GZA
GeoEnvironmental, Inc.

Engineers and Scientists

July 19, 2005
File No. 32419.02

Mr. James Brown
Remedial Project Manager
US Environmental Protection Agency
1 Congress Street
HBO - Suite 1100
Boston, Massachusetts 02116

Re: Calgon Rayox Bench Scale Treatability Study
Central Landfill
Johnston, Rhode Island

140 Broadway
Providence
Rhode Island 02903
401-421-4140
FAX 401-751-8613
www.gza.net

Dear Jim:

This letter and attachments provides the results of a bench scale treatability study conducted by Calgon Carbon Corporation (Calgon) in conjunction with GZA GeoEnvironmental, Inc. (GZA). The work was conducted on behalf of the Rhode Island Resource Recovery Corporation (RIRRC) to address the requirements of Section V, Subsection A, Paragraph 1e, of the October 2, 1996 Superfund Consent Decree Scope of Work (CD/SOW). The testing and evaluation were conducted in accordance with the procedures provided in our ***Revised Hot Spot Pilot Test Work Plan*** dated September 10, 2004.

PRELIMINARY BENCH SCALE TREATABILITY TEST – JANUARY 13, 2005

The initial set (six 5-gallon polyethylene collapsible totes) of Hot Spot groundwater samples for ultraviolet oxidation (UV/Oxidation) treatability analysis were collected by GZA personnel on January 13, 2005. Samples were collected directly from the effluent discharge pipe from the submersible pump located in well MW03-ML11, ahead of any treatment system components. These samples were packed with dry ice and shipped via overnight carrier under chain-of-custody to Calgon's research facility in Pittsburg, Pennsylvania.

The samples were collected following approximately four weeks of continuous pumping performed as part of a groundwater quality stabilization evaluation and is considered representative of typical groundwater concentrations. GZA collected a split of the sample for chemical characterization to insure that the water sample was representative of stabilized water quality from the Hot Spot extraction well. Analysis consisted of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) priority pollutant-13 metals, alkalinity, hardness, total cyanide, nitrate, sulfate, oil & grease, total suspended solids (TSS), total dissolved solids (TDS) and chloride. The results of this testing are included in Appendix A and show that total VOC concentrations were 39,600 parts per billion (ppb). This organic contaminant concentration compares favorably with weekly VOC influent testing results recorded between September 28, 2004 (the start of the temporary Hot Spot pump and treat system) and June 27, 2005. These results are presented graphically for total VOC concentrations and the two primary organic contaminants, chlorobenzene and dichlorobenzenes (i.e., 1, 2-dichlorobenzene and 1, 4-dichlorobenzene), on Graphs 1 though 4.

Calgon began the bench scale treatability test by filtering the sample through a 10 micron (μm) filter on February 15. The UV/Oxidation test was run for 48 hours beginning on February 16. Calgon collected samples for characterization prior to, and following, filtration. This testing showed that VOC concentrations had decreased from 39,600 ppb to 7,124.2 ppb, a decrease of 82%, as a result of sample transportation, handling and storage between the January 13 sampling date and the beginning of the test on February 15. Additional VOCs losses as a result of filtration were not noted by Calgon during the preliminary test.

The results of Calgon's initial test are presented on Table 1. As shown, they were able to meet the sewer authority's total toxic organics (TTO) discharge criteria of 2.13 parts per million (ppm) for each test run. However, due to the significant hold time of the sample between collection and testing (35 days), and the resulting loss of VOCs we did not feel that the test was representative of conditions that would be observed during full scale field implementation. We also had concerns about: 1) how representative the iron concentration was of the overall Hot Spot groundwater conditions as iron concentrations can have a significant impact on the efficiency of the UV/Oxidation process; and 2) the apparent generation of acetone during the treatment process. For these reasons, we asked Calgon to conduct another test with a commitment to run the samples upon their receipt, that test is described in the following section.

FINAL BENCH SCALE TREATABILITY TEST – MARCH 21, 2005

The second set (six 5-gallon polyethylene collapsible totes) of Hot Spot groundwater samples for UV/Oxidation treatability analysis was collected by GZA personnel on March 21, 2005. Again, samples were collected directly from the effluent discharge pipe from the submersible pump located in well MW03-ML11, ahead of any treatment system components. The samples were packed on ice and shipped via overnight carrier under chain-of-custody to Calgon's research facility in Pittsburg, Pennsylvania.

Again, GZA collected a split of the sample for chemical characterization to insure that the water sample was representative of stabilized water quality from the Hot Spot extraction well. Analysis was conducted by Mitkem Corporation of Warwick, Rhode Island and consisted of VOCs, total iron and total arsenic. The results of this testing are included in Appendix A and show that total volatile organic compound (VOC) concentrations were 53,000 (ppb). This organic contaminant concentration compares favorably with weekly VOC influent testing results (see Graphs 1 through 4). The total iron concentration was 5.1 ppm and arsenic was non-detected (ND).

Again, Calgon began their bench scale treatability test by filtering the sample through a 10 micron (μm) filter. The UV/Oxidation test was then run for 48 hours. Calgon's testing methodology and findings are provided in their report ***Design Test Report on the Rayox® Treatment of VOCs at the Central Landfill Site*** dated July 19, 2005 and attached as Appendix B.

Similar to the first, Calgon collected samples for characterization prior to, and following, filtration. This testing showed that VOC concentrations had decreased from 53,000 ppb to 23,192.69 ppb (a decrease of 56.2%), as a result of sample transportation, handling and storage between their collection on March 21 and the beginning of the test approximately 48 hours later. An additional VOC loss of 46.6% (down to a VOC concentration of 12,381.69 ppb) as a result of pretreatment (i.e., 10 μm filtration) was noted by Calgon during the second test.

The results of Calgon's second test are presented on the table on page 12 of their report. As shown, they were able to meet the sewer authority's total toxic organics (TTO) discharge criteria of 2.13 parts per million (ppm) for seven of nine test runs. Destruction efficiencies for the nine test runs ranged from 8% (sample 1-1) to 97.7% (sample 3-3), note this was from an initial concentration 12,382 ppb not the 53,000 ppb observed in the field. Only one run produced a destruction efficiency greater than the 96% required to reduce VOC concentrations from 53 ppm to 2.13 ppm.

Calgon summarized their findings as follows:

- At design influent levels [50 to 96 ppm total VOC concentration was the target established by GZA based on current and historic testing from wells within the Hot Spot], UV/Oxidation using hydrogen peroxide is effective in reducing target VOCs to below the permitted [POTW] level of 2.13 ppm. However, acetone, also measured using EPA Methods 8260 and 8270, is produced as an intermediate and will tend to increase the concentration of VOC measured by the targeted methods.

- A 60 kW Rayox system is required to meet treatment requirements in the water sent by GZA at a flow rate of 3.5 gallons per minute (gpm).

- The above system [Rayox unit only] can be purchased for $123,450. Operating costs will be approximately $75,000 per year, including peroxide dosage, lump replacement and power costs (assuming $0.095/kWh). [Note, the costs provided by Calgon reflect only a portion of the capital and operating and maintenance costs required for full scale system implementation. See the cost section below for more detailed information.]

- A pilot study is encouraged to :
    1. determine system sensitivity to organic loading and acetone production
    2. compare effectiveness of batch-recycle operation at 15 gpm to flow-through operation at 3.5 gpm
    3. evaluate the temperature rise in the system through both operational modes.

DISCUSSION

Calgon recommends that the flow rate through the UV/Oxidation system should be 15 gpm. Based on the results of the design test, Calgon also recommends that the 15 gpm flow should pass through the UV/Oxidation system 4.3 times. In order to achieve these conditions, water from the Hot Spot extraction well would have to be stored in an equalization tank for approximately 24 hours prior to treatment. The stored water would then pass through a pretreatment system prior to being treated in the UV/Oxidation system. VOC losses will occur during these storage and pretreatment processes.

The concentration of iron in the extracted groundwater from the Hot Spot is approximately 5 ppm, which is close to the level at which Calgon would recommend pretreatment to remove iron. Calgon's pre-filtering of the water sample through a 10 micron filter during their test reduced the iron concentration to approximatley 1 ppm. Calgon's design test findings are based on a 1 ppm iron concentration. The iron reduction from 5 ppm to 1 ppm may not occur during the full scale UV/Oxidation system. If the iron levels have to be reduced by precipitation methods prior to treatment with the UV/Oxidation system, then additional VOC losses may occur prior to destruction. Based on available data for wells proximate to the Hot Spot (1989-2005), total iron

concentrations range from 0.068 ppm (MW03-ML12B, 12/22/2004) to 297 ppm (MW090-24B, 8/30/90). The average iron concentration for these wells is on the order of 29.47 ppm.

Calgon notes that there is high UV absorbance by competing non-target constituents resulting in a decrease in treatment efficiency. This was overcome by increasing the peroxide concentration and UV dose. Reducing these interferences to optimize treatment efficiency will likely require additional pretreatment resulting in further organic losses prior to their destruction.

Calgon's design test report revealed that the UV/Oxidation process will temporarily generate acetone which may require additional treatment prior to discharge from the system.

Calgon's recommendation that the 15 gpm flow be processed 4.3 times prior to discharge will require 23 hours per day of operation of the treatment plant. Consequently, the UV/Oxidation system proposed by Calgon may not be capable of handling flow rates in excess of the current 3.5 gpm design flow. As such, if an additional pumping well(s) becomes necessary to achieve full containment of the Hot Spot, a larger treatment system will be required.

Lastly, we note that the UV lights will increase the temperature of the treated groundwater to approximately 170 degrees Fahrenheit, which is only slightly less than the alarm level of 180 degrees Fahrenheit that will be set on the full scale UV/Oxidation system. As such, an additional cooling system may be required that has not been accounted for in our cost estimates.

On May 26, 2005 GZA was onsite to collect a composite sample of used pre-filter waste for disposal characterization. An approximately 1-inch square of pre-filer fabric was cut from each pre-filter along with the associated sediment. The materials were homogenized in a clean steel bowl, containerized in amber jars, placed in an ice-filled cooler, and delivered to Mitkem Laboratories of Warwick, Rhode Island.

The sample was subjected to the following analyses: TCLP Volatile Organic Compounds, TCLP Semi-Volatile Organic Compounds, TCLP Pesticides, TCLP Metals, Total Petroleum Hydrocarbons, and TCLP Herbicides. The results were then compared to the EPA Maximum Concentration of Contaminants for the Toxicity Characteristic (for landfill disposal). No exceedances were noted, as such, waste filter media may be disposed of as a solid waste. Refer to Appendix C for specific analytical values.

FIELD PILOT STUDY DETAILS AND COST ESTIMATE

We worked with representatives at Calgon to develop a field pilot test program that would be needed to address the outstanding technical issues identified above before a full scale system could be fully designed. Their proposal, which outlines the process, major equipment and cost, is provided in Appendix D.

As described in Appendix D, the field pilot test would be run for a period of two months, with a two week mobilization and startup period, and one week knock-down and demobilization period. The costs associated with this field study are as follows:

1.	3 Month Rental of Calgon 60kW Rayox Unit	$ 22,500
2.	Lamps for Rayox Unit	$ 5,000
3.	Calgon's Mobilization/demobilization	$ 9,500
4.	1 Week of Calgon's On-Site Assistance	$ 4,200
5.	Temporary Treatment System Building	$ 15,000

6.	Tanks, Pumps, Controls and Installation	$ 25,000
7.	Electrical System Components and Installation	$ 10,000
8.	3 Months of GZA's Installation, Oversight, System Operation and Reporting	$ 72,000
9.	Analytical Testing	$ 15,000
	Total Field Pilot Study Cost Estimate	**$178,200**

This cost estimate assumes that: 1) the test is conducted in the summer/fall months while the weather is suitable for use of a temporary steel structure with a slab-on-grade concrete floor slab; and 2) the existing electrical supply provided to the existing temporary treatment shed is sufficient to power the Rayox system.

FULL SCALE UV/OXIDATION SYSTEM IMPLEMENTATION

We prepared the following preliminary cost estimate for collection and treatment of groundwater associated with the Hot Spot Hydrodynamic Containment System using Calgon's Rayox System. We utilized information from Calgon's July 19, 2005 Bench Scale Design Test Report for pricing the major treatment components. The prices provided are based on a pumping rate of 3 to 4 gallons per minute, higher flows may significantly increase the overall project cost.

Capitol Equipment and Installation Cost Components

10.	Calgon 60kW Rayox Unit	$124,000
11.	Storage Tank, Transfer Pumps and Controls	$100,000
12.	Pretreatment System (10 μm filtration only)	$ 10,000
13.	Treatment System Building/Addition	$150,000
14.	Wastewater Conveyance Line (2,200 ft. est.)	$240,000
15.	Pump System, Compressor, and Controls	$ 20,000
16.	Backup Pump System	$ 10,000
17.	Power Supply Upgrades	$ 30,000
	Total Capitol Cost Estimate	**$684,000**

Annual Operation and Maintenance Cost Components

1.	Peroxide, Lamp Replacement and Power	$ 80,000
2.	Treatment Plant Operator (8 hrs./day, 7 days/wk)	$120,000
3.	Pump, Compressor and Filter Repairs/Replacement	$ 40,000
4.	Sewer Use and Testing FeesAddition	$ 30,000
	Total Annual O&M Cost Estimate	**$270,000**

Using an operational period of 30 years and a discount rate of 7% results in a present worth cost of $3,350,000 for operation and maintenance.

Thus the total estimated cost for implementation of this option would be on the order of $4,050,000.

CONCLUSION AND RECOMMENDATION

The concentration of total VOCs in the extracted groundwater from the Hot Spot is approximately 53 ppm. The concentration of the water sample that was received by Calgon one day after sample collection was 23 ppm, a decrease of approximately 50%. Calgon filtered the water sample through a 10-micron filter (prior to their design test) and the concentration of total VOCs decreased another 50% to 12 ppm. This demonstrates that a significant loss of VOCs occured prior to contaminant destruction by the UV/Oxidation system.

Although Calgon states that they do not expect such a significant decrease in total VOC concentrations prior to UV/Oxidation treatment in the full scale system, we believe that it will continue to occur. The full-scale system will lose VOCs prior to treatment due to three primary factors: 1) transport of the pumped water approximately 2,200 feet from the extraction well to the anticipated point of treatment adjacent to the existing pretreatment facility (this location was selected due to the availability of necessary infrastructure – electric, sewer, etc. – and the fact that the Phase VI Landfill will occupy the areas in closer proximity to the extraction well); 2) storage of the extracted water for up to 24 hours in an equalization tank while it awaits batch treatment – Calgon's recommended mode of operation; and 3) losses due to pretreatment which may include simple filtration or more elaborate methods of inorganics removal to reduce observed interferences and improve the efficiency of the UV/Oxidation process.

The capital cost of the UV/Oxidation system is estimated at $684,000 with and annual cost of $270,000 for system operation and maintenance. We do not believe that this cost is justified given the fact that less than 0.34 tons of VOCs (predominantly chlorobenzene and 1,2-dichlorobenzene) will be removed each year at the anticipated system flow rate of 3.5 gpm. This results in a treatment cost of $386 per pound of VOCs removed or approximately $250,000 per 55-gallon drum of solvent removed. Because of these high costs and anticipated operational difficulties we recommend no further evaluation of the UV/Oxidation system at this time. This is also because other options under evaluation (i.e., direct discharge to the on-site pretreatment system and subsequent discharge to the City of Cranston Publicly Owned Treatment Works) appear more cost effective and less problematic. If other options are ultimately ruled out then a field pilot study would be necessary to address the issues associated with UV/Oxidation treatment.

We trust you will find this information useful and look forward to discussing it with you. Should you have any questions or comments please feel free to contact Ed or Meg at (401) 421-4140.

Very Truly Yours,

GZA GEOENVIROMENTAL, INC.

Margaret Kilpatrick, P.E.
Project Manager

Michael A. Powers, P.E.
Project Reviewer

Edward A. Summerly, P.G.
Associate Principal

Attachments: Tables 1 and Graphs 1- 4
Appendix A – Influent Analytical Results
Appendix B – Calgon's Final Bench Scale Treatability Study Report
Appendix C – Waste Filter Media Results
Appendix D – Field Pilot Test Overview

CC: Claude Cote, RIRRC
William Anderson, RIRRC
Gary Jabolnski, RIDEM
Ed Conroy, M&E

J:\CLF\32419-02.msk\Bench Scale Test\GZA Report\32419.02-let.1.rtf

TABLES AND GRAPHS

TABLE 1

SUMMARY OF CALGON'S FEBRUARY 16, 2005 BENCH SCALE TREATABILITY TEST

Central Landfill - OU1 RD/RA
Johnston, Rhode Island

	Species	Untreated Level [ug]	Filtered Level [ug]	1-1 Level [ug]	1-2 Level [ug]	1-3 Level [ug]
8260B	Acetone	-	-	250	370	640
	2-butanone	-	-	50	39	-
	Chlorobenzene	5400	6000	140	8.3	-
	Chloroethane	-	-	-	-	-
	1,1 DCA	-	-	-	3.9	-
	Methylene chloride	110	140	80	76	59
	4 methyl-2-pentanone	-	-	-	-	-
	1,1,1 TCA	-	-	4.3	3.2	-
	1,1,2 TCA	-	-	1.6	1.5	-
8270	4 bromophenyl phenyl ether	-	-	2.2	-	-
	Carbazole	18	14	-	-	-
	2-Chlorophenol	61	68	97	2.2	-
	1,2 dichlorobenzene	1400	1400	60	4.4	0.58
	1,3 dichlorobenzene	8.2	8	-	-	-
	1,4 dichlorobenzene	55	52	2	-	-
	2,4 Dichlorophenol	-	-	42	-	-
	Dimethyl Phthalate	15	16	1.4	-	-
	Di-n-butyl phthalate	-	-	1.2	1.3	-
	Nitrobenzene	57	64	12	-	-
	Phenol	-	2.6	6.4	-	-
	Total [ppb]	7124.2	7764.6	750.1	509.8	699.58
	Metals					
SW846 6010B	Silver	2.8	3.1			3.2
	Aluminum	76.5	68.9			83
	Arsenic	-	3.7			-
	Barium	611	592			89.8
	Beryllium	10.2	10.2			10.1
	Calcium	136000	131000			141000
	Cadmium	0.81	0.88			1
	Cobalt	4.7	4.4			5.1
	Chromium	6	6.2			10.5
	Copper	-	-			18.9
	Iron	527	1180			602
	Potassium	48700	46400			53900
	Magnesium	59000	56500			60200
	Manganese	20900	19500			21200
	Sodium	239000	228000			575000
	Nickel	41.8	41.3			47
	Lead	-	3.6			1.7
	Vanadium	3	3.2			2.3
	Zinc	1070	1030			1150
	PCB's					
SW846 8082	Araclor 1016	-	-	-		
	Araclor 1221	-	-	-		
	Araclor 1232	-	-	-		
	Araclor 1242	-	-	-		
	Araclor 1248	-	-	-		
	Araclor 1254	-	-	-		
	Araclor 1260	-	-	-		
	Total [ppb]	0	0	0		
	General Chemistry					
	COD [ppm]	252	428	305	329	261
	Cyanide	8	6	13	-	8
	O&G [ppm]	4	3.6			2.6
	Total Recoverable Phenolics [ppm]	0.064	0.062	0.13	0.04	0.022

TABLE 1

SUMMARY OF CALGON'S FEBRUARY 16, 2005 BENCH SCALE TREATABILITY TEST

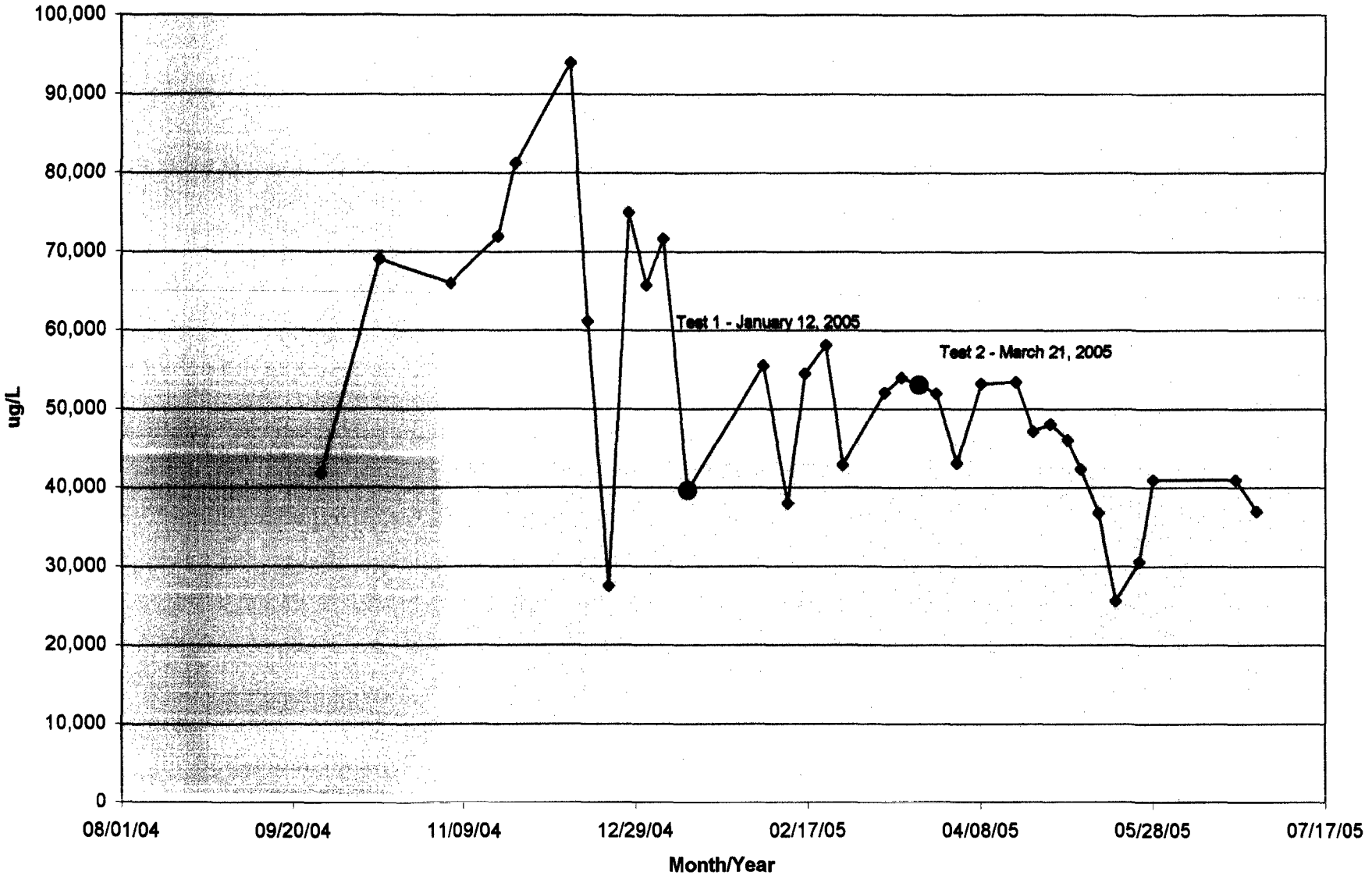
Central Landfill - OU1 RD/RA
Johnston, Rhode Island

	Species	2-1 Level [ug]	2-2 Level [ug]	2-3 Level [ug]	3-1 Level [ug]	3-2 Level [ug]	3-3 Level [ug]
8260B	Acetone	490	950	1100	480	910	1000
	2-butanone	40	48	26	39	36	-
	Chlorobenzene	200	7.8	-	84	4.9	-
	Chloroethane	-	-	-	7.5	-	-
	1,1 DCA	-	-	-	3.8	-	-
	Methylene chloride	62	45	47	85	66	65
	4 methyl-2-pentanone	-	-	-	5.2	-	-
	1,1,1 TCA	-	-	-	-	-	-
	1,1,2 TCA	-	-	-	4.5	-	-
8270	4 bromophenyl phenyl ether	-		-	-	-	-
	Carbazole	-		-	-	-	-
	2-Chlorophenol	110	2.2	-	74	0.54	-
	1,2 dichlorobenzene	78	4.1	0.75	50	4.4	0.62
	1,3 dichlorobenzene	-	-	-	-	-	-
	1,4 dichlorobenzene	2.5	-	-	1.4	-	-
	2,4 Dichlorophenol	34	-	-	30	-	-
	Dimethyl Phthalate	-	-	-	2.6	-	-
	Di-n-butyl phthalate	-	1.8	1.5	3	2.9	2.2
	Nitrobenzene	9.8	-	-	8	-	-
	Phenol	4.9	-	-	2.1	-	-
	Total [ppb]	1031.2	1058.9	1175.25	880.1	1024.74	1067.82
	Metals						
SW846 6010B	Silver			3			2.8
	Aluminum			55.4			71
	Arsenic			-			-
	Barium			70			70.1
	Beryllium			8.2			10.2
	Calcium			132000			129000
	Cadmium			-			-
	Cobalt			6.6			4.9
	Chromium			10			9.1
	Copper			7.9			4.7
	Iron			621			689
	Potassium			69900			53600
	Magnesium			70000			54200
	Manganese			21200			18900
	Sodium			797000			950000
	Nickel			54.7			43.2
	Lead			1.6			2
	Vanadium			5.4			2.3
	Zinc			827			1040
	PCB's						
SW846 8082	Aroclor 1016	-			-		
	Aroclor 1221	-			-		
	Aroclor 1232	-			-		
	Aroclor 1242	-			-		
	Aroclor 1248	-			-		
	Aroclor 1254	-			-		
	Aroclor 1260	-			-		
	Total [ppb]	0			0		
	General Chemistry						
	COD [ppm]	393	152	155	134	118	95.4
	Cyanide	15	5	15	20	21	12
	O&G [ppm]			-			-
	Total Recoverable Phenolics [ppm]	0.15	0.03	0.015	0.079	0.016	-
	TSS [ppm]			-			-

GRAPH 1
TOTAL VOLATILE ORGANICS - MW03ML11 INFLUENT

Original includes color coding.

Central Landfill - OU1 RD/RA
Johnston, Rhode Island

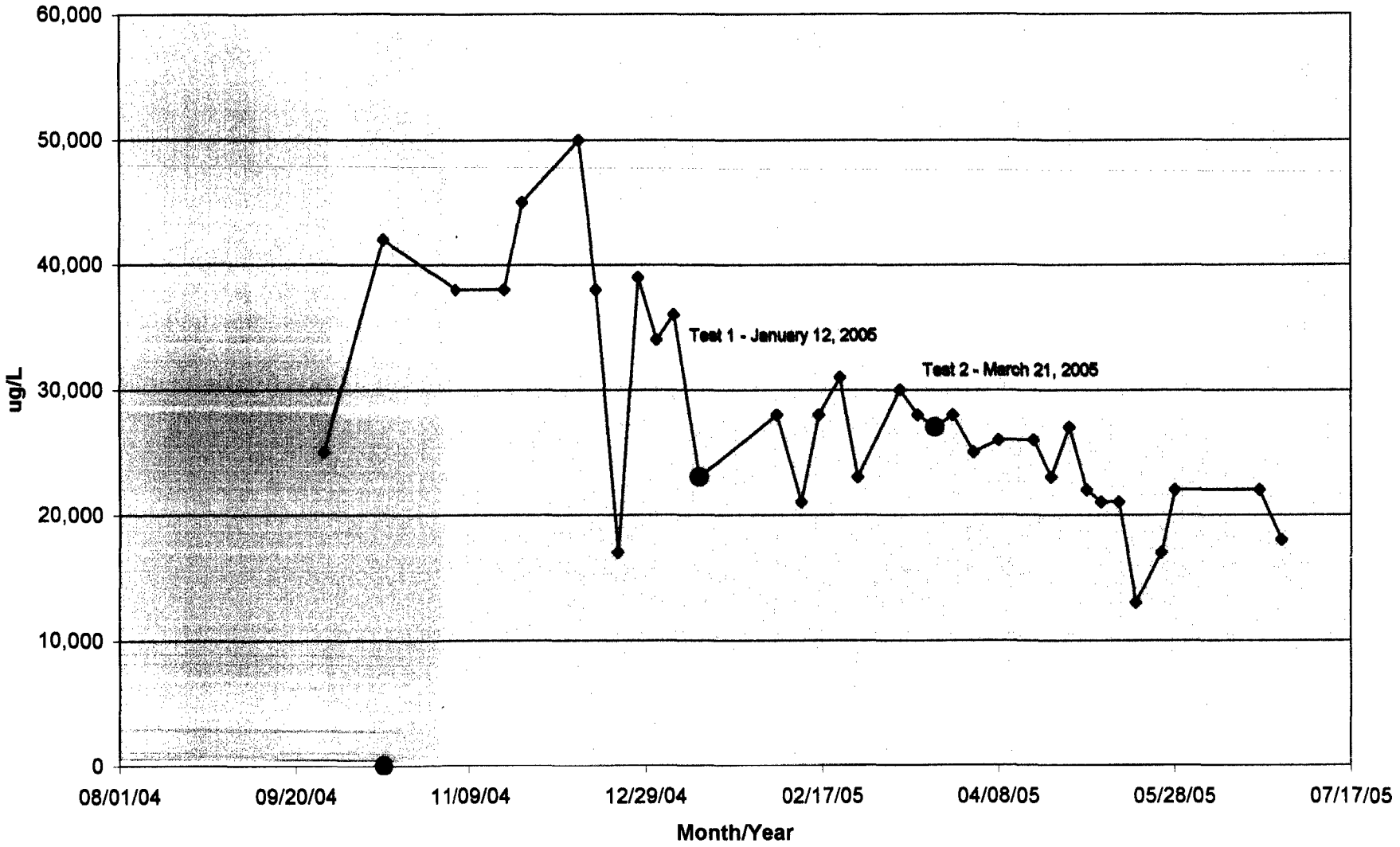


GRAPH 2

CHLOROBENZENE CONCENTRATIONS - MW03ML11 INFLUENT

Original includes color coding.

