

**SEMI-ANNUAL O&M REPORT
REMEDIAL WORK ELEMENTS I, II AND IV**
Reporting period December 24, 2002, through June 26, 2003

**Malta Rocket Fuel Area Site
Malta, New York**

Prepared for:

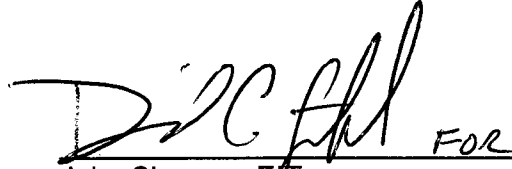
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CERTIFICATION: This document has been reviewed and is prepared in accordance with the contract documents.



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1.0 INTRODUCTION

This operations and maintenance (O&M) report documents on going O&M activities conducted at the Malta Rocket Fuel Area (MRFA) site, in the Town of Malta, New York. This report has been prepared in accordance with the following documents:

- Operation and Maintenance Manual, Remedial Work Element I, Drinking Water, dated March 31, 1998 and prepared by ERM - Northeast, Inc.
- Operation and Maintenance Manual, Remedial Work Element I, Drinking Water, dated January 15, 2002, and prepared by Shaw Environmental, Inc. (Shaw), (formerly IT Corporation).
- Operations and Maintenance Manual, Remedial Work Element II, Groundwater, dated December 11, 1997 and prepared by ERM - Northeast, Inc.
- Operation and Maintenance Manual, Remedial Work Element IV, Institutional Controls, dated September 9, 1999, revised September 27, 1999, prepared by Shaw, (formerly IT Corporation).

This report covers all site activities performed at the site as required in each of the previously referenced documents, for the period from December 24, 2002 through June 26, 2003.

2.0 O&M OF REMEDIAL WORK ELEMENT I (Drinking Water)

Six monthly site visits were performed to check system operation, record system operating conditions, and to determine system treatment effectiveness by sampling of the drinking water process stream. These visits took place on January 30, February 26, March 27, April 9, May 29, and June 26, 2003.

System effectiveness sampling was performed during the February 26 and May 29 site visits to document adherence to treatment system discharge objectives. Analytical results from these sample events (including validated analytical results and chain of custody forms for the February 26 and May 29, 2003 samples) are provided in **Appendix A**. The validation summary for samples is included in **Appendix C**.

Based on the information gathered during this reporting period, it is evident that the ground water treatment system is operating as intended and is meeting the performance standards for the MRFA site. Both RW-1D and RW-2D have operated at an instantaneous flow rate of approximately 6 to 6.5 gallons per minute (gpm) each. This yields an instantaneous system flow of approximately 12 to 13 gpm. System design capacity is a maximum of 25 gpm.

System alarm conditions were received on several occasions from the system Remote Telemetry Unit (RTU) during the current reporting period and were acknowledged remotely or during a site visit.

Air stripper blower pressure readings as well as effluent water quality indicate that the air stripper packing material is not in need of cleaning or replacement.

2.1 Remote Telemetry/Programmable Logic Controller

The RTU has successfully notified key personnel via facsimile and voice messaging of alarm conditions (power failure events, etc.) during the current period. All system equipment is in good repair and should continue to be inspected and repaired in accordance with the schedule provided in **Table 1**.

2.2 Visual Inspection

2.2.1 System Inspection

Visual inspections were made of all accessible system components during monthly site visits in accordance with attached **Table 1, Maintenance Checklist**. Inspections were performed to check for signs of component wear, process piping leaks and general system integrity.

The system was found to be in good working order during monthly site visits. Maintenance activities included regular inspection of the air stripper blower intake for obstructions, inspection of all process valves and piping to prevent leakage of untreated groundwater, and inspection of the air stripper sight tube for sediment buildup. In addition, the operation of the transfer sump pump and associated high level float was checked. The settling tank interior was also visually inspected for signs of sediment buildup or corrosion.

2.2.2 Recovery Pump Inspection

Recovery pumps were inspected during the May 29, 2003 site visit. Shaw personnel utilized confined space entry procedures to enter well vaults RW-1D and RW-2D and disconnect pump supply piping. All system piping and electrical power supplies were locked and tagged out during maintenance and inspection. The pumps and associated down well pipe from each well casing were removed by hand. Pumps and discharge piping were inspected for corrosion, loose or damaged parts and other signs of wear or damage that would indicate a potential for failure.

The pump in RW-1D was encased in a four-inch polyvinyl chloride (PVC) section of slotted well screen. After removal of this protective screen, the pump was inspected and determined to be free of defects. A light coating of mineral scale has accumulated on the pump motor, likely the result of moderate heating during pump operation. There was no accumulation of material surrounding the actual pump intake screen. The pump was subsequently wiped down, the protective casing was reinstalled and the pump re-positioned in the well without modification to the piping. Following installation, the pump was restarted and the piping was inspected for leaks in the well vault – none were observed.

The recovery pump in RW-2D was also removed and inspected in the same manner as the RW-1D pump. This pump does not have a protective casing installed on the pump body. A light accumulation of biological-type growth was observed on the pump intake. Water and a cloth were used to wipe the growth off the intake. No other problems were observed with this pump and it was subsequently reinstalled without incident. Following reinstallation, the pump was

restarted and associated piping was inspected for leaks in the well vault – none were observed.

2.2.3 100,000 Gallon Reservoir Inspection

The annual inspection of the 100,000 gallon reservoir was performed on May 29, 2003. One centrifugal pump was utilized to reduce the level of water in the reservoir to allow Shaw personnel access to the interior. A dedicated suction hose was utilized to avoid possible contamination of the potable water supply. The reservoir level was reduced by approximately five feet before Shaw personnel entered the interior of the structure. All confined space entry procedures, including air monitoring and the use of retrieval equipment, were followed for the duration of the inspection.

The visual inspection of the reservoir did not reveal any problems. A hand held spotlight was used to assist personnel in the inspection of the interior reservoir walls. There were no signs of cracks in the concrete or any types of buildup or growth from biological activity. The standpipe was observed to be in good condition.

2.2.4 Air Stripper Tower Inspection

Shaw utilized a boom lift bucket truck to access the top section of the air stripper tower on May 29, 2003. The protective cover was removed to allow access to the tower demister and spray nozzle. The demister pad was in good condition with no buildup of any material or precipitate. The spray nozzle was in good condition and did not require cleaning beyond a wipe down. The air stripper tower packing was inspected at the top of the column and determined to be in good condition. Packing was discolored, but no evidence of precipitate accumulation or clogging was observed.

2.3 Operating Measurements

2.3.1 Water Flow Measurements

Water flow measurements for wells RW-1D and RW-2D have been tabulated and are shown in **Table 3**, *Process Operating Report* for the reporting period. These readings indicate that the average water flow rates for the period from December 24, 2002 to June 26, 2003 are as follows:

Well RW-1D: 1.5533 gpm
Well RW-2D: 1.5353 gpm
System Avg: 3.0886 gpm

Average daily water flow data as recorded by the data logger are provided in **Appendix D**. This information provides more detailed influent water flow data than that reported in **Table 3**. Information obtained from the data logger indicates an average daily water flow rate of 2.922 gpm for the current reporting period. This is an increase from the average rate of 1.245 gpm for the reporting period ending December 23, 2002.

2.3.2 Blower Air Pressure

Measurements of the air stripper blower back pressure were recorded during monthly O&M site visits and weekly remote inspections. Readings collected during monthly O&M site visits from the pressure gauge installed to monitor the air stripper back pressure are provided in **Table 3**. Pressure readings ranged from 3.1 to 5.0 inches of water column during the current period. Higher air stripper back pressure readings were observed in February 2003, likely due to freezing of the air stripper demisting fabric which was caused by low building temperature observed in Building 15. Pressure readings will continue to be monitored for trends indicating tower packing fouling and the associated potential loss of efficiency for the treatment system.

2.4 Water Quality Data

Samples of the drinking water system influent and effluent were collected on February 26 and May 29, 2003. All samples were collected by Shaw personnel and directed to Columbia Analytical Laboratories, Incorporated in Rochester, New York for analysis. All samples were analyzed for volatile organic compounds (VOCs) using USEPA Method Contract Laboratory Program (CLP) OLC-02, modified to include hexachlorobutadiene, 1,2,3 trichlorobenzene and trichlorofluoromethane as summarized in **Table 4**. In accordance with a request from the EPA and the New York State Department of Health (NYSDOH), the February 26 samples were also analyzed for ammonium perchlorate using USEPA Method 314.0. The validated analytical results and chain of custody forms for the February 26 and May 29, 2003 samples are provided in **Appendix A**, respectively. All validation was performed by Data Validation Services, Incorporated of North Creek, New York. Validation reports are included in **Appendix C**.

Carbon tetrachloride (Carbon Tet) and trichloroethene (TCE) concentrations are tracked to document treatment system effectiveness. Values for all analyzed compounds including

Carbon Tet and TCE were reduced to below typical method detection limits for all effluent samples.

Analyte	Date Sampled	Influent (ppb)	Effluent (ppb)	Performance Standard (ppb)
Carbon Tet	February 26, 2003	15.9	< 1.0	5
	May 29, 2003	12.9	0.15J	5
TCE	February 26, 2003	14.8	0.29J	5
	May 29, 2003	17.7	0.47J	5

Effluent sampling results indicated trace concentrations of TCE that were above detection limits for both monitoring events and a trace concentration of Carbon Tet that was above detection limits for the May 29, 2003 monitoring event. However, each detectable effluent concentration was qualified by the laboratory as being estimated because the results were less than the method quantitation limit but greater than zero. The average removal efficiency for TCE and Carbon Tet were greater than 97.7% and 99.4%, respectively, during this reporting period. The effluent values were less than 10% of the performance standard. Historical influent concentrations for Carbon Tet range from 12 ppb in October 1996 to 149 ppb in December 1990. Effluent concentrations range from below method detection limits to 4.0 ppb in April 1990. Historical influent concentrations for TCE vary from 14.8 ppb in August 2001 and February 2003 to 83 ppb in June 1992. Effluent concentrations have been observed from below method detection limits to 2.8 ppb in March 1987.

Chloroform was detected at a concentration of 1.6 ppb in the air stripper influent sample on February 26, 2003. Chloroform was also detected at a concentration of 1.2 ppb in the air stripper influent sample on May 29, 2003. However, the 1.2 ppb detection was qualified due to presence of chloroform in the trip blank sample. Chloroform was below detection limits in the effluent samples collected on both dates.

Estimated values of ammonium perchlorate were detected in each of the supply wells during the February 26, 2003 visit. However, the results were below the Method reporting limit of 2.0 ppb, and were well below both EPA and NYSDEC guidance values, which currently range from 4 to 18 ppb. The laboratory report of analyses and data validation report have been included in **Appendix C**.

Effluent concentrations for VOCs and ammonium perchlorate indicate that the treated water meets the performance standards established for the site for use as a potable water supply.

3.0 O&M OF REMEDIAL WORK ELEMENT II (Groundwater)

3.1 Sample Collection

In accordance with the Operations and Maintenance Manual for Remedial Work Element II - Ground Water (O&M-GW) approved by the USEPA, groundwater samples were obtained and analyzed from wells DGC-3S, DGC-4S, 13S, M-27S, M-27D, M-33S, and M-33I. Surface water samples were obtained and analyzed from locations SW-A, SW-B, and SW-D (**Figure 1**). Two trip blanks and one blind duplicate sample (DUPA) from well M-27D were also obtained and analyzed.

Unfiltered samples were collected on April 9 and 15, 2003 and submitted to Columbia Analytical Services, Inc. in Rochester, New York. Samples from all monitoring wells (with the exception of 13S) and all surface water locations were analyzed for volatile organic compounds (VOCs) by USEPA Method OLC-02. Samples from wells 13S, M-27S, and M-27D, and surface water location SW-B were analyzed for unfiltered total matrix chromium following CLP procedures and unfiltered hexavalent chromium by SW-846 Method 7196 (Test Methods for Evaluating Solid Waste, 3rd Edition, November 1986). In accordance with a request from the EPA and NYSDOH, samples were also collected from all monitoring wells and surface water locations and were analyzed for ammonium perchlorate by USEPA Method 314.0.

Results of the April 2003 semi-annual sampling are summarized in **Table 5**. The laboratory reporting data sheets for this sampling event are also presented in **Appendix B**. The data validation report is included in **Appendix D**. A summary of analytical results from 1987 through the most recent round is provided in **Tables 6, 7, and 8** for sampling points presently included in the EWMS sampling program. The Sampling and Analysis Plan (SAP) as presented in the O&M-GW contains a complete table of historical EWMS analytical results through 1994.

Time-concentration plots for hexavalent chromium at well 13S (**Figure 2**) and carbon tetrachloride at well M-27D (**Figure 3**) are also included. Based on the April 2003 analytical results, the groundwater from this site does not appear to be impacting the Luther Forest Well Field or the water supply wells north of the Site.

3.2 Chromium Analytical Results

Results of the unfiltered total chromium analyses are as follows: well 13S contained 52.2 ug/l. For comparison purposes only, the New York State Ground Water Standard (NYSGWS) for total chromium is 50 ug/l.

The unfiltered hexavalent chromium analytical results were "ND" at the detection limit of 10 ug/l for all groundwater samples and one surface water sample, except well 13S which contained an estimated concentration of 45 ug/l. For comparison purposes only, the NYSGWS for hexavalent chromium is 50 ug/l.

The attached time-concentration plot for unfiltered hexavalent chromium in well 13S (**Figure 2**) indicates a continued decrease in the concentration of hexavalent chromium after August 1993. With the exception of a few higher anomalies, the hexavalent chromium concentrations in well 13S have been at or slightly above the NYSGWS of 50 ug/l since November 1994, or approximately eight and one half years.

Total chromium was detected in surface water location SW-B at a concentration of 1 ug/l during this reporting period.

3.3 Volatile Analytical Results

Carbon tetrachloride was detected in well M-27D at an estimated concentration of 5.1 ug/l. The duplicate sample collected (DUPA) for M-27D confirms the analytes presence at a concentration of 4.5 ug/l. The federal drinking water standard for carbon tetrachloride is 5 ug/l. The attached time-concentration plot for carbon tetrachloride in well M-27D (**Figure 3**) demonstrates that the April 2003 concentration remains relatively low and is generally decreasing with time. During the entire thirteen year tracking of this analyte this represents the lowest detection. Chloroform was not detected in well M-27D during this reporting period. Trichloroethylene was detected in well M-27D at 2.4 ug/l. Trichlorofluoromethane was detected in well M-27D at an estimated concentration of 0.21 ug/l. Both trichloroethylene and trichlorofluoromethane were also detected in the DUPA duplicate sample at concentrations of 2.2 ug/l and estimated 0.18 ug/l, respectively.

No VOCs were detected in surface water samples SW-A, SW-B and SW-D collected and analyzed during the April 2003 sampling event, with the exception carbon tetrachloride and trichloroethylene in sample SW-B with estimated concentrations of 0.34 ppb and 0.20 ppb, respectively.

3.4 Ammonium Perchlorate Analytical Results

Detectable concentrations of ammonium perchlorate were not observed in any of the monitoring well or surface water locations.

3.5 Comparison of Observed VOC Concentrations to Simulation Results

As described in the O&M-GW report, the carbon tetrachloride and trichloroethylene concentrations observed during the semi-annual monitoring are to be compared to the results from the contaminant fate and transport modeling reported in Appendix A of the O&M-GW. This comparison was performed for carbon tetrachloride in monitoring well M-27D (**Figure 4**) and for trichloroethylene in monitoring well M-33S (**Figure 5**) during the April 2003 sampling event. The starting point for the simulation reported in the O&M-GW report was the carbon tetrachloride spatial distribution as measured in June 1992. As shown in **Figure 4**, the simulated carbon tetrachloride results are much higher than the observed concentrations. As shown in **Figures 5** and **6**, there were no observed concentrations of TCE in monitoring wells M-33S and M-33I as predicted by the simulations.

4.0 INSTITUTIONAL CONTROLS

O & M activities, for remedial Work Element IV, Institutional Controls, are conducted on an annual basis. Shaw conducts these activities, visual inspection and environmental easement restriction interviews with property owner representatives during the second semi-annual reporting period. No institutional control activities were conducted during this reporting period. These activities will be conducted and reported during the next event.

5.0 SUMMARY

5.1 Drinking Water

The ground water treatment system is operating as intended and is meeting the performance standards for the MRFA site. All effluent samples collected and analyzed during the current period revealed concentrations below project discharge objectives. Treatment equipment continues to operate satisfactorily, and will continue to be monitored as necessary to ensure continued operation of all components and to maintain a reliable source of potable water for the Test Station.

5.2 Groundwater

In summary, only well M-27D had detectable concentrations of carbon tetrachloride above federal drinking water standards. Chromium was detected at a concentration of 52.2 Fg/l, and hexavalent chromium was detected at a concentration of 45 Fg/l in well 13S. Carbon tetrachloride was not detected in the monitoring wells adjacent to the Luther Forest Well Field. Based on the current analytical results, the ground water from the MRFA Site does not appear to be impacting the Luther Forest Well Field or the water supply wells north of the site.

Comparison of the observed carbon tetrachloride concentrations to simulated carbon tetrachloride concentrations at selected EWMS monitoring well locations shows that the simulated concentrations are higher than the observed concentrations. The simulated TCE concentrations are also higher than the observed TCE concentrations in M-27S and M-27D. TCE was not detected in M-33S or M-33I. Future comparisons will continue to help assess the natural attenuation and degradation of VOCs in ground water at the MRFA Site.

TABLES

**TABLE 1
 MAINTENANCE CHECKLIST
 OPERATION AND MAINTENANCE PLAN
 TEST STATION WATER SUPPLY AND TREATMENT SYSTEM
 MALTA ROCKET FUEL AREA SITE**

Equipment Name	Item	Action	Frequency	Comments
Well Pump 1D	Pump bowls	Check for signs of iron fouling & impeller wear	Annually	More frequently as problems occur
Well Pump 2D	Pump bowls	Check for signs of iron fouling & impeller wear	Annually	More frequently as problems occur
Control Valves	Miscellaneous	Inspect for leaks	Monthly	Exercise valves annually
Air Stripper Sight Tube		Inspect for siltation and biofouling	Monthly	Adjust frequency depending on operating experience
Air Stripper Spray Nozzle		Inspect for fouling	Annually	No required routine maintenance
Air Stripper Blower	Intake	Inspect and clean	Monthly	Adjust frequency depending on operating experience
Air Stripper Blower	Motor & bearings	Check and lubricate	Annually	More frequently as problems occur
Air Stripper Unit	Packing	Clean or replace	Every 5 years	Adjust frequency depending on operating experience

TABLE 1 (Continued)
MAINTENANCE CHECKLIST
OPERATION AND MAINTENANCE PLAN
TEST STATION WATER SUPPLY AND TREATMENT SYSTEM
MALTA ROCKET FUEL AREA SITE

Equipment Name	Item	Action	Frequency	Comments
Mist Eliminator	Mesh screen	Clean or replace	Annually	Adjust frequency depending on operating experience
Settling Tank		Inspect for siltation	Monthly	Adjust frequency depending on operating experience
Settling Tank High Level Float Switch		Check operation	Monthly	Replace float switch every 5 years
100K Gallon Reservoir		Inspect for siltation, debris, etc.	Annually	Adjust frequency depending on operating experience
Level Sensor	Probe	Manually check start-up/shutdown. Check probe float for free range of motion. Remove and inspect for buildup of minerals if resistance is detected.	Monthly	Adjust frequency depending on operating experience
Misc. Guys, Hardware etc.		Inspect	Annually	Adjust frequency depending on operating experience
System Interlocks	Settling Tank High Level Blower Low Pressure Blower Low Amps Building Low Temperature	Check for proper operation. System should alarm after pre-set delay period.	Monthly	Adjust frequency depending on operating experience

**TABLE 2
EQUIPMENT LOG
AIR STRIPPER MAINTENANCE
MALTA ROCKET FUEL AREA SITE**

Date	Operator	Operational Status of System	Work Performed
1/30/2003	John Skaarup	OK	System operational upon arrival. Checked settling tank high level float, reservoir level probe and inspected all system process lines. Tested operation of all system alarms and interlocks - all are operating properly. No problems were noted.
2/26/2003	John Skaarup	OK	Acknowledged building temperature alarm upon arrival. Cycled system and checked settling tank high level float, reservoir level probe and inspected all system process lines. Tested operation of all system alarms and interlocks - all are operating properly. Collected quarterly influent and effluent performance samples and ammonium perchlorate samples from the air stripper.
3/27/2003	John Skaarup	OK	System operational upon arrival. Tested system interlock – all OK. Tested pH, Total Alkalinity, Total Chlorine, and Total Hardness of air stripper influent and effluent.
4/9/2003	John Skaarup & Marc Flanagan	OK	System off upon arrival. Reservoir at normal level. Control valves and piping in good visual condition. Checked system interlocks – all OK. Checked air stripper blower intake. Cycled system and took water flow readings.
5/29/2003	John Skaarup	OK	System operational upon arrival. Performed annual inspection of system and cleaning of effluent tank. Inspected system process piping and valves. Tested operation of all system alarms and interlocks - all are operating properly. Collected quarterly influent and effluent performance samples from the air stripper.
6/26/2003	John Skaarup	OK	System operational upon arrival. Checked settling tank high level float, reservoir level probe and inspected all system process lines. Observed moderate sweating on pipes due to humidity but no leaks were observed. Tested operation of all system alarms and interlocks - all are operating properly. No problems were noted.

**TABLE 3 - SHEET 1/2
PROCESS OPERATING REPORT
WATER TREATMENT SYSTEM
MALTA ROCKET FUEL AREA SITE**

1	2	3					4					5
DATE	TIME	WATER FLOW -LINE 1D					WATER FLOW -LINE 2D					PROBLEMS OR COMMENTS
		1D LINE FLOW METER RDG(GPM)	1D LINE TOTALIZER RDG(GAL)	ELAPSED TIME (DAYS)	TOTAL FLOW THIS PERIOD (GAL)	AVG FLOW THIS PERIOD (GPM)	2D LINE FLOW METER RDG(GPM)	2D LINE TOTALIZER RDG(GAL)	ELAPSED TIME (DAYS)	TOTAL FLOW THIS PERIOD (GAL)	AVG FLOW THIS PERIOD (GPM)	
1/30/03	13:20	6.3	1345400	38	34,300	0.63	6.1	1,325,400	38	32,300	0.59	
2/26/03	9:10	6.3	1,374,300	27	28,900	0.74	6	1,352,500	27	27,100	0.70	
3/27/03	9:48	6.3	1,439,100	29	64,800	1.55	6	1,413,500	29	61,000	1.46	
4/9/03	10:30	6.2	1,440,000	13	900	0.05	6.0	1,467,200	13	53,700	2.87	
5/29/03	8:15	10.0	1,638,200	50	198,200	2.75	14.0	1,613,700	50	146,500	2.03	
6/26/03	9:20	15.0	1,724,900	28	86,700	2.15	14.0	1,702,100	28	88,400	2.19	
Summary				185	413,800	1.5533			185	409,000	1.5353	

NR = Not Recorded
NA = Not Applicable

**TABLE 3 - SHEET 2/2
PROCESS OPERATING REPORT
WATER TREATMENT SYSTEM
MALTA ROCKET FUEL AREA SITE**

1	2	3			4	5
DATE	TIME	STANDPIPE LEVEL (FT)	LEVEL PROBE OK ?	SAMPLES TAKEN ?	AIR BLOWER PRESSURE OK?	PROBLEMS OR COMMENTS
1/30/03	13:20	12.75	Yes	No	3.60	
2/26/03	9:10	12.75	Yes	Yes	5.00	Collected system samples including Influent, Effluent, Duplicate, Matrix Spike, Matrix Spike Duplicate and Trip Blank.
3/27/03	9:48	12.75	Yes	No	3.50	
4/9/03	10:30	12.70	Yes	No	3.20	
5/29/03	8:15	12.75	Yes	Yes	3.60	Collected system samples including Influent, Effluent, Duplicate, Matrix Spike, Matrix Spike Duplicate and Trip Blank.
6/26/03	9:20	12.75	Yes	No	3.10	

TABLE 4
SUMMARY OF DRINKING WATER SAMPLING PROGRAM, PRESERVATIVES, HOLDING TIMES AND CONTAINERS
MALTA ROCKET FUEL AREA SITE

Sample	Sampling Frequency	Sample Matrix	Analytical Parameters	Analytical Method Reference ¹	Sample Preservation	Holding Times ²	Containers
Influent	1 per quarter	Water	CLP OLC VOCs	USEPA CLP OLCO2	Hcl, Cool, <4°C	14 days	3 - 40 ml glass vials with teflon septa and plastic screw caps
Effluent	1 per quarter	Water	CLP OLC VOCs	USEPA CLP OLCO2	Hcl, Cool, <4°C	14 days	3 - 40 ml glass vials with teflon septa and plastic screw caps

Notes:

1. *USEPA CLP OLCO2 analysis modified to include hexachlorobutadiene, 1,2,3 trichlorobenzene and trichlorofluoromethane to match the EWMS ground water analyses.*
2. *Holding times begin at the time of sample collection.*

TABLE 5
APRIL 2003 WATER QUALITY ANALYTICAL RESULTS
SEMI-ANNUAL SAMPLING

Compound	Remedial Action Objective	DGC-3S	DGC-4S	13S	M-27S	DUPA (27D)	M-27D	M-33S	M-33I	Trip Blank
Acetone	50	5.0 UJ	5.0 UJ	NA	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Carbon Disulfide	None*	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	5	1.0 U	1.0 U	NA	1.0 U	4.5	5.1	1.0 U	1.0 U	1.0 U
Chloroform	7	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	5	5.0 UJ	5.0 UJ	NA	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Trichloroethylene	5	1.0 U	1.0 U	NA	1.0 U	2.2	2.4	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	5*	1.0 U	1.0 U	NA	1.0 U	0.18 J	0.21 J	1.0 U	1.0 U	1.0 U
Chromium	50*	NA	NA	52.2	8.5 B	6.1 B	5.9 B	NA	NA	NA
Hexavalent Chromium	50*	NA	NA	45	10 UJ	10 U	10 U	NA	NA	NA

Field Parameters										
pH	-	6.14	7.85	7.76	8.08	7.64	7.64	8.48	10.97	-
Temperature (celsius)	-	5.9	8.12	8.71	9.53	9.65	9.65	7.76	9.53	-
Conductivity (umhos/cm)	-	0.064	0.579	0.376	0.259	0.282	0.282	0.164	0.176	-
Dissolved Oxygen	-	8.85	3.05	9.53	11.05	8.24	8.24	7.56	9.54	-
Turbidity (NTUs)	-	194.7	52.9	1.8	93.2	0.2	0.2	0	0.4	-
Depth To Water (feet)	-	14.51	6.21	36.19	42.94	42.05	42.05	19.05	33.23	-
Ground Water Elevation (feet)	-	200.77	199.59	292.72	280.16	281.05	281.05	285.22	270.46	-

Notes:

1. All analytical concentrations are in µg/l (micrograms per liter (ppb)).
2. Only compounds detected at one or more sampling points are listed.
3. NA - not analyzed for.
4. U - analyte was not detected, and value shown is the detection limit.
5. J - estimated value due to data validation requirements or concentration less than CRQL (organics only).
6. B - The reported value is less than the CRDL but greater than the IDL (inorganics only).
- * Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.
7. D - Identifies all compounds analyzed at a secondary dilution factor.
8. NM - Not measured due to equipment malfunction.

TABLE 5 (Continued)
APRIL 2003 WATER QUALITY ANALYTICAL RESULTS
SEMI-ANNUAL SAMPLING

Parameter	Remedial Action Objective	SW-A	SW-B	SW-D
Acetone	50	5.0 UJ	5.0 UJ	5.0 UJ
Carbon Disulfide	None*	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	5	1.0 U	0.34 J	1.0 U
Chloroform	7	1.0 U	1.0 U	1.0 U
2-Butanone	5	5.0 UJ	5.0 UJ	5.0 UJ
Trichloroethylene	5	1.0 U	0.20 J	1.0 U
Chromium	50*	NA	1 B	NA
Hexavalent Chromium	50*	NA	10 U	NA

Field Parameters				
pH	-	8.19	8.15	7.75
Temperature (celsius)	-	4.80	5.10	4.00
Conductivity (umhos/cm)	-	0.253	0.293	0.45
Dissolved Oxygen	-	11.19	11.37	13.72
Turbidity (NTUs)	-	1.20	3.30	220.5
Depth To Water (feet)	-	-	-	-
Ground Water Elevation (feet)	-	-	-	-

Notes:

1. All analytical concentrations are in µg/l (micrograms per liter (ppb)).
2. Only parameters detected in one or more sampling points are listed.
3. NA - not analyzed for.
4. U - analyte was not detected, and value shown was the detection limit.
5. J - estimated value due to data validation requirements or concentration less than CRQL (organics only).
6. B - The reported value is less than the CRDL but greater than the IDL (inorganics only).
- * Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.
7. NM - Not measured due to equipment malfunction.

**TABLE 6 (MONITORING WELLS DGC-3S, DGC-4S, 13S)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

Wells / Compounds	Remedial	6/29-	7/31/87	11/5/87	1/19-	4/18-	7/20-	10/11-	1/19-
	Action Objective	7/1/87			1/20/88	4/19/88	7/21/88	10/12/88	1/20/89
DGC-3S									
Benzene	0.7*	ND	NA	ND	ND	ND	ND	ND	ND
Carbon Disulfide	None*	ND	NA	ND	ND	ND	ND	ND	NA
Aluminum	100*	0.48	NA	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	<0.005 mg/L	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50*	no data	no data	no data	no data	no data	no data	no data	no data
DGC-4S									
Carbon Disulfide	None*	--	--	--	--	--	--	--	--
Chromium	50*	--	--	--	--	--	--	--	--
13S									
Benzene	0.7*	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	None*	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	5	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	5*	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Units are µg/l (ppb) unless otherwise stated.
 Only detected compounds are listed.
 NA = Not analyzed.
 ND = Not detected.
 B = The reported value is less than the CRQL/CRDL but greater than the IDL.
 dp = Duplicate sample.
 E = Estimated concentration: due to interference.
 D = Concentration determined from a sample dilution.

J = Estimated concentration.
 V = Estimated concentration: due to variance to quality control limits.
 -- = Not sampled: well installed in December, 1990.
 * Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.
 ** = Filtered Sample.

**TABLE 6 (MONITORING WELLS DGC-3S, DGC-4S, 13S)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

Wells / Compounds	Remedial Action Objective	4/10/89	7/12/89	8/15/89	11/30/89	5/30/90	8/28/90	12/6/90	4/8-4/10/91
DGC-3S									
Benzene	0.7*	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND	NA	8 V / 7 Vdp
Aluminum	100*	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50*	no data	no data	no data	no data	NA	NA	NA	NA
DGC-4S									
Carbon Disulfide	None*	--	--	--	--	--	--	--	ND/0.5Vdp
Chromium	50*	--	--	--	--	--	--	--	NA
13S									
Benzene	0.7*	NA	NA	NA	NA	NA	NA	NA	2
Carbon Disulfide	None*	NA	NA	NA	NA	NA	NA	NA	60 D
Carbon Tetrachloride	5	NA	NA	NA	NA	18/16 dp	6.4	4.4	8
Chloroform	7	NA	NA	NA	NA	ND	ND	ND	ND
Trichloroethylene	5	NA	NA	NA	NA	ND	ND	ND	ND
Trichlorofluoromethane	5*	NA	NA	NA	NA	ND	ND	ND	ND
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	336 V
Hexavalent Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Units are µg/l (ppb) unless otherwise stated.
 Only detected compounds are listed.
 NA = Not analyzed.
 ND = Not detected.
 B = The reported value is less than the CRQL/CRDL but greater than the IDL.
 dp = Duplicate sample.
 E = Estimated concentration: due to interference.
 D = Concentration determined from a sample dilution.

J = Estimated concentration.
 V = Estimated concentration: due to variance to quality control limits.
 -- = Not sampled: well installed in December, 1990.
 * Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.
 ** = Filtered Sample.

**TABLE 6 (MONITORING WELLS DGC-3S, DGC-4S, 13S)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

Wells / Compounds	Remedial Action Objective	6/12-	9/23-	12/26-	2/10-	6/1-	9/28-	11/18-	3/17-
		6/13/91	9/24/91	12/27/91	2/11/92	6/2/92	9/29/92	11/19/92	3/18/93
Benzene	0.7*	ND	0.2 J	ND	ND/NDdp	ND	ND	ND	ND
Carbon Disulfide	None*	4	ND	ND	ND/NDdp	ND	ND	ND	ND
Aluminum	100*	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50*	NA	6.1	62.2E/70.3Edp	16.2/ND*, 14.6/ND*dp	25.2/ND*	ND	33.6/ND*	18.5
Hexavalent Chromium	50*	NA	NA	NA	ND/4*/ND dp	NA	NA	NA	NA

DGC-4S

Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND/ND dp	4 V	ND
Chromium	50*	NA	15.9	11.9 E	ND/ND*	ND/ND*	ND/ND dp	8.6 B	48.1/ND*

13S

Benzene	0.7*	0.7/0.6 Jdp	1	ND	ND	ND	ND	0.4 JV	ND
Carbon Disulfide	None*	0.6	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	24 J/24 Jdp	8	12	9	6 J	9	16 V	15
Chloroform	7	0.8/0.9 Jdp	ND	0.4 J	0.3 J	ND	ND	0.6 V	0.6
Trichloroethylene	5	ND	0.4 J	0.9	0.6	ND	0.6	1 V	2
Trichlorofluoromethane	5*	ND	ND	ND	ND	ND	0.5	0.9 V	2
Chromium	50*	NA	269/261**	316 E/562 E**	282/498**	504/512**	179/172**	585/576**	746/614**
Hexavalent Chromium	50*	NA	280	486/302**	260/310**	NA	287	493	663

Notes:

Units are µg/l (ppb) unless otherwise stated.
 Only detected compounds are listed.
 NA = Not analyzed.
 ND = Not detected.
 B = The reported value is less than the CRQL/CRDL but greater than the IDL.
 dp = Duplicate sample.
 E = Estimated concentration: due to interference.
 D = Concentration determined from a sample dilution.

J = Estimated concentration.
 V = Estimated concentration: due to variance to quality control limits.
 - - = Not sampled: well installed in December, 1990.
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 ** = Filtered Sample.

**TABLE 6 (MONITORING WELLS DGC-3S, DGC-4S, 13S)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

Wells / Compounds	Remedial	5/25-	8/24-	11/8-	2/22-	5/18-	8/24-	11/15-	
	Action Objective	5/26/93	8/25/93	11/9/93	2/23/94	5/19/94	8/25/94	11/16/94	5/23/95
Benzene	0.7*	ND	ND	ND	ND	ND V	ND	ND	ND
Carbon Disulfide	None*	ND	0.8	ND	ND	ND V	ND	ND	ND
Aluminum	100*	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50*	4.3 B	4.7B	19.4	23.9	4.5 B	9.9 B	11.1	NA
Hexavalent Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA

DGC-4S

Carbon Disulfide	None*	0.3 J	0.2J	ND	ND	ND V/ND V dp	ND	ND	ND
Chromium	50*	ND	3.3B	ND	31.2/ND*	ND/ND dp	5.6 B	ND	NA

13S

Benzene	0.7*	ND	ND	ND	ND/ND dp	ND	ND	ND	NA
Carbon Disulfide	None*	ND	ND	ND	ND/ND dp	ND	ND	ND	NA
Carbon Tetrachloride	5	10	17	18	20/9 dp	9	9	9	NA
Chloroform	7	0.4 J	0.6	0.7	ND/ND dp	0.4 J	0.3 J	ND	NA
Trichloroethylene	5	0.6	ND	2	2/1 dp	0.8	1	0.9	NA
Trichlorofluoromethane	5*	0.5	ND	2	2/1 dp	0.9	1	ND	NA
Chromium	50*	198/609**	787/716**	572/610**	580/357** 567/357** dp	406/434**	133 V/157 V**	44.2 V/95.8 V**	140 J
Hexavalent Chromium	50*	460	800	560	530/540 dp	340	101	36	150

Notes:

Units are µg/l (ppb) unless otherwise stated.
Only detected compounds are listed.
NA = Not analyzed.
ND = Not detected.
B = The reported value is less than the CRQL/CRDL but greater than the IDL.
dp = Duplicate sample.
E = Estimated concentration: due to interference.
D = Concentration determined from a sample dilution.

J = Estimated concentration.
V = Estimated concentration: due to variance to quality control limits.
- - = Not sampled: well installed in December, 1990.
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** = Filtered Sample.

**TABLE 6 (MONITORING WELLS DGC-3S, DGC-4S, 13S)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

Wells / Compounds	Remedial Action Objective	Sampling Dates							
		10/17/95	5/14/96	10/23/96	6/2/97	10/14/97	5/28/98	10/29/98	5/11/99
DGC-3S									
Benzene	0.7*	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND	ND	ND
Aluminum	100*	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA
DGC-4S									
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA
13S									
Benzene	0.7*	NA	NA	NA	1U	1U	NA	NA	NA
Carbon Disulfide	None*	NA	NA	NA	1U	1U	NA	NA	NA
Carbon Tetrachloride	5	NA	NA	NA	1U	8	NA	NA	NA
Chloroform	7	NA	NA	NA	1U	1U	NA	NA	NA
Trichloroethylene	5	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	5*	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50*	52.7 J	44.8	46.4	90.7/90.9**	71.4	71.2	98.6 J	72.4
Hexavalent Chromium	50*	48	47	47	97	67	51	54.0 J	71.0

Notes:

Units are µg/l (ppb) unless otherwise stated.
 Only detected compounds are listed.
 NA = Not analyzed.
 ND = Not detected.
 B = The reported value is less than the CRQL/CRDL but greater than the IDL.
 dp = Duplicate sample.
 E = Estimated concentration: due to interference.
 D = Concentration determined from a sample dilution.

J = Estimated concentration.
 V = Estimated concentration: due to variance to quality control limits.
 - - = Not sampled: well installed in December, 1990.
 * Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.
 ** = Filtered Sample.

**TABLE 6 (MONITORING WELLS DGC-3S, DGC-4S, 13S)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

Wells / Compounds	Remedial Action Objective	Sampling Dates							
		10/26/99	5/22/00	10/24/00	5/15/01	10/23/01	5/29/02	10/29/02	4/9/03
DGC-3S									
Benzene	0.7*	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND	ND	ND
Aluminum	100*	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA
DGC-4S									
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA
13S									
Benzene	0.7*	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	None*	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	5	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	5*	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	50*	169	249	29.9	136	43.3	13.4	34.8	52.2
Hexavalent Chromium	50*	178	262	41	12.3	43.6 J	18	3.59	45

Notes:

Units are µg/l (ppb) unless otherwise stated.
 Only detected compounds are listed.
 NA = Not analyzed.
 ND = Not detected.
 B = The reported value is less than the CRQL/CRDL but greater than the IDL.
 dp = Duplicate sample.
 E = Estimated concentration: due to interference.
 D = Concentration determined from a sample dilution.

J = Estimated concentration.
 V = Estimated concentration: due to variance to quality control limits.
 - - = Not sampled: well installed in December, 1990.
 * Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.
 ** = Filtered Sample.

**TABLE 7 (MONITORING WELLS M-27, M-27D, M-33S, M-33I)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1992 - APRIL 2003
SEMI-ANNUAL SAMPLING**

	Remedial Action Objective	6/5/92	11/11/92	3/14/94	5/23/95	10/17/95	5/14/96	10/23/96	6/2/97	10/14/97
M-27S										
Carbon Disulfide	None*	ND	ND	not sampled	ND	ND	ND	ND	ND	ND
Chloromethane	5	40	ND	not sampled	ND	ND	ND	ND	ND	ND
Chromium	50*	8.4 B/ND**	57.4/ND**	not sampled	ND	ND	ND	ND	ND	ND
Hexavalent Chromium	50*	NA	NA	not sampled	ND	ND	ND	ND	ND	ND
M-27D										
Carbon Tetrachloride	5	75/62 dp	23	not sampled	33/42 dp	56	31	28	26	22
Chloroform	7	ND	3	not sampled	4/4 dp	5	3	3	3	2
Chloromethane	5	4 J/28 dp	ND	not sampled	ND/ND dp	ND	ND	ND	ND	ND
Trichloroethylene	5									
Trichlorofluoromethane	5*	no data	no data	not sampled	no data	no data	no data	no data	no data	no data
Chromium	50*	2.0 B/ND**	19.8/ND**	not sampled	ND/ND dp	ND	ND	ND	ND	1.2B
Hexavalent Chromium	50*	NA	NA	not sampled	ND/ND dp	ND	ND	ND	ND	ND
M-33S										
VOCs	-	not sampled	not sampled	ND	ND	ND	ND	ND	ND	ND
M-33I										
VOCs	-	not sampled	not sampled	ND	ND	ND	ND	ND	ND	ND

Notes:

Units are ug/l (ppb) unless otherwise stated.

Only detected compounds are listed.

NA = Not analyzed.

ND = Not detected.

J = Estimated concentration.

dp = Duplicate sample.

B = The reported value is less than the CRQL/CRDL but greater than the IDL.

* Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.

** = Filtered Sample.

**TABLE 7 (MONITORING WELLS M-27, M-27D, M-33S, M-33I)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1992 - APRIL 2003
SEMI-ANNUAL SAMPLING**

M-27S	Remedial Action											
	Objective	5/28/98	10/29/98	5/11/99	10/26/99	5/22/00	10/24/00	5/15/01	10/23/01	5/29/02	10/29/02	4/15/03
Carbon Disulfide	None*	ND	ND	0.85 J	ND / ND dp	ND	ND	ND / ND dp	ND / ND dp	ND / ND dp	ND J / ND J dp	ND
Chloromethane	5	ND	ND	ND	ND / ND dp	ND	ND	ND / ND dp	ND / ND dp	ND / ND dp	ND J / ND J dp	ND
Chromium	50*	ND	3.2 BJ	0.98B	0.85B/0.90b dp	1.1B	1.2B	ND / ND dp	ND / ND dp	ND / ND dp	1.2 B	8.5 B
Hexavalent Chromium	50*	ND	ND	ND	ND / ND dp	ND	ND	ND / ND dp	ND / ND dp	ND / ND dp	ND / ND dp	ND UJ
M-27D												
Carbon Tetrachloride	5	27	26 / 27 dp	20.3 / 20.1 dp	22.3	26.7D/28.9D dp	19.2/19.8 dp	13.8	16.2	14.5	24.2 DJ	5.1 / 4.5 dp
Chloroform	7	3	2 / 2 dp	1.8 / 1.8 dp	1.8	ND / ND dp	1.7J / 1.3 dp	1.1	1.1	0.94J	2.4	ND / ND dp
Chloromethane	5	ND	ND / ND	ND / ND dp	ND	ND / ND dp	ND / ND dp	ND	ND	ND	ND	ND ND dp
Trichloroethylene	5		ND/ND dp	4.1/4.1 dp	10.7	12.8 / 12.1 dp	26.4 / 26.5D dp	19.4	27 D	22.7	14	2.4 / 2.2 dp
Trichlorofluoromethane	5*	no data	0.3 J / 0.3 J dp	0.92J / 0.99J dp	1.4	1.9 / 1.8 dp	2.9 / 2.9 dp	2.0	2.2	1.5	0.96 J	0.21J / 0.18J dp
Chromium	50*	ND	4.6 BJ / 4.8 BJ dp	1.4 B / 1.3 B dp	0.81B	2B/1.8B dp	1.2B/1.2B dp	ND	1.5 B	2 B	1.5 B	5.9B / 6.1B dp
Hexavalent Chromium	50*	ND	ND / ND dp	ND / ND dp	ND	ND/ND dp	ND/ND dp	ND	ND	ND	ND	ND / ND dp
M-33S												
VOCs	-	ND	ND	ND	ND	ND	ND	8.0 J	ND	ND	ND	ND
M-33I												
VOCs	-	ND	ND	ND	ND	ND	ND	4.1 J	ND	ND	ND	ND

Notes:

Units are ug/l (ppb) unless otherwise stated.

Only detected compounds are listed.

NA = Not analyzed.

ND = Not detected.

J = Estimated concentration.

dp = Duplicate sample.

B = The reported value is less than the CRQL/CRDL but greater than the IDL.

D = Identifies compound analyzed at a secondary dilution factor.

* Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.

** = Filtered Sample.

**TABLE 8 (SURFACE WATER)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

Surface Water Points / Compounds	Cleanup Standard	6/29- 7/1/87	7/31/87	11/5/87	1/19- 1/20/88	4/18- 4/19/88	7/20- 7/21/88	10/11- 10/12/88	1/19- 1/20/89	4/10/89	7/12/89
SW-A											
Carbon Disulfide	None*	ND	NA	ND	ND	ND	ND	ND	NA	NA	NA
Aluminum	100*	0.12 mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	0.02 mg/L	NA	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-B											
Carbon Disulfide	None*	ND	NA	ND	ND	ND	ND	ND	NA	NA	NA
Carbon Tetrachloride	5	ND	NA	ND	ND	ND	ND	ND	1.1/1.1dp	ND	ND
Chloroform	7	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	5	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	5*	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Aluminum	100*	0.21 mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	<0.01 mg/L	NA	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-D											
Acetone	5*	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Bromochloromethane	5*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	None*	ND	NA	ND	ND	ND	ND	ND	NA	NA	NA
Carbon Tetrachloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.6*	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Methylene Chloride	5*	ND	ND	0.5	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	5*	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Aluminum	100*	0.50 mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	<0.005 mg/L	NA	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Units are µg/l (ppb) unless otherwise stated.

Only detected compounds are listed.

NA = Not analyzed.

ND = Not detected.

dp = Duplicate sample.

B = The reported value is less than the CRQL/CRDL but greater than the IDL.

D = Concentration determined from a sample dilution.

E = Estimated concentration : due to interference.

J = Estimated concentration.

V = Estimated concentration: due to variance to quality control limits.

R = Rejected during data validation.

* Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.

