01078

GROUNDWATER MONITORING REPORT
ASH LANDFILL
FIRST QUARTER 2003

Prepared for:

SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK
And
U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE, ALABAMA

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1 INTRODUCTION

This report summarizes results of the First Quarter 2003 (1Q 2003) groundwater sampling and monitoring activities at the Ash Landfill Operable Unit (Ash Landfill) at the Seneca Army Depot Activity (SEDA), Romulus, New York. The goal of groundwater monitoring at the Ash Landfill is to monitor the extent of the well-defined chlorinated ethene contaminant plume at this operable unit and to determine the effectiveness of the existing iron reactive barrier, also known as the permeable reactive barrier (PRB). This work was performed in accordance with the requirements of Delivery Order 0010 of Contract DACA87-02-D-005.

Historic groundwater data is combined with information collected during the 1Q 2003 sampling event to evaluate flow and chemistry in the shallow groundwater aquifer at the Ash Landfill. **Section 2.0** provides a summary of quarterly monitoring activities, **Section 3.0** provides a summary of monitoring results, and **Section 4.0** summarizes the results and conclusions drawn from the 1Q 2003 sampling and monitoring event.

1.1 SITE BACKGROUND

The Ash Landfill site was initially estimated to encompass an area of approximately 130 acres at the SEDA. This larger area was investigated to ensure that no previously unknown waste disposal areas were overlooked. Following the remedial investigation (RI), the area of the Ash Landfill site was refocused to an area of approximately 23 acres. This area is comprised of five Solid Waste Management Units (SWMUs) including: the Ash Cooling Pond (SEAD-3), the Ash Landfill (SEAD-6), the Non-Combustible Fill Landfill (NCFL) (SEAD-8), the Refuse Burning Pits (SEAD-14), and the Abandoned Solid Waste Incinerator Building (SEAD-15). SEAD-14 is also known as the Debris Piles. The Ash Landfill (SEAD-6) also includes a groundwater plume that emanates from the northern western side of the landfill area.

A non-time critical removal action, also known as an interim remedial measure (IRM), was conducted by the Army between August 1994 and June 1995, under the requirements of the CERCLA. Only soils within the area known as the "Bend in the Road" were excavated and treated. Soil within the area was identified during the RI as the source of groundwater contamination. The IRM consisted of excavation and thermal treatment of volatile organic compounds (VOCs) impacted soils using the Low Temperature Thermal Desorption (LTTD) process. The objectives of the IRM were to thermally treat VOCs and polycyclic aromatic hydrocarbons (PAHs) in soils at two source areas near the "Bend in the Road" where sampling identified elevated concentrations of VOCs and PAHs. The IRM thermal treatment project provided a positive benefit for the long-term remedial action by eliminating continued leaching of VOCs into groundwater and by preventing further exposure to humans and wildlife.

In December 1998, a 650-foot long permeable reactive iron wall (PRB) was installed approximately 100 feet east of the railroad tracks near the property line along the south of the ash landfill site. The

wall was installed as a demonstration project to show that the PRB could be effective in reducing the concentrations of chlorinated ethenes through reductive dechlorination. The wall was constructed by placing a mixture of 50 percent zero valent reactive iron granules and 50 percent sand in a trench with a width of 14 inches and a depth ranging from 7 to 12 feet. Monitoring wells were installed upgradient, downgradient and within the wall to monitor its effectiveness. Groundwater sampling has been performed quarterly at these wells since the wall installation.

2 QUARTERLY MONITORING ACTIVITIES

Activities related to the 1Q 2003 sampling round at the Ash Landfill included a comprehensive gauging of all associated monitoring wells for groundwater elevations and collection of groundwater samples for laboratory analysis at 32 monitoring locations including monitoring wells on the site and at a neighboring farm house. Chemical analysis included field measurements of natural attenuation properties, as well as a certified laboratory analysis. A detailed description of these activities is provided below.

2.1 GROUNDWATER ELEVATION MEASUREMENTS

A round of groundwater elevation data was collected on March 14, 2003 by Parsons personnel prior to the commencement of sampling at the Ash Landfill. Depth to groundwater was measured from the top of the well casing using a Solnist® electronic water level indicator. The actual groundwater elevations were later calculated by subtracting the field measured depth to groundwater from the previously recorded surveyed elevation from a fixed point at the top of each well casing.

2.2 GROUNDWATER SAMPLING

Groundwater sampling occurred at the Ash Landfill from March 24 through April 2, 2003. Parsons collected groundwater samples from 29 monitoring wells, one farmhouse well, and two additional areas near the farmhouse, for a total of 32 monitoring locations. Groundwater samples were collected following EPA Region II low-flow groundwater sampling procedures. All monitoring wells were purged using a QED bladder pump and dedicated Teflon® tubing that was connected to a flow through cell in advance of using low-flow sampling techniques. A Horiba U-22 Water Quality Monitoring System (Horiba, Ltd., Kyoto, Japan) was used to establish stabilization of groundwater quality by measuring the following parameters: pH, temperature, specific conductivity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity. These parameters were recorded at regular intervals during purging. Purge volume was estimated based on the water column height and diameter of the well. Wells were sampled when one of the following occurred: 1) groundwater quality stabilization was achieved; or 2) five well volumes were extracted from the well. Groundwater quality stabilization was defined using USEPA Region 2 Guidance on low-flow sampling procedures, which recommends that groundwater quality stabilization be defined by three consecutive readings of pH within ±0.1 standard units, specific conductivity within ±3%, temperature, turbidity and DO within

±10%, and ORP within ±10 mV. A final round of groundwater quality values were recorded after parameter stabilization and immediately prior to groundwater collection for laboratory sampling. The recorded values are considered the parameters at the time of sampling. Immediately following well purging, tubing was disconnected from the flow-through cell (to reduce the potential for cross-contamination and volatilization) and samples were collected.

The shallow aquifer well located outside the farmhouse was sampled using a new certified clean Teflon® bailer.

2.3 GROUNDWATER ANALYSES

The groundwater samples collected at the site were analyzed for VOCs, nitrates, sulfate, chlorides, methane/ethane/ethene (MEE), metals (Ca, Na, K, Mn, Mg), and dissolved organic carbon (DOC). The groundwater quality-sampling matrix for the 32 sampling locations included in the 1Q 2003 sampling event is included in **Table 2-1**. As shown on the sample matrix (Table 2-1), three duplicates, six quality assurance/quality control (QA/QC), and three rinsate blanks were collected as part of the groundwater sampling program.

Each monitoring location was also field tested for alkalinity, carbon dioxide, hydrogen sulfide and ferrous iron as indicated in Table 2-1. A Model DR/700 colorimeter (Hach Company, Loveland, CO) was used to measure hydrogen sulfide and ferrous iron, and a Model AL-APMG-L test kit (Hach Company, Loveland, CO) was used to measure alkalinity and carbon dioxide. Based on the result of the field chemistry analysis, it appears that the equipment was not working properly at the time of sample analysis. The associated data for these analyses was subsequently disregarded. This information will be collected during the next quarterly sampling round.

Groundwater samples were collected and sent to General Engineering Laboratories (GEL; Charleston, SC) for analysis of VOCs, metals, nitrates, sulfate, chlorates, MEE and DOC. Methods associated with the analysis are listed in Table 2-1. It should be noted that VOC concentrations were measured using two different methods, USEPA Methods 524.2 and 8260B. In general, samples collected from locations near the reactive wall were analyzed using USEPA Method 524.2, which has a lower detection limit and can report concentrations of cis-1,2-dichloroethene (cis-1,2-DCE) and trans-dichloroethene (trans-DCE). Samples collected from locations further upgradient or downgradient of the wall were analyzed using USEPA Method 8260B, which is a more powerful method; however this method has limited ability to decipher between cis- and trans-DCE. In wells downgradient of the wall, concentrations of chlorinated ethenes are expected to be lower than concentrations in other regions of the plume.

The Missouri River Division (MRD) of the US Army Corps of Engineers (USACOE) analyzed three QA sample (MWT-6, MWT-8, and PT-12A) for VOCs (Methods 524.2 and 8260B).

3 QUARTERLY MONITORING RESULTS

3.1 GROUNDWATER ELEVATION CONDITIONS

Groundwater elevations recorded during the 1Q 2003 sampling round, as well as historical maximum and minimum measured concentrations, are recorded in **Table 3-1**. The calculated Mean Sea Level (MSL) groundwater elevations are also calculated in Table 3-1 to determine saturated thickness within the aquifer. Based on a review of the historical data of the 60 monitoring wells listed in Table 3-1, the average seasonal variation in groundwater elevation is 6 ft and the maximum-recorded seasonal variation in groundwater elevation is 13.52 ft (MW-50D). The saturated thickness at monitoring wells in and around the permeable reactive barrier ranged between 4.45 ft (MWT-2) and 10.05 ft (MWT-8). **Appendix A** contains a summary of all groundwater elevation data collected at the Ash Landfill between 1995 and 1Q 2003.

Only 29 of the 38 wells with recorded groundwater elevations were sampled. The additional gauged wells were recorded to aid in creating a more comprehensive groundwater contour map in **Figure 3-1**. The groundwater flow direction is generally to the west, as seen in Figure 3-1, with an average horizontal hydraulic gradient of approximately 0.02 $^{ft}/_{ft}$ (Feasibility Memorandum for Groundwater Remediation Alternatives using Zero Valence Iron Continuous Reactive Wall at the Ash Landfill, August 2000). The 1Q 2003 groundwater elevation data are consistent with recorded groundwater elevations at the Ash Landfill site at this time of the year in previous years. The elevations near the well show that the groundwater flows through the wall at all locations during low flow conditions.

3.2 GROUNDWATER ANALYTICAL RESULTS – DOWNGRADIENT TOWARDS PRB

Field monitoring parameters measured prior to the collection of the analytical groundwater samples are presented in **Table 3-2**. Analytical results for the 1Q 2003 groundwater samples are presented in **Tables 3-3** and **3-4**. The complete laboratory report from General Environmental Laboratories is presented in **Appendix B**. Table 3-3 presents all analytical data collected and analyzed by the laboratory. Table 3-4 provides a summary of wells with detected VOCs (both methods) only. The results indicate that Trichloroethene (TCE) was detected in 14 sample locations and exceeded the GA groundwater standard of 5 µg/L in 9 locations (MW-20, MW-44A, MW-53, MWT-1, MWT-4, MWT-7, PT-12A, PT-17, and PT-18). All the locations exceeding the GA groundwater standard are upgradient of the permeable reactive barrier (PRB). As shown in **Figure 3-2**, TCE concentrations below the PRB are lower than those recorded upgradient of the PRB. This is a strong preliminary indication, based solely on the VOC results, that the PRB is working as designed. Cis-1,2-dichloroethene (cis-1,2-DCE) was detected in 20 locations and exceeded the GA standard of 5 µg/L in sixteen sample locations. Figure 3-2 reflects these results. The maximum detected concentrations of TCE and cis-1,2-DCE in groundwater were 599 µg/L and 667 µg/L, respectively, in well PT-12A, which is located downgradient of the original contamination source, but within the measured pathway of the plume. Significant levels

of TCE (268 μg/L) and cis-1,2-DCE (61.7 μg/L) were also detected in well PT-17, which is downgradient of PT-12A and upgradient of the permeable reactive barrier (PRB).

A historical comparison, the October 1999 total chlorinated ethenes groundwater data compared with the March 2003 total chlorinated ethenes groundwater data, in the aquifer is presented in **Figure 3-3**. The reduction of total chlorinated ethene concentrations within the aquifer and the migration of the plume downgradient is clearly depicted in the Figure. The decrease of total chlorinated ethenes in the vicinity of MW-44A, PT-18 and PT-12A indicates that the source is clearly degrading in this area. These wells are directly associated with the IRM (removal of the source area) which occurred from 1994 - 1995. Since the removal, PT-12A, PT-18 and MW-44A have seen a marked decrease in TCE and cis-1,2-DCE concentrations as shown in the individual trend analysis graphs (**Figures 3-4** to **3-6**).

The migration of total chlorinated ethenes downgradient of the source area is evident in the concentration increase in PT-17 from January 1997 to March 2003, which have steadily increased from 46 ug/L of TCE to 268 ug/L of TCE in March 2003 (**Figure 3-7**). These results are also evident in the change in the pathway and concentrations in Figure 3-3 from October 1999 to March 2003. It should also be noted that PT-17 is located downgradient of the removed source area but before the PRB (Figure 3-3). It can be concluded that the contaminant slug is moving through PT-17 towards the wall. The comparative trend maps shown in Figure 3-3 shows a marked increase in total chlorinated ethene concentrations moving downgradient toward the reactive wall. The shape of the plume is also reducing in size on the north end of the site and expanding along the length of the reactive wall, downgradient towards the south. During low flow conditions, the groundwater may migrate laterally within the wall.

3.3 GROUNDWATER ANALYTICAL RESULTS – VICINITY OF PRB

During the 1Q 2003 sampling event, samples were collected from three well tiered groupings that transect the existing PRB. Each cluster consists of three wells, one in the PRB, one upgradient, and one downgradient of the PRB. The three well groupings are MWT-1, MWT-2, and MWT-3; MWT-4, MWT-5, and MWT-6; and MWT-7, MWT-8, and MWT-9. As shown on **Figure 3-8**, wells MWT-1, MWT-4, and MWT-7 are located immediately upgradient of the PRB and wells MWT-3, MWT-6, and MWT-9 are located immediately downgradient of the PRB. Wells MWT-2, MWT-5, and MWT-8 are located in the middle of the PRB. The well groupings with the three wells spaced at approximately four foot intervals from one another allow the wells to be evaluated more effectively in terms of whether the PRB is enhancing the attenuation of chlorinated ethenes from the groundwater at the Ash Landfill. The maximum measured TCE concentration was 391 μg/L at monitoring well MWT-7. Monitoring well MWT-7 is located on the southern end of the wall, upgradient of the barrier, as shown on the enlarged figure of the reactive wall in Figure 3-8. The maximum measured cis-1,2-DCE concentration in wells near the PRB was 44.8 μg/L at MWT-8. Monitoring well MWT-8 is located within the same cluster as MWT-7 but downgradient of the wall. Detectable levels of cis-1,2-DCE above the GA standard

(5 μg/L) were found at all four monitoring wells that are immediately downgradient of the PRB (MWT-3, MWT-6, MWT-9, and PT-24), with a maximum concentration of 35.2. μg/L at PT-24. In the same grouping of wells, MWT-6 had no TCE detection and MWT-9 detected TCE at a concentration of 70.2 ug/L, which is above the GA standard. The wells positioned within in the actual PRB (MWT-2, 5 and 8) had no TCE detections. No detectable levels of chlorinated ethenes were found in groundwater samples from the farmhouse area (BN-S, FH-D, and FH-S), which are also located downgradient of the PRB.

Figures 3-9, 3-10, and **3-11** reflect the concentrations of TCE and cis-1,2-DCE globally transecting the PRB. The TCE/cis-1,2-DCE concentrations are reduced by greater than 50% in all three locations from the upgradient to downgradient location. The third tier (MWT-7, 8, and 9) located on the south end of the well, directly downgradient of PT-17, has the highest measured TCE and cis-1,2-DCE concentrations of the three groupings as mentioned above.

The concentration of TCE was observed to decrease from 391 μg/L at MWT-7 to 70.2 μg/L at MWT-9, but the cis-1,2-DCE concentration was observed to increase from 22.4 μg/L at MWT-7 to 34.7 μg/L at MWT-9. The slight rebound in TCE and cis-1,2-DCE concentrations in the downgradient wells indicates that there may be some residual contamination present downgradient of the wall. However, the concentrations of methane (3800 ug/L to 5960 ug/L) in the PRB wells along with concentrations of 50 ug/L to 2340 ug/L of methane in the wells immediately downgradient is evident of methanogenesis, a biodegradation process enhanced by the presence of the iron filing wall. The three wells within the PRB also have low detections of ethane (8.12J ug/L to 10.9J ug/L) and ethene (5.92J ug/L and 8.16J ug/L). Detections of ethane and ethene in the system, even at low concentrations, indicate the formation of chlorinated aliphatic hydrocarbon (CAH) degradation products and biodegradation occurring. **Table 3-5** shows the results of the natural attenuation parameters analyzed.

Figure 3-12 depicts the groundwater trend associated with well number PT-24, which is downgradient of the PRB. Concentrations of TCE and, more notably, cis-1,2-DCE have decreased since the wall installation in 1998 (Figure 3-3). The marked decrease in the trend indicates that the wall is functioning as intended. The wall is converting the cis-1,2-DCE to further breakdown products. PT-24 shows a concentration of 1720 ug/L for methane, which indicates that methanogensis is continuing to occur beyond the wall. MW-56, located further downgradient of the wall, has a methane concentration of 61.3 ug/L, which is lower than the PT-24 methane concentration by 1659 ug/L. The presence of methane in MW-56, however, is a good indication that methanogenesis is still aiding in breaking down the original contaminant.

4 SUMMARY AND CONCLUSIONS

In summary, the 1Q 2003 groundwater monitoring and sampling event found:

1. Groundwater flow direction, and horizontal gradients are consistent with previous data collected in the area.

2. Groundwater elevations were high as expected for the spring.

3. TCE and cis-1,2-DCE concentrations are decreasing in monitoring wells PT-12A, PT-18 and MW-44a, which are in the vicinity of the removed contaminant source area. This shows that the source area removal was successful.

4. The contaminant plume is migrating downgradient from the source area, as evident in the groundwater trends from PT-17. PT-17 is in direct downgradient pathway of the plume and has seen significant increase in TCE and cis-1,2-DCE concentrations over the last several years.

5. Biodegradation is occurring as a direct result of the presence of the reactive iron wall. Wells within the wall and directly downgradient of the wall contain elevated levels of methane, which is indicative of the biodegradation process, methanogenesis. Further evidence of product breakdown is the decreased amounts of TCE and cis-1,2-DCE on the downgradient side of the reactive wall. It is assumed that some residual contamination existed prior to the installation of the wall and is contributing to some of the concentrations seen in the downgradient monitoring wells.

6. Data shows that the most contaminated portion of the plume passes through the southern end of the PRB. This suggests that shorter walls may be sufficient in order to remove the remaining chlorinated solvents from the groundwater in a timely manner.

GROUNDWATER SAMPLING MATRIX - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

			Field Parameters										Lab Parameters						
Location	Sample ID	QC Code	pH	Spec Cond	Eh or ORP	DO	Turbidity	Sulfide	Ferrous FE	Alkalinity	Temp	CO2	VOC	VOC CLP	Nitrate	Sulfate/ Chlorides	Methane/Ethane/ Ethene	Metals (Ca, Na, K, Mn, Mg Only)	DOC
													EPA 524.2	SW 8260B	EPA 300.0		8015A/B	SW846 6010B	SW846 9090
Farmhouse Wells																			
BN-S[1]	ARD2201	SA											X						
FH-D[1]	ARD2202	SA											X						
FH-S[1]	ARD2203	SA											X						
Site Monitoring Wells																			
MW-27[2]	ARD2182	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MW-30[2]	ARD2183	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MW-32[2]	ARD2184	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MW-36[2]	ARD2185	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MW-40[2]	ARD2186	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
MW-43[2]	ARD2187	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
MW-44A[2]	ARD2188	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
MW-45[2]	ARD2189	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
MW-48[2]	ARD2190	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
MW-53[2]	ARD2191	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
MW-56[2]	ARD2192	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
PT-12A[2]	ARD2193	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
PT-17[2]	ARD2194	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
PT-18[2]	ARD2195	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
PT-19[2]	ARD2196	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
MW-20[2]	ARD2197	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
MW-21A[2]	ARD2198	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
PT-24[2]	ARD2199	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Permeable Reactive Barrier Monitoring Wells																			
MWT-1[2]	TR2100	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
MWT-2[2]	TR2101	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MWT-3[2]	TR2102	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MWT-4[2]	TR2103	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MWT-5[2]	TR2104	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MWT-6[2]	TR2105	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MWT-7[2]	TR2106	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MWT-8[2]	TR2107	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MWT-9[2]	TR2108	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MWT-10[2]	TR2109	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MWT-11[2]	TR2110	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
QA/QC Samples																			
Duplicate (MWT-6)	TR2111	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Duplicate (PT-12A)	ARD2200	SA	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
Duplicate (MW-36)	ARD2204	SA	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
MS (MWT-7)	TR2106MS	MS											X						
MSD (MWT-7)	TR2106MSD	MSD											X						
MS (MW-36)	ARD2185MS	MS											X						
MSD (MW-36)	ARD2185MSD	MSD											X						
MS (PT-12A)	ARD2193MS	MS												X					
MSD (PT-12A)	ARD2193MSD	MSD												X					
Rinsate (MWT-6)	TR0038	RB											X						
Rinsate (MW-36)	ARD0032	RB																	
Rinsate (PT-12A)	ARD0031	RB												X					
(2) - Duplicate and RinseBlank Associated with VOC/CLP sample																			
Trip/ Blank	TR0039	TB											X						
Trip/ Blank	TR0040	TB											X						
Trip/ Blank	TR0041	TB											X						
Trip/ Blank	TR0042	TB											X						
Trip/ Blank	ARD0032	TB												X					
Trip/ Blank	ARD0033	TB												X					
LIMS # for MRD samples - 6463																			
MRD (MWT-6)	TR2105MRD	SA											X		X	X	X		X
MRD (MWT-8)	TR2108MRD	SA											X		X	X	X		X
MRD (PT-12A)	ARD2193MRD	SA												X	X	X	X		X
													32	20	35	35	35	32	35

* Set pump intake at midpoint of saturated column or 1.25 feet off the bottom of the well, to allow a minimum distance of 1.25 feet between intake and POW

1 - Sampled at tap

2 - Sampled according to EPA Region II low-flow sampling procedures

MS - Matrix Spike

MSD - Matrix Spike Duplicate

TABLE 3-1
GROUNDWATER ELEVATION DATA - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Monitoring Well	Top of Riser Elevation (ft)	1Q 2003 Data				Historical Data			
		Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)	Groundwater Elevation (ft)			Well Depth (ft)
						Maximum	Minimum	Range	
PT-10	681.52					676.90	671.02	5.88	46.36
PT-11	658.22					654.03	647.79	6.24	19.55
PT-12A	652.15	3/14/03	8.13	5.25	646.9	649.01	642.26	6.75	13.38
PT-15	637.76					633.74	627.38	6.36	19.50
PT-16	637.51					634.85	629.83	5.02	11.04
PT-17	640.14	3/14/03	7.02	4.63	635.51	635.85	629.05	6.80	11.65
PT-18	656.68	3/14/03	6.48	5.22	651.46	652.28	646.30	5.98	11.70
PT-19	645.26	3/14/03	10.05	1.65	643.61	643.61	635.01	8.60	11.70
MW-20	647.28	3/14/03	6.05	5.75	641.53	642.34	637.41	4.93	11.80
MW-21A	647.73	3/14/03	13.79	5.67	642.06	643.84	637.22	6.62	19.46
MW-22	648.61	3/14/03	5.61	6.2	642.41	644.30	637.51	6.79	11.81
PT-23	641.58	3/14/03	7.92	4.16	637.42	638.14	632.35	5.79	12.08
PT-24	636.40	3/14/03	7.24	4.64	631.76	632.76	627.99	4.77	11.88
PT-25	637.09	3/14/03	8.01	4.02	633.07	633.51	625.64	7.87	12.03
PT-26	614.64					611.60	601.53	10.07	14.00
MW-27	639.32	3/14/03	5.39	5.15	634.17	634.88	630.09	4.79	10.54
MW-28	637.21	3/14/03	5.70	4.69	632.52	632.57	628.71	3.86	10.39
MW-29	637.31	3/14/03	5.28	5.26	632.05	632.10	627.30	4.80	10.54
MW-30	640.32	3/14/03	6.62	3.9	636.42	636.42	629.88	6.54	10.52
MW-31	636.70	3/14/03	7.36	2.99	633.71	634.22	627.02	7.20	10.35
MW-32	641.68	3/14/03	6.12	4.25	637.43	637.84	632.70	5.14	10.37
MW-33	639.56	3/14/03	6.06	4.33	635.23	635.65	629.72	5.93	10.39
MW-34	632.89					630.15	622.36	7.79	18.15
MW-35D	631.82					629.44	624.62	4.82	56.64
MW-36	631.79	3/14/03	13.91	2.67	629.12	629.47	622.26	7.21	16.58
MW-37	632.89					630.65	625.77	4.88	13.62
MW-38D	637.90					635.39	628.99	6.40	32.24
MW-39	659.54					657.84	650.47	7.37	11.89
MW-40	659.30	3/14/03	10.97	3.74	655.56	655.85	650.16	5.69	14.71
MW-41D	694.02					687.92	685.21	2.71	47.02
MW-42D	683.04					680.67	671.39	9.28	47.38
MW-43	657.73	3/14/03	5.10	2.37	655.36	655.36	650.73	4.63	7.47
MW-44A	653.85	3/14/03	7.74	4.74	649.11	650.37	642.42	7.95	12.48
MW-45	650.90	3/14/03	6.24	2.1	648.8	648.80	643.12	5.68	8.34
MW-46	650.41	3/14/03	9.07	2.38	648.03	648.03	641.12	6.91	11.45
MW-47	628.06	3/14/03	6.21	2.35	625.71	625.76	619.88	5.88	8.56
MW-48	648.32	3/14/03	8.75	2.75	645.57	645.57	639.94	5.63	11.50
MW-49D	650.50					647.62	641.55	6.07	37.54
MW-50D	649.88					647.40	633.88	13.52	59.66
MW-51D	628.24					628.24	620.49	7.75	36.87
MW-52D	626.35					624.17	618.67	5.50	59.36
MW-53	639.41	3/14/03	4.69	5.66	633.75	633.84	629.46	4.38	10.35
MW-54D	639.11					633.43	628.66	4.77	34.99
MW-55D	639.16					633.41	627.96	5.45	58.18
MW-56	630.51	3/14/03	3.88	3	627.51	627.56	621.66	5.90	6.88
MW-57D	629.82					628.13	621.76	6.37	35.09
MW-58D	629.69					628.37	623.94	4.43	57.29
MW-59	656.83					654.93	649.85	5.08	9.10
MW-60	660.15					658.20	652.23	5.97	9.50
MWT-1	637.24	3/14/03	4.83	4.92	632.32	632.47	629.06	3.41	9.75
MWT-2	637.19	3/14/03	4.45	5.1	632.09	632.27	629.94	2.33	9.55

TABLE 3-1
GROUNDWATER ELEVATION DATA - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Monitoring Well	Top of Riser Elevation (ft)	1Q 2003 Data				Historical Data			
		Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)	Groundwater Elevation (ft)			Well Depth (ft)
						Maximum	Minimum	Range	
MWT-3	637.31	3/14/03	4.72	5.28	632.03	632.20	628.99	3.21	10.00
MWT-4	637.68	3/14/03	7.33	5.1	632.58	632.58	627.28	5.30	12.43
MWT-5	637.72	3/14/03	6.60	5.35	632.37	632.45	628.67	3.78	11.95
MWT-6	637.59	3/14/03	7.01	5.27	632.32	632.38	627.24	5.14	12.28
MWT-7	638.34	3/14/03	8.55	5.42	632.92	632.92	626.58	6.34	13.97
MWT-8	638.40	3/14/03	10.05	2.5	635.9	635.90	627.95	7.95	12.55
MWT-9	638.08	3/14/03	8.46	5.68	632.4	632.42	626.04	6.38	14.14
MWT-10	636.07	3/14/03	4.95	4	632.07	632.23	629.55	2.68	8.95
MWT-11	635.90	3/14/03	7.87	2.08	633.82	633.82	626.92	6.90	9.95

TABLE 3-2
FIELD MONITORING RESULTS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Well ID	Sample Number	DO (mg/l)	Temp (deg.C)	Spec. Cond. (S/m)	pH (units)	ORP (mV)	Turbidity (ntu)
PT-17	ARD2194	3.85	8.21	0.643	7.13	118	15.6
PT-18	ARD2195	3.73	5.34	1.25	6.76	204	97.3
PT-19	ARD2196	4.30	5.30	0.605	7.24	70	27.5
PT-24	ARD2199	0.61	5.16	0.456	7.24	96	26.0
MW-20	ARD2197	4.06	6.78	0.685	6.82	147	23.4
MW-21A	ARD2198	3.37	8.22	1.24	7.24	131	28.4
MW-27	ARD2182	8.14	7.19	0.502	7.29	133	72.3
MW-30	ARD2183	6.90	4.32	0.558	7.39	142	15.3
MW-32	ARD2184	5.65	5.45	0.615	7.03	151	43.4
MW-36	ARD2185	0.60	7.43	0.602	6.93	-52	19.9
MW-40	ARD2186	2.73	5.86	0.565	7.00	143	31.2
MW-43	ARD2187	5.33	4.27	0.507	7.03	140	40.7
MW-44A	ARD2188	0.99	5.57	4.57	7.03	87	16.0
MW-45	ARD2189	5.99	6.00	0.465	6.83	210	10.0
MW-48	ARD2190	2.21	5.94	0.433	6.78	207	48.6
MW-53	ARD2191	6.47	7.87	0.741	7.04	142	27.8
MW-56	ARD2192	2.96	5.50	0.453	7.05	126	25.9
FH-D	ARD2202	NA	NA	NA	NA	NA	NA
FH-S	ARD2203	NA	NA	NA	NA	NA	NA
BN-S	ARD2201	NA	NA	NA	NA	NA	NA
MWT-1	TR2100	6.02	6.20	0.651	6.40	205	37.4
MWT-2	TR2101	2.26	4.60	0.331	8.70	19	78.2
MWT-3	TR2102	3.29	6.79	0.632	6.95	156	62.2
MWT-4	TR2103	8.10	5.62	0.686	7.02	199	39.4
MWT-5	TR2104	1.75	5	0.3	8.8	117	37.7
MWT-6	TR2105	1.48	5.54	0.440	7.40	109	28.5
MWT-7	TR2106	4.73	9.35	0.672	6.85	158	18.7
MWT-8	TR2107	1.76	4.15	0.201	8.78	43	5.1
MWT-9	TR2108	1.68	9.65	0.380	7.15	122	285
MWT-10	TR2109	0.58	6.54	0.322	7.98	-262	23.1
MWT-11	TR2110	6.85	5.7	0.543	7.30	140	34.9
MWT-12A	ARD2193	2.62	7.91	1.730	6.59	213	0.4

ND = Not Detected
NA = Not Analyzed

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

									ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
									BN-S	FH-D	FH-S	MW-27
									GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
									ARD2201	ARD2202	ARD2203	ARD2182
									0	0	0	3.87
									0	0	0	10.54
									4/2/03	4/2/03	4/2/03	3/27/03
									SA	SA	SA	SA
									ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C
									19	19	19	19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1,2-Tetrachloroethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	1.6	6%	GA	5	0	2	35	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%			0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	GA	5	0	0	14				
1,1,2-Trichloroethane	UG/L	0	0%	GA	1	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	4.3	9%	GA	5	0	3	35	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0.45	3%	GA	5	0	1	35	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0%	GA	0.04	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	GA	0.04	0	0	35	0.5 U	0.5 U	0.5 U	0.5 UJ
1,2-Dibromoethane	UG/L	0	0%	GA	0.0006	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0%	GA	0.6	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (total)	UG/L	673	57%	MCL	70	3	20	35	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0%	GA	1	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0.84	3%	GA	5	0	1	35	0.84	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0%			0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
2-Chloroethylvinylether	UG/L	0	0%			0	0	14				
2-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0%			0	0	14				
Acetone	UG/L	0	0%			0	0	35	1.3 U	1.3 U	1.4 U	1.8 U
Acetonitrile	UG/L	0	0%			0	0	14				
Acrolein	UG/L	0	0%	GA	5	0	0	14				
Acrylonitrile	UG/L	0	0%	GA	5	0	0	14				
Allyl chloride	UG/L	0	0%	GA	5	0	0	14				
Benzene	UG/L	0.44	9%	GA	1	0	3	35	0.5 U	0.5 U	0.5 U	0.5 U
Benzyl chloride	UG/L	0	0%			0	0	14				
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	GA	5	0	0	14				
Bromobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0%	MCL	80	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0%	MCL	80	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	0	35	1 U	1 U	1 U	1 U
Carbon tetrachloride	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0%	MCL	80	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	UG/L	0.42	3%	GA	7	0	1	35	0.5 U	0.5 U	0.5 U	0.5 U
Chloroprene	UG/L	0	0%	GA	5	0	0	14				
Cis-1,2-Dichloroethene	UG/L	667	57%	GA	5	16	20	35	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexanone	UG/L	0	0%			0	0	14				
Dichlorodifluoromethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl benzene	UG/L	0.36	3%	GA	5	0	1	35	0.36 J	0.5 U	0.5 U	0.5 U
Ethyl methacrylate	UG/L	0	0%			0	0	14				
Hexachlorobutadiene	UG/L	0	0%	GA	0.5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Isobutyl alcohol	UG/L	0	0%			0	0	14				
Isopropylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Meta/Para Xylene	UG/L	0.68	3%			0	1	35	0.68	0.5 U	0.5 U	0.5 U
Methacrylonitrile	UG/L	0	0%	GA	5	0	0	14				
Methyl Tertbutyl Ether	UG/L	30.6	3%			0	1	35	30.6	0.5 U	0.5 U	0.5 U
Methyl bromide	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Methyl butyl ketone	UG/L	2	3%			0	1	35	1 U	1 U	1 U	1 U
Methyl chloride	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Methyl ethyl ketone	UG/L	0.54	6%			0	2	35	1 U	1 U	1 U	1 U

Shade indicates concentration above action level

TABLE 3-3

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003

GROUNDWATER MONITORING - ASH LANDFILL

SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	ASH LANDFILL BN-S GROUNDWATER ARD2201	ASH LANDFILL FH-D GROUNDWATER ARD2202	ASH LANDFILL FH-S GROUNDWATER ARD2203	ASH LANDFILL MW-27 GROUNDWATER ARD2182
									0	0	0	3.87
									0	0	0	10.54
									4/2/03	4/2/03	4/2/03	3/27/03
									SA	SA	SA	SA
									ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D
									19	19	19	19
									Value (Q)	Value (Q)	Value (Q)	Value (Q)
Methyl iodide	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U	1 U
Methyl isobutyl ketone	UG/L	0	0%			0	0	35	1 U	1 U	1 U	1 U
Methyl methacrylate	UG/L	0	0%	GA	50	0	0	14				
Methylene bromide	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	UG/L	0	0%	GA	5	0	0	35	0.35 U	0.28 U	0.3 U	0.45 U
Naphthalene	UG/L	0	0%			0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Ortho Xylene	UG/L	2.8	3%	GA	5	0	1	35	2.8	0.5 U	0.5 U	0.5 U
Pentachloroethane	UG/L	0	0%	GA	5	0	0	14				
Proplonitrile	UG/L	0	0%			0	0	14				
Propylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	UG/L	0	0%	GA	5	0	0	35	1.1 U	0.5 U	0.5 U	0.5 U
Total Xylenes	UG/L	3.4	3%	GA	5	0	1	35	3.4	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	6	9%	GA	5	1	3	35	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14				
Trichloroethene	UG/L	599	40%	GA	5	9	14	35	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl acetate	UG/L	0	0%			0	0	35	1 U	1 U	1 U	1 U
Vinyl chloride	UG/L	81.2	9%	GA	2	1	3	35	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14				
n-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U	0.5 U	0.5 U
Calcium	UG/L	483000	100%			0	37	37				95200
Magnesium	UG/L	179000	100%			0	37	37				10100
Manganese	UG/L	835	100%	SEC	50	13	37	37				9.13
Potassium	UG/L	28900	100%			0	37	37				1270 J
Sodium	UG/L	186000	100%	GA	20000	10	37	37				[illegible]
Chloride	MG/L	522	100%	GA	250000	0	39	39				6.06
Ethane	UG/L	26.5	11%			0	4	35				25 U
Ethene	UG/L	8.16	11%			0	4	35				25 U
Methane	UG/L	5960	60%			0	21	35				25 U
Nitrate	MG/L	12.2	77%	GA	10000	0	30	39				0.711
Sulfate	MG/L	1340	100%	GA	250000	0	39	39				55
Total Organic Carbon	MG/L	5.78	100%			0	37	37				1.3

Shade indicates concentration above action level

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

									ASH LANDFILL MW-30 GROUNDWATER ARD2183	ASH LANDFILL MW-32 GROUNDWATER ARD2184	ASH LANDFILL MW-36 GROUNDWATER ARD2185DUP	ASH LANDFILL MW-36 GROUNDWATER ARD2185	ASH LANDFILL MW-36 GROUNDWATER ARD2204	ASH LANDFILL MW-40 GROUNDWATER ARD2186	ASH LANDFILL MW-43 GROUNDWATER ARD2187	ASH LANDFILL MW-44A GROUNDWATER ARD2188
									4.16	3.85	2.57	2.57	2.57	3.34	2.8	3.12
									10.52	10.37	16.58	16.58	16.56	14.71	7.47	12.48
									3/24/03	3/24/03	4/2/03	4/2/03	4/2/03	4/1/03	4/1/03	4/1/03
									SA	SA	DU	SA	SA	SA	SA	SA
									ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D
									19	19	19	19	19	19	19	19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1,2-Tetrachloroethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,1,1-Trichloroethane	UG/L	1.8	6%	GA	5	0	2	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1.6
1,1,2,2-Tetrachloroethane	UG/L	0	0%			0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	GA	5	0	0	14						5 U	5 U	5 U
1,1,2-Trichloroethane	UG/L	0	0%	GA	1	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,1-Dichloroethane	UG/L	4.3	9%	GA	5	0	3	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	4.3
1,1-Dichloroethene	UG/L	0.45	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	0.45 J
1,1-Dichloropropene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,2,3-Trichloropropane	UG/L	0	0%	GA	0.04	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	GA	0.04	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,2-Dibromoethane	UG/L	0	0%	GA	0.0006	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,2-Dichloroethane	UG/L	0	0%	GA	0.6	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,2-Dichloroethene (total)	UG/L	673	57%	MCL	70	3	20	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	[redacted]
1,2-Dichloropropane	UG/L	0	0%	GA	1	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	UG/L	0.64	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,3-Dichloropropane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
2,2-Dichloropropene	UG/L	0	0%			0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
2-Chloroethylvinylether	UG/L	0	0%			0	0	14						5 UJ	5 UJ	5 UJ
2-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
2-Nitropropane	UG/L	0	0%			0	0	14						5 UJ	5 UJ	5 UJ
Acetone	UG/L	0	0%			0	0	35	1.8 U	1 U		1.3 U	2.3 U	5 U	5 U	5 U
Acetonitrile	UG/L	0	0%			0	0	14						25 R	25 R	25 R
Acrolein	UG/L	0	0%	GA	5	0	0	14						5 R	5 R	5 R
Acrylonitrile	UG/L	0	0%	GA	5	0	0	14						5 U	5 U	5 U
Allyl chloride	UG/L	0	0%	GA	5	0	0	14						5 U	5 U	5 U
Benzene	UG/L	0.44	9%	GA	1	0	3	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Benzyl chloride	UG/L	0	0%			0	0	14						5 U	5 U	5 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	GA	5	0	0	14						5 UJ	5 UJ	5 UJ
Bromobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Bromochloromethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Bromodichloromethane	UG/L	0	0%	MCL	80	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Bromoform	UG/L	0	0%	MCL	80	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Carbon disulfide	UG/L	0	0%			0	0	35	1 U	1 U		1 U	1 U	5 U	5 U	5 U
Carbon tetrachloride	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Chlorobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Chlorodibromomethane	UG/L	0	0%	MCL	80	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Chloroethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Chloroform	UG/L	0.42	3%	GA	7	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Chloroprene	UG/L	0	0%	GA	5	0	0	14						1 U	1 U	1 U
Cis-1,2-Dichloroethene	UG/L	667	57%	GA	5	16	20	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	[redacted]
Cis-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Cyclohexanone	UG/L	0	0%			0	0	14						50 R	50 R	50 R
Dichlorodifluoromethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Ethyl benzene	UG/L	0.36	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Ethyl methacrylate	UG/L	0	0%			0	0	14						5 U	5 U	5 U
Hexachlorobutadiene	UG/L	0	0%	GA	0.5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Isobutyl alcohol	UG/L	0	0%			0	0	14						50 R	50 R	50 R
Isopropylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Meta/Para Xylene	UG/L	0.68	3%			0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	2 U	2 U	2 U
Methacrylonitrile	UG/L	0	0%	GA	5	0	0	14						5 U	5 U	5 U
Methyl Tertbutyl Ether	UG/L	30.6	3%			0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	5 U	5 U	5 U
Methyl bromide	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Methyl butyl ketone	UG/L	2	3%			0	1	35	1 U	1 U		1 U	1 U	5 U	5 U	5 U
Methyl chloride	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 UJ	1 UJ	1 UJ
Methyl ethyl ketone	UG/L	0.54	8%			0	2	35	1 U	1 U		1 U	1 U	5 U	5 U	5 U

Shade indicates concentration above action level

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

									ASH LANDFILL MW-30 GROUNDWATER ARD2183	ASH LANDFILL MW-32 GROUNDWATER ARD2184	ASH LANDFILL MW-38 GROUNDWATER ARD2185DUP	ASH LANDFILL MW-36 GROUNDWATER ARD2185	ASH LANDFILL MW-36 GROUNDWATER ARD2204	ASH LANDFILL MW-40 GROUNDWATER ARD2186	ASH LANDFILL MW-43 GROUNDWATER ARD2187	ASH LANDFILL MW-44A GROUNDWATER ARD2188
									4.16	3.85	2.57	2.57	2.57	3.34	2.8	3.12
									10.52	10.37	16.58	16.58	16.58	14.71	7.47	12.48
									3/24/03	3/24/03	4/2/03	4/2/03	4/2/03	4/1/03	4/1/03	4/1/03
									SA	SA	DU	SA	SA	SA	SA	SA
									ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D
									19	19	19	19	19	19	19	19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Methyl iodide	UG/L	0	0%	GA	5	0	0	35	1 U	1 U		1 U	1 U	5 U	5 U	5 U
Methyl isobutyl ketone	UG/L	0	0%			0	0	35	1 U	1 U		1 U	1 U	5 U	5 U	5 U
Methyl methacrylate	UG/L	0	0%	GA	50	0	0	14						5 U	5 U	5 U
Methylene bromide	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Methylene chloride	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.43 U		0.39 U	0.38 U	5 U	5 U	5 U
Naphthalene	UG/L	0	0%			0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Ortho Xylene	UG/L	2.8	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Pentachloroethane	UG/L	0	0%	GA	5	0	0	14						5 U	5 U	5 U
Propionitrile	UG/L	0	0%			0	0	14						5 R	5 R	5 R
Propylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Tetrachloroethene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Toluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Total Xylenes	UG/L	3.4	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Trans-1,2-Dichloroethene	UG/L	6	9%	GA	5	1	3	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1.7
Trans-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14						5 U	5 U	5 U
Trichloroethene	UG/L	599	40%	GA	5	9	14	35	0.43 J	0.5 U		0.5 U	0.5 U	1 U	1 U	[illegible]
Trichlorofluoromethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Vinyl acetate	UG/L	0	0%			0	0	35	1 U	1 U		1 U	1 U	5 U	5 U	5 U
Vinyl chloride	UG/L	81.2	9%	GA	2	1	3	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	[illegible]
cis-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14						5 U	5 U	5 U
n-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
p-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
p-Isopropyltoluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
sec-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
tert-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	1 U	1 U	1 U
Calcium	UG/L	483000	100%			0	37	37	98800	111000	111000	113000	112000	94900	94100	483000
Magnesium	UG/L	179000	100%			0	37	37	14700	14800	17000	17400	17300	12700	9090	179000
Manganese	UG/L	835	100%	SEC	50	13	37	37	2.89	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8.67	[illegible]
Potassium	UG/L	28900	100%			0	37	37	1700 J	1730 J	2190	2230	2280	1810	718	28900
Sodium	UG/L	188000	100%	GA	20000	10	37	37	12200	14400	12100	12400	12300	[illegible]	8220	[illegible]
Chloride	MG/L	522	100%	GA	250000	0	39	39	14.2	12	6.71	6.73	6.61	4.36	8.26	522
Ethene	UG/L	26.5	11%			0	4	35	25 U	25 U		25 U	25 U	26.5	25 U	25 U
Ethene	UG/L	8.16	11%			0	4	35	25 U	25 U		25 U	25 U	25 U	25 U	4.73 J
Methane	UG/L	5960	60%			0	21	35	25 U	25 U		134	25 U	26.8	40.8	37
Nitrate	MG/L	12.2	77%	GA	10000	0	30	39	0.591 J	12.2 J	0.298	0.3	0.318	0.12	0.1 U	0.1 U
Sulfate	MG/L	1340	100%	GA	250000	0	39	39	71.3	58	56	56.5	56.2	69	53.2	1340
Total Organic Carbon	MG/L	5.78	100%			0	37	37	1.29	1.41	3.1	3.29	3.42	1.64	1.43	5.78

Shade indicates concentration above action level

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
								MW-45	MW-48	MW-53	MW-56	MW-56	MWT-1	MWT-1	MWT-10
								GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
								ARD2189	ARD2190	ARD2191	ARD2192DUP	ARD2192	TR2100DUP	TR2100	TR2109
								2.78	2.84	5.22	3.25	3.25	4.1	4.1	3.47
								8.34	11.5	10.35	6.88	6.88	9.75	9.75	8.95
								3/28/03	3/28/03	3/25/03	4/2/03	4/2/03	3/27/03	3/27/03	3/27/03
								SA	SA	SA	DU	SA	DU	SA	SA
								ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH TRENCH	ASH TRENCH	ASH TRENCH
								19	19	19	19	19	19	19	19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1,2-Tetrachloroethane	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,1,1-Trichloroethane	UG/L	1.6	6%	GA	5	0	2	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%			0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	GA	5	0	0	14	5 U	5 U	5 U		5 U		5 U	
1,1,2-Trichloroethane	UG/L	0	0%	GA	1	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,1-Dichloroethane	UG/L	4.3	9%	GA	5	0	3	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,1-Dichloroethene	UG/L	0.45	3%	GA	5	0	1	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,1-Dichloropropene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0%	GA	0.04	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	GA	0.04	0	0	35	1 UJ	1 UJ	1 UJ		1 U		1 U	0.5 UJ
1,2-Dibromoethane	UG/L	0	0%	GA	0.0006	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,2-Dichloroethane	UG/L	0	0%	GA	0.6	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,2-Dichloroethene (total)	UG/L	673	57%	MCL	70	3	20	35	1 U	1 U	13.9		0.42 J		39.6	5.4
1,2-Dichloropropane	UG/L	0	0%	GA	1	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0.84	3%	GA	5	0	1	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,3-Dichloropropane	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
2,2-Dichloropropane	UG/L	0	0%			0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
2-Chloroethylvinylether	UG/L	0	0%			0	0	14	5 R	5 R	5 R		5 UJ		5 R	
2-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
2-Nitropropane	UG/L	0	0%			0	0	14	5 UJ	5 UJ	5 U		5 UJ		5 U	
Acetone	UG/L	0	0%			0	0	35	5 U	5 U	5 U		5 U		5 U	1.4 U
Acetonitrile	UG/L	0	0%			0	0	14	25 R	25 R	25 R		25 R		25 R	
Acrolein	UG/L	0	0%	GA	5	0	0	14	5 R	5 R	5 R		5 R		5 R	
Acrylonitrile	UG/L	0	0%	GA	5	0	0	14	5 U	5 U	5 U		5 U		5 U	
Allyl chloride	UG/L	0	0%	GA	5	0	0	14	5 U	5 U	5 U		5 U		5 U	
Benzene	UG/L	0.44	9%	GA	1	0	3	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Benzyl chloride	UG/L	0	0%			0	0	14	5 U	5 U	5 U		5 U		5 U	
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	GA	5	0	0	14	5 U	5 U	5 U		5 UJ		5 U	
Bromobenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Bromochloromethane	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Bromodichloromethane	UG/L	0	0%	MCL	80	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Bromoform	UG/L	0	0%	MCL	80	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	0	35	5 U	5 U	5 U		5 U		5 U	1 U
Carbon tetrachloride	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Chlorobenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Chlorodibromomethane	UG/L	0	0%	MCL	80	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Chloroethane	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Chloroform	UG/L	0.42	3%	GA	7	0	1	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Chloroprene	UG/L	0	0%	GA	5	0	0	14	1 U	1 U	1 U		1 U		1 U	
Cis-1,2-Dichloroethene	UG/L	667	57%	GA	5	16	20	35	1 U	1 U	[illegible]		0.42 J		[illegible]	5.4
Cis-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Cyclohexanone	UG/L	0	0%			0	0	14	50 R	50 R	50 R		50 R		50 U	
Dichlorodifluoromethane	UG/L	0	0%	GA	5	0	0	35	1 U	1 R	1 UJ		1 U		1 UJ	0.5 U
Ethyl benzene	UG/L	0.36	3%	GA	5	0	1	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Ethyl methacrylate	UG/L	0	0%			0	0	14	5 U	5 U	5 U		5 U		5 U	
Hexachlorobutadiene	UG/L	0	0%	GA	0.5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Isobutyl alcohol	UG/L	0	0%			0	0	14	50 R	50 R	50 R		50 R		50 R	
Isopropylbenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Meta/Para Xylene	UG/L	0.68	3%			0	1	35	2 U	2 U	2 U		2 U		2 U	0.5 U
Methacrylonitrile	UG/L	0	0%	GA	5	0	0	14	5 U	5 U	5 U		5 U		5 U	
Methyl Tertbutyl Ether	UG/L	30.6	3%			0	1	35	5 U	5 U	5 U		5 U		5 U	0.5 U
Methyl bromide	UG/L	0	0%	GA	5	0	0	35	1 UJ	1 UJ	1 UJ		1 U		1 UJ	0.5 U
Methyl butyl ketone	UG/L	2	3%			0	1	35	5 U	5 U	5 U		5 U		5 U	1 U
Methyl chloride	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Methyl ethyl ketone	UG/L	0.54	6%			0	2	35	5 U	5 U	5 U		5 U		5 U	1 U

Shade indicates concentration above action level

								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
								MW-45	MW-48	MW-53	MW-56	MW-56	MWT-1	MWT-1	MWT-10
								GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
								ARD2189	ARD2190	ARD2191	ARD2192DUP	ARD2192	TR2100DUP	TR2100	TR2109
								2.76	2.84	5.22	3.25	3.25	4.1	4.1	3.47
								8.34	11.5	10.35	8.88	6.88	9.75	9.75	8.95
								3/28/03	3/28/03	3/25/03	4/2/03	4/2/03	3/27/03	3/27/03	3/27/03
								SA	SA	SA	DU	SA	DU	SA	SA
								ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C	ASH TRENCH	ASH TRENCH	ASH TRENCH
								19	19	19	19	19	19	19	19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Methyl iodide	UG/L	0	0%	GA	5	0	0	35	5 U	5 U	5 U		5 U		5 U	1 U
Methyl isobutyl ketone	UG/L	0	0%			0	0	35	5 U	5 U	5 U		5 U		5 U	1 U
Methyl methacrylate	UG/L	0	0%	GA	50	0	0	14	5 U	5 U	5 U		5 U		5 U	
Methylene bromide	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Methylene chloride	UG/L	0	0%	GA	5	0	0	35	5 U	5 U	5 U		5 U		5 U	0.51 U
Naphthalene	UG/L	0	0%			0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Ortho Xylene	UG/L	2.8	3%	GA	5	0	1	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Pentachloroethane	UG/L	0	0%	GA	5	0	0	14	5 U	5 U	5 U		5 U		5 U	
Propionitrile	UG/L	0	0%			0	0	14	5 R	5 R	5 R		5 R		5 R	
Propylbenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Styrene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Tetrachloroethene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Toluene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Total Xylenes	UG/L	3.4	3%	GA	5	0	1	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	6	9%	GA	5	1	3	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14	5 UJ	5 UJ	5 UJ		5 U		5 UJ	
Trichloroethene	UG/L	599	40%	GA	5	9	14	35	1 U	1 U	1.4		1 U		[redacted]	0.5 U
Trichlorofluoromethane	UG/L	0	0%	GA	5	0	0	35	1 UJ	1 UJ	1 UJ		1 U		1 UJ	0.5 U
Vinyl acetate	UG/L	0	0%			0	0	35	5 U	5 U	5 U		5 U		5 U	1 U
Vinyl chloride	UG/L	81.2	9%	GA	2	1	3	35	1 U	1 U	1 U		1 U		1 U	0.5 U
cis-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14	5 U	5 U	5 U		5 U		5 U	
n-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
p-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
p-Isopropyltoluene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
sec-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
tert-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	1 U	1 U	1 U		1 U		1 U	0.5 U
Calcium	UG/L	483000	100%			0	37	37	82700	78500	132000		80200	130000	125000	38300
Magnesium	UG/L	179000	100%			0	37	37	10400	10500	17500		9720	15100	14700	14200
Manganese	UG/L	835	100%	SEC	50	13	37	37	1.66 J	7.9	7.09		6.74	7.23	7.54	[redacted]
Potassium	UG/L	28900	100%			0	37	37	835	1320	1160 J		2250	1540 J	1490 J	1190 J
Sodium	UG/L	186000	100%	GA	20000	10	37	37	10200	6560	[redacted]		10600	13600	13300	11600
Chloride	MG/L	522	100%	GA	250000	0	39	39	6.97	6.03	18.4		11.8	12.9	13	11.8
Ethane	UG/L	26.5	11%			0	4	35	25 U	25 U	25 U	25 U	25 U		25 U	25 U
Ethene	UG/L	8.16	11%			0	4	35	25 U	25 U	25 U	25 U	25 U		25 U	25 U
Methane	UG/L	5960	80%			0	21	35	25 U	126	25 U	69.4	81.3		25 U	3720
Nitrate	MG/L	12.2	77%	GA	10000	0	30	39	0.1 U	0.127	0.413		2.18	0.283	0.302	0.1 U
Sulfate	MG/L	1340	100%	GA	250000	0	39	39	41.2	41.6	119		62.4	113	114	82.5
Total Organic Carbon	MG/L	5.78	100%			0	37	37	1.18	1.41	1.34		2.2	1.3	1.28	0.658

Shade indicates concentration above action level

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

									ASH LANDFILL MWT-11 GROUNDWATER TR2110DUP 1.67 9.95 3/24/03 DU ASH TRENCH 19	ASH LANDFILL MWT-11 GROUNDWATER TR2110 1.67 9.95 3/24/03 SA ASH TRENCH 19	ASH LANDFILL MWT-2 GROUNDWATER TR2101DUP 4.68 9.55 4/1/03 DU ASH TRENCH 19	ASH LANDFILL MWT-2 GROUNDWATER TR2101 4.66 9.55 4/1/03 SA ASH TRENCH 19	ASH LANDFILL MWT-3 GROUNDWATER TR2102 4.8 10 3/27/03 SA ASH TRENCH 19	ASH LANDFILL MWT-4 GROUNDWATER TR2103DUP 3.95 12.43 3/26/03 DU ASH TRENCH 19	ASH LANDFILL MWT-4 GROUNDWATER TR2103 3.95 12.43 3/26/03 SA ASH TRENCH 19	ASH LANDFILL MWT-5 GROUNDWATER TR2104 4.81 11.95 4/1/03 SA ASH TRENCH 19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1,2-Tetrachloroethane	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	1.6	6%	GA	5	0	2	35		0.5 U		0.5 U	0.5 U		0.69	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%			0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	GA	5	0	0	14								
1,1,2-Trichloroethane	UG/L	0	0%	GA	1	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,1-Dichloroethane	UG/L	4.3	9%	GA	5	0	3	35		0.5 U		0.5 U	0.5 U		0.5 U	0.25 J
1,1-Dichloroethene	UG/L	0.45	3%	GA	5	0	1	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0%	GA	0.04	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	GA	0.04	0	0	35		0.5 U		0.5 UJ	0.5 UJ		0.5 U	0.5 UJ
1,2-Dibromoethane	UG/L	0	0%	GA	0.0006	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0%	GA	0.6	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,2-Dichloroethene (total)	UG/L	673	57%	MCL	70	3	20	35		0.5 U		7.7	17.2		43.2	5.7
1,2-Dichloropropane	UG/L	0	0%	GA	1	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0.84	3%	GA	5	0	1	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0%			0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
2-Chloroethylvinylether	UG/L	0	0%			0	0	14								
2-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
2-Nitropropane	UG/L	0	0%			0	0	14								
Acetone	UG/L	0	0%			0	0	35		2.1 U		1.9 U	0.86 U		0.79 U	2.3 U
Acetonitrile	UG/L	0	0%			0	0	14								
Acrolein	UG/L	0	0%	GA	5	0	0	14								
Acrylonitrile	UG/L	0	0%	GA	5	0	0	14								
Allyl chloride	UG/L	0	0%	GA	5	0	0	14								
Benzene	UG/L	0.44	9%	GA	1	0	3	35		0.5 U		0.41 J	0.5 U		0.5 U	0.44 J
Benzyl chloride	UG/L	0	0%			0	0	14								
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	GA	5	0	0	14								
Bromobenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Bromochloromethane	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0%	MCL	80	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Bromoform	UG/L	0	0%	MCL	80	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	0	35		1 U		1 U	1 U		1 U	1 U
Carbon tetrachloride	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Chlorobenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0%	MCL	60	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Chloroethane	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Chloroform	UG/L	0.42	3%	GA	7	0	1	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Chloroprene	UG/L	0	0%	GA	5	0	0	14								
Cis-1,2-Dichloroethene	UG/L	667	57%	GA	5	16	20	35		0.5 U		[illegible]	17.2		[illegible]	[illegible]
Cis-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Cyclohexanone	UG/L	0	0%			0	0	14								
Dichlorodifluoromethane	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Ethyl benzene	UG/L	0.36	3%	GA	5	0	1	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Ethyl methacrylate	UG/L	0	0%			0	0	14								
Haxachlorobutadiene	UG/L	0	0%	GA	0.5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Isobutyl alcohol	UG/L	0	0%			0	0	14								
Isopropylbenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Meta/Para Xylene	UG/L	0.68	3%			0	1	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Methacrylonitrile	UG/L	0	0%	GA	5	0	0	14								
Methyl Tertbutyl Ether	UG/L	30.6	3%			0	1	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Methyl bromide	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Methyl butyl ketone	UG/L	2	3%			0	1	35		1 U		1 U	1 U		1 U	1 U
Methyl chloride	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Methyl ethyl ketone	UG/L	0.54	6%			0	2	35		1 U		1 U	1 U		1 U	0.54 J

Shade indicates concentration above action level

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	ASH LANDFILL MWT-11 GROUNDWATER TR2110DUP 1.67 9.95 3/24/03 DU ASH TRENCH 19 Value (Q)	ASH LANDFILL MWT-11 GROUNDWATER TR2110 1.67 9.95 3/24/03 SA ASH TRENCH 19 Value (Q)	ASH LANDFILL MWT-2 GROUNDWATER TR2101DUP 4.68 9.55 4/1/03 DU ASH TRENCH 19 Value (Q)	ASH LANDFILL MWT-2 GROUNDWATER TR2101 4.68 9.55 4/1/03 SA ASH TRENCH 19 Value (Q)	ASH LANDFILL MWT-3 GROUNDWATER TR2102 4.8 10 3/27/03 SA ASH TRENCH 19 Value (Q)	ASH LANDFILL MWT-4 GROUNDWATER TR2103DUP 3.95 12.43 3/26/03 DU ASH TRENCH 19 Value (Q)	ASH LANDFILL MWT-4 GROUNDWATER TR2103 3.95 12.43 3/26/03 SA ASH TRENCH 19 Value (Q)	ASH LANDFILL MWT-5 GROUNDWATER TR2104 4.81 11.95 4/1/03 SA ASH TRENCH 19 Value (Q)
Methyl iodide	UG/L	0	0%	GA	5	0	0	35		1 U		1 U	1 U		1 U	1 U
Methyl isobutyl ketone	UG/L	0	0%			0	0	35		1 U		1 U	1 U		1 U	1 U
Methyl methacrylate	UG/L	0	0%	GA	50	0	0	14								
Methylene bromide	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Methylene chloride	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.53 U	0.46 U		0.42 U	0.49 U
Naphthalene	UG/L	0	0%			0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Ortho Xylene	UG/L	2.8	3%	GA	5	0	1	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Pentachloroethane	UG/L	0	0%	GA	5	0	0	14								
Propionitrile	UG/L	0	0%			0	0	14								
Propylbenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Styrene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Tetrachloroethene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Toluene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Total Xylenes	UG/L	3.4	3%	GA	5	0	1	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	6	9%	GA	5	1	3	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14								
Trichloroethene	UG/L	599	40%	GA	5	9	14	35		0.5 U		0.5 U	3.8		1.7	0.5 U
Trichlorofluoromethane	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Vinyl acetate	UG/L	0	0%			0	0	35		1 U		1 U	1 U		1 U	1 U
Vinyl chloride	UG/L	81.2	9%	GA	2	1	3	35		0.5 U		0.27 J	0.5 U		0.5 U	0.5 U
cis-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14								
n-Butylbenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0%	GA	5	0	0	35		0.5 U		0.5 U	0.5 U		0.5 U	0.5 U
Calcium	UG/L	483000	100%			0	37	37		106000	24600	24500	128000		132000	15400
Magnesium	UG/L	179000	100%			0	37	37		12100	17000	16800	15600		15800	13300
Manganese	UG/L	835	100%	SEC	50	13	37	37		8.47	38	38.2	13.7		4.09	[illegible]
Potassium	UG/L	28900	100%			0	37	37		2460 J	1240	1200	1330 J		969 J	1020
Sodium	UG/L	186000	100%	GA	20000	10	37	37		13300	13500	13500	12700		18100	17400
Chloride	MG/L	522	100%	GA	250000	0	39	39	9.02	9.15	18.1	15.9	14.6	18.6	18.5	19.5
Ethane	UG/L	26.5	11%			0	4	35		25 U		8.12 J	25 U		25 U	10.9 J
Ethene	UG/L	8.16	11%			0	4	35		25 U		6.4 J	25 U		25 U	5.92 J
Methane	UG/L	5960	80%			0	21	35		25 U		3940	50		25 U	5960
Nitrate	MG/L	12.2	77%	GA	10000	0	30	39	0.547 J	0.496	0.1 U	0.1 U	0.211	0.257	0.246	0.1 U
Sulfate	MG/L	1340	100%	GA	250000	0	39	39	59.2	59.5	105	108	128	122	123	76.9
Total Organic Carbon	MG/L	5.78	100%			0	37	37		1.01		0.782	1.14	0.802	0.898	0.419

Shade indicates concentration above action level

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

									ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
									MWT-6	MWT-6	MWT-7	MWT-7	MWT-8	MWT-9	PT-12A	PT-12A
									GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
									TR2105	TR2111	TR2106DUP	TR2106	TR2107	TR2108	ARD2193DUP	ARD2193
									4.36	4.36	4.91	4.91	5.33	5.21	5.22	2.95
									12.28	12.28	13.97	13.97	12.55	14.14	10.35	13.38
									3/26/03	3/26/03	3/25/03	3/25/03	4/1/03	3/25/03	3/25/03	3/28/03
									SA	SA	DU	SA	SA	SA	DU	SA
									ASH TRENCH	ASH TRENCH	ASH TRENCH	ASH TRENCH	ASH TRENCH	ASH TRENCH	ASH REMEDIAL D	ASH REMEDIAL D
									19	19	19	19	19	19	19	19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1,2-Tetrachloroethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,1,1-Trichloroethane	UG/L	1.8	6%	GA	5	0	2	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%			0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	GA	5	0	0	14								50 U
1,1,2-Trichloroethane	UG/L	0	0%	GA	1	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,1-Dichloroethane	UG/L	4.3	9%	GA	5	0	3	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,1-Dichloroethene	UG/L	0.45	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,1-Dichloropropene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,2,3-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,2,3-Trichloropropane	UG/L	0	0%	GA	0.04	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,2,4-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,2,4-Trimethylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	GA	0.04	0	0	35	0.5 U	0.5 U		0.5 U	0.5 UJ	0.5 U		10 UJ
1,2-Dibromoethane	UG/L	0	0%	GA	0.0006	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,2-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,2-Dichloroethane	UG/L	0	0%	GA	0.6	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,2-Dichloroethene (total)	UG/L	673	57%	MCL	70	3	20	35	3.6	3.9		22.4	44.8	34.7		[illegible]
1,2-Dichloropropane	UG/L	0	0%	GA	1	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,3,5-Trimethylbenzene	UG/L	0.84	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,3-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,3-Dichloropropane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
1,4-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
2,2-Dichloropropane	UG/L	0	0%			0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
2-Chloroethylvinylether	UG/L	0	0%			0	0	14								50 R
2-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
2-Nitropropane	UG/L	0	0%			0	0	14								50 UJ
Acetone	UG/L	0	0%			0	0	35	2 U	1.6 U		1.1 U	2.1 U	1 U		50 U
Acetonitrile	UG/L	0	0%			0	0	14								250 R
Acrolein	UG/L	0	0%	GA	5	0	0	14								50 R
Acrylonitrile	UG/L	0	0%	GA	5	0	0	14								50 U
Allyl chloride	UG/L	0	0%	GA	5	0	0	14								50 U
Benzene	UG/L	0.44	9%	GA	1	0	3	35	0.5 U	0.5 U		0.5 U	0.28 J	0.5 U		10 U
Benzyl chloride	UG/L	0	0%			0	0	14								50 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	GA	5	0	0	14								50 U
Bromobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Bromochloromethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Bromodichloromethane	UG/L	0	0%	MCL	80	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Bromoform	UG/L	0	0%	MCL	80	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Carbon disulfide	UG/L	0	0%			0	0	35	1 U	1 U		1 U	1 U	1 U		50 U
Carbon tetrachloride	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Chlorobenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Chlorodibromomethane	UG/L	0	0%	MCL	80	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Chloroethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Chloroform	UG/L	0.42	3%	GA	7	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Chloroprene	UG/L	0	0%	GA	5	0	0	14								10 U
Cis-1,2-Dichloroethene	UG/L	667	57%	GA	5	16	20	35	3.6	3.9		[illegible]	[illegible]	34.7		[illegible]
Cis-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Cyclohexanone	UG/L	0	0%			0	0	14								500 R
Dichlorodifluoromethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 R
Ethyl benzene	UG/L	0.36	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Ethyl methacrylate	UG/L	0	0%			0	0	14								50 U
Hexachlorobutadiene	UG/L	0	0%	GA	0.5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Isobutyl alcohol	UG/L	0	0%			0	0	14								500 R
Isopropylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Meta/Para Xylene	UG/L	0.66	3%			0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		20 U
Methacrylonitrile	UG/L	0	0%	GA	5	0	0	14								50 U
Methyl Tertbutyl Ether	UG/L	30.6	3%			0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		50 U
Methyl bromide	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 UJ
Methyl butyl ketone	UG/L	2	3%			0	1	35	1 U	1 U		1 U	1 U	1 U		50 U
Methyl chloride	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Methyl ethyl ketone	UG/L	0.54	6%			0	2	35	1 U	1 U		1 U	0.29 J	1 U		50 U