Central Landfill - OU1 RD/RA
Johnston, Rhode Island

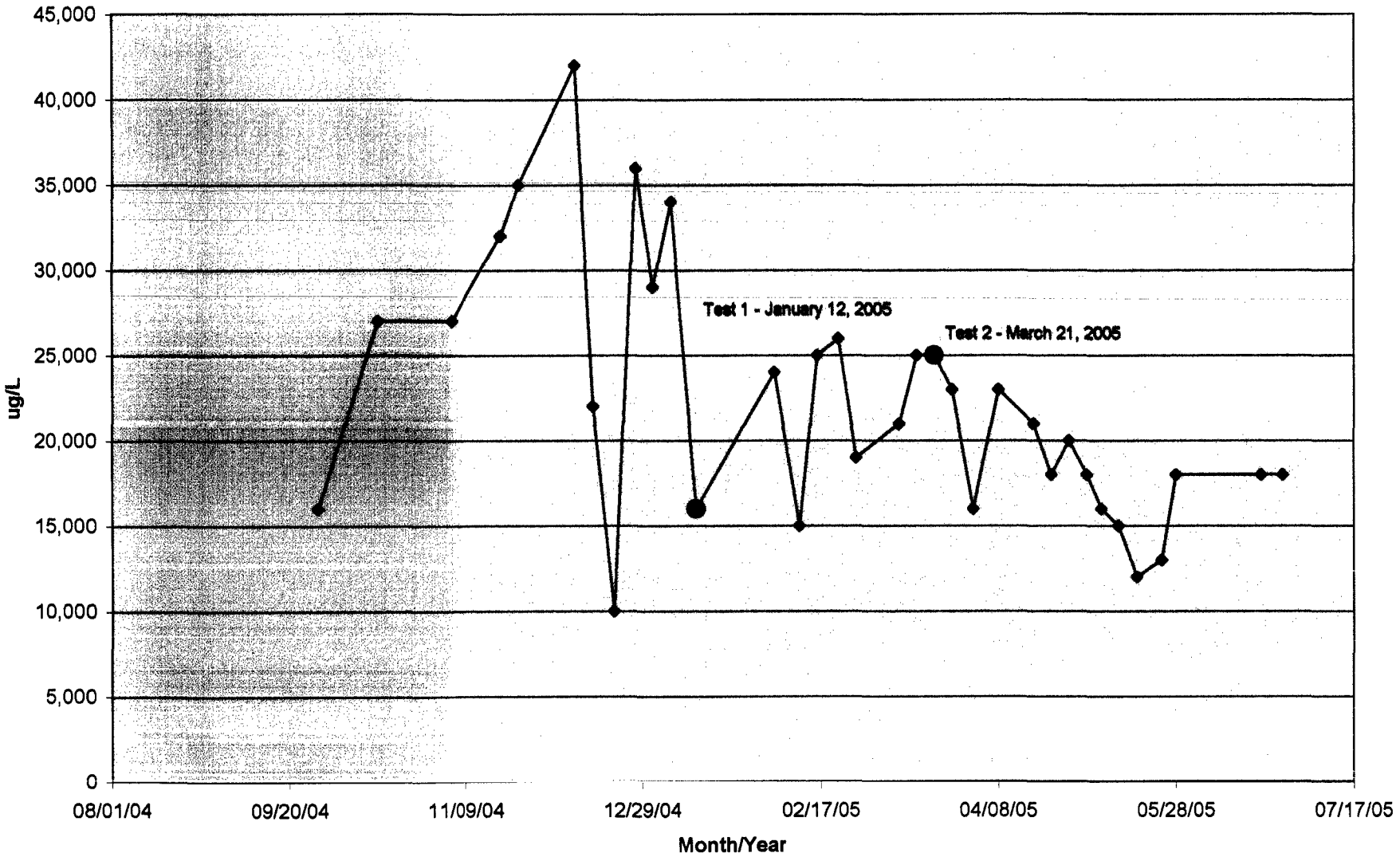


GRAPH 3

1,2-DICHLOROBENZENE - MW03ML11 INFLUENT

Original includes color coding.

Central Landfill - OU1 RD/RA
Johnston, Rhode Island

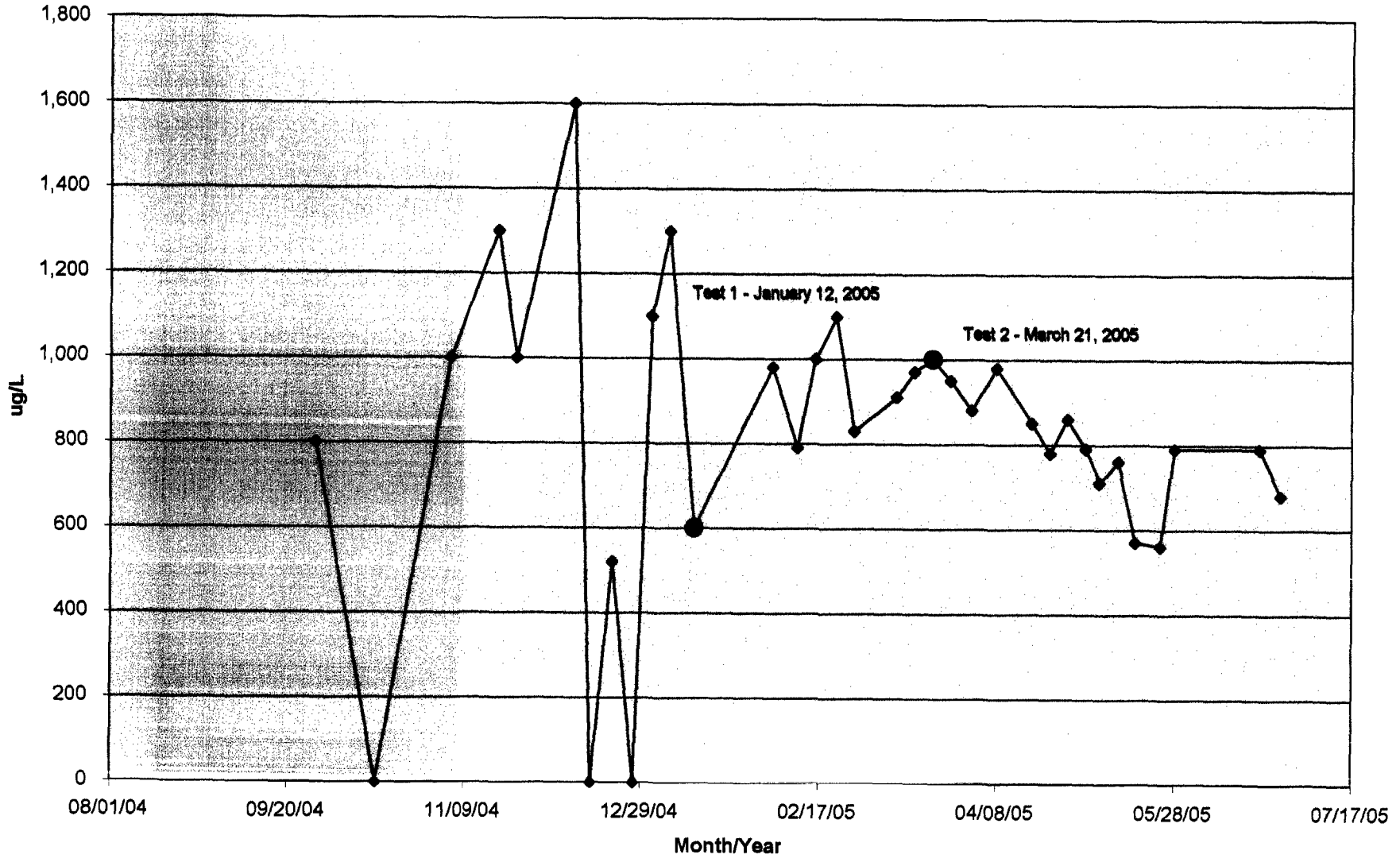


GRAPH 4

1,4 - DICHLOROBENZENE - MW03ML11 INFLUENT

Original includes color coding.

Central Landfill - OU1 RD/RA
Johnston, Rhode Island



APPENDIX A

INFLUENT ANALYTICAL RESULTS

MITKEM CORPORATION

"Environmental Testing For The New Millennium"

January 26, 2005

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903
Attn: Mr. Ed Summerly

RE: Client Project: CLF ERD Treatment System
Lab Project #: D0039

Dear Mr. Summerly:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Agnes R. Ng
CLP Project Manager

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 • www.mitkem.com

MITKEM CORPORATION

Analytical Data Package for GZA GeoEnvironmental, Inc.

Client Project: CLF ERD Treatment System

SDG# D0039

Mitkem Project ID: D0039

January 26, 2005

Prepared For:

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903
Attn: Mr. Ed Summerly

Prepared By:

Mitkem Corporation
175 Metro Center Boulevard
Warwick, RI 02886
(401) 732-3400

MITKEM CORPORATION

Client: GZA GeoEnvironmental, Inc.

Client Project: CLF ERD Treatment System

Lab Project ID: D0039

Date samples received: 01/13/05

Project Narrative

This data report includes the analysis results for four (4) samples that were received from GZA GeoEnvironmental, Inc. on January 13, 2005. Analyses were performed per specification on the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the client sample ID and the laboratory sample ID.

All analyses were performed according to method specifications.

Surrogate recoveries were within the QC limits. Spike recoveries were within the QC limits in the lab control sample and duplicate. Due to the high concentration of target analytes, the following samples were analyzed at dilution: INF011305 (300x) and MIDFL011305 (5x). Only the analysis at dilution has been reported for samples INF011305 and MIDFL011305. No other unusual occurrences were noted during sample analyses.

The pages in this report have been numbered consecutively, which starts with the title page and ends with the page labeled as "Last Page of data Report".

This data report has been reviewed and is authorized for release as evidenced by the signature below.

Agnes Ng
CLP Project Manager

Mitkem Corporation

Date: *21-Jan-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: INF011305
Lab ID: D0039-01
Project: ERD Rush
Collection Date: 01/13/05 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
Dichlorodifluoromethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Chloromethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Vinyl chloride	ND		1500	µg/L	300	01/14/2005 17:43	16509
Bromomethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Chloroethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Trichlorofluoromethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,1-Dichloroethene	ND		1500	µg/L	300	01/14/2005 17:43	16509
Acetone	ND		1500	µg/L	300	01/14/2005 17:43	16509
Iodomethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Carbon disulfide	ND		1500	µg/L	300	01/14/2005 17:43	16509
Methylene chloride	ND		1500	µg/L	300	01/14/2005 17:43	16509
trans-1,2-Dichloroethene	ND		1500	µg/L	300	01/14/2005 17:43	16509
Methyl tert-butyl ether	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,1-Dichloroethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Vinyl acetate	ND		1500	µg/L	300	01/14/2005 17:43	16509
2-Butanone	ND		1500	µg/L	300	01/14/2005 17:43	16509
cis-1,2-Dichloroethene	ND		1500	µg/L	300	01/14/2005 17:43	16509
2,2-Dichloropropane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Bromochloromethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Chloroform	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,1,1-Trichloroethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,1-Dichloropropene	ND		1500	µg/L	300	01/14/2005 17:43	16509
Carbon tetrachloride	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,2-Dichloroethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Benzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
Trichloroethene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,2-Dichloropropane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Dibromomethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Bromodichloromethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
cis-1,3-Dichloropropene	ND		1500	µg/L	300	01/14/2005 17:43	16509
4-Methyl-2-pentanone	ND		1500	µg/L	300	01/14/2005 17:43	16509
Toluene	ND		1500	µg/L	300	01/14/2005 17:43	16509
trans-1,3-Dichloropropene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,1,2-Trichloroethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,3-Dichloropropane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Tetrachloroethene	ND		1500	µg/L	300	01/14/2005 17:43	16509
2-Hexanone	ND		1500	µg/L	300	01/14/2005 17:43	16509
Dibromochloromethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,2-Dibromoethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Chlorobenzene	23000		1500	µg/L	300	01/14/2005 17:43	16509

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *21-Jan-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: INF011305
Lab ID: D0039-01

Project: ERD Rush
Collection Date: 01/13/05 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
1,1,1,2-Tetrachloroethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Ethylbenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
m,p-Xylene	ND		1500	µg/L	300	01/14/2005 17:43	16509
o-Xylene	ND		1500	µg/L	300	01/14/2005 17:43	16509
Xylene (Total)	ND		1500	µg/L	300	01/14/2005 17:43	16509
Styrene	ND		1500	µg/L	300	01/14/2005 17:43	16509
Bromoform	ND		1500	µg/L	300	01/14/2005 17:43	16509
Isopropylbenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,1,2,2-Tetrachloroethane	ND		1500	µg/L	300	01/14/2005 17:43	16509
Bromobenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,2,3-Trichloropropane	ND		1500	µg/L	300	01/14/2005 17:43	16509
n-Propylbenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
2-Chlorotoluene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,3,5-Trimethylbenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
4-Chlorotoluene	ND		1500	µg/L	300	01/14/2005 17:43	16509
tert-Butylbenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,2,4-Trimethylbenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
sec-Butylbenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
4-Isopropyltoluene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,3-Dichlorobenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,4-Dichlorobenzene	600	J	1500	µg/L	300	01/14/2005 17:43	16509
n-Butylbenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,2-Dichlorobenzene	16000		1500	µg/L	300	01/14/2005 17:43	16509
1,2-Dibromo-3-chloropropane	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,2,4-Trichlorobenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
Hexachlorobutadiene	ND		1500	µg/L	300	01/14/2005 17:43	16509
1,2,3-Trichlorobenzene	ND		1500	µg/L	300	01/14/2005 17:43	16509
Naphthalene	ND		1500	µg/L	300	01/14/2005 17:43	16509
Surr: Dibromofluoromethane	96.4		78-117	%REC	300	01/14/2005 17:43	16509
Surr: 1,2-Dichloroethane-d4	90.8		62-124	%REC	300	01/14/2005 17:43	16509
Surr: Toluene-d8	95.4		81-116	%REC	300	01/14/2005 17:43	16509
Surr: Bromofluorobenzene	111		74-126	%REC	300	01/14/2005 17:43	16509

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *21-Jan-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: TBLK011305
Lab ID: D0039-04
Project: ERD Rush
Collection Date: 01/13/05 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
Dichlorodifluoromethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Chloromethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Vinyl chloride	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Bromomethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Chloroethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Trichlorofluoromethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,1-Dichloroethene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Acetone	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Iodomethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Carbon disulfide	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Methylene chloride	20		5.0	µg/L	1	01/14/2005 17:15	16509
trans-1,2-Dichloroethene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Methyl tert-butyl ether	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,1-Dichloroethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Vinyl acetate	ND		5.0	µg/L	1	01/14/2005 17:15	16509
2-Butanone	ND		5.0	µg/L	1	01/14/2005 17:15	16509
cis-1,2-Dichloroethene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
2,2-Dichloropropane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Bromochloromethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Chloroform	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,1,1-Trichloroethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,1-Dichloropropene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Carbon tetrachloride	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,2-Dichloroethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Benzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Trichloroethene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,2-Dichloropropane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Dibromomethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Bromodichloromethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
4-Methyl-2-pentanone	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Toluene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,1,2-Trichloroethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,3-Dichloropropane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Tetrachloroethene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
2-Hexanone	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Dibromochloromethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,2-Dibromoethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Chlorobenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *21-Jan-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: TBLK011305
Lab ID: D0039-04
Project: ERD Rush
Collection Date: 01/13/05 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
1,1,1,2-Tetrachloroethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Ethylbenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
m,p-Xylene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
o-Xylene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Xylene (Total)	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Styrene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Bromoform	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Isopropylbenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Bromobenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,2,3-Trichloropropane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
n-Propylbenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
2-Chlorotoluene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,3,5-Trimethylbenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
4-Chlorotoluene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
tert-Butylbenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,2,4-Trimethylbenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
sec-Butylbenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
4-Isopropyltoluene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,3-Dichlorobenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,4-Dichlorobenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
n-Butylbenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,2-Dichlorobenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,2-Dibromo-3-chloropropane	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Hexachlorobutadiene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
1,2,3-Trichlorobenzene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Naphthalene	ND		5.0	µg/L	1	01/14/2005 17:15	16509
Surr: Dibromofluoromethane	92.1		78-117	%REC	1	01/14/2005 17:15	16509
Surr: 1,2-Dichloroethane-d4	87.3		62-124	%REC	1	01/14/2005 17:15	16509
Surr: Toluene-d8	96.4		81-116	%REC	1	01/14/2005 17:15	16509
Surr: Bromofluorobenzene	112		74-126	%REC	1	01/14/2005 17:15	16509

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *21-Jan-05*

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: MB-16509	SampType: MBLK	TestCode: SW8260B_W	Prep Date: 1/14/05	Run ID: V5_050114A
Client ID: MB-16509	Batch ID: 16509	Units: µg/L	Analysis Date: 1/14/05	SeqNo: 318458

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	5.0									
Chloromethane	ND	5.0									
Vinyl chloride	ND	5.0									
Bromomethane	ND	5.0									
Chloroethane	ND	5.0									
Trichlorofluoromethane	ND	5.0									
1,1-Dichloroethene	ND	5.0									
Acetone	ND	5.0									
Iodomethane	ND	5.0									
Carbon disulfide	ND	5.0									
Methylene chloride	ND	5.0									
trans-1,2-Dichloroethene	ND	5.0									
Methyl tert-butyl ether	ND	5.0									
1,1-Dichloroethane	ND	5.0									
Vinyl acetate	ND	5.0									
2-Butanone	ND	5.0									
cis-1,2-Dichloroethene	ND	5.0									
2,2-Dichloropropane	ND	5.0									
Bromochloromethane	ND	5.0									
Chloroform	ND	5.0									
1,1,1-Trichloroethane	ND	5.0									
1,1-Dichloropropene	ND	5.0									
Carbon tetrachloride	ND	5.0									
1,2-Dichloroethane	ND	5.0									
Benzene	ND	5.0									
Trichloroethene	ND	5.0									
1,2-Dichloropropane	ND	5.0									
Dibromomethane	ND	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: MB-16509	SampType: MBLK	TestCode: SW8260B_W	Prep Date: 1/14/05	Run ID: V5_050114A
Client ID: MB-16509	Batch ID: 16509	Units: µg/L	Analysis Date: 1/14/05	SeqNo: 318458

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	5.0									
cis-1,3-Dichloropropene	ND	5.0									
4-Methyl-2-pentanone	ND	5.0									
Toluene	ND	5.0									
trans-1,3-Dichloropropene	ND	5.0									
1,1,2-Trichloroethane	ND	5.0									
1,3-Dichloropropane	ND	5.0									
Tetrachloroethene	ND	5.0									
2-Hexanone	ND	5.0									
Dibromochloromethane	ND	5.0									
1,2-Dibromoethane	ND	5.0									
Chlorobenzene	ND	5.0									
1,1,1,2-Tetrachloroethane	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	5.0									
o-Xylene	ND	5.0									
Styrene	ND	5.0									
Bromoform	ND	5.0									
Isopropylbenzene	ND	5.0									
1,1,2,2-Tetrachloroethane	ND	5.0									
Bromobenzene	ND	5.0									
1,2,3-Trichloropropane	ND	5.0									
n-Propylbenzene	ND	5.0									
2-Chlorotoluene	ND	5.0									
1,3,5-Trimethylbenzene	ND	5.0									
4-Chlorotoluene	ND	5.0									
tert-Butylbenzene	ND	5.0									
1,2,4-Trimethylbenzene	ND	5.0									
sec-Butylbenzene	ND	5.0									
4-Isopropyltoluene	ND	5.0									
1,3-Dichlorobenzene	ND	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: MB-16509	SampType: MBLK	TestCode: SW8260B_W			Prep Date: 1/14/05			Run ID: V5_050114A	
Client ID: MB-16509	Batch ID: 16509	Units: µg/L			Analysis Date: 1/14/05			SeqNo: 318458	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	ND	5.0									
n-Butylbenzene	ND	5.0									
1,2-Dichlorobenzene	ND	5.0									
1,2-Dibromo-3-chloropropane	ND	5.0									
1,2,4-Trichlorobenzene	ND	5.0									
Hexachlorobutadiene	ND	5.0									
1,2,3-Trichlorobenzene	ND	5.0									
Naphthalene	ND	5.0									
Xylene (Total)	ND	5.0									
Surr: Dibromofluoromethane	46.63	5.0	50	0	93.3	78	117	0	0		
Surr: 1,2-Dichloroethane-d4	46.63	5.0	50	0	93.3	62	124	0	0		
Surr: Toluene-d8	47.38	5.0	50	0	94.8	81	116	0	0		
Surr: Bromofluorobenzene	54.81	5.0	50	0	110	74	126	0	0		

Sample ID: MB-16530	SampType: MBLK	TestCode: SW8260B_W			Prep Date: 1/17/05			Run ID: V6_050117A	
Client ID: MB-16530	Batch ID: 16530	Units: µg/L			Analysis Date: 1/17/05			SeqNo: 318897	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	5.0									
Chloromethane	ND	5.0									
Vinyl chloride	ND	5.0									
Bromomethane	ND	5.0									
Chloroethane	ND	5.0									
Trichlorofluoromethane	ND	5.0									
1,1-Dichloroethene	ND	5.0									
Acetone	ND	5.0									
Iodomethane	ND	5.0									
Carbon disulfide	ND	5.0									
Methylene chloride	ND	5.0									
trans-1,2-Dichloroethene	ND	5.0									
Methyl tert-butyl ether	ND	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: MB-16530	SampType: MBLK	TestCode: SW8260B_W	Prep Date: 1/17/05	Run ID: V6_050117A
Client ID: MB-16530	Batch ID: 16530	Units: µg/L	Analysis Date: 1/17/05	SeqNo: 318897

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	ND	5.0									
Vinyl acetate	ND	5.0									
2-Butanone	ND	5.0									
cis-1,2-Dichloroethene	ND	5.0									
2,2-Dichloropropane	ND	5.0									
Bromochloromethane	ND	5.0									
Chloroform	ND	5.0									
1,1,1-Trichloroethane	ND	5.0									
1,1-Dichloropropene	ND	5.0									
Carbon tetrachloride	ND	5.0									
1,2-Dichloroethane	ND	5.0									
Benzene	ND	5.0									
Trichloroethene	ND	5.0									
1,2-Dichloropropane	ND	5.0									
Dibromomethane	ND	5.0									
Bromodichloromethane	ND	5.0									
cis-1,3-Dichloropropene	ND	5.0									
4-Methyl-2-pentanone	ND	5.0									
Toluene	ND	5.0									
trans-1,3-Dichloropropene	ND	5.0									
1,1,2-Trichloroethane	ND	5.0									
1,3-Dichloropropane	ND	5.0									
Tetrachloroethene	ND	5.0									
2-Hexanone	ND	5.0									
Dibromochloromethane	ND	5.0									
1,2-Dibromoethane	ND	5.0									
Chlorobenzene	ND	5.0									
1,1,1,2-Tetrachloroethane	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	5.0									
o-Xylene	ND	5.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: MB-16530	SampType: MBLK	TestCode: SW8260B_W	Prep Date: 1/17/05	Run ID: V6_050117A
Client ID: MB-16530	Batch ID: 16530	Units: µg/L	Analysis Date: 1/17/05	SeqNo: 318897

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Styrene	ND	5.0									
Bromoform	ND	5.0									
Isopropylbenzene	ND	5.0									
1,1,2,2-Tetrachloroethane	ND	5.0									
Bromobenzene	ND	5.0									
1,2,3-Trichloropropane	ND	5.0									
n-Propylbenzene	ND	5.0									
2-Chlorotoluene	ND	5.0									
1,3,5-Trimethylbenzene	ND	5.0									
4-Chlorotoluene	ND	5.0									
tert-Butylbenzene	ND	5.0									
1,2,4-Trimethylbenzene	ND	5.0									
sec-Butylbenzene	ND	5.0									
4-Isopropyltoluene	ND	5.0									
1,3-Dichlorobenzene	ND	5.0									
1,4-Dichlorobenzene	ND	5.0									
n-Butylbenzene	ND	5.0									
1,2-Dichlorobenzene	ND	5.0									
1,2-Dibromo-3-chloropropane	ND	5.0									
1,2,4-Trichlorobenzene	ND	5.0									
Hexachlorobutadiene	ND	5.0									
1,2,3-Trichlorobenzene	ND	5.0									
Naphthalene	ND	5.0									
Xylene (Total)	ND	5.0									
Surr: Dibromofluoromethane	46.32	5.0	50	0	92.6	78	117	0	0		
Surr: 1,2-Dichloroethane-d4	45.13	5.0	50	0	90.3	62	124	0	0		
Surr: Toluene-d8	49.16	5.0	50	0	98.3	81	116	0	0		
Surr: Bromofluorobenzene	42.33	5.0	50	0	84.7	74	126	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: LCS-16509	SampType: LCS	TestCode: SW8260B_W	Prep Date: 1/14/05	Run ID: V5_050114A
Client ID: LCS-16509	Batch ID: 16509	Units: µg/L	Analysis Date: 1/14/05	SeqNo: 318459

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	42.71	5.0	50	0	85.4	48	135	0	0		
Chloromethane	41.7	5.0	50	0	83.4	60	118	0	0		
Vinyl chloride	43.68	5.0	50	0	87.4	65	113	0	0		
Bromomethane	45.93	5.0	50	0	91.9	73	122	0	0		
Chloroethane	45.72	5.0	50	0	91.4	72	118	0	0		
Trichlorofluoromethane	49.27	5.0	50	0	98.5	68	129	0	0		
1,1-Dichloroethene	44.17	5.0	50	0	88.3	67	121	0	0		
Acetone	43.13	5.0	50	0	86.3	38	161	0	0		
Iodomethane	50.11	5.0	50	0	100	72	130	0	0		
Carbon disulfide	45.82	5.0	50	0	91.6	53	137	0	0		
Methylene chloride	48.5	5.0	50	0	97	59	132	0	0		
trans-1,2-Dichloroethene	46.19	5.0	50	0	92.4	71	124	0	0		
Methyl tert-butyl ether	46.86	5.0	50	0	93.7	75	123	0	0		
1,1-Dichloroethane	48.58	5.0	50	0	97.2	83	116	0	0		
Vinyl acetate	49.5	5.0	50	0	99	44	160	0	0		
2-Butanone	46.98	5.0	50	0	94	64	139	0	0		
cis-1,2-Dichloroethene	46.97	5.0	50	0	93.9	83	120	0	0		
2,2-Dichloropropane	45.07	5.0	50	0	90.1	70	129	0	0		
Bromochloromethane	49.12	5.0	50	0	98.2	85	124	0	0		
Chloroform	48.55	5.0	50	0	97.1	89	118	0	0		
1,1,1-Trichloroethane	47.21	5.0	50	0	94.4	81	122	0	0		
1,1-Dichloropropene	46.53	5.0	50	0	93.1	76	122	0	0		
Carbon tetrachloride	47.74	5.0	50	0	95.5	79	125	0	0		
1,2-Dichloroethane	52.66	5.0	50	0	105	83	123	0	0		
Benzene	48.01	5.0	50	0	96	81	120	0	0		
Trichloroethene	47.36	5.0	50	0	94.7	77	121	0	0		
1,2-Dichloropropane	48.62	5.0	50	0	97.2	81	116	0	0		
Dibromomethane	49.85	5.0	50	0	99.7	86	124	0	0		
Bromodichloromethane	49.19	5.0	50	0	98.4	90	114	0	0		
cis-1,3-Dichloropropene	48.36	5.0	50	0	96.7	78	119	0	0		
4-Methyl-2-pentanone	50.03	5.0	50	0	100	57	138	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: LCS-16509	SampType: LCS	TestCode: SW8260B_W	Prep Date: 1/14/05	Run ID: V5_050114A
Client ID: LCS-16509	Batch ID: 16509	Units: µg/L	Analysis Date: 1/14/05	SeqNo: 318459

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	47.49	5.0	50	0	95	81	121	0	0		
trans-1,3-Dichloropropene	48.44	5.0	50	0	96.9	85	118	0	0		
1,1,2-Trichloroethane	50.4	5.0	50	0	101	44	159	0	0		
1,3-Dichloropropane	49.79	5.0	50	0	99.6	79	125	0	0		
Tetrachloroethene	48.95	5.0	50	0	97.9	73	121	0	0		
2-Hexanone	48.67	5.0	50	0	97.3	53	145	0	0		
Dibromochloromethane	50.73	5.0	50	0	101	80	124	0	0		
1,2-Dibromoethane	49.54	5.0	50	0	99.1	80	124	0	0		
Chlorobenzene	49.37	5.0	50	0	98.7	82	118	0	0		
1,1,1,2-Tetrachloroethane	49.05	5.0	50	0	98.1	84	121	0	0		
Ethylbenzene	47.99	5.0	50	0	96	80	122	0	0		
m,p-Xylene	96.72	5.0	100	0	96.7	70	130	0	0		
o-Xylene	49.13	5.0	50	0	98.3	70	130	0	0		
Styrene	50.12	5.0	50	0	100	77	128	0	0		
Bromoform	52.87	5.0	50	0	106	77	130	0	0		
Isopropylbenzene	48.02	5.0	50	0	96	58	148	0	0		
1,1,2,2-Tetrachloroethane	47.75	5.0	50	0	95.5	76	125	0	0		
Bromobenzene	48.83	5.0	50	0	97.7	76	124	0	0		
1,2,3-Trichloropropane	47.83	5.0	50	0	95.7	57	140	0	0		
n-Propylbenzene	47.46	5.0	50	0	94.9	72	119	0	0		
2-Chlorotoluene	46.37	5.0	50	0	92.7	75	120	0	0		
1,3,5-Trimethylbenzene	45.9	5.0	50	0	91.8	76	116	0	0		
4-Chlorotoluene	47.19	5.0	50	0	94.4	78	116	0	0		
tert-Butylbenzene	46.55	5.0	50	0	93.1	71	115	0	0		
1,2,4-Trimethylbenzene	47.19	5.0	50	0	94.4	77	117	0	0		
sec-Butylbenzene	44.55	5.0	50	0	89.1	67	117	0	0		
4-Isopropyltoluene	46.55	5.0	50	0	93.1	68	118	0	0		
1,3-Dichlorobenzene	48.45	5.0	50	0	96.9	80	116	0	0		
1,4-Dichlorobenzene	47.96	5.0	50	0	95.9	80	114	0	0		
n-Butylbenzene	48.11	5.0	50	0	96.2	58	121	0	0		
1,2-Dichlorobenzene	49.63	5.0	50	0	99.3	81	116	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: LCS-16509	SampType: LCS	TestCode: SW8260B_W	Prep Date: 1/14/05	Run ID: V5_050114A
Client ID: LCS-16509	Batch ID: 16509	Units: µg/L	Analysis Date: 1/14/05	SeqNo: 318459

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	47.28	5.0	50	0	94.6	71	126	0	0		
1,2,4-Trichlorobenzene	54.93	5.0	50	0	110	67	114	0	0		
Hexachlorobutadiene	48.27	5.0	50	0	96.5	50	111	0	0		
1,2,3-Trichlorobenzene	54.7	5.0	50	0	109	64	118	0	0		
Naphthalene	53.02	5.0	50	0	106	58	133	0	0		
Xylene (Total)	145.9	5.0	150	0	97.2	81	121	0	0		
Surr: Dibromofluoromethane	47.31	5.0	50	0	94.6	78	117	0	0		
Surr: 1,2-Dichloroethane-d4	48.17	5.0	50	0	96.3	62	124	0	0		
Surr: Toluene-d8	46.05	5.0	50	0	92.1	81	116	0	0		
Surr: Bromofluorobenzene	47.3	5.0	50	0	94.6	74	126	0	0		

Sample ID: LCS-16530	SampType: LCS	TestCode: SW8260B_W	Prep Date: 1/17/05	Run ID: V6_050117A
Client ID: LCS-16530	Batch ID: 16530	Units: µg/L	Analysis Date: 1/17/05	SeqNo: 318896

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	47.71	5.0	50	0	95.4	48	135	0	0		
Chloromethane	49.36	5.0	50	0	98.7	60	118	0	0		
Vinyl chloride	42.7	5.0	50	0	85.4	65	113	0	0		
Bromomethane	44.76	5.0	50	0	89.5	73	122	0	0		
Chloroethane	43.21	5.0	50	0	86.4	72	118	0	0		
Trichlorofluoromethane	42.19	5.0	50	0	84.4	68	129	0	0		
1,1-Dichloroethene	46.39	5.0	50	0	92.8	67	121	0	0		
Acetone	52.1	5.0	50	0	104	38	161	0	0		
Iodomethane	46	5.0	50	0	92	72	130	0	0		
Carbon disulfide	58.09	5.0	50	0	116	53	137	0	0		
Methylene chloride	49.12	5.0	50	0	98.2	59	132	0	0		
trans-1,2-Dichloroethene	41.41	5.0	50	0	82.8	71	124	0	0		
Methyl tert-butyl ether	50.22	5.0	50	0	100	75	123	0	0		
1,1-Dichloroethane	43.85	5.0	50	0	87.7	83	116	0	0		
Vinyl acetate	55.99	5.0	50	0	112	44	160	0	0		
2-Butanone	59.23	5.0	50	0	118	64	139	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: LCS-16530	SampType: LCS	TestCode: SW8260B_W	Prep Date: 1/17/05	Run ID: V6_050117A
Client ID: LCS-16530	Batch ID: 16530	Units: µg/L	Analysis Date: 1/17/05	SeqNo: 318896