** = Filtered Sample.

**TABLE 8 (SURFACE WATER)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

**Surface Water Points /
Compounds**

SW-A	Cleanup Standard	8/15/89	11/30/89	12/27/89	2/22/90	5/30/90	8/28/90	12/6/90	4/8- 4/10/91	6/12- 6/13/91	9/23- 9/24/91	12/26- 12/27/91	2/10- 2/11/92	6/1- 6/2/92	9/28- 9/29/92
Carbon Disulfide	None*	NA	NA	NA	NA	NA	NA	NA	0.5 V	ND	ND	ND	ND	ND	ND
Aluminum	100*	NA	NA	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Lead	25*	NA	NA	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.6	ND	ND	ND	ND

SW-B

Carbon Disulfide	None*	NA	NA	NA	NA	NA	NA	NA	ND	0.2 J	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	0.9	NA	0.88	ND	ND	1	0.4 J	0.6 J	0.4 J	0.8	0.8	0.7	0.3 J
Chloroform	7	ND	ND	ND	ND	ND	ND	ND	ND	0.2 J	ND	ND	ND	0.2 J	ND
Trichloroethylene	5	ND	ND	ND	ND	ND	ND	ND	ND	0.3 J	ND	0.2 J	ND	0.3 J	ND
Trichlorofluoromethane	5*	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	ND
Aluminum	100*	NA	NA	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Lead	25*	NA	NA	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND

SW-D

Acetone	5*	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Bromochloromethane	5*	ND	1.7, ND dp	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	ND
Carbon Disulfide	None*	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	no data
1,2-Dichloroethane	0.6*	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	ND
Methylene Chloride	5*	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	6.3 BE	ND	ND	no data
1,2,3-Trichlorobenzene	5*	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Aluminum	100*	NA	NA	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Lead	25*	NA	NA	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	ND	2	ND	ND	ND	ND	ND

Notes:

Units are µg/l (ppb) unless otherwise stated.
Only detected compounds are listed.
NA = Not analyzed.
ND = Not detected.
dp = Duplicate sample.
B = The reported value is less than the CRQL/CRDL but greater than the IDL.
D = Concentration determined from a sample dilution.

E = Estimated concentration : due to interference.
J = Estimated concentration.
V = Estimated concentration: due to variance to quality control limits.
R = Rejected during data validation.
* Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified for comparison purposes only.
** = Filtered Sample.

Notes:

Units are µg/l (ppb) unless otherwise stated.
Only detected compounds are listed.
NA = Not analyzed.
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**TABLE 8 (SURFACE WATER)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

Surface Water Points / Compounds	Cleanup Standard	11/18- 11/19/92	3/17- 3/18/93	5/25- 5/26/93	8/24- 8/25/93	11/8- 11/9/93	2/22- 2/23/94	5/18- 5/19/94	8/24- 8/25/94	11/15- 11/16/94
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aluminum	100*	no data	no data	no data	no data	no data	no data	no data	no data	no data
Lead	25*	no data	no data	no data	no data	no data	no data	no data	no data	no data
Chromium	50*	ND	6.1 B	ND	3.2B	ND	ND	ND	ND	ND

SW-B										
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND/ND dp	ND	ND	ND
Carbon Tetrachloride	5	0.6 V	ND	ND	0.3 J	0.7	0.4 J/0.4 J dp	0.4 J	0.2 JV	ND
Chloroform	7	ND	ND	ND	ND	0.3 J	ND/ND dp	ND	ND	ND
Trichloroethylene	5	ND	ND	ND	ND	0.2 J	ND/ND dp	ND	ND	ND
Trichlorofluoromethane	5*	ND	2	ND	ND	ND	ND/ND dp	ND	ND V	ND
Aluminum	100*	no data	no data	no data	no data	no data	no data	no data	no data	no data
Lead	25*	no data	no data	no data	no data	no data	no data	no data	no data	no data
Chromium	50*	ND	ND	ND	ND	ND	ND/ND dp	ND	ND	ND

SW-D										
Acetone	5*	no data	no data	no data	no data	no data	no data	no data	no data	no data
Bromochloromethane	5*	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	no data	no data	no data	no data	no data	no data	no data	no data	no data
1,2-Dichloroethane	0.6*	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5*	no data	no data	no data	no data	no data	no data	no data	no data	no data
1,2,3-Trichlorobenzene	5*	no data	no data	no data	no data	no data	no data	no data	no data	no data
Aluminum	100*	no data	no data	no data	no data	no data	no data	no data	no data	no data
Lead	25*	no data	no data	no data	no data	no data	no data	no data	no data	no data
Chromium	50*	ND	ND	ND	ND	ND	ND	ND	ND	ND

tated.

E = Estimated concentration : due to interference.

J = Estimated concentration.

V = Estimated concentration: due to variance to quality control limits.

R = Rejected during data validation.

CRQL/CRDL but

* Based on NYSDEC Final Combined Regulatory Impact and Environmental Impact Statement (Title 6, Chapter X, Parts 700-706, 1998), identified

ample dilution.

for comparison purposes only.

** = Filtered Sample.

**TABLE 8 (SURFACE WATER)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

**Surface Water Points /
Compounds**

	Cleanup Standard	5/23/95	10/17/95	5/14/96	10/23/96	6/2/97	10/14/97	5/28/98	10/29/98	5/11/99	10/26/99	5/22/00
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aluminum	100*	no data	no data	no data	no data	no data	no data	no data	NA	NA	NA	NA
Lead	25*	no data	no data	no data	no data	no data	no data	no data	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

SW-B

Carbon Disulfide	None*	ND	ND/ND dp	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	0.7 J/0.6 J dp	ND	0.6J	ND	ND	0.3J	ND	ND	ND	ND
Chloroform	7	ND	ND/ND dp	ND	ND	ND	ND	0.1J	ND	ND	ND	ND
Trichloroethylene	5	ND	ND/ND dp	ND	ND	ND	ND	0.2J	ND	ND	ND	ND
Trichlorofluoromethane	5*	ND	ND/ND dp	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aluminum	100*	no data	no data	no data	no data	no data	no data	no data	NA	NA	NA	NA
Lead	25*	no data	no data	no data	no data	no data	no data	no data	NA	NA	NA	NA
Chromium	50*	ND	ND/ND dp	ND	ND	NA	ND	ND	3.1 BJ	0.44 B	ND	0.9B

SW-D

Acetone	5*	no data	no data	no data	no data	no data	no data	43 J	R	ND	ND	ND
Bromochloromethane	5*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	no data	no data	ND	ND	no data	no data	ND	0.2 J	ND	ND	ND
1,2-Dichloroethane	0.6*	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5*	no data	no data	ND	ND	no data	no data	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	5*	no data	no data	no data	no data	no data	no data	0.1 J	ND	ND	ND	ND
Aluminum	100*	no data	no data	no data	no data	no data	no data	no data	NA	NA	NA	NA
Lead	25*	no data	no data	no data	no data	no data	no data	no data	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Units are µg/l (ppb) unless otherwise stated.

Only detected compounds are listed.

NA = Not analyzed.

ND = Not detected.

dp = Duplicate sample.

B = The reported value is less than the CRQL/CRDL but greater than the IDL.

D = Concentration determined from a sample dilution.

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J = Estimated concentration.

V = Estimated concentration: due to variance to quality control limits.

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** = Filtered Sample.

**TABLE 8 (SURFACE WATER)
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
JUNE 1987 - APRIL 2003
SEMI-ANNUAL SAMPLING**

**Surface Water Points /
Compounds**

SW-A	Cleanup	10/24/00	5/15/01	10/23/01	5/29/02	10/29/02	4/9/03
	Standard						
Carbon Disulfide	None*	ND	ND	ND	ND	ND J	ND
Aluminum	100*	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA

SW-B

Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	0.54J	ND	ND	ND	0.18 J	0.34 J
Chloroform	7	ND	ND	ND	ND	ND	ND
Trichloroethylene	5	ND	ND	ND	ND	ND	0.20 J
Trichlorofluoromethane	5*	ND	ND	ND	ND	ND	ND
Aluminum	100*	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	NA	NA
Chromium	50*	0.75B	ND	ND	1.5 B	0.93 B	1 B

SW-D

Acetone	5*	ND	ND	ND	ND	3.1 J	ND
Bromochloromethane	5*	ND	ND	ND	ND	ND	ND
Carbon Disulfide	None*	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.6*	ND	ND	ND	ND	ND	ND
Methylene Chloride	5*	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	5*	ND	ND	ND	ND	ND	ND
Aluminum	100*	NA	NA	NA	NA	NA	NA
Lead	25*	NA	NA	NA	NA	NA	NA
Chromium	50*	NA	NA	NA	NA	NA	NA

Notes:

Units are µg/l (ppb) unless otherwise stated.

Only detected compounds are listed.

NA = Not analyzed.

ND = Not detected.

dp = Duplicate sample.

B = The reported value is less than the CRQL/CRDL but greater than the IDL.

D = Concentration determined from a sample dilution.

E = Estimated concentration : due to interference.

J = Estimated concentration.

V = Estimated concentration: due to variance to quality control limits.

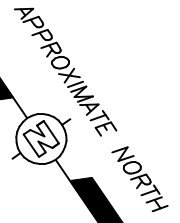
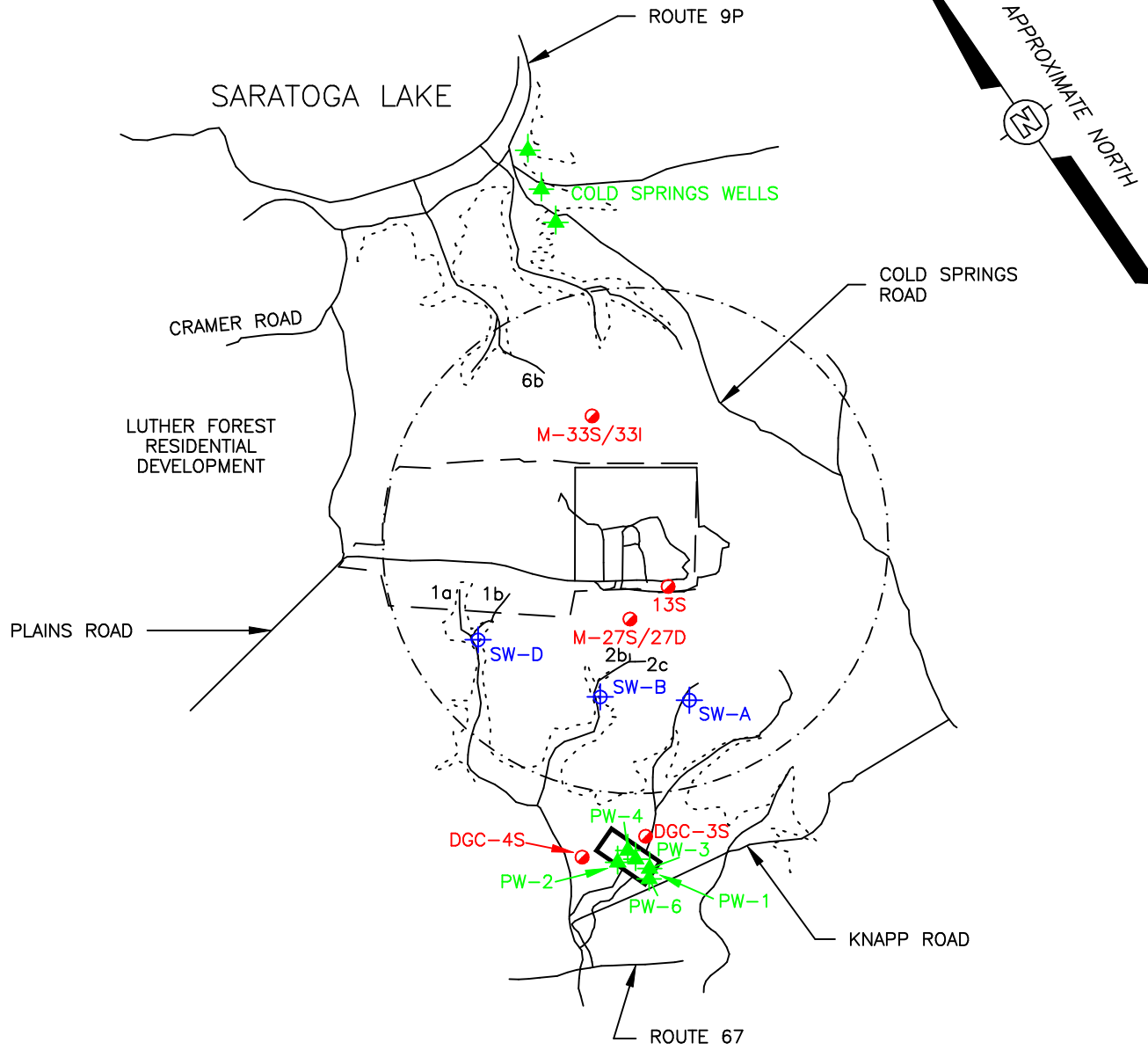
R = Rejected during data validation.

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** = Filtered Sample.

FIGURES

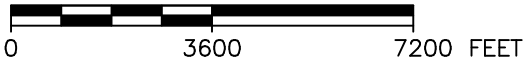
DRAWING NUMBER 810066A3
 APPROVED BY
 CHECKED BY
 DRAWN BY S. SHKOLNIK 07-28-03
 OFFICE ALBANY
 X-REF
 IMAGE



LEGEND

- DGC-4S WELL PAIR LOCATION & ID#
- ▲ PW-2 PUMPING WELL LOCATION & ID#
- LUTHER FOREST WELL FIELD
- ⊕ SW-D SURFACE WATER SAMPLE LOCATION & ID#
- 6b RAVINE LOCATION & ID#
- — APPROXIMATE MRFA SITE BOUNDARY
- - - APPROXIMATE ONE MILE EASEMENT BOUNDARY
- 250' GROUND SURFACE CONTOUR LINE

APPROXIMATE
SCALE



REFERENCE:
 REFERENCE DRAWING:
 ERM - SEPTEMBER, 1998.



MALTA ROCKET FUEL AREA SITE
MALTA, NEW YORK

FIGURE 1
SITE LOCATION MAP

FIGURE 2
WELL 13S HEXAVALENT CHROMIUM CONCENTRATIONS

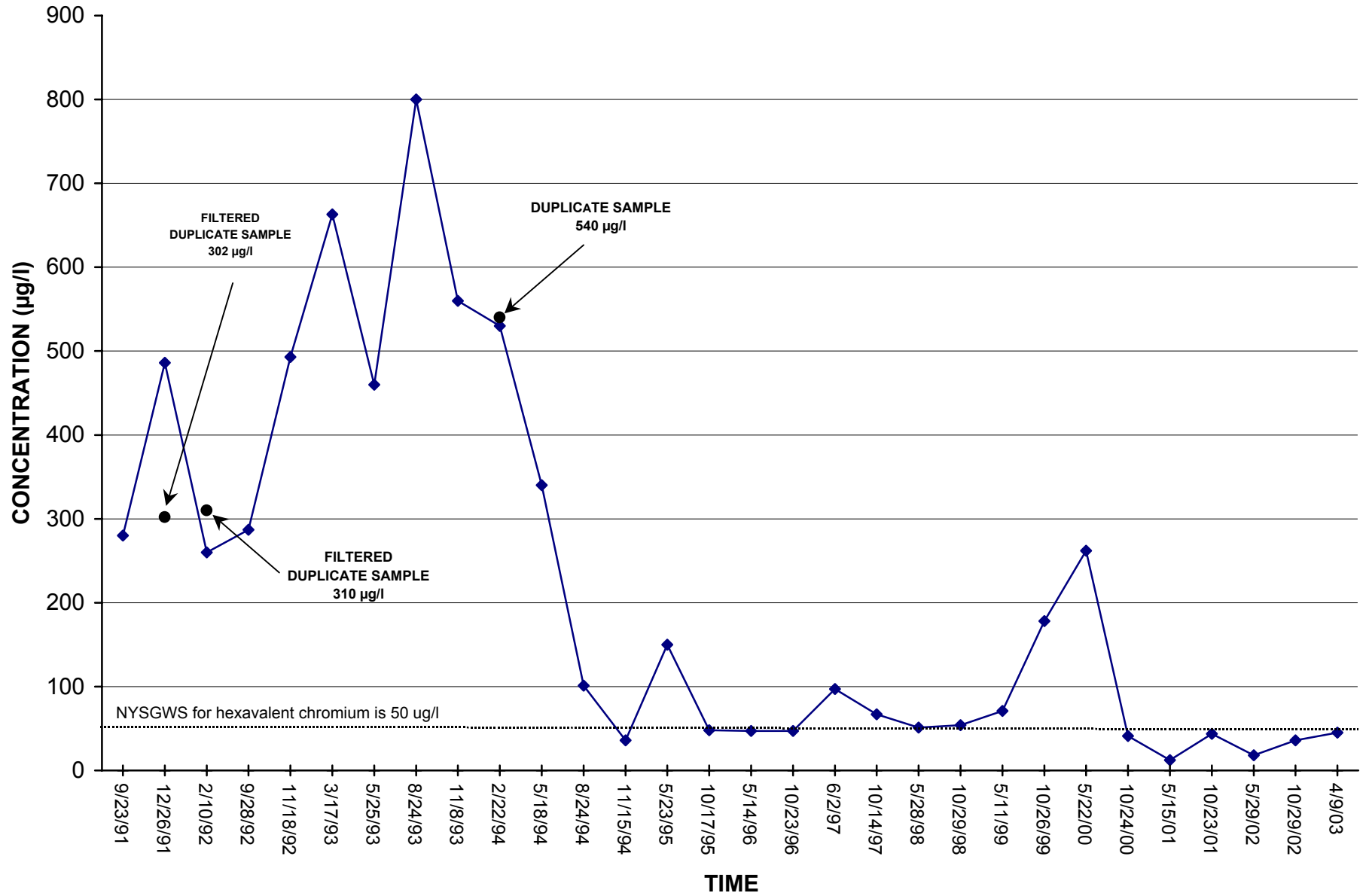
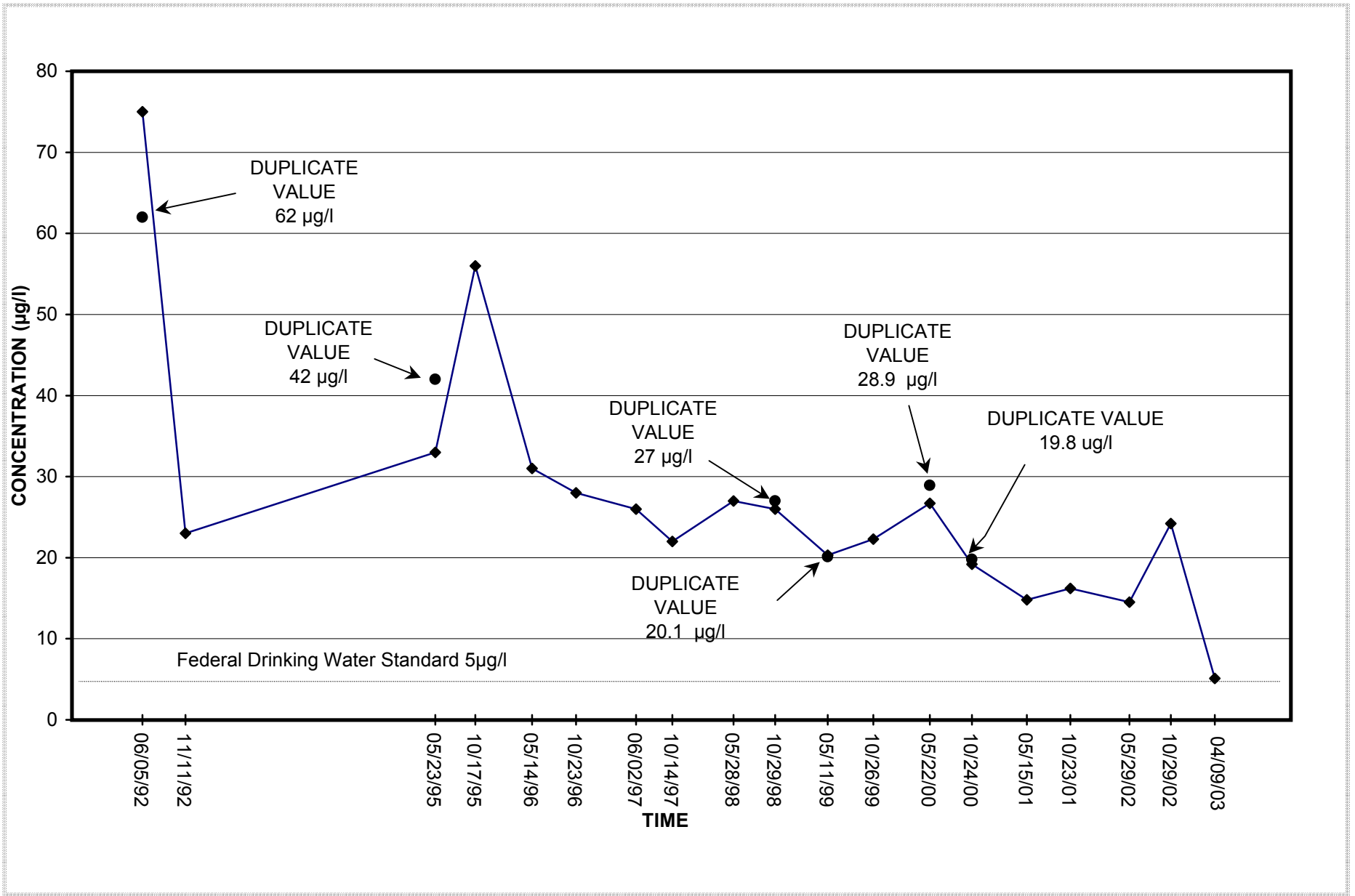
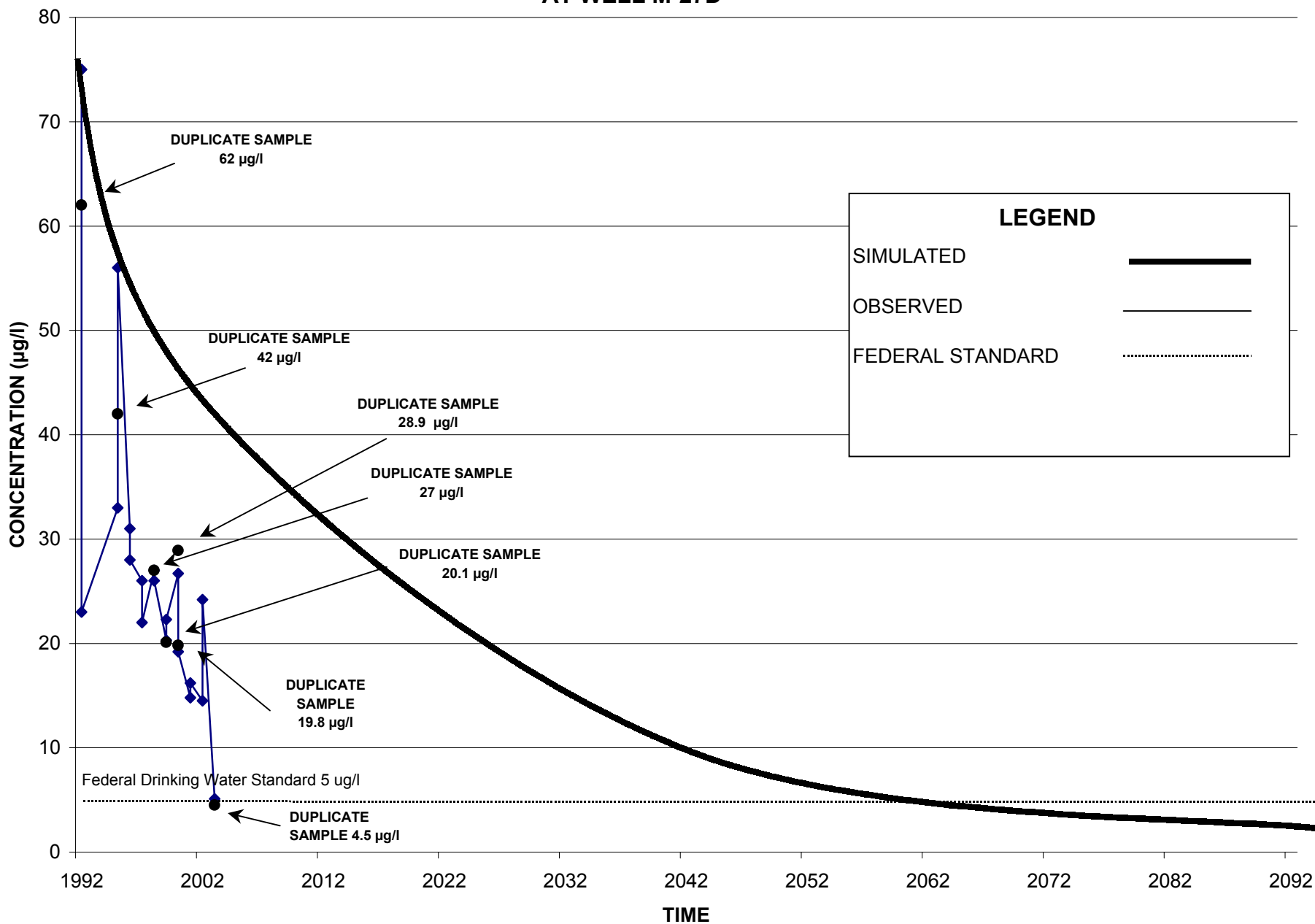


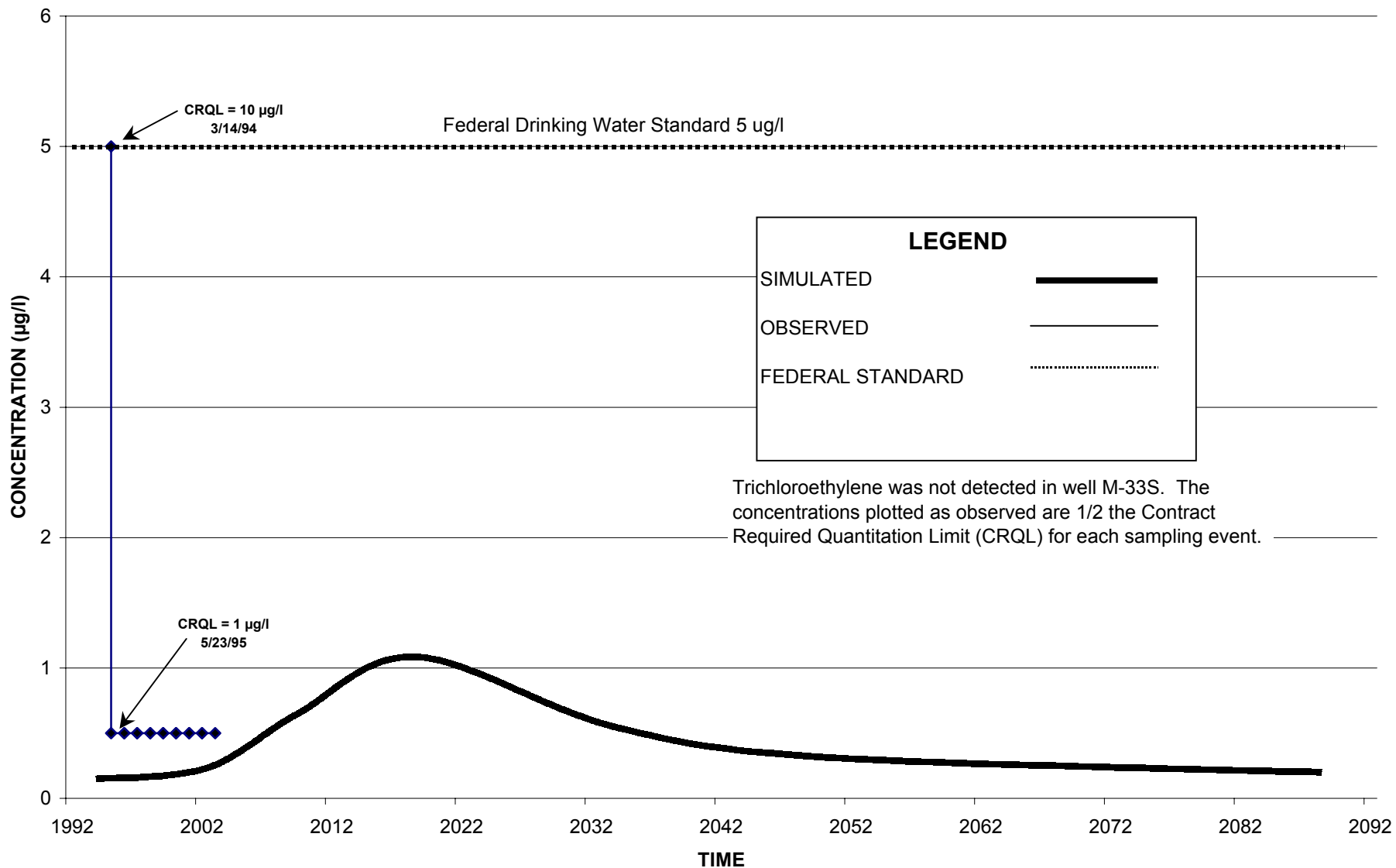
FIGURE 3
WELL M-27D CARBON TETRACHLORIDE CONCENTRATIONS



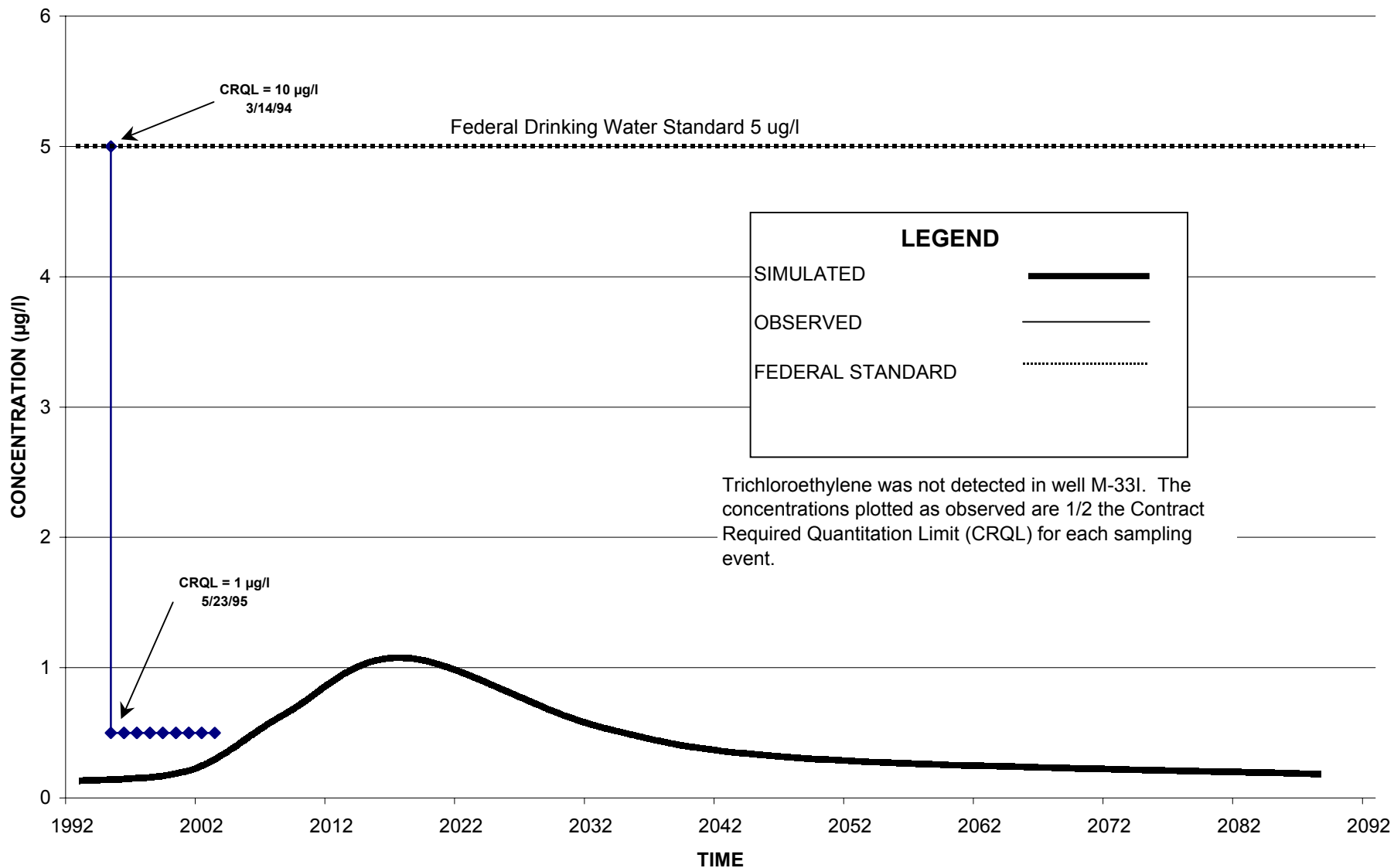
**FIGURE 4
SIMULATED VERSUS OBSERVED (APRIL 2003)
CARBON TETRACHLORIDE CONCENTRATIONS
AT WELL M-27D**



**FIGURE 5
SIMULATED VERSUS OBSERVED (APRIL 2003)
TRICHLOROETHYLENE CONCENTRATIONS
AT WELL M-33S**



**FIGURE 6
SIMULATED VERSUS OBSERVED (APRIL 2003)
TRICHLOROETHYLENE CONCENTRATIONS
AT WELL M-331**



APPENDIX A

LABORATORY DATA, INFLUENT/EFFLUENT WATER SAMPLES

FEBRUARY 26, 2003 AND MAY 29, 2003

Mr. Brian Neumann
Shaw Environmental
13 British American Blvd.
Latham, NY 12110

Re: GE MRFA
Submission # R2315862
SDG # Influent

Dear Mr. Neumann:

Enclosed is the analytical data report for the above referenced facility. A total of six samples were received by our laboratory on February 27, 2003.

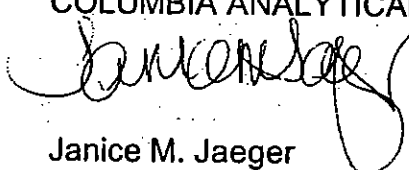
Any problems encountered with this project are addressed in a case narrative section which is presented later in this report.

This report consists of two (2) packages: the sample data package and the sample data summary package. The data package and summary package have been mailed to Judy Harry and the summary package only has been mailed to your attention and to Lew Streeter. All data presented in this package has been reviewed prior to report submission. If you should have any questions or concerns, please contact me at (585) 288-5380.

Thank you for your continued use of our services.

Sincerely,

COLUMBIA ANALYTICAL SERVICES



Janice M. Jaeger
Project Chemist

enc.

cc: Ms. Judy Harry
Data Validation Services
Cobble Creek Road
North Creek, NY 12853

cc: Mr. Lew Streeter
GE Corporate Environmental Programs
320 Great Oaks Blvd.
Suite 323
Albany, NY 12203



1 Mustard ST.
Suite 250
Rochester, NY 14609
(585) 288-5380

THIS IS AN ANALYTICAL TEST REPORT FOR:

Client : Shaw Environmental
Project Reference: GE MRFA PROJECT #81066
Lab Submission # : R2315862
Project Manager : Janice Jaeger
Reported : 03/25/03

Report Contains a total of 33 pages

The results reported herein relate only to the samples received by the laboratory. This report may not be reproduced except in full, without the approval of Columbia Analytical Services.

This package has been reviewed by Columbia Analytical Services' QA Department/Laboratory Director to comply with NELAC standards prior to report submittal. *Michael K. Perry*

CASE NARRATIVE

COMPANY: Shaw Environmental
GE MRFA Project #81066
SUBMISSION #: R2315862

Shaw water samples were collected on 02/26/03 and received at CAS on 02/27/03 in good condition at a cooler temperature of 4 C.

VOLATILE ORGANICS

Five water samples and one trip blank were analyzed for a Site Specific List of Volatiles by Low Level CLP.

All Tuning criteria for BFB were within limits.

The initial and continuing calibration criteria were met for all analytes.

All internal standard areas were within limits.

All surrogate standard recoveries were within limits.

All samples were analyzed within required holding times.

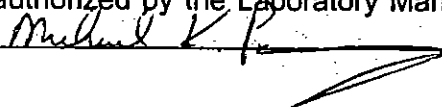
Site specific QC was performed on Influent. All MS/MSD recoveries were within limits. All Blank Spike recoveries were within limits. All RPD's were within limits.

The Laboratory Blanks associated with these samples was free of contamination except VBLK01 had a low level hit for Methylene Chloride. All affected data has been flagged with a "B".

No other analytical or QC problems were encountered.

PERCHLORATE

Water samples were subcontracted to CAS-Kelso for Perchlorate analysis. Their complete data package follows.

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

CAS ASP/CLP BATCHING FORM / LOGIN SHEET

SDG #: EFF	BATCH COMPLETE: <u>yes</u>	DATE REVISED:						
SUBMISSION R2315862	DISKETTE REQUESTED: Y <u> </u> N <u>X</u>	DATE DUE: 3/27/03						
CLIENT: Shaw Environmental	DATE: 02/27/03	PROTOCOL: CLP						
CLIENT REP: Janice Jaeger	CUSTODY SEAL: PRESENT/ABSENT:	SHIPPING No.:						
PROJECT: GEMRFA PROJECT #81066	CHAIN OF CUSTODY: PRESENT/ABSENT:	SUMMARY PKG: Y <u> </u> X <u> </u> N <u> </u>						
CAS JOB #	CLIENT/EPA ID	MATRIX	REQUESTED PARAMETERS	DATE SAMPLED	DATE RECEIVED	pH	% SOLIDS	REMARKS
622444	EFFLUENT	WATER	OLC2.1 VOA, PERCHLORATE*	2/26/03	2/27/03			
622445	INFLUENT	WATER	OLC2.1 VOA, PERCHLORATE*	2/26/03	2/27/03			
622446	DUP	WATER	OLC2.1 VOA	2/26/03	2/27/03			
622447	RW-1	WATER	PERCHLORATE*	2/26/03	2/27/03			
622448	RW-2	WATER	PERCHLORATE*	2/26/03	2/27/03			
622449	TRIP BLANK	WATER	OLC2.1 VOA	2/26/03	2/27/03			
622450	COOLER BLANK	WATER	OLC2.1 VOA	2/26/03	2/27/03			
			*perchlorate substituted					



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

One Mustard St., Suite 250 • Rochester, NY 14609-0859 • (585) 288-5380 • 800-695-7222 x11 • FAX (585) 288-8475 PAGE 1 OF 1

SR # _____
CAS Contact _____

Project Name MRFA		Project Number 81066		
Project Manager Brian Neumann		Report CC		
Company/Address Shaw Env 13 British American Blvd Latham, NY 12110-1405				
Phone # 518-783-1996	FAX# 518-783-8397	Sampler's Printed Name Shawn A. Skarup		
Sampler's Signature <i>[Signature]</i>				
CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	DATE	SAMPLING TIME	MATRIX
Effluent		2/26/03	1600	W
Influent				W
Influent MS				W
Influent MSD				W
DUP				W
RW-1				W
RW-2				W

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE	1	1	0
GCMS VOAs CLP			
GCMS SVOAs CLP			
GC VOAs			
PESTICIDES			
PCBs			
METALS, TOTAL			
METALS, DISSOLVED			
(List in comments below)			
EPA 821-VOA			
EPA 821-VOA			
EPA 821-VOA			

- Preservative Key
- NONE
 - HCL
 - HNO3
 - H2SO4
 - NaOH
 - Zn Acetate
 - MeOH
 - NaHSO4
 - Other _____

REMARKS/
ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS Metals Analyze VOC samples for hexachlorobutadiene, 1,2,3-trichlorobenzene, & trichlorofluoromethane		TURNAROUND REQUIREMENTS RUSH (SURCHARGES APPLY) 24 hr 48 hr 5 day STANDARD REQUESTED FAX DATE _____ REQUESTED REPORT DATE _____	
RELEASING BY Shawn A. Skarup Signature Shawn A. Skarup Printed Name Shaw Env Firm Date/Time 2/26/03 1600		RECEIVED BY Gregory O. Esmenon Signature Gregory O. Esmenon Printed Name CAS Firm Date/Time 2-27-03 9:45	
CUSTODY SEALS Y		RELEASING BY Shawn A. Skarup Signature Shawn A. Skarup Printed Name Shaw Env Firm Date/Time 2/26/03 1600	
RECEIVED BY		RECEIVED BY	
RELEASING BY Shawn A. Skarup Signature Shawn A. Skarup Printed Name Shaw Env Firm Date/Time 2/26/03 1600		RECEIVED BY Gregory O. Esmenon Signature Gregory O. Esmenon Printed Name CAS Firm Date/Time 2-27-03 9:45	
SPECIAL INSTRUCTIONS/COMMENTS		REPORT REQUIREMENTS I. Results Only II. Results + OC Summaries (LCS, DUP, MSM/SD as required) III. Results + OC and Calibration Summaries IV. Data Validation Report with Raw Data V. Specialized Forms / Custom Report Edata Yes No	
INVOICE INFORMATION		INVOICE INFORMATION	
PO#		PO#	
BILL TO: Lew Steefo		BILL TO: Lew Steefo	
SUBMISSION # Alkay, NY		SUBMISSION # Alkay, NY	



Effective 11/4/2002

ORGANIC QUALIFIERS

- U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.
- J - Indicates an estimated value. The flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.
- N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search.
- P - This flag is used for a pesticide/Aroclor target analyte when there is a greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form I and flagged with a "P".
- C - This flag applies to pesticide results where the identification has been confirmed by GC/MS.
- B - This flag is used when the analyte is found in the associated blank as well as in the sample.
- E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.
- D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and ALL concentration values reported on that Form I are flagged with the "D" flag.
- A - This flag indicates that a TIC is a suspected aldol-condensation product.
- X - As specified in Case Narrative.

