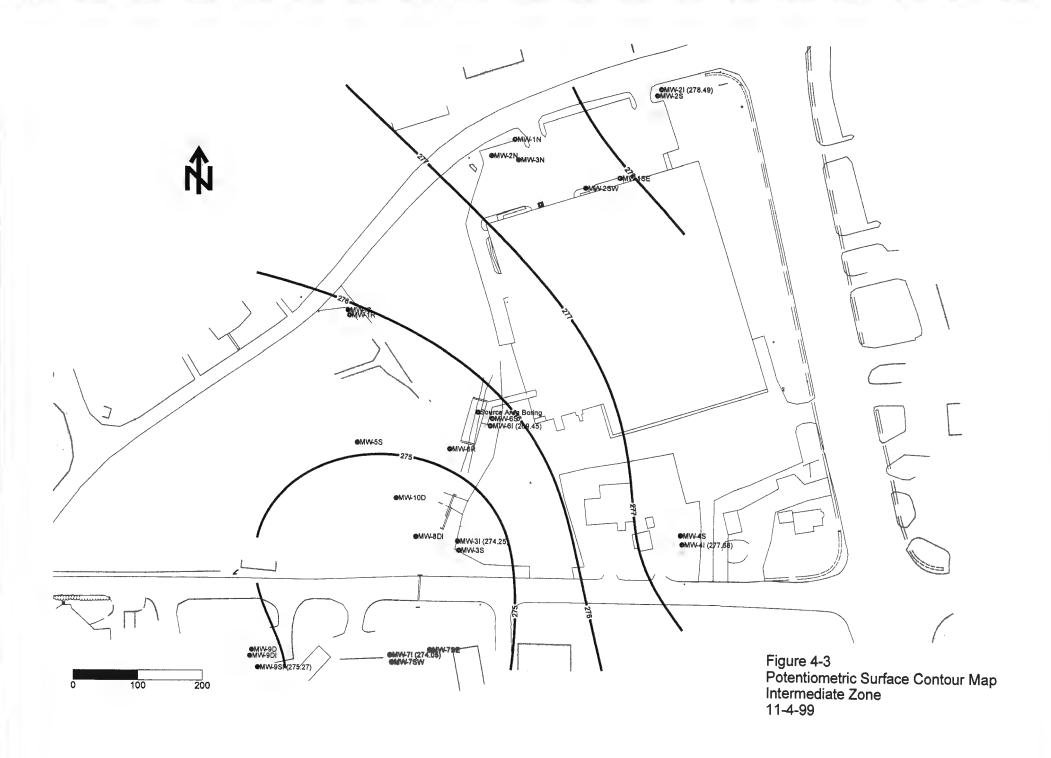
The shallow intermediate water bearing unit shows a similar flow pattern to the water table (see Figures 4-3 and 4-4). Flow within this unit is to the southwest across most of the Swivelier property. An area of lower hydraulic head appears to be centered around MW-8I, and MW-7I. The vertical hydraulic gradient between the two zones is downward, indicating that groundwater within the shallow unit recharges the shallow intermediate zone, and that the shallow intermediate zone does not discharge to the drainage swale. With no apparent connection to surface water, it is possible that heads are lower in this area because the soils are relatively higher in permeability. This distribution of hydraulic head and possible zone of higher permeability presents a potential area for the downward migration of contaminants.

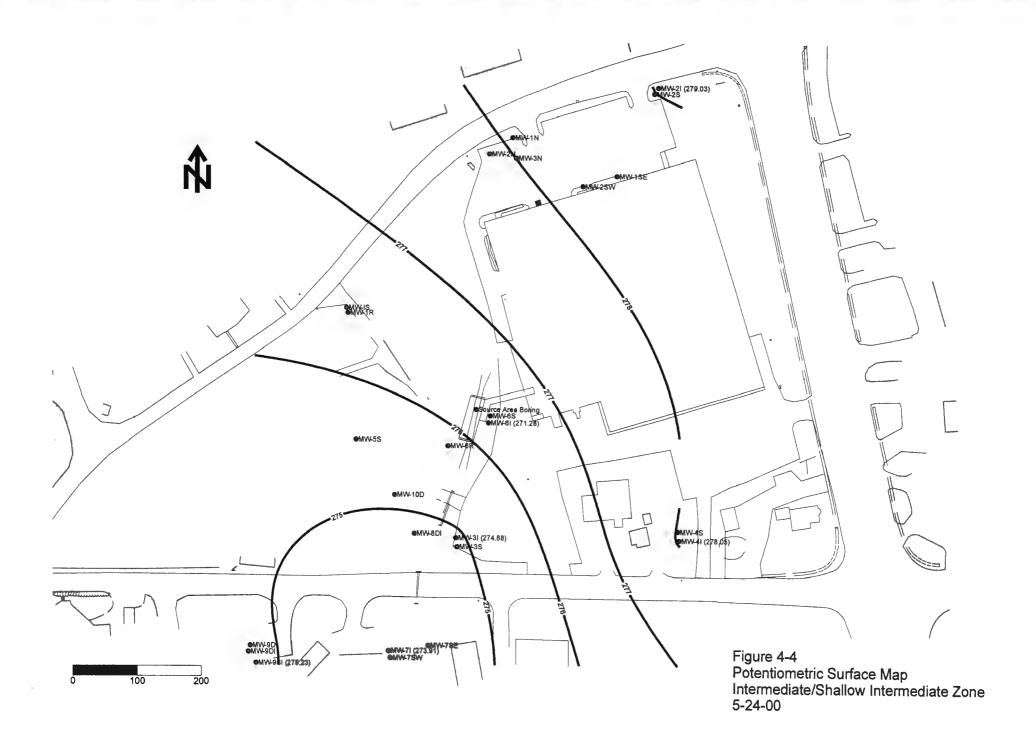
There were not enough deep intermediate zone wells to triangulate and construct a contour map. The only two wells installed in that zone were MW-8DI and MW-9DI. The head measurements in these wells do, however, indicate that the downward vertical gradient observed between the two shallower monitoring zones is maintained between the shallow intermediate and deep intermediate units.

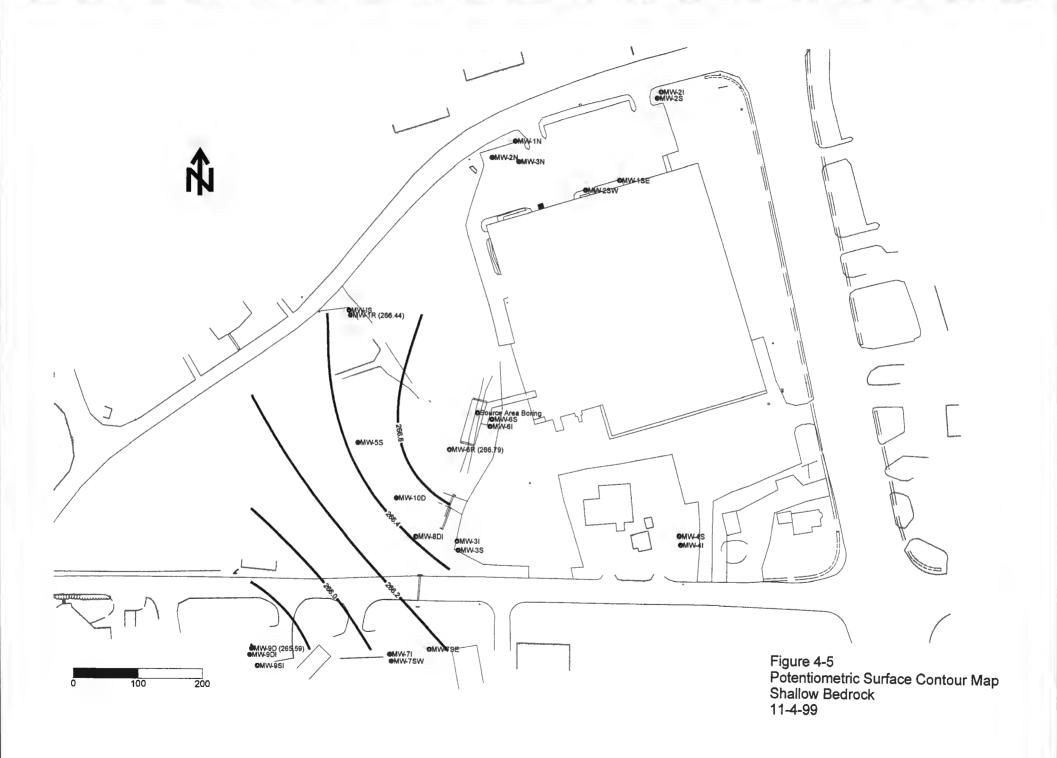
The potentiometric surface maps for the shallow bedrock zone vary significantly between the November 1999 and May 2000 monitoring events as a result of the additional well control afforded by the new monitoring well MW-10D (see Figures 4-5 and 4-6). The November map shows flow in a general southwesterly direction from the source area near MW-6S and MW-6I to the MW-9 well cluster. In May, with the addition of monitoring well MW-10D, a zone of low hydraulic head is apparent in the same general area as the shallow intermediate surface. Pumping records from well development and purging indicated that the shallow bedrock in the area of MW-10D is much more permeable than in the area of MW-9D. Vertical hydraulic head measurements in both of the monitoring rounds indicated that the head in the shallow bedrock well at location MW-9D was higher than the deep intermediate zone. A comparison of the head in MW-10D to the level in MW-8DI, the closest well to MW-10D indicate that downward head conditions may exist between the deep intermediate zone and the shallow bedrock, further supporting the possibility that this area provides a potential pathway between the source of the TCE and the bedrock.

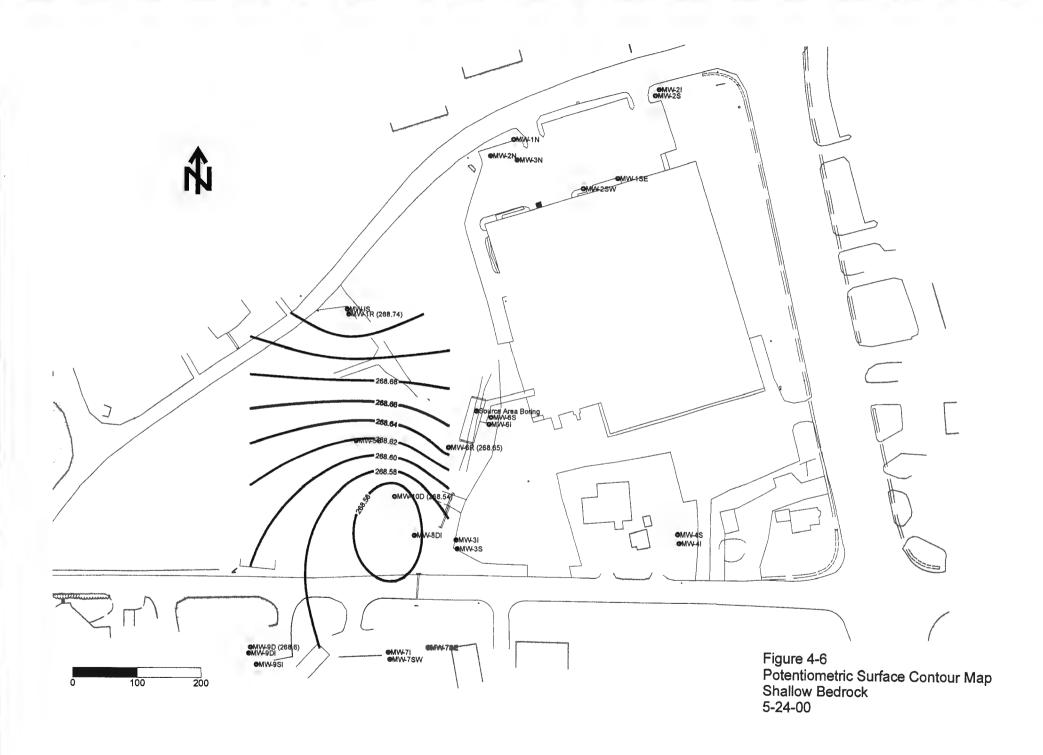
#### 4.2 Source Area Boring SB-1

The source area boring was installed to a total depth of 82 feet. The boring was terminated at that depth, because there was not sufficient recovery of split spoon samples to observe and screen the soils encountered during drilling. Coring the lower section of till was attempted, however it appeared that the circulation of drilling fluid through the core barrel was flushing any sign of contamination from the sample.









The stratigraphy at this location was consistent with the conceptual model presented in the RI/FS. The shallow water bearing unit was encountered between the depths of four and 14 feet, and consisted of silty fine to medium sand as shown on the boring log presented in Appendix A. Total organic vapor levels were slightly above background levels, ranging from 1 to 10 ppm. Table 4-2 summarizes the results of sample screening for total organic vapors with a PID. Boring Logs are presented in Appendix D.

The shallow intermediate zone was encountered between the depths of 43 and 60 feet, and consisted of a loose medium sand. Total organic vapors were recorded at levels between one and 127 ppm, with the highest levels in the interval between 50 and 60 feet. The formation material became very dense and difficult to sample below 60 feet in depth. Samples were not collected for laboratory analysis from this boring, however, the level of total organic vapors indicated the presence of significant levels of volatile organic compounds in the shallow intermediate zone.

Upon completing drilling and sampling activities, the boring was sealed with cement bentonite grout from its total depth to the ground surface and abandoned. The cuttings and water generated during installation of the boring were placed in 55-gallon steel drums and will be disposed of by the NYSDEC as hazardous waste.

#### 4.3 Monitoring Well MW-10D

Monitoring well MW-10D was sited directly between the source area and well cluster MW-9, on the Swivelier property. Split spoon sampling indicated that shallow water bearing sand unit contained a significant percentage of silt throughout most of its section (see Appendix D). However, a thin gravel layer was found between 15 and 16 feet. The shallow intermediate zone also had a significant percentage of silt. Total organic vapor screening recorded only background levels between the ground surface and a depth of 90 feet as shown on Table 4-2. Total organic vapor levels increased to 12 ppm between the depths of 90 and 95 feet where the surface of weathered bedrock was encountered.

The driller reported that sections of competent rock were encountered between the depths of 97 and 105 feet in depth. The core from 105 feet to 110 feet recovered 2 feet of weathered incompetent siltstone. The casing was set at a depth of 110 feet and securely grouted in place. Drilling was suspended until the following day to allow the grout to set for a minimum of 12 hours.

The well was then advanced to a depth of 130 feet using an NX core barrel with a nominal outside diameter of 3.6 inches. The core indicated that the section from 110 to 130 feet was highly fractured. Vertical or high angle fractures were encountered at the depths of 112 feet, 117 feet, and between 125 and 128 feet. The presence of vertical fractures is significant in the area of MW-10D, where the hydraulic head is downward, and the contour maps indicated a potential zone for contaminants to migrate from the source area to the bedrock surface.

Table 4-2 Summary of Total Organic Vapor Measurements

Depth (ft)		Source Area Boring (ppm)	MW-10D Boring (ppm)
0			
Ū		0	
		0	
		0.3	0
		4	
10	<u> </u>	0	0
	1	13 0	0
		0.1	0
		9	
20	<u></u>	NR	0
		3.9	
		5 9.7	0
	1	9.7 0.1	
30		0.5	0
		NR	Ů
		0.1	0
	[	0.1	
40		NR	
40	<del>-</del>	0 0	0
		0	0
		0.6	U
		0	
50		10	0
		127	
		77	0
		113 30	
60		50	0
-	<del></del>	2	Ŭ
	ĺ	0	0
	<b>!</b>	0	
	1	0.3	
70		0 0	0
		0	0
		Ö	Ū
		NR	
80		NR	23
		total depth of boring	
			4
00			
90	<del></del>		4
			12
100			NR
			split spoon refusal
			- Front - Front - Annual - Ann
			top of competent roc
110			

The rock was encountered at MW-10D was composed of siltstone between 110 and 121.5 feet at which point it graded into a sandstone with thin zones of conglomerate (see Appendix C). The fractures within the sandstone were filled with decomposed rock and silt in many cases. Screening of the core with a PID did not detect the presence of organic vapors. Water generated during the installation of MW-10D will be disposed of by the NYSDEC as hazardous waste along with purge water from monitoring well sampling activities. Cuttings collected during the installation of MW-10D were sampled and the analysis indicated that they were clean. Under the direction of the NYSDEC, CDM emptied the cuttings onto the ground surface at the wellhead.

#### 4.4 Groundwater Quality and Level Monitoring

The select group of monitoring wells, located between the source area and the MW-9 well cluster, were sampled on May 24 and May 25, 2000. The analytical results are presented in Appendix E. A summary of the compounds detected is presented in Table 4-3.

The analytical results for MW-9D, where high concentrations of TCE were detected in the November 1999 results, indicated that TCE concentrations were 5,300 ug/l. This concentration is approximately 40 percent of the level found in the November 1999 monitoring event. However, at a level of approximately 0.4 percent of its solubility limit in water, the concentration still suggests the presence of residual saturation levels in the area of the well. The compound cis-1,2-dichlorethene (DCE), which is produced by the microbial breakdown of TCE, was also found at 750 ug/l, or approximately 70 percent of the concentration measured in the November 1999 monitoring event.

Microgram per liter concentrations TCE and DCE were detected in the other wells sampled during the May 2000 monitoring event, MW-8I, MW-6I, and MW-6R. The chlorinated solvent concentrations increased slightly in MW-8I, dropped by approximately 50 percent in MW-6I, and dropped by a factor of 8 in MW-6R. The presence of petroleum related target and tentatively identified compounds were also found in the intermediate wells, MW-9DI, and MW-8I. The November 1999 monitoring event indicated that the source of petroleum related compounds was to the west in the area of MW-5S.

The new shallow bedrock monitoring well MW-10D installed on the Swivelier property showed mg/l concentrations of TCE and DCE. The concentrations were slightly less than those measured in the sample from MW-9D, however it should be noted that MW-10D encountered fractures with a significantly higher permeability than MW-9D. Prior to sample collection, monitoring well MW-9D was purged to dryness at a rate of 0.5 gallons per minute (gpm). Monitoring well MW-10D was capable of sustaining over 3 gpm with a drawdown of only 10 feet. The difference in permeability suggests that the local source of contamination could be similar in strength, and that greater dilution in the area of MW-10D may be responsible for the difference in contaminant concentrations at the two wells.

FIGURE 4-3
RESULTS OF MONITORING WELL SAMPLING

Well No. Dillution Factor Units	NYSDEC Guidance Value	MW-6I 1 ug/I Conc. Q	MW-6R ug/l Conc. Q	MW-8I 1 ug/I Conc. Q	MW-9DI 1 ug/I Conc. Q	MW- 1 ug/l Conc. Q	9D 100 ug/I Conc. Q	MW- 1 ug/l Conc. Q	10D 100 ug/l Conc. Q	MW-1 1 ug/I Conc. Q	11D <sup>1</sup> 100 ug/l Conc. Q	FB052400 1 ug/l Conc. Q	TB-5/24/00 1 ug/I Conc. Q	1 ug/l
Parameter														
vinyl chloride	2	29 <sup>1.</sup>	ND	ND	ND	ND	ND	<b>7.1</b> <sup>1.</sup> J		1 .				
acetone	50	ND	ND	100 <sup>1</sup>	ND	ND	ND	V.1 J	ND	<b>7.1</b> <sup>1.</sup> J	ND	ND	ND	ND
trans-1,2-dichloroethene	-	ND	ND	ND	ND	2.2 J	ND	3.3 J	ND ND	ND	ND	ND	ND	ND
cis-1,2-dichloroethene	- 1	130	8.1 J	51	ND	460 E	750 J	700 E	1.200 D	3.4 J 720 E	ND	ND	ND	ND
trichloroethene	5	56 <sup>1.</sup>	25 <sup>1.</sup>	200 <sup>1.</sup>	33 <sup>1.</sup>	1,200 <sup>1.</sup> E	5,300 <sup>1</sup> D	1.000 <sup>1.</sup> E	3,100 <sup>1.</sup> D	720 E 1,100 <sup>1.</sup> E	1,200 D 3,100 <sup>1.</sup> D	ND	ND	ND
benzene	0.7	ND	<b>2.4</b> <sup>1.</sup> J	ND	ND	ND	ND	ND	3,100 D	1,100 <u>-</u> ND		ND	ND	ND
tetrachloroethene	5	ND	ND	ND	ND	10 <sup>1.</sup>	ND	11 <sup>1.</sup>	ND ND	11 <sup>1.</sup>	ND	ND	ND	ND
toluene	5	ND	ND	ND	ND	ND	ND	5 J	ND	11" 5 J	ND	ND	ND	ND
m&p xylenes	5	ND	ND	ND	ND	1 J	ND	3 J	ND	3 J	ND ND	ND ND	ND ND	ND ND
Tentatively Identified Compounds <sup>2</sup>										<del></del> -				
1.1.2-trichloro-1.2-ethane		19 R	27 R	26 R	28 R	22.5								
methyl tert-butyl ether	10	ND	ND	ND ND	8.6 J	28 R ND	2,100 R	ND	1,700 R	ND	1,600 R	30 R	35 R	37
1,2-dichlorobenzene	4.7	ND	ND	ND	8.6 <sup>1.</sup> J	ND		ND	ND	ND	ND	ND	ND	ND
1,3-dichlorobenzene	5	ND	ND	41 <sup>1.</sup> J	ND ND	ND	ND ND	ND	ND	ND	ND	ND	ND	ND
1,4-dichlorobenzene	4.7	ND	ND	440 <sup>1.</sup> J	ND	ND		ND	ND	ND	ND	ND	ND	ND
2-methoxy-2-methyl-propane	-	ND	18 J	36 J	ND	ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
Field Parameters														
temperature (°C)	_	15	15.1	13.7	13.3	15.5								
pH (S.U.)	-	6.98	8.19	8.86	7.94	15.5 12.27	NA NA	13	NA	NA	NA	NA	NA	NA
specific conductance (uS/cm)	-	1.15	0.338	0.312	0.846	5.34	NA NA	8.19 0.405	NA	NA	NA	NA	NA	NA
dissolved oxygen (mg/l)	-	1.71	2.2	1.27	1,24	2.22	NA NA	1.41	NA NA	NA NA	NA	NA	NA	NA
Eh (mV)	-	-109	24	48	40.1	-136.3	NA NA	54	NA NA	NA NA	NA NA	NA	NA	NA
turbidity (NTU)	-	9	33	11	50	104	NA	39	NA I	NA NA	NA NA	NA NA	NA NA	NA NA

#### Notes:

- 1. Sample MW-11D is the field duplicate of MW-10D
- 2. TIC concentrations are estimated only
- J Qualifier indicates that concentration is estimated
- D Qualifier indicates that sample was diluted to bring concentration into calibration range
- R Qualifier indicates that result was rejected by the data validator
- ND Compound not detected
- NA Not analyzed



## 5.0 Conclusions

The results of the supplemental investigation at the Swivelier Site indicated that there is a potential pathway for the migration of non-aqueous phase TCE from the source area soils to the shallow bedrock zone. Evidence of this potential pathway was observed on both the geophysical logs obtained from existing monitoring wells, and from a comparison of contour maps of the potentiometric surface in the intermediate and shallow bedrock monitoring zones.

The natural gamma logs indicated that the zone from approximately 60 feet to 100 feet had a relatively low percentage of clay. Although the zone appeared to be relatively dense, the lower viscosity and lower surface tension of TCE may have allowed the solvent to move through the material more easily than water. Groundwater contour maps indicated an area of lower hydraulic head near monitoring wells MW-8I and MW-3I approximately 200 feet southwest of the source area, which can be the result of a zone of relatively higher permeability.