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,2-Dichloroethene	42.06	5.0	50	0	84.1	83	120	0	0		
2,2-Dichloropropane	40.84	5.0	50	0	81.7	70	129	0	0		
Bromochloromethane	43.76	5.0	50	0	87.5	85	124	0	0		
Chloroform	45.12	5.0	50	0	90.2	89	118	0	0		
1,1,1-Trichloroethane	43.3	5.0	50	0	86.6	81	122	0	0		
1,1-Dichloropropene	41.87	5.0	50	0	83.7	76	122	0	0		
Carbon tetrachloride	43.21	5.0	50	0	86.4	79	125	0	0		
1,2-Dichloroethane	49.5	5.0	50	0	99	83	123	0	0		
Benzene	44.38	5.0	50	0	88.8	81	120	0	0		
Trichloroethene	40.93	5.0	50	0	81.9	77	121	0	0		
1,2-Dichloropropane	46.42	5.0	50	0	92.8	81	116	0	0		
Dibromomethane	49.01	5.0	50	0	98	86	124	0	0		
Bromodichloromethane	47.37	5.0	50	0	94.7	90	114	0	0		
cis-1,3-Dichloropropene	47.37	5.0	50	0	94.7	78	119	0	0		
4-Methyl-2-pentanone	58.61	5.0	50	0	117	57	138	0	0		
Toluene	45.34	5.0	50	0	90.7	81	121	0	0		
trans-1,3-Dichloropropene	50.45	5.0	50	0	101	85	118	0	0		
1,1,2-Trichloroethane	49.45	5.0	50	0	98.9	44	159	0	0		
1,3-Dichloropropane	50.08	5.0	50	0	100	79	125	0	0		
Tetrachloroethene	38.25	5.0	50	0	76.5	73	121	0	0		
2-Hexanone	56.52	5.0	50	0	113	53	145	0	0		
Dibromochloromethane	49.41	5.0	50	0	98.8	80	124	0	0		
1,2-Dibromoethane	50	5.0	50	0	100	80	124	0	0		
Chlorobenzene	43.96	5.0	50	0	87.9	82	118	0	0		
1,1,1,2-Tetrachloroethane	45.74	5.0	50	0	91.5	84	121	0	0		
Ethylbenzene	44.47	5.0	50	0	88.9	80	122	0	0		
m,p-Xylene	89.87	5.0	100	0	89.9	70	130	0	0		
o-Xylene	45.65	5.0	50	0	91.3	70	130	0	0		
Styrene	47.15	5.0	50	0	94.3	77	128	0	0		
Bromoform	53.11	5.0	50	0	106	77	130	0	0		
Isopropylbenzene	47.33	5.0	50	0	94.7	58	148	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: LCS-16530	SampType: LCS	TestCode: SW8260B_W			Prep Date: 1/17/05			Run ID: V6_050117A		
Client ID: LCS-16530	Batch ID: 16530	Units: µg/L			Analysis Date: 1/17/05			SeqNo: 318896		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	51.92	5.0	50	0	104	76	125	0	0		
Bromobenzene	42.63	5.0	50	0	85.3	76	124	0	0		
1,2,3-Trichloropropane	54.02	5.0	50	0	108	57	140	0	0		
n-Propylbenzene	44.12	5.0	50	0	88.2	72	119	0	0		
2-Chlorotoluene	43.35	5.0	50	0	86.7	75	120	0	0		
1,3,5-Trimethylbenzene	46.19	5.0	50	0	92.4	76	116	0	0		
4-Chlorotoluene	43.22	5.0	50	0	86.4	78	116	0	0		
tert-Butylbenzene	45.67	5.0	50	0	91.3	71	115	0	0		
1,2,4-Trimethylbenzene	47.77	5.0	50	0	95.5	77	117	0	0		
sec-Butylbenzene	46.89	5.0	50	0	93.8	67	117	0	0		
4-Isopropyltoluene	45.2	5.0	50	0	90.4	68	118	0	0		
1,3-Dichlorobenzene	44.09	5.0	50	0	88.2	80	116	0	0		
1,4-Dichlorobenzene	44.05	5.0	50	0	88.1	80	114	0	0		
n-Butylbenzene	49.04	5.0	50	0	98.1	58	121	0	0		
1,2-Dichlorobenzene	44.72	5.0	50	0	89.4	81	116	0	0		
1,2-Dibromo-3-chloropropane	60.82	5.0	50	0	122	71	126	0	0		
1,2,4-Trichlorobenzene	46.59	5.0	50	0	93.2	67	114	0	0		
Hexachlorobutadiene	42.47	5.0	50	0	84.9	50	111	0	0		
1,2,3-Trichlorobenzene	47.63	5.0	50	0	95.3	64	118	0	0		
Naphthalene	50.89	5.0	50	0	102	58	133	0	0		
Xylene (Total)	135.5	5.0	150	0	90.3	81	121	0	0		
Surr: Dibromofluoromethane	47.4	5.0	50	0	94.8	78	117	0	0		
Surr: 1,2-Dichloroethane-d4	48.64	5.0	50	0	97.3	62	124	0	0		
Surr: Toluene-d8	47.62	5.0	50	0	95.2	81	116	0	0		
Surr: Bromofluorobenzene	50.45	5.0	50	0	101	74	126	0	0		

Sample ID: LCSD-16509	SampType: LCSD	TestCode: SW8260B_W			Prep Date: 1/14/05			Run ID: V5_050114A		
Client ID: LCSD-16509	Batch ID: 16509	Units: µg/L			Analysis Date: 1/14/05			SeqNo: 318460		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	39.65	5.0	50	0	79.3	48	135	42.71	7.44	40	

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: LCSD-16509	SampType: LCSD	TestCode: SW8260B_W	Prep Date: 1/14/05	Run ID: V5_050114A
Client ID: LCSD-16509	Batch ID: 16509	Units: µg/L	Analysis Date: 1/14/05	SeqNo: 318460

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	40.43	5.0	50	0	80.9	60	118	41.7	3.09	40	
Vinyl chloride	42.99	5.0	50	0	86	65	113	43.68	1.61	40	
Bromomethane	43.67	5.0	50	0	87.3	73	122	45.93	5.05	40	
Chloroethane	44.22	5.0	50	0	88.4	72	118	45.72	3.33	40	
Trichlorofluoromethane	48.14	5.0	50	0	96.3	68	129	49.27	2.33	40	
1,1-Dichloroethene	44.68	5.0	50	0	89.4	67	121	44.17	1.15	40	
Acetone	44.63	5.0	50	0	89.3	38	161	43.13	3.41	40	
Iodomethane	48.28	5.0	50	0	96.6	72	130	50.11	3.73	40	
Carbon disulfide	46.02	5.0	50	0	92	53	137	45.82	0.431	40	
Methylene chloride	46.14	5.0	50	0	92.3	59	132	48.5	5.00	40	
trans-1,2-Dichloroethene	45.86	5.0	50	0	91.7	71	124	46.19	0.725	40	
Methyl tert-butyl ether	43.76	5.0	50	0	87.5	75	123	46.86	6.84	40	
1,1-Dichloroethane	45.85	5.0	50	0	91.7	83	116	48.58	5.79	40	
Vinyl acetate	46.7	5.0	50	0	93.4	44	160	49.5	5.83	40	
2-Butanone	44.75	5.0	50	0	89.5	64	139	46.98	4.86	40	
cis-1,2-Dichloroethene	46.38	5.0	50	0	92.8	83	120	46.97	1.25	40	
2,2-Dichloropropane	47.19	5.0	50	0	94.4	70	129	45.07	4.60	40	
Bromochloromethane	47.34	5.0	50	0	94.7	85	124	49.12	3.69	40	
Chloroform	45.79	5.0	50	0	91.6	89	118	48.55	5.85	40	
1,1,1-Trichloroethane	46.91	5.0	50	0	93.8	81	122	47.21	0.653	40	
1,1-Dichloropropene	46.43	5.0	50	0	92.9	76	122	46.53	0.201	40	
Carbon tetrachloride	47.47	5.0	50	0	94.9	79	125	47.74	0.567	40	
1,2-Dichloroethane	47.79	5.0	50	0	95.6	83	123	52.66	9.69	40	
Benzene	44.92	5.0	50	0	89.8	81	120	48.01	6.66	40	
Trichloroethene	46.41	5.0	50	0	92.8	77	121	47.36	2.01	40	
1,2-Dichloropropane	46.82	5.0	50	0	93.6	81	116	48.62	3.76	40	
Dibromomethane	47.1	5.0	50	0	94.2	86	124	49.85	5.67	40	
Bromodichloromethane	46.64	5.0	50	0	93.3	90	114	49.19	5.31	40	
cis-1,3-Dichloropropene	46.03	5.0	50	0	92.1	78	119	48.36	4.95	40	
4-Methyl-2-pentanone	46.22	5.0	50	0	92.4	57	138	50.03	7.91	40	
Toluene	46.81	5.0	50	0	93.6	81	121	47.49	1.45	40	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: LCSD-16509	SampType: LCSD	TestCode: SW8260B_W		Prep Date: 1/14/05		Run ID: V5_050114A				
Client ID: LCSD-16509	Batch ID: 16509	Units: µg/L		Analysis Date: 1/14/05		SeqNo: 318460				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	46.68	5.0	50	0	93.4	85	118	48.44	3.69	40	
1,1,2-Trichloroethane	48.15	5.0	50	0	96.3	44	159	50.4	4.56	40	
1,3-Dichloropropane	45.54	5.0	50	0	91.1	79	125	49.79	8.91	40	
Tetrachloroethene	47.62	5.0	50	0	95.2	73	121	48.95	2.76	40	
2-Hexanone	46.73	5.0	50	0	93.5	53	145	48.67	4.06	40	
Dibromochloromethane	46.9	5.0	50	0	93.8	80	124	50.73	7.85	40	
1,2-Dibromoethane	47.42	5.0	50	0	94.8	80	124	49.54	4.38	40	
Chlorobenzene	47.1	5.0	50	0	94.2	82	118	49.37	4.71	40	
1,1,1,2-Tetrachloroethane	46.58	5.0	50	0	93.2	84	121	49.05	5.16	40	
Ethylbenzene	47.06	5.0	50	0	94.1	80	122	47.99	1.95	40	
m,p-Xylene	94.19	5.0	100	0	94.2	70	130	96.72	2.65	40	
o-Xylene	46.26	5.0	50	0	92.5	70	130	49.13	6.02	40	
Styrene	47.91	5.0	50	0	95.8	77	128	50.12	4.51	40	
Bromoform	49.75	5.0	50	0	99.5	77	130	52.87	6.08	40	
Isopropylbenzene	47.52	5.0	50	0	95	58	148	48.02	1.04	40	
1,1,2,2-Tetrachloroethane	44.69	5.0	50	0	89.4	76	125	47.75	6.63	40	
Bromobenzene	45.59	5.0	50	0	91.2	76	124	48.83	6.86	40	
1,2,3-Trichloropropane	43.86	5.0	50	0	87.7	57	140	47.83	8.65	40	
n-Propylbenzene	46.35	5.0	50	0	92.7	72	119	47.46	2.38	40	
2-Chlorotoluene	45.86	5.0	50	0	91.7	75	120	46.37	1.11	40	
1,3,5-Trimethylbenzene	45.2	5.0	50	0	90.4	76	116	45.9	1.53	40	
4-Chlorotoluene	46.72	5.0	50	0	93.4	78	116	47.19	1.01	40	
tert-Butylbenzene	45.49	5.0	50	0	91	71	115	46.55	2.30	40	
1,2,4-Trimethylbenzene	46.17	5.0	50	0	92.3	77	117	47.19	2.19	40	
sec-Butylbenzene	44.56	5.0	50	0	89.1	67	117	44.55	0.00487	40	
4-Isopropyltoluene	45.49	5.0	50	0	91	68	118	46.55	2.30	40	
1,3-Dichlorobenzene	46.54	5.0	50	0	93.1	80	116	48.45	4.02	40	
1,4-Dichlorobenzene	46.15	5.0	50	0	92.3	80	114	47.96	3.84	40	
n-Butylbenzene	47.69	5.0	50	0	95.4	58	121	48.11	0.868	40	
1,2-Dichlorobenzene	47.91	5.0	50	0	95.8	81	116	49.63	3.52	40	
1,2-Dibromo-3-chloropropane	44.35	5.0	50	0	88.7	71	126	47.28	6.41	40	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0039
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: LCSD-16509	SampType: LCSD	TestCode: SW8260B_W			Prep Date: 1/14/05			Run ID: V5_050114A		
Client ID: LCSD-16509	Batch ID: 16509	Units: µg/L			Analysis Date: 1/14/05			SeqNo: 318460		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	53.74	5.0	50	0	107	67	114	54.93	2.19	40	
Hexachlorobutadiene	49.69	5.0	50	0	99.4	50	111	48.27	2.88	40	
1,2,3-Trichlorobenzene	54.54	5.0	50	0	109	64	118	54.7	0.294	40	
Naphthalene	53.57	5.0	50	0	107	58	133	53.02	1.04	40	
Xylene (Total)	140.5	5.0	150	0	93.6	81	121	145.9	3.77	40	
Surr: Dibromofluoromethane	50.43	5.0	50	0	101	78	117	0	0	40	
Surr: 1,2-Dichloroethane-d4	49.22	5.0	50	0	98.4	62	124	0	0	40	
Surr: Toluene-d8	50.67	5.0	50	0	101	81	116	0	0	40	
Surr: Bromofluorobenzene	51	5.0	50	0	102	74	126	0	0	40	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Mitkem Corporation

13/Jan/05 13:21

WorkOrder: D0039

Client ID: RIRRC
Project: ERD Rush
Location:
Comments: For RUSH (VOCs), surcharge is 75%.

Case:
SDG:
PO: RIRRC ERD, 32419.03

Report Level: LEVEL 2
EDD:
HC Due: 01/27/05
Fax Due: 01/17/05

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Lab Test Comments	Iold	MS	SEL	Storage
D0039-01A	INF011305	01/13/05 00:00	01/13/05	Aqueous	SW8260B_W	INF sample may need 150X -	☐	☐	☐	VOA
D0039-02A	MIDFL011305	01/13/05 00:00	01/13/05	Aqueous	SW8260B_W	INF sample may need 150X -	☐	☐	☐	VOA
D0039-03A	EFF011305	01/13/05 00:00	01/13/05	Aqueous	SW8260B_W	INF sample may need 150X -		☐	☐	VOA
D0039-04A	TBLK011305	01/13/05 00:00	01/13/05	Aqueous	SW8260B_W	INF sample may need 150X -	☐	☐	☐	VOA

Client Rep: Edward A Lawler

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REPORT TO		INVOICE TO		
COMPANY GZA	PHONE 421-4140	COMPANY	PHONE	LAB PROJECT #: D6039
NAME MARK DALPE	FAX	NAME	FAX	
ADDRESS		ADDRESS		TURNAROUND TIME: 48 HR
CITY/ST/ZIP		CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
CLF ERD TREATMENT SYSTEM	32419.03	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	REQUESTED ANALYSES: VOCs	COMMENTS
INF011305	11/13/05			X			01	2	X	1.
MIDFL011305	"			X			02	2	X	2.
EFF011305	"			X			03	2	X	
TBLK011305	"			X			04	2	X	
	/									
	/									
	/									
	/									
	/									
	/									
	/									
	/									

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
		11305		11305 1230	1. Analyze in accordance w/ CLF/ERD analytical Contract 2. 48 HR. TURN-AROUND TIME REQUIRED	
		/		/		
		/		/		

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

0025

MITKEM CORPORATION
Sample Condition Form

Page 1 of 1

Received By: Tom	Reviewed By: TG	Date: 1/13/05	MITKEM Project #: D0039
Client Project: ERD Rush		Client: RIRRC	

Cooler Sealed Yes / (No)

1) Custody Seal(s) Present / (Absent)
Coolers / Bottles
Intact / Broken

2) Custody Seal Number(s) NA

3) Chain-of-Custody (Present) / Absent

4) Cooler Temperature 6°
Coolant Condition Snow

5) Airbill(s) Present / (Absent)
Airbill Number(s) drop off

6) Sample Bottles (Intact)/Broken/Leakin

7) Date Received 1/13/05

8) Time Received 1230

Preservative Name/Lot No:

Lab Sample ID		Preservation (pH) HNO_3	H_2SO_4	HCl	NaOH	VOA Matrix	Soil Headspace or Air Bubbles ≥ 1/4"
D0039	01					H	
	02					H	
	03					H	
	04					H	

VOA Matrix Key:
US = Unpreserved Soil A = Air
UA = Unpreserved Aqueo H = HCl
M/N= MeOH & $NaHSO_4$ E = Encore
N = $NaHSO_4$ M =MeOH

See Sample Condition Notification/Corrective Action Form yes / no

Rad OK yes/ no

Form ID: SampleCond.Form-11/04

Last Page of Data Report

GZA GeoEnvironmental, Inc.
106 South Street
Hopkinton, MA 01748
(781) 278-4700

Laboratory Identification Numbers:
MA: MA092 NH: 2028 RI: 236
CT: PH0579 OK: 9928 NC: 615
NY (NELAC): 11063

ANALYTICAL DATA REPORT

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903
(401)421-4140
Mark Dalpe

Project No.:	03.0032419.02
Work Order No.:	0501-00057
Date Received:	1/14/05
Date Reported:	1/21/05

SAMPLE INFORMATION

Date Sampled	Matrix	Laboratory ID	Sample ID
1/13/2005	Aqueous	0501-00057 001	INF-011305

GZA GeoEnvironmental, Inc.
106 South Street
Hopkinton, MA 01748

ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903

Mark Dalpe

Project Name: CLF/ERD Treatment System
Project No.: 03.0032419.02

Date Received: 1/14/05
Date Reported: 1/21/05
Work Order No.: 0501-00057

PROJECT NARRATIVE:

1. Sample Receipt

The samples were received on 01/14/05 via _x_GZA courier, __EC, __FEDEX, or ___hand delivered. The temperature of the __temperature blank/_x_cooler air, was 2.4 degrees C. The samples were received intact for all requested analyses.

The samples were appropriately preserved in accordance with the method they reference.

2. EPA Method 6010B/7470A - Metals

Attach QC 6010B 01/17/05 B - Aqueous
Attach QC Mercury 01/17/05 - Aqueous

3. EPA Method 8260 - VOCs

Attach QC 8260 01/14/05 - Aqueous
Attach QC 8260 01/17/05 - Aqueous

4. EPA Method 8270 - SVOCs

Attach QC 8270 01/20/05 - Aqueous

GZA GeoEnvironmental, Inc.
106 South Street
Hopkinton, MA 01748

ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903

Mark Dalpe

Project Name: CLF/ERD Treatment System
Project No.: 03.0032419.02

Date Received: 1/14/05
Date Reported: 1/21/05
Work Order No.: 0501-00057

Data Authorized By: _____

% R = % Recovery
DF = Dilution Factor
DO = Diluted Out

Method 8260: The current version of the method is 8260B.
Method 8021: The current version of the method is 8021B.
Method 8270: The current version of the method is 8270C.
Method 6010: The current version of the method is 6010B.

Laboratory Identification Numbers:

MA: MA092 NH: 2028
CT: PH0579 RI: 236
NC: 615 NY (NELAC): 11063

Please note that the laboratory signed copy of the chain of custody record is an integral part of the data report.

Soil data is reported on a dry weight basis unless otherwise specified.

Matrix Spike / Matrix Spike Duplicate sets are performed as per each method and are reported at the end of the analytical report if assigned on the chain of custody.

GZA GeoEnvironmental, Inc.
106 South Street
Hopkinton, MA 01748

ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903

Mark Dalpe

Project Name: CLF/ERD Treatment System
Project No.: 03.0032419.02

Date Received: 1/14/05
Date Reported: 1/21/05
Work Order No.: 0501-00057

Sample ID: INF-011305
Sample Date: 1/13/2005

Sample No.: 001

Test Performed	Method	Results	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260			MQS	1/14/05
Dichlorodifluoromethane	EPA 8260	<4.0	ug/L	MQS	1/14/05
Chloromethane	EPA 8260	<4.0	ug/L	MQS	1/14/05
Vinyl Chloride	EPA 8260	16	ug/L	MQS	1/14/05
Bromomethane	EPA 8260	<4.0	ug/L	MQS	1/14/05
Chloroethane	EPA 8260	22	ug/L	MQS	1/14/05
Trichlorofluoromethane	EPA 8260	49	ug/L	MQS	1/14/05
Diethylether	EPA 8260	93	ug/L	MQS	1/14/05
Acetone	EPA 8260	310	ug/L	MQS	1/14/05
1,1-Dichloroethene	EPA 8260	5.2	ug/L	MQS	1/14/05
Dichloromethane	EPA 8260	180	ug/L	MQS	1/17/05
Methyl-Tert-Butyl-Ether	EPA 8260	<4.0	ug/L	MQS	1/14/05
trans-1,2-Dichloroethene	EPA 8260	<2.0	ug/L	MQS	1/14/05
1,1-Dichloroethane	EPA 8260	9.8	ug/L	MQS	1/14/05
2-Butanone	EPA 8260	380	ug/L	MQS	1/14/05
2,2-Dichloropropane	EPA 8260	<2.0	ug/L	MQS	1/14/05
cis-1,2-Dichloroethene	EPA 8260	52	ug/L	MQS	1/14/05
Chloroform	EPA 8260	2.1	ug/L	MQS	1/14/05
Bromochloromethane	EPA 8260	<2.0	ug/L	MQS	1/14/05
Tetrahydrofuran	EPA 8260	410	ug/L	MQS	1/14/05
1,1,1-Trichloroethane	EPA 8260	11	ug/L	MQS	1/14/05
1,1-Dichloropropene	EPA 8260	<2.0	ug/L	MQS	1/14/05
Carbon Tetrachloride	EPA 8260	<2.0	ug/L	MQS	1/14/05
1,2-Dichloroethane	EPA 8260	<2.0	ug/L	MQS	1/14/05
Benzene	EPA 8260	33	ug/L	MQS	1/14/05
Trichloroethene	EPA 8260	180	ug/L	MQS	1/17/05
1,2-Dichloropropane	EPA 8260	<2.0	ug/L	MQS	1/14/05
Bromodichloromethane	EPA 8260	<2.0	ug/L	MQS	1/14/05
Dibromomethane	EPA 8260	<2.0	ug/L	MQS	1/14/05
4-Methyl-2-Pentanone	EPA 8260	54	ug/L	MQS	1/14/05
cis-1,3-Dichloropropene	EPA 8260	<2.0	ug/L	MQS	1/14/05
Toluene	EPA 8260	160	ug/L	MQS	1/17/05

GZA GeoEnvironmental, Inc.

ANALYTICAL REPORT

Project Name: CLF/ERD Treatment System
Project No.: 03.0032419.02

Work Order No.: 0501-00057

Sample ID: INF-011305
Sample Date: 1/13/2005

Sample No.: 001

Test Performed	Method	Results	Units	Tech	Analysis Date
trans-1,3-Dichloropropene	EPA 8260	<2.0	ug/L	MQS	1/14/05
1,1,2-Trichloroethane	EPA 8260	2.2	ug/L	MQS	1/14/05
2-Hexanone	EPA 8260	<4.0	ug/L	MQS	1/14/05
1,3-Dichloropropane	EPA 8260	<2.0	ug/L	MQS	1/14/05
Tetrachloroethene	EPA 8260	20	ug/L	MQS	1/14/05
Dibromochloromethane	EPA 8260	<2.0	ug/L	MQS	1/14/05
1,2-Dibromoethane (EDB)	EPA 8260	<4.0	ug/L	MQS	1/14/05
Chlorobenzene	EPA 8260	29000	ug/L	MQS	1/17/05
1,1,1,2-Tetrachloroethane	EPA 8260	<2.0	ug/L	MQS	1/14/05
Ethylbenzene	EPA 8260	110	ug/L	MQS	1/17/05
m&p-xylene	EPA 8260	120	ug/L	MQS	1/17/05
o-Xylene	EPA 8260	62	ug/L	MQS	1/17/05
Styrene	EPA 8260	<2.0	ug/L	MQS	1/14/05
Bromoform	EPA 8260	<4.0	ug/L	MQS	1/14/05
Isopropylbenzene	EPA 8260	13	ug/L	MQS	1/14/05
1,1,2,2-Tetrachloroethane	EPA 8260	<2.0	ug/L	MQS	1/14/05
1,2,3-Trichloropropane	EPA 8260	<2.0	ug/L	MQS	1/14/05
Bromobenzene	EPA 8260	<2.0	ug/L	MQS	1/14/05
N-Propylbenzene	EPA 8260	4.4	ug/L	MQS	1/14/05
2-Chlorotoluene	EPA 8260	39	ug/L	MQS	1/17/05
1,3,5-Trimethylbenzene	EPA 8260	3.4	ug/L	MQS	1/14/05
4-Chlorotoluene	EPA 8260	4.5	ug/L	MQS	1/14/05
tert-Butylbenzene	EPA 8260	<2.0	ug/L	MQS	1/14/05
1,2,4-Trimethylbenzene	EPA 8260	33	ug/L	MQS	1/17/05
sec-Butylbenzene	EPA 8260	<2.0	ug/L	MQS	1/14/05
p-Isopropyltoluene	EPA 8260	2.6	ug/L	MQS	1/14/05
1,3-Dichlorobenzene	EPA 8260	140	ug/L	MQS	1/17/05
1,4-Dichlorobenzene	EPA 8260	900	ug/L	MQS	1/17/05
n-Butylbenzene	EPA 8260	<2.0	ug/L	MQS	1/14/05
1,2-Dichlorobenzene	EPA 8260	24000	ug/L	MQS	1/17/05
1,2-Dibromo-3-Chloropropane	EPA 8260	<10	ug/L	MQS	1/14/05
1,2,4-Trichlorobenzene	EPA 8260	31	ug/L	MQS	1/14/05
Hexachlorobutadiene	EPA 8260	<2.0	ug/L	MQS	1/14/05
Naphthalene	EPA 8260	27	ug/L	MQS	1/14/05
1,2,3-Trichlorobenzene	EPA 8260	2.7	ug/L	MQS	1/14/05
Surrogates:	EPA 8260				
***1,2-Dichloroethane-D4	EPA 8260	93.6	% R	MQS	1/14/05
***Toluene-D8	EPA 8260	94.5	% R	MQS	1/14/05
***4-Bromofluorobenzene	EPA 8260	106	% R	MQS	1/14/05
Preparation	EPA 5030B	1.0	DF	MQS	1/14/05

GZA GeoEnvironmental, Inc.

ANALYTICAL REPORT

Project Name: CLF/ERD Treatment System
Project No.: 03.0032419.02

Work Order No.: 0501-00057

Sample ID: INF-011305
Sample Date: 1/13/2005

Sample No.: 001

Test Performed	Method	Results	Units	Tech	Analysis Date
SEMI-VOLATILE ORGANICS	EPA 8270			CMG	1/20/05
ACID FRACTION:	EPA 8270				
Phenol	EPA 8270	< 10	ug/L	CMG	1/20/05
2-Chlorophenol	EPA 8270	< 10	ug/L	CMG	1/20/05
2-Methylphenol	EPA 8270	< 10	ug/L	CMG	1/20/05
3&4-Methylphenol	EPA 8270	< 10	ug/L	CMG	1/20/05
2-Nitrophenol	EPA 8270	< 10	ug/L	CMG	1/20/05
2,4-Dimethylphenol	EPA 8270	< 10	ug/L	CMG	1/20/05
Benzoic Acid	EPA 8270	< 10	ug/L	CMG	1/20/05
2,4-Dichlorophenol	EPA 8270	< 10	ug/L	CMG	1/20/05
4-Chloro-3-Methylphenol	EPA 8270	< 20	ug/L	CMG	1/20/05
2,4,6-Trichlorophenol	EPA 8270	< 10	ug/L	CMG	1/20/05
2,4,5-Trichlorophenol	EPA 8270	< 10	ug/L	CMG	1/20/05
2,4-Dinitrophenol	EPA 8270	< 100	ug/L	CMG	1/20/05
4-Nitrophenol	EPA 8270	< 50	ug/L	CMG	1/20/05
4,6-Dinitro-2-Methylphenol	EPA 8270	< 50	ug/L	CMG	1/20/05
Pentachlorophenol	EPA 8270	< 50	ug/L	CMG	1/20/05
BASE-NEUTRAL FRACTION:					
n-Nitrosodimethylamine	EPA 8270	< 10	ug/L	CMG	1/20/05
bis(2-Chloroethyl)Ether	EPA 8270	< 10	ug/L	CMG	1/20/05
1,3-Dichlorobenzene	EPA 8270	36	ug/L	CMG	1/20/05
1,4-Dichlorobenzene	EPA 8270	170	ug/L	CMG	1/20/05
Benzyl Alcohol	EPA 8270	< 20	ug/L	CMG	1/20/05
1,2-Dichlorobenzene	EPA 8270	3700	ug/L	CMG	1/20/05
bis(2-Chloroisopropyl)Ether	EPA 8270	< 10	ug/L	CMG	1/20/05
n-Nitrosodi-n-Propylamine	EPA 8270	< 10	ug/L	CMG	1/20/05
Hexachloroethane	EPA 8270	< 10	ug/L	CMG	1/20/05
Nitrobenzene	EPA 8270	23	ug/L	CMG	1/20/05
Isophorone	EPA 8270	< 10	ug/L	CMG	1/20/05
bis(2-Chloroethoxy)Methane	EPA 8270	< 10	ug/L	CMG	1/20/05
1,2,4-Trichlorobenzene	EPA 8270	< 10	ug/L	CMG	1/20/05
Naphthalene	EPA 8270	11	ug/L	CMG	1/20/05
4-Chloroaniline	EPA 8270	< 20	ug/L	CMG	1/20/05
Hexachlorobutadiene	EPA 8270	< 10	ug/L	CMG	1/20/05
2-Methylnaphthalene	EPA 8270	< 2.0	ug/L	CMG	1/20/05
Hexachlorocyclopentadiene	EPA 8270	< 50	ug/L	CMG	1/20/05
2-Chloronaphthalene	EPA 8270	< 10	ug/L	CMG	1/20/05
2-Nitroaniline	EPA 8270	< 50	ug/L	CMG	1/20/05
Dimethylphthalate	EPA 8270	< 10	ug/L	CMG	1/20/05
Acenaphthylene	EPA 8270	< 2.0	ug/L	CMG	1/20/05

GZA GeoEnvironmental, Inc.

ANALYTICAL REPORT

Project Name: CLF/ERD Treatment System
Project No.: 03.0032419.02

Work Order No.: 0501-00057

Sample ID: INF-011305
Sample Date: 1/13/2005

Sample No.: 001

Test Performed	Method	Results	Units	Tech	Analysis Date
2,6-Dinitrotoluene	EPA 8270	<10	ug/L	CMG	1/20/05
3-Nitroaniline	EPA 8270	<50	ug/L	CMG	1/20/05
Acenaphthene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Dibenzofuran	EPA 8270	<10	ug/L	CMG	1/20/05
2,4-Dinitrotoluene	EPA 8270	<10	ug/L	CMG	1/20/05
Diethylphthalate	EPA 8270	<10	ug/L	CMG	1/20/05
Fluorene	EPA 8270	<2.0	ug/L	CMG	1/20/05
4-Chlorophenyl Phenyl Ether	EPA 8270	<10	ug/L	CMG	1/20/05
4-Nitroaniline	EPA 8270	<20	ug/L	CMG	1/20/05
n-Nitrosodiphenylamine	EPA 8270	<10	ug/L	CMG	1/20/05
4-Bromophenyl Phenyl Ether	EPA 8270	<10	ug/L	CMG	1/20/05
Hexachlorobenzene	EPA 8270	<10	ug/L	CMG	1/20/05
Phenanthrene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Anthracene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Carbazole	EPA 8270	14	ug/L	CMG	1/20/05
di-n-Butylphthalate	EPA 8270	<15	ug/L	CMG	1/20/05
Fluoranthene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Pyrene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Butylbenzylphthalate	EPA 8270	<10	ug/L	CMG	1/20/05
Benzo [a] Anthracene	EPA 8270	<2.0	ug/L	CMG	1/20/05
3,3'-Dichlorobenzidine	EPA 8270	<20	ug/L	CMG	1/20/05
Chrysene	EPA 8270	<2.0	ug/L	CMG	1/20/05
bis(2-Ethylhexyl)Phthalate	EPA 8270	<10	ug/L	CMG	1/20/05
di-n-Octylphthalate	EPA 8270	<10	ug/L	CMG	1/20/05
Benzo [b] Fluoranthene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Benzo [k] Fluoranthene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Benzo [a] Pyrene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Benzo [g,h,i] Perylene	EPA 8270	<2.0	ug/L	CMG	1/20/05
Surrogates:	EPA 8270				
***2-Fluorophenol	EPA 8270	17.7	% R	CMG	1/20/05
***Phenol-D6	EPA 8270	59.0	% R	CMG	1/20/05
***Nitrobenzene-D5	EPA 8270	55.8	% R	CMG	1/20/05
***2-Fluorobiphenyl	EPA 8270	64.8	% R	CMG	1/20/05
***2,4,6-Tribromophenol	EPA 8270	69.0	% R	CMG	1/20/05
***P-Terphenyl-D14	EPA 8270	50.1	% R	CMG	1/20/05
Extraction	EPA 3510C	1.0	DF	JEJ	1/20/05
PRIORITY POLLUTANT METALS				AJY	1/18/05
Silver	EPA 6010B	<0.0050	mg/L	AJY	1/18/05

GZA GeoEnvironmental, Inc.