CAS/Rochester Lab ID # for State Certifications

Army Corp of Engineers Validated
Delaware Accredited
Connecticut ID # PH0556
Florida ID # E87674
Massachusetts ID # M-NY032
Navy Facilities Engineering Service Center Approved
Nebraska Accredited

NELAP Accredited
New York ID # 10145
New Jersey ID # NY004
New Hampshire ID # 294100 A/B
Rhode Island ID # 158
South Carolina ID #91012
West Virginia ID # 292

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request: K2301488
Date Collected: 02/26/03
Date Received: 02/27/03

Perchlorate

Prep Method: NONE
Analysis Method: 314.0
Test Notes:

Units: µg/L (ppb)
Basis: NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Effluent	K2301488-001	2.0	0.7	1	NA	03/08/03	1.2	J
Influent	K2301488-002	2.0	0.7	1	NA	03/08/03	1.9	J
RW-1	K2301488-003	2.0	0.7	1	NA	03/08/03	1.6	J
RW-2	K2301488-004	2.0	0.7	1	NA	03/08/03	0.9	J
Method Blank	K2301488-MB	2.0	0.7	1	NA	03/08/03	ND	

Approved By: _____

Date: 3/24/03

IA/020597p

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622444

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7830

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

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
75-35-4-----1,1-dichloroethene	1.0	U
67-64-1-----acetone	5.0	U
75-15-0-----carbon disulfide	1.0	U
75-34-3-----1,1-dichloroethane	1.0	U
75-09-2-----methylene chloride	1.0	U
156-59-2-----cis-1,2-Dichloroethene	1.0	U
156-60-5-----trans-1,2-dichloroethene	1.0	U
67-66-3-----chloroform	1.0	U
78-93-3-----2-butanone	5.0	U
74-97-5-----bromochloromethane	1.0	U
71-55-6-----1,1,1-trichloroethane	1.0	U
56-23-5-----carbontetrachloride	1.0	U
71-43-2-----benzene	1.0	U
107-06-2-----1,2-dichloroethane	1.0	U
79-01-6-----trichloroethene	0.29	J
78-87-5-----1,2-dichloropropane	1.0	U
75-27-4-----bromodichloromethane	1.0	U
10061-01-5-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5-----1,1,2-trichloroethane	1.0	U
127-18-4-----tetrachloroethene	1.0	U
591-78-6-----2-hexanone	5.0	U
124-48-1-----dibromochloromethane	1.0	U
106-93-4-----1,2-Dibromoethane	1.0	U
108-90-7-----chlorobenzene	1.0	U
100-41-4-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622444

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7830

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	U
96-12-8-----	1,2-dibromo-3-chloropropane	1.0	U J
120-82-1-----	1,2,4-Trichlorobenzene	1.0	U
87-68-3-----	Hexachlorobutadiene	1.0	U
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EFFLUENT

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622444

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7830

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622445

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7828

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.6	U
78-93-3	-----2-butanone	5.0	U
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	15.9	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	14.8	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	0.15	J
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT

Lab Name: CAS-ROC Contract: SHAW-MRFA

Lab Code: 10145 Case No.: R23-15862 SAS No.: SDG No.: EFF

Matrix: (soil/water) WATER Lab Sample ID: 622445

Sample wt/vol: 25.00 (g/ml) ML Lab File ID: I7828

Level: (low/med) LOW Date Received: 02/27/03

% Moisture: not dec. _____ Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	U
96-12-8-----	1,2-dibromo-3-chloropropane	1.0	U J
120-82-1-----	1,2,4-Trichlorobenzene	1.0	U
87-68-3-----	Hexachlorobutadiene	1.0	U
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

INFLUENT

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622445

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7828

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DUP

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622446

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7831

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	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
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	U
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	1.0	U
78-93-3	2-butanone	5.0	U
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	1.0	U
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	0.45	J
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DUP

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622446

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7831

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7	m,p-xylenes	1.0	U
1330-20-7	o-xylene	1.0	U
100-42-5	styrene	1.0	U
75-25-2	bromoform	1.0	U
79-34-5	1,1,2,2-tetrachloroethane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
96-12-8	1,2-dibromo-3-chloropropane	1.0	U J
120-82-1	1,2,4-Trichlorobenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DUP

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622446

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7831

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622449

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7835

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	UG/L	Q
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
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	U
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	1.0	U
78-93-3	2-butanone	5.0	U
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	1.0	U
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	1.0	U
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622449

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7835

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	U
96-12-8-----	1,2-dibromo-3-chloropropane	1.0	U J
120-82-1-----	1,2,4-Trichlorobenzene	1.0	U
87-68-3-----	Hexachlorobutadiene	1.0	U
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622449

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7835

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
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16.				
17.				
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19.				
20.				
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26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

COOLER BLANK

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622450

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7837

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	0.21	JB
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	5.0	U
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

FORM I VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

COOLER BLANK

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622450

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7837

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	U
96-12-8-----	1,2-dibromo-3-chloropropane	1.0	U J
120-82-1-----	1,2,4-Trichlorobenzene	1.0	U
87-68-3-----	Hexachlorobutadiene	1.0	U
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

COOLER BLANK

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622450

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7837

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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2A
 WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

	EPA SAMPLE NO.	SMC1 (BFB) #	SMC2 #	SMC3 #	OTHER	TOT OUT
	=====	=====	=====	=====	=====	=====
01	VBLK01	90				0
02	VBLK01 MS	92				0
03	INFLUENT	92				0
04	EFFLUENT	90				0
05	DUP	86				0
06	INFLUENT MS	90				0
07	INFLUENT MSD	94				0
08	TRIP BLANK	94				0
09	COOLER BLANK	88				0
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

QC LIMITS

SMC1 (BFB) = bromofluorobenzene (80-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix Spike - EPA Sample No.: INFLUENT

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
vinyl chloride	5.0	0.00	5.2	104	60-140
carbontetrachloride	5.0	15.9	21.4	110	60-140
benzene	5.0	0.00	5.0	100	60-140
1,2-dichloroethane	5.0	0.00	5.0	100	60-140
trichloroethene	5.0	14.8	19.0	84	60-140
1,2-dichloropropane	5.0	0.00	4.9	98	60-140
cis-1,3-dichloropropene	5.0	0.00	4.8	96	60-140
1,1,2-trichloroethane	5.0	0.00	4.7	94	60-140
tetrachloroethene	5.0	0.15	5.1	99	60-140
1,2-Dibromoethane	5.0	0.00	4.6	92	60-140
bromoform	5.0	0.00	4.4	88	60-140
1,4-Dichlorobenzene	5.0	0.00	5.0	100	60-140

COMPOUND	SPIKE ADDED (ug/l)	MSD CONCENTRATION (ug/l)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
vinyl chloride	5.0	5.0	100	4	20	60-140
carbontetrachloride	5.0	20.6	94	16	20	60-140
benzene	5.0	4.8	96	4	20	60-140
1,2-dichloroethane	5.0	5.1	102	2	20	60-140
trichloroethene	5.0	18.8	80	5	20	60-140
1,2-dichloropropane	5.0	4.9	98	0	20	60-140
cis-1,3-dichloropropene	5.0	4.9	98	2	20	60-140
1,1,2-trichloroethane	5.0	4.9	98	4	20	60-140
tetrachloroethene	5.0	4.9	95	4	20	60-140
1,2-Dibromoethane	5.0	5.0	100	8	20	60-140
bromoform	5.0	4.6	92	4	20	60-140
1,4-Dichlorobenzene	5.0	4.9	98	2	20	60-140

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

* Values outside of QC limits

RPD: 0 out of 12 outside limits

Spike Recovery: 0 out of 24 outside limits

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT MS

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622445 MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7832

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	chloromethane	5.1	
75-01-4	vinyl chloride	5.2	
74-83-9	bromomethane	5.1	
75-00-3	chloroethane	4.9	
75-69-4	Trichlorofluoromethane	5.1	
75-35-4	1,1-dichloroethene	4.9	
67-64-1	acetone	5.0	U
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	5.0	
75-09-2	methylene chloride	4.7	B
156-59-2	cis-1,2-Dichloroethene	4.9	
156-60-5	trans-1,2-dichloroethene	4.9	
67-66-3	chloroform	6.6	
78-93-3	2-butanone	5.0	U
74-97-5	bromochloromethane	4.8	
71-55-6	1,1,1-trichloroethane	5.0	
56-23-5	carbontetrachloride	21.4	
71-43-2	benzene	5.0	
107-06-2	1,2-dichloroethane	5.0	
79-01-6	trichloroethene	19.0	
78-87-5	1,2-dichloropropane	4.9	
75-27-4	bromodichloromethane	5.0	
10061-01-5	cis-1,3-dichloropropene	4.8	
108-10-1	4-methyl-2-pentanone	5.0	U
108-88-3	toluene	5.0	
10061-02-6	trans-1,3-dichloropropene	4.6	
79-00-5	1,1,2-trichloroethane	4.7	
127-18-4	tetrachloroethene	5.1	
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	4.6	
106-93-4	1,2-Dibromoethane	4.6	
108-90-7	chlorobenzene	4.9	
100-41-4	ethylbenzene	5.0	

FORM I VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT MS

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622445 MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7832

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	9.8	_____
1330-20-7-----	o-xylene	4.9	_____
100-42-5-----	styrene	4.8	_____
75-25-2-----	bromoform	4.4	_____
79-34-5-----	1,1,2,2-tetrachloroethane	4.7	_____
541-73-1-----	1,3-Dichlorobenzene	5.0	_____
106-46-7-----	1,4-Dichlorobenzene	5.0	_____
95-50-1-----	1,2-Dichlorobenzene	4.9	_____
96-12-8-----	1,2-dibromo-3-chloropropane	4.4	_____
120-82-1-----	1,2,4-Trichlorobenzene	4.7	_____
87-68-3-----	Hexachlorobutadiene	4.9	_____
87-61-6-----	1,2,3-Trichlorobenzene	4.6	_____

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT MSD

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622445 MSD

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7833

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	chloromethane	5.0	
75-01-4	vinyl chloride	5.0	
74-83-9	bromomethane	5.0	
75-00-3	chloroethane	4.8	
75-69-4	Trichlorofluoromethane	5.1	
75-35-4	1,1-dichloroethene	4.9	
67-64-1	acetone	5.0	U
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	5.1	
75-09-2	methylene chloride	4.9	B
156-59-2	cis-1,2-Dichloroethene	4.9	
156-60-5	trans-1,2-dichloroethene	4.6	
67-66-3	chloroform	6.6	
78-93-3	2-butanone	5.0	U
74-97-5	bromochloromethane	4.8	
71-55-6	1,1,1-trichloroethane	4.6	
56-23-5	carbontetrachloride	20.6	
71-43-2	benzene	4.8	
107-06-2	1,2-dichloroethane	5.1	
79-01-6	trichloroethene	18.8	
78-87-5	1,2-dichloropropane	4.9	
75-27-4	bromodichloromethane	5.0	
10061-01-5	cis-1,3-dichloropropene	4.9	
108-10-1	4-methyl-2-pentanone	5.0	U
108-88-3	toluene	4.9	
10061-02-6	trans-1,3-dichloropropene	4.8	
79-00-5	1,1,2-trichloroethane	4.9	
127-18-4	tetrachloroethene	4.9	
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	4.9	
106-93-4	1,2-Dibromoethane	5.0	
108-90-7	chlorobenzene	4.8	
100-41-4	ethylbenzene	4.8	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT MSD

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 622445 MSD

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7833

Level: (low/med) LOW

Date Received: 02/27/03

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

1330-20-7-----	m,p-xylenes	9.6	
1330-20-7-----	o-xylene	4.8	
100-42-5-----	styrene	4.8	
75-25-2-----	bromoform	4.6	
79-34-5-----	1,1,2,2-tetrachloroethane	5.0	
541-73-1-----	1,3-Dichlorobenzene	4.8	
106-46-7-----	1,4-Dichlorobenzene	4.9	
95-50-1-----	1,2-Dichlorobenzene	4.9	
96-12-8-----	1,2-dibromo-3-chloropropane	4.7	
120-82-1-----	1,2,4-Trichlorobenzene	4.7	
87-68-3-----	Hexachlorobutadiene	4.6	
87-61-6-----	1,2,3-Trichlorobenzene	4.8	

3A
 WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
vinyl chloride	5.0	0.00	4.9	98	60-140
carbontetrachloride	5.0	0.00	4.8	96	60-140
benzene	5.0	0.00	4.9	98	60-140
1,2-dichloroethane	5.0	0.00	5.1	102	60-140
trichloroethene	5.0	0.00	4.9	98	60-140
1,2-dichloropropane	5.0	0.00	5.0	100	60-140
cis-1,3-dichloropropene	5.0	0.00	4.8	96	60-140
1,1,2-trichloroethane	5.0	0.00	4.7	94	60-140
tetrachloroethene	5.0	0.00	4.6	92	60-140
1,2-Dibromoethane	5.0	0.00	4.8	96	60-140
bromoform	5.0	0.00	4.4	88	60-140
1,4-Dichlorobenzene	5.0	0.00	4.8	96	60-140

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 12 outside limits

COMMENTS: _____

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01 MS

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01 MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7827

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----chloromethane	4.9	
75-01-4	-----vinyl chloride	4.9	
74-83-9	-----bromomethane	4.7	
75-00-3	-----chloroethane	4.7	
75-69-4	-----Trichlorofluoromethane	4.9	
75-35-4	-----1,1-dichloroethene	4.8	
67-64-1	-----acetone	5.0	U
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	5.0	
75-09-2	-----methylene chloride	5.0	B
156-59-2	-----cis-1,2-Dichloroethene	4.9	
156-60-5	-----trans-1,2-dichloroethene	4.6	
67-66-3	-----chloroform	5.0	
78-93-3	-----2-butanone	5.0	U
74-97-5	-----bromochloromethane	4.7	
71-55-6	-----1,1,1-trichloroethane	4.7	
56-23-5	-----carbontetrachloride	4.8	
71-43-2	-----benzene	4.9	
107-06-2	-----1,2-dichloroethane	5.1	
79-01-6	-----trichloroethene	4.9	
78-87-5	-----1,2-dichloropropane	5.0	
75-27-4	-----bromodichloromethane	4.8	
10061-01-5	-----cis-1,3-dichloropropene	4.8	
108-10-1	-----4-methyl-2-pentanone	5.0	U
108-88-3	-----toluene	4.7	
10061-02-6	-----trans-1,3-dichloropropene	4.7	
79-00-5	-----1,1,2-trichloroethane	4.7	
127-18-4	-----tetrachloroethene	4.6	
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	4.6	
106-93-4	-----1,2-Dibromoethane	4.8	
108-90-7	-----chlorobenzene	4.7	
100-41-4	-----ethylbenzene	4.8	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01 MS

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01 MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7827

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

1330-20-7-----	m,p-xylenes	9.4	
1330-20-7-----	o-xylene	4.6	
100-42-5-----	styrene	4.7	
75-25-2-----	bromoform	4.4	
79-34-5-----	1,1,2,2-tetrachloroethane	4.8	
541-73-1-----	1,3-Dichlorobenzene	4.7	
106-46-7-----	1,4-Dichlorobenzene	4.8	
95-50-1-----	1,2-Dichlorobenzene	4.8	
96-12-8-----	1,2-dibromo-3-chloropropane	4.3	
120-82-1-----	1,2,4-Trichlorobenzene	4.6	
87-68-3-----	Hexachlorobutadiene	4.6	
87-61-6-----	1,2,3-Trichlorobenzene	4.8	

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Lab File ID: I7826

Lab Sample ID: VBLK01

Date Analyzed: 03/07/03

Time Analyzed: 1346

GC Column: RTX502.2 ID: 0.53 (mm)

Heated Purge: (Y/N) N

Instrument ID: MS1

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK01 MS	VBLK01 MS	I7827	1429
02	INFLUENT	622445	I7828	1529
03	EFFLUENT	622444	I7830	1647
04	DUP	622446	I7831	1734
05	INFLUENT MS	622445 MS	I7832	1814
06	INFLUENT MSD	622445 MSD	I7833	1854
07	TRIP BLANK	622449	I7835	2015
08	COOLER BLANK	622450	I7837	2135
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7826

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	0.23	J
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	5.0	U
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7826

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK01

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I7826

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 03/07/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
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21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CAS-ROC

Contract: SHAW-MRFA

Lab Code: 10145

Case No.: R23-15862 SAS No.:

SDG No.: EFF

Lab File ID (Standard): I7824

Date Analyzed: 03/07/03

Instrument ID: MS1

Time Analyzed: 1221

GC Column: RTX502.2 ID: 0.53 (mm)

Heated Purge: (Y/N) N

	IS1 (DCB) AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DFB) AREA #	RT #
12 HOUR STD	409342	27.54	758835	21.59	1048404	14.49
UPPER LIMIT	818684	28.04	1517670	22.09	2096808	14.99
LOWER LIMIT	204671	27.04	379418	21.09	524202	13.99
EPA SAMPLE NO.						
01 VBLK01	388510	27.54	729211	21.60	1070628	14.49
02 VBLK01 MS	400936	27.53	739638	21.59	1062490	14.49
03 INFLUENT	370594	27.59	703221	21.64	995643	14.54
04 EFFLUENT	390233	27.54	750140	21.59	1054695	14.49
05 DUP	388036	27.54	736562	21.59	1073197	14.47
06 INFLUENT MS	385532	27.55	735628	21.61	1046203	14.49
07 INFLUENT MSD	408553	27.57	757510	21.61	1059494	14.50
08 TRIP BLANK	419169	27.57	769243	21.61	1066347	14.50
09 COOLER BLANK	394842	27.55	736411	21.59	1073694	14.50
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 (DCB) = 1,4-Dichlorobenzene-d4
 IS2 (CBZ) = chlorobenzene-d5
 IS3 (DFB) = 1,4-Difluorobenzene

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.

MAR 27

March 24, 2003

Service Request No: K2301488/
R2315862

Janice Jaeger
Columbia Analytical Services, Inc.
1 Mustard Street, Suite 260
Rochester, NY 14609

Re: GE MRFA Project #81066

Dear Janice:

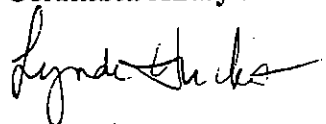
Enclosed are the results of the sample(s) submitted to our laboratory on 2/27/03. For your reference, these analyses have been assigned our service request number K2301488/R2315862.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3358.

Respectfully submitted,

Columbia Analytical Services, Inc.



Lynda A. Huckestein
Client Services Manager

LAH/dj

Page 1 of 52

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Case Narrative

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request No.: K2301488
Date Received: 2/27/2003

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 2/27/2003. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Perchlorate by EPA Method 314

No anomalies associated with the analysis of these samples were observed.

Approved by _____

Date

3/24/03

00005

**Chain of Custody
Documentation**



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

One Mustard St., Suite 250 • Rochester, NY 14609-0859 • (585) 288-5380 • 800-695-7222 x11 • FAX (585) 288-8475 PAGE 1 OF 1

SR # 17101464
CAS Contact

00007

Project Name GE MRFA Project #81066		Project Number 220485	
Project Manager Javice Jager		Report CC	
Company/Address 1 Mustard st suite 250 Rochester NY 14609			
Phone # (585) 288-5380		FAX # (585) 288-8475	
Sampler's Signature		Sampler's Printed Name	
CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	MATRIX
Effluent	602444	2-26-03 10:00	Water
Influent	445	2-26-03 10:00	
RW-1	447	2-26-03 10:00	
RW-2	448	2-26-03 10:00	
ANALYSIS REQUESTED (Include Method Number and Container Preservative)			
PRESERVATIVE		NUMBER OF CONTAINERS	
<input type="checkbox"/> GCMs VOAs <input type="checkbox"/> CLP <input type="checkbox"/> GCMs SVOAs <input type="checkbox"/> CLP <input type="checkbox"/> GC VOAs <input type="checkbox"/> CLP <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602 <input type="checkbox"/> PESTICIDES <input type="checkbox"/> CLP <input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP <input type="checkbox"/> PCBs <input type="checkbox"/> 8082 <input type="checkbox"/> 608 <input type="checkbox"/> CLP <input type="checkbox"/> METALS, TOTAL (List in comments below) <input type="checkbox"/> METALS, DISSOLVED (List in comments below) Perchlorate		8	
REMARKS/ALTERNATE DESCRIPTION			
Preservative Key 0. NONE 1. HCL 2. HNO3 3. H2SO4 4. NaOH 5. Zn. Acetate 6. MeOH 7. NaHSO4 8. Other <u>Tr</u>			
SPECIAL INSTRUCTIONS/COMMENTS Metals		INVOICE INFORMATION	
TURNAROUND REQUIREMENTS <input type="checkbox"/> RUSH (SURCHARGES APPLY) 24 hr <input type="checkbox"/> 48 hr <input type="checkbox"/> 5 day <input checked="" type="checkbox"/> STANDARD REQUESTED FAX DATE REQUESTED REPORT DATE		REPORT REQUIREMENTS <input type="checkbox"/> I. Results Only <input type="checkbox"/> II. Results + QC Summaries (LCS, DUP, MSM/SD as required) <input type="checkbox"/> III. Results + QC and Calibration Summaries <input checked="" type="checkbox"/> IV. Data Validation Report with Raw Data <input type="checkbox"/> V. Specialized Forms / Custom Report Ecata <input type="checkbox"/> Yes <input type="checkbox"/> No	
SAMPLE RECEIPT: CONDITION/COOLER TEMP: RELINQUISHED BY RECEIVED BY Signature: <u>Javice Jager</u> Printed Name: <u>Javice Jager</u> Firm: <u>CAS</u> Date/Time: <u>2-27-03 17:00</u>		RELINQUISHED BY RECEIVED BY Signature: _____ Printed Name: _____ Firm: _____ Date/Time: _____	
CUSTODY SEALS: Y N		CUSTODY SEALS: Y N	
See QAPP <input type="checkbox"/>		SUBMISSION #:	

**Columbia Analytical Services Inc.
Cooler Receipt And Preservation Form**

Project/Client CAS J. Rodriguez Work Order K23 07488

Cooler received on 2/28/03 and opened on 2/28/03 by AP

1. Were custody seals on outside of cooler?
If yes, how many and where? 1F FV N
2. Were seals intact and signature & date correct? N
3. Is the shipper's airbill available and filed? If no, record airbill number: 7915 4386 5650 Y N
4. COC # _____
Temperature of cooler(s) upon receipt: 0.5 _____
Temperature Blank: BROKEN _____
5. Were custody papers properly filled out (ink, signed, etc.)? N
6. Type of packing material present MESH
7. Did all bottles arrive in good condition (unbroken)? N
8. Were all bottle labels complete (i.e. analysis, preservation, etc.)? N
9. Did all bottle labels and tags agree with custody papers? N
10. Were the correct types of bottles used for the tests indicated? N
11. Were all of the preserved bottles received at the lab with the appropriate pH? N
12. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~Y~~ N
13. Did the bottles originate from CAS/K or a branch laboratory? N
14. Are CWA Microbiology samples received with > 1/2 the 24 hr. hold time remaining from collection? ~~Y~~ N
15. Was CI2/Res negative? ~~Y~~ N

Explain any discrepancies: _____

RESOLUTION: _____

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Shaw Environmental and Infrastructure
 Project: GE MRFA Project #81066
 Sample Matrix: Water

Service Request: K2301488
 Date Collected: 02/26/03
 Date Received: 02/27/03

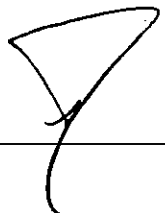
Perchlorate

Prep Method: NONE
 Analysis Method: 314.0
 Test Notes:

Units: µg/L (ppb)
 Basis: NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Effluent	K2301488-001	2.0	0.7	1	NA	03/08/03	1.2	J
Influent	K2301488-002	2.0	0.7	1	NA	03/08/03	1.9	J
RW-1	K2301488-003	2.0	0.7	1	NA	03/08/03	1.6	J
RW-2	K2301488-004	2.0	0.7	1	NA	03/08/03	0.9	J
Method Blank	K2301488-MB	2.0	0.7	1	NA	03/08/03	ND	

Approved By: _____



Date: 3/24/03

IA/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request: K2301488
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 03/08/03

Duplicate Summary
Inorganic Parameters

Sample Name: Batch QC
Lab Code: K2301280-002DUP
Test Notes:

Units: µg/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Perchlorate	NONE	314.0	2.0	ND	ND	ND		

Approved By: _____

PL

Date: _____

3/20/03

DUP/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request: K2301488
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 03/08/03

Matrix Spike Summary
 Inorganic Parameters

Sample Name: Batch QC Units: µg/L (ppb)
Lab Code: K2301280-002MS Basis: NA
Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Perchlorate	NONE	314.0	2.0	40.0	ND	36.6	92	80-120	

Approved By: PL Date: 3/20/03

MS/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
LCS Matrix: Water

Service Request: K2301488
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 03/08/03

Laboratory Control Sample Summary
Inorganic Parameters

Sample Name: Lab Control Sample
Lab Code: K2301488-LCS
Test Notes:

Units: µg/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Perchlorate	NONE	314.0	500	489	98	85-115	

Approved By: _____

EL

Date: 3/20/03

LCS#020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066

Service Request: K2301488
Date Collected: NA
Date Received: NA
Date Analyzed: 03/08/03

Perchlorate
EPA Method 314.0
Units: ug/L (ppb)

INITIAL CALIBRATION CHECK STANDARD (ICCS)

	True Value	Measured Value	Percent Recovery
ICCS Result	2.0	1.9	95

CONTINUING CALIBRATION VERIFICATION (CCV)

	True Value	Measured Value	Percent Recovery
CCV 1 Result	25.0	22.1	88
CCV 2 Result	25.0	23.4	94

ENDING CALIBRATION VERIFICATION (ECCV)

	True Value	Measured Value	Percent Recovery
ECCV Result	100	94.8	95

Approved By: _____



Date: 3/20/03

COMBOQC/D/042695



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

SR # _____
CAS Contact _____

One Mustard St., Suite 250 • Rochester, NY 14609-0859 • (585) 288-5380 • 800-695-7222 x11 • FAX (585) 288-8475 PAGE 1 OF 1

Project Name	Project Number	ANALYSIS REQUESTED (Include Method Number and Container Preservative)	PRESERVATIVE	NUMBER OF CONTAINERS	REMARKS/ALTERNATE DESCRIPTION
MRFA	810066				
Project Manager Brian Neuman	Report CC TBD - call Shaw				
Company Address Shaw Environmental 13 British American Blvd. Latham NY 12110	Phone 58-783-1996				
Phone 58-783-1996	FAX 58-783-8297				
Sample Signature John A. Shagal	Sample's Printed Name John A. Shagal				
CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	
Influent	W5910	5/21/03	0835	60	
Effluent	79		0835	6	
Influent MSMSD	70		0835	6	
DUP-A	80		0835	3	
Trip Blank	81			3	
Temp Blank				1	
<p>SPECIAL INSTRUCTIONS/COMMENTS Metals Analyze Vol samples for hexachlorobutadiene, 1,2,3-trichlorobenzene and trichlorofluoromethane.</p>					
<p>TURNAROUND REQUIREMENTS RUSH (SURCHARGES APPLY) 24 hr 48 hr 6 day <input checked="" type="checkbox"/> STANDARD REQUESTED FAX DATE _____ REQUESTED REPORT DATE _____</p>		<p>REPORT REQUIREMENTS I. Results Only II. Results + QC Summaries (LCS, DUP, MSMSD as required) III. Results + QC and Calibration Summaries IV. Data Validation Report with Raw Data V. Specified Forms / Custom Report Estimate Yes No</p>		<p>INVOICE INFORMATION PO# _____ BILL TO: Lew Straeter GECFP Albany, NY SUBMISSION # _____</p>	
<p>See OAPP <input type="checkbox"/></p> <p>SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ RECEIVED BY: _____</p>		<p>CUSTODY SEALS: <input checked="" type="checkbox"/> N RELINQUISHED BY: _____</p>		<p>RECEIVED BY: _____</p>	
<p>RELINQUISHED BY Signature: John A. Shagal Printed Name: John A. Shagal Firm: Shaw Environmental</p>		<p>RELINQUISHED BY Signature: _____ Printed Name: _____ Firm: _____</p>		<p>RECEIVED BY Signature: _____ Printed Name: _____ Firm: _____</p>	
<p>Date/Time: 5/21/03 15:30</p>		<p>Date/Time: _____</p>		<p>Date/Time: _____</p>	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645478

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9427

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	Q
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
75-35-4	1,1-dichloroethene	1.0 U
67-64-1	acetone	5.0 U ^J
75-15-0	carbon disulfide	0.41 J
75-34-3	1,1-dichloroethane	1.0 U
75-09-2	methylene chloride	1.0 U
156-59-2	cis-1,2-Dichloroethene	1.0 U
156-60-5	trans-1,2-dichloroethene	1.0 U
67-66-3	chloroform	1.2 U U ^J
78-93-3	2-butanone	5.0 U ^J
74-97-5	bromochloromethane	1.0 U
71-55-6	1,1,1-trichloroethane	1.0 U
56-23-5	carbontetrachloride	12.9
71-43-2	benzene	1.0 U
107-06-2	1,2-dichloroethane	1.0 U
79-01-6	trichloroethene	17.7
78-87-5	1,2-dichloropropane	1.0 U
75-27-4	bromodichloromethane	1.0 U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0 U
79-00-5	1,1,2-trichloroethane	1.0 U
127-18-4	tetrachloroethene	1.0 U
591-78-6	2-hexanone	5.0 U
124-48-1	dibromochloromethane	1.0 U
106-93-4	1,2-Dibromoethane	1.0 U
108-90-7	chlorobenzene	1.0 U
100-41-4	ethylbenzene	1.0 U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645478

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9427

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (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
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1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

INFLUENT

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645478

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9427

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 76-13-1	ETHANE, 1,1,2-TRICHLORO-1,2,	7.06	1.4	NJ
2. 541-05-9	CYCLOTRIISILOXANE, HEXAMETHYL	17.53	1.5	NJ <i>R</i>
3. 556-67-2	CYCLOTETRASILOXANE, OCTAMETH	22.89	1.4	NJB <i>R</i>
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645479

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9429

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	U
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	1.0	U
78-93-3	2-butanone	5.0	U
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	0.15	J
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	0.47	J
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645479

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9429

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (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
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1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EFFLUENT

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645479

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9429

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 541-05-9	CYCLOTRISILOXANE, HEXAMETHYL	17.52	3.5	NL R
2. 556-67-2	CYCLOTETRASILOXANE, OCTAMETH	22.89	3.3	NJB R
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DUP-A

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645480

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9430

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	U J
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	1.0	U
78-93-3	2-butanone	5.0	U J
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	0.15	J
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	0.50	J
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DUP-A

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645480

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9430

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	Q
1330-20-7-----	m,p-xylenes	1.0 U
1330-20-7-----	o-xylene	1.0 U
100-42-5-----	styrene	1.0 U
75-25-2-----	bromoform	1.0 U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0 U
541-73-1-----	1,3-Dichlorobenzene	1.0 U
106-46-7-----	1,4-Dichlorobenzene	1.0 U
95-50-1-----	1,2-Dichlorobenzene	1.0 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
87-61-6-----	1,2,3-Trichlorobenzene	1.0 U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DUP-A

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645480

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9430

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 541-05-9	CYCLOTRISILOXANE, HEXAMETHYL	17.52	5.8	NJ <i>B</i>
2. 556-67-2	CYCLOTETRASILOXANE, OCTAMETH	22.89	5.9	NJ <i>B</i>
3.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645481

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9431

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U <i>g</i>
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	5.0	U <i>g</i>
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645481

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9431

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645481

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9431

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 541-05-9	CYCLOTRISILOXANE, HEXAMETHYL	17.52	6.2	NJ
2. 556-67-2	CYCLOTETRASILOXANE, OCTAMETH	22.91	6.8	NJB
3.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

COOLER BLANK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645482

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9434

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	UG/L	Q
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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U J
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	5.0	U J
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

COOLER BLANK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645482

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9434

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

COOLER BLANK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-17079 SAS No.:

SDG No.: EFF

Matrix: (soil/water) WATER

Lab Sample ID: 645482

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I9434

Level: (low/med) LOW

Date Received: 05/31/03

% Moisture: not dec. _____

Date Analyzed: 06/06/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 7446-09-5	SULFUR DIOXIDE	3.95	5.7	NJ
2. 541-05-9	CYCLOTRISILOXANE, HEXAMETHYL	17.51	3.0	NJ
3. 556-67-2	CYCLOTETRASILOXANE, OCTAMETH	22.89	3.6	NJB
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APPENDIX B

LABORATORY DATA, GROUNDWATER SAMPLES AND SURFACE WATER SAMPLES

APRIL 2003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Shaw Environmental and Infrastructure
 Project: MRFA/810066
 Sample Matrix: Water

Service Request: K2302890
 Date Collected: 04/09, 15/03
 Date Received: 4/16/03

Perchlorate

Prep Method: NONE
 Analysis Method: 314.0
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DGC-4S	K2302890-001	2.0	1	NA	4/25/03	ND	
DGC-3S	K2302890-002	2.0	1	NA	4/25/03	ND	
M-33S	K2302890-003	2.0	1	NA	4/25/03	ND	
M-13S	K2302890-004	2.0	1	NA	4/25/03	ND	
SW-D	K2302890-005	2.0	1	NA	4/25/03	ND	
SW-B	K2302890-006	2.0	1	NA	4/25/03	ND	
SW-A	K2302890-007	2.0	1	NA	4/25/03	ND	
M-33I	K2302890-008	2.0	1	NA	4/25/03	ND	
M-27S	K2302890-009	2.0	1	NA	4/25/03	ND	
M-27D	K2302890-010	2.0	1	NA	4/25/03	ND	
Dup A	K2302890-011	2.0	1	NA	4/25/03	ND	
Method Blank	K2302890-MB	2.0	1	NA	4/25/03	ND	

Approved By:



Date:

4/29/03

IA/020597p

May 19, 2003

Mr. Brian Neumann
Shaw Environmental
13 British American Blvd.
Latham, NY 12110

Re: GE MRFA
Submission # R2316425
SDG # DGC-3S

Dear Mr. Neumann:

Enclosed is the analytical data report for the above referenced facility. A total of thirteen samples were received by our laboratory on April 10-16, 2003.

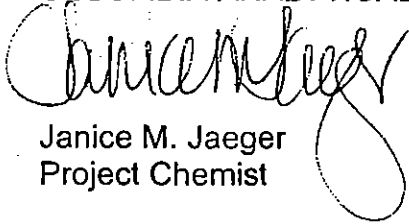
Any problems encountered with this project are addressed in a case narrative section which is presented later in this report.

This report consists of two (2) packages: the sample data package and the sample data summary package. The data package and summary package have been mailed to Judy Harry and the summary package only has been mailed to your attention and to Lew Streeter. All data presented in this package has been reviewed prior to report submission. If you should have any questions or concerns, please contact me at (585) 288-5380.

Thank you for your continued use of our services.

Sincerely,

COLUMBIA ANALYTICAL SERVICES



Janice M. Jaeger
Project Chemist

enc.

cc: Ms. Judy Harry
Data Validation Services
Cobble Creek Road
North Creek, NY 12853

cc: Mr. Lew Streeter
GE Corporate Environmental Programs
320 Great Oaks Blvd.
Suite 323
Albany, NY 12203



1 Mustard ST.
Suite 250
Rochester, NY 14609
(585) 288-5380

THIS IS AN ANALYTICAL TEST REPORT FOR:

Client : Shaw Environmental
Project Reference: GE MRFA PROJECT #810066
Lab Submission # : R2316425
Project Manager : Janice Jaeger
Reported : 05/16/03

Report Contains a total of 96 pages

The results reported herein relate only to the samples received by the laboratory. This report may not be reproduced except in full, without the approval of Columbia Analytical Services.

This package has been reviewed by Columbia Analytical Services' QA Department/Laboratory Director to comply with NELAC standards prior to report submittal. *Michael K Perry*

CASE NARRATIVE

COMPANY: Shaw Environmental
GE MRFA Project #810066
SUBMISSION #: R2316425

Shaw water samples were collected on 04/09-15/03 and received at CAS on 04/10-16/03 in good condition at a cooler temperature of 1-4 C.

INORGANICS

Five water samples were analyzed for Total Chromium by CLP methods and Hexavalent Chromium by 7196A.

Site specific QC was performed on M-27S. All MS and Blank spike recoveries were within limits. All RPD's were within limits.

No other analytical or QC problems were encountered.

VOLATILE ORGANICS

Ten water samples, one cooler blank and two trip blanks were analyzed for a Site Specific List of Volatiles by Low Level CLP.

All Tuning criteria for BFB were within limits.

The initial and continuing calibration criteria were met for all analytes.

All internal standard areas were within limits.

All surrogate standard recoveries were within limits.

All samples were analyzed within required holding times.

Site specific QC was performed on DGC-4S and M-27S. All MS/MSD recoveries were within limits. All Blank Spike recoveries were within limits. All RPD's were within limits.

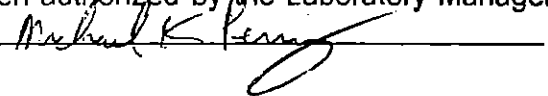
The Laboratory Blanks associated with these samples was free of contamination.

The trip blanks and cooler blank had low level hits for various analytes.

No other analytical or QC problems were encountered.

PERCHLORATE

Water samples were subcontracted to CAS-Kelso for Perchlorate analysis. Their complete data package follows.

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



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

SR # _____

CAS Contact _____

PAGE 1 OF 2

One Mustard St., Suite 250 • Rochester, NY 14609-0859 • (585) 288-5380 • 800-695-7222 x11 • FAX (585) 288-8475

Project Name MAFA		Project Number 810066		ANALYSIS REQUESTED (Include Method Number and Container Preservative)	
Project Manager Brian Neumann		Report CC Lewis Streeter, GE		PRESERVATIVE	
Company/Address Shaw Environmental, Inc.				PRELIMINARY ANALYSIS (List in comments below)	
13 British American Blvd.				METALS, TOTAL	
LaFayette, NY 12110				METALS, DISSOLVED	
Phone # 518-783-1996		FAX # 518-783-8397		METALS, DIBENZO	
Sampler's Signature <i>[Signature]</i>		Sampler's Printed Name John A. Skarup		METALS, DISSOLVED (List in comments below)	
FOR OFFICE USE ONLY		SAMPLING DATE		METALS, TOTAL (List in comments below)	
LAB ID	LAB ID	DATE	TIME	MATRIX	
DGC-45		08/14/08	0800	H2O	X
DGC-35		0900			X
MA-33-E		1000			X
M-33-S		1245			X
M-13-S		1425			X
SW-D		1000			X
SW-B		1630			X
SW-A		1600			X
MA-33-S					X
MA-33-S					X
SPECIAL INSTRUCTIONS/COMMENTS Metals Analyze VOC samples for Hexachlorobutadiene, 1,2,3-trichlorobenzene, and trichlorofluoromethane perchlorate added to 13-S as per John Skarup JMW 4/11/03		RUSH (SURCHARGES APPLY) 24 hr <input type="checkbox"/> 48 hr <input type="checkbox"/> 6 day <input type="checkbox"/>		TURNAROUND REQUIREMENTS	
See OAPP <input type="checkbox"/>		REQUESTED FAX DATE		I. Results Only <input type="checkbox"/>	
SAMPLE RECEIPT: CONDITION/COOLER TEMP. _____		REQUESTED REPORT DATE		II. Results + QC Summaries (LCS, DUP, MISMED as required) <input checked="" type="checkbox"/>	
RELINQUISHED BY <i>[Signature]</i>		CUSTODY SEALS: Y N		III. Results + QC and Calibration Summaries <input checked="" type="checkbox"/>	
Signature <i>[Signature]</i>	Signature <i>[Signature]</i>	RELINQUISHED BY		IV. Data Validation Report with Raw Data <input type="checkbox"/>	
Printed Name John A. Skarup	Printed Name Brian Neumann	Signature		V. Specialized Forms / Custom Report <input type="checkbox"/>	
Firm Shaw Env. Inc.	Firm MAFA	Printed Name		Edata <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	
Date/Time 4/9/03 1930	Date/Time 4/14/03 915	Firm		PCW	
		Date/Time		BILL TO Lewis Streeter	
		Date/Time		GE CEP	
		Date/Time		SUBMISSION # Albany, NY	
		Date/Time		REMARKS/ALTERNATE DESCRIPTION	
		Date/Time		RECEIVED BY	
		Date/Time		Signature	
		Date/Time		Printed Name	
		Date/Time		Firm	
		Date/Time		Date/Time	



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

SR # _____ CAS Contact _____

One Mustard St., Suite 250 • Rochester, NY 14609-0859 • (585) 288-5380 • 800-695-7222 x11 • FAX (585) 288-8475 PAGE 2 OF 2

Project Name MR FA	Project Number 8/0066		
Project Manager Brian Neumann	Report CC Lewis Streeter, GE		
Company/Address Shaw Environmental, Inc. 13 British American Blvd. Latham, NY 12110			
Phone # 518-783-1996	FAX# 518-783-8397		
Sampler Signature 		Sampler's Embroid Name John A. Skarup	
FOR OFFICE USE ONLY		MATRIX	
LAB ID	DATE	SAMPLING TIME	
	4/9/03	1:20	6

CLIENT SAMPLE ID	NUMBER OF CONTAINERS	PRESERVATIVE	ANALYSIS REQUESTED (Include Method Number and Container Preservative)			REMARKS/ ALTERNATE DESCRIPTION
			GC/MS VOAs	GC/MS SVoAs	GC/MS TOC	
M-27D	6	None	<input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> CLP <input type="checkbox"/> 8270 <input type="checkbox"/> 625 <input type="checkbox"/> CLP	<input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602	<input type="checkbox"/> METALS, TOTAL <input type="checkbox"/> METALS, DISSOLVED <input type="checkbox"/> METALS COA VOC <input type="checkbox"/> TOH/CLP/ure <input type="checkbox"/> EPA 319's Humic <input type="checkbox"/> EPA 319's Perchlorate	GC/MS GC/MS GC/MS GC/MS
Dup A	6	None	<input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> CLP <input type="checkbox"/> 8270 <input type="checkbox"/> 625 <input type="checkbox"/> CLP	<input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602	<input type="checkbox"/> METALS, TOTAL <input type="checkbox"/> METALS, DISSOLVED <input type="checkbox"/> METALS COA VOC <input type="checkbox"/> TOH/CLP/ure <input type="checkbox"/> EPA 319's Humic <input type="checkbox"/> EPA 319's Perchlorate	GC/MS GC/MS GC/MS GC/MS
Trip Blank	3	None	<input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> CLP <input type="checkbox"/> 8270 <input type="checkbox"/> 625 <input type="checkbox"/> CLP	<input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602	<input type="checkbox"/> METALS, TOTAL <input type="checkbox"/> METALS, DISSOLVED <input type="checkbox"/> METALS COA VOC <input type="checkbox"/> TOH/CLP/ure <input type="checkbox"/> EPA 319's Humic <input type="checkbox"/> EPA 319's Perchlorate	GC/MS GC/MS GC/MS
Temp Blank	1	None	<input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> CLP <input type="checkbox"/> 8270 <input type="checkbox"/> 625 <input type="checkbox"/> CLP	<input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602	<input type="checkbox"/> METALS, TOTAL <input type="checkbox"/> METALS, DISSOLVED <input type="checkbox"/> METALS COA VOC <input type="checkbox"/> TOH/CLP/ure <input type="checkbox"/> EPA 319's Humic <input type="checkbox"/> EPA 319's Perchlorate	GC/MS GC/MS GC/MS

SPECIAL INSTRUCTIONS/COMMENTS Metals Analyze VOC samples for hexachloro butadiene, 1,2,3-trichloro benzene, and trichloro fluoromethane.	TURNAROUND REQUIREMENTS	REPORT REQUIREMENTS	INVOICE INFORMATION	
	<input type="checkbox"/> RUSH (SURCHARGES APPLY) <input checked="checked" type="checkbox"/> STANDARD REQUESTED FAX DATE _____ REQUESTED REPORT DATE _____	I. Results Only _____ II. Results + QC Summaries (LCS, DUP, MSMSD as required) _____ III. Results + QC and Calibration Summaries _____ IV. Data Validation Report with Raw Data _____ V. Specialized Forms / Custom Report _____	PO# _____ BILL TO: Lewis Streeter GE CEP Athens, NY SUBMISSION # _____	RECEIVED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____
	CUSTODY SEALS: Y N RELINQUISHED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____	RECEIVED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____	Edata <input type="checkbox"/> Yes <input type="checkbox"/> No	RECEIVED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____
	SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ RECEIVED BY _____ SIGNATURE John A. Skarup PRINTED NAME John A. Skarup FIRM Shaw Environmental, Inc. DATE/TIME 4/9/03 9:15	RECEIVED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____		RECEIVED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____

See OAPP <input type="checkbox"/>	TURNAROUND REQUIREMENTS	REPORT REQUIREMENTS	INVOICE INFORMATION
	<input type="checkbox"/> RUSH (SURCHARGES APPLY) <input checked="checked" type="checkbox"/> STANDARD REQUESTED FAX DATE _____ REQUESTED REPORT DATE _____	I. Results Only _____ II. Results + QC Summaries (LCS, DUP, MSMSD as required) _____ III. Results + QC and Calibration Summaries _____ IV. Data Validation Report with Raw Data _____ V. Specialized Forms / Custom Report _____	PO# _____ BILL TO: Lewis Streeter GE CEP Athens, NY SUBMISSION # _____
CUSTODY SEALS: Y N RELINQUISHED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____	RECEIVED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____	Edata <input type="checkbox"/> Yes <input type="checkbox"/> No	RECEIVED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____
SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ RECEIVED BY _____ SIGNATURE John A. Skarup PRINTED NAME John A. Skarup FIRM Shaw Environmental, Inc. DATE/TIME 4/9/03 9:15	RECEIVED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____		RECEIVED BY _____ SIGNATURE _____ PRINTED NAME _____ FIRM _____ DATE/TIME _____



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

One Mustard St., Suite 250 • Rochester, NY 14609-0859 • (565) 288-5380 • 800-695-7222 x11 • FAX (565) 288-9475 PAGE 1 OF 1

SR # _____
C/S Contact _____

Project Name MRFA			Project Number 810066		
Project Manager Brian Neumann			Report CC Lewis Streeter - GE		
Company/Address Shaw Environmental Inc.					
13 British American Blvd					
Latham, NY 12110					
Phone # 518-783-1996			FAX# 518-783-8397		
Sampler's Signature <i>[Signature]</i>			Sampler's Printed Name John A. Starnop		
CLIENT SAMPLE ID			FOR OFFICE USE ONLY		MATRIX
M-332			LAB ID	DATE	SAMPLING TIME
M-275				4/15/03	1304
M-275 MS/MSD					1420
M-270					1420
DURA					1515
TRIP BLANK					
* TEMP BLANK					
[Redacted]					

ANALYSIS REQUESTED (Include Method Number and Container Preservative)	PRESERVATIVE	NUMBER OF CONTAINERS	REMARKS/ALTERNATE DESCRIPTION
EPA 015 COVOCs		4	
Total Chrome		6	
EPA 314.0 Ammonium Perchlorate		6	
CR+6		6	
EPA 314.0 Ammonium Perchlorate		3	
1200			

TURNAROUND REQUIREMENTS (SURCHARGES APPLY)	REPORT REQUIREMENTS	INVOICE INFORMATION
<input checked="" type="checkbox"/> RUSH (24 hr / 48 hr / 5 day)	<input type="checkbox"/> I. Results Only	FO# _____
<input checked="" type="checkbox"/> STANDARD	<input type="checkbox"/> II. Results + QC Summaries (LCS, DUP, MS/MSD as required)	BILL TO: Lewis Streeter
REQUESTED FAX DATE _____	<input type="checkbox"/> III. Results + QC and Calibration Summaries	GE CEP
REQUESTED REPORT DATE _____	<input type="checkbox"/> IV. Data Validation Report with Raw Data	Albany, NY
	<input type="checkbox"/> V. Specialized Forms / Custom Report	SUBMISSION # _____
	Edits <input type="checkbox"/> Yes <input type="checkbox"/> No	

SPECIAL INSTRUCTIONS/COMMENTS Metals <i>Analyze VOC samples for hexachlorobutadiene, 1,2,3-trichlorobenzene, and trichloro fluoro methane.</i>		CUSTODY SEALS: <input checked="" type="checkbox"/> N	
SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____		RECEIVED BY	
RELINQUISHED BY: <i>[Signature]</i>		RELINQUISHED BY	
Signature: <i>[Signature]</i>		Signature: _____	
Printed Name: John A. Starnop		Printed Name: _____	
Firm: CAS		Firm: _____	
Date/Time: 4-16-03 9:30		Date/Time: _____	



Effective 11/4/2002

ORGANIC QUALIFIERS

- U - Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.
- J - Indicates an estimated value. The flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.
- N - Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search.
- P - This flag is used for a pesticide/Aroclor target analyte when there is a greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form I and flagged with a "P".
- C - This flag applies to pesticide results where the identification has been confirmed by GC/MS.
- B - This flag is used when the analyte is found in the associated blank as well as in the sample.
- E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.
- D - This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is re-analyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number on the Form I for the diluted sample, and ALL concentration values reported on that Form I are flagged with the "D" flag.
- A - This flag indicates that a TIC is a suspected aldol-condensation product.
- X - As specified in Case Narrative.

CAS/Rochester Lab ID # for State Certifications

Army Corp of Engineers Validated
Delaware Accredited
Connecticut ID # PH0556
Florida ID # E87674
Massachusetts ID # M-NY032
Navy Facilities Engineering Service Center Approved
Nebraska Accredited

NELAP Accredited
New York ID # 10145
New Jersey ID # NY004
New Hampshire ID # 294100 A/B
Rhode Island ID # 158
South Carolina ID #91012
West Virginia ID # 292



Effective 11/4/2002

INORGANIC QUALIFIERS

C (Concentration) qualifier –

- B - if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but was greater than or equal to the Instrument Detection Limit (IDL).
- U - if the analyte was analyzed for, but not detected

Q qualifier - Specified entries and their meanings are as follows:

- D - Spike was diluted out
- E - The reported value is estimated because of the presence of interference.
- J - Estimated Value
- M - Duplicate injection precision not met.
- N - Spiked sample recovery not within control limits.
- S - The reported value was determined by the Method of Standard Additions (MSA).
- W - Post-digestion spike for Furnace AA Analysis is out of control limits (85-115), while sample absorbance is less than 50% of spike absorbance.
- * - Duplicate analysis not within control limits.
- + - Correlation coefficient for the MSA is less than 0.995.