The observations made at the source area boring indicated that significant levels of volatile organic compounds had migrated to depths of 50 to 60 feet. Based on these data, and the data indicating a potential pathway to depth southwest of the source area, a new shallow bedrock monitoring well was installed approximately 200 feet southwest of the source area boring. The new monitoring well MW-10D encountered a series of vertical fractures in the interval just below the surface of competent rock. The shallow portions of the rock were observed to be relatively permeable. Laboratory analysis of the groundwater sample from MW-10D detected significant levels of TCE and its breakdown product cis-1,2-dichloroethene. Based on these results and the levels of TCE contamination found in the soils in the source area during remedial activities, it appears that the Swivelier Site is the source of the mg/l concentrations of TCE detected in MW-9D during the November 1999 monitoring event.

It appears that soil remediation activities resulted in a limited release of contaminants to the groundwater. However, concentrations measured immediately following remedial activities had reduced over the six-month period between the November 1999 and May 2000 monitoring events.

It appears that low levels of TCE contamination, on the order of 20 ug/l, are migrating to the south in the shallow water-bearing unit. The dissolve phase contamination will likely discharge to the drainage swale where it is not separated from the shallow unit by a clay layer, or another surface water body further down gradient.

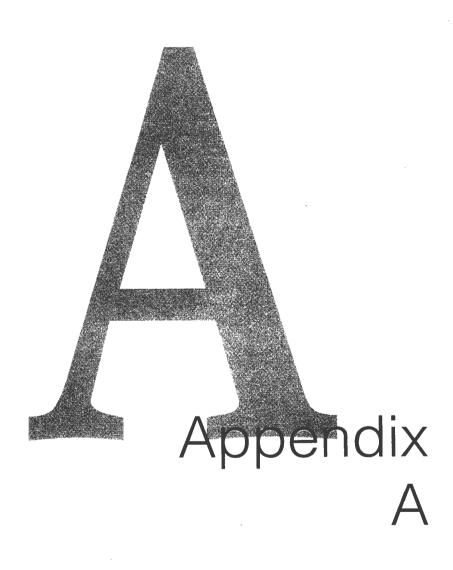
Lastly, it appears that trace levels of gasoline and petroleum related compounds, migrating toward the drainage swale from the west, as shown in samples from MW-5S, are also reaching the shallow bedrock. This contamination is most likely following the same path to depth as the TCE from the Swivelier Site.



## 6.0 Recommendations

Based on the results of the Supplemental Investigation, it is recommended that an investigation be conducted to characterize the extent of TCE contamination in the bedrock aquifer, and its potential affect on community and non-community water supply wells in the vicinity of the Swivelier Site.

Appendices



### Appendix A

Analytical Results November 1999

### DATA VALIDATION REPORT

### **VOLATILE ORGANIC ANALYSES**

Swievlier Project

Lab Project # 14002LP and 13985LP

Sampling Dates of November 4 - 9, 1999

### PREPARED FOR:

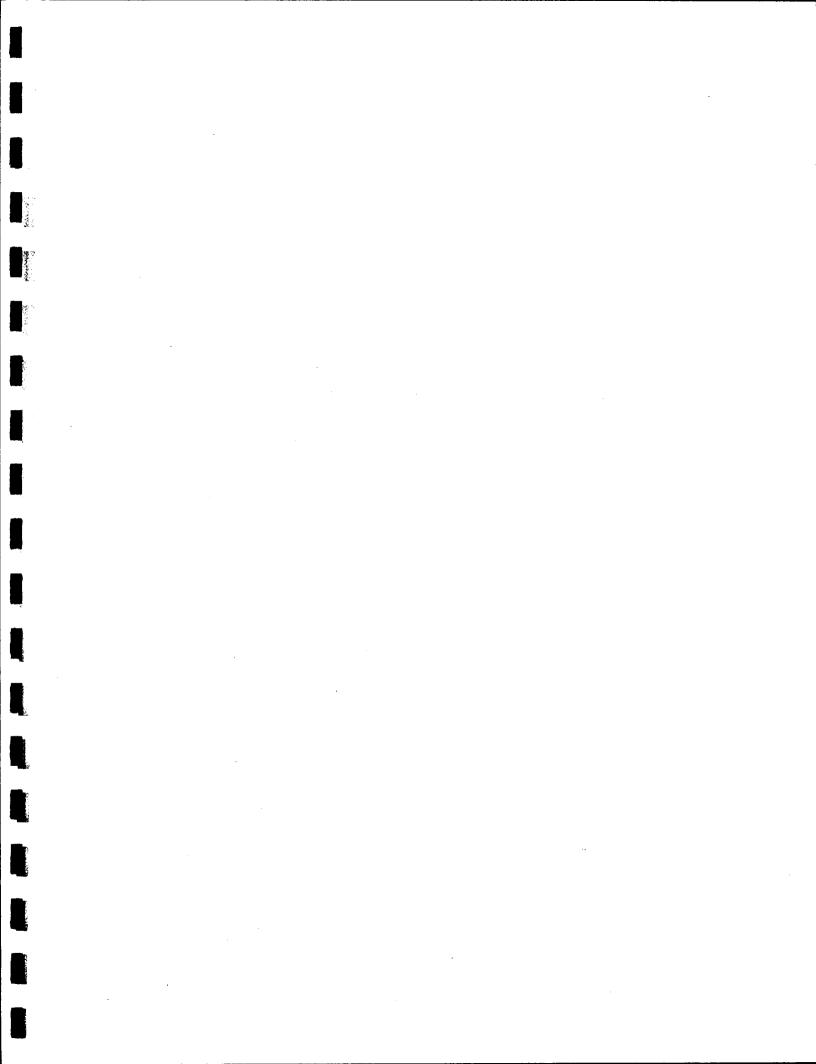
Camp Dresser & McKee, Inc. Raritan Plaza I Raritan Center Edison, New Jersey 08818

March 2000

### PREPARED BY:

ChemWorld Environmental, Inc. 14 Orchard Way North Rockville, Maryland 20854

(301) 294 - 6144



### Swievlier Project

Data Validation Report: Volatile Organic Analyses

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1.5	Blanks	. 2				
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### **Appendices**

- A Data Summary Tables: Volatile Organics
- B Data Summary Forms: Tentatively Identified Compounds
- C Data Qualifiers
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### DATA VALIDATION SUMMARY: VOLATILE ORGANIC ANALYSES

### Swievlier Project Lab Project # 14002LP and 13985LP Sampling Dates of November 4 – 9, 1999

### INTRODUCTION

This Data Validation Summary Report for Volatile Organic analyses was generated for 26 water samples and the associated quality control samples for the Laboratory Project Nos. noted above. Sampling activities were conducted in support of the field investigation for the Swievlier Project. The analytical laboratory work was performed by ChemTech Laboratory.

Analytical testing was performed utilizing United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) protocols for Volatile Organic analyses by Gas Chromatography/Mass Spectroscopy (GC/MS). The analytical work was performed utilizing New York State Department of Environmental Conservation (NYSDEC) Analytical Service Protocols (ASP), October 1995.

This report provides a summary of data acceptability and deviations in accordance with the USEPA Region II Organic Data Validation Checklists/Guidelines (June 1996); and the appropriate methods from the NYSDEC ASP (October 1995), where applicable and relevant.

### 1.0 VOLATILE ORGANICS BY GC/MS

The following items/criteria were reviewed:

- Holding Times
- System Monitoring (Surrogate) Compound Recovery
- Matrix Spikes (MS) and Matrix Spike Duplicates (MSD)
- Initial and Continuing Calibration
- Blanks (Method and Field)
- GC/MS Instrument Performance Check
- Tentatively Identified Compounds (TICs)
- Internal Standards
- Compound Identification
- Compound Quantitation and Reported Detection Limits
- System Performance

All items above were generated within acceptable Quality Control (QC) specifications with deviations detailed as follows. All data reviewed is considered to be valid and usable with the appropriate qualifiers, as noted on the data summary forms in Appendix A and within the following text.

### 1.1 Holding Times

All NYSDEC ASP holding times were met within the acceptable time frame. The Holding Time is 7 days from Verified Time of Sample Receipt (VTSR) at the laboratory for the water samples.

### 1.2 System Monitoring (Surrogate) Compound Recovery

All system monitoring compound percent recovery (%R) was found to be generated within acceptable limits for the three surrogate compounds.

### 1.3 Matrix Spike/Matrix Spike Duplicates (MS/MSD)

Site-specific MS/MSD sample sets and Matrix Spike Blanks (MSBs) were analyzed for the samples. Acceptable accuracy (percent recovery) and precision (relative percent difference) were generated for the QC samples.

### 1.4 Calibration

All initial and continuing calibration was performed within acceptable limits for average Relative Response Factors (RRF), Percent Relative Standard Deviation (% RSD), Relative Response Factors (RRF), and Percent Difference (% D), with the following exceptions.

### 1.4.1 Lab Project # 14002LP

Continuing Calibration:

The Percent Difference (%D) for the compounds acetone, 4-methyl-2-pentanone, 2-Hexanone, 2-Butanone and 1,1,2,2-Tetrachloroethane were found to exceed the 25% limit for the calibrations on 11/14/99 and 11/15/99. The associated sample results for these compounds were qualified as 'UJ', estimated, for the non-detectable results. Positive results were not detected for the compounds affected.

### 1.5 Blanks

### 1.5.1 Field Blanks

Two trip blanks and one field blank were collected and analyzed for Volatiles. Volatile Organics were not detected in these blanks.

### 1.5.2 Method Blanks

Three water method blanks were analyzed for the samples. Volatile Organics were not detected in the method blanks.

### 1.6 GC/MS Instrument Performance Check

Instrument performance was generated within acceptable limits and frequency for Bromofluorobenzene (BFB).

### 1.7 Tentatively Identified Compounds (TICs)

Copies of the TIC Form I data sheets, including the appropriate qualifiers, are included in Appendix B.

### 1.8 Internal Standards

All internal standards were generated within acceptable specifications for area counts and retention time variation.

### 1.9 Compound Identification

GC/MS qualitative analyses are considered to be acceptable for the data set. Retention times and mass spectra were generated within appropriate quality control specifications.

### 1.10 Compound Quantitation and Reported Detection Limits

GC/MS quantitative analyses are considered to be acceptable. Sample dilutions, internal standards, and response factors were found to be within acceptable limits.

### 1.11 System Performance

Acceptable system performance was maintained throughout the analyses of the water samples. This was exhibited through good resolution and consistent chromatographic performance.

### APPENDIX A

DATA SUMMARY TABLES

**VOLATILE ORGANICS** 

			,			,			Sw	ievl	ier	Proje	ct												
	0110110		<i>V</i>			V		,	1/			V -			V						1/			1	
	Client Sample ID Leb Semple ID Semple Collection Date Semple Receipt Date Semple Matrix		MW-1RI 90078 11/09/1999 11/09/1999 WATER	:		MW-1S 9007 11/09/199 11/09/199 WATER	9		9000 11/08/199 11/09/199 WATER	55 99		MW-3N 900 11/08/198 11/09/198 WATER	99		MW-4i 9007 11/09/199: 11/09/199: WATER	9		MW-4S 900 11/09/199 11/09/199 WATER	99		MW-6S 9006 11/08/199 11/09/199	9		MW-6! 900 11/08/19: 11/09/19:	99
	Units		ug/L			υg∕L			ug/L			ug/L			u <u>a</u> /L			ug/L			WATER ug/L			WATER ug∕L	
		MDL	CONC	G	MDL	CONC	Q.	MDL	CONC	Q	MDL	CONC	Q	MDL	20210	_									
											IVICE	LLING	- G	MILL	CONC	Q	MOL	CONC	G	MDL	CONC	Q	MDL	CONC	G
74-87-3	Chloromethana	10	ND		10	ND		10	ND		10	NO		10	NO.		10	ND		1000	ND				
74-83-9	Bromomethene	10	ND		10	ND		10	NO		10	ND		10	ND		10	ND		1000	NO		10	ND	ŀ
75-01-4	Vinyl Chloride	10	ND		10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND	
75-00-3 75-09-2	Chloroethene	10	ND		10	ND		10	NO		10	NO		10	ND		10	ND		1000	ND		10	180	ł
67-64-1	Methylene Chloride	10	ND		10	ND		10	ND		10	ND		10	NO		10	ND		1000	NO		10	ND ND	- 1
75-15-0	Agetone	10		w	10	ND	ш	10	NO	W	10	NO	W	10	NO	ш	10	ND	W	1000	ND	w	10	1	
75354	Carbon Disulfide	10	ND		10	ND		10	NO		10	ND		10	ND		10	ND		1000	ND	w	10	NO NO	w
1	1,1-Dichloroethene	10	ND	i	10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND ND	
75-34-3 156-60-5	1,1-Dichloroethene	10	ND		10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND ND		10	NO	1
156-59-4	trans-1,2-Dichloroethene	10	ND		10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND	
67-66-3	cis-1,2-Dichloroethene	10	ND		10	ΝĎ		10	ND		10	32		10	ND		10	ND		1000	ND		10	280	E
107-06-2	Chloroform	10	. ND		10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	NO	٠
78-93-3	1,2-Dichloroethene 2-Butanone	10	ND 175		10	ND		10	ND		10	ND		10	ND		10	ND		1000	NO		10	ND	
71-55-6	1,1,1-Trichloroethane	10		w	10	ND	w	10	ND		10	NO		10	ND	w	10	ND	w	1000	ND		10	ND	
56-23-5	Carbon Tetrachloride	10	NO NO		10	ND		10	ND		10	NO		10	ND		10	ND		1000	NO		10	ND	
75-27-4	Bromodichloromethene	10	ND ND		10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND	Í
78-87-5	1,2-Dichloropropana	10	ND ND		10	ND		10	ND		10	ND		10	ND		10	NO		1000	ND		10	ND	
10061-01-5	cie-1,3-Dichloropropene	10	ND ND		10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND	- 1
79-01-6	Trichloroethene				10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND	
124-4B-1	Dibromochloromethene	10	ND		10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	130	
79-00-5	1.1.2-Trichloroethane	10	ND		10	ND ND		10	ND		10	ND		10	NO		10	ND		1000	ND		10	ND	
71-43-2	Benzene	10	NO ND		10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND	-
10061-02-6	trans-1,3-Dichloropropens	10	ND ND		10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND	-
75-25-2	Bromoform	10	ND ND		10	ND	į	10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND	- 1
108-10-1	4-Methyl-2-Pentanone	10	1	w	10	ND		10	ND		10	ND		10	ND		10	ND		1000	ND		10	ND	ļ
591-78-6	2-Havanone	10	ND ND	ا س	10	ND ND	w	10	ND	W	10	ND	w	10	ND	w	10	ND	w	1000	NO	w	10	ND	w
127-18-4	Tetrachloroethena	10	ND		10	ND ND		10	ND	£13	10	ND	w	10	ND		10	NO		1000	ND	w	10	ND	w
79-34-5	1.1.22-Tetrachloroethens	10		๛ไ	10	ND	w	10	ND		10	ND ND		10	NO		10	ND		1000	ND		10	ND	- 1
109-88-3	Toluene	10	ND	~	10	ND	w	10 10	ND		10	ND		10	ND	w	10	NO	w	1000	ND		10	NO	- 1
108-90-7	Chlorobenzene	10	ND	- 1	10	ND		10	ND ND		10 10	ND		10	NO		10	ND		10	1300	D	10	ND	
100-41-4	Ethylbenzene	10	NO		10	ND	ļ	10	NO		10	ND		10	ND		10	ND		1000	ND		10	ND	
100-42-5	Styrene	10	ND	}	10	ND	j	10	ND		10	ND MD		10	ND		10	ND		1000	ND		10	ND	
1330-20-7	m+ p-Xylenea	10	NO		10	ND	ı	10	ND		10	ND		10	ND		10	ND	-	1000	ND	1	10	NO	- 1
95-47-6	o-xylene	10	ND		10	ND		10	ND		10	14 ND		10	ND		10	ND	- 1	10	2800		10	ND	
						- 140		-10	ND		10	NU		10	ND		10	ND		10	1500		10	ND	- 1

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	Citent Sample ID  Lab Sample ID: Sample Collection Deta Sample Receipt Deta Sample Matrix		MW-6IDL 900700L 11/08/1991 11/09/1991 WATER			MW-6R 9006 11/08/199 11/09/199 WATER	9		9007 11/08/199 11/09/199 WATER	9		MW-8DI 900 11/09/199 11/09/199	77 99		MW-DUP 9006 11/08/1999 11/09/1999	9		MW-FB 9001 11/09/198 11/09/198	98		TRIP BLAN 900 11/09/198	60
l	Units		ug/L			Ug/L			Ug/L			WATER		1	WATER		1	WATER			WATER	- 1
1						J 08/ L		1	ug/L		1	ug/L			ug/L			ug/L		]	υg/L	
1					1													1				
		MDL	CONC	G	MDL	CONC	G	MDL	DONC	G	MOL	CONC	Q.	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	G
74-87-3	Chloromethene	100			١						İ									ĺ		
74-83-9	Bromomethane	100	NO NO		10	ND		10	ND		10	ND		10	ND		10	ND		10	ND	İ
75-01-4	Vinyl Chloride	100	110	D	10 10	ND ND		10	ND		10	ND		10	ND		10	ND		10	ND	- 1
75-00-3	Chloroethane	100	NO.	D	10	ND		10	ND		10	ND		10	ND		10	ND		10	ND	i
75-09-2	Methylene Chloride	100	ND		10	-ND		10 10	ND ND		10	ND		10	ND		10	ND		10	ND	
67-64-1	Acetone	100	ND ND	w	10	ND	w		NO		10	ND		10	ND		10	ND		10	ND	
75-15-0	Carbon Clauffide	100	ND	~	10	ND	w	10	ND	w	10	· NO	w	10	ND	ш	10	NO	w	10	ND	w
75-35-4	1,1-Dichloroethene	100	ND		10	ND ND		10	ND ND		10	ND		10	ND		10	NO		10	ND	
75-34-3	1,1-Dichloroethane	100	ND		10	ND		10	ľ		10	ND		10	ND		10	ND		10	ND	
156-60-6	trans-1,2-Dichlorgethene	100	NO NO		10	ND		10	ND ND		10	ND		10	ND		10	ND		10	ND	1
156-59-4	cie-1,2-Dichloroethene	100	240	D	10	56		10	ND ND		10	ND		10	NĐ		10	ND		10	ND	
67-66-3	Chloroform	100	ND		10	ND ND		10	ND ND		10	33		10	54		10	ND		10	ND	İ
107-08-2	1,2-Dichloroethane	100	ND		10	ND ND		10	ND ND		10	ND		10	NO.		10	ND		10	ND	
78-93-3	2-Butanone	100	ND	w	10	NO		10	ND	w		ND		10	ND		10	ND		10	ND	
71-55-6	1,1,1-Trichloroethene	100	ND		10	ND		10	ND	w	10	NO NO	w	10	NO		10	ND	w	10	ND	
56-23-5	Carbon Tetrachloride	100	ND		10	ND		10	ND		10	ND		10	ND		10	ND		10	ND	
75-27-4	Bromodichloromethene	100	ND		10	ND ND		10	ND		10 10	ND		10	ND		10	NO		10	ND	l l
78-87-5	1,2-Dichloropropane	100	ND		10	ND		10	ND		10	ND ND		10	ND		10	ND		10	ND	
10061-01-5	cis-1,3-Dichloropropene	100	ND		10	ND		10	ND	i	10	ND		10	NO		10	ND		10	ND	
79-01-6	Trichloroethene	100	100	D	10	200		10	ND			ND 100		10	ND		10	NO		10	ND	- 1
124-49-1	Dibromochloromethane	100	ND	-	10	ND		10	ND ND		10	160		10	190		10	ND		10	ND	
79-00-5	1,1,2-Trichkoroethene	100	ND		10	ND	j	10	ND ND		10	ND ND		10	ND		10	NO	. 1	10	ND	- 1
71-43-2	Benzene	100	ND		10	13		10	ND ND		10	ND		10	NO 10		10	ND		10	ND	
10061-02-6	trens-1,3-Dichloropropane	100	NO		10	NO		10	NO NO		10	ND	j	10	13		10	ND		10	ND	- 1
75-25-2	Bromoform	100	ND		10	ND ND		10	ND		10	ND ND		10	ND		10	ND	ļ	10	ND	- 1
108-10-1	4-Methyl-2-Pentanone	100	ND	w	10	ND	w	10	ND	w	10	ND	w	10	ND		10	ND		10	ND	- 1
591-78-6	2Hexanone	100	ND		10	NO	w	10	ND	ω	10	ND ND	w	10	ND	w	10	ND	w	10	ND	w
127-19-4	Tetrechloroethene	100	ND		10	ND	~	10	ND		10	ND	ĺ	10	NO	w	10	ND		10	ND	w
79-34-5	1,1,2,2-Tetrachloroethane	100	ND	w	10	ND		10	ND	w l	10	ND ND	w	10	ND		10	ND		10	ND	i
109-88-3	Toluene	100	ND		10	6.9	J	10	ND	~	10	ND ND	w	10	NO 80	. 1	10	ND	w	10	ND	
108-90-7	Chlorobenzene	100	NO		10	ND	-	10	ND	- 1	10	ND		10 10	6.9	J	10	NO.	- 1	10	ND	
100-41-4	Ethylbenzene	100	ND		10	ND	- 1	10	ND	Ì	10	ND ND	ĺ		ND	-	10	NO		10	ND	
100-42-5	Styrene	100	ND		10	ND	- 1	10	ND ND		10	ND ND		10	ND		10	ND	- 1	10	ND	1
1330-20-7	m+ p-Xylenes	100	ND		10	ND		10	ND	J	10	ND ND	- 1	10	NO		10	ND	- 1	10	ND	
95-47-6	o-xylene	100	ND		10	ND	- 1	10	ND	1	10	ND ND		10	ND		10	ND	- !	10	ND	
								,,,	TVD		10	NU		10	ND		10	ND		10	ND.	

