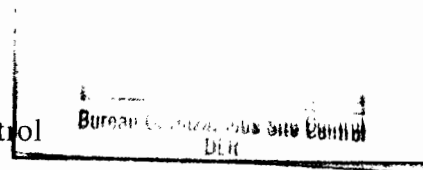


May 25, 2001

Mr. Carl Hoffman, P.E.
New York Department of Environmental Conservation
Operation and Maintenance Section – Bureau of Hazardous Site Control
Division of Environmental Remediation
50 Wolf Road
Albany, New York 12233 - 7010



Re: **ServAll Laundry Site**
Bay Shore, Suffolk County
Site No. 1-52-077, Work Assignment No. D003821-19
Monthly Report April 2001

Telephone

Dear Mr. Hoffmann:

518.458.1313

This is the Monthly Report for April 2001, the third monthly report submitted under Work Assignment No. D003821-19

Facsimile

518.458.2472

The plant processed a total volume of 4,526,670 gallons of water at an average flow rate of 129.22 GPM for the month of April. In this sampling event the total influent volatile organic compounds (VOCs) concentration was 21.72 ppb (see discussion below regarding blank correction). Most compounds detected in the influent sample fell into the chlorinated solvent category, as would be expected with groundwater impacts arising from a dry cleaning operation. The plant removed approximately 89 percent of the influent VOCs. No iron was detected in the system effluent sample during this sampling event. The effluent manganese concentration was 813 ppb, which is above the discharge criteria of 600 ppb. This result is consistent with historical sampling results for manganese.

Review of the laboratory report for this sampling round found methyl-tert-butyl ether (MTBE), methylene chloride, cis-1,2-dichloroethene, trichloroethene, tetrachloroethene, and naphthalene to be present at concentrations of 5, 0.71, 0.4, 0.26, 0.75, and 15 ug/L, respectively, for the influent sample. In the effluent sample acetone, methyl-tert-butyl-ether, bromodichloromethane, methylene chloride, chloroform, and tetrachloroethene were found to be present at concentrations of 9.4, 0.25, 0.26, 0.75, 1.7, and 0.18 ug/L, respectively.

Based on telephone conversations Earth Tech had with Severn Trent Laboratories, in February 2001, Methylene chloride, MTBE, and acetone are all common laboratory



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Mr. Carl Hoffman
 NYSDEC
 ServAll Laundry Site
 April 2001 Report

contaminants for this laboratory. USEPA data validation procedures state, that when contamination is seen in a laboratory method blank or field blank a factor of ten times the blank concentration for a common laboratory contaminant is used to "correct" sample results. For other blank contaminants, a factor of five times the blank concentration is used to "correct" sample results.

The two tables below present a summary of the method blank results and their associated sample results.

Compound	Blank (VBLK02) Concentration	Trip Blank	Effluent Concentration	Influent Concentration
methyl-tert-butyl-ether	ND	ND	0.25	5
methylene chloride	1.2	2.9	0.75	0.71
Acetone	4	ND	9.4	ND
chloroform	ND	ND	1.7	ND

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518.458.2472

Compound	Blank (VBLK02) Concentration	Trip Blank	UV-OX
methyl-tert-butyl-ether	ND	ND	0.56
methylene chloride	1.2	2.9	0.58
Acetone	4	ND	8.4
chloroform	ND	ND	0.15

When evaluating the performance of the water treatment system the sample results for methylene chloride and acetone shown in the table above were "blank corrected" and negated. This correction was made, since the concentration of methylene chloride and acetone found in the samples was lower than ten times the associated laboratory blank result for these compounds.

Chloroform and bromodichloromethane are not common laboratory contaminants, or historical contaminants of concern at the site. However, they are both members of the trihalomethane family. As the table above illustrates chloroform and bromodichloromethane were shown to be present in the system effluent sample, however these compounds were not found to be present in the influent sample or any of the blanks associated with the samples. In a telephone conversation with the Laboratory Director at Severn Trent Laboratories Mr. Jeffery Curran regarding this contamination, he stated that these trihalomethane compounds are not laboratory contaminants. Because there is

Mr. Carl Hoffman
NYSDEC
ServAll Laundry Site
April 2001 Report

no support for laboratory contamination (i.e. method blank) with chloroform or bromodichloromethane, to be conservative the results for these two compounds present in the effluent sample were included in the total volatile organics calculation, and when calculating the overall contaminant reduction efficiency.

As shown in the table above, MTBE was present in both the influent and system effluent samples, but not in any of the associated blanks. Earth Tech reported in the February 2001 monthly summary report that the presence of MTBE, in the samples associated with that report, was the result of laboratory contamination. The blank data for this event does not support that same conclusion. To be conservative the MTBE concentration present in the influent and effluent was included in the total volatile organics calculation, and when calculating the overall contaminant reduction efficiency.

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518.458.1313

Facsimile

518.458.2472

Naphthalene was found to be present in the influent sample as the table above illustrates. Naphthalene is not a common laboratory contaminant, and is not a contaminant of concern at the site. This makes the presence of this compound in the ServAll site samples suspicious since naphthalene is not typically associated with dry cleaner sites. In this month's telephone conversation with Jeffery Curran, the Severn Trent Laboratory Lab Manager, Mr. Curran stated that the laboratory does get many samples into the laboratory that are contaminated with naphthalene. He also stated that it is possible that some cross contamination might have occurred at the laboratory with the ServAll influent sample. Just as with the contaminants above, because there is no support for laboratory contamination, to be conservative the naphthalene concentration present in the influent sample was included in the total volatile organics calculation, and when calculating the overall contaminant reduction efficiency.

Earth Tech will continue to follow this contamination issue in the future, and data will be evaluated as described above for blank correction with regards to any non-site contaminant found in the samples when appropriate.

The typical effluent pH range at the plant is between 6 and 9 SU. The pH seen in the influent is slightly below that range with a value of 5.85. However, the effluent is within the range (pH = 6.97). The overall effluent water quality data (TSS, Total Solids, Alkalinity, and pH) were consistent with historical laboratory and daily on-site monitoring data.



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Mr. Carl Hoffman
 NYSDEC
 ServAll Laundry Site
 April 2001 Report

The following non-routine, system maintenance activities were conducted by H2M during the reporting period:

- The system was down either upon H2M personnel arrival or while the personnel were at the site many times in April (4/10/01, 4/16/01, 4/19/01, 4/23/01, and 4/30/01). The causes of these shutdowns were re-injection well level, UV-Oxidation system problems, breaker problems, or caused by a fault in the air compressor. The specific causes are discussed below.
- The UV-Oxidation system failure was due to either a low flow condition (4/10/01 and 4/30/01) or a light failure. On 4/23/01 a lamp failure occurred and H2M personnel switched the active lamp from lamp #3 to lamp #2. On 4/27/01 lamp #3 was again turned on and an error message indicated lamp failure.
- The breakers that caused the problems for the system were the sand filter breaker, sand filter pump 6B breaker, and the extraction well breaker. All three of these breakers tripped at certain times during the month and caused a shutdown. In all cases the breakers were reset and the system restarted.
- Several pump problems or adjustments happened during the month of April. It was found that the sump pump does not have enough power (pressure) to overcome the extraction well pressure when using a common feed line to the equalization tank. H2M personnel determined the system needed to be modified to correct this problem. The sump line was re-routed directly into the equalization tank. Some pump adjustments were made to the caustic soda pump and the sodium hypochlorite pumps. The stroke and speed of the caustic soda pump was adjusted to raise the effluent pH on 4/4/01, 4/11/01, and 4/12/01. The speed and stroke of the sodium hypochlorite pump was adjusted to alter the level of chlorine residual in the effluent on 4/13/01, 4/23/01, and 4/07/01. Also, the speed and choke of the hydrogen peroxide pump was adjusted to change the amount of peroxide residual in the effluent on 4/24/01, 4/25/01, and 4/27/01.
- On 4/18/01 H2M personnel indicated that the air compressor might be malfunctioning. The compressor was repaired on 4/19/01 after it caused a shutdown.
- Four (4) drums of 15% sodium hypochlorite (NaOCl) solution were delivered to the

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518.458.1313

Facsimile

518.458.2472



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Mr. Carl Hoffman
NYSDEC
ServAll Laundry Site
April 2001 Report

site on 4/3/01. On 4/26/01 reagents for testing the influent, UV-OX, and effluent were ordered.