M (Method) qualifier:

- "P" for ICP
- "A" for Flame AA
- "F" for Furnace AA
- "PM" for ICP when Microwave Digestion is used
- "AM" for Flame AA when Microwave Digestion is used
- "FM" for Furnace M when Microwave Digestion is used
- "CV" for Manual Cold Vapor AA
- "AV" for Automated Cold Vapor AA
- "CA" for Midi-Distillation Spectrophotometric
- "AS" for Semi-Automated Spectrophotometric
- "C" for Manual Spectrophotometric
- "T" for Titrimetric
- " " where no data has been entered
- "NR" if the analyte is not required to be analyzed.

CAS/Rochester Lab ID # for State Certifications

Army Corp of Engineers Validated
Delaware Accredited
Connecticut ID # PH0556
Florida ID # E87674
Massachusetts ID # M-NY032
Navy Facilities Engineering Service Center Approved
Nebraska Accredited

NELAP Accredited
New York ID # 10145
New Jersey ID # NY004
New Hampshire ID # 294100 A/B
Rhode Island ID # 158
South Carolina ID #91012
West Virginia ID # 292

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DGC-4S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631961

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8516

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	UG/L	Q
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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U J
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	5.0	U J
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DGC-4S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631961

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8516

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
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1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DGC-4S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631961

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18516

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DGC-3S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631962

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8504

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	U
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	1.0	U
78-93-3	2-butanone	5.0	U
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	1.0	U
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	1.0	U
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DGC-3S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631962

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18504

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7	m,p-xylenes	1.0	U
1330-20-7	o-xylene	1.0	U
100-42-5	styrene	1.0	U
75-25-2	bromoform	1.0	U
79-34-5	1,1,2,2-tetrachloroethane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	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
87-61-6	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DGC-3S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631962

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8504

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-33S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631963

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8505

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	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
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	U J
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	1.0	U
78-93-3	2-butanone	5.0	U J
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	1.0	U
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	1.0	U
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-33S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631963

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8505

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

M-33S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631963

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8505

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-D

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631965

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8506

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (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

74-87-3	-----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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U J
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	5.0	U J
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

FORM I VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-D

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631965

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8506

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (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
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1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-D

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631965

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8506

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-B

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631966

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18507

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U J
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	5.0	U J
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	0.34	J
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	0.20	J
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

FORM I VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-B

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631966

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8507

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-B

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631966

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8507

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-A

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631967

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8508

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	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
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	U J
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	1.0	U
78-93-3	2-butanone	5.0	U J
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	1.0	U
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	1.0	U
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW-A

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631967

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8508

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes _____	1.0	U
1330-20-7-----	o-xylene _____	1.0	U
100-42-5-----	styrene _____	1.0	U
75-25-2-----	bromoform _____	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane _____	1.0	U
541-73-1-----	1,3-Dichlorobenzene _____	1.0	U
106-46-7-----	1,4-Dichlorobenzene _____	1.0	U
95-50-1-----	1,2-Dichlorobenzene _____	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene _____	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SW-A

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631967

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8508

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631968

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8519

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	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
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	U ^J
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	0.12	J
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	1.0	U
78-93-3	2-butanone	5.0	U ^J
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	1.0	U
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	1.0	U
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631968

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18519

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP BLANK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631968

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8519

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

COOLER BLK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631969

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8676

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U J
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	0.17	J
78-93-3	-----2-butanone	5.0	U J
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

COOLER BLK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631969

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8676

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

COOLER BLK

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631969

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18676

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-331

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633278

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8675

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

74-87-3-----	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
75-35-4-----	1,1-dichloroethene	1.0	U
67-64-1-----	acetone	5.0	U J
75-15-0-----	carbon disulfide	1.0	U
75-34-3-----	1,1-dichloroethane	1.0	U
75-09-2-----	methylene chloride	1.0	U
156-59-2-----	cis-1,2-Dichloroethene	1.0	U
156-60-5-----	trans-1,2-dichloroethene	1.0	U
67-66-3-----	chloroform	1.0	U
78-93-3-----	2-butanone	5.0	U J
74-97-5-----	bromochloromethane	1.0	U
71-55-6-----	1,1,1-trichloroethane	1.0	U
56-23-5-----	carbontetrachloride	1.0	U
71-43-2-----	benzene	1.0	U
107-06-2-----	1,2-dichloroethane	1.0	U
79-01-6-----	trichloroethene	1.0	U
78-87-5-----	1,2-dichloropropane	1.0	U
75-27-4-----	bromodichloromethane	1.0	U
10061-01-5-----	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5-----	1,1,2-trichloroethane	1.0	U
127-18-4-----	tetrachloroethene	1.0	U
591-78-6-----	2-hexanone	5.0	U
124-48-1-----	dibromochloromethane	1.0	U
106-93-4-----	1,2-Dibromoethane	1.0	U
108-90-7-----	chlorobenzene	1.0	U
100-41-4-----	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-331

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633278

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18675

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

M-331

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633278

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8675

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-27S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633279

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8668

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U J
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	5.0	U J
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-27S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633279

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8668

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

M-27S

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-35

Matrix: (soil/water) WATER

Lab Sample ID: 633279

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8668

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-27D

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633280

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8672

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	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	0.21	J
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	UJ
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	0.49	J 1.0 U
78-93-3	2-butanone	5.0	UJ
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	5.1	
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	2.4	
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-27D

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633280

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8672

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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

1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

M-27D

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633280

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8672

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DUPA

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633281

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8673

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	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	0.18	J
75-35-4	1,1-dichloroethene	1.0	U
67-64-1	acetone	5.0	U J
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	1.0	U
75-09-2	methylene chloride	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
67-66-3	chloroform	0.52	J 1.0 u
78-93-3	2-butanone	5.0	U J
74-97-5	bromochloromethane	1.0	U
71-55-6	1,1,1-trichloroethane	1.0	U
56-23-5	carbontetrachloride	4.5	
71-43-2	benzene	1.0	U
107-06-2	1,2-dichloroethane	1.0	U
79-01-6	trichloroethene	2.2	
78-87-5	1,2-dichloropropane	1.0	U
75-27-4	bromodichloromethane	1.0	U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	1,1,2-trichloroethane	1.0	U
127-18-4	tetrachloroethene	1.0	U
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
108-90-7	chlorobenzene	1.0	U
100-41-4	ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DUPA

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633281

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8673

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
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1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DUPA

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633281

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18673

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLK(2)

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633282

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8674

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U J
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	3.6	J
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLK(2)

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633282

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18674

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	2.9	
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP BLK(2)

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633282

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8674

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

METALS
COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Contract: R2316425 SDG No.: DGC-3S
Lab Code: _____ Case No.: _____ SAS No.: _____
SOW No.: CLP ILM4.1 Client: Shaw Environmental

<u>Sample No.</u>	<u>Lab Sample ID.</u>
<u>M-13S</u>	<u>631964</u>
<u>SW-B</u>	<u>631966</u>
<u>M-27S</u>	<u>633279</u>
<u>M-27SD</u>	<u>633279D</u>
<u>M-27SS</u>	<u>633279S</u>
<u>M-27D</u>	<u>633280</u>
<u>DUPA</u>	<u>633281</u>

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: See Attached Case Narrative

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Michael K. Perry
Date: 5/19/03

Name: Michael K. Perry
Title: Laboratory Manager

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

DUPA

Contract: R2316425

Lab Code:

Case No.:

SAS No.:

SDG NO.: DGC-3S

Matrix (soil/water): WATER

Lab Sample ID: 633281

Level (low/med): LOW

Date Received: 04/16/03

Concentration Units (ug/L or mg/kg dry weight): $\mu\text{G/L}$

CAS No.	Analyte	Concentration	C	Q	M
7440-47-3	Chromium	6.1	B		P

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M-13S

Contract: R2316425

Lab Code:

Case No.:

SAS No.:

SDG NO.: DGC-3S

Matrix (soil/water): WATER

Lab Sample ID: 631964

Level (low/med): LOW

Date Received: 04/10/03

Concentration Units (ug/L or mg/kg dry weight): $\mu\text{G/L}$

CAS No.	Analyte	Concentration	C	Q	M
7440-47-3	Chromium	52.2			P

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M-27D

Contract: R2316425

Lab Code:

Case No.:

SAS No.:

SDG NO.: DGC-3S

Matrix (soil/water): WATER

Lab Sample ID: 633280

Level (low/med): LOW

Date Received: 04/16/03

Concentration Units (ug/L or mg/kg dry weight): μ G/L

CAS No.	Analyte	Concentration	C	Q	M
7440-47-3	Chromium	5.9	B		P

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M-27S

Contract: R2316425

Lab Code:

Case No.:

SAS No.:

SDG NO.: DGC-3S

Matrix (soil/water): WATER

Lab Sample ID: 633279

Level (low/med): LOW

Date Received: 04/16/03

Concentration Units (ug/L or mg/kg dry weight): $\mu\text{G/L}$

CAS No.	Analyte	Concentration	C	Q	M
7440-47-3	Chromium	8.5	B		P

Color Before: GREY

Clarity Before: CLEAR

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SW-B

Contract: R2316425

Lab Code:

Case No.:

SAS No.:

SDG NO.: DGC-3S

Matrix (soil/water): WATER

Lab Sample ID: 631966

Level (low/med): LOW

Date Received: 04/10/03

Concentration Units (ug/L or mg/kg dry weight): $\mu\text{G/L}$

CAS No.	Analyte	Concentration	C	Q	M
7440-47-3	Chromium	1.0	B		P

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

COLUMBIA ANALYTICAL SERVICES

Reported: 05/16/03

Shaw Environmental
Project Reference: GE MRFA PROJECT #810066
Client Sample ID : M-13S

Date Sampled : 04/09/03 14:25 Order #: 631964 Sample Matrix: WATER
Date Received: 04/10/03 Submission #: R2316425

ANALYTE	METHOD	PQL	RESULT	UNITS	DATE	TIME	DILUTION
					ANALYZED	ANALYZED	
HEXAVALENT CHROMIUM	7196A	0.0100	0.0450	MG/L	04/10/03	11:11	1.0

COLUMBIA ANALYTICAL SERVICES

Reported: 05/16/03

Shaw Environmental
Project Reference: GE MRFA PROJECT #810066
Client Sample ID : SW-B

Date Sampled : 04/09/03 16:30 Order #: 631966 Sample Matrix: WATER
Date Received: 04/10/03 Submission #: R2316425

ANALYTE	METHOD	PQL	RESULT	UNITS	DATE	TIME	DILUTION
					ANALYZED	ANALYZED	
HEXAVALENT CHROMIUM	7196A	0.0100	0.0100 U	MG/L	04/10/03	11:11	1.0

COLUMBIA ANALYTICAL SERVICES

Reported: 05/16/03

Shaw Environmental
Project Reference: GE MRFA PROJECT #810066
Client Sample ID : M-27S

Date Sampled : 04/15/03 14:20 Order #: 633279 Sample Matrix: WATER
Date Received: 04/16/03 Submission #: R2316425

ANALYTE	METHOD	PQL	RESULT	UNITS	DATE	TIME	DILUTION
					ANALYZED	ANALYZED	
HEXAVALENT CHROMIUM	7196A	0.0100	0.0100 UJ	MG/L	04/16/03	12:30	1.0

COLUMBIA ANALYTICAL SERVICES

Reported: 05/16/03

Shaw Environmental
Project Reference: GE MRFA PROJECT #810066
Client Sample ID : M-27D

Date Sampled : 04/15/03 15:15 Order #: 633280 Sample Matrix: WATER
Date Received: 04/16/03 Submission #: R2316425

ANALYTE	METHOD	PQL	RESULT	UNITS	DATE	TIME	DILUTION
					ANALYZED	ANALYZED	
HEXAVALENT CHROMIUM	7196A	0.0100	0.0100 U	MG/L	04/16/03	12:30	1.0

COLUMBIA ANALYTICAL SERVICES

Reported: 05/16/03

Shaw Environmental
Project Reference: GE MRFA PROJECT #810066
Client Sample ID : DUPA

Date Sampled : 04/15/03 Order #: 633281 Sample Matrix: WATER
Date Received: 04/16/03 Submission #: R2316425

ANALYTE	METHOD	PQL	RESULT	UNITS	DATE ANALYZED	TIME ANALYZED	DILUTION
HEXAVALENT CHROMIUM	7196A	0.0100	0.0100 U	MG/L	04/16/03	12:30	1.0

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

	EPA SAMPLE NO.	SMC1 (BFB) #	SMC2 #	SMC3 #	OTHER	TOT OUT
	=====	=====	=====	=====	=====	=====
01	VBLK01	98				0
02	VBLK01MS	100				0
03	DGC-3S	98				0
04	M-33S	98				0
05	SW-D	96				0
06	SW-B	98				0
07	SW-A	96				0
08	VBLK02	98				0
09	VBLK02MS	96				0
10	DGC-4S	92				0
11	DGC-4SMS	94				0
12	DGC-4SMSD	94				0
13	TRIP BLANK	92				0
14	VBLK03	96				0
15	VBLK03MS	98				0
16	M-27S	94				0
17	M-27SMS	94				0
18	M-27SMSD	92				0
19	M-27D	94				0
20	DUPA	102				0
21	TRIP BLK(2)	96				0
22	M-331	96				0
23	COOLER BLK	98				0
24						
25						
26						
27						
28						
29						
30						

QC LIMITS

SMC1 (BFB) = bromofluorobenzene (80-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix Spike - EPA Sample No.: DGC-4S

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
vinyl chloride	5.0	0.00	5.2	104	60-140
carbontetrachloride	5.0	0.00	5.4	108	60-140
benzene	5.0	0.00	5.4	108	60-140
1,2-dichloroethane	5.0	0.00	5.1	102	60-140
trichloroethene	5.0	0.00	5.4	108	60-140
1,2-dichloropropane	5.0	0.00	5.2	104	60-140
cis-1,3-dichloropropene	5.0	0.00	5.4	108	60-140
1,1,2-trichloroethane	5.0	0.00	4.8	96	60-140
tetrachloroethene	5.0	0.00	5.6	112	60-140
1,2-Dibromoethane	5.0	0.00	5.2	104	60-140
bromoform	5.0	0.00	4.8	96	60-140
1,4-Dichlorobenzene	5.0	0.00	5.2	104	60-140

COMPOUND	SPIKE ADDED (ug/l)	MSD CONCENTRATION (ug/l)	MSD % REC #	% RPD #	QC LIMITS RPD REC.	
vinyl chloride	5.0	5.1	102	2	20	60-140
carbontetrachloride	5.0	5.3	106	2	20	60-140
benzene	5.0	5.3	106	2	20	60-140
1,2-dichloroethane	5.0	5.1	102	0	20	60-140
trichloroethene	5.0	5.4	108	0	20	60-140
1,2-dichloropropane	5.0	5.1	102	2	20	60-140
cis-1,3-dichloropropene	5.0	5.1	102	6	20	60-140
1,1,2-trichloroethane	5.0	4.8	96	0	20	60-140
tetrachloroethene	5.0	5.4	108	4	20	60-140
1,2-Dibromoethane	5.0	5.0	100	4	20	60-140
bromoform	5.0	4.5	90	6	20	60-140
1,4-Dichlorobenzene	5.0	5.2	104	0	20	60-140

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

* Values outside of QC limits

RPD: 0 out of 12 outside limits

Spike Recovery: 0 out of 24 outside limits

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DGC-4SMS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631961MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8517

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

74-87-3-----	chloromethane	5.3	
75-01-4-----	vinyl chloride	5.2	
74-83-9-----	bromomethane	5.4	
75-00-3-----	chloroethane	5.0	
75-69-4-----	Trichlorofluoromethane	5.2	
75-35-4-----	1,1-dichloroethene	5.4	
67-64-1-----	acetone	5.0	U
75-15-0-----	carbon disulfide	1.0	U
75-34-3-----	1,1-dichloroethane	5.6	
75-09-2-----	methylene chloride	5.4	
156-59-2-----	cis-1,2-Dichloroethene	5.4	
156-60-5-----	trans-1,2-dichloroethene	5.2	
67-66-3-----	chloroform	5.4	
78-93-3-----	2-butanone	5.0	U
74-97-5-----	bromochloromethane	5.0	
71-55-6-----	1,1,1-trichloroethane	5.2	
56-23-5-----	carbontetrachloride	5.4	
71-43-2-----	benzene	5.4	
107-06-2-----	1,2-dichloroethane	5.1	
79-01-6-----	trichloroethene	5.4	
78-87-5-----	1,2-dichloropropane	5.2	
75-27-4-----	bromodichloromethane	5.3	
10061-01-5-----	cis-1,3-dichloropropene	5.4	
108-10-1-----	4-methyl-2-pentanone	5.0	U
108-88-3-----	toluene	5.4	
10061-02-6-----	trans-1,3-dichloropropene	5.2	
79-00-5-----	1,1,2-trichloroethane	4.8	
127-18-4-----	tetrachloroethene	5.6	
591-78-6-----	2-hexanone	5.0	U
124-48-1-----	dibromochloromethane	5.1	
106-93-4-----	1,2-Dibromoethane	5.2	
108-90-7-----	chlorobenzene	5.3	
100-41-4-----	ethylbenzene	5.4	

FORM I VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DGC-4SMS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631961MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18517

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	10.8	
1330-20-7-----	o-xylene	5.2	
100-42-5-----	styrene	5.4	
75-25-2-----	bromoform	4.8	
79-34-5-----	1,1,2,2-tetrachloroethane	5.3	
541-73-1-----	1,3-Dichlorobenzene	5.2	
106-46-7-----	1,4-Dichlorobenzene	5.2	
95-50-1-----	1,2-Dichlorobenzene	5.2	
96-12-8-----	1,2-dibromo-3-chloropropane	5.2	
120-82-1-----	1,2,4-Trichlorobenzene	5.0	
87-68-3-----	Hexachlorobutadiene	5.4	
87-61-6-----	1,2,3-Trichlorobenzene	5.0	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DGC-4SMSD

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631961MSD

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8518

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----chloromethane	5.3	
75-01-4	-----vinyl chloride	5.1	
74-83-9	-----bromomethane	5.6	
75-00-3	-----chloroethane	5.2	
75-69-4	-----Trichlorofluoromethane	5.1	
75-35-4	-----1,1-dichloroethene	5.5	
67-64-1	-----acetone	5.0	U
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	5.5	
75-09-2	-----methylene chloride	5.4	
156-59-2	-----cis-1,2-Dichloroethene	5.4	
156-60-5	-----trans-1,2-dichloroethene	5.0	
67-66-3	-----chloroform	5.4	
78-93-3	-----2-butanone	5.0	U
74-97-5	-----bromochloromethane	5.0	
71-55-6	-----1,1,1-trichloroethane	5.2	
56-23-5	-----carbontetrachloride	5.3	
71-43-2	-----benzene	5.3	
107-06-2	-----1,2-dichloroethane	5.1	
79-01-6	-----trichloroethene	5.4	
78-87-5	-----1,2-dichloropropane	5.1	
75-27-4	-----bromodichloromethane	5.2	
10061-01-5	-----cis-1,3-dichloropropene	5.1	
108-10-1	-----4-methyl-2-pentanone	5.0	U
108-88-3	-----toluene	5.4	
10061-02-6	-----trans-1,3-dichloropropene	5.1	
79-00-5	-----1,1,2-trichloroethane	4.8	
127-18-4	-----tetrachloroethene	5.4	
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	5.0	
106-93-4	-----1,2-Dibromoethane	5.0	
108-90-7	-----chlorobenzene	5.2	
100-41-4	-----ethylbenzene	5.3	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DGC-4SMSD

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 631961MSD

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8518

Level: (low/med) LOW

Date Received: 04/10/03

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7	m,p-xylenes	10.8	
1330-20-7	o-xylene	5.3	
100-42-5	styrene	5.2	
75-25-2	bromoform	4.5	
79-34-5	1,1,2,2-tetrachloroethane	4.9	
541-73-1	1,3-Dichlorobenzene	5.0	
106-46-7	1,4-Dichlorobenzene	5.2	
95-50-1	1,2-Dichlorobenzene	5.1	
96-12-8	1,2-dibromo-3-chloropropane	5.1	
120-82-1	1,2,4-Trichlorobenzene	5.0	
87-68-3	Hexachlorobutadiene	5.4	
87-61-6	1,2,3-Trichlorobenzene	4.9	

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix Spike - EPA Sample No.: M-27S

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
vinyl chloride	5.0	0.00	5.4	108	60-140
carbontetrachloride	5.0	0.00	5.5	110	60-140
benzene	5.0	0.00	5.4	108	60-140
1,2-dichloroethane	5.0	0.00	5.2	104	60-140
trichloroethene	5.0	0.00	5.3	106	60-140
1,2-dichloropropane	5.0	0.00	5.5	110	60-140
cis-1,3-dichloropropene	5.0	0.00	5.4	108	60-140
1,1,2-trichloroethane	5.0	0.00	4.9	98	60-140
tetrachloroethene	5.0	0.00	5.4	108	60-140
1,2-Dibromoethane	5.0	0.00	5.3	106	60-140
bromoform	5.0	0.00	4.5	90	60-140
1,4-Dichlorobenzene	5.0	0.00	5.1	102	60-140

COMPOUND	SPIKE ADDED (ug/l)	MSD CONCENTRATION (ug/l)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
vinyl chloride	5.0	5.4	108	0	20	60-140
carbontetrachloride	5.0	5.9	118	7	20	60-140
benzene	5.0	5.7	114	5	20	60-140
1,2-dichloroethane	5.0	5.0	100	4	20	60-140
trichloroethene	5.0	5.7	114	7	20	60-140
1,2-dichloropropane	5.0	5.8	116	5	20	60-140
cis-1,3-dichloropropene	5.0	5.4	108	0	20	60-140
1,1,2-trichloroethane	5.0	5.3	106	8	20	60-140
tetrachloroethene	5.0	5.6	112	4	20	60-140
1,2-Dibromoethane	5.0	5.4	108	2	20	60-140
bromoform	5.0	4.6	92	2	20	60-140
1,4-Dichlorobenzene	5.0	5.1	102	0	20	60-140

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

* Values outside of QC limits

RPD: 0 out of 12 outside limits

Spike Recovery: 0 out of 24 outside limits

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-27SMS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633279MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8670

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	chloromethane	5.3	
75-01-4	vinyl chloride	5.4	
74-83-9	bromomethane	5.6	
75-00-3	chloroethane	5.0	
75-69-4	Trichlorofluoromethane	5.2	
75-35-4	1,1-dichloroethene	5.1	
67-64-1	acetone	5.0	U
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	5.5	
75-09-2	methylene chloride	5.2	
156-59-2	cis-1,2-Dichloroethene	5.2	
156-60-5	trans-1,2-dichloroethene	5.0	
67-66-3	chloroform	5.4	
78-93-3	2-butanone	5.0	U
74-97-5	bromochloromethane	5.6	
71-55-6	1,1,1-trichloroethane	5.2	
56-23-5	carbontetrachloride	5.5	
71-43-2	benzene	5.4	
107-06-2	1,2-dichloroethane	5.2	
79-01-6	trichloroethene	5.3	
78-87-5	1,2-dichloropropane	5.5	
75-27-4	bromodichloromethane	5.3	
10061-01-5	cis-1,3-dichloropropene	5.4	
108-10-1	4-methyl-2-pentanone	5.0	U
108-88-3	toluene	5.4	
10061-02-6	trans-1,3-dichloropropene	5.3	
79-00-5	1,1,2-trichloroethane	4.9	
127-18-4	tetrachloroethene	5.4	
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	5.0	
106-93-4	1,2-Dibromoethane	5.3	
108-90-7	chlorobenzene	5.5	
100-41-4	ethylbenzene	5.5	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-27SMS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633279MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8670

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7	m,p-xylenes	10.6	
1330-20-7	o-xylene	5.4	
100-42-5	styrene	5.1	
75-25-2	bromoform	4.5	
79-34-5	1,1,2,2-tetrachloroethane	5.0	
541-73-1	1,3-Dichlorobenzene	5.2	
106-46-7	1,4-Dichlorobenzene	5.1	
95-50-1	1,2-Dichlorobenzene	5.1	
96-12-8	1,2-dibromo-3-chloropropane	4.7	
120-82-1	1,2,4-Trichlorobenzene	5.1	
87-68-3	Hexachlorobutadiene	5.4	
87-61-6	1,2,3-Trichlorobenzene	5.0	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-27SMSD

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633279MSD

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8671

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

74-87-3	chloromethane	5.4	
75-01-4	vinyl chloride	5.4	
74-83-9	bromomethane	5.9	
75-00-3	chloroethane	5.2	
75-69-4	Trichlorofluoromethane	5.3	
75-35-4	1,1-dichloroethene	5.4	
67-64-1	acetone	5.0	U
75-15-0	carbon disulfide	1.0	U
75-34-3	1,1-dichloroethane	5.7	
75-09-2	methylene chloride	5.2	
156-59-2	cis-1,2-Dichloroethene	5.6	
156-60-5	trans-1,2-dichloroethene	5.1	
67-66-3	chloroform	5.4	
78-93-3	2-butanone	5.0	U
74-97-5	bromochloromethane	5.3	
71-55-6	1,1,1-trichloroethane	5.3	
56-23-5	carbontetrachloride	5.9	
71-43-2	benzene	5.7	
107-06-2	1,2-dichloroethane	5.0	
79-01-6	trichloroethene	5.7	
78-87-5	1,2-dichloropropane	5.8	
75-27-4	bromodichloromethane	5.4	
10061-01-5	cis-1,3-dichloropropene	5.4	
108-10-1	4-methyl-2-pentanone	5.0	U
108-88-3	toluene	5.6	
10061-02-6	trans-1,3-dichloropropene	5.5	
79-00-5	1,1,2-trichloroethane	5.3	
127-18-4	tetrachloroethene	5.6	
591-78-6	2-hexanone	5.0	U
124-48-1	dibromochloromethane	5.2	
106-93-4	1,2-Dibromoethane	5.4	
108-90-7	chlorobenzene	5.6	
100-41-4	ethylbenzene	5.7	

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-27SMSD

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: 633279MSD

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8671

Level: (low/med) LOW

Date Received: 04/16/03

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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

1330-20-7-----	m,p-xylenes	11.0	
1330-20-7-----	o-xylene	5.6	
100-42-5-----	styrene	5.5	
75-25-2-----	bromoform	4.6	
79-34-5-----	1,1,2,2-tetrachloroethane	5.1	
541-73-1-----	1,3-Dichlorobenzene	5.1	
106-46-7-----	1,4-Dichlorobenzene	5.1	
95-50-1-----	1,2-Dichlorobenzene	5.2	
96-12-8-----	1,2-dibromo-3-chloropropane	4.9	
120-82-1-----	1,2,4-Trichlorobenzene	5.1	
87-68-3-----	Hexachlorobutadiene	5.6	
87-61-6-----	1,2,3-Trichlorobenzene	5.1	

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix Spike - EPA Sample No.: VBLK01

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
vinyl chloride	5.0	0.00	5.5	110	60-140
carbontetrachloride	5.0	0.00	5.5	110	60-140
benzene	5.0	0.00	5.7	114	60-140
1,2-dichloroethane	5.0	0.00	6.1	122	60-140
trichloroethene	5.0	0.00	5.7	114	60-140
1,2-dichloropropane	5.0	0.00	5.9	118	60-140
cis-1,3-dichloropropene	5.0	0.00	6.2	124	60-140
1,1,2-trichloroethane	5.0	0.00	6.0	120	60-140
tetrachloroethene	5.0	0.00	5.7	114	60-140
1,2-Dibromoethane	5.0	0.00	6.2	124	60-140
bromoform	5.0	0.00	5.9	118	60-140
1,4-Dichlorobenzene	5.0	0.00	5.7	114	60-140

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 12 outside limits

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01MS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8501

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	chloromethane	5.6	
75-01-4	vinyl chloride	5.5	
74-83-9	bromomethane	5.7	
75-00-3	chloroethane	5.6	
75-69-4	Trichlorofluoromethane	5.3	
75-35-4	1,1-dichloroethene	5.7	
67-64-1	acetone	8.8	
75-15-0	carbon disulfide	5.0	
75-34-3	1,1-dichloroethane	6.0	
75-09-2	methylene chloride	6.3	
156-59-2	cis-1,2-Dichloroethene	6.0	
156-60-5	trans-1,2-dichloroethene	5.3	
67-66-3	chloroform	5.8	
78-93-3	2-butanone	6.2	
74-97-5	bromochloromethane	6.2	
71-55-6	1,1,1-trichloroethane	5.4	
56-23-5	carbontetrachloride	5.5	
71-43-2	benzene	5.7	
107-06-2	1,2-dichloroethane	6.1	
79-01-6	trichloroethene	5.7	
78-87-5	1,2-dichloropropane	5.9	
75-27-4	bromodichloromethane	5.9	
10061-01-5	cis-1,3-dichloropropene	6.2	
108-10-1	4-methyl-2-pentanone	6.5	
108-88-3	toluene	5.7	
10061-02-6	trans-1,3-dichloropropene	6.3	
79-00-5	1,1,2-trichloroethane	6.0	
127-18-4	tetrachloroethene	5.7	
591-78-6	2-hexanone	6.1	
124-48-1	dibromochloromethane	6.2	
106-93-4	1,2-Dibromoethane	6.2	
108-90-7	chlorobenzene	5.9	
100-41-4	ethylbenzene	5.7	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01MS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8501

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	11.5	_____
1330-20-7-----	o-xylene	5.8	_____
100-42-5-----	styrene	5.9	_____
75-25-2-----	bromoform	5.9	_____
79-34-5-----	1,1,2,2-tetrachloroethane	6.5	_____
541-73-1-----	1,3-Dichlorobenzene	5.7	_____
106-46-7-----	1,4-Dichlorobenzene	5.7	_____
95-50-1-----	1,2-Dichlorobenzene	5.9	_____
96-12-8-----	1,2-dibromo-3-chloropropane	6.5	_____
120-82-1-----	1,2,4-Trichlorobenzene	6.0	_____
87-68-3-----	Hexachlorobutadiene	5.4	_____
87-61-6-----	1,2,3-Trichlorobenzene	6.1	_____

3A
 WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix Spike - EPA Sample No.: VBLK02

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
vinyl chloride	5.0	0.00	5.2	104	60-140
carbontetrachloride	5.0	0.00	5.2	104	60-140
benzene	5.0	0.00	5.2	104	60-140
1,2-dichloroethane	5.0	0.00	5.4	108	60-140
trichloroethene	5.0	0.00	5.4	108	60-140
1,2-dichloropropane	5.0	0.00	5.3	106	60-140
cis-1,3-dichloropropene	5.0	0.00	5.5	110	60-140
1,1,2-trichloroethane	5.0	0.00	5.0	100	60-140
tetrachloroethene	5.0	0.00	5.4	108	60-140
1,2-Dibromoethane	5.0	0.00	5.2	104	60-140
bromoform	5.0	0.00	5.2	104	60-140
1,4-Dichlorobenzene	5.0	0.00	5.3	106	60-140

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 12 outside limits

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02MS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK02MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8515

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	Q
74-87-3	chloromethane	5.1
75-01-4	vinyl chloride	5.2
74-83-9	bromomethane	5.5
75-00-3	chloroethane	5.2
75-69-4	Trichlorofluoromethane	5.1
75-35-4	1,1-dichloroethene	5.6
67-64-1	acetone	5.0 U
75-15-0	carbon disulfide	1.0 U
75-34-3	1,1-dichloroethane	5.6
75-09-2	methylene chloride	5.6
156-59-2	cis-1,2-Dichloroethene	5.5
156-60-5	trans-1,2-dichloroethene	5.1
67-66-3	chloroform	5.5
78-93-3	2-butanone	5.0 U
74-97-5	bromochloromethane	5.1
71-55-6	1,1,1-trichloroethane	5.0
56-23-5	carbontetrachloride	5.2
71-43-2	benzene	5.2
107-06-2	1,2-dichloroethane	5.4
79-01-6	trichloroethene	5.4
78-87-5	1,2-dichloropropane	5.3
75-27-4	bromodichloromethane	5.3
10061-01-5	cis-1,3-dichloropropene	5.5
108-10-1	4-methyl-2-pentanone	5.0 U
108-88-3	toluene	5.4
10061-02-6	trans-1,3-dichloropropene	5.4
79-00-5	1,1,2-trichloroethane	5.0
127-18-4	tetrachloroethene	5.4
591-78-6	2-hexanone	5.0 U
124-48-1	dibromochloromethane	5.3
106-93-4	1,2-Dibromoethane	5.2
108-90-7	chlorobenzene	5.3
100-41-4	ethylbenzene	5.3

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02MS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK02MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8515

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

1330-20-7-----	m,p-xylenes	10.8	
1330-20-7-----	o-xylene	5.2	
100-42-5-----	styrene	5.4	
75-25-2-----	bromoform	5.2	
79-34-5-----	1,1,2,2-tetrachloroethane	5.4	
541-73-1-----	1,3-Dichlorobenzene	5.2	
106-46-7-----	1,4-Dichlorobenzene	5.3	
95-50-1-----	1,2-Dichlorobenzene	5.4	
96-12-8-----	1,2-dibromo-3-chloropropane	6.1	
120-82-1-----	1,2,4-Trichlorobenzene	5.2	
87-68-3-----	Hexachlorobutadiene	5.4	
87-61-6-----	1,2,3-Trichlorobenzene	5.3	

3A
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix Spike - EPA Sample No.: VBLK03

COMPOUND	SPIKE ADDED (ug/l)	SAMPLE CONCENTRATION (ug/l)	MS CONCENTRATION (ug/l)	MS % REC #	QC. LIMITS REC.
vinyl chloride	5.0	0.00	5.2	104	60-140
carbontetrachloride	5.0	0.00	5.4	108	60-140
benzene	5.0	0.00	5.5	110	60-140
1,2-dichloroethane	5.0	0.00	5.3	106	60-140
trichloroethene	5.0	0.00	5.3	106	60-140
1,2-dichloropropane	5.0	0.00	5.7	114	60-140
cis-1,3-dichloropropene	5.0	0.00	5.6	112	60-140
1,1,2-trichloroethane	5.0	0.00	5.4	108	60-140
tetrachloroethene	5.0	0.00	5.4	108	60-140
1,2-Dibromoethane	5.0	0.00	5.8	116	60-140
bromoform	5.0	0.00	5.0	100	60-140
1,4-Dichlorobenzene	5.0	0.00	5.4	108	60-140

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 12 outside limits

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VELK03MS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VELK03MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8667

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----chloromethane	5.3	
75-01-4	-----vinyl chloride	5.2	
74-83-9	-----bromomethane	5.8	
75-00-3	-----chloroethane	5.1	
75-69-4	-----Trichlorofluoromethane	5.2	
75-35-4	-----1,1-dichloroethene	5.2	
67-64-1	-----acetone	5.0	U
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	5.7	
75-09-2	-----methylene chloride	5.5	
156-59-2	-----cis-1,2-Dichloroethene	5.8	
156-60-5	-----trans-1,2-dichloroethene	5.1	
67-66-3	-----chloroform	5.5	
78-93-3	-----2-butanone	5.0	U
74-97-5	-----bromochloromethane	5.5	
71-55-6	-----1,1,1-trichloroethane	5.1	
56-23-5	-----carbontetrachloride	5.4	
71-43-2	-----benzene	5.5	
107-06-2	-----1,2-dichloroethane	5.3	
79-01-6	-----trichloroethene	5.3	
78-87-5	-----1,2-dichloropropane	5.7	
75-27-4	-----bromodichloromethane	5.6	
10061-01-5	-----cis-1,3-dichloropropene	5.6	
108-10-1	-----4-methyl-2-pentanone	5.0	U
108-88-3	-----toluene	5.5	
10061-02-6	-----trans-1,3-dichloropropene	5.7	
79-00-5	-----1,1,2-trichloroethane	5.4	
127-18-4	-----tetrachloroethene	5.4	
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	5.7	
106-93-4	-----1,2-Dibromoethane	5.8	
108-90-7	-----chlorobenzene	5.6	
100-41-4	-----ethylbenzene	5.6	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK03MS

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK03MS

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8667

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

1330-20-7-----	m,p-xylenes	11.0	
1330-20-7-----	o-xylene	5.6	
100-42-5-----	styrene	5.5	
75-25-2-----	bromoform	5.0	
79-34-5-----	1,1,2,2-tetrachloroethane	5.9	
541-73-1-----	1,3-Dichlorobenzene	5.3	
106-46-7-----	1,4-Dichlorobenzene	5.4	
95-50-1-----	1,2-Dichlorobenzene	5.3	
96-12-8-----	1,2-dibromo-3-chloropropane	5.8	
120-82-1-----	1,2,4-Trichlorobenzene	5.4	
87-68-3-----	Hexachlorobutadiene	5.5	
87-61-6-----	1,2,3-Trichlorobenzene	5.5	

METALS

-6-

DUPLICATES

SAMPLE NO.

M-27SD

Contract: R2316425

Lab Code:

Case No.:

SAS No.:

SDG NO.: DGC-3S

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids for Sample: 0.0

% Solids for Duplicate:

Concentration Units (ug/L or mg/kg dry weight): $\mu\text{G/L}$

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Chromium	10.0	8.5091	B	12.0197		34.2		P

METALS
-5A-
SPIKE SAMPLE RECOVERY

SAMPLE NO.

M-27SS

Contract: R2316425

Lab Code: Case No.: SAS No.: SDG NO.: DGC-3S

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): $\mu\text{G/L}$

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Chromium	75 - 125	211.3138	8.5091 B	200.00	101.4		P

Comments: _____

METALS

-5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

M-27SA

Contract: R2316425

Lab Code:

Case No.:

SAS No.:

SDG NO.: DGC-3S

Matrix (soil/water): WATER

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Chromium		203.53	8.51 B	200.0	97.5		P

Comments:

COLUMBIA ANALYTICAL SERVICES

INORGANIC QUALITY CONTROL SUMMARY

Report Date : 05/16/03
CAS Order # : 633279 - M-27S
Client : Shaw Environmental
 GE MRFA PROJECT #810066
Reported Units: MG/L
Run # : 89657

PRECISION

ACCURACY

ORIGINAL	DUPLICATE	RPD	FOUND	ADDED	% REC.	LIMITS
0.0100 U	0.0100 U	NC	0.0910	0.100	91	85 - 115

HEXAVALENT CHROMIUM

COLUMBIA ANALYTICAL SERVICES

INORGANIC BLANK SPIKE SUMMARY

CAS Submission #: R2316425
Client: Shaw Environmental
GE MRFA PROJECT #810066

BLANK SPIKES

BLANK	FOUND	ADDED	% REC	LIMITS	RUN	UNITS	
HEXAVALENT CHROMIUM	0.0100 U	0.0912	0.100	91	85 - 117	89404	MG/L
HEXAVALENT CHROMIUM	0.0100 U	0.0901	0.100	90	85 - 117	89657	MG/L

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Lab File ID: I8500

Lab Sample ID: VBLK01

Date Analyzed: 04/15/03

Time Analyzed: 1909

GC Column: RTX502.2 ID: 0.53 (mm)

Heated Purge: (Y/N) N

Instrument ID: MS1

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	VBLK01MS	VBLK01MS	I8501	1950
02	DGC-3S	631962	I8504	2143
03	M-33S	631963	I8505	2224
04	SW-D	631965	I8506	2305
05	SW-B	631966	I8507	2346
06	SW-A	631967	I8508	0027
07				
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COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8500

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	Q
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
75-35-4	1,1-dichloroethene	1.0 U
67-64-1	acetone	5.0 U
75-15-0	carbon disulfide	1.0 U
75-34-3	1,1-dichloroethane	1.0 U
75-09-2	methylene chloride	1.0 U
156-59-2	cis-1,2-Dichloroethene	1.0 U
156-60-5	trans-1,2-dichloroethene	1.0 U
67-66-3	chloroform	1.0 U
78-93-3	2-butanone	5.0 U
74-97-5	bromochloromethane	1.0 U
71-55-6	1,1,1-trichloroethane	1.0 U
56-23-5	carbontetrachloride	1.0 U
71-43-2	benzene	1.0 U
107-06-2	1,2-dichloroethane	1.0 U
79-01-6	trichloroethene	1.0 U
78-87-5	1,2-dichloropropane	1.0 U
75-27-4	bromodichloromethane	1.0 U
10061-01-5	cis-1,3-dichloropropene	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-dichloropropene	1.0 U
79-00-5	1,1,2-trichloroethane	1.0 U
127-18-4	tetrachloroethene	1.0 U
591-78-6	2-hexanone	5.0 U
124-48-1	dibromochloromethane	1.0 U
106-93-4	1,2-Dibromoethane	1.0 U
108-90-7	chlorobenzene	1.0 U
100-41-4	ethylbenzene	1.0 U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8500

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (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
1330-20-7-----	m,p-xylenes	1.0	U
1330-20-7-----	o-xylene	1.0	U
100-42-5-----	styrene	1.0	U
75-25-2-----	bromoform	1.0	U
79-34-5-----	1,1,2,2-tetrachloroethane	1.0	U
541-73-1-----	1,3-Dichlorobenzene	1.0	U
106-46-7-----	1,4-Dichlorobenzene	1.0	U
95-50-1-----	1,2-Dichlorobenzene	1.0	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
87-61-6-----	1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK01

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK01

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: 18500

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/15/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK02

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Lab File ID: I8514

Lab Sample ID: VBLK02

Date Analyzed: 04/16/03

Time Analyzed: 1128

GC Column: RTX502.2 ID: 0.53 (mm)

Heated Purge: (Y/N) N

Instrument ID: MS1

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLK02MS	VBLK02MS	I8515	1211
02	DGC-4S	631961	I8516	1253
03	DGC-4SMS	631961MS	I8517	1337
04	DGC-4SMSD	631961MSD	I8518	1417
05	TRIP BLANK	631968	I8519	1458
06				
07				
08				
09				
10				
11				
12				
13				
14				
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COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK02

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8514

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

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
75-35-4-----1,1-dichloroethene	1.0	U
67-64-1-----acetone	5.0	U
75-15-0-----carbon disulfide	1.0	U
75-34-3-----1,1-dichloroethane	1.0	U
75-09-2-----methylene chloride	1.0	U
156-59-2-----cis-1,2-Dichloroethene	1.0	U
156-60-5-----trans-1,2-dichloroethene	1.0	U
67-66-3-----chloroform	1.0	U
78-93-3-----2-butanone	5.0	U
74-97-5-----bromochloromethane	1.0	U
71-55-6-----1,1,1-trichloroethane	1.0	U
56-23-5-----carbontetrachloride	1.0	U
71-43-2-----benzene	1.0	U
107-06-2-----1,2-dichloroethane	1.0	U
79-01-6-----trichloroethene	1.0	U
78-87-5-----1,2-dichloropropane	1.0	U
75-27-4-----bromodichloromethane	1.0	U
10061-01-5-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5-----1,1,2-trichloroethane	1.0	U
127-18-4-----tetrachloroethene	1.0	U
591-78-6-----2-hexanone	5.0	U
124-48-1-----dibromochloromethane	1.0	U
106-93-4-----1,2-Dibromoethane	1.0	U
108-90-7-----chlorobenzene	1.0	U
100-41-4-----ethylbenzene	1.0	U

FORM I VOA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK02

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8514

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

1330-20-7------	m,p-xylenes	1.0	U
1330-20-7------	o-xylene	1.0	U
100-42-5------	styrene	1.0	U
75-25-2------	bromoform	1.0	U
79-34-5------	1,1,2,2-tetrachloroethane	1.0	U
541-73-1------	1,3-Dichlorobenzene	1.0	U
106-46-7------	1,4-Dichlorobenzene	1.0	U
95-50-1------	1,2-Dichlorobenzene	1.0	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
87-61-6------	1,2,3-Trichlorobenzene	1.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK02

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK02

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8514

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/16/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK03

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Lab File ID: I8666

Lab Sample ID: VBLK03

Date Analyzed: 04/24/03

Time Analyzed: 1559

GC Column: RTX502.2 ID: 0.53 (mm)

Heated Purge: (Y/N) N

Instrument ID: MS1

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	VBLK03MS	VBLK03MS	I8667	1641
02	M-27S	633279	I8668	1749
03	M-27SMS	633279MS	I8670	1917
04	M-27SMSD	633279MSD	I8671	1958
05	M-27D	633280	I8672	2039
06	DUPA	633281	I8673	2120
07	TRIP BLK(2)	633282	I8674	2200
08	M-331	633278	I8675	2241
09	COOLER BLK	631969	I8676	2321
10				
11				
12				
13				
14				
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COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK03

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK03

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8666

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
74-87-3	-----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
75-35-4	-----1,1-dichloroethene	1.0	U
67-64-1	-----acetone	5.0	U
75-15-0	-----carbon disulfide	1.0	U
75-34-3	-----1,1-dichloroethane	1.0	U
75-09-2	-----methylene chloride	1.0	U
156-59-2	-----cis-1,2-Dichloroethene	1.0	U
156-60-5	-----trans-1,2-dichloroethene	1.0	U
67-66-3	-----chloroform	1.0	U
78-93-3	-----2-butanone	5.0	U
74-97-5	-----bromochloromethane	1.0	U
71-55-6	-----1,1,1-trichloroethane	1.0	U
56-23-5	-----carbontetrachloride	1.0	U
71-43-2	-----benzene	1.0	U
107-06-2	-----1,2-dichloroethane	1.0	U
79-01-6	-----trichloroethene	1.0	U
78-87-5	-----1,2-dichloropropane	1.0	U
75-27-4	-----bromodichloromethane	1.0	U
10061-01-5	-----cis-1,3-dichloropropene	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-dichloropropene	1.0	U
79-00-5	-----1,1,2-trichloroethane	1.0	U
127-18-4	-----tetrachloroethene	1.0	U
591-78-6	-----2-hexanone	5.0	U
124-48-1	-----dibromochloromethane	1.0	U
106-93-4	-----1,2-Dibromoethane	1.0	U
108-90-7	-----chlorobenzene	1.0	U
100-41-4	-----ethylbenzene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK03

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK03

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8666

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (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
---------	----------	--	---

1330-20-7	-----m,p-xylenes	1.0	U
1330-20-7	-----o-xylene	1.0	U
100-42-5	-----styrene	1.0	U
75-25-2	-----bromoform	1.0	U
79-34-5	-----1,1,2,2-tetrachloroethane	1.0	U
541-73-1	-----1,3-Dichlorobenzene	1.0	U
106-46-7	-----1,4-Dichlorobenzene	1.0	U
95-50-1	-----1,2-Dichlorobenzene	1.0	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
87-61-6	-----1,2,3-Trichlorobenzene	1.0	U

1E
 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK03

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Matrix: (soil/water) WATER

Lab Sample ID: VBLK03

Sample wt/vol: 25.00 (g/ml) ML

Lab File ID: I8666

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 04/24/03

GC Column: RTX502.2 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Lab File ID (Standard): I8497

Date Analyzed: 04/15/03

Instrument ID: MS1

Time Analyzed: 1735

GC Column: RTX502.2 ID: 0.53 (mm)

Heated Purge: (Y/N) N

	IS1 (DCB)		IS2 (CBZ)		IS3 (DFB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	182509	27.36	346488	21.42	456093	14.33
UPPER LIMIT	365018	27.86	692976	21.92	912186	14.83
LOWER LIMIT	91255	26.86	173244	20.92	228047	13.83
=====	=====	=====	=====	=====	=====	=====
EPA SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 VBLK01	188846	27.38	343835	21.44	457826	14.33
02 VBLK01MS	186849	27.38	340269	21.44	450962	14.35
03 DGC-3S	198563	27.39	357066	21.45	478226	14.36
04 M-33S	195269	27.38	351724	21.44	475244	14.35
05 SW-D	190007	27.38	356552	21.43	471062	14.35
06 SW-B	203960	27.38	355405	21.43	478542	14.35
07 SW-A	199998	27.38	347689	21.44	480813	14.35
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (CBZ) = chlorobenzene-d5

IS3 (DFB) = 1,4-Difluorobenzene

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: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Lab File ID (Standard): I8513

Date Analyzed: 04/16/03

Instrument ID: MS1

Time Analyzed: 1020

GC Column: RTX502.2 ID: 0.53 (mm)

Heated Purge: (Y/N) N

	IS1 (DCB) AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DFB) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	184485	27.41	345239	21.47	467482	14.38
UPPER LIMIT	368970	27.91	690478	21.97	934964	14.88
LOWER LIMIT	92243	26.91	172620	20.97	233741	13.88
=====	=====	=====	=====	=====	=====	=====
EPA SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 VBLK02	192279	27.36	344485	21.42	471956	14.33
02 VBLK02MS	192049	27.37	353943	21.43	470746	14.35
03 DGC-4S	183806	27.38	331570	21.44	465160	14.35
04 DGC-4SMS	183976	27.38	340645	21.44	467588	14.34
05 DGC-4SMSD	180681	27.36	335695	21.42	457508	14.34
06 TRIP BLANK	177392	27.36	332947	21.44	464188	14.34
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 (DCB) = 1,4-Dichlorobenzene-d4
 IS2 (CBZ) = chlorobenzene-d5
 IS3 (DFB) = 1,4-Difluorobenzene

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: CAS-ROC

Contract: SHAW

Lab Code: 10145

Case No.: R23-16425 SAS No.:

SDG No.: DGC-3S

Lab File ID (Standard): I8665

Date Analyzed: 04/24/03

Instrument ID: MS1

Time Analyzed: 1510

GC Column: RTX502.2 ID: 0.53 (mm)

Heated Purge: (Y/N) N

	IS1 (DCB)		IS2 (CBZ)		IS3 (DFB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	146180	27.41	279002	21.47	373262	14.39
UPPER LIMIT	292360	27.91	558004	21.97	746524	14.89
LOWER LIMIT	73090	26.91	139501	20.97	186631	13.89
=====	=====	=====	=====	=====	=====	=====
EPA SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 VBLK03	150506	27.39	268055	21.45	376593	14.35
02 VBLK03MS	149735	27.39	272639	21.45	369116	14.35
03 M-27S	140664	27.43	263974	21.49	363695	14.42
04 M-27SMS	143574	27.41	267814	21.47	368209	14.37
05 M-27SMSD	139924	27.42	257246	21.46	357760	14.37
06 M-27D	147901	27.41	270629	21.47	366566	14.37
07 DUPA	134264	27.41	232724	21.47	302364	14.38
08 TRIP BLK(2)	154595	27.41	274980	21.47	370795	14.38
09 M-331	154468	27.41	276738	21.45	372056	14.37
10 COOLER BLK	158207	27.41	280825	21.45	379862	14.37
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 (DCB) = 1,4-Dichlorobenzene-d4
 IS2 (CBZ) = chlorobenzene-d5
 IS3 (DFB) = 1,4-Difluorobenzene

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.