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	Client Sample ID Lab Sample ID Sample Collection Data Sample Receipt Date Sample Matrix Units		MW 2I 89847 11/05/1999 11/05/1999 WATER ug/L		MW 28 89850 11/05/1999 11/05/1999 WATER ug/L			MW 3I 99845 11/05/1999 11/05/1999 WATER Ug/L		MW 38 89846 11/05/1999 11/05/1999 WATER ug/L		MW 7I 89843 11/05/1999 11/05/1999 WATER ug/L		MW 78E 89844 11/05/1999 11/05/1999 WATER Ug/L		MW 78W 8984 11/04/199 11/05/199 WATER ug/L	42 99
		MDL	CONC	G MOL	CONC	G .	MDL	CONC Q	MDL	CONC G							
								33.10	IVIDE	CONC G	MDL	CONC G	MDL	CONC (	MOL	CONC	G
74-87-3	Chloromethane				1				1		1					}	
74-83-9	Bromomethane	10 10	ND	10	ND	İ	10	NO	10	ND	10	ND	10	, NO	10	ND	ŀ
75-01-4	Vinyl Chlorida	10	ND ND	10	ND	.	10	ND	10	ND	10	ND	10	NO	10	ND	- 1
75-00-3	Chloroethane	10	ND ND	10	ND		10	ND	10	ND	10	ND	10	ND	10	ND	ŀ
75-09-2	Methylene Chloride	10	ND	10	ND ND		10	ND 	10	ND	10	NO	10	ND	10	NO	- 1
67-64-1	Apatona	10	ND	10	ND.		10 10	ND ND	10	ND	10	ND	10	ND	10	ND	- 1
75-15-0	Carbon Disulfide	10	ND	10	ND		10	ND	10 10	ND	10	ND	10	NO	10	100	- 1
75-35-4	1,1-Dichloroethene	10	ND	10	ND		10	ND	10	ND ND	10	ND	10	NO	10	ND	- 1
75-34-3	1,1-Dichloroethane	10	ND	10	ND		10	ND	10		10	NO	10	ND	10	ND	1
156-60-5	trans-1,2-Diohioroethene	10	ND	10	ND	- 1	10	ND	10	ND ND	10	NO	10	ND	10	NO	
156-59-4	ois-1,2-Dichloroethene	10	ND	10	ND	- 1	10	ND	10	24	10	ND	10	ND	10	NO	1
67-66-3	Chloroform	10	ND	10	ND	- 1	10	ND	10	ND	10	NO	10	18	10	ND	1
107-06-2	1,2-Diohloroethane	10	NO	10	ND		10	ND	10	ND ND	10	NO	10	ND .	10	ND	- 1
78-93-3	2-Butanone	10	ND	10	ND		10	ND ND	10	ND	10	, NO	10	ND	10	NO	- 1
71-55-6	1,1,1-Trichloroethane	10	ND	10	ND	- 1	10	ND	10	ND	10	ND ND	10	ND	10	ND	
56-23-5	Carbon Tetrachionide	10	ND	10	ND	ŧ	10	NO	10	ND	10	ND ND	10	NO.	10	ND	
75-27-4	Bromodichloromethane	10	ND	10	ND		10	ND	10	ND	10	NO NO	10	ND	10	ND	
78-87-5	1,2-Dichloropropene	10	ND	10	ND		10	NO NO	10	ND	10	ND	10	ND	10	ND	į.
10061-01-5	ols-1,3-Dichloropropene	10	ND	10	ND		10	ND	10	ND	10	ND	10	ND	10	ND	
79-01-6	Trichloroethene	10	ND	10	ND		10	18	10	22	10	ND	10	ND ND	10	ND	1
124-48-1	Dibromochloromethene	10	ND	10	ND		10	ND D	10	ND	10	ND	10	NO NO	10	ND	- 1
79-00-5	1,1,2-Trichloroethane	10	ND	10	ND	- }	10	ND	10	ND	10	ND	10	ND ND	10	ND	l
71-43-2	Benzene	10	ND	10	ND		10	ND	10	ND	10	ND	10	ND	10	ND	
10061-02-8 75-25-2	trans-1,3-Diohloropropene	10	ND	10	ND		10	ND	10	ND	10	ND	10	ND	10	ND	- 1
108-10-1	Bromoform 4 Marty 4 O Doorsey	10	ND 	10	ND	- 1	10	ND	10	ND	10	ND	10	NO NO	10	ND	- 1
591.78-8	4-Methyl-2-Pentanone 2-Hexanone	10	ND	10	ND	- 1	10	ND	10	ND	10	ND	10	NO	10	ND	
127-18-4	Tetrachloroethene	10	ND	10	ND	- 1	10	ND	10	ND	10	ND	10	ND	10	NO	
79-34-5	1,1,2,2-Tetrachioroethane	10	ND 0M	10	ND	- 1	10	ND	10	ND	10	ND	10	ND	10	ND	
108-88-3	Toluene	10	ND ND	10	ND	- (	10	NO	10	ND	10	ND	10	ND	10	NO NO	
108-90-7	Chlorobenzene	10	ND ND	10	ND ND		10	ND	10	ND	10	ND	10	ND	10	NO	
100-41-4	Ethylbenzene	10	ND 1MD	10	ND ND	- 1	10	ND	10	ND	10	ND	10	ND	10	NO	l
100-42-5	Styrene	10	ND	10	ND ND		10	ND	10	ND	10	NO	10	ND	10	ND	
1330-20-7	m+ p-Xylenes	10	ND ND	10	ND ND	- 1	10	02	10	ND	10	ND	10	ND	10	ND	l
95-47-6	o-xylene	10	ND	10	ND	- 1	10	ND ND	10	ND	10	ND	10	NO	10	ND	
				1 .0	IND		IU	ND	10	ND	10	ND	10	ND	10	ND	- 1

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	Client Sample ID		MW 9D			MW 9DDL			WW 9ID			MW 91S			MW DUP		T	TRIP BLANK	K 7
i	Lab Sample ID		8983		ŀ	89839DL			89841	- 1		89840			8984	В		8984	
	Sample Collection Date		11/04/199			11/04/199			11/04/1999			11/04/1999			11/05/199	9	l		1
	Sample Receipt Date		11/05/199	99		11/05/199	9	1	11/05/1999			11/05/1999	- {		11/05/199	9	1	11/05/199	181
ł	Sample Matrix Units		WATER		İ	WATER			WATER			WATER	- 1		WATER		1	WATER	- 1
	Office		ug/L		Ì	ug/L			ug/L	ŀ		ug/L			ug/L		l	ug.∕L	ſ
ł					ļ	İ		1		į		1						-	
		MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	G	MDL	CONC	G	MDL	CONC	Q	MDL	CONC	
74-87-3	~.																		
74-87-3	Chloromethane	10	ND		1000	ND		10	ND		10	ND OW	ı	10	ND		10	ND	
75-01-4	Bromomethane .	10	NO.		1000	ND		10	ND	- 1	10	ND		10	NO		10	ND	1
75-00-3	Vinyl Chloride Chloroethane	10	ND		1000	ND		10	ND	ı	10	ND		10	NO		10	NO	Ì
75-09-2	Methylene Chloride	10	ND		1000	ND		10	ND	İ	10	ND		10	ND		10	NO	- 1
67-64-1	Acetone	10	NO		1,000	ND		10	ND		10	ND		10	ND		10	NO	
75-15-0	Carbon Disutfide	10	NO		1000	ND		10	NO		10	ND		10	68		10	ND.	
75-35-4	1,1-Dichloroethene	10	NO		1000	ND		10	ND	- 1	10	ND	- 1	10	ND	i	10	ND	- 1
75-34-3		10	10	J	1000	ND.		10	ND	- 1	10	ND	- 1	10	ND		10	ND	1
158-80-5	1,1-Diohloroethane	10	NO.		1000	ND		10	ND		10	ND	- 1	10	ND		10	NO	
156-59-4	trans-1,2-Dichloroethene	10	NO		1000	ND		10	ND	- 1	10	ND	l	10	ND		10	NO.	İ
67-66-3	ols-1,2-Diohloroethene Chloroform	10	1300	E	10	1100	D	10	ND	- 1	10	ND	- 1	10	ND		10	ND	
107-08-2	1,2-Dichlorosthane	10	ND		1000	NO		10	ND .		10	ND		10	ND		10	ND	
78-93-3	2-Butanone	10	ND		1000	ND		10	ND		10	ND	- 1	10	ND		10	ND	- 1
71-55-6	1.1.1-Trichioroethane	10	ND		1000	ND		10	ND		10	ND		10	NO		10	ND	- 1
56-23-5	Carbon Tetrachloride	10 10	ND		1000	ND		10	ND		10	ND	- 1	10	ND		10	NO	1
75-27-4	Bromodiohioromethane	10	ND 80		1000	ND		10	ND		10	ND	- 1	10	ND	- 1	10	NO	- 1
78-87-5	1,2-Dichloropropane	10	ND		1000	ND		10	ND		10	ND		10	ND	ļ	10	ND	1
10061-01-5	cls-1,3-Dichloropropene	10	ND		1000	ND		10	ND		10	ND		10	NO	ĺ	10	ND	
79-01-6	Trichloroethene	10	7900	Ε	1000	ND 40000	_	10	ND .	- 1	10	ND		10	ND	- 1	10	ND	1
124-4B-1	Dibromochloromethane	10	ND ND	C	1000	13300	D	10	68	- 1	10	ND		10	NO	,	10	ND	
79-00-5	1,1,2-Trichioroethans	10	ND		1000	ND 01/		10	ND	İ	10	ND		10	ND		10	ND	- 1
71-43-2	Benzene	10	ND		1000	ND		10	ND		10	ND	[	10	ND		10	NO	
10061-02-8	trans-1,3-Diohioropropene	10	ND		1000	ND		10	ND		10	ND		10	ND		10	ND	
75-25-2	Bromaform	10	NO		1000	ND		10	ND	- 1	10	ND		10	ND	- 1	10	ND	
108-10-1	4-Methyl-2-Pentanone	10	ND		1000	ND		10	ND	- 1	10	ND		10	ND	- 1	10	ND	1
591-78-8	2-Hexanone	10	ND		1000	ND ND		10 10	ND	- 1	10	ND		10	ND	ĺ	10	NO	
127-18-4	Tetrachloroethene	10	21		1000	ND ND		10			10	ND		10	ND		10	ND	- 1
79-34-5	1,1,2,2-Tetrachloroethane	10	NO		1000	ND ND		10	ND ND		10	NO	}	10	ND	1	10	ND	
108-88-3	Toluene	10	NO		1000	ND		10	ND ND	1	10	NO NO	- 1	10	ND	- 1	10	NO	
108-90-7	Chlorobenzene	10	NO		1000	ND		10	ND ND		10	ND		10	ND		10	ND	
100-41-4	Ethylbenzene	10	ND		1000	ND	i	10	ND ND	- 1	10	ND	- 1	10	ND		10	ND	
100-42-5	Styrrene	10	ND		1000	ND		10	ND	1	10	OIA	1	10	ND		10	ND	1
1330-20-7	m+ p-Xylenes	10	ND		1000	ND		10	NO NO		10	ND ND		10	ND		10	ND	
95-47-6	o-xylene	10	ND		1000	ND		10	NO	}	10	ND ND		10	ND A10		10	ND	
									INC		10	INU	- 1	10	ND	- 1	10	NO	- 1

### APPENDIX B

DATA SUMMARY FORMS
TENTATIVELY IDENTIFIED COMPOUNDS

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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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MW-3N

Lab Name: CHEMTECH	Contra	act: CAMP, DRESSER	, & MCKEE
Project No. 1400	Site: Locati	on: SWIENIER	Group:
Matrix: (soil/water) WATER	<del></del>	Lab Sample ID:	O90066
Sample wt/vol: 5.0	(g/mL) ML	Lab File ID	: M13792.D
Level: (low/med)		Date Received:	11/9/99
% Moisture: not dec. 100	···	Date Analyzed:	11/14/99
GC Column: RTX624	ID: 0.53 (mm)	Dilution Factor:	1.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume:	(uL)

### Concentration Units:

Number TICs found: 10 (ug/L or ug/Kg) ug/L	Number TICs found:	10	(ug/L or ug/Kg)	ug/L
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	(ug/L or	46/115/	ug/L	
CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	7.90	77	J
2.	Unknown	8.56	55	J
3.	Unknown	12.23	56	J
4.	Unknown	12.41	38	J
5. 540-84-1	Pentane, 2,2,4-trimethyl-	12.80	100	JΝ
6. 565-75-3	Pentane, 2,3,4-trimethyl-	15.44	30	JN
7. 589-34-4	Hexane, 3-methyl-	15.74	46	JN
8. 622-96-8	Benzene, 1-ethyl-4-methyl-	23.42	38	JN
9. 108-67-8	Benzene, 1,3,5-trimethyl-	24.25	77	J٧
10. 933-98-2	Benzene, 1-ethyl-2,3-dimethy	26.38	32	JΝ
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# IE VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW-5S

					L
Lab Name: CHEMTEO	CH		_ Contract:	CAMP, DRESSER,	& MCKEE · .
Project No. 1400		Site:	Location:	SWIENIER	Group:
Matrix: (soil/water)	WATER	<b>-</b>		Lab Sample ID:	O90068
Sample wt/vol:	5.0	(g/mL) ML	_	Lab File ID:	M13798.D
Level: (low/med)		<del>-</del>		Date Received:	11/9/99
% Moisture: not dec.	100	~		Date Analyzed:	11/15/99
GC Column: RTX	624	ID: 0.53	_(mm)	Dilution Factor:	100.0
Soil Extract Volume:		(uL)		Soil Aliquot Volume:	(uL)
Number TICs found:	2	_	Concentration (ug/L or u		

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 620-14-4	Benzene, 1-ethyl-3-methyl-	23.40	1300	J/\
2. 622-96-8	Benzene, 1-ethyl-4-methyl-	24.26	1800	JN
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW 7SW

Lab Name: CHEMTECH		Contract: CAMP, DRESSER & MCKEE
Project No. 1398	Site:	Location: NANUET, NY Group: MW-9D
Matrix: (soil/water) WATER	<u> </u>	Lab Sample ID: 089842
Sample wt/vol: 5.0	(g/m <b>L</b> ) <u>ML</u>	Lab File ID: M13745.D
Level: (low/med)		Date Received: 11/5/99
% Moisture: not dec100		Date Analyzed: 11/11/99
GC Column: RTX624	ID: 0.53	(mm) Dilution Factor: 1.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume: (uL)
Number TICs found: 1		Concentration Units:  (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q	
1. ~	MTBE	8.74	167	J	1
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# VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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MW 7SE

Lab Name: CHEMTEC	H	<u> </u>	Contract:	CAMP, DRESSER	& MCKEE	
Project No. 1398		Site:	Location:	NANUET, NY	Group:	MW-9D
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O89844	
Sample wt/vol:	5.0	(g/mL) ML		Lab File ID	: <u>M13747.D</u>	
Level: (low/med)		-		Date Received:	11/5/99	
% Moisture: not dec.	100	~		Date Analyzed:	11/11/99	
GC Column: RTX	524	ID: 0.53	(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		(uL)		Soil Aliquot Volume:		(uL)
		(	Concentratio	n Units:		
Number TICs found:	11	•	(ug/L or u	g/Kg) ug/L		
CAS	Number	Compound	Name	RT Est. Conc.	Q	_

CAS Number	Compound Name	RT	Est. Conc.	Q	
1.	MTBE	8.74	134	J	}-
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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MW 3S

Lab Name: CHEMTECH		Contract: CAMP, DRESSER	& MCKEE
Project No. 1398	Site:	Location: NANUET, NY	Group: MW-9D
Matrix: (soil/water) WATER	<del>-</del>	Lab Sample ID	O89846
Sample wt/vol: 5.0	(g/mL) ML	Lab File II	): M13749.D
Level: (low/med)	_	Date Received:	11/5/99
% Moisture: not dec. 100	-	Date Analyzed:	11/11/99
GC Column: RTX624	ID: 0.53 (	(mm) Dilution Factor	1.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume	(uL)
	(	Concentration Units:	-
Number TICs found: 1		(ug/L or ug/Kg) ug/L	·

CAS Number	Compound Name	RT	Est. Conc.	Q	]
1	MTBE	8.77	11	J-	}
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MW-1SE

Lab Name: CHEMTEC	H			_ Contract:	CAMP, DRESSER	, & MCKEE	3
Project No. 1400		Site:		_ Location:	SWIENIER	Group:	<del></del>
Matrix: (soil/water)	WATER	_			Lab Sample ID:	090065	
Sample wt/vol:	5.0	_(g/mL)	ML		Lab File ID	:M13791.D	
Level: (low/med)					Date Received:	11/9/99	
% Moisture: not dec	100	<del>_</del>			Date Analyzed:	11/14/99	
GC Column: RTX6	24	ID:	0.53	_(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		_(uL)			Soil Aliquot Volume:		(uL)
				Concentratio	on Units:		

Number TICs found	l: <u>0</u>		or ug/Kg)	ug/L	
	CAS Number	Compound Name	RT	Est. Conc.	Q
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# IE VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW-6R

Lab Name: CHEMTECH	Contra	act: CAMP, DRESSER, & MCKEE
Project No. 1400	Site: Location	on: SWIENIER Group:
Matrix: (soil/water) WATER	_	Lab Sample ID: 090067
Sample wt/vol: 5.0	(g/mL) ML	Lab File ID: M13793.D
Level: (low/med)	_	Date Received: 11/9/99
% Moisture: not dec. 100	_	Date Analyzed: 11/14/99
GC Column: RTX624	ID: 0.53 (mm)	Dilution Factor: 1.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume: (uL)
Number TICs found: 0		ration Units: or ug/Kg) ug/L

nd: 0	(ug/L or	ug/Kg)	ug/L	
CAS Number	Compound Name	RT	Est. Conc.	Q
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### 1E VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW-DUP

Lab Name: CHEMTECH		Contract:	CAMP, DRESSER,	& MCKEE	
Project No. 1400	Site:	Location:	SWIENIER	Group:	
Matrix: (soil/water) W	ATER		Lab Sample ID:	O90069	
Sample wt/vol:	5.0 (g/mL) I	ML	Lab File ID:	M13794.D	<u> </u>
Level: (low/med)			Date Received:	11/9/99	
% Moisture: not dec.	100		Date Analyzed:	11/14/99	
GC Column: RTX624	ID:	0.53 (mm)	Dilution Factor:	1.0	
Soil Extract Volume:	(uL)	;	Soil Aliquot Volume:		(uL)
		Carrantestic	T1 %		

Concentration Units:

Number TICs found:	0	(ug/L or ug/Kg)	ug/L
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1.       2.         3.       4.         5.       6.         7.       8.         9.       10.         11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.	CAS Number		11			
2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.         25.         26.         27.         28.		Compound Name	RT	Est. Conc.	Q	
3.       4.         5.       6.         7.       8.         9.       10.         11.       11.         12.       13.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.						
4.       5.         6.       7.         8.       9.         10.       11.         12.       13.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.					<u> </u>	
5.       6.         7.       8.         9.       10.         11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.		- Valoria di				
6.       7.         8.       9.         10.       11.         12.       13.         14.       15.         16.       17.         18.       19.         20.       21.         22.       23.         24.       25.         26.       27.         28.       .			<u> </u>			
7.       8.         9.       10.         11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.			<u> </u>			
8.       9.         10.       11.         12.       13.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.						
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10.       11.         11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.	<u> </u>					
11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.			1			
12.       13.         14.       15.         16.       17.         18.       19.         20.       21.         22.       23.         24.       25.         26.       27.         28.       28.						
13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.						
14.       15.         16.       17.         18.       19.         20.       21.         22.       23.         24.       25.         26.       27.         28.       19.         20.       19.         21.       19.         22.       19.         23.       19.         24.       19.         25.       19.         26.       19.	12.					
15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.	13.					
16.       17.         18.       19.         20.       21.         22.       22.         23.       24.         25.       26.         27.       28.	14.					
17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.	15.					
17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       28.	16.					
18.   <td< td=""><td>17.</td><td></td><td></td><td></td><td></td></td<>	17.					
20.       21.         22.       23.         24.       25.         26.       27.         28.       28.						
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22.         23.         24.         25.         26.         27.         28.						
23.       24.         25.       26.         27.       28.						
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### ΙE **VOLATILE ORGANICS ANALYSIS DATA SHEET** TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW-6I

Lab Name: CHEMTECH	Contract	: <u>CAMP</u> , <u>DRESSER</u> ,	& MCKEE
Project No. 1400	Site: Location	: SWIENIER	Group:
Matrix: (soil/water) WATER	_	Lab Sample ID:	O90070
Sample wt/vol: 5.0	_(g/mL) <u>ML</u>	Lab File ID:	M13795.D
Level: (low/med)	_	Date Received:	11/9/99
% Moisture: not dec. 100	-	Date Analyzed:	11/15/99
GC Column: RTX624	ID: <u>0.53</u> (mm)	Dilution Factor:	1.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume:	(uL)
	Concentrat	ion Units:	
Number TICs found: 0	(ug/L or	ug/Kg) ug/L	

(ug/L or u	g/Kg)	ug/

CAS Number	Compound Name	RT	Est. Conc.	Q
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### **VOLATILE ORGANICS ANALYSIS DATA SHEET** TENTATIVELY IDENTIFIED COMPOUNDS

SAMPI	LE NO
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MW-6IDL

Lab Name: CHEMTECH		Contract:	CAMP, DRESSER,	& MCKEE
Project No. 1400	Site:	Location:	SWIENIER	Group:
Matrix: (soil/water) WATER	<del></del>		Lab Sample ID:	O90070DL
Sample wt/vol: 5.0	(g/mL) ML		Lab File ID:	M13804.D
Level: (low/med)	<del></del>		Date Received:	11/9/99
% Moisture: not dec. 100	<del></del> -		Date Analyzed:	11/15/99
GC Column: RTX624	ID: 0.53	(mm)	Dilution Factor:	100.0
Soil Extract Volume:	(uL)	5	Soil Aliquot Volume:	(uL)
Number TICs found: 0	,	Concentration		
rumori i ica iouiu.		(ug/L or u	g/Kg) ug/L	

Number TICs found:	0	(ug/L or ug/Kg)	ug/L

. U	(ug/L or ug/Kg) ug/L				
CAS Number	Compound Name	RT	Est. Conc.	Q	
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**VOLATILE ORGANICS ANALYSIS DATA SHEET** TENTATIVELY IDENTIFIED COMPOUNDS

MW-6S

Lab Name: CHEMTEC	CH		Contract:	CAMP, DRESSER,	& MCKEE
Project No. 1400	•	Site:	Location:	SWIENIER	Group:
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O90073
Sample wt/vol:	5.0	(g/mL) ML	_	Lab File ID:	M13805.D
Level: (low/med)	·······			Date Received:	11/9/99
% Moisture: not dec.	100			Date Analyzed:	11/15/99
GC Column: RTX	624	ID: 0.53	_(mm)	Dilution Factor:	1.0
Soil Extract Volume:		(uL)	:	Soil Aliquot Volume:	(uL)
			Component	- T7. **	

### Concentration Units:

Number TICs found: 0 (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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MW-4S

Lab Name: CHEMTECH		_ Contract:	CAMP, DRESSER,	& MCKEE
Project No. 1400	Site:	_ Location:	SWIENIER	Group:
Matrix: (soil/water) WATER	<del></del>		Lab Sample ID:	O90074
Sample wt/vol: 5.0	(g/mL) ML	<b>-</b>	Lab File ID:	M13806.D
Level: (low/med)			Date Received:	11/9/99
% Moisture: not dec100	_		Date Analyzed:	11/15/99
GC Column: RTX624	ID: 0.53	(mm)	Dilution Factor:	1.0
Soil Extract Volume:	_(uL)	,	Soil Aliquot Volume:	(uL)
		Concentratio	n Units:	

Number TICs found:	0	(ug/L or ug/Kg)	ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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Lab Name: CHEMTECH		Contract: CAMP, DRESSER,	& MCKEE
Project No. 1400	Site:	Location: SWIENIER	Group:
Matrix: (soil/water) WATER	<del>-</del>	Lab Sample ID:	O90075
Sample wt/vol: 5.0	(g/mL) ML	Lab File ID:	M13803.D
Level: (low/med)	_	Date Received:	11/9/99
% Moisture: not dec. 100	<b></b>	Date Analyzed:	11/15/99
GC Column: RTX624	ID: 0.53 (	mm) Dilution Factor:	1.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume:	(uL)
Number TICs found: 0	C	Concentration Units:	

	(ug/L of	(ug/L of ug/Kg) ug/L			
CAS Number	Compound Name	RT	Est. Conc.	Q	
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### IE VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW-4I

Lab Sample ID: 090076  Lab File ID: M13807.D
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Lab File ID: M13807.D
Date Received: 11/9/99
Date Analyzed: 11/15/99
Dilution Factor: 1.0
Soil Aliquot Volume: (uL)
entration Units: /L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q	
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SAMPLE NO.