ANALYTICAL REPORT

Project Name: CLF/ERD Treatment System
Project No.: 03.0032419.02

Work Order No.: 0501-00057

Sample ID: INF-011305
Sample Date: 1/13/2005

Sample No.: 001

Test Performed	Method	Results	Units	Tech	Analysis Date
Arsenic	EPA 6010B	<0.010	mg/L	AJY	1/18/05
Beryllium	EPA 6010B	0.0120	mg/L	AJY	1/18/05
Cadmium	EPA 6010B	<0.0050	mg/L	AJY	1/18/05
Chromium	EPA 6010B	0.0415	mg/L	AJY	1/18/05
Copper	EPA 6010B	<0.015	mg/L	AJY	1/18/05
Mercury	EPA 7470A	<0.00050	mg/L	NH	1/17/05
Nickel	EPA 6010B	0.047	mg/L	AJY	1/18/05
Lead	EPA 6010B	<0.010	mg/L	AJY	1/18/05
Antimony	EPA 6010B	<0.020	mg/L	AJY	1/18/05
Selenium	EPA 6010B	<0.025	mg/L	AJY	1/18/05
Thallium	EPA 6010B	<0.015	mg/L	AJY	1/18/05
Zinc	EPA 6010B	1.13	mg/L	AJY	1/18/05
Iron	EPA 6010B	4.27	mg/L	AJY	1/18/05
Manganese	EPA 6010B	22.4	mg/L	AJY	1/19/05
Magnesium	EPA 6010B	64.3	mg/L	AJY	1/18/05
Copper	EPA 6010B	<0.015	mg/L	AJY	1/18/05
Boron	EPA 6010B	1.42	mg/L	AJY	1/18/05
SUBCONTRACTED ANALYTES					
Alkalinity	EPA 310.2	930	mg/L CaCO3	XXX	1/14/05
HARDNESS	SM2340B	620	CaCO3/L	XXX	1/18/05
Total Cyanide	EPA 9012	0.01	mg/L	XXX	1/14/05
Nitrate by IC	EPA 300.0	<0.01	mg/L	XXX	1/13/05
Sulfate by IC	EPA 300.0	39	mg/L	XXX	1/13/05
Oil & Grease A/V	EPA 1664	3.8	mg/L	XXX	1/19/05
Oil & Grease TPH	EPA 1664	1.2	mg/L	XXX	1/19/05
Total Suspended Solids	EPA 160.2	20	mg/L	XXX	1/17/05
Total Dissolved Solids	EPA 160.1	1800	mg/L	XXX	1/14/05
Chloride by IC	EPA 300.0	520	mg/L	XXX	1/13/05

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
106 SOUTH ST, HOPKINTON, MA 01748
MASSACHUSETTS LABORATORY I.D. NO. MA092

EPA METHOD 6010B ANALYSIS
Metals by ICP

QUALITY CONTROL - AQUEOUS

DATE PREPARED: 01/17/2005 B

QC Sample	Method Blank	Lab Control Sample
Units	mg/L	% Recovery
Acceptance Limits	Results	80-120%
Analyte		
Silver (Ag)	<0.0050	102
Aluminum (Al)	NA	NA
Arsenic (As)	<0.0100	105
Boron (B)	<0.0250	112
Barium (Ba)	NA	NA
Beryllium (Be)	<0.0050	107
Calcium (Ca)	NA	NA
Cadmium (Cd)	<0.0050	103
Cobalt (Co)	NA	NA
Chromium (Cr)	<0.0050	102
Copper (Cu)	<0.0150	110
Iron (Fe)	<0.0250	102
Magnesium (Mg)	<0.0250	101
Manganese (Mn)	<0.0250	106
Molybdenum (Mo)	NA	NA
Nickel (Ni)	<0.0100	105
Lead (Pb)	<0.0100	104
Antimony (Sb)	<0.0250	108
Selenium (Se)	<0.0250	109
Strontium (Sr)	NA	NA
Titanium (Ti)	NA	NA
Thallium (Tl)	<0.0250	100
Vanadium (V)	NA	NA
Zinc (Zn)	<0.0100	109

Matrix Spike / Duplicate Spike performed as per method and reported if assigned on Chain of Custody.

GZA GEOENVIRONMENTAL, INC.
ENVIRONMENTAL CHEMISTRY LABORATORY
106 SOUTH ST, HOPKINTON, MA 01748
MASSACHUSETTS LABORATORY I.D. NO. MA092

EPA METHOD 7470/7471 ANALYSIS
Mercury by Cold Vapor Atomic Absorption

QUALITY CONTROL - AQUEOUS

Date Analyzed: 01/17/2005

QC Sample	Method Blank	Lab Control Sample
Units	mg/L	% Recovery
Acceptance Limits	Results	85-115 %
Analyte		
Mercury (Hg)	<0.00050 (Aq)	101

Matrix Spike / Duplicate Spike performed as per method and reported if assigned on Chain of Custody.

GZA GeoEnvironmental, Inc.
106 South Street
Hopkinton, MA 01748

EPA Method 8260 / 524.2 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Method Blank

Date Analyzed:	1/14/2005	
Volatile Organics	Conc. ug/L	Acceptance Limit
dichlorodifluoromethane	< 1.0	< 1.0
chloromethane	< 1.0	< 1.0
vinyl chloride	< 1.0	< 1.0
bromomethane	< 1.0	< 1.0
chloroethane	< 1.0	< 1.0
trichlorofluoromethane	< 1.0	< 1.0
diethyl ether	< 2.0	< 2.0
acetone	< 25	< 25
1,1-dichloroethene	< 0.5	< 0.5
FREON-113	< 1.0	< 1.0
carbon disulfide	< 1.0	< 1.0
dichloromethane	< 1.0	< 1.0
tert-butyl alcohol (TBA)	< 25	< 25
methyl-tert-butyl-ether	< 1.0	< 1.0
trans-1,2-dichloroethene	< 0.5	< 0.5
1,1-dichloroethane	< 0.5	< 0.5
di-isopropyl ether (DIPE)	< 1.0	< 1.0
ethyl tert-butyl ether (EtBE)	< 1.0	< 1.0
2-butanone	< 25	< 25
2,2-dichloropropane	< 0.5	< 0.5
cis-1,2-dichloroethene	< 0.5	< 0.5
chloroform	< 0.5	< 0.5
bromochloromethane	< 0.5	< 0.5
tetrahydrafuran	< 5.0	< 5.0
1,1,1-trichloroethane	< 0.5	< 0.5
1,1-dichloropropene	< 0.5	< 0.5
carbon tetrachloride	< 0.5	< 0.5
1,2-dichloroethane	< 0.5	< 0.5
benzene	< 0.5	< 0.5
tert-amyl methyl ether (TAME)	< 1.0	< 1.0
trichloroethene	< 0.5	< 0.5
1,2-dichloropropane	< 0.5	< 0.5
bromodichloromethane	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50
dibromomethane	< 0.5	< 0.5
4-methyl-2-pentanone	< 1.0	< 1.0
cis-1,3-dichloropropene	< 0.5	< 0.5
toluene	< 0.5	< 0.5
trans-1,3-dichloropropene	< 0.5	< 0.5
1,1,2-trichloroethane	< 1.0	< 1.0
2-hexanone	< 1.0	< 1.0
1,3-dichloropropane	< 0.5	< 0.5
tetrachloroethene	< 0.5	< 0.5
dibromochloromethane	< 0.5	< 0.5
1,2-dibromoethane (EDB)	< 0.5	< 0.5
chlorobenzene	< 0.5	< 0.5
1,1,1,2-tetrachloroethane	< 0.5	< 0.5
ethylbenzene	< 0.5	< 0.5
1,1,2,2-tetrachloroethane	< 0.5	< 0.5
m&p-xylene	< 0.5	< 0.5
o-xylene	< 0.5	< 0.5
styrene	< 0.5	< 0.5
bromoform	< 0.5	< 0.5
isopropylbenzene	< 0.5	< 0.5
1,2,3-trichloropropane	< 0.5	< 0.5
bromobenzene	< 0.5	< 0.5
n-propylbenzene	< 0.5	< 0.5
2-chlorotoluene	< 0.5	< 0.5
1,3,5-trimethylbenzene	< 0.5	< 0.5
4-chlorotoluene	< 0.5	< 0.5
tert-butyl-benzene	< 0.5	< 0.5
1,2,4-trimethylbenzene	< 0.5	< 0.5
sec-butyl-benzene	< 0.5	< 0.5
p-isopropyltoluene	< 2.5	< 2.5
1,3-dichlorobenzene	< 0.5	< 0.5
1,4-dichlorobenzene	< 0.5	< 0.5
n-butylbenzene	< 0.5	< 0.5
1,2-dichlorobenzene	< 0.5	< 0.5
1,2-dibromo-3-chloropropane	< 1.0	< 1.0
1,2,4-trichlorobenzene	< 0.5	< 0.5
hexachlorobutadiene	< 0.5	< 0.5
naphthalene	< 0.5	< 0.5
1,2,3-trichlorobenzene	< 0.5	< 0.5

Laboratory Control Sample

Date Analyzed:	1/14/2005		
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits	Verdict
dichlorodifluoromethane	122	70-130	ok
chloromethane	114	70-130	ok
vinyl chloride	129	70-130	ok
bromomethane	113	70-130	ok
chloroethane	124	70-130	ok
trichlorofluoromethane	90.8	70-130	ok
diethyl ether	112	70-130	ok
acetone	87.4	70-130	ok
1,1-dichloroethene	107	70-130	ok
FREON-113	101	70-130	ok
carbon disulfide	116	70-130	ok
dichloromethane	111	70-130	ok
tert-butyl alcohol (TBA)	112	70-130	ok
methyl-tert-butyl-ether	98.5	70-130	ok
trans-1,2-dichloroethene	106	70-130	ok
1,1-dichloroethane	103	70-130	ok
di-isopropyl ether (DIPE)	123	70-130	ok
ethyl tert-butyl ether (EtBE)	89.7	70-130	ok
2-butanone	89.5	70-130	ok
2,2-dichloropropane	78.6	70-130	ok
cis-1,2-dichloroethene	88.9	70-130	ok
chloroform	83.3	70-130	ok
bromochloromethane	89.8	70-130	ok
tetrahydrafuran	103	70-130	ok
1,1,1-trichloroethane	79.7	70-130	ok
1,1-dichloropropene	101	70-130	ok
carbon tetrachloride	76.5	70-130	ok
1,2-dichloroethane	75.2	70-130	ok
benzene	105	70-130	ok
tert-amyl methyl ether (TAME)	101	70-130	ok
trichloroethene	97.0	70-130	ok
1,2-dichloropropane	106	70-130	ok
bromodichloromethane	86.8	70-130	ok
1,4-Dioxane	105	70-130	ok
dibromomethane	92.4	70-130	ok
4-methyl-2-pentanone	112	70-130	ok
cis-1,3-dichloropropene	101	70-130	ok
toluene	94.2	70-130	ok
trans-1,3-dichloropropene	93.7	70-130	ok
1,1,2-trichloroethane	99.6	70-130	ok
2-hexanone	113	70-130	ok
1,3-dichloropropane	104	70-130	ok
tetrachloroethene	98.0	70-130	ok
dibromochloromethane	88.7	70-130	ok
1,2-dibromoethane (EDB)	91.7	70-130	ok
chlorobenzene	96.9	70-130	ok
1,1,1,2-tetrachloroethane	93.1	70-130	ok
ethylbenzene	103	70-130	ok
1,1,2,2-tetrachloroethane	108	70-130	ok
m&p-xylene	96.2	70-130	ok
o-xylene	99.8	70-130	ok
styrene	101	70-130	ok
bromoform	95.4	70-130	ok
isopropylbenzene	99.5	70-130	ok
1,2,3-trichloropropane	98.2	70-130	ok
bromobenzene	102	70-130	ok
n-propylbenzene	105	70-130	ok
2-chlorotoluene	106	70-130	ok
1,3,5-trimethylbenzene	97.4	70-130	ok
4-chlorotoluene	102	70-130	ok
tert-butyl-benzene	94.7	70-130	ok
1,2,4-trimethylbenzene	95.7	70-130	ok
sec-butyl-benzene	99.7	70-130	ok
p-isopropyltoluene	95.3	70-130	ok
1,3-dichlorobenzene	105	70-130	ok
1,4-dichlorobenzene	105	70-130	ok
n-butylbenzene	101	70-130	ok
1,2-dichlorobenzene	105	70-130	ok
1,2-dibromo-3-chloropropane	86.8	70-130	ok
1,2,4-trichlorobenzene	99.8	70-130	ok
hexachlorobutadiene	98.4	70-130	ok
naphthalene	66.8	70-130	out
1,2,3-trichlorobenzene	97.0	70-130	ok

SMF criteria allows 5 compounds to be outside acceptance limits

Surrogates:	Recovery (%)	Acceptance Limits
DIBROMOFLUOROMETHANE	85.4	70-130
1,2-DICHLOROETHANE-D4	102	70-130
TOLUENE-D8	93.3	70-130
4-BROMOFLUOROBENZENE	93.6	70-130
1,2-DICHLOROBENZENE-D4	94.0	70-130

Surrogates:	Recovery (%)	Acceptance Limits	Verdict
DIBROMOFLUOROMETHANE	85.7	70-130	ok
1,2-DICHLOROETHANE-D4	96.9	70-130	ok
TOLUENE-D8	96.3	70-130	ok
4-BROMOFLUOROBENZENE	98.6	70-130	ok
1,2-DICHLOROBENZENE-D4	97.9	70-130	ok

Instrument: HP GC/MS "A"

GZA GeoEnvironmental, Inc.
106 South Street
Hopkinton, MA 01748

EPA Method 8260 / 524.2 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Method Blank

Date Analyzed:	1/17/2005	
Volatile Organics	Conc. ug/L	Acceptance Limit
dichlorodifluoromethane	< 1.0	< 1.0
chloromethane	< 1.0	< 1.0
vinyl chloride	< 1.0	< 1.0
bromomethane	< 1.0	< 1.0
chloroethane	< 1.0	< 1.0
trichlorofluoromethane	< 1.0	< 1.0
diethyl ether	< 2.0	< 2.0
acetone	< 25	< 25
1,1-dichloroethene	< 0.5	< 0.5
FREON-113	< 1.0	< 1.0
carbon disulfide	< 1.0	< 1.0
dichloromethane	< 1.0	< 1.0
tert-butyl alcohol (TBA)	< 25	< 25
methyl-tert-butyl-ether	< 1.0	< 1.0
trans-1,2-dichloroethene	< 0.5	< 0.5
1,1-dichloroethane	< 0.5	< 0.5
di-isopropyl ether (DIPE)	< 1.0	< 1.0
ethyl tert-butyl ether (EtBE)	< 1.0	< 1.0
2-butanone	< 25	< 25
2,2-dichloropropane	< 0.5	< 0.5
cis-1,2-dichloroethene	< 0.5	< 0.5
chloroform	< 0.5	< 0.5
bromochloromethane	< 0.5	< 0.5
tetrahydrafuran	< 5.0	< 5.0
1,1,1-trichloroethane	< 0.5	< 0.5
1,1-dichloropropene	< 0.5	< 0.5
carbon tetrachloride	< 0.5	< 0.5
1,2-dichloroethane	< 0.5	< 0.5
benzene	< 0.5	< 0.5
tert-amyl methyl ether (TAME)	< 1.0	< 1.0
trichloroethene	< 0.5	< 0.5
1,2-dichloropropane	< 0.5	< 0.5
bromodichloromethane	< 0.5	< 0.5
1,4-Dioxane	< 50	< 50
dibromomethane	< 0.5	< 0.5
4-methyl-2-pentanone	< 1.0	< 1.0
cis-1,3-dichloropropene	< 0.5	< 0.5
toluene	< 0.5	< 0.5
trans-1,3-dichloropropene	< 0.5	< 0.5
1,1,2-trichloroethane	< 1.0	< 1.0
2-hexanone	< 1.0	< 1.0
1,3-dichloropropane	< 0.5	< 0.5
tetrachloroethene	< 0.5	< 0.5
dibromochloromethane	< 0.5	< 0.5
1,2-dibromoethane (EDB)	< 0.5	< 0.5
chlorobenzene	< 0.5	< 0.5
1,1,1,2-tetrachloroethane	< 0.5	< 0.5
ethylbenzene	< 0.5	< 0.5
1,1,2,2-tetrachloroethane	< 0.5	< 0.5
m&p-xylene	< 0.5	< 0.5
o-xylene	< 0.5	< 0.5
styrene	< 0.5	< 0.5
bromoform	< 0.5	< 0.5
isopropylbenzene	< 0.5	< 0.5
1,2,3-trichloropropane	< 0.5	< 0.5
bromobenzene	< 0.5	< 0.5
n-propylbenzene	< 0.5	< 0.5
2-chlorotoluene	< 0.5	< 0.5
1,3,5-trimethylbenzene	< 0.5	< 0.5
4-chlorotoluene	< 0.5	< 0.5
tert-butyl-benzene	< 0.5	< 0.5
1,2,4-trimethylbenzene	< 0.5	< 0.5
sec-butyl-benzene	< 0.5	< 0.5
p-isopropyltoluene	< 2.5	< 2.5
1,3-dichlorobenzene	< 0.5	< 0.5
1,4-dichlorobenzene	< 0.5	< 0.5
n-butylbenzene	< 0.5	< 0.5
1,2-dichlorobenzene	< 0.5	< 0.5
1,2-dibromo-3-chloropropane	< 1.0	< 1.0
1,2,4-trichlorobenzene	< 0.5	< 0.5
hexachlorobutadiene	< 0.5	< 0.5
naphthalene	< 0.5	< 0.5
1,2,3-trichlorobenzene	< 0.5	< 0.5

Laboratory Control Sample

Date Analyzed:	1/17/2005		
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits	Verdict
dichlorodifluoromethane	136	70-130	out
chloromethane	101	70-130	ok
vinyl chloride	119	70-130	ok
bromomethane	116	70-130	ok
chloroethane	115	70-130	ok
trichlorofluoromethane	85.0	70-130	ok
diethyl ether	102	70-130	ok
acetone	75.8	70-130	ok
1,1-dichloroethene	104	70-130	ok
FREON-113	109	70-130	ok
carbon disulfide	109	70-130	ok
dichloromethane	102	70-130	ok
tert-butyl alcohol (TBA)	91.5	70-130	ok
methyl-tert-butyl-ether	88.1	70-130	ok
trans-1,2-dichloroethene	104	70-130	ok
1,1-dichloroethane	90.5	70-130	ok
di-isopropyl ether (DIPE)	100	70-130	ok
ethyl tert-butyl ether (EtBE)	77.4	70-130	ok
2-butanone	86.8	70-130	ok
2,2-dichloropropane	78.6	70-130	ok
cis-1,2-dichloroethene	88.1	70-130	ok
chloroform	83.7	70-130	ok
bromochloromethane	91.6	70-130	ok
tetrahydrafuran	102	70-130	ok
1,1,1-trichloroethane	77.8	70-130	ok
1,1-dichloropropene	96.9	70-130	ok
carbon tetrachloride	72.3	70-130	ok
1,2-dichloroethane	64.4	70-130	out
benzene	96.8	70-130	ok
tert-amyl methyl ether (TAME)	89.8	70-130	ok
trichloroethene	96.7	70-130	ok
1,2-dichloropropane	93.1	70-130	ok
bromodichloromethane	80.2	70-130	ok
1,4-Dioxane	101	70-130	ok
dibromomethane	97.5	70-130	ok
4-methyl-2-pentanone	93.2	70-130	ok
cis-1,3-dichloropropene	93.0	70-130	ok
toluene	89.2	70-130	ok
trans-1,3-dichloropropene	84.3	70-130	ok
1,1,2-trichloroethane	105	70-130	ok
2-hexanone	104	70-130	ok
1,3-dichloropropane	105	70-130	ok
tetrachloroethene	119	70-130	ok
dibromochloromethane	93.0	70-130	ok
1,2-dibromoethane (EDB)	97.4	70-130	ok
chlorobenzene	103	70-130	ok
1,1,1,2-tetrachloroethane	98.1	70-130	ok
ethylbenzene	110	70-130	ok
1,1,2,2-tetrachloroethane	105	70-130	ok
m&p-xylene	103	70-130	ok
o-xylene	98.6	70-130	ok
styrene	98.9	70-130	ok
bromoform	96.7	70-130	ok
isopropylbenzene	99.5	70-130	ok
1,2,3-trichloropropane	91.7	70-130	ok
bromobenzene	101	70-130	ok
n-propylbenzene	102	70-130	ok
2-chlorotoluene	104	70-130	ok
1,3,5-trimethylbenzene	94.4	70-130	ok
4-chlorotoluene	98.2	70-130	ok
tert-butyl-benzene	89.9	70-130	ok
1,2,4-trimethylbenzene	92.1	70-130	ok
sec-butyl-benzene	98.1	70-130	ok
p-isopropyltoluene	89.0	70-130	ok
1,3-dichlorobenzene	101	70-130	ok
1,4-dichlorobenzene	102	70-130	ok
n-butylbenzene	95.1	70-130	ok
1,2-dichlorobenzene	100	70-130	ok
1,2-dibromo-3-chloropropane	78.3	70-130	ok
1,2,4-trichlorobenzene	91.6	70-130	ok
hexachlorobutadiene	96.7	70-130	ok
naphthalene	55.6	70-130	out
1,2,3-trichlorobenzene	83.8	70-130	ok

SMF criteria allows 5 compounds to be outside acceptance limits

Surrogates:	Recovery (%)	Acceptance Limits	Surrogates:	Recovery (%)	Acceptance Limits	Verdict
DIBROMOFLUOROMETHANE	85.7	70-130	DIBROMOFLUOROMETHANE	78.8	70-130	ok
1,2-DICHLOROETHANE-D4	106	70-130	1,2-DICHLOROETHANE-D4	97.8	70-130	ok
TOLUENE-D8	94.1	70-130	TOLUENE-D8	93.4	70-130	ok
4-BROMOFLUOROBENZENE	104	70-130	4-BROMOFLUOROBENZENE	101	70-130	ok
1,2-DICHLOROBENZENE-D4	103	70-130	1,2-DICHLOROBENZENE-D4	92.9	70-130	ok

Instrument: HP GC/MS "A"

GZA GeoEnvironmental, Inc.
106 South Street
Hopkinton, MA 01748
MA092

EPA Method 8270 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Method Blank

Date Extracted:	**01/20/05**
Date Analyzed:	**01/20/05**
File Name:	**K7384**

Volatile Organics	**Result**	**Reporting Limit**
n-nitrosodimethylamine	ND	10
pyridine	ND	100
phenol	ND	10
bis(2-chloroethyl)ether	ND	10
2-chlorophenol	ND	10
1,3-dichlorobenzene	ND	10
1,4-dichlorobenzene	ND	10
benzyl alchohol	ND	20
1,2-dichlorobenzene	ND	10
2-methylphenol	ND	10
bis(2-chloroisopropyl)ether	ND	10
3&4-methylphenol	ND	10
n-nitrosodi-n-propylamine	ND	10
hexachloroethane	ND	10
nitrobenzene	ND	10
isophrone	ND	10
2-nitrophenol	ND	10
2,4-dimethylphenol	ND	10
benzoic acid	ND	10
bis(2-chloroethoxy)methane	ND	10
2,4-dichlorophenol	ND	10
1,2,4-trichlorobenzene	ND	10
napthalene	ND	2.0
4-chloroaniline	ND	10
hexachlorobutadiene	ND	10
4-chloro-3-methylphenol	ND	20
2-methylnapthalene	ND	2.0
aniline	ND	10
hexachlorocyclopentadiene	ND	50
2,4,6-trichlorophenol	ND	10
2,4,5-trichlorophenol	ND	10
2-chloronapthalene	ND	10
2-nitroaniline	ND	50
dimethylphthalate	ND	10
acenapthylene	ND	2.0
2,6-dinitrotoluene	ND	10
3-nitroaniline	ND	50
acenaphthene	ND	2.0
2,4-dinitrophenol	ND	100
dibenzofuran	ND	10
4-nitrophenol	ND	50
2,4-dinitrotoluene	ND	10
diethylphthalate	ND	10
fluorene	ND	2.0
4-chlorophenyl phenyl ether	ND	10
4-nitroaniline	ND	20
4,6-dinitro-2-methylphenol	ND	50
n-nitrosodiphenylamine	ND	10
4-bromophenyl phenyl ether	ND	10
hexachlorobenzene	ND	10
pentachlorophenol	ND	50
phenanthrene	ND	2.0
anthracene	ND	2.0
carbazole	ND	10
di-n-butylphthalate	ND	15
fluoranthene	ND	2.0
benzidine	ND	10
pyrene	ND	2.0
butylbenzylphthalate	ND	10
benz [a] anthracene	ND	2.0
3,3'-dichlorobenzidine	ND	20
chrysene	ND	2.0
bis(2-ethylhexyl)phthalate	ND	10
di-n-octylphthalate	ND	10
benzo [b] fluoranthene	ND	2.0
benzo [k] fluoranthene	ND	2.0
benzo [a] pyrene	ND	2.0
indeno [1,2,3-cd] pyrene	ND	2.0
dibenz [a,h] anthracene	ND	2.0
benzo [ghi] perylene	ND	2.0

Surrogates:	**Recovery (%)**	**Acceptance Limits**
2-FLUOROPHENOL	31.0	15-110
PHENOL-D6	19.5	15-110
2-CHLOROPHENOL-D4	59.8	15-110
1,2-DICHLOROBENZENE-D4	66.1	30-130
NITROBENZENE-D5	61.2	30-130
2-FLUOROBIPHENYL	74.0	30-130
2,4,6-TRIBROMOPHENOL	68.4	15-110
p-TERPHENYL-D14	76.6	30-130

GZA GeoEnvironmental, Inc.
106 South Street
Hopkinton, MA 01748
MA092

EPA Method 8270 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Laboratory Control Sample

Date Extracted:	**01/20/05**		
Date Analyzed:	**01/20/05**		
File Name:	**K7385**		
Spike Concentration = 20ug/L	**% Recovery**	**Acceptance Limits**	**Verdict**
n-nitrosodimethylamine	37.2	40-140	out
pyridine	33.9	40-140	out
phenol	23.3	30-130	out
bis(2-chloroethyl)ether	83.8	40-140	ok
2-chlorophenol	63.0	30-130	ok
1,3-dichlorobenzene	74.1	40-140	ok
1,4-dichlorobenzene	68.6	40-140	ok
benzyl alchohol	51.3	40-140	ok
1,2-dichlorobenzene	81.5	40-140	ok
2-methylphenol	60.7	30-130	ok
bis(2-chloroisopropyl)ether	72.9	40-140	ok
3&4-methylphenol	79.9	30-130	ok
n-nitrosodi-n-propylamine	77.8	40-140	ok
hexachloroethane	64.1	40-140	ok
nitrobenzene	69.0	40-140	ok
isophrone	76.8	40-140	ok
2-nitrophenol	67.4	30-130	ok
2,4-dimethylphenol	61.7	30-130	ok
benzoic acid	8.14	30-130	out
bis(2-chloroethoxy)methane	75.9	40-140	ok
2,4-dichlorophenol	67.1	30-130	ok
1,2,4-trichlorobenzene	69.5	40-140	ok
napthalene	70.3	40-140	ok
4-chloroaniline	74.3	40-140	ok
hexachlorobutadiene	67.5	40-140	ok
4-chloro-3-methylphenol	63.1	30-130	ok
2-methylnapthalene	71.8	40-140	ok
aniline	69.6	40-140	ok
hexachlorocyclopentadiene	57.0	40-140	ok
2,4,6-trichlorophenol	65.2	30-130	ok
2,4,5-trichlorophenol	64.8	30-130	ok
2-chloronapthalene	69.0	40-140	ok
2-nitroaniline	72.0	40-140	ok
dimethylphthalate	68.4	40-140	ok
acenapthylene	71.0	40-140	ok
2,6-dinitrotoluene	71.3	40-140	ok
3-nitroaniline	68.8	40-140	ok
acenaphthene	70.0	40-140	ok
2,4-dinitrophenol	50.0	30-130	ok
dibenzofuran	75.4	40-140	ok
4-nitrophenol	15.5	30-130	out
2,4-dinitrotoluene	68.2	40-140	ok
diethylphthalate	73.6	40-140	ok
fluorene	73.8	40-140	ok
4-chlorophenyl phenyl ether	71.2	40-140	ok
4-nitroaniline	76.6	40-140	ok
4,6-dinitro-2-methylphenol	58.0	30-130	ok
n-nitrosodiphenylamine	74.3	40-140	ok
4-bromophenyl phenyl ether	68.2	40-140	ok
hexachlorobenzene	70.2	40-140	ok
pentachlorophenol	57.0	30-130	ok
phenanthrene	78.8	40-140	ok
anthracene	79.5	40-140	ok
carbazole	81.5	40-140	ok
di-n-butylphthalate	79.0	40-140	ok
fluoranthene	74.1	40-140	ok
benzidine	0.06	40-140	out
pyrene	76.7	40-140	ok
butylbenzylphthalate	74.5	40-140	ok
benz [a] anthracene	73.0	40-140	ok
3,3'-*dichlorobenzidine*	101	40-140	ok
chrysene	70.2	40-140	ok
bis(2-ethylhexyl)phthalate	75.4	40-140	ok
di-n-octylphthalate	73.5	40-140	ok
benzo [b] fluoranthene	59.6	40-140	ok
benzo [k] fluoranthene	59.5	40-140	ok
benzo [a] pyrene	65.3	40-140	ok
indeno [1,2,3-cd] pyrene	63.6	40-140	ok
dibenz [a,h] anthracene	62.4	40-140	ok
benzo [ghi] perylene	67.9	40-140	ok

CAM criteria allows 15% of analytes to exceed criteria.

Surrogates:	**Recovery (%)**	**Acceptance Limits**	**Verdict**
2-FLUOROPHENOL	32.7	15-110	ok
PHENOL-D6	20.7	15-110	ok
2-CHLOROPHENOL-D4	69.5	15-110	ok
1,2-DICHLOROBENZENE-D4	73.2	30-130	ok
NITROBENZENE-D5	71.5	30-130	ok
2-FLUOROBIPHENYL	75.4	30-130	ok
2,4,6-TRIBROMOPHENOL	65.1	15-110	ok
p-TERPHENYL-D14	74.3	30-130	ok

Report Generated: 1/21/05 11:13 AM

WHITE COPY- Original (Accompanies Samples) YELLOW COPY-Collector PINK COPY-Project Manager

CHAIN-OF-CUSTODY RECORD

0501-0005-7

Station Number	Time (24hr.)	Container ID	Sample ID	Location Description	Sample Type	VOA 8260	VOA 8010	VOA 8020	ABN 8270	PEST/PCB	PP. METAL	D.W. METAL	TCLP	TPH	PHC-F	GC SCREEN	Metals	Total # of Cont.	Note #
	1030	-1400		INF011305	GW	X			X								X	4	1.