METALS

-3-

BLANKS

Contract: R2316425

Lab Code:

Case No.:

SAS No.:

SDG NO.: DGC-3S

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	Continuing Calibration Blank (ug/L)						Preparation Blank	M
		1	2	3	C	C	C		
Chromium	0.3	0.3	0.3	0.3	0.3	0.3	0.256	P	

APPENDIX C

**LABORATORY DATA, DATA VALIDATION REPORTS, PERCHLORATE RESULTS
PACKAGE, AMMONIUM PERCHLORATE INFLUENT/EFFLUENT WATER SAMPLES
FEBRUARY 26, 2003 AND GROUNDWATER/SURFACE WATER SAMPLES APRIL 2003**



MALTA - COA6

COPY

Lewis S. Streeter
Project Manager

General Electric Company
Corporate Environmental Programs
320 Great Oaks Boulevard, Suite 323
Albany, NY 12203-5965
Phone: 518-862-2712; Dial Comm: 8*232-2712
Fax: 518-862-2702; Dial Comm: 8*232-2702
E-mail: Lewis.Streeter@corporate.ge.com

July 21, 2003

Joel Singerman, Chief
Central New York Remediation Section
Emergency and Remedial Response Division
United States EPA - Region II
290 Broadway - 20th Floor
New York, New York 10007

**Subject: Perchlorate Results
Malta Rocket Fuel Area Site
Malta, New York
DOJ # 90-11-3-1575; NYSDEC Site ID#: 546022**

Dear Mr. Singerman:

Attached please find perchlorate results from the recent sampling events conducted at the above referenced site. This sampling event was requested by the US Environmental Protection Agency (US EPA), on behalf of the New York State Department of Health (NYSDOH) in a January 24, 2003 email. The EPA also provided GE with a copy of the January 13, 2003 letter from the NYSDOH requesting this sampling event. GE responded to this request in a February 13, 2003 email reply to the US EPA, in which GE agreed to collect samples for perchlorate analysis from the site supply wells and groundwater and surface water sampling locations that are sampled as part of long-term monitoring at the subject site.

GE, through its contractor, Shaw Environmental and Infrastructure Inc. (Shaw), has completed this sampling. Results from all monitoring wells and surface water sampling locations are non detect. Estimated values were detected in the two site supply wells, however the results were below the Method Reporting Limit of 2.0 ppb, and well below both EPA and NYSDEC guidance values, which currently range from 4 ppb to 18 ppb. Based on these results, no additional sampling or analysis will be conducted for perchlorate. A report prepared by Shaw, which summarizes these results is attached. This report will also be included in the next semi-annual status report.

Feel free to contact me at if you have any questions regarding this information.

Sincerely,

Lewis S. Streeter
Remedial Project Manager

Enclosure: Ammonium Perchlorate Sampling Event Summary Report, July 16, 2003

cc: Raymond Kazyaka, Wright Malta (with enclosure)
Bonnie Harrington, GE (with enclosure)
Daniel R. Garrity, Program Research Specialist, NYSDOH, (with enclosure)
Brian Neumann, Shaw (w/o enclosure)



July 15, 2003

Mr. Lewis S. Streeter
General Electric Company
Corporate Environmental Programs
320 Great Oaks Boulevard, Suite 323
Albany, New York 12203

**RE: Ammonium Perchlorate Sampling Event Summary
Malta Rocket Fuel Area Site, DOJ #90-11-3-1575
Plains Road, Malta, New York**

Dear Mr. Streeter:

The following paragraphs describe the Malta Rocket Fuel Area Site and sampling events that were conducted by Shaw Environmental, Inc. (Shaw) on behalf of the General Electric Company. These sampling events were conducted to investigate the possible presence of ammonium perchlorate in groundwater samples, collected from monitoring and supply wells, at the subject site. In light of the analytical results from the sampling events, no additional ammonium perchlorate sampling events are planned for the Site.

The Malta Rocket Fuel Area Site, DOJ #90-11-3-1575, located on Plains Road, Malta, New York, is approximately 165 acres in size and has been utilized since 1945 for a wide range of rocket and weapons testing programs and other research. Several companies have owned or leased all or part of the test station since its creation. Wright-Malta Corporation currently owns approximately 81 acres of the test station property. General Electric Company acts as the Performing Defendant on behalf of the group of Potentially Responsible Parties listed in the Consent Decree.

In accordance with the ROD, several Remedial Work Elements are currently being conducted at the Site. As requested by the EPA, to investigate the presence of ammonium perchlorate in groundwater at the Site, water samples were collected from components of two of the Remedial Work Elements. Remedial Work Element I, Drinking Water, (RWE I) consists of a water treatment system that is operated continuously at the test station. The drinking water treatment system has been in operation since January 1987 and consists of two groundwater extraction wells, a packed tower air stripper and ancillary piping and equipment. Treated groundwater is discharged to a 100,000-gallon underground reservoir and subsequently used by the Site.

Remedial Work Element II, Ground Water, consists of an Early Warning Monitoring System (EWMS) that is monitored semi-annually. The EWMS was established in June 1987 and currently consists of seven monitoring wells and three surface water sample locations that are monitored for the presence of site related contaminants. The locations of the monitoring wells and surface water sampling points were selected to detect any off-site migration of site contaminants toward public water supply systems located to the south and east of the site.

Prior to initiation of these sampling procedures, the Site's Sampling and Analysis Plan (SAP) was amended to include the collection of ammonium perchlorate samples. The SAP Addendum has been attached for reference. Upon completion of the SAP Addendum, Shaw conducted sampling events at the Site. On February 26, 2003, as part of RWE I, water samples were collected from the drinking water treatment system (recovery well RW-1 Influent, recovery well RW-2 Influent, Total Influent and Effluent sample ports) during a monthly operation and maintenance visit. On April 9 and 15, 2003, water samples were collected from the Early Warning Monitoring Well System (monitoring wells DGC-3S, DGC-4S, M-13S, M-27S, M-27D, M-33I, M-33S, and surface water sample locations SW-A, SW-B and SW-D) during a semi-annual sampling event.

The samples were submitted to Columbia Analytical Services, Inc. for Tier IV, CLP deliverables and were analyzed by EPA Method 314.0. Laboratory analysis of samples collected from the drinking water treatment system revealed trace concentrations of ammonium perchlorate that were above the Method Detection Limit of 0.7 ug/L but below the Method Reporting Limit of 2 ug/L. Specifically, ammonium perchlorate concentrations of 0.9 ug/L and 1.6 ug/L were recorded in the RW-2 and RW-1 samples, respectively. A concentration of 1.9 ug/L was observed in the Total Influent sample and a concentration of 1.2 ug/L was detected in the Total Effluent Sample. Laboratory analysis of samples collected from the EWMS revealed no detectable concentrations of ammonium perchlorate.

Laboratory analytical results from the sampling events were then compared to US Environmental Protection Agency (EPA) and New York State (NYS) guidance values for drinking water. While final EPA guidance values are not yet published, EPA literature references a range of 4 ug/L to 18 ug/L for interim guidance values. According to Ms. Kim Evans of the New York State Bureau of Water Source Protection, New York has not yet established a final Maximum Contaminant Level (MCL). New York currently utilizes a two-tiered guidance value system. Ammonium perchlorate levels of 5 ug/L or higher require State notification, while levels of 18 ug/L or higher are considered a MCL violation. The highest ammonium perchlorate concentration observed in the drinking water treatment system (total

influent concentration of 1.9 ug/L) was lower than the NYS guidance values and was also less than the range of concentrations provided in the EPA interim guidance.

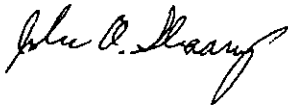
In accordance with the Sampling and Analysis Plan, data validation was performed on the laboratory analytical packages. The data validation was performed in accordance with USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and USEPA SOPs HW-2 and HW-6. The data validation did not indicate any significant flaws in the laboratory quality assurance procedures. However, the low level detections observed in samples collected from the drinking water treatment system were qualified as estimated due to reported values that were below the Method Reporting Limit. The laboratory reports of analyses and the data validation reports have been attached for reference.

In light of the analytical results from the sampling events, no additional ammonium perchlorate sampling events are recommended or planned for the Site.

Please contact the undersigned with any questions you might have regarding the ammonium perchlorate sampling events or analytical results.

Sincerely,
Shaw Environmental, Inc.

Shaw Environmental, Inc.



John Skaarup, EIT
Project Engineer/System Operator

Brian Neumann PG, CPG
Project Manager/System Operator

Attachments: Laboratory Reports of Analyses
Data Validation Reports
Sampling and Analysis Plan Addendum

Shaw Environmental & Infrastructure, Inc.

13 British American Boulevard
Latham, NY 12110-1405
518.783.1996
Fax 518.783.8397



February 28, 2003

Mr. Lewis Streeter
General Electric Company
Corporate Environmental Programs
320 Great Oaks Blvd., Suite 323
Albany, NY 12203-5965

**RE: Sampling and Analysis Plan Addendum
Ammonium Perchlorate Sampling
Malta Rocket Fuel Area Site, DOJ #90-11-3-1575
Plains Road, Malta, New York**

Dear Lew,

The attached document serves as an addendum to the Sampling and Analysis Plan (SAP) previously developed for Remedial Work Element I, Drinking Water and Remedial Work Element II, Ground Water for the Malta Rocket Fuel Area (MRFA) Site in Malta, New York. The original SAP, dated February 24, 1995, was amended in the O&M Manual for Remedial Work Element I, Drinking Water, dated January 15, 2002 and the O&M Manual for Remedial Work Element II, Groundwater, dated December 11, 1997. The purpose of this addendum is to add ammonium perchlorate to the list of parameters included during the collection and analysis of water samples from the drinking water system and the Early Warning Monitoring System (EWMS). Sampling and analysis for ammonium perchlorate will be a singular event occurring in February 2003 for the drinking water system and in April 2003 for the EWMS. All other requirements contained in the aforementioned documents remain unchanged.

Please contact the undersigned should you have any questions regarding this matter.

Sincerely,
Shaw Environmental, Inc.

Brian Neumann, PG, CPG
Project Manager

Shaw Environmental, Inc.

John Skaarup, EIT
Project Engineer/Operator

Attachment – Sampling and Analysis Plan Addendum

**Sampling and Analysis Plan Addendum
Malta Rocket Fuel Area Site, DOJ #90-11-3-1575
Plains Road, Malta, New York**

Sample Collection

- Water samples, in the sequential order of their collection, are to be collected from the remedial system effluent, the total remedial system influent, and recovery wells RW-1 and RW-2.
- Water samples will also be collected from the EWMS as discussed in the operations and maintenance manual for Remedial Work Element II, Ground Water.
- A new pair of 4-mil Nitrile gloves will be used for each sampling location for safety of the sampler and to minimize the risk of cross contamination between samples.
- Each ammonium perchlorate sample will be collected in a 100-ml plastic container and labeled with information including but not limited to: sample ID, date and time of collection, sampler, and parameter to be analyzed.
- Each sample container shall be placed in a plastic bag to prevent the label from being worn off by melting ice in the shipping container.
- Each sample will be placed in a shipping container chilled with ice prior to shipment to the laboratory. No additional preservation (i.e., chemical) is necessary.
- Stringent Chain Of Custody (COC) procedures will be followed to document sample possession. During each transfer of possession, the persons relinquishing and receiving the samples will sign the COC.
- The field COC shall be placed in the shipping container in a sealed plastic envelope after the courier has signed the document. The sampler will retain one copy of the COC.
- Custody seals shall be placed over the opening of the shipping container as an indicator of tampering.
- The shipping container will meet applicable state and federal standards for safe shipment and shall be sealed with tape prior to transport to the laboratory.
- The sample shipping container will be shipped via overnight courier on the same day of the sample collection.

Monitoring of Ground Water Parameters

- Oxygen reduction potential (ORP) and Eh will be added to the list of parameters that are currently monitored (pH, temperature, dissolved oxygen, specific conductivity and turbidity) to evaluate subsurface conditions during the collection of samples from the EWMS.

Laboratory Analyses

- Each ammonium perchlorate sample will be analyzed by EPA Method 314.0.
- Calibration procedures for laboratory equipment used in the analysis of samples will be performed in accordance the EPA document entitled Method 314.0, Determination of Perchlorate in Drinking Water Using Ion Chromatography, Revision 1 (November 1999).

Data Validation

- Analytical data will be reviewed for the purpose of data validation.
- Data review will include, but not limited to: analytical data package, sample receipt and handling procedures, and document control.
- After the data is validated, a list of nonconformities shall be prepared and used to determine whether they meet the data quality objectives.
- Nonconformities require data qualifiers, which are used to alert the data user to inaccurate or imprecise data.
- The reviewer shall make professional judgments and/or comments on the validity of the overall data package for the each sampling event.
- The overall data package will include a data assessment checklist and narrative.

Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

April 30, 2003

Brian Neumann
Shaw Environmental
13 British American Blvd.
Latham, NY 12110

RE: Validation of MRFA Malta Site Data Packages
CAS Sub Nos. R2315862 and K2301488

Dear Mr. Neumann:

Review has been completed for the data packages generated by Columbia Analytical Services (CAS), pertaining to samples collected 2/26/03 at the MRFA Malta Site. Three aqueous samples were processed by CAS-Rochester for site specific low level volatiles. Two of these and two additional samples were also analyzed for perchlorate by CAS-Kelso. Methodologies utilized are those of the USEPA OLC02.1 and 314.0 Cooler and trip blanks, and sample matrix spikes were also processed.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and the USEPA SOPs HW-2 and HW-6, as applied to the methodology. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Field Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, most sample processing was conducted with compliance to protocol requirements and with adherence to quality criteria, and results are usable as reported, with minor qualification of one volatile analyte as estimated.

Copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. Data summary packages are also submitted with qualifiers applied in red ink to report forms.

Data Completeness

Data packages were complete as received, and no resubmissions were required.

Low Level Volatile Analyses by OLC02.1

Holding times were met, method blanks show no contamination affecting sample reported results, and instrument tunes were acceptable.

Matrix spikes of Influent show acceptable accuracy and precision. Field duplicate correlations for Influent/DUP were also acceptable.

Due to the low relative response factors (RRFs) in the calibration standards, the reporting limits for 1,2-dibromom-3-chloropropane in all of the project samples should be considered estimated ("UJ" qualifier), possibly biased low.

The laboratory Form 8A shows incorrect acceptance limits for internal standard responses. The samples met the protocol requirement.

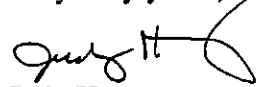
Perchlorate Analyses by EPA 314.0

Holding times and instrument response criteria were met. Accuracy and precision of batch QC analyzed the same sequence was acceptable. Processing was compliant with protocol.

The method blank showed a response similar in magnitude to those of the samples, but at an elution just outside the maximum protocol allowance for retention time windows (5.2 %, above 5% from IPC). However, the retention in the blank was only 0.2% away from the reported detection in one of the samples. The low level detected results that are reported for the samples should be used with caution. They are qualified as estimated when reported due to values below the RL.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,



Judy Harry

CAS ASP/CLP BATCHING FORM / LOGIN SHEET

SDG #: EFF SUBMISSION R2315862 BATCH COMPLETE: yes DATE REVISED: DATE DUE: 3/27/03
 CLIENT: Shaw Environmental DISKETTE REQUESTED: Y N X _____ DATE: 02/27/03 PROTOCOL: CLP
 CLIENT REP: Janice Jaeger GUSTOBY SEAL: PRESENT/ABSENT: SHIPPING No.: SUMMARY PKG: Y X N
 PROJECT: GE MRFA PROJECT #81066 CHAIN OF CUSTODY: PRESENT/ABSENT: _____

CAS JOB #	CLIENT/EPA ID	MATRIX	REQUESTED PARAMETERS <input checked="" type="checkbox"/>	DATE SAMPLED	DATE RECEIVED	pH	SOLIDS %	REMARKS
622444	EFFLUENT	WATER	OLC2.1 VOA, PERCHLORATE*	2/26/03	2/27/03			
622445	INFLUENT	WATER	OLC2.1 VOA, PERCHLORATE*	2/26/03	2/27/03			
622446	DUP	WATER	OLC2.1 VOA	2/26/03	2/27/03			
622447	RW-1	WATER	PERCHLORATE*	2/26/03	2/27/03			
622448	RW-2	WATER	PERCHLORATE*	2/26/03	2/27/03			
622449	TRIP BLANK	WATER	OLC2.1 VOA	2/26/03	2/27/03			
622450	COOLER BLANK	WATER	OLC2.1 VOA	2/26/03	2/27/03			
			*perchlorate substituted					

CASE NARRATIVE

COMPANY: Shaw Environmental
GE MRFA Project #81066
SUBMISSION #: R2315862

Shaw water samples were collected on 02/26/03 and received at CAS on 02/27/03 in good condition at a cooler temperature of 4 C.

VOLATILE ORGANICS

Five water samples and one trip blank were analyzed for a Site Specific List of Volatiles by Low Level CLP.

All Tuning criteria for BFB were within limits.

The initial and continuing calibration criteria were met for all analytes.

All internal standard areas were within limits.

All surrogate standard recoveries were within limits.

All samples were analyzed within required holding times.

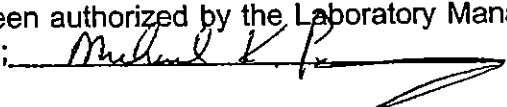
Site specific QC was performed on Influent. All MS/MSD recoveries were within limits. All Blank Spike recoveries were within limits. All RPD's were within limits.

The Laboratory Blanks associated with these samples was free of contamination except VBLK01 had a low level hit for Methylene Chloride. All affected data has been flagged with a "B".

No other analytical or QC problems were encountered.

PERCHLORATE

Water samples were subcontracted to CAS-Kelso for Perchlorate analysis. Their complete data package follows.

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request No.: K2301488
Date Received: 2/27/2003

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 2/27/2003. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Perchlorate by EPA Method 314

No anomalies associated with the analysis of these samples were observed.

Approved by _____

Wax

Date

3/24/03

00005



MAR 27

March 24, 2003

Service Request No: K2301488/
R2315862

Janice Jaeger
Columbia Analytical Services, Inc.
1 Mustard Street, Suite 260
Rochester, NY 14609

Re: GE MRFA Project #81066

Dear Janice:

Enclosed are the results of the sample(s) submitted to our laboratory on 2/27/03. For your reference, these analyses have been assigned our service request number K2301488/R2315862.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3358.

Respectfully submitted,

Columbia Analytical Services, Inc.

Lynda A. Huckestein
Client Services Manager

LAH/dj

Page 1 of 52

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Case Narrative

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COLUMBIA ANALYTICAL SERVICES, INC.

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request No.: K2301488
Date Received: 2/27/2003

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 2/27/2003. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Perchlorate by EPA Method 314

No anomalies associated with the analysis of these samples were observed.

Approved by _____

LAN

Date

3/24/03

00005

**Chain of Custody
Documentation**



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

One Mustard St., Suite 250 • Rochester, NY 14609-0859 • (585) 288-5380 • 800-695-7222 x11 • FAX (585) 288-9475 PAGE 1 OF 1

SR # 177AD1461
C/S Contact

Project Name GE MKFA Project # 81066
Project Manager Janice Jaeger
Company/Address 1 Mustard st Suite 250 Rochester NY 14609
Phone # (585) 288-5380
FAX # (585) 288-9475
Sampler's Signature
Sampler's Printed Name

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	PRESERVATIVE
Effluent	020711	2-26-03	10:00	Water	1	GCMS VOAs <input type="checkbox"/> CLP GCMS SYOAs <input type="checkbox"/> CLP GCMS VOAs <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> CLP GCMS SYOAs <input type="checkbox"/> 8270 <input type="checkbox"/> 625 <input type="checkbox"/> CLP PESTICIDES <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602 PCBs <input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, TOTAL <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, DISSOLVED (List in comments below)
Influent	020712	2-26-03	10:00	Water	1	GCMS VOAs <input type="checkbox"/> CLP GCMS SYOAs <input type="checkbox"/> CLP PESTICIDES <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602 PCBs <input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, TOTAL <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, DISSOLVED (List in comments below)
RW-1	020713	2-26-03	10:00	Water	1	GCMS VOAs <input type="checkbox"/> CLP GCMS SYOAs <input type="checkbox"/> CLP PESTICIDES <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602 PCBs <input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, TOTAL <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, DISSOLVED (List in comments below)
RW-2	020714	2-26-03	10:00	Water	1	GCMS VOAs <input type="checkbox"/> CLP GCMS SYOAs <input type="checkbox"/> CLP PESTICIDES <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602 PCBs <input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, TOTAL <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, DISSOLVED (List in comments below)

ANALYSIS REQUESTED (Include Method Number and Container Preservative) V2801488

TURNAROUND REQUIREMENTS
 RUSH (SURCHARGES APPLY) _____ 24 hr _____ 48 hr _____ 5 day _____
 STANDARD
 REQUESTED FAX DATE _____
 REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
 I. Results Only
 II. Results + QC Summaries (LCS, DUP, MSMSD as required)
 III. Results + QC and Calibration Summaries
 IV. Data Validation Report with Raw Data
 V. Specialized Forms / Custom Report
 Edata Yes No

RECEIVED BY Janice Jaeger
 Signature: [Signature]
 Printed Name: Janice Jaeger
 Firm: CAS
 Date/Time: 2/27/03 17:00

RECEIVED BY _____
 Signature: _____
 Printed Name: _____
 Firm: _____
 Date/Time: _____

CUSTOMER SEALS: Y N
 RELINQUISHED BY _____
 RECEIVED BY _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

INVOICE INFORMATION
PO# _____
BILL TO: _____
SUBMISSION #: _____

REMARKS/ALTERNATE DESCRIPTION
Perchlorate
XXXX
XXXX
XXXX

PRESERVATIVE KEY
 0. NONE
 1. HCL
 2. HNO3
 3. H2SO4
 4. NaOH
 5. Zn Acetate
 6. MeOH
 7. NaHSO4
 8. Other Ice

SCOC-1102-08

**Columbia Analytical Services Inc.
Cooler Receipt And Preservation Form**

Project/Client CAS K. Rochester Work Order K23 01488

Cooler received on 2/28/03 and opened on 2/28/03 by AP

1. Were custody seals on outside of cooler?
If yes, how many and where? 1F FK N
2. Were seals intact and signature & date correct? N
3. Is the shipper's airbill available and filed? If no, record airbill number: 791543895650 Y N
4. COC # _____
Temperature of cooler(s) upon receipt: 0.5 _____
Temperature Blank: BRO/CUN _____
5. Were custody papers properly filled out (ink, signed, etc.)? N
6. Type of packing material present MESH
7. Did all bottles arrive in good condition (unbroken)? N
8. Were all bottle labels complete (i.e. analysis, preservation, etc.)? N
9. Did all bottle labels and tags agree with custody papers? N
10. Were the correct types of bottles used for the tests indicated? N
11. Were all of the preserved bottles received at the lab with the appropriate pH? N
12. Were VOA vials checked for absence of air bubbles, and if present, noted below? ~~Y N~~
13. Did the bottles originate from CAS/K or a branch laboratory? N
14. Are CWA Microbiology samples received with > 1/2 the 24 hr. hold time remaining from collection? ~~Y N~~
15. Was CI2/Res negative? ~~Y N~~

Explain any discrepancies: _____

RESOLUTION: _____

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request: K2301488
Date Collected: 02/26/03
Date Received: 02/27/03

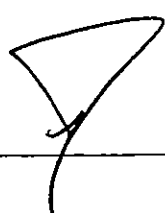
Perchlorate

Prep Method: NONE
Analysis Method: 314.0
Test Notes:

Units: µg/L (ppb)
Basis: NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Effluent	K2301488-001	2.0	0.7	1	NA	03/08/03	1.2	J
Influent	K2301488-002	2.0	0.7	1	NA	03/08/03	1.9	J
RW-1	K2301488-003	2.0	0.7	1	NA	03/08/03	1.6	J
RW-2	K2301488-004	2.0	0.7	1	NA	03/08/03	0.9	J
Method Blank	K2301488-MB	2.0	0.7	1	NA	03/08/03	ND	

Approved By: _____



Date: 3/24/03

IA/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request: K2301488
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 03/08/03

Duplicate Summary
Inorganic Parameters

Sample Name: Batch QC
Lab Code: K2301280-002DUP
Test Notes:

Units: µg/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Perchlorate	NONE	314.0	2.0	ND	ND	ND	-	

Approved By: _____

EL

Date: _____

3/20/03

DUP/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request: K2301488
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 03/08/03

Matrix Spike Summary
Inorganic Parameters

Sample Name: Batch QC Units: µg/L (ppb)
Lab Code: K2301280-002MS Basis: NA
Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS	Result Notes
								Percent Recovery	
Perchlorate	NONE	314.0	2.0	40.0	ND	36.6	92	80-120	

Approved By: _____

BL

Date: 3/20/03

MS/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
LCS Matrix: Water

Service Request: K2301488
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 03/08/03

Laboratory Control Sample Summary
 Inorganic Parameters

Sample Name: Lab Control Sample
Lab Code: K2301488-LCS
Test Notes:

Units: µg/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS	Result Notes
						Percent Recovery Acceptance Limits	
Perchlorate	NONE	314.0	500	489	98	85-115	

Approved By: _____ *BL* Date: 3/20/03

LCS/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066

Service Request: K2301488
Date Collected: NA
Date Received: NA
Date Analyzed: 03/08/03

Perchlorate
EPA Method 314.0
Units: ug/L (ppb)

INITIAL CALIBRATION CHECK STANDARD (ICCS)

	True Value	Measured Value	Percent Recovery
ICCS Result	2.0	1.9	95

CONTINUING CALIBRATION VERIFICATION (CCV)

	True Value	Measured Value	Percent Recovery
CCV 1 Result	25.0	22.1	88
CCV 2 Result	25.0	23.4	94

ENDING CALIBRATION VERIFICATION (ECCV)

	True Value	Measured Value	Percent Recovery
ECCV Result	100	94.8	95

Approved By: _____



Date: 3/20/03

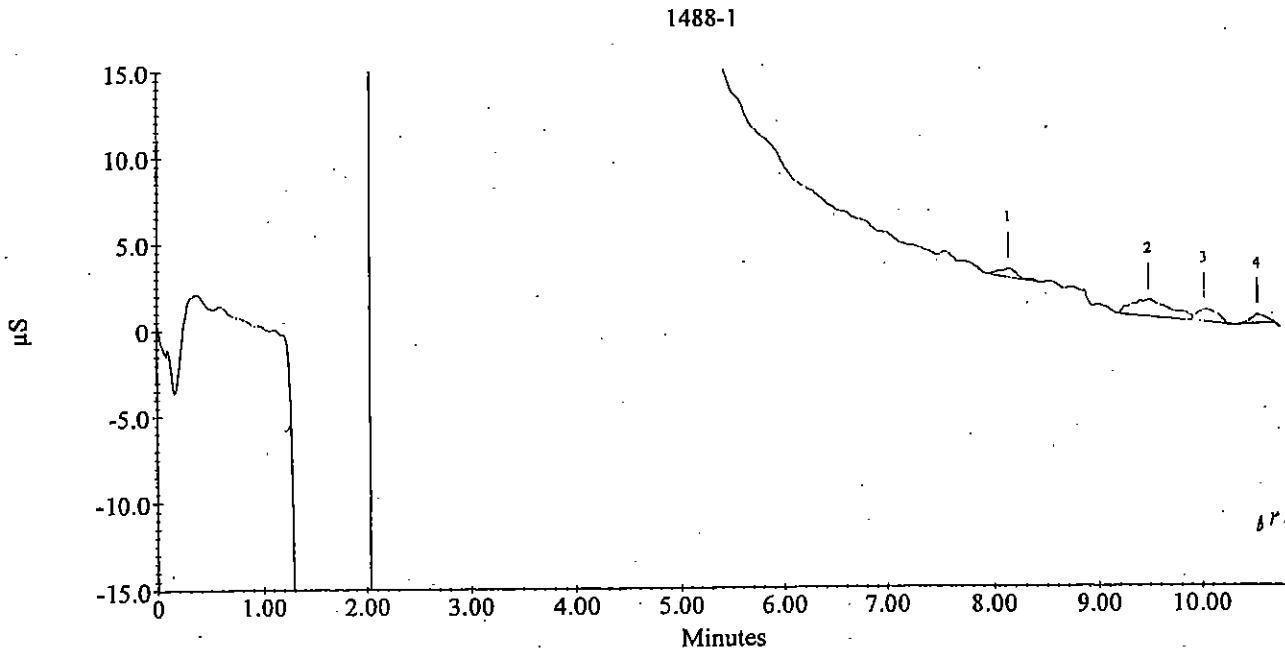
COMBOQCD/042695

Columbia Analytical Services, Inc.

Ion Chromatography :		EPA Method 300.0 : ...\\1022clo4.met	
Sample Name : 1488-1		Method File Name : j:\vic_data\an-4\methods\1022clo4.met	
Date Time Collected : 3/8/03 10:00:24 AM		Schedule File Name : ...\\an40308.sch	
Injection Number : 15		Column ID : AS-11 BATCH# KA0300737	
Dilution Factor : 1.00		Data File Name : ...\\DATA_015.DXD	
Batch ID Number : AS-11 BATCH# KA0300737		Injection Volume : 1.00	

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
3	10.07	Perchlorate <i>2.0</i>	1.156	701577	9212975

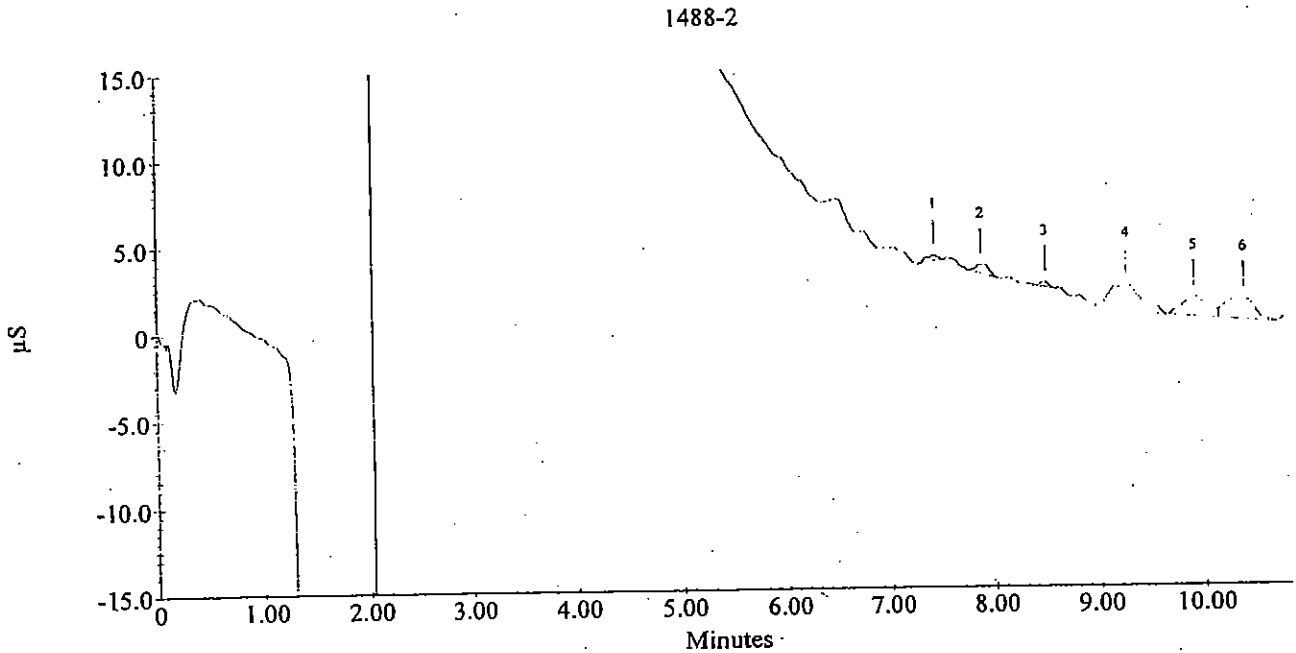


Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022CLO4.met
Sample Name : 1488-2 Date Time Collected : 3/8/03 10:12:35 AM	Method File Name : ...\\1022CLO4.met Schedule File Name : ...\\an40308.sch
Injection Number : 16 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_016.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
5	9.95	Perchlorate	1.900	1128949	19027404



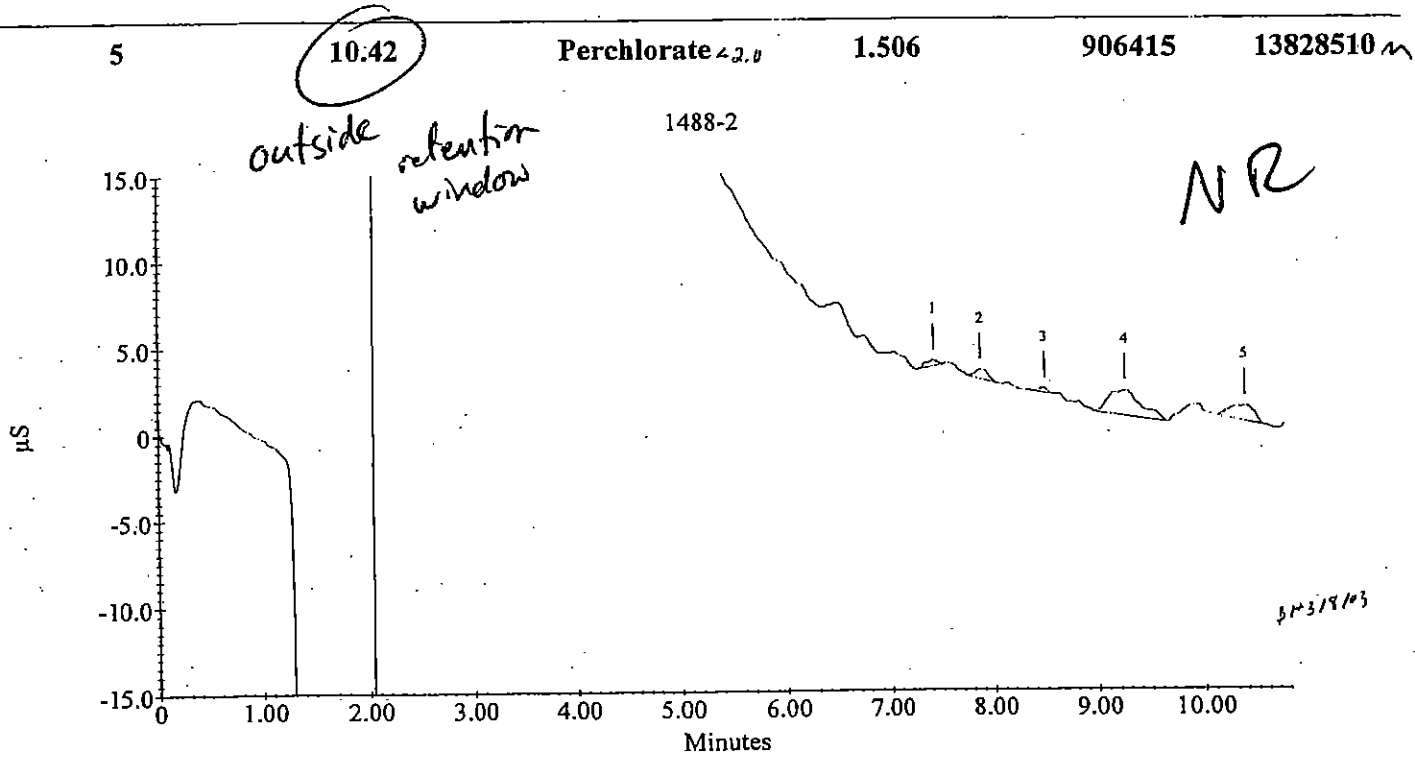
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3/24/03

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...1022clo4.met
Sample Name : 1488-2 Date Time Collected : 3/8/03 10:12:35 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...an40308.sch
Injection Number : 16 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...DATA_016.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
5	10.42	Perchlorate ~ 2.0	1.506	906415	13828510 m



NR

3/8/03

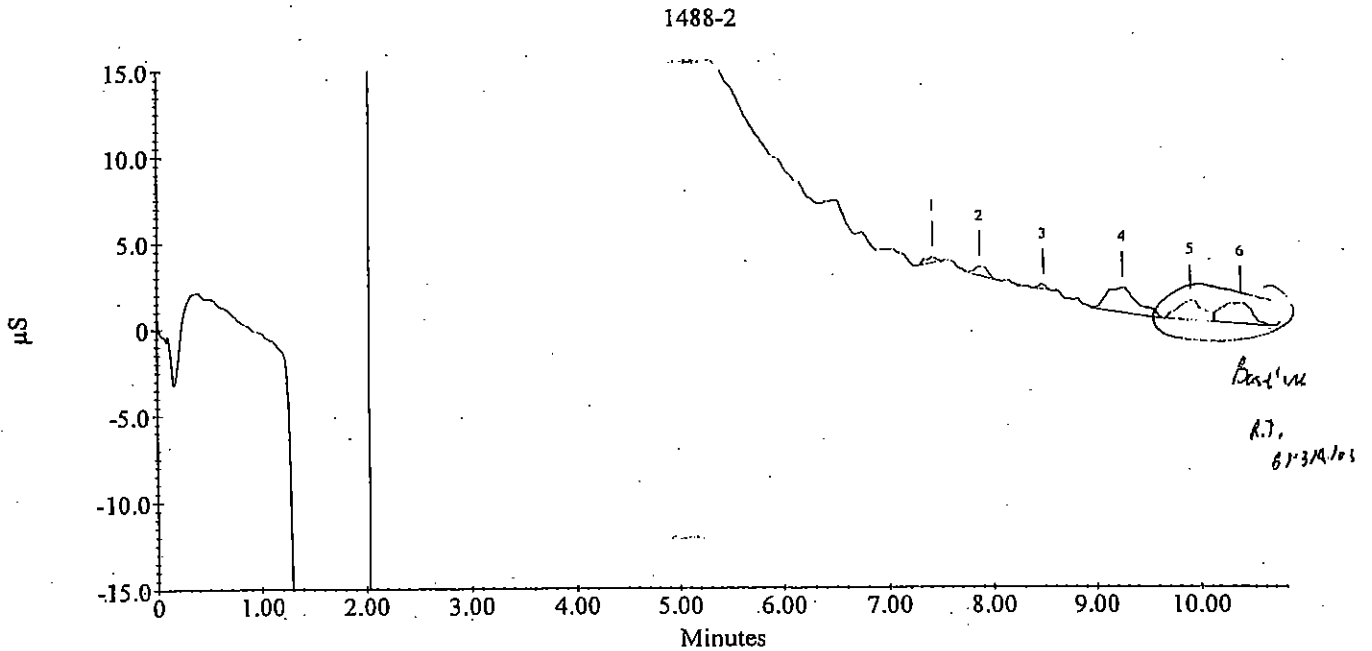
M.J.
3/10/03
3/24/07

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : 1488-2 Date Time Collected : 3/8/03 10:12:35 AM	Method File Name : j:\vic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 16 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_016.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
5	9.95	Perchlorate	1.900	1128949	19027404



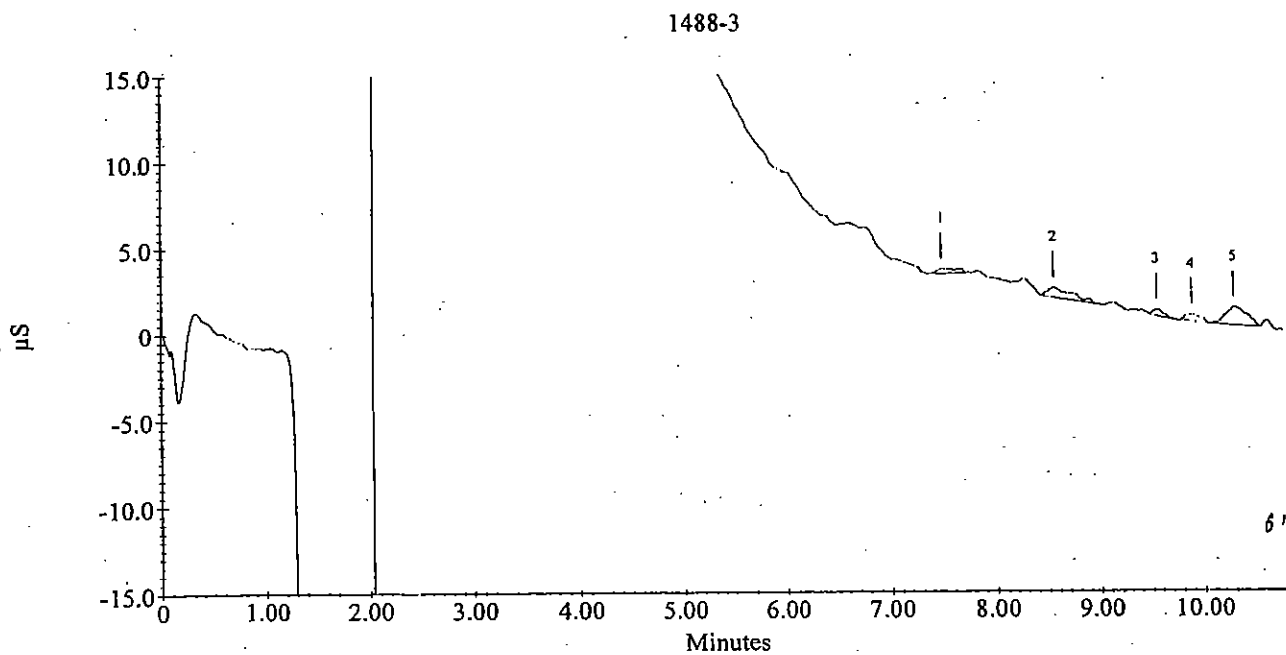
M.P.
3/10/03

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...1022clo4.met
Sample Name : 1488-3 Date Time Collected : 3/8/03 10:24:49 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...an40308.sch
Injection Number : 17 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...ADATA_017.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
5	10.32	Perchlorate	1.579	1062236	14789138