Shade indicates concentration above action level

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RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

									ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
									MWT-6	MWT-6	MWT-7	MWT-7	MWT-8	MWT-9	PT-12A	PT-12A
									GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
									TR2105	TR2111	TR2106DUP	TR2106	TR2107	TR2108	ARD2193DUP	ARD2193
									4.36	4.36	4.91	4.91	5.33	5.21	5.22	2.95
									12.28	12.28	13.97	13.97	12.55	14.14	10.35	13.38
									3/26/03	3/26/03	3/25/03	3/25/03	4/1/03	3/25/03	3/25/03	3/28/03
									SA	SA	DU	SA	SA	SA	DU	SA
									ASH TRENCH	ASH TRENCH	ASH TRENCH	ASH TRENCH	ASH TRENCH	ASH TRENCH	ASH REMEDIAL D	ASH REMEDIAL D
									19	19	19	19	19	19	19	19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Methyl iodide	UG/L	0	0%	GA	5	0	0	35	1 U	1 U		1 U	1 U	1 U		50 U
Methyl isobutyl ketone	UG/L	0	0%			0	0	35	1 U	1 U		1 U	1 U	1 U		50 U
Methyl methacrylate	UG/L	0	0%	GA	50	0	0	14								50 U
Methylene bromide	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Methylene chloride	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.27 U		0.5 U	0.41 U	0.41 U		50 U
Naphthalene	UG/L	0	0%			0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Ortho Xylene	UG/L	2.8	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Pentachloroethane	UG/L	0	0%	GA	5	0	0	14								50 U
Propionitrile	UG/L	0	0%			0	0	14								50 R
Propylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Styrene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Tetrachloroethene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Toluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Total Xylenes	UG/L	3.4	3%	GA	5	0	1	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Trans-1,2-Dichloroethene	UG/L	6	9%	GA	5	1	3	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		J
Trans-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14								50 UJ
Trichloroethene	UG/L	599	40%	GA	5	9	14	35	0.5 U	0.5 U		599	0.5 U	70.2		
Trichlorofluoromethane	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 UJ
Vinyl acetate	UG/L	0	0%			0	0	35	1 U	1 U		1 U	1 U	1 U		50 U
Vinyl chloride	UG/L	61.2	9%	GA	2	1	3	35	0.5 U	0.5 U		0.5 U	0.51	0.5 U		10 U
cis-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14								50 U
n-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
p-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
p-Isopropyltoluene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
sec-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
tert-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		10 U
Calcium	UG/L	483000	100%			0	37	37	47600	47500	125000	122000	9550	49300	241000	241000
Magnesium	UG/L	179000	100%			0	37	37	12800	12700	14200	14000	16400	9840	36300	36000
Manganese	UG/L	835	100%	SEC	50	13	37	37	42.7	41.7	7.03	6.63	33.3			
Potassium	UG/L	28900	100%			0	37	37	1480 J	1460 J	896 J	881 J	897	5960 J	3310	2960
Sodium	UG/L	186000	100%	GA	20000	10	37	37	19400	19400	16200	15900	9600			
Chloride	MG/L	522	100%	GA	250000	0	39	39	15.1	15.3	4.33	4.31	3.59	4.89	59.2	60.6
Ethane	UG/L	26.5	11%			0	4	35	25 U	25 U	25 U	25 U	9.28 J	25 U	25 U	25 U
Ethene	UG/L	8.16	11%			0	4	35	25 U	25 U	25 U	25 U	6.16 J	25 U	25 U	25 U
Methane	UG/L	5960	80%			0	21	35	2340	2330	25 U	25 U	3800	1620	25 U	25 U
Nitrate	MG/L	12.2	77%	GA	10000	0	30	39	0.606	0.554	0.361	0.415	0.1 U	0.221	0.554	0.522
Sulfate	MG/L	1340	100%	GA	250000	0	39	39	80.3	79.8	78.4	77.9	41.8	38.6	434	439
Total Organic Carbon	MG/L	5.78	100%			0	37	37	0.623	0.612	1.51	1.54	0.598	1.83	2.34	2.25

Shade indicates concentration above action level

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

									ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
									PT-12A	PT-17	PT-18	PT-19	PT-20	PT-21A	PT-24
									GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
									ARD2200	ARD2194	ARD2195	ARD2196	ARD2197	ARD2198	ARD2199
									2.95	4.23	4.01	1.81	4.17	2.99	3.67
									13.38	11.65	11.7	11.7	11.8	19.46	11.88
									3/28/03	3/25/03	4/2/03	3/24/03	3/27/03	3/27/03	3/26/03
									SA	SA	SA	SA	SA	SA	SA
									ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D	ASH REMEDIAL D
									19	19	19	19	19	19	19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1,2-Tetrachloroethane	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,1,1-Trichloroethane	UG/L	1.6	8%	GA	5	0	2	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%			0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	GA	5	0	0	14	50 U		5 U	5 U	5 U	5 U	
1,1,2-Trichloroethane	UG/L	0	0%	GA	1	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,1-Dichloroethane	UG/L	4.3	9%	GA	5	0	3	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.29 J
1,1-Dichloroethene	UG/L	0.45	3%	GA	5	0	1	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,1-Dichloropropene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0%	GA	0.04	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	GA	0.04	0	0	35	10 UJ	0.5 U	1 U	1 UJ	1 U	1 U	0.5 U
1,2-Dibromoethene	UG/L	0	0%	GA	0.0006	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,2-Dichloroethane	UG/L	0	0%	GA	0.6	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,2-Dichloroethene (total)	UG/L	673	57%	MCL	70	3	20	35	[illegible]	62.1	3	1 U	7.8	1 U	35.2
1,2-Dichloropropane	UG/L	0	0%	GA	1	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0.84	3%	GA	5	0	1	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,3-Dichloropropane	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0%	GA	3	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
2,2-Dichloropropane	UG/L	0	0%			0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
2-Chloroethylvinylether	UG/L	0	0%			0	0	14	50 R		5 UJ	5 R	5 R	5 R	
2-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
2-Nitropropane	UG/L	0	0%			0	0	14	50 UJ		5 UJ	5 U	5 U	5 U	
Acetone	UG/L	0	0%			0	0	35	50 U	1.4 U	5 U	5 U	5 U	5 U	1.2 U
Acetonitrile	UG/L	0	0%			0	0	14	250 R		25 R	25 R	25 R	25 R	
Acrolein	UG/L	0	0%	GA	5	0	0	14	50 R		5 R	5 R	5 R	5 R	
Acrylonitrile	UG/L	0	0%	GA	5	0	0	14	50 U		5 U	5 U	5 U	5 U	
Allyl chloride	UG/L	0	0%	GA	5	0	0	14	50 U		5 U	5 U	5 U	5 U	
Benzene	UG/L	0.44	9%	GA	1	0	3	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Benzyl chloride	UG/L	0	0%			0	0	14	50 U		5 U	5 U	5 U	5 U	
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	GA	5	0	0	14	50 U		5 UJ	5 U	5 U	5 U	
Bromobenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Bromochloromethane	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Bromodichloromethane	UG/L	0	0%	MCL	80	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Bromoform	UG/L	0	0%	MCL	80	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	0	35	50 U	1 U	5 U	5 U	5 U	5 U	1 U
Carbon tetrachloride	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Chlorobenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Chlorodibromomethane	UG/L	0	0%	MCL	80	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Chloroethane	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Chloroform	UG/L	0.42	3%	GA	7	0	1	35	10 U	0.5 U	0.42 J	1 U	1 U	1 U	0.5 U
Chloroprene	UG/L	0	0%	GA	5	0	0	14	10 U		1 U	1 U	1 U	1 U	
Cis-1,2-Dichloroethene	UG/L	667	57%	GA	5	16	20	35	[illegible]	[illegible]	3	1 U	[illegible]	1 U	[illegible]
Cis-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Cyclohexanone	UG/L	0	0%			0	0	14	500 R		50 R	50 R	50 R	50 U	
Dichlorodifluoromethane	UG/L	0	0%	GA	5	0	0	35	10 R	0.5 U	1 U	1 UJ	1 UJ	1 UJ	0.5 U
Ethyl benzene	UG/L	0.36	3%	GA	5	0	1	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Ethyl methacrylate	UG/L	0	0%			0	0	14	50 U		5 U	5 U	5 U	5 U	
Hexachlorobutadiene	UG/L	0	0%	GA	0.5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Isobutyl alcohol	UG/L	0	0%			0	0	14	500 R		50 R	50 R	50 R	50 R	
Isopropylbenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Meta/Para Xylene	UG/L	0.68	3%			0	1	35	20 U	0.5 U	2 U	2 U	2 U	2 U	0.5 U
Methacrylonitrile	UG/L	0	0%	GA	5	0	0	14	50 U		5 U	5 U	5 U	5 U	
Methyl Tertbutyl Ether	UG/L	30.6	3%			0	1	35	50 U	0.5 U	5 U	5 U	5 U	5 U	0.5 U
Methyl bromide	UG/L	0	0%	GA	5	0	0	35	10 UJ	0.5 U	1 U	1 UJ	1 UJ	1 UJ	0.5 U
Methyl butyl ketone	UG/L	2	3%			0	1	35	50 U	1 U	5 U	2 J	5 U	5 U	1 U
Methyl chloride	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Methyl ethyl ketone	UG/L	0.54	6%			0	2	35	50 U	1 U	5 U	5 U	5 U	5 U	1 U

Shade indicates concentration above action level

RESULTS OF GROUNDWATER ANALYSIS - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

									ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
									PT-12A	PT-17	PT-18	PT-19	PT-20	PT-21A	PT-24
									GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
									ARD2200	ARD2194	ARD2195	ARD2196	ARD2197	ARD2198	ARD2199
									2.95	4.23	4.01	1.81	4.17	2.99	3.87
									13.38	11.85	11.7	11.7	11.8	19.46	11.88
									3/28/03	3/25/03	4/2/03	3/24/03	3/27/03	3/27/03	3/26/03
									SA	SA	SA	SA	SA	SA	SA
									ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C	ASH REMEDIAL C
									19	19	19	19	19	19	19
Parameter	Units	Maximum	Frequency	Type	Action Level	Exceed	Detect	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Methyl iodide	UG/L	0	0%	GA	5	0	0	35	50 U	1 U	5 U	5 U	5 U	5 U	1 U
Methyl isobutyl ketone	UG/L	0	0%			0	0	35	50 U	1 U	5 U	5 U	5 U	5 U	1 U
Methyl methacrylate	UG/L	0	0%	GA	50	0	0	14	50 U		5 U	5 U	5 U	5 U	
Methylene bromide	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Methylene chloride	UG/L	0	0%	GA	5	0	0	35	50 U	0.5 U	5 U	5 U	5 U	5 U	0.5 U
Naphthalene	UG/L	0	0%			0	0	35	10 U	0.5 U	1 U	0.64 U	1 U	1 U	0.5 U
Ortho Xylene	UG/L	2.8	3%	GA	5	0	1	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Pentachloroethane	UG/L	0	0%	GA	5	0	0	14	50 U		5 U	5 U	5 U	5 U	
Propionitrile	UG/L	0	0%			0	0	14	50 R		5 R	5 R	5 R	5 R	
Propylbenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Styrene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Tetrachloroethene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Toluene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Total Xylenes	UG/L	3.4	3%	GA	5	0	1	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	6	9%	GA	5	1	3	35	10 U	0.37 J	1 U	1 U	1 U	1 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0%	GA	0.4	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14	50 UJ		5 U	5 UJ	5 UJ	5 UJ	
Trichloroethene	UG/L	599	40%	GA	5	9	14	35	[illegible]	[illegible]	[illegible]	1 U	[illegible]	1 U	2.8
Trichlorofluoromethane	UG/L	0	0%	GA	5	0	0	35	10 UJ	0.5 U	1 U	1 UJ	1 UJ	1 UJ	0.5 U
Vinyl acetate	UG/L	0	0%			0	0	35	50 U	1 U	5 U	5 U	5 U	5 U	1 U
Vinyl chloride	UG/L	81.2	9%	GA	2	1	3	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
cis-1,4-Dichloro-2-butene	UG/L	0	0%			0	0	14	50 U		5 U	5 U	5 U	5 U	
n-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
p-Chlorotoluene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
p-Isopropyltoluene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
sec-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
tert-Butylbenzene	UG/L	0	0%	GA	5	0	0	35	10 U	0.5 U	1 U	1 U	1 U	1 U	0.5 U
Calcium	UG/L	483000	100%			0	37	37	242000	115000	188000	101000	139000	153000	75200
Magnesium	UG/L	179000	100%			0	37	37	38400	11800	29800	13500	14900	40100	9550
Manganese	UG/L	835	100%	SEC	50	13	37	37	45	1.13 J	19.1	[illegible]	5.88	[illegible]	15.3
Potassium	UG/L	28900	100%			0	37	37	3130	757 J	4090	2400 J	1190 J	8720 J	876 J
Sodium	UG/L	186000	100%	GA	20000	10	37	37	[illegible]	18300	[illegible]	17400	15800	[illegible]	14000
Chloride	MG/L	522	100%	GA	250000	0	39	39	58.3	4.33	11.9	15	3.72	106	18.7
Ethane	UG/L	26.5	11%			0	4	35	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Ethene	UG/L	8.16	11%			0	4	35	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Methane	UG/L	5960	60%			0	21	35	48.8	25 U	49.5	42.5	24 J	25.4	1720
Nitrate	MG/L	12.2	77%	GA	10000	0	30	39	0.487	0.622	0.254	2.12 J	0.229	0.239	0.1 U
Sulfate	MG/L	1340	100%	GA	250000	0	39	39	433	78.8	219	59.8	130	202	116
Total Organic Carbon	MG/L	5.78	100%			0	37	37	2.13	2.5	4.35	1.96	1.49	1.09	0.8

Shade indicates concentration above action level

TA_ _3-4

RESULTS OF DETECTED VOCs - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

			We			Well ID				
Parameter	Groundwater Standard [1]	Units	BN-S	MW-20	MW-30	MW-44A	MW-53	MW-56	MWT-1	MWT-2
1,1,1-Trichloroethane	5	UG/L	--	--	--	1.6	--	--	--	--
1,1-Dichloroethane	5	UG/L	--	--	--	4.3	--	--	--	--
1,1-Dichloroethene	5	UG/L	--	--	--	0.45 J	--	--	--	--
1,2-Dichloroethene (total)	70 (a)	UG/L	--	7.8	--	194	13.9	0.42 J	39.6	7.7
1,3,5-Trimethylbenzene	5	UG/L	0.84	--	--	--	--	--	--	--
Benzene	1	UG/L	--	--	--	--	--	--	--	0.41 J
Chloroform	7	UG/L	--	--	--	--	--	--	--	--
Cis-1,2-Dichloroethene	5	UG/L	--	7.8	--	194	13.9	0.42 J	39.6	7.7
Ethyl benzene	5	UG/L	0.36 J	--	--	--	--	--	--	--
Meta/Para Xylene		UG/L	0.68	--	--	--	--	--	--	--
Methyl Tertbutyl Ether		UG/L	30.6	--	--	--	--	--	--	--
Methyl butyl ketone		UG/L	--	--	--	--	--	--	--	--
Methyl ethyl ketone		UG/L	--	--	--	--	--	--	--	--
Ortho Xylene	5	UG/L	2.8	--	--	--	--	--	--	--
Total Xylenes	5	UG/L	3.4	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	5	UG/L	--	--	--	1.7	--	--	--	--
Trichloroethene	5	UG/L	--	12	0.43 J	10.8	1.4	--	13.2	--
Vinyl chloride	2	UG/L	--	--	--	81.2	--	--	--	0.27 J

NOTES:
1. Groundwater criteria source is NY State Class GA Groundwater Standard (TOGS 1.1.1, June 1998), except as noted below.
   (a) MCL - USEPA Maximum Contaminant Level

J = the report value is an estimated concentration
-- = compound was not detected

Shade indicates concentration above action level

TA___3-4

RESULTS OF DETECTED VOCs - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

			Well ID							
Parameter	Groundwater Standard [1]	Units	MWT-3	MWT-4	MWT-5	MWT-6	MWT-6	MWT-7	MWT-8	MWT-9
1,1,1-Trichloroethane	5	UG/L	--	0.69	--	--	--	--	--	--
1,1-Dichloroethane	5	UG/L	--	--	0.25 J	--	--	--	--	--
1,1-Dichloroethene	5	UG/L	--	--	--	--	--	--	--	--
1,2-Dichloroethene (total)	70 (a)	UG/L	17.2	43.2	5.7	3.6	3.9	22.4	44.8	34.7
1,3,5-Trimethylbenzene	5	UG/L	--	--	--	--	--	--	--	--
Benzene	1	UG/L	--	--	0.44 J	--	--	--	0.28 J	--
Chloroform	7	UG/L	--	--	--	--	--	--	--	--
Cis-1,2-Dichloroethene	5	UG/L	17.2	43.2	5.7	3.6	3.9	22.4	44.8	34.7
Ethyl benzene	5	UG/L	--	--	--	--	--	--	--	--
Meta/Para Xylene		UG/L	--	--	--	--	--	--	--	--
Methyl Tertbutyl Ether		UG/L	--	--	--	--	--	--	--	--
Methyl butyl ketone		UG/L	--	--	--	--	--	--	--	--
Methyl ethyl ketone		UG/L	--	--	0.54 J	--	--	--	0.29 J	--
Ortho Xylene	5	UG/L	--	--	--	--	--	--	--	--
Total Xylenes	5	UG/L	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	5	UG/L	--	--	--	--	--	--	--	--
Trichloroethene	5	UG/L	3.8	1.7	--	--	--	391	--	70.2
Vinyl chloride	2	UG/L	--	--	--	--	--	--	0.51	--

NOTES:
1. Groundwater criteria source is NY State Class GA Groundwater Standard (TOGS 1.1.1, June 1998), except as noted below.
   (a) MCL - USEPA Maximum Contaminant Level

J = the report value is an estimated concentration
-- = compound was not detected

Shade indicates concentration above action level

RESULTS OF DETECTED VOCs - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Well ID									
Parameter	Groundwater Standard [1]	Units	MWT-10	PT-12A	PT-12A	PT-17	PT-18	PT-19	PT-24
1,1,1-Trichloroethane	5	UG/L	--	--	--	--	--	--	--
1,1-Dichloroethane	5	UG/L	--	--	--	--	--	--	0.29 J
1,1-Dichloroethene	5	UG/L	--	--	--	--	--	--	--
1,2-Dichloroethene (total)	70 (a)	UG/L	5.4	673	510	62.1	3	--	35.2
1,3,5-Trimethylbenzene	5	UG/L	--	--	--	--	--	--	--
Benzene	1	UG/L	--	--	--	--	--	--	--
Chloroform	7	UG/L	--	--	--	--	0.42 J	--	--
Cis-1,2-Dichloroethene	5	UG/L	5.4	667	510	61.7	3	--	35.2
Ethyl benzene	5	UG/L	--	--	--	--	--	--	--
Meta/Para Xylene		UG/L	--	--	--	--	--	--	--
Methyl Tertbutyl Ether		UG/L	--	--	--	--	--	--	--
Methyl butyl ketone		UG/L	--	--	--	--	--	2 J	--
Methyl ethyl ketone		UG/L	--	--	--	--	--	--	--
Ortho Xylene	5	UG/L	--	--	--	--	--	--	--
Total Xylenes	5	UG/L	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	5	UG/L	--	6 J	--	0.37 J	--	--	--
Trichloroethene	5	UG/L	--	599	550	268	27.3	--	2.8
Vinyl chloride	2	UG/L	--	--	--	--	--	--	--

NOTES:
1. Groundwater criteria source is NY State Class GA Groundwater Standard (TOGS 1.1.1, June 1998), except as noted below.
   (a) MCL - USEPA Maximum Contaminant Level

J = the report value is an estimated concentration
-- = compound was not detected

Shade indicates concentration above action level

TABLE 3-5
Natural Attenuation Parameters Immediately Upgradient, Downgradient, and in the Permeable Reactive Barrier (PRB)
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Well Grouping I

		Electron Acceptors				Reaction Endproducts				Physical Parameters				
Well Location in Relation to PRB	Well ID	DO (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	CO_2 (mg/L)	Methane (ug/L)	Ethane (ug/L)	Ethene (ug/L)	Chloride (mg/L)	ORP (mV)	pH	Temp. (deg. C)	Specific Conductivity (uS/cm)	Turbidity (NTU)
Upgradient	MWT-1	6.02	0.293	114	30	25 U	25 U	25 U	13.0	205	6.4	6.20	0.651	37.4
PRB	MWT-2	2.26	ND	106	5	3940	8.12 J	6.4 J	16.0	19	8.7	4.60	0.331	78.2
Downgradient	MWT-3	3.29	0.211	126	30	50	25 U	25 U	14.6	156	6.95	6.79	0.632	62.2

Well Grouping II

		Electron Acceptors				Reaction Endproducts				Physical Parameters				
Well Location in Relation to PRB	Well ID	DO (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	CO_2 (mg/L)	Methane (ug/L)	Ethane (ug/L)	Ethene (ug/L)	Chloride (mg/L)	ORP (mV)	pH	Temp. (deg. C)	Specific Conductivity (uS/cm)	Turbidity (NTU)
Upgradient	MWT-4	8.10	0.252	123	25	25 U	25 U	25 U	18.6	199	7.02	5.62	0.686	39.4
PRB	MWT-5	1.75	ND	76.9	10	5960	10.9 J	5.92 J	19.5	117	8.8	5	0.3	37.7
Downgradient	MWT-6	1.48	0.580	80.1	10	2335	25 U	25 U	15.2	109	7.4	5.54	0.440	28.5

Well Grouping III

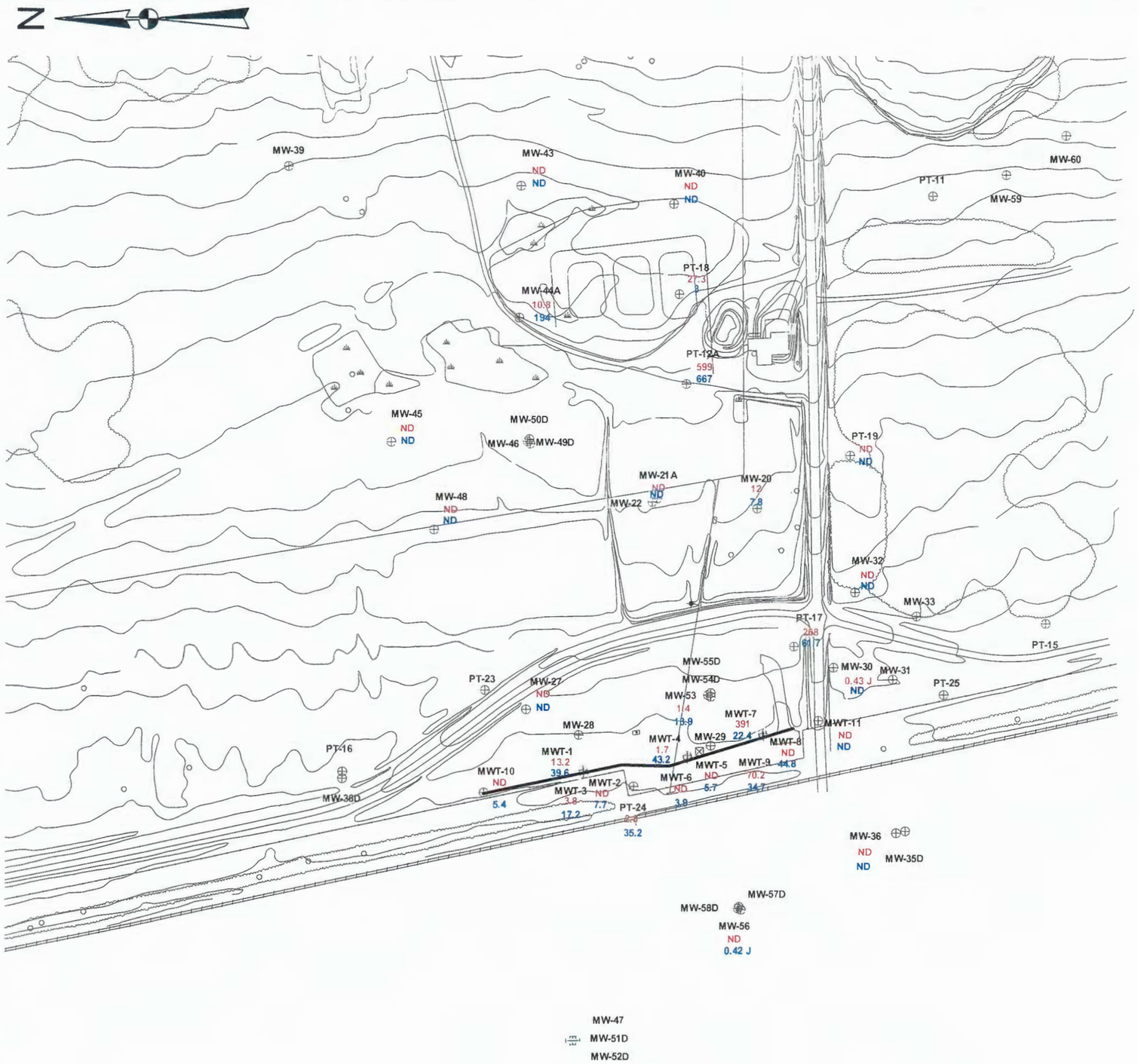
		Electron Acceptors				Reaction Endproducts				Physical Parameters				
Well Location in Relation to PRB	Well ID	DO (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	CO_2 (mg/L)	Methane (ug/L)	Ethane (ug/L)	Ethene (ug/L)	Chloride (mg/L)	ORP (mV)	pH	Temp. (deg. C)	Specific Conductivity (uS/cm)	Turbidity (NTU)
Upgradient	MWT-7	4.73	0.388	78.2	35	25 U	25 U	25 U	4.32	158	6.85	9.35	0.672	18.7
PRB	MWT-8	1.76	ND	41.6	10	3800	9.28 J	8.16 J	3.59	43	8.78	4.15	0.201	5.1
Downgradient	MWT-9	1.68	0.221	38.6	15	1620	25 U	25 U	4.89	122	7.15	9.65	0.380	285

Note:
PRB - permeable reactive barrier
"Upgradient" refers to a location upgradient of the PRB.
"Downgradient" refers to a location upgradient of the PRB.

U - compound was not detected
J - the report value is an estimated concentration
ND - Non-detect

mg/L - milligrams per liter
ug/L - micrograms per liter
mV - millivolts

deg. C - degrees centigrade (C^o)
uS/cm - microsiemens per centimeter
NTU - Nephelometric Turbidity Unit



LEGEND

PAVED ROAD

GROUND CONTOUR AND ELEVATION

WETLAND & DESIGNATION

OUTLINE OF FORMER TRASH PITS (IDENTIFIED FROM AERIAL PHOTO)

APPROXIMATE EXTENT OF DEBRIS PILE

BRUSH

CHAIN LINK FENCE

UTILITY POLE
APPROXIMATE LOCATION OF FIRE HYDRANT

RAILROAD

6" WATER MAIN

PT-22 MONITORING WELL W/ DESIGNATION
TCE TRICHLOROETHENE (TCE) - ug/L
DCE CIS-1,2-DICHLOROETHENE (DCE) - ug/L

ND NO DETECTION FOR TRICHLOROETHLENE (TCE) - ug/L
ND NO DETECTION CIS-1,2-DICHLOROETHENE (DCE) - ug/L

PERMEABLE REACTIVE BARRIER

NOTES:
GROUNDWATER SAMPLES COLLECTED FOLLOWING EPA REGION II LOW-FLOW SAMPLING PROTOCOL SAMPLES FOR GROUND WATER QUALITY ANALYSIS COLLECTED ON MARCH 24 TO APRIL 2, 2003.

GROUNDWATER ANALYTICAL DATA BASED ON CONDITIONS AT THE TIME OF SAMPLING. GROUNDWATER CONDITONS AT OTHER TIMES MAY VARY.

150' 0 150'

SCALE: 1" = 150'

PARSONS

SENECA ARMY DEPOT ACTIVITY
ASH LANDFILL
GROUNDWATER MONITORING
FIRST QUARTER 2003

ENVIRONMENTAL ENGINEERING	743155-01300

FIGURE 3-2
GROUNDWATER ANALYTICAL DATA
TCE AND DCE CONCENTRATIONS (1Q 2003)

SCALE: 1 INCH = 150 FEET	JULY 2002

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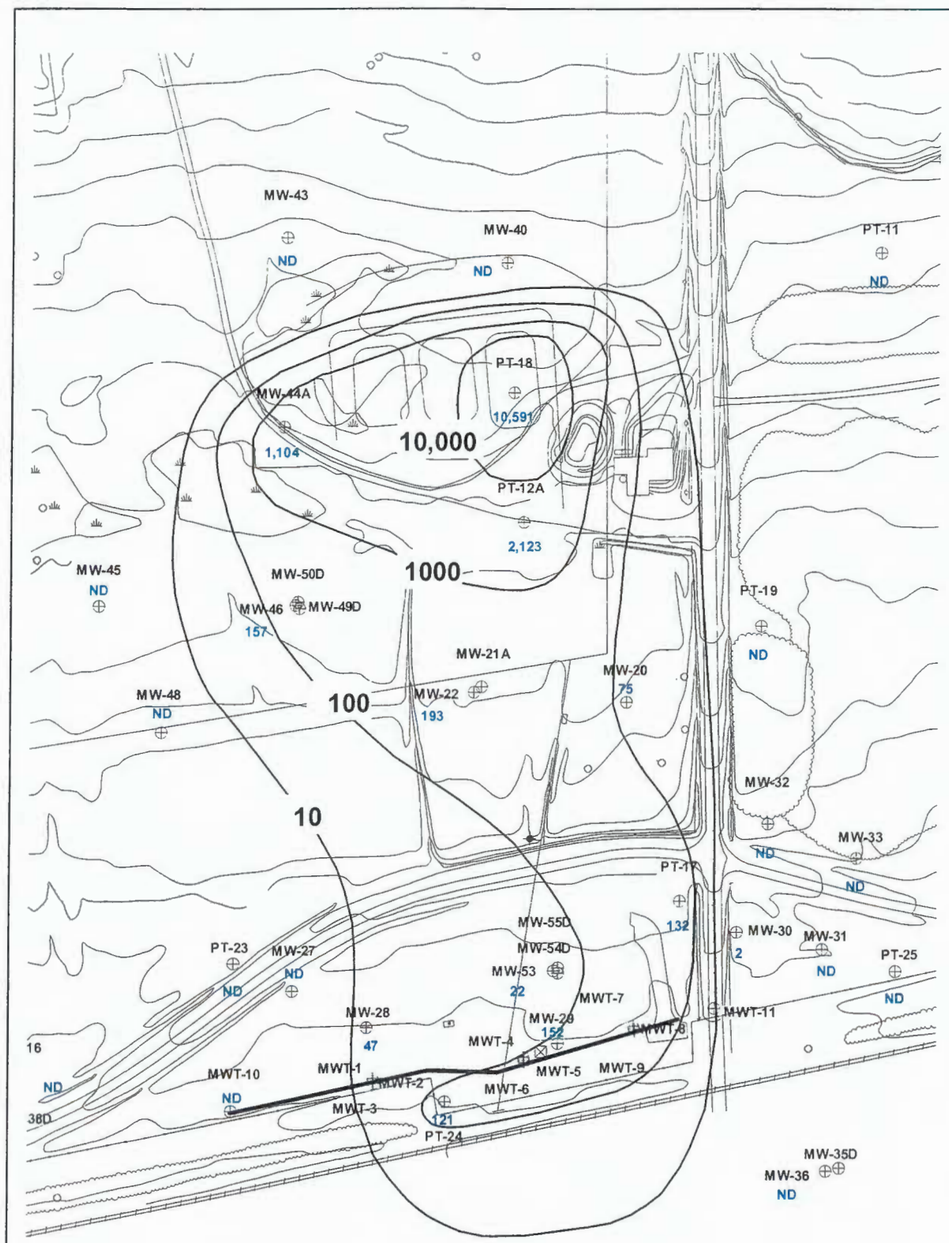
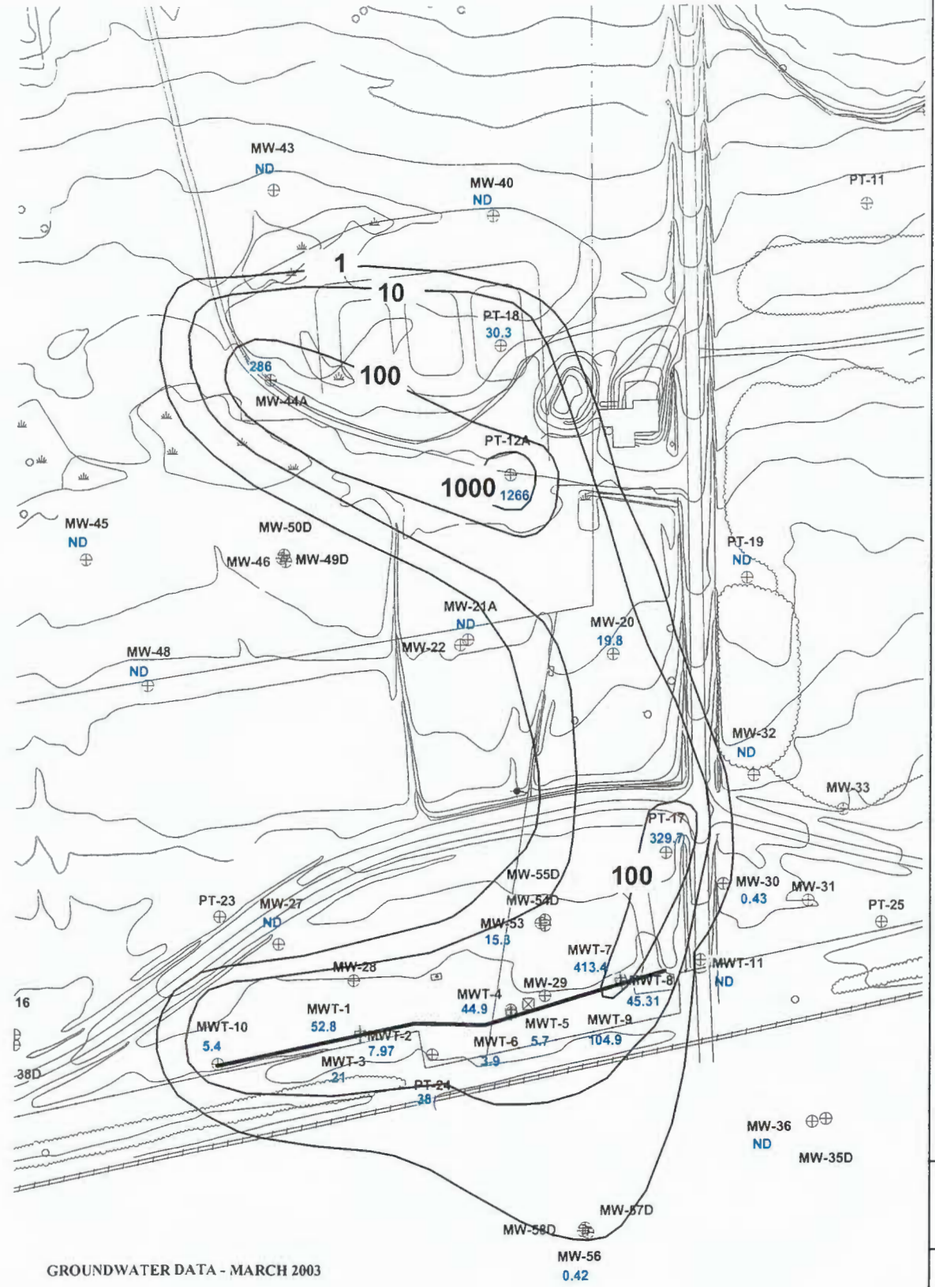


GROUNDWATER DATA - OCTOBER 1999



GROUNDWATER DATA - MARCH 2003

LEGEND

- PAVED ROAD
- GROUND CONTOUR AND ELEVATION
- WETLAND & DESIGNATION
- OUTLINE OF FORMER TRASH PITS (IDENTIFIED FROM AERIAL PHOTO)
- APPROXIMATE EXTENT OF DEBRIS PILE
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- RAILROAD
- 6" WATER MAIN
- PERMEABLE REACTIVE BARRIER
- PT-22 / Total — MONITORING WELL W/ DESIGNATION TOTAL CHLORINATED ETHENES (UG/L) (CIS-1,2-DCE, TCE AND VC)
- ND — NO DETECTION
- 1,000 — Total Chlorinated Ethene Isocontour (ppb)

NOTES:
GROUNDWATER SAMPLES COLLECTED FOLLOWING EPA REGION II LOW-FLOW SAMPLING PROTOCOL

GROUNDWATER ANALYTICAL DATA BASED ON CONDITIONS AT THE TIME OF SAMPLING. GROUNDWATER CONDITONS AT OTHER TIMES MAY VARY.

200' 0 200'

SCALE: 1" = 2000'

PARSONS

SENECA ARMY DEPOT ACTIVITY
ASH LANDFILL
GROUNDWATER MONITORING
FIRST QUARTER 2003

ENVIRONMENTAL ENGINEERING	734155-01300

FIGURE 3-3
COMPARISON OF TOTAL CHLORINATED ETHENES IN GROUNDWATER OCTOBER 1999 vs. MARCH 2003

SCALE: 1 INCH = 200 FEET	AUGUST 2003

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FIGURE 3-4
HISTORIC TCE AND DCE CONCENTRATIONS AT PT-12A
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

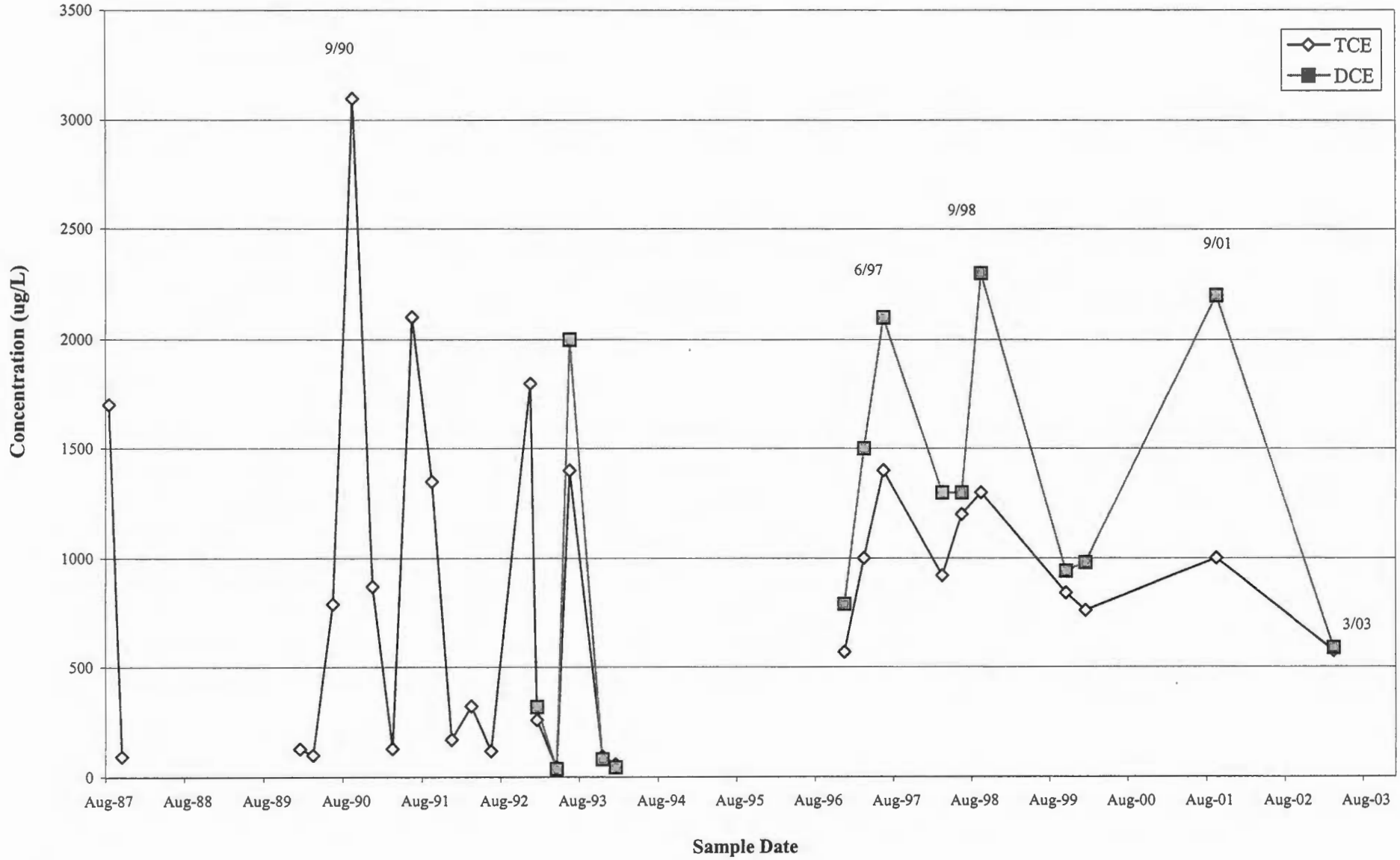

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FIGURE 3-5
HISTORIC TCE AND DCE CONCENTRATIONS AT PT-18
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

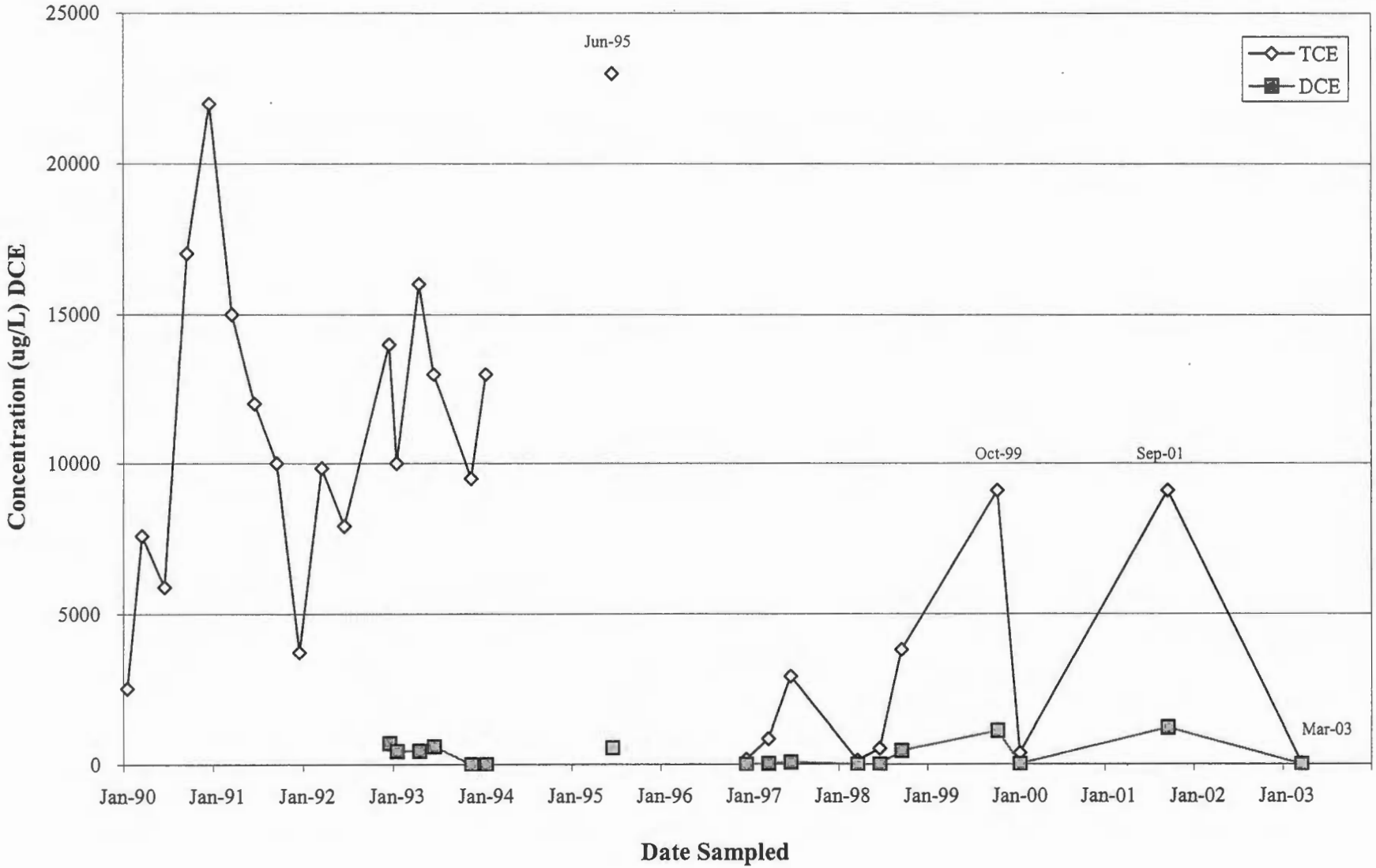

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FIGURE 3-6
HISTORIC TCE, DCE, and VINYL CHLORIDE CONCENTRATIONS AT MW-44a (Small Scale)
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

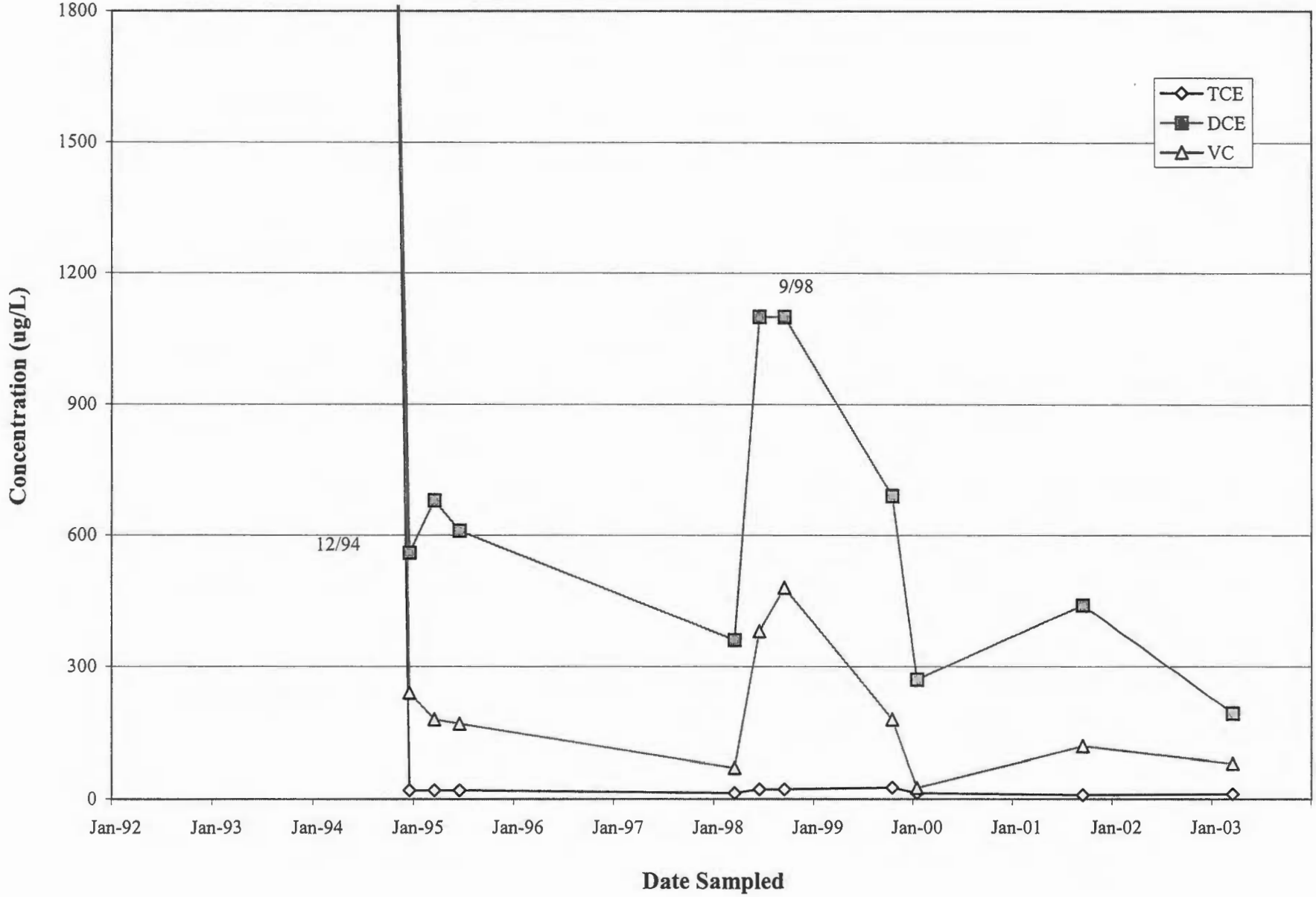
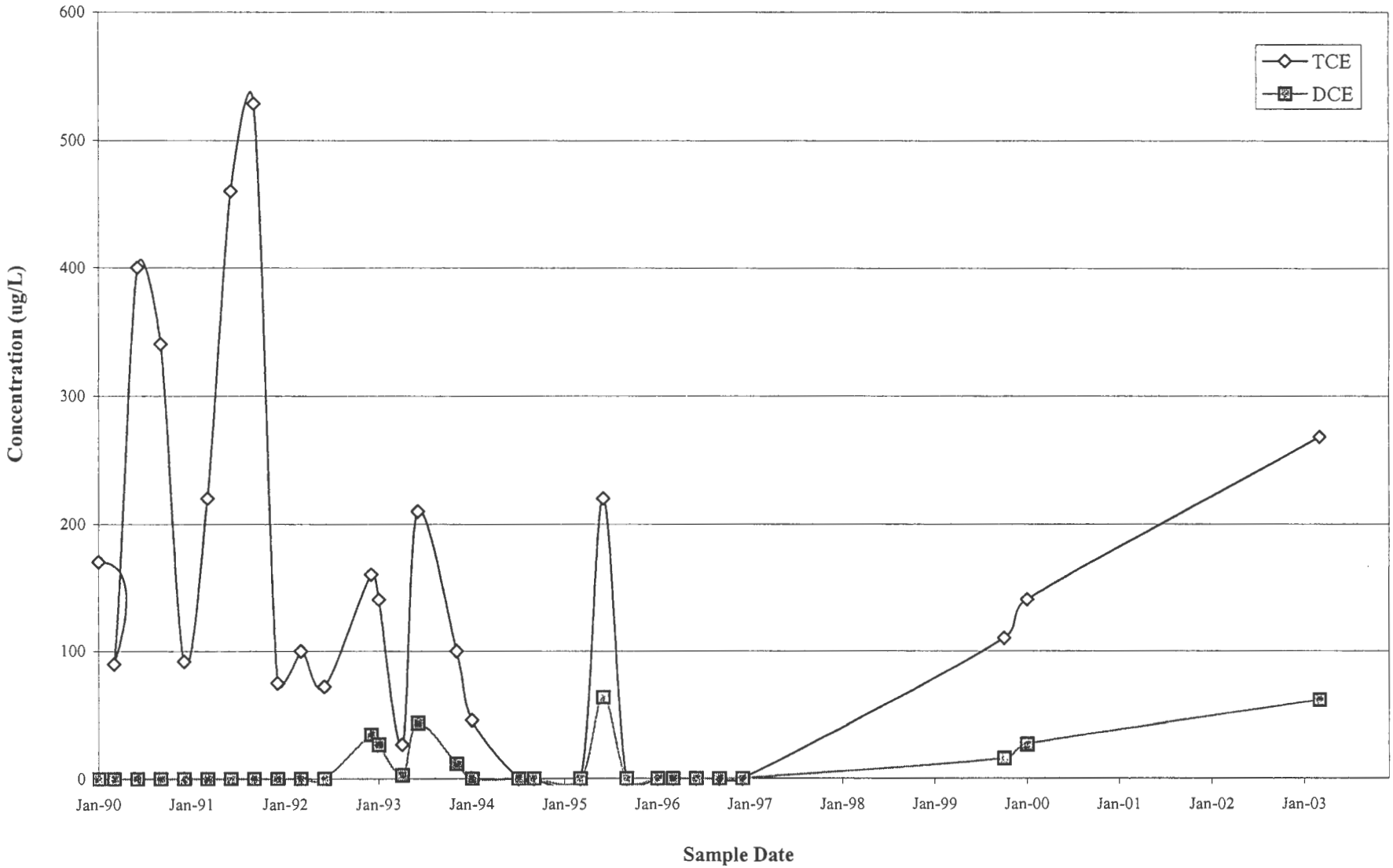
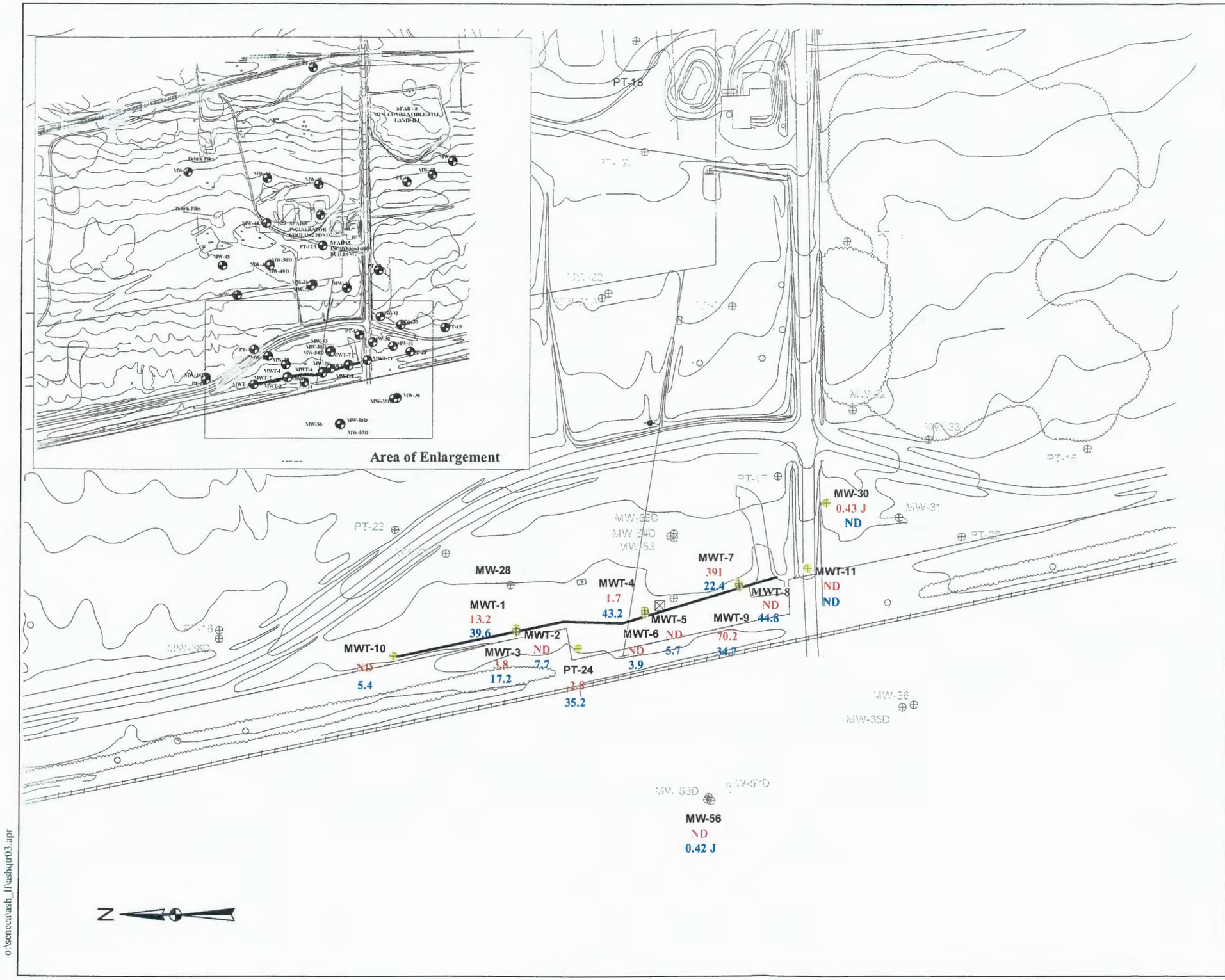


FIGURE 3-7
HISTORIC TCE AND DCE CONCENTRATIONS AT PT-17
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY



P:\PIT\Projects\SENECA\QUARTSMP\ASH\1qtr03\Report\Figures\historic chart.xls\PT-17 Chart



LEGEND

- PAVED ROAD
- GROUND CONTOUR AND ELEVATION
- WETLAND & DESIGNATION
- OUTLINE OF FORMER TRASH PITS (IDENTIFIED FROM AERIAL PHOTO)
- APPROXIMATE EXTENT OF DEBRIS PILE
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- RAILROAD
- 6" WATER MAIN
- PT-22 — MONITORING WELL W/ DESIGNATION
- TCE — TRICHLOROETHENE (TCE) - ug/L
- DCE — CIS-1,2-DICHLOROETHENE (DCE) - ug/L
- ND — NO DETECTION FOR TRICHLOROETHENE (TCE) - ug/L
- ND — NO DETECTION CIS-1,2-DICHLOROETHENE (DCE) - ug/L
- PERMEABLE REACTIVE BARRIER

NOTES:
GROUNDWATER SAMPLES COLLECTED FOLLOWING EPA REGION II LOW-FLOW SAMPLING PROTOCOL SAMPLES FOR GROUND WATER QUALITY ANALYSIS COLLECTED IN MARCH 2003

GROUNDWATER ANALYTICAL DATA BASED ON CONDITIONS AT THE TIME OF SAMPLING. GROUNDWATER CONDITONS AT OTHER TIMES MAY VARY.