A complete list of all maintenance activities for this month are in the attached operations and maintenance letter summary submitted by the H2M Group dated April 3, 2001.

Earth Tech had a telephone conversation with Phil Schade the project manager for H2M on 5/8/01 and 5/9/01 regarding the many problems that were seen at the site in this reporting period. The problems that were discussed dealt with the UV-Oxidation system's many automatic shutdowns, a UV bulb loss, and the possibility of an inoperable flow meter.

Telephone

518.458.1313

Facsimile

518.458.2472

According to Mr. Schade the automatic shutdowns that were attributed to the UV-Oxidation system were caused by the flow meter sending false signals to the valve that regulates influent flow. The specific problem with the meter was that the logic circuit was failing, causing the influent flow valve to fluctuate between fully open and fully closed. This created a huge change in the water pressure flowing through the system. This change caused a cascade effect that ended with system shutdown.

Due to this problem H2M had a service technician come to the site to inspect the flow meter on 5/9/01. According to the service technician the flow meter was failing. The technician bypassed the flow meter and connected the primary valve to an operable flow meter. This appeared to work. However, due to the complexity of the PLC, it appears as though, during the bypass process all the flow controls were unknowingly reset to the default settings. This resulted in an effluent flow rate of nearly 150 GPM. The effluent water is re-injected into the ground through an injection well and this 150 GPM flow was three (3) times the flow capacity of the well causing an overloading of the well.

H2M decided to shutdown the system and operate it using manual valves and hard piping to bypass the flow controls. Using this method the system was restarted on 5/21/01. Upon system startup a second UV bulb blew. The system was shutdown again. Because the system is designed to run with two (2) UV bulbs, H2M personnel were concerned that with only one (1) functional bulb there would not be full destruction of the contaminants. In a telephone conversation on 5/23/01, H2M personnel asked the Earth Tech project manager for permission to order a UV bulb from Calgon. Permission was granted. Once the bulb is installed the system will be returned to logic circuit control with the bypass on



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Mr. Carl Hoffman
NYSDEC
ServAll Laundry Site
April 2001 Report

the inoperable flow meter still in place. Once operational the PLC technician will reset the flow controls in the logic circuit from the default settings to the operation settings.

If you have any questions or comments regarding this report please feel free to contact me at (518) 437-8310.

Very truly yours,



C. Brett Mongillo
Manager Chemistry and Sampling Services
Earth Tech, Inc.

Telephone

518.458.1313

Facsimile

518.458.2472

Enclosures



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Summary Report

Plant Operating Data	unit	Monthly Average (to date)	Monthly Average (2001)	February-01	March-01	April-01	May-01	June-01
Flow Rate	gpm	118	140	146.1	144.11	129.22		
Gallons processed	gallons	3530148	3926700	1,706,490	5,546,940	4,526,670		
Percent of Time Operating	%	1	3	790%	92%	68%		
Pounds of VOCs Treated	lb	1	0	0.09	0.41	0.37		
Influent VOC concentration	ug/L	115	15	8.1	14.79	22.43		
Effluent VOC concentration	ug/L	9	7	2.1	6.01	12.54		
Influent Total Iron	ug/L	1920	150	0	210	240		
Effluent Total Iron	ug/L	367	0	0	0	0		
Influent Total Manganese	ug/L	740	815	756	874	815		
Effluent Total Manganese	ug/L	565	816	766	870	813		
VOC removal efficiency	%	88.6%	1	74.1%	59.4%	44.1%		
Total Iron removal efficiency	%	#DIV/0!	#DIV/0!	#DIV/0!	100.0%	100.0%		
Total Manganese removal efficiency	%	11.5%	0	-1.3%	0.5%	0.2%		
Cartridge Filters	ea	1	NA	NA	NA	NA		
Sodium hypochlorite (12%)	lb	634	NA	NA	NA	NA		
Polymer	lb	25	NA	NA	NA	NA		
Hydrogen peroxide (50%)	lb	3705	NA	NA	NA	NA		
Caustic (50%)	lb	2074	NA	NA	NA	NA		
Hydrochloric Acid	lb	65	NA	NA	NA	NA		
Spare Parts or other	at cost	443	NA	NA	NA	NA		
Sludge generated (20% dewatered)	gal	22	0	0	0	0		
Sludge disposed of	gal	16	0	0	0	0		
Electricity (estimated)	kw hr	39891	37800	NA	NA	NA		
Gas (estimated)	therms	854	800	NA	NA	NA		
Compliance Sampling	at cost	893	650	NA	NA	NA		
Operator	Month	8927	6700	NA	NA	NA		
Redevelopment	at cost	2048	0	NA	NA	NA		
Management & Engineering	at cost	2874	3200	NA	NA	NA		
Consumables cost	\$	\$3,160	NA	NA	NA	NA		
Sludge disposal cost	\$	\$50	NA	NA	NA	NA		
Utilities cost	\$	\$3,889	NA	NA	NA	NA		
Services cost	\$	\$14,742	NA	NA	NA	NA		
Operating Cost (Estimated)	\$	\$21,841	\$0	NA	NA	NA		

Notes:

NA = Not Available

Servall Laundry
Site No. 1-52-077
Groundwater Remediation -2001 Operation and Maintenance

Summary Report

Plant Operating Data	unit	July-01	August-01	September-01	October-01	November-01	December-01	Total Year 2001
Flow Rate	gpm							-
Gallons processed	gallons							11,780,100
Percent of Time Operating	%							316%
Pounds of VOCs Treated	lb							0.86
Influent VOC concentration	ug/L							45.32
Effluent VOC concentration	ug/L							20.65
Influent Total Iron	ug/L							450
Effluent Total Iron	ug/L							0
Influent Total Manganese	ug/L							2,445
Effluent Total Manganese	ug/L							2,449
VOC removal efficiency	%							59.2%
Total Iron removal efficiency	%							#DIV/0!
Total Manganese removal efficiency	%							-0.2%
Cartridge Filters	ea							0
Sodium hypochlorite (12%)	lb							0
Polymer	lb							0
Hydrogen peroxide (50%)	lb							0
Caustic (50%)	lb							0
Hydrochloric Acid	lb							0
Spare Parts or other	at cost							\$0
Sludge generated (20% dewatered)	gal							0
Sludge disposed of	gal							0
Electricity (estimated)	kw hr							0
Gas (estimated)	therms							7,200
Compliance Sampling	at cost							\$0
Operator	Month							\$0
Redevelopment	at cost							\$0
Management & Engineering	at cost							\$0
Consumables cost	\$							\$0
Sludge disposal cost	\$							\$0
Utilities cost	\$							\$0
Services cost	\$							\$0
Operating Cost (Estimated)	\$							\$0

Notes:
NA = Not Available

Servall Laundry Site
Site No. 1-52-077
Groundwater Remediation - Operation and Maintenance