61-312113

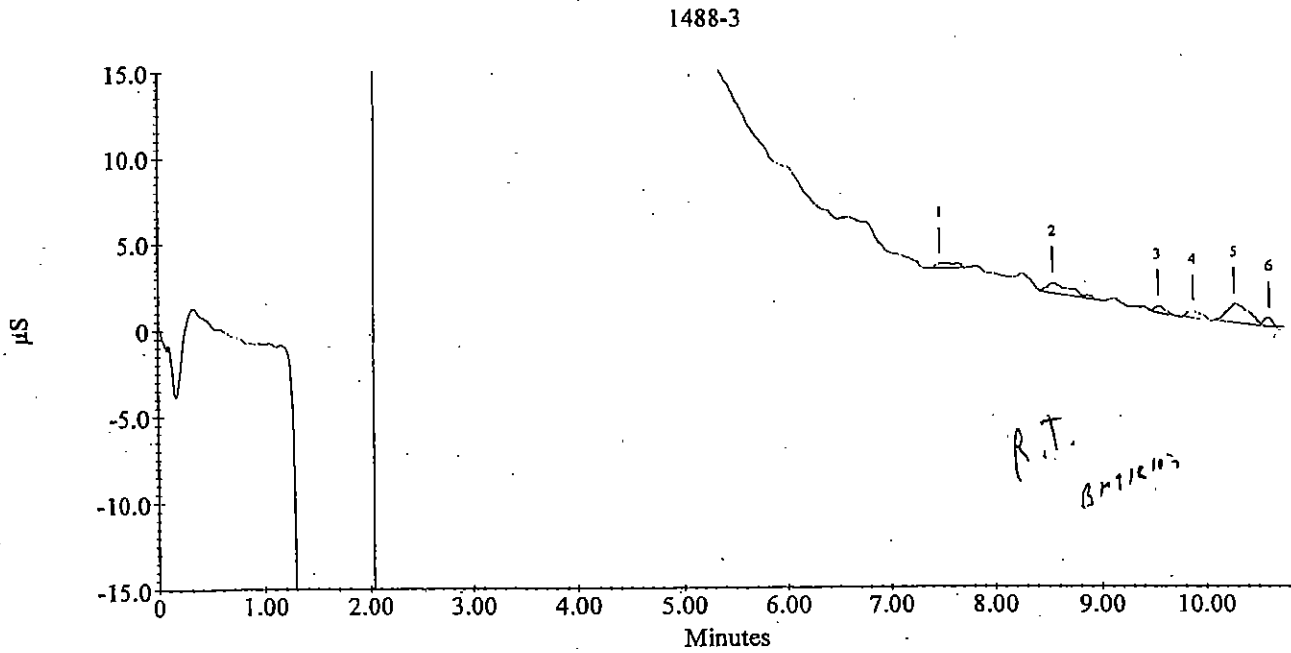
*M.P.
3/10/03*

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...1022clo4.met
Sample Name : 1488-3 Date Time Collected : 3/8/03 10:24:49 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...an40308.sch
Injection Number : 17 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...DATA_017.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
4	9.92	Perchlorate	0.767	401648	4086523



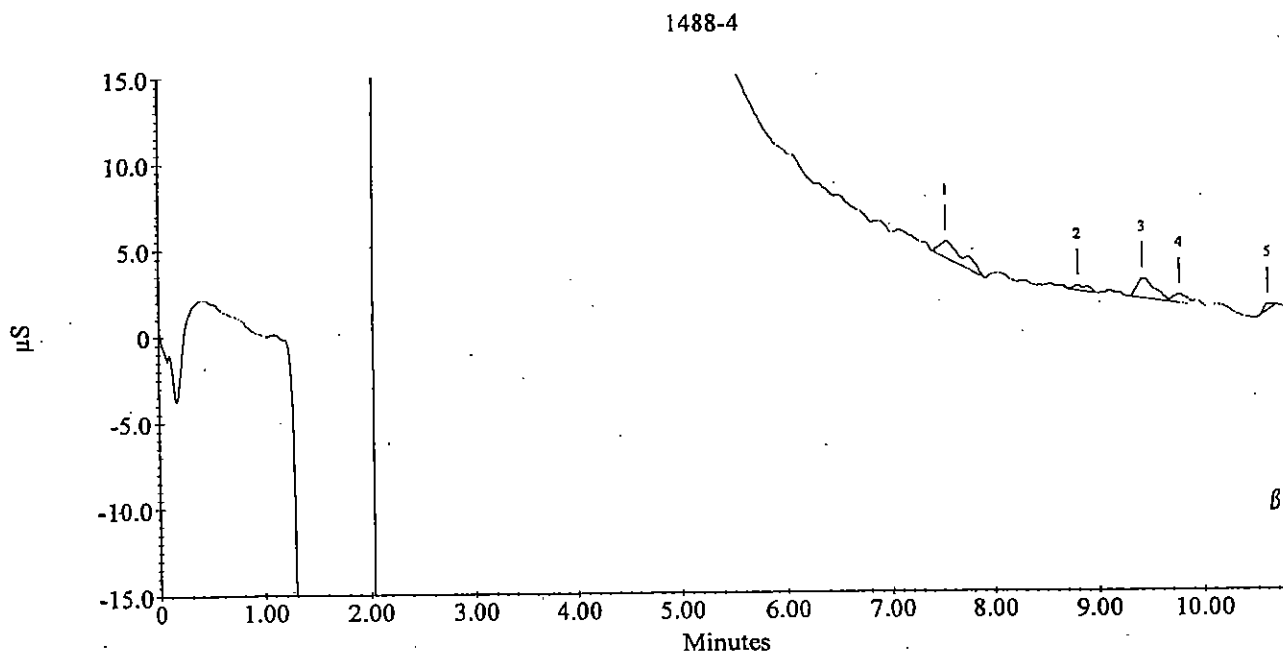
*M.P.
3/10/03*

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...1022clo4.met
Sample Name : 1488-4 Date Time Collected : 3/8/03 10:37:15 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...an40308.sch
Injection Number : 18 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...DATA_018.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
4	9.82	Perchlorate 42.0	0.893	534704	5751157



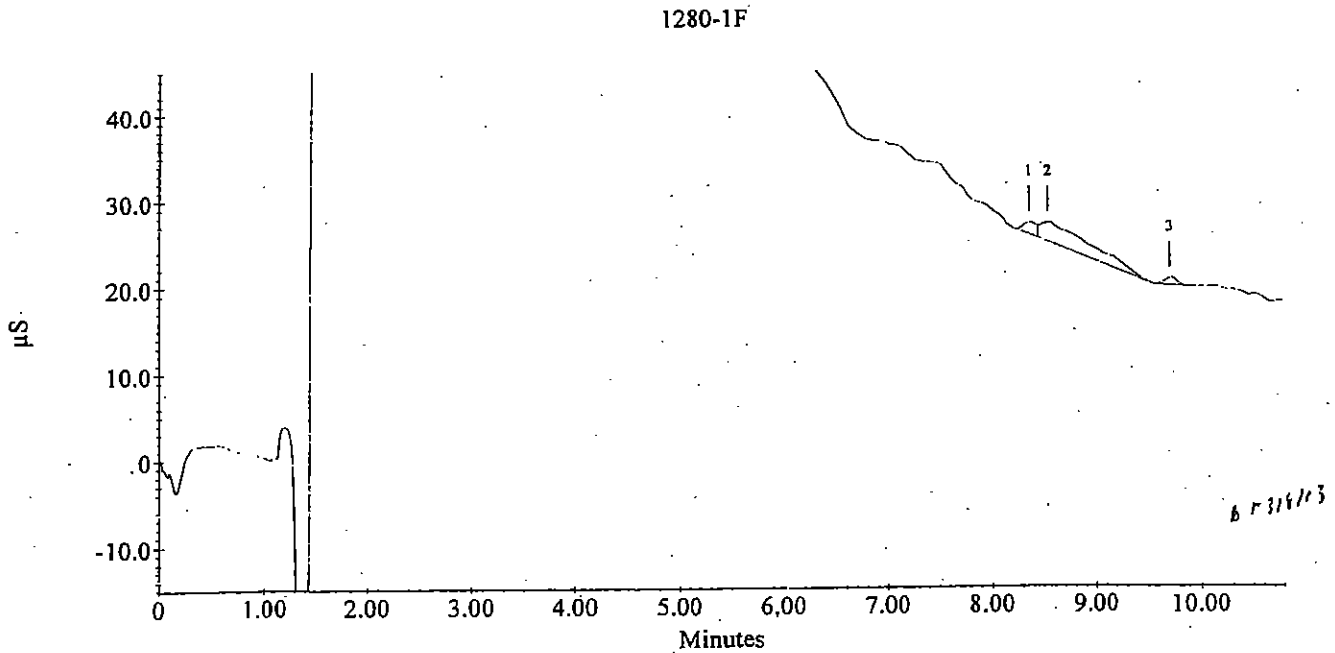
BATCH QC

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : 1280-1F Date Time Collected : 3/8/03 11:03:14 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 19 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_019.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
3	9.73	Perchlorate 42.0	0.942	807493	6392939

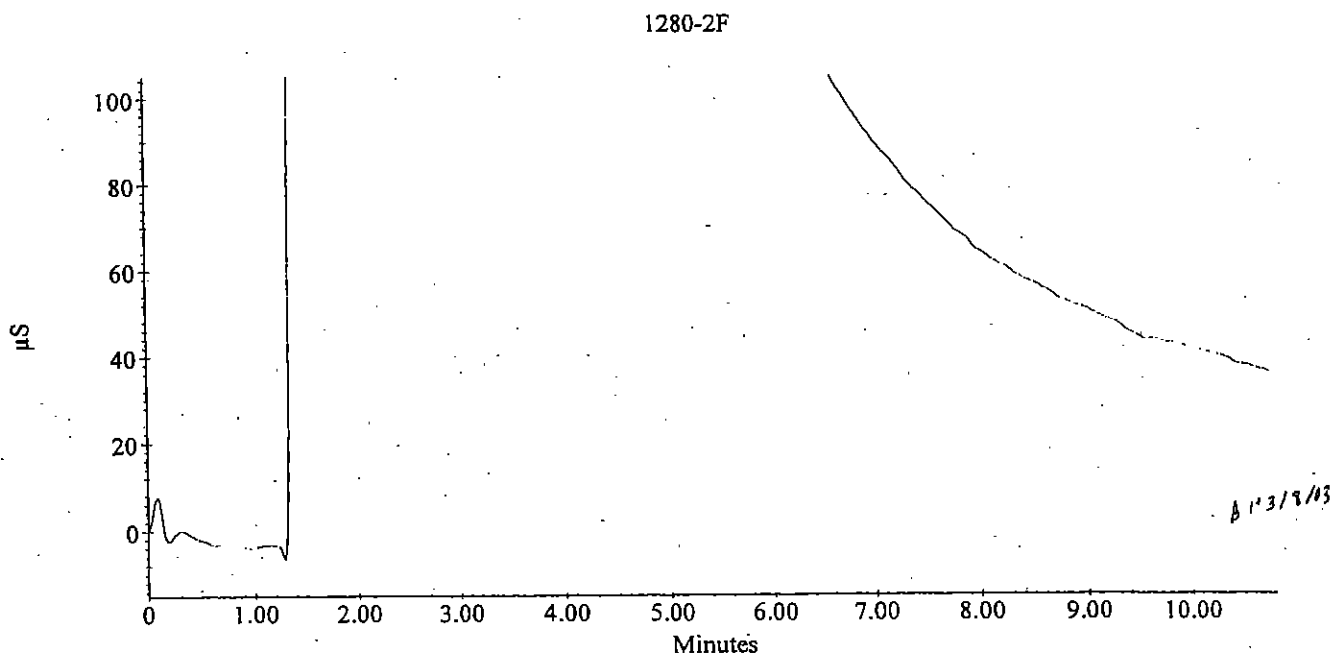


Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...1022clo4.met
Sample Name : 1280-2F Date Time Collected : 3/8/03 11:15:29 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...an40308.sch
Injection Number : 20 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...DATA_020.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
0	0.00	(null)	0.000	0	0



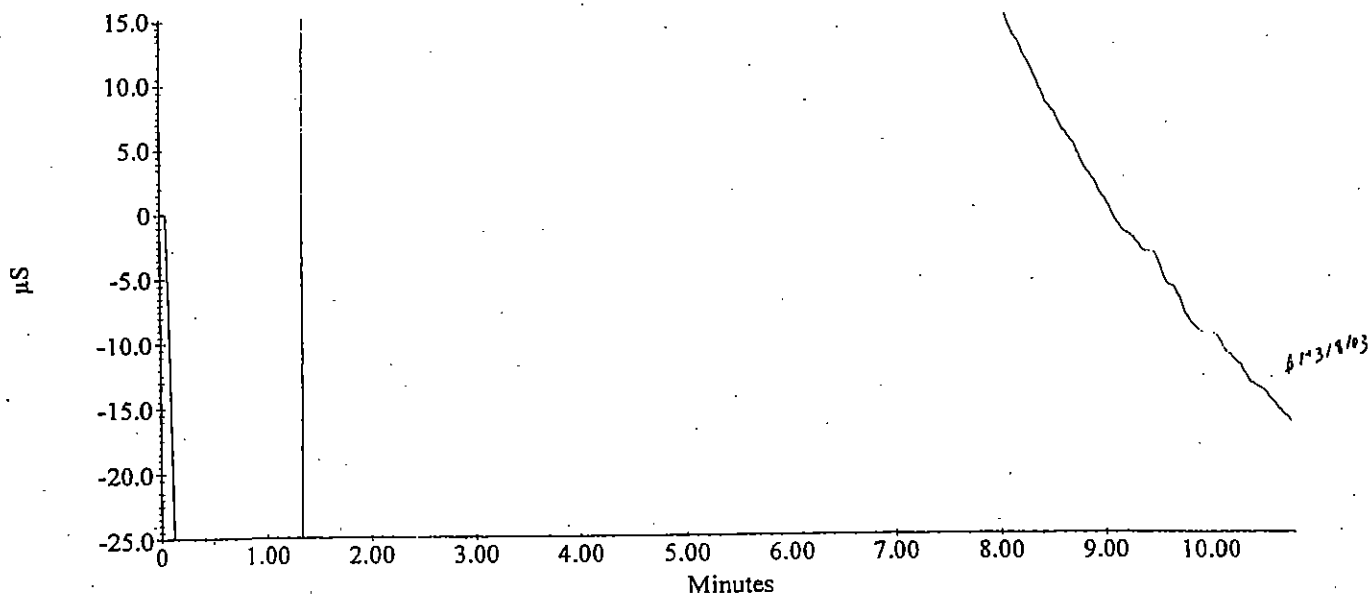
Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : 1280-2DF Date Time Collected : 3/8/03 11:27:42 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 21 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_021.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
0	0.00	(null) 2.0	0.000	0	0

1280-2DF

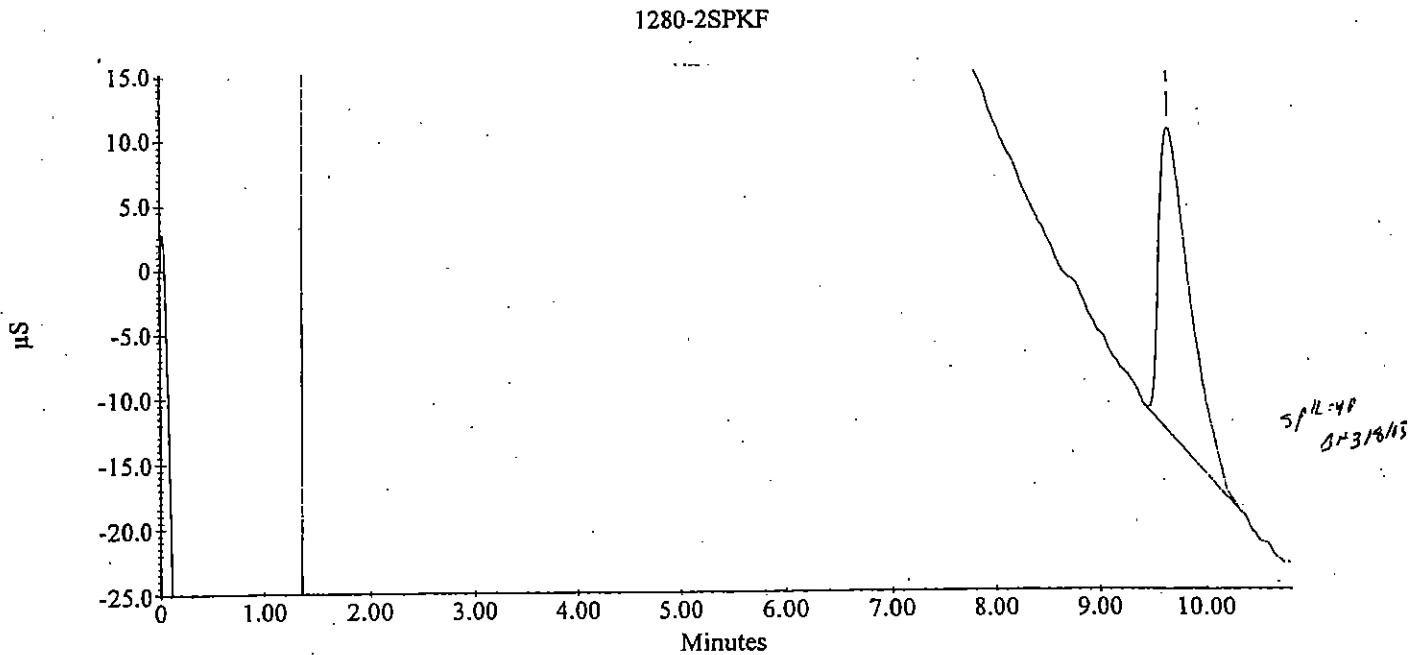


Columbia Analytical Services, Inc.

Ion Chromatography :		EPA Method 300.0 : ...\\1022clo4.met	
Sample Name : 1280-2SPKF		Method File Name : j:\ic_data\an-4\methods\1022clo4.met	
Date Time Collected : 3/8/03 11:39:54 AM		Schedule File Name : ...\\an40308.sch	
Injection Number : 22	Column ID : AS-11	BATCH# KA0300737	
Dilution Factor : 1.00	Data File Name : ...\\DATA_022.DXD		
Batch ID Number : AS-11	BATCH# KA0300737	Injection Volume : 1.00	

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
1	9.70	Perchlorate	36.629	23823772	477079486

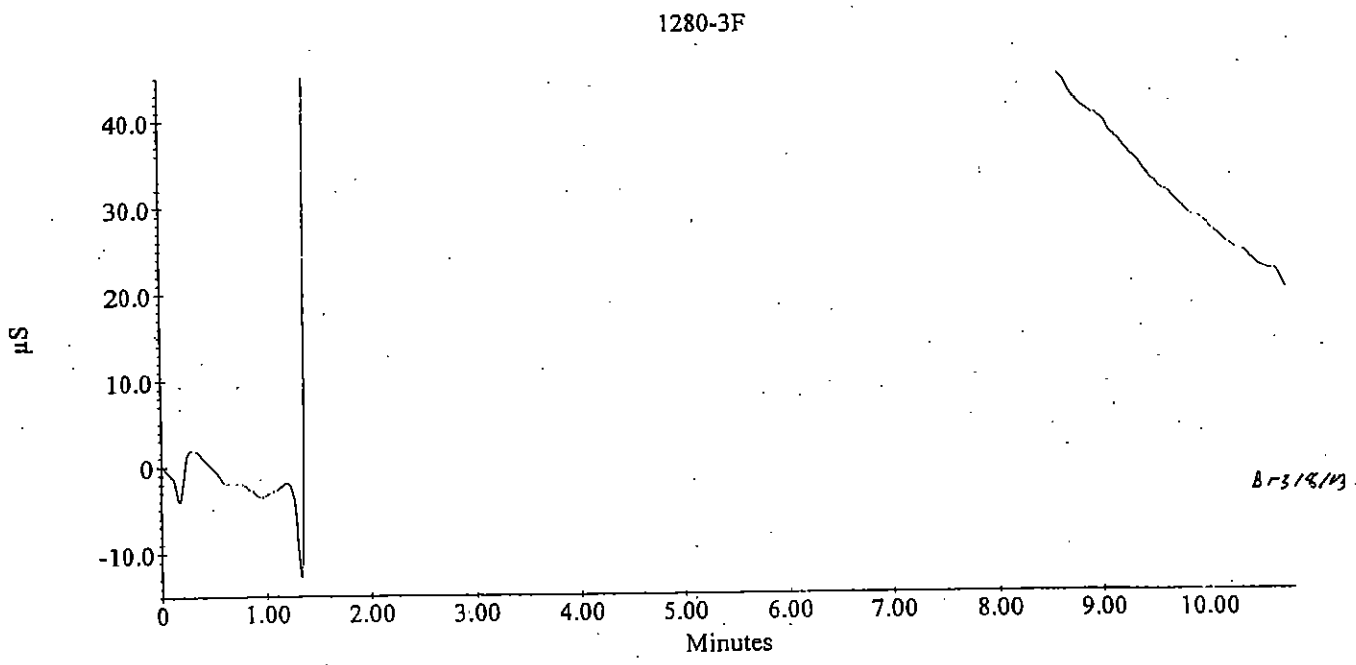


Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...1022clo4.met
Sample Name : 1280-3F Date Time Collected : 3/8/03 11:52:48 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...an40308.sch
Injection Number : 23 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...DATA_023.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
0	0.00	(null) <2.0	0.000	0	0



**Ion Chromatography Data Quality Report
Perchlorate
Inorganics**

1. Holding times met for all samples analyzed? (yes/no/NA)
2. Are all chromatograms signed and dated? (yes/no/NA)
3. Are dilutions within upper limits of the curve? (yes/no/NA)
4. Are analysis/extraction stickers included on report? (yes/no/NA)
5. Are detection limits reported correctly? (yes/no/NA)
6. Are all quality control criteria met? (yes/no/NA)
 - a. Method Blanks, CCV's, CCB's, LCS's, Dups, and Spikes analyzed at the proper frequency? (yes/no/NA)
 - b. Are CCV's and CCB's all within acceptance limits? (yes/no/NA)
 - c. Are results for Method Blanks all ND? (yes/no/NA)
 - d. Are all QC samples within acceptance criteria? (LCS% rec, MS% rec, Duplicate RPD's, etc.) (yes/no/NA)
 - e. Are all exceptions explained? (yes/no/NA)
8. Are all samples labelled correctly? (yes/no/NA)

CAS Standard Identification Codes and Abbreviated Footnotes for Chromatograms

- G1 Sample was analyzed past the end of recommended holding time. See Nonconformity sheet.
 G2 Sample was reanalyzed past holding time. Initial analysis was performed within recommended holding time.
 G4 Sample was received past the end of recommended holding time.
 R1 High RPD is because the duplicate sample results are less than three times the method reporting limit.
 D MRL is elevated because of matrix interferences and the sample required diluting.
 F Sample filtered primary to analysis.

IPC Perchlorate	True Value = 25 ppb	CAS ID# = <u>AN3-63-Q</u>	Expires <u>3/15/03</u>
ICCS Perchlorate	True Value = ^{2.0 @ 3/18/03} 2.0 ppb	CAS ID# = <u>AN3-63-P</u>	Expires <u>3/15/03</u>
CCV Perchlorate	True Value = 25.0 ppb	CAS ID# = <u>AN3-63-O</u>	Expires <u>3/15/03</u>
Spike Perchlorate	True Value = 1000 ppb	CAS ID# = <u>AN3-63-R</u>	Expires <u>3/15/03</u>
ECCV Perchlorate	True Value = 100 ppb	CAS ID# = <u>AN3-63-N</u>	Expires <u>3/15/03</u>
40.0 ppb X dilution factor LCS	True Value = <u>500.0 ppb</u>	CAS ID# = <u>R-ION06145</u>	Expires <u>9/18/03</u>
Analyst:	<u>B. Hittland</u>	Date:	<u>3/9/03</u>
First Review:	<u>B. Hittland</u>	Date:	<u>3/9/03</u>
Final Review:	<u>MA J</u>	Date:	<u>3/10/03</u>

Retention Time Window = $\pm 5\%$ of IPC R.T. = 4.43 - 9.39 min - 10.32 min
 2/3/29/03

Line	Sample	Sample Type	Level	Method	Data File	Volume	Dilution
1	STD2 LEVEL2	Calibration St	2	1022clo4.met	data	1	1
2	STD2 LEVEL2	Calibration St	2	1022clo4.met	data	1	1
3	STD3 LEVEL3	Calibration St	3	1022clo4.met	data	1	1
4	STD4 LEVEL4	Calibration St	4	1022clo4.met	data	1	1
5	STD5 LEVEL5	Calibration St	5	1022clo4.met	data	1	1
6	STD6 LEVEL6	Calibration St	6	1022clo4.met	data	1	1
7	STD7 LEVEL7	Calibration St	7	1022clo4.met	data	1	1
8	STD1 LEVEL1	Calibration St	1	1022clo4.met	data	1	1
9	STD1 LEVEL1	Calibration St	1	1022clo4.met	data	1	1
10	IPC	Sample		1022clo4.met	data_010.dxd	1	1
11	MB	Sample		1022clo4.met	data_011.dxd	1	1
12	ICCS/ICV	Sample		1022clo4.met	data_012.dxd	1	1
13	RION06145 LCS	Sample		1022clo4.met	data_013.dxd	1	10
14	LFB/CCV1	Sample		1022clo4.met	data_014.dxd	1	1
15	1488-1	Sample		1022clo4.met	data_015.dxd	1	1
16	1488-2	Sample		1022clo4.met	data_016.dxd	1	1
17	1488-3	Sample		1022clo4.met	data_017.dxd	1	1
18	1488-4	Sample		1022clo4.met	data_018.dxd	1	1
19	1280-1F	Sample		1022clo4.met	data_019.dxd	1	1
20	1280-2F	Sample		1022clo4.met	data_020.dxd	1	1
21	1280-2DF	Sample		1022clo4.met	data_021.dxd	1	1
22	1280-2SPKF	Sample		1022clo4.met	data_022.dxd	1	1
23	1280-3F	Sample		1022clo4.met	data_023.dxd	1	1
24	1405-1F	Sample		1022clo4.met	data_024.dxd	1	1
25	1405-2F	Sample		1022clo4.met	data_025.dxd	1	1
26	RB	Sample		1022clo4.met	data_026.dxd	1	1
27	CCV2	Sample		1022clo4.met	data_027.dxd	1	1
28	1405-3F	Sample		1022clo4.met	data_028.dxd	1	1
29	1405-4F	Sample		1022clo4.met	data_029.dxd	1	1
30	1405-4DF	Sample		1022clo4.met	data_030.dxd	1	1
31	1405-4SPKF	Sample		1022clo4.met	data_031.dxd	1	1
32	1405-5F	Sample		1022clo4.met	data_032.dxd	1	1
33	1596-1	Sample		1022clo4.met	data_033.dxd	1	1
34	1596-1D	Sample		1022clo4.met	data_034.dxd	1	1
35	1596-1SPK	Sample		1022clo4.met	data_035.dxd	1	1
36	1596-2	Sample		1022clo4.met	data_036.dxd	1	1
37	ECCV	Sample		1022clo4.met	data_037.dxd	1	1

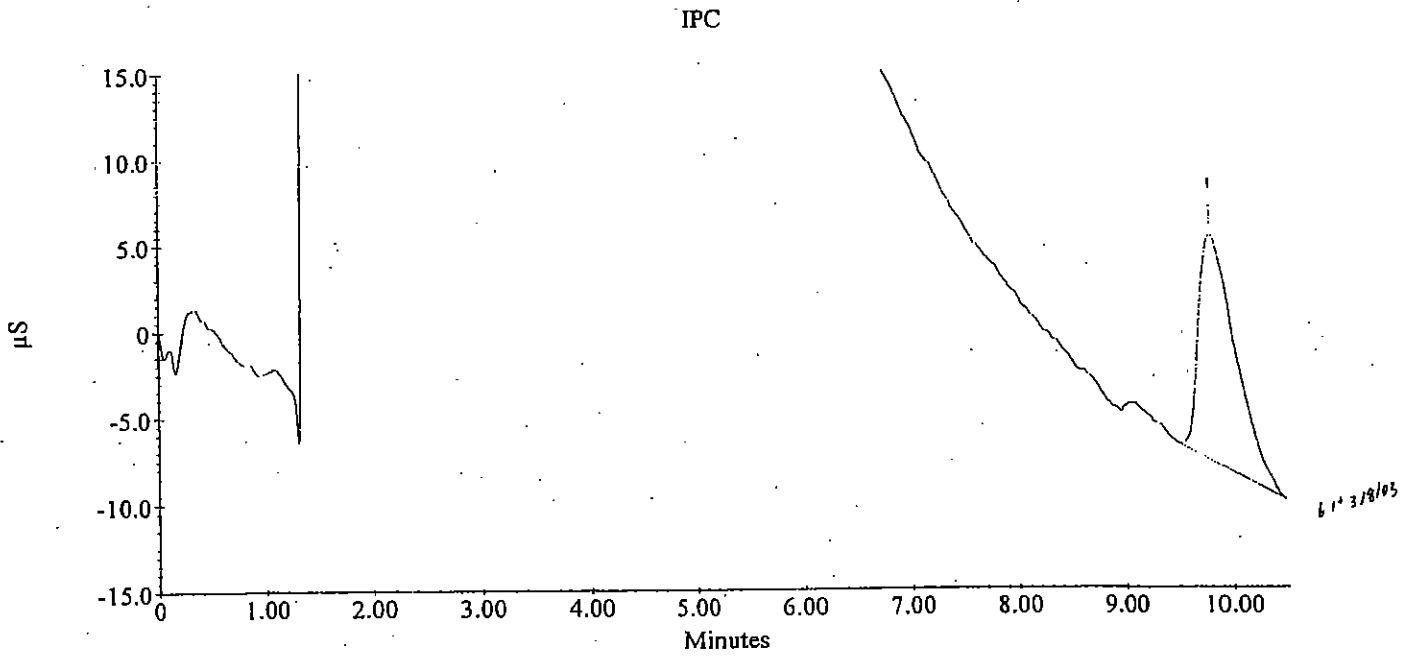
Analytical Batch
KA0300737

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : IPC Date Time Collected : 3/8/03 8:46:13 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 10 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_010.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
1	9.83	Perchlorate	23.568	13183601	304822828



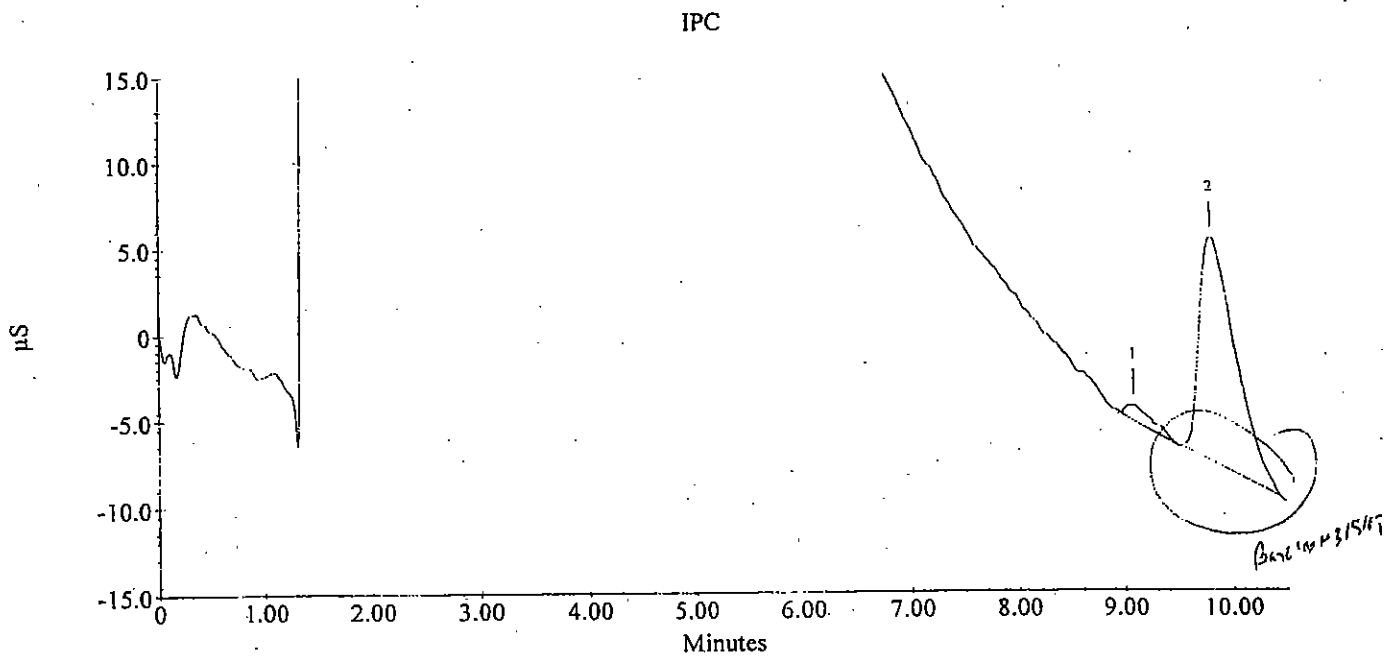
M.P.
3/10/03

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : IPC Date Time Collected : 3/8/03 8:46:13 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 10 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_010.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
2	9.83	Perchlorate	23.059	13069661	298101585



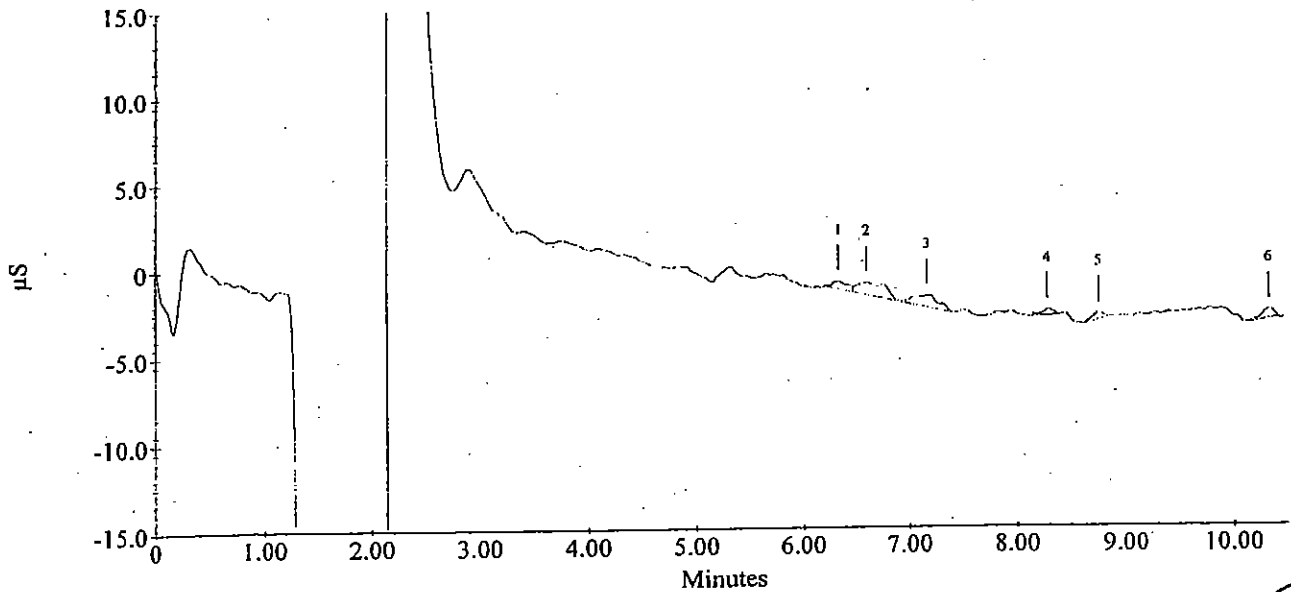
Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022CLO4.met
Sample Name : MB Date Time Collected : 3/8/03 9:09:48 AM	Method File Name : ...\\1022CLO4.met Schedule File Name : ...\\an40308.sch
Injection Number : 11 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_011.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
1	6.35		0.000	447750	4306512 <i>M</i>

MB



(3/24/03)

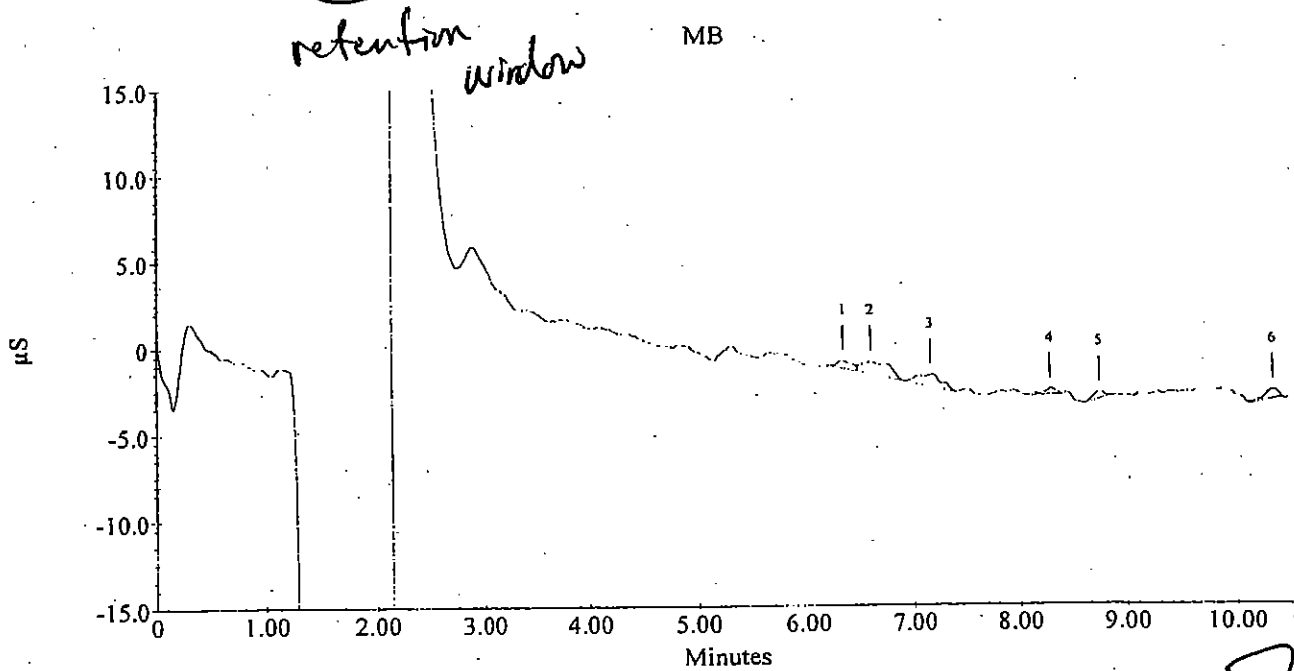
Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : MB Date Time Collected : 3/8/03 9:09:48 AM	Method File Name : j:\vic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 11 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_011.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
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6	10.35	Perchlorate	0.789	530641	4380637
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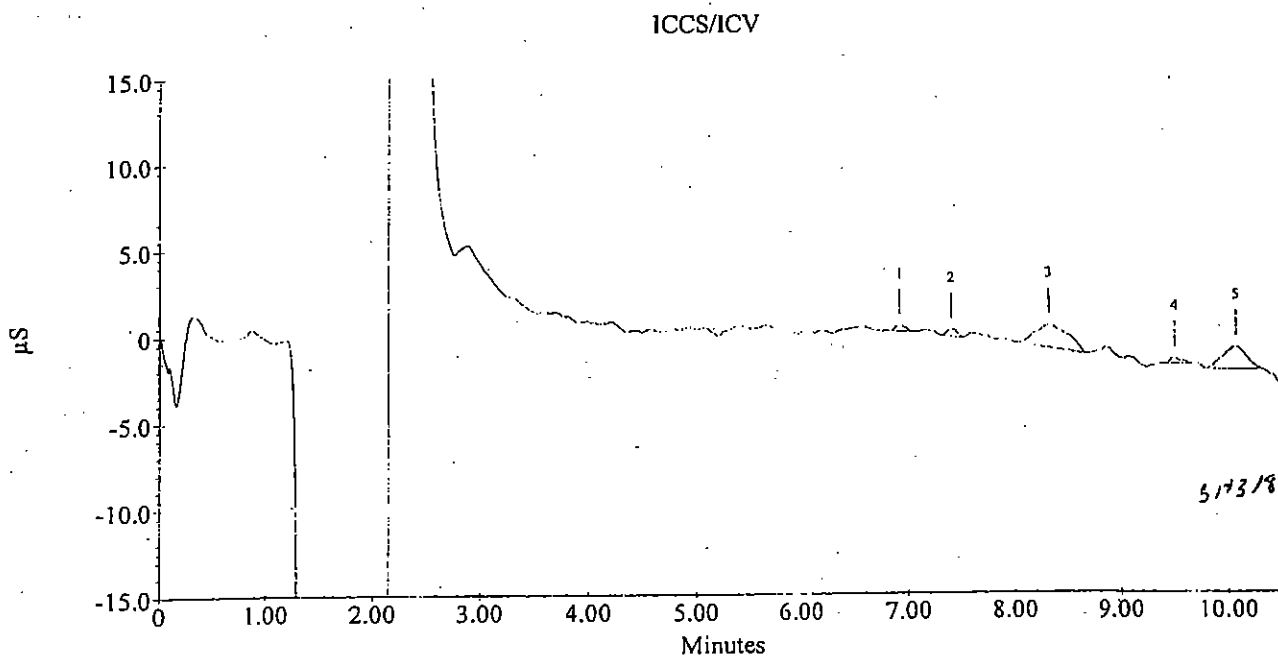


Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...i1022clo4.met
Sample Name : ICCS/ICV Date Time Collected : 3/8/03 9:21:45 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...an40308.sch
Injection Number : 12 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...DATA_012.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
5	10.08	Perchlorate	75: 1.926	1323643	19366767m



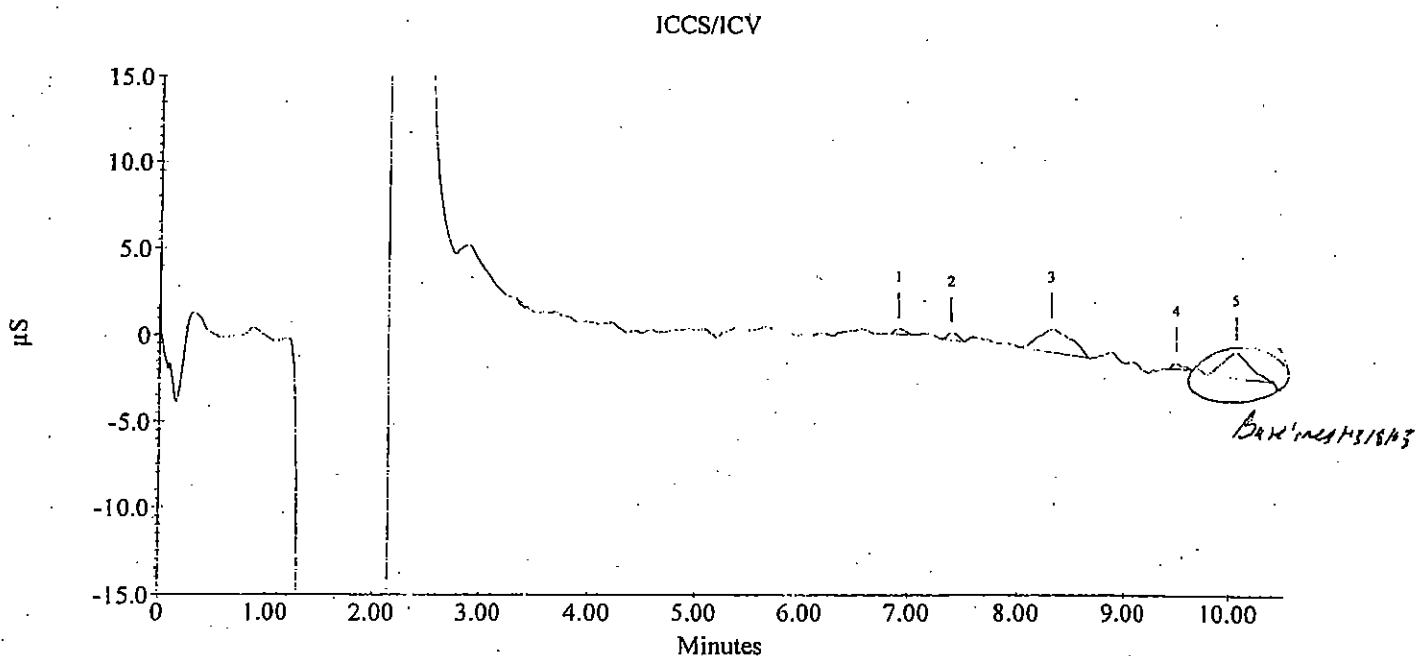
M.S.
3/10/03

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : ICCS/ICV Date Time Collected : 3/8/03 9:21:45 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 12 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_012.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
5	10.08	Perchlorate	2.381	1496356	25370175