ANALYSES REQUIRED: 8260 + MNA + Fe(II) & SW via

TOTAL NUMBER OF CONTAINERS

Sign here

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	1/14/05 1020	[signature] 9:00 am
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature] 1/14/05	1020	[signature] 1/14/05 1030
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)

NOTES: 1. 1 week turn-around time required

1/14

2.4 AIR 0411

ANALYTICAL LABORATORY : GTA

LABORATORY CONTACT : KATE WALSH

GZA CONTACT : MARK DALPE PHONE :

GZA GeoEnvironmental, Inc.
140 Broadway
PROVIDENCE, RHODE ISLAND 02903
401-421-4140

GZA FILE NO. 03.0032419.02 P.O. NO.

PROJECT CLF/ERD TREATMENT SYSTEM

LOCATION CLF JOHNSTON, R.I.

COLLECTOR MARK DALPE

DATE OF COLLECTION 1/13/05 SHEET 1 OF 1

1/14/05 KG 1030

R.I. Analytical

Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

GZA GeoEnvironmental Labs
Attn: Ms. Michelle Mirenda
Engineers and Scientists
106 South Street
Hopkinton, MA 01748

Date Received: 01/13/2005
Date Reported: 01/20/2005
P.O. #:
Work Order # 0501-00634

DESCRIPTION: GZA FILE #32419.02 CLF ERD TREATMENT SYSTEM

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies and all NELAC requirements were met. The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844, NY-11726

If you have any questions regarding this work, or if we may be of further assistance, please contact us.

Approved by:

Data Reporting

enc: Chain of Custody

41 Illinois Avenue, Warwick, RI 02888
Tel: (401) 737-8500 Fax: (401) 738-1970

131 Coolidge Street, Bldg 2, Hudson, MA 01749
Tel: (978) 568-0041 Fax: (978) 568-0078

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

GZA GeoEnvironmental Labs
Date Received: 01/13/2005
Work Order #: 0501-00634

Approved by: _____
Data Reporting

Sample # 001
SAMPLE DESCRIPTION: INF011305
SAMPLE TYPE: COMPOSITE **SAMPLE DATE/TIME:** 01/13/2005

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
T. SUSPENDED SOLIDS	20	2.0	mg/l	EPA 160.2	01/17/2005	ML
T. DISSOLVED SOLIDS	1800	10	mg/l	EPA 160.1	01/14/2005	BMM
NITRATE (as N)	<0.01	0.01	mg/l	EPA 300.0	01/13/2005	ML
CHLORIDE	520	5.0	mg/l	EPA 300.0	01/13/2005	ML
SULFATE	39	5.0	mg/l	EPA 300.0	01/13/2005	ML
ALKALINITY (as CaCO3)	930	1.0	mg/l	EPA 310.1	01/14/2005	ML
TOTAL CYANIDE	0.01	0.01	mg/l	EPA 335.2	01/14/2005	EC
OIL & GREASE GRAVIMETRIC	3.8	0.5	mg/l	EPA 1664	01/19/2005	CCP
TPH	1.2	0.5	mg/l	EPA 1664	01/19/2005	CCP
TOTAL METALS						
CALCIUM	140	0.05	mg/l	EPA 200.7	01/18/2005	JNB
MAGNESIUM	66	0.05	mg/l	EPA 200.7	01/18/2005	JNB
HARDNESS as CaCO3	620	0.33	mg/l	EPA 200.7	01/18/2005	JNB

0501-00057

WHITE COPY- Original (Accompanies Samples) YELLOW COPY-Collector PINK COPY-Project Manager

CHAIN-OF-CUSTODY RECORD

*date collected 01/13/05 per sample bottles 1/13/05

Station Number	Time (24hr.)	Container ID	Sample ID	Location Description	Sample Type		VOA ~~8240~~	~~VOA 8010~~ ALK	~~VOA 8020~~ HARD.	ABN 8270	PEST/PCB	P.P. METAL	D.W. METAL (SW6010B)	~~TOC~~ CN	~~TPH~~ Nitrate	~~PHC~~ Sulfate	GC SCREEN	O+G via E1664 (mineral/petro.)	O+G via E1664 (animal/vegetable)	Cl-, TSS, TDS	Total # of Cont.	Note #
	1030-1200			INF011305	WW			X	X					X	X	X		X	X	X		1.
																						2.

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	1/13/05	[signature] 1/13/05
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)

NOTES:

1. 1 week turn-around time required
2. Subcontracted through GZA Laboratories

0501-00634

ANALYTICAL LABORATORY: RIAL / GZA

LABORATORY CONTACT: KATE WALSH - GZA

GZA CONTACT: MARK DALPE PHONE: 401-374-2305

GZA GEOENVIRONMENTAL, INC.
140 Broadway
PROVIDENCE, RHODE ISLAND 02903
401-421-4140

GZA FILE NO. 32419.02 P.O. NO.

PROJECT CLF ERD TREATMENT SYSTEM

LOCATION CLF, JOHNSTON, R.I.

COLLECTOR MARK DALPE / ERIC BELOFF

DATE OF COLLECTION 1/13/05 SHEET 1 OF 1

Rel to GZA Hopkinton per L. Coon 1/13/05 (KW).

MITKEM CORPORATION

"Environmental Testing For The New Millennium"

March 23, 2005

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903
Attn: Ms. Meg Kilpatrick

RE: Client Project: CLF ERD Treatment System, 03/21/05
Lab Project #: D0326

Dear Ms. Kilpatrick:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Agnes R. Ng
CLP Project Manager

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 • www.mitkem.com

MITKEM CORPORATION

Analytical Data Package for GZA GeoEnvironmental, Inc.

Client Project: CLF ERD Treatment System, 03/21/05

Mitkem Project ID: D0326

March 23, 2005

Prepared For:

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903
Attn: Ms. Meg Kilpatrick

Prepared By:

Mitkem Corporation
175 Metro Center Boulevard
Warwick, RI 02886
(401) 732-3400

MITKEM CORPORATION

Client: GZA GeoEnvironmental, Inc.

Client Project: CLF ERD Treatment System

Lab Project ID: D0326

Date samples received: 03/21/05

Project Narrative

This data report includes the analysis results for four (4) samples that were received from GZA GeoEnvironmental, Inc. on March 21, 2005. Analyses were performed per specification on the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the client sample ID and the laboratory sample ID.

All analyses were performed according to method specifications.

Surrogate recoveries were within the QC limits. Spike recoveries and replicate RPDs were within the QC limits in the lab control sample and its duplicate. Due to the high concentration of target analytes, the following samples were analyzed at dilution: INF032105 (150x) and MIDLF032105 (2x).

Spike recovery was within the QC limits in the lab control sample for the metals analysis.

No other unusual occurrences were noted during sample analyses.

The pages in this report have been numbered consecutively, which starts with the title page and ends with the page labeled as "Last Page of data Report".

This data report has been reviewed and is authorized for release as evidenced by the signature below.

Agnes Ng
CLP Project Manager

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: INF032105
Lab ID: D0326-01
Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
Dichlorodifluoromethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Chloromethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Vinyl chloride	ND		750	µg/L	150	03/21/2005 18:34	17348
Bromomethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Chloroethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Trichlorofluoromethane	ND		750	µg/L	150	03/21/2005 18:34	17348
1,1-Dichloroethene	ND		750	µg/L	150	03/21/2005 18:34	17348
Acetone	ND		750	µg/L	150	03/21/2005 18:34	17348
Iodomethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Carbon disulfide	ND		750	µg/L	150	03/21/2005 18:34	17348
Methylene chloride	ND		750	µg/L	150	03/21/2005 18:34	17348
trans-1,2-Dichloroethene	ND		750	µg/L	150	03/21/2005 18:34	17348
Methyl tert-butyl ether	ND		750	µg/L	150	03/21/2005 18:34	17348
1,1-Dichloroethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Vinyl acetate	ND		750	µg/L	150	03/21/2005 18:34	17348
2-Butanone	ND		750	µg/L	150	03/21/2005 18:34	17348
cis-1,2-Dichloroethene	ND		750	µg/L	150	03/21/2005 18:34	17348
2,2-Dichloropropane	ND		750	µg/L	150	03/21/2005 18:34	17348
Bromochloromethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Chloroform	ND		750	µg/L	150	03/21/2005 18:34	17348
1,1,1-Trichloroethane	ND		750	µg/L	150	03/21/2005 18:34	17348
1,1-Dichloropropene	ND		750	µg/L	150	03/21/2005 18:34	17348
Carbon tetrachloride	ND		750	µg/L	150	03/21/2005 18:34	17348
1,2-Dichloroethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Benzene	ND		750	µg/L	150	03/21/2005 18:34	17348
Trichloroethene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,2-Dichloropropane	ND		750	µg/L	150	03/21/2005 18:34	17348
Dibromomethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Bromodichloromethane	ND		750	µg/L	150	03/21/2005 18:34	17348
cis-1,3-Dichloropropene	ND		750	µg/L	150	03/21/2005 18:34	17348
4-Methyl-2-pentanone	ND		750	µg/L	150	03/21/2005 18:34	17348
Toluene	ND		750	µg/L	150	03/21/2005 18:34	17348
trans-1,3-Dichloropropene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,1,2-Trichloroethane	ND		750	µg/L	150	03/21/2005 18:34	17348
1,3-Dichloropropane	ND		750	µg/L	150	03/21/2005 18:34	17348
Tetrachloroethene	ND		750	µg/L	150	03/21/2005 18:34	17348
2-Hexanone	ND		750	µg/L	150	03/21/2005 18:34	17348
Dibromochloromethane	ND		750	µg/L	150	03/21/2005 18:34	17348
1,2-Dibromoethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Chlorobenzene	27000		750	µg/L	150	03/21/2005 18:34	17348

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: INF032105
Lab ID: D0326-01

Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				SW8260B_W			
1,1,1,2-Tetrachloroethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Ethylbenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
m,p-Xylene	ND		750	µg/L	150	03/21/2005 18:34	17348
o-Xylene	ND		750	µg/L	150	03/21/2005 18:34	17348
Xylene (Total)	ND		750	µg/L	150	03/21/2005 18:34	17348
Styrene	ND		750	µg/L	150	03/21/2005 18:34	17348
Bromoform	ND		750	µg/L	150	03/21/2005 18:34	17348
Isopropylbenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,1,2,2-Tetrachloroethane	ND		750	µg/L	150	03/21/2005 18:34	17348
Bromobenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,2,3-Trichloropropane	ND		750	µg/L	150	03/21/2005 18:34	17348
n-Propylbenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
2-Chlorotoluene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,3,5-Trimethylbenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
4-Chlorotoluene	ND		750	µg/L	150	03/21/2005 18:34	17348
tert-Butylbenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,2,4-Trimethylbenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
sec-Butylbenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
4-Isopropyltoluene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,3-Dichlorobenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,4-Dichlorobenzene	1000		750	µg/L	150	03/21/2005 18:34	17348
n-Butylbenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,2-Dichlorobenzene	25000		750	µg/L	150	03/21/2005 18:34	17348
1,2-Dibromo-3-chloropropane	ND		750	µg/L	150	03/21/2005 18:34	17348
1,2,4-Trichlorobenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
Hexachlorobutadiene	ND		750	µg/L	150	03/21/2005 18:34	17348
1,2,3-Trichlorobenzene	ND		750	µg/L	150	03/21/2005 18:34	17348
Naphthalene	ND		750	µg/L	150	03/21/2005 18:34	17348
Surr: Dibromofluoromethane	95.6		78-117	%REC	150	03/21/2005 18:34	17348
Surr: 1,2-Dichloroethane-d4	90.6		62-124	%REC	150	03/21/2005 18:34	17348
Surr: Toluene-d8	103		81-116	%REC	150	03/21/2005 18:34	17348
Surr: Bromofluorobenzene	97.7		74-126	%REC	150	03/21/2005 18:34	17348

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: MIDFL032105
Lab ID: D0326-02
Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
Dichlorodifluoromethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Chloromethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Vinyl chloride	3.4	J	10	µg/L	2	03/21/2005 19:02	17348
Bromomethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Chloroethane	13		10	µg/L	2	03/21/2005 19:02	17348
Trichlorofluoromethane	4.4	J	10	µg/L	2	03/21/2005 19:02	17348
1,1-Dichloroethene	ND		10	µg/L	2	03/21/2005 19:02	17348
Acetone	96		10	µg/L	2	03/21/2005 19:02	17348
Iodomethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Carbon disulfide	ND		10	µg/L	2	03/21/2005 19:02	17348
Methylene chloride	57		10	µg/L	2	03/21/2005 19:02	17348
trans-1,2-Dichloroethene	ND		10	µg/L	2	03/21/2005 19:02	17348
Methyl tert-butyl ether	ND		10	µg/L	2	03/21/2005 19:02	17348
1,1-Dichloroethane	2.6	J	10	µg/L	2	03/21/2005 19:02	17348
Vinyl acetate	ND		10	µg/L	2	03/21/2005 19:02	17348
2-Butanone	67		10	µg/L	2	03/21/2005 19:02	17348
cis-1,2-Dichloroethene	ND		10	µg/L	2	03/21/2005 19:02	17348
2,2-Dichloropropane	ND		10	µg/L	2	03/21/2005 19:02	17348
Bromochloromethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Chloroform	ND		10	µg/L	2	03/21/2005 19:02	17348
1,1,1-Trichloroethane	3.1	J	10	µg/L	2	03/21/2005 19:02	17348
1,1-Dichloropropene	ND		10	µg/L	2	03/21/2005 19:02	17348
Carbon tetrachloride	ND		10	µg/L	2	03/21/2005 19:02	17348
1,2-Dichloroethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Benzene	ND		10	µg/L	2	03/21/2005 19:02	17348
Trichloroethene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,2-Dichloropropane	ND		10	µg/L	2	03/21/2005 19:02	17348
Dibromomethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Bromodichloromethane	ND		10	µg/L	2	03/21/2005 19:02	17348
cis-1,3-Dichloropropene	ND		10	µg/L	2	03/21/2005 19:02	17348
4-Methyl-2-pentanone	8.5	J	10	µg/L	2	03/21/2005 19:02	17348
Toluene	ND		10	µg/L	2	03/21/2005 19:02	17348
trans-1,3-Dichloropropene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,1,2-Trichloroethane	ND		10	µg/L	2	03/21/2005 19:02	17348
1,3-Dichloropropane	ND		10	µg/L	2	03/21/2005 19:02	17348
Tetrachloroethene	ND		10	µg/L	2	03/21/2005 19:02	17348
2-Hexanone	ND		10	µg/L	2	03/21/2005 19:02	17348
Dibromochloromethane	ND		10	µg/L	2	03/21/2005 19:02	17348
1,2-Dibromoethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Chlorobenzene	150		10	µg/L	2	03/21/2005 19:02	17348

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: MIDFL032105
Lab ID: D0326-02

Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
1,1,1,2-Tetrachloroethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Ethylbenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
m,p-Xylene	ND		10	µg/L	2	03/21/2005 19:02	17348
o-Xylene	ND		10	µg/L	2	03/21/2005 19:02	17348
Xylene (Total)	ND		10	µg/L	2	03/21/2005 19:02	17348
Styrene	ND		10	µg/L	2	03/21/2005 19:02	17348
Bromoform	ND		10	µg/L	2	03/21/2005 19:02	17348
Isopropylbenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,1,2,2-Tetrachloroethane	ND		10	µg/L	2	03/21/2005 19:02	17348
Bromobenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,2,3-Trichloropropane	ND		10	µg/L	2	03/21/2005 19:02	17348
n-Propylbenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
2-Chlorotoluene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,3,5-Trimethylbenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
4-Chlorotoluene	ND		10	µg/L	2	03/21/2005 19:02	17348
tert-Butylbenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,2,4-Trimethylbenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
sec-Butylbenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
4-Isopropyltoluene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,3-Dichlorobenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,4-Dichlorobenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
n-Butylbenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,2-Dichlorobenzene	39		10	µg/L	2	03/21/2005 19:02	17348
1,2-Dibromo-3-chloropropane	ND		10	µg/L	2	03/21/2005 19:02	17348
1,2,4-Trichlorobenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
Hexachlorobutadiene	ND		10	µg/L	2	03/21/2005 19:02	17348
1,2,3-Trichlorobenzene	ND		10	µg/L	2	03/21/2005 19:02	17348
Naphthalene	ND		10	µg/L	2	03/21/2005 19:02	17348
Surr: Dibromofluoromethane	94.1		78-117	%REC	2	03/21/2005 19:02	17348
Surr: 1,2-Dichloroethane-d4	89.4		62-124	%REC	2	03/21/2005 19:02	17348
Surr: Toluene-d8	99.6		81-116	%REC	2	03/21/2005 19:02	17348
Surr: Bromofluorobenzene	95.1		74-126	%REC	2	03/21/2005 19:02	17348

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: EFF032105
Lab ID: D0326-03
Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				SW8260B_W			
Dichlorodifluoromethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Chloromethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Vinyl chloride	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Bromomethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Chloroethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Trichlorofluoromethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,1-Dichloroethene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Acetone	80		5.0	µg/L	1	03/21/2005 19:30	17348
Iodomethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Carbon disulfide	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Methylene chloride	3.0	J	5.0	µg/L	1	03/21/2005 19:30	17348
trans-1,2-Dichloroethene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Methyl tert-butyl ether	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,1-Dichloroethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Vinyl acetate	ND		5.0	µg/L	1	03/21/2005 19:30	17348
2-Butanone	26		5.0	µg/L	1	03/21/2005 19:30	17348
cis-1,2-Dichloroethene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
2,2-Dichloropropane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Bromochloromethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Chloroform	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,1,1-Trichloroethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,1-Dichloropropene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Carbon tetrachloride	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,2-Dichloroethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Benzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Trichloroethene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,2-Dichloropropane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Dibromomethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Bromodichloromethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
4-Methyl-2-pentanone	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Toluene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,1,2-Trichloroethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,3-Dichloropropane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Tetrachloroethene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
2-Hexanone	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Dibromochloromethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,2-Dibromoethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Chlorobenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: EFF032105
Lab ID: D0326-03

Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
1,1,1,2-Tetrachloroethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Ethylbenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
m,p-Xylene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
o-Xylene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Xylene (Total)	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Styrene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Bromoform	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Isopropylbenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Bromobenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,2,3-Trichloropropane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
n-Propylbenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
2-Chlorotoluene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,3,5-Trimethylbenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
4-Chlorotoluene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
tert-Butylbenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,2,4-Trimethylbenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
sec-Butylbenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
4-Isopropyltoluene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,3-Dichlorobenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,4-Dichlorobenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
n-Butylbenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,2-Dichlorobenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,2-Dibromo-3-chloropropane	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Hexachlorobutadiene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
1,2,3-Trichlorobenzene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Naphthalene	ND		5.0	µg/L	1	03/21/2005 19:30	17348
Surr: Dibromofluoromethane	97.1		78-117	%REC	1	03/21/2005 19:30	17348
Surr: 1,2-Dichloroethane-d4	92.4		62-124	%REC	1	03/21/2005 19:30	17348
Surr: Toluene-d8	108		81-116	%REC	1	03/21/2005 19:30	17348
Surr: Bromofluorobenzene	97.8		74-126	%REC	1	03/21/2005 19:30	17348

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: TBLK032105
Lab ID: D0326-04

Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				SW8260B_W			
Dichlorodifluoromethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Chloromethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Vinyl chloride	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Bromomethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Chloroethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Trichlorofluoromethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,1-Dichloroethene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Acetone	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Iodomethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Carbon disulfide	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Methylene chloride	ND		5.0	µg/L	1	03/21/2005 18:06	17348
trans-1,2-Dichloroethene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Methyl tert-butyl ether	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,1-Dichloroethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Vinyl acetate	ND		5.0	µg/L	1	03/21/2005 18:06	17348
2-Butanone	ND		5.0	µg/L	1	03/21/2005 18:06	17348
cis-1,2-Dichloroethene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
2,2-Dichloropropane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Bromochloromethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Chloroform	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,1,1-Trichloroethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,1-Dichloropropene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Carbon tetrachloride	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,2-Dichloroethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Benzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Trichloroethene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,2-Dichloropropane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Dibromomethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Bromodichloromethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
cis-1,3-Dichloropropene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
4-Methyl-2-pentanone	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Toluene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
trans-1,3-Dichloropropene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,1,2-Trichloroethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,3-Dichloropropane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Tetrachloroethene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
2-Hexanone	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Dibromochloromethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,2-Dibromoethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Chlorobenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: TBLK032105
Lab ID: D0326-04

Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
1,1,1,2-Tetrachloroethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Ethylbenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
m,p-Xylene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
o-Xylene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Xylene (Total)	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Styrene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Bromoform	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Isopropylbenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Bromobenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,2,3-Trichloropropane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
n-Propylbenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
2-Chlorotoluene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,3,5-Trimethylbenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
4-Chlorotoluene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
tert-Butylbenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,2,4-Trimethylbenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
sec-Butylbenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
4-Isopropyltoluene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,3-Dichlorobenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,4-Dichlorobenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
n-Butylbenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,2-Dichlorobenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,2-Dibromo-3-chloropropane	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,2,4-Trichlorobenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Hexachlorobutadiene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
1,2,3-Trichlorobenzene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Naphthalene	ND		5.0	µg/L	1	03/21/2005 18:06	17348
Surr: Dibromofluoromethane	95.5		78-117	%REC	1	03/21/2005 18:06	17348
Surr: 1,2-Dichloroethane-d4	92.7		62-124	%REC	1	03/21/2005 18:06	17348
Surr: Toluene-d8	105		81-116	%REC	1	03/21/2005 18:06	17348
Surr: Bromofluorobenzene	97.8		74-126	%REC	1	03/21/2005 18:06	17348

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0326
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID MB-17348	SampType: MBLK	TestCode: SW8260B_W	Prep Date: 03/21/2005	Run ID: V5_050321A
Client ID: MB-17348	Batch ID: 17348	Units: µg/L	Analysis Date: 03/21/2005	SeqNo: 334307

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	ND	5.0									
Chloromethane	ND	5.0									
Vinyl chloride	ND	5.0									
Bromomethane	ND	5.0									
Chloroethane	ND	5.0									
Trichlorofluoromethane	ND	5.0									
1,1-Dichloroethene	ND	5.0									
Acetone	ND	5.0									
Iodomethane	ND	5.0									
Carbon disulfide	ND	5.0									
Methylene chloride	ND	5.0									
trans-1,2-Dichloroethene	ND	5.0									
Methyl tert-butyl ether	ND	5.0									
1,1-Dichloroethane	ND	5.0									
Vinyl acetate	ND	5.0									
2-Butanone	ND	5.0									
cis-1,2-Dichloroethene	ND	5.0									
2,2-Dichloropropane	ND	5.0									
Bromochloromethane	ND	5.0									
Chloroform	ND	5.0									
1,1,1-Trichloroethane	ND	5.0									
1,1-Dichloropropene	ND	5.0									
Carbon tetrachloride	ND	5.0									
1,2-Dichloroethane	ND	5.0									
Benzene	ND	5.0									
Trichloroethene	ND	5.0									
1,2-Dichloropropane	ND	5.0									
Dibromomethane	ND	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0326
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID	MB-17348	SampType:	MBLK	TestCode:	SW8260B_W	Prep Date:	03/21/2005	Run ID:	V5_050321A
Client ID:	MB-17348	Batch ID:	17348	Units:	µg/L	Analysis Date:	03/21/2005	SeqNo:	334307

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	5.0									
cis-1,3-Dichloropropene	ND	5.0									
4-Methyl-2-pentanone	ND	5.0									
Toluene	ND	5.0									
trans-1,3-Dichloropropene	ND	5.0									
1,1,2-Trichloroethane	ND	5.0									
1,3-Dichloropropane	ND	5.0									
Tetrachloroethene	ND	5.0									
2-Hexanone	ND	5.0									
Dibromochloromethane	ND	5.0									
1,2-Dibromoethane	ND	5.0									
Chlorobenzene	ND	5.0									
1,1,1,2-Tetrachloroethane	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	5.0									
o-Xylene	ND	5.0									
Styrene	ND	5.0									
Bromoform	ND	5.0									
Isopropylbenzene	ND	5.0									
1,1,2,2-Tetrachloroethane	ND	5.0									
Bromobenzene	ND	5.0									
1,2,3-Trichloropropane	ND	5.0									
n-Propylbenzene	ND	5.0									
2-Chlorotoluene	ND	5.0									
1,3,5-Trimethylbenzene	ND	5.0									
4-Chlorotoluene	ND	5.0									
tert-Butylbenzene	ND	5.0									
1,2,4-Trimethylbenzene	ND	5.0									
sec-Butylbenzene	ND	5.0									
4-Isopropyltoluene	ND	5.0									
1,3-Dichlorobenzene	ND	5.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0326
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID MB-17348	SampType: MBLK	TestCode: SW8260B_W			Prep Date: 03/21/2005		Run ID: V5_050321A			
Client ID: MB-17348	Batch ID: 17348	Units: µg/L			Analysis Date: 03/21/2005		SeqNo: 334307			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	ND	5.0									
n-Butylbenzene	ND	5.0									
1,2-Dichlorobenzene	ND	5.0									
1,2-Dibromo-3-chloropropane	ND	5.0									
1,2,4-Trichlorobenzene	ND	5.0									
Hexachlorobutadiene	ND	5.0									
1,2,3-Trichlorobenzene	ND	5.0									
Naphthalene	ND	5.0									
Xylene (Total)	ND	5.0									
Surr: Dibromofluoromethane	48.44	5.0	50	0	96.9	78	117	0	0		
Surr: 1,2-Dichloroethane-d4	45.91	5.0	50	0	91.8	62	124	0	0		
Surr: Toluene-d8	54.49	5.0	50	0	109	81	116	0	0		
Surr: Bromofluorobenzene	48.85	5.0	50	0	97.7	74	126	0	0		

Sample ID LCS-17348	SampType: LCS	TestCode: SW8260B_W			Prep Date: 03/21/2005		Run ID: V5_050321A			
Client ID: LCS-17348	Batch ID: 17348	Units: µg/L			Analysis Date: 03/21/2005		SeqNo: 334308			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	47.33	5.0	50	0	94.7	48	135	0	0		
Chloromethane	48.59	5.0	50	0	97.2	60	118	0	0		
Vinyl chloride	47.89	5.0	50	0	95.8	65	113	0	0		
Bromomethane	50.21	5.0	50	0	100	73	122	0	0		
Chloroethane	49.22	5.0	50	0	98.4	72	118	0	0		
Trichlorofluoromethane	54.6	5.0	50	0	109	68	129	0	0		
1,1-Dichloroethene	53.98	5.0	50	0	108	67	121	0	0		
Acetone	62.4	5.0	50	0	125	38	161	0	0		
Iodomethane	54.25	5.0	50	0	108	72	130	0	0		
Carbon disulfide	55.94	5.0	50	0	112	53	137	0	0		
Methylene chloride	46.85	5.0	50	0	93.7	59	132	0	0		
trans-1,2-Dichloroethene	47.34	5.0	50	0	94.7	71	124	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0326
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID LCS-17348	SampType: LCS	TestCode: SW8260B_W			Prep Date: 03/21/2005			Run ID: V5_050321A		
Client ID: LCS-17348	Batch ID: 17348	Units: µg/L			Analysis Date: 03/21/2005			SeqNo: 334308		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	48.38	5.0	50	0	96.8	75	123	0	0		
1,1-Dichloroethane	48.93	5.0	50	0	97.9	83	116	0	0		
Vinyl acetate	50.16	5.0	50	0	100	44	160	0	0		
2-Butanone	51.23	5.0	50	0	102	64	139	0	0		
cis-1,2-Dichloroethene	46.64	5.0	50	0	93.3	83	120	0	0		
2,2-Dichloropropane	49.63	5.0	50	0	99.3	70	129	0	0		
Bromochloromethane	47.91	5.0	50	0	95.8	85	124	0	0		
Chloroform	47.96	5.0	50	0	95.9	89	118	0	0		
1,1,1-Trichloroethane	48.66	5.0	50	0	97.3	81	122	0	0		
1,1-Dichloropropene	48.63	5.0	50	0	97.3	76	122	0	0		
Carbon tetrachloride	48.81	5.0	50	0	97.6	79	125	0	0		
1,2-Dichloroethane	50.69	5.0	50	0	101	83	123	0	0		
Benzene	48.46	5.0	50	0	96.9	81	120	0	0		
Trichloroethene	48.34	5.0	50	0	96.7	77	121	0	0		
1,2-Dichloropropane	47.94	5.0	50	0	95.9	81	116	0	0		
Dibromomethane	48.9	5.0	50	0	97.8	86	124	0	0		
Bromodichloromethane	48.31	5.0	50	0	96.6	90	114	0	0		
cis-1,3-Dichloropropene	47.51	5.0	50	0	95	78	119	0	0		
4-Methyl-2-pentanone	48.25	5.0	50	0	96.5	57	138	0	0		
Toluene	47.86	5.0	50	0	95.7	81	121	0	0		
trans-1,3-Dichloropropene	48.03	5.0	50	0	96.1	85	118	0	0		
1,1,2-Trichloroethane	49.33	5.0	50	0	98.7	44	159	0	0		
1,3-Dichloropropane	49.36	5.0	50	0	98.7	79	125	0	0		
Tetrachloroethene	49.28	5.0	50	0	98.6	73	121	0	0		
2-Hexanone	50.92	5.0	50	0	102	53	145	0	0		
Dibromochloromethane	48.14	5.0	50	0	96.3	80	124	0	0		
1,2-Dibromoethane	48.32	5.0	50	0	96.6	80	124	0	0		
Chlorobenzene	49.29	5.0	50	0	98.6	82	118	0	0		
1,1,1,2-Tetrachloroethane	47.87	5.0	50	0	95.7	84	121	0	0		
Ethylbenzene	49.13	5.0	50	0	98.3	80	122	0	0		
m,p-Xylene	97.75	5.0	100	0	97.7	70	130	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0326
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID LCS-17348	SampType: LCS	TestCode: SW8260B_W			Prep Date: 03/21/2005			Run ID: V5_050321A		
Client ID: LCS-17348	Batch ID: 17348	Units: µg/L			Analysis Date: 03/21/2005			SeqNo: 334308		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	48.83	5.0	50	0	97.7	70	130	0	0		
Styrene	48.28	5.0	50	0	96.6	77	128	0	0		
Bromoform	47.93	5.0	50	0	95.9	77	130	0	0		
Isopropylbenzene	48.68	5.0	50	0	97.4	58	148	0	0		
1,1,2,2-Tetrachloroethane	47.84	5.0	50	0	95.7	76	125	0	0		
Bromobenzene	45.82	5.0	50	0	91.6	76	124	0	0		
1,2,3-Trichloropropane	48.09	5.0	50	0	96.2	57	140	0	0		
n-Propylbenzene	47.75	5.0	50	0	95.5	72	119	0	0		
2-Chlorotoluene	46.79	5.0	50	0	93.6	75	120	0	0		
1,3,5-Trimethylbenzene	47.38	5.0	50	0	94.8	76	116	0	0		
4-Chlorotoluene	45.57	5.0	50	0	91.1	78	116	0	0		
tert-Butylbenzene	48.96	5.0	50	0	97.9	71	115	0	0		
1,2,4-Trimethylbenzene	48.02	5.0	50	0	96	77	117	0	0		
sec-Butylbenzene	47.94	5.0	50	0	95.9	67	117	0	0		
4-Isopropyltoluene	48.9	5.0	50	0	97.8	68	118	0	0		
1,3-Dichlorobenzene	46.79	5.0	50	0	93.6	80	116	0	0		
1,4-Dichlorobenzene	47.31	5.0	50	0	94.6	80	114	0	0		
n-Butylbenzene	48.56	5.0	50	0	97.1	58	121	0	0		
1,2-Dichlorobenzene	47.31	5.0	50	0	94.6	81	116	0	0		
1,2-Dibromo-3-chloropropane	48.67	5.0	50	0	97.3	71	126	0	0		
1,2,4-Trichlorobenzene	43.5	5.0	50	0	87	67	114	0	0		
Hexachlorobutadiene	44.35	5.0	50	0	88.7	50	111	0	0		
1,2,3-Trichlorobenzene	41.33	5.0	50	0	82.7	64	118	0	0		
Naphthalene	39.33	5.0	50	0	78.7	58	133	0	0		
Xylene (Total)	146.6	5.0	150	0	97.7	81	121	0	0		
Surr: Dibromofluoromethane	48.29	5.0	50	0	96.6	78	117	0	0		
Surr: 1,2-Dichloroethane-d4	47.76	5.0	50	0	95.5	62	124	0	0		
Surr: Toluene-d8	48.92	5.0	50	0	97.8	81	116	0	0		
Surr: Bromofluorobenzene	49.7	5.0	50	0	99.4	74	126	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0326
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID LCSD-17348	SampType: LCSD	TestCode: SW8260B_W		Prep Date: 03/21/2005		Run ID: V5_050321A	
Client ID: LCSD-17348	Batch ID: 17348	Units: µg/L		Analysis Date: 03/21/2005		SeqNo: 334309	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	48.33	5.0	50	0	96.7	48	135	47.33	2.09	40	
Chloromethane	49.46	5.0	50	0	98.9	60	118	48.59	1.79	40	
Vinyl chloride	49.7	5.0	50	0	99.4	65	113	47.89	3.70	40	
Bromomethane	53.67	5.0	50	0	107	73	122	50.21	6.67	40	
Chloroethane	53.12	5.0	50	0	106	72	118	49.22	7.61	40	
Trichlorofluoromethane	52.67	5.0	50	0	105	68	129	54.6	3.60	40	
1,1-Dichloroethene	51.9	5.0	50	0	104	67	121	53.98	3.93	40	
Acetone	52.83	5.0	50	0	106	38	161	62.4	16.6	40	
Iodomethane	53.52	5.0	50	0	107	72	130	54.25	1.36	40	
Carbon disulfide	54.26	5.0	50	0	109	53	137	55.94	3.05	40	
Methylene chloride	48.83	5.0	50	0	97.7	59	132	46.85	4.13	40	
trans-1,2-Dichloroethene	45.98	5.0	50	0	92	71	124	47.34	2.91	40	
Methyl tert-butyl ether	48.6	5.0	50	0	97.2	75	123	48.38	0.472	40	
1,1-Dichloroethane	48.45	5.0	50	0	96.9	83	116	48.93	0.974	40	
Vinyl acetate	51.78	5.0	50	0	104	44	160	50.16	3.17	40	
2-Butanone	48.14	5.0	50	0	96.3	64	139	51.23	6.23	40	
cis-1,2-Dichloroethene	47	5.0	50	0	94	83	120	46.64	0.762	40	
2,2-Dichloropropane	49.56	5.0	50	0	99.1	70	129	49.63	0.134	40	
Bromochloromethane	48.64	5.0	50	0	97.3	85	124	47.91	1.51	40	
Chloroform	48.47	5.0	50	0	96.9	89	118	47.96	1.07	40	
1,1,1-Trichloroethane	48.97	5.0	50	0	97.9	81	122	48.66	0.619	40	
1,1-Dichloropropene	47.91	5.0	50	0	95.8	76	122	48.63	1.48	40	
Carbon tetrachloride	48.46	5.0	50	0	96.9	79	125	48.81	0.726	40	
1,2-Dichloroethane	51.64	5.0	50	0	103	83	123	50.69	1.84	40	
Benzene	48.73	5.0	50	0	97.5	81	120	48.46	0.541	40	
Trichloroethene	48.69	5.0	50	0	97.4	77	121	48.34	0.726	40	
1,2-Dichloropropane	49.26	5.0	50	0	98.5	81	116	47.94	2.72	40	
Dibromomethane	51.01	5.0	50	0	102	86	124	48.9	4.23	40	
Bromodichloromethane	49.1	5.0	50	0	98.2	90	114	48.31	1.61	40	
cis-1,3-Dichloropropene	48.14	5.0	50	0	96.3	78	119	47.51	1.33	40	
4-Methyl-2-pentanone	49.2	5.0	50	0	98.4	57	138	48.25	1.95	40	