150' 0 150'

SCALE: 1" = 150'

PARSONS

SENECA ARMY DEPOT ACTIVITY
ASH LANDFILL
GROUNDWATER MONITORING
FIRST QUARTER 2003

ENVIRONMENTAL ENGINEERING	743155-01300

FIGURE 3-8
GROUNDWATER ANALYTICAL DATA
TCE AND DCE CONCENTRATIONS (1Q 2003)
IN THE VICINITY OF THE PRB

SCALE: 1 INCH = 150 FEET	AUGUST 2003

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FIGURE 3-9
TCE AND DCE CONCENTRATIONS IN FIRST WELL GROUPING (MWT-1, MWT-2, AND MWT-3) - MARCH 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

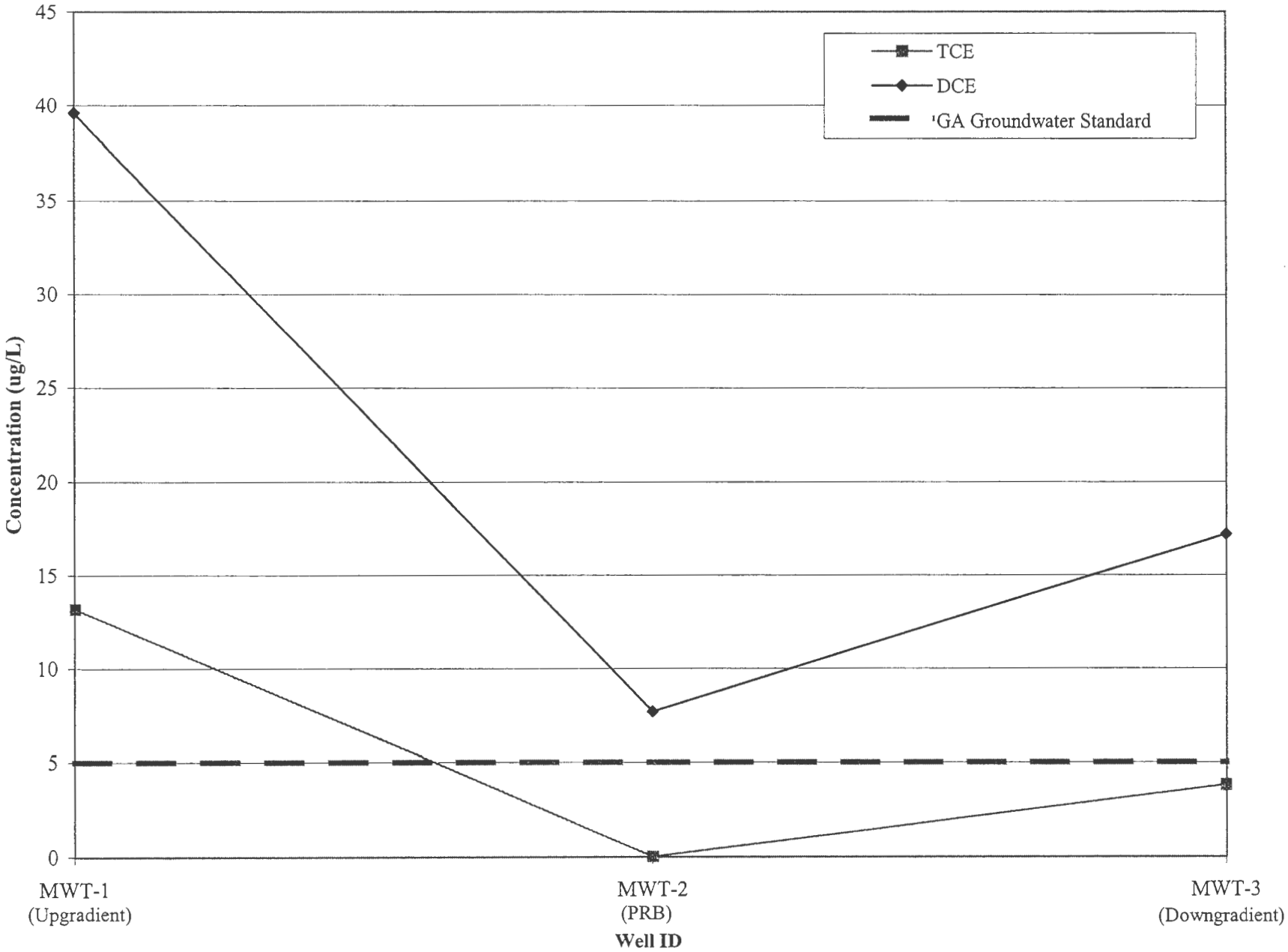


FIGURE 3-10
TCE AND DCE CONCENTRATIONS IN SECOND WELL GROUPING (MWT-4, MWT-5, AND MWT-6) - MARCH 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

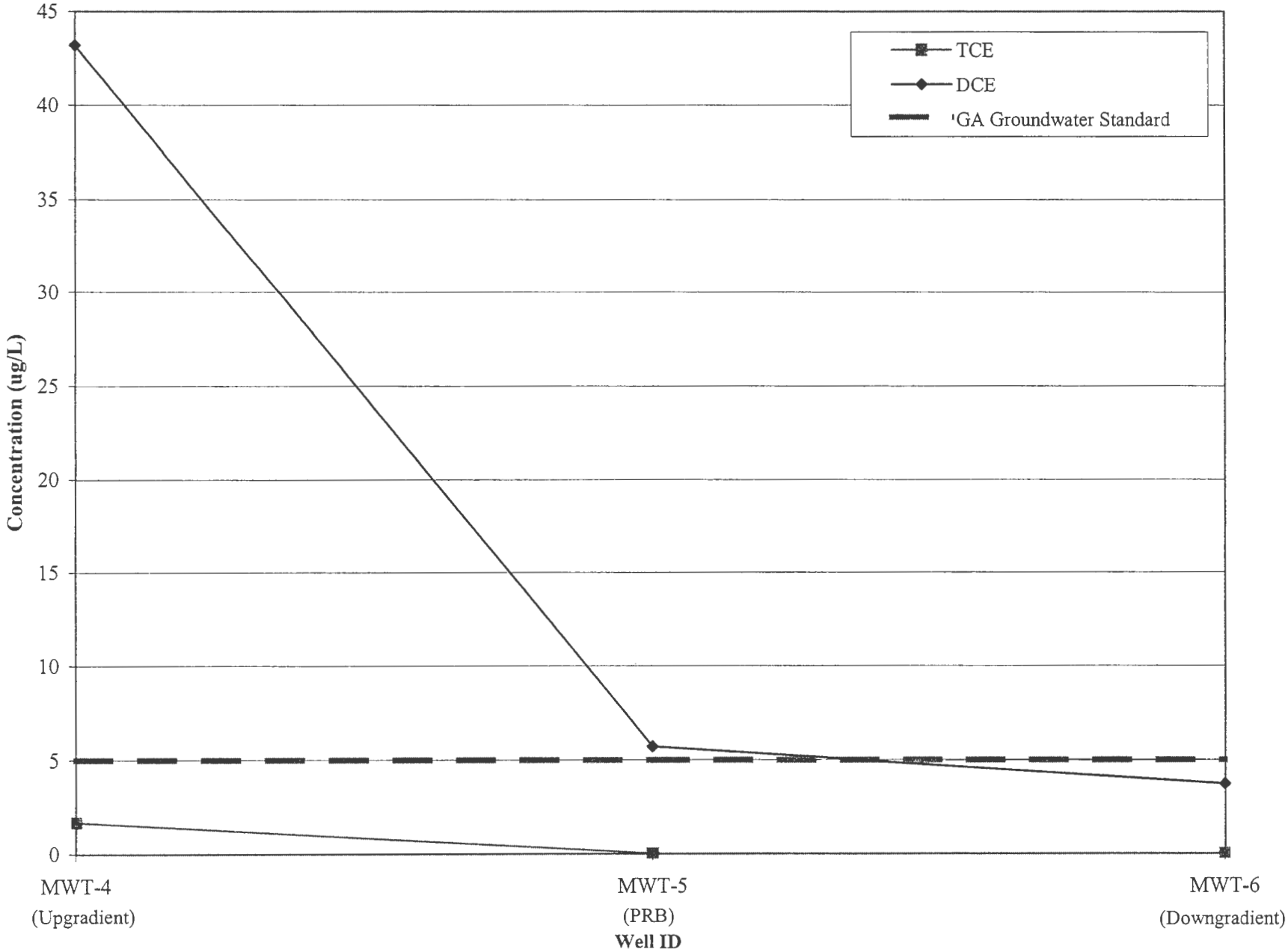


FIGURE 3-11
TCE AND DCE CONCENTRATIONS IN THIRD WELL GROUPING (MWT-7, MWT-8, AND MWT-9) - MARCH 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

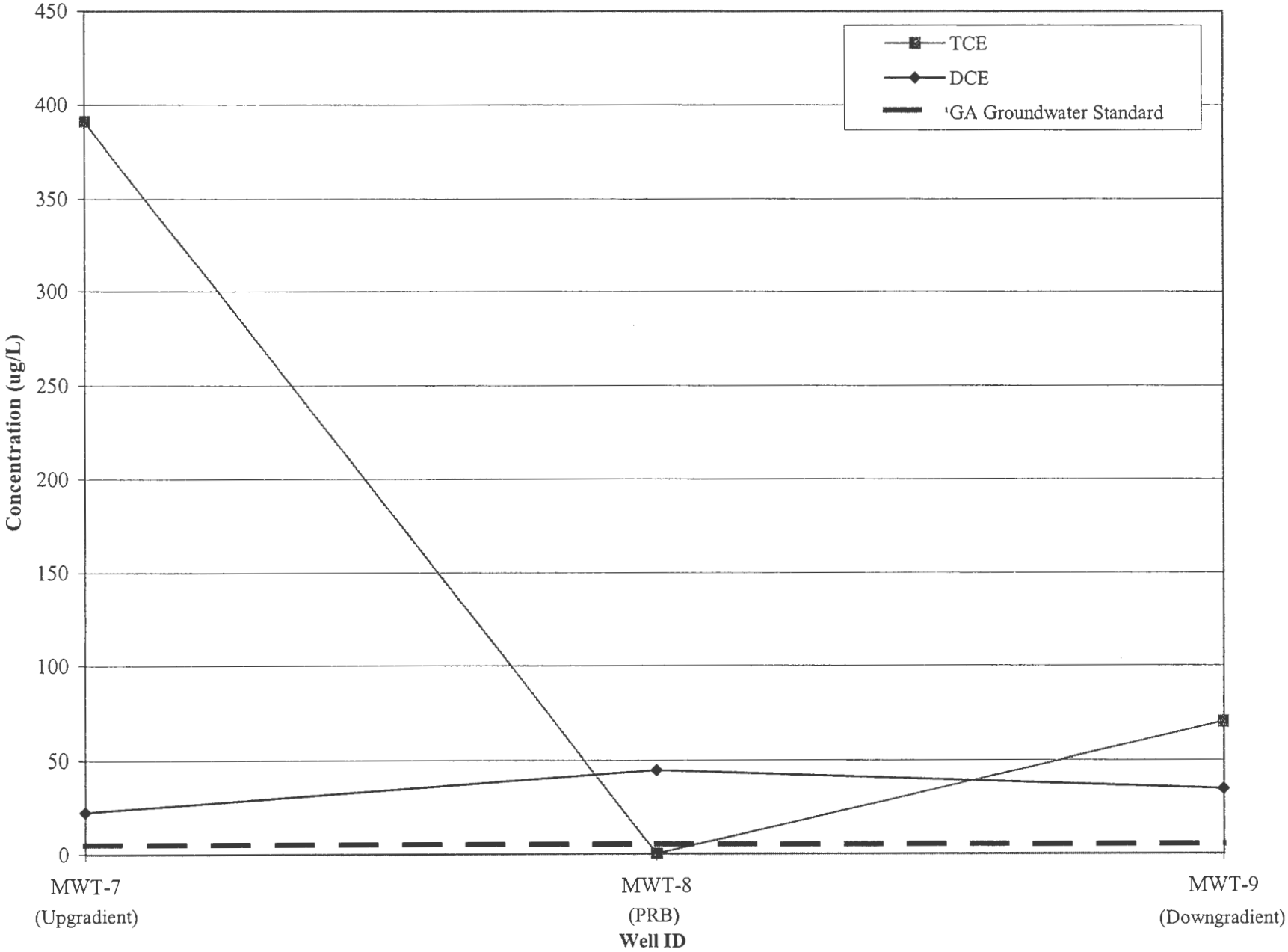
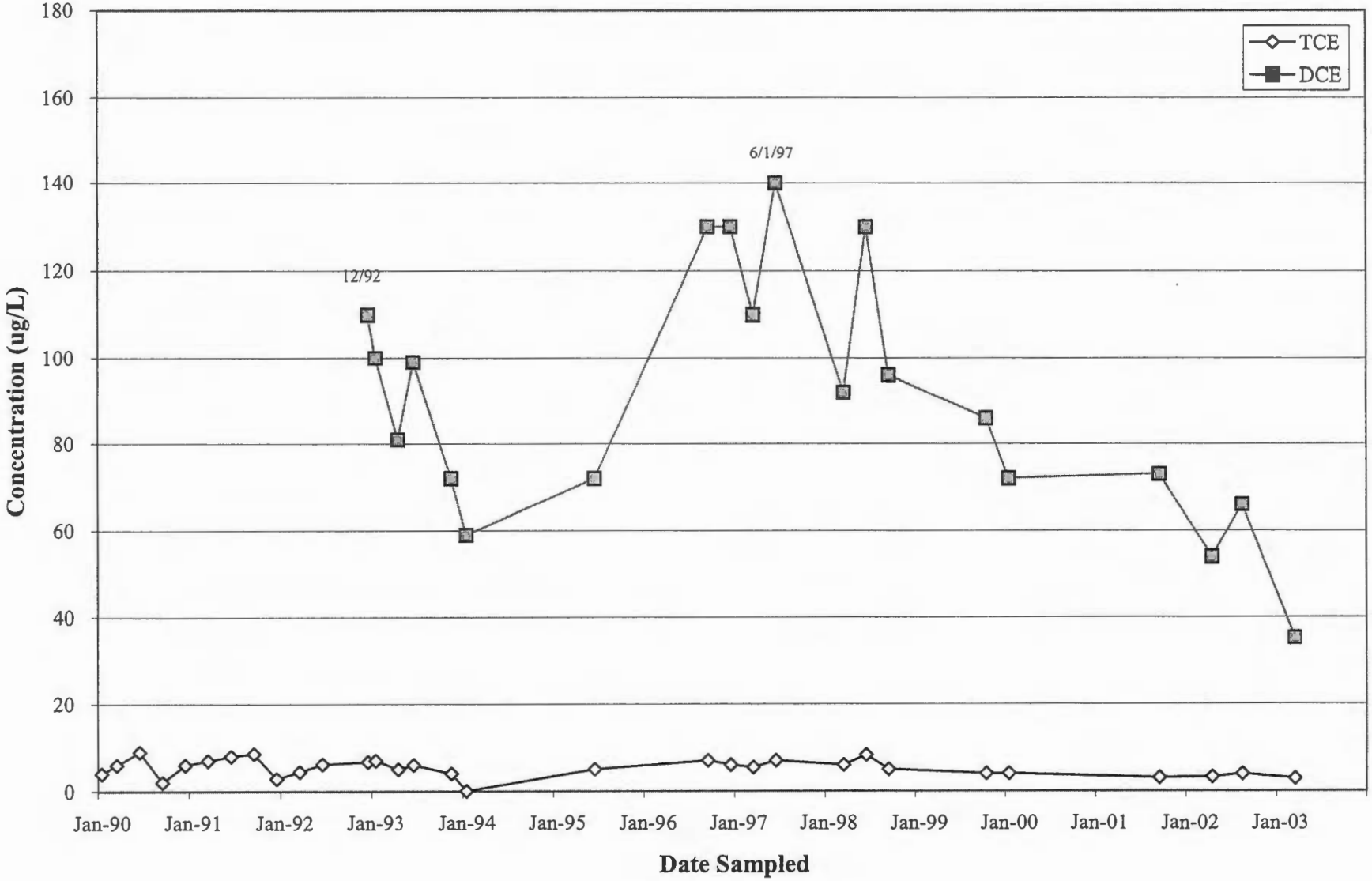


FIGURE 3-12
HISTORIC TCE AND DCE CONCENTRATIONS AT PT-24
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY



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APPENDIX A

GROUNDWATER ELEVATION DATA

TABLE 3-1
GROUNDWATER ELEVATION DATA - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Monitoring Well	Top of Riser Elevation (ft)	First Quarter 1995			Second Quarter 1995			Third Quarter 1995			Fourth Quarter 1995			First Quarter 1996		
		Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft
PT-10	681.52				06/05/1995	10.4	671.12	09/12/1995	10.5	671.02	1/11/96	8.22	673.3	03/14/1996	7.26	674.26
PT-11	658.22	03/16/1995	4.28	653.94	06/05/1995	7.2	651.02	09/12/1995	8.39	649.83	1/11/96	4.94	653.28	03/14/1996	4.44	653.78
PT-12A	652.15				06/05/1995	Destroyed								03/14/1996	7.94	644.21
PT-15	637.76				06/05/1995	8.2	629.56	09/12/1995	9.73	628.03	1/11/96	4.94	632.82	03/14/1996	5.73	632.03
PT-16	637.51				06/05/1995	4.68	632.83	09/12/1995	5.36	632.15	1/11/96	3.18	634.33	03/14/1996	2.66	634.85
PT-17	640.14				06/05/1995	7.87	632.27	09/12/1995	8.66	631.48	1/11/96	6.16	633.98	03/14/1996	5.04	635.1
PT-18	656.68				06/05/1995	8.24	648.44	09/12/1995	8.81	647.87	1/11/96	7.22	649.46	03/14/1996	7.08	649.6
PT-19	645.26	03/17/1995	3.1	642.16	06/05/1995	6.33	638.93	09/12/1995	7.57	637.69	1/10/96	4.14	641.12	03/14/1996	2.62	642.64
MW-20	647.28				06/05/1995	7.69	639.59	09/12/1995	8.83	638.45	1/11/96	6.89	640.39	03/14/1996	6.64	640.64
MW-21A	647.73				06/05/1995	Destroyed								03/14/1996	8.16	639.57
MW-22	648.61				06/05/1995	8.92	639.69	09/12/1995	9.74	638.87	1/11/96	8.9	639.71	03/14/1996	8.66	639.95
PT-23	641.58				06/05/1995	6.95	634.63	09/12/1995	7.94	633.64	1/11/96	4.74	636.84	03/14/1996	4.17	637.41
PT-24	636.40				06/05/1995	5.41	630.99	09/12/1995	5.64	630.76	1/11/96	5.08	631.32	03/14/1996	4.48	631.92
PT-25	637.09				06/05/1995	7.2	629.89	09/12/1995	9.84	627.25	1/10/96	5.63	631.46	03/14/1996	4.04	633.05
PT-26	614.64				06/05/1995	7.02	607.62	09/12/1995	Not Measured		1/11/96	Not Measured		03/14/1996	Not Measured	
MW-27	639.32	03/16/1995	5.13	634.19	06/05/1995	6.85	632.47	09/12/1995	6.74	632.58	1/11/96	6.04	633.28	03/14/1996	5.7	633.62
MW-28	637.21				06/05/1995	5.93	631.28	09/12/1995	6.12	631.09	1/11/96	5.66	631.55	03/14/1996	5.23	631.98
MW-29	637.31				06/05/1995	7.38	629.93	09/12/1995	7.78	629.53	1/11/96	6.68	630.63	03/14/1996	6.2	631.01
MW-30	640.32	03/17/1995	4.1	636.22	06/05/1995	Dry		09/12/1995	10.42	629.9	1/11/96	7.65	632.67	03/14/1996	5.88	634.44
MW-31	636.70				06/05/1995	6.49	630.21	09/12/1995	8.7	628.00	1/11/96	4.88	631.82	03/14/1996	3.38	633.32
MW-32	641.68				06/05/1995	8	633.68	09/12/1995	8.9	632.78	1/11/96	6.86	634.82	03/14/1996	5.45	636.23
MW-33	639.56				06/05/1995	8.76	630.8	09/12/1995	9.62	629.94	1/11/96	6.24	633.32	03/14/1996	4.96	634.6
MW-34	632.89				06/05/1995	5.93	626.96	09/12/1995	8.9	623.99	1/10/96	4.72	628.17	03/14/1996	3.16	629.73
MW-35D	631.82				06/05/1995	4.15	627.67	09/12/1995	5.43	626.39	1/10/96	2.89	628.93	03/14/1996	2.38	629.44
MW-36	631.79	03/16/1995	2.34	629.45	06/05/1995	4.36	627.43	09/12/1995	5.94	625.85	1/10/96	2.97	628.82	03/14/1996	2.32	629.47
MW-37	632.89	09/23/1901			06/05/1995	4.58	628.31	09/12/1995	5.96	626.93	1/11/96	3.32	629.57	03/14/1996	2.24	630.65
MW-38D	637.90	09/28/1901			06/05/1995	5.23	632.67	09/12/1995	8.91	628.99	1/11/96	3.88	634.02	03/14/1996	3.47	634.43
MW-39	659.54	10/20/1901			06/05/1995	3.96	655.58	09/12/1995	5.27	654.27	1/11/96	1.91	657.63	03/14/1996	Frozen	
MW-40	659.30	10/20/1901	3.61	655.69	06/05/1995	6.48	652.82	09/12/1995	7.46	651.84	1/11/96	4.44	654.86	03/14/1996	3.81	
MW-41D	694.02	11/24/1901			06/05/1995	8.48	685.54	09/12/1995	8.76	685.26	1/11/96	7.32	686.7	03/14/1996	7	687.02
MW-42D	683.04				06/05/1995	5.97	677.07	09/12/1995	8.34	674.70	1/11/96	4.02	679.02	03/14/1996	3.53	679.51
MW-43	657.73				06/05/1995	4.72	653.01	09/12/1995	5.73	652.00	1/11/96	Frozen	NA	03/14/1996	Frozen	
MW-44A	653.85				06/05/1995	Destroyed								03/14/1996	8.93	644.92
MW-45	650.90	03/17/1995	3.05	647.85	06/05/1995	5.26	645.64	09/12/1995	6.34	644.56	1/11/96	Frozen	NA	03/14/1996	Frozen	
MW-46	650.41				06/05/1995	7.06	643.35	09/12/1995	7.96	642.45	1/11/96	6.16	644.25	03/14/1996	5.72	644.69
MW-47	628.06	03/16/1995	2.84	625.22	06/05/1995	6.48	621.58	09/12/1995	5.96	622.10	1/11/96	Frozen	NA	03/14/1996	Frozen	
MW-48	648.32	03/17/1995	3.1	645.22	06/05/1995	6.13	642.19	09/12/1995	6.86	641.46	1/11/96	3.7	644.62	03/14/1996	Frozen	
MW-49D	650.50				06/05/1995	7.1	643.4	09/12/1995	7.88	642.62	1/11/96	6.09	644.41	03/14/1996	5.71	644.79
MW-50D	649.88				06/05/1995	6.88	643	09/12/1995	7.69	642.19	1/11/96	6.02	643.86	03/14/1996	5.78	644.1
MW-51D	628.24				06/05/1995	6.63	621.61	09/12/1995	6.12	622.12	1/11/96		628.24	03/14/1996	2.78	625.46
MW-52D	626.35				06/05/1995	6.12	620.23	09/12/1995	5.68	620.67	1/11/96	3	623.35	03/14/1996	Frozen	
MW-53	639.41				06/05/1995	8.45	630.96	09/12/1995	8.94	630.47	1/11/96	7.86	631.55	03/14/1996	6.98	632.43
MW-54D	639.11				06/05/1995	8.3	630.81	09/12/1995	8.76	630.35	1/11/96	7.66	631.45	03/14/1996	6.97	632.14
MW-55D	639.16				06/05/1995	8.18	630.98	09/12/1995	8.62	630.54	1/11/96	7.42	631.74	03/14/1996	6.88	632.28
MW-56	630.51	03/16/1995	2.95	627.56	06/05/1995	4.14	626.37	09/12/1995	4.31	626.20	1/11/96	Frozen	NA	03/14/1996	Frozen	
MW-57D	629.82				06/05/1995	3.79	626.03	09/12/1995	3.7	626.12	1/11/96	2.42	627.4	03/14/1996	1.91	627.91
MW-58D	629.69				06/05/1995	3.6	626.09	09/12/1995	3.52	626.17	1/11/96	2.2	627.49	03/14/1996	2.25	627.44
MW-59	656.83	03/17/1995	1.9	654.93	06/05/1995	3.26	653.57	09/12/1995	4.58	652.25	1/11/96	2.14	654.69	03/14/1996	Frozen	

T 3-1
GROUNDWATER ELEVA ATA - FIRST QUARTER 2003
GROUNDWATER M RING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Monitoring Well	Top of Riser Elevation (ft)	First Quarter 1995			Second Quarter 1995			Third Quarter 1995			Fourth Quarter 1995			First Quarter 1996		
		Date	of Riser (ft.)	Vater Level (ft	Date	of Riser (ft.)	Vater Level (ft	Date	of Riser (ft.)	Vater Level (ft	Date	of Riser (ft.)	Vater Level (ft	Date	of Riser (ft.)	Vater Level (ft
MW-60	660.15	03/17/1995	2.02	658.13	06/05/1995	3.83	656.32	09/12/1995	5.33	654.82	1/11/96	2.34	657.81	03/14/1996	Frozen	
MWT-1	637.24															
MWT-2	637.19															
MWT-3	637.31															
MWT-4	637.68															
MWT-5	637.72															
MWT-6	637.59															
MWT-7	638.34															
MWT-8	638.40															
MWT-9	638.08															
MWT-10	636.07															
MWT-11	635.90															

TABLE 3-1
GROUNDWATER ELEVATION DATA - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Monitoring Well	Top of Riser Elevation (ft)	Second Quarter 1996			Third Quarter 1996			Fourth Quarter 1996			First Quarter 1997			Second Quarter 1997			First Quarter 1998		
		Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft
PT-10	681.52	06/20/1996	9.65	671.87	09/23/1996	6.62	674.9	01/06/1997	5.31	676.21	03/18/1997	5.3	676.22	06/17/1997	9.03	672.49	03/23/98	4.62	676.9
PT-11	658.22	06/20/1996	6.54	651.68	09/23/1996	6.15	652.07	01/06/1997	4.19	654.03	03/18/1997	4.41	653.81	06/17/1997	6.23	651.99	03/23/98	4.24	653.98
PT-12A	652.15	06/20/1996	7.88	644.27	09/23/1996	7.31	644.84	01/06/1997	4.25	647.9	03/18/1997	5.85	646.3	06/17/1997	7.53	644.62	03/23/98	3.14	649.01
PT-15	637.76	06/20/1996	7.7	630.06	09/23/1996	8.04	629.72	01/06/1997	5.05	632.71	03/18/1997	4.59	633.17	06/17/1997	6.48	631.28	03/23/98	4.02	633.74
PT-16	637.51	06/20/1996	3.2	634.31	09/23/1996	3.62	633.89	01/06/1997	3.02	634.49	03/18/1997	2.93	634.58	06/17/1997	4.05	633.46	03/23/98	2.8	634.71
PT-17	640.14	06/20/1996	6.36	633.78	09/23/1996	4.99	635.15	01/06/1997	4.7	635.44	03/18/1997	4.75	635.39	06/17/1997	7.4	632.74	03/23/98	4.29	635.85
PT-18	656.68	06/20/1996	7.4	649.28	09/23/1996	7.44	649.24	01/06/1997	4.97	651.71	03/18/1997	5.55	651.13	06/17/1997	7.09	649.59	03/23/98	4.4	652.28
PT-19	645.26	06/20/1996	6.27	638.99	09/23/1996	6.34	638.92	01/06/1997	3.18	642.08	03/18/1997	3.34	641.92	06/17/1997	5.34	639.92	03/23/98	2.17	643.09
MW-20	647.28	06/20/1996	6.89	640.39	09/23/1996	5.92	641.36	01/06/1997	5.74	641.54	03/18/1997	5.72	641.56	06/17/1997	7.21	640.07	03/23/98	4.94	642.34
MW-21A	647.73	06/20/1996	8.47	639.26	09/23/1996	7.02	640.71	01/06/1997	6.09	641.64	03/18/1997	5.19	642.54	06/17/1997	8.21	639.52	03/23/98	3.89	643.84
MW-22	648.61	06/20/1996	8.97	639.64	09/23/1996	Not Measured		01/06/1997	6.5	642.11	03/18/1997	6.63	641.98	06/17/1997	7.61	641	03/23/98	4.31	644.3
PT-23	641.58	06/20/1996	6.15	635.43	09/23/1996	5.11	636.47	01/06/1997	3.44	638.14	03/18/1997	3.94	637.64	06/17/1997	6.37	635.21	03/23/98	3.66	637.92
PT-24	636.40	06/20/1996	5.07	631.33	09/23/1996	4.8	631.6	01/06/1997	4.64	631.76	03/18/1997	4.69	631.71	06/17/1997	5.04	631.36	03/23/98	3.64	632.76
PT-25	637.09	06/20/1996	6.54	630.55	09/23/1996	6.16	630.93	01/06/1997	3.96	633.13	03/18/1997	3.92	633.17	06/17/1997	5.96	631.13	03/23/98	3.58	633.51
PT-26	614.64	06/20/1996	6.72	607.92	09/23/1996	Not Measured		01/06/1997	Not Measured		03/18/1997	Not Measured		06/17/1997	Not Measured		03/23/98	3.04	611.6
MW-27	639.32	06/20/1996	6.58	632.74	09/23/1996	5.54	633.78	01/06/1997	5.21	634.11	03/18/1997	5.25	634.07	06/17/1997	6.48	632.84	03/23/98	4.44	634.88
MW-28	637.21	06/20/1996	5.76	631.45	09/23/1996	5.35	631.86	01/06/1997	5.22	631.99	03/18/1997	5.18	632.03	06/17/1997	5.61	631.6	03/23/98	4.64	632.57
MW-29	637.31	06/20/1996	6.96	630.35	09/23/1996	6.34	630.97	01/06/1997	6.14	631.17	03/18/1997	6.09	631.22	06/17/1997	6.65	630.66	03/23/98	6.1	631.21
MW-30	640.32	06/20/1996	6.9	633.42	09/23/1996	7.17	633.15	01/06/1997	4.2	636.12	03/18/1997	4.33	635.99	06/17/1997	8.35	631.97	03/23/98	3.94	636.38
MW-31	636.70	06/20/1996	5.86	630.84	09/23/1996	5.26	631.44	01/06/1997	2.92	633.78	03/18/1997	2.96	633.74	06/17/1997	5.3	631.4	03/23/98	2.48	634.22
MW-32	641.68	06/20/1996	7.02	634.66	09/23/1996	7.42	634.26	01/06/1997	4.53	637.15	03/18/1997	4.95	636.73	06/17/1997	7.93	633.75	03/23/98	3.84	637.84
MW-33	639.56	06/20/1996	8.05	631.51	09/23/1996	7.4	632.16	01/06/1997	4.29	635.27	03/18/1997	4.44	635.12	06/17/1997	7.45	632.11	03/23/98	3.91	635.65
MW-34	632.89	06/20/1996	5.33	627.56	09/23/1996	4.99	627.9	01/06/1997	3.07	629.82	03/18/1997	3.22	629.67	06/17/1997	4.63	628.26	03/23/98	2.74	630.15
MW-35D	631.82	06/20/1996	5.33	626.49	09/23/1996	Not Measured		01/06/1997	Not Measured		03/18/1997	Not Measured		06/17/1997	Not Measured		03/23/98	2.6	629.22
MW-36	631.79	06/20/1996	3.00	628.79	09/23/1996	3.30	628.49	01/06/1997	3.30	628.49	03/18/1997	2.46	629.33	06/17/1997	3.58	628.21	03/23/98	2.60	629.19
MW-37	632.89	06/20/1996	3.4	629.49	09/23/1996	4.34	628.55	01/06/1997	2.48	630.41	03/18/1997	2.59	630.3	06/17/1997	Not Measured		03/23/98	2.51	630.38
MW-38D	637.90	06/20/1996	4.09	633.81	09/23/1996	4.26	633.64	01/06/1997	3.7	634.2	03/18/1997	3.61	634.29	06/17/1997	Not Measured		03/23/98	3.48	635.39
MW-39	659.54	06/20/1996	1.82	Frozen	09/23/1996	2.16	657.38	01/06/1997	2.06	657.48	03/18/1997	1.78	657.76	06/17/1997	2.09	657.45	03/23/98	1.7	657.84
MW-40	659.30	06/20/1996	6.2	653.1	09/23/1996	4.78	654.52	01/06/1997	3.64	655.66	03/18/1997	3.64	655.66	06/17/1997	5.78	653.52	03/23/98	3.45	655.85
MW-41D	694.02	06/20/1996	8.16	685.86	09/23/1996	7.82	686.2	01/06/1997	6.1	687.92	03/18/1997	6.45	687.57	06/17/1997	Not Measured		03/23/98	8.12	685.9
MW-42D	683.04	06/20/1996	5.54	677.5	09/23/1996	4.79	678.25	01/06/1997	4.79	678.25	03/18/1997	2.61	680.43	06/17/1997	4.73	678.31	03/23/98	2.37	680.67
MW-43	657.73	06/20/1996	3.03	654.7	09/23/1996	3.16	654.57	01/06/1997	2.9	654.83	03/18/1997	3.84	653.89	06/17/1997	3.72	654.01	03/23/98	2.6	655.13
MW-44A	653.85	06/20/1996	8.05	645.8	09/23/1996	9.66	644.19	01/06/1997	3.74	650.11	03/18/1997	4.7	649.15	06/17/1997	6.9	646.95	03/23/98	3.48	650.37
MW-45	650.90	06/20/1996	3.47	647.43	09/23/1996	3.23	647.67	01/06/1997	2.94	647.96	03/18/1997	2.83	648.07	06/17/1997	3.9	647	03/23/98	2.85	648.05
MW-46	650.41	06/20/1996	5.75	644.66	09/23/1996	5.94	644.47	01/06/1997	3.72	646.69	03/18/1997	4.51	645.9	06/17/1997	6.06	644.35	03/23/98	2.88	647.53
MW-47	628.06	06/20/1996	3.6	624.46	09/23/1996	4.34	623.72	01/06/1997	2.88	625.18	03/18/1997	2.88	625.18	06/17/1997	4.22	623.84	03/23/98	2.3	625.76
MW-48	648.32	06/20/1996	4.77	643.55	09/23/1996	3.72	644.6	01/06/1997	3.26	645.06	03/18/1997	3.31	645.01	06/17/1997	5.3	643.02	03/23/98	2.86	645.46
MW-49D	650.50	06/20/1996	5.87	644.63	09/23/1996	5.9	644.6	01/06/1997	3.6	646.9	03/18/1997	4.32	646.18	06/17/1997	5.91	644.59	03/23/98	2.88	647.62
MW-50D	649.88	06/20/1996	6.2	643.68	09/23/1996	5.71	644.17	01/06/1997	3.6	646.28	03/18/1997	4.09	645.79	06/17/1997	5.88	644	03/23/98	2.48	647.4
MW-51D	628.24	06/20/1996	3.7	624.54	09/23/1996	4.42	623.82	01/06/1997	2.99	625.25	03/18/1997	3	625.24	06/17/1997	4.35	623.89	03/23/98	2.35	625.89
MW-52D	626.35	06/20/1996	3.66	622.69	09/23/1996	4.03	622.32	01/06/1997	2.38	623.97	03/18/1997	2.6	623.75	06/17/1997	3.62	622.73	03/23/98	2.3	624.05
MW-53	639.41	06/20/1996	8.28	631.13	09/23/1996	7.02	632.39	01/06/1997	6.6	632.81	03/18/1997	6.6	632.81	06/17/1997	7.7	631.71	03/23/98	5.78	633.63
MW-54D	639.11	06/20/1996	8.08	631.03	09/23/1996	6.92	632.19	01/06/1997	6.55	632.56	03/18/1997	6.56	632.55	06/17/1997	7.69	631.42	03/23/98	5.92	633.19
MW-55D	639.16	06/20/1996	7.91	631.25	09/23/1996	6.78	632.38	01/06/1997	6.34	632.82	03/18/1997	6.36	632.8	06/17/1997	7.47	631.69	03/23/98	5.86	633.3
MW-56	630.51	06/20/1996	3.01	627.5	09/23/1996	3.2	627.31	01/06/1997	3.09	627.42	03/18/1997	3.05	627.46	06/17/1997	3.48	627.03	03/23/98	3.13	627.38
MW-57D	629.82	06/20/1996	2.2	627.62	09/23/1996	2.29	627.53	01/06/1997	1.82	628	03/18/1997	1.95	627.87	06/17/1997	2.76	627.06	03/23/98	1.69	628.13
MW-58D	629.69	06/20/1996	2.09	627.6	09/23/1996	2.06	627.63	01/06/1997	1.51	628.18	03/18/1997	1.73	627.96	06/17/1997	2.56	627.13	03/23/98	1.32	628.37
MW-59	656.83	06/20/1996	1.91	654.92	09/23/1996	2.69	654.14	01/06/1997	2.1	654.73	03/18/1997	2.16	654.67	06/17/1997	2.15	654.68	03/23/98	2.13	654.7

T 3-1
GROUNDWATER ELEV. DATA - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Monitoring Well	Top of Riser Elevation (ft)	Second Quarter 1996			Third Quarter 1996			Fourth Quarter 1996			First Quarter 1997			Second Quarter 1997			First Quarter 1998		
		Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft
MW-60	660.15	06/20/1996	2.58	Frozen	09/23/1996	2.46	657.69	01/06/1997	1.97	658.18	03/18/1997	2.14	658.01	06/17/1997	2.98	657.17	03/23/98	1.95	658.2
MWT-1	637.24																		
MWT-2	637.19																		
MWT-3	637.31																		
MWT-4	637.68																		
MWT-5	637.72																		
MWT-6	637.59																		
MWT-7	638.34																		
MWT-8	638.40																		
MWT-9	638.08																		
MWT-10	636.07																		
MWT-11	635.90																		

TABLE 3-1
GROUNDWATER ELEVATION DATA - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Monitoring Well	Top of Riser Elevation (ft)	Second Quarter 1998			Third Quarter 1998			Measured on 10/7/99			Measured on 10/27/99			Round 2 (1/3/00)			3Q 2001 Data			
		Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date	of Riser (ft.)	Water Level (ft	Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)
PT-10	681.52	06/16/98	6.3	675.22	09/18/98	10.29	671.23	10/07/1999	8.10	673.42	10/27/1999	9.26	672.26	01/03/2000	6.84	674.68	NA	NA	Not Measured	
PT-11	658.22	06/16/98	4.43	653.79	09/18/98	9.57	648.65	10/07/1999	10.03	648.19	10/27/1999	9.39	648.83	01/03/2000	5.36	652.86	08/27/2001	9.12	10.43	647.79
PT-12A	652.15	06/16/98	5.25	646.9	09/18/98	9.29	642.86	10/07/1999	7.00	645.15	10/27/1999	7.60	644.55	01/03/2000	6.62	645.53	08/27/2001	3.49	9.89	642.26
PT-15	637.76	06/16/98	7.14	630.62	09/18/98	9.82	627.94	10/07/1999	10.36	627.4	10/27/1999	DRY		01/03/2000	6.04	631.72	08/27/2001	9.12	10.38	627.38
PT-16	637.51	06/16/98	3.8	633.71	09/18/98	6.52	630.99	10/07/1999	7.20	630.31	10/27/1999	6.64	630.87	01/03/2000	3.10	634.41	08/27/2001	3.36	7.68	629.83
PT-17	640.14	06/16/98	4.97	635.17	09/18/98	9.96	630.18	10/07/1999	7.26	632.88	10/27/1999	7.90	632.24	01/03/2000	5.08	635.06	08/27/2001	0.56	11.09	629.05
PT-18	656.68	06/16/98	6.34	650.34	09/18/98	9.06	647.62	10/07/1999	9.40	647.28	10/27/1999	8.23	648.45	01/03/2000	6.34	650.34	08/28/2001	1.32	10.38	646.30
PT-19	645.26	06/16/98	4.9	640.36	09/18/98	7.83	637.43	10/07/1999	7.33	637.93	10/27/1999	7.22	638.04	01/03/2000	3.94	641.32	08/27/2001	3.01	8.69	636.57
MW-20	647.28	06/16/98	5.69	641.59	09/18/98	9.87	637.41	10/07/1999	7.58	639.7	10/27/1999	7.60	639.68	01/03/2000	6.76	640.52	08/27/2001	0.00	Dry	
MW-21A	647.73	06/16/98	6.46	641.27	09/18/98	9.79	637.94	10/07/1999	9.12	638.61	10/27/1999	8.14	639.59	01/03/2000	7.08	640.65	08/27/2001	8.95	10.51	637.22
MW-22	648.61	06/16/98	6.96	641.65	09/18/98	10.35	638.26	10/07/1999	9.80	638.81	10/27/1999	8.65	639.96	01/03/2000	7.54	641.07	08/27/2001	0.71	11.10	637.51
PT-23	641.58	06/16/98	4.02	637.56	09/18/98	8.47	633.11	10/07/1999	7.92	633.66	10/27/1999	7.76	633.82	01/03/2000	4.10	637.48	08/27/2001	2.85	9.23	632.35
PT-24	636.40	06/16/98	4.69	631.71	09/18/98	7.1	629.3	10/07/1999	7.44	628.96	10/27/1999	6.12	630.28	01/03/2000	4.88	631.52	08/27/2001	3.47	8.41	627.99
PT-25	637.09	06/16/98	4.48	632.61	09/18/98	11.35	625.74	10/07/1999	8.92	628.17	10/27/1999	8.31	628.78	01/03/2000	5.26	631.83	08/27/2001	0.00	Dry	
PT-26	614.64	06/16/98	Not Measured		09/18/98	10.54	604.1	10/07/1999	13.11	601.53	10/27/1999	12.16	602.48	01/03/2000	6.88	607.76	NA	NA	Not Measured	
MW-27	639.32	06/16/98	5.36	633.96	09/18/98	7.67	631.65	10/07/1999	5.92	633.4	10/27/1999	6.64	632.68	01/03/2000	5.46	633.86	08/27/2001	1.31	9.23	630.09
MW-28	637.21	06/16/98	5.14	632.07	09/18/98	7.46	629.75	10/07/1999	7.44	629.77	10/27/1999	6.36	630.85	01/03/2000	5.16	632.05	08/27/2001	1.89	8.50	628.71
MW-29	637.31	06/16/98	6.39	630.92	09/18/98	9.9	627.41	10/07/1999	10.01	627.3	10/27/1999	8.00	629.31	01/03/2000	6.34	630.97	08/27/2001	0.00	Dry	
MW-30	640.32	06/16/98	5.32	635	09/18/98	10.44	629.88	10/07/1999	8.94	631.38	10/27/1999	9.30	631.02	01/03/2000	6.76	633.56	08/27/2001	0.00	Dry	
MW-31	636.70	06/16/98	3.62	633.08	09/18/98	9.68	627.02	10/07/1999	7.91	628.79	10/27/1999	7.29	629.41	01/03/2000	4.48	632.22	08/27/2001	0.00	Dry	
MW-32	641.68	06/16/98	6.23	635.45	09/18/98	8.98	632.7	10/07/1999	7.55	634.13	10/27/1999	8.30	633.38	01/03/2000	6.16	635.52	08/27/2001	0.00	Dry	
MW-33	639.56	06/16/98	6.17	633.39	09/18/98	9.84	629.72	10/07/1999	8.74	630.82	10/27/1999	9.50	630.06	01/03/2000	6.04	633.52	08/27/2001	0.00	Dry	
MW-34	632.89	06/16/98	3.73	629.16	09/18/98	10.53	622.36	10/07/1999	10.42	622.47	10/27/1999	9.10	623.79	01/03/2000	4.64	628.25	NA	NA	Not Measured	
MW-35D	631.82	06/16/98	2.4	629.22	09/18/98	7.2	624.62	10/07/1999	6.86	624.96	10/27/1999	5.20	626.62	01/03/2000	2.76	629.06	NA	NA	Not Measured	
MW-36	631.79	06/16/98	2.57	629.22	09/18/98	7.81	623.98	10/07/1999	7.57	624.22	10/27/1999	5.63	626.16	01/03/2000	2.94	628.85	08/28/2001	7.05	9.53	622.26
MW-37	632.89	06/16/98	2.75	630.38		Not Measured		10/07/1999	7.12	625.77	10/27/1999	6.47	626.42	01/03/2000	3.40	629.49	NA	NA	Not Measured	
MW-38D	637.90	06/16/98	3.65	635.39	09/18/98	7.29	630.61	10/07/1999	7.78	630.12	10/27/1999	7.28	630.62	01/03/2000	3.78	634.12	NA	NA	Not Measured	
MW-39	659.54	06/16/98	1.82	657.72	09/18/98	6.47	653.07	10/07/1999	3.98	655.56	10/27/1999	3.74	655.8	01/03/2000	1.94	657.6	08/27/2001	2.82	9.07	650.47
MW-40	659.30	06/16/98	4.14	655.16	09/18/98	8.22	651.08	10/07/1999	7.96	651.34	10/27/1999	6.62	652.68	01/03/2000	4.08	655.22	08/28/2001	5.57	9.14	650.16
MW-41D	694.02	06/16/98	Not Measured			Not Measured		10/07/1999	8.81	685.21	10/27/1999	n/a	n/a	01/03/2000	7.24	686.78	NA	NA	Not Measured	
MW-42D	683.04	06/16/98	3.34	679.7		Not Measured		10/07/1999	11.65	671.39	10/27/1999	9.78	673.26	01/03/2000	3.72	679.32	NA	NA	Not Measured	
MW-43	657.73	06/16/98	2.81	654.92	09/18/98	6.5	651.23	10/07/1999	7.00	650.73	10/27/1999	5.86	651.87	01/03/2000	2.84	654.89	NA	NA	Not Measured	
MW-44A	653.85	06/16/98	6.73	647.12	09/18/98	10.42	643.43	10/07/1999	11.43	642.42	10/27/1999	10.08	643.77	01/03/2000	5.50	648.35	08/27/2001	1.60	10.88	642.97
MW-45	650.90	06/16/98	2.83	648.07	09/18/98	6.93	643.97	10/07/1999	7.78	643.12	10/27/1999	4.99	645.91	01/03/2000	2.78	648.12	08/27/2001	NA	Not Measured	
MW-46	650.41	06/16/98	4.12	646.29	09/18/98	8.49	641.92	10/07/1999	8.84	641.57	10/27/1999	7.35	643.06	01/03/2000	4.18	646.23	08/27/2001	2.16	9.29	641.12
MW-47	628.06	06/16/98	3.06	625	09/18/98	8.18	619.88	10/07/1999	7.70	620.36	10/27/1999	5.42	622.64	01/03/2000	3.32	624.74	08/28/2001	0.41	8.15	619.91
MW-48	648.32	06/16/98	3.29	645.03	09/18/98	7.42	640.9	10/07/1999	7.78	640.54	10/27/1999	6.70	641.62	01/03/2000	3.32	645	08/27/2001	3.12	8.38	639.94
MW-49D	650.50	06/16/98	4.07	646.43	09/18/98	7.32	643.18	10/07/1999	8.74	641.76	10/27/1999	7.32	643.18	01/03/2000	4.10	646.4	NA	NA	Not Measured	
MW-50D	649.88	06/16/98	3.99	645.89	09/18/98	7.27	642.61	10/07/1999	8.48	641.4	10/27/1999	16.00	633.88	01/03/2000	5.90	643.98	NA	NA	Not Measured	
MW-51D	628.24	06/16/98	3.14	625.1		Not Measured		10/07/1999	7.75	620.49	10/27/1999	5.60	622.64	01/03/2000	3.48	624.76	NA	NA	Not Measured	
MW-52D	626.35	06/16/98	2.73	623.62	09/18/98	7.68	618.67	10/07/1999	7.24	619.11	10/27/1999	5.10	621.25	01/03/2000	2.18	624.17	NA	NA	Not Measured	
MW-53	639.41	06/16/98	7.01	632.4	09/18/98	9.95	629.46	10/07/1999	9.48	629.93	10/27/1999	8.72	630.69	01/03/2000	6.70	632.71	08/27/2001	0.45	9.90	629.51
MW-54D	639.11	06/16/98	6.94	632.17	09/18/98	10.4	628.71	10/07/1999	9.52	629.59	10/27/1999	8.58	630.53	01/03/2000	6.74	632.37	NA	NA	Not Measured	
MW-55D	639.16	06/16/98	6.84	632.32	09/18/98	10.06	629.1	10/07/1999	9.40	629.76	10/27/1999	11.20	627.96	01/03/2000	6.68	632.48	NA	NA	Not Measured	
MW-56	630.51	06/16/98	3.17	627.34	09/18/98	8.85	621.66	10/07/1999	5.61	624.9	10/27/1999	4.42	626.09	01/03/2000	3.46	627.05	08/28/2001	0.32	6.56	623.95
MW-57D	629.82	06/16/98	1.95	627.87	09/18/98	8.06	621.76	10/07/1999	4.67	625.15	10/27/1999	3.52	626.3	01/03/2000	2.30	627.52	NA	NA	Not Measured	
MW-58D	629.69	06/16/98	1.66	628.03	09/18/98	4.9	624.79	10/07/1999	4.46	625.23	10/27/1999	3.33	626.36	01/03/2000	2.06	627.63	NA	NA	Not Measured	
MW-59	656.83	06/16/98	2	654.83	09/18/98	5.83	651	10/07/1999	5.10	651.73	10/27/1999	4.19	652.64	01/03/2000	2.16	654.67	08/27/2001	2.12	6.98	649.85

T3-1
GROUNDWATER ELEVA ATA - FIRST QUARTER 2003
GROUNDWATER MC. ORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Monitoring Well	Top of Riser Elevation (ft)	Second Quarter 1998			Third Quarter 1998			Measured on 10/7/99			Measured on 10/27/99			Round 2 (1/3/00)			3Q 2001 Data			
		Date	of Riser (ft.)	Vater Level (ft	Date	of Riser (ft.)	Vater Level (ft	Date	of Riser (ft.)	Vater Level (ft	Date	of Riser (ft.)	Vater Level (ft	Date	of Riser (ft.)	Vater Level (ft	Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)
MW-60	660.15	06/16/98	2.14	658.01	09/18/98	6.9	653.25	10/07/1999	3.32	656.83	10/27/1999	3.86	656.29	01/03/2000	2.16	657.99	08/27/2001	1.58	7.92	652.23
MWT-1	637.24																08/27/2001	1.57	8.18	629.06
MWT-2	637.19																NA	NA	Not Measured	
MWT-3	637.31																08/27/2001	1.68	8.32	628.99
MWT-4	637.68																08/27/2001	2.03	10.40	627.28
MWT-5	637.72																NA	NA	Not Measured	
MWT-6	637.59																08/27/2001	1.93	10.35	627.24
MWT-7	638.34																08/27/2001	2.21	11.76	626.58
MWT-8	638.40																NA	NA	Not Measured	
MWT-9	638.08																08/27/2001	2.10	12.04	626.04
MWT-10	636.07																08/27/2001	2.43	6.52	629.55
MWT-11	635.90																08/28/2001	0.97	8.98	626.92

TABLE 3-1
GROUNDWATER ELEVATION DATA - FIRST QUARTER 2003
GROUNDWATER MONITORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

		2Q 2002 Data				3Q 2002 Data				1Q 2003 Data				Historical Data			
														Groundwater Elevation (ft)			
Monitoring Well	Top of Riser Elevation (ft)	Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)	Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)	Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)	Maximum	Minimum	Range	Well Depth (ft)
PT-10	681.52	04/08/2002	41.09	5.27	676.25	08/15/2002	37.66	8.70	672.82					676.90	671.02	5.88	46.36
PT-11	658.22	04/08/2002	14.77	4.78	653.44	08/15/2002	9.25	10.30	647.92					654.03	647.79	6.24	19.55
PT-12A	652.15	04/08/2002	9.22	4.16	647.99	08/15/2002	3.87	9.51	642.64	3/14/03	8.13	5.25	646.9	649.01	642.26	6.75	13.38
PT-15	637.76	04/08/2002	15.35	4.15	633.61	08/15/2002	9.40	10.10	627.66					633.74	627.38	6.36	19.50
PT-16	637.51	04/08/2002	7.12	3.92	633.59	08/15/2002	3.89	7.15	630.36					634.85	629.83	5.02	11.04
PT-17	640.14	04/08/2002	7.12	4.53	635.61	08/15/2002	0.90	10.75	629.39	3/14/03	7.02	4.63	635.51	635.85	629.05	6.80	11.65
PT-18	656.68	04/08/2002	6.84	4.86	651.82	08/15/2002	3.07	8.63	648.05	3/14/03	6.48	5.22	651.46	652.28	646.30	5.98	11.70
PT-19	645.26	04/08/2002	8.71	2.99	642.27	08/15/2002	1.45	10.25	635.01	3/14/03	10.01	1.65	643.61	643.61	635.01	8.60	11.70
MW-20	647.28	04/08/2002	5.81	5.99	641.29	08/15/2002		Dry		3/14/03	6.05	5.75	641.53	642.34	637.41	4.93	11.80
MW-21A	647.73	04/08/2002	14.02	5.44	642.29	08/15/2002	9.21	10.25	637.48	3/14/03	13.39	5.67	642.06	643.84	637.22	6.62	19.46
MW-22	648.61	04/08/2002	5.88	5.93	642.68	08/15/2002	0.96	10.85	637.76	3/14/03	3.61	6.2	642.41	644.30	637.51	6.79	11.81
PT-23	641.58	04/08/2002	8.20	3.88	637.7	NA	NA	Not Measured		3/14/03	7.92	4.16	637.42	638.14	632.35	5.79	12.08
PT-24	636.40	04/08/2002	7.39	4.49	631.91	08/15/2002	4.53	7.35	629.05	3/14/03	7.24	4.64	631.76	632.76	627.99	4.77	11.88
PT-25	637.09	04/08/2002	8.13	3.90	633.19	08/15/2002	0.58	11.45	625.64	3/14/03	8.01	4.02	633.07	633.51	625.64	7.87	12.03
PT-26	614.64	NA	NA	Not Measured		NA	NA	Not Measured						611.60	601.53	10.07	14.00
MW-27	639.32	04/08/2002	5.66	4.88	634.44	08/15/2002	1.69	8.85	630.47	3/14/03	5.39	5.15	634.17	634.88	630.09	4.79	10.54
MW-28	637.21	04/09/2002	5.61	4.78	632.43	08/15/2002	2.79	7.60	629.61	3/14/03	2.70	4.69	632.52	632.57	628.71	3.86	10.39
MW-29	637.31	04/08/2002	5.33	5.21	632.1	08/15/2002	0.99	9.55	627.76	3/14/03	5.28	5.26	632.05	632.10	627.30	4.80	10.54
MW-30	640.32	04/10/2002	5.74	4.78	635.54	08/15/2002		Dry		3/14/03	6.62	3.9	636.42	636.42	629.88	6.54	10.52
MW-31	636.70	04/08/2002	7.41	2.94	633.76	08/15/2002		Dry		3/14/03	7.36	2.99	633.71	634.22	627.02	7.20	10.35
MW-32	641.68	04/08/2002	6.13	4.24	637.44	08/15/2002		Dry		3/14/03	6.12	4.25	637.43	637.84	632.70	5.14	10.37
MW-33	639.56	04/08/2002	6.13	4.26	635.3	08/15/2002		Dry		3/14/03	6.06	4.33	635.23	635.65	629.72	5.93	10.39
MW-34	632.89	04/08/2002	14.30	3.85	629.04	NA	NA	Not Measured						630.15	622.36	7.79	18.15
MW-35D	631.82	04/08/2002	53.72	2.92	628.9	NA	NA	Removed						629.44	624.62	4.82	56.64
MW-36	631.79	04/08/2002	12.97	3.61	628.18	NA	NA	Removed		3/14/03	13.91	2.67	629.12	629.47	622.26	7.21	16.58
MW-37	632.89	04/08/2002	10.57	3.05	629.84	NA	NA	Not Measured						630.65	625.77	4.88	13.62
MW-38D	637.90	04/08/2002	28.63	3.61	634.29	08/15/2002	24.44	7.80	630.1					635.39	628.99	6.40	32.24
MW-39	659.54	04/08/2002	10.02	1.87	657.67	NA	NA	Not Measured						657.84	650.47	7.37	11.89
MW-40	659.30	04/08/2002	10.95	3.76	655.54	NA	NA	Not Measured		3/14/03	10.97	3.74	655.56	655.85	650.16	5.69	14.71
MW-41D	694.02	NA	NA	Not Measured		NA	NA	Not Measured						687.92	685.21	2.71	47.02
MW-42D	683.04	04/08/2002	44.85	2.53	680.51	NA	NA	Not Measured						680.67	671.39	9.28	47.38
MW-43	657.73	04/08/2002	4.55	2.92	654.81	08/15/2002	0.52	6.95	650.78	3/14/03	5.10	2.37	655.36	655.36	650.73	4.63	7.47
MW-44A	653.85	04/08/2002	8.46	4.02	649.83	08/15/2002	1.81	10.67	643.18	3/14/03	7.74	4.74	649.11	650.37	642.42	7.95	12.48
MW-45	650.90	04/08/2002	5.60	2.74	648.16	08/15/2002	0.74	7.60	643.3	3/14/03	6.23	2.1	648.8	648.80	643.12	5.68	8.34
MW-46	650.41	04/08/2002	8.11	3.34	647.07	08/15/2002	2.31	9.14	641.27	3/14/03	9.07	2.38	648.03	648.03	641.12	6.91	11.45
MW-47	628.06	04/08/2002	5.65	2.91	625.15	08/15/2002	0.39	8.17	619.89	3/14/03	6.21	2.33	625.71	625.76	619.88	5.88	8.56
MW-48	648.32	04/08/2002	8.60	2.90	645.42	08/15/2002	3.65	7.85	640.47	3/14/03	8.73	2.75	645.57	645.57	639.94	5.63	11.50
MW-49D	650.50	04/08/2002	34.24	3.30	647.2	08/15/2002	28.59	8.95	641.55					647.62	641.55	6.07	37.54
MW-50D	649.88	04/08/2002	56.36	3.30	646.58	08/15/2002	50.96	8.70	641.18					647.40	633.88	13.52	59.66
MW-51D	628.24	04/08/2002	33.07	3.80	624.44	NA	NA	Not Measured						628.24	620.49	7.75	36.87
MW-52D	626.35	04/08/2002	56.79	2.57	623.78	NA	NA	Not Measured						624.17	618.67	5.50	59.36
MW-53	639.41	04/08/2002	4.78	5.57	633.84	08/15/2002	0.45	9.90	629.51	3/14/03	4.69	5.66	633.75	633.84	629.46	4.38	10.35
MW-54D	639.11	04/08/2002	29.31	5.68	633.43	08/15/2002	24.54	10.45	628.66					633.43	628.66	4.77	34.99
MW-55D	639.16	04/08/2002	52.43	5.75	633.41	08/15/2002	47.98	10.20	628.96					633.41	627.96	5.45	58.18
MW-56	630.51	04/10/2002	3.13	3.75	626.76	08/15/2002	0.00	Dry		3/14/03	3.88	3	627.51	627.56	621.66	5.90	6.88
MW-57D	629.82	04/08/2002	33.13	1.96	627.86	08/15/2002	29.14	5.95	623.87					628.13	621.76	6.37	35.09
MW-58D	629.69	04/08/2002	55.67	1.62	628.07	08/15/2002	51.54	5.75	623.94					628.37	623.94	4.43	57.29
MW-59	656.83	04/08/2002	6.89	2.21	654.62	NA	NA	Not Measured						654.93	649.85	5.08	9.10

T3-1
GROUNDWATER ELEV/ ATA - FIRST QUARTER 2003
GROUNDWATER MC ORING - ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY

Monitoring Well	Top of Riser Elevation (ft)	2Q 2002 Data				3Q 2002 Data				1Q 2003 Data				Historical Data			
		Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)	Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)	Date Measured	Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)	Groundwater Elevation (ft)			Well Depth (ft)
														Maximum	Minimum	Range	
MW-60	660.15	04/08/2002	7.40	2.10	658.05	08/15/2002	2.30	7.20	652.95					658.20	652.23	5.97	9.50
MWT-1	637.24	04/09/2002	4.98	4.77	632.47	08/15/2002	2.55	7.20	630.04	3/14/03	4.82	4.92	632.32	632.47	629.06	3.41	9.75
MWT-2	637.19	04/08/2002	4.63	4.92	632.27	08/15/2002	2.30	7.25	629.94	3/14/03	4.43	5.1	632.09	632.27	629.94	2.33	9.55
MWT-3	637.31	04/09/2002	4.89	5.11	632.2	08/15/2002	2.65	7.35	629.96	3/14/03	4.92	5.28	632.03	632.20	628.99	3.21	10.00
MWT-4	637.68	04/09/2002	7.22	5.21	632.47	08/15/2002	3.68	8.75	628.93	3/14/03	7.24	5.1	632.38	632.58	627.28	5.30	12.43
MWT-5	637.72	04/08/2002	6.68	5.27	632.45	08/15/2002	2.90	9.05	628.67	3/14/03	6.60	5.35	632.37	632.45	628.67	3.78	11.95
MWT-6	637.59	04/09/2002	7.07	5.21	632.38	08/15/2002	3.28	9.00	628.59	3/14/03	7.01	5.27	632.32	632.38	627.24	5.14	12.28
MWT-7	638.34	04/09/2002	8.50	5.47	632.87	08/15/2002	3.72	10.25	628.09	3/14/03	8.25	5.42	632.92	632.92	626.58	6.34	13.97
MWT-8	638.40	04/08/2002	6.73	5.82	632.58	08/15/2002	2.10	10.45	627.95	3/14/03	10.05	2.5	635.9	635.90	627.95	7.95	12.55
MWT-9	638.08	04/09/2002	8.48	5.66	632.42	NA	NA	Not Measured		3/14/03	8.46	2.68	632.4	632.42	626.04	6.38	14.14
MWT-10	636.07	04/09/2002	5.11	3.84	632.23	08/15/2002	3.20	5.75	630.32	3/14/03	4.95	4	632.07	632.23	629.55	2.68	8.95
MWT-11	635.90	04/10/2002	7.00	2.95	632.95	08/15/2002	1.74	8.21	627.69	3/14/03	7.87	2.08	633.82	633.82	626.92	6.90	9.95

APPENDIX B

FIRST QUARTER 2003 LABORATORY REPORTS

General Environmental Laboratories (GEL)

CASE NARRATIVE
for
Parsons Engineering Science, Inc.
Seneca Army Depot
SDG#s 77035/77089

April 15, 2003

Laboratory Identification:

General Engineering Laboratories, LLC

Mailing Address:

P.O. Box 30712
Charleston, South Carolina 29417

Express Mail Delivery and Shipping Address:

2040 Savage Road
Charleston, South Carolina 29414

Telephone Number:

(843) 556-8171

Summary:

Sample receipt

The samples arrived at General Engineering Laboratories, LLC (GEL) Charleston, South Carolina on March 26, 2003, for Environmental Analyses. All sample containers arrived without any visible signs of tampering or breakage. The samples were delivered with chain of custody documentation and signatures.

The laboratory received the following samples:

Laboratory Identification	Sample Description
77035001	TR2110
77035002	ARD2183
77035003	ARD2184
77035004	ARD2194
77035005	TR2106
77035006	TR2108
77035007	ARD2196
77035008	ARD2191

77089001	ARD2196
77089002	ARD2191
77089003	ARD0032

Case Narrative

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are listed below by analytical parameter.

Internal Chain of Custody:

Custody was maintained for all samples.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Qualifier Flag Definitions, Chain of Custody, Cooler Receipt Checklist, GC/MS Volatile Analysis, FID Analysis, Inorganic Analysis, and General Chemistry Analysis.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Valerie S. Davis
Project Manager

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

CHAIN OF CUSTODY

№ 4130

CHAIN OF CUSTODY RECORD

CLIENT: Seneca Army Depot USACOE

PROJECT NO.: 743155.01200

PROJECT MGR: Todd Heino Parsons Boston

PROJECT NAME: Ash Landfill

NOTES - (Reference QAPP and/or analytical protocols to be used):

SAMPLERS: Dale R. Dolph - Parsons; Dan Douglass - Parsons

Send results to: PARSONS Boston ~~200 Elwood Davis Road Suite 312 Liverpool, NY 13088~~ 617 457 7870; Telephone: ~~(315) 451-9560~~; Fax: ~~(315) 451-9570~~

Lab Submitted to: GEL Charleston, SC

77035

FIELD SAMPLE ID	LOCATION DESCRIPTION	DATE	TIME	GRAB	COMP	MATRIX	Number of Bottles	VOC 524.2	TCL VOC	Nitrate/Sulfate/Chloride	MEE	TOC	Metals				REMARKS
001 TR2110	MWT-11	3/24/03	1030	X		GW	9	X		X	X	X	X				
002 ARD2183	MW-30	3/24/03	1220	X		GW	9	X		X	X	X	X				
003 ARD2184	MW-32	3/24/03	1525	X		GW	9	X		X	X	X	X				
007 ARD2196	PT-19	3/24/03	1720	X		GW	9		X	X	X	X	X				77089001
004 ARD2194	PT-17	3/25/03	0935	X		GW	9	X		X	X	X	X				
008 ARD2191	MW-53	3/25/03	1100	X		GW	9		X	X	X	X	X				77089002
TR2106	MWT-7	3/25/03	1250	X		GW	9	X		X	X	X	X				
005 TR2106MS	MWT-7	3/25/03	1250	X		GW	9	X		X	X	X	X				Matrix Spike
TR2106MSD	MWT-7	3/25/03	1250	X		GW	9	X		X	X	X	X				Matrix Spike Dupl.
006 TR2108	MWT-9	3/25/03	1440	X		GW	9	X		X	X	X	X				

Relinquished by (Signature)	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples Intact
[signature]	3/25/03	1900	Fedex		Fedex			°C Yes No
					Mike Kamlas	3-26-03	0900	3 °C Yes No
								°C Yes No

TYPE CODES:

SOLID: SD- Sediment; SS- Surface Soil; SB- Subsurface Soil; MW- Monitoring Well Boring; TP- Test Pit/Tank Pit; DR- Drum Waste; WA- Solid Waste; OS- Other Solid

WATER: MW- Monitoring Well; LC- Leachate; SW- Surface Water; DW- Drill Water; FD- Fuel Dispenser; MH- Manhole; OW- Oil Water Separator; PR- Piping Run; ST- Storm Water; WW- Waste Water; OL- Other Liquid (eg. Drum liquid)

MATRIX: W - Water; S - Soil

QUALITY CONTROL: FB Field Blank (with date); TB- Trip Blank (with date); WB- Wash Blank (with date)

№ 4131

CHAIN OF CUSTODY RECORD

CLIENT: SENECA ARMY DEPOT USACOE

PROJECT NO.: 743155.01200

PROJECT MGR: Todd Heino Parsons Boston

PROJECT NAME: Ash Landfill

NOTES - (Reference QAPP and/or analytical protocols to be used):

SAMPLERS: Dale Dolph - Parsons; Dan Douglass - Parsons

Send results to: PARSONS Boston, ~~200 Elwood Davis Road, Suite 312, Liverpool, NY 13088~~ 617 457 7870; Telephone ~~(315) 451-9530~~; Fax: ~~(315) 451-9570~~

Lab Submitted to: GEL Charleston SC

ANALYSES REQUIRED: VOC CLP

FIELD SAMPLE ID	LOCATION DESCRIPTION	DATE	TIME	GRAB	COMP	MATRIX	Number of Bottles	VOC CLP	REMARKS
170891 003 ARD0032	Trip Blank	–	–	–		W	3	X	Trip Blank

Relinquished by (Signature)	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples Intact
[signature]	3/25/03	1900	Fedex		Fedex			°C Yes No
					[signature]	3-26-03	0920	7 °C Yes No
								°C Yes No

TYPE CODES:

SOLID: SD- Sediment; SS- Surface Soil; SB- Subsurface Soil; MW- Monitoring Well Boring; TP- Test Pit/Tank Pit; DR- Drum Waste; WA- Solid Waste; OS- Other Solid

WATER: MW- Monitoring Well; LC- Leachate; SW- Surface Water; DW- Drill Water; FD- Fuel Dispenser; MH- Manhole; OW- Oil Water Separator; PR- Piping Run; ST- Storm Water; WW- Waste Water; OL- Other Liquid (eg. Drum liquid)

MATRIX: W - Water; S - Soil

QUALITY CONTROL: FB- Field Blank (with date); TB- Trip Blank (with date); WB- Wash Blank (with date)

COOLER RECEIPT CHECKLIST

SAMPLE RECEIPT & REVIEW FORM

Date 3-26-03 Client Seneca Army Depot Received by MC

	SAMPLE REVIEW CRITERIA	YES	NO	N/A	COMMENTS/QUALIFIERS
1	Were shipping containers received intact and sealed? If no, notify the Project Manager	✓			
2	Were chain of custody documents included?	✓			
3	Shipping container temperature(s) checked?	✓			3° 3°
4	Is temperature documented on Chain of Custody?	✓			
5	Was shipping container temperature within specifications (4 +/- 2 C)? If no, notify Project Manager	✓			
6	Are any of the samples identified by the client as radioactive? If yes, complete radioactive receipt form		✓		
	Any samples not indentified by the client as radioactive must be screened for radioactivitiy.	KO			observed background CPM
	If screening results indicate > x2 background inform the RSO.	KO			Max. observed sample CPM
7	Were chain of custody documents completed correctly? (Ink, signed, match containers)	✓			
8	Were sample containers received intact and sealed? If no, notify the Project Manager	✓			
9	Were all sample containers properly labeled?	✓			
10	Were correct sample containers received?	✓			
11	Preserved samples checked for pH?	✓			
12	Were samples preserved correctly? If no, notify Project Manager	✓			
13	Were samples received within holding time? If No, notify Project Manager	✓			
14	Were VOA vials free of headspace?	✓			
15	ARCOC#				
16	SDG#				

PM(A) Review: VSD Date Reviewed: 3/26/03

Cooler Air Bill #'s, Associated Temperatures, & Additional Comments:

FED Ex # 8397 4027 7549 (2)

GC/MS VOLATILE ANALYSIS

GC/MS Volatile Organics
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77035

Method/Analysis Information

Procedure:	Volatile Organic Compounds by Gas Chromatograph/Mass Spectrometer
Analytical Method:	EPA 524.2
Prep Method:	EPA 524.2
Analytical Batch Number:	241844

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
77035001	TR2110
77035002	ARD2183
77035003	ARD2184
77035004	ARD2194
77035005	TR2106
77035006	TR2108
1200400499	Method Blank (MB)
1200400500	Laboratory Control Sample (LCS)
1200401228	Method Blank (MB)
1200401229	Laboratory Control Sample (LCS)
1200400501	77035005(TR2106) Matrix Spike (MS)
1200400502	77035005(TR2106) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-022 REV.3.

Calibration Information
Due to software limitations, all the data files comprising the initial calibration curve may not be listed on the initial calibration summary form. All calibration files are listed in the calibration history report in the "Standard Data" section.

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
All the calibration verification standard (CCV) requirements were met.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recoveries
Surrogate recoveries, in all samples and quality control samples, were within the acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the LCS were within the acceptance limits.

QC Sample Designation
The following sample was designated for spike analysis: 77035005 (TR2106).

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
All target analytes in the matrix spike duplicate sample were within the required acceptance limits, except for the low recovery of trichloroethylene. Trichloroethylene was detected in the native sample at a concentration above the calibration level. 1200400502 (TR2106).

Relative Percent Difference Statement (RPD)
The RPD between the matrix spike and matrix spike duplicate was above the acceptance limit for Trichloroethylene, possibly due to the high level of trichloroethylene detected in the native sample. 1200400501 (TR2106) and 1200400502 (TR2106).

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The following samples were diluted because target analyte concentrations exceeded the calibration range:
77035004 (ARD2194) 1:10
77035005 (TR2106) 1:10

Sample Re-prep/Re-analysis
Re-analyses were not required for samples in this sample group/work order.

Miscellaneous Information

Electronic Package Comment
The following package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation
A nonconformance report was not required for this sample delivery group/work order.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

Additional Comments
There were no additional comments.

System Configuration
The laboratory utilizes the following GC/MS configurations:

Chromatographic Columns
Chromatographic separation of volatile components is accomplished through analysis on one of the following columns:

Column ID	Column Description
J&W1	DB-624, 60m x 0.25mm, 1.4um
J&W2	DB-624, 75m x 0.53mm, 3.0um

Instrument Configuration
Instrument systems are reference in the raw data and individual form headers by the Instrument ID designations below:

Instrument ID	System Configuration	Chromatographic Column	P & T Trap
VOA1	HP6890/HP5973	J&W1	Trap C
VOA2	HP6890/HP5973	J&W1	Trap C
VOA4	HP5890/HP5972	J&W1	Trap K
VOA5	HP5890/HP5972	J&W1	Trap C
VOA7	HP5890/HP5972	J&W2	Trap K
VOA8	HP6890/HP5973	J&W1	Trap K
VOA9	HP6890/HP5973	J&W1	Trap C

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: _____ Date: 04-14-2003

Roadmap for PARS 77035 VOA

This roadmap was analyzed by Crystal Stacey on 04-03-2003, 09:38.
This roadmap was reviewed by Sara Jones on 04-09-2003, 10:27.
This roadmap was packaged by LySandra Gathers on 04-09-2003, 15:30.