MW-8DI

Lab Name: CHEMTECH		Contract:	CAMP, DRESSER,	& MCKEE	
Project No. 1400	Site:	Location:	SWIENIER	Group:	
Matrix: (soil/water) WATER			Lab Sample 1D:	090077	
Sample wt/vol: 5.0	(g/mL) <u>ML</u>		Lab File ID:	M13808.D	
Level: (low/med)			Date Received:	11/9/99	
% Moisture: not dec. 100	_		Date Analyzed:	11/15/99	
GC Column: RTX624	ID: 0.53	(mm)	Dilution Factor:	1.0	
Soil Extract Volume:	(uL)	S	soil Aliquot Volume:		(uL)
•		Concentration	Units:		

Number TICs found:	0	(ug/L or	ug/Kg)	ug/L	
C	AS Number	Compound Name	RT	Est. Conc.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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MW-1RI

Lab Name: CHEMTECH		Contract:	CAMP, DRESSER,	& MCKEE
Project No. 1400	Site:	Location:	SWIENIER	Group:
Matrix: (soil/water) WATER			Lab Sample ID:	O90078
Sample wt/vol: 5.0	_(g/mL) <u>ML</u>		Lab File ID:	M13809.D
Level: (low/med)			Date Received:	11/9/99
% Moisture: not dec. 100	_		Date Analyzed:	11/15/99
GC Column: RTX624	ID: 0.53 (	mm)	Dilution Factor:	1.0
Soil Extract Volume:	_(uL)	5	Soil Aliquot Volume:	(uL)
	C	Concentration	n Units:	

Number TICs found: 0 (ug/L or ug/Kg) ug/L

	(ug/ L) of		ug/L	
CAS Number	Compound Name	RT	Est. Conc.	Q
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### 1E VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW-1S

Lab Name: CHEMTEC	H			_ Contract:	CAMP, DRESSER	, & MCKEE	
Project No. 1400		Site:		_ Location:	SWIENIER	Group:	
Matrix: (soil/water)	WATER	_			Lab Sample ID:	O90079	
Sample wt/vol:	5.0	_(g/mL)	ML		Lab File ID	:M13810.D	
Level: (low/med)		_			Date Received:	11/9/99	
% Moisture: not dec.	100	_			Date Analyzed:	11/15/99	
GC Column: RTX6	524	ID:	0.53	_(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		(uL)			Soil Aliquot Volume:		(uL)
. Number TICs found:	0			Concentration (ug/L or )			

nd: 0		(ug/L or ug/Kg) ug/L				
CAS Number	Compound	Name RT	Est. Conc.	Q		
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### IE VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

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Lab Name: CHEMTECH	[			_ Contract:	CAMP, DRESSER,	& MCKEE	
Project No. 1400		Site:		_ Location:	SWIENIER	Group:	
Matrix: (soil/water)	WATER				Lab Sample ID:	O90080	
Sample wt/vol:	5.0	_(g/mL)	ML	<b>-</b>	Lab File ID:	M13790.D	
Level: (low/med)		_			Date Received:	11/9/99	
% Moisture: not dec.	100				Date Analyzed:	11/14/99	
GC Column: RTX62	4	ID:	0.53	_(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		_(uL)		;	Soil Aliquot Volume:		(uL)
				Concentratio	n Units:		

Number TICs found:	0	(ug/L or ug/Kg) ug/L					
CAS	Number	Compound Na	ame F	RT Est.	. Conc.	Q	
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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MW 9D

Lab Name: CHEMTEC	CH		Contract:	CAMP, DRESSER	& MCKEE
Project No. 1398         Site:         Location:         NANUET, NY         Group:         MW-9D           Matrix: (soil/water)         WATER         Lab Sample ID:         089839           Sample wt/vol:         5.0         (g/mL)         ML         Lab File ID:         M13742.D           Level: (low/med)         Date Received:         11/5/99           % Moisture: not dec.         100         Date Analyzed:         11/11/99           GC Column:         RTX624         ID:         0.53 (mm)         Dilution Factor:         1.0           Soil Extract Volume:         (uL)         Soil Aliquot Volume:         (uL)		Group: MW-9D			
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O89839
Sample wt/vol:	5.0	_(g/mL) <u>ML</u>		Lab File ID	: M13742.D
Level: (low/med)		_		Date Received:	11/5/99
% Moisture: not dec.	100			Date Analyzed:	11/11/99
GC Column: RTX	624	ID: 0.53	(mm)	Dilution Factor:	1.0
Soil Extract Volume:		_(uL)		Soil Aliquot Volume:	(uL)
Number TICs found:	0	(	Concentratio (ug/L or u		

iid. 0	(ug/L of	L of ug/Kg) ug/L			
CAS Number	Compound Name	RT	Est. Conc.	Q	
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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MW 9DDL

Lab Name: CHEMTEC	H		Contract:	CAMP, DRESSER	& MCKEE	
Project No. 1398		Site:	Location:	NANUET, NY	Group:	MW-9D
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O89839DL	,
Sample wt/vol:	5.0	(g/mL) ML		Lab File ID	: M13753.D	
Level: (low/med)				Date Received:	11/5/99	
% Moisture: not dec.	100	_		Date Analyzed:	11/11/99	
GC Column: RTX	524	ID: 0.53	(mm)	Dilution Factor:	100.0	
Soil Extract Volume:	···	_(uL)		Soil Aliquot Volume:		(uL)
Number TICs found:	0		Concentration (ug/L or			
Millioga Tres found:	v		TREAT OF	ug/Kg) ug/L		

CAS Number	Compound Name	RT	Est. Conc.	Q
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Lab Name: CHE	МТЕСН		_ Contract:	CAMP	,DRESSER	& MCKEE	
Project No. 1398		Site:	Location:	NANU	ET, NY	Group:	MW-9D
Matrix: (soil/wate	er) WATER			Lab	Sample ID:	O89840	
Sample wt/vol:	5.0	(g/mL) ML			Lab File ID	: M13743.E	)
Level: (low/me	d)			Dat	e Received:	11/5/99	
% Moisture: not	dec. 100	_		Dat	e Analyzed:	11/11/99	_
GC Column:	RTX624	ID: 0.53	_(mm)	Dilu	ition Factor:	1.0	_
Soil Extract Volum	ne:	_(uL)	,	Soil Aliq	uot Volume:		(uL)
			Concentratio	n Unite:			
Number TICs foun	d: 0	_	(ug/L or u		ug/L		
	CAS Number	Compou	nd Name	RT	Est. Conc.	Q	] -
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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MW 9ID

Lab Name: CHEMTECH		Contract:	<u>CAMP, DRESSER</u>	& MCKEE	
Project No. 1398	Site:	Location:	NANUET, NY	Group:	MW-9D
Matrix: (soil/water) WATER	<u> </u>		Lab Sample ID:	O89841	
Sample wt/vol: 5.0	(g/mL) ML		Lab File ID	: <u>M13744.D</u>	
Level: (low/med)			Date Received:	11/5/99	
% Moisture: not dec. 100	<del></del>		Date Analyzed:	11/11/99	
GC Column: RTX624	ID: 0.53	(mm)	Dilution Factor:	1.0	
Soil Extract Volume:	(uL)	S	Soil Aliquot Volume:		(uL)
Number TICs found: 0		Concentration (ug/L or u			

(dg/L of dg/Kg) dg/L				
CAS Number	Compound Name	RT	Est. Conc.	Q
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#### 1E VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW 7I

Lab Name: CHEMTEC	<u>H</u>		_ Contract:	CAMP, DRESSER	& MCKEE	
Project No. 1398		Site:	Location:	NANUET, NY	Group:	MW-9D
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O89843	
Sample wt/vol:	5.0	(g/mL) ML	<u></u>	Lab File ID	: <u>M13746.D</u>	
Level: (low/med)	······································			Date Received:	11/5/99	
% Moisture: not dec.	100	<b></b>		Date Analyzed:	11/11/99	
GC Column: RTX6	524	ID: 0.53	_(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		_(uL)		Soil Aliquot Volume:		(uL)
Number TICs found:	0		Concentratio			

1.       2.         3.       4.         5.       6.         7.       8.         9.       10.         11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.	de						
2       3         3       4         5       6         7       8         9       10         11       12         13       14         15       16         17       18         19       20         21       22         23       24         25       26	CAS Number	Compound Name	RT	Est. Conc.	Q		
3.       4.         5.       6.         7.       8.         9.       9.         10.       11.         12.       13.         14.       15.         16.       17.         18.       19.         20.       21.         22.       23.         24.       25.         26.       9.         10.       10.         11.       11.         12.       11.         13.       14.         14.       15.         15.       16.         17.       18.         19.       10.         20.       10.         21.       10.         22.       23.         24.       25.         26.       10.	1.						
4.       5.         6.       7.         8.          9.       9.         10.       11.         12.       13.         14.       15.         16.       17.         18.       19.         20.       21.         22.       23.         24.       25.         26.       9.							
4.         5.         6.         7.         8.          9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.         25.         26.	3.						
6.       7.         8.          9.       10.         11.       12.         13.       4.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.	4.						
7.       8.        9.         10.       11.       12.       13.       14.       15.       16.       17.       18.       19.       20.       21.       22.       23.       24.       25.       26.       26.       26.       20.       26.       26.       26.       26.       27. </td <td>5.</td> <td></td> <td></td> <td></td> <td></td>	5.						
8.          9.       10.         11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.	6.						
9.	7.						
9.       10.         11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.	8.	2					
10.       11.         12.       13.         14.       15.         16.       17.         18.       19.         20.       21.         22.       23.         24.       25.         26.       10.							
11.       12.         13.          14.          15.          16.          17.          18.          19.          20.          21.          22.          23.          24.          25.          26.							
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14.       15.         16.          17.          18.          19.          20.          21.          22.          23.          24.          25.          26.							
15.       16.         17.       18.         19.       19.         20.       19.         21.       19.         22.       19.         23.       19.         24.       19.         25.       19.         26.       19.         20.       19.         21.       19.         22.       19.         23.       19.         24.       19.         25.       19.         26.       19.							
16.       17.         18.       19.         20.       21.         22.       22.         23.       24.         25.       26.					· · · · · · · · · · · · · · · · · · ·		
17.       18.         19.       20.         21.       22.         23.       24.         25.       26.		·			·		
18.       19.         20.       21.         22.       22.         23.       24.         25.       26.							
19.       20.         21.       22.         23.       24.         25.       26.							
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21.         22.         23.         24.         25.         26.							
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#### VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW 3I

Lab Name: CHEMTECH		Contract:	CAMP, DRESSER	& MCKEE
Project No. 1398	Site:	Location:	NANUET, NY	Group: MW-9D
Matrix: (soil/water) WATER			Lab Sample ID:	O89845
Sample wt/vol: 5.0	(g/mL) ML		Lab File ID:	M13748.D
Level: (low/med)			Date Received:	11/5/99
% Moisture: not dec. 100	_		Date Analyzed:	11/11/99
GC Column: RTX624	ID: 0.53 (	mm)	Dilution Factor:	1.0
Soil Extract Volume:	_(uL)	S	Soil Aliquot Volume:	(uL)
	(	Concentration	n Units:	

Number TICs found:

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## (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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MW 2I

Lab Name: CHEMTECH Contract: CAMP, DRESSER & MCKEE Project No. 1398 Site: Location: NANUET, NY Group: MW-9D Matrix: (soil/water) WATER Lab Sample ID: O89847 Sample wt/vol: 5.0 (g/mL) MLLab File ID: M13750.D Level: (low/med) Date Received: 11/5/99 % Moisture: not dec. 100 Date Analyzed: 11/11/99 GC Column: RTX624 ID: 0.53 (mm) Dilution Factor: 1.0 Soil Extract Volume: (uL) Soil Aliquot Volume: \_\_\_\_ (uL)

#### Concentration Units:

Number TICs found:	0	(ug/L or ug/Kg)	ug/L
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GAS No. 1	(ug/L) of		dg/L	1
CAS Number	Compound Name	RT	Est. Conc.	Q
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

MW DUP

Lab Name: CHEMTECH		Contract:	CAMP, DRESSER	& MCKEE	
Project No. 1398	Site:	Location:	NANUET, NY	Group:	MW-9D
Matrix: (soil/water) WATER	<b>-</b>		Lab Sample ID:	O89848	<u>,</u>
Sample wt/vol: 5.0	_(g/mL) <u>ML</u>		Lab File ID	: <u>M13751.D</u>	
Level: (low/med)	<del></del>		Date Received:	11/5/99	
% Moisture: not dec. 100	_		Date Analyzed:	11/11/99	
GC Column: RTX624	ID: 0.53	(mm)	Dilution Factor:	1.0	
Soil Extract Volume:	_(uL)	:	Soil Aliquot Volume:		(uL)
		Concentration	n Units:		

CAS Number         Compound Name         RT         Est. Conc.         Q           1.         2.         3.         -	Number TICs found:	0	(ug/L o	or ug/Kg)	ug/L	
1.       2.         3.       4.         5.       6.         7.       8.         9.       10.         11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.	C	AS Number	Compound Name	RT	Est. Conc.	Q
3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24.		1.				
4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.		2.				
4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.		3.				
6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24.		4.				
7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24.		5.				
8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18.  19.  20.  21.  22.  23.  24.		6.				
9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23.		7.				
10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24.		8.				
11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.		9.				
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16. 17. 18. 19. 20. 21. 22. 23. 24.	14	4.				
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## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

TRIP BLANK

Lab Name: CHEMTEC	<u>H</u>		_ Contract:	CAMP, DRESSER	& MCKEE
Project No. 1398		Site:	Location:	NANUET, NY	Group: MW-9D
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O89849
Sample wt/voI:	5.0	_(g/mL) <u>ML</u>		Lab File ID	: M13741.D
Level: (low/med)		_		Date Received:	11/5/99
% Moisture: not dec.	100	·		Date Analyzed:	11/10/99
GC Column: RTX6	524	ID: 0.53	_(mm)	Dilution Factor:	1.0
Soil Extract Volume:		_(uL)		Soil Aliquot Volume:	(uL)
Number TICs found	0		Concentratio		

nd:	}	(ug/L or ug/Kg) ug/L			
CAS Numbe	r	Compound Name	RT	Est. Conc.	Q
1.					
2.					
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5.			ļ :		
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VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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_	$A \Lambda$	ЛP	1	н 1	VE

MW 2S

Lab Name: CHEMTEC	Н		Contract:	CAMP, DRESSER	& MCKEE
Project No. 1398		Site:	Location:	NANUET, NY	Group: MW-9D
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O89850
Sample wt/vol:	5.0	(g/mL) ML		Lab File ID	: M13752.D
Level: (low/med)	· · · · · · · · · · · · · · · · · · ·	_		Date Received:	11/5/99
% Moisture: not dec.	100	_		Date Analyzed:	11/11/99
GC Column: RTX	524	ID: 0.53	(mm)	Dilution Factor:	1.0
Soil Extract Volume:		(uL)		Soil Aliquot Volume:	(uL)
			Concentratio	n Units:	
Number TICs found:	0		(ug/L or u		

1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.         25.         26.         27.	. <u> </u>	(ug/L of		ug/L	
2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.         25.         26.         27.	CAS Number	Compound Name	RT	Est. Conc.	Q
3.       4.         5.       6.         7.       8.         9.       10.         11.       12.         13.       14.         15.       16.         17.       18.         19.       20.         21.       22.         23.       24.         25.       26.         27.       27.					
4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.         25.         26.         27.	2.				
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10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.         25.         26.         27.	8.	_ 2			
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12.         13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.         25.         26.         27.	10.				
13.       14.         15.          16.          17.          18.          19.          20.          21.          22.          23.          24.          25.          26.          27.	11.				
14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.         25.         26.         27.	12.				
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18.         19.         20.         21.         22.         23.         24.         25.         26.         27.	16.	-			
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APPENDIX C

DATA QUALIFIERS

#### **ORGANIC DATA QUALIFIERS**

- U Indicates that the compound was analyzed for, but not detected at or above the Contract Required Quantitation Limit (CRQL), or the compound is not detected due to qualification through the method or field blank.
- J The associated numerical value is an estimated quantity.
- JN Tentatively identified with approximated concentrations (Volatile and Semi-Volatile Organics). Presumptively present at an approximated quantity (Pesticides/PCBs).
- UJ The compound was analyzed for, but not detected. The sample quantitation limit is an estimated quantity due to variance from quality control limits.
- C Applies to Pesticide results where the identification has been confirmed by GC/MS.
- **E** Reported value is estimated due to quantitation above the calibration range.
- D Reported result taken from diluted sample analysis.
- A Aldol condensation product.
- R Reported value is unusable and rejected due to variance from quality control limits.
- NA Not Analyzed.

APPENDIX D

**CASE NARRATIVES** 



#### LABORATORY REPORT

#### **CASE NARRATIVE-VOLATILES**

Camp Dresser & McKee, INC. Project Name: NYDEC/ Swievlier Project # 0897 Chemtech Project # 14002LP

A. Number of Samples and Date of Receipt

12 Aqueous Samples, 1 Trip Blank, A Field Blank plus a MS/MSD were delivered to the laboratory intact on 11/09/99.

**B.** Parameters

Tests requested on the Chain of Custody were Volatile Organics. This data package contains results for Volatile Organics.

C. Analytical Techniques:

Samples were analyzed for Volatile Organics according to CLP Methodology. The analyses were performed on instruments VOA5, using GC column RTX624 which is 75 meters, 0.53mm ID, 3.0mm df (crossbond 6% cyanopropylphenyl-94%) dimethylpolysiloxane. The Purge Trap was supplied by Supelco, VO CARB 3000, Tekmar 3000.

D. QA/QC Samples:

The Surrogate Recoveries for each sample are found in Form II-A. Initial Calibration of Single Component Analytes results are found on Form 6 D & E. The Matrix Spike and Matrix Spike Duplicate were analyzed and are reported on Form 3F.

System Monitoring Compound recoveries were acceptable. MS/MSD recoveries and RPDs met requirements. Tuning Checks met requirements. Internal Standard Areas and Retention Times met criteria. Calibrations met requirements. Blank analyses did not indicate the presence of contamination.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature_	Ory)	for	Name: <u>Divyajit Mehta</u>
Date:	11/22/97		Title: <u>Lab Manager</u>

110 Route 4 Englewood, New Jersey 07631 Phone: 201,567,6868 Fax: 201,567,1333 205 Campus Plaza 1 000001

Edison, NJ 08837 Phone: 732.225.4111 Fax: 732.225.4110 CEMIECH

COVER PAGE

Lab Name: Chemtech Consulting Group Client: CAMP, DRESSER, & McKEE

Lab Code: CHEM Project No.: 14002ASP

MW-4I MW-8DI

MW-1R

MW-15

Client Sample No. Lab Sample ID MW-1SE 90065 90066 MW-3N MW-6R 90067 MW-5S 90068 / MW-DUP 90069 MW-61 90070 90071 MW-6IMSD MW-6IMSDS 90072 MW-65 90073 90074 MW-45 MW-PB 90075 90076

90077

90078

90079

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designed, as verified by the following signature.

Signature: Name: DIVYAJIT MEHT.

Date: Title: LAB DIRECTOR

000002



#### LABORATORY REPORT

#### **CASE NARRATIVE-VOLATILES**

Camp Dresser & McKee, INC. Project Name: NYDEC/ Swievlier Project # 0897 Chemtech Project # 13985LP

#### A. Number of Samples and Date of Receipt

11 Aqueous Sample Plus 1 Trip Blank were delivered to the laboratory intact on 11/05/99.

#### **B.** Parameters

Tests requested on the Chain of Custody were Volatile Organics. This data package contains results for Volatile Organics.

#### C. Analytical Techniques:

Samples were analyzed for Volatile Organics according to 95-1 CLP Methodology. The analyses were performed on instruments VOA5, using GC column RTX624 which is 75 meters, 0.53mm ID, 3.0mm df (crossbond 6% cyanopropylphenyl-94%) dimethylpolysiloxane. The Purge Trap was supplied by Supelco, VO CARB 3000, Tekmar 3000.

#### D. QA/ QC Samples:

The Surrogate Recoveries for each sample are found in Form II-A. Initial Calibration of Single Component Analytes results are found on Form 6 D & E. The Matrix Spike and Matrix Spike Duplicate were analyzed and are reported on Form 3F.

System Monitoring Compound recoveries were acceptable. Matrix Spike recovery of Toluene did not meet requirements. RPDs met requirements. Tuning Checks met requirements. Internal Standard Areas and Retention Times met criteria. Calibrations met requirements. Blank analyses did not indicate the presence of contamination.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature	Walsign For DM)	Name: <u>Divyajit Mehta</u>
Date:	11/19/97	Title: <u>Lab Manager</u>

000001

110 Route 4 Englewood, New Jersey 07631 Phone: 201.567.6868 Fax: 201.567.1333 205 Campus Plaza 1
 Edison, NJ 08837
 Phone: 732.225.4111 Fax: 732.225.4110

### LABORATORY REPORT

COVER PAGE

Lab Mame: Chemtech Consulting Group Lab Code: CHEM Project No.: 13985ASP Client: CAMP, DRESSER, & MCKEE

Client Sample No. MN-9D 21 C-HM MN-9ID MH-75W MH-7I MH-7SE MN-3I MN-35 MN-21 MH-DOD TRIP BLANK

MW-25

I certify that the data package is in compliance with the terms and conditions or the contract, both sech-ically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designed, as verified by the following signature.

SIGNATURE: [WA CSISH GOS DIN] NAME: DIVYAJIT MENTA

000002

☐ 110 Route 4

Englewood, New Jersey 57639 / 99 Phone: 201.567.6868 Fax: 201.567.1333

Title: LAS DIRECTOR

205 Campus Plaza 1 Edison, NJ 08837

Phone: 732.225.4111 Fax: 732.225.4110

**CHEMTECH** NYSDOH Certification No. 10624 NJDEP Certification No. 02548

ANALAB-ICM Division NYSDOH Certification No. 11376 NJDEP Certification No. 12531

#### APPENDIX E

**CHAIN-OF-CUSTODY FORMS** 

#### STL - Envirotech

777 New Durham Road Ed Ph

#### CHAIN OF CUSTODY / ANALYSIS REQUEST

diana Niau Jarany 00017	CHAIN OF COSTODI / ANALISIS NEGOESI	
dison, New Jersey 08817	<i>I</i>	2
none: (732) 549-3900 Fax: (732) 549-3679	PAGE /	_ OF <del></del>

Name ( for report and invoice )		Samplers	Name (	Printed	)			Site/Pr	oject lo	entific	ation							1
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Phone Fax (732)225-7000 (732)225		1 Week Other			74						1					-		
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MW-3N	1	1245	-11	1	X													]
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MW -5.5		1353			X													]
MW-DUP					$\times$													]
MW-GI		1630			$\times$													]
MW-6I MSD		1630			$\times$													1
MW-BI MSUS		1630			X													_
MW-65	14	1645			$\times$									<u> </u>				
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6 = Other				Water														_
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Laboratory Cartifications: New Jersey (12543), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).