2001 Compliance Sampling - UNCORRECTED

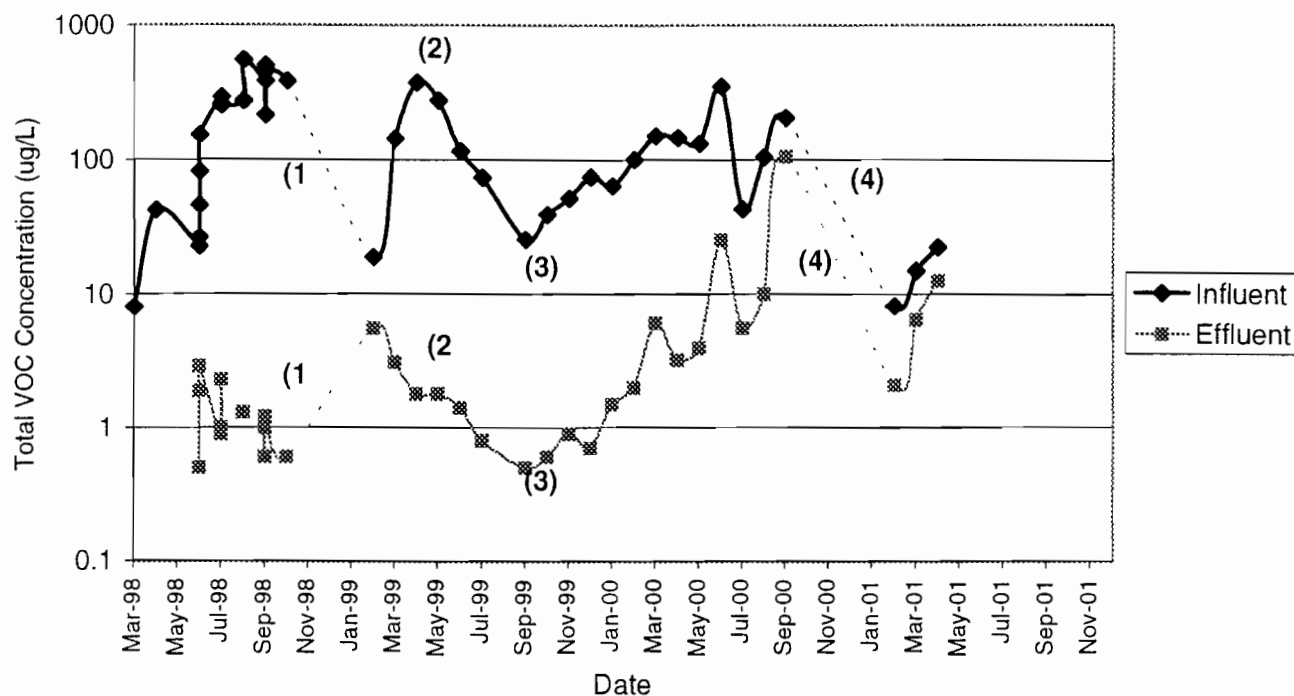
Influent		2001 DATA							
Constituents	Discharge Criteria	units	February	March	April	May	June		
Chlorobenzene	5	ug/L		U	U				
Vinyl Chloride	2	ug/L		U	U				
1,1-Dichloroethene	5	ug/L		U	U				
Trichloroethene	5	ug/L	0.8	0.76	0.75				
Tetrachloroethene	5	ug/L	5.1	11	15				
1,1-Dichloroethane	5	ug/L		U	U				
Toluene	5	ug/L		U	U				
cis-1,2-Dichloroethene	5	ug/L		U	U	0.4	J		
trans-1,2-Dichloroethene	5	ug/L		U	U				
Methylene Chloride	N/A	ug/L	0.22	JB	0.43	JB	0.71	JB	
1,1,1-Trichloroethane	N/A	ug/L	0.38	J	U	0.26	J		
Chloroform	N/A	ug/L		U	U				
Bromodichloromethane	N/A	ug/L		U	U				
Trichlorofluoromethane	N/A	ug/L		U	U				
Tetrahydrofuran	N/A	ug/L		U	U				
Methyl tert-Butyl Ether	N/A	ug/L	1.6	JB	2.6	J	5	J	
Naphthalene	N/A	ug/L				0.31	J		
Total VOCs	N/A	ug/L	8.10	14.79	22.43	0.00	0.00		
pH			6.2	5.8	5.85				
Iron (total)	600 ⁴	mg/L		U	210	240			
Manganese (total)	600 ⁴	ug/L	756	874	815				
Alkalinity	N/A	mg/L	20	23.5	24				
Total Suspended Solids	N/A	mg/L		U	U	U			
Total Solids	N/A	mg/L	114	117	3360				
Effluent		2001 DATA							
Constituents	Discharge Criteria	units	February	March	April	May	June		
Chlorobenzene	5	ug/L		U	U				
Vinyl Chloride	2	ug/L		U	U				
1,1-Dichloroethene	5	ug/L		U	U				
Trichloroethene	5	ug/L		U	U				
Tetrachloroethene	5	ug/L	0.9	0.29	J	0.2	J		
1,1-Dichloroethane	5	ug/L		U	U				
Styrene	5 (POC)	ug/L		U	U				
Toluene	5	ug/L		U	U				
cis-1,2-Dichloroethene	5	ug/L		U	U				
trans-1,2-Dichloroethene	5	ug/L		U	U				
Methylene Chloride	N/A	ug/L	0.36	JB	0.42	JB	0.75	JB	
1,1,1-Trichloroethane	N/A	ug/L		U	U				
Chloroform	N/A	ug/L	0.16	J	0.3	J	1.7		
Tetrahydrofuran	50	ug/L		U	U				
Acetone	N/A	ug/L		U	5	9.4	B		
2-Butanone	N/A	ug/L		U	U				
Bromodichloromethane	N/A	ug/L		U	U	0.3	J		
Methyl tert-Butyl Ether	N/A	ug/L	0.68	JB	U	0.3	J		
Total VOCs	N/A	ug/L	2.10	6.01	12.54	0.00	0.00		
pH			6.58	6.45	6.97				
Iron (total)	600 ⁴	mg/L		U	U	U			
Manganese (total)	600 ⁴	ug/L	766	879	813				
Alkalinity	N/A	mg/L	22	36	67				
Total Suspended Solids	N/A	mg/L		U	U	U			
Total Solids	N/A	mg/L	92	134	159				

Notes:

- Analytical data analyzed by STL Laboratories.
- (U) Undetected.
- (J) Estimate value. Result is below sample practical quantitation limit, but above the instrument detection limit.
- The combined effluent concentration of Iron and Manganese will not exceed 1,000 ug/L.
- N/A - No limit established for this site.
- (E) Estimate value.
- N/A - Not Analyzed
- "-" indicates not performed.
- Bold values exceed discharge limits.
- (P) pesticide/aroclor target analyte. Greater than 25% difference between the two GC columns.
- Concentration between EPA contract detection limit and instrument detection limit
- POC = principal organic contaminant
- LE = lab error or contamination likely

Servall Laundry Site
Site No. 1-52-077
Groundwater Remediation - Operation and Maintenance

Total Volatile Organic Compound (VOC) Influent and Effluent Trends



NOTES

1. Plant down due to reinjection well fouling (November 19, 1998 to January 23, 1999)
2. Brief Shut down in May: May 8 - May 10, 1999
3. Low influent flow due to reinjection well fouling.
4. Plant Shut down due to change in project management

Servall Laundry Site
Site No. 1-52-077
Groundwater Remediation

Summary Notes and Action Items

Month	Notes	Action	Resolutions
February	NYSDEC project manager requested repair of broken windows at the site.	Earth Tech requested that the O&M subcontractor (H2M) arrange for repairs	H2M had windows repaired.
	H2M Reported failure of three pH probes and one transmitter unit. They provided cost of replacement from original supplier	Earth Tech confirmed cost of replacement and received authorization to purchase replacements from NYSDEC	pH Probes and transmitter was replaced
	H2M has suggested that the UV lamp system may be ready for replacement lamps.	Earth Tech and H2M will track total VOC removal efficiency to verify the need to replace the UV lamps	
March	Nothing to Report		
April	See Discussion in Report		

Groundwater Remediation
UV Oxidation Treatability Testing

Constituents / Sample ID	INFLUENT FEB 1999	1EH	2EH	3EH	INFLUENT MARCH 1999	1EH	1EL	1EL (dup)
Peroxide Dose Influent (ppm)		28	28	28		28	50	67
Peroxide Dose Residual (ppm)		22	22	22		22	38	53
Chlorobenzene								
Vinyl Chloride								
Methylene Chloride								
1,1-Dichloroethene							0.3	0.3
Trichloroethene	1.2				1.9			
Benzene								
Tetrachloroethene	17	0.4			140	3.2	7.4	7.7
1,1-Dichloroethane								
Chlorobenzene								
Toluene								
cis-1,2-Dichloroethene	0.6				1.7			
trans-1,2-Dichloroethene								
1,1,1-Trichloroethane	0.7	0.5	0.5	0.5	0.5	0.5	0.5	
Chloroform								
Bromodichloromethane								
Methyl tert-Butyl Ether							0.3	
Trichlorofluoromethane								
Total	19.5	0.9	0.5	0.5	144.1	3.7	8.5	8

Notes:

- Analytical data analyzed by STL Laboratories. Units are ug/L unless otherwise noted.
- Bold values exceed discharge limits.