Sample

exclude	manual	datafile	smpid	clientid	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA8.i/032803v8.b/8p2c513.d	77035001	TR2110	28-MAR-2003	12:14	77035.sub	1.00000	
☐	N	/chem/VOA8.i/032803v8.b/8p2c514.d	77035002	ARD2183	28-MAR-2003	12:40	77035.sub	1.00000	
■	N	/chem/VOA8.i/032803v8.b/8p2c515.d	77035003	ARD2184	28-MAR-2003	13:06	PARS.sub	1.00000	
☐	N	/chem/VOA8.i/032803v8.b/8p2c516.d	77035004	ARD2194	28-MAR-2003	13:32	77035.sub	1.00000	
☐	N	/chem/VOA8.i/032803v8.b/8p2c517.d	77035005	TR2106	28-MAR-2003	13:58	77035.sub	1.00000	
■	N	/chem/VOA8.i/032803v8.b/8p2c520.d	77035006	TR2108	28-MAR-2003	15:16	PARS.sub	1.00000	
☐	N	/chem/VOA8.i/033103v8.b/8p2d104.d	77035003	ARD2184	31-MAR-2003	12:34	77035.sub	1.00000	
☐	N	/chem/VOA8.i/033103v8.b/8p2d105.d	77035004	ARD2194DL	31-MAR-2003	13:00	77035.sub	10.00000	
☐	N	/chem/VOA8.i/033103v8.b/8p2d106.d	77035005	TR2106DL	31-MAR-2003	13:26	77035.sub	10.00000	
☐	N	/chem/VOA8.i/033103v8.b/8p2d107.d	77035006	TR2108	31-MAR-2003	13:52	77035.sub	1.00000	
■	N	/chem/VOA8.i/040103v8.b/8p2d205.d	77035005	TR2106	01-APR-2003	08:40	PARS.sub	1.00000	

QC Sample

exclude	manual	datafile	smpid	clientid	sampletype	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA8.i/032803v8.b/8p2c502LCSB.d	1200400500	VBLK01LCS	lcs	28-MAR-2003	07:12	77035.sub	1.00000	
☐	N	/chem/VOA8.i/032803v8.b/8p2c503B.d	1200400499	VBLK01	mb	28-MAR-2003	07:38	77035.sub	1.00000	
☐	N	/chem/VOA8.i/032803v8.b/8p2c518.d	1200400501	TR2106MS	ms	28-MAR-2003	14:24	77035.sub	1.00000	
☐	N	/chem/VOA8.i/032803v8.b/8p2c519.d	1200400502	TR2106MSD	msd	28-MAR-2003	14:50	77035.sub	1.00000	

☐	N	/chem/VOA8.i/033103v8.b/8p2d102LCSA.d	1200401229	VBLK02LCS	lcs	31-MAR-2003	11:34	77035.sub	1.00000	
☐	N	/chem/VOA8.i/033103v8.b/8p2d103A.d	1200401228	VBLK02	mb	31-MAR-2003	12:00	77035.sub	1.00000	
■	N	/chem/VOA8.i/033103v8.b/8p2d109.d	1200400501	TR2106MS	ms	31-MAR-2003	14:44	77035.sub	1.00000	
■	N	/chem/VOA8.i/033103v8.b/8p2d110.d	1200400502	TR2106MSD	msd	31-MAR-2003	15:09	77035.sub	1.00000	
■	N	/chem/VOA8.i/040103v8.b/8p2d206.d	1200400501	TR2106MS	ms	01-APR-2003	09:06	PARS.sub	1.00000	
■	N	/chem/VOA8.i/040103v8.b/8p2d207.d	1200400502	TR2106MSD	msd	01-APR-2003	09:32	PARS.sub	1.00000	

SAMPLE DATA SUMMARY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2183

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035002

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C514

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.50	U
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.43	J
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2183

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035002

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C514

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.8	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2183

ab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035002

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C514

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2184

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D104

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.43	JB
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2184

ıb Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D104

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.0	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2184

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D104

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2194

ab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C516

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.50	U
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.37	J
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	61.7	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	62.1	
79-01-6	Trichloroethylene	215	E
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2194

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C516

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.4	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2194

ab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C516

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2194DL

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D105

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	5.0	U
74-87-3	Chloromethane	5.0	U
74-83-9	Bromomethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
75-00-3	Chloroethane	5.0	U
75-09-2	Methylene chloride	4.2	DJB
75-35-4	1,1-Dichloroethylene	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
67-66-3	Chloroform	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
156-60-5	trans-1,2-Dichloroethylene	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
75-27-4	Bromodichloromethane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
156-59-2	cis-1,2-Dichloroethylene	62.0	D
10061-01-5	cis-1,3-Dichloropropylene	5.0	U
540-59-0	1,2-Dichloroethylene (total)	62.0	D
79-01-6	Trichloroethylene	268	D
124-48-1	Dibromochloromethane	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
71-43-2	Benzene	5.0	U
10061-02-6	trans-1,3-Dichloropropylene	5.0	U
75-25-2	Bromoform	5.0	U
127-18-4	Tetrachloroethylene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
108-88-3	Toluene	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
107-06-2	Dichlorodifluoromethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2194DL

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D105

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
95-47-6	o-Xylene	5.0	U
	m,p-Xylenes	5.0	U
1330-20-1	Xylenes (total)	5.0	U
594-20-7	2,2-Dichloropropane	5.0	U
563-58-6	1,1-Dichloropropene	5.0	U
74-95-3	Dibromomethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
142-28-9	1,3-Dichloropropane	5.0	U
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U
98-82-8	Isopropylbenzene	5.0	U
108-86-1	Bromobenzene	5.0	U
96-18-4	1,2,3-Trichloropropane	5.0	U
103-65-1	n-Propylbenzene	5.0	U
95-49-8	2-Chlorotoluene	5.0	U
108-67-8	1,3,5-Trimethylbenzene	5.0	U
106-43-4	4-Chlorotoluene	5.0	U
98-06-6	tert-Butylbenzene	5.0	U
95-63-6	1,2,4-Trimethylbenzene	5.0	U
135-98-8	sec-Butylbenzene	5.0	U
99-87-6	4-Isopropyltoluene	5.0	U
104-51-8	n-Butylbenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-68-3	Hexachlorobutadiene	5.0	U
91-20-3	Naphthalene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
67-64-1	Acetone	10.0	U
78-93-3	2-Butanone	10.0	U
108-10-1	4-Methyl-2-pentanone	10.0	U
591-78-6	2-Hexanone	10.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2194DL

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D105

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	10.0	U
108-05-4	Vinyl acetate	10.0	U
74-88-4	Iodomethane	10.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2106

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C517

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.50	U
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	22.4	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	22.4	
79-01-6	Trichloroethylene	268	E
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2106

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C517

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.1	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2106

ab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C517

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2106DL

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D106

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	5.0	U
74-87-3	Chloromethane	5.0	U
74-83-9	Bromomethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
75-00-3	Chloroethane	5.0	U
75-09-2	Methylene chloride	3.9	DJB
75-35-4	1,1-Dichloroethylene	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
67-66-3	Chloroform	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
156-60-5	trans-1,2-Dichloroethylene	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
75-27-4	Bromodichloromethane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
156-59-2	cis-1,2-Dichloroethylene	22.7	D
10061-01-5	cis-1,3-Dichloropropylene	5.0	U
540-59-0	1,2-Dichloroethylene (total)	22.7	D
79-01-6	Trichloroethylene	391	D
124-48-1	Dibromochloromethane	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
71-43-2	Benzene	5.0	U
10061-02-6	trans-1,3-Dichloropropylene	5.0	U
75-25-2	Bromoform	5.0	U
127-18-4	Tetrachloroethylene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
108-88-3	Toluene	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
107-06-2	Dichlorodifluoromethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2106DL

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D106

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
95-47-6	o-Xylene	5.0	U
	m,p-Xylenes	5.0	U
1330-20-1	Xylenes (total)	5.0	U
594-20-7	2,2-Dichloropropane	5.0	U
563-58-6	1,1-Dichloropropene	5.0	U
74-95-3	Dibromomethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
142-28-9	1,3-Dichloropropane	5.0	U
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U
98-82-8	Isopropylbenzene	5.0	U
108-86-1	Bromobenzene	5.0	U
96-18-4	1,2,3-Trichloropropane	5.0	U
103-65-1	n-Propylbenzene	5.0	U
95-49-8	2-Chlorotoluene	5.0	U
108-67-8	1,3,5-Trimethylbenzene	5.0	U
106-43-4	4-Chlorotoluene	5.0	U
98-06-6	tert-Butylbenzene	5.0	U
95-63-6	1,2,4-Trimethylbenzene	5.0	U
135-98-8	sec-Butylbenzene	5.0	U
99-87-6	4-Isopropyltoluene	5.0	U
104-51-8	n-Butylbenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-68-3	Hexachlorobutadiene	5.0	U
91-20-3	Naphthalene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
67-64-1	Acetone	2.8	DJ
78-93-3	2-Butanone	10.0	U
108-10-1	4-Methyl-2-pentanone	10.0	U
591-78-6	2-Hexanone	10.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2106DL

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D106

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	10.0	U
108-05-4	Vinyl acetate	10.0	U
74-88-4	Iodomethane	10.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2108

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035006

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D107

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.41	JB
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	34.7	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	34.7	
79-01-6	Trichloroethylene	70.2	
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2108

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035006

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D107

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.0	U
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2108

ab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035006

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D107

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2110

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035001

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C513

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.50	U
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2110

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035001

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C513

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	2.1	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2110

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035001

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C513

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

QUALITY CONTROL SUMMARY

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 #	OTHER	TOT OUT
01	VBLK01LCS	98	93	100		0
02	VBLK01	86	85	92		0
03	TR2110	90	92	100		0
04	ARD2183	93	93	96		0
05	ARD2194	94	95	103		0
06	TR2106	92	92	97		0
07	TR2106MS	90	92	102		0
08	TR2106MSD	92	95	102		0
09	VBLK02LCS	105	99	104		0
10	VBLK02	94	90	97		0
11	ARD2184	91	92	94		0
12	ARD2194DL	90	92	96		0
13	TR2106DL	88	87	91		0
14	TR2108	84	80	98		0
15						
16						
17						
18						
19						
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21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(73-112)
SMC2 (BFB)	= Bromofluorobenzene	(73-123)
SMC3	= Dibromofluoromethane	(81-126)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A
WATER VOLATILE LAB CONTROL SAMPLE

ab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromochloromethane	5.0	0.0	4.7	94	70-130
Chloromethane	5.0	0.0	4.9	98	70-130
Bromomethane	5.0	0.0	4.5	90	70-130
Vinyl chloride	5.0	0.0	4.7	94	70-130
Chloroethane	5.0	0.0	4.8	96	70-130
Methylene chloride	5.0	0.0	4.5	90	70-130
1,1-Dichloroethylene	5.0	0.0	4.8	96	70-130
1,1-Dichloroethane	5.0	0.0	4.9	98	70-130
Chloroform	5.0	0.0	4.9	98	70-130
1,2-Dichloroethane	5.0	0.0	5.0	100	70-130
trans-1,2-Dichloroethyl	5.0	0.0	4.9	98	70-130
1,1,1-Trichloroethane	5.0	0.0	4.8	96	70-130
Carbon tetrachloride	5.0	0.0	4.7	94	70-130
Bromodichloromethane	5.0	0.0	4.8	96	70-130
1,2-Dichloropropane	5.0	0.0	4.8	96	70-130
cis-1,2-Dichloroethylen	5.0	0.0	4.8	96	70-130
cis-1,3-Dichloropropyle	5.0	0.0	4.8	96	70-130
1,2-Dichloroethylene (t	10.0	0.0	9.7	97	70-130
Trichloroethylene	5.0	0.0	4.8	96	70-130
Dibromochloromethane	5.0	0.0	4.5	90	70-130
1,1,2-Trichloroethane	5.0	0.0	4.6	92	70-130
Benzene	5.0	0.0	5.0	100	70-130
trans-1,3-Dichloropropy	5.0	0.0	4.7	94	70-130
Bromoform	5.0	0.0	4.2	84	70-130
Tetrachloroethylene	5.0	0.0	4.8	96	70-130
1,1,2,2-Tetrachloroetha	5.0	0.0	4.6	92	70-130
Toluene	5.0	0.0	4.9	98	70-130
Chlorobenzene	5.0	0.0	5.0	100	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Ethylbenzene	5.0	0.0	5.1	102	70-130
Styrene	5.0	0.0	5.1	102	70-130
Dichlorodifluoromethane	5.0	0.0	5.3	106	70-130
Trichlorofluoromethane	5.0	0.0	5.0	100	70-130
1,3-Dichlorobenzene	5.0	0.0	4.8	96	70-130
1,4-Dichlorobenzene	5.0	0.0	4.9	98	70-130
1,2-Dichlorobenzene	5.0	0.0	4.9	98	70-130
o-Xylene	5.0	0.0	5.0	100	70-130
m,p-Xylenes	10.0	0.0	10.2	102	70-130
Xylenes (total)	15.0	0.0	15.2	101	70-130
2,2-Dichloropropane	5.0	0.0	4.9	98	70-130
1,1-Dichloropropene	5.0	0.0	4.9	98	70-130
Dibromomethane	5.0	0.0	4.7	94	70-130
1,2-Dibromoethane	5.0	0.0	4.6	92	70-130
1,3-Dichloropropane	5.0	0.0	4.8	96	70-130
1,1,1,2-Tetrachloroetha	5.0	0.0	5.0	100	70-130
Isopropylbenzene	5.0	0.0	5.2	104	70-130
Bromobenzene	5.0	0.0	4.8	96	70-130
1,2,3-Trichloropropane	5.0	0.0	4.6	92	70-130
n-Propylbenzene	5.0	0.0	5.0	100	70-130
2-Chlorotoluene	5.0	0.0	4.8	96	70-130
1,3,5-Trimethylbenzene	5.0	0.0	5.1	102	70-130
4-Chlorotoluene	5.0	0.0	5.0	100	70-130
tert-Butylbenzene	5.0	0.0	4.9	98	70-130
1,2,4-Trimethylbenzene	5.0	0.0	5.1	102	70-130
sec-Butylbenzene	5.0	0.0	5.1	102	70-130
4-Isopropyltoluene	5.0	0.0	5.1	102	70-130
n-Butylbenzene	5.0	0.0	5.1	102	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,2-Dibromo-3-chloropro	5.0	0.0	3.9	78	70-130
1,2,4-Trichlorobenzene	5.0	0.0	4.9	98	70-130
Hexachlorobutadiene	5.0	0.0	4.6	92	70-130
Naphthalene	5.0	0.0	4.4	88	70-130
1,2,3-Trichlorobenzene	5.0	0.0	4.8	96	70-130
tert-Butyl methyl ether	5.0	0.0	4.8	96	70-130
Acetone	25.0	0.0	20.0	80	70-130
2-Butanone	25.0	0.0	20.6	82	70-130
4-Methyl-2-pentanone	25.0	0.0	22.6	90	70-130
2-Hexanone	25.0	0.0	21.6	86	70-130
Carbon disulfide	25.0	0.0	24.9	100	70-130
Vinyl acetate	25.0	0.0	27.8	111	70-130
Iodomethane	25.0	0.0	24.6	98	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 69 outside limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromochloromethane	5.0	0.0	5.0	100	70-130
Chloromethane	5.0	0.0	5.0	100	70-130
Bromomethane	5.0	0.0	4.4	88	70-130
Vinyl chloride	5.0	0.0	5.2	104	70-130
Chloroethane	5.0	0.0	5.3	106	70-130
Methylene chloride	5.0	0.42	4.8	88	70-130
1,1-Dichloroethylene	5.0	0.0	5.1	102	70-130
1,1-Dichloroethane	5.0	0.0	5.2	104	70-130
Chloroform	5.0	0.0	5.2	104	70-130
1,2-Dichloroethane	5.0	0.0	5.4	108	70-130
trans-1,2-Dichloroethyl	5.0	0.0	5.2	104	70-130
1,1,1-Trichloroethane	5.0	0.0	5.2	104	70-130
Carbon tetrachloride	5.0	0.0	5.2	104	70-130
Bromodichloromethane	5.0	0.0	5.1	102	70-130
1,2-Dichloropropane	5.0	0.0	5.1	102	70-130
cis-1,2-Dichloroethylen	5.0	0.0	5.2	104	70-130
cis-1,3-Dichloropropyle	5.0	0.0	4.9	98	70-130
1,2-Dichloroethylene (t	10.0	0.0	10.5	105	70-130
Trichloroethylene	5.0	0.0	5.1	102	70-130
Dibromochloromethane	5.0	0.0	4.7	94	70-130
1,1,2-Trichloroethane	5.0	0.0	4.9	98	70-130
Benzene	5.0	0.0	5.3	106	70-130
trans-1,3-Dichloropropy	5.0	0.0	4.8	96	70-130
Bromoform	5.0	0.0	4.5	90	70-130
Tetrachloroethylene	5.0	0.0	5.1	102	70-130
1,1,2,2-Tetrachloroetha	5.0	0.0	4.8	96	70-130
Toluene	5.0	0.0	5.2	104	70-130
Chlorobenzene	5.0	0.0	5.2	104	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

ab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Ethylbenzene	5.0	0.0	5.5	110	70-130
Styrene	5.0	0.0	5.3	106	70-130
Dichlorodifluoromethane	5.0	0.0	5.4	108	70-130
Trichlorofluoromethane	5.0	0.0	4.7	94	70-130
1,3-Dichlorobenzene	5.0	0.0	5.1	102	70-130
1,4-Dichlorobenzene	5.0	0.0	5.1	102	70-130
1,2-Dichlorobenzene	5.0	0.0	5.0	100	70-130
o-Xylene	5.0	0.0	5.2	104	70-130
m,p-Xylenes	10.0	0.0	11.0	110	70-130
Xylenes (total)	15.0	0.0	16.1	107	70-130
2,2-Dichloropropane	5.0	0.0	5.2	104	70-130
1,1-Dichloropropene	5.0	0.0	5.2	104	70-130
Dibromomethane	5.0	0.0	5.0	100	70-130
1,2-Dibromoethane	5.0	0.0	4.8	96	70-130
1,3-Dichloropropane	5.0	0.0	5.0	100	70-130
1,1,1,2-Tetrachloroetha	5.0	0.0	5.0	100	70-130
Isopropylbenzene	5.0	0.0	5.4	108	70-130
Bromobenzene	5.0	0.0	5.2	104	70-130
1,2,3-Trichloropropane	5.0	0.0	5.0	100	70-130
n-Propylbenzene	5.0	0.0	5.4	108	70-130
2-Chlorotoluene	5.0	0.0	5.3	106	70-130
1,3,5-Trimethylbenzene	5.0	0.0	5.4	108	70-130
4-Chlorotoluene	5.0	0.0	5.2	104	70-130
tert-Butylbenzene	5.0	0.0	5.3	106	70-130
1,2,4-Trimethylbenzene	5.0	0.0	5.4	108	70-130
sec-Butylbenzene	5.0	0.0	5.5	110	70-130
4-Isopropyltoluene	5.0	0.0	5.4	108	70-130
n-Butylbenzene	5.0	0.0	5.4	108	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,2-Dibromo-3-chloropro	5.0	0.0	4.4	88	70-130
1,2,4-Trichlorobenzene	5.0	0.0	4.9	98	70-130
Hexachlorobutadiene	5.0	0.0	4.9	98	70-130
Naphthalene	5.0	0.0	4.6	92	70-130
1,2,3-Trichlorobenzene	5.0	0.0	4.8	96	70-130
tert-Butyl methyl ether	5.0	0.0	4.9	98	70-130
Acetone	25.0	0.0	23.2	93	70-130
2-Butanone	25.0	0.0	22.4	90	70-130
4-Methyl-2-pentanone	25.0	0.0	24.8	99	70-130
2-Hexanone	25.0	0.0	23.7	95	70-130
Carbon disulfide	25.0	0.0	26.7	107	70-130
Vinyl acetate	25.0	0.0	29.5	118	70-130
Iodomethane	25.0	0.0	26.3	105	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 69 outside limits

COMMENTS: _____

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix Spike - EPA Sample No.: TR2106

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethylene	5.0	0.0	4.4	88	64-123
Trichloroethylene	5.0	268	273	100	78-122
Benzene	5.0	0.0	5.4	108	80-124
Toluene	5.0	0.0	5.3	106	79-126
Chlorobenzene	5.0	0.0	5.2	104	82-120

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethylene	5.0	4.4	88	0	13	64-123
Trichloroethylene	5.0	271	60*	50*	15	78-122
Benzene	5.0	5.3	106	2	11	80-124
Toluene	5.0	5.3	106	0	13	79-126
Chlorobenzene	5.0	5.2	104	0	13	82-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 5 outside limits
Spike Recovery: 1 out of 10 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Lab File ID: 8P2C503B Lab Sample ID: 1200400499

Date Analyzed: 03/28/03 Time Analyzed: 0738

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01LCS	1200400500	8P2C502LCSB	0712
02	TR2110	77035001	8P2C513	1214
03	ARD2183	77035002	8P2C514	1240
04	ARD2194	77035004	8P2C516	1332
05	TR2106	77035005	8P2C517	1358
06	TR2106MS	1200400501	8P2C518	1424
07	TR2106MSD	1200400502	8P2C519	1450
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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK02

ab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Lab File ID: 8P2D103A Lab Sample ID: 1200401228

Date Analyzed: 03/31/03 Time Analyzed: 1200

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK02LCS	1200401229	8P2D102LCSA	1134
02	ARD2184	77035003	8P2D104	1234
03	ARD2194DL	77035004	8P2D105	1300
04	TR2106DL	77035005	8P2D106	1326
05	TR2108	77035006	8P2D107	1352
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Lab File ID: 8C301 BFB Injection Date: 03/26/03

Instrument ID: VOA8 BFB Injection Time: 0654

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	46.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 100.0% of mass 95	77.1
175	5.0 - 9.0% of mass 174	6.0 (7.7)1
176	95.0 - 101.0% of mass 174	75.1 (97.4)1
177	5.0 - 9.0% of mass 176	5.1 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0002	W8V030326-01	8P2C304A	03/26/03	0810
02	VSTD0005	W8V030326-02	8P2C305A	03/26/03	0836
03	VSTD001	W8V030326-03	8P2C306A	03/26/03	0902
04	VSTD002	W8V030326-04	8P2C307A	03/26/03	0928
05	VSTD005	W8V030326-05	8P2C308A	03/26/03	0954
06	VSTD010	W8V030326-06	8P2C309A	03/26/03	1020
07	VSTD020	W8V030326-07	8P2C310A	03/26/03	1046
08	VSTD050	W8V030326-08	8P2C311A	03/26/03	1112
09	VSTD100	W8V030326-09	8P2C312A	03/26/03	1138
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Lab File ID: 8C501 BFB Injection Date: 03/28/03

Instrument ID: VOA8 BFB Injection Time: 0701

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.1
75	30.0 - 60.0% of mass 95	46.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 100.0% of mass 95	80.1
175	5.0 - 9.0% of mass 174	6.0 (7.5)1
176	95.0 - 101.0% of mass 174	78.3 (97.7)1
177	5.0 - 9.0% of mass 176	5.1 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005	W8V030328-01	8P2C502	03/28/03	0712
02	VBLK01LCS	1200400500	8P2C502LCSB	03/28/03	0712
03	VBLK01	1200400499	8P2C503B	03/28/03	0738
04	TR2110	77035001	8P2C513	03/28/03	1214
05	ARD2183	77035002	8P2C514	03/28/03	1240
06	ARD2194	77035004	8P2C516	03/28/03	1332
07	TR2106	77035005	8P2C517	03/28/03	1358
08	TR2106MS	1200400501	8P2C518	03/28/03	1424
09	TR2106MSD	1200400502	8P2C519	03/28/03	1450
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Lab File ID: 8D101 BFB Injection Date: 03/31/03

Instrument ID: VOA8 BFB Injection Time: 1120

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.6
75	30.0 - 60.0% of mass 95	44.7
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 100.0% of mass 95	73.7
175	5.0 - 9.0% of mass 174	5.4 (7.3)1
176	95.0 - 101.0% of mass 174	72.2 (97.9)1
177	5.0 - 9.0% of mass 176	5.0 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005	W8V030331-01	8P2D102	03/31/03	1134
02	VBLK02LCS	1200401229	8P2D102LCSA	03/31/03	1134
03	VBLK02	1200401228	8P2D103A	03/31/03	1200
04	ARD2184	77035003	8P2D104	03/31/03	1234
05	ARD2194DL	77035004	8P2D105	03/31/03	1300
06	TR2106DL	77035005	8P2D106	03/31/03	1326
07	TR2108	77035006	8P2D107	03/31/03	1352
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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Lab File ID (Standard): 8P2C502 Date Analyzed: 03/28/03

Instrument ID: VOA8 Time Analyzed: 0712

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	607631	4.49	441411	6.76	234517	8.88
	UPPER LIMIT	1215262	4.99	882822	7.26	469034	9.38
	LOWER LIMIT	303816	3.99	220706	6.26	117258	8.38
	EPA SAMPLE NO.						
01	VBLK01LCS	607631	4.49	441411	6.76	234517	8.88
02	VBLK01	594462	4.50	437139	6.77	230340	8.88
03	TR2110	542468	4.50	404738	6.77	204452	8.88
04	ARD2183	550911	4.50	403899	6.77	204873	8.88
05	ARD2194	534499	4.50	395515	6.77	200117	8.88
06	TR2106	543730	4.50	395991	6.77	205662	8.88
07	TR2106MS	528234	4.50	392576	6.78	204173	8.89
08	TR2106MSD	539962	4.50	403482	6.78	209024	8.88
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IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Lab File ID (Standard): 8P2D102 Date Analyzed: 03/31/03

Instrument ID: VOA8 Time Analyzed: 1134

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	531595	4.50	380407	6.77	198075	8.88
	UPPER LIMIT	1063190	5.00	760814	7.27	396150	9.38
	LOWER LIMIT	265798	4.00	190204	6.27	99038	8.38
	EPA SAMPLE NO.						
01	VBLK02LCS	531595	4.50	380407	6.77	198075	8.88
02	VBLK02	547412	4.49	399857	6.77	206765	8.88
03	ARD2184	539708	4.50	392072	6.77	197420	8.88
04	ARD2194DL	534163	4.50	385876	6.77	197672	8.88
05	TR2106DL	557558	4.49	402697	6.76	210875	8.88
06	TR2108	551149	4.49	451077	6.76	268391	8.88
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IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC SEMIVOLATILE FID ANALYSIS

FID Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG# 77035

Method/Analysis Information

Procedure:	**Dissolved Gases by Flame Ionization Detector**
Analytical Method:	SW846 8015A/B SVOC
Prep Method:	SW846 8015A/B SVOC
Analytical Batch Number:	242473
Prep Batch Number:	242472

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8015A/B SVOC:

Sample ID	Client ID
77035001	TR2110
77035002	ARD2183
77035003	ARD2184
77035004	ARD2194
77035005	TR2106
77035006	TR2108
77035007	ARD2196
77035008	ARD2191
1200402040	Method Blank (MB)
1200402042	Laboratory Control Sample (LCS)
1200402041	77035005(TR2106) Sample Duplicate (DUP)

Preparation/Analytical Method Verification

Procedures for preparation, analysis, and reporting of analytical data are documented by General Engineering Laboratories, Inc. (GEL) as Standard Operating Procedures (SOP).

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

CCV Requirements
All calibration verification standard(s) (CVS, ICV or CCV) requirements have been met for this SDG.

Quality Control (QC) Information

Blank Acceptance
The blank(s) analyzed with this SDG met the established acceptance criteria.

Surrogate Recoveries
No surrogate was added to any of the samples in this batch.

LCS Recovery Statement
The LCS spike recoveries for this SDG were within the established acceptance limits.

QC Sample Designation
An MS/MSD pair was not performed on any samples contained in this batch. A sample duplicate was performed to measure precision and accuracy of the batch.

Duplicate RPD Statement
The relative percent differences (RPD) between the sample and its duplicate were within the acceptable limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Sample 77035006 (TR2108) was diluted for methane.

Sample Re-prep/Re-analysis
Sample 77035006(TR2108) was re-analyzed at 1:10 dilution for methane.

Miscellaneous Information

Electronic Package Comment
This package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative.

Nonconformance (NCR) Documentation
No nonconformance reports (NCRs) has been generated for this SDG.

Manual Integrations
Certain standards and QC samples may have required manual integrations to correctly position the baseline as set in the calibration standard injections. If manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction.

Additional Comments
No additional comments are needed for this sample group.

System Configuration

Chromatographic Columns

Column ID	Column Description
J&W1	DB-WAX(0.53mm x 0.5u x 30m)
J&W2	DB-624(0.53mm x 3.0u x 30m)
J&W3	DB-1(0.53mm x 1.5u x 30m)
J&W4	DB-608(0.53mm x 0.83u x 30m)
J&W5	GS-Q(0.53mm x 30m)
Phenomenex	ZB-5(0.25mm x 0.25u x 30m)

Instrument Configuration

Instrument ID	System Configuration	Chromatographic Column
FIDa	HP 5890 Series II GC/FID	J&W1/J&W3/J&W4
FID2a	HP 5890 Series II GC/FID	J&W2/J&W5
FID3a	HP 5890 Series II GC/FID	Phenomenex
FID4a	HP 5890 Series II GC/FID	Phenomenex

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Jimi Cao **Date:** 4/15/03

SAMPLE DATA SUMMARY

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TR2110

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035001

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 023B2301

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2183

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035002

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 024B2401

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2184

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035003

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 025B2501

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2194

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035004

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 026B2601

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TR2106

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035005

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 028B2801

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TR2108

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035006

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 029B2901

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	1380	E
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TR2108_RR

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035006

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 033B3301

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	1620	
74-84-0	Ethane	250	U
74-85-1	Ethene	250	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2196

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035007

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 034B3401

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	42.5	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2191

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix: (soil/water) WATER Lab Sample ID: 77035008

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 031B3101

Level: (low/med) LOW Date Received: 03/26/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/01/03

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/02/03

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

QUALITY CONTROL SUMMARY

3C
WATER FID LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix Spike - EPA Sample No.: MBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Methane	100	0.00	92.3	92	70-130
Ethane	100	0.00	97.3	97	56-140
Ethene	100	0.00	86.6	87	56-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 3 outside limits

COMMENTS: _____

FORM III SV-1 OLM03.0

FORM 4
FID METHOD BLANK SUMMARY

CLIENT SAMPLE NO

MBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Lab File ID: 012B1201MB Lab Sample ID: 1200402040

Instrument ID: FID2A Date Extracted: 04/01/03

Matrix: (soil/water) WATER Date Analyzed: 04/02/03

Level:(low/med) LOW Time Analyzed: 1332

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MBLK01LCS	1200402042	013B1301LCS	04/02/03
02	TR2110	77035001	023B2301	04/02/03
03	ARD2183	77035002	024B2401	04/02/03
04	ARD2184	77035003	025B2501	04/02/03
05	ARD2194	77035004	026B2601	04/02/03
06	TR2106DUP	1200402041	027B2701	04/02/03
07	TR2106	77035005	028B2801	04/02/03
08	TR2108	77035006	029B2901	04/02/03
09	ARD2191	77035008	031B3101	04/02/03
10	TR2108_RR	77035006	033B3301	04/02/03
11	ARD2196	77035007	034B3401	04/02/03
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INORGANIC ANALYSIS

Metals Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77035

Method/Analysis Information

Analytical Batch:	2241750
Prep Batch :	2241748
Standard Operating Procedures:	GL-MA-E-013 REV.8, GL-MA-E-006 REV.8
Analytical Method:	SSW846 6010B
Prep Method :	SSW846 3005A

Sample Analysis

Sample ID	Client ID
77035001	TR2110
77035002	ARD2183
77035003	ARD2184
77035004	ARD2194
77035005	TR2106
77035006	TR2108
77035007	ARD2196
77035008	ARD2191
1200400299	Method Blank (MB) ICP
1200400300	Laboratory Control Sample (LCS)
1200400303	77035005(TR2106L) Serial Dilution (SD)
1200400301	77035005(TR2106D) Sample Duplicate (DUP)
1200400302	77035005(TR2106S) Matrix Spike (MS)

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The ICP analysis was performed on a Perkin Elmer 4300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

Calibration Information

Instrument Calibration
The instrument calibrations are conducted using the method and instrument manufacturer's specifications. All initial calibration requirements have been met for this SDG.

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria, with the exception of sodium in CCB6. Samples bracketed By CCB6 either did not contain sodium above the RLD, or sodium was present at concentrations more than ten times the amount present in CCB6.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Acceptance
The method blank analyzed with this SDG did not contain analytes of interest at concentrations greater than the client required detection limits (CRDL).

LCS Recovery Statement
The laboratory control sample (LCS) met the recommended acceptance criteria for percent recovery (%R) for all elements of interest.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this batch: 77035005 (TR2106).

Matrix Spike Recovery Statement
The percent recovery (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate RPD Statement
The relative percent difference (RPD) obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit(RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess interferences due to matrix suppression or enhancement. Raw element concentrations that are at least 50X the instrument detection limit (IDL) for ICP analyses and 100X the IDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria, percent difference value of <10.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the date and time of sample collection. Those holding times expressed

in hours are calculated in the GELIMS system by hours. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures performed in association with this SDG followed the Standard Operating Procedure (SOP) guidelines. All samples in this SDG were prepared in accordance with the referenced SW-846 procedures.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in soil samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. No sample dilutions were needed in this SDG.

Preparation Information
The samples in this SDG were prepared exactly according to the sited SOP.

Miscellaneous Information

Nonconformance Documentation
Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. No NCR was generated with this SDG.

Additional Comments
No additional comments are needed for this sample group.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Allison M. [illegible] **Date:** 4/9/03

SAMPLE DATA SUMMARY

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77035 **Method Type:** SW846

Sample ID: 77035001 **Client ID:** TR2110

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/26/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	106000	µg/L			P	11.0	Optimal	040103
7439-95-4	Magnesium	12100	µg/L			P	33.2	Optimal	040103
7439-96-5	Manganese	8.470	µg/L	B		P	0.354	Optimal	040103
7440-09-7	Potassium	2460	µg/L			P	27.5	Optimal	040103
7440-23-5	Sodium	13300	µg/L			P	6.690	Optimal	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

General Engineering Laboratories, LLC

TOTAL METALS

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77035 **Method Type:** SW846

Sample ID: 77035002 **Client ID:** ARD2183

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/26/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	98800	µg/L			P	11.0	Optima1	040103
7439-95-4	Magnesium	14700	µg/L			P	33.2	Optima1	040103
7439-96-5	Manganese	2.890	µg/L	B		P	0.354	Optima1	040103
7440-09-7	Potassium	1700	µg/L			P	27.5	Optima1	040103
7440-23-5	Sodium	12200	µg/L			P	6.690	Optima1	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77035 **Method Type:** SW846

Sample ID: 77035003 **Client ID:** ARD2184

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/26/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	111000	µg/L			P	11.0	Optimal	040103
7439-95-4	Magnesium	14800	µg/L			P	33.2	Optimal	040103
7439-96-5	Manganese	67.3	µg/L			P	0.354	Optimal	040103
7440-09-7	Potassium	1730	µg/L			P	27.5	Optimal	040103
7440-23-5	Sodium	14400	µg/L			P	6.690	Optimal	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77035 **Method Type:** SW846

Sample ID: 77035004 **Client ID:** ARD2194

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/26/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	115000	µg/L			P	11.0	Optima1	040103
7439-95-4	Magnesium	11800	µg/L			P	33.2	Optima1	040103
7439-96-5	Manganese	1.130	µg/L	B		P	0.354	Optima1	040103
7440-09-7	Potassium	757	µg/L			P	27.5	Optima1	040103
7440-23-5	Sodium	18300	µg/L			P	6.690	Optima1	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77035 Method Type: SW846

Sample ID: 77035005 Client ID: TR2106

Contract: PARS00103 Lab Code: GEL Case No.: GEL SAS No.:

Matrix: WATER Date Received: 3/26/2003 Level: LOW % Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	122000	µg/L			P	11.0	Optimal	040103
7439-95-4	Magnesium	14000	µg/L			P	33.2	Optimal	040103
7439-96-5	Manganese	6.630	µg/L	B		P	0.354	Optimal	040103
7440-09-7	Potassium	881	µg/L			P	27.5	Optimal	040103
7440-23-5	Sodium	15900	µg/L			P	6.690	Optimal	040103

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77035 **Method Type:** SW846

Sample ID: 77035006 **Client ID:** TR2108

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/26/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	49300	µg/L			P	11.0	Optima1	040103
7439-95-4	Magnesium	9840	µg/L			P	33.2	Optima1	040103
7439-96-5	Manganese	146	µg/L			P	0.354	Optima1	040103
7440-09-7	Potassium	5960	µg/L			P	27.5	Optima1	040103
7440-23-5	Sodium	23300	µg/L			P	6.690	Optima1	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77035 Method Type: SW846

Sample ID: 77035007 Client ID: ARD2196

Contract: PARS00103 Lab Code: GEL Case No.: GEL SAS No.:

Matrix: WATER Date Received: 3/26/2003 Level: LOW % Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	101000	µg/L			P	11.0	Optima1	040103
7439-95-4	Magnesium	13500	µg/L			P	33.2	Optima1	040103
7439-96-5	Manganese	177	µg/L			P	0.354	Optima1	040103
7440-09-7	Potassium	2400	µg/L			P	27.5	Optima1	040103
7440-23-5	Sodium	17400	µg/L			P	6.690	Optima1	040103

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

General Engineering Laboratories, LLC

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77035 **Method Type:** SW846

Sample ID: 77035008 **Client ID:** ARD2191

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/26/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	132000	µg/L			P	11.0	Optimal	040103
7439-95-4	Magnesium	17500	µg/L			P	33.2	Optimal	040103
7439-96-5	Manganese	7.090	µg/L	B		P	0.354	Optimal	040103
7440-09-7	Potassium	1160	µg/L			P	27.5	Optimal	040103
7440-23-5	Sodium	20200	µg/L			P	6.690	Optimal	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

GENERAL CHEMISTRY ANALYSIS

General Chemistry Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77035

Method/Analysis Information

Procedure:	**Ion Chromatography (IC)**
Analytical Method:	EPA 300.0
Analytical Batch Number:	241447

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
77035001	TR2110
77035002	ARD2183
77035003	ARD2184
77035004	ARD2194
77035005	TR2106
77035006	TR2108
77035007	ARD2196
77035008	ARD2191
1200399521	Method Blank (MB)
1200399524	Laboratory Control Sample (LCS)
1200399522	77035001(TR2110) Sample Duplicate (DUP)
1200399929	77035005(TR2106) Sample Duplicate (DUP)
1200399523	77035001(TR2110) Post Spike (PS)
1200399930	77035005(TR2106) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV.8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: Dionex DX300 Ion Chromatograph equipped with a Dionex AS9-HC general purpose anion column

Initial Calibration
The instrument was properly calibrated.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recovery for the laboratory control sample was within the required acceptance limits.

Quality Control
The following samples were designated for Quality Control:
77035001 (TR2110)
77035005 (TR2106)

Sample Spike Recovery
The spike recoveries for this sample set were within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Differences between the samples and duplicates for this batch were within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
The following samples from this sample group were received with insufficient time to prep and/or analyze the samples within the remaining method-specified holding time for nitrate. The samples were analyzed as soon as possible. See NCR 26399.
77035001 (TR2110)
77035002 (ARD2183)
77035003 (ARD2184)
77035007 (ARD2196)

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration for this analysis. See the Certificates of Analysis and/or raw data for the individual dilution factors.
1200399522 (TR2110)
1200399523 (TR2110)
1200399929 (TR2106)
1200399930 (TR2106)
77035001 (TR2110)
77035002 (ARD2183)
77035003 (ARD2184)
77035004 (ARD2194)
77035005 (TR2106)
77035007 (ARD2196)
77035008 (ARD2191)

Miscellaneous Information

Nonconformance Reports
Nonconformance Report (NCR) 26399 was submitted for samples in this sample group for this analysis.

Method/Analysis Information

Procedure:	**Total Organic Carbon (TOC)**
Analytical Method:	SW846 9060
Analytical Batch Number:	244246

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
77035001	TR2110
77035002	ARD2183
77035003	ARD2184
77035004	ARD2194
77035005	TR2106
77035006	TR2108
77035007	ARD2196
77035008	ARD2191
1200406420	Method Blank (MB)
1200406425	Laboratory Control Sample (LCS)
1200406421	77035005(TR2106) Sample Duplicate (DUP)
1200406422	77341001(ARD2193) Sample Duplicate (DUP)
1200406423	77035005(TR2106) Post Spike (PS)
1200406424	77341001(ARD2193) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV.3.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: O-I Analytical Model 1010 Total Organic Carbon Analyzer

Initial Calibration
The instrument was properly calibrated.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recovery for the laboratory control sample was within the required acceptance limits.

Quality Control
The following samples were designated for Quality Control:
77035005 (TR2106)
77341001 (ARD2193)

Sample Spike Recovery
The spike recoveries for this sample set were within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Differences between the samples and duplicates for this batch were within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
No samples in this sample group required dilutions.

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Certification Statement

* Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 4/14/03

General Engineering Laboratories
Form GEL-XXX
Rev. 06/02

NCR Report No.: 26399
Revision No.: 2

COMPANY - WIDE NONCONFORMANCE REPORT

Mo.Day Yr.	Division:		Type:
07-APR-03	Federal		Process
Instrument Type:	**Quality Criteria:**		**Client Code:**
IC	Specifications		PARS001
Test / Method:	**Matrix Type:**	**Batch ID:**	**Sample Numbers:**
EPA 300.0\ICX300_LF	Liquid	241447	See Below

Affected Work Order(SDG): 77035

Application Issues:

Sample Analyzed out of Holding

Specification and Requirements Nonconformance Description:

1. The following samples were analyzed out of holding for nitrate:
77035001
77035002
77035003
77035007

NRG Disposition:

1. Samples 77035001, 77035002, 77035003, & 77035007 were received by the lab with insufficient time to prep and analyze the samples before the hold time expired for nitrate. The samples were analyzed as soon as possible by the analyst.

Originator's Name:
Brian Burgess 07-APR-03

Data Validator/Group Leader:
Julia Hamilton 08-APR-03

Quality Review:

Corrective Action:

Director:

Corrective Action ID and Complete Date:

SAMPLE DATA SUMMARY

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: TR2110
Sample ID: 77035001
Matrix: Water
Collect Date: 24-MAR-03 10:30
Receive Date: 26-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.01	0.025	0.200	mg/L	1	TSM 04/10/03	1826	244246	1
Ion Chromatography Federal										
EPA 300.0 Nitrate in Liquid										
Chloride		9.15	0.0322	0.200	mg/L	1	MAR1 03/26/03	1513	241447	2
Nitrate	H	0.569	0.0341	0.100	mg/L	1				
Sulfate		59.5	0.386	0.800	mg/L	2	MAR1 03/31/03	2248	241447	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: TR2110
Sample ID: 77035001

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2183
Sample ID: 77035002
Matrix: Water
Collect Date: 24-MAR-03 12:20
Receive Date: 26-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.29	0.025	0.200	mg/L	1	TSM 04/10/03	1856	244246	1
Ion Chromatography Federal										
EPA 300.0 Nitrate in Liquid										
Chloride		14.2	0.0322	0.200	mg/L	1	MAR1 03/26/03	1609	241447	2
Nitrate	H	0.591	0.0341	0.100	mg/L	1				
Sulfate		71.3	0.386	0.800	mg/L	2	MAR1 03/31/03	2343	241447	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2183
Sample ID: 77035002

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: ARD2184
Sample ID: 77035003
Matrix: Water
Collect Date: 24-MAR-03 15:25
Receive Date: 26-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.41	0.025	0.200	mg/L	1	TSM 04/10/03	1925	244246	1
Ion Chromatography Federal										
EPA 300.0 Nitrate in Liquid										
Chloride		12.0	0.0322	0.200	mg/L	1	MAR1 03/26/03	1627	241447	2
Nitrate	H	12.2	0.0682	0.200	mg/L	2	MAR1 03/27/03	0957	241447	3
Sulfate		58.0	0.386	0.800	mg/L	2				

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: ARD2184
Sample ID: 77035003

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2194
Sample ID: 77035004
Matrix: Water
Collect Date: 25-MAR-03 09:35
Receive Date: 26-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		2.50	0.025	0.200	mg/L	1	TSM 04/10/03	1954	244246	1
Ion Chromatography Federal										
EPA 300.0 Nitrate in Liquid										
Chloride		4.33	0.0322	0.200	mg/L	1	MAR1 03/26/03	1646	241447	2
Nitrate		0.622	0.0341	0.100	mg/L	1				
Sulfate		78.8	0.965	2.00	mg/L	5	MAR1 04/01/03	0002	241447	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2194
Sample ID: 77035004

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: TR2106
Sample ID: 77035005
Matrix: Water
Collect Date: 25-MAR-03 12:50
Receive Date: 26-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		1.54	0.025	0.200	mg/L	1	TSM	04/10/03	2024	244246	1
Ion Chromatography Federal											
EPA 300.0 Nitrate in Liquid											
Chloride		4.31	0.0322	0.200	mg/L	1	MAR1	03/26/03	1704	241447	2
Nitrate		0.415	0.0341	0.100	mg/L	1					
Sulfate		77.9	0.965	2.00	mg/L	5	MAR1	04/01/03	0020	241447	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: TR2106
Sample ID: 77035005

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: TR2108
Sample ID: 77035006
Matrix: Water
Collect Date: 25-MAR-03 14:40
Receive Date: 26-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.83	0.025	0.200	mg/L	1	TSM 04/10/03	2118	244246	1
Ion Chromatography Federal										
EPA 300.0 Nitrate in Liquid										
Chloride		4.89	0.0322	0.200	mg/L	1	MAR1 03/26/03	1722	241447	2
Nitrate		0.221	0.0341	0.100	mg/L	1				
Sulfate		38.6	0.193	0.400	mg/L	1				

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: TR2108
Sample ID: 77035006

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2196
Sample ID: 77035007
Matrix: Water
Collect Date: 24-MAR-03 17:20
Receive Date: 26-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.96	0.025	0.200	mg/L	1	TSM 04/10/03	2204	244246	1
Ion Chromatography Federal										
EPA 300.0 Nitrate in Liquid										
Chloride		15.0	0.0322	0.200	mg/L	1	MAR1 03/26/03	1818	241447	2
Nitrate	H	2.12	0.0341	0.100	mg/L	1				
Sulfate		59.8	0.386	0.800	mg/L	2	MAR1 04/01/03	0115	241447	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2196
Sample ID: 77035007

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2191
Sample ID: 77035008
Matrix: Water
Collect Date: 25-MAR-03 11:10
Receive Date: 26-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		1.34	0.025	0.200	mg/L	1	TSM	04/10/03	2234	244246	1
Ion Chromatography Federal											
EPA 300.0 Nitrate in Liquid											
Chloride		16.4	0.0322	0.200	mg/L	1	MAR1	03/26/03	1836	241447	2
Nitrate		0.413	0.0341	0.100	mg/L	1					
Sulfate		119	0.965	2.00	mg/L	5	MAR1	04/01/03	0134	241447	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2191
Sample ID: 77035008

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

QUALITY CONTROL SUMMARY

QC Summary

Report Date: April 14, 2003

Client : Parsons
100 Summer Street
Suite 800
Boston, Massachusetts

Contact: Todd Heino

Workorder: 77035

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis Federal											
Batch 244246											
QC1200406421 77035005 DUP											
Total Organic Carbon			1.54		1.51	mg/L	2		(0%-20%)	TSM	04/10/03 20:53
QC1200406422 77341001 DUP											
Total Organic Carbon			2.25		2.34	mg/L	4		(0%-20%)		04/10/03 23:33
QC1200406425 LCS											
Total Organic Carbon	10.0				9.72	mg/L		97	(85%-115%)		04/10/03 18:19
QC1200406420 MB											
Total Organic Carbon				J	0.146	mg/L					04/10/03 18:11
QC1200406423 77035005 PS											
Total Organic Carbon	10.0		1.54		10.8	mg/L		92	(80%-120%)		04/10/03 21:11
QC1200406424 77341001 PS											
Total Organic Carbon	10.0		2.25		11.2	mg/L		90	(80%-120%)		04/10/03 23:50
Ion Chromatography Federal											
Batch 241447											
QC1200399522 77035001 DUP											
Nitrate-N		H	0.569		0.547	mg/L	4		(0%-22%)	MAR1	03/26/03 15:32
Sulfate			59.5		59.2	mg/L	0		(0%-14%)		03/31/03 23:06
Chloride			9.15		9.02	mg/L	1		(0%-16%)		03/26/03 15:32
QC1200399929 77035005 DUP											
Nitrate-N			0.415		0.361	mg/L	14 ^		(+/-0.100)		03/27/03 10:15
Sulfate			77.9		78.4	mg/L	1		(0%-20%)		04/01/03 00:38
Chloride			4.31		4.33	mg/L	1		(0%-16%)		03/27/03 10:15
QC1200399524 LCS											
Nitrate-N	5.00				4.88	mg/L		98	(90%-110%)		03/26/03 14:55
Sulfate	20.0				19.7	mg/L		99	(90%-110%)		
Chloride	10.0				9.65	mg/L		97	(90%-110%)		
QC1200399521 MB											
Nitrate-N				U	0.00	mg/L					03/26/03 14:36
Sulfate				U	0.00	mg/L					
Chloride				U	0.00	mg/L					
QC1200399523 77035001 PS											
Nitrate-N	5.00	H	0.569		5.27	mg/L		94	(71%-130%)		03/26/03 15:50
Sulfate	20.0		29.8		50.9	mg/L		106	(65%-130%)		03/31/03 23:25
Chloride	10.0		9.15		19.9	mg/L		108	(64%-129%)		03/26/03 15:50
QC1200399930 77035005 PS											
Nitrate-N	5.00		0.415		5.07	mg/L		93	(71%-130%)		03/27/03 10:34
Sulfate	20.0		15.6		36.8	mg/L		106	(75%-130%)		04/01/03 00:57
Chloride	10.0		4.31		14.5	mg/L		102	(64%-129%)		03/27/03 10:34

Notes:
The Qualifiers in this report are defined as follows:

< Actual result is less than amount reported

QC Summary

Workorder: 77035

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

>	Actual result is greater than amount reported
B	Analyte found in the sample as well as the associated blank.
BD	Flag for results below the MDC or a flag for low tracer recovery.
E	Concentration exceeds instrument calibration range
H	Holding time exceeded
J	Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P	The response between the confirmation column and the primary column is >40%D
U	Indicates the compound was analyzed for but not detected above the detection limit
UI	Uncertain identification for gamma spectroscopy.
X	Lab-specific qualifier - must be fully described in case narrative and data summary package
Y	QC Samples were not spiked with this compound.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

CASE NARRATIVE
for
Parsons Engineering Science, Inc.
Seneca Army Depot
SDG#s 77557/77559

April 18, 2003

Laboratory Identification:

General Engineering Laboratories, LLC

Mailing Address:

P.O. Box 30712
Charleston, South Carolina 29417

Express Mail Delivery and Shipping Address:

2040 Savage Road
Charleston, South Carolina 29414

Telephone Number:

(843) 556-8171

Summary:

Sample receipt

The samples arrived at General Engineering Laboratories, LLC (GEL) Charleston, South Carolina on April 3, 2003, for Environmental Analyses. All sample containers arrived without any visible signs of tampering or breakage. The samples were delivered with chain of custody documentation and signatures.

The laboratory received the following samples:

Laboratory Identification	Sample Description
77557001	ARD2195
77557002	ARD2192
77559001	ARD2195
77559002	ARD2192
77559003	ARD2185
77559004	ARD2204
77559005	ARD0032
77559006	ARD2202

77559007	ARD2203
77559008	ARD2201
77559009	TR0042

Case Narrative

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are listed below by analytical parameter.

Internal Chain of Custody:

Custody was maintained for all samples.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Qualifier Flag Definitions, Chain of Custody, Cooler Receipt Checklist, GC/MS Volatile Analysis, FID Analysis, Inorganic Analysis, and General Chemistry Analysis.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Valerie S. Davis
Project Manager

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

CHAIN OF CUSTODY

Page

№ 4304

CHAIN OF CUSTODY RECORD

CLIENT: SEneca Army Depot USACOE

PROJECT NO. 743155.01200

PROJECT MGR: Todd Heino Parsons Boston

PROJECT NAME: Ash Landfill

NOTES - (Reference QAPP and/or analytical protocols to be used): 77557% 77559%

SAMPLERS: Dale Dolph - Parsons, Heather Raymond - Parsons

Send results to: PARSONS Boston ~~280 Elwood Davis Road Suite 312 Liverpool, NY 13088~~ 617 457 7870
Telephone: ~~(315) 451-9560~~
Fax: ~~(315) 451-9570~~

Lab Submitted to: GEL Charleston SC

ANALYSES REQUIRED

FIELD SAMPLE ID	LOCATION DESCRIPTION	DATE	TIME	GRAB	COMP	MATRIX	Number of Bottles	VOC 524.2	VOC TCL	Nitrate/Sulfate/Chloride	MEE	TOC	Metals				REMARKS	
001 = 01 ARD21995	PT-18	4/2/03	0940	X		GW	9		X	X	X	X	X					.1/.2
03 ARD21985	MW-36	4/2/03	1340	X		GW	9	X		X	X	X	X					.3
04 ARD22204		4/2/03	1340	X		GW	9	X		X	X	X	X					
ARD21985MS	MW-36	4/2/03	1340	X		GW	3	X									Matrix Spike	
3 ARD21985MSD	MW-36	4/2/03	1340	X		GW	3	X									Matrix Spike Dup	
05 ARD00032	Rinse Blank	4/2/03	1420	X		W	3	X									Rinse Blank	.1
06 ARD22202	FH-D	4/2/03	1445	X		GW	3	X										
07 ARD22203	FH-S	4/2/03	1450	X		GW	3	X										
08 ARD22201	BN-S	4/2/03	1500	X		GW	3	X										
02 ARD21992	MW-56	4/2/03	1555	X		GW	9		X	X	X	X	X					.1/.2

Relinquished by: (Signature)	Date:	Time:	Shipped via:	Airbill #:	Received by: (Signature)	Date:	Time:	Cooler Temp: / Samples Intact:
D. L. R. Dfl	4/2/03	1900	Fedex	839734548968	J M Harley	4/3/03	0900	4 °C; Yes No
Relinquished by: (Signature)	Date:	Time:	Shipped via:	Airbill #:	Received by: (Signature)	Date:	Time:	Cooler Temp: °C; Samples Intact: Yes No
Relinquished by: (Signature)	Date:	Time:	Shipped via:	Airbill #:	Received by: (Signature)	Date:	Time:	Cooler Temp: °C; Samples Intact: Yes No

TYPE CODES.

SOIL ID
- SD- Sediment
- SS- Surface Soil
- SB- Subsurface Soil
- MW- Monitoring Well Boring
- TP- Test Pit/Tank Pit
- DR- Drum Waste
- WA- Solid Waste
- OS- Other Solid

WATER
- MW- Monitoring Well
- LC- Leachate
- SW- Surface Water
- DW- Drill Water
- FD- Fuel Dispenser
- MH- Manhole
- OW- Oil Water Separator
- PR- Piping Run
- ST- Storm Water
- WW- Waste Water
- OL- Other Liquid (eg. Drum liquid)

MATRIX
- W - Water
- S - Soil

QUALITY CONTROL
- FB- Field Blank (with date)
- TB- Trip Blank (with date)
- WB- Wash Blank (with date)

8

№ 4305

CHAIN C STODY RECORD

CLIENT: SENECA Army Depot USACE

PROJECT NO. 743155.01200

PROJECT MGR: Todd Heino Boston

PROJECT NAME: Ash Land Fill

SAMPLERS: Dale Dolph - Parsons, Heather Raymond - Parsons

NOTES - (Reference QAPP and/or analytical protocols to be used): 77559%

ANALYSES REQUIRED: VOC 524.2

Send results to: PARSONS Boston ~~300 Elwood Davis Road Suite 810 Liverpool, NY 13088~~ 617 457 7870
Telephone: ~~(315) 451-9560~~
Fax: ~~(315) 451-0570~~

Lab Submitted to: GEL Charleston SC

FIELD SAMPLE ID	LOCATION DESCRIPTION	DATE	TIME	GRAB	COMP	MATRIX	Number of Bottles	VOC 524.2								REMARKS
TR0042	Trip Blank	–	–			W	2	X								Trip Blank

Relinquished by (Signature)	Date	Time:	Shipped via:	Airbill #	Received by:(Signature)	Date:	Time:	Cooler Temp: / Samples intact:
[signature]	4/2/03	1900	Fedex	839734548968	[signature]	4/3/03	0900	4 °C; ✓Yes ___No
Relinquished by (Signature)	Date	Time:	Shipped via	Airbill #	Received by:(Signature)	Date:	Time:	Cooler Temp: ___ °C; Samples intact: ___Yes ___No
Relinquished by (Signature)	Date	Time:	Shipped via:	Airbill #:	Received by:(Signature)	Date:	Time:	Cooler Temp: ___ °C; Samples intact: ___Yes ___No

TYPE CODES

SOLID
- SD - Sediment
- SS - Surface Soil
- SB - Subsurface Soil
- MW - Monitoring Well Boring
- TP - Test Pit/Tank Pit
- DR - Drum Waste
- WA - Solid Waste
- OS - Other Solid

WATER
- MW - Monitoring Well
- LC - Leachate
- SW - Surface Water
- DW - Drill Water
- FD - Fuel Dispenser
- MH - Manhole
- OW - Oil Water Separator
- PR - Piping Run
- ST - Storm Water
- WW - Waste Water
- OL - Other Liquid (eg. Drum liquid)

MATRIX
- W - Water
- S - Soil

QUALITY CONTROL
- FB - Field Blank (with date)
- TB - Trip Blank (with date)
- WB - Wash Blank (with date)

COOLER RECEIPT CHECKLIST

SAMPLE RECEIPT & REVIEW FORM

Date 4/3/03 Client PARS Received by JMH

	SAMPLE REVIEW CRITERIA	YES	NO	N/A	COMMENTS/QUALIFIERS
1	Were shipping containers received intact and sealed? If no, notify the Project Manager	✓			
2	Were chain of custody documents included?	✓			
3	Shipping container temperature(s) checked?	✓			4°C
4	Is temperature documented on Chain of Custody?	✓			
5	Was shipping container temperature within specifications (4 +/- 2 C)? If no, notify Project Manager	✓			
6	Are any of the samples identified by the client as radioactive? If yes, complete radioactive receipt form		✓		
	Any samples not indentified by the client as radioactive must be screened for radioactivity.	SO			observed background CPM
	If screening results indicate > x2 background inform the RSO.	SO			Max. observed sample CPM
7	Were chain of custody documents completed correctly? (Ink, signed, match containers)	✓			
8	Were sample containers received intact and sealed? If no, notify the Project Manager	✓			
9	Were all sample containers properly labeled?	✓			
10	Were correct sample containers received?	✓			
11	Preserved samples checked for pH?	✓			
12	Were samples preserved correctly? If no, notify Project Manager				
13	Were samples received within holding time? If No, notify Project Manager	✓			
14	Were VOA vials free of headspace?	✓			
15	ARCOC #			✓	
16	SDG #			✓	

PM(A) Review VSO Date Reviewed: 4/3/03

Cooler Air Bill #'s, Associated Temperatures, & Additional Comments:

837734545968

GC/MS VOLATILE ANALYSIS

GC/MS Volatile Organics
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77557

Method/Analysis Information

Procedure:	Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer
Analytical Method:	SW846 8260B
Prep Method:	SW846 5030B
Analytical Batch Number:	244217

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
77557001	ARD2195
77557002	ARD2192
1200407010	Method Blank (MB)
1200407011	Laboratory Control Sample (LCS)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV.7.

Calibration Information
Due to software limitations, all the data files comprising the initial calibration curve may not be listed on the initial calibration summary form. All calibration files are listed in the calibration history report in the "Standard Data" section.

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
All the calibration verification standard (CCV) requirements were met.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recoveries
Surrogate recoveries, in all samples and quality control samples were within the acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the LCS were within the acceptance limits.

QC Sample Designation
Matrix spikes were analyzed on a sample of similar matrix in another Parsons sample delivery group, sample number 77469001 (ARD2188) in SDG 77469.

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
All the required spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
The RPD between spike recoveries were within the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this sample delivery group/work order did not require dilutions.

Miscellaneous Information

Electronic Package Comment
The following package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation
A nonconformance report was not required for this sample delivery group/work order.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

System Configuration
The laboratory utilizes the following GC/MS configurations:

Chromatographic Columns
Chromatographic separation of volatile components is accomplished through analysis on one of the following columns:

Column ID	Column Description
J&W1	DB-624, 60m x 0.25mm, 1.4um
J&W2	DB-624, 75m x 0.53mm, 3.0um

Instrument Configuration
Instrument systems are reference in the raw data and individual form headers by the Instrument ID designations below:

Instrument ID	System Configuration	Chromatographic Column	P & T Trap
VOA1	HP6890/HP5973	J&W1	Trap C
VOA2	HP6890/HP5973	J&W1	Trap C
VOA4	HP5890/HP5972	J&W1	Trap K
VOA5	HP5890/HP5972	J&W1	Trap C
VOA7	HP5890/HP5972	J&W2	Trap K
VOA8	HP6890/HP5973	J&W1	Trap K
VOA9	HP6890/HP5973	J&W1	Trap C

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Pat Steele Date: 04-21-03

Roadmap for PARS 77557 VOA

This roadmap was analyzed by Sara Jones on 04-11-2003, 08:42.
This roadmap was reviewed by Debbie Smith on 04-14-2003, 14:16.
This roadmap was packaged by LySandra Gathers on 04-17-2003, 08:26.

Sample

exclude	manual	datafile	smpid	clientid	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA9.i/041003v9.b/9e410.d	77557001	ARD2195	10-APR-2003	12:46	77557.sub	1.00000	
☐	N	/chem/VOA9.i/041003v9.b/9e411.d	77557002	ARD2192	10-APR-2003	13:14	77557.sub	1.00000	

QC Sample

exclude	manual	datafile	smpid	clientid	sampletype	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA9.i/041003v9.b/9e402PARSlcsB.d	1200407011	VBLK01LCS	lcs	10-APR-2003	08:52	77557.sub	1.00000	
☐	N	/chem/VOA9.i/041003v9.b/9e406B.d	1200407010	VBLK01	mb	10-APR-2003	10:42	77557.sub	1.00000	

SAMPLE DATA SUMMARY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2192

ab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Matrix: (soil/water) WATER Lab Sample ID: 77557002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E411

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	0.42	J
540-59-0	1,2-Dichloroethylene (total)	0.42	J
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2192

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Matrix: (soil/water) WATER Lab Sample ID: 77557002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E411

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
10061-01-5	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2192

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Matrix: (soil/water) WATER Lab Sample ID: 77557002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E411

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2195

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Matrix: (soil/water) WATER Lab Sample ID: 77557001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E410

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	3.0	
540-59-0	1,2-Dichloroethylene (total)	3.0	
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	0.42	J
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2195

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Matrix: (soil/water) WATER Lab Sample ID: 77557001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E410

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	27.3	
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
10061-01-5	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2195

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Matrix: (soil/water) WATER Lab Sample ID: 77557001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E410

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

QUALITY CONTROL SUMMARY

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

	EPA SAMPLE NO.	SMC1 #	SMC2 (TOL)#	SMC3 (BFB)#	OTHER	TOT OUT
01	VBLK01LCS	89	82	78		0
02	VBLK01	90	83	82		0
03	ARD2195	91	81	81		0
04	ARD2192	91	82	81		0
05						
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		QC LIMITS
SMC1	= Dibromofluoromethane	(74-144)
SMC2 (TOL)	= Toluene-d8	(76-129)
SMC3 (BFB)	= Bromofluorobenzene	(69-137)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50.0	0.0	40.7	81	68-141
Chloromethane	50.0	0.0	39.2	78	72-142
Vinyl chloride	50.0	0.0	49.8	100	67-141
Bromomethane	50.0	0.0	44.4	89	61-144
Chloroethane	50.0	0.0	49.3	99	68-132
Trichlorofluoromethane	50.0	0.0	41.9	84	65-142
1,1-Dichloroethylene	50.0	0.0	47.8	96	66-132
Acetone	250	0.0	237	95	71-139
Iodomethane	250	0.0	282	113	68-126
Carbon disulfide	250	0.0	256	102	68-120
Acetonitrile	1250	0.0	1140	91	70-135
Methylene chloride	50.0	0.0	45.9	92	73-112
tert-Butyl methyl ether	50.0	0.0	53.4	107	70-130
trans-1,2-Dichloroethyl	50.0	0.0	53.9	108	78-125
1,1-Dichloroethane	50.0	0.0	53.8	108	80-119
Vinyl acetate	250	0.0	255	102	67-136
2-Butanone	250	0.0	251	100	64-134
cis-1,2-Dichloroethylen	50.0	0.0	55.8	112	80-117
1,2-Dichloroethylene (t	100	0.0	110	110	70-130
2,2-Dichloropropane	50.0	0.0	59.1	118	74-142
Bromochloromethane	50.0	0.0	51.9	104	75-125
Chloroform	50.0	0.0	53.9	108	80-124
1,1,1-Trichloroethane	50.0	0.0	55.2	110	72-136
1,1-Dichloropropene	50.0	0.0	55.0	110	84-126
Carbon tetrachloride	50.0	0.0	58.8	118	66-141
1,2-Dichloroethane	50.0	0.0	49.2	98	67-131
Benzene	50.0	0.0	52.5	105	78-116
Trichloroethylene	50.0	0.0	53.3	107	83-122

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
1,2-Dichloropropane	50.0	0.0	51.2	102	75-119
Dibromomethane	50.0	0.0	54.1	108	80-126
Bromodichloromethane	50.0	0.0	52.7	105	78-127
2-Chloroethylvinyl ethe	250	0.0	191	76	63-131
cis-1,3-Dichloropropyle	50.0	0.0	54.1	108	77-129
4-Methyl-2-pentanone	250	0.0	260	104	69-127
Toluene	50.0	0.0	53.8	108	79-118
trans-1,3-Dichloropropy	50.0	0.0	54.6	109	67-132
1,1,2-Trichloroethane	50.0	0.0	51.0	102	76-119
1,3-Dichloropropane	50.0	0.0	49.8	100	83-114
2-Hexanone	250	0.0	262	105	60-136
Tetrachloroethylene	50.0	0.0	53.7	107	78-126
Dibromochloromethane	50.0	0.0	56.4	113	81-129
1,2-Dibromoethane	50.0	0.0	53.0	106	75-130
Chlorobenzene	50.0	0.0	53.8	108	82-118
1,1,1,2-Tetrachloroetha	50.0	0.0	53.1	106	82-119
Ethylbenzene	50.0	0.0	55.3	111	80-120
o-Xylene	50.0	0.0	58.2	116	81-118
m,p-Xylenes	100	0.0	112	112	79-119
Xylenes (total)	150	0.0	170	113	70-130
Styrene	50.0	0.0	59.3	119	82-121
Bromoform	50.0	0.0	56.6	113	79-141
Isopropylbenzene	50.0	0.0	48.8	98	73-115
1,1,2,2-Tetrachloroetha	50.0	0.0	47.0	94	66-127
1,2,3-Trichloropropane	50.0	0.0	48.6	97	76-120
Bromobenzene	50.0	0.0	50.7	101	78-118
n-Propylbenzene	50.0	0.0	54.4	109	78-126
2-Chlorotoluene	50.0	0.0	53.8	108	78-121

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

ab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
1,3,5-Trimethylbenzene	50.0	0.0	53.5	107	82-121
1,2,4-Trimethylbenzene	50.0	0.0	52.6	105	82-122
4-Chlorotoluene	50.0	0.0	51.5	103	78-122
tert-Butylbenzene	50.0	0.0	53.1	106	79-124
sec-Butylbenzene	50.0	0.0	54.6	109	83-123
4-Isopropyltoluene	50.0	0.0	56.1	112	83-125
1,3-Dichlorobenzene	50.0	0.0	54.4	109	80-122
1,4-Dichlorobenzene	50.0	0.0	52.8	106	70-130
n-Butylbenzene	50.0	0.0	56.5	113	79-127
1,2-Dichlorobenzene	50.0	0.0	51.9	104	80-116
1,2-Dibromo-3-chloropro	50.0	0.0	46.9	94	68-129
1,2,4-Trichlorobenzene	50.0	0.0	55.4	111	71-136
Hexachlorobutadiene	50.0	0.0	50.8	102	73-124
Naphthalene	50.0	0.0	49.4	99	64-143
1,2,3-Trichlorobenzene	50.0	0.0	53.3	107	71-134

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 71 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Lab File ID: 9E406B Lab Sample ID: 1200407010

Date Analyzed: 04/10/03 Time Analyzed: 1042

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01LCS	1200407011	9E402PARSLCS	0852
02	ARD2195	77557001	9E410	1246
03	ARD2192	77557002	9E411	1314
04				
05				
06				
07				
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Lab File ID: 9D307 BFB Injection Date: 04/02/03

Instrument ID: VOA9 BFB Injection Time: 1413

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.4
75	30.0 - 60.0% of mass 95	53.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.1 (0.1)1
174	50.0 - 100.0% of mass 95	69.6
175	5.0 - 9.0% of mass 174	5.2 (7.5)1
176	95.0 - 101.0% of mass 174	67.9 (97.6)1
177	5.0 - 9.0% of mass 176	4.4 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0005	W9V030402-01	9D309	04/02/03	1452
02	VSTD001	W9V030402-02	9D310	04/02/03	1519
03	VSTD002	W9V030402-03	9D312	04/02/03	1615
04	VSTD005	W9V030402-04	9D313	04/02/03	1642
05	VSTD010	W9V030402-05	9D314	04/02/03	1710
06	VSTD020	W9V030402-06	9D315	04/02/03	1737
07	VSTD050	W9V030402-07	9D316	04/02/03	1805
08	VSTD100	W9V030402-08	9D317	04/02/03	1832
09	VSTD005S	UVM030221-10A	9D318	04/02/03	1900
10	VSTD010S	UVM030221-11A	9D319	04/02/03	1927
11	VSTD025S	UVM030221-12A	9D320	04/02/03	1955
12	VSTD050S	UVM030221-13A	9D321	04/02/03	2022
13	VSTD100S	UVM030221-14A	9D322	04/02/03	2049
14	VSTD250S	UVM030221-15A	9D323	04/02/03	2116
15	VSTD500S	UVM030221-16A	9D324	04/02/03	2144
16					
17					
18					
19					
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21					
22					

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Lab File ID: 9E401 BFB Injection Date: 04/10/03

Instrument ID: VOA9 BFB Injection Time: 0842

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.9
75	30.0 - 60.0% of mass 95	53.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.2 (0.3)1
174	50.0 - 100.0% of mass 95	72.7
175	5.0 - 9.0% of mass 174	4.9 (6.7)1
176	95.0 - 101.0% of mass 174	70.5 (97.0)1
177	5.0 - 9.0% of mass 176	4.5 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	UVM030404-01A	9E402	04/10/03	0852
02	VBLK01LCS	1200407011	9E402PARSLCSB	04/10/03	0852
03	VSTD250S	UVM030212-01B	9E403	04/10/03	0920
04	VBLK01	1200407010	9E406B	04/10/03	1042
05	ARD2195	77557001	9E410	04/10/03	1246
06	ARD2192	77557002	9E411	04/10/03	1314
07					
08					
09					
10					
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14					
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16					
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21					
22					

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77557

Lab File ID (Standard): 9E402 Date Analyzed: 04/10/03

Instrument ID: VOA9 Time Analyzed: 0852

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	1055837	4.94	739866	7.94	381269	10.65
	UPPER LIMIT	2111674	5.44	1479732	8.44	762538	11.15
	LOWER LIMIT	527918	4.44	369933	7.44	190634	10.15
	EPA SAMPLE NO.						
01	VBLK01LCS	1055837	4.94	739105	7.94	381269	10.65
02	VBLK01	977656	4.94	684922	7.94	317851	10.65
03	ARD2195	1004238	4.94	717419	7.94	334522	10.65
04	ARD2192	990302	4.95	703307	7.94	318468	10.65
05							
06							
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20							
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22							

IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC/MS VOLATILE ANALYSIS

GC/MS Volatile Organics
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77559

Method/Analysis Information

Procedure:	Volatile Organic Compounds by Gas Chromatograph/Mass Spectrometer
Analytical Method:	EPA 524.2
Prep Method:	EPA 524.2
Analytical Batch Number:	243842

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
77559003	ARD2185
77559004	ARD2204
77559005	ARD0032
77559006	ARD2202
77559007	ARD2203
77559008	ARD2201
77559009	TR0042
1200405473	Method Blank (MB)
1200405474	Laboratory Control Sample (LCS)
1200406099	Method Blank (MB)
1200406100	Laboratory Control Sample (LCS)
1200405475	77559003(ARD2185) Matrix Spike (MS)
1200405476	77559003(ARD2185) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-022 REV.3.