#### STL - Envirotech

777 New Durham Road Edison, New Jersey 08817 Phone: (732) 549-3900 Fax: (732) 549-3679

## **CHAIN OF CUSTODY / ANALYSIS REQUEST**

	lame ( for report and invoice )			Sample	s Name	( Deleted	\	~~	1	Ola- II		1 -1 41	0 - 4					PA	3E OF	Ä
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IA	Address				urnaround												-4/4/		B USE ONLY	
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## CHAIN OF CUSTODY RECORD

(201) 567-6868 Fax (201) 567-1333 , NJ C (732) 225-4111 Fax (732) 225-4110 Bally, NJ ( (609) 698-0199 Fax (609) 698-0910

CHEMTECH QUOTE NO .:

	CLIENT INFORMATION		PROJECT INFORMATION	12 May 1921			BILLING	INFORMAT	TON
COMPANY:	REPORT TO BE SENT TO:					5 1-140		INFORMAT	N CV
	WILL DICK FREKE	PROJECT NAME:	MYDEC /SEVI	PULICR	BILL TO:	110	NT		PO #:
ADDRESS:	IRARITAN PLAZA	PROJECT NO.:	18 <i>9</i> 7		ADDRESS:				01
CITY: Ect	STATE N.J. ZIP: 658/8	PROJECT MANAGE	R: BRIAN FA	Pries	CITY:				
ATTENTION:	BRIAN FARELLY			<u> </u>	GITT.			STATE:	ZIP:
(737)	(-22.2)		NUET. N.Y.		ATTENTION	l <b>:</b>		PHONE	:
PHONE: 27	5-7000 FAX: 225-7851	PHONE: 225-;	7000 (732) FAX: 225	- 7851			AN	IALYSIS	
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FAX: HARD COPY:	DAYS ·	☐ RESULTS ONLY ☐ RESULTS + QC	☐ USEPA CLP ☐ NYS ASP "B"		40	/ /	///		
EDD:	DAYS •		SOCC NYS ASP "A"	310	///			//	
NORMAL TU	OVED BY CHEMTECH JRNAROUND TIME - 14 DAYS	DEDD FORMAT: 3	SPERFUND	VOIA	//	//	//	//	
		CATAGORY	REPORTING	1 / 2	3 / 4 /	5 6	/7/	8 / 9	
CHEMTECH SAMPLE	SAMPLE IDENTIFICATION	SAMPLE TYPE	SAMPLE SAMPLE COLLECTION		PRESERV	ATIVES			COMMENTS
ID	· ·	MATRIX 9 SP	DATE TIME &						← Specify Preservatives A – HCI B – HNO₂ C – H₀SO₁ D – NaOH
1.	MW-91)	AQX	•	1 2 3	4 5	- 6	7 8	9 (	E-ICE F-Other
1.	MW-9IS	179	1489 1230 2			-			
3.	MW - 9TD		1345 2						
[A	MW - 75W	1110	1355 2	<del>}                                    </del>					
5			11/136 2 2						
_	MW-77		15/99 0955 2						
- 1	MW - 75E		1010 2	3					
8.	MN-3T	W X	1140 2						
11. 12. 14. 14. 14. 14. 14. 14. 14. 14. 14. 14	MW - 35 SAMPLE CUSTODY MUST BE DO		1130 2						
RELINQUISHED BY	SAMPLE CUSTODY MUST BE DO SAMPLER:  DATE/TIME:  RECEIVED BY:  RECEIVED B	o dre V	Conditions of ball	NGE POSSESSI	ON INCLUDIN	G COUR	IER DELIVE	RY	A Company of the second
RELINQUISHED BY:	DATE/TIME: RECEIVED BY:	W. C.	Conditions of bottles or co	olers at receipt:	☐ Complian	t 🗆 t	Non-Compilar	nt 🗆 Tem	ip. of Cooler 4C
2.	2.								
RELINQUISHED BY:	DATE/TIME: 49 BECEIVED ROAL	ABBILLY	D					· · · · · · · · · · · · · · · · · · ·	
er. 9-99	WHITE - CHEMTECH C		Page of		Shipment Com			No	
ſ		- CONTINUOUS TO	CLIENT YELLOW - CHE	EMIECH COPY	PINK - SAN	APLER C	OPY		07725

# CHAIN OF CUSTODY RECORD

☐ 110 Route 4 Englewood, NJ 07631 (201) 567-6868 Fax (201) 567-1333

205 Campus Plaza 1 Edison, NJ 08837 (732) 225-4111 Fax (732) 225-4110

☐ 515 Route 9 South Barnegat, NJ 08005 (609) 698-0199 Fax (609) 698-0910

СНЕМТЕСН ЈОВ NO.:	
CHEMTECH QUOTE NO	

	CLIENT INFORMATION				PROJE	CT INFO	RMATI	ON					and all the	RU	LING	NFORM	ATION	
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ATTENTION:	BRIDN FARELLY	1,000	TION:			سد د.	, ,	. #										
(792)	(732)	732	)	N	3N4		4.	у			ATTE	NOIT				PHON	E:	
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SAMPLE	SAMPLE IDENTIFICATION	SAMPLI MATRIX	5 <b> </b> _		COLL	CTION	BOTTLES											Preservatir
10			COMP	GRAB	DATE	TIME	9	1	2	3	4						A - HCI C - H <sub>2</sub> SO E - ICE	B-HN D-Na
1.	MW-ZI	AQ		X	inter	1420		Ż			4	5	6	7	8	9	E - ICE	F - Ot
2.		- 27 CK						1	-	-	-		<del> </del>					
3.	MW-25	-	+	<u> </u>	11/9/59	1405	- 2			ļ								
	MW-DUP			X	11/5/59		2	X				ļ						
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8.																		
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3.	DATE/TIME: BECEIVED FOR	Miss	4-		Page		of_				Shipme	nt Com	nolete:	Yes		k (		
/er. 9 <b>-</b> 99	WHITE - CHEMTECH	OPV FOR	БЕТІ	IDNI 1	OCUEN	r ve	. 0144	01150				0017	,p.1010.	100_		N	o	

Appendix

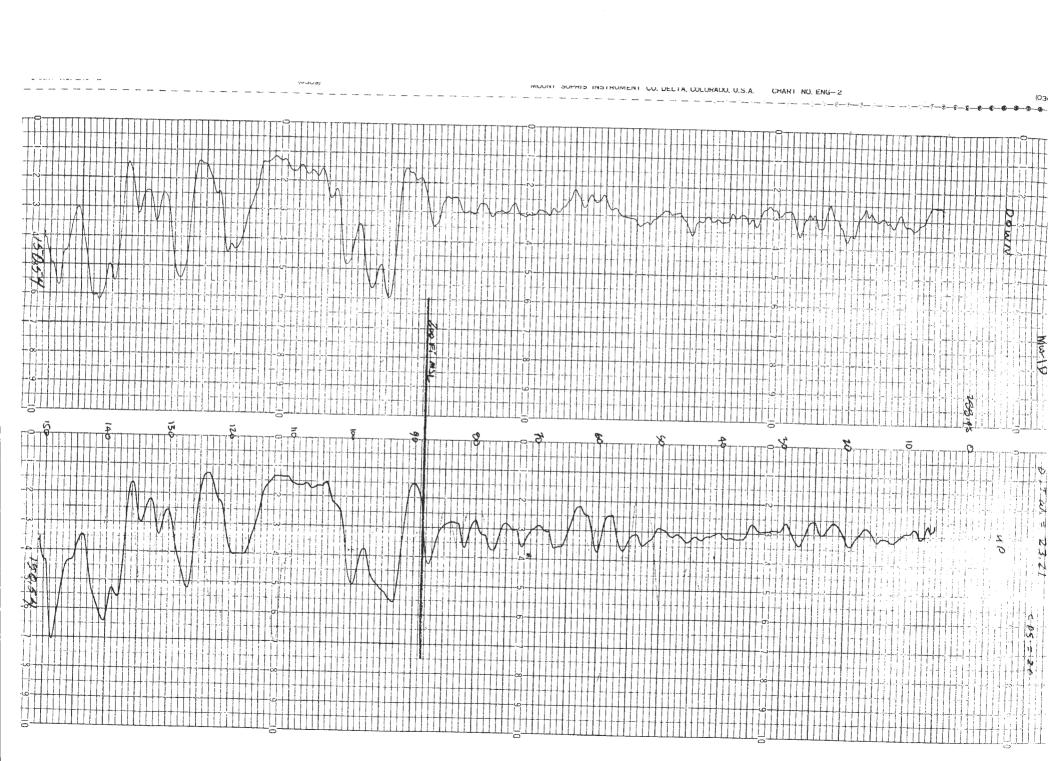
Appendix B

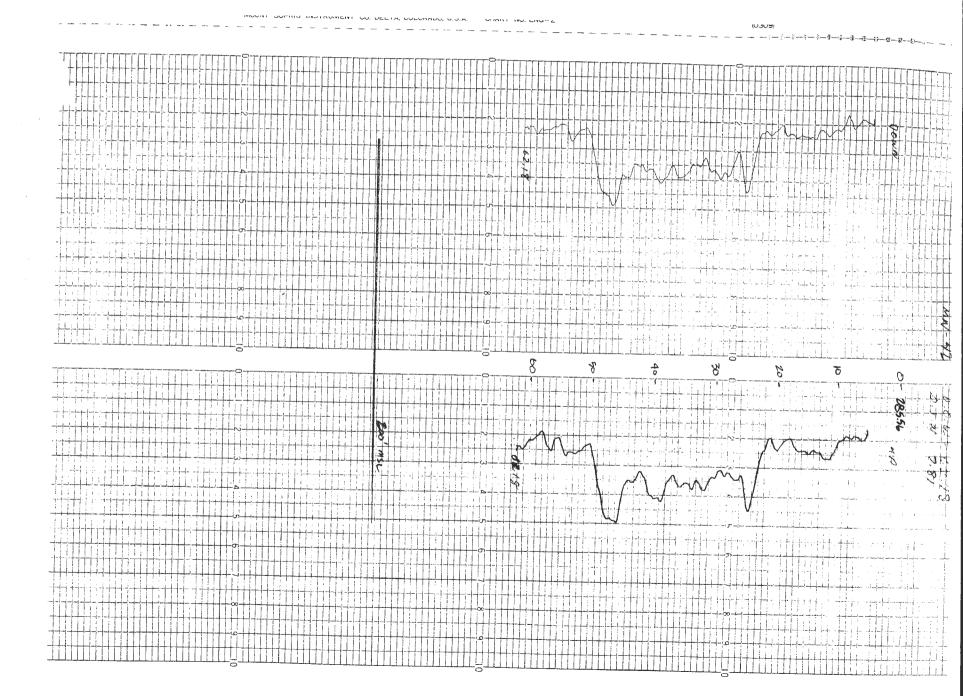
Site Plan

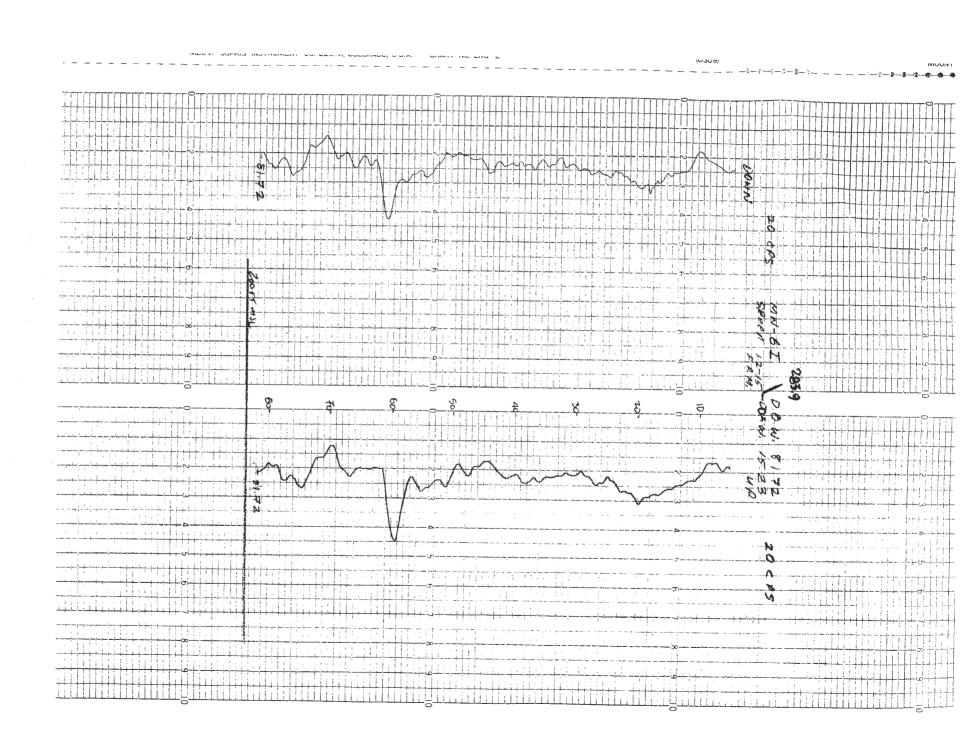


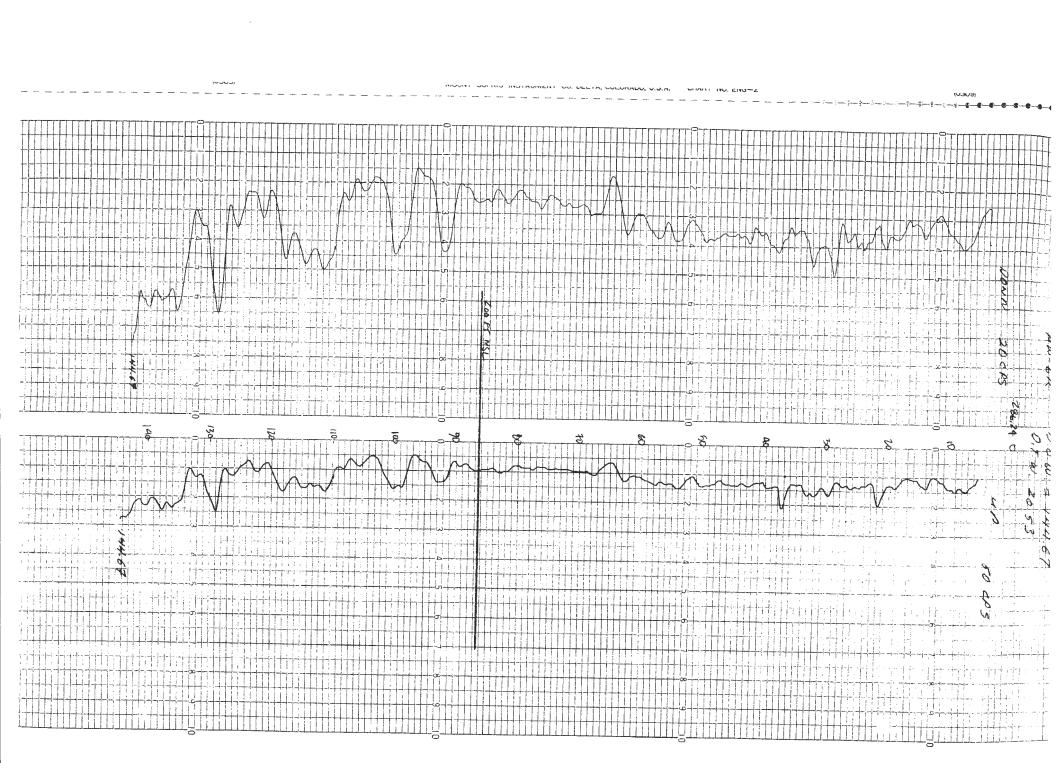
#### Appendix C

Geophysical Logs

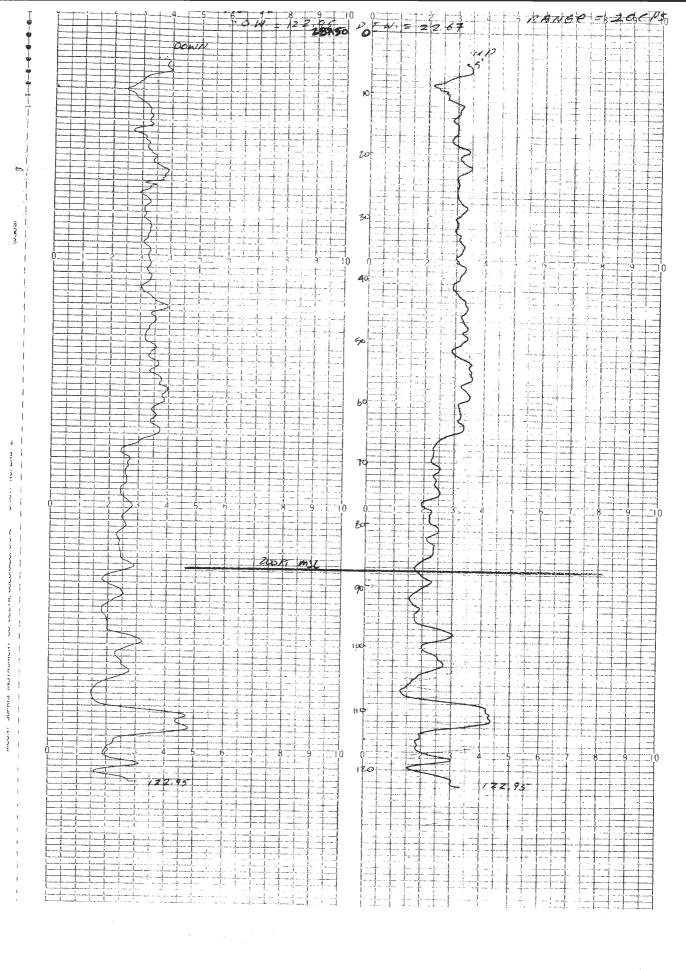


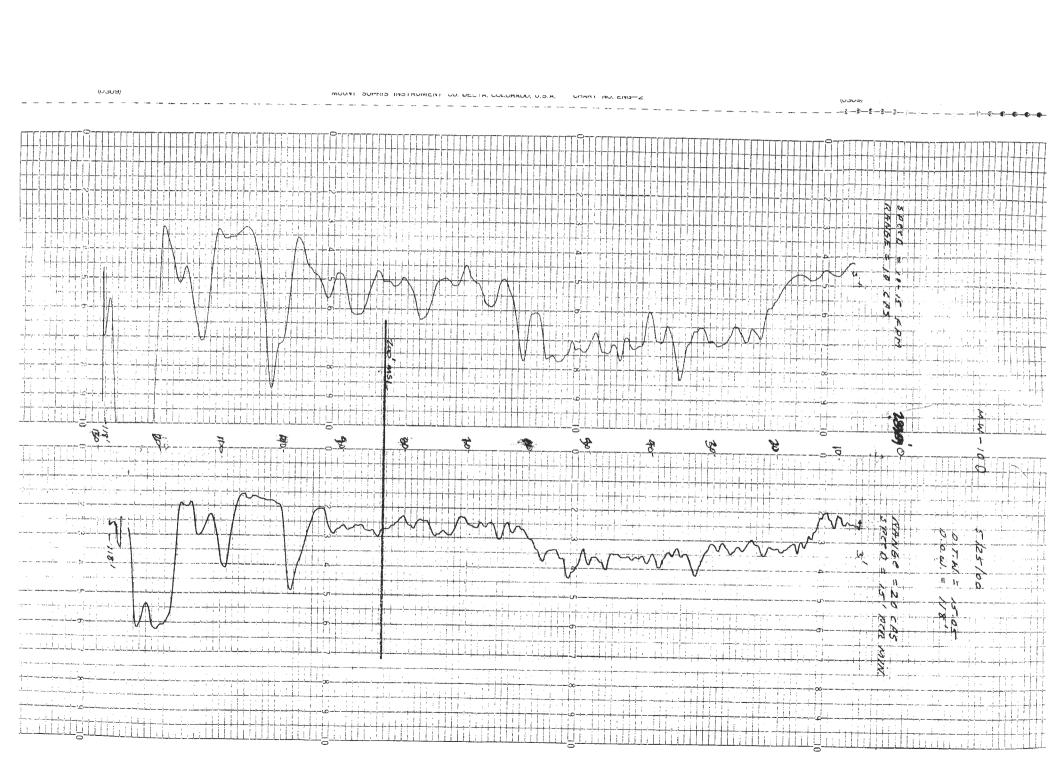














#### Appendix D

Boring Logs and Well Construction Diagrams

## **CDM**

environmental engineers, scientists, planners & management consultants

#### LOG OF BORING

Project Swivelier
Date Drilled 4/19/00 Total Depth 82 feet
Inspector Cattafe/Robinson