Legend

1 = Lamp Number (1, 2 or 3)
E = Effluent
H = High Power Lamp
L = Low Power Lamp
dup = duplicate sample

Groundwater Remediation
UV Oxidation Treatability Testing

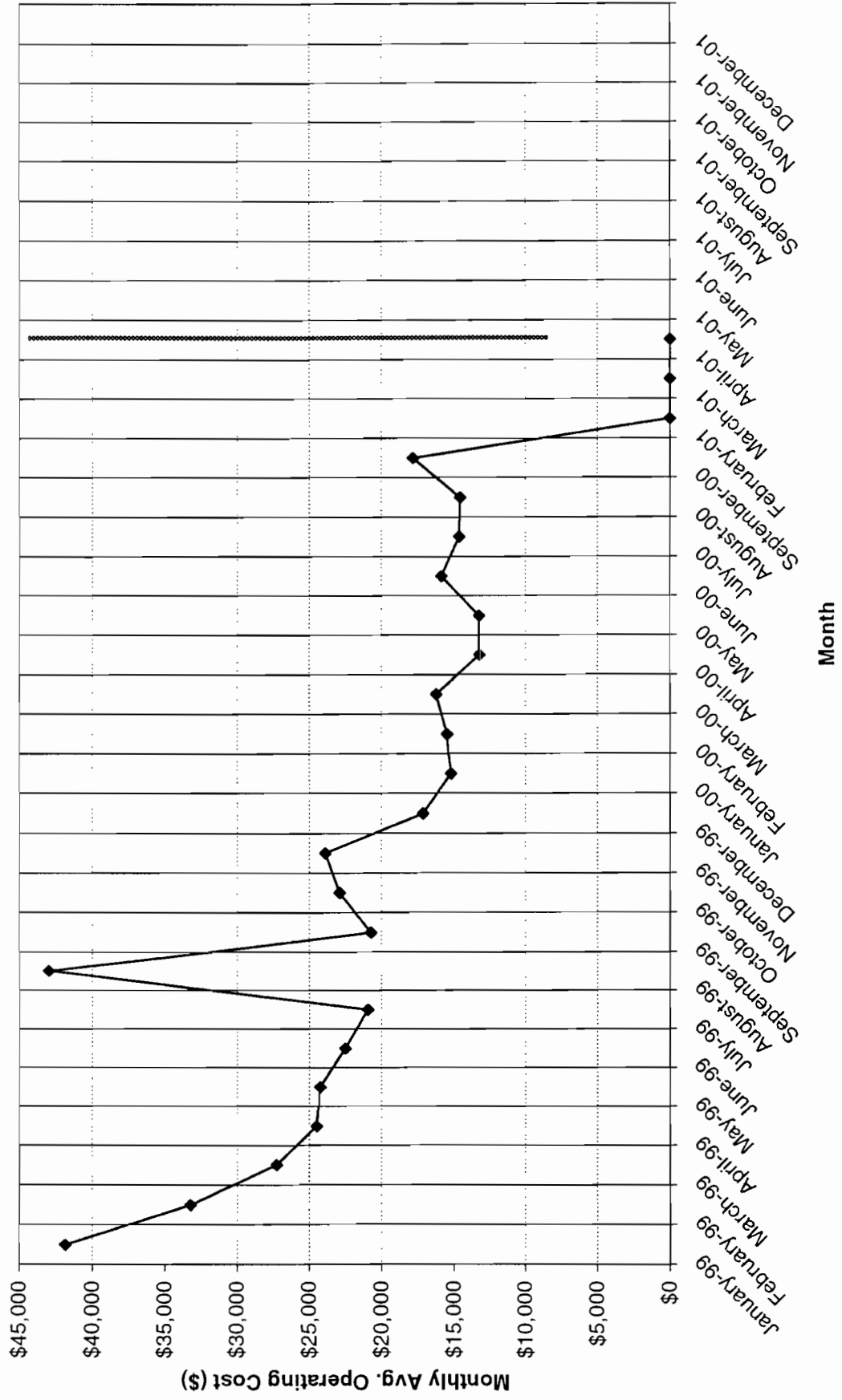
Constituents / Sample ID	INFLUENT APRIL 1999	1EH + 2EH	1EH+2EL	INFLUENT MAY 1999	1EH	1EL + 2 EL	INFLUENT JUNE 1999	1EL	1EH + 2 EL	INFLUENT JULY 1999	1EL	1EH + 2 EL
Peroxide Dose Influent (ppm)		50	50		28	28		28	28		28	28
Peroxide Dose Residual (ppm)		38	38		20	20		20	20		20	20
Chlorobenzene												
Vinyl Chloride												
Methylene Chloride	12	0.2		4.5			1.3					
1,1-Dichloroethene			0.2							0.2		
Trichloroethene	5,6			3			1.3			1.1		
Benzene												
Tetrachloroethene	350	0.3	0.6	260	4.7	0.5	110	0.1	0.1	53		
1,1-Dichloroethane								0.1	0.1	0.2		
Chlorobenzene												
Toluene			0.1	4.6		0.1	1					
cis-1,2-Dichloroethene	3,8						0.6			0.3		
trans-1,2-Dichloroethene												
1,1,1-Trichloroethane	0	0.5	0.5		0.5	0.8	0.6	0.5	0.5	0.6	0.6	
Chloroform	2,3	0.1	0.2					0.1	0.1	0.1	0.1	
Bromodichloromethane												
Methyl tert-Butyl Ether										3		
Trichlorofluoromethane										0.1	0.1	
Total	373.7	1.1	1.6	272.1	5.2	1.4	114.8	0.8	0.8	55.5	0.8	0

Notes:

- Analytical data analyzed by STL Laboratories. Units are ug/L unless otherwise noted.
- Bold values exceed discharge limits.

Legend

1 = Lamp Number (1, 2 or 3)
E = Effluent
H = High Power Lamp
L = Low Power Lamp
dup = duplicate sample



Servall Laundry Site
Site No. 1-52-077
Summary of Off-Site Analytical Results

		Date	Mar-98	Apr-98	Jun-98	Jun-98	Jun-98	Jun-98	Jun-98	Jun-98	Jul-98	Jul-98	Jul-98	Jul-98	Aug-98	Aug-98
		Time	8am	8am	9am	1pm	2:50pm	6:50am	9am	6:30am	3pm	9:30am	4:30pm			
	Design Concentration (ug/l)	Average of Sampling Results (ug/l)														
INFLUENT																
TOTAL VOCs	14,104	174	8	42.5	22.6	26.4	45.5	81.4	151.3	291.7	261.4	252	272.2		552.5	
Iron (mg/L)	0.5 - 5	13	0.19	0.98	0.67	1.1	1.1	1.2	1.7	1.8	1.5		1.5		1.7	
Manganese (mg/L)	0.675	63	0.73	1	0.97	1.1	1.1	1.1	1.1	1.2	1		0.96		0.82	
EFFLUENT																
TOTAL VOCs		5	0	0	0	0	0.5	1.9	2.9	0.9	2.3	1	0		1.3	
Removal Efficiencies		96.87%	100%	100%	100%	100%	99%	98%	98%	100%	99%	100%	100%		100%	100%
Iron (mg/L)		0.32	0.1	0.45	0.08	0.06	0.05	0.04	0.06	0.14	0.14		0.17		2.4	
Manganese (mg/L)		63.5	0.66	0.87	0.91	1.7	1	1.1	1	1.2	1.1		0.97		0.79	

* Numbers vary from published values in the Final Prove-out Report by Consumers Applied Technologies and Envirodean Northeast, Inc., not dated. Published values, 2.2 and 23, were changed to 22 and 2.3, respectively, as determined by the trends in VOC concentrations sampled.

Summary of Off-Site Analytical Results

			Date	Sep-98	Sep-98	Sep-98	Sep-98	Sep-98	Oct-98
			Time		8am			1pm	9am
	Design Concentration (ug/l)	Average of Sampling Results (ug/l)							
INFLUENT									
TOTAL VOCs	14,104	174	382.8	503.2	473.1	213	453.6	383.3	
Iron (mg/L)	0.5 - 5	13	1.4	1.2	1.4	1.2	1.1	0.9	
Manganese (mg/L)	0.675	63	0.85	0.8	0.74	0.69	0.73	0.67	
EFFLUENT									
TOTAL VOCs		5	0	1.1	1	0.6	1.2	0.6	
Removal Efficiencies		96.87%	100%	100%	100%	100%	100%	100%	
Iron (mg/L)		0.32	0.19	0.05	0.11	0.05	0.15	0.06	
Manganese (mg/L)		63.5	0.84	0.79	0.74	0.72	0.72	0.66	

* Numbers vary from published values in the Final Prove-out Report by Consumers Applied Technologies and Enviroclean Northeast, Inc., not dated. Published values, 2.2 and 23, were changed to 22 and 2.3, respectively as determined by the trends in VOC concentrations sampled.