Calibration Information
Due to software limitations, all the data files comprising the initial calibration curve may not be listed on the initial calibration summary form. All calibration files are listed in the calibration history report in the "Standard Data" section.

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
All the calibration verification standard (CCV) requirements were met.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recoveries
Surrogate recoveries, in all samples and quality control samples were within the acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the LCS were within the acceptance limits.

QC Sample Designation
The following sample was designated for spike analysis: 77559003 (ARD2185).

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
All the required spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
The RPD between spike recoveries were within the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this sample delivery group/work order did not require dilutions.

Sample Re-prep/Re-analysis
Re-analyses were not required for samples in this sample group/work order.

Miscellaneous Information

Electronic Package Comment
The following package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation
A nonconformance report was not required for this sample delivery group/work order.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

Additional Comments
There were no additional comments.

System Configuration
The laboratory utilizes the following GC/MS configurations:

Chromatographic Columns
Chromatographic separation of volatile components is accomplished through analysis on one of the following columns:

Column ID	Column Description
J&W1	DB-624, 60m x 0.25mm, 1.4um
J&W2	DB-624, 75m x 0.53mm, 3.0um

Instrument Configuration
Instrument systems are reference in the raw data and individual form headers by the Instrument ID designations below:

Instrument ID	System Configuration	Chromatographic Column	P & T Trap
VOA1	HP6890/HP5973	J&W1	Trap C
VOA2	HP6890/HP5973	J&W1	Trap C
VOA4	HP5890/HP5972	J&W1	Trap K
VOA5	HP5890/HP5972	J&W1	Trap C
VOA7	HP5890/HP5972	J&W2	Trap K
VOA8	HP6890/HP5973	J&W1	Trap K
VOA9	HP6890/HP5973	J&W1	Trap C

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: _____ Date: 04-22-03

Roadmap for PARS 77559 VOA

This roadmap was analyzed by Debbie Smith on 04-11-2003, 14:39.
This roadmap was reviewed by Sara Jones on 04-14-2003, 15:53.
This roadmap was packaged by LySandra Gathers on 04-18-2003, 13:30.

Sample

exclude	manual	datafile	smpid	clientid	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA8.i/040803v8.b/8p2e215.d	77559003	ARD2185	08-APR-2003	14:30	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e218.d	77559004	ARD2204	08-APR-2003	15:47	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e219.d	77559005	ARD0032	08-APR-2003	16:14	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e220.d	77559006	ARD2202	08-APR-2003	16:40	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e221.d	77559007	ARD2203	08-APR-2003	17:05	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e222.d	77559008	ARD2201	08-APR-2003	17:31	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040903v8.b/8p2e304.d	77559009	TR0042	09-APR-2003	08:09	77559.sub	1.00000	

QC Sample

exclude	manual	datafile	smpid	clientid	sampletype	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA8.i/040803v8.b/8p2e202LCSE.d	1200405474	VBLK01LCS	lcs	08-APR-2003	08:32	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e203E.d	1200405473	VBLK01	mb	08-APR-2003	09:04	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e216.d	1200405475	ARD2185MS	ms	08-APR-2003	14:56	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e217.d	1200405476	ARD2185MSD	msd	08-APR-2003	15:21	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040903v8.b/8p2e302LCSA.d	1200406100	VBLK02LCS	lcs	09-APR-2003	07:13	77559.sub	1.00000	
☐	N	/chem/VOA8.i/040903v8.b/8p2e303A.d	1200406099	VBLK02	mb	09-APR-2003	07:39	77559.sub	1.00000	

SAMPLE DATA SUMMARY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD0032

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E219

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.48	J
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	38.1	
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD0032

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E219

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	28.0	
78-93-3	2-Butanone	1.6	
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD0032

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E219

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2185

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E215

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.39	J
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2185

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E215

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.3	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2185

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E215

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2201

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559008

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E222

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.35	J
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	1.1	
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.36	J
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2201

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559008

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E222

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	2.8	
	m,p-Xylenes	0.68	
1330-20-1	Xylenes (total)	3.4	
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.84	
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	30.6	
67-64-1	Acetone	1.3	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 #	OTHER	TOT OUT
01	VBLK01LCS	104	94	96		0
02	VBLK01	96	94	101		0
03	ARD2185	102	98	107		0
04	ARD2185MS	96	90	105		0
05	ARD2185MSD	99	112	112		0
06	ARD2204	97	94	105		0
07	ARD0032	100	90	104		0
08	ARD2202	90	90	101		0
09	ARD2203	96	92	111		0
10	ARD2201	103	101	108		0
11	VBLK02LCS	104	89	100		0
12	VBLK02	96	92	98		0
13	TR0042	104	98	105		0
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(73-112)
SMC2 (BFB)	= Bromofluorobenzene	(73-123)
SMC3	= Dibromofluoromethane	(81-126)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromochloromethane	5.0	0.0	4.9	98	70-130
Chloromethane	5.0	0.0	4.4	88	70-130
Bromomethane	5.0	0.0	4.1	82	70-130
Vinyl chloride	5.0	0.0	4.5	90	70-130
Chloroethane	5.0	0.0	4.9	98	70-130
Methylene chloride	5.0	0.0	5.1	102	70-130
1,1-Dichloroethylene	5.0	0.0	4.8	96	70-130
1,1-Dichloroethane	5.0	0.0	4.8	96	70-130
Chloroform	5.0	0.0	5.0	100	70-130
1,2-Dichloroethane	5.0	0.0	5.1	102	70-130
trans-1,2-Dichloroethyl	5.0	0.0	4.9	98	70-130
1,1,1-Trichloroethane	5.0	0.0	5.0	100	70-130
Carbon tetrachloride	5.0	0.0	4.8	96	70-130
Bromodichloromethane	5.0	0.0	4.7	94	70-130
1,2-Dichloropropane	5.0	0.0	4.7	94	70-130
cis-1,2-Dichloroethylen	5.0	0.0	4.8	96	70-130
cis-1,3-Dichloropropyle	5.0	0.0	4.8	96	70-130
1,2-Dichloroethylene (t	10.0	0.0	9.7	97	70-130
Trichloroethylene	5.0	0.0	4.9	98	70-130
Dibromochloromethane	5.0	0.0	4.6	92	70-130
1,1,2-Trichloroethane	5.0	0.0	4.8	96	70-130
Benzene	5.0	0.0	5.0	100	70-130
trans-1,3-Dichloropropy	5.0	0.0	4.8	96	70-130
Bromoform	5.0	0.0	4.3	86	70-130
Tetrachloroethylene	5.0	0.0	5.4	108	70-130
1,1,2,2-Tetrachloroetha	5.0	0.0	5.0	100	70-130
Toluene	5.0	0.0	5.0	100	70-130
Chlorobenzene	5.0	0.0	5.0	100	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Ethylbenzene	5.0	0.0	5.3	106	70-130
Styrene	5.0	0.0	5.2	104	70-130
Dichlorodifluoromethane	5.0	0.0	5.0	100	70-130
Trichlorofluoromethane	5.0	0.0	4.4	88	70-130
1,3-Dichlorobenzene	5.0	0.0	5.0	100	70-130
1,4-Dichlorobenzene	5.0	0.0	5.0	100	70-130
1,2-Dichlorobenzene	5.0	0.0	5.0	100	70-130
o-Xylene	5.0	0.0	5.1	102	70-130
m,p-Xylenes	10.0	0.0	10.4	104	70-130
Xylenes (total)	15.0	0.0	15.5	103	70-130
2,2-Dichloropropane	5.0	0.0	4.8	96	70-130
1,1-Dichloropropene	5.0	0.0	5.0	100	70-130
Dibromomethane	5.0	0.0	4.9	98	70-130
1,2-Dibromoethane	5.0	0.0	4.8	96	70-130
1,3-Dichloropropane	5.0	0.0	4.9	98	70-130
1,1,1,2-Tetrachloroetha	5.0	0.0	4.8	96	70-130
Isopropylbenzene	5.0	0.0	5.1	102	70-130
Bromobenzene	5.0	0.0	5.0	100	70-130
1,2,3-Trichloropropane	5.0	0.0	4.9	98	70-130
n-Propylbenzene	5.0	0.0	5.1	102	70-130
2-Chlorotoluene	5.0	0.0	5.2	104	70-130
1,3,5-Trimethylbenzene	5.0	0.0	5.1	102	70-130
4-Chlorotoluene	5.0	0.0	5.2	104	70-130
tert-Butylbenzene	5.0	0.0	4.9	98	70-130
1,2,4-Trimethylbenzene	5.0	0.0	5.2	104	70-130
sec-Butylbenzene	5.0	0.0	5.1	102	70-130
4-Isopropyltoluene	5.0	0.0	5.2	104	70-130
n-Butylbenzene	5.0	0.0	5.2	104	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

ab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,2-Dibromo-3-chloropro	5.0	0.0	3.8	76	70-130
1,2,4-Trichlorobenzene	5.0	0.0	5.2	104	70-130
Hexachlorobutadiene	5.0	0.0	5.3	106	70-130
Naphthalene	5.0	0.0	4.8	96	70-130
1,2,3-Trichlorobenzene	5.0	0.0	5.3	106	70-130
tert-Butyl methyl ether	5.0	0.0	4.8	96	70-130
Acetone	25.0	0.0	23.8	95	70-130
2-Butanone	25.0	0.0	22.7	91	70-130
4-Methyl-2-pentanone	25.0	0.0	25.7	103	70-130
2-Hexanone	25.0	0.0	25.3	101	70-130
Carbon disulfide	25.0	0.0	24.6	98	70-130
Vinyl acetate	25.0	0.0	26.8	107	70-130
Iodomethane	25.0	0.0	25.5	102	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 69 outside limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromochloromethane	5.0	0.0	5.0	100	70-130
Chloromethane	5.0	0.0	4.4	88	70-130
Bromomethane	5.0	0.0	4.2	84	70-130
Vinyl chloride	5.0	0.0	4.7	94	70-130
Chloroethane	5.0	0.0	4.9	98	70-130
Methylene chloride	5.0	0.0	5.0	100	70-130
1,1-Dichloroethylene	5.0	0.0	4.9	98	70-130
1,1-Dichloroethane	5.0	0.0	4.9	98	70-130
Chloroform	5.0	0.0	5.1	102	70-130
1,2-Dichloroethane	5.0	0.0	5.2	104	70-130
trans-1,2-Dichloroethyl	5.0	0.0	4.9	98	70-130
1,1,1-Trichloroethane	5.0	0.0	5.0	100	70-130
Carbon tetrachloride	5.0	0.0	4.8	96	70-130
Bromodichloromethane	5.0	0.0	4.9	98	70-130
1,2-Dichloropropane	5.0	0.0	4.8	96	70-130
cis-1,2-Dichloroethylen	5.0	0.0	5.0	100	70-130
cis-1,3-Dichloropropyle	5.0	0.0	4.8	96	70-130
1,2-Dichloroethylene (t	10.0	0.0	9.8	98	70-130
Trichloroethylene	5.0	0.0	4.9	98	70-130
Dibromochloromethane	5.0	0.0	4.6	92	70-130
1,1,2-Trichloroethane	5.0	0.0	4.8	96	70-130
Benzene	5.0	0.0	5.0	100	70-130
trans-1,3-Dichloropropy	5.0	0.0	4.8	96	70-130
Bromoform	5.0	0.0	4.5	90	70-130
Tetrachloroethylene	5.0	0.0	5.3	106	70-130
1,1,2,2-Tetrachloroetha	5.0	0.0	4.8	96	70-130
Toluene	5.0	0.0	4.8	96	70-130
Chlorobenzene	5.0	0.0	4.9	98	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Ethylbenzene	5.0	0.0	5.1	102	70-130
Styrene	5.0	0.0	5.0	100	70-130
Dichlorodifluoromethane	5.0	0.0	4.6	92	70-130
Trichlorofluoromethane	5.0	0.0	4.6	92	70-130
1,3-Dichlorobenzene	5.0	0.0	4.8	96	70-130
1,4-Dichlorobenzene	5.0	0.0	4.8	96	70-130
1,2-Dichlorobenzene	5.0	0.0	4.8	96	70-130
o-Xylene	5.0	0.0	4.9	98	70-130
m,p-Xylenes	10.0	0.0	10.1	101	70-130
Xylenes (total)	15.0	0.0	15.1	101	70-130
2,2-Dichloropropane	5.0	0.0	5.0	100	70-130
1,1-Dichloropropene	5.0	0.0	4.9	98	70-130
Dibromomethane	5.0	0.0	4.9	98	70-130
1,2-Dibromoethane	5.0	0.0	4.7	94	70-130
1,3-Dichloropropane	5.0	0.0	4.9	98	70-130
1,1,1,2-Tetrachloroetha	5.0	0.0	4.9	98	70-130
Isopropylbenzene	5.0	0.0	5.1	102	70-130
Bromobenzene	5.0	0.0	4.9	98	70-130
1,2,3-Trichloropropane	5.0	0.0	4.5	90	70-130
n-Propylbenzene	5.0	0.0	4.9	98	70-130
2-Chlorotoluene	5.0	0.0	4.8	96	70-130
1,3,5-Trimethylbenzene	5.0	0.0	4.9	98	70-130
4-Chlorotoluene	5.0	0.0	4.8	96	70-130
tert-Butylbenzene	5.0	0.0	4.8	96	70-130
1,2,4-Trimethylbenzene	5.0	0.0	5.0	100	70-130
sec-Butylbenzene	5.0	0.0	4.9	98	70-130
4-Isopropyltoluene	5.0	0.0	5.0	100	70-130
n-Butylbenzene	5.0	0.0	4.9	98	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,2-Dibromo-3-chloropro	5.0	0.0	4.0	80	70-130
1,2,4-Trichlorobenzene	5.0	0.0	4.6	92	70-130
Hexachlorobutadiene	5.0	0.0	5.0	100	70-130
Naphthalene	5.0	0.0	4.1	82	70-130
1,2,3-Trichlorobenzene	5.0	0.0	4.5	90	70-130
tert-Butyl methyl ether	5.0	0.0	5.0	100	70-130
Acetone	25.0	0.0	23.2	93	70-130
2-Butanone	25.0	0.0	22.4	90	70-130
4-Methyl-2-pentanone	25.0	0.0	24.3	97	70-130
2-Hexanone	25.0	0.0	23.6	94	70-130
Carbon disulfide	25.0	0.0	25.5	102	70-130
Vinyl acetate	25.0	0.0	26.0	104	70-130
Iodomethane	25.0	0.0	26.1	104	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 69 outside limits

COMMENTS: _____

3A
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix Spike - EPA Sample No.: ARD2185

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethylene	5.0	0.0	4.2	84	64-123
Trichloroethylene	5.0	0.0	4.7	94	78-122
Benzene	5.0	0.0	5.1	102	80-124
Toluene	5.0	0.0	4.9	98	79-126
Chlorobenzene	5.0	0.0	4.9	98	82-120

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethylene	5.0	4.2	84	0	13	64-123
Trichloroethylene	5.0	4.6	92	2	15	78-122
Benzene	5.0	5.1	102	0	11	80-124
Toluene	5.0	5.0	100	2	13	79-126
Chlorobenzene	5.0	5.0	100	2	13	82-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Lab File ID: 8P2E203E Lab Sample ID: 1200405473

Date Analyzed: 04/08/03 Time Analyzed: 0904

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01LCS	1200405474	8P2E202LCSE	0832
02	ARD2185	77559003	8P2E215	1430
03	ARD2185MS	1200405475	8P2E216	1456
04	ARD2185MSD	1200405476	8P2E217	1521
05	ARD2204	77559004	8P2E218	1547
06	ARD0032	77559005	8P2E219	1614
07	ARD2202	77559006	8P2E220	1640
08	ARD2203	77559007	8P2E221	1705
09	ARD2201	77559008	8P2E222	1731
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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK02

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Lab File ID: 8P2E303A Lab Sample ID: 1200406099

Date Analyzed: 04/09/03 Time Analyzed: 0739

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK02LCS	1200406100	8P2E302LCSA	0713
02	TR0042	77559009	8P2E304	0809
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Lab File ID: 8C301 BFB Injection Date: 03/26/03

Instrument ID: VOA8 BFB Injection Time: 0654

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0% of mass 95	20.3	
75	30.0 - 60.0% of mass 95	46.4	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	7.4	
173	Less than 2.0% of mass 174	0.2	(0.2)1
174	50.0 - 100.0% of mass 95	77.1	
175	5.0 - 9.0% of mass 174	6.0	(7.7)1
176	95.0 - 101.0% of mass 174	75.1	(97.4)1
177	5.0 - 9.0% of mass 176	5.1	(6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0002	W8V030326-01	8P2C304A	03/26/03	0810
02	VSTD0005	W8V030326-02	8P2C305A	03/26/03	0836
03	VSTD001	W8V030326-03	8P2C306A	03/26/03	0902
04	VSTD002	W8V030326-04	8P2C307A	03/26/03	0928
05	VSTD005	W8V030326-05	8P2C308A	03/26/03	0954
06	VSTD010	W8V030326-06	8P2C309A	03/26/03	1020
07	VSTD020	W8V030326-07	8P2C310A	03/26/03	1046
08	VSTD050	W8V030326-08	8P2C311A	03/26/03	1112
09	VSTD100	W8V030326-09	8P2C312A	03/26/03	1138
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Lab File ID: 8E201 BFB Injection Date: 04/08/03

Instrument ID: VOA8 BFB Injection Time: 0817

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.4
75	30.0 - 60.0% of mass 95	46.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	50.0 - 100.0% of mass 95	80.8
175	5.0 - 9.0% of mass 174	6.0 (7.4)1
176	95.0 - 101.0% of mass 174	78.9 (97.6)1
177	5.0 - 9.0% of mass 176	5.1 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005	W8V030408-01	8P2E202	04/08/03	0832
02	VBLK01LCS	1200405474	8P2E202LCSE	04/08/03	0832
03	VBLK01	1200405473	8P2E203E	04/08/03	0904
04	ARD2185	77559003	8P2E215	04/08/03	1430
05	ARD2185MS	1200405475	8P2E216	04/08/03	1456
06	ARD2185MSD	1200405476	8P2E217	04/08/03	1521
07	ARD2204	77559004	8P2E218	04/08/03	1547
08	ARD0032	77559005	8P2E219	04/08/03	1614
09	ARD2202	77559006	8P2E220	04/08/03	1640
10	ARD2203	77559007	8P2E221	04/08/03	1705
11	ARD2201	77559008	8P2E222	04/08/03	1731
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Lab File ID: 8E301 BFB Injection Date: 04/09/03

Instrument ID: VOA8 BFB Injection Time: 0657

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.0
75	30.0 - 60.0% of mass 95	45.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 100.0% of mass 95	83.2
175	5.0 - 9.0% of mass 174	6.1 (7.4)1
176	95.0 - 101.0% of mass 174	82.0 (98.5)1
177	5.0 - 9.0% of mass 176	5.3 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005	W8V030409-01	8P2E302	04/09/03	0713
02	VBLK02LCS	1200406100	8P2E302LCSA	04/09/03	0713
03	VBLK02	1200406099	8P2E303A	04/09/03	0739
04	TR0042	77559009	8P2E304	04/09/03	0809
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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Lab File ID (Standard): 8P2E202 Date Analyzed: 04/08/03

Instrument ID: VOA8 Time Analyzed: 0832

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	594714	4.50	420450	6.78	226752	8.88
	UPPER LIMIT	1189428	5.00	840900	7.28	453504	9.38
	LOWER LIMIT	297357	4.00	210225	6.28	113376	8.38
	EPA SAMPLE NO.						
01	VBLK01LCS	594714	4.50	420450	6.78	226752	8.88
02	VBLK01	535312	4.50	397414	6.78	209728	8.89
03	ARD2185	512339	4.50	374340	6.77	195010	8.88
04	ARD2185MS	535690	4.50	393334	6.77	218193	8.88
05	ARD2185MSD	542243	4.50	403109	6.77	243500	8.88
06	ARD2204	530624	4.50	385081	6.77	202252	8.88
07	ARD0032	500868	4.50	365159	6.77	200500	8.88
08	ARD2202	544044	4.50	398691	6.77	204869	8.88
09	ARD2203	503626	4.50	379134	6.77	207078	8.88
0	ARD2201	504605	4.50	371154	6.77	192305	8.88
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IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Lab File ID (Standard): 8P2E302 Date Analyzed: 04/09/03

Instrument ID: VOA8 Time Analyzed: 0713

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	587424	4.50	427464	6.77	230286	8.88
	UPPER LIMIT	1174848	5.00	854928	7.27	460572	9.38
	LOWER LIMIT	293712	4.00	213732	6.27	115143	8.38
	EPA SAMPLE NO.						
01	VBLK02LCS	587424	4.50	427464	6.77	230286	8.88
02	VBLK02	545585	4.50	388903	6.77	205228	8.88
03	TR0042	556047	4.50	393226	6.77	213135	8.88
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IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC SEMIVOLATILE FID ANALYSIS

FID Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77559

Method/Analysis Information

Procedure:	**Dissolved Gases by Flame Ionization Detector**
Analytical Method:	SW846 8015A/B SVOC
Prep Method:	SW846 8015A/B SVOC
Analytical Batch Number:	242857
Prep Batch Number:	242856

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8015A/B SVOC:

Sample ID	Client ID
77559001	ARD2195
77559002	ARD2192
77559003	ARD2185
77559004	ARD2204
1200403144	Method Blank (MB)
1200403146	Laboratory Control Sample (LCS)
1200403145	77559002(ARD2192) Sample Duplicate (DUP)

Preparation/Analytical Method Verification

Procedures for preparation, analysis, and reporting of analytical data are documented by General Engineering Laboratories, Inc. (GEL) as Standard Operating Procedures (SOP).

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

CCV Requirements
All calibration verification standard(s) (CVS, ICV or CCV) requirements have been met for this SDG.

Quality Control (QC) Information

Blank Acceptance
The blank(s) analyzed with this SDG met the established acceptance criteria.

Surrogate Recoveries
No surrogate was added to any of the samples in this batch.

LCS Recovery Statement
The Laboratory Control Sample (LCS) spike recoveries for this SDG were within the established acceptance limits.

QC Sample Designation
No matrix spike (MS) or matrix spike duplicate (MSD) were analyzed with this SDG. A sample duplicate was analyzed to measure the precision for this batch.

Duplicate RPD Statement
The relative percent differences (RPD) between the sample and its duplicate were within the acceptable limits.

Technical Information

Holding Time Specifications
All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
None of the samples in this SDG required dilutions.

Sample Re-prep/Re-analysis
None of the samples in this sample group were reprepped or reanalyzed.

Miscellaneous Information

Nonconformance (NCR) Documentation
No nonconformance reports (NCRs) have been generated for this SDG.

Manual Integrations
Certain standards and QC samples may have required manual integrations to correctly position the baseline as set in the calibration standard injections. If manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Samples 77559001 (ARD2195), 77559002 (ARD2192) and 77559003 (ARD2185) required manual integrations.

Additional Comments
No additional comments are needed for this sample group.

System Configuration

Chromatographic Columns

Column ID	Column Description
J&W1	DB-WAX(0.53mm x 0.5u x 30m)
J&W2	DB-624(0.53mm x 3.0u x 30m)
J&W3	DB-1(0.53mm x 1.5u x 30m)
J&W4	DB-608(0.53mm x 0.83u x 30m)
J&W5	GS-Q(0.53mm x 30m)
Phenomenex	ZB-5(0.25mm x 0.25u x 30m)

Instrument Configuration

Instrument ID	System Configuration	Chromatographic Column
FIDa	HP 5890 Series II GC/FID	J&W1/J&W3/J&W4
FID2a	HP 5890 Series II GC/FID	J&W2/J&W5
FID3a	HP 5890 Series II GC/FID	Phenomenex
FID4a	HP 5890 Series II GC/FID	Phenomenex

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Jimmi Cao **Date:** 4/21/03

SAMPLE DATA SUMMARY

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2195

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559001

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 005B0501

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	49.5	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I SV-1 OLM03.0

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2192

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559002

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 006B0601

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	61.3	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I SV-1 OLM03.0

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2185

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559003

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 007B0701

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	134	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I SV-1 OLM03.0

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2204

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix: (soil/water) WATER Lab Sample ID: 77559004

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 009B0901

Level: (low/med) LOW Date Received: 04/03/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I SV-1 OLM03.0

QUALITY CONTROL SUMMARY

3C
WATER FID LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Matrix Spike - EPA Sample No.: MBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Methane	100	0.00	90.4	90	70-130
Ethane	100	0.00	89.5	90	56-140
Ethene	100	0.00	91.7	92	56-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 3 outside limits

COMMENTS: _____

4B
FID METHOD BLANK SUMMARY

EPA SAMPLE NO.

MBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77559

Lab File ID: 003B0301MB Lab Sample ID: 1200403144

Instrument ID: FID2A Date Extracted: 04/02/03

Matrix: (soil/water) WATER Date Analyzed: 04/04/03

Level: (low/med) LOW Time Analyzed: 0952

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MBLK01	1200403144	003B0301MB	04/04/03
02	MBLK01LCS	1200403146	004B0401LCS	04/04/03
03	ARD2195	77559001	005B0501	04/04/03
04	ARD2192	77559002	006B0601	04/04/03
05	ARD2185	77559003	007B0701	04/04/03
06	ARD2192DUP	1200403145	008B0801	04/04/03
07	ARD2204	77559004	009B0901	04/04/03
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Metals Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77559

Method/Analysis Information

Analytical Batch:	2243170
Prep Batch :	2243169
Standard Operating Procedures:	GL-MA-E-013 REV.8, GL-MA-E-006 REV.8
Analytical Method:	SSW846 6010B
Prep Method :	SSW846 3005A

Sample Analysis

Sample ID	Client ID
77559001	ARD2195
77559002	ARD2192
77559003	ARD2185
77559004	ARD2204
1200403917	Method Blank (MB) ICP
1200403924	Laboratory Control Sample (LCS)
1200403920	77559003(ARD2185L) Serial Dilution (SD)
1200403918	77559003(ARD2185D) Sample Duplicate (DUP)
1200403922	77559003(ARD2185S) Matrix Spike (MS)

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The ICP analysis was performed on a Thermo Jarrell Ash 61E Trace axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium internal standard. Operating conditions for the Trace ICP are set at a power level of 950 watts. The instrument has a peristaltic pump flow rate of 140 RPM (2.0 mL/min sample uptake rate), argon gas flows of 15 L/min and 0.5 L/min for the torch and auxiliary gases, and a pressure setting of 26 PSI for the nebulizer.

Calibration Information

Instrument Calibration

The instrument calibrations are conducted using the method and instrument manufacturer's specifications. All initial calibration requirements have been met for this SDG.

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Acceptance
The method blank analyzed with this SDG did not contain analytes of interest at concentrations greater than the client required detection limits (CRDL).

LCS Recovery Statement
The laboratory control sample (LCS) met the recommended acceptance criteria for percent recovery (%R) for all elements of interest.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this SDG: 77559003 (ARD2185).

Matrix Spike Recovery Statement
The percent recovery (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate RPD Statement
The relative percent difference (RPD) obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit(RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess interferences due to matrix suppression or enhancement. Raw element concentrations that are at least 50X the instrument detection limit (IDL) for ICP analyses and 100X the IDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria, percent difference value of <10.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the GELIMS system by hours. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures performed in association with this SDG followed the Standard Operating Procedure (SOP)

guidelines.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in soil samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. No sample dilutions were needed in this SDG.

Preparation Information
The samples in this SDG were prepared exactly according to the sited SOP.

Miscellaneous Information

Nonconformance Documentation
Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. No NCR was generated with this SDG.

Additional Comments
No additional comments are needed for this sample group.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Allison M. C. **Date:** 4/17/03

SAMPLE DATA SUMMARY

TOTAL METALS

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77559 **Method Type:** SW846

Sample ID: 77559001 **Client ID:** ARD2195

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/3/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	188000	µg/L			P	7.760	TJA61 Trace ICP2	41003
7439-95-4	Magnesium	29800	µg/L			P	14.2	TJA61 Trace ICP2	41003
7439-96-5	Manganese	19.1	µg/L			P	0.421	TJA61 Trace ICP2	41003
7440-09-7	Potassium	4090	µg/L			P	48.7	TJA61 Trace ICP2	41003
7440-23-5	Sodium	26500	µg/L			P	33.9	TJA61 Trace ICP2	41003

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77559 **Method Type:** SW846

Sample ID: 77559002 **Client ID:** ARD2192

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/3/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	80200	µg/L			P	7.760	TJA61 Trace ICP2	41003
7439-95-4	Magnesium	9720	µg/L			P	14.2	TJA61 Trace ICP2	41003
7439-96-5	Manganese	6.740	µg/L	B		P	0.421	TJA61 Trace ICP2	41003
7440-09-7	Potassium	2250	µg/L			P	48.7	TJA61 Trace ICP2	41003
7440-23-5	Sodium	10600	µg/L			P	33.9	TJA61 Trace ICP2	41003

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77559 **Method Type:** SW846

Sample ID: 77559003 **Client ID:** ARD2185

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/3/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	113000	µg/L			P	7.760	TJA61 Trace ICP2	41003
7439-95-4	Magnesium	17400	µg/L			P	14.2	TJA61 Trace ICP2	41003
7439-96-5	Manganese	121	µg/L			P	0.421	TJA61 Trace ICP2	41003
7440-09-7	Potassium	2230	µg/L			P	48.7	TJA61 Trace ICP2	41003
7440-23-5	Sodium	12400	µg/L			P	33.9	TJA61 Trace ICP2	41003

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77559 **Method Type:** SW846

Sample ID: 77559004 **Client ID:** ARD2204

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/3/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	112000	µg/L			P	7.760	TJA61 Trace ICP2	41003
7439-95-4	Magnesium	17300	µg/L			P	14.2	TJA61 Trace ICP2	41003
7439-96-5	Manganese	127	µg/L			P	0.421	TJA61 Trace ICP2	41003
7440-09-7	Potassium	2280	µg/L			P	48.7	TJA61 Trace ICP2	41003
7440-23-5	Sodium	12300	µg/L			P	33.9	TJA61 Trace ICP2	41003

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

GENERAL CHEMISTRY ANALYSIS

General Chemistry Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77559

Method/Analysis Information

Procedure:	**Ion Chromatography (IC)**
Analytical Method:	EPA 300.0
Analytical Batch Number:	243193

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
77559001	ARD2195
77559002	ARD2192
77559003	ARD2185
77559004	ARD2204
1200403966	Method Blank (MB)
1200403971	Laboratory Control Sample (LCS)
1200403967	77559003(ARD2185) Sample Duplicate (DUP)
1200403969	77559003(ARD2185) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV.8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: Dionex DX300 Ion Chromatograph equipped with a Dionex AS9-HC general purpose anion column

Initial Calibration
The instrument was properly calibrated.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recoveries for the laboratory control sample were within the required acceptance limits.

Quality Control
The following sample was designated for Quality Control:
77559003 (ARD2185)

Sample Spike Recovery
The spike recoveries for this sample set were within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Differences between the sample and duplicate for this batch were within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration for sulfate. See the Certificates of Analysis for the individual dilution factors.
1200403967 (ARD2185)
1200403969 (ARD2185)
77559001 (ARD2195)
77559002 (ARD2192)
77559003 (ARD2185)
77559004 (ARD2204)

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Method/Analysis Information

Procedure:	**Total Organic Carbon (TOC)**
Analytical Method:	SW846 9060
Analytical Batch Number:	244647

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
77559001	ARD2195
77559002	ARD2192
77559003	ARD2185
77559004	ARD2204
1200407396	Method Blank (MB)
1200407401	Laboratory Control Sample (LCS)
1200407398	77559003(ARD2185) Sample Duplicate (DUP)
1200407400	77559003(ARD2185) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV.3.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: O-I Analytical Model 1010 Total Organic Carbon Analyzer

Initial Calibration

The instrument was properly calibrated.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recovery for the laboratory control sample was within the required acceptance limits.

Quality Control
The following sample was designated for Quality Control:
77559003 (ARD2185)

Sample Spike Recovery
The spike recovery for this sample set was within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Difference between the sample and duplicate for this batch was within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
No samples in this sample group required dilutions.

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Certification Statement

* Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 4/17/03

SAMPLE DATA SUMMARY

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID:	ARD2195	Project:	PARS00103
Sample ID:	77559001	Client ID:	PARS001
Matrix:	Water		
Collect Date:	02-APR-03 09:40		
Receive Date:	03-APR-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		4.35	0.025	0.200	mg/L	1	TSM	04/15/03	1540	244647	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Chloride		11.9	0.0322	0.200	mg/L	1	MAR1	04/04/03	0525	243193	2
Nitrate		0.254	0.0341	0.100	mg/L	1					
Sulfate		219	1.93	4.00	mg/L	10	MAR1	04/04/03	1415	243193	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/04/03	1000	243169
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/04/03	0756	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2195
Sample ID: 77559001

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2192
Sample ID: 77559002
Matrix: Water
Collect Date: 02-APR-03 15:55
Receive Date: 03-APR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		2.20	0.025	0.200	mg/L	1	TSM 04/15/03	1609	244647	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Chloride		11.6	0.0322	0.200	mg/L	1	MAR1 04/04/03	0639	243193	2
Nitrate		2.18	0.0341	0.100	mg/L	1				
Sulfate		62.4	0.386	0.800	mg/L	2	MAR1 04/04/03	1433	243193	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/04/03	1000	243169
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/04/03	0756	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2192
Sample ID: 77559002

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID:	ARD2185	Project:	PARS00103
Sample ID:	77559003	Client ID:	PARS001
Matrix:	Water		
Collect Date:	02-APR-03 13:40		
Receive Date:	03-APR-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		3.29	0.025	0.200	mg/L	1	TSM	04/15/03	1639	244647	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Chloride		6.73	0.0322	0.200	mg/L	1	MAR1	04/04/03	0657	243193	2
Nitrate		0.300	0.0341	0.100	mg/L	1					
Sulfate		56.5	0.386	0.800	mg/L	2	MAR1	04/04/03	1452	243193	3

.he following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/04/03	1000	243169
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/04/03	0756	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2185
Sample ID: 77559003

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2204
Sample ID: 77559004
Matrix: Water
Collect Date: 02-APR-03 13:40
Receive Date: 03-APR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		3.42	0.025	0.200	mg/L	1	TSM	04/15/03	1734	244647	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Chloride		6.61	0.0322	0.200	mg/L	1	MAR1	04/04/03	0829	243193	2
Nitrate		0.318	0.0341	0.100	mg/L	1					
Sulfate		56.2	0.386	0.800	mg/L	2	MAR1	04/04/03	1547	243193	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/04/03	1000	243169
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/04/03	0756	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2204
Sample ID: 77559004

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

QUALITY CONTROL SUMMARY

QC Summary

Report Date: April 17, 2003

Client : Parsons
100 Summer Street
Suite 800
Boston, Massachusetts
Contact: Todd Heino

Workorder: 77559

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis Federal										
Batch 244647										
QC1200407398 77559003 DUP										
Total Organic Carbon		3.29		3.10	mg/L	6		(0%-20%)	TSM	04/15/03 17:08
QC1200407401 LCS										
Total Organic Carbon	10.0			10.4	mg/L		104	(85%-115%)		04/15/03 11:39
QC1200407396 MB										
Total Organic Carbon			U	-0.34	mg/L					04/15/03 11:31
QC1200407400 77559003 PS										
Total Organic Carbon	10.0	3.29		13.3	mg/L		101	(80%-120%)		04/15/03 17:26
Ion Chromatography Federal										
Batch 243193										
QC1200403967 77559003 DUP										
Nitrate-N		0.300		0.298	mg/L	1 ^		(+/-0.100)	MAR1	04/04/03 07:15
Sulfate		56.5		56.0	mg/L	1		(0%-20%)		04/04/03 15:10
Chloride		6.73		6.71	mg/L	0		(0%-20%)		04/04/03 07:15
QC1200403971 LCS										
Nitrate-N	5.00			4.77	mg/L		95	(90%-110%)		04/04/03 05:07
Sulfate	20.0			19.3	mg/L		97	(90%-110%)		
Chloride	10.0			9.36	mg/L		94	(90%-110%)		
QC1200403966 MB										
Nitrate-N			U	0.00	mg/L					04/04/03 04:48
Sulfate			U	0.00	mg/L					
Chloride			U	0.00	mg/L					
QC1200403969 77559003 PS										
Nitrate-N	5.00	0.300		4.89	mg/L		92	(77%-115%)		04/04/03 07:34
Sulfate	20.0	28.3		50.0	mg/L		109	(75%-130%)		04/04/03 15:29
Chloride	10.0	6.73		17.1	mg/L		103	(80%-125%)		04/04/03 07:34

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package

QC Summary

Workorder: 77559

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Y QC Samples were not spiked with this compound.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Case Narrative

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are listed below by analytical parameter.

Internal Chain of Custody:

Custody was maintained for all samples.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Qualifier Flag Definitions, Chain of Custody, Cooler Receipt Checklist, GC/MS Volatile Analysis, FID Analysis, Inorganic Analysis, and General Chemistry Analysis.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Valerie S. Davis
Project Manager

SAMPLE RECEIPT & REVIEW FORM

Date 3/27/03 Client Parsons Received by JMH

	SAMPLE REVIEW CRITERIA	YES	NO	N/A	COMMENTS/QUALIFIERS
1	Were shipping containers received intact and sealed? If no, notify the Project Manager	✓			
2	Were chain of custody documents included?	✓			
3	Shipping container temperature(s) checked?	✓			4°C
4	Is temperature documented on Chain of Custody?	✓			
5	Was shipping container temperature within specifications (4 +/- 2 C)? If no, notify Project Manager	✓			
6	Are any of the samples identified by the client as radioactive? If yes, complete radioactive receipt form		✓		
	Any samples not indentified by the client as radioactive must be screened for radioactivitiy.	50			observed background CPM
	If screening results indicate > x2 background inform the RSO.	50			Max. observed sample CPM
7	Were chain of custody documents completed correctly? (Ink, signed, match containers)	✓			
8	Were sample containers received intact and sealed? If no, notify the Project Manager	✓			
9	Were all sample containers properly labeled?	✓			
10	Were correct sample containers received?	✓			
11	Preserved samples checked for pH?	✓			
12	Were samples preserved correctly? If no, notify Project Manager	✓			
13	Were samples received within holding time? If No, notify Project Manager	✓			
14	Were VOA vials free of headspace?	✓			
15	ARCOC#			✓	
16	SDG#			✓	

PM(A) Review:_____ Date Reviewed:_____

Cooler Air Bill #'s, Associated Temperatures, & Additional Comments:

839326228903

GC/MS VOLATILE ANALYSIS

GC/MS Volatile Organics
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77111

Method/Analysis Information

Procedure:	Volatile Organic Compounds by Gas Chromatograph/Mass Spectrometer
Analytical Method:	EPA 524.2
Prep Method:	EPA 524.2
Analytical Batch Number:	241844

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
77111001	TR2103
77111002	TR2105
77111003	TR2111
77111004	ARD2199
77111005	TR0038
77111006	TR0039
1200400499	Method Blank (MB)
1200400500	Laboratory Control Sample (LCS)
1200401228	Method Blank (MB)
1200401229	Laboratory Control Sample (LCS)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-022 REV.3.

Calibration Information
Due to software limitations, all the data files comprising the initial calibration curve may not be listed on the initial calibration summary form. All calibration files are listed in the calibration history report in the "Standard Data" section.

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
All the calibration verification standard (CCV) requirements were met.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recoveries
Surrogate recoveries, in all samples and quality control samples, were within the acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the LCS were within the acceptance limits.

QC Sample Designation
Matrix spike analyses were analyzed on a sample of similar matrix in PARS sample delivery group order, # 77035.

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
The matrix spike duplicate recovery was below the acceptance limit for trichloroethylene, possibly due to the high level of trichloroethylene detected in the sample. 1200400502 (TR2106).

Relative Percent Difference Statement (RPD)
The RPD between the matrix spike and matrix spike duplicate was above the acceptance limit for trichloroethylene, possibly due to the high level of trichloroethylene detected in the sample. 1200400501 (TR2106) and 1200400502 (TR2106).

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this sample delivery group/work order did not require dilutions.

Sample Re-prep/Re-analysis
Re-analyses were not required for samples in this sample group/work order.

Miscellaneous Information

Electronic Package Comment
The following package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation
A nonconformance report was not required for this sample delivery group/work order.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

Additional Comments
There were no additional comments.

System Configuration
The laboratory utilizes the following GC/MS configurations:

Chromatographic Columns
Chromatographic separation of volatile components is accomplished through analysis on one of the following columns:

Column ID	Column Description
J&W1	DB-624, 60m x 0.25mm, 1.4um
J&W2	DB-624, 75m x 0.53mm, 3.0um

Instrument Configuration
Instrument systems are reference in the raw data and individual form headers by the Instrument ID designations below:

Instrument ID	System Configuration	Chromatographic Column	P & T Trap
VOA1	HP6890/HP5973	J&W1	Trap C
VOA2	HP6890/HP5973	J&W1	Trap C
VOA4	HP5890/HP5972	J&W1	Trap K
VOA5	HP5890/HP5972	J&W1	Trap C
VOA7	HP5890/HP5972	J&W2	Trap K
VOA8	HP6890/HP5973	J&W1	Trap K
VOA9	HP6890/HP5973	J&W1	Trap C

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: _____ Date: 4-15-03

Roadmap for PARS 77111 VOA

This roadmap was analyzed by Debbie Smith on 04-08-2003, 13:54.
This roadmap was reviewed by Sara Jones on 04-09-2003, 10:28.
This roadmap was packaged by LySandra Gathers on 04-10-2003, 10:42.

Sample

exclude	manual	datafile	smpid	clientid	injdate	injtime	sublist	dilution	comment
■	N	/chem/VOA8.i/032803v8.b/8p2c521.d	77111001	TR2103	28-MAR-2003	15:43	PARS.sub	1.00000	
□	N	/chem/VOA8.i/032803v8.b/8p2c522.d	77111002	TR2105	28-MAR-2003	16:09	77111.sub	1.00000	
□	N	/chem/VOA8.i/032803v8.b/8p2c523.d	77111003	TR2111	28-MAR-2003	16:34	77111.sub	1.00000	
□	N	/chem/VOA8.i/032803v8.b/8p2c524.d	77111004	ARD2199	28-MAR-2003	17:00	77111.sub	1.00000	
□	N	/chem/VOA8.i/032803v8.b/8p2c525.d	77111005	TR0038	28-MAR-2003	17:26	77111.sub	1.00000	
□	N	/chem/VOA8.i/032803v8.b/8p2c526.d	77111006	TR0039	28-MAR-2003	17:52	77111.sub	1.00000	
□	N	/chem/VOA8.i/033103v8.b/8p2d108.d	77111001	TR2103	31-MAR-2003	14:18	77111.sub	1.00000	

QC Sample

exclude	manual	datafile	smpid	clientid	sampletype	injdate	injtime	sublist	dilution	comment
□	N	/chem/VOA8.i/032803v8.b/8p2c502LCSC.d	1200400500	VBLK01LCS	lcs	28-MAR-2003	07:12	77111.sub	1.00000	
□	N	/chem/VOA8.i/032803v8.b/8p2c503C.d	1200400499	VBLK01	mb	28-MAR-2003	07:38	77111.sub	1.00000	
□	N	/chem/VOA8.i/033103v8.b/8p2d102LCSB.d	1200401229	VBLK02LCS	lcs	31-MAR-2003	11:34	77111.sub	1.00000	
□	N	/chem/VOA8.i/033103v8.b/8p2d103B.d	1200401228	VBLK02	mb	31-MAR-2003	12:00	77111.sub	1.00000	

SAMPLE DATA SUMMARY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2199

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C524

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.50	U
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.29	J
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	35.2	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	35.2	
79-01-6	Trichloroethylene	2.8	
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2199

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C524

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.2	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2199

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C524

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0038

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C525

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.47	J
75-35-4	1,1-Dichloroethylene	0.42	J
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	77.5	
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0038

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C525

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	24.6	
78-93-3	2-Butanone	1.2	
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0038

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C525

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0039

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111006

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C526

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.50	U
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0039

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111006

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C526

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	0.99	J
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0039

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111006

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C526

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2103

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111001

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D108

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.42	JB
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.69	
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	43.2	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	43.2	
79-01-6	Trichloroethylene	1.7	
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2103

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111001

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D108

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	0.79	J
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2103

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111001

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2D108

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2105

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111002

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C522

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.50	U
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	3.6	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	3.6	
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2105

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111002

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C522

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
----------	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	2.0	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2105

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111002

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C522

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2111

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C523

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.27	J
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	3.9	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	3.9	
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2111

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C523

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.6	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2111

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2C523

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: not dec. _____ Date Analyzed: 03/28/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

QUALITY CONTROL SUMMARY

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 #	OTHER	TOT OUT
01	VBLK01LCS	98	93	100		0
02	VBLK01	86	85	92		0
03	TR2105	93	97	99		0
04	TR2111	92	95	104		0
05	ARD2199	93	95	105		0
06	TR0038	95	96	98		0
07	TR0039	90	95	100		0
08	VBLK02LCS	105	99	104		0
09	VBLK02	94	90	97		0
10	TR2103	93	90	99		0
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		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(73-112)
SMC2 (BFB)	= Bromofluorobenzene	(73-123)
SMC3	= Dibromofluoromethane	(81-126)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromochloromethane	5.0	0.0	4.7	94	70-130
Chloromethane	5.0	0.0	4.9	98	70-130
Bromomethane	5.0	0.0	4.5	90	70-130
Vinyl chloride	5.0	0.0	4.7	94	70-130
Chloroethane	5.0	0.0	4.8	96	70-130
Methylene chloride	5.0	0.0	4.5	90	70-130
1,1-Dichloroethylene	5.0	0.0	4.8	96	70-130
1,1-Dichloroethane	5.0	0.0	4.9	98	70-130
Chloroform	5.0	0.0	4.9	98	70-130
1,2-Dichloroethane	5.0	0.0	5.0	100	70-130
trans-1,2-Dichloroethyl	5.0	0.0	4.9	98	70-130
1,1,1-Trichloroethane	5.0	0.0	4.8	96	70-130
Carbon tetrachloride	5.0	0.0	4.7	94	70-130
Bromodichloromethane	5.0	0.0	4.8	96	70-130
1,2-Dichloropropane	5.0	0.0	4.8	96	70-130
cis-1,2-Dichloroethylen	5.0	0.0	4.8	96	70-130
cis-1,3-Dichloropropyle	5.0	0.0	4.8	96	70-130
1,2-Dichloroethylene (t	10.0	0.0	9.7	97	70-130
Trichloroethylene	5.0	0.0	4.8	96	70-130
Dibromochloromethane	5.0	0.0	4.5	90	70-130
1,1,2-Trichloroethane	5.0	0.0	4.6	92	70-130
Benzene	5.0	0.0	5.0	100	70-130
trans-1,3-Dichloropropy	5.0	0.0	4.7	94	70-130
Bromoform	5.0	0.0	4.2	84	70-130
Tetrachloroethylene	5.0	0.0	4.8	96	70-130
1,1,2,2-Tetrachloroetha	5.0	0.0	4.6	92	70-130
Toluene	5.0	0.0	4.9	98	70-130
Chlorobenzene	5.0	0.0	5.0	100	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Ethylbenzene	5.0	0.0	5.1	102	70-130
Styrene	5.0	0.0	5.1	102	70-130
Dichlorodifluoromethane	5.0	0.0	5.3	106	70-130
Trichlorofluoromethane	5.0	0.0	5.0	100	70-130
1,3-Dichlorobenzene	5.0	0.0	4.8	96	70-130
1,4-Dichlorobenzene	5.0	0.0	4.9	98	70-130
1,2-Dichlorobenzene	5.0	0.0	4.9	98	70-130
o-Xylene	5.0	0.0	5.0	100	70-130
m,p-Xylenes	10.0	0.0	10.2	102	70-130
Xylenes (total)	15.0	0.0	15.2	101	70-130
2,2-Dichloropropane	5.0	0.0	4.9	98	70-130
1,1-Dichloropropene	5.0	0.0	4.9	98	70-130
Dibromomethane	5.0	0.0	4.7	94	70-130
1,2-Dibromoethane	5.0	0.0	4.6	92	70-130
1,3-Dichloropropane	5.0	0.0	4.8	96	70-130
1,1,1,2-Tetrachloroetha	5.0	0.0	5.0	100	70-130
Isopropylbenzene	5.0	0.0	5.2	104	70-130
Bromobenzene	5.0	0.0	4.8	96	70-130
1,2,3-Trichloropropane	5.0	0.0	4.6	92	70-130
n-Propylbenzene	5.0	0.0	5.0	100	70-130
2-Chlorotoluene	5.0	0.0	4.8	96	70-130
1,3,5-Trimethylbenzene	5.0	0.0	5.1	102	70-130
4-Chlorotoluene	5.0	0.0	5.0	100	70-130
tert-Butylbenzene	5.0	0.0	4.9	98	70-130
1,2,4-Trimethylbenzene	5.0	0.0	5.1	102	70-130
sec-Butylbenzene	5.0	0.0	5.1	102	70-130
4-Isopropyltoluene	5.0	0.0	5.1	102	70-130
n-Butylbenzene	5.0	0.0	5.1	102	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,2-Dibromo-3-chloropro	5.0	0.0	3.9	78	70-130
1,2,4-Trichlorobenzene	5.0	0.0	4.9	98	70-130
Hexachlorobutadiene	5.0	0.0	4.6	92	70-130
Naphthalene	5.0	0.0	4.4	88	70-130
1,2,3-Trichlorobenzene	5.0	0.0	4.8	96	70-130
tert-Butyl methyl ether	5.0	0.0	4.8	96	70-130
Acetone	25.0	0.0	20.0	80	70-130
2-Butanone	25.0	0.0	20.6	82	70-130
4-Methyl-2-pentanone	25.0	0.0	22.6	90	70-130
2-Hexanone	25.0	0.0	21.6	86	70-130
Carbon disulfide	25.0	0.0	24.9	100	70-130
Vinyl acetate	25.0	0.0	27.8	111	70-130
Iodomethane	25.0	0.0	24.6	98	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 69 outside limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromochloromethane	5.0	0.0	5.0	100	70-130
Chloromethane	5.0	0.0	5.0	100	70-130
Bromomethane	5.0	0.0	4.4	88	70-130
Vinyl chloride	5.0	0.0	5.2	104	70-130
Chloroethane	5.0	0.0	5.3	106	70-130
Methylene chloride	5.0	0.42	4.8	88	70-130
1,1-Dichloroethylene	5.0	0.0	5.1	102	70-130
1,1-Dichloroethane	5.0	0.0	5.2	104	70-130
Chloroform	5.0	0.0	5.2	104	70-130
1,2-Dichloroethane	5.0	0.0	5.4	108	70-130
trans-1,2-Dichloroethyl	5.0	0.0	5.2	104	70-130
1,1,1-Trichloroethane	5.0	0.0	5.2	104	70-130
Carbon tetrachloride	5.0	0.0	5.2	104	70-130
Bromodichloromethane	5.0	0.0	5.1	102	70-130
1,2-Dichloropropane	5.0	0.0	5.1	102	70-130
cis-1,2-Dichloroethylen	5.0	0.0	5.2	104	70-130
cis-1,3-Dichloropropyle	5.0	0.0	4.9	98	70-130
1,2-Dichloroethylene (t	10.0	0.0	10.5	105	70-130
Trichloroethylene	5.0	0.0	5.1	102	70-130
Dibromochloromethane	5.0	0.0	4.7	94	70-130
1,1,2-Trichloroethane	5.0	0.0	4.9	98	70-130
Benzene	5.0	0.0	5.3	106	70-130
trans-1,3-Dichloropropy	5.0	0.0	4.8	96	70-130
Bromoform	5.0	0.0	4.5	90	70-130
Tetrachloroethylene	5.0	0.0	5.1	102	70-130
1,1,2,2-Tetrachloroetha	5.0	0.0	4.8	96	70-130
Toluene	5.0	0.0	5.2	104	70-130
Chlorobenzene	5.0	0.0	5.2	104	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Ethylbenzene	5.0	0.0	5.5	110	70-130
Styrene	5.0	0.0	5.3	106	70-130
Dichlorodifluoromethane	5.0	0.0	5.4	108	70-130
Trichlorofluoromethane	5.0	0.0	4.7	94	70-130
1,3-Dichlorobenzene	5.0	0.0	5.1	102	70-130
1,4-Dichlorobenzene	5.0	0.0	5.1	102	70-130
1,2-Dichlorobenzene	5.0	0.0	5.0	100	70-130
o-Xylene	5.0	0.0	5.2	104	70-130
m,p-Xylenes	10.0	0.0	11.0	110	70-130
Xylenes (total)	15.0	0.0	16.1	107	70-130
2,2-Dichloropropane	5.0	0.0	5.2	104	70-130
1,1-Dichloropropene	5.0	0.0	5.2	104	70-130
Dibromomethane	5.0	0.0	5.0	100	70-130
1,2-Dibromoethane	5.0	0.0	4.8	96	70-130
1,3-Dichloropropane	5.0	0.0	5.0	100	70-130
1,1,1,2-Tetrachloroetha	5.0	0.0	5.0	100	70-130
Isopropylbenzene	5.0	0.0	5.4	108	70-130
Bromobenzene	5.0	0.0	5.2	104	70-130
1,2,3-Trichloropropane	5.0	0.0	5.0	100	70-130
n-Propylbenzene	5.0	0.0	5.4	108	70-130
2-Chlorotoluene	5.0	0.0	5.3	106	70-130
1,3,5-Trimethylbenzene	5.0	0.0	5.4	108	70-130
4-Chlorotoluene	5.0	0.0	5.2	104	70-130
tert-Butylbenzene	5.0	0.0	5.3	106	70-130
1,2,4-Trimethylbenzene	5.0	0.0	5.4	108	70-130
sec-Butylbenzene	5.0	0.0	5.5	110	70-130
4-Isopropyltoluene	5.0	0.0	5.4	108	70-130
n-Butylbenzene	5.0	0.0	5.4	108	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,2-Dibromo-3-chloropro	5.0	0.0	4.4	88	70-130
1,2,4-Trichlorobenzene	5.0	0.0	4.9	98	70-130
Hexachlorobutadiene	5.0	0.0	4.9	98	70-130
Naphthalene	5.0	0.0	4.6	92	70-130
1,2,3-Trichlorobenzene	5.0	0.0	4.8	96	70-130
tert-Butyl methyl ether	5.0	0.0	4.9	98	70-130
Acetone	25.0	0.0	23.2	93	70-130
2-Butanone	25.0	0.0	22.4	90	70-130
4-Methyl-2-pentanone	25.0	0.0	24.8	99	70-130
2-Hexanone	25.0	0.0	23.7	95	70-130
Carbon disulfide	25.0	0.0	26.7	107	70-130
Vinyl acetate	25.0	0.0	29.5	118	70-130
Iodomethane	25.0	0.0	26.3	105	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 69 outside limits

COMMENTS: _____

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77035

Matrix Spike - EPA Sample No.: TR2106

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethylene	5.0	0.0	4.4	88	64-123
Trichloroethylene	5.0	268	273	100	78-122
Benzene	5.0	0.0	5.4	108	80-124
Toluene	5.0	0.0	5.3	106	79-126
Chlorobenzene	5.0	0.0	5.2	104	82-120

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethylene	5.0	4.4	88	0	13	64-123
Trichloroethylene	5.0	271	60*	50*	15	78-122
Benzene	5.0	5.3	106	2	11	80-124
Toluene	5.0	5.3	106	0	13	79-126
Chlorobenzene	5.0	5.2	104	0	13	82-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 5 outside limits
Spike Recovery: 1 out of 10 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Lab File ID: 8P2C503C Lab Sample ID: 1200400499

Date Analyzed: 03/28/03 Time Analyzed: 0738

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01LCS	1200400500	8P2C502LCSC	0712
02	TR2105	77111002	8P2C522	1609
03	TR2111	77111003	8P2C523	1634
04	ARD2199	77111004	8P2C524	1700
05	TR0038	77111005	8P2C525	1726
06	TR0039	77111006	8P2C526	1752
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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK02

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Lab File ID: 8P2D103B Lab Sample ID: 1200401228

Date Analyzed: 03/31/03 Time Analyzed: 1200

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK02LCS	1200401229	8P2D102LCSB	1134
02	TR2103	77111001	8P2D108	1418
03				
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Lab File ID: 8C301 BFB Injection Date: 03/26/03

Instrument ID: VOA8 BFB Injection Time: 0654

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	46.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 100.0% of mass 95	77.1
175	5.0 - 9.0% of mass 174	6.0 (7.7)1
176	95.0 - 101.0% of mass 174	75.1 (97.4)1
177	5.0 - 9.0% of mass 176	5.1 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0002	W8V030326-01	8P2C304A	03/26/03	0810
02	VSTD0005	W8V030326-02	8P2C305A	03/26/03	0836
03	VSTD001	W8V030326-03	8P2C306A	03/26/03	0902
04	VSTD002	W8V030326-04	8P2C307A	03/26/03	0928
05	VSTD005	W8V030326-05	8P2C308A	03/26/03	0954
06	VSTD010	W8V030326-06	8P2C309A	03/26/03	1020
07	VSTD020	W8V030326-07	8P2C310A	03/26/03	1046
08	VSTD050	W8V030326-08	8P2C311A	03/26/03	1112
09	VSTD100	W8V030326-09	8P2C312A	03/26/03	1138
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Lab File ID: 8C501 BFB Injection Date: 03/28/03

Instrument ID: VOA8 BFB Injection Time: 0701

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.1
75	30.0 - 60.0% of mass 95	46.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 100.0% of mass 95	80.1
175	5.0 - 9.0% of mass 174	6.0 (7.5)1
176	95.0 - 101.0% of mass 174	78.3 (97.7)1
177	5.0 - 9.0% of mass 176	5.1 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005	W8V030328-01	8P2C502	03/28/03	0712
02	VBLK01LCS	1200400500	8P2C502LCSC	03/28/03	0712
03	VBLK01	1200400499	8P2C503C	03/28/03	0738
04	TR2105	77111002	8P2C522	03/28/03	1609
05	TR2111	77111003	8P2C523	03/28/03	1634
06	ARD2199	77111004	8P2C524	03/28/03	1700
07	TR0038	77111005	8P2C525	03/28/03	1726
08	TR0039	77111006	8P2C526	03/28/03	1752
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5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Lab File ID: 8D101 BFB Injection Date: 03/31/03

Instrument ID: VOA8 BFB Injection Time: 1120

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.6
75	30.0 - 60.0% of mass 95	44.7
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 100.0% of mass 95	73.7
175	5.0 - 9.0% of mass 174	5.4 (7.3)1
176	95.0 - 101.0% of mass 174	72.2 (97.9)1
177	5.0 - 9.0% of mass 176	5.0 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005	W8V030331-01	8P2D102	03/31/03	1134
02	VBLK02LCS	1200401229	8P2D102LCSB	03/31/03	1134
03	VBLK02	1200401228	8P2D103B	03/31/03	1200
04	TR2103	77111001	8P2D108	03/31/03	1418
05					
06					
07					
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22					

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Lab File ID (Standard): 8P2C502 Date Analyzed: 03/28/03

Instrument ID: VOA8 Time Analyzed: 0712

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	607631	4.49	441411	6.76	234517	8.88
	UPPER LIMIT	1215262	4.99	882822	7.26	469034	9.38
	LOWER LIMIT	303816	3.99	220706	6.26	117258	8.38
	EPA SAMPLE NO.						
01	VBLK01LCS	607631	4.49	441411	6.76	234517	8.88
02	VBLK01	594462	4.50	437139	6.77	230340	8.88
03	TR2105	527415	4.50	381283	6.77	194470	8.88
04	TR2111	508951	4.50	380210	6.77	188355	8.88
05	ARD2199	522409	4.49	384065	6.77	194388	8.88
06	TR0038	505006	4.50	367243	6.77	183148	8.87
07	TR0039	516279	4.50	382474	6.77	181653	8.88
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22							

IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Lab File ID (Standard): 8P2D102 Date Analyzed: 03/31/03

Instrument ID: VOA8 Time Analyzed: 1134

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
12 HOUR STD	531595	4.50	380407	6.77	198075	8.88
UPPER LIMIT	1063190	5.00	760814	7.27	396150	9.38
LOWER LIMIT	265798	4.00	190204	6.27	99038	8.38
EPA SAMPLE NO.						
01 VBLK02LCS	531595	4.50	380407	6.77	198075	8.88
02 VBLK02	547412	4.49	399857	6.77	206765	8.88
03 TR2103	528776	4.49	389575	6.76	208985	8.88
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22						

IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC SEMIVOLATILE FID ANALYSIS

FID Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77111

Method/Analysis Information

Procedure:	**Dissolved Gases by Flame Ionization Detector**
Analytical Method:	SW846 8015A/B SVOC
Prep Method:	SW846 8015A/B SVOC
Analytical Batch Number:	242473
Prep Batch Number:	242472

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8015A/B SVOC:

Sample ID	Client ID
77111001	TR2103
77111002	TR2105
77111003	TR2111
77111004	ARD2199
1200402040	Method Blank (MB)
1200402042	Laboratory Control Sample (LCS)

Preparation/Analytical Method Verification

Procedures for preparation, analysis, and reporting of analytical data are documented by General Engineering Laboratories, Inc. (GEL) as Standard Operating Procedures (SOP).

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

CCV Requirements
All calibration verification standard(s) (CVS, ICV or CCV) requirements have been met for this SDG.

Quality Control (QC) Information

Blank Acceptance
The blank(s) analyzed with this SDG met the established acceptance criteria.

Surrogate Recoveries
No surrogate was added to any of the samples in this batch.

LCS Recovery Statement
The LCS spike recoveries for this SDG were within the established acceptance limits.

QC Sample Designation
An MS/MSD pair was not performed on any samples contained in this batch. A duplicate of a sample from another SDG was performed to measure precision and accuracy of the batch.