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0326
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID: LCSD-17348	SampType: LCSD	TestCode: SW8260B_W	Prep Date: 03/21/2005	Run ID: V5_050321A
Client ID: LCSD-17348	Batch ID: 17348	Units: µg/L	Analysis Date: 03/21/2005	SeqNo: 334309

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	48.83	5.0	50	0	97.7	81	121	47.86	2.00	40	
trans-1,3-Dichloropropene	49.41	5.0	50	0	98.8	85	118	48.03	2.82	40	
1,1,2-Trichloroethane	50.81	5.0	50	0	102	44	159	49.33	2.97	40	
1,3-Dichloropropane	51.15	5.0	50	0	102	79	125	49.36	3.57	40	
Tetrachloroethene	49.82	5.0	50	0	99.6	73	121	49.28	1.10	40	
2-Hexanone	50.44	5.0	50	0	101	53	145	50.92	0.947	40	
Dibromochloromethane	48.33	5.0	50	0	96.7	80	124	48.14	0.386	40	
1,2-Dibromoethane	49.26	5.0	50	0	98.5	80	124	48.32	1.92	40	
Chlorobenzene	48.7	5.0	50	0	97.4	82	118	49.29	1.19	40	
1,1,1,2-Tetrachloroethane	50.01	5.0	50	0	100	84	121	47.87	4.38	40	
Ethylbenzene	49.3	5.0	50	0	98.6	80	122	49.13	0.354	40	
m,p-Xylene	97.43	5.0	100	0	97.4	70	130	97.75	0.324	40	
o-Xylene	48.79	5.0	50	0	97.6	70	130	48.83	0.0655	40	
Styrene	49.24	5.0	50	0	98.5	77	128	48.28	1.97	40	
Bromoform	49.35	5.0	50	0	98.7	77	130	47.93	2.93	40	
Isopropylbenzene	48.7	5.0	50	0	97.4	58	148	48.68	0.0372	40	
1,1,2,2-Tetrachloroethane	47.06	5.0	50	0	94.1	76	125	47.84	1.63	40	
Bromobenzene	46	5.0	50	0	92	76	124	45.82	0.398	40	
1,2,3-Trichloropropane	46.95	5.0	50	0	93.9	57	140	48.09	2.40	40	
n-Propylbenzene	45.74	5.0	50	0	91.5	72	119	47.75	4.30	40	
2-Chlorotoluene	46.1	5.0	50	0	92.2	75	120	46.79	1.49	40	
1,3,5-Trimethylbenzene	46.58	5.0	50	0	93.2	76	116	47.38	1.72	40	
4-Chlorotoluene	45.99	5.0	50	0	92	78	116	45.57	0.923	40	
tert-Butylbenzene	47.21	5.0	50	0	94.4	71	115	48.96	3.64	40	
1,2,4-Trimethylbenzene	47.35	5.0	50	0	94.7	77	117	48.02	1.42	40	
sec-Butylbenzene	46.36	5.0	50	0	92.7	67	117	47.94	3.36	40	
4-Isopropyltoluene	47.32	5.0	50	0	94.6	68	118	48.9	3.29	40	
1,3-Dichlorobenzene	46.51	5.0	50	0	93	80	116	46.79	0.604	40	
1,4-Dichlorobenzene	47.23	5.0	50	0	94.5	80	114	47.31	0.173	40	
n-Butylbenzene	47.47	5.0	50	0	94.9	58	121	48.56	2.27	40	
1,2-Dichlorobenzene	46.94	5.0	50	0	93.9	81	116	47.31	0.784	40	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0326
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID	LCSD-17348	SampType:	LCSD	TestCode:	SW8260B_W	Prep Date:	03/21/2005	Run ID:	V5_050321A
Client ID:	LCSD-17348	Batch ID:	17348	Units:	µg/L	Analysis Date:	03/21/2005	SeqNo:	334309

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	47.24	5.0	50	0	94.5	71	126	48.67	2.98	40	
1,2,4-Trichlorobenzene	44.42	5.0	50	0	88.8	67	114	43.5	2.09	40	
Hexachlorobutadiene	44.1	5.0	50	0	88.2	50	111	44.35	0.579	40	
1,2,3-Trichlorobenzene	43.93	5.0	50	0	87.9	64	118	41.33	6.09	40	
Naphthalene	42.48	5.0	50	0	85	58	133	39.33	7.70	40	
Xylene (Total)	146.2	5.0	150	0	97.5	81	121	146.6	0.238	40	
Surr: Dibromofluoromethane	48.68	5.0	50	0	97.4	78	117	0	0	40	
Surr: 1,2-Dichloroethane-d4	49.35	5.0	50	0	98.7	62	124	0	0	40	
Surr: Toluene-d8	48.74	5.0	50	0	97.5	81	116	0	0	40	
Surr: Bromofluorobenzene	49.13	5.0	50	0	98.3	74	126	0	0	40	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: INF032105
Lab ID: D0326-01

Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
METALS BY ICP				**SW6010B_W**			
Iron	5100		200	µg/L	1	03/22/2005 17:12	17361

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: EFF032105
Lab ID: D0326-03
Project: ERD Rush
Collection Date: 03/21/05 00:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
METALS BY ICP				**SW6010B_W**			
Arsenic	ND		20	µg/L	1	03/22/2005 17:15	17361

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *23-Mar-05*

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0326
Project: ERD Rush

ANALYTICAL QC SUMMARY REPORT

TestCode: SW6010B_W

Sample ID	MB-17361	SampType:	MBLK	TestCode:	SW6010B_W			Prep Date:	03/22/2005	Run ID:	OPTIMA2_050322B	
Client ID:	ZZZZZ	Batch ID:	17361	Units:	µg/L			Analysis Date:	03/22/2005	SeqNo:	334819	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		ND	20									
Iron		ND	200									

Sample ID	LCS-17361	SampType:	LCS	TestCode:	SW6010B_W			Prep Date:	03/22/2005	Run ID:	OPTIMA2_050322B	
Client ID:	ZZZZZ	Batch ID:	17361	Units:	µg/L			Analysis Date:	03/22/2005	SeqNo:	334820	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		485.1	20	455	0	107	80	120	0	0		
Iron		4798	200	4550	0	105	80	120	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Mitkem Corporation

21/Mar/05 14:26

WorkOrder: D0326

Client ID: RIRRC
Project: ERD Rush
Location:
Comments: N/A

Case:
SDG:
PO: RIRRC ERD, 32419.03

Report Level: LEVEL 2
EDD:
HC Due: 04/04/05
Fax Due: 03/23/05

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Lab Test Comments	Iold	MS	SEL	Storage
D0326-01A	INF032105	03/21/05 00:00	03/21/05	Aqueous	SW8260B_W	INF sample may need 150X -				VOA
D0326-01B	INF032105	03/21/05 00:00	03/21/05	Aqueous	SW6010B_W	As, Fe Only, report As to 10			✔	M1
D0326-02A	MIDFL032105	03/21/05 00:00	03/21/05	Aqueous	SW8260B_W	INF sample may need 150X -				VOA
D0326-03A	EFF032105	03/21/05 00:00	03/21/05	Aqueous	SW8260B_W	INF sample may need 150X -				VOA
D0326-03B	EFF032105	03/21/05 00:00	03/21/05	Aqueous	SW6010B_W	As Only, Report to 10 ppb.			✔	M1
D0326-04A	TBLK032105	03/21/05 00:00	03/21/05	Aqueous	SW8260B_W	INF sample may need 150X -				VOA

Client Rep: Edward A Lawler

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

REPORT TO			INVOICE TO		
COMPANY GZA	PHONE 421-4140		COMPANY	PHONE	LAB PROJECT #: D0326
NAME MARK DALPE	FAX		NAME	FAX	
ADDRESS			ADDRESS		TURNAROUND TIME: 48 HR
CITY/ST/ZIP			CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
CLF ERD TREATMENT SYSTEM	32419.03	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	REQUESTED ANALYSES: VOC	T. Fe	T. As	COMMENTS
INF 032105	3/21/05			X				4	X	X	X	1.
MID FL 032105	1			X				2	X			
EFF 032105	1			X				3	X	X	X	
TBLK 032105	1			X				2	X			

6°C

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
		3/21/05		3/21/05 11:56	1. Analyze in accordance w/ CLF/ERD analytical contract. 2. 48 HR Turn-around time required 3. 10 PPB DET. LIMIT FOR As	

0023

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION
Sample Condition Form

Page 1 of 1

Received By: [illegible]	Reviewed By: JC			Date: 3/21/05		MITKEM Project #: D0326				
Client Project: GCD-Rush				Client: GZA / KIRK						
				Preservation (pH)				VOA	Soil Headspace or Air Bubbles ≥ 1/4"	
	Lab Sample ID			HNO_3	H_2SO_4	HCl	NaOH	Matrix		
Cooler Sealed Yes (No)	D0326	01		<2				H		
		02						H		
1) Custody Seal(s) Present / (Absent)		03		<2				H		
Coolers / Bottles	D0326	04						H		
Intact / Broken										
2) Custody Seal Number(s)										
3) Chain-of-Custody (Present) / Absent										
4) Cooler Temperature 6°C										
Coolant Condition OK										
5) Airbill(s) Present / Absent										
Airbill Number(s)										
Hand Del by Client										
6) Sample Bottles (Intact)/Broken/Leakin										
7) Date Received 3/21/05										
8) Time Received 11:50										
Preservative Name/Lot No:										

VOA Matrix Key:
US = Unpreserved Soil **A** = Air
UA = Unpreserved Aqueo **H** = HCl
M/N= MeOH & $NaHSO_4$ **E** = Encore
N = $NaHSO_4$ **M** =MeOH

See Sample Condition Notification/Corrective Action Form yes / no

Rad OK yes/ no

Form ID: SampleCond.Form-11/04

Last Page of Data Report

APPENDIX B

CALGON'S FINAL BENCH SCALE TREATABILITY STUDY REPORT

CALGON

CALGON CARBON CORPORATION

Design Test Report on the

Rayox® Treatment of VOC's

for

GZA

At the Central Landfill Site

in
Johnston, RI

Prepared by

Calgon Carbon Corporation

July 19, 2005
CCC Proposal No. QR-0505-12_REV2

Executive Summary

This report outlines the design testing results for the UV/Oxidation treatment of process water containing VOC's in Johnston, RI. A design test was performed to demonstrate the effectiveness of Calgon Carbon Corporation's (CCC) UV/Oxidation process for the destruction of VOC's specifically measured by EPA Analytical Methods 8260 and 8270.

The objectives of the design test were:

- to confirm the effectiveness of the UV/Oxidation process for reducing the contamination from the influent levels of 96 ppm down to <2.13 ppm. Expected inlet VOC concentrations were defined by GZA as:

Species	**Conc. [ppb]**
Acetone	1,000
2-butanone	650
Chlorobenzene	50,000
Methylene chloride	400
dichlorobenzene	43,600

- to determine the capital and operating costs required to meet the above goals for a full-scale system treating net 3.5 gpm.

The test work completed on the ground water provided to CCC has suggested that:

- At design influent levels, UV/Oxidation using hydrogen peroxide is effective in reducing target VOC's to below the permitted level of 2.13 ppm. However, acetone, also measured using EPA methods 8260 and 8270, is produced as an intermediate and will tend to increase the concentration of VOC's measured by the targeted methods.

- A 60 kW Rayox system is required to meet treatment requirements in the water sent by GZA at a flowrate of 3.5 gpm

- The above system can be purchased for $123,450. Operating costs will be approximately $75,770 per year, including peroxide dosage, lamp replacement and power costs (assuming $0.095/kWh)

- A pilot study is encouraged to:

  1. determine system sensitivity to organic loading and acetone production
  2. compare effectiveness of batch-recycle operation at 15 gpm to flow-through operation at 3.5 gpm
  3. evaluate temperature rise in the system for both operational modes

Table of Contents

Section 1: Theory

1.1 ADVANCED OXIDATION PROCESSES (AOP)

In advanced oxidation processes, the primary treatment mechanism involves the reaction of UV light with hydrogen peroxide or ozone to generate highly reactive hydroxyl radicals (•OH) as shown below:

$$H_2O_2 + \text{UV light} \longrightarrow 2\ \bullet OH \qquad [1]$$

The OH radical initiates a rapid cascade of oxidation reactions, which if allowed to proceed to completion, result in carbon dioxide and water as end products. This oxidation can be greatly enhanced by the addition of homogenous catalysts, which increase the efficiency of the UV light reactions.

In some cases, other mechanistic pathways can also be identified such as direct photolysis of the contaminants by UV light or direct reaction of ozone or oxygen radicals with the target contaminants or their intermediate byproducts.

UV Light

The formation of hydroxyl radicals relies on the absorbance of UV light in the range of 200 to 240 nm. In CCC's UV/Oxidation system, this light is provided by high intensity medium pressure mercury vapor lamps. The lamps are housed in quartz tubes and a patented device is used to prevent fouling of the quartz tubes. Calgon Carbon's medium pressure UV lamps have been designed to give out significantly more UV light in the 200 to 240 nm range than any other UV light source. While UV light is needed for the formation of hydroxyl radicals from hydrogen peroxide, it may also serve to break or weaken the chemical bonds of many organic compounds by direct photolysis. This is important for compounds that react slowly with hydroxyl radicals.

Hydrogen Peroxide

Hydrogen peroxide is a commonly used chemical oxidant in advanced oxidation processes. It is normally supplied in concentrations of 35 or 50% in water and is metered into the flow line upstream of the UV lamps. The combination of high intensity UV light and hydrogen peroxide produces an oxidative environment that is effective for the treatment of a broad range of organic compounds.

1.2 UV DOSE

In the UV oxidation process, a high-powered lamp emits UV radiation through a quartz sleeve into the contaminated water. The photons of light activate hydrogen peroxide, ozone or a catalyst and generate highly reactive radicals, which destroy the organic contaminants. The destruction of organic contaminants is therefore dependent upon the amount of UV light that is applied to the contaminated water.

Calgon Carbon's design parameter for the scale-up of UV oxidation systems is the "UV dose" which is defined as the amount of UV lamp energy (in kWh) applied to 1000 gallons of water. This design parameter can be calculated from either flow through or batch situations as follows:

$$\text{UV Dose (Batch)} = \frac{\text{Lamp Size(kW) x Time(min) x 3785 (L/1000gal)}}{\text{Volume (L) x 60 (min/hr)}} \quad [2a]$$

and

$$\text{UV Dose (Flow)} = \frac{\text{Lamp Size (kW) x 1000 (gal/ 1000gal)}}{\text{Flow Rate (gpm) x 60 (min/h)}} \quad [2b]$$

The UV Dose is used to scale-up from a batch design test to a full-scale system.

1.3 ELECTRICAL ENERGY PER ORDER (EE/O)

The destruction of a contaminant by UV/Oxidation processes involves a complex series of chemical reactions. Experience has shown that this destruction generally follows a first order relationship with the amount of energy input into a unit volume of water (UV Dose). A simple design parameter, which incorporates the UV Dose input to the system and the number of orders of contaminant destruction, can be used to compare and scale-up processes. This design parameter is defined as the Electrical Energy per Order or the EE/O and its units are in kWh/1000gal/order.

For example, if it takes 10 kWh of electrical energy to reduce the concentration of a target compound from 10 ppm to 1 ppm (1 order of magnitude or 90% destruction) in 1000 gallons of water, then the EE/O is 10 kWh/1000gal/order for this compound. It will take another 10 kWh/1000gal of UV Dose to reduce the compound from 1 ppm to 0.1 ppm (another 90% reduction).

The EE/O values obtained in a batch system can be applied directly to a full-scale flow-through system. The equation for the EE/O which applies to both batch and flow through situations is:

$$EE/O = \frac{\text{UV Dose}}{\log (C_i/C_f),} \quad [3]$$

where C_i is the initial concentration and C_f is the final concentration.

In scaling up from bench scale results to a full-scale system the EE/O value is calculated. In systems with more than one compound of interest, the EE/O for each compound must be determined in the batch testing. The effluent concentration for each compound can then be calculated for the full-scale design.

SECTION 2: DESIGN TEST

2.1 *PILOT UNIT*

UV/Oxidation testing at Calgon Carbon Corporation is performed using a 1 kW pilot unit. The pilot unit consists of a 10 gallon cylindrical stainless steel reactor equipped with a 1 kW lamp. The lamp used has an identical UV output to the 30 kW lamps used in a full-scale system so that scale-up using the design parameter, UV Dose, is extremely accurate. The 1 kW lamp is mounted vertically in the reactor and separated from the water by a quartz sleeve. An air-actuated transmittance controller automatically wipes the quartz sleeve at regular intervals to ensure that the quartz remains clean throughout the entire run. A mixer in the reactor ensures complete mixing of the sample during the tests. The pilot unit also has a steel shutter which, when closed, serves to block the transmittance of UV light into the sample.

2.2 *SAMPLE PRETREATMENT*

The landfill leachate supplied by GZA Environmental was received in six (6) 5-gallon liquid paks. Upon arrival, the water went directly to characterization and then to testing. The water received was slightly cloudy, had floating particles and a brownish color.

Calgon Carbon filtered the water to 10μm prior to testing to more accurately represent the process stream. In the field unit the water will be filtered prior to processing. Characterizations were performed on the "as received" sample and also a sample that was filtered through a 10μm filter.

Prior to full design testing, a sample volume of 25 liters was filtered to 10μm and transferred to a glass carboy. The sample was visually inspected to insure that the filtration process was successful, then the sample was transferred into the bench reactor.

This procedure of measuring the volume, filtering and inspecting was carried out for each of the three testing parameters.

2.3 *EXPERIMENTAL PROCEDURE*

For the test runs, 25 liters of the filtered leachate was added to the pilot unit. The UV Lamp was then ignited with the steel shutter closed and the mixer started. The lamp was allowed to warm up. Hydrogen peroxide was then added in an amount specified by the test parameters and allowed to mix. An initial sample was taken at this point to insure proper peroxide dosing. After several minutes of mixing, the shutter was opened and the test was started. Samples were taken at periodic intervals corresponding to increasing UV doses and were quenched with sodium bisulfite to destroy any residual peroxide prior to analysis. The analysis included: pH, VOC, SVOC, metals, oil & grease, TSS, COD, Phenolics and Cyanide. Samples were analyzed by Severn Trent Laboratory, Pittsburgh.

2.4 *GROUNDWATER CHARACTERIZATION*

Analysis of the groundwater gave the following results shown in Table 1.

Table 1: Results of Preliminary Analysis

Parameter	As Received Result	Filtered (10μm) Result
TSS, mg/L	39	26
pH	6.65	6.64
COD, mg/L	295	405
Alkalinity, mg/L	1500	1500
Total Fe, mg/L	4.35	0.96
Chloride, mg/L	535	527
Nitrate, mg/L	<1.0	<1.0
Sulfate, mg/L	39.8	35.1
Bromide, mg/L	5.1	4.9

The UV absorbance of the groundwater was measured with values at different wavelengths shown in Table 2.

Table 2: Measured UV Absorbance Values

Wavelength (nm)	As Received Absorbance (cm^{-1})	10μm Filtered Absorbance (cm^{-1})
200	10.4	14.9
210	5.7	6.7
220	3.9	5.2
230	2.3	3.3
240	1.7	1.9
250	1.4	1.6
260	1.2	1.3
270	1.0	1.2
280	0.8	0.9
290	0.7	0.6
300	0.5	0.5

With the UV/Peroxide process, peroxide absorbs UV light predominantly in the 200 to 240 nm region. In general, a high UV absorbance indicates that non-target water constituents are competing for UV light energy against the target contaminants and hydrogen peroxide, thus decreasing treatment efficiency. The absorbance levels of both the as-received water and the filtered water were high, thus indicating there would be a great deal of UV interference from competing species. However, in this case, these interferences can be overcome to meet treatment objectives, as presented. Water filtered to 10μm was used in the design testing due to the need to minimize TSS and precipitated iron.

2.5 *TEST RESULTS*

Calgon Carbon Corporation carried out three treatment runs on the water sample. The test matrix is summarized in Table 3 and the test results are shown in Table 4.

Table 3: Summary of Design Testing for Central Landfill Leachate

Run #	Treatment Process	pH	Initial Peroxide Concentration [ppm]	UV dose [kWh/kgal]
1	**UV/Peroxide**	6.75	750	0, 0, 61.1, 122.2, 183.3
2	**UV/Peroxide**	6.75	1250	0, 0, 61.1, 122.2, 183.3
3	**UV/Peroxide**	6.75	1750	0, 0, 61.1, 122.2, 183.3

Table 4: Analytical Data from Runs

Run 1 - UV/H2O2 750 ppm

Sample #	UV Dose kWh/kgal	pH	Res. H_2O_2 mg/L	Iron mg/L	COD mg/L	VOC ug/L
Untreated (x-pf)	0.0	6.75	-	4.26	435	23,193
Filtered (x-f)	0.0	6.75	-	0.545	446	12,382
1-1	61.1	6.72	539	******	370	2,377
1-2	122.2	6.71	522	******	325	956
1-3	183.3	6.71	390	******	283	850

Run 2 - UV/H2O2 1250 ppm

Sample #	UV Dose kWh/kgal	pH	Res. H_2O_2 mg/L	Iron mg/L	COD mg/L	VOC ug/L
Untreated (x-pf)	0.0	6.75	-	4.26	435	23,193
Filtered (x-f)	0.0	6.75	-	0.545	446	12,382
2-1	61.1	6.69	902	******	366	2,311
2-2	122.2	6.68	824	******	315	875
2-3	183.3	6.68	764	******	311	782

Run 3 - UV/H2O2 1750 ppm

Sample #	UV Dose kWh/kgal	pH	Res. H_2O_2 mg/L	Iron mg/L	COD mg/L	VOC ug/L
Untreated (x-pf)	0.0	6.75	-	4.26	435	23,193
Filtered (x-f)	0.0	6.75	-	0.545	446	12,382
3-1	61.1	6.69	1202	******	400	971
3-2	122.2	6.69	838	******	270	1,064
3-3	183.3	6.67	700	******	336	275

Please refer to Figure 3 in the appendix for contaminate reduction trends vs. dose.

2.6 *DISCUSSION OF RESULTS*

Prior to Rayox treatment, the sample was filtered to 10 microns in order to simulate filtration during operation, which may be required to remove precipitated iron. There was a decrease in VOC levels after filtration but before UV/Oxidation treatment. VOC levels are not expected to decrease as a result of filtration in the full scale operation. It is assumed that the VOC levels decreased as the sample was filtered due to the transfer of the filtrate through air; it is expected that some air stripping of the VOC's may have occurred. The level of reduction is not anticipated to have a strong effect on the sample treatability, so it is assumed in the scale-up of results that the full scale reaction kinetics will remain the same as those in this bench study.

Although the COD content has been shown in Table 4 above to increase as a result of filtration, we do not believe that this will happen in the full scale operation. The VOC content is the group of concern and its trend through treatment is behaving as expecting through the filtration as performed in the lab and UV/Ox treatment. The inconsistent COD levels, therefore, are inconsequential in the treatment analysis.

The VOC content following filtration decreased at an effective rate, showing that UV/Ox is a viable treatment technology for this landfill leachate composition at Central Landfill. A byproduct of this treatment, however, is acetone. Results show that acetone levels briefly increase through a range of doses in the treatment because its production is faster than degradation in this dose range. Because acetone is included in the group of VOC's regulated, this has potential to threaten treatment objectives, especially if influent organic loading increases. Treatment objectives can be met by continuing to increase UV dose and peroxide dose to force the reaction to continue long enough to degrade the accumulated acetone byproduct to an acceptable level. The proposed system size was chosen such that enough UV dose is administered to ensure acetone no longer accumulates in a system with the expected VOC influent levels. Figure 1 shows the VOC degradation curves for all three design test runs.

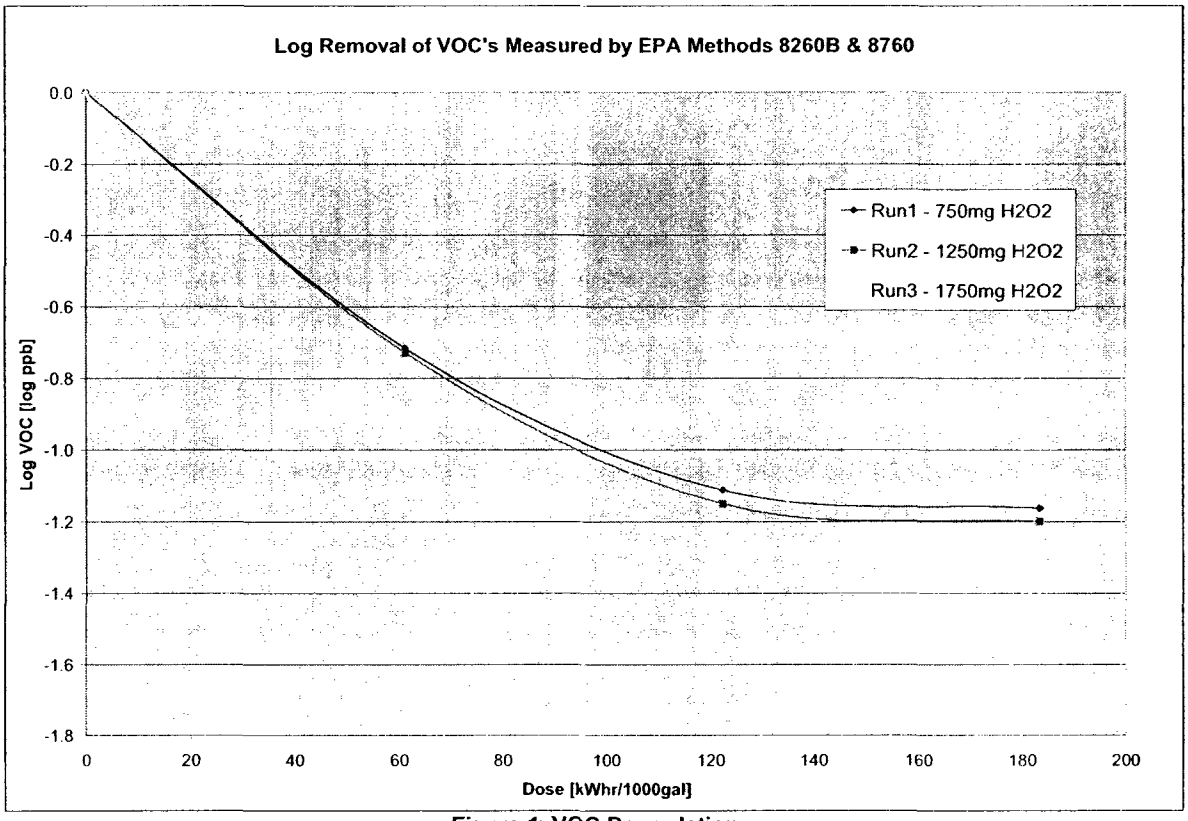


***Figure 1*: VOC Degradation**

For 3.5 net gpm and the expected initial VOC concentration, applying equations [2b] and [3] to the kinetics of all contaminant species shows that full treatment can be achieved by passing the flow once through a 60kW Rayox reactor. This is equivalent to operating under conditions of run # 3-3 with the expected initial concentrations as specified by GZA – listed in the Executive Summary – and also being unaffected by filtration (actual sample concentrations were lower than those expected in the full scale but the EE/O of each species will remain the same so degradation scale-up is still valid). In this case, the temperature rise is expected to be ~107°F through the Rayox reactor during full-scale operation at a nominal 60 kW of lamp power.