BORING SB-1 Page 1 of 4

Permit #: NA Job #: 0897-22804

Location Drainage Swale

Drilling Co.: SJB Drilling

Method Used: Hollow Stem Auger/Mud Rotary

Organic Vapor Inst: PID/FID

Water Depth

Depth		Sample	Depth	Blows per	Adv/Rec	Org. Vap	Sample Description	Remarks
(feet)	- 1	No.	(feet)	6 inches	(feet)	(ppm)		(time)
0		1	0-2	2 3 5 6	2.0 0.2	0	Stone Dust	(umo)
2		2	2-4	13 8 9 14	2. <u>0</u> 0.2	0	Stone Dust	1.3 ppm top of Auger
4		3	4-6	11 9 10 9	<u>2.0</u> 0.1	0/0.3	no recovery	
6		4	6-8	30 23 10 14	2.0 0.2	0.1/4	Fine to medium sand trace silt, gravel to 1" Red-Brown 0.1	13 ppm top of Auger
8		5	8-10	6 8 11	<u>2.0</u> 0.75	0	fine sand trace silt some fine gravel	3.8 ppm top of Auger
10		6	10-12		2.0 0.8	3 13	0.2-0.5 fine sand some silt 0.5-0.8 medium sand trace silt gray/black	
14 .		7	14-16	17 19 20 22	<u>2.0</u> 1.4	0	Grey brown fine-v. fine sand grading to Grey brown fine sand and silt, little clay, damp, stiff	
16		8	16-18	16 18 18 32	2.0 0.6	0.1	Grey brown fine sand and silt, little clay, little gravel medium sandy @ 0.5 black stain 0.5	
18 -		9	18-20	27 48 63 39	2.0 1.6	9	1.4' D.O. 1.4-1.6' increased % of v. fine sand	
20 -		10	20-22	10 12 100 0.3	<u>2.0</u> 0		No Recovery	
22 -		11	22-24	19 32 15 20	2.0 0.5	3.9	gray sandy silt w/thin laminae of medium sand	
24 -		12	24-26	46 42 62 40	2.0 1.6	5	gray brown sandy silt w/gravel, stiff	

o/internationalpaint/swivelierwellsbook2.xls

## **CDM**

environmental engineers, scientists, planners & management consultants

LOG OF BORING

Project Swivelier

Location

Drainage Swale

BORING SB-1

Page 2 of 4

Permit #: NA

Job #: 0897-22804

			•		Diamago	300 W	0897-22804
Depth (feet)	Sample No.	Sample Inter. (feet)	Blows per 6 inches	Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Remarks (time)
26 _ - -	13	26-28	41 36 30 32	2.0 0.4	9.7	D.O.	(time)
28 -	14	28-30	6 14 30 14	<u>2.0</u> 0.3	0.1	D.O.	
30	15	30-31	42 93 52 33	<u>2.0</u> 0.9	0.5	brown sandy silt w/thin lam. of medium to coarse sand @ 0.8'	
32	16	32-34	13 16 100/0			No Recovery	23 ppm meas. in empty spoo
34	17	34-36	94 23 22 32	<u>2.0</u> 0.8	0.1	Silt, little fine to v. fine sand, little clay, brown, dry	
36 _ - - -	18	36-38	26 37 94 63	<u>2.0</u> 0.9		D.O.	
38	19	38-40	100/0.2			No Recovery	1 ppm @ top of auger
40	20	40-42	62 38 28 31	2.0 1.0	0	D.O., slightly less clay, damp	
42	21	42-44	47 40 49 51	<u>2.0</u> 0.5	0	D.O.	
44	22	44-46	47 46 49 51	<u>2.0</u> 0.5	0	D.O., moist	
46	23	46-48	61 22 18 15	<u>2.0</u> 2.0		0-1.3' Sand, M-C, loose, wet, grading to silt and VF sand 1.3-2.0' D.O. w/trace clay	
48 <u> </u>	24	48-50	15 16 28 35	<u>2.0</u> 1.0		0-0.5' D.O. w/silt and F-VF sand 0.5-1' Sand, fine, little silt	

environmental engineers, scientists, planners & management consultants

#### LOG OF BORING

Project Swivelier

Location Drainage Swale

BORING SB-1 Page 3 of 4

Permit #: NA

Job #: 0897-22804

Depth	_	Sample	Sample	Blows per	Adv/Dee	l 0 1/		r. 0091-22604
(feet)		No.	Inter. (feet)		Adv/Rec (feet)	Org. Vap (ppm)	Sample Description	Remarks
50				29	(1001)	(ррии)		(time) headspace
1	4			25	2.0	0	0.5-1.7 fine sand little silt	75 PID
ļ	$\dashv$	26	50-52	28	1.5	10	1.7-2.0 F-M sand, trace silt, wet, loose	28 FID
l -	コ			41				
52	$\dashv$			32				
	ㅓ	0.7	50.54	30	<u>2.0</u>	72	Sand, M, little coarse, little fine, loose, wet	headspace
	$\exists$	27	52-54	40	1.4	127		196 PID
54 -	$\dashv$			44			_	
54	J				2.0	25	0-1.5' D.O. no coarse sand	hoodones
	$\dashv$	27	54-56		2.0	77	1.5-2.0 D.Q.	headspace 226 PID
	$\dashv$						1.0 2.0 5.0	220 FID
56	$\exists$			28			1	
	$\dashv$			26	<u>2.0</u>	113	0.5-1.9 D.O.	headspace
	$\exists$	28	56-58	34	1.5	80	1.9-2.0 Sand, VF and silt, trace clay, red-brown	274 PID
	7			52				
58	$\dashv$			28		45	04.400   5   1544   15   15   15   15	
	$\exists$	29	58-60	26 34	<u>2.0</u> 2.0	15 30	0-1.4' Sand, fine, little medium, trace silt, brown	
	4	29	30-00	52	2.0	30	1.4-2.0' Sand, fine, trace silt, brown	
60 -	Ⅎ			32				
	$\Box$	i		36	2.0	50	Sand, VF, and silt, trace C-F gravel, stiff	
	+	30	60-62	61	0.7		giaro, cin	
_	士			60				
62	$\exists$			47				
	$\dashv$			56	2.0	2	wash	driller reports
	コ	31	62-64	62	2.0			6-7' of sand in
64 -	+			49 100/2				augers
04	٦			100/2	2.0	0	Sand, VF, and silt, trace gravel,red, stiff	
	7	32	64-66		1.2	U	Sano, VI, and Sill, trace graver, red, Still	
	$\dashv$				··-			
66	1			40				
	$\dashv$			41	2.0	0	D.O.	
	1	33	66-68	78	1.2			
<u> </u>	7			82				
68	$\forall$			100/3	20	0.3	D.O. broken cobble and arrival	
	1	34	68-70		2.0 0.9	0.5	D.O., broken cobble and gravel	
	$\dashv$	<u> </u>	00.10		0.0			
70 -	士			86				
	4			75	<u>2.0</u>	0	D.O.	
	$\dashv$	35	70-72	63	0.4			
_	丄			58				
72 .	$\dashv$		i	67				
•	$\dashv$	20	70.7.	79	2.0	0	D.O.	
	1	36	72-74	82	0.9			
	$\perp$		l.	100/4				L

environmental engineers, scientists, planners & management consultants

LOG OF BORING

Project Swivelier Location

BORING SB-1

Page 4 of 4

Permit #: NA

Job #: 0897-22804

	_			•			000 11	
Depth	Т	Sample	Sample	Blows per	Adv/Rec	Org. Vap	Sample Description	Remarks
(feet)	- 1		Inter. (feet)	6 inches	(feet)	(ppm)	Campie Bessiption	(time)
	4			144	`	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		7
1	$\dashv$			80	<u>2.0</u>	0	D.O.	
1	$\dashv$	37	74-76	107	0.2			1
	コ			119				
76	$\dashv$			100/3				
	┨				<u>0.25</u>		D.O	
	コ	38	74-76		0.2			
70 -	+			400/4				
78	┪			100/1	4.0	_		
1	]	39	76-78		<u>1.0</u> 0.4	0	D.O., softer and wet	
	$\neg$	39	10-10		0.4			
80	+			150/3			1	
				100/0	<u>0.25</u>		1/2' to 3/4' gravel in red fine sandy silt matrix	14 ppm @ top
.	7	40	78-80		0.2		in to 5/4 graver in red line sailty siit matrix	of auger
	$\dashv$				0.2			or auger
82	コ			100/1				1
	4				1.0		No Recovery	11 ppm @ top
	$\dashv$	41	80-82		0		•	of auger
	1							
84 .	Ŧ							
-	┨	i						
-	1	42	82-84	100/0	0		No Recovery	
	1							
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Drainage Swale

environmental engineers, scientists, planners & management consultants

#### LOG OF BORING

Project Swivelier
ate Drilled 4/27/00
otal Depth 130 feet
Inspector F. Robinson

 Location Nanuet, NY
 BORING Page 1 of 1

 Drilling Co.: SJB Drilling
 Permit # NA

 Method Used: Mud Rotary/NX core barrel Organic Vapor Inst: PID/FID
 Job # 0897-22804

Depth	Sample	Depth	Blows per	Adv/Rec	Org. Vap	Sample Description	Remarks
(feet)	No.	(feet)	6 inches	(feet)	(ppm)		(time)
5 _ - -	1	5-7	33 29 31 16	<u>2.0</u> 0.55	0	0-0.3 brown organic soil 0.3-0.55 damp reddish-brown sandy silt w/ gravel	
10 _	2	10-12	5 3 12 6	<u>2.0</u> 0.5	0	D.O.	
15 _ - -	3	15-17		2.0 0.55	0	0.25' cobble layer 0.25-0.55 D.O.	
20	4	20-22		2.0 1.0	0	top 0.08' cobble 0.08-1' greenish brown silt w/gravel	
25 	5	25-27	11 75 102 100/2	1. <u>6</u> 0.9	0	brown very hard sandy silt w/gravel	
30	6	30-32	11 17 100/2	1.5 0.25	0	greenish gray silty sand w/gravel, damp	
35	7	35-37	21 38 100/2	1.2 0.3	0	D.O.	
40	8	40-42	95 85 88 100/2	<u>1,6</u> 1.6	0	brown very hard sandy silt w/gravel	
45  	9	45-47	78 45 44 67	2.0 1.9	0	D.O.	9
50	10	50-52	25 27 56 65	2.0 1.9	0	D.O.	
55	11	. 55-57	35 44 53 60	2.0 1.9	0	hard reddish-brown sandy silt w/gravel	
60	12	60-62	42 39 47 50	2.0 1.0	0	D.O.	

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LOG OF BORING

Project Swivelier Location

BORING #:

Page 2 of 2 Permit #: NA

Job #: 0897-22804

Depth	Sample	Sample	Blows per	Adv/Rec	Org. Vap	Sample Description	Domoska
(feet)	No.	Inter. (feet)		(feet)	(ppm)	Gample Description	Remarks (time)
62  	13	62-64	22 27 40 41	2.0 1.0	0	D.O.	(une)
65	14	65-67	32 40 42 40	<u>2.0</u> 1.6	0	0-0.75' D.O. 0.75-1.6' wet reddish-brown silty F-M sand, little gravel	
67	15	67-69	19 18 27 40	<u>2.0</u> 1.75	0	0-1.4' D.O. 1.4-1.75' hard reddish-brown sandy silt w/gravel	
70 _	16	70-72	33 150 100/0	<u>1.0</u> 0.83	0	D.O.	
75	17	75-77	45 48 70 69	<u>2.0</u> 1.4	0	0-1.0' same as above 1.0-1.4' reddish-brown silty fine sand little gravel	
80	18	80-82	52 67 95 100/0	<u>1.5</u> 1.16	23	D.O., harder and coarser	PID headspace 32 ppm
85 	19	85-87	30 20 25 22	<u>2.0</u> 1.5	4	red-brown silty, M-C sand w/gravel, wet	PID headspace 28 ppm
90	20	90-92	47 106 100/2	<u>1.16</u> 1.0	4	wet dark reddish brown silty fine sand to hard silty coarse sand	PID headspace 55 ppm
95 <u> </u>	21	95-97	77 100/1	0.6 0.6	12	brick red silty clay	PID headspace 18 ppm
100	22	100-102	100/1			No Recovery	
-							
- - -							

Nanuet, NY

environmental engineers, scientists, planners & management consultants

#### WELL CONSTRUCTION SUMMARY

Project: Swivelier	Location	on: Nanuet, NY		Well No.:	MW-10D
***				Permit No.:	NA
TOC elev.:					
	← Protective Ty	pe Steel			
[]	Casing	· · · · · · · · · · · · · · · · · · ·	-		
		DRILLING SUMMAR	RY		
		Drilling Company:	SJB Drillina	Drillers:	
			Speedstar 275		
· · · · · · · · · · · · · · · · · · ·		Borehole Diameters:		Drilling Fluid	Water(casing)/Air(hole
			8 inch(110feet). NX	core barrel 3 65	inch(130 feet)
Grout	<b>⋖</b> ——Surface	Total Depth:	130 feet D	epth To Water:	21 feet
.: }	Casing	Supervisor Geologist:	F Robinson	opar to trator.	211000
*	97'				
Bedrock		WELL DESIGN			
Surface		WELL DEGION			
Gunace					
		Casina Matarial	Cohodulo 40 DVC	Diameter:	4 imak
	110'		Schedule 40 PVC		
	110	Screen Size:		Diameter:	
		Slot Size: Filter <b>M</b> aterial:		Setting:	
				Setting:	
j		Seals Material:		Setting:	
			Cement/Bentonite		Surface to 110 feet
	8	urface Casing Material:	Steel	Setting:	+2 feet
1					
1					
	i	TIME LOG			
İ	]				
	Ī		Started		Completed
	1	Drilling:	4/27/00		5/8/00
	[	Installation:	5/5/00		5/5/00
		Development:	5/9/00		5/9/00
	1				
		WELL DEVELOPMEN	NT		
L	130'				
		Method:	interrupted ovepump	ing	
		Static Depth to Water:	21.38		
	Pui	mping Depth To Water:	48		
		Pumping Rate:		pec. Capacity: (	0.25 gpm/ft
		Volume Pumped:		· -	



### Appendix E

Analytical Results May 2000

#### DATA VALIDATION REPORT

#### **VOLATILE ORGANIC ANALYSES**

Swievlier Project

Lab Project # L8519ASP and L8541ASP

Sampling Dates of May 24 - 25, 2000

#### PREPARED FOR:

Camp Dresser & McKee, Inc. Raritan Plaza I Raritan Center Edison, New Jersey 08818

July 2000

#### PREPARED BY:

ChemWorld Environmental, Inc. 14 Orchard Way North Rockville, Maryland 20854

(301) 294 - 6144



### Swievlier Project

Data Validation Report: Volatile Organic Analyses

Tab	Table of Contents				
	Introduction	1			
1.0	Volatile Organics by GC/MS	1			
1.1	Holding Times	i			
1.2	System Monitoring Compound Recovery	2			
1.3	Matrix Spike/Matrix Spike Duplicate (MS/MSD)	2			
1.4	Calibration	2			
1.5	Blanks	2			
1.6	GC/MS Instrument Performance Check	2			
1.7	Tentatively Identified Compounds (TICs)	2			
1.8	Internal Standards	3			
1.9	Compound Identification	3			
1.10	Compound Quantitation and Reported Detection Limits	3			
1.11	System Performance	3			

#### Appendices

Α	Data Summary Forms	Volatile Organics

- Data Summary Forms: Volatile Organics
  Data Summary Forms: Tentatively Identified Compounds В
- С Data Qualifiers
- D Case Narratives
- Chain-of-Custody Forms

#### DATA VALIDATION SUMMARY: VOLATILE ORGANIC ANALYSES

# Swievlier Project Lab Project # L8519ASP and L8541ASP Sampling Dates of May 24 – 25, 2000

#### INTRODUCTION

This Data Validation Summary Report for Volatile Organic analyses was generated for 10 water samples and the associated quality control samples for the Laboratory Project Nos. noted above. Sampling activities were conducted in support of the field investigation for the Swievlier Project. The analytical laboratory work was performed by ChemTech Laboratory.

Analytical testing was performed utilizing United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) protocols for Volatile Organic analyses by Gas Chromatography/Mass Spectroscopy (GC/MS). The analytical work was performed utilizing New York State Department of Environmental Conservation (NYSDEC) Analytical Service Protocols (ASP), October 1995.

This report provides a summary of data acceptability and deviations in accordance with the USEPA Region II Organic Data Validation Checklists/Guidelines (June 1996); and the appropriate methods from the NYSDEC ASP (October 1995), where applicable and relevant.

#### 1.0 VOLATILE ORGANICS BY GC/MS

The following items/criteria were reviewed:

- Holding Times
- System Monitoring (Surrogate) Compound Recovery
- Matrix Spikes (MS) and Matrix Spike Duplicates (MSD)
- Initial and Continuing Calibration
- Blanks (Method and Field)
- GC/MS Instrument Performance Check
- Tentatively Identified Compounds (TICs)
- Internal Standards
- Compound Identification
- Compound Quantitation and Reported Detection Limits
- System Performance

All items above were generated within acceptable Quality Control (QC) specifications with deviations detailed as follows. Various TIC results were qualified as 'R', unusable, in accordance with USEPA Region II guidelines. The remaining data reviewed is considered to be valid and usable with the appropriate qualifiers, as noted on the data summary forms in Appendix A and within the following text.

#### 1.1 Holding Times

All NYSDEC ASP holding times were met within the acceptable time frame. The Holding Time is 7 days from Verified Time of Sample Receipt (VTSR) at the laboratory for the water samples.

#### 1.2 System Monitoring (Surrogate) Compound Recovery

All system monitoring compound percent recovery (%R) was found to be generated within acceptable limits for the three surrogate compounds.

#### 1.3 Matrix Spike/Matrix Spike Duplicates (MS/MSD)

Site-specific MS/MSD sample sets and Matrix Spike Blanks (MSBs) were analyzed for the samples. Acceptable accuracy (percent recovery) and precision (relative percent difference) were generated for the QC samples.

#### 1.4 Calibration

All initial and continuing calibration was performed within acceptable limits for average Relative Response Factors (RRF), Percent Relative Standard Deviation (% RSD), Relative Response Factors (RRF), and Percent Difference (% D), with the following exceptions.

#### 1.4.1 Lab Project # L8519ASP and L8541ASP

Initial Calibration: Acetone and 2-Butanone generated Percent Relative Standard Deviations (%RSDs) of greater than 30% for the 5/15/2000 initial calibration. The positive results, only, for these compounds were qualified as 'J', estimated.

#### 1.4.2 Lab Project # L8519ASP and L8541ASP

Continuing Calibration:

The Percent Difference (%D) for the compounds acetone, 4-methyl-2-pentanone, 2-Hexanone and 2-Butanone were found to exceed the 25% limit for the continuing calibrations on 5/31/2000 at 13:13 and 6/01/2000 at 15:35. The associated sample results for these compounds were qualified as 'J', estimated, for the positive results and 'UJ', estimated, for the non-detectable results.

#### 1.5 Blanks

#### 1.5.1 Field Blanks

Two trip blanks and one field blank were collected and analyzed for Volatiles. Volatile Organics were not detected in these blanks, with the exception of TICs (See Section 1.7).

#### 1.5.2 Method Blanks

Four water method blanks were analyzed for the samples. Volatile Organics were not detected in the method blanks.

#### 1.6 GC/MS Instrument Performance Check

Instrument performance was generated within acceptable limits and frequency for Bromofluorobenzene (BFB).

#### 1.7 Tentatively Identified Compounds (TICs)

Copies of the TIC Form I data sheets, including the appropriate qualifiers, are included in Appendix B. Various TIC results were qualified as 'R', unusable, in accordance with USEPA Region II guidelines, due

to their presence in the field and trip blanks. The compound 1,1,2-trichloro-1,2-ethane was detected in these blanks as a TIC.

#### 1.8 Internal Standards

All internal standards were generated within acceptable specifications for area counts and retention time variation.

#### 1.9 Compound Identification

GC/MS qualitative analyses are considered to be acceptable for the data set. Retention times and mass spectra were generated within appropriate quality control specifications.

#### 1.10 Compound Quantitation and Reported Detection Limits

GC/MS quantitative analyses are considered to be acceptable. Sample dilutions, internal standards, and response factors were found to be within acceptable limits.

#### 1.11 System Performance

Acceptable system performance was maintained throughout the analyses of the water samples. This was exhibited through good resolution and consistent chromatographic performance.

### APPENDIX A

DATA SUMMARY FORMS

VOLATILE ORGANICS

SAMPLE NO.

MW-81

Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE

Project No.: L8519LP Site: N/A Location: N/A Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O22888

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00812.D

Level: (low/med) Date Received: 5/24/00

% Moisture: not dec. 100 Date Analyzed: 5/31/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	100	5
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
156-59-4	cis-1,2-Dichloroethene	51	
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U.
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87 <b>-</b> 5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	200	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachioroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethyl Benzene	10	U
100-42-5	Styrene	. 10	U

SAMPLE NO.

(uL)

18-WM Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE Project No.: L8519LP Site: N/A Location: N/A Group: 5970-VOA Matrix: (soil/water) WATER Lab Sample ID: O22888 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00812.D Level: (low/med) Date Received: 5/24/00 % Moisture: not dec. 100 Date Analyzed: 5/31/00 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

(uL)

Concentration Units:

Soil Aliquot Volume:

		Concentration Units:	
CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q
1330-20-7	m&p-Xylenes	10	U
95-47-6	o-Xylene	10	U
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			T

Soil Extract Volume:

SAMPLE NO.

(uL)

MW-10D Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE Project No.: L8519LP Location: N/A Site: N/A Group: 5970-VOA Matrix: (soil/water) WATER Lab Sample ID: O22889 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00813.D Level: (low/med) Date Received: 5/24/00 % Moisture: not dec. 100 Date Analyzed: 5/31/00 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0 Soil Aliquot Volume: Soil Extract Volume: (uL)

		Concentration Units:	
CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	T U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	7.1	J
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	Ū
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
156-60-5	trans-1,2-Dichloroethene	3.3	J
156-59-4	cis-1,2-Dichloroethene	700	E
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	1000	Е
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	11	
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	4.8	J
108-90-7	Chlorobenzene	10	U
100-41-4	Ethyl Benzene	10	U
100-42-5	Styrene	10	U

SAMPLE NO.

Lab Name: CHEMTE	СН	Contract: CAMP DRESSER	MW-10D & MCKEE
Project No.: L8519LP	Site: N/A	Location: N/A	Group: 5970-VOA
Matrix: (soil/water)	WATER	Lab Sample ID	: O22889
Sample wt/vol:	5.0 (g/mL) ML	Lab File ID	: N00813.D
Level: (low/med)		Date Received	: 5/24/00
% Moisture: not dec.	100	Date Analyzed	: 5/31/00
GC Column: DB624	ID: 0.53	(mm) Dilution Factor:	1.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume:	
CAS No.		Concentration Units: (ug/L or ug/Kg) ug/L	Q
1330-20-7	m&p-Xylenes	2.8	J
95-47-6	o-Xylene	10	U

SAMPLE NO.

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MW-10DDL Contract: CAMP DRESSER & MCKEE Lab Name: CHEMTECH Project No.: L8519LP Site: N/A Location: N/A Group: 5970-VOA Matrix: (soil/water) WATER Lab Sample ID: O22889DL Sample wt/voi: 5.0 (g/mL) ML Lab File ID: N00825.D Level: (low/med) Date Received: 5/24/00 % Moisture: not dec. 100 Date Analyzed: 6/1/00 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 100.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1000	UD
74-83-9	Bromomethane	1000	UD
75-01-4	Vinyl Chloride	1000	UD
75-00-3	Chioroethane	1000	UD
75-09-2	Methylene Chloride	1000	UD
67-64-1	Acetone	1000	UDJ
75-15-0	Carbon Disulfide	1000	UD
75-35-4	1,1-Dichloroethene	1000	UD
75-34-3	1,1-Dichloroethane	1000	UD
156-60-5	trans-1,2-Dichloroethene	1000	UD
156-59-4	cis-1,2-Dichloroethene	1200	D
67-66-3	Chloroform	1000	UD
107-06-2	1,2-Dichloroethane	1000	UD
78-93-3	2-Butanone	1000	UDJ
71-55-6	1,1,1-Trichloroethane	1000	UD
56-23-5	Carbon Tetrachloride	1000	UD
75-27-4	Bromodichloromethane	1000	UD
78-87-5	1,2-Dichloropropane	1000	UD
10061-01-5	cis-1,3-Dichloropropene	1000	UD
79-01-6	Trichloroethene	3100	D
124-48-1	Dibromochloromethane	1000	UD
79-00-5	1,1,2-Trichloroethane	1000	UD
71-43-2	Benzene	1000	UD
10061-02-6	trans-1,3-Dichloropropene	1000	UD
75-25-2	Bromoform	1000	UD
108-10-1	4-Methyl-2-Pentanone	1000	UDJ
591-78-6	2-Hexanone	1000	UD7
127-18-4	Tetrachloroethene	1000	UD
79-34-5	1,1,2,2-Tetrachloroethane	1000	UD
108-88-3	Toluene	1000	UD
108-90-7	Chlorobenzene	1000	UD
100-41-4	Ethyl Benzene	1000	UD
100-42-5	Styrene	1000	UD

SAMPLE NO.

Lab Name: CHEMTE	СН	Contract: CAMP DRESSER	MW-10DDL  & MCKEE
Project No.: L8519LP	Site: N/A	Location: N/A	Group: 5970-VOA
Matrix: (soil/water)	WATER	Lab Sample II	D: O22889DL
Sample wt/vol:	5.0 (g/mL) ML	Lab File IC	D: N00825.D
Level: (low/med)		Date Received	d: 5/24/00
% Moisture: not dec.	100	Date Analyzed	d: 6/1/00
GC Column: DB624	ID: 0.53	B(mm) Dilution Factor	100.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume	:(uL)
CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
1330-20-7 95-47-6	m&p-Xylenes o-Xylene	1000	UD
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(uL)

SAMPLE NO.