Duplicate RPD Statement
The relative percent differences (RPD) between the sample and its duplicate were within the acceptable limits.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Samples 77111002 (TR2105), 77111003 (TR2111) and 77111004 (ARD2199) were diluted for methane analysis.

Sample Re-prep/Re-analysis
Samples 77111002 (TR2105), 77111003 (TR2111) and 77111004 (ARD2199) were re-analyzed at 1:10 dilution for methane.

Miscellaneous Information

Electronic Package Comment
This package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative.

Nonconformance (NCR) Documentation
No nonconformance reports (NCRs) have been generated for this SDG.

Manual Integrations
Certain standards and QC samples may have required manual integrations to correctly position the baseline as set in the calibration standard injections. If manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction.

Additional Comments
No additional comments are needed for this sample group.

System Configuration

Chromatographic Columns

Column ID	Column Description
J&W1	DB-WAX(0.53mm x 0.5u x 30m)
J&W2	DB-624(0.53mm x 3.0u x 30m)
J&W3	DB-1(0.53mm x 1.5u x 30m)
J&W4	DB-608(0.53mm x 0.83u x 30m)
J&W5	GS-Q(0.53mm x 30m)
Phenomenex	ZB-5(0.25mm x 0.25u x 30m)

Instrument Configuration

Instrument ID	System Configuration	Chromatographic Column
FIDa	HP 5890 Series II GC/FID	J&W1/J&W3/J&W4
FID2a	HP 5890 Series II GC/FID	J&W2/J&W5
FID3a	HP 5890 Series II GC/FID	Phenomenex
FID4a	HP 5890 Series II GC/FID	Phenomenex

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Jimmi Cao **Date:** 4/15/03

SAMPLE DATA SUMMARY

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TR2103

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111001

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 014B1401

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TR2105

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111002

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 015B1501

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	1940	E
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TR2105_RR

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111002

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 019B1901

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	2340	
74-84-0	Ethane	250	U
74-85-1	Ethene	250	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TR2111

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111003

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 016B1601

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	1900	E
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TR2111_RR

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111003

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 020B2001

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	2330	
74-84-0	Ethane	250	U
74-85-1	Ethene	250	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2199

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111004

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 017B1701

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/01/03

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/02/03

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	1210	E
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2199_RR

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix: (soil/water) WATER Lab Sample ID: 77111004

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 021B2101

Level: (low/med) LOW Date Received: 03/27/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/02/03

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	1720	
74-84-0	Ethane	250	U
74-85-1	Ethene	250	U

FORM I FID

QUALITY CONTROL SUMMARY

FORM 3
WATER FID LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Matrix Spike - Sample No.: MBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Methane	100	0.00	92.3	92	70-130
Ethane	100	0.00	97.3	97	56-140
Ethene	100	0.00	86.6	87	56-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 3 outside limits

COMMENTS: _____

FORM III FID

FORM 4
FID METHOD BLANK SUMMARY

CLIENT SAMPLE NO

MBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77111

Lab File ID: 012B1201 Lab Sample ID: 1200402040

Instrument ID: FID2A Date Extracted: 04/01/03

Matrix: (soil/water) WATER Date Analyzed: 04/02/03

Level:(low/med) LOW Time Analyzed: 1332

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MBLK01LCS	1200402042	013B1301LCS	04/02/03
02	TR2103	77111001	014B1401	04/02/03
03	TR2105	77111002	015B1501	04/02/03
04	TR2111	77111003	016B1601	04/02/03
05	ARD2199	77111004	017B1701	04/02/03
06	TR2105_RR	77111002	019B1901	04/02/03
07	TR2111_RR	77111003	020B2001	04/02/03
08	ARD2199_RR	77111004	021B2101	04/02/03
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INORGANIC ANALYSIS

Metals Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77111

Method/Analysis Information

Analytical Batch:	2241750
Prep Batch :	2241748
Standard Operating Procedures:	GL-MA-E-013 REV.8, GL-MA-E-006 REV.8
Analytical Method:	SSW846 6010B
Prep Method :	SSW846 3005A

Sample Analysis

Sample ID	Client ID
77111001	TR2103
77111002	TR2105
77111003	TR2111
77111004	ARD2199
1200400299	Method Blank (MB) ICP
1200400300	Laboratory Control Sample (LCS)
1200400303	77035005(TR2106L) Serial Dilution (SD)
1200400301	77035005(TR2106D) Sample Duplicate (DUP)
1200400302	77035005(TR2106S) Matrix Spike (MS)

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The ICP analysis was performed on a Perkin Elmer 4300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

Calibration Information

Instrument Calibration
The instrument calibrations are conducted using the method and instrument manufacturer's specifications.

All initial calibration requirements have been met for this SDG.

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria, with the exception of sodium in CCB6. Samples bracketed By CCB6 either did not contain sodium above the RLD, or sodium was present at concentrations more than ten times the amount present in CCB6.

Quality Control (QC) Information

Method Blank (MB) Acceptance
The method blank analyzed with this SDG did not contain analytes of interest at concentrations greater than the client required detection limits (CRDL).

LCS Recovery Statement
The laboratory control sample (LCS) met the recommended acceptance criteria for percent recovery (%R) for all elements of interest.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this batch: 77035005 (TR2106) from PARS SDG 77111.

Matrix Spike Recovery Statement
The percent recovery (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes.

Duplicate RPD Statement
The relative percent difference (RPD) obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit(RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess interferences due to matrix suppression or enhancement. Raw element concentrations that are at least 50X the instrument detection limit (IDL) for ICP analyses and 100X the IDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria, percent difference value of <10.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the GELIMS system by hours. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification

All procedures performed in association with this SDG followed the Standard Operating Procedure (SOP) guidelines. All samples in this SDG were prepared in accordance with the referenced SW-846 procedures.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in soil samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. No sample dilutions were needed in this SDG.

Preparation Information
The samples in this SDG were prepared exactly according to the sited SOP.

Miscellaneous Information

Nonconformance Documentation
Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. No NCR was generated with this SDG.

Additional Comments
No additional comments are needed for this sample group.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Allison H. [illegible] **Date:** 4/9/03

SAMPLE DATA SUMMARY

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77111 **Method Type:** SW846

Sample ID: 77111001 **Client ID:** TR2103

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/27/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	132000	µg/L			P	11.0	Optima1	040103
7439-95-4	Magnesium	15800	µg/L			P	33.2	Optima1	040103
7439-96-5	Manganese	4.090	µg/L	B		P	0.354	Optima1	040103
7440-09-7	Potassium	969	µg/L			P	27.5	Optima1	040103
7440-23-5	Sodium	18100	µg/L			P	6.690	Optima1	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77111 **Method Type:** SW846

Sample ID: 77111002 **Client ID:** TR2105

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/27/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	47600	µg/L			P	11.0	Optima1	040103
7439-95-4	Magnesium	12800	µg/L			P	33.2	Optima1	040103
7439-96-5	Manganese	42.7	µg/L			P	0.354	Optima1	040103
7440-09-7	Potassium	1480	µg/L			P	27.5	Optima1	040103
7440-23-5	Sodium	19400	µg/L			P	6.690	Optima1	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77111 **Method Type:** SW846

Sample ID: 77111003 **Client ID:** TR2111

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/27/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	47500	µg/L			P	11.0	Optimal	040103
7439-95-4	Magnesium	12700	µg/L			P	33.2	Optimal	040103
7439-96-5	Manganese	41.7	µg/L			P	0.354	Optimal	040103
7440-09-7	Potassium	1460	µg/L			P	27.5	Optimal	040103
7440-23-5	Sodium	19400	µg/L			P	6.690	Optimal	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77111 **Method Type:** SW846

Sample ID: 77111004 **Client ID:** ARD2199

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/27/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	75200	µg/L			P	11.0	Optimal	040103
7439-95-4	Magnesium	9550	µg/L			P	33.2	Optimal	040103
7439-96-5	Manganese	15.3	µg/L			P	0.354	Optimal	040103
7440-09-7	Potassium	876	µg/L			P	27.5	Optimal	040103
7440-23-5	Sodium	14000	µg/L			P	6.690	Optimal	040103

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

GENERAL CHEMISTRY ANALYSIS

General Chemistry Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77111

Method/Analysis Information

Procedure:	**Ion Chromatography (IC)**
Analytical Method:	EPA 300.0
Analytical Batch Number:	241820

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
77111001	TR2103
77111002	TR2105
77111003	TR2111
77111004	ARD2199
77111007	TR2110
1200400469	Method Blank (MB)
1200400472	Laboratory Control Sample (LCS)
1200400470	77111001(TR2103) Sample Duplicate (DUP)
1200400471	77111001(TR2103) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV.8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: Dionex DX300 Ion Chromatograph equipped with a Dionex AS9-HC general purpose anion column

Initial Calibration
The instrument was properly calibrated.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recoveries for the laboratory control sample were within the required acceptance limits.

Quality Control
The following sample was designated for Quality Control:
77111001 (TR2103)

Sample Spike Recovery
The spike recoveries for this sample set were within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Differences between the sample and duplicate for this batch were within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The following samples in this sample group were diluted 1:5 due to high concentration for chloride and/or sulfate. See the Certificates of Analysis for the individual dilution factors.
1200400470 (TR2103)
1200400471 (TR2103)
77111001 (TR2103)
77111002 (TR2105)
77111003 (TR2111)
77111004 (ARD2199)

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Method/Analysis Information

Procedure:	**Total Organic Carbon (TOC)**
Analytical Method:	SW846 9060
Analytical Batch Number:	243425

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
77111001	TR2103
77111002	TR2105
77111003	TR2111
77111004	ARD2199
1200404509	Method Blank (MB)
1200404514	Laboratory Control Sample (LCS)
1200404511	77111001(TR2103) Sample Duplicate (DUP)
1200404513	77111001(TR2103) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV.3.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: O-I Analytical Model 1010 Total Organic Carbon Analyzer

Initial Calibration

The instrument was properly calibrated.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recovery for the laboratory control sample was within the required acceptance limits.

Quality Control
The following sample was designated for Quality Control:
77111001 (TR2103)

Sample Spike Recovery
The spike recovery for this sample set was within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Difference between the sample and duplicate for this batch was within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
No samples in this sample group required dilutions.

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Certification Statement

* Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 4/11/03

SAMPLE DATA SUMMARY

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Dan Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 10, 2003

Client Sample ID:	TR2103	Project:	PARS00103
Sample ID:	77111001	Client ID:	PARS001
Matrix:	Water		
Collect Date:	26-MAR-03 09:10		
Receive Date:	27-MAR-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		0.898	0.025	0.200	mg/L	1	TSM	04/08/03	1941	243425	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Nitrate		0.246	0.0341	0.100	mg/L	1	MAR1	03/27/03	2134	241820	2
Chloride		18.5	0.161	1.00	mg/L	5	MAR1	04/01/03	0229	241820	3
Sulfate		123	0.965	2.00	mg/L	5					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Dan Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 10, 2003

Client Sample ID: TR2103
Sample ID: 77111001

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Dan Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 10, 2003

Client Sample ID: TR2105
Sample ID: 77111002
Matrix: Water
Collect Date: 26-MAR-03 10:10
Receive Date: 27-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		0.623	0.025	0.200	mg/L	1	TSM	04/08/03	2051	243425	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Chloride		15.1	0.0322	0.200	mg/L	1	MAR1	03/27/03	2229	241820	2
Nitrate		0.606	0.0341	0.100	mg/L	1					
Sulfate		80.3	0.965	2.00	mg/L	5	MAR1	04/01/03	0324	241820	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Dan Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 10, 2003

Client Sample ID: TR2105
Sample ID: 77111002

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Dan Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 10, 2003

Client Sample ID: TR2111
Sample ID: 77111003
Matrix: Water
Collect Date: 26-MAR-03 10:10
Receive Date: 27-MAR-03
Collector: Client

Proiect: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		0.612	0.025	0.200	mg/L	1	TSM	04/08/03	2121	243425	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Chloride		15.3	0.0322	0.200	mg/L	1	MAR1	03/27/03	2248	241820	2
Nitrate		0.554	0.0341	0.100	mg/L	1					
Sulfate		79.8	0.965	2.00	mg/L	5	MAR1	04/01/03	0342	241820	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

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> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Dan Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 10, 2003

Client Sample ID: TR2111
Sample ID: 77111003

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Dan Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 10, 2003

Client Sample ID: ARD2199
Sample ID: 77111004
Matrix: Water
Collect Date: 26-MAR-03 11:40
Receive Date: 27-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		0.600	0.025	0.200	mg/L	1	TSM 04/08/03	2150	243425	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Nitrate	U	0.00	0.0341	0.100	mg/L	1	MAR1 03/27/03	2306	241820	2
Chloride		18.7	0.161	1.00	mg/L	5	MAR1 04/01/03	0401	241820	3
Sulfate		116	0.965	2.00	mg/L	5				

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	03/28/03	1000	241748
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0820	242472

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Dan Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 10, 2003

Client Sample ID: ARD2199
Sample ID: 77111004

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Dan Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 10, 2003

Client Sample ID: TR2110
Sample ID: 77111007
Matrix: Water
Collect Date: 26-MAR-03 13:05
Receive Date: 27-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography Federal										
EPA 300.0 Nitrate in Liquid										
Nitrate		0.496	0.0341	0.100	mg/L	1	MAR103/27/03	2325	241820	1

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

QUALITY CONTROL SUMMARY

QC Summary

Report Date: April 10, 2003

Client : Parsons
100 Summer Street
Suite 800
Boston, Massachusetts

Contact: Dan Heino

Workorder: 77111

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis Federal										
Batch 243425										
QC1200404511 77111001 DUP										
Total Organic Carbon		0.898		0.802	mg/L	11 ^		(+/-0.200)	TSM	04/08/03 20:10
QC1200404514 LCS										
Total Organic Carbon	10.0			10.2	mg/L		102	(85%-115%)		04/08/03 18:20
QC1200404509 MB										
Total Organic Carbon			U	-0.107	mg/L					04/08/03 18:12
QC1200404513 77111001 PS										
Total Organic Carbon	10.0	0.898		11.0	mg/L		101	(80%-120%)		04/08/03 20:28
Ion Chromatography										
Batch 241820										
QC1200400472 LCS										
Sulfate	20.0			19.6	mg/L		98	(90%-110%)	vIAR1	03/27/03 21:16
Chloride	10.0			9.72	mg/L		97	(90%-110%)		
Nitrate-N	5.00			4.89	mg/L		98	(90%-110%)		
QC1200400469 MB										
Sulfate			U	0.00	mg/L					03/27/03 20:57
Chloride			U	0.00	mg/L					
Nitrate-N			U	0.00	mg/L					
Ion Chromatography Federal										
Batch 241820										
QC1200400470 77111001 DUP										
Sulfate		123		122	mg/L	0		(0%-20%)	vIAR1	04/01/03 02:47
Chloride		18.5		18.6	mg/L	1		(0%-20%)		
Nitrate-N		0.246		0.257	mg/L	4 ^		(+/-0.100)		03/27/03 21:53
QC1200400471 77111001 PS										
Sulfate	20.0	24.5		46.3	mg/L		109	(75%-130%)		04/01/03 03:05
Chloride	10.0	3.70		13.5	mg/L		98	(80%-125%)		
Nitrate-N	5.00	0.246		4.94	mg/L		94	(71%-130%)		03/27/03 22:11

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit

QC Summary

Workorder: 77111

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

UI Uncertain identification for gamma spectroscopy.

X Lab-specific qualifier - must be fully described in case narrative and data summary package

Y QC Samples were not spiked with this compound.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

CASE NARRATIVE
for
Parsons Engineering Science, Inc.
Seneca Army Depot
SDG# 77341

April 15, 2003

Laboratory Identification:

General Engineering Laboratories, LLC

Mailing Address:

P.O. Box 30712
Charleston, South Carolina 29417

Express Mail Delivery and Shipping Address:

2040 Savage Road
Charleston, South Carolina 29414

Telephone Number:

(843) 556-8171

Summary:

Sample receipt

The samples arrived at General Engineering Laboratories, LLC (GEL) Charleston, South Carolina on March 29, 2003, for Environmental Analyses. All sample containers arrived without any visible signs of tampering or breakage. The samples were delivered with chain of custody documentation and signatures.

The laboratory received the following samples:

Laboratory Identification	Sample Description
77341001	ARD2193
77341002	ARD0031
77341003	ARD0033
77341004	ARD2190
77341005	ARD2189
77341006	ARD2200

77230001	TR2100
77230002	ARD2197
77230003	ARD2198

Case Narrative

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are listed below by analytical parameter.

Internal Chain of Custody:

Custody was maintained for all samples.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Qualifier Flag Definitions, Chain of Custody, Cooler Receipt Checklist, GC/MS Volatile Analysis, FID Analysis, Inorganic Analysis, and General Chemistry Analysis.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Valerie Davis

Valerie S. Davis
Project Manager

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

DATA REVIEW QUALIFIER FLAG DEFINITIONS

№ 4302

CHAIN OF CUSTODY RECORD

CLIENT: Seneca Army Depot US ACOE

PROJECT NO. 743155.01200

PROJECT MGR: Todd Heino Parsons Boston

PROJECT NAME: Ash Landfill

NOTES - (Reference QAPP and/or analytical protocols to be used): 77341 %

SAMPLERS: Dale Dolph Parsons, Dan Douglass Parsons

Send results to: PARSONS Boston ~~290 Elwood Davis Road Suite 312 Liverpool, NY 13088~~ 617 457 7270

Telephone: ~~(315) 451-9560~~

Fax: ~~(315) 451-9570~~

Lab Submitted to: GEL Charleston SC

ANALYSES REQUIRED

	FIELD SAMPLE ID	LOCATION DESCRIPTION	DATE	TIME	GRAB	COMP	MATRIX	Number of Bottles	VOC TCL	Nitrate/Sulfate/Chloride	MEE	TOC	Metals					REMARKS
	ARD2193	MW-12A	3/28/03	0915	X		GW	9	X	X	X	X	X					
001	ARD2193MS	MW-12A	↓	0915	X		GW	3	X									Matrix Spike
	ARD2193MSD	MW-12A		0915	X		GW	3	X									Matrix Spike Dupl.
002	ARD00031	Rinse Blank		1030	X		W	3	X									Rinse Blank
004	ARD21900	MW-48		1145	X		GW	9	X	X	X	X	X					
005	ARD21889	MW-45		1305	X		GW	9	X	X	X	X	X					
006	ARD22000		↓	0915	X		GW	9	X	X	X	X	X					
003	ARD00033	Trip Blank	—	—			W	2	X									

Relinquished by (Signature)	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples Intact
[signature]	3/28/03	1600	Fedex	839734548980	[signature]	3/28/03	[illegible]	1 °C Yes No
Relinquished by (Signature)	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples Intact
								°C Yes No
Relinquished by (Signature)	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples Intact
								°C Yes No

TYPE CODES

SOLID
- SD- Sediment
- SS- Surface Soil
- SB- Subsurface Soil
- MW- Monitoring Well Boring
- TP- Test Pit/Tank Pit
- DR- Drum Waste
- WA- Solid Waste
- OS- Other Solid

WATER
- MW- Monitoring Well
- LC- Leachate
- SW- Surface Water
- DW- Drill Water
- FD- Fuel Dispenser
- MH- Manhole
- OW- Oil Water Separator
- PR- Piping Run
- ST- Storm Water
- WW- Waste Water
- OL- Other Liquid (eg. Drum liquid)

MATRIX
- W - Water
- S - Soil

QUALITY CONTROL
- FB- Field Blank (with date)
- TB- Trip Blank (with date)
- WB- Wash Blank (with date)

GC/MS VOLATILE ANALYSIS

GC/MS Volatile Organics
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77341

Method/Analysis Information

Procedure:	Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer
Analytical Method:	SW846 8260B
Prep Method:	SW846 5030B
Analytical Batch Number:	242254

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
77341001	ARD2193
77341002	ARD0031
77341003	ARD0033
77341004	ARD2190
77341005	ARD2189
77341006	ARD2200
1200401500	Method Blank (MB)
1200401503	Laboratory Control Sample (LCS)
1200403129	Laboratory Control Sample (LCS)
1200401501	77341001(ARD2193) Matrix Spike (MS)
1200401502	77341001(ARD2193) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV.7.

Calibration Information
Due to software limitations, all the data files comprising the initial calibration curve may not be listed on the initial calibration summary form. All calibration files are listed in the calibration history report in the "Standard Data" section.

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
The instrument was calibrated to meet the 8260B initial calibration criteria. Although sample analyses are quantitated using the average response factor generated from the initial calibration, a daily continuing calibration verification (CCV) standard was analyzed to verify the accuracy and acceptability of the multi-point initial calibration. The criteria adopted by the laboratory to determine the acceptability and accuracy of the initial calibration is a ± 40% response factor difference for all non-CCC analytes of interest. In the following CCV(s), the following target analyte(s) did not meet the criteria:

Date of CCV	Target Analyte(s)
03/31/03	Acetone
	Cyclohexanone

The response factor for these target analytes in the CCV was less than the average response factor in the initial calibration. Detection and quantitation of these analytes in samples would be considered biased low. However, the response for each target analyte was sufficient for detection above the required reporting limit.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recoveries
Surrogate recoveries, in all samples and quality control samples, were within the acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the laboratory control sample were within the acceptance limits, except for the low recoveries for dichlorodifluoromethane, 2-chloroethylvinyl ether, and cyclohexanone. The LCS requirements were still met, since the 5% failure rate permitted by the client was not exceeded.

QC Sample Designation
The following sample was designated for spike analysis: 77341001 (ARD2193).

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
All the required spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
The RPD between spike recoveries were within the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The following samples were diluted because target analyte concentrations exceeded the calibration range:

1200401501 (ARD2193) Matrix Spike	1:10
1200401502 (ARD2193) Matrix Spike Duplicate	1:10
77341001 (ARD2193)	1:10
77341006 (ARD2200)	1:10

Sample Re-prep/Re-analysis
Re-analyses were not required for samples in this sample group/work order for any reason other than dilutions.

Miscellaneous Information

Electronic Package Comment
The following package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation
A nonconformance report was not required for this sample delivery group/work order.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

Additional Comments
There were no additional comments.

System Configuration
The laboratory utilizes the following GC/MS configurations:

Chromatographic Columns
Chromatographic separation of volatile components is accomplished through analysis on one of the following columns:

Column ID	Column Description
J&W1	DB-624, 60m x 0.25mm, 1.4um
J&W2	DB-624, 75m x 0.53mm, 3.0um

Instrument Configuration
Instrument systems are reference in the raw data and individual form headers by the Instrument ID designations below:

Instrument ID	System Configuration	Chromatographic Column	P & T Trap
VOA1	HP6890/HP5973	J&W1	Trap C
VOA2	HP6890/HP5973	J&W1	Trap C
VOA4	HP5890/HP5972	J&W1	Trap K
VOA5	HP5890/HP5972	J&W1	Trap C
VOA7	HP5890/HP5972	J&W2	Trap K
VOA8	HP6890/HP5973	J&W1	Trap K
VOA9	HP6890/HP5973	J&W1	Trap C

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Jill Anderson Date: 04-19-03

Roadmap for PARS 77341 VOA

This roadmap was analyzed by Anson Walsh on 04-02-2003, 15:30.
This roadmap was reviewed by Crystal Stacey on 04-04-2003, 12:10.
This roadmap was packaged by LySandra Gathers on 04-10-2003, 17:09.

Sample

exclude	manual	datafile	smpid	clientid	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA1.i/033103v1.b/1d132.d	77341001	ARD2193	31-MAR-2003	22:40	77341.sub	10.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d133.d	77341002	ARD0031	31-MAR-2003	23:06	77341.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d134.d	77341003	ARD0033	31-MAR-2003	23:31	77341.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d135.d	77341004	ARD2190	31-MAR-2003	23:57	77341.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d136.d	77341005	ARD2189	01-APR-2003	00:22	77341.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d137.d	77341006	ARD2200	01-APR-2003	00:48	77341.sub	10.00000	

QC Sample

exclude	manual	datafile	smpid	clientid	sampletype	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA1.i/033103v1.b/1d115Lc.d	1200401503	VBLK01LCS	lcs	31-MAR-2003	14:51	77341.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d117SLCSc.d	1200403129	VBLK01SLCS	lcs	31-MAR-2003	15:59	77341.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d122c.d	1200401500	VBLK01	mb	31-MAR-2003	18:26	77341.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d138.d	1200401501	ARD2193MS	ms	01-APR-2003	01:13	77341.sub	10.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d139.d	1200401502	ARD2193MSD	msd	01-APR-2003	01:38	77341.sub	10.00000	

SAMPLE DATA SUMMARY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD0031

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D133

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	23.9	
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	464	
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	2.2	
540-59-0	1,2-Dichloroethylene (total)	2.2	
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD0031

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D133

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	7.7	
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	2.4	J
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	78.9	
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD0031

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D133

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD0033

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D134

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	1.0	U
540-59-0	1,2-Dichloroethylene (total)	1.0	U
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD0033

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D134

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD0033

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D134

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2189

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341005

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D136

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 04/01/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	1.0	U
540-59-0	1,2-Dichloroethylene (total)	1.0	U
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2189

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341005

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D136

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 04/01/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2189

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341005

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D136

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 04/01/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2190

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341004

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D135

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	1.0	U
540-59-0	1,2-Dichloroethylene (total)	1.0	U
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2190

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341004

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D135

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2190

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341004

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D135

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2193

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D132

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10.0	U
74-87-3	Chloromethane	10.0	U
75-01-4	Vinyl chloride	10.0	U
74-83-9	Bromomethane	10.0	U
75-00-3	Chloroethane	10.0	U
75-69-4	Trichlorofluoromethane	10.0	U
107-02-8	Acrolein	50.0	U
75-35-4	1,1-Dichloroethylene	10.0	U
67-64-1	Acetone	50.0	U
76-13-1	Trichlorotrifluoroethane	50.0	U
74-88-4	Iodomethane	50.0	U
75-15-0	Carbon disulfide	50.0	U
75-05-8	Acetonitrile	250	U
78-83-1	Isobutyl alcohol	500	U
107-05-1	Allyl chloride	50.0	U
75-09-2	Methylene chloride	50.0	U
107-13-1	Acrylonitrile	50.0	U
1634-04-4	tert-Butyl methyl ether	50.0	U
156-60-5	trans-1,2-Dichloroethylene	6.0	J
75-34-3	1,1-Dichloroethane	10.0	U
108-05-4	Vinyl acetate	50.0	U
126-99-8	2-Chloro-1,3-butadiene	10.0	U
78-93-3	2-Butanone	50.0	U
156-59-2	cis-1,2-Dichloroethylene	667	
540-59-0	1,2-Dichloroethylene (total)	673	
594-20-7	2,2-Dichloropropane	10.0	U
126-98-7	Methacrylonitrile	50.0	U
107-12-0	Propionitrile	50.0	U
74-97-5	Bromochloromethane	10.0	U
67-66-3	Chloroform	10.0	U
71-55-6	1,1,1-Trichloroethane	10.0	U
563-58-6	1,1-Dichloropropene	10.0	U
56-23-5	Carbon tetrachloride	10.0	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2193

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D132

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	10.0	U
71-43-2	Benzene	10.0	U
79-01-6	Trichloroethylene	599	
78-87-5	1,2-Dichloropropane	10.0	U
80-62-6	Methyl methacrylate	50.0	U
74-95-3	Dibromomethane	10.0	U
75-27-4	Bromodichloromethane	10.0	U
79-46-9	2-Nitropropane	50.0	U
110-75-8	2-Chloroethylvinyl ether	50.0	U
10061-01-5	cis-1,3-Dichloropropylene	10.0	U
108-10-1	4-Methyl-2-pentanone	50.0	U
108-88-3	Toluene	10.0	U
10061-02-6	trans-1,3-Dichloropropylene	10.0	U
97-63-2	Ethyl methacrylate	50.0	U
79-00-5	1,1,2-Trichloroethane	10.0	U
142-28-9	1,3-Dichloropropane	10.0	U
591-78-6	2-Hexanone	50.0	U
127-18-4	Tetrachloroethylene	10.0	U
124-48-1	Dibromochloromethane	10.0	U
106-93-4	1,2-Dibromoethane	10.0	U
108-90-7	Chlorobenzene	10.0	U
630-20-6	1,1,1,2-Tetrachloroethane	10.0	U
100-41-4	Ethylbenzene	10.0	U
95-47-6	o-Xylene	10.0	U
	m,p-Xylenes	20.0	U
1330-20-7	Xylenes (total)	10.0	U
100-42-5	Styrene	10.0	U
75-25-2	Bromoform	10.0	U
98-82-8	Isopropylbenzene	10.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	50.0	U
108-94-1	Cyclohexanone	500	U
79-34-5	1,1,2,2-Tetrachloroethane	10.0	U
110-57-6	trans-1,4-Dichloro-2-butene	50.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2193

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D132

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	10.0	U
108-86-1	Bromobenzene	10.0	U
103-65-1	n-Propylbenzene	10.0	U
95-49-8	2-Chlorotoluene	10.0	U
108-67-8	1,3,5-Trimethylbenzene	10.0	U
95-63-6	1,2,4-Trimethylbenzene	10.0	U
106-43-4	4-Chlorotoluene	10.0	U
98-06-6	tert-Butylbenzene	10.0	U
135-98-8	sec-Butylbenzene	10.0	U
76-01-7	Pentachloroethane	50.0	U
99-87-6	4-Isopropyltoluene	10.0	U
541-73-1	1,3-Dichlorobenzene	10.0	U
106-46-7	1,4-Dichlorobenzene	10.0	U
100-44-7	Benzyl chloride	50.0	U
104-51-8	n-Butylbenzene	10.0	U
95-50-1	1,2-Dichlorobenzene	10.0	U
108-60-1	bis(2-Chloroisopropyl)ether	50.0	U
96-12-8	1,2-Dibromo-3-chloropropane	10.0	U
120-82-1	1,2,4-Trichlorobenzene	10.0	U
87-68-3	Hexachlorobutadiene	10.0	U
91-20-3	Naphthalene	10.0	U
87-61-6	1,2,3-Trichlorobenzene	10.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2200

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341006

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D137

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 04/01/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10.0	U
74-87-3	Chloromethane	10.0	U
75-01-4	Vinyl chloride	10.0	U
74-83-9	Bromomethane	10.0	U
75-00-3	Chloroethane	10.0	U
75-69-4	Trichlorofluoromethane	10.0	U
107-02-8	Acrolein	50.0	U
75-35-4	1,1-Dichloroethylene	10.0	U
67-64-1	Acetone	50.0	U
76-13-1	Trichlorotrifluoroethane	50.0	U
74-88-4	Iodomethane	50.0	U
75-15-0	Carbon disulfide	50.0	U
75-05-8	Acetonitrile	250	U
78-83-1	Isobutyl alcohol	500	U
107-05-1	Allyl chloride	50.0	U
75-09-2	Methylene chloride	50.0	U
107-13-1	Acrylonitrile	50.0	U
1634-04-4	tert-Butyl methyl ether	50.0	U
156-60-5	trans-1,2-Dichloroethylene	10.0	U
75-34-3	1,1-Dichloroethane	10.0	U
108-05-4	Vinyl acetate	50.0	U
126-99-8	2-Chloro-1,3-butadiene	10.0	U
78-93-3	2-Butanone	50.0	U
156-59-2	cis-1,2-Dichloroethylene	510	
540-59-0	1,2-Dichloroethylene (total)	510	
594-20-7	2,2-Dichloropropane	10.0	U
126-98-7	Methacrylonitrile	50.0	U
107-12-0	Propionitrile	50.0	U
74-97-5	Bromochloromethane	10.0	U
67-66-3	Chloroform	10.0	U
71-55-6	1,1,1-Trichloroethane	10.0	U
563-58-6	1,1-Dichloropropene	10.0	U
56-23-5	Carbon tetrachloride	10.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2200

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341006

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D137

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 04/01/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	10.0	U
71-43-2	Benzene	10.0	U
79-01-6	Trichloroethylene	550	
78-87-5	1,2-Dichloropropane	10.0	U
80-62-6	Methyl methacrylate	50.0	U
74-95-3	Dibromomethane	10.0	U
75-27-4	Bromodichloromethane	10.0	U
79-46-9	2-Nitropropane	50.0	U
110-75-8	2-Chloroethylvinyl ether	50.0	U
10061-01-5	cis-1,3-Dichloropropylene	10.0	U
108-10-1	4-Methyl-2-pentanone	50.0	U
108-88-3	Toluene	10.0	U
10061-02-6	trans-1,3-Dichloropropylene	10.0	U
97-63-2	Ethyl methacrylate	50.0	U
79-00-5	1,1,2-Trichloroethane	10.0	U
142-28-9	1,3-Dichloropropane	10.0	U
591-78-6	2-Hexanone	50.0	U
127-18-4	Tetrachloroethylene	10.0	U
124-48-1	Dibromochloromethane	10.0	U
106-93-4	1,2-Dibromoethane	10.0	U
108-90-7	Chlorobenzene	10.0	U
630-20-6	1,1,1,2-Tetrachloroethane	10.0	U
100-41-4	Ethylbenzene	10.0	U
95-47-6	o-Xylene	10.0	U
	m,p-Xylenes	20.0	U
1330-20-7	Xylenes (total)	10.0	U
100-42-5	Styrene	10.0	U
75-25-2	Bromoform	10.0	U
98-82-8	Isopropylbenzene	10.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	50.0	U
108-94-1	Cyclohexanone	500	U
79-34-5	1,1,2,2-Tetrachloroethane	10.0	U
110-57-6	trans-1,4-Dichloro-2-butene	50.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2200

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) WATER Lab Sample ID: 77341006

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D137

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: not dec. _____ Date Analyzed: 04/01/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	10.0	U
108-86-1	Bromobenzene	10.0	U
103-65-1	n-Propylbenzene	10.0	U
95-49-8	2-Chlorotoluene	10.0	U
108-67-8	1,3,5-Trimethylbenzene	10.0	U
95-63-6	1,2,4-Trimethylbenzene	10.0	U
106-43-4	4-Chlorotoluene	10.0	U
98-06-6	tert-Butylbenzene	10.0	U
135-98-8	sec-Butylbenzene	10.0	U
76-01-7	Pentachloroethane	50.0	U
99-87-6	4-Isopropyltoluene	10.0	U
541-73-1	1,3-Dichlorobenzene	10.0	U
106-46-7	1,4-Dichlorobenzene	10.0	U
100-44-7	Benzyl chloride	50.0	U
104-51-8	n-Butylbenzene	10.0	U
95-50-1	1,2-Dichlorobenzene	10.0	U
108-60-1	bis(2-Chloroisopropyl)ether	50.0	U
96-12-8	1,2-Dibromo-3-chloropropane	10.0	U
120-82-1	1,2,4-Trichlorobenzene	10.0	U
87-68-3	Hexachlorobutadiene	10.0	U
91-20-3	Naphthalene	10.0	U
87-61-6	1,2,3-Trichlorobenzene	10.0	U

QUALITY CONTROL SUMMARY

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

	EPA SAMPLE NO.	SMC1 #	SMC2 (TOL)#	SMC3 (BFB)#	OTHER	TOT OUT
01	VBLK01LCS	87	89	94		0
02	VBLK01SLCS	87	89	96		0
03	VBLK01	88	90	100		0
04	ARD2193	89	92	97		0
05	ARD0031	87	90	96		0
06	ARD0033	89	90	100		0
07	ARD2190	89	91	95		0
08	ARD2189	88	90	96		0
09	ARD2200	91	91	95		0
10	ARD2193MS	90	91	89		0
11	ARD2193MSD	91	87	91		0
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		QC LIMITS
SMC1	= Dibromofluoromethane	(74-144)
SMC2 (TOL)	= Toluene-d8	(76-129)
SMC3 (BFB)	= Bromofluorobenzene	(69-137)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50.0	0.0	32.6	65*	68-136
Chloromethane	50.0	0.0	42.3	85	68-129
Vinyl chloride	50.0	0.0	53.6	107	69-136
Bromomethane	50.0	0.0	36.8	74	62-136
Chloroethane	50.0	0.0	47.4	95	62-132
Trichlorofluoromethane	50.0	0.0	33.4	67	62-149
1,1-Dichloroethylene	50.0	0.0	48.2	96	78-140
Acetone	250	0.0	224	90	72-127
Iodomethane	250	0.0	221	88	78-130
Carbon disulfide	250	0.0	227	91	68-136
Acetonitrile	1250	0.0	1180	94	70-130
Methylene chloride	50.0	0.0	46.2	92	61-138
tert-Butyl methyl ether	50.0	0.0	48.3	97	70-130
trans-1,2-Dichloroethyl	50.0	0.0	50.7	101	78-126
1,1-Dichloroethane	50.0	0.0	50.6	101	78-121
Vinyl acetate	250	0.0	241	96	69-130
2-Butanone	250	0.0	240	96	71-127
cis-1,2-Dichloroethylen	50.0	0.0	52.1	104	82-120
1,2-Dichloroethylene (t	100	0.0	103	103	70-130
2,2-Dichloropropane	50.0	0.0	55.4	111	71-138
Bromochloromethane	50.0	0.0	46.6	93	82-126
Chloroform	50.0	0.0	50.2	100	82-119
1,1,1-Trichloroethane	50.0	0.0	51.0	102	80-131
1,1-Dichloropropene	50.0	0.0	48.2	96	79-124
Carbon tetrachloride	50.0	0.0	53.9	108	78-133
1,2-Dichloroethane	50.0	0.0	49.4	99	71-125
Benzene	50.0	0.0	49.0	98	78-119
Trichloroethylene	50.0	0.0	49.4	99	80-123

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
1,2-Dichloropropane	50.0	0.0	46.8	94	77-114
Dibromomethane	50.0	0.0	49.2	98	83-121
Bromodichloromethane	50.0	0.0	49.4	99	67-135
2-Chloroethylvinyl ethe	250	0.0	113	45*	70-130
cis-1,3-Dichloropropyle	50.0	0.0	48.2	96	85-128
4-Methyl-2-pentanone	250	0.0	243	97	76-132
Toluene	50.0	0.0	49.6	99	68-133
trans-1,3-Dichloropropy	50.0	0.0	49.8	100	65-130
1,1,2-Trichloroethane	50.0	0.0	45.6	91	68-127
1,3-Dichloropropane	50.0	0.0	45.4	91	83-110
2-Hexanone	250	0.0	243	97	74-132
Tetrachloroethylene	50.0	0.0	46.2	92	78-128
Dibromochloromethane	50.0	0.0	50.3	101	83-125
1,2-Dibromoethane	50.0	0.0	46.0	92	86-119
Chlorobenzene	50.0	0.0	48.4	97	82-120
1,1,1,2-Tetrachloroetha	50.0	0.0	47.1	94	83-127
Ethylbenzene	50.0	0.0	52.2	104	79-117
o-Xylene	50.0	0.0	50.0	100	78-122
m,p-Xylenes	100	0.0	100	100	79-120
Xylenes (total)	150	0.0	150	100	78-122
Styrene	50.0	0.0	49.1	98	79-128
Bromoform	50.0	0.0	42.8	86	71-138
Isopropylbenzene	50.0	0.0	47.7	95	77-132
1,1,2,2-Tetrachloroetha	50.0	0.0	45.3	91	72-124
1,2,3-Trichloropropane	50.0	0.0	44.5	89	81-116
Bromobenzene	50.0	0.0	46.9	94	82-125
n-Propylbenzene	50.0	0.0	54.0	108	81-124
2-Chlorotoluene	50.0	0.0	53.9	108	77-129

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
1,3,5-Trimethylbenzene	50.0	0.0	51.5	103	82-129
1,2,4-Trimethylbenzene	50.0	0.0	49.4	99	85-133
4-Chlorotoluene	50.0	0.0	52.3	105	78-127
tert-Butylbenzene	50.0	0.0	50.8	102	82-126
sec-Butylbenzene	50.0	0.0	52.4	105	82-127
4-Isopropyltoluene	50.0	0.0	52.9	106	82-131
1,3-Dichlorobenzene	50.0	0.0	50.4	101	77-126
1,4-Dichlorobenzene	50.0	0.0	48.5	97	70-130
n-Butylbenzene	50.0	0.0	54.6	109	79-140
1,2-Dichlorobenzene	50.0	0.0	47.0	94	78-122
1,2-Dibromo-3-chloropro	50.0	0.0	33.6	67	65-137
1,2,4-Trichlorobenzene	50.0	0.0	48.9	98	73-141
Hexachlorobutadiene	50.0	0.0	47.2	94	71-142
Naphthalene	50.0	0.34	43.4	86	69-132
1,2,3-Trichlorobenzene	50.0	0.0	47.3	95	64-151

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 2 out of 71 outside limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
Acrolein	250	0.0	275	110	70-130
Trichlorotrifluoroethan	250	0.0	258	103	70-130
Isobutyl alcohol	2500	0.0	2140	86	70-130
Allyl chloride	250	0.0	247	99	70-130
Acrylonitrile	250	0.0	244	98	70-130
2-Chloro-1,3-butadiene	50.0	0.0	56.7	113	70-130
Methacrylonitrile	250	0.0	247	99	70-130
Propionitrile	250	0.0	235	94	70-130
Methyl methacrylate	250	0.0	221	88	70-130
2-Nitropropane	250	0.0	186	74	70-130
Ethyl methacrylate	250	0.0	235	94	70-130
cis-1,4-Dichloro-2-bute	250	0.0	248	99	70-130
Cyclohexanone	2500	0.0	983	39*	70-130
trans-1,4-Dichloro-2-bu	250	0.0	308	123	70-130
Pentachloroethane	250	0.0	296	118	70-130
Benzyl chloride	250	0.0	249	100	70-130
bis(2-Chloroisopropyl)e	250	0.0	203	81	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 1 out of 17 outside limits

COMMENTS: _____

3A
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix Spike - EPA Sample No.: ARD2193

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethylene	500	0.0	405	81	67-129
Benzene	500	0.0	428	86	74-112
Trichloroethylene	500	599	960	72	71-118
Toluene	500	0.0	421	84	74-109
Chlorobenzene	500	0.0	429	86	77-113

COMPOUND	SPIKE ADDED (ug/l)	MSD CONCENTRATION (ug/l)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethylene	500	406	81	0	11	67-129
Benzene	500	444	89	3	8	74-112
Trichloroethylene	500	994	79	9	9	71-118
Toluene	500	436	87	4	12	74-109
Chlorobenzene	500	437	87	1	11	77-113

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Lab File ID: 1D122C Lab Sample ID: 1200401500

Date Analyzed: 03/31/03 Time Analyzed: 1826

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01LCS	1200401503	1D115LC	1451
02	VBLK01SLCS	1200403129	1D117SLCSC	1559
03	ARD2193	77341001	1D132	2240
04	ARD0031	77341002	1D133	2306
05	ARD0033	77341003	1D134	2331
06	ARD2190	77341004	1D135	2357
07	ARD2189	77341005	1D136	0022
08	ARD2200	77341006	1D137	0048
09	ARD2193MS	1200401501	1D138	0113
10	ARD2193MSD	1200401502	1D139	0138
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Lab File ID: 1Y201 BFB Injection Date: 02/25/03

Instrument ID: VOA1 BFB Injection Time: 0728

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.5
75	30.0 - 60.0% of mass 95	43.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	50.0 - 100.0% of mass 95	75.1
175	5.0 - 9.0% of mass 174	5.3 (7.1)1
176	95.0 - 101.0% of mass 174	74.5 (99.1)1
177	5.0 - 9.0% of mass 176	4.8 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD001	W1V030225-01	1Y204	02/25/03	0833
02	VSTD002	W1V030225-02	1Y206	02/25/03	0925
03	VSTD005	W1V030225-03	1Y207	02/25/03	0951
04	VSTD010	W1V030225-04	1Y208	02/25/03	1017
05	VSTD020	W1V030225-05	1Y209	02/25/03	1043
06	VSTD050	W1V030225-06	1Y210	02/25/03	1109
07	VSTD100	W1V030225-07	1Y211	02/25/03	1135
08	VSTD005S	UVM021119-01D	1Y213	02/25/03	1228
09	VSTD010S	UVM021119-02D	1Y214	02/25/03	1254
10	VSTD025S	UVM021119-03D	1Y215	02/25/03	1320
11	VSTD050S	UVM021119-04D	1Y216	02/25/03	1346
12	VSTD100S	UVM021119-05D	1Y217	02/25/03	1412
13	VSTD250S	UVM021119-06D	1Y218	02/25/03	1438
14	VSTD500S	UVM021119-07D	1Y219	02/25/03	1505
15					
16					
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5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Lab File ID: 1D115TUNE BFB Injection Date: 03/31/03

Instrument ID: VOA1 BFB Injection Time: 1451

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.4
75	30.0 - 60.0% of mass 95	47.7
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	50.0 - 100.0% of mass 95	71.3
175	5.0 - 9.0% of mass 174	4.5 (6.3)1
176	95.0 - 101.0% of mass 174	69.1 (97.0)1
177	5.0 - 9.0% of mass 176	4.2 (6.1)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	UVM030307-01D	1D115	03/31/03	1451
02	VBLK01LCS	1200401503	1D115LC	03/31/03	1451
03	VSTD250S	UVM030212-01B	1D117	03/31/03	1559
04	VBLK01SLCS	1200403129	1D117SLCSC	03/31/03	1559
05	VBLK01	1200401500	1D122C	03/31/03	1826
06	ARD2193	77341001	1D132	03/31/03	2240
07	ARD0031	77341002	1D133	03/31/03	2306
08	ARD0033	77341003	1D134	03/31/03	2331
09	ARD2190	77341004	1D135	03/31/03	2357
10	ARD2189	77341005	1D136	04/01/03	0022
11	ARD2200	77341006	1D137	04/01/03	0048
12	ARD2193MS	1200401501	1D138	04/01/03	0113
13	ARD2193MSD	1200401502	1D139	04/01/03	0138
14					
15					
16					
17					
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19					
20					
21					
22					

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Lab File ID (Standard): 1D115 Date Analyzed: 03/31/03

Instrument ID: VOA1 Time Analyzed: 1451

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	1209699	5.35	783978	8.41	355024	11.08
	UPPER LIMIT	2419398	5.85	1567956	8.91	710048	11.58
	LOWER LIMIT	604850	4.85	391989	7.91	177512	10.58
	EPA SAMPLE NO.						
01	VBLK01LCS	1209699	5.35	783978	8.41	355024	11.08
02	VBLK01SLCS	1160098	5.35	734893	8.41	319207	11.08
03	VBLK01	1045244	5.35	652571	8.41	250679	11.08
04	ARD2193	979506	5.35	617886	8.41	264016	11.07
05	ARD0031	970914	5.35	618723	8.40	266428	11.08
06	ARD0033	949913	5.35	614039	8.40	256769	11.08
07	ARD2190	955421	5.35	617726	8.41	267156	11.08
08	ARD2189	935839	5.35	603128	8.41	263673	11.08
09	ARD2200	927011	5.35	599665	8.41	269003	11.08
10	ARD2193MS	972764	5.35	631031	8.41	316446	11.08
11	ARD2193MSD	991808	5.35	660294	8.41	320255	11.08
12							
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20							
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22							

IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC SEMIVOLATILE FID ANALYSIS

FID Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77341

Method/Analysis Information

Procedure:	**Dissolved Gases by Flame Ionization Detector**
Analytical Method:	SW846 8015A/B SVOC
Prep Method:	SW846 8015A/B SVOC
Analytical Batch Number:	242476
Prep Batch Number:	242475

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8015A/B SVOC:

Sample ID	Client ID
77341001	ARD2193
77341004	ARD2190
77341005	ARD2189
77341006	ARD2200
1200402047	Method Blank (MB)
1200402049	Laboratory Control Sample (LCS)
1200402048	77341001(ARD2193) Sample Duplicate (DUP)

Preparation/Analytical Method Verification

Procedures for preparation, analysis, and reporting of analytical data are documented by General Engineering Laboratories, Inc. (GEL) as Standard Operating Procedures (SOP).

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

CCV Requirements
All calibration verification standard(s) (CVS, ICV or CCV) requirements have been met for this SDG.

Quality Control (QC) Information

Surrogate Recoveries
No surrogate was added to any samples in this batch.

Blank Acceptance
The blank(s) analyzed with this SDG met the established acceptance criteria.

LCS Recovery Statement
The Laboratory Control Sample (LCS) spike recoveries for this SDG were within the established acceptance limits.

QC Sample Designation
No matrix spike (MS) or matrix spike duplicate (MSD) were analyzed with this SDG. A sample duplicate was analyzed to measure the precision for this batch

Duplicate RPD Statement
The relative percent differences (RPD) between the sample and its duplicate were within the acceptable limits.

Technical Information

Holding Time Specifications
All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
None of the samples in this SDG required dilutions.

Sample Re-prep/Re-analysis
None of the samples in this sample group were reprepped or reanalyzed.

Miscellaneous Information

Nonconformance (NCR) Documentation
No nonconformance reports (NCRs) have been generated for this SDG.

Manual Integrations
Certain standards and QC samples may have required manual integrations to correctly position the baseline as set in the calibration standard injections. If manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Samples 1200402049 (LCS), 77341004 (ARD2190) and 77341006 (ARD2200) were manually integrated.

Additional Comments
No additional comments are needed for this sample group.

System Configuration

Chromatographic Columns

Column ID	Column Description
J&W1	DB-WAX(0.53mm x 0.5u x 30m)
J&W2	DB-624(0.53mm x 3.0u x 30m)
J&W3	DB-1(0.53mm x 1.5u x 30m)
J&W4	DB-608(0.53mm x 0.83u x 30m)
J&W5	GS-Q(0.53mm x 30m)
Phenomenex	ZB-5(0.25mm x 0.25u x 30m)

Instrument Configuration

Instrument ID	System Configuration	Chromatographic Column
FIDa	HP 5890 Series II GC/FID	J&W1/J&W3/J&W4
FID2a	HP 5890 Series II GC/FID	J&W2/J&W5
FID3a	HP 5890 Series II GC/FID	Phenomenex
FID4a	HP 5890 Series II GC/FID	Phenomenex

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Jimmi Cao **Date:** 4/18/03

SAMPLE DATA SUMMARY

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2193

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) GROUND WAT Lab Sample ID: 77341001

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 019B1901

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2190

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) GROUND WAT Lab Sample ID: 77341004

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 016B1601

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/01/03

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/03/03

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	126	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2189

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) GROUND WAT Lab Sample ID: 77341005

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 017B1701

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

FORM 1
FID ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ARD2200

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix: (soil/water) GROUND WAT Lab Sample ID: 77341006

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 018B1801

Level: (low/med) LOW Date Received: 03/29/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	48.8	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I FID

QUALITY CONTROL SUMMARY

FORM 3
GROUND WATER FID LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Matrix Spike - Sample No.: MBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Methane	100	0.0	112	112	70-130
Ethane	100	0.0	88.6	89	56-140
Ethene	100	0.0	89.3	89	56-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 3 outside limits

COMMENTS: _____

FORM III FID

FORM 4
FID METHOD BLANK SUMMARY

CLIENT SAMPLE NO

MBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77341

Lab File ID: 003B0301MB Lab Sample ID: 1200402047

Instrument ID: FID2A Date Extracted: 04/01/03

Matrix: (soil/water) GROUND WATER Date Analyzed: 04/03/03

Level:(low/med) LOW Time Analyzed: 1050

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MBLK01LCS	1200402049	004B0401LCS	04/03/03
02	ARD2193DUP	1200402048	014B1401	04/03/03
03	ARD2190	77341004	016B1601	04/03/03
04	ARD2189	77341005	017B1701	04/03/03
05	ARD2200	77341006	018B1801	04/03/03
06	ARD2193	77341001	019B1901	04/03/03
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INORGANIC ANALYSIS

Metals Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77341

Method/Analysis Information

Analytical Batch:	2242575
Prep Batch :	2242572
Standard Operating Procedures:	GL-MA-E-013 REV.8, GL-MA-E-006 REV.8
Analytical Method:	SSW846 6010B
Prep Method :	SSW846 3005A

Sample Analysis

Sample ID	Client ID
77341001	ARD2193
77341004	ARD2190
77341005	ARD2189
77341006	ARD2200
1200402400	Method Blank (MB) ICP
1200402401	Laboratory Control Sample (LCS)
1200402404	77341001(ARD2193L) Serial Dilution (SD)
1200402402	77341001(ARD2193D) Sample Duplicate (DUP)
1200402403	77341001(ARD2193S) Matrix Spike (MS)

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The ICP analysis was performed on a Thermo Jarrell Ash 61E Trace axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium internal standard. Operating conditions for the Trace ICP are set at a power level of 950 watts. The instrument has a peristaltic pump flow rate of 140 RPM (2.0 mL/min sample uptake rate), argon gas flows of 15 L/min and 0.5 L/min for the torch and auxiliary gases, and a pressure setting of 26 PSI for the nebulizer.

Calibration Information

Instrument Calibration

The instrument calibrations are conducted using the method and instrument manufacturer's specifications. All initial calibration requirements have been met for this SDG.

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Acceptance
The method blanks analyzed with this SDG did not contain analytes of interest at concentrations greater than the client required detection limits (CRDL).

LCS Recovery Statement
The laboratory control samples (LCS) met the recommended acceptance criteria for percent recovery (%R) for all elements of interest.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this batch: 77341001 (ARD2193).

Matrix Spike Recovery Statement
The percent recovery (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS met the recommended quality control acceptance criteria for percent recoveries for all applicable analytes except potassium, as indicated by the "N" qualifier.

Duplicate RPD Statement
The relative percent difference (RPD) obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit(RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess interferences due to matrix suppression or enhancement. Raw element concentrations that are at least 50X the instrument detection limit (IDL) for ICP analyses and 100X the IDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria, percent difference value of <10.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the GELIMS system by hours. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification

All procedures performed in association with this SDG followed the Standard Operating Procedure (SOP) guidelines. All samples in this SDG were prepared in accordance with the referenced SW-846 procedures.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in soil samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. No sample dilutions were needed in this SDG.

Preparation Information
The samples in this SDG were prepared exactly according to the sited SOP.

Miscellaneous Information

Nonconformance Documentation
Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. No NCR was generated with this SDG.

Additional Comments
No additional comments are needed for this sample group.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Allison M. C **Date:** 4/12/03

SAMPLE DATA SUMMARY

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77341 **Method Type:** SW846

Sample ID: 77341001 **Client ID:** ARD2193

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/29/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	241000	µg/L			P	7.760	TJA61 Trace ICP2	40303
7439-95-4	Magnesium	36000	µg/L			P	14.2	TJA61 Trace ICP2	40303
7439-96-5	Manganese	50.7	µg/L			P	0.421	TJA61 Trace ICP2	40303
7440-09-7	Potassium	2960	µg/L		N	P	48.7	TJA61 Trace ICP2	40703
7440-23-5	Sodium	54200	µg/L			P	33.9	TJA61 Trace ICP2	40703

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77341 **Method Type:** SW846

Sample ID: 77341004 **Client ID:** ARD2190

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/29/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	78500	µg/L			P	7.760	TJA61 Trace ICP2	40303
7439-95-4	Magnesium	10500	µg/L			P	14.2	TJA61 Trace ICP2	40303
7439-96-5	Manganese	7.900	µg/L	B		P	0.421	TJA61 Trace ICP2	40303
7440-09-7	Potassium	1320	µg/L		N	P	48.7	TJA61 Trace ICP2	40703
7440-23-5	Sodium	6560	µg/L			P	33.9	TJA61 Trace ICP2	40703

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77341 **Method Type:** SW846

Sample ID: 77341005 **Client ID:** ARD2189

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/29/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	82700	µg/L			P	7.760	TJA61 Trace ICP2	40303
7439-95-4	Magnesium	10400	µg/L			P	14.2	TJA61 Trace ICP2	40303
7439-96-5	Manganese	1.660	µg/L	B		P	0.421	TJA61 Trace ICP2	40303
7440-09-7	Potassium	635	µg/L		N	P	48.7	TJA61 Trace ICP2	40703
7440-23-5	Sodium	10200	µg/L			P	33.9	TJA61 Trace ICP2	40703

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77341 **Method Type:** SW846

Sample ID: 77341006 **Client ID:** ARD2200

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/29/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	242000	µg/L			P	7.760	TJA61 Trace ICP2	40303
7439-95-4	Magnesium	36400	µg/L			P	14.2	TJA61 Trace ICP2	40303
7439-96-5	Manganese	45.0	µg/L			P	0.421	TJA61 Trace ICP2	40303
7440-09-7	Potassium	3130	µg/L		N	P	48.7	TJA61 Trace ICP2	40703
7440-23-5	Sodium	57000	µg/L			P	33.9	TJA61 Trace ICP2	40703

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

GENERAL CHEMISTRY ANALYSIS

General Chemistry Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77341

Method/Analysis Information

Procedure:	**Ion Chromatography (IC)**
Analytical Method:	EPA 300.0
Analytical Batch Number:	242086

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
77341001	ARD2193
77341004	ARD2190
77341005	ARD2189
77341006	ARD2200
1200401085	Method Blank (MB)
1200401090	Laboratory Control Sample (LCS)
1200401086	77341001(ARD2193) Sample Duplicate (DUP)
1200401088	77341001(ARD2193) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV.8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: Dionex DX300 Ion Chromatograph equipped with a Dionex AS9-HC general purpose anion column

Initial Calibration
The instrument was properly calibrated.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recoveries for the laboratory control sample were within the required acceptance limits.

Quality Control
The following sample was designated for Quality Control:
77341001 (ARD2193)

Sample Spike Recovery
The spike recoveries for this sample set were within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Differences between the sample and duplicate for this batch were within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration for chloride and/or sulfate. See the Certificates of Analysis for the individual dilution factors.
1200401086 (ARD2193)
1200401088 (ARD2193)
77341001 (ARD2193)
77341004 (ARD2190)
77341005 (ARD2189)
77341006 (ARD2200)

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Method/Analysis Information

Procedure:	**Total Organic Carbon (TOC)**
Analytical Method:	SW846 9060
Analytical Batch Number:	244246

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
77341001	ARD2193
77341004	ARD2190
77341005	ARD2189
77341006	ARD2200
1200406420	Method Blank (MB)
1200406425	Laboratory Control Sample (LCS)
1200406421	77035005(TR2106) Sample Duplicate (DUP)
1200406422	77341001(ARD2193) Sample Duplicate (DUP)
1200406423	77035005(TR2106) Post Spike (PS)
1200406424	77341001(ARD2193) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV.3.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: O-I Analytical Model 1010 Total Organic Carbon Analyzer

Initial Calibration

The instrument was properly calibrated.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recovery for the laboratory control sample was within the required acceptance limits.

Quality Control
The following samples were designated for Quality Control:
77035005 (TR2106)
77341001 (ARD2193)

Sample Spike Recovery
The spike recoveries for this sample set were within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Differences between the samples and duplicates for this batch were within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
No samples in this sample group required dilutions.

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Certification Statement

* Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 4/15/03

SAMPLE DATA SUMMARY

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID:	ARD2193	Project:	PARS00103
Sample ID:	77341001	Client ID:	PARS001
Matrix:	Ground Water		
Collect Date:	28-MAR-03 09:15		
Receive Date:	29-MAR-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		2.25	0.025	0.200	mg/L	1	TSM	04/10/03	2303	244246	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Nitrate		0.522	0.0341	0.100	mg/L	1	MAR1	03/29/03	1753	242086	2
Chloride		60.6	0.644	4.00	mg/L	20	MAR1	03/31/03	2021	242086	3
Sulfate		439	3.86	8.00	mg/L	20					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/02/03	0815	242572
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475
SW846 8260B	8260B Volatiles In Liquid Federal	CDS1	03/31/03	2240	242254

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2193
Sample ID: 77341001

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2190
Sample ID: 77341004
Matrix: Ground Water
Collect Date: 28-MAR-03 11:45
Receive Date: 29-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.41	0.025	0.200	mg/L	1	TSM 04/10/03	2358	244246	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Chloride		6.03	0.0322	0.200	mg/L	1	MAR1 03/29/03	1849	242086	2
Nitrate		0.127	0.0341	0.100	mg/L	1				
Sulfate		41.6	0.386	0.800	mg/L	2	MAR1 03/31/03	2116	242086	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/02/03	0815	242572
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475
SW846 8260B	8260B Volatiles In Liquid Federal	AW2	03/31/03	2357	242254

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

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P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2190
Sample ID: 77341004

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on an "as received" basis.

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This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2189
Sample ID: 77341005
Matrix: Ground Water
Collect Date: 28-MAR-03 13:05
Receive Date: 29-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.18	0.025	0.200	mg/L	1	TSM 04/11/03	0027	244246	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Chloride		6.97	0.0322	0.200	mg/L	1	MAR1 03/29/03	1944	242086	2
Nitrate	U	0.00	0.0341	0.100	mg/L	1				
Sulfate		41.2	0.386	0.800	mg/L	2	MAR1 03/31/03	2134	242086	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/02/03	0815	242572
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475
SW846 8260B	8260B Volatiles In Liquid Federal	AW2	04/01/03	0022	242254

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
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B Analyte found in the sample as well as the associated blank.
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E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2189
Sample ID: 77341005

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID:	ARD2200	Project:	PARS00103
Sample ID:	77341006	Client ID:	PARS001
Matrix:	Ground Water		
Collect Date:	28-MAR-03 09:15		
Receive Date:	29-MAR-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		2.13	0.025	0.200	mg/L	1	TSM 04/11/03	0057	244246	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Nitrate		0.487	0.0341	0.100	mg/L	1	MAR103/29/03	2002	242086	2
Chloride		58.3	0.644	4.00	mg/L	20	MAR103/31/03	2153	242086	3
Sulfate		433	3.86	8.00	mg/L	20				

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/02/03	0815	242572
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475
SW846 8260B	8260B Volatiles In Liquid Federal	AW2	04/01/03	0048	242254

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 11, 2003

Client Sample ID: ARD2200
Sample ID: 77341006

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

QUALITY CONTROL SUMMARY

QC Summary

Report Date: April 14, 2003

Client : Parsons
100 Summer Street
Suite 800
Boston, Massachusetts
Contact: Todd Heino

Workorder: 77341

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis Federal										
Batch 244246										
QC1200406421 77035005 DUP										
Total Organic Carbon		1.54		1.51	mg/L	2		(0%-20%)	TSM	04/10/03 20:53
QC1200406422 77341001 DUP										
Total Organic Carbon		2.25		2.34	mg/L	4		(0%-20%)		04/10/03 23:33
QC1200406425 LCS										
Total Organic Carbon	10.0			9.72	mg/L		97	(85%-115%)		04/10/03 18:19
QC1200406420 MB										
Total Organic Carbon			J	0.146	mg/L					04/10/03 18:11
QC1200406423 77035005 PS										
Total Organic Carbon	10.0	1.54		10.8	mg/L		92	(80%-120%)		04/10/03 21:11
QC1200406424 77341001 PS										
Total Organic Carbon	10.0	2.25		11.2	mg/L		90	(80%-120%)		04/10/03 23:50
Ion Chromatography Federal										
Batch 242086										
QC1200401086 77341001 DUP										
Nitrate-N		0.522		0.554	mg/L	6		(0%-22%)	MAR1	03/29/03 18:12
Sulfate		439		434	mg/L	1		(0%-14%)		03/31/03 20:39
Chloride		60.6		59.2	mg/L	2		(0%-16%)		
QC1200401090 LCS										
Nitrate-N	5.00			4.81	mg/L		96	(90%-110%)		03/29/03 16:21
Sulfate	20.0			19.7	mg/L		99	(90%-110%)		
Chloride	10.0			9.54	mg/L		95	(90%-110%)		
QC1200401085 MB										
Nitrate-N			U	0.00	mg/L					03/29/03 16:03
Sulfate			U	0.00	mg/L					
Chloride			U	0.00	mg/L					
QC1200401088 77341001 PS										
Nitrate-N	5.00	0.522		5.16	mg/L		93	(71%-130%)		03/29/03 18:30
Sulfate	20.0	21.9		43.3	mg/L		107	(65%-130%)		03/31/03 20:58
Chloride	10.0	3.03		12.6	mg/L		96	(64%-129%)		

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D

QC Summary

Workorder: 77341

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

U Indicates the compound was analyzed for but not detected above the detection limit

UI Uncertain identification for gamma spectroscopy.

X Lab-specific qualifier - must be fully described in case narrative and data summary package

Y QC Samples were not spiked with this compound.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

CASE NARRATIVE
for
Parsons Engineering Science, Inc.
Seneca Army Depot
SDG# 77228/77230

April 15, 2003

Laboratory Identification:

General Engineering Laboratories, LLC

Mailing Address:

P.O. Box 30712
Charleston, South Carolina 29417

Express Mail Delivery and Shipping Address:

2040 Savage Road
Charleston, South Carolina 29414

Telephone Number:

(843) 556-8171

Summary:

Sample receipt

The samples arrived at General Engineering Laboratories, LLC (GEL) Charleston, South Carolina on March 28, 2003, for Environmental Analyses. All sample containers arrived without any visible signs of tampering or breakage. The samples were delivered with chain of custody documentation and signatures.

The laboratory received the following samples:

Laboratory Identification	Sample Description
77228001	TR2100
77228002	ARD2197
77228003	ARD2198
77228004	TR2102
77228005	TR2109
77228006	ARD2182
77228007	TR0040

Case Narrative

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are listed below by analytical parameter.