However, the minimum flow through a Rayox reactor to promote sufficient mixing is 15 gpm, so it is recommended that the system be configured to run in a batch-recycle mode at 15 gpm until the required UV dose is met. This occurs after 4.3 cycles through the 60kW reactor skid. In addition, a batch-recycle mode will also allow the site to accommodate larger organic loading and composition changes. A provision for recycling will allow the effluent to be passed through the reactor multiple times to achieve higher UV doses, if needed, while using the same equipment. Further, if a lesser dose is required, the 60kW reactor skid has the ability to turn down to 30kW to save on operating costs. At full-scale, nominal 60 kW operation, the temperature rise due to one pass through the Rayox system will be ~25°F. At 4.3 passes, the temperature rise approaches 107°F but some heat will be lost in the recycle process during the transfer to and from the recycle tank, so the actual

temperature rise is expected to be less. If it is found that treatment can be realized with less than 60kW, the heat rise required to meet objectives will be even less.

SECTION 3: Extrapolation of Results

3.1 *FULL-SCALE OPERATION*

Based on the design test results and a full-scale net treatment rate of 3.5 gpm, a 60 kW **Rayox®** system with 2 lamps is able to achieve treatment objectives. A breakdown of costs required for full-scale operation is estimated below:

The system capital cost of **$123,450** includes:

- **60kW Rayox®** skid, including 2 x 30 kW Lamps with Quartz Cleaner and Fixed Power Supply
- Programmable Logic Controller (PLC) System Controller
- Hydrogen Peroxide Dosing System
- Air compressor required for Quartz cleaner operation
- Set of Engineering Drawings and Operating and Maintenance Manuals

*Delivery of a new **Rayox®** system is estimated at 10-12 weeks.

If the **Rayox®** system is purchased within 6 months from the date of this design test report, an additional $6,000 will be deducted from the price above. In this case, the sale price of the **Rayox®** skid will be **$117,450**.

Please note the above includes supply of Rayox® Reactor Skid only. Start-up, commissioning, training, shipping and auxiliary equipment are provided at extra cost.

The estimated operating cost breakdown is as follows:

System	(1) 2x30kW Rayox Unit(s)	
Capital	**$ 123,450**	
Operating	**$/1000gal**	**$/Year**
Power	$ 25.43	$ 46,653
Lamps	$ 5.94	$ 10,897
Peroxide	$ 9.93	$ 18,220
Total	**$ 41.30**	**$ 75,770**

Figure 2.: Operating cost breakdown for most efficient treatment

As is sometimes the case, the groundwater may contain constituent levels different from those reflected in this report. If this is the case, consult the AOT Handbook for detailed information about determining EE/O values from design tests results and for information about sizing **Rayox®** equipment. Calgon Carbon personnel are also available at your convenience for additional assistance.

Appendix

			750 ppm H2O2			1250 ppm H2O2			1750 ppm H2O2		
	Untreated	Filtered	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3
Species	Level [ug]	Level [ug]	Level [ug]	Level [ug]	Level [ug]	Level [ug]	Level [ug]	Level [ug]	Level [ug]	Level [ug]	Level [ug]
Acetone	-	-	380	580	760	400	660	690	730	1000	250
2-butanone	-	-	110	81	40	91	85	42	70	27	-
Chlorobenzene	15000	9400	640	74	3.4	710	22	-	44	-	-
Chloroethane	-	-	-	9.3	-	-	-	-	-	-	-
Chloroform	-	-	-	0.87	-	-	-	-	-	-	-
1,1 DCA	-	-	-	3.2	-	-	2.9	-	-	-	-
1,2 DCA	-	-	-	0.87	-	-	-	-	-	-	-
Methylene chloride	-	-	44	53	37	61	50	44	58	33	23
4 methyl-2-pentanone	-	-	9.5	-	-	9	-	-	-	-	-
1,1,1 TCA	-	-	-	2.7	-	-	-	-	-	-	-
1,1,2 TCA	-	-	-	1.2	-	-	-	-	-	-	-
Anthracene	1.4	1.2	-	-	-	-	-	-	-	-	-
4 bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-
Butyl Benzyl Phthalate	-	-	0.53	0.46	0.49	-	-	-	-	-	-
Carbazole	22	6.6	-	-	-	-	-	-	-	-	-
2-chloronaphthalene	-	-	70	-	-	50	-	-	-	-	-
2-Chlorophenol	30	24	470	69	1.3	440	21	-	37	-	
1,2 dichlorobenzene	7700	2800	550	70	6	480	29	3.8	26	1.9	0.52
1,3 dichlorobenzene	33	9.6	2.1	0.21	-	-	-	-	-	-	-
1,4 dichlorobenzene	330	80	18	2.1	-	15	1	-	0.83	-	-
2,4 Dichlorophenol	-	-	17	3.2	-	16	-	-	-	-	-
Diethyl Phthalate	0.44		-	-	-	-	-	-	-	-	-
Dimethyl Phthalate	10	11	2.3	-	-	2.2	-	-	-	-	-
Di-n-butyl phthalate	2.7	-	1.7	1.7	1.7	2.4	2.4	2.5	2.6	1.9	1.1
Fluorene	0.59	-	-	-	-	-	-	-	-	-	-
Isophorone	7	7	1.4	-	-	-	-	-	-	-	-
2-Methylnaphthalene	1.2	-	-	-	-	-	-	-	-	-	-
2-methylphenol			2	-	-	1.3	-	-	-	-	-
4-methylphenol			2.8	-	-	2.2	-	-	-	-	-
Naphthalene	11	4.3	-	-	-	-	-	-	-	-	-
Nitrobenzene	34	35	13	3.1	-	11	1.9	-	1.6	-	
Phenol	1.9	2.4	42	3	-	20	-	-	0.85	-	-
Pyrene	0.46	-	-	-	-	-	-	-	-	-	-
1,2,4-trichlorobenzene	7	0.59	0.46	-	-	0.35	-	-	-	-	-
Total [ppb]	23192.69	12381.69	2378.79	958.91	849.89	2311.45	915.2	782.3	970.88	1063.8	274.62
Metals											
Silver	2.4	2.8			2.8			2.4			2.4
Aluminum	48.6	94.7			89.7			101			108
Arsenic	4	4.4			3.7			-			
Barium	491	507			90.5			70.6			198
Beryllium	12.2	11.2			11.3			11.3			11.6
Calcium	111000	121000			121000			117000			117000
Cadmium	-	-			-			-			-
Cobalt	6.1	6.2			7.4			7			6.5
Chromium	6	6.8			10.7			9.8			9.1
Copper	-	1.6			9.1			8.6			8.5
Iron	4260	545			543			617			590
Potassium	54200	60200			66600			67300			68900
Magnesium	57200	62600			61800			58500			60200
Manganese	19600	21800			22300			21200			21600
Sodium	235000	254000			630000			884000			872000
Nickel	47.5	51			55.9			52.8			53.1
Lead	4.2	3.1			2.1			-			-
Selenium	4.2	5.5			-			-			-
Thallium	8.2	-			-			-			-
Antimony	-	-			-			-			-
Vanadium	2.3	2.6			2.1			2.5			1.8
Zinc	819	883			8.96			881			892
PCB's											
Aroclor 1016	-	-	-			-			-		
Aroclor 1221	-	-	-			-			-		
Aroclor 1232	-	-	-			-			-		
Aroclor 1242	-	-	-			-			-		
Aroclor 1248	-	-	-			-			-		
Aroclor 1254	-	-	-			-			-		
Aroclor 1260	-	-	-			-			-		
Total [ppb]	0	0	0			0			0		
General Chemistry											
COD [ppm]	435	446	370	325	283	366	315	311	400	270	336
Cyanide	5	6	14	12	14	11	18	-	8	18	-
O&G [ppm]	-	-	-		-			-			-
otal Recoverable Phenolics [pp	0.073	0.049	0.56	0.11	0.055	0.47	0.12	0.055	0.059	0.18	-
TSS [ppm]	13.6	2.8			-			-			-

www.calgoncarbon.com

CALGON

CALGON CARBON CORPORATION

Chemviron Carbon

Calgon Carbon Asia
1 Shenton Way,
06-02 Robina House
Singapore, China 068803
65 6 221 3500

Calgon Carbon Corporation PO Box 717
Pittsburgh, PA USA 15230-0717
1-800-422-7266
412-787-6700

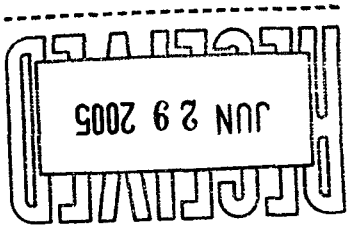
European Operations
Zoning Industriel C de Feluy
B-7181 Feluy, Belgium
011 32 64 51 18 11

APPENDIX C

WASTE FILTER MEDIA RESULTS

MITKEM CORPORATION

"Environmental Testing For The New Millennium"



June 28, 2005

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903
Attn: Mr. Mark Dalpe

RE: Client Project: CLF ERD Treatment System, TCLP/TPH, Pre-Fil-1
Lab Project #: D0612

Dear Mr. Dalpe:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler
Laboratory Operations Manager

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 • www.mitkem.com

MITKEM CORPORATION

Analytical Data Package for GZA GeoEnvironmental, Inc.

Client Project: CLF ERD Treatment System, TCLP/TPH

Mitkem Project ID: D0612

June 28, 2005

Prepared For:

GZA GeoEnvironmental, Inc.
140 Broadway
Providence, RI 02903
Attn: Mr. Mark Dalpe

Prepared By:

Mitkem Corporation
175 Metro Center Boulevard
Warwick, RI 02886
(401) 732-3400

MITKEM CORPORATION

Client: GZA GeoEnvironmental, Inc.

Client Project: CLF ERD Treatment System

Lab Project ID: D0612

Date samples received: 05/26/05

Project Narrative

This data report includes the analysis results for one (1) sample that was received from GZA GeoEnvironmental, Inc. on May 26, 2005. Analyses were performed per specification on the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the client sample ID and the laboratory sample ID.

All analyses were performed according to method specifications.

Surrogate recoveries were within the QC limits for TCLP organic analyses. Spike recoveries and replicate RPDs were within the QC limits in the lab control sample and lab control sample duplicate analyses for TCLP organics. TCLP volatile organics analysis was repeated at a 3X dilution.

Spike recoveries were within the QC limits in the lab control sample for TCLP metals analysis. Please note that TCLP metals results are reported in ug/L (ppb).

Surrogate recovery was above the upper QC limit in total petroleum hydrocarbons analysis due to matrix interference. Please note that this analysis was performed at a 5X dilution.

No other unusual occurrences were noted during sample analyses.

The pages in this report have been numbered consecutively, which starts with the title page and ends with the page labeled as "Last Page of data Report".

This data report has been reviewed and is authorized for release as evidenced by the signature below.

Edward A. Lawler
Laboratory Operations Manager

Witkem Corporation

Date: *20-Jun-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: PRE-FIL-1
Lab ID: D0612-01

Project: ERD - Central Landfill
Collection Date: 05/26/05 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
C BY GC-MS			**SW8260B_W**				
1,1-Dichloroethene -- TCLP	ND		5.0	µg/L	1	06/07/2005 20:13	18429
1,2-Dichloroethane -- TCLP	ND		5.0	µg/L	1	06/07/2005 20:13	18429
2-Butanone -- TCLP	2.6	J	5.0	µg/L	1	06/07/2005 20:13	18429
Benzene -- TCLP	ND		5.0	µg/L	1	06/07/2005 20:13	18429
Carbon tetrachloride -- TCLP	ND		5.0	µg/L	1	06/07/2005 20:13	18429
Chlorobenzene -- TCLP	350	E	5.0	µg/L	1	06/07/2005 20:13	18429
Chloroform -- TCLP	ND		5.0	µg/L	1	06/07/2005 20:13	18429
Tetrachloroethene -- TCLP	1.3	J	5.0	µg/L	1	06/07/2005 20:13	18429
Trichloroethene -- TCLP	1.1	J	5.0	µg/L	1	06/07/2005 20:13	18429
Vinyl chloride -- TCLP	ND		5.0	µg/L	1	06/07/2005 20:13	18429
Surr: 1,2-Dichloroethane-d4 -- TCLP	99.4		62-124	%REC	1	06/07/2005 20:13	18429
Surr: Bromofluorobenzene -- TCLP	95.3		74-126	%REC	1	06/07/2005 20:13	18429
Surr: Dibromofluoromethane -- TCLP	103		78-117	%REC	1	06/07/2005 20:13	18429
Surr: Toluene-d8 -- TCLP	100		81-116	%REC	1	06/07/2005 20:13	18429

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Vitkem Corporation

Date: *20-Jun-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: PRE-FIL-1
Lab ID: D0612-01

Project: ERD - Central Landfill
Collection Date: 05/26/05 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
VOC BY GC-MS				**SW8260B_W**			
1,1-Dichloroethene -- TCLP	ND		15	µg/L	3	06/09/2005 15:05	18474
1,2-Dichloroethane -- TCLP	ND		15	µg/L	3	06/09/2005 15:05	18474
2-Butanone -- TCLP	ND		15	µg/L	3	06/09/2005 15:05	18474
Benzene -- TCLP	ND		15	µg/L	3	06/09/2005 15:05	18474
Carbon tetrachloride -- TCLP	ND		15	µg/L	3	06/09/2005 15:05	18474
Chlorobenzene -- TCLP	250		15	µg/L	3	06/09/2005 15:05	18474
Chloroform -- TCLP	ND		15	µg/L	3	06/09/2005 15:05	18474
Tetrachloroethene -- TCLP	ND		15	µg/L	3	06/09/2005 15:05	18474
Trichloroethene -- TCLP	ND		15	µg/L	3	06/09/2005 15:05	18474
Vinyl chloride -- TCLP	ND		15	µg/L	3	06/09/2005 15:05	18474
Surr: 1,2-Dichloroethane-d4 -- TCLP	101		62-124	%REC	3	06/09/2005 15:05	18474
Surr: Bromofluorobenzene -- TCLP	89.2		74-126	%REC	3	06/09/2005 15:05	18474
Surr: Dibromofluoromethane -- TCLP	104		78-117	%REC	3	06/09/2005 15:05	18474
Surr: Toluene-d8 -- TCLP	93.2		81-116	%REC	3	06/09/2005 15:05	18474

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *20-Jun-05*

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID **MB-18342**	SampType: **MBLK**	TestCode: **SW8260B_W**	Prep Date: **6/7/05**	Run ID: **V2_050607A**
Client ID: **MB-18342**	Batch ID: **18429**	Units: **µg/L**	Analysis Date: **6/7/05**	SeqNo: **359769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride -- TCLP	ND	5.0	0	0	0	0	0	0	0		
1,1-Dichloroethene -- TCLP	ND	5.0	0	0	0	0	0	0	0		
2-Butanone -- TCLP	ND	5.0	0	0	0	0	0	0	0		
Chloroform -- TCLP	ND	5.0	0	0	0	0	0	0	0		
Carbon tetrachloride -- TCLP	ND	5.0	0	0	0	0	0	0	0		
1,2-Dichloroethane -- TCLP	ND	5.0	0	0	0	0	0	0	0		
Benzene -- TCLP	ND	5.0	0	0	0	0	0	0	0		
Trichloroethene -- TCLP	ND	5.0	0	0	0	0	0	0	0		
Tetrachloroethene -- TCLP	ND	5.0	0	0	0	0	0	0	0		
Chlorobenzene -- TCLP	ND	5.0	0	0	0	0	0	0	0		
Surr: Dibromofluoromethane -- TCLP	49.73	5.0	50	0	99.5	78	117	0	0		
Surr: 1,2-Dichloroethane-d4 -- TCLP	48.94	5.0	50	0	97.9	62	124	0	0		
Surr: Toluene-d8 -- TCLP	50.05	5.0	50	0	100	81	116	0	0		
Surr: Bromofluorobenzene -- TCLP	45.88	5.0	50	0	91.8	74	126	0	0		

Sample ID **LCS-18429**	SampType: **LCS**	TestCode: **SW8260B_W**	Prep Date: **6/7/05**	Run ID: **V2_050607A**
Client ID: **LCS-18429**	Batch ID: **18429**	Units: **µg/L**	Analysis Date: **6/7/05**	SeqNo: **356082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	46.55	5.0	50	0	93.1	65	113	0	0		
1,1-Dichloroethene	48.26	5.0	50	0	96.5	67	121	0	0		
2-Butanone	47.51	5.0	50	0	95	64	139	0	0		
Bromochloromethane	49.61	5.0	50	0	99.2	85	124	0	0		
Chloroform	48.12	5.0	50	0	96.2	89	118	0	0		
Carbon tetrachloride	49.53	5.0	50	0	99.1	79	125	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID LCS-18429	SampType: LCS	TestCode: SW8260B_W			Prep Date: 6/7/05			Run ID: V2_050607A		
Client ID: LCS-18429	Batch ID: 18429	Units: µg/L			Analysis Date: 6/7/05			SeqNo: 356082		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane	49.53	5.0	50	0	99.1	83	123	0	0		
Benzene	49.65	5.0	50	0	99.3	81	120	0	0		
Trichloroethene	49.34	5.0	50	0	98.7	77	121	0	0		
Tetrachloroethene	49.2	5.0	50	0	98.4	73	121	0	0		
Chlorobenzene	49.58	5.0	50	0	99.2	82	118	0	0		
Surr: Dibromofluoromethane	49.16	5.0	50	0	98.3	78	117	0	0		
Surr: 1,2-Dichloroethane-d4	49.72	5.0	50	0	99.4	62	124	0	0		
Surr: Toluene-d8	49.63	5.0	50	0	99.3	81	116	0	0		
Surr: Bromofluorobenzene	51.15	5.0	50	0	102	74	126	0	0		

Sample ID LCS-18474	SampType: LCS	TestCode: SW8260B_W			Prep Date: 6/9/05			Run ID: V2_050609A		
Client ID: LCS-18474	Batch ID: 18474	Units: µg/L			Analysis Date: 6/9/05			SeqNo: 358283		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	48.08	5.0	50	0	96.2	65	113	0	0		
1,1-Dichloroethene	53.41	5.0	50	0	107	67	121	0	0		
2-Butanone	47.94	5.0	50	0	95.9	64	139	0	0		
Bromochloromethane	52.86	5.0	50	0	106	85	124	0	0		
Chloroform	51.34	5.0	50	0	103	89	118	0	0		
Carbon tetrachloride	56.4	5.0	50	0	113	79	125	0	0		
1,2-Dichloroethane	54.76	5.0	50	0	110	83	123	0	0		
Benzene	50.47	5.0	50	0	101	81	120	0	0		
Trichloroethene	51.32	5.0	50	0	103	77	121	0	0		
Tetrachloroethene	52.09	5.0	50	0	104	73	121	0	0		
Chlorobenzene	50.36	5.0	50	0	101	82	118	0	0		
Surr: Dibromofluoromethane	54	5.0	50	0	108	78	117	0	0		
Surr: 1,2-Dichloroethane-d4	52.09	5.0	50	0	104	62	124	0	0		
Surr: Toluene-d8	52.06	5.0	50	0	104	81	116	0	0		
Surr: Bromofluorobenzene	54.4	5.0	50	0	109	74	126	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID **LCSD-18429**	SampType: **LCSD**	TestCode: **SW8260B_W**	Prep Date: **6/7/05**	Run ID: **V2_050607A**
Client ID: **LCSD-18429**	Batch ID: **18429**	Units: **µg/L**	Analysis Date: **6/7/05**	SeqNo: **356083**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	50.64	5.0	50	0	101	65	113	46.55	8.42	40	
1,1-Dichloroethene	48.39	5.0	50	0	96.8	67	121	48.26	0.265	40	
2-Butanone	47.1	5.0	50	0	94.2	64	139	47.51	0.872	40	
Bromochloromethane	50.6	5.0	50	0	101	85	124	49.61	1.98	40	
Chloroform	47.47	5.0	50	0	94.9	89	118	48.12	1.36	40	
Carbon tetrachloride	49.38	5.0	50	0	98.8	79	125	49.53	0.303	40	
1,2-Dichloroethane	49.32	5.0	50	0	98.6	83	123	49.53	0.431	40	
Benzene	50.1	5.0	50	0	100	81	120	49.65	0.885	40	
Trichloroethene	48.9	5.0	50	0	97.8	77	121	49.34	0.890	40	
Tetrachloroethene	51.41	5.0	50	0	103	73	121	49.2	4.39	40	
Chlorobenzene	49.29	5.0	50	0	98.6	82	118	49.58	0.586	40	
Surr: Dibromofluoromethane	48.57	5.0	50	0	97.1	78	117	0	0	40	
Surr: 1,2-Dichloroethane-d4	49.3	5.0	50	0	98.6	62	124	0	0	40	
Surr: Toluene-d8	50.35	5.0	50	0	101	81	116	0	0	40	
Surr: Bromofluorobenzene	51.23	5.0	50	0	102	74	126	0	0	40	

Sample ID **LCSD-18474**	SampType: **LCSD**	TestCode: **SW8260B_W**	Prep Date: **6/9/05**	Run ID: **V2_050609A**
Client ID: **LCSD-18474**	Batch ID: **18474**	Units: **µg/L**	Analysis Date: **6/9/05**	SeqNo: **358284**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	48.09	5.0	50	0	96.2	65	113	48.08	0.0272	40	
1,1-Dichloroethene	50.03	5.0	50	0	100	67	121	53.41	6.55	40	
2-Butanone	45.18	5.0	50	0	90.4	64	139	47.94	5.92	40	
Bromochloromethane	50.64	5.0	50	0	101	85	124	52.86	4.29	40	
Chloroform	48.44	5.0	50	0	96.9	89	118	51.34	5.82	40	
Carbon tetrachloride	53.24	5.0	50	0	106	79	125	56.4	5.76	40	
1,2-Dichloroethane	52.13	5.0	50	0	104	83	123	54.76	4.92	40	
Benzene	49.01	5.0	50	0	98	81	120	50.47	2.94	40	
Trichloroethene	48.48	5.0	50	0	97	77	121	51.32	5.70	40	
Tetrachloroethene	51.48	5.0	50	0	103	73	121	52.09	1.17	40	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8260B_W

Sample ID **LCSD-18474**	SampType: **LCSD**	TestCode: **SW8260B_W**	Prep Date: **6/9/05**	Run ID: **V2_050609A**
Client ID: **LCSD-18474**	Batch ID: **18474**	Units: **µg/L**	Analysis Date: **6/9/05**	SeqNo: **358284**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	48.36	5.0	50	0	96.7	82	118	50.36	4.04	40	
Surr: Dibromofluoromethane	50.31	5.0	50	0	101	78	117	0	0	40	
Surr: 1,2-Dichloroethane-d4	48.51	5.0	50	0	97	62	124	0	0	40	
Surr: Toluene-d8	49.16	5.0	50	0	98.3	81	116	0	0	40	
Surr: Bromofluorobenzene	51.16	5.0	50	0	102	74	126	0	0	40	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Vitkem Corporation

Date: *20-Jun-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: PRE-FIL-1
Lab ID: D0612-01

Project: ERD - Central Landfill
Collection Date: 05/26/05 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
SOA BY GC-MS				**SW8270C_W**			
1,4-Dichlorobenzene -- TCLP	ND		33	µg/L	1	06/13/2005 20:15	18463
2,4,5-Trichlorophenol -- TCLP	ND		67	µg/L	1	06/13/2005 20:15	18463
2,4,6-Trichlorophenol -- TCLP	ND		33	µg/L	1	06/13/2005 20:15	18463
2,4-Dinitrotoluene -- TCLP	ND		33	µg/L	1	06/13/2005 20:15	18463
2-Methylphenol -- TCLP	ND		33	µg/L	1	06/13/2005 20:15	18463
3&4-Methylphenol -- TCLP	4.9	J	33	µg/L	1	06/13/2005 20:15	18463
Hexachlorobenzene -- TCLP	ND		33	µg/L	1	06/13/2005 20:15	18463
Hexachlorobutadiene -- TCLP	ND		33	µg/L	1	06/13/2005 20:15	18463
Hexachloroethane -- TCLP	ND		33	µg/L	1	06/13/2005 20:15	18463
Nitrobenzene -- TCLP	ND		33	µg/L	1	06/13/2005 20:15	18463
Pentachlorophenol -- TCLP	ND		67	µg/L	1	06/13/2005 20:15	18463
Pyridine -- TCLP	ND		33	µg/L	1	06/13/2005 20:15	18463
Surr: 2,4,6-Tribromophenol -- TCLP	90.1		37-122	%REC	1	06/13/2005 20:15	18463
Surr: 2-Fluorobiphenyl -- TCLP	68.0		38-120	%REC	1	06/13/2005 20:15	18463
Surr: 2-Fluorophenol -- TCLP	65.1		1-103	%REC	1	06/13/2005 20:15	18463
Surr: Nitrobenzene-d5 -- TCLP	69.5		48-106	%REC	1	06/13/2005 20:15	18463
Surr: Phenol-d5 -- TCLP	62.4		0-120	%REC	1	06/13/2005 20:15	18463
Surr: Terphenyl-d14 -- TCLP	79.8		0-147	%REC	1	06/13/2005 20:15	18463

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *20-Jun-05*

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8270C_W

Sample ID **MB-18389**	SampType: **MBLK**	TestCode: **SW8270C_W**	Prep Date: **6/9/05**	Run ID: **S4_050614A**
Client ID: **MB-18389**	Batch ID: **18463**	Units: **µg/L**	Analysis Date: **6/14/05**	SeqNo: **358896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	ND	33									
2-Methylphenol	ND	33									
4-Methylphenol	ND	33									
Hexachloroethane	ND	33									
Nitrobenzene	ND	33									
Hexachlorobutadiene	ND	33									
2,4,6-Trichlorophenol	ND	33									
2,4,5-Trichlorophenol	ND	67									
2,4-Dinitrotoluene	ND	33									
Hexachlorobenzene	ND	33									
Pentachlorophenol	ND	67									
Surr: Nitrobenzene-d5	108.8	33	166.7	0	65.3	48	106	0	0		
Surr: 2-Fluorobiphenyl	115.1	33	166.7	0	69.1	38	120	0	0		
Surr: Terphenyl-d14	175.1	33	166.7	0	105	0	147	0	0		
Surr: Phenol-d5	137.8	33	250	0	55.1	0	120	0	0		
Surr: 2-Fluorophenol	140.1	33	250	0	56.1	1	103	0	0		
Surr: 2,4,6-Tribromophenol	234.9	33	250	0	94	37	122	0	0		

Sample ID **LCS-18463**	SampType: **LCS**	TestCode: **SW8270C_W**	Prep Date: **6/9/05**	Run ID: **S4_050613A**
Client ID: **LCS-18463**	Batch ID: **18463**	Units: **µg/L**	Analysis Date: **6/13/05**	SeqNo: **358860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	118.3	33	166.7	0	71	28	104	0	0		
2-Methylphenol	134.1	33	166.7	0	80.5	40	104	0	0		
4-Methylphenol	148.8	33	166.7	0	89.3	35	106	0	0		
Hexachloroethane	117.3	33	166.7	0	70.4	24	104	0	0		
Nitrobenzene	127	33	166.7	0	76.2	47	112	0	0		
Hexachlorobutadiene	121.3	33	166.7	0	72.8	28	109	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8270C_W

Sample ID **LCS-18463**	SampType: **LCS**	TestCode: **SW8270C_W**	Prep Date: **6/9/05**	Run ID: **S4_050613A**
Client ID: **LCS-18463**	Batch ID: **18463**	Units: **µg/L**	Analysis Date: **6/13/05**	SeqNo: **358860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4,6-Trichlorophenol	152.6	33	166.7	0	91.6	34	127	0	0		
2,4,5-Trichlorophenol	149.1	67	166.7	0	89.4	32	131	0	0		
2,4-Dinitrotoluene	169.1	33	166.7	0	101	52	126	0	0		
Hexachlorobenzene	156.3	33	166.7	0	93.8	52	124	0	0		
Pentachlorophenol	88.4	67	166.7	0	53	5	125	0	0		
Surr: Nitrobenzene-d5	119.8	33	166.7	0	71.9	48	106	0	0		
Surr: 2-Fluorobiphenyl	130.3	33	166.7	0	78.2	38	120	0	0		
Surr: Terphenyl-d14	146	33	166.7	0	87.6	0	147	0	0		
Surr: Phenol-d5	154.9	33	250	0	62	0	120	0	0		
Surr: 2-Fluorophenol	153.9	33	250	0	61.6	1	103	0	0		
Surr: 2,4,6-Tribromophenol	227.6	33	250	0	91.1	37	122	0	0		

Sample ID **LCSD-18463**	SampType: **LCSD**	TestCode: **SW8270C_W**	Prep Date: **6/9/05**	Run ID: **S4_050613A**
Client ID: **LCSD-18463**	Batch ID: **18463**	Units: **µg/L**	Analysis Date: **6/13/05**	SeqNo: **358861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	125.2	33	166.7	0	75.1	28	104	118.3	5.69	40	
2-Methylphenol	136.9	33	166.7	0	82.2	40	104	134.1	2.06	40	
4-Methylphenol	137.7	33	166.7	0	82.6	35	106	148.8	7.75	40	
Hexachloroethane	125.4	33	166.7	0	75.2	24	104	117.3	6.69	40	
Nitrobenzene	133	33	166.7	0	79.8	47	112	127	4.61	40	
Hexachlorobutadiene	130.3	33	166.7	0	78.2	28	109	121.3	7.16	40	
2,4,6-Trichlorophenol	132.5	33	166.7	0	79.5	34	127	152.6	14.1	40	
2,4,5-Trichlorophenol	126.2	67	166.7	0	75.7	32	131	149.1	16.6	40	
2,4-Dinitrotoluene	141.6	33	166.7	0	85	52	126	169.1	17.7	40	
Hexachlorobenzene	132.9	33	166.7	0	79.7	52	124	156.3	16.2	40	
Pentachlorophenol	72.41	67	166.7	0	43.4	5	125	88.4	19.9	40	
Surr: Nitrobenzene-d5	128.9	33	166.7	0	77.4	48	106	0	0	0	
Surr: 2-Fluorobiphenyl	124.1	33	166.7	0	74.4	38	120	0	0	0	
Surr: Terphenyl-d14	130.2	33	166.7	0	78.1	0	147	0	0	0	
Surr: Phenol-d5	153.7	33	250	0	61.5	0	120	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8270C_W

Sample ID	LCSD-18463	SampType:	LCSD	TestCode:	SW8270C_W	Prep Date:	6/9/05	Run ID:	S4_050613A
Client ID:	LCSD-18463	Batch ID:	18463	Units:	µg/L	Analysis Date:	6/13/05	SeqNo:	358861

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	168.2	33	250	0	67.3	1	103	0	0	0	
Surr: 2,4,6-Tribromophenol	198	33	250	0	79.2	37	122	0	0	0	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Mitkem Corporation

Date: *25-Jun-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: PRE-FIL-1
Lab ID: D0612-01

Project: ERD - Central Landfill
Collection Date: 05/26/05 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
ORGANOCHLORINE PESTICIDES BY GC-ECD				**SW8081A_W**			
gamma-BHC (Lindane)	ND		0.17	µg/L	1	06/14/2005 18:15	18464
Heptachlor	ND		0.17	µg/L	1	06/14/2005 18:15	18464
ptachlor epoxide	ND		0.17	µg/L	1	06/14/2005 18:15	18464
drin	0.87		0.33	µg/L	1	06/14/2005 18:15	18464
Methoxychlor	ND		1.7	µg/L	1	06/14/2005 18:15	18464
taphene	ND		17	µg/L	1	06/14/2005 18:15	18464
ordane (technical)	ND		8.3	µg/L	1	06/14/2005 18:15	18464
Surr: Tetrachloro-m-xylene	86.9		52-129	%REC	1	06/14/2005 18:15	18464
Surr: Decachlorobiphenyl	82.0		54-130	%REC	1	06/14/2005 18:15	18464