Servall Laundry Site
Site No. 1-52-077
Summary of Off-Site Analytical Results

		Date Time	Feb-99	Mar-99	Apr-99	May-99	Jun-99	Jul-99	Sep-99	Oct-99	Nov-99
	Design Concentration (ug/l)	Average of Sampling Results (ug/l)									
INFLUENT											
TOTAL VOCs	14,104	174	18.8	143.6	373.7	275.3	114.8	73.5	25.5	39.1	51.6
Iron (mg/L)	0.5 - 5	13	0.574	0.42	0.564	0.385	0.236	0.321	0.172	0.979	0.716
Manganese (mg/L)	0.675	63	0.629	0.565	0.496	0.517	0.492	0.719	0.63	0.622	0.521
EFFLUENT											
TOTAL VOCs		5	5.57	3.1	1.8	1.8	1.4	0.8	0.5	0.6	0.9
Removal Efficiencies		96.87%	70%	98%	100%	99%	99%	99%	98%	98%	98%
Iron (mg/L)		0.32	0.134	0.0604	0.05	0.05	0.199	0.1	0.13	0.035	0.035
Manganese (mg/L)		63.5	0.612	0.569	0.49	0.542	0.507	0.71	0.66	0.613	0.519

* Numbers vary from published values in the Final Prove-out Report by Consumers Applied Technologies and Enviroclean Northeast, Inc., not dated. Published values, 2.2 and 23, were changed to 22 and 2.3, respectively, as determined by the trends in VOC concentrations sampled.

Servall Laundry Site
Site No. 1-52-077
Summary of Off-Site Analytical Results

		Date	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00	Jun-00	Jul-00	Aug-00
	Design Concentration (ug/l)	Average of Sampling Results (ug/l)									
INFLUENT											
TOTAL VOCs	14,104	174	73.9	63.9	100.3	150.6	145.45	131.82	350.93	42.89	104.46
Iron (mg/L)	0.5 - 5	13	0.248	1.27	0.308	0.689	0.426	1.43	6.32	0.444	0.583
Manganese (mg/L)	0.675	63	0.548	0.593	0.542	0.517	0.499	0.864	2.9	0.992	0.514
EFFLUENT											
TOTAL VOCs		5	0.7	1.5	2	6.1	3.22	3.97	25.16	5.57	10.05
Removal Efficiencies		96.87%	99%	98%	98%	96%	98%	97%	93%	87%	90%
Iron (mg/L)		0.32	0.035	0.1	0.032	0.032	0.0755	3.01	1.78	0.732	1.4
Manganese (mg/L)		63.5	0.524	0.583	0.533	0.492	0.506	0.417	0.0166	0.841	0.399

* Numbers vary from published values in the Final Prove-out Report by Consumers Applied Technologies and Envirodean Northeast, Inc., not dated. Published values, 2.2 and 23, were changed to 22 and 2.3, respectively, as determined by the trends in VOC concentrations sampled.

Servall Laundry Site
Site No. 1-52-077
Summary of Off-Site Analytical Results

		Date Time	Sep-00	Feb-01	Mar-01	Apr-01	May-01	Jun-01	Jul-01	Aug-01	Sep-01
	Design Concentration (ug/l)	Average of Sampling Results (ug/l)									
INFLUENT											
TOTAL VOCs	14,104	174	204.19	8.1	14.79	22.43					
Iron (mg/L)	0.5 - 5	13	25.7	0	210	240					
Manganese (mg/L)	0.675	63	0.682	756	874	815					
EFFLUENT											
TOTAL VOCs		5	105.99	2.1	6.45	12.54					
Removal Efficiencies		96.87%	48%	74%	56%	44%					
Iron (mg/L)		0.32	0.0845	0	0	0					
Manganese (mg/L)		63.5	0.439	766	870	813					

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Servall Laundry Site
Site No. 1-52-077
Summary of Off-Site Analytical Results

		Date	Oct-01	Nov-01	Dec-01
	Design Concentration (ug/l)	Average of Sampling Results (ug/l)			
INFLUENT					
TOTAL VOCs	14,104	174			
Iron (mg/L)	0.5 - 5	13			
Manganese (mg/L)	0.675	63			
EFFLUENT					
TOTAL VOCs		5			
Removal Efficiencies		96.87%			
Iron (mg/L)		0.32			
Manganese (mg/L)		63.5			

* Numbers vary from published values in the Final Prove-out Report by Consumers Applied Technologies and Enviroclean Northeast, Inc., not dated. Published values, 2.2 and 23, were changed to 22 and 2.3, respectively, as determined by the trends in VOC concentrations sampled.



April 30, 2001

Brett Mongillo
Earth Tech, Inc.
12 Metro Park Rd.
Albany, NY 12205

Holzmacher, McLendon & Murrell, P.C. ▲ H2M Associates, Inc.
H2M Labs, Inc. ▲ H2M Construction Management, Inc.

575 Broad Hollow Road, Melville, New York 11747

(631) 756-8000, Fax: (631) 694-4122

e-mail: h2m@h2m.com

web: www.h2m.com

Re: Servall Laundry
Bay Shore, New York
April 2001 Operations Report

Dear Mr. Mongillo:

As you are aware, Holzmacher, McLendon, & Murrell, P.C. (H2M) is currently conducting the daily operation and maintenance duties for the above referenced site. A summary of activity with respect to the groundwater extraction and treatment plant for the month of April is provided below.

Overview

Routine equipment maintenance was performed and daily process equipment readings were compiled during the month.

Event Schedule

The following timeline represents specific tasks completed during the month of April.

- 4/2/01 Completed repair on sodium hypochlorite pump.
- 4/3/01 Received shipment of 4 drums of sodium hypochlorite.
- 4/4/01 Replaced empty sodium hypochlorite drum and lowered the speed of the sodium hypochlorite pump in order to maintain appropriate chlorine residual. Raised speed and stroke of caustic feed pump from 55/55 to 60/60 in order to adjust pH.
- 4/5/01 Sodium Hypochlorite pump not operating. Used bleed valve to re-prime the pump.
- 4/6/01 Changed effluent canister filters and placed the soiled ones in HCl bath.
- 4/9/01 Changed circular charts.

Mr. Brett Mongillo

04/30/01

Page 2 of 4

- 4/10/01 System down upon arrival. MCP readings indicated a High Level in the reinjection well, emergency stop, UV-Ox system trouble, UV-Ox system shutdown, influent low flow. While the system was down changed UV-Ox pump 4A to 4B. Also noticed, because of system shutdown, the level in separation tank 12A was high, pumped down using PLC. Restarted system at 14:45.
- 4/11/01 Purchased new gasket for the sump pump. Raised caustic feed pump speed and stroke from 60/60 to 70/70 in order to adjust pH.
- 4/12/01 Changed speed of caustic feed pump from 70 to 65 in order to adjust pH.
- 4/13/01 Sodium Hypochlorite pump not pumping due to empty drum. Changed drums, re-primed pump. Fixed gasket on sump pump. Changed out effluent canister filters and placed soiled filters in HCl bath. Lowered stroke of sodium hypochlorite pump from 100 to 80 in order to adjust chlorine residual.
- 4/16/01 Collected monthly compliance samples and shipped them to Severn-Trent Labs in Connecticut via Federal Express. System shutdown twice due to sand filter breaker tripping. Flushed sump pumps. Investigated sump pump problem. The sump pumps do not have enough power (pressure) to overcome the extraction well pressure when using a common feed line to the equalization tank. Pumps will not effectively pump down sump with treatment system online. Determined that the system needs to be modified.
- 4/17/01 Caustic was leaking through tubing on the pump and crystallizing. Cleaned off caustic pump and tightened the couplings that holds the tubing on the pump. Using the Operator Interface Terminal (OIT) on the Master Control Panel (MCP), reset backwash cycle from 12 hours to 16 hours in order to decrease the amount of cycling of treatment system.
- 4/18/01 Noted that the air compressor may not be functioning properly. Took the literature for the air compressor from the operation and maintenance manual in order to investigate.