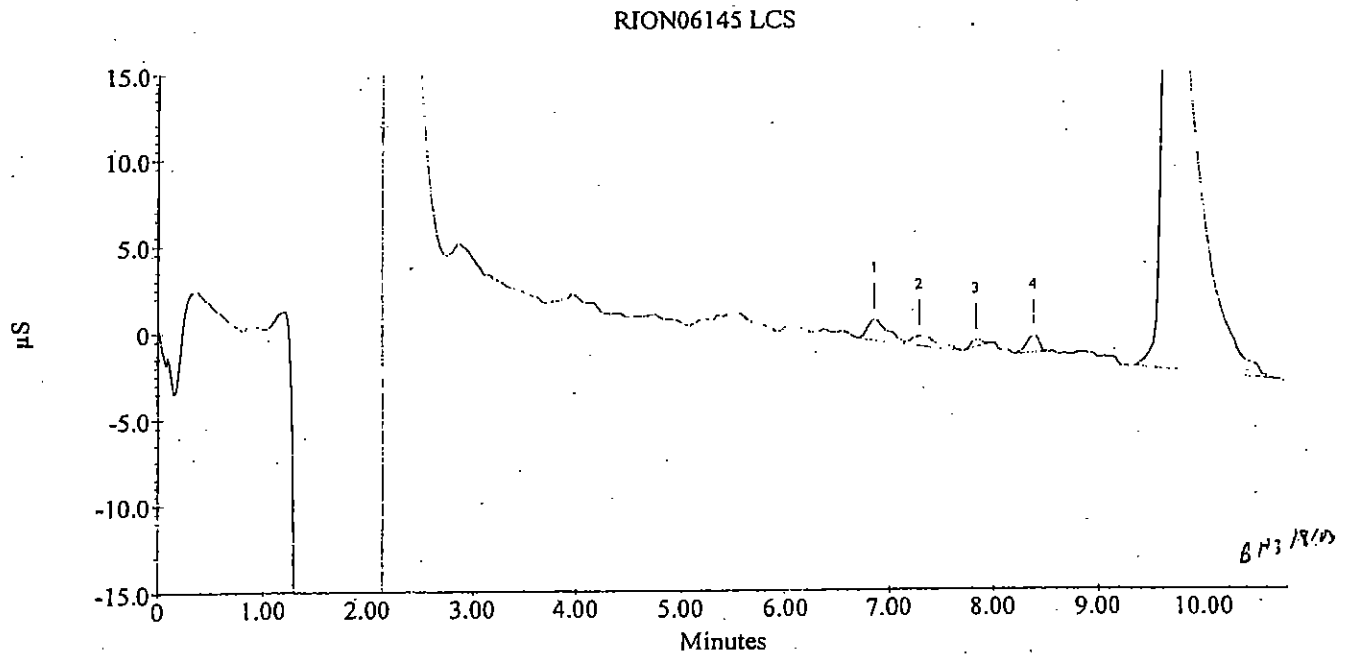
M.P.
3/10/03

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : RION06145 LCS Date Time Collected : 3/8/03 9:35:45 AM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 13 Dilution Factor : 10.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_013.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
5	9.73	Perchlorate	488.514	29353227	638292232

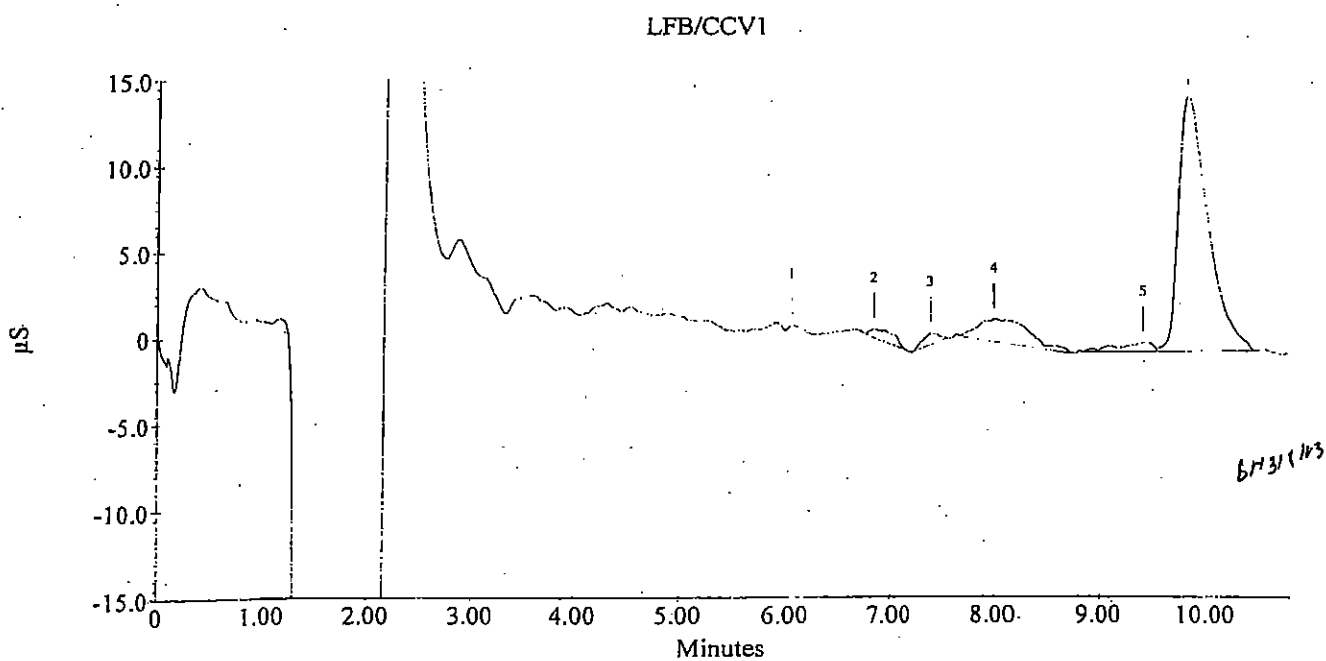


Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : LFB/CCV1 Date Time Collected : 3/8/03 9:48:12 AM	Method File Name : j:\vic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\ari40308.sch
Injection Number : 14 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_014.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
6	9.85	Perchlorate	22.116	14832698	285668694

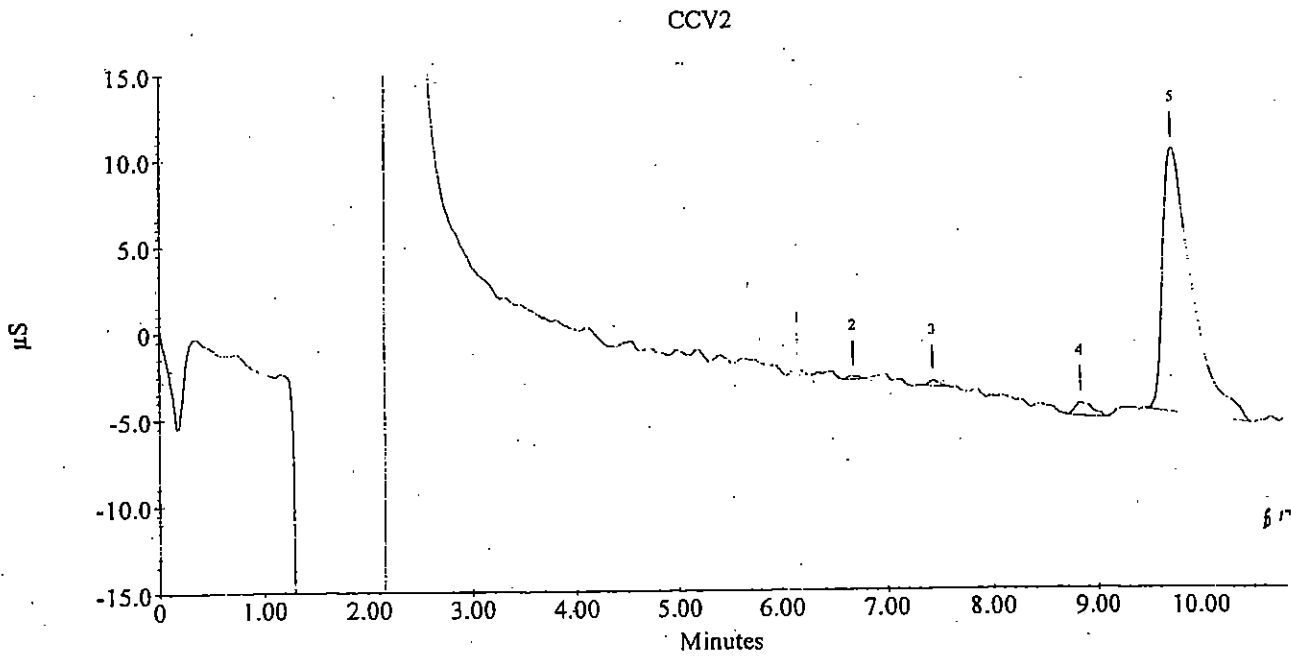


Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : CCV2 Date Time Collected : 3/8/03 12:54:38 PM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 27 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_027.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
5	9.77	Perchlorate	14; 23.352	15318615	301964173



3/13/03

*M. J.
3/10/03*

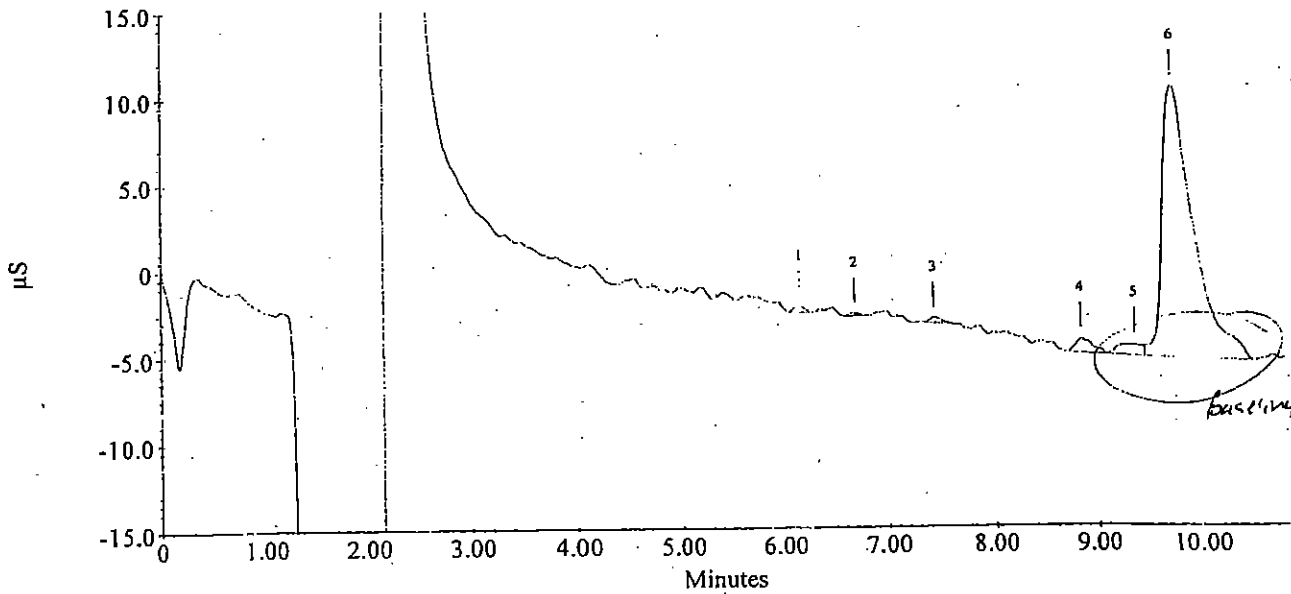
Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : CCV2 Date Time Collected : 3/8/03 12:54:38 PM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 27 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_027.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
6	9.77	Perchlorate	24.750	15755744	320413509

CCV2



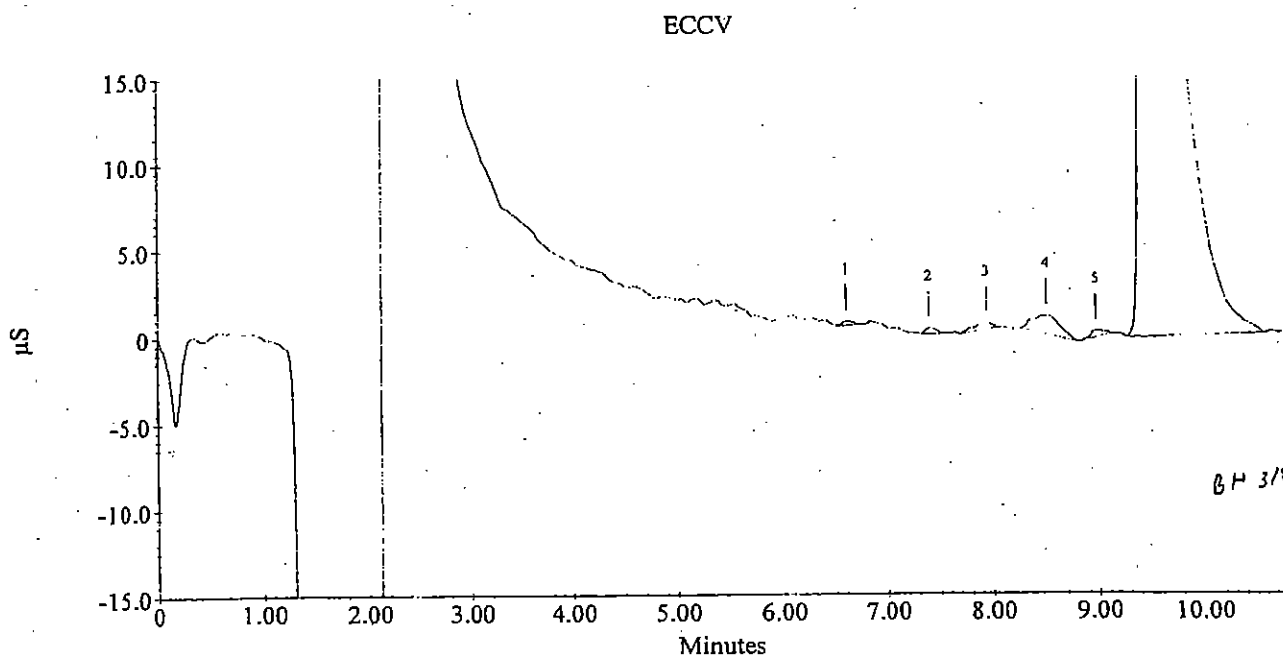
M.F.
3/10/03

Columbia Analytical Services, Inc.

Ion Chromatography :	EPA Method 300.0 : ...\\1022clo4.met
Sample Name : ECCV Date Time Collected : 3/8/03 3:32:36 PM	Method File Name : j:\ic_data\an-4\methods\1022clo4.met Schedule File Name : ...\\an40308.sch
Injection Number : 37 Dilution Factor : 1.00 Batch ID Number : AS-11 BATCH# KA0300737	Column ID : AS-11 BATCH# KA0300737 Data File Name : ...\\DATA_037.DXD Injection Volume : 1.00

Peak Information : All Components

Peak Number	Peak Retention Time	Anion	Concentration (ppb)	Peak Height	Peak Area
6	9.57	Perchlorate	95: 94.840	55718173	1244859296



Work Request #: (^{Original} 1280) 1405 1488 1596

Tier: III III II IIA

Date Analyzed: 3/7/03

Analyst: S. Hopkins

Analysis: Conductivity 120.1

DATA QUALITY REPORT INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

- 1. Is the method name and number correct and appropriate? yes/no/NA
- 2. Holding times met for all analyses and for all samples? yes/no/NA
- 3. Are calculations correct? yes/no/NA
- 4. Is the reporting basis correct? (Dry Weight) yes/no/NA
- 5. All quality control criteria met? yes/no/NA
 - a. Is the calibration curve correlation coefficient ≥ 0.995 ? yes/no/NA
 - b. MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? yes/no/NA
 - c. Are ICVs, CCVs, and CCBs all within acceptance limits? yes/no/NA
 - d. Are results for methods blanks all ND? yes/no/NA
 - e. Are all QC samples within acceptance criteria? (LCS % rec; MS/DMS % rec, DUP or MS/DMS RPDs, etc.) yes/no/NA
 - f. Are all exceptions explained? yes/no/NA
- 6. Are all service requests that apply attached? yes/no/NA
- 7. Are all samples labelled correctly? yes/no/NA
- 8. Have all instructions on the service request been followed? (e.g. Special MRLs; QC on a specific sample) yes/no/NA
- 9. Are detection limits and units reported correctly? yes/no/NA
- 10. Are proper Analysis/Extraction stickers included on report? yes/no/NA
- 11. Is the unused space on the benchsheet crossed out? yes/no/NA
- 12. Was analysis turned in by the due date? (n-2) (If not record SR#) yes/no/NA

COMMENTS:

Final Approved by: MJE

Date: 3/10/03

DQREPORT

COLUMBIA ANALYTICAL SERVICE, INC.

Analytical Batch
KA0300695

Service Request #: 1280, 1405, 1488, 1596

Method: EPA 120.1

Analysis For: Conductivity (specific conductance, $\mu\text{mhos/cm}$ at 25°C)

Matrix: Water

Standardization: Low Range 1,413 $\mu\text{mhos/cm}$ Cell Constant = True Value = 1
High Range 50,000 $\mu\text{mhos/cm}$ Meter Value

Sample Name	Std	MB	1280-1	1280-1d	1280-2	1280-3	1405-1	1405-2	1405-3	1405-4
u/m Range	u	u	u	u	m	m	u	u	m	u
Reading	1422	0.48	1320	1307	3.33	3.37	1082	1077	2.34	320
Conductivity	1420	<2	1320	1310	3330	3390	1080	1080	2340	320

Sample Name	1405-5	1488-1	MB	1488-2	1488-2d	1488-3	1488-4	1596-1	1596-2	LCS
u/m Range	u	u	u	u	u	u	u	u	u	u
Reading	331	350	0.55	347	349	342	362	137.6	143.9	1046
Conductivity	331	350	<2	347	349	342	362	138	144	1050

Sample Name	Std	IPC	Std							
u/m Range	u	m	u							
Reading	1414	6.20	1418							
Conductivity	1410	6200	1420							

Sample Name										
u/m Range										
Reading										
Conductivity										

LCS = APG 4053 Lot #: ID#: Cond/1-4-EE T.V. = 1050 % REC = 100

Conductivity = u=Reading x 1, m=Reading x 1,000
1413 STD ID #: Cond/1-13-J
50,000 STD ID #: _____
Comments: _____

1280-1 \bar{x} = 1320
RSD = 1.0

Analyzed By: <u>[Signature]</u>	Date: <u>3/7/03</u>	Time: _____
Reviewed By: <u>[Signature]</u>	Date: <u>3/10/03</u>	

Method Report - 1022CLO4.met

Method Information : Select Module(s)

System Name : AN-4
System Number : 1
Method Type : Ion Chromatography
Column : AS-11 BATCH# KA0217855
Analyst :
Comment :

UI20 Timed Events

Module Name : DX-100
Module Serial Number : 96050524
Configuration : Signal A & B
Full Scale Voltage : +/- 1000.00 mV
Relay 1 Label : Inject
Relay 2 Label : AutoOffset
TTL 1 Label : Pump Start
TTL 2 Label : Auto Sampler
TTL 3 Label : TTL 3
TTL 4 Label : TTL 4

TTL Input	Trigger Type
Wait	Normal Edge
Run	Normal Edge
End	Normal Edge
Abort	Normal Edge

Time	Relay1	Relay2	TTL1	TTL2	TTL3	TTL4	Collect	Comment
Init	Open	Open	High	High	Low	Low		
0.00	Closed	Closed	High	Low	Low	Low	Begin	

UI20-Detector Parameters

Detector Type : UI20:A
Data collection time (minutes) : 12.15
Data Collection Rate : 5.00
1000 mV equals (μ S) : 100.000
Real time plot scale maximum (μ S) : 15.000
Real time plot scale minimum (μ S) : -15.000

UI20 Integration Parameters

Peak detection algorithm : Standard
Starting peak width (seconds) : 10.00
Peak threshold : 500.00
Peak area reject (area counts) : 10.00
Reference peak area reject (area counts) : 10.00

UI20 Smoothing Parameters

Filter Type : No filter

UI20 Report Data

Report Format File : T:\WET\IC_DATA\REPORTS\Casallp.rpt
Print Sample Analysis : Yes
Print Calibration Update : Yes
Print Check Standard : Yes
System Suitability Tests :
No system suitability tests selected.

UI20 Integration Data Events

Time	Description
0.00	Stop peak detection
6.00	Start peak detection

UI20 Calibration Parameters

External or internal calibration : EXTERNAL
Number of replicates for calibration : 1
Rejection : Manual
Level Weighting : Equal
Calibration standard volume : 1.00
Default sample volume : 1.00
Amount units : ppb
Replace retention time : Yes
Update response : Yes
Default dilution factor : 1.00
Default response factor for unknown peaks : 0.00
Calculate unknowns by area or height : Area

UI20 Component Identification Table

Component	Retention	Tolerance	Reference
Perchlorate	10.03 min	1.00 min	

UI20 Component Quantitation Table

Component	Retention	Low Limit	High Limit
Perchlorate	10.03 min	0	0

UI20 Component Calibration Table

Component	Retention Time	Curve Fit	Origin	Cal. by	Response Component	Relative Factor
Perchlorate	10.03 min	Linear	Include	Area		0.00

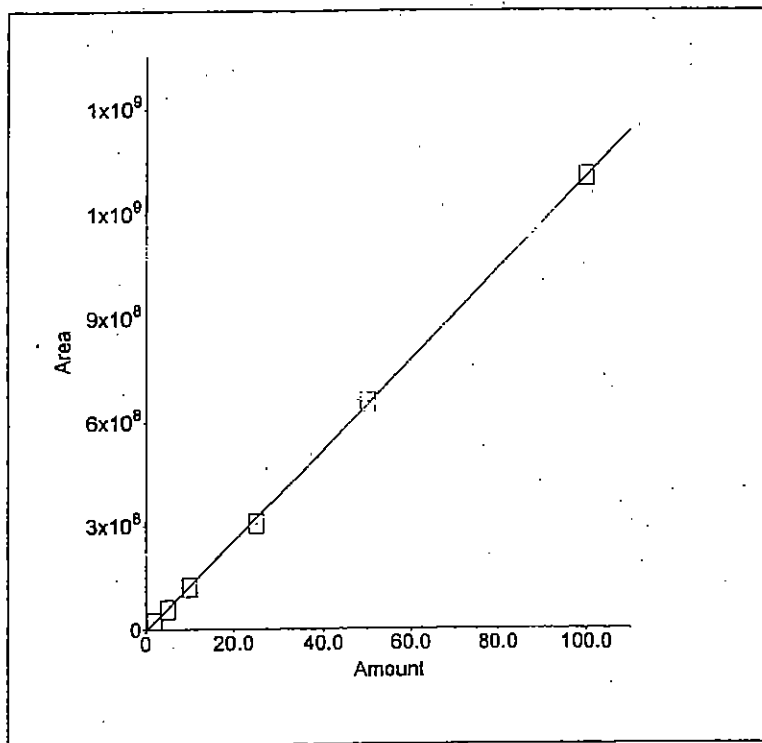
UI20 Component = Perchlorate Levels Table

Retention Time : 10.03 min
Amount units : ppb
Replicate unit type : Area
Number of levels : 7
Number of replicates : 1

Level	Amount	Replicate 1
1	0.00	1.47881e+006
2	2.00	2.0193e+007
3	5.00	5.84343e+007
4	10.00	1.23214e+008
5	25.00	3.06826e+008
6	50.00	6.6022e+008
7	100.00	1.31376e+009

UI20 XY Data Parameters

1. Component: Perchlorate
Standard: External Fit Type: Linear
Origin: Include Calibration: Area
 $r^2=0.999712$
Amt= $7.582e-008$ *Resp+0.4573



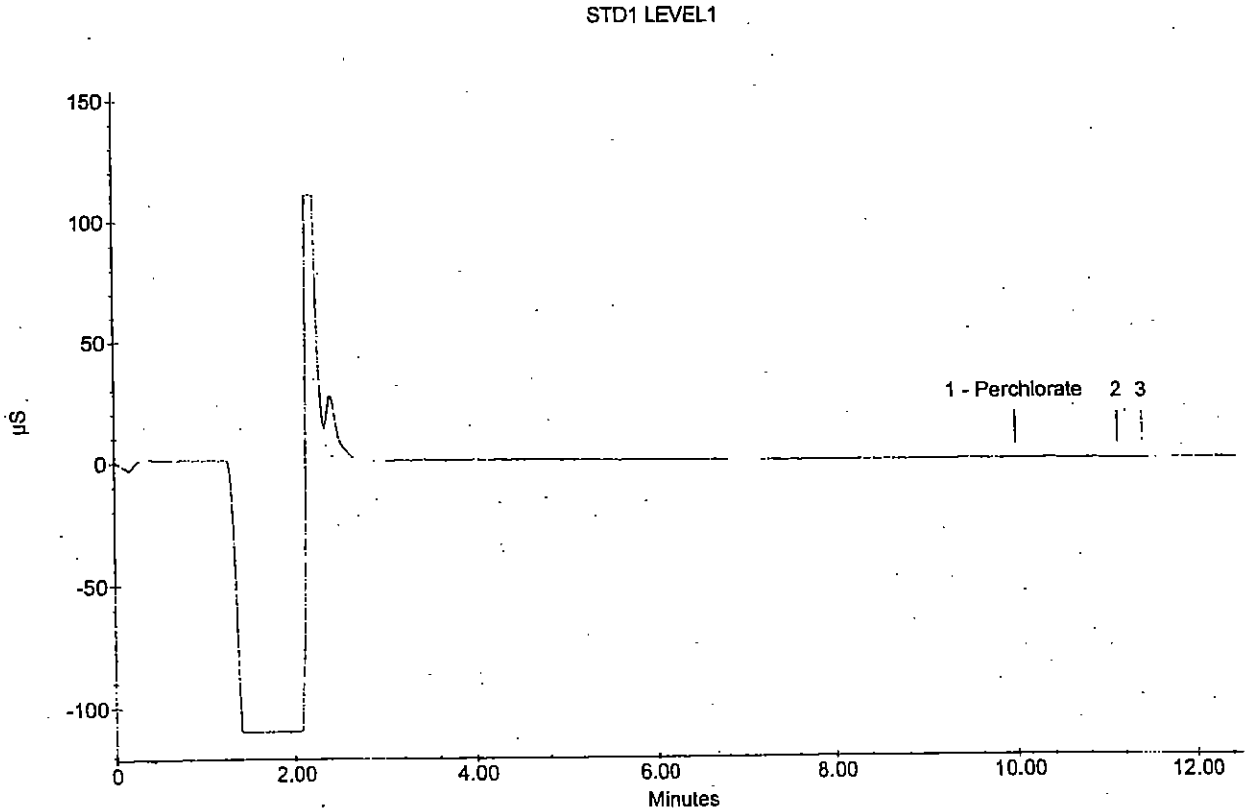
Columbia Analytical Services, Inc.

Ion Chromatography EPA Method 300.0

Calibration Date : 10/22/02 11:39:13 Schedule File Name : ...an41022.sch Column ID : AS-11 BATCH# K
Current Time : 11:39:14 AM Method File Name : ...1022clo4.met Injection Number : 8
System Operator : BH/BR/MR Data File Name : ...DATA_008.DXD

Peak Information : All Peaks

Comp. Number	Anion	Ret. Time	Conc. (ppb)	Measured Resp.	New Resp.	Old Resp.
1	Perchlorate	10.03	0.000	1478808.800	1478808.800	1794781.800
		11.18	0.000			
		11.47	0.000			



Columbia Analytical Services, Inc.

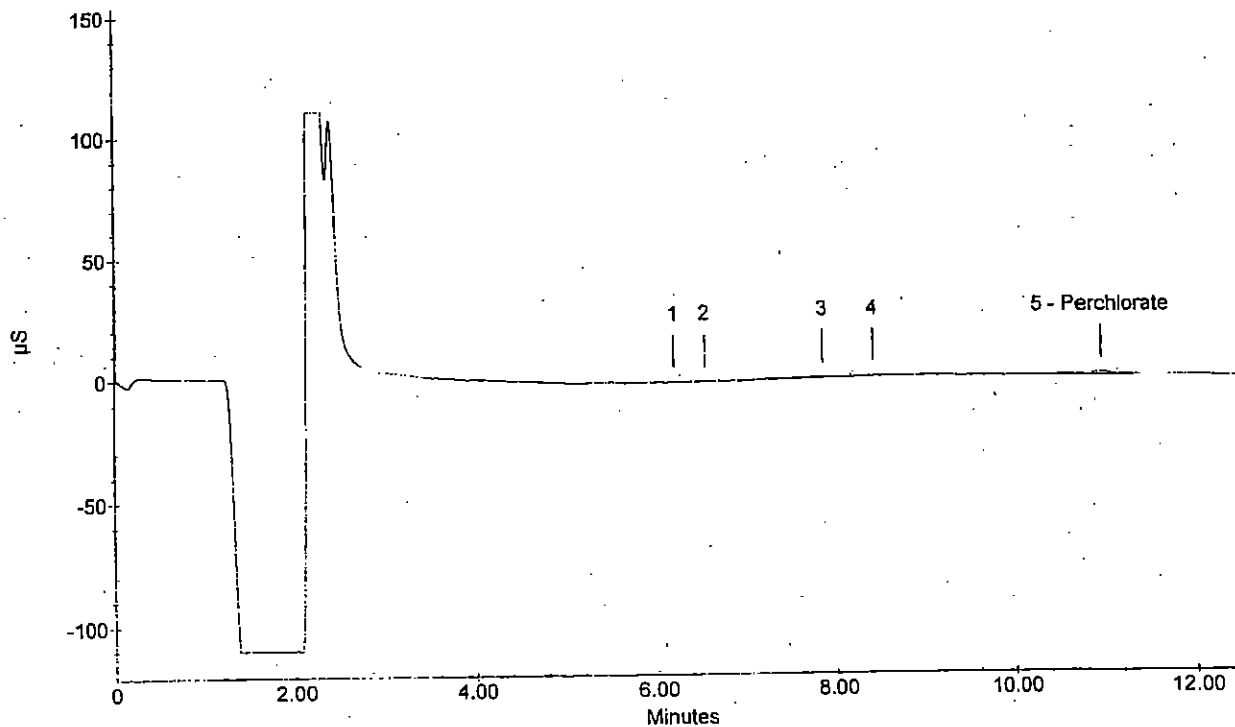
Ion Chromatography **EPA Method 300.0**

Calibration Date : 10/22/02 10:15:30 Schedule File Name : ...lan41022.sch Column ID : AS-11 BATCH# K
 Current Time : 10:15:30 AM Method File Name : ...1022clo4.met Injection Number : 2
 System Operator : BH/BR/MR Data File Name : ...DATA_002.DXD

Peak Information : All Peaks

Comp. Number	Anion	Ret. Time	Conc. (ppb)	Measured Resp.	New Resp.	Old Resp.
		6.22	0.000			
		6.57	0.000			
		7.88	0.000			
		8.45	0.000			
1	Perchlorate	11.00	2.000	20192997.300	20192997.300	22755047.400

STD2 LEVEL2



Columbia Analytical Services, Inc.

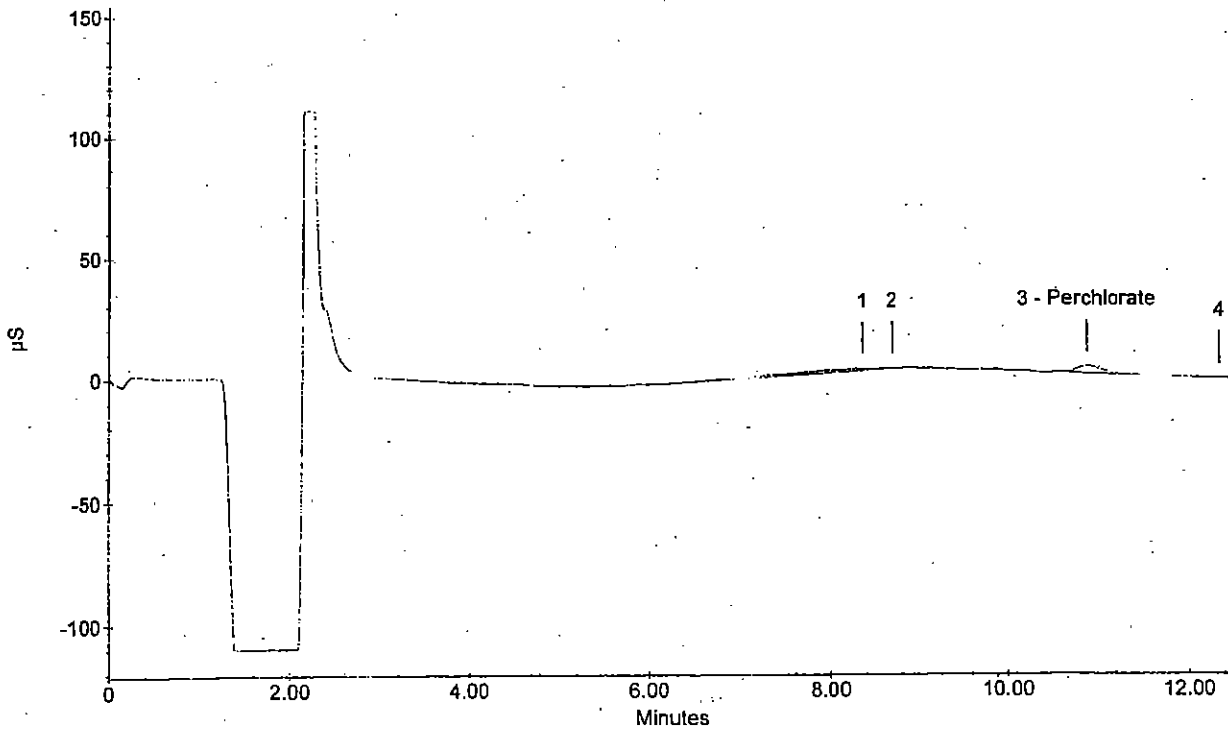
Ion Chromatography EPA Method 300.0

Calibration Date : 10/22/02 10:29:27 Schedule File Name : ...an41022.sch Column ID : AS-11 BATCH# K
 Current Time : 10:29:28 AM Method File Name : ...1022clo4.met Injection Number : 3
 System Operator : BH/BR/MR Data File Name : ...DATA_003.DXD

Peak Information : All Peaks

Comp. Number	Anion	Ret. Time	Conc. (ppb)	Measured Resp.	New Resp.	Old Resp.
		8.38	0.000			
		8.72	0.000			
1	Perchlorate	10.90	5.000	58434305.400	58434305.400	101891851.865
		12.37	0.000			

STD3 LEVEL3



Columbia Analytical Services, Inc.

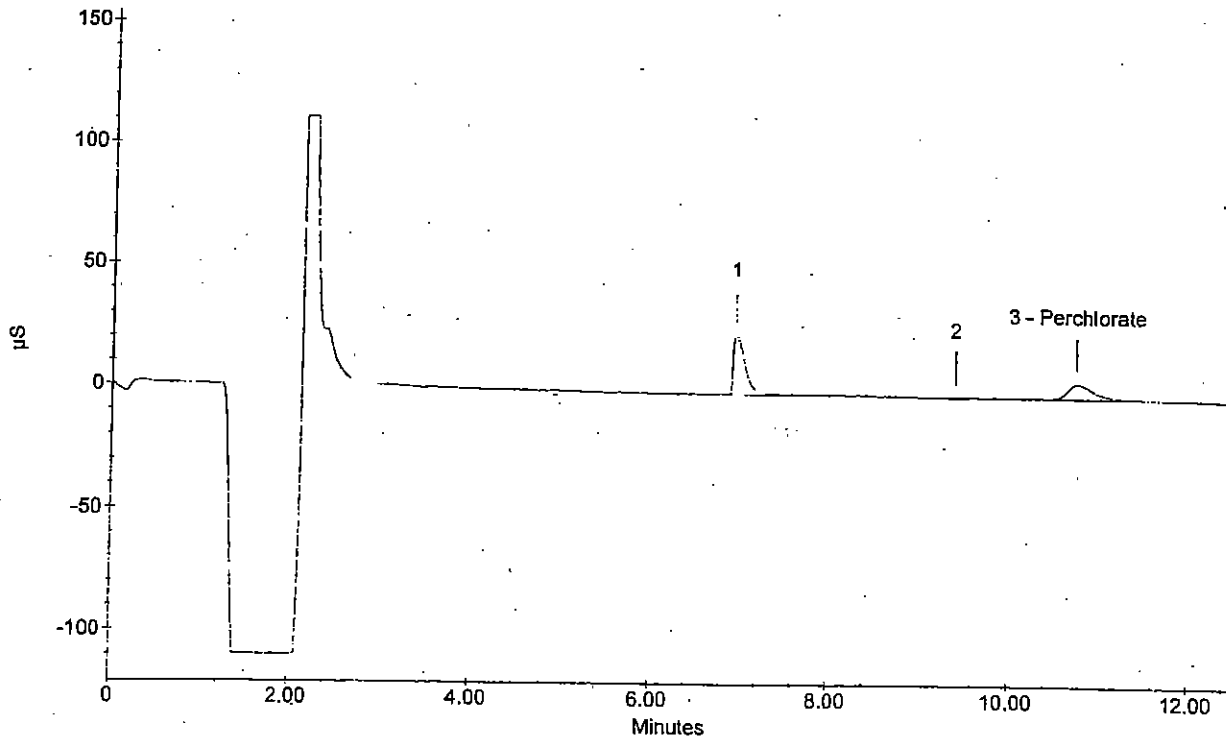
Ion Chromatography EPA Method 300.0

Calibration Date : 10/22/02 10:43:24 Schedule File Name : ...an41022.sch Column ID : AS-11 BATCH# K
 Current Time : 10:43:25 AM Method File Name : ...1022clo4.met Injection Number : 4
 System Operator : BH/BR/MR Data File Name : ...DATA_004.DXD

Peak Information : All Peaks

Comp. Number	Anion	Ret. Time	Conc. (ppb)	Measured Resp.	New Resp.	Old Resp.
		6.98	0.000			
		9.43	0.000			
1	Perchlorate	10.78	10.000	123214344.400	123214344.400	153609543.600

STD4 LEVEL4



Columbia Analytical Services, Inc.

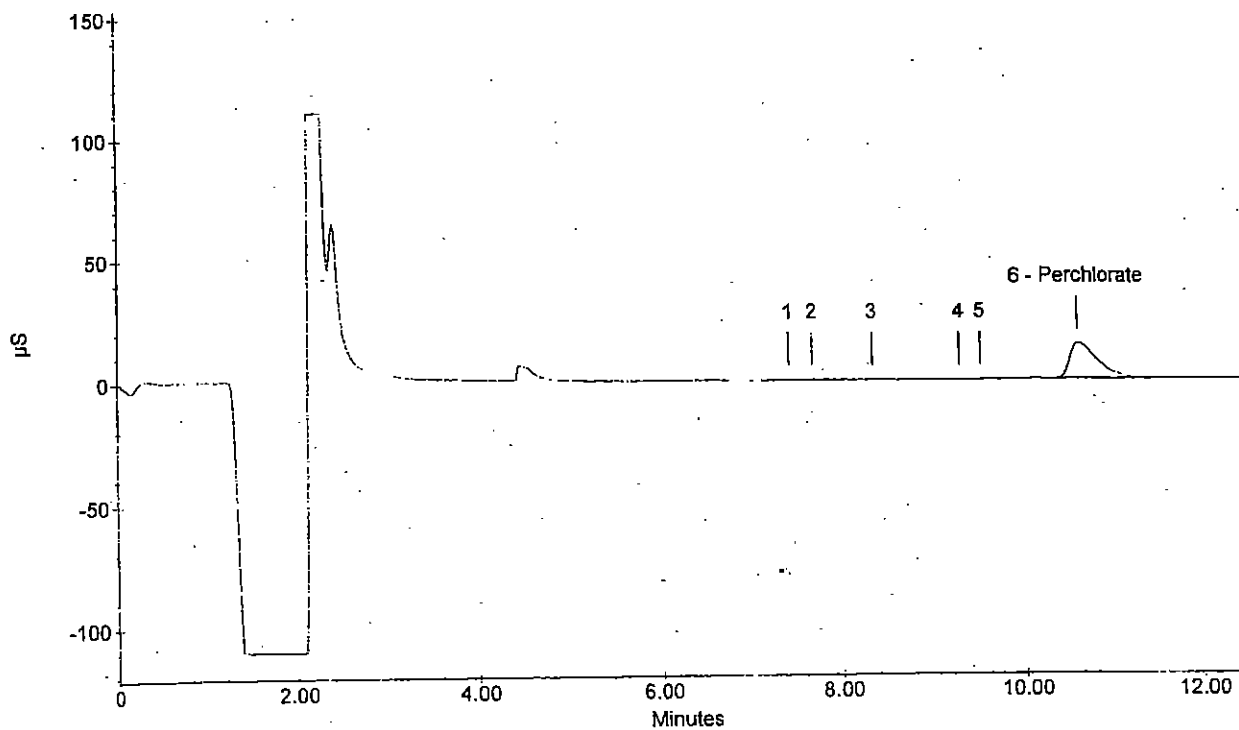
Ion Chromatography EPA Method 300.0

Calibration Date : 10/22/02 10:57:22 Schedule File Name : ...lan41022.sch Column ID : AS-11 BATCH# K
 Current Time : 10:57:22 AM Method File Name : ...1022clo4.met Injection Number : 5
 System Operator : BH/BR/MR Data File Name : ...DATA_005.DXD

Peak Information : All Peaks

Comp. Number	Anion	Ret. Time	Conc. (ppb)	Measured Resp.	New Resp.	Old Resp.
		7.47	0.000			
		7.73	0.000			
		8.38	0.000			
		9.33	0.000			
		9.55	0.000			
1	Perchlorate	10.65	25.000	306825811.200	306825811.200	382734379.700

STD5 LEVEL5



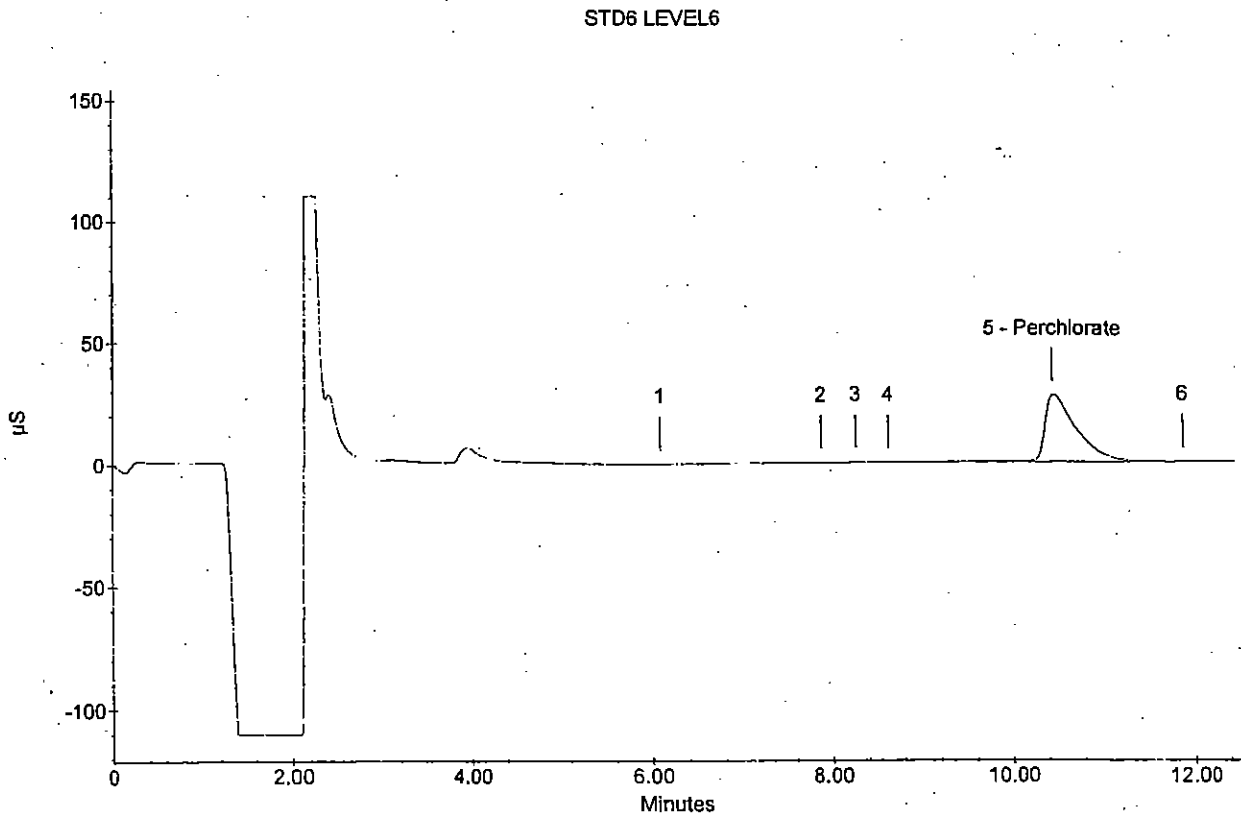
Columbia Analytical Services, Inc.

Ion Chromatography EPA Method 300.0

Calibration Date : 10/22/02 11:11:19 Schedule File Name : ...lan41022.sch Column ID : AS-11 BATCH# K
 Current Time : 11:11:19 AM Method File Name : ...l022clo4.met Injection Number : 6
 System Operator : BH/BR/MR Data File Name : ...DATA_006.DXD

Peak Information : All Peaks

Comp. Number	Anion	Ret. Time	Conc. (ppb)	Measured Resp.	New Resp.	Old Resp.
		6.12	0.000			
		7.92	0.000			
		8.30	0.000			
		8.67	0.000			
1	Perchlorate	10.50	50.000	660220231.400	660220231.400	761462244.500
		11.92	0.000			



Columbia Analytical Services, Inc.