MW-11D Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE Project No.: L8519LP Site: N/A Location: Group: 5970-VOA Matrix: (soil/water) WATER Lab Sample ID: O22890 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00814.D Level: (low/med) Date Received: 5/24/00 % Moisture: not dec. 100 Date Analyzed: 5/31/00 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

(uL)

Concentration Units:

Soil Aliquot Volume:

CAS No.	Compound	Concentration Units:	ıa/I	0
CAS 110.	Compodita	(ug/L or ug/Kg)	ıg/L	Q
74-87-3	Chloromethane	10		U
74-83-9	Bromomethane	10		U
75-01-4	Vinyl Chloride	7.1		J
75-00-3	Chloroethane	10		Ų
75-09-2	Methylene Chloride	10		U
67-64-1	Acetone	10		UJ
75-15-0	Carbon Disulfide	10		U
75-35-4	1,1-Dichloroethene	10		U
75-34-3	1,1-Dichloroethane	10		U
156-60-5	trans-1,2-Dichloroethene	3.4		J
156-59-4	cis-1,2-Dichloroethene	720		Ε
67-66-3	Chloroform	10		U
107-06-2	1,2-Dichloroethane	10		U
78-93-3	2-Butanone	10		U
71-55-6	1,1,1-Trichloroethane	10		U
56-23-5	Carbon Tetrachloride	10		U
75-27-4	Bromodichloromethane	10		U
78-87-5	1,2-Dichloropropane	10		U
10061-01-5	cis-1,3-Dichloropropene	10		U
79-01-6	Trichloroethene	1100		E
124-48-1	Dibromochloromethane	10		U
79-00-5	1,1,2-Trichloroethane	10		U
71-43-2	Benzene	10		U
10061-02-6	trans-1,3-Dichloropropene	10		U
75 <b>-</b> 25-2	Bromoform	10		U
108-10-1	4-Methyl-2-Pentanone	10		U
591-78-6	2-Hexanone	10		U
127-18-4	Tetrachloroethene	11		
79-34-5	1,1,2,2-Tetrachloroethane	10		U
108-88-3	Toluene	4.7		J
108-90-7	Chlorobenzene	10		U
100-41-4	Ethyl Benzene	10		U
100-42-5	Styrene	10		U

Soil Extract Volume:

SAMPLE NO.

MW-11D

Lab Name: CHEMTE	СН	с	ontract:	CAMP DRESSER 8	•	V-11D
Project No.: L8519LP	Site: <u>N/</u>	A Lo	ocation:	N/A	Group:	5970-VOA
Matrix: (soil/water)	WATER			Lab Sample ID:	O22890	_
Sample wt/vol:	5.0 (g/mL)	ML		Lab File ID:	N00814.D	_
Level: (low/med)				Date Received:	5/24/00	_
% Moisture: not dec.	100			Date Analyzed:	5/31/00	-
GC Column: DB624	ID:	0.53 (mm	۱)	Dilution Factor:	1.0	-
Soil Extract Volume:	(uL)		· S	Soil Aliquot Volume:		· (uL)
CAS No.	Compound		ncentratior /L or ug/Kç		Q	•
1330-20-7	m&p-Xylenes			2.8	J	]
95-47-6	o-Xylene	·		10	U	
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SAMPLE NO.

MW-11DDL

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Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE Project No.: L8519LP Site: N/A Location: N/A Group: 5970-VOA Matrix: (soil/water) WATER Lab Sample ID: O22890DL Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00826.D Level: (low/med) Date Received: 5/24/00 % Moisture: not dec. 100 Date Analyzed: 6/1/00 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 100.0 (uL)

Concentration Units:

Soil Aliquot Volume:

	Concentration Units:				
CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q		
74-87-3	Chloromethane	1000	UD		
74-83-9	Bromomethane	1000	UD		
75-01-4	Vinyl Chloride	1000	UD		
75-00-3	Chloroethane	1000	UD		
75-09-2	Methylene Chloride	1000	UD		
67-64-1	Acetone	1000	UDJ		
75-15-0	Carbon Disulfide	1000	UD		
75-35-4	1,1-Dichloroethene	1000	UD		
75-34-3	1,1-Dichloroethane	1000	UD		
156-60-5	trans-1,2-Dichloroethene	1000	UD		
156-59-4	cis-1,2-Dichloroethene	1200	D		
67-66-3	Chloroform	1000	UD		
107-06-2	1,2-Dichloroethane	1000	UD		
78-93-3	2-Butanone	1000	UDJ		
71-55-6	1,1,1-Trichloroethane	1000	UD		
56-23-5	Carbon Tetrachloride	1000	UD		
75-27-4	Bromodichloromethane	1000	UD		
78-87-5	1,2-Dichloropropane	1000	UD		
10061-01-5	cis-1,3-Dichloropropene	1000	UD		
79-01-6	Trichloroethene	3100	D		
124-48-1	Dibromochloromethane	1000	UD		
79-00-5	1,1,2-Trichloroethane	1000	UD		
71-43-2	Benzene	1000	UD		
10061-02-6	trans-1,3-Dichloropropene	1000	UD		
75-25-2	Bromoform	1000	UD		
108-10-1	4-Methyl-2-Pentanone	1000	UDJ		
591-78-6	2-Hexanone	1000	UDJ		
127-18-4	Tetrachloroethene	1000	UD		
79-34-5	1,1,2,2-Tetrachloroethane	1000	UD		
108-88-3	Toluene	1000	UD		
108-90-7	Chlorobenzene	1000	UD		
100-41-4	Ethyl Benzene	1000	UD		
100-42-5	Styrene	1000	UD		

Soil Extract Volume:

SAMPLE NO.

Lab Name: CHEMTE	СН		Contract:	CAMP DRESSER		-11DDL
Project No.: L8519LP	Site: N	1/A	Location:	N/A	Group:	5970-VOA
Matrix: (soil/water)	WATER			Lab Sample IE	D: <u>O22890DL</u>	_
Sample wt/vol:	5.0(g/mL)	ML		Lab File I	): N00826.D	_
Level: (low/med)	-			Date Received	d: 5/24/00	-
% Moisture: not dec.	100			Date Analyzed	d: <u>6/1/00</u>	_
GC Column: DB624	1D: _	0.53 (r	nm)	Dilution Factor	:100.0	_
Soil Extract Volume:	(uL)			Soil Aliquot Volume	:	(uL)
CAS No.	Compound		Concentration ug/L or ug/k		Q	
1330-20-7	m&p-Xylenes			1000	UD	
95-47-6	o-Xylene			1000	UD	
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SAMPLE NO.

(uL)

MW-61 Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE Project No.: L8519LP Site: N/A Location: N/A Group: 5970-VOA Matrix: (soil/water) WATER Lab Sample ID: O22891 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00815.D Level: (low/med) Date Received: 5/24/00 % Moisture: not dec. 100 Date Analyzed: 5/31/00 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

(uL)

Concentration Units:

Soil Aliquot Volume:

	Concentration Units:			
CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	29		
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10	UJ	
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-3	1,1-Dichloroethane	10	U	
156-60-5	trans-1,2-Dichloroethene	10	U	
156-59-4	cis-1,2-Dichloroethene	130		
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	56		
124-48-1	Dibromochloromethane	10	U	
79-00-5	1,1,2-Trichloroethane	10	U	
71-43-2	Benzene	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethyl Benzene	10	U	
100-42-5	Styrene	. 10	U	

Soil Extract Volume:

SAMPLE NO.

	VOLATILE	Onda	MICS ANALT	SIS DATA SHEET		
Lab Name: CHEMTE	СН		Contract:	CAMP DRESSER		IW-6I
Project No.: L8519LP	_ Site:	N/A	Location:	N/A	Group	5970-VOA
Matrix: (soil/water)	WATER			Lab Sample ID	): <u>O22891</u>	_
Sample wt/vol:	5.0(g/mL)	ML	_	Lab File ID	: N00815.D	_
Level: (low/med)				Date Received	i: <u>5/24/00</u>	_
% Moisture: not dec.	100			Date Analyzed	l:_5/31/00	-
GC Column: DB624	ID:	0.53	_(mm)	Dilution Factor	:1.0	-
Soil Extract Volume:	(uL)			Soil Aliquot Volume	•	_ (uL)
CAS No.	Compound		Concentration (ug/L or ug/L		Q	
1330-20-7	m&p-Xylenes			10	U	]
95-47-6	o-Xylene			10	U	
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SAMPLE NO.

FB052400\_FIELDBLA

Lab Name: CHEMTEC	H			_ Contract:	CAMP DRESSER	& MCKEE	
Project No.: L8519LP	<u>.</u>	Site: I	N/A	_ Location:	N/A	Group:	5970-VOA
Matrix: (soil/water)	WATER	<del>.</del> .			Lab Sample ID	): <u>022894</u>	
Sample wt/vol:	5.0	(g/mL)	ML	• · · <del>-</del>	Lab File ID	: N00809.D	
Level: (low/med)					Date Received	1: 5/24/00	
% Moisture: not dec.	100				Date Analyzed	: 5/31/00	
GC Column: DB624		ID:	0.53	_(mm)	Dilution Factor	1.0	
Soil Extract Volume:		(uL)			Soil Aliquot Volume	<b>:</b>	(uL)

#### Concentration Units:

CAS No.	Compound	(ug/L or ug/Kg) ug/L	à
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
156-59-4	cis-1,2-Dichloroethene	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethyl Benzene	10	U
100-42-5	Styrene	10	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

FB052400\_FIELDBLA

Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE

Project No.: L8519LP Site: N/A Location: N/A Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O22894 (g/mL) Sample wt/vol: 5.0 ML Lab File ID: N00809.D Level: (low/med) Date Received: 5/24/00 % Moisture: not dec. 100 Date Analyzed: 5/31/00 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

	_	Concentration Units:		
CAS No.	Compound	(ug/L or ug/Kg)	ug/L	Q
1330-20-7	m&p-Xylenes	1	0	U
95-47-6	o-Xylene	1	0	U
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SAMPLE NO.

MW-6R

Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE Project No.: L8519LP Site: N/A Location: N/A Group: 5970-VOA Matrix: (soil/water) WATER Lab Sample ID: O22895 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00816.D Level: (low/med) Date Received: 5/24/00 % Moisture: not dec. 100 Date Analyzed: 5/31/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL

		Concentration Onles.	
CAS No.	Compound	(ug/L or ug/Kg) ug/	<u>L</u> Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U5
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
156-59-4	cis-1,2-Dichloroethene	8.1	J
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	25	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	2.4	J
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethyl Benzene	10	U
100-42-5	Styrene	10	U

SAMPLE NO.

MW-6R Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE Project No.: L8519LP Location: N/A Site: N/A Group: 5970-VOA Matrix: (soil/water) WATER Lab Sample ID: O22895 Sample wt/vol: 5.0 (g/mL) Lab File ID: N00816.D

Level: (low/med) Date Received: 5/24/00 % Moisture: not dec. 100 Date Analyzed: 5/31/00 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

ML

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units:  (ug/L or ug/Kg)	ug/L Q
1330-20-7	m&p-Xylenes	10	
95-47-6	o-Xylene	10	U
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SAMPLE NO.

TRIPBLANK

Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE

Project No.: L8519LP Site: N/A Location: N/A Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O22896

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00808.D

Level: (low/med) Date Received: 5/24/00

% Moisture: not dec. \_\_\_\_100 Date Analyzed: 5/31/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	Ü
156-60-5	trans-1,2-Dichloroethene	10	U
156-59-4	cis-1,2-Dichloroethene	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethyl Benzene	10	U
100-42-5	Styrene	10	U

SAMPLE NO.

**TRIBBL 44** 

Lab Name: CHEMTEC	CH	Contract: CAMP DRESSER	TRIPBLANK MCKEE
Project No.: L8519LP	Site: N/A	Location: N/A	Group: 5970-VOA
Matrix: (soil/water)	WATER	Lab Sample ID:	O22896
Sample wt/vol:	5.0(g/mL)ML	Lab File ID:	N00808.D
Level: (low/med)		Date Received:	5/24/00
% Moisture: not dec.	100	Date Analyzed:	5/31/00
GC Column: DB624	ID: 0.53 (	(mm) Dilution Factor:	1.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume:	(uL)
CAS No.		Concentration Units: (ug/L or ug/Kg) ug/L	Q
1330-20-7	m&p-Xylenes	10	U
	o-Xylene	10	U
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SAMPLE NO.

Lab Name: CHEMTEC	Н			Contract:	CAMP DRESSER 8		/-9ID
Project No.: L8541ASP		Site: 1	NYDEC	Location:	NY	Group:	5970-VOA
Matrix: (soil/water)	WATER	-			Lab Sample ID:	O23025	
Sample wt/vol:	5.0	(g/mL) _	ML		Lab File ID:	N00810.D	
Level: (low/med)		<b>-</b> .	•		Date Received:	5/25/00	
% Moisture: not dec.	100	-			Date Analyzed:	5/31/00	
GC Column: DB624		ID:	0.53	(mm)	Dilution Factor:	1.0	
Soil Extract Volume:	·	(uL)			Soil Aliquot Volume:		(uL)

CAS No.	Compound	(ug/L or ug/Kg)	ug/L	Q
74-87-3	Chloromethane			Τυ
74-83-9			10	
75-01-4	Bromomethane			U
	Vinyl Chloride	1(		U
75-00-3	Chloroethane	1(		U
75-09-2	Methylene Chloride	1(		U
67-64-1	Acetone	1(		UJ
75-15-0	Carbon Disulfide	10		U
75-35-4	1,1-Dichloroethene	10	)	U
75-34-3	1,1-Dichloroethane	10	)	U
156-60-5	trans-1,2-Dichloroethene	10	)	U
156-59-4	cis-1,2-Dichloroethene	10	)	U
67-66-3	Chloroform	10	)	U
107-06-2	1,2-Dichloroethane	10	)	U
78-93-3	2-Butanone	10		U
71-55-6	1,1,1-Trichloroethane	10		U
56-23-5	Carbon Tetrachloride	10	1	U
75-27-4	Bromodichloromethane	10	)	U
78-87-5	1,2-Dichloropropane	10		U
10061-01-5	cis-1,3-Dichloropropene	10		U
79-01-6	Trichloroethene	33	-	
124-48-1	Dibromochloromethane	10		U
79-00-5	1,1,2-Trichloroethane	10		U
71-43-2	Benzene	10		U
10061-02-6	trans-1,3-Dichloropropene	10		U
75-25-2	Bromoform	10		U
108-10-1	4-Methyl-2-Pentanone	10		U
591-78-6	2-Hexanone	10		U
127-18-4	Tetrachloroethene	10		U
79-34-5	1,1,2,2-Tetrachloroethane	10		U
108-88-3	Toluene	10		U
108-90-7	Chlorobenzene	10		<del>-</del>
100-41-4	Ethyl Benzene	10		U
100-42-5	Styrene	10		<del>- Ŭ</del>

## 1A

				173		SAMP	LE NO.
	V	OLATILE	ORGA	NICS ANALY	SIS DATA SHEET	MIV	V-91D
Lab Name: CHEMTE	СН			Contract:	CAMP DRESSER		, -31D
Project No.: <u>L8541ASF</u>	<u> </u>	Site:	NYDEC	Location:	NY	Group:	5970-VOA
Matrix: (soil/water)	WATER	•			Lab Sample ID:	O23025	_
Sample wt/vol:	5.0	(g/mL)	ML		Lab File ID:	N00810.D	
Level: (low/med)	<del>-</del>				Date Received:	5/25/00	_
% Moisture: not dec.	100				Date Analyzed:	5/31/00	
GC Column: DB624		iD:	0.53	_(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		(uL)			Soil Aliquot Volume:		(uL)
				Concentration	on Units:		
CAS No.	Compound			(ug/L or ug/l	(g) ug/L	Q	
1330-20-7	m&p-Xylen	es			10	U	
95-47-6	o-Xylene				10	U	
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SAMPLE NO.

MW-9D

Lab Name: CHEMTECH	Contract:	Contract: CAMP DRESSER & MCKEE		
Project No.: L8541ASP	Site: NYDEC	Location:	NY	Group: 5970-VOA
14				

Matrix: (soil/water) Lab Sample ID: 023026 Sample wt/vol: (g/mL) 5.0 ML Lab File ID: N00811.D

Lab Name: CHEMTECH

Level: (low/med) Date Received: 5/25/00

% Moisture: not dec. 100 Date Analyzed: 5/31/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: Soil Aliquot Volume: (uL)

#### Concentration Units: CAS No. Compound (ug/L or ug/Kg) ug/L Q 74-87-3 Chloromethane 10 Ű 74-83-9 Bromomethane 10 75-01-4 Vinyl Chloride 3.1 J 75-00-3 Chloroethane 10 Ū 75-09-2 Methylene Chloride 10 U 67-64-1 Acetone 10 UJ 75-15-0 Carbon Disulfide 10 75-35-4 1.1-Dichloroethene 10 U 75-34-3 1.1-Dichloroethane Ū 10 156-60-5 trans-1.2-Dichloroethene 2.2 J 156-59-4 cis-1,2-Dichloroethene 460 E 67-66-3 Chloroform 10 Ū 107-06-2 1,2-Dichloroethane 10 U 78-93-3 2-Butanone 10 U 71-55-6 1.1.1-Trichloroethane Ū 10 56-23-5 Carbon Tetrachloride U 10 75-27-4 Bromodichloromethane 10 U 78-87-5 1,2-Dichloropropane U 10 10061-01-5 cis-1.3-Dichloropropene 10 Ū 79-01-6 Trichloroethene 1200 E 124-48-1 Dibromochloromethane 10 79-00-5 1.1.2-Trichloroethane 10 U 71-43-2 Benzene 10 U trans-1,3-Dichloropropene 10061-02-6 10 U 75-25-2 Bromoform 10 108-10-1 4-Methyl-2-Pentanone 10 U 591-78-6 2-Hexanone U 10 127-18-4 Tetrachloroethene 10 79-34-5 1,1,2,2-Tetrachloroethane 10 U 108-88-3 U Toluene 10 108-90-7 Chlorobenzene 10 Ū 100-41-4 Ethyl Benzene 10 U 100-42-5 Styrene 10 Ù

SAMPLE NO.

MW-9D

Lab Name: CHEMTE	CH		Contract:	CAMP DRESSER	& MCKEE
Project No.: L8541ASF	Site:	NYDEC	Location:	NY	Group: 5970-VO
Matrix: (soil/water)	WATER			Lab Sample ID	: O23026
Sample wt/vol:	5.0(g/mL)	ML		Lab File ID	: N00811.D
Level: (low/med)				Date Received	: 5/25/00
% Moisture: not dec.	100			Date Analyzed	5/31/00
GC Column: DB624	ID:	0.53	(mm)	Dilution Factor:	1.0
Soil Extract Volume:	(uL)			Soil Aliquot Volume:	(uL)
CAS No.	Compound		Concentratio (ug/L or ug/k		Q
1330-20-7	m&p-Xylenes			1.3	J
95-47-6	o-Xylene			10	U
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## **VOLATILE ORGANICS ANALYSIS DATA SHEET**

SAMPLE NO.

MW-9DDL Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE

Project No.: L8541ASP Site: NYDEC Location: NY Group: 5970-VOA

Matrix: (soil/water)

WATER Lab Sample ID: O23026DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00824.D

Level: (low/med) Date Received: 5/25/00

% Moisture: not dec. 100 Date Analyzed: 6/1/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 100.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

		Concentration Units:	
CAS No.	Compound	(ug/L or ug/Kg) ug/L	_ Q
74-87-3	Chloromethane	1000	UD
74-83-9	Bromomethane	1000	UD
75-01-4	Vinyl Chloride	1000	UD
75-00-3	Chloroethane	1000	UD
75-09-2	Methylene Chloride	1000	UD
67-64-1	Acetone	1000	UDJ
75-15-0	Carbon Disulfide	1000	UD
75-35-4	1,1-Dichloroethene	1000	UD
75-34-3	1,1-Dichloroethane	1000	UD
156-60-5	trans-1,2-Dichloroethene	1000	UD
156-59-4	cis-1,2-Dichloroethene	750	JD
67-66-3	Chloroform	1000	UD
107-06-2	1,2-Dichloroethane	1000	UD
78-93-3	2-Butanone	1000	UDJ
71-55-6	1,1,1-Trichloroethane	1000	UD
56-23-5	Carbon Tetrachloride	1000	UD
75-27-4	Bromodichloromethane	1000	UD
78-87-5	1,2-Dichloropropane	1000	UD
10061-01-5	cis-1,3-Dichloropropene	1000	UD
79-01-6	Trichloroethene	5300	D
124-48-1	Dibromochloromethane	1000	UD
79-00-5	1,1,2-Trichloroethane	1000	UD
71-43-2	Benzene	1000	UD
10061-02-6	trans-1,3-Dichloropropene	1000	UD
75-25-2	Bromoform	1000	UD
108-10-1	4-Methyl-2-Pentanone	1000	UDJ
591-78-6	2-Hexanone	1000	UDJ
127-18-4	Tetrachloroethene	1000	UD
79-34-5	1,1,2,2-Tetrachloroethane	1000	UD
108-88-3	Toluene	1000	UD
108-90-7	Chlorobenzene	1000	UD
100-41-4	Ethyl Benzene	1000	UD
100-42-5	Styrene	1000	UD

## 1A VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

Lab Name: CHEMTE	СН	Contract: CAMP DRESSER	MW-9DDL
Project No.: L8541ASF	Site: NYDEC	C Location: NY	Group: 5970-VOA
Matrix: (soil/water)	WATER	Lab Sample I	D: O23026DL
Sample wt/voi:	5.0(g/mL)ML	Lab File IC	D: N00824.D
Level: (low/med)	in the	Date Received	d: 5/25/00
% Moisture: not dec.	100	Date Analyzed	d: 6/1/00
GC Column: DB624	ID: 0.53	(mm) Dilution Factor	: 100.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume	e: (uL)
CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
1330-20-7	m&p-Xylenes	1000	UD
95-47-6	o-Xylene	1000	UD
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## VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE

Project No.: L8541ASP Site: NYDEC Location: NY Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O23027

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00807.D

Level: (low/med) Date Received: 5/25/00

% Moisture: not dec. 100 Date Analyzed: 5/31/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_(uL) Soil Aliquot Volume: \_\_\_\_\_(uL)

#### Concentration Units:

CAS No.	Compound	(ug/L or ug/Kg) ug.	L Q
	•		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
156-59-4	cis-1,2-Dichloroethene	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethyl Benzene	10	U
100-42-5	Styrene	10	U

### VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

TRIP BLANK Lab Name: CHEMTECH Contract: CAMP DRESSER & MCKEE Project No.: L8541ASP Site: NYDEC Location: NY Group: 5970-VOA Matrix: (soil/water) WATER Lab Sample ID: O23027 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: N00807.D Level: (low/med) Date Received: 5/25/00 % Moisture: not dec. 100 Date Analyzed: 5/31/00 GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units:

Concentration Units:					
CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q		
1330-20-7	m&p-Xylenes o-Xylene	10	U		
95-47-6	o-Xylene	10	U		
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#### APPENDIX B

DATA SUMMARY FORMS
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

18-WM

Lab Name: CHEMTEC	:H		_ Contract:	CAMP DRESSER	& MCKEE	
Project No. <u>L851</u>		Site: N/A	_ Location:	N/A	Group:	5970-VOA
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O22888	
Sample wt/vol:	5.0	(g/mL) ML	_	Lab File ID:	N00812.D	
Level: (low/med)	<del></del>	_		Date Received:	5/24/00	
% Moisture: not dec.	100	_		Date Analyzed:	5/31/00	
GC Column: DB62	24	ID: 0.53	_(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		_(uL)		Soil Aliquot Volume:		(uL)
Number TICs found:	4	_	Concentrati			

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	- (49.20.	-3.1.3)	<del>-9,-</del>		
CAS Number	Compound Name	RT	Est. Conc.	Q	7
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.65	26	J	7-R
2. 1634-04-4	Propane, 2-methoxy-2-methyl-	3.65	36	JN	7
3. 541-73-1	Benzene, 1,3-dichloro-	18.72	41	JN	7
4. 106-46-7	Benzene, 1,4-dichloro-	19.63	440	JN	1
5.					1
6.					7
7.					1
8.					7
9.					7
10.					1
11.					1
12.					7
13.					1
14.	,				1
15.					1
16.					1
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18.					1
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SAMPLE NO.