- 4/19/01 System down upon arrival most likely due to the air compressor issue. Left system down in order to repair the air compressor. A loose wire was noted in one of the electrical boxes and was repaired. Restarted the treatment system at 8:45 AM. Also noticed that separation tank 12A still had water in it. Pumped water out of 12A. System shut down at 9:15, most likely due to a high pH reading in the Effluent Adjustment Tank. Restarted system with caustic feed pump off until the pH in the tank reached 7.00 and then turned the pump back on and took readings. Upon restart of system the circuit breaker for sand filter pump 6B tripped. Reset the circuit breaker.
- 4/20/01 Changed effluent canister filters and placed soiled filters in HCl bath. Bought supplies at Home Depot in order to re-route sump line directly into the equalization tank. Manually shut system down at 10:50 AM in order to perform the necessary modifications to the sump pump line. Re-routed the sump line and turned the treatment system back on at 12:50 PM. Once system was on, tested the sump line by pumping the sump down.
- 4/23/01 System down upon arrival. MCP readings indicate a High Level in the Reinjection Well, UV-Ox system trouble and UV-Ox system shutdown. The UV-Ox system readings indicated a lamp failure on lamp #3. Switched the lamps from lamp #3 to lamp #2. Changed circular charts at 15:45 and restarted the system. Changed sodium hypochlorite drums and lowered the speed and stroke of the sodium hypochlorite pump from 80/80 to 70/70. System shutdown two more times most likely due to a high pH in the pH Adjustment tank.
- 4/24/01 Peroxide residual high, lowered the speed and stroke of the hydrogen peroxide pump from 50/50 to 45/45 in order to lower the peroxide residual.
- 4/25/01 Peroxide residual too low, raised the speed of the Hydrogen Peroxide pump from 45 to 50 in order to raise the peroxide residual.
- 4/26/01 Ordered more reagents for testing of the influent, UV-Ox and effluent.
- 4/27/01 Attempted to turn lamp #3 on, error message still indicated a lamp failure on lamp #3. Changed UV-Ox system pump from 4B to 4A and sand filter pump from 6B to 6A. Changed effluent canister filters and placed the soiled filters in HCl bath. Chlorine residual high, lowered speed and stroke of the sodium hypochlorite pump from 70/70 to 60/60. Peroxide residual low, raised stroke from 45 to 50.

Mr. Brett Mongillo

04/30/01

Page 4 of 4

- 4/30/01 System down upon arrival. MCP readings indicate UV-Ox system trouble and UV-Ox system shutdown. UV-Ox readings indicate low flow. Extraction well circuit breaker was tripped. Reset circuit breaker and restarted treatment system at 8:20 AM. Also changed circular charts at 8:20 AM.

Plant Performance

Between April 1, 2001 and April 30, 2001, the treatment plant discharged 4,526,670 gallons of treated water. The average flow rate through the UV/Oxidation system was 129.22 gallons per minute during operating conditions. Operational data and daily chemistry records for the respective monitoring period have been included as an attachment to this report.

Waste Disposal

No waste was shipped off-site during the reporting period.

If you should have any questions or require additional information, please contact Philip Schade at (631) 756-8000, extension 1623.

Very truly yours,

HOLZMACHER, McLENDON, & MURRELL, P.C.



Philip J. Schade, P.E.
Project Manager



Rocky W. Wenskus
Environmental Scientist

RWW/
enclosures

cc: Gary J. Miller, P.E./H2M

Daily Operations Checklist Serrall Laundry Site

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Monday	Tuesday	Wednesday	Thursday	Friday	Monday
Date	4/2/2001	4/3/2001	4/4/2001	4/5/2001	4/6/2001	4/9/2001	4/10/2001	4/11/2001	4/12/2001	4/13/2001	4/16/2001
Time	8:20	8:25	12:30	8:19	13:45	8:15	15:00	8:45	8:20	8:25	12:15
Extraction Well Level (feet)	65.0	66.5	66.3	66.1	66.8	67.1	68.3	59.7	61.2	63.7	63.9
Influent Flow Rate (gpm)	160.01	160.56	159.38	160.74	159.46	160.24	159.82	159.74	160.95	158.45	161.47
Influent Filter in Service (yes/no)	No	No	No	No	No	No	No	No	No	No	No
Inlet Pressure (psi)	46	44	42	42	42	50	48	50	50	50	52
Outlet Pressure (psi)	40	40	42	42	42	50	42	50	50	50	52
Cartridge Filter Flow Rate (gpm)	*	*	*	*	*	*	*	*	*	*	*
Equalization Tank											
Level (inches)	52.04	51.97	52.06	52.00	52.08	52.06	51.97	52.05	51.97	52.07	52.08
pH	5.75	5.75	5.74	5.75	5.74	5.74	5.74	5.75	5.75	5.75	5.66
Mixer (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Acid Pump Settings: Speed / Stroke	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
UV/Oxidation Pump in Service (4A/4B)	4A	4A	4A	4A	4A	4A	4B	4B	4B	4B	4B
UV/Oxidation Flow Rate (gpm)	134.65	135.97	136.57	138.47	137.82	132.36	135.28	132.39	136.99	128.67	127.99
UV/Oxidation Unit											
Lamp # 1 (on/off)	On	On	On	On	On	On	On	On	On	On	On
KV	251	252	252	252	252	251	252	252	252	252	252
Amps	7.5	7.6	7.8	7.7	7.6	7.6	7.6	7.7	7.7	7.7	7.7
Time	12226.24	12250.29	12278.52	12297.15	12327.60	12394.15	12408.15	12425.95	12449.61	12473.69	12549.36
Lamp # 2 (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
KV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Amps	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lamp # 3 (on/off)	On	On	On	On	On	On	On	On	On	On	On
KV	258	258	258	258	258	258	258	258	258	258	258
Amps	6.7	6.6	6.6	6.9	6.9	6.7	6.7	6.8	6.8	6.8	6.8
Time	10636.07	10660.12	10688.35	10707.98	10737.47	10803.97	10817.97	10835.78	10859.44	10883.52	10959.19
Peroxide Pump Settings: Speed / Stroke	50/50	50/50	50/50	50/50	50/50	50/50	50/50	50/50	50/50	50/50	50/50
Peroxide Residual Concentration (mg/l)	17	12	15	13	14	14	10	15	16	12	17
Totalizer Reading (gallons)	9098830	9292900	9520770	9680680	9916890	10451690	10559810	10699780	10885000	11072040	11662220

Daily Operations Checklist Servall Laundry Site

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Monday	Tuesday	Wednesday	Thursday	Friday	Monday
Date	4/2/2001	4/3/2001	4/4/2001	4/5/2001	4/6/2001	4/9/2001	4/10/2001	4/11/2001	4/12/2001	4/13/2001	4/16/2001
pH Adjust Tank											
Level (inches)	50.05	50.11	50.25	50.12	49.92	49.94	50.11	50.02	50.12	49.97	49.97
pH	6.68	6.69	6.64	6.76	6.76	6.75	6.98	6.78	7.10	6.96	6.88
Mixer (on/off)	On	On	On	On	On	On	On	On	On	On	On
Causic Pump Settings: Speed / Stroke	55/55	55/55	55/55	60/60	60/60	60/60	60/60	70/70	70/70	65/70	65/70
Polymer Feed Settings	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Solution Pump: Speed / Stroke	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dilution Water Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Polymer Bucket Weight (lbs.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sand Filter Feed Pump in Service (6A/6B)	6B	6B	6B	6B	6B	6B	6B	6B	6B	6B	6B
Sand Filters											
Filter # 1 inlet pressure (psi)	14	16	18	16	18	14	18	18	16	18	16
Filter # 1 outlet pressure (psi)	14	16	17	16	18	14	18	16	16	14	15
Filter # 2 inlet pressure (psi)	16	15	12	15	16	16	16	14	16	16	15
Filter # 2 outlet pressure (psi)	14	14	12	17	14	16	16	16	15	16	16
Filter # 3 inlet pressure (psi)	16	17	18	17	16	15	18	16	16	14	14
Filter # 3 outlet pressure (psi)	16	17	18	19	18	16	18	15	18	16	14
Filter # 4 inlet pressure (psi)	20	16	16	16	18	18	20	18	20	18	18
Filter # 4 outlet pressure (psi)	17	16	16	16	14	14	18	16	18	14	15
Effluent Flow Rate (gpm)	122.25	126.46	126.89	128.15	122.23	119.90	138.52	122.60	126.43	114.44	120.72
Effluent Filter in Service (yes/no)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inlet Pressure (psi)	12	12	12	12	12	12	12	12	12	12	12
Outlet Pressure (psi)	12	12	12	12	12	12	12	12	12	12	12
Reinjection Well Level (feet)	66.02	66.68	66.50	66.58	66.40	66.30	68.54	67.09	66.81	66.91	66.21
Chemical Storage Levels											
Causic Level (NaOH) (inches)	35	35	35	35	35	35	35	35	35	35	35
Peroxide Level (H ₂ O ₂) (inches)	53	53	53	53	53	53	53	53	53	53	53
Acid Level (H ₂ SO ₄) (inches)	54	54	54	54	54	54	54	54	54	54	54
Air Compressor (psi)	160	140	160	148	155	155	125	155	155	130	170
Compressed Air Dryer (on/off)	On	On	On	On	On	On	On	On	On	On	On
Chlorine pump: Speed / Stroke	90/100	90/100	80/100	80/100	80/100	80/100	80/100	80/100	80/100	80/100	80/80
Chlorine Residual Concentration (mg/l)	0.2	0.2	0.1	0.2	0.2	0.1	1.0	0.3	0.2	0.9	0.1