Internal Chain of Custody:

Custody was maintained for all samples.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Qualifier Flag Definitions, Chain of Custody, Cooler Receipt Checklist, GC/MS Volatile Analysis, FID Analysis, Inorganic Analysis, and General Chemistry Analysis.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Valerie S. Davis
Project Manager

CHAIN OF CUSTODY RECORD

№ 4301

CLIENT: Seneca Army Depot USACOE

PROJECT NO. 743155.01200

PROJECT MGR Todd Heino Parsons Boston

PROJECT NAME: Ash Landfill

SAMPLERS: Dale Dolph - Parsons, Dan Douglass - Parsons

NOTES - (Reference QAPP and/or analytical protocols to be used): 77230% 77228%

Send results to: PARSONS Boston ~~290 Elwood Davis Road Suite 312 Liverpool, NY 13088~~ 617 951 7570
Telephone: ~~(315) 451-9560~~
Fax: (315) 451-9570

Lab Submitted to: GEL Charleston SC

	FIELD SAMPLE ID	LOCATION DESCRIPTION	DATE	TIME	GRAB	COMP	MATRIX	Number of Bottles	VOC 524.2	VOC TCL	Nitrate/Sulfate/Chloride	MEE	TOC	Metals				REMARKS
1/002	TR21 00	MWT-1	3/27/03	0915	X		GW	9		X	X	X	X	X				
004	TR21 02	MWT-3		1020	X		GW	9	X		X	X	X	X				
005	TR21 09	MWT-10		1135	X		GW	9	X		X	X	X	X				
006	ARD21 82	MW-27		1310	X		GW	9	X		X	X	X	X				
2/002	ARD21 97	MW-20		1435	X		GW	9		X	X	X	X	X				
3/003	ARD21 98	MW-21A		1545	X		GW	9		X	X	X	X	X				
007	TR00 40	Trip Blank	–	–	–		W	2	X									Trip Blank

Relinquished by (Signature)	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples Intact
[signature]	3/27/03	1900	Fedex	839734548990	Fedex			°C ___Yes ___No
Relinquished by (Signature)	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples Intact
					[signature]	3/28/03	1015	4 °C ✓Yes ___No
Relinquished by (Signature)	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples Intact
								°C ___Yes ___No

TYPE CODES:

SOLID
- SD- Sediment
- SS- Surface Soil
- SB- Subsurface Soil
- MW- Monitoring Well Boring
- TP- Test Pit/Tank Pit
- DR- Drum Waste
- WA- Solid Waste
- OS Other Solid

WATER
- MW- Monitoring Well
- LC- Leachate
- SW- Surface Water
- DW- Drill Water
- FD- Fuel Dispenser
- MH- Manhole
- OW- Oil Water Separator
- PR- Piping Run
- ST- Storm Water
- WW- Waste Water
- OL- Other Liquid (eg. Drum liquid)

MATRIX
- W - Water
- S - Soil

QUALITY CONTROL
- FB- Field Blank (with date)
- TB- Trip Blank (with date)
- WB- Wash Blank (with date)

GC/MS VOLATILE ANALYSIS

GC/MS Volatile Organics
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77228

Method/Analysis Information

Procedure:	Volatile Organic Compounds by Gas Chromatograph/Mass Spectrometer
Analytical Method:	EPA 524.2
Prep Method:	EPA 524.2
Analytical Batch Number:	243842

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
77228004	TR2102
77228005	TR2109
77228006	ARD2182
77228007	TR0040
1200405473	Method Blank (MB)
1200405474	Laboratory Control Sample (LCS)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-022 REV.3.

Calibration Information
Due to software limitations, all the data files comprising the initial calibration curve may not be listed on the initial calibration summary form. All calibration files are listed in the calibration history report in the "Standard Data" section.

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
All the calibration verification standard (CCV) requirements were met.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recoveries
Surrogate recoveries, in all samples and quality control samples, were within the acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the LCS were within the acceptance limits.

QC Sample Designation
Matrix spikes analysis were analyzed on a sample of similar matrix in PARS sample delivery group 77559.

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
All the required spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
The RPD between spike recoveries were within the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this sample delivery group/work order did not require dilutions.

Miscellaneous Information

Electronic Package Comment
The following package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation
A nonconformance report was not required for this sample delivery group/work order.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

System Configuration
The laboratory utilizes the following GC/MS configurations:

Chromatographic Columns
Chromatographic separation of volatile components is accomplished through analysis on one of the following columns:

Column ID	Column Description
J&W1	DB-624, 60m x 0.25mm, 1.4um
J&W2	DB-624, 75m x 0.53mm, 3.0um

Instrument Configuration
Instrument systems are reference in the raw data and individual form headers by the Instrument ID designations below:

Instrument ID	System Configuration	Chromatographic Column	P & T Trap
VOA1	HP6890/HP5973	J&W1	Trap C
VOA2	HP6890/HP5973	J&W1	Trap C
VOA4	HP5890/HP5972	J&W1	Trap K
VOA5	HP5890/HP5972	J&W1	Trap C
VOA7	HP5890/HP5972	J&W2	Trap K
VOA8	HP6890/HP5973	J&W1	Trap K
VOA9	HP6890/HP5973	J&W1	Trap C

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Pat Steele Date: 04-15-03

Roadmap for PARS 77228 VOA

This roadmap was analyzed by Debbie Smith on 04-11-2003, 14:21.
This roadmap was reviewed by Sara Jones on 04-14-2003, 15:44.
This roadmap was packaged by LySandra Gathers on 04-14-2003, 16:15.

Sample

exclude	manual	datafile	smpid	clientid	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA8.i/040803v8.b/8p2e207.d	77228004	TR2102	08-APR-2003	11:02	77228.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e208.d	77228005	TR2109	08-APR-2003	11:28	77228.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e209.d	77228006	ARD2182	08-APR-2003	11:54	77228.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e210.d	77228007	TR0040	08-APR-2003	12:20	77228.sub	1.00000	

QC Sample

exclude	manual	datafile	smpid	clientid	sampletype	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA8.i/040803v8.b/8p2e202LCSC.d	1200405474	VBLK01LCS	lcs	08-APR-2003	08:32	77228.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e203C.d	1200405473	VBLK01	mb	08-APR-2003	09:04	77228.sub	1.00000	

SAMPLE DATA SUMMARY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2182

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228006

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E209

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.45	J
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2182

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228006

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E209

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.8	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2182

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228006

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E209

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0040

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228007

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E210

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.50	
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0040

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228007

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E210

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	0.84	J
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0040

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228007

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E210

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2102

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E207

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.46	J
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	17.2	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	17.2	
79-01-6	Trichloroethylene	3.8	
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2102

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E207

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	0.86	J
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2102

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228004

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E207

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2109

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E208

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.51	
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	5.4	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	5.4	
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2109

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E208

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.4	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2109

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228005

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E208

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

QUALITY CONTROL SUMMARY

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 #	OTHER	TOT OUT
01	VBLK01LCS	104	94	96		0
02	VBLK01	96	94	101		0
03	TR2102	94	93	98		0
04	TR2109	97	94	107		0
05	ARD2182	92	76	100		0
06	TR0040	97	84	107		0
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		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(73-112)
SMC2 (BFB)	= Bromofluorobenzene	(73-123)
SMC3	= Dibromofluoromethane	(81-126)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromochloromethane	5.0	0.0	4.9	98	70-130
Chloromethane	5.0	0.0	4.4	88	70-130
Bromomethane	5.0	0.0	4.1	82	70-130
Vinyl chloride	5.0	0.0	4.5	90	70-130
Chloroethane	5.0	0.0	4.9	98	70-130
Methylene chloride	5.0	0.0	5.1	102	70-130
1,1-Dichloroethylene	5.0	0.0	4.8	96	70-130
1,1-Dichloroethane	5.0	0.0	4.8	96	70-130
Chloroform	5.0	0.0	5.0	100	70-130
1,2-Dichloroethane	5.0	0.0	5.1	102	70-130
trans-1,2-Dichloroethyl	5.0	0.0	4.9	98	70-130
1,1,1-Trichloroethane	5.0	0.0	5.0	100	70-130
Carbon tetrachloride	5.0	0.0	4.8	96	70-130
Bromodichloromethane	5.0	0.0	4.7	94	70-130
1,2-Dichloropropane	5.0	0.0	4.7	94	70-130
cis-1,2-Dichloroethylen	5.0	0.0	4.8	96	70-130
cis-1,3-Dichloropropyle	5.0	0.0	4.8	96	70-130
1,2-Dichloroethylene (t	10.0	0.0	9.7	97	70-130
Trichloroethylene	5.0	0.0	4.9	98	70-130
Dibromochloromethane	5.0	0.0	4.6	92	70-130
1,1,2-Trichloroethane	5.0	0.0	4.8	96	70-130
Benzene	5.0	0.0	5.0	100	70-130
trans-1,3-Dichloropropy	5.0	0.0	4.8	96	70-130
Bromoform	5.0	0.0	4.3	86	70-130
Tetrachloroethylene	5.0	0.0	5.4	108	70-130
1,1,2,2-Tetrachloroetha	5.0	0.0	5.0	100	70-130
Toluene	5.0	0.0	5.0	100	70-130
Chlorobenzene	5.0	0.0	5.0	100	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Ethylbenzene	5.0	0.0	5.3	106	70-130
Styrene	5.0	0.0	5.2	104	70-130
Dichlorodifluoromethane	5.0	0.0	5.0	100	70-130
Trichlorofluoromethane	5.0	0.0	4.4	88	70-130
1,3-Dichlorobenzene	5.0	0.0	5.0	100	70-130
1,4-Dichlorobenzene	5.0	0.0	5.0	100	70-130
1,2-Dichlorobenzene	5.0	0.0	5.0	100	70-130
o-Xylene	5.0	0.0	5.1	102	70-130
m,p-Xylenes	10.0	0.0	10.4	104	70-130
Xylenes (total)	15.0	0.0	15.5	103	70-130
2,2-Dichloropropane	5.0	0.0	4.8	96	70-130
1,1-Dichloropropene	5.0	0.0	5.0	100	70-130
Dibromomethane	5.0	0.0	4.9	98	70-130
1,2-Dibromoethane	5.0	0.0	4.8	96	70-130
1,3-Dichloropropane	5.0	0.0	4.9	98	70-130
1,1,1,2-Tetrachloroetha	5.0	0.0	4.8	96	70-130
Isopropylbenzene	5.0	0.0	5.1	102	70-130
Bromobenzene	5.0	0.0	5.0	100	70-130
1,2,3-Trichloropropane	5.0	0.0	4.9	98	70-130
n-Propylbenzene	5.0	0.0	5.1	102	70-130
2-Chlorotoluene	5.0	0.0	5.2	104	70-130
1,3,5-Trimethylbenzene	5.0	0.0	5.1	102	70-130
4-Chlorotoluene	5.0	0.0	5.2	104	70-130
tert-Butylbenzene	5.0	0.0	4.9	98	70-130
1,2,4-Trimethylbenzene	5.0	0.0	5.2	104	70-130
sec-Butylbenzene	5.0	0.0	5.1	102	70-130
4-Isopropyltoluene	5.0	0.0	5.2	104	70-130
n-Butylbenzene	5.0	0.0	5.2	104	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,2-Dibromo-3-chloropro	5.0	0.0	3.8	76	70-130
1,2,4-Trichlorobenzene	5.0	0.0	5.2	104	70-130
Hexachlorobutadiene	5.0	0.0	5.3	106	70-130
Naphthalene	5.0	0.0	4.8	96	70-130
1,2,3-Trichlorobenzene	5.0	0.0	5.3	106	70-130
tert-Butyl methyl ether	5.0	0.0	4.8	96	70-130
Acetone	25.0	0.0	23.8	95	70-130
2-Butanone	25.0	0.0	22.7	91	70-130
4-Methyl-2-pentanone	25.0	0.0	25.7	103	70-130
2-Hexanone	25.0	0.0	25.3	101	70-130
Carbon disulfide	25.0	0.0	24.6	98	70-130
Vinyl acetate	25.0	0.0	26.8	107	70-130
Iodomethane	25.0	0.0	25.5	102	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 69 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Lab File ID: 8P2E203C Lab Sample ID: 1200405473

Date Analyzed: 04/08/03 Time Analyzed: 0904

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01LCS	1200405474	8P2E202LCSC	0832
02	TR2102	77228004	8P2E207	1102
03	TR2109	77228005	8P2E208	1128
04	ARD2182	77228006	8P2E209	1154
05	TR0040	77228007	8P2E210	1220
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Lab File ID: 8C301 BFB Injection Date: 03/26/03

Instrument ID: VOA8 BFB Injection Time: 0654

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	46.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 100.0% of mass 95	77.1
175	5.0 - 9.0% of mass 174	6.0 (7.7)1
176	95.0 - 101.0% of mass 174	75.1 (97.4)1
177	5.0 - 9.0% of mass 176	5.1 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0002	W8V030326-01	8P2C304A	03/26/03	0810
02	VSTD0005	W8V030326-02	8P2C305A	03/26/03	0836
03	VSTD001	W8V030326-03	8P2C306A	03/26/03	0902
04	VSTD002	W8V030326-04	8P2C307A	03/26/03	0928
05	VSTD005	W8V030326-05	8P2C308A	03/26/03	0954
06	VSTD010	W8V030326-06	8P2C309A	03/26/03	1020
07	VSTD020	W8V030326-07	8P2C310A	03/26/03	1046
08	VSTD050	W8V030326-08	8P2C311A	03/26/03	1112
09	VSTD100	W8V030326-09	8P2C312A	03/26/03	1138
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Lab File ID: 8E201 BFB Injection Date: 04/08/03

Instrument ID: VOA8 BFB Injection Time: 0817

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.4
75	30.0 - 60.0% of mass 95	46.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	50.0 - 100.0% of mass 95	80.8
175	5.0 - 9.0% of mass 174	6.0 (7.4)1
176	95.0 - 101.0% of mass 174	78.9 (97.6)1
177	5.0 - 9.0% of mass 176	5.1 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005	W8V030408-01	8P2E202	04/08/03	0832
02	VBLK01LCS	1200405474	8P2E202LCSC	04/08/03	0832
03	VBLK01	1200405473	8P2E203C	04/08/03	0904
04	TR2102	77228004	8P2E207	04/08/03	1102
05	TR2109	77228005	8P2E208	04/08/03	1128
06	ARD2182	77228006	8P2E209	04/08/03	1154
07	TR0040	77228007	8P2E210	04/08/03	1220
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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Lab File ID (Standard): 8P2E202 Date Analyzed: 04/08/03

Instrument ID: VOA8 Time Analyzed: 0832

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	594714	4.50	420450	6.78	226752	8.88
	UPPER LIMIT	1189428	5.00	840900	7.28	453504	9.38
	LOWER LIMIT	297357	4.00	210225	6.28	113376	8.38
	EPA SAMPLE NO.						
01	VBLK01LCS	594714	4.50	420450	6.78	226752	8.88
02	VBLK01	535312	4.50	397414	6.78	209728	8.89
03	TR2102	569683	4.50	411572	6.78	214051	8.88
04	TR2109	517181	4.50	381562	6.77	197138	8.88
05	ARD2182	523958	4.50	404934	6.77	254317	8.88
06	TR0040	510546	4.50	379988	6.77	222332	8.88
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IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC/MS VOLATILE ANALYSIS

GC/MS Volatile Organics
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77230

Method/Analysis Information

Procedure:	Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer
Analytical Method:	SW846 8260B
Prep Method:	SW846 5030B
Analytical Batch Number:	242254

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
77230001	TR2100
77230002	ARD2197
77230003	ARD2198
1200401500	Method Blank (MB)
1200401503	Laboratory Control Sample (LCS)
1200403129	Laboratory Control Sample (LCS)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV.7.

Calibration Information
Due to software limitations, all the data files comprising the initial calibration curve may not be listed on the initial calibration summary form. All calibration files are listed in the calibration history report in the "Standard Data" section.

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
The instrument was calibrated to meet the 8260B initial calibration criteria. Although sample analyses are quantitated using the average response factor generated from the initial calibration, a daily calibration verification standard (CVS) was analyzed to verify the accuracy and acceptability of the multi-point initial calibration. The criteria adopted by the laboratory to determine the acceptability and accuracy of the initial calibration is a ± 40% response factor difference for all non-CCC analytes of interest. In the following CVS(s), the following target analyte(s) did not meet the criteria:

Date of CVS	Target Analyte(s)
3/31/03	2-Chloroethylvinyl ether Cyclohexanone

The response factor for 2-chloroethylvinyl ether in the CCV was less than the average response factor in the initial calibration. Detection and quantitation of this analyte in samples would be considered biased low. However, the response for the target analyte was sufficient for detection above the required reporting limit.

The response factor for cyclohexanone in the CCV was above the average response factor in the initial calibration. Detection and quantitation of this analyte in samples would be considered biased high.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recoveries
Surrogate recoveries, in all samples and quality control samples, were within the acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the laboratory control sample were within the acceptance limits, except for the low recoveries for dichlorodifluoromethane, 2-chloroethylvinyl ether, and cyclohexanone. The LCS requirements were still met, since the 5% failure rate permitted by the client was not exceeded.

QC Sample Designation
Matrix spike analyses were analyzed on a sample of similar matrix in PARS sample delivery group order, # 77341.

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
All the required spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
The RPD between the sample and duplicate spike recoveries were within the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this sample delivery group/work order did not require dilutions.

Sample Re-prep/Re-analysis
Re-analyses were not required for samples in this sample group/work order.

Miscellaneous Information

Electronic Package Comment
The following package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation
A nonconformance report was not required for this sample delivery group/work order.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

Additional Comments
There were no additional comments.

System Configuration
The laboratory utilizes the following GC/MS configurations:

Chromatographic Columns
Chromatographic separation of volatile components is accomplished through analysis on one of the following columns:

Column ID	Column Description
J&W1	DB-624, 60m x 0.25mm, 1.4um
J&W2	DB-624, 75m x 0.53mm, 3.0um

Instrument Configuration
Instrument systems are reference in the raw data and individual form headers by the Instrument ID designations below:

Instrument ID	System Configuration	Chromatographic Column	P & T Trap
VOA1	HP6890/HP5973	J&W1	Trap C
VOA2	HP6890/HP5973	J&W1	Trap C
VOA4	HP5890/HP5972	J&W1	Trap K
VOA5	HP5890/HP5972	J&W1	Trap C
VOA7	HP5890/HP5972	J&W2	Trap K
VOA8	HP6890/HP5973	J&W1	Trap K
VOA9	HP6890/HP5973	J&W1	Trap C

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: _____ Date: 04-16-03

Roadmap for PARS 77230 VOA

This roadmap was analyzed by Anson Walsh on 04-02-2003, 15:23.
This roadmap was reviewed by Crystal Stacey on 04-04-2003, 12:01.
This roadmap was reviewed by LySandra Gathers on 04-08-2003, 15:25.

Sample

exclude	manual	datafile	smpid	clientid	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA1.i/033103v1.b/1d129.d	77230001	TR2100	31-MAR-2003	21:24	77230.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d130.d	77230002	ARD2197	31-MAR-2003	21:49	77230.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d131.d	77230003	ARD2198	31-MAR-2003	22:15	77230.sub	1.00000	

QC Sample

exclude	manual	datafile	smpid	clientid	sampletype	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA1.i/033103v1.b/1d115Lb.d	1200401503	VBLK01LCS	lcs	31-MAR-2003	14:51	77230.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d117SLCSb.d	1200403129	VBLK01SLCS	lcs	31-MAR-2003	15:59	77230.sub	1.00000	
☐	N	/chem/VOA1.i/033103v1.b/1d122b.d	1200401500	VBLK01	mb	31-MAR-2003	18:26	77230.sub	1.00000	

SAMPLE DATA SUMMARY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2197

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix: (soil/water) WATER Lab Sample ID: 77230002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D130

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	7.8	
540-59-0	1,2-Dichloroethylene (total)	7.8	
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2197

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix: (soil/water) WATER Lab Sample ID: 77230002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D130

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	12.0	
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2197

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix: (soil/water) WATER Lab Sample ID: 77230002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D130

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2198

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix: (soil/water) WATER Lab Sample ID: 77230003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D131

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	1.0	U
540-59-0	1,2-Dichloroethylene (total)	1.0	U
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2198

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix: (soil/water) WATER Lab Sample ID: 77230003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D131

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2198

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix: (soil/water) WATER Lab Sample ID: 77230003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D131

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2100

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix: (soil/water) WATER Lab Sample ID: 77230001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D129

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	39.6	
540-59-0	1,2-Dichloroethylene (total)	39.6	
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2100

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix: (soil/water) WATER Lab Sample ID: 77230001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D129

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	13.2	
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2100

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix: (soil/water) WATER Lab Sample ID: 77230001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1D129

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: not dec. _____ Date Analyzed: 03/31/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

QUALITY CONTROL SUMMARY

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

	EPA SAMPLE NO.	SMC1 #	SMC2 (TOL)#	SMC3 (BFB)#	OTHER	TOT OUT
01	VBLK01LCS	87	89	94		0
02	VBLK01SLCS	87	89	96		0
03	VBLK01	88	90	100		0
04	TR2100	89	90	97		0
05	ARD2197	91	90	95		0
06	ARD2198	91	90	96		0
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		QC LIMITS
SMC1	= Dibromofluoromethane	(74-144)
SMC2 (TOL)	= Toluene-d8	(76-129)
SMC3 (BFB)	= Bromofluorobenzene	(69-137)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50.0	0.0	32.6	65*	68-136
Chloromethane	50.0	0.0	42.3	85	68-129
Vinyl chloride	50.0	0.0	53.6	107	69-136
Bromomethane	50.0	0.0	36.8	74	62-136
Chloroethane	50.0	0.0	47.4	95	62-132
Trichlorofluoromethane	50.0	0.0	33.4	67	62-149
1,1-Dichloroethylene	50.0	0.0	48.2	96	78-140
Acetone	250	0.0	224	90	72-127
Iodomethane	250	0.0	221	88	78-130
Carbon disulfide	250	0.0	227	91	68-136
Acetonitrile	1250	0.0	1180	94	70-130
Methylene chloride	50.0	0.0	46.2	92	61-138
tert-Butyl methyl ether	50.0	0.0	48.3	97	70-130
trans-1,2-Dichloroethyl	50.0	0.0	50.7	101	78-126
1,1-Dichloroethane	50.0	0.0	50.6	101	78-121
Vinyl acetate	250	0.0	241	96	69-130
2-Butanone	250	0.0	240	96	71-127
cis-1,2-Dichloroethylen	50.0	0.0	52.1	104	82-120
1,2-Dichloroethylene (t	100	0.0	103	103	70-130
2,2-Dichloropropane	50.0	0.0	55.4	111	71-138
Bromochloromethane	50.0	0.0	46.6	93	82-126
Chloroform	50.0	0.0	50.2	100	82-119
1,1,1-Trichloroethane	50.0	0.0	51.0	102	80-131
1,1-Dichloropropene	50.0	0.0	48.2	96	79-124
Carbon tetrachloride	50.0	0.0	53.9	108	78-133
1,2-Dichloroethane	50.0	0.0	49.4	99	71-125
Benzene	50.0	0.0	49.0	98	78-119
Trichloroethylene	50.0	0.0	49.4	99	80-123

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
1,2-Dichloropropane	50.0	0.0	46.8	94	77-114
Dibromomethane	50.0	0.0	49.2	98	83-121
Bromodichloromethane	50.0	0.0	49.4	99	67-135
2-Chloroethylvinyl ethe	250	0.0	113	45*	70-130
cis-1,3-Dichloropropyle	50.0	0.0	48.2	96	85-128
4-Methyl-2-pentanone	250	0.0	243	97	76-132
Toluene	50.0	0.0	49.6	99	68-133
trans-1,3-Dichloropropy	50.0	0.0	49.8	100	65-130
1,1,2-Trichloroethane	50.0	0.0	45.6	91	68-127
1,3-Dichloropropane	50.0	0.0	45.4	91	83-110
2-Hexanone	250	0.0	243	97	74-132
Tetrachloroethylene	50.0	0.0	46.2	92	78-128
Dibromochloromethane	50.0	0.0	50.3	101	83-125
1,2-Dibromoethane	50.0	0.0	46.0	92	86-119
Chlorobenzene	50.0	0.0	48.4	97	82-120
1,1,1,2-Tetrachloroetha	50.0	0.0	47.1	94	83-127
Ethylbenzene	50.0	0.0	52.2	104	79-117
o-Xylene	50.0	0.0	50.0	100	78-122
m,p-Xylenes	100	0.0	100	100	79-120
Xylenes (total)	150	0.0	150	100	78-122
Styrene	50.0	0.0	49.1	98	79-128
Bromoform	50.0	0.0	42.8	86	71-138
Isopropylbenzene	50.0	0.0	47.7	95	77-132
1,1,2,2-Tetrachloroetha	50.0	0.0	45.3	91	72-124
1,2,3-Trichloropropane	50.0	0.0	44.5	89	81-116
Bromobenzene	50.0	0.0	46.9	94	82-125
n-Propylbenzene	50.0	0.0	54.0	108	81-124
2-Chlorotoluene	50.0	0.0	53.9	108	77-129

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
1,3,5-Trimethylbenzene	50.0	0.0	51.5	103	82-129
1,2,4-Trimethylbenzene	50.0	0.0	49.4	99	85-133
4-Chlorotoluene	50.0	0.0	52.3	105	78-127
tert-Butylbenzene	50.0	0.0	50.8	102	82-126
sec-Butylbenzene	50.0	0.0	52.4	105	82-127
4-Isopropyltoluene	50.0	0.0	52.9	106	82-131
1,3-Dichlorobenzene	50.0	0.0	50.4	101	77-126
1,4-Dichlorobenzene	50.0	0.0	48.5	97	70-130
n-Butylbenzene	50.0	0.0	54.6	109	79-140
1,2-Dichlorobenzene	50.0	0.0	47.0	94	78-122
1,2-Dibromo-3-chloropro	50.0	0.0	33.6	67	65-137
1,2,4-Trichlorobenzene	50.0	0.0	48.9	98	73-141
Hexachlorobutadiene	50.0	0.0	47.2	94	71-142
Naphthalene	50.0	0.34	43.4	86	69-132
1,2,3-Trichlorobenzene	50.0	0.0	47.3	95	64-151

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 2 out of 71 outside limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
Acrolein	250	0.0	275	110	70-130
Trichlorotrifluoroethan	250	0.0	258	103	70-130
Isobutyl alcohol	2500	0.0	2140	86	70-130
Allyl chloride	250	0.0	247	99	70-130
Acrylonitrile	250	0.0	244	98	70-130
2-Chloro-1,3-butadiene	50.0	0.0	56.7	113	70-130
Methacrylonitrile	250	0.0	247	99	70-130
Propionitrile	250	0.0	235	94	70-130
Methyl methacrylate	250	0.0	221	88	70-130
2-Nitropropane	250	0.0	186	74	70-130
Ethyl methacrylate	250	0.0	235	94	70-130
cis-1,4-Dichloro-2-bute	250	0.0	248	99	70-130
Cyclohexanone	2500	0.0	983	39*	70-130
trans-1,4-Dichloro-2-bu	250	0.0	308	123	70-130
Pentachloroethane	250	0.0	296	118	70-130
Benzyl chloride	250	0.0	249	100	70-130
bis(2-Chloroisopropyl)e	250	0.0	203	81	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 1 out of 17 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Lab File ID: 1D122B Lab Sample ID: 1200401500

Date Analyzed: 03/31/03 Time Analyzed: 1826

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01LCS	1200401503	1D115LB	1451
02	VBLK01SLCS	1200403129	1D117SLCSB	1559
03	TR2100	77230001	1D129	2124
04	ARD2197	77230002	1D130	2149
05	ARD2198	77230003	1D131	2215
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Lab File ID: 1Y201 BFB Injection Date: 02/25/03

Instrument ID: VOA1 BFB Injection Time: 0728

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.5
75	30.0 - 60.0% of mass 95	43.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	50.0 - 100.0% of mass 95	75.1
175	5.0 - 9.0% of mass 174	5.3 (7.1)1
176	95.0 - 101.0% of mass 174	74.5 (99.1)1
177	5.0 - 9.0% of mass 176	4.8 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD001	W1V030225-01	1Y204	02/25/03	0833
02	VSTD002	W1V030225-02	1Y206	02/25/03	0925
03	VSTD005	W1V030225-03	1Y207	02/25/03	0951
04	VSTD010	W1V030225-04	1Y208	02/25/03	1017
05	VSTD020	W1V030225-05	1Y209	02/25/03	1043
06	VSTD050	W1V030225-06	1Y210	02/25/03	1109
07	VSTD100	W1V030225-07	1Y211	02/25/03	1135
08	VSTD005S	UVM021119-01D	1Y213	02/25/03	1228
09	VSTD010S	UVM021119-02D	1Y214	02/25/03	1254
10	VSTD025S	UVM021119-03D	1Y215	02/25/03	1320
11	VSTD050S	UVM021119-04D	1Y216	02/25/03	1346
12	VSTD100S	UVM021119-05D	1Y217	02/25/03	1412
13	VSTD250S	UVM021119-06D	1Y218	02/25/03	1438
14	VSTD500S	UVM021119-07D	1Y219	02/25/03	1505
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Lab File ID: 1D115TUNE BFB Injection Date: 03/31/03

Instrument ID: VOA1 BFB Injection Time: 1451

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.4
75	30.0 - 60.0% of mass 95	47.7
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	50.0 - 100.0% of mass 95	71.3
175	5.0 - 9.0% of mass 174	4.5 (6.3)1
176	95.0 - 101.0% of mass 174	69.1 (97.0)1
177	5.0 - 9.0% of mass 176	4.2 (6.1)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	UVM030307-01D	1D115	03/31/03	1451
02	VBLK01LCS	1200401503	1D115LB	03/31/03	1451
03	VSTD250S	UVM030212-01B	1D117	03/31/03	1559
04	VBLK01SLCS	1200403129	1D117SLCSB	03/31/03	1559
05	VBLK01	1200401500	1D122B	03/31/03	1826
06	TR2100	77230001	1D129	03/31/03	2124
07	ARD2197	77230002	1D130	03/31/03	2149
08	ARD2198	77230003	1D131	03/31/03	2215
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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77230

Lab File ID (Standard): 1D115 Date Analyzed: 03/31/03

Instrument ID: VOA1 Time Analyzed: 1451

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	1209699	5.35	783978	8.41	355024	11.08
	UPPER LIMIT	2419398	5.85	1567956	8.91	710048	11.58
	LOWER LIMIT	604850	4.85	391989	7.91	177512	10.58
	EPA SAMPLE NO.						
01	VBLK01LCS	1209699	5.35	783978	8.41	355024	11.08
02	VBLK01SLCS	1160098	5.35	734893	8.41	319207	11.08
03	VBLK01	1045244	5.35	652571	8.41	250679	11.08
04	TR2100	1030263	5.35	651291	8.41	281056	11.08
05	ARD2197	1030415	5.35	649652	8.40	284249	11.07
06	ARD2198	980046	5.35	628478	8.41	266842	11.08
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IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC SEMIVOLATILE FID ANALYSIS

FID Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77228

Method/Analysis Information

Procedure:	**Dissolved Gases by Flame Ionization Detector**
Analytical Method:	SW846 8015A/B SVOC
Prep Method:	SW846 8015A/B SVOC
Analytical Batch Number:	242476
Prep Batch Number:	242475

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8015A/B SVOC:

Sample ID	Client ID
77228001	TR2100
77228002	ARD2197
77228003	ARD2198
77228004	TR2102
77228005	TR2109
77228006	ARD2182
1200402047	Method Blank (MB)
1200402049	Laboratory Control Sample (LCS)

Preparation/Analytical Method Verification

Procedures for preparation, analysis, and reporting of analytical data are documented by General Engineering Laboratories, Inc. (GEL) as Standard Operating Procedures (SOP).

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

CCV Requirements
All calibration verification standard(s) (CVS, ICV or CCV) requirements have been met for this SDG.

Quality Control (QC) Information

Surrogate Recoveries
No surrogate was added to any samples in this batch.

Blank Acceptance
The blank(s) analyzed with this SDG met the established acceptance criteria.

LCS Recovery Statement
The Laboratory Control Sample (LCS) spike recoveries for this SDG were within the established acceptance limits.

QC Sample Designation
No matrix spike (MS) or matrix spike duplicate (MSD) were analyzed with this SDG. A PARS sample from SDG 77341and its duplicate was analyzed to measure the precision for this batch. The RPD between the sample and its duplicate met the acceptance criteria.

Technical Information

Holding Time Specifications
All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Sample 77228005 (TR2109) was diluted at 1:10 due to the presence of over-range Methane.

Sample Re-prep/Re-analysis
Sample 77228005 (TR2109) was re-analyzed at 1:10 dilution for Methane.

Miscellaneous Information:

Electronic Package Comment

This package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative.

Nonconformance (NCR) Documentation
No nonconformance reports (NCRs) have been generated for this SDG.

Manual Integrations
Certain standards and QC samples may have required manual integrations to correctly position the baseline as set in the calibration standard injections. If manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Samples 1200402049 (LCS), 77228002 (ARD2197), 77228003 (ARD2198), 77228004 (TR2102) and 77228005 (TR2109) were manually integrated.

Additional Comments
No additional comments are needed for this sample group.

System Configuration

Chromatographic Columns

Column ID	Column Description
J&W1	DB-WAX(0.53mm x 0.5u x 30m)
J&W2	DB-624(0.53mm x 3.0u x 30m)
J&W3	DB-1(0.53mm x 1.5u x 30m)
J&W4	DB-608(0.53mm x 0.83u x 30m)
J&W5	GS-Q(0.53mm x 30m)
Phenomenex	ZB-5(0.25mm x 0.25u x 30m)

Instrument Configuration

Instrument ID	System Configuration	Chromatographic Column
FIDa	HP 5890 Series II GC/FID	J&W1/J&W3/J&W4
FID2a	HP 5890 Series II GC/FID	J&W2/J&W5
FID3a	HP 5890 Series II GC/FID	Phenomenex
FID4a	HP 5890 Series II GC/FID	Phenomenex

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Jimmi Cao **Date:** 4/16/03

SAMPLE DATA SUMMARY

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2100

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228001

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 005B0501

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I SV-1 OLM03.0

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2197

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228002

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 006B0601

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	24.0	J
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2198

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228003

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 007B0701

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.4	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I SV-1 OLM03.0

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2102

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228004

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 008B0801

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	50.0	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

FORM I SV-1 OLM03.0

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2109

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228005

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 009B0901

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	2620	E
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2109RR

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228005

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 011B1101

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	3720	
74-84-0	Ethane	250	U
74-85-1	Ethene	250	U

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2182

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix: (soil/water) WATER Lab Sample ID: 77228006

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 012B1201

Level: (low/med) LOW Date Received: 03/28/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/01/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/03/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	25.0	U
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

QUALITY CONTROL SUMMARY

3C
GROUND WATER FID LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Matrix Spike - EPA Sample No.: MBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Methane	100	0.0	112	112	70-130
Ethane	100	0.0	88.6	89	56-140
Ethene	100	0.0	89.3	89	56-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 3 outside limits

COMMENTS: _____

FORM III SV-1 OLM03.0

4B
FID METHOD BLANK SUMMARY

EPA SAMPLE NO.

MBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77228

Lab File ID: 003B0301 Lab Sample ID: 1200402047

Instrument ID: FID2A Date Extracted: 04/01/03

Matrix: (soil/water) GROUND WATER Date Analyzed: 04/03/03

Level: (low/med) LOW Time Analyzed: 1050

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MBLK01LCS	1200402049	004B0401	04/03/03
02	TR2100	77228001	005B0501	04/03/03
03	ARD2197	77228002	006B0601	04/03/03
04	ARD2198	77228003	007B0701	04/03/03
05	TR2102	77228004	008B0801	04/03/03
06	TR2109	77228005	009B0901	04/03/03
07	TR2109RR	77228005	011B1101	04/03/03
08	ARD2182	77228006	012B1201	04/03/03
06				
10				
11				
12				
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28				
29				
30				

INORGANIC ANALYSIS

Metals Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77228

Method/Analysis Information

Analytical Batch:	2242024
Prep Batch :	2242022
Standard Operating Procedures:	GL-MA-E-013 REV.8, GL-MA-E-006 REV.8
Analytical Method:	SSW846 6010B
Prep Method :	SSW846 3005A

Sample Analysis

Sample ID	Client ID
77228001	TR2100
77228002	ARD2197
77228003	ARD2198
77228004	TR2102
77228005	TR2109
77228006	ARD2182
1200400909	Method Blank (MB) ICP
1200400910	Laboratory Control Sample (LCS)
1200400913	77228001(TR2100L) Serial Dilution (SD)
1200400911	77228001(TR2100D) Sample Duplicate (DUP)
1200400912	77228001(TR2100S) Matrix Spike (MS)

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The ICP analysis was performed on a Perkin Elmer 4300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium or scandium internal standard. Operating conditions for the ICP are set at a power level of 1500 watts. The instrument has a peristaltic pump flow rate of 1.4L/min, argon gas flows of 15 L/min and 0.2 L/min for the torch and auxiliary gases, and a flow setting of 0.65L/min for the nebulizer.

Calibration Information

Instrument Calibration
The instrument calibrations are conducted using the method and instrument manufacturer's specifications. All initial calibration requirements have been met for this SDG.

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Acceptance
The method blank analyzed with this SDG did not contain analytes of interest at concentrations greater than the client required detection limits (CRDL).

LCS Recovery Statement
The laboratory control sample (LCS) met the recommended acceptance criteria for percent recovery (%R) for all elements of interest.

Quality Control (QC) Sample Statement
The following sample was selected as the quality control (QC) sample for this batch: 77228001 (TR2100).

Matrix Spike Recovery Statement
The percent recovery (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate RPD Statement
The relative percent difference (RPD) obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit(RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess interferences due to matrix suppression or enhancement. Raw element concentrations that are at least 50X the instrument detection limit (IDL) for ICP analyses and 100X the IDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria, percent difference value of <10 except potassium, as indicated by the "E" qualifier.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the GELIMS system by hours. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures performed in association with this SDG followed the Standard Operating Procedure (SOP)

guidelines. All samples in this SDG were prepared in accordance with the referenced SW-846 procedures.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in soil samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. No sample dilutions were needed in this SDG.

Preparation Information
The samples in this SDG were prepared exactly according to the sited SOP.

Miscellaneous Information

Nonconformance Documentation
Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. No NCR was generated with this SDG.

Additional Comments
No additional comments are needed for this sample group.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Mitsoff, C. **Date:** 4/14/03

SAMPLE DATA SUMMARY

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77228 **Method Type:** SW846

Sample ID: 77228001 **Client ID:** TR2100

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/28/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	125000	µg/L			P	11.0	Optima1	040203
7439-95-4	Magnesium	14700	µg/L			P	33.2	Optima1	040203
7439-96-5	Manganese	7.540	µg/L	B		P	0.354	Optima1	040203
7440-09-7	Potassium	1490	µg/L		E	P	27.5	Optima1	040203
7440-23-5	Sodium	13300	µg/L			P	6.690	Optima1	040203

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77228 **Method Type:** SW846

Sample ID: 77228002 **Client ID:** ARD2197

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/28/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	139000	µg/L			P	11.0	Optima1	040203
7439-95-4	Magnesium	14900	µg/L			P	33.2	Optima1	040203
7439-96-5	Manganese	5.880	µg/L	B		P	0.354	Optima1	040203
7440-09-7	Potassium	1190	µg/L		E	P	27.5	Optima1	040203
7440-23-5	Sodium	15800	µg/L			P	6.690	Optima1	040203

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77228 **Method Type:** SW846

Sample ID: 77228003 **Client ID:** ARD2198

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/28/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	153000	µg/L			P	11.0	Optima1	040203
7439-95-4	Magnesium	40100	µg/L			P	33.2	Optima1	040203
7439-96-5	Manganese	141	µg/L			P	0.354	Optima1	040203
7440-09-7	Potassium	8720	µg/L		E	P	27.5	Optima1	040203
7440-23-5	Sodium	31000	µg/L			P	6.690	Optima1	040203

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77228 **Method Type:** SW846

Sample ID: 77228004 **Client ID:** TR2102

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/28/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	128000	µg/L			P	11.0	Optima1	040203
7439-95-4	Magnesium	15600	µg/L			P	33.2	Optima1	040203
7439-96-5	Manganese	13.7	µg/L			P	0.354	Optima1	040203
7440-09-7	Potassium	1330	µg/L		E	P	27.5	Optima1	040203
7440-23-5	Sodium	12700	µg/L			P	6.690	Optima1	040203

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77228 **Method Type:** SW846

Sample ID: 77228005 **Client ID:** TR2109

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 3/28/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	38300	µg/L			P	11.0	Optima1	040203
7439-95-4	Magnesium	14200	µg/L			P	33.2	Optima1	040203
7439-96-5	Manganese	91.4	µg/L			P	0.354	Optima1	040203
7440-09-7	Potassium	1190	µg/L		E	P	27.5	Optima1	040203
7440-23-5	Sodium	11600	µg/L			P	6.690	Optima1	040203

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recovery for the laboratory control sample was within the required acceptance limits.

Quality Control
The following sample was designated for Quality Control:
77228001 (TR2100)

Sample Spike Recovery
The spike recovery for this sample set was within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Difference between the sample and duplicate for this batch was within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
No samples in this sample group required dilutions.

Sample Reanalysis
The original matrix QC failed and was reanalyzed with passing results for sample 1200405957 (TR2100).

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Certification Statement

* Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 4/15/03

SAMPLE DATA SUMMARY

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID:	TR2100	Project:	PARS00103
Sample ID:	77228001	Client ID:	PARS001
Matrix:	Water		
Collect Date:	27-MAR-03 09:15		
Receive Date:	28-MAR-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.28	0.025	0.200	mg/L	1	TSM 04/09/03	1434	244061	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Chloride		13.0	0.0322	0.200	mg/L	1	MAR1 03/29/03	0009	242083	4
Nitrate		0.302	0.0341	0.100	mg/L	1				
Sulfate		114	0.965	2.00	mg/L	5	MAR1 03/31/03	1413	242083	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/01/03	1000	242022
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	SW846 9060	
3	SW846 9060	
4	EPA 300.0	
5	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: TR2100
Sample ID: 77228001

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: ARD2197
Sample ID: 77228002
Matrix: Water
Collect Date: 27-MAR-03 14:35
Receive Date: 28-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.49	0.025	0.200	mg/L	1	TSM 04/09/03	1529	244061	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Chloride		3.72	0.0322	0.200	mg/L	1	MAR1 03/29/03	0104	242083	2
Nitrate		0.229	0.0341	0.100	mg/L	1				
Sulfate		130	0.965	2.00	mg/L	5	MAR1 03/31/03	1508	242083	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/01/03	1000	242022
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: ARD2197
Sample ID: 77228002

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: ARD2198
Sample ID: 77228003
Matrix: Water
Collect Date: 27-MAR-03 15:45
Receive Date: 28-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.09	0.025	0.200	mg/L	1	TSM 04/09/03	1558	244061	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Nitrate		0.239	0.0341	0.100	mg/L	1	MAR1 03/29/03	0123	242083	2
Chloride		106	0.322	2.00	mg/L	10	MAR1 03/31/03	1526	242083	3
Sulfate		202	1.93	4.00	mg/L	10				

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/01/03	1000	242022
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: ARD2198
Sample ID: 77228003

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: TR2102
Sample ID: 77228004
Matrix: Water
Collect Date: 27-MAR-03 10:20
Receive Date: 28-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.14	0.025	0.200	mg/L	1	TSM 04/09/03	1628	244061	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Chloride		14.6	0.0322	0.200	mg/L	1	MAR1 03/29/03	0141	242083	2
Nitrate		0.211	0.0341	0.100	mg/L	1				
Sulfate		126	0.965	2.00	mg/L	5	MAR1 03/31/03	1545	242083	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/01/03	1000	242022
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: TR2102
Sample ID: 77228004

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: TR2109
Sample ID: 77228005
Matrix: Water
Collect Date: 27-MAR-03 11:35
Receive Date: 28-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		0.658	0.025	0.200	mg/L	1	TSM 04/09/03	1713	244061	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Chloride		11.6	0.0322	0.200	mg/L	1	MAR1 03/29/03	0159	242083	2
Nitrate	U	0.00	0.0341	0.100	mg/L	1				
Sulfate		82.5	0.965	2.00	mg/L	5	MAR1 03/31/03	1603	242083	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/01/03	1000	242022
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
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> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: TR2109
Sample ID: 77228005

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

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This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: ARD2182
Sample ID: 77228006
Matrix: Water
Collect Date: 27-MAR-03 13:10
Receive Date: 28-MAR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		1.30	0.025	0.200	mg/L	1	TSM 04/09/03	1743	244061	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Chloride		6.06	0.0322	0.200	mg/L	1	MAR1 03/29/03	0218	242083	2
Nitrate		0.711	0.0341	0.100	mg/L	1				
Sulfate		55.0	0.386	0.800	mg/L	2	MAR1 03/31/03	1622	242083	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	FGA	04/01/03	1000	242022
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/01/03	0821	242475

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

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BD Flag for results below the MDC or a flag for low tracer recovery.
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H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 14, 2003

Client Sample ID: ARD2182
Sample ID: 77228006

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

QUALITY CONTROL SUMMARY

QC Summary

Report Date: April 15, 2003

Client : Parsons
100 Summer Street
Suite 800
Boston, Massachusetts

Contact: Todd Heino

Workorder: 77228

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Carbon Analysis Federal										
Batch 244061										
QC1200405956 77228001 DUP										
Total Organic Carbon		1.28		1.30	mg/L	1		(0%-20%)	TSM	04/09/03 15:04
QC1200405955 LCS										
Total Organic Carbon	10.0			10.1	mg/L		101	(85%-115%)		04/09/03 13:32
QC1200405954 MB										
Total Organic Carbon			U	-0.258	mg/L					04/09/03 13:24
QC1200405957 77228001 PS										
Total Organic Carbon	10.0	1.15		10.1	mg/L		88	(80%-120%)		04/10/03 13:08
Ion Chromatography Federal										
Batch 242083										
QC1200401068 77228001 DUP										
Nitrate-N		0.302		0.283	mg/L	7 ^		(+/-0.100)	MAR1	03/29/03 00:27
Sulfate		114		113	mg/L	1		(0%-14%)		03/31/03 14:31
Chloride		13.0		12.9	mg/L	0		(0%-16%)		03/29/03 00:27
QC1200401072 LCS										
Nitrate-N	5.00			4.76	mg/L		95	(90%-110%)		03/28/03 23:51
Sulfate	20.0			19.2	mg/L		96	(90%-110%)		
Chloride	10.0			9.36	mg/L		94	(90%-110%)		
QC1200401067 MB										
Nitrate-N			U	0.00	mg/L					03/28/03 23:32
Sulfate			U	0.00	mg/L					
Chloride			U	0.00	mg/L					
QC1200401070 77228001 PS										
Nitrate-N	5.00	0.302		4.86	mg/L		91	(71%-130%)		03/29/03 00:46
Sulfate	20.0	22.8		44.7	mg/L		110	(65%-130%)		03/31/03 14:50
Chloride	10.0	13.0		24.0	mg/L		110	(64%-129%)		03/29/03 00:46

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package

QC Summary

Workorder: 77228

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Y QC Samples were not spiked with this compound.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

CASE NARRATIVE
for
Parsons Engineering Science, Inc.
Seneca Army Depot
SDG#s 77468/77469

April 18, 2003

Laboratory Identification:

General Engineering Laboratories, LLC

Mailing Address:

P.O. Box 30712
Charleston, South Carolina 29417

Express Mail Delivery and Shipping Address:

2040 Savage Road
Charleston, South Carolina 29414

Telephone Number:

(843) 556-8171

Summary:

Sample receipt

The samples arrived at General Engineering Laboratories, LLC (GEL) Charleston, South Carolina on April 2, 2003, for Environmental Analyses. All sample containers arrived without any visible signs of tampering or breakage. The samples were delivered with chain of custody documentation and signatures.

The laboratory received the following samples:

Laboratory Identification	Sample Description
77468001	TR2101
77468002	TR2104
77468003	TR2107
77468004	ARD2188
77468005	ARD2187
77468006	ARD2186
77468007	TR0041
77469001	ARD2188

77469002	ARD2187
77469003	ARD2186

Case Narrative

Sample analyses were conducted using methodology as outlined in General Engineering Laboratories (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are listed below by analytical parameter.

Internal Chain of Custody:

Custody was maintained for all samples.

Data Package:

The enclosed data package contains the following sections: Case Narrative, Qualifier Flag Definitions, Chain of Custody, Cooler Receipt Checklist, GC/MS Volatile Analysis, FID Analysis, Inorganic Analysis, and General Chemistry Analysis.

This data package, to the best of my knowledge, is in compliance with technical and administrative requirements.

Valerie Davis

Valerie S. Davis
Project Manager

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

CHAIN OF CUSTODY RECORD

№ 4303

SITE: Seneca Army Depot USACoE

PROJECT NAME: Ash Landfill

SAMPLERS: Dale Dolph Parsons, Ed Ashton Parsons

PROJECT NO: 743155.01200

PROJECT MGR: Todd Heino Parsons Boston

NOTES - reference QAPP and/or analytical protocols to be used)

77468% 77469%

Send results to: PARSONS Boston ~~280 Elwood Davis Road-Suite 312 Liverpool, NY 13088~~ 617 457 7870

Telephone: ~~(315) 451-9560~~

Fax: ~~(315) 451-9570~~

Lab Submitted to: GEL Charleston SC

FIELD SAMPLE ID	LOCATION DESCRIPTION	DATE	TIME	GRAB	COMP	MATRIX	Number of Bottles	VOC 524.2	VOC TCL	Nitrate/Sulfate/Chloride	MEE	TOC	Metals				REMARKS
TR2101	MWT-2	4/1/03	0855	X		GW	9	X		X	X	X	X				
TR2104	MWT-5	4/1/03	0950	X		GW	9	X		X	X	X	X				
TR2107	MWT-8	4/1/03	1105	X		GW	9	X		X	X	X	X				
TRD218X	MW-44A	4/1/03	1220	X		GW	9		X	X	X	X	X				
TRD2161	MW-43	4/1/03	1340	X		GW	9		X	X	X	X	X				
TRD2186	MW-40	4/1/03	1500	X		GW	9		X	X	X	X	X				
TR0411	Trip Blank	—	—			W	2	X									Trip Blank

Relinquished by (Signature)	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples intact
D. Dolph	4/1/03	1800	Fedex	839734548979	J. Hurley	4/2/03	1030	3 °C Yes No
	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	°C Yes No
	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	°C Yes No

Matrix Codes (Solid)

SD Sediment
SS Surface Soil
SB Subsurface Soil
MW Monitoring Well Boring
TP Test Pit/Tank Pit
DW Drum Waste
WA Solid Waste
OS Other Solid

WATER
MW- Monitoring Well
LC Leachate
SW Surface Water
DW- Drill Water

FD Fuel Dispenser
MH Manhole
OW Oil Water Separator
PR- Piping Run

ST Storm Water
WW- Waste Water
OL- Other Liquid (eg Drum liquid)

MATRIX
W - Water
S - Soil

QUALITY CONTROL
FB- Field Blank (with date)
TB- Trip Blank (with date)
WB Wash Blank (with date)

8

GC/MS Volatile Organics
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77468

Method/Analysis Information

Procedure:	Volatile Organic Compounds by Gas Chromatograph/Mass Spectrometer
Analytical Method:	EPA 524.2
Prep Method:	EPA 524.2
Analytical Batch Number:	243842

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
77468001	TR2101
77468002	TR2104
77468003	TR2107
77468007	TR0041
1200405473	Method Blank (MB)
1200405474	Laboratory Control Sample (LCS)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-022 REV.3.

Calibration Information
Due to software limitations, all the data files comprising the initial calibration curve may not be listed on the initial calibration summary form. All calibration files are listed in the calibration history report in the "Standard Data" section.

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
All the calibration verification standard (CCV) requirements were met.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recoveries
Surrogate recoveries, in all samples and quality control samples, were within the acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the LCS were within the acceptance limits.

QC Sample Designation
Matrix spikes analysis were analyzed on a sample of similar matrix in PARS sample delivery group, # 77468.

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
All the required spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
The RPD between spike recoveries were within the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this sample delivery group/work order did not require dilutions.

Sample Re-prep/Re-analysis
Re-analyses were not required for samples in this sample group/work order.

Miscellaneous Information

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation

A nonconformance report was not required for this sample delivery group/work order.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment

Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

Additional Comments

There were no additional comments.

System Configuration

The laboratory utilizes the following GC/MS configurations:

Chromatographic Columns

Chromatographic separation of volatile components is accomplished through analysis on one of the following columns:

Column ID	Column Description
J&W1	DB-624, 60m x 0.25mm, 1.4um
J&W2	DB-624, 75m x 0.53mm, 3.0um

Instrument Configuration

Instrument systems are reference in the raw data and individual form headers by the Instrument ID designations below:

Instrument ID	System Configuration	Chromatographic Column	P & T Trap
VOA1	HP6890/HP5973	J&W1	Trap C
VOA2	HP6890/HP5973	J&W1	Trap C
VOA4	HP5890/HP5972	J&W1	Trap K

VOA5	HP5890/HP5972	J&W1	Trap C
VOA7	HP5890/HP5972	J&W2	Trap K
VOA8	HP6890/HP5973	J&W1	Trap K
VOA9	HP6890/HP5973	J&W1	Trap C

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: _____ Date: 04-21-03

Roadmap for PARS 77468 VOA

This roadmap was analyzed by Debbie Smith on 04-11-2003, 14:22.
This roadmap was reviewed by Sara Jones on 04-14-2003, 15:47.
This roadmap was packaged by LySandra Gathers on 04-18-2003, 13:42.

Sample

exclude	manual	datafile	smpid	clientid	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA8.i/040803v8.b/8p2e211.d	77468001	TR2101	08-APR-2003	12:46	77468.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e212.d	77468002	TR2104	08-APR-2003	13:12	77468.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e213.d	77468003	TR2107	08-APR-2003	13:38	77468.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e214.d	77468007	TR0041	08-APR-2003	14:04	77468.sub	1.00000	

QC Sample

exclude	manual	datafile	smpid	clientid	sampletype	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA8.i/040803v8.b/8p2e202LCSD.d	1200405474	VBLK01LCS	lcs	08-APR-2003	08:32	77468.sub	1.00000	
☐	N	/chem/VOA8.i/040803v8.b/8p2e203D.d	1200405473	VBLK01	mb	08-APR-2003	09:04	77468.sub	1.00000	

SAMPLE DATA SUMMARY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0041

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468007

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E214

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.41	J
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	0.50	U
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	0.50	U
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.50	U
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0041

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468007

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E214

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	0.92	J
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR0041

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468007

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E214

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2101

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468001

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E211

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.27	J
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.53	
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	7.7	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	7.7	
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.41	J
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2101

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468001

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E211

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	1.9	
78-93-3	2-Butanone	1.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2101

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468001

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E211

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2104

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468002

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E212

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.49	J
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.25	J
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	5.7	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	5.7	
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.44	J
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2104

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468002

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E212

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	2.3	
78-93-3	2-Butanone	0.54	J
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2104

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468002

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E212

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2107

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E213

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-97-5	Bromochloromethane	0.50	U
74-87-3	Chloromethane	0.50	U
74-83-9	Bromomethane	0.50	U
75-01-4	Vinyl chloride	0.51	
75-00-3	Chloroethane	0.50	U
75-09-2	Methylene chloride	0.41	J
75-35-4	1,1-Dichloroethylene	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
67-66-3	Chloroform	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
156-60-5	trans-1,2-Dichloroethylene	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
75-27-4	Bromodichloromethane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
156-59-2	cis-1,2-Dichloroethylene	44.8	
10061-01-5	cis-1,3-Dichloropropylene	0.50	U
540-59-0	1,2-Dichloroethylene (total)	44.8	
79-01-6	Trichloroethylene	0.50	U
124-48-1	Dibromochloromethane	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
71-43-2	Benzene	0.28	J
10061-02-6	trans-1,3-Dichloropropylene	0.50	U
75-25-2	Bromoform	0.50	U
127-18-4	Tetrachloroethylene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
108-88-3	Toluene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
100-42-5	Styrene	0.50	U
107-06-2	Dichlorodifluoromethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2107

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E213

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
95-47-6	o-Xylene	0.50	U
	m,p-Xylenes	0.50	U
1330-20-1	Xylenes (total)	0.50	U
594-20-7	2,2-Dichloropropane	0.50	U
563-58-6	1,1-Dichloropropene	0.50	U
74-95-3	Dibromomethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
142-28-9	1,3-Dichloropropane	0.50	U
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U
98-82-8	Isopropylbenzene	0.50	U
108-86-1	Bromobenzene	0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	U
103-65-1	n-Propylbenzene	0.50	U
95-49-8	2-Chlorotoluene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
106-43-4	4-Chlorotoluene	0.50	U
98-06-6	tert-Butylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
135-98-8	sec-Butylbenzene	0.50	U
99-87-6	4-Isopropyltoluene	0.50	U
104-51-8	n-Butylbenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-68-3	Hexachlorobutadiene	0.50	U
91-20-3	Naphthalene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U
1634-04-4	tert-Butyl methyl ether	0.50	U
67-64-1	Acetone	2.1	
78-93-3	2-Butanone	0.29	J
108-10-1	4-Methyl-2-pentanone	1.0	U
591-78-6	2-Hexanone	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2107

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468003

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 8P2E213

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/08/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-15-0	Carbon disulfide	1.0	U
108-05-4	Vinyl acetate	1.0	U
74-88-4	Iodomethane	1.0	U

FORM I VOA OLM03.0

QUALITY CONTROL SUMMARY

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 #	OTHER	TOT OUT
01	VBLK01LCS	104	94	96		0
02	VBLK01	96	94	101		0
03	TR2101	98	90	108		0
04	TR2104	100	96	110		0
05	TR2107	93	87	109		0
06	TR0041	98	93	109		0
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
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		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(73-112)
SMC2 (BFB)	= Bromofluorobenzene	(73-123)
SMC3	= Dibromofluoromethane	(81-126)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromochloromethane	5.0	0.0	4.9	98	70-130
Chloromethane	5.0	0.0	4.4	88	70-130
Bromomethane	5.0	0.0	4.1	82	70-130
Vinyl chloride	5.0	0.0	4.5	90	70-130
Chloroethane	5.0	0.0	4.9	98	70-130
Methylene chloride	5.0	0.0	5.1	102	70-130
1,1-Dichloroethylene	5.0	0.0	4.8	96	70-130
1,1-Dichloroethane	5.0	0.0	4.8	96	70-130
Chloroform	5.0	0.0	5.0	100	70-130
1,2-Dichloroethane	5.0	0.0	5.1	102	70-130
trans-1,2-Dichloroethyl	5.0	0.0	4.9	98	70-130
1,1,1-Trichloroethane	5.0	0.0	5.0	100	70-130
Carbon tetrachloride	5.0	0.0	4.8	96	70-130
Bromodichloromethane	5.0	0.0	4.7	94	70-130
1,2-Dichloropropane	5.0	0.0	4.7	94	70-130
cis-1,2-Dichloroethylen	5.0	0.0	4.8	96	70-130
cis-1,3-Dichloropropyle	5.0	0.0	4.8	96	70-130
1,2-Dichloroethylene (t	10.0	0.0	9.7	97	70-130
Trichloroethylene	5.0	0.0	4.9	98	70-130
Dibromochloromethane	5.0	0.0	4.6	92	70-130
1,1,2-Trichloroethane	5.0	0.0	4.8	96	70-130
Benzene	5.0	0.0	5.0	100	70-130
trans-1,3-Dichloropropy	5.0	0.0	4.8	96	70-130
Bromoform	5.0	0.0	4.3	86	70-130
Tetrachloroethylene	5.0	0.0	5.4	108	70-130
1,1,2,2-Tetrachloroetha	5.0	0.0	5.0	100	70-130
Toluene	5.0	0.0	5.0	100	70-130
Chlorobenzene	5.0	0.0	5.0	100	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Ethylbenzene	5.0	0.0	5.3	106	70-130
Styrene	5.0	0.0	5.2	104	70-130
Dichlorodifluoromethane	5.0	0.0	5.0	100	70-130
Trichlorofluoromethane	5.0	0.0	4.4	88	70-130
1,3-Dichlorobenzene	5.0	0.0	5.0	100	70-130
1,4-Dichlorobenzene	5.0	0.0	5.0	100	70-130
1,2-Dichlorobenzene	5.0	0.0	5.0	100	70-130
o-Xylene	5.0	0.0	5.1	102	70-130
m,p-Xylenes	10.0	0.0	10.4	104	70-130
Xylenes (total)	15.0	0.0	15.5	103	70-130
2,2-Dichloropropane	5.0	0.0	4.8	96	70-130
1,1-Dichloropropene	5.0	0.0	5.0	100	70-130
Dibromomethane	5.0	0.0	4.9	98	70-130
1,2-Dibromoethane	5.0	0.0	4.8	96	70-130
1,3-Dichloropropane	5.0	0.0	4.9	98	70-130
1,1,1,2-Tetrachloroetha	5.0	0.0	4.8	96	70-130
Isopropylbenzene	5.0	0.0	5.1	102	70-130
Bromobenzene	5.0	0.0	5.0	100	70-130
1,2,3-Trichloropropane	5.0	0.0	4.9	98	70-130
n-Propylbenzene	5.0	0.0	5.1	102	70-130
2-Chlorotoluene	5.0	0.0	5.2	104	70-130
1,3,5-Trimethylbenzene	5.0	0.0	5.1	102	70-130
4-Chlorotoluene	5.0	0.0	5.2	104	70-130
tert-Butylbenzene	5.0	0.0	4.9	98	70-130
1,2,4-Trimethylbenzene	5.0	0.0	5.2	104	70-130
sec-Butylbenzene	5.0	0.0	5.1	102	70-130
4-Isopropyltoluene	5.0	0.0	5.2	104	70-130
n-Butylbenzene	5.0	0.0	5.2	104	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
1,2-Dibromo-3-chloropro	5.0	0.0	3.8	76	70-130
1,2,4-Trichlorobenzene	5.0	0.0	5.2	104	70-130
Hexachlorobutadiene	5.0	0.0	5.3	106	70-130
Naphthalene	5.0	0.0	4.8	96	70-130
1,2,3-Trichlorobenzene	5.0	0.0	5.3	106	70-130
tert-Butyl methyl ether	5.0	0.0	4.8	96	70-130
Acetone	25.0	0.0	23.8	95	70-130
2-Butanone	25.0	0.0	22.7	91	70-130
4-Methyl-2-pentanone	25.0	0.0	25.7	103	70-130
2-Hexanone	25.0	0.0	25.3	101	70-130
Carbon disulfide	25.0	0.0	24.6	98	70-130
Vinyl acetate	25.0	0.0	26.8	107	70-130
Iodomethane	25.0	0.0	25.5	102	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 69 outside limits

COMMENTS: _____

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Lab File ID: 8P2E203D Lab Sample ID: 1200405473

Date Analyzed: 04/08/03 Time Analyzed: 0904

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01LCS	1200405474	8P2E202LCSD	0832
02	TR2101	77468001	8P2E211	1246
03	TR2104	77468002	8P2E212	1312
04	TR2107	77468003	8P2E213	1338
05	TR0041	77468007	8P2E214	1404
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Lab File ID: 8C301 BFB Injection Date: 03/26/03

Instrument ID: VOA8 BFB Injection Time: 0654

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	46.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 100.0% of mass 95	77.1
175	5.0 - 9.0% of mass 174	6.0 (7.7)1
176	95.0 - 101.0% of mass 174	75.1 (97.4)1
177	5.0 - 9.0% of mass 176	5.1 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0002	W8V030326-01	8P2C304A	03/26/03	0810
02	VSTD0005	W8V030326-02	8P2C305A	03/26/03	0836
03	VSTD001	W8V030326-03	8P2C306A	03/26/03	0902
04	VSTD002	W8V030326-04	8P2C307A	03/26/03	0928
05	VSTD005	W8V030326-05	8P2C308A	03/26/03	0954
06	VSTD010	W8V030326-06	8P2C309A	03/26/03	1020
07	VSTD020	W8V030326-07	8P2C310A	03/26/03	1046
08	VSTD050	W8V030326-08	8P2C311A	03/26/03	1112
09	VSTD100	W8V030326-09	8P2C312A	03/26/03	1138
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Lab File ID: 8E201 BFB Injection Date: 04/08/03

Instrument ID: VOA8 BFB Injection Time: 0817

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.4
75	30.0 - 60.0% of mass 95	46.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	50.0 - 100.0% of mass 95	80.8
175	5.0 - 9.0% of mass 174	6.0 (7.4)1
176	95.0 - 101.0% of mass 174	78.9 (97.6)1
177	5.0 - 9.0% of mass 176	5.1 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005	W8V030408-01	8P2E202	04/08/03	0832
02	VBLK01LCS	1200405474	8P2E202LCSD	04/08/03	0832
03	VBLK01	1200405473	8P2E203D	04/08/03	0904
04	TR2101	77468001	8P2E211	04/08/03	1246
05	TR2104	77468002	8P2E212	04/08/03	1312
06	TR2107	77468003	8P2E213	04/08/03	1338
07	TR0041	77468007	8P2E214	04/08/03	1404
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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Lab File ID (Standard): 8P2E202 Date Analyzed: 04/08/03

Instrument ID: VOA8 Time Analyzed: 0832

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	594714	4.50	420450	6.78	226752	8.88
	UPPER LIMIT	1189428	5.00	840900	7.28	453504	9.38
	LOWER LIMIT	297357	4.00	210225	6.28	113376	8.38
	EPA SAMPLE NO.						
01	VBLK01LCS	594714	4.50	420450	6.78	226752	8.88
02	VBLK01	535312	4.50	397414	6.78	209728	8.89
03	TR2101	528467	4.50	385082	6.77	211248	8.88
04	TR2104	511324	4.50	373457	6.77	199342	8.88
05	TR2107	524880	4.50	395257	6.77	221554	8.88
06	TR0041	505787	4.50	372577	6.77	203904	8.88
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IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC/MS VOLATILE ANALYSIS

GC/MS Volatile Organics
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77469

Method/Analysis Information

Procedure:	Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer
Analytical Method:	SW846 8260B
Prep Method:	SW846 5030B
Analytical Batch Number:	244217

Sample Analysis

The following client and quality control samples were analyzed to complete this sample delivery group/work order using the methods referenced in the Analysis Information section:

Sample ID	Client ID
77469001	ARD2188
77469002	ARD2187
77469003	ARD2186
1200407010	Method Blank (MB)
1200407011	Laboratory Control Sample (LCS)
1200406337	77469001(ARD2188) Matrix Spike (MS)
1200406338	77469001(ARD2188) Matrix Spike Duplicate (MSD)

Preparation/Analytical Method Verification

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV.7.

Calibration Information
Due to software limitations, all the data files comprising the initial calibration curve may not be listed on the initial calibration summary form. All calibration files are listed in the calibration history report in the "Standard Data" section.

Initial Calibration
All the initial calibration requirements were met.

Continuing Calibration Verification Requirements
The instrument was calibrated to meet the 8260B initial calibration criteria. Although sample analyses are quantitated using the average response factor generated from the initial calibration, a daily continuing calibration verification standard (CCV) was analyzed to verify the accuracy and acceptability of the multi-point initial calibration. The criteria adopted by the laboratory to determine the acceptability and accuracy of the initial calibration is a ± 40% response factor difference for all non-CCC analytes of interest. In the following CCV, the following target analyte(s) did not meet the criteria:

Date of CCV	Target Analyte(s)
04/10/03	Cyclohexanone

The response factor this target analyte in the CCV was above the average response factors in the initial calibration. Detection and quantitation of this analyte in samples would be considered biased high.

Quality Control (QC) Information

Method Blank Acceptance
Target analytes were not detected above the reporting limit in the blank.

Surrogate Recoveries
Surrogate recoveries, in all samples and quality control samples, were within the acceptance limits.

Laboratory Control Sample Recovery Statement (LCS)
All the required analyte recoveries in the LCS were within the acceptance limits.