MW-10D

Lab Name: CHEMTEC	)H		Contract:	CAMP DRESSER	& MCKEE	
Project No. <u>L851</u>		Site: N/A	Location:	N/A	Group:	5970-VO
Matrix: (soil/water)	WATER	_		Lab Sample ID	: O22889	
Sample wt/vol:	5.0	_(g/mL) <u>ML</u>		Lab File ID	: N00813.D	
Level: (low/med)		<u>.</u>		Date Received	: 5/24/00	
% Moisture: not dec.	100	_		Date Analyzed	:_5/31/00	
GC Column: DB62	24	ID: <u>0.53</u> (r	nm)	Dilution Factor:	1.0	
Soil Extract Volume:	- · · · · · · · · · · · · · · · · · · ·	_(uL)	9	Soil Aliquot Volume:	:	(uL)
Number TICs found:	0	С	oncentratio			

ind: U	(ug/L or ug/kg) ug/L					
CAS Number	Compound Name	RT	Est. Conc.	Q		
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2.						
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SAMPLE NO.

MW-10DDL

Lab Name: CHEMTEC	H			_ Contract:	CAMP DRESSER	& MCKEE	
Project No. <u>L851</u>		Site:	N/A	_ Location:	N/A	Group:	5970-VO
Matrix: (soil/water)	WATER	_			Lab Sample ID:	O22889DI	-
Sample wt/vol:	5.0	_(g/mL)	ML	_	Lab File ID:	N00825.D	
Level: (low/med)		<u>.</u>			Date Received:	5/24/00	
% Moisture: not dec.	100				Date Analyzed:	6/1/00	
GC Column: DB62	.4	. ID:	0.53	_(mm)	Dilution Factor:	100.0	
Soil Extract Volume:		(uL)		;	Soil Aliquot Volume:		(uL)
Number TICs found:	1			Concentration			

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CAS Number	Compound Name	RT	Est. Conc.	Q	]
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.65	1700	4	1R
2.					1 '
3.					1
4.					1
5.					1
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9.					1
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SAMPLE NO.

MW-11D

				_			
Lab Name: CHEMTEC	H	<del></del>		Contract:	CAMP DRESSER	& MCKEE	
Project No. <u>L851</u>		Site:	N/A	Location:	N/A	Group:	5970-VO
Matrix: (soil/water)	WATER				Lab Sample ID:	O22890	
Sample wt/vol:	5.0	_(g/mL)	ML		Lab File ID:	N00814.D	
Level: (low/med)					Date Received:	5/24/00	
% Moisture: not dec.	100	****			Date Analyzed:	5/31/00	,
GC Column: DB62	24	_ iD:	0.53	(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		_(uL)		9	Soil Aliquot Volume:		(uL)
Number TICs found:	. 0		(	Concentration (ug/L or u			

(ug/L or ug/Kg) ug/L

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CAS Number	Compound Name	RT	Est. Conc.	Q
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SAMPLE NO.

MW-11DDL

Lab Name: CHEMTEC	Н		_ Contract:	CAMP DRESSER	& MCKEE	
Project No. <u>L851</u>		Site: N/A	_ Location:	N/A	Group:	5970-VO
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O22890DL	
Sample wt/vol:	5.0	_(g/mL) ML	_	Lab File ID:	N00826.D	
Level: (low/med)		_		Date Received:	5/24/00	
% Moisture: not dec.	100	_		Date Analyzed:	6/1/00	
GC Column: DB62	24	ID: 0.53	_(mm)	Dilution Factor:	100.0	
Soil Extract Volume:		_(uL)	5	Soil Aliquot Volume:		(uL)
Number TICs found:	1	-	Concentration (ug/L or u			
<u> </u>	A.1 . 1					



CAS Number	Compound Name	RT	Est. Conc.	Q	] ^
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.65	1600		1—P
2.					
3.					1
4.					1
5.					1
6.					1
7.					1
8.					1
9.					1
10.					1
11.					1
12.					1
13.					1
14.					1
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SAMPLE NO.

MW-6I

Lab Name: CHEMTEC	<u>H</u>		_ Contract:	CAMP DRESSER	& MCKEE
Project No. L851		Site: N/A	_ Location:	N/A	Group: 5970-VO
Matrix: (soil/water)	WATER	-		Lab Sample ID:	O22891
Sample wt/vol:	5.0	(g/mL) ML	_	Lab File ID:	N00815.D
Level: (low/med) _		-		Date Received:	5/24/00
% Moisture: not dec	100	•.		Date Analyzed:	5/31/00
GC Column: DB62	4	ID: <u>0.53</u>	_(mm)	Dilution Factor:	1.0
Soil Extract Volume:		(uL)	\$	Soil Aliquot Volume:	(uL)
Number TICs found:	1		Concentration (ug/L or u		



CAS Number	Compound Name	RT	Est. Conc.	Q	7
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.64	19	J	┼
2.					7
3.					1
4.					1
5.					1
6.					1
7.					1
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12.					1
13.					1
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SAMPLE NO. FB052400\_FIELDBLA

Lab Name: CHEMTEC	NLI		Combrach	CAMP PRESSET		
Lab Name. Chewie	,n		_ Contract:	CAMP DRESSER	& MCKEE	
Project No. <u>L851</u>		Site: N/A	_ Location:	N/A	Group:	5970-VO
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O22894	
Sample wt/vol:	5.0	_(g/mL) <u>ML</u>	_	Lab File ID:	N00809.D	
Level: (low/med)	<u></u>			Date Received:	5/24/00	
% Moisture: not dec.	100	~		Date Analyzed:	5/31/00	
GC Column: DB62	24	ID: <u>0.53</u>	_(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		_(uL)		Soil Aliquot Volume:		(uL)
			Concentration	on Units:		
Number TICs found:	1	-	(ug/L or u	g/Kg) <u>ug/L</u>		
CAS	Number	Compou	nd Name	RT Est. Conc.	Q	

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.65	30	JN
2.				
3.				
4.				
5.				
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SAMPLE NO.

MW-6R

Lab Name: CHEMTEC	Н			Contract:	CAMP DRESSER	& MCKEE	
Project No. <u>L851</u>		Site:	: <u>N/A</u>	Location:	N/A	Group:	5970-VO
Matrix: (soil/water)	WATER	_			Lab Sample ID:	O22895	
Sample wt/vol:	5.0	_(g/mL)	ML		Lab File ID:	N00816.D	
Level: (low/med)		-			Date Received:	5/24/00	
% Moisture: not dec.	100				Date Analyzed:	5/31/00	
GC Column: DB62	24	_ ID:	0.53	(mm)	Dilution Factor:	1.0	
Soil Extract Volume:		_(uL)		5	Soil Aliquot Volume:		(uL)
Number TICs found:	2			Concentratio			

NU5

		<b>-9</b> , (9)	ug/L		
CAS Number	Compound Name	RT	Est. Conc.	Q	7 ^
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.65	27	J-	1_R
2. 1634-04-4	Propane, 2-methoxy-2-methyl-	3.66	18	JN	1
3.					7
4.					
5.					1
6.					1
7.					1
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9.					1
10.					1
11.					1
12.					1
13.					1
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18.					1
19.					1
20.					1
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SAMPLE NO.

TRIPBLANK

Lab Name: CHEMTECH		Contract:	CAMP DRESSER	& MCKEE
Project No. L851	Site: N/A	Location:	N/A	Group: 5970-VOA
Matrix: (soil/water) WATER			Lab Sample ID:	O22896
Sample wt/vol: 5.0	_(g/mL) <u>ML</u>	-	Lab File ID:	N00808.D
Level: (low/med)			Date Received:	5/24/00
% Moisture: not dec. 100	_		Date Analyzed:	5/31/00
GC Column: DB624	ID: 0.53	(mm)	Dilution Factor:	1.0
Soil Extract Volume:	_(uL)	\$	Soil Aliquot Volume:	(uL)
Number TICs found: 1		Concentration		
CAS Number	- Compour	(ug/L or ug	g/Kg) <u>ug/L</u> BT   Est Conc.	0 ]

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.65	35	JN
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SAMPLE NO.

MW-9ID

Lab Name: CHEMTECH		Contract:	CAMP DRESSER	& MCKEE
Project No. <u>L854</u>	Site: NYDEC	Location:	NY	Group: 5970-VO
Matrix: (soil/water) WAT	R		Lab Sample ID:	O23025
Sample wt/vol: 5.0	(g/mL) ML		Lab File ID:	N00810.D
Level: (low/med)	<del></del>		Date Received:	5/25/00
% Moisture: not dec. 100			Date Analyzed:	5/31/00
GC Column: DB624	ID: <u>0.53</u> (	mm)	Dilution Factor:	1.0
Soil Extract Volume:	(uL)	S	Soil Aliquot Volume:	(uL)
Number TiCe found	C	Concentratio	on Units:	

(ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.65	28	-JW
2.	Methyl tert-Butyl Ether	3.66	8.6	JN
3.	1,2-Dichlorobenzene	19.63	8.6	JN
4.				
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SAMPLE NO.

MW-9D

Lab Name: CHEMTEC	Н		Contract:	CAMP DRESSER	& MCKEE
Project No. L854		Site: NYDEC	Location:	NY	Group: <u>5970-VO</u>
Matrix: (soil/water)	WATER	_		Lab Sample ID:	O23026
Sample wt/voi:	5.0	_(g/mL) ML	_	Lab File ID:	N00811.D
Level: (low/med)		_		Date Received:	5/25/00
% Moisture: not dec.	100	_		Date Analyzed:	5/31/00
GC Column: DB62	.4	ID: 0.53	_(mm)	Dilution Factor:	1.0
Soil Extract Volume:		_(uL)	(	Soil Aliquot Volume:	(uL)
Number TICs found:	1		Concentration		



CAS Number	Compound Name	RT	Est. Conc.	Q	
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.65	28	46	1
2.					7
3.					1
4.					7
5.					7
6.					1
7.					1
8.					1
9.					1
10.					1
11.					1
12.					1
13.					1
14.					1
15.					1
16.					1
17.					1
18.					
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SAMPLE NO.

MW-9DDL

Lab Name: CHEMTEC	Н	mark of	Contract:	CAMP DRESSER	& MCKEE
Project No. L854		Site: NYDEC	Location:	NY NY	Group: 5970-VO
Matrix: (soil/water)	WATER			Lab Sample ID:	O23026DL
Sample wt/vol:	5.0	_(g/mL) <u>ML</u>		Lab File ID:	N00824.D
Level: (low/med)		_		Date Received:	5/25/00
% Moisture: not dec	100			Date Analyzed:	6/1/00
GC Column: DB62	4	ID:0.53(	(mm)	Dilution Factor:	100.0
Soil Extract Volume:		_(uL)	5	Soil Aliquot Volume:	(uL)
Number TICs found:	1	(	Concentratio		

\\( \)

<u> </u>	(ug/L 0	r ug/kg)	ug/L		
CAS Numbe		RT	Est. Conc	. Q	7
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.65		-JN	1 /
2.					7 '
3.					1
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\_SAMPLE NO.

TRIP BLANK

Lab Name: CHEMTEC	H		Contract:	CAMP DRESSER	& MCKEE
Project No. <u>L854</u>		Site: NYDEC	Location:	NY	Group: 5970-VO
Matrix: (soil/water)	WATER			Lab Sample ID	: <u>O23027</u>
Sample wt/vol:	5.0	(g/mL) ML		Lab File ID	: N00807.D
Level: (low/med)				Date Received	:_5/25/00
% Moisture: not dec	100	_		Date Analyzed:	5/31/00
GC Column: DB62	4	ID: <u>0.53</u> (m	nm)	Dilution Factor:	1.0
Soil Extract Volume:		_(uL)	8	Soil Aliquot Volume:	(uL)
Number TICs found:	1		oncentratio (ug/L or uç		

CAS Number	Compound Name	1 DT	<u></u>	
	Compound Name		Est. Conc	<del></del>
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	2.63	37	JW
2.				
3.				
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APPENDIX C

DATA QUALIFIERS

#### **ORGANIC DATA QUALIFIERS**

- U Indicates that the compound was analyzed for, but not detected at or above the Contract Required Quantitation Limit (CRQL), or the compound is not detected due to qualification through the method or field blank.
- J The associated numerical value is an estimated quantity.
- JN Tentatively identified with approximated concentrations (Volatile and Semi-Volatile Organics). Presumptively present at an approximated quantity (Pesticides/PCBs).
- UJ The compound was analyzed for, but not detected. The sample quantitation limit is an estimated quantity due to variance from quality control limits.
- C Applies to Pesticide results where the identification has been confirmed by GC/MS.
- E Reported value is estimated due to quantitation above the calibration range.
- D Reported result taken from diluted sample analysis.
- A Aldol condensation product.
- R Reported value is unusable and rejected due to variance from quality control limits.
- NA Not Analyzed.

APPENDIX D

**CASE NARRATIVES** 



#### **CASE NARRATIVE**

CAMP Dresser & MCKEE
Project Name: # NYDEC/Swievlier
Project # 0897-22804-TK9.GWS
Chemtech Project # L8519ASP

#### A. Number of Samples and Date of Receipt

5 Aqueous, Field Blank, A Trip Blank plus MS/MSD were delivered to the laboratory intact on 05/24/00.

#### **B.** Parameters

Test requested was Volatile Organics. This data package contains results for Volatile Organics.

#### C. Analytical Techniques:

Samples were analyzed for Volatile Organics according Method CLP Methodology. The analyses were performed on instruments VOA5, using GC column RTX624 which is 75 meters, 0.53mm ID, 3.0mm df (crossbond 6% cyanopropylphenyl-94%) dimethylpolysiloxane. The Purge Trap was supplied by Supelco, VO CARB 3000, Tekmar 3000.

#### D. QA/QC Samples:

The Surrogate Recoveries for each sample are found in Form II-A. Initial Calibration of Single Component Analytes results are found on Form 6 D & E. The Matrix Spike and Matrix Spike Duplicate were analyzed and are reported on Form 3F.

System Monitoring Compound recoveries were acceptable. MS/MSD recoveries and RPDs met requirements. Internal Standard Areas and Retention Times met criteria. Calibrations met requirements. Blank analyses did not indicate the presence of contamination.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature Widnes V. Reyes	Name: Mildred V. Reyes
Date: (0/6/00	Title:_QA/QC

COVER PAGE

Lab Name: Chemtech Consulting Group

Client: CAMP DRESSER & MCKEE Lab Code: CHEM Project No.: L8519ASP Project Name: NYDEC/SWIEVLIER

Client Sample No.	
	Lab Sample ID
MW-8I	22888
MW-10D	
MW-11D	22889
MW-61	22890
	22891
MW-6IMS	22892
MW-6IMSD	<del>-</del>
FB052400 (FIELDBLANK)	22893
•	22894
MW-6R	22895
TRIPBLANK	22896
	22030

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designed, as verified by the following signature.

Signature:	Mildred V. Leyes	Name: MILDRED V.REY	es .
Date :	6/6/00	Title: QA/QC	001
	Sinca 106	7	



#### **CASE NARRATIVE**

CAMP Dresser & MCKEE
Project Name: # NYDEC/Swievlier
Project # 0897-22804-TK9.GWS
Chemtech Project # L8541ASP

#### A. Number of Samples and Date of Receipt

5 Aqueous, Field Blank, A Trip Blank plus MS/MSD were delivered to the laboratory intact on 05/24/00.

35

#### **B. Parameters**

Test requested was Volatile Organics. This data package contains results for Volatile Organics.

#### C. Analytical Techniques:

Samples were analyzed for Volatile Organics according Method CLP Methodology. The analyses were performed on instruments VOA5, using GC column RTX624 which is 75 meters, 0.53mm ID, 3.0mm df (crossbond 6% cyanopropylphenyl-94%) dimethylpolysiloxane. The Purge Trap was supplied by Supelco, VO CARB 3000, Tekmar 3000.

#### D. QA/ QC Samples:

The Surrogate Recoveries for each sample are found in Form II-A. Initial Calibration of Single Component Analytes results are found on Form 6 D & E. The Matrix Spike and Matrix Spike Duplicate were analyzed and are reported on Form 3F.

System Monitoring Compound recoveries were acceptable. MS/MSD recoveries and RPDs met requirements. Internal Standard Areas and Retention Times met criteria. Calibrations met requirements. Blank analyses did not indicate the presence of contamination.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature_	Hildred D. Rugs	Name: Mildred V. Reyes
Date:	6/7/00	Title:_QA/QC



COVER PAGE

Lab Name: Chemtech Consulting Group
Lab Code: CHEM Project No.: L8541ASP

Client: CAMP DRESSER & MCKEE
Project Name: NYDEC/SWIEVLIER

Client Sample No.

MW-9ID

MW-9D

TRIPBLANK

Lab Sample ID

23025

23026

23027

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designed, as verified by the following signature.

Signature: Wolled V. Reyes Name: MILDRED V. REYES

Date: 6/7/80

\_Title: QA/QC

002

Since 1967

#### APPENDIX E

**CHAIN-OF-CUSTODY FORMS** 

# CHAIN OF CUSTODY RECORD

In 110 Route 4
Englewood, NJ 07631
(201) 567-6868
Fax (201) 567-1333

205 Campus Plaza 1 Edison, NJ 08837 (732) 225-4111

Fax (732) 225-4110

Please check one:

515 Route 9 South Barnegat, NJ 08005 (609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO .:	
	L8-519
CHEMTECH QUOTE NO .:	

	CLIENT INFORMATION			PROJ	ECT INFO	PMAT	MOI									
	REPORT TO BE SENT TO:				2011111	ZIIMAI	ION					Bi	LLING	INFOR	MATION	
COMPANY: <	AMP DRESSER + Mckee	PROJE	ECT NAI	ME:NY/	ec/	5 W	1004	ien	BILL	.TO: <	SAM				BO #-	
ADDRESS:	BARITAN PHAZA ONE	1						9. GWS		RESS:					PO #:	
CITY: ED.	ISON STATE NJ ZIP:088/8			NAGER: 🙈					CITY							
ATTENTION:	BRIAN FARELLY			V A N U					1			······································		STA	TE: Z	IP:
	(5-7000 FAX: 225-7851	PHONE		-		AX:			ALIE	NTION:			AN.	PHO		
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4. 91	MW-6T NO				1235		$\downarrow \searrow \downarrow$		<del> </del>	ļ		ļ	ļ			
	MW-6IMS 9			+	1315	12			ļ	<u> </u>						
6. 43	MW-GTMSD				1320	2										
7. 94				<del>                                     </del>	1325											
8. 95	FB 05 2400 (FIELD BL) MW-6R	1		,   ], -		2										
		CHARNE	7			2	X									
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3.	5/24/00 RECEIVED FOR LAI		10-	Page		of			Shipme	nt Comp	olete:	Yes			No	

# CHAIN OF CUSTODY RECORD

☐ 110 Route 4
Englewood, NJ 07631
(201) 567-6868
Fax (201) 567-1333

205 Campus Plaza 1 Edison, NJ 08837 (732) 225-4111 Fax (732) 225-4110

515 Route 9 South Barnegat, NJ 08005 (609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.:

L8519 A2

CHEMTECH QUOTE NO.:

	CLIENT INFORMATION	The state of the s			PROJE	CT INFO	RMATI	ON						BIL	LING I	NFORM	ATION			
	REPORT TO BE SENT TO:						/	,								0111417	11011			
COMPANY: CAMP DRESSER + McKee				PROJECT NAME: NYDEC/SWIEVILLEN								BILL TO: 5AMP PO#:								
ADDRESS: BARITAN PLAZA ONE				PROJECT NO. 0897-22804-TK9, 6WS									ADDRESS: 19 CLIENT							
CITY: EDISON STATEN J ZIP: 08818				PROJECT MANAGER: BRIAN FARCILY							CITY:				STATE: ZIP:					
ATTENTION: BRIAN FARELLY (732)				ON: M	ANO	NUET N.Y						NTION:			PHONE:					
	5-7000 FAX: ZZ:	5-7851	PHONE: FAX:											ANA	LYSIS					
	DATA TURNAROUND INFORMA	TION		177.00													//			
FAX: DAYS * HARD COPY: DAYS * EDD: DAYS * * TO BE APPROVED BY CHEMTECH * NORMAL TURNAROUND TIME - 14 DAYS				DATA DELIVERABLE INFORMATION  RESULTS ONLY  USEPA CLP  NYS ASP "B"  NJ REDUCED  NY DEC NYS ASP "A"  NJ CLP 5 4 PER FUNDEDD  EDD FORMAT:  CATAGORY REPORTING 1 12 2 3 4 5 6 7 8 9																
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1.72896	TAIP BLAN	1	AQ	X	5/24/00		2	X	-	J	-	3	6		8	9	E - ICE	F - Other		
2.			1		7			/						<u> </u>						
3.									<b>†</b>		<del>                                     </del>	1			<b></b>	7				
4.							1		<del> </del>	<u> </u>							<del>/</del>			
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RELINQUISHED BY:	BBY: Red	el.	Page	Pageof						Shipment Complete: YesNo										

CHEMIECH
CHAIN OF CUSTODY RECORD

☐ 110 Route 4 Englewood, NJ 07631 (201) 567-6868 Fax (201) 567-1333

205 Campus Plaza 1 Edison, NJ 08837 (732) 225-4111 Fax (732) 225-4110

☐ 515 Route 9 South Barnegat, NJ 08005 (609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.: L8541AS

CHEMTECH QUOTE NO .:

A STATE OF THE STATE OF	CLIENT INFORMATION	PROJECT INFORMATION											DISTRIC MISCONIC							
REPORT TO BE SENT TO:														BILLING INFORMATION						
COMPANY: CAMP DRESSER +M-KEC			PROJEC	PROJECT NAME: NYDEC SNIEVAICA BILL TO: SI							SAI	419C PO#:								
ADDRESS: RARITAN PLAZA ONC				7780//											AS , CIJENT					
CITY: L=DISON STATENT ZIP:088/8				PROJECT MANAGER: BRIAN FARCALY											STATE: ZIP:					
ATTENTION: BRIAN FARCLLY (732) (732)				LOCATION: NANGET N.Y.										ATTENTION: PHONE:						
PHONE: 42	5-7000 FAX: 225	-7851	PHONE:			FA	٧.							ANALYSIS						
	DATA TURNAROUND INFORMAT	ION		DAT	A DELIVE			ATION								/		/ /		
FAX: DAYS * HARD COPY: DAYS * EDD: DAYS * * TO BE APPROVED BY CHEMTECH NORMAL TURNAROUND TIME - 14 DAYS *				DATA DELIVERABLE INFORMATION    RESULTS ONLY										4 5 6 7 8 9						
CHEMTECH													PRESERVATIVES COMM							
SAMPLE ID	SAMPLE IDENTIFIC	ATION	SAMPLE MATRIX	COMP GRAB		TIME	OF BOTTLES		2								← Specify A – HCI C – H <sub>2</sub> SO <sub>4</sub>	Preservatives B - HNO <sub>3</sub> D - NaOH		
123025	MW-9ID		AQ	X	1 / /	1120		1/	2	3	4	5	6	7	8	9	E - ICE	F - Other		
2. 1 26	1111-90		1		12200	Ť	7	0	1								<del></del>			
3. 27	26 MW-9D -27 TRIP BLANK			-	+	1230	2	1												
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