* - Unit inoperable

Daily Operations Checklist Servall Laundry Site

Day	Tuesday	Wednesday	Thursday	Friday	Monday	Tuesday	Wednesday	Thursday	Friday	Monday
Date	4/17/2001	4/18/2001	4/19/2001	4/20/2001	4/23/2001	4/24/2001	4/25/2001	4/26/2001	4/27/2001	4/30/2001
Time	8:30	8:30	9:45	9:00	16:00	15:45	16:45	8:20	8:30	9:00
Extraction Well Level (feet)	64.3	60.8	62.4	62.7	66.0	65.8	65.3	65.8	66.0	64.9
Influent Flow Rate (gpm)	159.45	161.31	160.69	160.74	165.34	168.75	171.41	168.88	155.52	166.55
Influent Filter in Service (yes/no)	No	No	No	No	No	No	No	No	No	No
Inlet Pressure (psi)	60	56	60	60	70	80	70	75	80	70
Outlet Pressure (psi)	60	56	58	60	70	80	70	75	80	70
Cartridge Filter Flow Rate (gpm)	*	*	*	*	*	*	*	*	*	*
Equalization Tank										
Level (inches)	52.11	51.97	51.97	51.95	51.58	52.06	51.89	52.11	52.08	52.02
pH	5.72	5.73	5.73	5.73	6.35	5.71	5.74	5.74	5.74	4.78
Mixer (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Acid Pump Settings: Speed / Stroke	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
UV/Oxidation Pump in Service (4A/4B)	4B	4B	4B	4B	4B	4B	4B	4B	4A	4A
UV/Oxidation Flow Rate (gpm)	127.70	126.83	128.68	124.92	177.78	107.43	108.69	111.40	112.19	110.93
UV/Oxidation Unit										
Lamp # 1 (on/off)	On	On	On	On	On	On	On	On	On	On
KV	252	252	252	252	252	252	252	252	252	252
Amps	7.7	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.5	7.6
Time	12569.65	12593.68	12613.15	12636.35	12710.00	12733.74	12758.90	12774.40	12798.52	12835.42
Lamp # 2 (on/off)	OFF	OFF	OFF	OFF	On	On	On	On	On	On
KV	N/A	N/A	N/A	N/A	258	258	258	258	257	258
Amps	N/A	N/A	N/A	N/A	6.9	6.8	6.9	6.8	6.8	6.8
Time	N/A	N/A	N/A	N/A	5986.57	6010.3	6035.45	6050.96	6075.08	6111.98
Lamp # 3 (on/off)	On	On	On	On	OFF	OFF	OFF	OFF	OFF	OFF
KV	258	258	258	258	N/A	N/A	N/A	N/A	N/A	N/A
Amps	6.8	6.8	6.8	6.8	N/A	N/A	N/A	N/A	N/A	N/A
Time	10979.47	11003.50	11022.96	11046.18	N/A	N/A	N/A	N/A	N/A	N/A
Peroxide Pump Settings: Speed / Stroke	50/50	50/50	50/50	50/50	50/50	50/50	50/50	50/45	50/45	50/50
Peroxide Residual Concentration (mg/l)	13	14	14	17	15	17	6	7	6	5
Totalizer Reading (gallons)	11816480	11998540	12143830	12319790	12815120	12969880	13131890	13233300	13390250	13625500

Daily Operations Checklist Serrall Laundry Site

Day	Tuesday	Wednesday	Thursday	Friday	Monday	Tuesday	Wednesday	Thursday	Friday	Monday
Date	4/17/2001	4/18/2001	4/19/2001	4/20/2001	4/23/2001	4/24/2001	4/25/2001	4/26/2001	4/27/2001	4/30/2001
pH Adjust Tank	49.99	49.94	49.98	50.15	50.38	49.91	50.07	50.03	50.01	50.04
Level (inches)	6.84	7.03	6.80	6.82	11.42	6.97	7.00	6.99	7.00	6.56
pH	On	On	On	On	On	On	On	On	On	On
Mixer (on/off)	On	On	On	On	On	On	On	On	On	On
Causitic Pump Settings: Speed / Stroke	65/70	65/70	60/60	60/60	60/60	60/60	60/60	60/60	60/60	60/60
Polymer Feed Settings	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Solution Pump: Speed / Stroke	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dilution Water Rate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Polymer Bucket Weight (lbs.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sand Filter Feed Pump in Service (6A/6B)	6B	6B	6B	6B	6B	6B	6B	6B	6A	6A
Sand Filters	16	16	14	16	14	12	12	14	16	14
Filter # 1 inlet pressure (psi)	14	14	13	13	14	12	12	12	12	14
Filter # 1 outlet pressure (psi)	16	14	14	15	12	11	18	14	16	15
Filter # 2 inlet pressure (psi)	15	14	14	17	14	12	16	14	15	12
Filter # 2 outlet pressure (psi)	14	16	12	14	14	12	15	11	14	10
Filter # 3 inlet pressure (psi)	16	15	15	13	14	14	12	13	12	11
Filter # 3 outlet pressure (psi)	18	18	18	18	14	17	14	17	18	16
Filter # 4 inlet pressure (psi)	14	16	14	16	14	14	18	14	14	13
Filter # 4 outlet pressure (psi)	115.66	116.80	117.94	118.25	162.59	100.32	96.54	103.34	107.45	112.41
Effluent Flow Rate (gpm)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Effluent Filter in Service (yes/no)	12	12	12	12	12	12	14	12	12	12
Inlet Pressure (psi)	12	12	12	12	12	12	14	12	12	12
Outlet Pressure (psi)	66.32	66.60	65.56	65.95	71.13	65.05	65.26	65.19	65.59	65.64
Reinjection Well Level (feet)	35	35	35	35	35	34	34	34	34	34
Chemical Storage Levels	53	53	53	53	53	52	52	52	52	52
Causitic Level (NaOH) (inches)	54	54	54	54	54	54	54	54	54	54
Peroxide Level (H ₂ O ₂) (inches)	135	140	160	145	130	160	140	165	135	140
Acid Level (H ₂ SO ₄) (inches)	On	On	On	On	On	On	On	On	On	On
Air Compressor (psi)	80/80	80/80	80/80	80/80	80/80	70/70	70/70	70/70	70/70	60/60
Compressed Air Dryer (on/off)	1.1	0.3	0.4	0.9	0.7	0.3	0.2	1.2	1.2	0.5
Chlorine pump: Speed / Stroke										
Chlorine Residual Concentration (mg/l)										