QC Sample Designation
The following sample was designated for spike analysis: 77469001 (ARD2188).

Spike Recovery Statement
All the required spike recoveries were within the acceptance limits.

Spike Duplicate Recovery Statement
All the required spike recoveries were within the acceptance limits.

Relative Percent Difference Statement (RPD)
The RPD between spike recoveries were within the acceptance limits.

Internal Standard (ISTD) Acceptance
The internal standard responses, in all samples and quality control samples, met the required acceptance criteria.

Technical Information

Holding Time Specifications
All the samples were prepared and/or analyzed within the required holding time period.

Sample Preservation and Integrity
All samples met the sample preservation and integrity requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The following samples were diluted because target analyte concentrations exceeded the calibration range:

1200406337 (ARD2188) Matrix Spike	1:5
1200406338 (ARD2188) Matrix Spike Duplicate	1:5
77469001 (ARD2188)	1:5

Sample Re-prep/Re-analysis
Re-analyses were not required for samples in this sample group/work order.

Miscellaneous Information

Electronic Package Comment
The following package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the analyst, reviewer, and report specialist names associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Nonconformance (NCR) Documentation
A nonconformance report was not required for this sample delivery group/work order.

Manual Integrations
Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment
Tentatively identified compounds (TIC) were not required for this sample delivery group/work order.

Additional Comments
There were no additional comments.

System Configuration
The laboratory utilizes the following GC/MS configurations:

Chromatographic Columns
Chromatographic separation of volatile components is accomplished through analysis on one of the following columns:

Column ID	Column Description
J&W1	DB-624, 60m x 0.25mm, 1.4um
J&W2	DB-624, 75m x 0.53mm, 3.0um

Instrument Configuration
Instrument systems are reference in the raw data and individual form headers by the Instrument ID designations below:

Instrument ID	System Configuration	Chromatographic Column	P & T Trap
VOA1	HP6890/HP5973	J&W1	Trap C
VOA2	HP6890/HP5973	J&W1	Trap C
VOA4	HP5890/HP5972	J&W1	Trap K
VOA5	HP5890/HP5972	J&W1	Trap C
VOA7	HP5890/HP5972	J&W2	Trap K
VOA8	HP6890/HP5973	J&W1	Trap K
VOA9	HP6890/HP5973	J&W1	Trap C

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: _____ Date: 04-22-03

Roadmap for PARS 77469 VOA

This roadmap was analyzed by Sara Jones on 04-11-2003, 08:40.
This roadmap was reviewed by Debbie Smith on 04-14-2003, 14:14.
This roadmap was packaged by LySandra Gathers on 04-14-2003, 17:27.

Sample

exclude	manual	datafile	smpid	clientid	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA9.i/041003v9.b/9e407.d	77469001	ARD2188	10-APR-2003	11:23	77469.sub	1.00000	RR 5X for cis-1,2-DCE; report with 9E412
■	N	/chem/VOA9.i/deb2/9e407.d	77469001	ARD2188	10-APR-2003	11:23	77469.sub	1.00000	
☐	N	/chem/VOA9.i/041003v9.b/9e408.d	77469002	ARD2187	10-APR-2003	11:51	77469.sub	1.00000	
☐	N	/chem/VOA9.i/041003v9.b/9e409.d	77469003	ARD2186	10-APR-2003	12:19	77469.sub	1.00000	
☐	N	/chem/VOA9.i/041003v9.b/9e412.d	77469001	ARD2188DL	10-APR-2003	13:44	77469.sub	5.00000	5X for cis-1,2-DCE; report with 9E407
■	N	/chem/VOA9.i/deb2/9e412.d	77469001	ARD2188DL	10-APR-2003	13:44	77469.sub	5.00000	

QC Sample

exclude	manual	datafile	smpid	clientid	sampletype	injdate	injtime	sublist	dilution	comment
☐	N	/chem/VOA9.i/041003v9.b/9e402PARSlcsA.d	1200407011	VBLK01LCS	lcs	10-APR-2003	08:52	77469.sub	1.00000	
☐	N	/chem/VOA9.i/041003v9.b/9e406A.d	1200407010	VBLK01	mb	10-APR-2003	10:42	77469.sub	1.00000	
☐	N	/chem/VOA9.i/041003v9.b/9e413.d	1200406337	ARD2188DLMS	ms	10-APR-2003	14:11	77469.sub	5.00000	5X
☐	N	/chem/VOA9.i/041003v9.b/9e414.d	1200406338	ARD2188DLMSD	msd	10-APR-2003	14:39	77469.sub	5.00000	5X

SAMPLE DATA SUMMARY

CHAIN OF CUSTODY RECORD

№ 4303

SITE: Seneca Army Depot
USACOE

PROJECT NAME: Ash Landfill

SAMPLERS: Dick Dolph Parsons
Ed Ashton Parsons

PROJECT NO: 74.5155.01200

PROJECT MGR: Todd Heino
Parsons Boston

NOTES - (Reference QAPP and/or analytical protocols to be used)

77468% 77469%

Send results to:
PARSONS Boston
~~250 Elwood Davis Road Suite 312 Liverpool, NY 13088~~ 617 457 7870
Telephone: ~~(315) 451-9560~~
Fax: ~~(315) 451-9570~~

Lab Submitted to:
GEL
Charleston SC

	FIELD SAMPLE ID	LOCATION DESCRIPTION	DATE	TIME	GRAB	COMP	MATRIX	Number of Bottles	VOC 524.2	VOC TCL	Nitrate/Sulfate/Chloride	MEE	TOC	Metals				REMARKS
	TR2101	MWT-2	4/1/03	0855	X		GW	9	X		X	X	X	X				
	TR2104	MWT-5	4/1/03	0950	X		GW	9	X		X	X	X	X				
	TR2102	MWT-8	4/1/03	1105	X		GW	9	X		X	X	X	X				
	TRD2188	MW-44A	4/1/03	1220	X		GW	9		X	X	X	X	X				
	TRD2161	MW-43	4/1/03	1340	X		GW	9		X	X	X	X	X				
	TRD2186	MW-40	4/1/03	1500	X		GW	9		X	X	X	X	X				
	TR0041	Trip Blank	—	—			W	2	X									Trip Blank

Relinquished by	Date	Time	Shipped via	Airbill #	Received by (Signature)	Date	Time	Cooler Temp / Samples Intact
[signature]	4/1/03	1800	Fedex	839734548974	[signature]	4/2/03	1030	3 °C Samples Intact ✓ Yes ___ No
								°C Samples Intact ___ Yes ___ No
								°C Samples Intact ___ Yes ___ No

SAMPLE TYPES
- Sd Sediment
- Ss Surface Soil
- Sb Subsurface Soil
- MW Monitoring Well Boring
- TP Test Pit/Trench Pit
- DR Drum Waste
- WA Solid Waste
- OS Other Solid

WATER
- MW- Monitoring Well
- LC Leachate
- SW Surface Water
- DW- Drill Water
- FD Fuel Dispenser
- MH Manhole
- OW Oil Water Separator
- PR- Piping Run
- ST Storm Water
- WW- Waste Water
- OL- Other Liquid (eg Drum liquid)

MATRIX
- W - Water
- S - Soil

QUALITY CONTROL
- FB- Field Blank (with date)
- TB- Trip Blank (with date)
- WB Wash Blank (with date)

8

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2186

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E409

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	1.0	U
540-59-0	1,2-Dichloroethylene (total)	1.0	U
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2186

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E409

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
10061-01-5	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2186

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E409

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2187

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E408

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	1.0	U
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	1.0	U
540-59-0	1,2-Dichloroethylene (total)	1.0	U
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2187

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E408

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
10061-01-5	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2187

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E408

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2188

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E407

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	81.2	
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
107-02-8	Acrolein	5.0	U
75-35-4	1,1-Dichloroethylene	0.45	J
67-64-1	Acetone	5.0	U
76-13-1	Trichlorotrifluoroethane	5.0	U
74-88-4	Iodomethane	5.0	U
75-15-0	Carbon disulfide	5.0	U
75-05-8	Acetonitrile	25.0	U
78-83-1	Isobutyl alcohol	50.0	U
107-05-1	Allyl chloride	5.0	U
75-09-2	Methylene chloride	5.0	U
107-13-1	Acrylonitrile	5.0	U
1634-04-4	tert-Butyl methyl ether	5.0	U
156-60-5	trans-1,2-Dichloroethylene	1.7	
75-34-3	1,1-Dichloroethane	4.3	
108-05-4	Vinyl acetate	5.0	U
126-99-8	2-Chloro-1,3-butadiene	1.0	U
78-93-3	2-Butanone	5.0	U
156-59-2	cis-1,2-Dichloroethylene	221	E
540-59-0	1,2-Dichloroethylene (total)	223	E
594-20-7	2,2-Dichloropropane	1.0	U
126-98-7	Methacrylonitrile	5.0	U
107-12-0	Propionitrile	5.0	U
74-97-5	Bromochloromethane	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.6	
563-58-6	1,1-Dichloropropene	1.0	U
56-23-5	Carbon tetrachloride	1.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2188

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E407

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	1.0	U
71-43-2	Benzene	1.0	U
79-01-6	Trichloroethylene	10.8	
78-87-5	1,2-Dichloropropane	1.0	U
80-62-6	Methyl methacrylate	5.0	U
74-95-3	Dibromomethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
79-46-9	2-Nitropropane	5.0	U
110-75-8	2-Chloroethylvinyl ether	5.0	U
10061-01-5	cis-1,3-Dichloropropylene	1.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropylene	1.0	U
97-63-2	Ethyl methacrylate	5.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
591-78-6	2-Hexanone	5.0	U
127-18-4	Tetrachloroethylene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
	m,p-Xylenes	2.0	U
10061-01-5	Xylenes (total)	1.0	U
100-42-5	Styrene	1.0	U
75-25-2	Bromoform	1.0	U
98-82-8	Isopropylbenzene	1.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	5.0	U
108-94-1	Cyclohexanone	50.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2188

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E407

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	1.0	U
108-86-1	Bromobenzene	1.0	U
103-65-1	n-Propylbenzene	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
76-01-7	Pentachloroethane	5.0	U
99-87-6	4-Isopropyltoluene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
100-44-7	Benzyl chloride	5.0	U
104-51-8	n-Butylbenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
108-60-1	bis(2-Chloroisopropyl)ether	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
91-20-3	Naphthalene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2188DL

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E412

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 5.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl chloride	74.9	D
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
107-02-8	Acrolein	25.0	U
75-35-4	1,1-Dichloroethylene	5.0	U
67-64-1	Acetone	25.0	U
76-13-1	Trichlorotrifluoroethane	25.0	U
74-88-4	Iodomethane	25.0	U
75-15-0	Carbon disulfide	25.0	U
75-05-8	Acetonitrile	125	U
78-83-1	Isobutyl alcohol	250	U
107-05-1	Allyl chloride	25.0	U
75-09-2	Methylene chloride	25.0	U
107-13-1	Acrylonitrile	25.0	U
1634-04-4	tert-Butyl methyl ether	25.0	U
156-60-5	trans-1,2-Dichloroethylene	5.0	U
75-34-3	1,1-Dichloroethane	3.7	DJ
108-05-4	Vinyl acetate	25.0	U
126-99-8	2-Chloro-1,3-butadiene	5.0	U
78-93-3	2-Butanone	25.0	U
156-59-2	cis-1,2-Dichloroethylene	194	D
540-59-0	1,2-Dichloroethylene (total)	194	D
594-20-7	2,2-Dichloropropane	5.0	U
126-98-7	Methacrylonitrile	25.0	U
107-12-0	Propionitrile	25.0	U
74-97-5	Bromochloromethane	5.0	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
563-58-6	1,1-Dichloropropene	5.0	U
56-23-5	Carbon tetrachloride	5.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2188DL

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E412

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 5.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
107-06-2	1,2-Dichloroethane	5.0	U
71-43-2	Benzene	5.0	U
79-01-6	Trichloroethylene	10.0	D
78-87-5	1,2-Dichloropropane	5.0	U
80-62-6	Methyl methacrylate	25.0	U
74-95-3	Dibromomethane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
79-46-9	2-Nitropropane	25.0	U
110-75-8	2-Chloroethylvinyl ether	25.0	U
10061-01-5	cis-1,3-Dichloropropylene	5.0	U
108-10-1	4-Methyl-2-pentanone	25.0	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropylene	5.0	U
97-63-2	Ethyl methacrylate	25.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
142-28-9	1,3-Dichloropropane	5.0	U
591-78-6	2-Hexanone	25.0	U
127-18-4	Tetrachloroethylene	5.0	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
	m,p-Xylenes	10.0	U
10061-01-5	Xylenes (total)	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
1476-11-5	cis-1,4-Dichloro-2-butene	25.0	U
108-94-1	Cyclohexanone	250	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
110-57-6	trans-1,4-Dichloro-2-butene	25.0	U

FORM I VOA OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2188DL

Lab Name: GENERAL ENGINEERING LABS Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix: (soil/water) WATER Lab Sample ID: 77469001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 9E412

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: not dec. _____ Date Analyzed: 04/10/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 5.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96-18-4	1,2,3-Trichloropropane	5.0	U
108-86-1	Bromobenzene	5.0	U
103-65-1	n-Propylbenzene	5.0	U
95-49-8	2-Chlorotoluene	5.0	U
108-67-8	1,3,5-Trimethylbenzene	5.0	U
95-63-6	1,2,4-Trimethylbenzene	5.0	U
106-43-4	4-Chlorotoluene	5.0	U
98-06-6	tert-Butylbenzene	5.0	U
135-98-8	sec-Butylbenzene	5.0	U
76-01-7	Pentachloroethane	25.0	U
99-87-6	4-Isopropyltoluene	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
100-44-7	Benzyl chloride	25.0	U
104-51-8	n-Butylbenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
108-60-1	bis(2-Chloroisopropyl)ether	25.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-68-3	Hexachlorobutadiene	5.0	U
91-20-3	Naphthalene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

QUALITY CONTROL SUMMARY

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

	EPA SAMPLE NO.	SMC1 #	SMC2 (TOL)#	SMC3 (BFB)#	OTHER	TOT OUT
01	VBLK01LCS	89	82	78		0
02	VBLK01	90	83	82		0
03	ARD2188	90	81	82		0
04	ARD2187	90	80	79		0
05	ARD2186	90	82	82		0
06	ARD2188DL	91	82	81		0
07	ARD2188DLMS	91	82	77		0
08	ARD2188DLMSD	92	83	78		0
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		QC LIMITS
SMC1	= Dibromofluoromethane	(74-144)
SMC2 (TOL)	= Toluene-d8	(76-129)
SMC3 (BFB)	= Bromofluorobenzene	(69-137)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50.0	0.0	40.7	81	68-141
Chloromethane	50.0	0.0	39.2	78	72-142
Vinyl chloride	50.0	0.0	49.8	100	67-141
Bromomethane	50.0	0.0	44.4	89	61-144
Chloroethane	50.0	0.0	49.3	99	68-132
Trichlorofluoromethane	50.0	0.0	41.9	84	65-142
1,1-Dichloroethylene	50.0	0.0	47.8	96	66-132
Acetone	250	0.0	237	95	71-139
Iodomethane	250	0.0	282	113	68-126
Carbon disulfide	250	0.0	256	102	68-120
Acetonitrile	1250	0.0	1140	91	70-135
Methylene chloride	50.0	0.0	45.9	92	73-112
tert-Butyl methyl ether	50.0	0.0	53.4	107	70-130
trans-1,2-Dichloroethyl	50.0	0.0	53.9	108	78-125
1,1-Dichloroethane	50.0	0.0	53.8	108	80-119
Vinyl acetate	250	0.0	255	102	67-136
2-Butanone	250	0.0	251	100	64-134
cis-1,2-Dichloroethylen	50.0	0.0	55.8	112	80-117
1,2-Dichloroethylene (t	100	0.0	110	110	70-130
2,2-Dichloropropane	50.0	0.0	59.1	118	74-142
Bromochloromethane	50.0	0.0	51.9	104	75-125
Chloroform	50.0	0.0	53.9	108	80-124
1,1,1-Trichloroethane	50.0	0.0	55.2	110	72-136
1,1-Dichloropropene	50.0	0.0	55.0	110	84-126
Carbon tetrachloride	50.0	0.0	58.8	118	66-141
1,2-Dichloroethane	50.0	0.0	49.2	98	67-131
Benzene	50.0	0.0	52.5	105	78-116
Trichloroethylene	50.0	0.0	53.3	107	83-122

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
1,2-Dichloropropane	50.0	0.0	51.2	102	75-119
Dibromomethane	50.0	0.0	54.1	108	80-126
Bromodichloromethane	50.0	0.0	52.7	105	78-127
2-Chloroethylvinyl ethe	250	0.0	191	76	63-131
cis-1,3-Dichloropropyle	50.0	0.0	54.1	108	77-129
4-Methyl-2-pentanone	250	0.0	260	104	69-127
Toluene	50.0	0.0	53.8	108	79-118
trans-1,3-Dichloropropy	50.0	0.0	54.6	109	67-132
1,1,2-Trichloroethane	50.0	0.0	51.0	102	76-119
1,3-Dichloropropane	50.0	0.0	49.8	100	83-114
2-Hexanone	250	0.0	262	105	60-136
Tetrachloroethylene	50.0	0.0	53.7	107	78-126
Dibromochloromethane	50.0	0.0	56.4	113	81-129
1,2-Dibromoethane	50.0	0.0	53.0	106	75-130
Chlorobenzene	50.0	0.0	53.8	108	82-118
1,1,1,2-Tetrachloroetha	50.0	0.0	53.1	106	82-119
Ethylbenzene	50.0	0.0	55.3	111	80-120
o-Xylene	50.0	0.0	58.2	116	81-118
m,p-Xylenes	100	0.0	112	112	79-119
Xylenes (total)	150	0.0	170	113	70-130
Styrene	50.0	0.0	59.3	119	82-121
Bromoform	50.0	0.0	56.6	113	79-141
Isopropylbenzene	50.0	0.0	48.8	98	73-115
1,1,2,2-Tetrachloroetha	50.0	0.0	47.0	94	66-127
1,2,3-Trichloropropane	50.0	0.0	48.6	97	76-120
Bromobenzene	50.0	0.0	50.7	101	78-118
n-Propylbenzene	50.0	0.0	54.4	109	78-126
2-Chlorotoluene	50.0	0.0	53.8	108	78-121

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

3A
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	LCS CONCENTRATION (ug/l)	LCS % REC #	QC. LIMITS REC.
1,3,5-Trimethylbenzene	50.0	0.0	53.5	107	82-121
1,2,4-Trimethylbenzene	50.0	0.0	52.6	105	82-122
4-Chlorotoluene	50.0	0.0	51.5	103	78-122
tert-Butylbenzene	50.0	0.0	53.1	106	79-124
sec-Butylbenzene	50.0	0.0	54.6	109	83-123
4-Isopropyltoluene	50.0	0.0	56.1	112	83-125
1,3-Dichlorobenzene	50.0	0.0	54.4	109	80-122
1,4-Dichlorobenzene	50.0	0.0	52.8	106	70-130
n-Butylbenzene	50.0	0.0	56.5	113	79-127
1,2-Dichlorobenzene	50.0	0.0	51.9	104	80-116
1,2-Dibromo-3-chloropro	50.0	0.0	46.9	94	68-129
1,2,4-Trichlorobenzene	50.0	0.0	55.4	111	71-136
Hexachlorobutadiene	50.0	0.0	50.8	102	73-124
Naphthalene	50.0	0.0	49.4	99	64-143
1,2,3-Trichlorobenzene	50.0	0.0	53.3	107	71-134

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 71 outside limits

COMMENTS: _____

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Matrix Spike - EPA Sample No.: ARD2188DL

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethylene	250	0.0	240	96	60-124
Benzene	250	0.0	260	104	71-116
Trichloroethylene	250	10.0	271	104	74-122
Toluene	250	0.0	259	104	72-116
Chlorobenzene	250	0.0	263	105	77-114

COMPOUND	SPIKE ADDED (ug/l)	MSD CONCENTRATION (ug/l)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethylene	250	235	94	2	20	60-124
Benzene	250	258	103	1	20	71-116
Trichloroethylene	250	273	105	1	20	74-122
Toluene	250	261	104	0	20	72-116
Chlorobenzene	250	258	103	2	20	77-114

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Lab File ID: 9E406A Lab Sample ID: 1200407010

Date Analyzed: 04/10/03 Time Analyzed: 1042

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01LCS	1200407011	9E402PARSLCS	0852
02	ARD2188	77469001	9E407	1123
03	ARD2187	77469002	9E408	1151
04	ARD2186	77469003	9E409	1219
05	ARD2188DL	77469001	9E412	1344
06	ARD2188DLMS	1200406337	9E413	1411
07	ARD2188DLMSD	1200406338	9E414	1439
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5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Lab File ID: 9D307 BFB Injection Date: 04/02/03

Instrument ID: VOA9 BFB Injection Time: 1413

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.4
75	30.0 - 60.0% of mass 95	53.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.1 (0.1)1
174	50.0 - 100.0% of mass 95	69.6
175	5.0 - 9.0% of mass 174	5.2 (7.5)1
176	95.0 - 101.0% of mass 174	67.9 (97.6)1
177	5.0 - 9.0% of mass 176	4.4 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0005	W9V030402-01	9D309	04/02/03	1452
02	VSTD001	W9V030402-02	9D310	04/02/03	1519
03	VSTD002	W9V030402-03	9D312	04/02/03	1615
04	VSTD005	W9V030402-04	9D313	04/02/03	1642
05	VSTD010	W9V030402-05	9D314	04/02/03	1710
06	VSTD020	W9V030402-06	9D315	04/02/03	1737
07	VSTD050	W9V030402-07	9D316	04/02/03	1805
08	VSTD100	W9V030402-08	9D317	04/02/03	1832
09	VSTD005S	UVM030221-10A	9D318	04/02/03	1900
10	VSTD010S	UVM030221-11A	9D319	04/02/03	1927
11	VSTD025S	UVM030221-12A	9D320	04/02/03	1955
12	VSTD050S	UVM030221-13A	9D321	04/02/03	2022
13	VSTD100S	UVM030221-14A	9D322	04/02/03	2049
14	VSTD250S	UVM030221-15A	9D323	04/02/03	2116
15	VSTD500S	UVM030221-16A	9D324	04/02/03	2144
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5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Lab File ID: 9E401 BFB Injection Date: 04/10/03

Instrument ID: VOA9 BFB Injection Time: 0842

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.9
75	30.0 - 60.0% of mass 95	53.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.2 (0.3)1
174	50.0 - 100.0% of mass 95	72.7
175	5.0 - 9.0% of mass 174	4.9 (6.7)1
176	95.0 - 101.0% of mass 174	70.5 (97.0)1
177	5.0 - 9.0% of mass 176	4.5 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	UVM030404-01A	9E402	04/10/03	0852
02	VBLK01LCS	1200407011	9E402PARSLCSA	04/10/03	0852
03	VSTD250S	UVM030212-01B	9E403	04/10/03	0920
04	VBLK01	1200407010	9E406A	04/10/03	1042
05	ARD2188	77469001	9E407	04/10/03	1123
06	ARD2187	77469002	9E408	04/10/03	1151
07	ARD2186	77469003	9E409	04/10/03	1219
08	ARD2188DL	77469001	9E412	04/10/03	1344
09	ARD2188DLMS	1200406337	9E413	04/10/03	1411
10	ARD2188DLMSD	1200406338	9E414	04/10/03	1439
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8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77469

Lab File ID (Standard): 9E402 Date Analyzed: 04/10/03

Instrument ID: VOA9 Time Analyzed: 0852

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1(FLB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	1055837	4.94	739866	7.94	381269	10.65
	UPPER LIMIT	2111674	5.44	1479732	8.44	762538	11.15
	LOWER LIMIT	527918	4.44	369933	7.44	190634	10.15
	EPA SAMPLE NO.						
01	VBLK01LCS	1055837	4.94	739105	7.94	381269	10.65
02	VBLK01	977656	4.94	684922	7.94	317851	10.65
03	ARD2188	1053184	4.94	747730	7.94	341992	10.65
04	ARD2187	1043629	4.94	748025	7.94	348272	10.65
05	ARD2186	1000881	4.95	713910	7.94	333008	10.65
06	ARD2188DL	979814	4.95	697762	7.94	323708	10.65
07	ARD2188DLMS	1020531	4.94	733273	7.94	375128	10.65
08	ARD2188DLMSD	1067711	4.94	763141	7.94	387332	10.65
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IS1 (FLB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

GC
SEMIVOLATILE
FID
ANALYSIS

FID Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77468

Method/Analysis Information

Procedure:	**Dissolved Gases by Flame Ionization Detector**
Analytical Method:	SW846 8015A/B SVOC
Prep Method:	SW846 8015A/B SVOC
Analytical Batch Number:	242857
Prep Batch Number:	242856

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 8015A/B SVOC:

Sample ID	Client ID
77468001	TR2101
77468002	TR2104
77468003	TR2107
77468004	ARD2188
77468005	ARD2187
77468006	ARD2186
1200403144	Method Blank (MB)
1200403146	Laboratory Control Sample (LCS)

Preparation/Analytical Method Verification

Procedures for preparation, analysis, and reporting of analytical data are documented by General Engineering Laboratories, Inc. (GEL) as Standard Operating Procedures (SOP).

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this SDG.

CCV Requirements
All calibration verification standard(s) (CVS, ICV or CCV) requirements have been met for this SDG.

Quality Control (QC) Information

Blank Acceptance
The blank(s) analyzed with this SDG met the established acceptance criteria.

Surrogate Recoveries
No surrogate was added to any of the samples in this batch.

LCS Recovery Statement
The Laboratory Control Sample (LCS) spike recoveries for this SDG were within the established acceptance limits.

QC Sample Designation
No matrix spike (MS) or matrix spike duplicate (MSD) were analyzed with this SDG. A PARS sample from SDG 77559 and its duplicate was analyzed to measure the precision for this batch. The RPD between the sample and its duplicate met the acceptance criteria.

Technical Information

Holding Time Specifications
All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
Samples 77468001 (TR2101) (1:10), 77468002 (TR2104) (1:20) and 77468003 (TR2107) (1:10) were diluted due to the presence of over-range target analytes.

Sample Re-prep/Re-analysis
Samples 77468001 (TR2101), 77468002 (TR2104) and 77468003 (TR2107) were re-analyzed at dilutions for Methane.

Miscellaneous Information

Nonconformance (NCR) Documentation
No nonconformance reports (NCRs) have been generated for this SDG.

Manual Integrations
Certain standards and QC samples may have required manual integrations to correctly position the baseline as set in the calibration standard injections. If manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Samples 77468001 (TR2101), 77468002 (TR2104), 77468004 (ARD2188) and 77468005 (ARD2187) required manual integrations.

Additional Comments
No additional comments are needed for this sample group.

System Configuration

Chromatographic Columns

Column ID	Column Description
J&W1	DB-WAX(0.53mm x 0.5u x 30m)
J&W2	DB-624(0.53mm x 3.0u x 30m)
J&W3	DB-1(0.53mm x 1.5u x 30m)
J&W4	DB-608(0.53mm x 0.83u x 30m)

J&W5	GS-Q(0.53mm x 30m)
Phenomenex	ZB-5(0.25mm x 0.25u x 30m)

Instrument Configuration

Instrument ID	System Configuration	Chromatographic Column
FIDa	HP 5890 Series II GC/FID	J&W1/J&W3/J&W4
FID2a	HP 5890 Series II GC/FID	J&W2/J&W5
FID3a	HP 5890 Series II GC/FID	Phenomenex
FID4a	HP 5890 Series II GC/FID	Phenomenex

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Jimin Cao **Date:** 4/21/03

SAMPLE DATA

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2101

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468001

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 011B1101

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	3240	E
74-84-0	Ethane	8.12	J
74-85-1	Ethene	6.40	J

FORM I SV-1 OLM03.0

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2101RR

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468001

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 018B1801

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	3940	
74-84-0	Ethane	250	U
74-85-1	Ethene	250	U

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2104

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468002

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 012B1201

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	4340	E
74-84-0	Ethane	10.9	J
74-85-1	Ethene	5.92	J

FORM I SV-1 OLM03.0

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2104RR

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468002

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 019B1901

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	5960	
74-84-0	Ethane	500	U
74-85-1	Ethene	500	U

FORM I SV-1 OLM03.0

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2107

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468003

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 013B1301

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	3090	E
74-84-0	Ethane	9.28	J
74-85-1	Ethene	8.16	J

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TR2107RR

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468003

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 020B2001

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	3800	
74-84-0	Ethane	250	U
74-85-1	Ethene	250	U

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2188

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468004

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 021B2101

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	37.0	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	4.73	J

1B
FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2187

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468005

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 015B1501

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/04/03

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/04/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	40.8	
74-84-0	Ethane	25.0	U
74-85-1	Ethene	25.0	U

1B

FID ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ARD2186

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix: (soil/water) WATER Lab Sample ID: 77468006

Sample wt/vol: 1.000 (g/mL) ML Lab File ID: 016B1601

Level: (low/med) LOW Date Received: 04/02/03

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/04/03

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/04/03

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	Methane	26.8	
74-84-0	Ethane	26.5	
74-85-1	Ethene	25.0	U

FORM I SV-1 OLM03.0

QUALITY CONTROL SUMMARY

FORM 3
WATER FID LAB CONTROL SAMPLE

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Matrix Spike - Sample No.: MBLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Methane	100	0.00	90.4	90	70-130
Ethane	100	0.00	89.5	90	56-140
Ethene	100	0.00	91.7	92	56-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 3 outside limits

COMMENTS: _____

FORM III FID

4B
FID METHOD BLANK SUMMARY

EPA SAMPLE NO.

MBLK01

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 77468

Lab File ID: 003B0301MB Lab Sample ID: 1200403144

Instrument ID: FID2A Date Extracted: 04/02/03

Matrix: (soil/water) WATER Date Analyzed: 04/04/03

Level:(low/med) LOW Time Analyzed: 0952

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MBLK01LCS	1200403146	004B0401LCS	04/04/03
02	TR2101	77468001	011B1101	04/04/03
03	TR2104	77468002	012B1201	04/04/03
04	TR2107	77468003	013B1301	04/04/03
05	ARD2187	77468005	015B1501	04/04/03
06	ARD2186	77468006	016B1601	04/04/03
07	TR2101RR	77468001	018B1801	04/04/03
08	TR2104RR	77468002	019B1901	04/04/03
09	TR2107RR	77468003	020B2001	04/04/03
10	ARD2188	77468004	021B2101	04/04/03
11				
12				
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30				

INORGANIC ANALYSIS

Metals Case Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77468

Method/Analysis Information

Analytical Batch:	2242907
Prep Batch :	2242906
Standard Operating Procedures:	GL-MA-E-013 REV.8, GL-MA-E-006 REV.8
Analytical Method:	SSW846 6010B
Prep Method :	SSW846 3005A

Sample Analysis

Sample ID	Client ID
77468001	TR2101
77468002	TR2104
77468003	TR2107
77468004	ARD2188
77468005	ARD2187
77468006	ARD2186
1200403263	Method Blank (MB) **ICP**
1200403273	Laboratory Control Sample (LCS)
1200403268	77468001(TR2101L) Serial Dilution (SD)
1200403265	77468001(TR2101D) Sample Duplicate (DUP)
1200403271	77468001(TR2101S) Matrix Spike (MS)

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The ICP analysis was performed on a Thermo Jarrell Ash 61E Trace axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with a Burgener nebulizer, cyclonic spray chamber, and yttrium internal standard. Operating conditions for the Trace ICP are set at a power level of 950 watts. The instrument has a peristaltic pump flow rate of 140 RPM (2.0 mL/min sample uptake rate), argon gas flows of 15 L/min and 0.5 L/min for the torch and auxiliary gases, and a pressure setting of 26 PSI for the nebulizer.

Calibration Information

Instrument Calibration
The instrument calibrations are conducted using the method and instrument manufacturer's specifications. All initial calibration requirements have been met for this SDG.

CRDL Requirements
All CRDL standard(s) met the referenced advisory control limits.

ICSA/ICSAB statement
All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blank (CCB) Requirements
All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements
All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Acceptance
The method blank analyzed with this SDG did not contain analytes of interest at concentrations greater than the client required detection limits (CRDL).

LCS Recovery Statement
The laboratory control sample (LCS) met the recommended acceptance criteria for percent recovery (%R) for all elements of interest.

Quality Control (QC) Sample Statement
The following samples were selected as the quality control (QC) samples for this batch: 77468001 (TR2101).

Matrix Spike Recovery Statement
The percent recovery (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable elements met the acceptance criteria.

Duplicate RPD Statement
The relative percent difference (RPD) obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required detection limit(RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of RL is used to evaluate the DUP results. All applicable analytes met these requirements.

Serial Dilution % Difference Statement
The serial dilution is used to assess interferences due to matrix suppression or enhancement. Raw element concentrations that are at least 50X the instrument detection limit (IDL) for ICP analyses and 100X the IDL for ICP-MS analyses are applicable for serial dilution assessment. All applicable analytes met the acceptance criteria, percent difference value of <10.

Technical Information

Holding Time Specifications
GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the GELIMS system by hours. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time requirements.

Preparation/Analytical Method Verification
All procedures performed in association with this SDG followed the Standard Operating Procedure (SOP) guidelines.

Sample Dilutions
Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in soil samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Sample 77468004 (ARD2188) required dilution in order to bring sodium within the linear calibration range of the instrument.

Preparation Information
The samples in this SDG were prepared exactly according to the sited SOP.

Miscellaneous Information

Nonconformance Documentation
Nonconformance reports (NCRs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. No NCR was generated with this SDG.

Additional Comments
No additional comments are needed for this sample group.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Allison M. C **Date:** 4/16/03

SAMPLE DATA SUMMARY

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77468 **Method Type:** SW846

Sample ID: 77468001 **Client ID:** TR2101

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/2/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	24500	µg/L			P	7.760	TJA61 Trace ICP2	40403
7439-95-4	Magnesium	16800	µg/L			P	14.2	TJA61 Trace ICP2	40403
7439-96-5	Manganese	38.2	µg/L			P	0.421	TJA61 Trace ICP2	40403
7440-09-7	Potassium	1200	µg/L			P	48.7	TJA61 Trace ICP2	40403
7440-23-5	Sodium	13500	µg/L			P	33.9	TJA61 Trace ICP2	40403

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77468 **Method Type:** SW846

Sample ID: 77468002 **Client ID:** TR2104

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/2/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	15400	µg/L			P	7.760	TJA61 Trace ICP2	40403
7439-95-4	Magnesium	13300	µg/L			P	14.2	TJA61 Trace ICP2	40403
7439-96-5	Manganese	70.9	µg/L			P	0.421	TJA61 Trace ICP2	40403
7440-09-7	Potassium	1020	µg/L			P	48.7	TJA61 Trace ICP2	40403
7440-23-5	Sodium	17400	µg/L			P	33.9	TJA61 Trace ICP2	40403

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77468 **Method Type:** SW846

Sample ID: 77468003 **Client ID:** TR2107

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/2/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	9550	µg/L			P	7.760	TJA61 Trace ICP2	40403
7439-95-4	Magnesium	16400	µg/L			P	14.2	TJA61 Trace ICP2	40403
7439-96-5	Manganese	33.3	µg/L			P	0.421	TJA61 Trace ICP2	40403
7440-09-7	Potassium	897	µg/L			P	48.7	TJA61 Trace ICP2	40403
7440-23-5	Sodium	9600	µg/L			P	33.9	TJA61 Trace ICP2	40403

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77468 **Method Type:** SW846

Sample ID: 77468004 **Client ID:** ARD2188

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/2/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	483000	µg/L			P	7.760	TJA61 Trace ICP2	40403
7439-95-4	Magnesium	179000	µg/L			P	14.2	TJA61 Trace ICP2	40403
7439-96-5	Manganese	835	µg/L			P	0.421	TJA61 Trace ICP2	40403
7440-09-7	Potassium	28900	µg/L			P	48.7	TJA61 Trace ICP2	40403
7440-23-5	Sodium	186000	µg/L			P	170	TJA61 Trace ICP2	40803

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77468 **Method Type:** SW846

Sample ID: 77468005 **Client ID:** ARD2187

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/2/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	94100	µg/L			P	7.760	TJA61 Trace ICP2	40403
7439-95-4	Magnesium	9090	µg/L			P	14.2	TJA61 Trace ICP2	40403
7439-96-5	Manganese	8.670	µg/L	B		P	0.421	TJA61 Trace ICP2	40403
7440-09-7	Potassium	718	µg/L			P	48.7	TJA61 Trace ICP2	40403
7440-23-5	Sodium	8220	µg/L			P	33.9	TJA61 Trace ICP2	40403

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

TOTAL METALS
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

SDG No.: 77468 **Method Type:** SW846

Sample ID: 77468006 **Client ID:** ARD2186

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Date Received:** 4/2/2003 **Level:** LOW **% Solids:** 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-70-2	Calcium	94900	µg/L			P	7.760	TJA61 Trace ICP2	40403
7439-95-4	Magnesium	12700	µg/L			P	14.2	TJA61 Trace ICP2	40403
7439-96-5	Manganese	96.5	µg/L			P	0.421	TJA61 Trace ICP2	40403
7440-09-7	Potassium	1810	µg/L			P	48.7	TJA61 Trace ICP2	40403
7440-23-5	Sodium	23300	µg/L			P	33.9	TJA61 Trace ICP2	40403

Color Before: **Clarity Before:** **Texture:**

Color After: **Clarity After:** **Artifacts:**

Comments:

QUALITY CONTROL DATA

TOTAL METALS
- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: o2si

Instrument ID: TJA61 Trace ICP2

Sample ID	Analyte	Result µg/L	True Value µg/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV1									
	Calcium	515	500	103.0	90.0 - 110.0	P	4/4/2003	07:43	40403
	Potassium	2590	2500	103.6	90.0 - 110.0	P	4/4/2003	07:43	40403
	Magnesium	505	500	101.0	90.0 - 110.0	P	4/4/2003	07:43	40403
	Manganese	503	500	100.4	90.0 - 110.0	P	4/4/2003	07:43	40403
	Sodium	2600	2500	104.0	90.0 - 110.0	P	4/4/2003	07:43	40403
	Sodium	2570	2500	102.8	90.0 - 110.0	P	4/8/2003	09:07	40803
CCV1									
	Calcium	4960	5000	99.2	90.0 - 110.0	P	4/4/2003	08:26	40403
	Potassium	5160	5000	103.2	90.0 - 110.0	P	4/4/2003	08:26	40403
	Magnesium	5030	5000	100.6	90.0 - 110.0	P	4/4/2003	08:26	40403
	Manganese	490	500	98.0	90.0 - 110.0	P	4/4/2003	08:26	40403
	Sodium	10000	10000	100.0	90.0 - 110.0	P	4/4/2003	08:26	40403
	Sodium	10100	10000	100.0	90.0 - 110.0	P	4/8/2003	09:45	40803
CCV2									
	Calcium	4980	5000	99.6	90.0 - 110.0	P	4/4/2003	09:18	40403
	Potassium	5190	5000	103.8	90.0 - 110.0	P	4/4/2003	09:18	40403
	Magnesium	5030	5000	100.4	90.0 - 110.0	P	4/4/2003	09:18	40403
	Manganese	489	500	97.8	90.0 - 110.0	P	4/4/2003	09:18	40403
	Sodium	10300	10000	103.0	90.0 - 110.0	P	4/4/2003	09:18	40403
	Sodium	10000	10000	100.0	90.0 - 110.0	P	4/8/2003	10:34	40803
CCV3									
	Calcium	5060	5000	101.2	90.0 - 110.0	P	4/4/2003	10:21	40403
	Potassium	5250	5000	105.0	90.0 - 110.0	P	4/4/2003	10:21	40403
	Magnesium	5070	5000	101.4	90.0 - 110.0	P	4/4/2003	10:21	40403
	Manganese	494	500	98.8	90.0 - 110.0	P	4/4/2003	10:21	40403
	Sodium	10400	10000	104.0	90.0 - 110.0	P	4/4/2003	10:21	40403
CCV4									
	Calcium	5100	5000	102.0	90.0 - 110.0	P	4/4/2003	11:11	40403
	Potassium	5230	5000	104.6	90.0 - 110.0	P	4/4/2003	11:11	40403
	Magnesium	5210	5000	104.2	90.0 - 110.0	P	4/4/2003	11:11	40403
	Manganese	492	500	98.4	90.0 - 110.0	P	4/4/2003	11:11	40403
	Sodium	10300	10000	103.0	90.0 - 110.0	P	4/4/2003	11:11	40403

TOTAL METALS
- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Initial Calibration Source: Solutions Plus

Continuing Calibration Source: o2si

Instrument ID: TJA61 Trace ICP2

Sample ID	Analyte	Result µg/L	True Value µg/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV5									
	Calcium	5190	5000	103.8	90.0 - 110.0	P	4/4/2003	12:46	40403
	Potassium	5480	5000	109.6	90.0 - 110.0	P	4/4/2003	12:46	40403
	Magnesium	5240	5000	104.8	90.0 - 110.0	P	4/4/2003	12:46	40403
	Manganese	498	500	99.6	90.0 - 110.0	P	4/4/2003	12:46	40403
	Sodium	10700	10000	107.0	90.0 - 110.0	P	4/4/2003	12:46	40403
CCV6									
	Calcium	5070	5000	101.4	90.0 - 110.0	P	4/4/2003	13:46	40403
	Potassium	5360	5000	107.2	90.0 - 110.0	P	4/4/2003	13:46	40403
	Magnesium	5140	5000	102.8	90.0 - 110.0	P	4/4/2003	13:46	40403
	Manganese	497	500	99.4	90.0 - 110.0	P	4/4/2003	13:46	40403
	Sodium	10500	10000	105.0	90.0 - 110.0	P	4/4/2003	13:46	40403

TOTAL METALS
- 2b -
CRDL STANDARD FOR AA & ICP

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

AA CRDL Standard Source: SPEX

ICP CRDL Standard Source: o2si

Sample ID	Analyte	Result µg/L	True Value µg/L	% Recovery	Advisory Limits (%R)	M	Analysis Date	Analysis Time	Run Number
CRDL1									
	Calcium	198	200	99.0	50 - 150	P	4/4/2003	08:00	40403
	Potassium	222	200	111.0	50 - 150	P	4/4/2003	08:00	40403
	Magnesium	198	200	99.0	50 - 150	P	4/4/2003	08:00	40403
	Manganese	19.1	20.0	95.5	50 - 150	P	4/4/2003	08:00	40403
	Sodium	174	200	87.0	50 - 150	P	4/4/2003	08:00	40403
CRDL1									
	Sodium	195	200	97.0	50 - 150	P	4/8/2003	09:20	40803

TOTAL METALS
- 3a -
INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Sample ID	Analyte	Result µg/L	Acceptance µg/L	Conc Qual	IDL µg/L	RDL µg/L	M	Analysis Date	Analysis Time	Run
ICB1										
	Calcium	7.76	+/-100.00	U	7.76	100	P	4/4/2003	07:54	40403
	Potassium	48.7	+/-100.00	U	48.7	100	P	4/4/2003	07:54	40403
	Magnesium	14.2	+/-100.00	U	14.2	100	P	4/4/2003	07:54	40403
	Manganese	0.421	+/-10.00	U	0.421	10.0	P	4/4/2003	07:54	40403
	Sodium	33.9	+/-100.00	U	33.9	100	P	4/4/2003	07:54	40403
	Sodium	33.9	+/-100.00	U	33.9	100	P	4/8/2003	09:14	40803
CCB1										
	Calcium	7.76	+/-100.00	U	7.76	100	P	4/4/2003	08:32	40403
	Potassium	48.7	+/-100.00	U	48.7	100	P	4/4/2003	08:32	40403
	Magnesium	14.2	+/-100.00	U	14.2	100	P	4/4/2003	08:32	40403
	Manganese	0.421	+/-10.00	U	0.421	10.0	P	4/4/2003	08:32	40403
	Sodium	33.9	+/-100.00	U	33.9	100	P	4/4/2003	08:32	40403
	Sodium	33.9	+/-100.00	U	33.9	100	P	4/8/2003	09:51	40803
CCB2										
	Calcium	7.76	+/-100.00	U	7.76	100	P	4/4/2003	09:24	40403
	Potassium	48.7	+/-100.00	U	48.7	100	P	4/4/2003	09:24	40403
	Magnesium	14.2	+/-100.00	U	14.2	100	P	4/4/2003	09:24	40403
	Manganese	0.421	+/-10.00	U	0.421	10.0	P	4/4/2003	09:24	40403
	Sodium	-46.2	+/-100.00	B	33.9	100	P	4/4/2003	09:24	40403
	Sodium	33.9	+/-100.00	U	33.9	100	P	4/8/2003	10:40	40803
CCB3										
	Calcium	7.76	+/-100.00	U	7.76	100	P	4/4/2003	10:27	40403
	Potassium	48.7	+/-100.00	U	48.7	100	P	4/4/2003	10:27	40403
	Magnesium	14.2	+/-100.00	U	14.2	100	P	4/4/2003	10:27	40403
	Manganese	0.421	+/-10.00	U	0.421	10.0	P	4/4/2003	10:27	40403
	Sodium	33.9	+/-100.00	U	33.9	100	P	4/4/2003	10:27	40403
CCB4										
	Calcium	20.7	+/-100.00	B	7.76	100	P	4/4/2003	11:17	40403
	Potassium	48.7	+/-100.00	U	48.7	100	P	4/4/2003	11:17	40403
	Magnesium	15.7	+/-100.00	B	14.2	100	P	4/4/2003	11:17	40403
	Manganese	0.421	+/-10.00	U	0.421	10.0	P	4/4/2003	11:17	40403
	Sodium	-34.0	+/-100.00	B	33.9	100	P	4/4/2003	11:17	40403

TOTAL METALS
- 3a -
INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Sample ID	Analyte	Result µg/L	Acceptance µg/L	Conc Qual	IDL µg/L	RDL µg/L	M	Analysis Date	Analysis Time	Run
CCB5										
	Calcium	39.0	+/-100.00	B	7.76	100	P	4/4/2003	12:52	40403
	Potassium	48.7	+/-100.00	U	48.7	100	P	4/4/2003	12:52	40403
	Magnesium	14.2	+/-100.00	U	14.2	100	P	4/4/2003	12:52	40403
	Manganese	0.454	+/-10.00	B	0.421	10.0	P	4/4/2003	12:52	40403
	Sodium	33.9	+/-100.00	U	33.9	100	P	4/4/2003	12:52	40403
CCB6										
	Calcium	9.39	+/-100.00	B	7.76	100	P	4/4/2003	13:52	40403
	Potassium	48.7	+/-100.00	U	48.7	100	P	4/4/2003	13:52	40403
	Magnesium	14.2	+/-100.00	U	14.2	100	P	4/4/2003	13:52	40403
	Manganese	0.421	+/-10.00	U	0.421	10.0	P	4/4/2003	13:52	40403
	Sodium	33.9	+/-100.00	U	33.9	100	P	4/4/2003	13:52	40403

TOTAL METALS
- 3b -
PREPARATION BLANK SUMMARY

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Preparation Blank Matrix: WATER

Sample ID	Analyte	Result (µg/L)	Acceptance Window	Conc Qual	M	IDL	RDL
1200403263							
	Calcium	7.76	+/-100	U	P	7.76	100
	Magnesium	14.2	+/-100	U	P	14.2	100
	Manganese	0.421	+/-10.0	U	P	0.421	10.0
	Potassium	48.7	+/-100	U	P	48.7	100
	Sodium	33.9	+/-100	U	P	33.9	100

TOTAL METALS
- 4 -
INTERFERENCE CHECK SAMPLE

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

ICS Source: o2si
Instrument ID: TJA61 Trace ICP2

Sample ID	Analyte	Result µg/L	True Value µg/L	% Recovery	Acceptance Window %Rec	Analysis Date	Analysis Time	Run Number
ICS-A1								
	Calcium	449000	500000	89.8	80 - 120	4/4/2003	08:06	40403
	Potassium	-58.710				4/4/2003	08:06	40403
	Magnesium	486000	500000	97.2	80 - 120	4/4/2003	08:06	40403
	Manganese	2.650				4/4/2003	08:06	40403
	Sodium	-101.280				4/4/2003	08:06	40403
ICS-AB1								
	Calcium	450000	500000	90.0	80 - 120	4/4/2003	08:12	40403
	Potassium	5700	5000	114.0	80 - 120	4/4/2003	08:12	40403
	Magnesium	491000	500000	98.2	80 - 120	4/4/2003	08:12	40403
	Manganese	479	500	95.8	80 - 120	4/4/2003	08:12	40403
	Sodium	5130	5000	102.6	80 - 120	4/4/2003	08:12	40403
ICS-A1								
	Sodium	-61.940				4/8/2003	09:26	40803
ICS-AB1								
	Sodium	5120	5000	102.4	80 - 120	4/8/2003	09:31	40803

TOTAL METALS
- 5a -
MATRIX SPIKE SUMMARY

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Level:** LOW **Client ID:** TR2101S

Sample ID: 77468001 **Spiked ID:** 1200403271 **Percent Solids for Spike Sample:** 0.00

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Calcium	µg/L		29800		24500		5000	106.0		P
Magnesium	µg/L	75 - 125	22000		16800		5000	104.0		P
Manganese	µg/L	75 - 125	535		38.2		500	99.2		P
Potassium	µg/L	75 - 125	6330		1200		5000	102.6		P
Sodium	µg/L	75 - 125	19100		13500		5000	110.0		P

TOTAL METALS
- 6 -
DUPLICATE SAMPLE SUMMARY

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Level:** LOW **Client ID:** TR2101D

Sample ID: 77468001 **Duplicate ID:** 1200403265 **Percent Solids for Duplicate:** 0.00

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Calcium	µg/L	+/-20	24500		24600		0.4		P
Magnesium	µg/L	+/-20	16800		17000		1.2		P
Manganese	µg/L	10.0	38.2		38.0		0.5		P
Potassium	µg/L	+/-20	1200		1240		3.3		P
Sodium	µg/L	+/-20	13500		13500		0.0		P

TOTAL METALS

LABORATORY CONTROL SAMPLE SUMMARY

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Aqueous LCS Source: SPEX **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
1200403273								
	Calcium	µg/L	5000	5100		102.0	80 - 120	P
	Magnesium	µg/L	5000	5090		101.8	80 - 120	P
	Manganese	µg/L	500.0	499		99.8	80 - 120	P
	Potassium	µg/L	5000	5030		100.6	80 - 120	P
	Sodium	µg/L	5000	5250		105.0	80 - 120	P

TOTAL METALS

SERIAL DILUTION SAMPLE SUMMARY

SDG No.: 77468

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Matrix: WATER **Level:** LOW **Client ID:** TR2101L

Sample ID: 77468001 **Serial Dilution ID:** 1200403268

Analyte	Initial µg/L	C	Serial µg/L	C	% Difference	Qual	Acceptance Limits	M
Calcium	24500		25200		2.9		10 %	P
Magnesium	16800		17200		2.4		10 %	P
Manganese	38.2		40.8	B	6.8		10 %	P
Potassium	1200		1260		5.0		10 %	P
Sodium	13500		14000		3.7		10 %	P

TOTAL METALS
- 13 -
SAMPLE PREPARATION SUMMARY

SDG No.: 77468 **Method:** P

Contract: PARS00103 **Lab Code:** GEL **Case No.:** GEL **SAS No.:**

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: 242906							
1200403263	Method Blank (MB)	MB	WATER	03-APR-03	50.00	50.00	
1200403273	Laboratory Control Sample (LCS)	LCS	WATER	03-APR-03	50.00	50.00	
77468001	TR2101	SAM	WATER	03-APR-03	50.00	50.00	
1200403265	TR2101D	DUP	WATER	03-APR-03	50.00	50.00	
1200403271	TR2101S	MS	WATER	03-APR-03	50.00	50.00	
77468002	TR2104	SAM	WATER	03-APR-03	50.00	50.00	
77468003	TR2107	SAM	WATER	03-APR-03	50.00	50.00	
77468004	ARD2188	SAM	WATER	03-APR-03	50.00	50.00	
77468005	ARD2187	SAM	WATER	03-APR-03	50.00	50.00	
77468006	ARD2186	SAM	WATER	03-APR-03	50.00	50.00	

General Engineering Laboratories, LLC

TOTAL METALS
-14-
ANALYSIS RUN LOG

Contract: PARS00103

Lab Code GEL Case No.: GEL SAS No.: SDG No.: 77468

Instrument ID Number: TJA61 Trace ICP2 Method: P

Start Date: 4/4/2003 End Date: 4/4/2003

Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CAL-S0	1.00	07:11								X						X	X			X			X				
CAL-S0.1	1.00	07:17															X			X							
CAL-S0.5	1.00	07:23															X			X							
CAL-SCAL	1.00	07:29								X						X	X			X			X				
CAL-S10	1.00	07:35								X						X							X				
ICV1	1.00	07:43								X						X	X			X			X				
ICB1	1.00	07:54								X						X	X			X			X				
CRDL1	1.00	08:00								X						X	X			X			X				
ICS-A1	1.00	08:06								X						X	X			X			X				
ICS-AB1	1.00	08:12								X						X	X			X			X				
CCV1	1.00	08:26								X						X	X			X			X				
CCB1	1.00	08:32								X						X	X			X			X				
ZZZZZZ	1.00	08:41																									
ZZZZZZ	1.00	08:47																									
ZZZZZZ	1.00	08:53																									
ZZZZZZ	1.00	09:00																									
ZZZZZZ	1.00	09:06																									
ZZZZZZ	1.00	09:12																									
CCV2	1.00	09:18								X						X	X			X			X				
CCB2	1.00	09:24								X						X	X			X			X				
ZZZZZZ	1.00	09:33																									
ZZZZZZ	1.00	09:39																									
ZZZZZZ	1.00	09:45																									
ZZZZZZ	5.00	09:51																									
ZZZZZZ	1.00	09:57																									
ZZZZZZ	1.00	10:03																									
ZZZZZZ	1.00	10:09																									
ZZZZZZ	1.00	10:15																									
CCV3	1.00	10:21								X						X	X			X			X				
CCB3	1.00	10:27								X						X	X			X			X				
ZZZZZZ	1.00	10:35																									
ZZZZZZ	1.00	10:41																									
ZZZZZZ	1.00	10:47																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

General Engineering Laboratories, LLC

TOTAL METALS
- 14 -
ANALYSIS RUN LOG

Contract: PARS00103

Lab Code GEL Case No.: GEL SAS No.: SDG No.: 77468

Instrument ID Number: TJA61 Trace ICP2 Method: P

Start Date: 4/4/2003 End Date: 4/4/2003

Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	10:53																									
ZZZZZZ	1.00	10:59																									
ZZZZZZ	1.00	11:05																									
CCV4	1.00	11:11								X						X	X			X			X				
CCB4	1.00	11:17								X						X	X			X			X				
1200403263	1.00	11:51								X						X	X			X			X				
1200403273	1.00	11:57								X						X	X			X			X				
77468001	1.00	12:03								X						X	X			X			X				
1200403268	5.00	12:09								X						X	X			X			X				
1200403265	1.00	12:15								X						X	X			X			X				
1200403271	1.00	12:23								X						X	X			X			X				
77468002	1.00	12:29								X						X	X			X			X				
77468003	1.00	12:34								X						X	X			X			X				
77468004	1.00	12:40								X						X	X			X							
CCV5	1.00	12:46								X						X	X			X			X				
CCB5	1.00	12:52								X						X	X			X			X				
77468005	1.00	12:58								X						X	X			X			X				
77468006	1.00	13:04								X						X	X			X			X				
ZZZZZZ	1.00	13:10																									
ZZZZZZ	1.00	13:16																									
ZZZZZZ	1.00	13:22																									
ZZZZZZ	1.00	13:28																									
ZZZZZZ	1.00	13:34																									
ZZZZZZ	5.00	13:40																									
CCV6	1.00	13:46								X						X	X			X			X				
CCB6	1.00	13:52								X						X	X			X			X				

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

General Engineering Laboratories, LLC

TOTAL METALS
-14-
ANALYSIS RUN LOG

Contract: PARS00103

Lab Code GEL Case No.: GEL SAS No.: SDG No.: 77468

Instrument ID Number: TJA61 Trace ICP2 Method: P

Start Date: 4/8/2003 End Date: 4/8/2003

Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CAL-S0	1.00	08:35																					X				
CAL-S0.1	1.00	08:41																									
CAL-S0.5	1.00	08:47																									
CAL-SCAL	1.00	08:53																					X				
CAL-S10	1.00	08:59																					X				
ICV1	1.00	09:07																					X				
ICB1	1.00	09:14																					X				
CRDL1	1.00	09:20																					X				
ICS-A1	1.00	09:26																					X				
ICS-AB1	1.00	09:31																					X				
CCV1	1.00	09:45																					X				
CCB1	1.00	09:51																					X				
77468004	5.00	10:03																					X				
ZZZZZZ	2.00	10:09																									
ZZZZZZ	2.00	10:15																									
ZZZZZZ	2.00	10:21																									
ZZZZZZ	2.00	10:27																									
CCV2	1.00	10:34																					X				
CCB2	1.00	10:40																					X				

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

GENERAL CHEMISTRY ANALYSIS

General Chemistry Narrative
Parsons Engineering Science, Inc. DACA87-02-D-0005 (PARS)
SDG 77468

Method/Analysis Information

Procedure:	**Ion Chromatography (IC)**
Analytical Method:	EPA 300.0
Analytical Batch Number:	242925

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA 300.0:

Sample ID	Client ID
77468001	TR2101
77468002	TR2104
77468003	TR2107
77468004	ARD2188
77468005	ARD2187
77468006	ARD2186
1200403321	Method Blank (MB)
1200403328	Laboratory Control Sample (LCS)
1200403324	77468001(TR2101) Sample Duplicate (DUP)
1200403327	77468001(TR2101) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV.8.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: Dionex DX300 Ion Chromatograph equipped with a Dionex AS9-HC general purpose anion column

Initial Calibration
The instrument was properly calibrated.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recoveries for the laboratory control sample were within the required acceptance limits.

Quality Control
The following sample was designated for Quality Control:
77468001 (TR2101)

Sample Spike Recovery
The spike recoveries for this sample set were within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Differences between the sample and duplicate for this batch were within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The following samples in this sample group were diluted due to high concentration for chloride and/or sulfate. See the Certificates of Analysis for the individual dilution factors.
1200403324 (TR2101)
1200403327 (TR2101)
77468001 (TR2101)
77468002 (TR2104)
77468003 (TR2107)
77468004 (ARD2188)
77468005 (ARD2187)
77468006 (ARD2186)

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Method/Analysis Information

Procedure:	**Total Organic Carbon (TOC)**
Analytical Method:	SW846 9060
Analytical Batch Number:	244647

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9060:

Sample ID	Client ID
77468001	TR2101
77468002	TR2104
77468003	TR2107
77468004	ARD2188
77468005	ARD2187
77468006	ARD2186
1200407396	Method Blank (MB)
1200407401	Laboratory Control Sample (LCS)
1200407398	77559003(ARD2185) Sample Duplicate (DUP)
1200407400	77559003(ARD2185) Post Spike (PS)

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by General Engineering Laboratories, LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-093 REV.3.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by General Engineering Laboratories, Inc. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The instrument used in this analysis was the following: O-I Analytical Model 1010 Total Organic Carbon Analyzer

Initial Calibration

The instrument was properly calibrated.

Continuing Calibration Blanks
All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)
All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Quality Control (QC) Information

Blank Acceptance
The method blank associated with this data was within the required acceptance limits.

Laboratory Control Sample (LCS) Recovery
The recovery for the laboratory control sample was within the required acceptance limits.

Quality Control
The following sample was designated for Quality Control:
77559003 (ARD2185)

Sample Spike Recovery
The spike recovery for this sample set was within the required acceptance limits.

Sample Duplicate Acceptance
The Relative Percent Difference between the sample and duplicate for this batch was within the required acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times
All samples from this sample group were analyzed within the required holding time for this method.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
No samples in this sample group required dilutions.

Miscellaneous Information

Nonconformance Reports
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Additional Comments
A 15 mg/L Total Inorganic Carbon check standard is analyzed with each analytical run to prove that the instrument is effectively sparging away the inorganic carbon.

Certification Statement

* Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:_____ **Date:** 4/17/03

SAMPLE DATA SUMMARY

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: TR2101
Sample ID: 77468001
Matrix: Water
Collect Date: 01-APR-03 08:55
Receive Date: 02-APR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		0.782	0.025	0.200	mg/L	1	TSM 04/15/03	1227	244647	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Chloride		15.9	0.0322	0.200	mg/L	1	MAR1 04/02/03	2338	242925	2
Nitrate	U	0.00	0.0341	0.100	mg/L	1				
Sulfate		106	0.965	2.00	mg/L	5	MAR1 04/03/03	2013	242925	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/03/03	0800	242906
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/02/03	1355	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: TR2101
Sample ID: 77468001

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: TR2104
Sample ID: 77468002
Matrix: Water
Collect Date: 01-APR-03 09:50
Receive Date: 02-APR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis Federal										
SW 9060 Total Organic Carbon										
Total Organic Carbon		0.419	0.025	0.200	mg/L	1	TSM 04/15/03	1257	244647	1
Ion Chromatography Federal										
EPA 300.0 Chloride in Liquid										
Nitrate	U	0.00	0.0341	0.100	mg/L	1	MAR1 04/03/03	0034	242925	2
Chloride		19.5	0.322	2.00	mg/L	10	MAR1 04/03/03	2108	242925	3
Sulfate		76.9	1.93	4.00	mg/L	10				

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/03/03	0800	242906
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/02/03	1355	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

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> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: TR2104
Sample ID: 77468002

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: TR2107
Sample ID: 77468003
Matrix: Water
Collect Date: 01-APR-03 11:05
Receive Date: 02-APR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		0.598	0.025	0.200	mg/L	1	TSM	04/15/03	1326	244647	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Chloride		3.59	0.0322	0.200	mg/L	1	MAR1	04/03/03	0052	242925	2
Nitrate	U	0.00	0.0341	0.100	mg/L	1					
Sulfate		41.6	0.386	0.800	mg/L	2	MAR1	04/03/03	2127	242925	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/03/03	0800	242906
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/02/03	1355	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

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> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: TR2107
Sample ID: 77468003

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2188
Sample ID: 77468004
Matrix: Water
Collect Date: 01-APR-03 12:20
Receive Date: 02-APR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		5.78	0.025	0.200	mg/L	1	TSM	04/15/03	1355	244647	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Nitrate	U	0.00	0.0341	0.100	mg/L	1	MAR1	04/03/03	0110	242925	2
Chloride		522	1.61	10.0	mg/L	50	MAR1	04/03/03	2145	242925	3
Sulfate		1340	9.65	20.0	mg/L	50					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/03/03	0800	242906
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/02/03	1355	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
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> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2188
Sample ID: 77468004

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2187
Sample ID: 77468005
Matrix: Water
Collect Date: 01-APR-03 13:40
Receive Date: 02-APR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		1.43	0.025	0.200	mg/L	1	TSM	04/15/03	1425	244647	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Chloride		8.26	0.0322	0.200	mg/L	1	MAR1	04/03/03	0129	242925	2
Nitrate	U	0.00	0.0341	0.100	mg/L	1					
Sulfate		53.2	0.386	0.800	mg/L	2	MAR1	04/03/03	2203	242925	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/03/03	0800	242906
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/02/03	1355	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2187
Sample ID: 77468005

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2186
Sample ID: 77468006
Matrix: Water
Collect Date: 01-APR-03 15:00
Receive Date: 02-APR-03
Collector: Client

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Carbon Analysis Federal											
SW 9060 Total Organic Carbon											
Total Organic Carbon		1.64	0.025	0.200	mg/L	1	TSM	04/15/03	1510	244647	1
Ion Chromatography Federal											
EPA 300.0 Chloride in Liquid											
Chloride		4.36	0.0322	0.200	mg/L	1	MAR1	04/03/03	0147	242925	2
Nitrate		0.120	0.0341	0.100	mg/L	1					
Sulfate		69.0	0.965	2.00	mg/L	5	MAR1	04/03/03	2222	242925	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-TRACE SW846 3005A	BCD1	04/03/03	0800	242906
SW846 8015A/B SVOC	SW846 8015B Dissolved Gases Prep	JMB3	04/02/03	1355	242856

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 300.0	
3	EPA 300.0	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : Parsons
Address : 100 Summer Street
Suite 800
Boston, Massachusetts 02110
Contact: Todd Heino
Project: Seneca Army Depot (Task Order# 0003)

Report Date: April 17, 2003

Client Sample ID: ARD2186
Sample ID: 77468006

Project: PARS00103
Client ID: PARS001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

QUALITY CONTROL SUMMARY

QC Summary

Report Date: April 17, 2003

Client: Parsons
100 Summer Street
Suite 800
Boston, Massachusetts

Contact: Todd Heino

Workorder: 77468

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Carbon Analysis Federal												
Batch 244647												
QC1200407398 77559003 DUP												
Total Organic Carbon			3.29		3.10	mg/L	6		(0%-20%)	TSM	04/15/03	17:08
QC1200407401 LCS												
Total Organic Carbon	10.0				10.4	mg/L		104	(85%-115%)		04/15/03	11:39
QC1200407396 MB												
Total Organic Carbon				U	-0.34	mg/L					04/15/03	11:31
QC1200407400 77559003 PS												
Total Organic Carbon	10.0		3.29		13.3	mg/L		101	(80%-120%)		04/15/03	17:26
Ion Chromatography Federal												
Batch 242925												
QC1200403324 77468001 DUP												
Nitrate-N		U	0.00	U	0.00	mg/L	N/A ^		(+/-0.100)	vIAR1	04/02/03	23:57
Sulfate			106		105	mg/L	1		(0%-20%)		04/03/03	20:31
Chloride			15.9		16.1	mg/L	1		(0%-20%)		04/02/03	23:57
QC1200403328 LCS												
Nitrate-N	5.00				4.73	mg/L		95	(90%-110%)		04/02/03	23:20
Sulfate	20.0				19.2	mg/L		96	(90%-110%)			
Chloride	10.0				9.21	mg/L		92	(90%-110%)			
QC1200403321 MB												
Nitrate-N				U	0.00	mg/L					04/02/03	23:02
Sulfate				U	0.00	mg/L						
Chloride				U	0.00	mg/L						
QC1200403327 77468001 PS												
Nitrate-N	5.00	U	0.00		4.66	mg/L		93	(77%-115%)		04/03/03	00:15
Sulfate	20.0		21.1		42.5	mg/L		107	(75%-130%)		04/03/03	20:50
Chloride	10.0		15.9		27.1	mg/L		111	(80%-125%)		04/03/03	00:15

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package

QC Summary

Workorder: 77468

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Y QC Samples were not spiked with this compound.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.