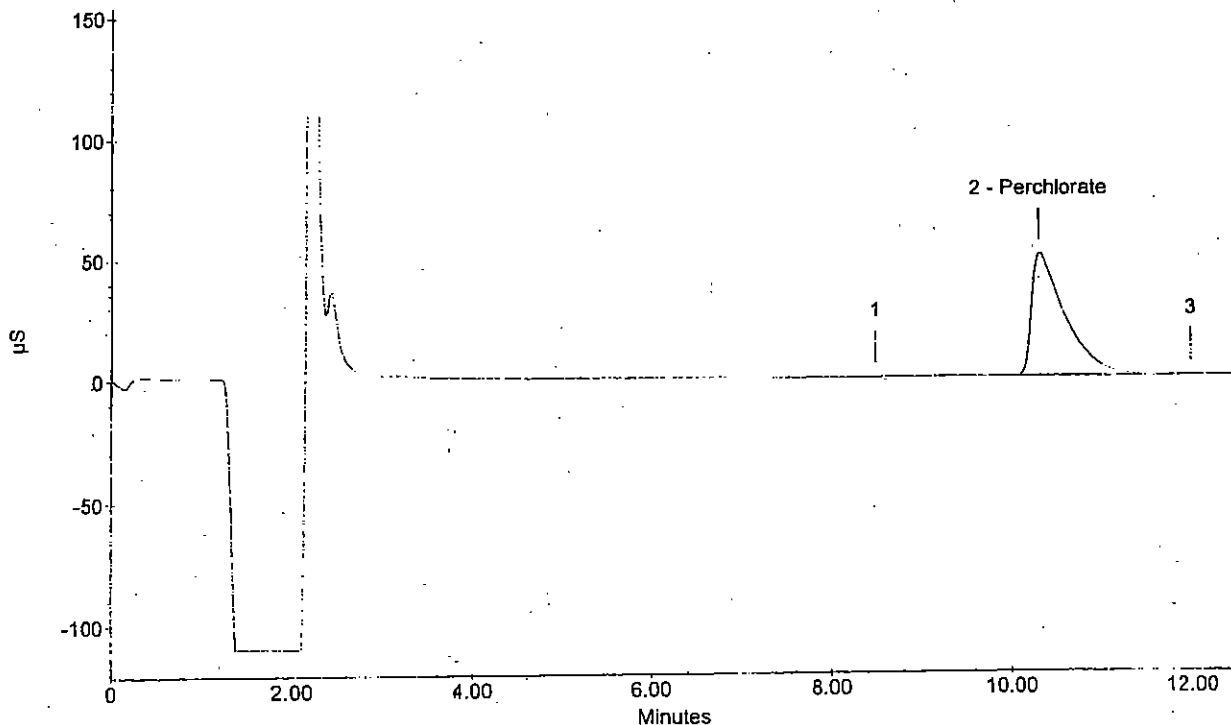
Ion Chromatography EPA Method 300.0

Calibration Date : 10/22/02 11:25:16 Schedule File Name : ...an41022.sch Column ID : AS-11 BATCH# : K
Current Time : 11:25:17 AM Method File Name : ...1022clo4.met Injection Number : 7
System Operator : BH/BR/MR Data File Name : ...DATA_007.DXD

Peak Information : All Peaks

Comp. Number	Anion	Ret. Time	Conc. (ppb)	Measured Resp.	New Resp.	Old Resp.
1	Perchlorate	8.50	0.000			
		10.33	100.000	1313756842.700	1313756842.700	511658500.70
		12.00	0.000			

STD7 LEVEL7



Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

June 3, 2003

Brian Neumann
Shaw Environmental
13 British American Blvd.
Latham, NY 12110

RE: Validation of MRFA Malta Site Data Packages
CAS Sub No. DGC-35

Dear Mr. Neumann:

Review has been completed for the data packages generated by Columbia Analytical Services (CAS), pertaining to samples collected 4/9/03 through 4/14/03 at the MRFA Malta Site. Ten aqueous samples were processed by CAS-Rochester for site specific low level volatiles and perchlorate. Four of these and one additional sample were analyzed for total and hexavalent chromium and perchlorate. The perchlorate analyses were subcontracted to CAS-Kelso. Methodologies utilized are those of the USEPA OLC02.1 and 314.0. Cooler and trip blanks, and sample matrix spikes were also processed.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and the USEPA SOPs HW-2 and HW-6, as applied to the methodology. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Field Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * ICP Interference Check Standards
- * ICP Serial Dilution
- * Calibration/CRI Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, most sample processing was conducted with compliance to protocol requirements and with adherence to quality criteria, and results are usable as reported, with only minor qualification of two volatile analytes as estimated, and with one volatile detection edited to nondetection.

Copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. Data summary packages are also submitted with qualifiers applied in red ink to report forms.

Data Completeness

Data packages were complete as received, and no resubmissions were required.

Low Level Volatile Analyses by OLC02.1

Holding times were met and instrument tunes were acceptable.

As indicated by presence in the associated trip blank, detected results of chloroform in M27D and DUPA, are considered contamination, and edited to nondetection at the CRDL.

Matrix spikes of M-27S and DGC-4S show acceptable accuracy and precision. Field duplicate correlations for M-27D/DUPA were also acceptable.

Due to the low relative response factors (RRFs) in the calibration standards, the reporting limits for acetone and 2-butanone in all of the project samples should be considered estimated ("UJ" qualifier), possibly biased low.

The laboratory Form 8A shows incorrect acceptance limits for internal standard responses. The samples met the protocol requirement.

Total Chromium Analyses

Matrix spike and duplicate evaluation for M-27S shows acceptable accuracy and precision. Field duplicate correlation for M-27D/DUPA was acceptable, as was the serial dilution of M-27S..

Sample processing met protocol and validation criteria. Sample results are substantiated by raw data.

Hexavalent Chromium Analyses

Holding times and instrument response criteria were met. Accuracy and precision of M-27S and M-13S were acceptable. Field duplicate correlation for M-27D/DUPA was also acceptable.

Sample results are substantiated by raw data.

Perchlorate Analyses by EPA 314.0

Holding times and instrument response criteria were met. Accuracy and precision of M-27S was acceptable. Processing was compliant with protocol. Field duplicate correlation for M-27D/DUPA was also acceptable.

Raw instrument output in the original data package is barely legible.

Sample results are substantiated by raw data.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,



Judy Harry

CASE NARRATIVE

COMPANY: Shaw Environmental
GE MRFA Project #810066
SUBMISSION #: R2316425

Shaw water samples were collected on 04/09-15/03 and received at CAS on 04/10-16/03 in good condition at a cooler temperature of 1-4 C.

INORGANICS

Five water samples were analyzed for Total Chromium by CLP methods and Hexavalent Chromium by 7196A.

Site specific QC was performed on M-27S. All MS and Blank spike recoveries were within limits. All RPD's were within limits.

No other analytical or QC problems were encountered.

VOLATILE ORGANICS

Ten water samples, one cooler blank and two trip blanks were analyzed for a Site Specific List of Volatiles by Low Level CLP.

All Tuning criteria for BFB were within limits.

The initial and continuing calibration criteria were met for all analytes.

All internal standard areas were within limits.

All surrogate standard recoveries were within limits.

All samples were analyzed within required holding times.

Site specific QC was performed on DGC-4S and M-27S. All MS/MSD recoveries were within limits. All Blank Spike recoveries were within limits. All RPD's were within limits.

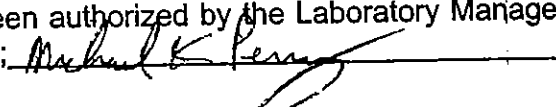
The Laboratory Blanks associated with these samples was free of contamination.

The trip blanks and cooler blank had low level hits for various analytes.

No other analytical or QC problems were encountered.

PERCHLORATE

Water samples were subcontracted to CAS-Kelso for Perchlorate analysis. Their complete data package follows.

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

April 29, 2003

Service Request No: K2302890

Janice Jeager
Columbia Analytical Services, Inc.
1 Mustard Street, Suite 250
Rochester, NY 14609

RE: R2316425 / MRFA / 810066

Dear Janice:

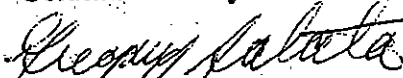
Enclosed are the results of the sample(s) submitted to our laboratory on April 16, 2003. For your reference, these analyses have been assigned our service request number K2302890.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

Columbia Analytical Services, Inc.



Gregory Salata, Ph.D.
Project Chemist

GS/jeb

Page 1 of 53

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
 - i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
 - i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for-CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
 - i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

00003

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Shaw Environmental and Infrastructure
Project: MRFA
Sample Matrix: Water

Service Request No.: K2302890
Date Received: 4/16/03

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV, CLP-deliverables. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

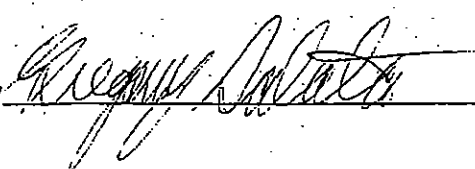
Eleven water samples were received for analysis at Columbia Analytical Services on 4/16/03. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

For the analysis of Perchlorate, sample Dup A was analyzed after the End Calibration Check Standard (ECCV). A Continuing Calibration Verification (CCV) standard was analyzed after the sample and was within control criteria. The sample was reported.

No other anomalies associated with the analysis of these samples were observed.

Approved by



Date

4-29-03

00005

**Chain of Custody
Documentation**



000

11/11/2004

CHAIN OF CUSTODY/LABORATORY ANALYSIS

CAS Contact

PAGE 1 OF 2

11/11/2004

Project Name: **MRFA** Project Number: **810066**
 Project Manager: **Janine Jeager** Report CC:
 Company/Address: **CAS**
1 Mustard St Suite 250
Rochester NY 14609
 Phone #: **585 288 5380** FAX: **585 288 8425**
 Sampler's Signature: _____ Sampler's Printed Name: _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	PRESERVATIVE	ANALYSIS REQUESTED (Include Method Number and Container Preservative)										REMARKS/ ALTERNATE DESCRIPTION	
							GCMS VOAs	GCMS SVoAs	GC VOAs	PESTICIDES	PCBs	METALS, TOTAL	METALS, DISSOLVED	(List in comments below)				(List in comments below)
DGC-45	631961	4/9/03		Ag	1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DGC-35	631962				1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M-33S	631963				1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M-13S	631964				1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SW-D	631965				1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SW-B	631966				1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SW-A	631967				1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M-33I	633278	4/15/03			1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M-27S	633279				2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M-27D	633280				1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SPECIAL INSTRUCTIONS/COMMENTS: **Metals**

TURNAROUND REQUIREMENTS:
 RUSH (SURCHARGES APPLY)
 24 hr _____ 48 hr _____ 5 day _____
 STANDARD
 REQUESTED FAX DATE: _____
 REQUESTED REPORT DATE: _____

REPORT REQUIREMENTS:
 I. Results Only
 II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
 III. Results + QC and Calibration Summaries
 IV. Data Validation Report with Raw Data
 V. Specialized Forms / Custom Report
 Extra _____ Yes _____ No _____

INVOICE INFORMATION: **R23/6425**

PO#: _____ BILL TO: _____

SUBMISSION #: _____

RECEIVED BY		RECEIVED BY		RECEIVED BY	
Signature: <i>[Signature]</i>	Printed Name: L. Morrow	Signature: _____	Printed Name: _____	Signature: _____	Printed Name: _____
Firm: CAS-164650	Date/Time: 4-17-03	Firm: _____	Date/Time: _____	Firm: _____	Date/Time: _____



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

CAS Contact **82302890**

One Mustard St., Suite 250 • Rochester, NY 14609-0859 • (585) 288-5380 • 800-695-7222 x11 • FAX (585) 288-8475 • PAGE 2 OF 2

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

Project Name MRFA	Project Number 8100066	PRESERVATIVE	0	REMARKS/ ALTERNATE DESCRIPTION
Project Manager Janice Jaeger	Report CC	METALS, TOTAL (List in comments below) <input type="checkbox"/> 8082 <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, DISSOLVED (List in comments below) <input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP PCBs <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602 PESTICIDES <input type="checkbox"/> 8270 <input type="checkbox"/> 625 <input type="checkbox"/> CLP <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> CLP GC/MS VOAS <input type="checkbox"/> 8270 <input type="checkbox"/> 625 <input type="checkbox"/> CLP <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> CLP GC VOAS <input type="checkbox"/> 8021 <input type="checkbox"/> 601/602 PESTICIDES <input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP <input type="checkbox"/> 8082 <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, TOTAL (List in comments below) <input type="checkbox"/> 8082 <input type="checkbox"/> 608 <input type="checkbox"/> CLP METALS, DISSOLVED (List in comments below) <input type="checkbox"/> 8081 <input type="checkbox"/> 608 <input type="checkbox"/> CLP		
Company/Address CAS	Phone #	F Perchmark X		
Sampler's Signature	Sampler's Printed Name	GCMs VOAS, DCLP GC VOAS PESTICIDES PCBs METALS, TOTAL METALS, DISSOLVED PRESERVATIVE		
CLIENT SAMPLE ID DUP A	FOR OFFICE USE ONLY LAB ID 633281	SAMPLING DATE 4/15	MATRIX AB	
SPECIAL INSTRUCTIONS/COMMENTS Metals	TURNDOWN REQUIREMENTS RUSH (SURCHARGES APPLY) <input type="checkbox"/> 24 hr <input type="checkbox"/> 48 hr <input type="checkbox"/> 5 day <input checked="" type="checkbox"/> STANDARD REQUESTED FAX DATE REQUESTED REPORT DATE		REPORT REQUIREMENTS <input type="checkbox"/> I. Results Only <input type="checkbox"/> II. Results + QC Summaries (LCS, DUP, MSMSD as required) <input type="checkbox"/> III. Results + QC and Calibration Summaries <input checked="" type="checkbox"/> IV. Data Validation Report with Raw Data <input type="checkbox"/> V. Specialized Forms / Custom Report Edata <input type="checkbox"/> Yes <input type="checkbox"/> No	
INVOICE INFORMATION R2316425	PO# BILL TO:		SUBMISSION #: RECEIVED BY:	
See QAPP <input type="checkbox"/>	SAMPLE RECEIPT: CONDITION/COOLER/TEMP RECEIVED BY:		CUSTODY SEALS: Y N RELINQUISHED BY:	
Signature Janice Jaeger	Signature [Signature]	Printed Name Janice Jaeger	Signature [Signature]	Signature [Signature]
Printed Name Janice Jaeger	Printed Name [Name]	Printed Name [Name]	Printed Name [Name]	Printed Name [Name]
Firm CAS	Firm [Firm]	Firm [Firm]	Firm [Firm]	Firm [Firm]
Date/Time 4/16/03 1700	Date/Time 4-17-03	Date/Time 4-17-03	Date/Time 4-17-03	Date/Time 4-17-03

Cooler Receipt And Preservation Form

Project/Client CAS - Rochester Work Order K23 2890
 Cooler received on 4-17-03 and opened on 4-17-03 by Jon

1. Were custody seals on outside of cooler? IF Y N
2. Were seals intact and signature & date correct? Y N
3. Is the shipper's airbill available and filed? If no, record airbill number: UB Y N
4. COC # _____
 Temperature of cooler(s) upon receipt: 4.5 _____
 Temperature Blank: 4.0 _____
5. Were custody papers properly filled out (ink, signed, etc.)? Y N
6. Type of packing material present Bubbles, ice packs Y N
7. Did all bottles arrive in good condition (unbroken)? Y N
8. Were all bottle labels complete (i.e. analysis, preservation, etc.)? Y N
9. Did all bottle labels and tags agree with custody papers? Y N
10. Were the correct types of bottles used for the tests indicated? Y N
11. Were all of the preserved bottles received at the lab with the appropriate pH? Y N
12. Were VOA vials checked for absence of air bubbles, and if present, noted below? Y N
13. Did the bottles originate from CAS/K or a branch laboratory? Y N
14. Are CWA Microbiology samples received with > 1/2 the 24 hr. hold time remaining from collection? Y N
15. Was Cl2/Res negative? Y N

Explain any discrepancies:

RESOLUTION:

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Shaw Environmental and Infrastructure
 Project: MRFA/810066
 Sample Matrix: Water

Service Request: K2302890
 Date Collected: 04/09-15/03
 Date Received: 4/16/03

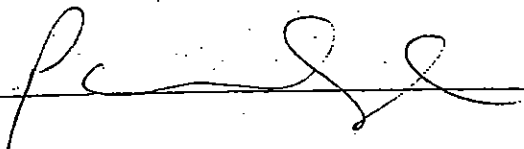
Perchlorate

Prep Method: NONE
 Analysis Method: 314.0
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
DGC-4S	K2302890-001	2.0	1	NA	4/25/03	ND	
DGC-3S	K2302890-002	2.0	1	NA	4/25/03	ND	
M-33S	K2302890-003	2.0	1	NA	4/25/03	ND	
M-13S	K2302890-004	2.0	1	NA	4/25/03	ND	
SW-D	K2302890-005	2.0	1	NA	4/25/03	ND	
SW-B	K2302890-006	2.0	1	NA	4/25/03	ND	
SW-A	K2302890-007	2.0	1	NA	4/25/03	ND	
M-33I	K2302890-008	2.0	1	NA	4/25/03	ND	
M-27S	K2302890-009	2.0	1	NA	4/25/03	ND	
M-27D	K2302890-010	2.0	1	NA	4/25/03	ND	
Dup A	K2302890-011	2.0	1	NA	4/25/03	ND	
Method Blank	K2302890-MB	2.0	1	NA	4/25/03	ND	

Approved By: _____



Date: 4/29/03

1A/020507p

00011

Page No

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: MRFA/810066
Sample Matrix: Water

Service Request: K2302890
Date Collected: 4/15/03
Date Received: 4/16/03
Date Extracted: NA
Date Analyzed: 4/25/03

Duplicate Summary
Inorganic Parameters

Sample Name: M-27S
Lab Code: K2302890-009DUP
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Perchlorate	NONE	314.0	2.0	ND	ND	ND		

Approved By: _____

Date: 4/29/03

DUP/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:
Project:
Sample Matrix:

Shaw Environmental and Infrastructure
MRFA/810066
Water

Service Request: K2302890
Date Collected: 4/15/03
Date Received: 4/16/03
Date Extracted: NA
Date Analyzed: 4/25/03

Matrix Spike Summary
Inorganic Parameters

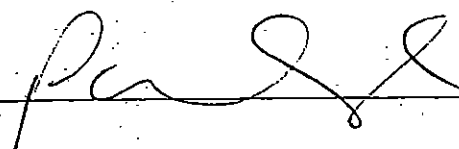
Sample Name:
Lab Code:
Test Notes:

M-27S
K2302890-009MS

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS	Result Notes
								Percent Recovery	
Perchlorate	NONE	314.0	2.0	40.0	ND	40.0	100	80-120	

Approved By: _____



Date: 4/29/03

MS/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
 Project: MRFA/810066
 Sample Matrix: Water

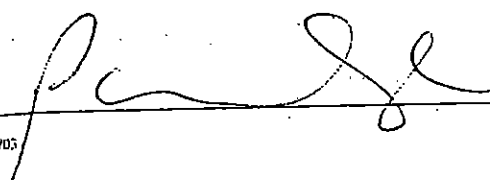
Service Request: K2302890
 Date Collected: 4/15/03
 Date Received: 4/16/03
 Date Extracted: NA
 Date Analyzed: 4/25/03

Matrix Spike/Duplicate Matrix Spike Summary
 Inorganic Parameters

Sample Name: M-27S
 Lab Code: K2302890-009MS, K2302890-009DMS
 Test Notes:

Units: ug/L (ppb)
 Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Spike Level		Sample Result	Spike Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference	Result Notes
				MS	DMS		MS	DMS	MS	DMS			
Perchlorate	NONE	314.0	2.0	40.0	40.0	ND	40.0	39.9	100	100	80-120	< 1	

Approved By:  Date: 4/29/03

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Shaw Environmental and Infrastructure
Project: MRFA/810066
LCS Matrix: Water

Service Request: K2302890
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 04/25/03

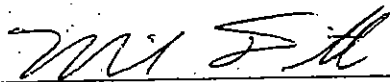
Laboratory Control Sample Summary
Inorganic Parameters

Sample Name: Lab Control Sample
Lab Code: K2302890-LCS
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Perchlorate	NONE	314.0	500	498	100	85-115	

Approved By: _____



Date: _____

4/29/03

LCS/020597p

APPENDIX D
DATA VALIDATION REPORTS

Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

April 30, 2003

Brian Neumann
Shaw Environmental
13 British American Blvd.
Latham, NY 12110

RE: Validation of MRFA Malta Site Data Packages
CAS Sub Nos. R2315862 and K2301488

Dear Mr. Neumann:

Review has been completed for the data packages generated by Columbia Analytical Services (CAS), pertaining to samples collected 2/26/03 at the MRFA Malta Site. Three aqueous samples were processed by CAS-Rochester for site specific low level volatiles. Two of these and two additional samples were also analyzed for perchlorate by CAS-Kelso. Methodologies utilized are those of the USEPA OLC02.1 and 314.0 Cooler and trip blanks, and sample matrix spikes were also processed.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and the USEPA SOPs HW-2 and HW-6, as applied to the methodology. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Field Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, most sample processing was conducted with compliance to protocol requirements and with adherence to quality criteria, and results are usable as reported, with minor qualification of one volatile analyte as estimated.

Copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. Data summary packages are also submitted with qualifiers applied in red ink to report forms.

Data Completeness

Data packages were complete as received, and no resubmissions were required.

Low Level Volatile Analyses by OLC02.1

Holding times were met, method blanks show no contamination affecting sample reported results, and instrument tunes were acceptable.

Matrix spikes of Influent show acceptable accuracy and precision. Field duplicate correlations for Influent/DUP were also acceptable.

Due to the low relative response factors (RRFs) in the calibration standards, the reporting limits for 1,2-dibromom-3-chloropropane in all of the project samples should be considered estimated ("UJ" qualifier), possibly biased low.

The laboratory Form 8A shows incorrect acceptance limits for internal standard responses. The samples met the protocol requirement.

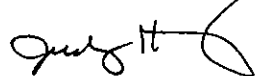
Perchlorate Analyses by EPA 314.0

Holding times and instrument response criteria were met. Accuracy and precision of batch QC analyzed the same sequence was acceptable. Processing was compliant with protocol.

The method blank showed a response similar in magnitude to those of the samples, but at an elution just outside the maximum protocol allowance for retention time windows (5.2 %, above 5% from IPC). However, the retention in the blank was only 0.2% away from the reported detection in one of the samples. The low level detected results that are reported for the samples should be used with caution. They are qualified as estimated when reported due to values below the RL.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,



Judy Harry

CASE NARRATIVE

COMPANY: Shaw Environmental
GE MRFA Project #81066
SUBMISSION #: R2315862

Shaw water samples were collected on 02/26/03 and received at CAS on 02/27/03 in good condition at a cooler temperature of 4 C.

VOLATILE ORGANICS

Five water samples and one trip blank were analyzed for a Site Specific List of Volatiles by Low Level CLP.

All Tuning criteria for BFB were within limits.

The initial and continuing calibration criteria were met for all analytes.

All internal standard areas were within limits.

All surrogate standard recoveries were within limits.

All samples were analyzed within required holding times.

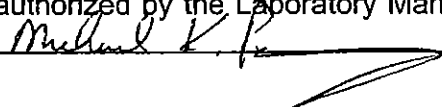
Site specific QC was performed on Influent. All MS/MSD recoveries were within limits. All Blank Spike recoveries were within limits. All RPD's were within limits.

The Laboratory Blanks associated with these samples was free of contamination except VBLK01 had a low level hit for Methylene Chloride. All affected data has been flagged with a "B".

No other analytical or QC problems were encountered.

PERCHLORATE

Water samples were subcontracted to CAS-Kelso for Perchlorate analysis. Their complete data package follows.

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

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Shaw Environmental and Infrastructure
Project: GE MRFA Project #81066
Sample Matrix: Water

Service Request No.: K2301488
Date Received: 2/27/2003

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 2/27/2003. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Perchlorate by EPA Method 314

No anomalies associated with the analysis of these samples were observed.

Approved by _____ LMH Date 3/24/03

00005

Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

July 15, 2003

Brian Neumann
Shaw Environmental
13 British American Blvd.
Latham, NY 12110

RE: Validation of MRFA Malta Site Data Packages
CAS Sub No. R2317079

Dear Mr. Neumann:

Review has been completed for the data package generated by Columbia Analytical Services (CAS) that pertains to samples collected 5/29/03 at the MRFA Malta Site. Three aqueous samples were processed by CAS-Rochester for site specific low level volatiles by method USEPA OLC02.1. Cooler and trip blanks, and sample matrix spikes were also processed.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and the USEPA SOPs HW-2 and HW-6, as applied to the methodology. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Field Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, most sample processing was conducted with compliance to protocol requirements and with adherence to quality criteria, and results are usable as reported, with minor qualification of one volatile analyte as estimated.

A copy of laboratory case narrative is attached to this text, and should be reviewed in conjunction with this narrative. Sample results forms are also submitted with qualifiers applied in red ink.

Data Completeness

Data packages were complete as received, and no resubmissions were required.

Low Level Volatile Analyses by OLC02.1

Blanks show low level contamination of chloroform and/or analysis artifact Tentatively Identified Compounds (TICs). Detections of chloroform in the samples are edited to nondetection and detections of siloxane TICs in the samples are rejected, due to potential as contamination.

Holding times were met and instrument tunes were acceptable.

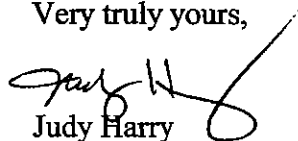
Matrix spikes of Influent show acceptable accuracy and precision. Field duplicate correlations for Effluent/DUP-A were also acceptable.

Due to the low relative response factors (RRFs) in the calibration standards, the reporting limits for acetone and 2-butanone in all of the project samples should be considered estimated ("UJ" qualifier), possibly biased low.

The laboratory Form 8A shows incorrect acceptance limits for internal standard responses. The samples met the protocol requirement.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,


Judy Harry

CAS ASP/CLP BATCHING FORM / LOGIN SHEET

SDG #: EFF
 SUBMISSION R2317079
 CLIENT: Shaw Environmental
 CLIENT REP: Janice Jaeger
 PROJECT: MRFA PROJECT #810066

BATCH COMPLETE: yes
 DISKETTE REQUESTED: Y N X
 DATE: 06/02/03
 CUSTODY SEAL: PRESENT/ABSENT:
 CHAIN OF CUSTODY: PRESENT/ABSENT:

DATE REVISED:
 DATE DUE: 06/30/03
 PROTOCOL: CLP
 SHIPPING No.:
 SUMMARY PKG: Y X N

CAS JOB #	CLIENT/EPA ID	MATRIX	REQUESTED PARAMETERS	DATE	DATE	pH	%	REMARKS
				SAMPLED	RECEIVED	(SOLIDS)	SOLIDS	
645478QC	INFLUENT	WATER	OLC2.1 VOA	5/29/03	5/31/03			
645479	EFFLUENT	WATER	OLC2.1 VOA	5/29/03	5/31/03			
645480	DUP-A	WATER	OLC2.1 VOA	5/29/03	5/31/03			
645481	TRIP BLANK	WATER	OLC2.1 VOA	5/29/03	5/31/03			
645482	COOLER BLANK	WATER	OLC2.1 VOA	5/29/03	5/31/03			

CASE NARRATIVE

COMPANY: Shaw Environmental
GE MRFA Project #810066
SUBMISSION #: R2317079

Shaw water samples were collected on 05/29/03 and received at CAS on 05/31/03 in good condition at a cooler temperature of 4 C.

VOLATILE ORGANICS

Three water samples, one cooler blank and one trip blank were analyzed for a Site Specific List of Volatiles by Low Level CLP.

All Tuning criteria for BFB were within limits.

The initial and continuing calibration criteria were met for all analytes.

All internal standard areas were within limits.

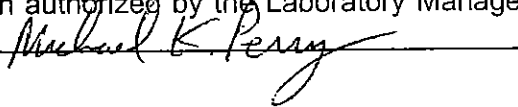
All surrogate standard recoveries were within limits.

All samples were analyzed within required holding times.

Site specific QC was performed on Influent. All MS/MSD recoveries were within limits. All Blank Spike recoveries were within limits. All RPD's were within limits.

The Laboratory Blanks associated with these samples was free of contamination except VBLK01 contained a low level hit for Chloroform. All affected data has been flagged with a "B".

No other analytical or QC problems were encountered.

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

Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

June 3, 2003

Brian Neumann
Shaw Environmental
13 British American Blvd.
Latham, NY 12110

RE: Validation of MRFA Malta Site Data Packages
CAS Sub No. DGC-35

Dear Mr. Neumann:

Review has been completed for the data packages generated by Columbia Analytical Services (CAS), pertaining to samples collected 4/9/03 through 4/14/03 at the MRFA Malta Site. Ten aqueous samples were processed by CAS-Rochester for site specific low level volatiles and perchlorate. Four of these and one additional sample were analyzed for total and hexavalent chromium and perchlorate. The perchlorate analyses were subcontracted to CAS-Kelso. Methodologies utilized are those of the USEPA OLC02.1 and 314.0. Cooler and trip blanks, and sample matrix spikes were also processed.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and the USEPA SOPs HW-2 and HW-6, as applied to the methodology. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Field Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * ICP Interference Check Standards
- * ICP Serial Dilution
- * Calibration/CRI Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, most sample processing was conducted with compliance to protocol requirements and with adherence to quality criteria, and results are usable as reported, with only minor qualification of two volatile analytes as estimated, and with one volatile detection edited to nondetection.

Copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. Data summary packages are also submitted with qualifiers applied in red ink to report forms.

Data Completeness

Data packages were complete as received, and no resubmissions were required.

Low Level Volatile Analyses by OLC02.1

Holding times were met and instrument tunes were acceptable.

As indicated by presence in the associated trip blank, detected results of chloroform in M27D and DUPA, are considered contamination, and edited to nondetection at the CRDL.

Matrix spikes of M-27S and DGC-4S show acceptable accuracy and precision. Field duplicate correlations for M-27D/DUPA were also acceptable.

Due to the low relative response factors (RRFs) in the calibration standards, the reporting limits for acetone and 2-butanone in all of the project samples should be considered estimated ("UJ" qualifier), possibly biased low.

The laboratory Form 8A shows incorrect acceptance limits for internal standard responses. The samples met the protocol requirement.

Total Chromium Analyses

Matrix spike and duplicate evaluation for M-27S shows acceptable accuracy and precision. Field duplicate correlation for M-27D/DUPA was acceptable, as was the serial dilution of M-27S..

Sample processing met protocol and validation criteria. Sample results are substantiated by raw data.

Hexavalent Chromium Analyses

Holding times and instrument response criteria were met. Accuracy and precision of M-27S and M-13S were acceptable. Field duplicate correlation for M-27D/DUPA was also acceptable.

Sample results are substantiated by raw data.

Perchlorate Analyses by EPA 314.0

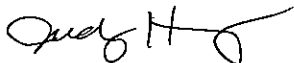
Holding times and instrument response criteria were met. Accuracy and precision of M-27S was acceptable. Processing was compliant with protocol. Field duplicate correlation for M-27D/DUPA was also acceptable.

Raw instrument output in the original data package is barely legible.

Sample results are substantiated by raw data.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,



Judy Harry

CASE NARRATIVE

COMPANY: Shaw Environmental
GE MRFA Project #810066
SUBMISSION #: R2316425

Shaw water samples were collected on 04/09-15/03 and received at CAS on 04/10-16/03 in good condition at a cooler temperature of 1-4 C.

INORGANICS

Five water samples were analyzed for Total Chromium by CLP methods and Hexavalent Chromium by 7196A.

Site specific QC was performed on M-27S. All MS and Blank spike recoveries were within limits. All RPD's were within limits.

No other analytical or QC problems were encountered.

VOLATILE ORGANICS

Ten water samples, one cooler blank and two trip blanks were analyzed for a Site Specific List of Volatiles by Low Level CLP.

All Tuning criteria for BFB were within limits.

The initial and continuing calibration criteria were met for all analytes.

All internal standard areas were within limits.

All surrogate standard recoveries were within limits.

All samples were analyzed within required holding times.

Site specific QC was performed on DGC-4S and M-27S. All MS/MSD recoveries were within limits. All Blank Spike recoveries were within limits. All RPD's were within limits.

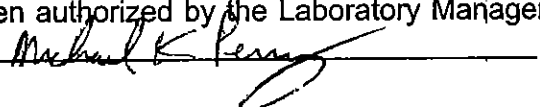
The Laboratory Blanks associated with these samples was free of contamination.

The trip blanks and cooler blank had low level hits for various analytes.

No other analytical or QC problems were encountered.

PERCHLORATE

Water samples were subcontracted to CAS-Kelso for Perchlorate analysis. Their complete data package follows.

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

APPENDIX E
AIR STRIPPER FLOW DATA

Appendix E

Air Stripper Flow Data

Date		Well #2 Flow (gal)	Well #1 Flow (gal)	Well #2 Average (gpm)	Well #1 Average (gpm)	Total Daily Average Flow (gpm)
12/24/02	Total	720	770	0.50	0.53	1.03
12/25/02	Total	620	660	0.43	0.46	0.89
12/26/02	Total	570	610	0.40	0.42	0.82
12/27/02	Total	560	610	0.39	0.42	0.81
12/28/02	Total	520	550	0.36	0.38	0.74
12/29/02	Total	580	600	0.40	0.42	0.82
12/30/02	Total	670	720	0.47	0.50	0.97
12/31/02	Total	670	720	0.47	0.50	0.97
01/01/03	Total	570	610	0.40	0.42	0.82
01/02/03	Total	780	820	0.54	0.57	1.11
01/03/03	Total	680	720	0.47	0.50	0.97
01/04/03	Total	620	670	0.43	0.47	0.90
01/05/03	Total	530	550	0.37	0.38	0.75
01/06/03	Total	770	830	0.53	0.58	1.11
01/07/03	Total	690	720	0.48	0.50	0.98
01/08/03	Total	830	890	0.58	0.62	1.19
01/09/03	Total	890	940	0.62	0.65	1.27
01/10/03	Total	780	830	0.54	0.58	1.12
01/11/03	Total	780	830	0.54	0.58	1.12
01/12/03	Total	1080	1160	0.75	0.81	1.56
01/13/03	Total	1660	1750	1.15	1.22	2.37
01/14/03	Total	1500	1600	1.04	1.11	2.15
01/15/03	Total	1710	1810	1.19	1.26	2.44
01/16/03	Total	1240	1320	0.86	0.92	1.78
01/17/03	Total	1150	1220	0.80	0.85	1.65
01/18/03	Total	520	550	0.36	0.38	0.74
01/19/03	Total	1040	1100	0.72	0.76	1.49
01/20/03	Total	1240	1320	0.86	0.92	1.78
01/21/03	Total	840	880	0.58	0.61	1.19
01/22/03	Total	780	830	0.54	0.58	1.12
01/23/03	Total	1040	1110	0.72	0.77	1.49
01/24/03	Total	1250	1320	0.87	0.92	1.78
01/25/03	Total	620	670	0.43	0.47	0.90
01/26/03	Total	570	600	0.40	0.42	0.81
01/27/03	Total	780	830	0.54	0.58	1.12
01/28/03	Total	780	830	0.54	0.58	1.12
01/29/03	Total	720	760	0.50	0.53	1.03
01/30/03	Total	810	860	0.56	0.60	1.16
01/31/03	Total	710	760	0.49	0.53	1.02
02/01/03	Total	520	540	0.36	0.38	0.74
02/02/03	Total	520	560	0.36	0.39	0.75
02/03/03	Total	940	990	0.65	0.69	1.34
02/04/03	Total	830	880	0.58	0.61	1.19
02/05/03	Total	730	780	0.51	0.54	1.05

Appendix E

Air Stripper Flow Data

Date		Well #2 Flow (gal)	Well #1 Flow (gal)	Well #2 Average (gpm)	Well #1 Average (gpm)	Total Daily Average Flow (gpm)
02/06/03	Total	780	830	0.54	0.58	1.12
02/07/03	Total	1140	1210	0.79	0.84	1.63
02/08/03	Total	1410	1490	0.98	1.03	2.01
02/09/03	Total	1880	2010	1.31	1.40	2.70
02/10/03	Total	1580	1670	1.10	1.16	2.26
02/11/03	Total	780	830	0.54	0.58	1.12
02/12/03	Total	730	780	0.51	0.54	1.05
02/13/03	Total	1240	1320	0.86	0.92	1.78
02/14/03	Total	1760	1870	1.22	1.30	2.52
02/15/03	Total	570	610	0.40	0.42	0.82
02/16/03	Total	560	580	0.39	0.40	0.79
02/17/03	Total	660	710	0.46	0.49	0.95
02/18/03	Total	780	830	0.54	0.58	1.12
02/19/03	Total	830	880	0.58	0.61	1.19
02/20/03	Total	1040	1100	0.72	0.76	1.49
02/21/03	Total	880	940	0.61	0.65	1.26
02/22/03	Total	620	660	0.43	0.46	0.89
02/23/03	Total	1100	1160	0.76	0.81	1.57
02/24/03	Total	2790	2970	1.94	2.06	4.00
02/25/03	Total	1090	1150	0.76	0.80	1.56
02/26/03	Total	1090	1170	0.76	0.81	1.57
02/27/03	Total	940	990	0.65	0.69	1.34
02/28/03	Total	1080	1160	0.75	0.81	1.56
03/01/03	Total	520	550	0.36	0.38	0.74
03/02/03	Total	580	620	0.40	0.43	0.83
03/03/03	Total	680	720	0.47	0.50	0.97
03/04/03	Total	1100	1160	0.76	0.81	1.57
03/05/03	Total	1140	1220	0.79	0.85	1.64
03/06/03	Total	1350	1430	0.94	0.99	1.93
03/07/03	Total	1560	1660	1.08	1.15	2.24
03/08/03	Total	1040	1110	0.72	0.77	1.49
03/09/03	Total	1530	1630	1.06	1.13	2.19
03/10/03	Total	2990	3180	2.08	2.21	4.28
03/11/03	Total	1400	1490	0.97	1.03	2.01
03/12/03	Total	1450	1540	1.01	1.07	2.08
03/13/03	Total	1710	1820	1.19	1.26	2.45
03/14/03	Total	2470	2630	1.72	1.83	3.54
03/15/03	Total	7710	8200	5.35	5.69	11.05
03/16/03	Total	7830	8330	5.44	5.78	11.22
03/17/03	Total	3940	4200	2.74	2.92	5.65
03/18/03	Total	2120	2230	1.47	1.55	3.02
03/19/03	Total	1630	1750	1.13	1.22	2.35
03/20/03	Total	1820	1920	1.26	1.33	2.60
03/21/03	Total	1670	1800	1.16	1.25	2.41

Appendix E

Air Stripper Flow Data

Date		Well #2 Flow (gal)	Well #1 Flow (gal)	Well #2 Average (gpm)	Well #1 Average (gpm)	Total Daily Average Flow (gpm)
03/22/03	Total	2000	2100	1.39	1.46	2.85
03/23/03	Total	2090	2200	1.45	1.53	2.98
03/24/03	Total	2170	2300	1.51	1.60	3.10
03/25/03	Total	2250	2390	1.56	1.66	3.22
03/26/03	Total	2370	2510	1.65	1.74	3.39
03/27/03	Total	2420	2560	1.68	1.78	3.46
03/28/03	Total	2210	2350	1.53	1.63	3.17
03/29/03	Total	2200	2330	1.53	1.62	3.15
03/30/03	Total	2160	2290	1.50	1.59	3.09
03/31/03	Total	2500	2650	1.74	1.84	3.58
04/01/03	Total	2300	2440	1.60	1.69	3.29
04/02/03	Total	2470	2630	1.72	1.83	3.54
04/03/03	Total	2770	2940	1.92	2.04	3.97
04/04/03	Total	2080	2200	1.44	1.53	2.97
04/05/03	Total	1970	2090	1.37	1.45	2.82
04/06/03	Total	1950	2080	1.35	1.44	2.80
04/07/03	Total	1620	1710	1.13	1.19	2.31
04/08/03	Total	690	720	0.48	0.50	0.98
04/09/03	Total	620	670	0.43	0.47	0.90
04/10/03	Total	1190	1250	0.83	0.87	1.69
04/11/03	Total	4690	4970	3.26	3.45	6.71
04/12/03	Total	2380	2530	1.65	1.76	3.41
04/13/03	Total	2160	2290	1.50	1.59	3.09
04/14/03	Total	1970	2080	1.37	1.44	2.81
04/15/03	Total	3410	3610	2.37	2.51	4.88
04/16/03	Total	1960	2070	1.36	1.44	2.80
04/17/03	Total	3800	4030	2.64	2.80	5.44
04/18/03	Total	3180	3380	2.21	2.35	4.56
04/19/03	Total	2570	2730	1.78	1.90	3.68
04/20/03	Total	2560	2700	1.78	1.88	3.65
04/21/03	Total	2630	2790	1.83	1.94	3.76
04/22/03	Total	3390	3590	2.35	2.49	4.85
04/23/03	Total	3080	3270	2.14	2.27	4.41
04/24/03	Total	2960	3160	2.06	2.19	4.25
04/25/03	Total	4050	4290	2.81	2.98	5.79
04/26/03	Total	4240	4510	2.94	3.13	6.08
04/27/03	Total	4190	4450	2.91	3.09	6.00
04/28/03	Total	4340	4600	3.01	3.19	6.21
04/29/03	Total	4200	4460	2.92	3.10	6.01
04/30/03	Total	5380	5720	3.74	3.97	7.71
05/01/03	Total	1500	1590	1.04	1.10	2.15
05/02/03	Total	1430	1510	0.99	1.05	2.04
05/03/03	Total	880	930	0.61	0.65	1.26
05/04/03	Total	930	980	0.65	0.68	1.33

Appendix E

Air Stripper Flow Data

Date		Well #2 Flow (gal)	Well #1 Flow (gal)	Well #2 Average (gpm)	Well #1 Average (gpm)	Total Daily Average Flow (gpm)
05/05/03	Total	1130	1200	0.78	0.83	1.62
05/06/03	Total	1640	1740	1.14	1.21	2.35
05/07/03	Total	1020	1090	0.71	0.76	1.47
05/08/03	Total	1330	1400	0.92	0.97	1.90
05/09/03	Total	1800	1900	1.25	1.32	2.57
05/10/03	Total	2310	2440	1.60	1.69	3.30
05/11/03	Total	2250	2380	1.56	1.65	3.22
05/12/03	Total	2050	2170	1.42	1.51	2.93
05/13/03	Total	1230	1310	0.85	0.91	1.76
05/14/03	Total	1390	1470	0.97	1.02	1.99
05/15/03	Total	1230	1300	0.85	0.90	1.76
05/16/03	Total	1180	1250	0.82	0.87	1.69
05/17/03	Total	820	870	0.57	0.60	1.17
05/18/03	Total	630	660	0.44	0.46	0.90
05/19/03	Total	1280	1360	0.89	0.94	1.83
05/20/03	Total	1810	1920	1.26	1.33	2.59
05/21/03	Total	5720	6070	3.97	4.22	8.19
05/22/03	Total	13140	12230	9.13	8.49	17.62
05/23/03	Total	20740	17000	14.40	11.81	26.21
05/24/03	Total	20750	17020	14.41	11.82	26.23
05/25/03	Total	4760	4330	3.31	3.01	6.31
05/26/03	Total	1880	2040	1.31	1.42	2.72
05/27/03	Total	7320	6890	5.08	4.78	9.87
05/28/03	Total	2260	2430	1.57	1.69	3.26
05/29/03	Total	7970	7070	5.53	4.91	10.44
05/30/03	Total	20930	17240	14.53	11.97	26.51
05/31/03	Total	5310	4630	3.69	3.22	6.90
06/01/03	Total	1260	1330	0.88	0.92	1.80
06/02/03	Total	2060	2180	1.43	1.51	2.94
06/03/03	Total	2200	2340	1.53	1.63	3.15
06/04/03	Total	2180	2310	1.51	1.60	3.12
06/05/03	Total	1840	1950	1.28	1.35	2.63
06/06/03	Total	2270	2400	1.58	1.67	3.24
06/07/03	Total	2500	2660	1.74	1.85	3.58
06/08/03	Total	2430	2590	1.69	1.80	3.49
06/09/03	Total	3550	3770	2.47	2.62	5.08
06/10/03	Total	2460	2640	1.71	1.83	3.54
06/11/03	Total	2100	2230	1.46	1.55	3.01
06/12/03	Total	2030	2180	1.41	1.51	2.92
06/13/03	Total	2710	2910	1.88	2.02	3.90
06/14/03	Total	1680	1790	1.17	1.24	2.41
06/15/03	Total	1510	1620	1.05	1.13	2.17
06/16/03	Total	2210	2350	1.53	1.63	3.17
06/17/03	Total	1890	2020	1.31	1.40	2.72

Appendix E

Air Stripper Flow Data

Date		Well #2 Flow (gal)	Well #1 Flow (gal)	Well #2 Average (gpm)	Well #1 Average (gpm)	Total Daily Average Flow (gpm)
06/18/03	Total	1900	2040	1.32	1.42	2.74
06/19/03	Total	2260	2410	1.57	1.67	3.24
06/20/03	Total	2640	2830	1.83	1.97	3.80
06/21/03	Total	1590	1690	1.10	1.17	2.28
06/22/03	Total	1430	1530	0.99	1.06	2.06
06/23/03	Total	2210	2360	1.53	1.64	3.17
06/24/03	Total	2260	2420	1.57	1.68	3.25
06/25/03	Total	2980	2980	2.07	2.07	4.14
06/26/03	Total	2260	2410	1.57	1.67	3.24
Grand Total		410180	414790	1.540	1.557	3.097