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *25-Jun-05*

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8081A_W

Sample ID MB-18389	SampType: MBLK	TestCode: SW8081A_W			Prep Date: 06/09/2005		Run ID: E1_050614A			
Client ID: MB-18389	Batch ID: 18464	Units: µg/L			Analysis Date: 06/14/2005		SeqNo: 360492			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-BHC (Lindane)	ND	0.17									
Heptachlor	ND	0.17									
Heptachlor epoxide	ND	0.17									
Endrin	ND	0.33									
Methoxychlor	ND	1.7									
Toxaphene	ND	17									
Chlordane (technical)	ND	8.3									
Surr: Tetrachloro-m-xylene	0.591	0.17	0.6667	0	88.7	52	129	0	0		
Surr: Decachlorobiphenyl	0.6773	0.33	0.6667	0	102	54	130	0	0		

Sample ID LCS-18464	SampType: LCS	TestCode: SW8081A_W			Prep Date: 06/09/2005		Run ID: E1_050614A			
Client ID: LCS-18464	Batch ID: 18464	Units: µg/L			Analysis Date: 06/14/2005		SeqNo: 360493			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-BHC (Lindane)	0.6686	0.17	0.6667	0	100	61	126	0	0		
Heptachlor	0.6529	0.17	0.6667	0	97.9	55	132	0	0		
Heptachlor epoxide	0.7257	0.17	0.6667	0	109	65	125	0	0		
Endrin	1.541	0.33	1.333	0	116	73	144	0	0		
Methoxychlor	6.655	1.7	6.667	0	99.8	54	142	0	0		
Surr: Tetrachloro-m-xylene	0.6334	0.17	0.6667	0	95	52	129	0	0		

Sample ID LCS-18464	SampType: LCS	TestCode: SW8081A_W			Prep Date: 06/09/2005		Run ID: E1_050614B			
Client ID: LCS-18464	Batch ID: 18464	Units: µg/L			Analysis Date: 06/14/2005		SeqNo: 360497			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.707	0.33	0.6667	0	106	54	130	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8081A_W

Sample ID LCSD-18464	SampType: LCSD	TestCode: SW8081A_W			Prep Date: 06/09/2005		Run ID: E1_050614A			
Client ID: LCSD-18464	Batch ID: 18464	Units: µg/L			Analysis Date: 06/14/2005		SeqNo: 360494			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-BHC (Lindane)	0.6571	0.17	0.6667	0	98.6	61	126	0.6686	1.74	40	
Heptachlor	0.6365	0.17	0.6667	0	95.5	55	132	0.6529	2.55	40	
Heptachlor epoxide	0.7107	0.17	0.6667	0	107	65	125	0.7257	2.10	40	
Endrin	1.505	0.33	1.333	0	113	73	144	1.541	2.33	40	
Methoxychlor	6.537	1.7	6.667	0	98.1	54	142	6.655	1.80	40	
Surr: Tetrachloro-m-xylene	0.6377	0.17	0.6667	0	95.7	52	129	0	0	40	

Sample ID LCSD-18464	SampType: LCSD	TestCode: SW8081A_W			Prep Date: 06/09/2005		Run ID: E1_050614B			
Client ID: LCSD-18464	Batch ID: 18464	Units: µg/L			Analysis Date: 06/14/2005		SeqNo: 360498			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	0.6944	0.33	0.6667	0	104	54	130	0	0	40	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Nitkem Corporation

Date: *25-Jun-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: PRE-FIL-1
Lab ID: D0612-01

Project: ERD - Central Landfill
Collection Date: 05/26/05 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
CHLORINATED HERBICIDES BY GC-ECD				SW8151A_W			
2,4-D	ND		33	µg/L	1	06/20/2005 18:43	18468
2,4,5-TP (Silvex)	ND		3.3	µg/L	1	06/20/2005 18:43	18468
Surr: DCAA	86.8		15-150	%REC	1	06/20/2005 18:43	18468

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *25-Jun-05*

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW8151A_W

Sample ID MB-18468	SampType: MBLK	TestCode: SW8151A_W			Prep Date: 06/09/2005			Run ID: E4_050620A		
Client ID: MB-18468	Batch ID: 18468	Units: µg/L			Analysis Date: 06/20/2005			SeqNo: 360399		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-D	ND	3.3									
2,4,5-TP (Silvex)	ND	0.33									
Surr: DCAA	22.72	3.3	33.33	0	68.2	15	150	0	0		

Sample ID LCS-18468	SampType: LCS	TestCode: SW8151A_W			Prep Date: 06/09/2005			Run ID: E4_050620A		
Client ID: LCS-18468	Batch ID: 18468	Units: µg/L			Analysis Date: 06/20/2005			SeqNo: 360400		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-D	29.27	3.3	33.33	0	87.8	15	150	0	0		
2,4,5-TP (Silvex)	2.619	0.33	3.333	0	78.6	15	150	0	0		
Surr: DCAA	27.91	3.3	33.33	0	83.7	15	150	0	0		

Sample ID LCSD-18468	SampType: LCSD	TestCode: SW8151A_W			Prep Date: 06/09/2005			Run ID: E4_050620A		
Client ID: LCSD-18468	Batch ID: 18468	Units: µg/L			Analysis Date: 06/20/2005			SeqNo: 360401		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-D	27.67	3.3	33.33	0	83	15	150	29.27	5.63	50	
2,4,5-TP (Silvex)	2.447	0.33	3.333	0	73.4	15	150	2.619	6.79	50	
Surr: DCAA	24.55	3.3	33.33	0	73.6	15	150	0	0	50	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Envirotech Corporation

Date: *25-Jun-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: PRE-FIL-1
Lab ID: D0612-01

Project: ERD - Central Landfill
Collection Date: 05/26/05 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
METALS BY ICP				**SW6010B_W**			
Arsenic – TCLP	ND		200	µg/L	1	05/27/2005 17:10	18307
Barium – TCLP	6400		2000	µg/L	1	05/27/2005 17:10	18307
Cadmium – TCLP	ND		50	µg/L	1	05/27/2005 17:10	18307
Chromium – TCLP	ND		200	µg/L	1	05/27/2005 17:10	18307
Lead – TCLP	ND		100	µg/L	1	05/27/2005 17:10	18307
Selenium – TCLP	ND		300	µg/L	1	05/27/2005 17:10	18307
Silver – TCLP	ND		300	µg/L	1	05/27/2005 17:10	18307
MERCURY BY FIA				**SW7470A**			
Mercury – TCLP	ND		0.26	µg/L	1	05/27/2005 16:35	18309

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *25-Jun-05*

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW6010B_W

Sample ID	MB-18307	SampType:	MBLK	TestCode:	SW6010B_W			Prep Date:	05/27/2005	Run ID:	OPTIMA2_050527A
Client ID:	MB-18307	Batch ID:	18307	Units:	µg/L			Analysis Date:	05/27/2005	SeqNo:	353923

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	20									
Barium	ND	200									
Cadmium	ND	5.0									
Chromium	ND	20									
Lead	ND	10									
Selenium	ND	30									
Silver	ND	30									

Sample ID	MB-18296	SampType:	MBLK	TestCode:	SW6010B_W			Prep Date:	05/27/2005	Run ID:	OPTIMA2_050527A
Client ID:	MB-18296	Batch ID:	18307	Units:	µg/L			Analysis Date:	05/27/2005	SeqNo:	353924

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic -- TCLP	ND	200									
Barium -- TCLP	ND	2000									
Cadmium -- TCLP	ND	50									
Chromium -- TCLP	ND	200									
Lead -- TCLP	ND	100									
Selenium -- TCLP	ND	300									
Silver -- TCLP	ND	300									

Sample ID	MB-18307	SampType:	MBLK	TestCode:	SW6010B_W			Prep Date:	05/27/2005	Run ID:	OPTIMA3_050601A
Client ID:	MB-18307	Batch ID:	18307	Units:	µg/L			Analysis Date:	06/01/2005	SeqNo:	354589

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	30									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW6010B_W

Sample ID	LCS-18307	SampType:	LCS	TestCode:	SW6010B_W			Prep Date:	05/27/2005	Run ID:	OPTIMA2_050527A	
Client ID:	LCS-18307	Batch ID:	18307	Units:	µg/L			Analysis Date:	05/27/2005	SeqNo:	353925	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Arsenic	463.8	20	455	0	102	80	120	0	0			
Barium	9336	200	9100	0	103	80	120	0	0			
Cadmium	228.5	5.0	227	0	101	88.1	120	0	0			
Chromium	904	20	910	0	99.3	80	120	0	0			
Lead	458	10	455	0	101	80	120	0	0			
Selenium	454.2	30	455	0	99.8	83.6	118	0	0			
Silver	1058	30	1130	0	93.7	80	120	0	0			

Sample ID	LCS-18307	SampType:	LCS	TestCode:	SW6010B_W			Prep Date:	05/27/2005	Run ID:	OPTIMA3_050601A	
Client ID:	LCS-18307	Batch ID:	18307	Units:	µg/L			Analysis Date:	06/01/2005	SeqNo:	354590	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Silver	1296	30	1130	0	115	80	120	0	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: SW7470A

Sample ID	MB-18309	SampType:	MBLK	TestCode:	SW7470A				Prep Date:	05/27/2005		Run ID:	FIMS1_050527A	
Client ID:	MB-18309	Batch ID:	18309	Units:	µg/L				Analysis Date:	05/27/2005		SeqNo:	353973	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		ND	0.20											

Sample ID	MB-18296	SampType:	MBLK	TestCode:	SW7470A				Prep Date:	05/27/2005		Run ID:	FIMS1_050527A	
Client ID:	MB-18296	Batch ID:	18309	Units:	µg/L				Analysis Date:	05/27/2005		SeqNo:	353978	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury -- TCLP		ND	0.26											

Sample ID	LCS-18309	SampType:	LCS	TestCode:	SW7470A				Prep Date:	05/27/2005		Run ID:	FIMS1_050527A	
Client ID:	LCS-18309	Batch ID:	18309	Units:	µg/L				Analysis Date:	05/27/2005		SeqNo:	353974	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		3.924	0.20	4.55	0	86.2	67.3	120	0	0				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Whitkem Corporation

Date: *08-Jun-05*

Client: GZA GeoEnvironmental, Inc.
Client Sample ID: PRE-FIL-1
Lab ID: D0612-01

Project: ERD - Central Landfill
Collection Date: 05/26/05 13:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL PETROLEUM HYDROCARBONS (TPH) BY GC-FID				**TPH_S**			
Extractable Total Petroleum Hydrocarbon	3300		230	mg/Kg	5	06/07/2005 06:19	18360
Surr: para-Terphenyl	120	S	64.7-104	%REC	5	06/07/2005 06:19	18360

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *08-Jun-05*

CLIENT: GZA GeoEnvironmental, Inc.
Work Order: D0612
Project: ERD - Central Landfill

ANALYTICAL QC SUMMARY REPORT

TestCode: TPH_S

Sample ID	MB-18360	SampType:	MBLK	TestCode:	TPH_S				Prep Date:	06/02/2005		Run ID:	F1_050606A	
Client ID:	MB-18360	Batch ID:	18360	Units:	mg/Kg				Analysis Date:	06/06/2005		SeqNo:	355925	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Extractable Total Petroleum Hydrocarbon		ND	12											
Surr: para-Terphenyl		1.475	0.83	1.667	0	88.5	64.7	104	0	0				

Sample ID	LCS-18360	SampType:	LCS	TestCode:	TPH_S				Prep Date:	06/02/2005		Run ID:	F1_050606A	
Client ID:	LCS-18360	Batch ID:	18360	Units:	mg/Kg				Analysis Date:	06/06/2005		SeqNo:	355926	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Extractable Total Petroleum Hydrocarbon		139.4	12	166.7	0	83.6	67.3	108	0	0				
Surr: para-Terphenyl		1.48	0.83	1.667	0	88.8	64.7	104	0	0				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

Mitkem Corporation — *26/May/05 15:36* — WorkOrder: D0612

Client ID: RIRRC
Project: ERD - Central Landfill
Location:
Comments: N/A

Case:
SDG:
PO: RIRRC - ERD, 32420

Report Level: CLP
EDD: EQUIIS_GZA
HC Due: 06/16/05
Fax Due:

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Lab Test Comments	Iold	MS	SEL	Storage
D0612-01A	PRE-FIL-1	05/26/05 13:00	05/26/05	Miscellaneou	PMoist		☐	☐	☐	A3
					SW6010B_W	TCLP	☐	☐	☑	A3
					SW7470A	TCLP	☐	☐	☐	A3
					SW8081A_W	TCLP	☐	☐	☑	A3
					SW8151A_W	TCLP	☐	☐	☑	A3
					SW8260B_W	TCLP	☐	☐	☑	A3
					SW8270C_W	TCLP	☐	☐	☑	A3
					TPH_S		☐	☐	☐	A3

Client Rep: Edward A Lawler

MITKEM CORPORATION
75 M enter vard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REPORT TO		INVOICE TO		
COMPANY GZA	PHONE 421-4140	COMPANY	PHONE	LAB PROJECT #: D0612
NAME MARK DALPE	FAX	NAME	FAX	
ADDRESS		ADDRESS		TURNAROUND TIME: 1W
CITY/ST/ZIP		CITY/ST/ZIP		

CLIENT PROJECT NAME: CLF ERD TREATMENT SYSTEM

CLIENT PROJECT #: 32419.02

CLIENT P.O.#:

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	TCLP VOCs	TCLP SVOCs	TCLP Pest	TCLP Metals	TPH	TCLP Herb	COMMENTS
PRE-FIL-1	5/26/05 1300					X		3	X	X	X	X	X	X	1.
	/														2.
	/														
	/														
	/														
	/														
	/														
	/														
	/														
	/														
	/														
	/														

REQUESTED ANALYSES

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
		5/26/05		5/26/05 1400
		/		/
		/		/

ADDITIONAL REMARKS:
1. PERFORM FULL SUITE TCLP (DISPOSAL CRITERIA) AND TPH (total)
2. SAMPLE IS FRAGMENTS OF FILTER FABRIC

COOLER TEMP:

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION
Sample Condition Form

Page 1 of 1

Received By: BFD	Reviewed By:	Date:	MITKEM Project #: D0612
ient Project: ERD		Client: RIRRC	

		Lab Sample ID		Preservation (pH) HNO_3	Preservation (pH) H_2SO_4	Preservation (pH) HCl	Preservation (pH) NaOH	VOA Matrix	Soil Headspace or Air Bubbles ≥ 1/4"
ooler Sealed	Yes / (No)	D0612	-01						
Custody Seal(s)	Present / (Absent)								
	Coolers / Bottles								
	Intact / Broken								
2) Custody Seal Number(s)	—								
3) Chain-of-Custody	(Present) / Absent								
4) Cooler Temperature	4°C								
Coolant Condition	Ice								
5 Airbill(s)	Present / (Absent)								
Airbill Number(s)	—								
6) Sample Bottles	(Intact)/Broken/Leakin								
7) Date Received	5-26-05								
8 Time Received	14:00								
servative Name/Lot No:									

VOA Matrix Key:
US = Unpreserved Soil **A** = Air
UA = Unpreserved Aqueo **H** = HCl
M/N= MeOH & $NaHSO_4$ **E** = Encore
N = $NaHSO_4$ **M** =MeOH

See Sample Condition Notification/Corrective Action Form yes / (no)

Rad OK (yes)/no

orm ID: SampleCond.Form-11/04

Last Page of Data Report

APPENDIX D

FIELD PILOT TEST OVERVIEW

Proposal To

GZA

At the Central Landfill Site

in
Johnston, RI

for the supply of a Leased

RAYOX®
UV/Oxidation System

by

Calgon Carbon Corporation

July 6, 2005

CCC Proposal No. QR-0505-12

Proposed Scope of Supply (60 KW Rayox® Lease System)

- 60 kW Rayox® skid, including two (2) 30 kW Lamps with Quartz Cleaner and stepped Power Supply
- Programmable Logic Controller (PLC) System Controller
- Hydrogen Peroxide Dosing System
- Air Compressor required for Quartz Cleaning operation
- Set of Engineering Drawings and Operating and Maintenance Manuals

The costs associated with the rental of a 60 kW pilot are summarized below:

Monthly Rental for 60 kW unit and peroxide delivery skid (minimum three month rental required) Maximum Rental Period Not to Exceed Six (6) Months	$7,500
Lamp Fee for Two (2) Rayox 30 KW lamps	$ 4,990
One time mobilization fee, 2 man-days* - Includes startup and training	$5,000
One time demobilization fee, 1 man day* - unit to be decontaminated by customer prior to demobilization	$3,000

*Additional days required will be invoiced at $840 per day for an 8 hour workday, $158 per hour for time beyond 8 hour workday, time recorded to the nearest half hour. Time spent traveling to and from site, and producing appropriate documentation will be invoiced at $60 per hour. Travel and living expenses will be billed at cost plus 15%.

Payment Terms:	Lamp Fee, Mobilization, Demobilization, and one month's rental price with Purchase Order Customer will be billed monthly in advance for rental
Delivery:	F.O.B. Pittsburgh, PA
Estimated Freight:	$1,500 (Johnston, RI)
Taxes:	Not included (if applicable)

Delivery Schedule: 2 - 3 weeks from receipt of purchase order.
To be confirmed at time of order and subject to availability of pilot unit in stock.

SUPPLY BY OTHERS

The scope of CCC's supply for the pilot consists exclusively of the items of equipment and services listed above. Additional equipment and services required to render the proposed **Rayox®** treatment system operational are assumed to be supplied by others. The equipment and services to be provided by others include, but are not limited to, the following:

Provision of the following:

- industrial indoor environment, sealed or painted concrete floor
- peroxide storage tank or peroxide totes
- connecting piping/hoses to and from **Rayox®** system
- decontamination and flushing of unit with potable water prior to demobilization
- piping installed to ensure Rayox reactor remains full at all times
- valves downstream of reactor to be slow closing to prevent water hammer

Installation of the Equipment, including the following:

- unloading, placing, leveling, and anchoring equipment on a 3" raised pad
- electrical hook-up, 480V, 3ϕ to **Rayox®** skid
- supply and installation of connecting piping to and from **Rayox®** system and between **Rayox®** skids, including field welds, as may be necessary, and provision of pipe supports
- installation and connection of spool pieces for static mixers, flowmeter, automatic valves, etc.
- supply and installation of 1/4" (1/2") OD tubing between metering pumps and chemical reagent storage tank/tote, and between metering pumps and or point of injection
- supply and installation of electrical wiring between **Rayox®** skid and metering pump skid(s) or other equipment such as pumps, tanks, etc.
- termination of electrical and pneumatic connections for flowmeter, automatic valves, pH meters, etc.
- supply and installation of pneumatic tubing between air compressor and **Rayox®** skid(s)
- the location should be equipped with floor drains
- an eye wash station is recommended when peroxide, acid or caustic are used
- utilities as follows:

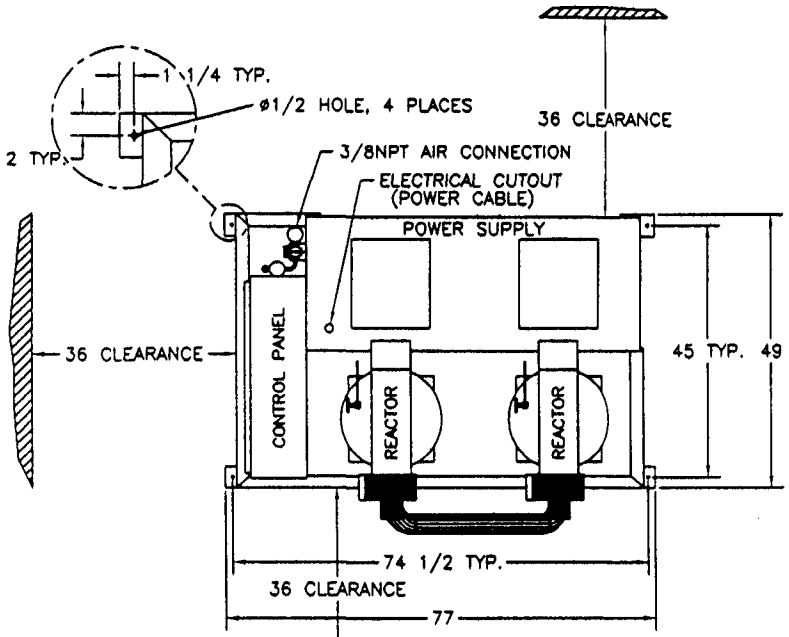
Utilities

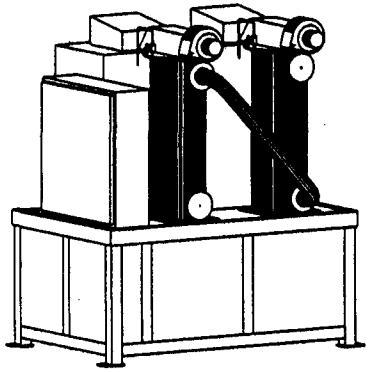
The utilities required to operate the **Rayox®** reactor are indicated below.

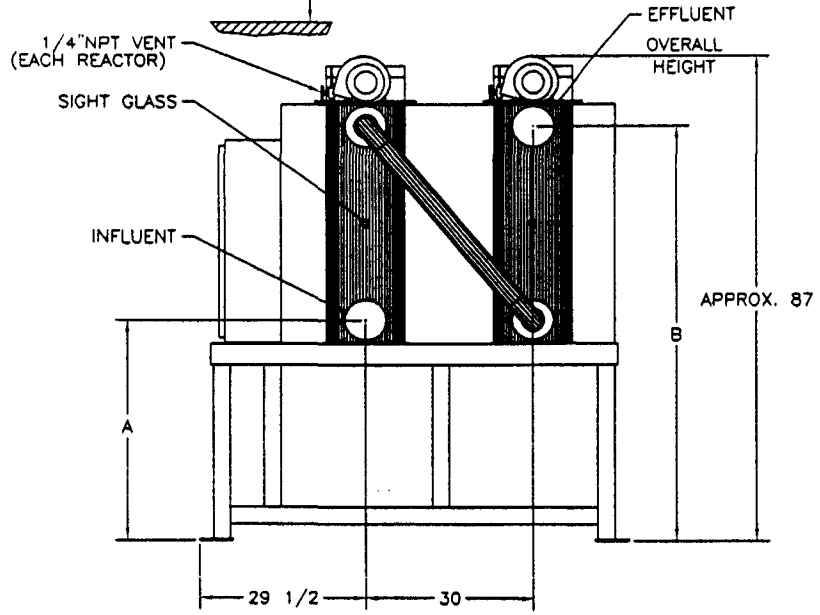
Electrical Supply Required:

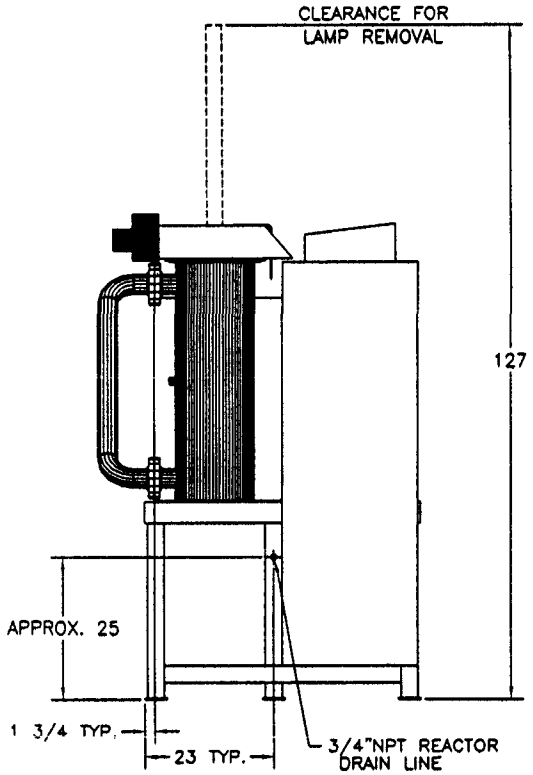
Rayox® System	: 480 VAC, 60 Hz, 3 Phase protected supply
Full Load Running Current	: 125 amps
Air Compressor (2 HP)	: 120 VAC, 60 Hz, 15 Amp dedicated wall outlet

Calgon Carbon Corporation's standard Terms and Conditions would apply. A copy of these terms is attached for your review.









REVISIONS

REV	DESCRIPTION	DATE	APPVD
A	E.C.O.814 - T. D. R.	29 Jul/93	
B	E.C.O.886 - T. D. R.	21 Feb/94	
C	E.C.O.813 - B. P.	1 Jun/94	
D	E.C.O.842 - J. H.	24 Jun/94	
E	E.C.O.1027 - T. D. R.	19 Sep/96	

NOTES

1. APPROX. WEIGHT: 5000 lbs.
2. REFER TO PIPING DRAWING FOR REACTOR NOZZLE ORIENTATION.
3. MINIMUM 36" CLEARANCE ACCESS AS SHOWN.
4. UNIT TO BE MOUNTED ON 3" RAISED CONCRETE PAD.
5. REFER TO P. & I.D. DRAWING FOR ACTUAL PIPE SIZE.

PORT SIZE	APPROX. DIM'S	
	A	B
1	39	*74-3/4
1-1/2	39-3/4	*74
2	39-3/4	74
3	39-3/4	74
4	40-1/4	73-1/2

* WHERE THERE ARE LOW FLOWS INVOLVED, THE REACTOR EFFLUENT MAY BE OUT OF THE TOP PLATE RATHER THAN OUT THE SIDE

FINISH

MATERIAL

DIMENSIONS IN INCHES (unless otherwise specified)

TOLERANCES (unless otherwise specified)

ANGULAR	±0°30'	DECIMAL 2 PLACES	±.010
FRACTIONAL	±1/32	DECIMAL 3 PLACES	±.005
DECIMAL 1 PLACE	±.010	DECIMAL 4 PLACES	±.0005

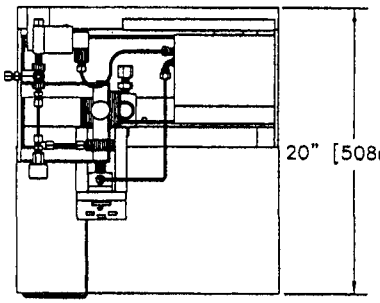
CALGON CARBON OXIDATION TECHNOLOGIES
130 ROYAL CREST CT.
MARKHAM, ONTARIO
CANADA L3R 0A1

	NAME	SIGN.	DATE
DRAFT.	T. D. R.		29 Jul/93
DESIGN.			
CHECK	J. H.		
APPR.	R. C. H.		

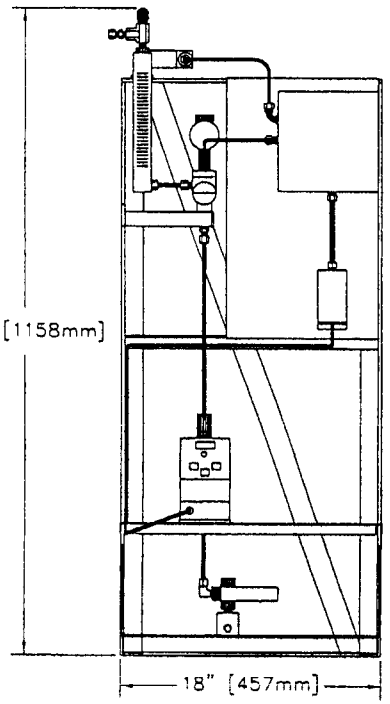
TITLE: RAYOX 2 X 30kW REACTOR OUTLINE DETAIL

SHEET No. SHEET 1 OF 1 — SCALE NONE

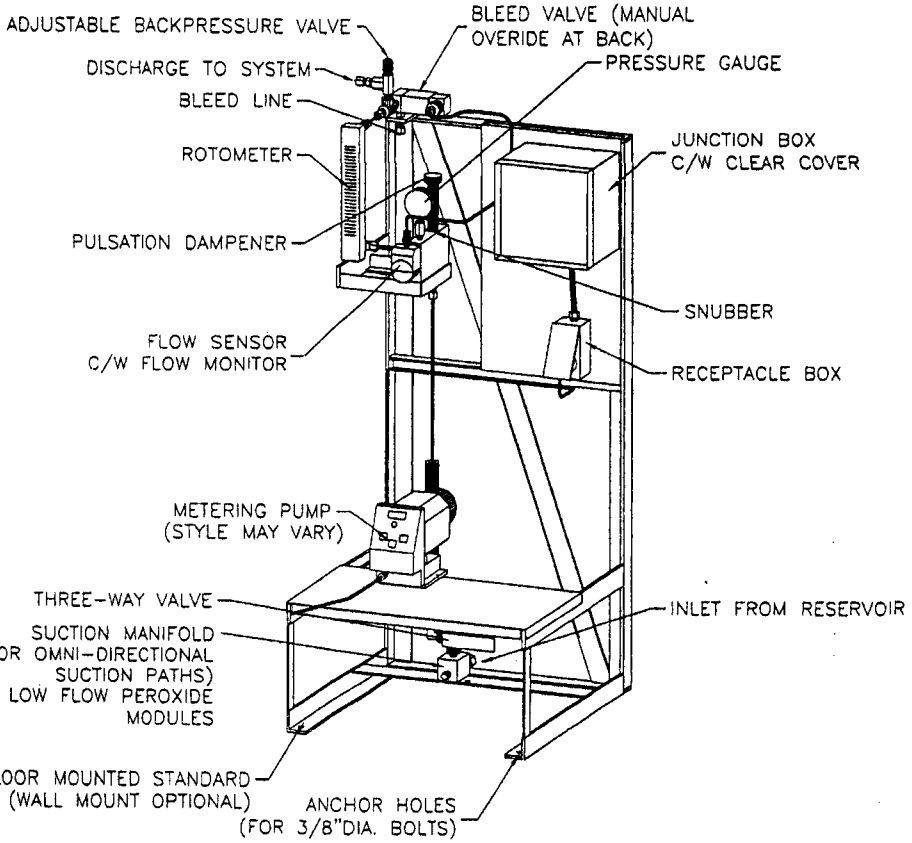
DWG. No. 000-D-000112 — REV. E



PLAN



FRONT ELEVATION



ISOMETRIC

PEROXIDE

REVISIONS

REV	DESCRIPTION	DATE	APPV'D
L	E.C.O.1814 - L. A.	05 Aug 99	
G	E.C.O.820 - S. P.	30 Jun/95	
H	E.C.O.1027 - T. D. R.	17 Sep/96	
J	E.C.O.1134 - T. D. R.	3 Nov/97	
K	E.C.O.1481 - L. A.	7 Jul/99	

NOTES

1. REFER TO P&ID FOR LINE SIZES AND CONNECTION TYPE.

3D FILE: R187

FINISH

MATERIAL

DIMENSIONS IN INCHES (unless otherwise specified)

TOLERANCES (unless otherwise specified)

ANGULAR	±0°30'	DECIMAL 2 PLACES	±.010
FRACTIONAL	±1/32	DECIMAL 3 PLACES	±.005
DECIMAL 1 PLACE	±.015	DECIMAL 4 PLACES	±.0005

CALGON

CALGON CARBON CORPORATION

	NAME	SIGN.	DATE
DRAFT.	T. D. R.		23 JUL/92
DESIGN.			
CHECK	S. P.		
APPR.	J. H.		

TITLE: METERING PUMP FRAME DETAIL

SHEET No. SHEET 1 OF 4 | SCALE NONE

DWG. No. 000-X-400001 | REV. L