* - Unit inoperable

Process Control Samples
Servall Laundry Site

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Monday	Tuesday	Wednesday	Thursday	Friday	Monday
Date	4/2/2001	4/3/2001	4/4/2001	4/5/2001	4/6/2001	4/9/2001	4/10/2001	4/11/2001	4/12/2001	4/13/2001	4/16/2001
Time	8:55	8:45	12:50	8:35	14:00	8:30	15:15	9:00	8:40	8:55	11:52
Influent											
pH	5.31	5.14	5.21	5.17	5.20	5.18	5.26	5.25	5.22	5.21	5.21
Iron (mg/L)	0.5	0.4	0.2	0.2	0.2	0.3	0.2	0.4	0.2	0.2	0.6
UVOX											
pH	5.51	5.25	5.35	5.30	5.32	5.28	5.32	5.30	5.43	5.22	5.36
Peroxide Residual (mg/L)	17	12	15	13	14	14	10	15	16	12	17
Effluent											
pH	6.30	6.33	6.32	6.22	6.27	6.37	6.48	6.41	6.73	6.40	6.37
Iron (mg/L)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chlorine (mg/L)	0.2	0.2	0.1	0.2	0.2	0.1	1.0	0.3	0.2	0.9	0.1

Day	Tuesday	Wednesday	Thursday	Friday	Monday	Tuesday	Wednesday	Thursday	Friday	Monday
Date	4/17/2001	4/18/2001	4/19/2001	4/20/2001	4/23/2001	4/24/2001	4/25/2001	4/26/2001	4/27/2001	4/30/2001
Time	8:45	8:45	10:15	9:25	16:15	16:00	17:00	8:40	8:40	9:20
Influent										
pH	5.24	5.22	5.20	5.24	5.25	5.21	5.20	5.16	5.23	5.21
Iron (mg/L)	0.5	0.3	0.4	0.2	0.3	0.2	0.2	0.3	0.2	0.5
UVOX										
pH	5.24	5.31	5.33	5.26	5.25	5.32	5.26	5.19	5.30	5.21
Peroxide Residual (mg/L)	13	14	14	17	15	17	6	7	6	5
Effluent										
pH	6.39	6.45	6.49	6.39	6.40	6.47	6.49	6.94	6.47	6.24
Iron (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chlorine (mg/L)	1.1	0.3	0.4	0.9	0.7	0.3	0.2	1.2	1.2	0.5

TABLE VO-1.0
7001-0834A
EARTH TECHNOLOGY
524.2 VOLATILE ORGANICS

0003 Aqueous

page 1 of 3

All values are ug/L.

Client Sample I.D.	Method Blank	INFLUENT	EFFLUENT	Quant. Limits with no Dilution
Lab Sample I.D.	VBK02	010834A-01	010834A-02	
Method Blank I.D.	VBK02	VBK02	VBK02	
Quant. Factor	1.00	1.00	1.00	
Dichlorodifluoromethane	U	U	U	0.50
Chloromethane	U	U	U	0.50
Vinyl Chloride	U	U	U	0.50
Bromomethane	U	U	U	0.50
Chloroethane	U	U	U	0.50
Freon 123A	U	U	U	0.50
Trichlorofluoromethane	U	U	U	0.50
Diethyl ether	U	U	U	25
1,1,2-Trichloro(1,2,2)trifluor	U	U	U	0.50
1,1-Dichloroethene	U	U	U	0.50
Acetone	4	U	9.4B	2.5
Propionitrile	U	U	U	25
Methyl tert-Butyl ether	U	5J	.25J	25
Carbon Disulfide	U	U	U	25
Bromodichloromethane	U	U	.26J	0.50
Iodomethane	U	U	U	0.50
Allyl Chloride	U	U	U	25
Acrylonitrile	U	U	U	25
Methylene Chloride	1.2	.71JB	.75JB	1.0
trans-1,2-Dichloroethene	U	U	U	0.50
1,1-Dichloroethane	U	U	U	0.50
2,2-Dichloropropane	U	U	U	0.50
2-Butanone	U	U	U	2.5
cis-1,2-Dichloroethene	U	.4J	U	0.50
Bromochloromethane	U	U	U	0.50
Chloroform	U	U	1.7	0.50
1,1,1-Trichloroethane	U	.26J	U	0.50
Carbon Tetrachloride	U	U	U	0.50
1,1-Dichloropropene	U	U	U	0.50
Methacrylonitrile	U	U	U	25
Benzene	U	U	U	0.50
1,2-Dichloroethane	U	U	U	0.50
Ethyl Methacrylate	U	U	U	25
1,4-Dioxane	U	U	U	50
Chloroacetonitrile	U	U	U	25
Date Received		04/17/01	04/17/01	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	04/20/01	04/20/01	04/20/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.0
7001-0834A
EARTH TECHNOLOGY
524.2 VOLATILE ORGANICS

Aqueous
page 2 of 3

All values are ug/L.

Client Sample I.D.	Method Blank	INFLUENT	EFFLUENT	Quant. Limits with no Dilution
Lab Sample I.D.	VBLKO2	010834A-01	010834A-02	
Method Blank I.D.	VBLKO2	VBLKO2	VBLKO2	
Quant. Factor	1.00	1.00	1.00	
1-Chlorobutane	U	U	U	25
1,1-Dichloro-2-propanone	U	U	U	2.5
Trichloroethene	U	.75	U	0.50
Tetrahydrofuran	U	U	U	25
1,2-Dichloropropane	U	U	U	0.50
Methyl Acrylate	U	U	U	25
Dibromomethane	U	U	U	0.50
cis-1,3-Dichloropropene	U	U	U	0.50
4-Methyl-2-pentanone	U	U	U	2.5
Methyl Methacrylate	U	U	U	25
Toluene	U	U	U	0.50
trans-1,3-Dichloropropene	U	U	U	0.50
2-Chloroethylvinylether	U	U	U	0.50
1,1,2-Trichloroethane	U	U	U	0.50
Tetrachloroethene	U	15	.18J	0.50
2-Hexanone	U	U	U	2.5
1,3-Dichloropropane	U	U	U	0.50
Dibromochloromethane	U	U	U	0.50
1,2-Dibromoethane	U	U	U	0.50
Chlorobenzene	U	U	U	0.50
1,1,1,2-Tetrachloroethane	U	U	U	0.50
Ethylbenzene	U	U	U	0.50
mp-xylene	U	U	U	1.0
o-Xylene	U	U	U	0.50
Styrene	U	U	U	0.50
Bromoform	U	U	U	0.50
Isopropylbenzene	U	U	U	0.50
Bromobenzene	U	U	U	0.50
1,1,2,2-Tetrachloroethane	U	U	U	0.50
1,2,3-Trichloropropane	U	U	U	0.50
n-Propylbenzene	U	U	U	0.50
2-Chlorotoluene	U	U	U	0.50
4-Chlorotoluene	U	U	U	0.50
1,3,5-Trimethylbenzene	U	U	U	0.50
tert-Butylbenzene	U	U	U	0.50
Date Received		04/17/01	04/17/01	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	04/20/01	04/20/01	04/20/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any variation in sample weight/volume, % moisture and sample dilution.

TABLE VO-1.0
7001-0834A
EARTH TECHNOLOGY
524.2 VOLATILE ORGANICS

Aqueous

page 3 of 3

All values are ug/L.

Client Sample I.D.	Method Blank	INFLUENT	EFFLUENT	Quant. Limits with no Dilution
Lab Sample I.D.	VBLKO2	010834A-01	010834A-02	
Method Blank I.D.	VBLKO2	VBLKO2	VBLKO2	
Quant. Factor	1.00	1.00	1.00	
1,2,4-Trimethylbenzene	U	U	U	0.50
1-Chlorohexane	U	U	U	0.50
sec-Butylbenzene	U	U	U	0.50
1,3-Dichlorobenzene	U	U	U	0.50
4-Isopropyltoluene	U	U	U	0.50
1,4-Dichlorobenzene	U	U	U	0.50
1,2-Dichlorobenzene	U	U	U	0.50
n-Butylbenzene	U	U	U	0.50
1,2-Dibromo-3-Chloropropane	U	U	U	0.50
Benzyl Chloride	U	U	U	0.50
trans-1,4-Dichloro-2-butene	U	U	U	25
Hexachloroethane	U	U	U	25
Nitrobenzene	U	U	U	25
Pentachloroethane	U	U	U	0.50
2-Nitropropane	U	U	U	25
1,2,4-Trichlorobenzene	U	U	U	0.50
Hexachlorobutadiene	U	U	U	0.50
Naphthalene	U	.31J	U	0.50
1,2,3-Trichlorobenzene	U	U	U	0.50
Date Received		04/17/01	04/17/01	
Date Extracted	N/A	N/A	N/A	
Date Analyzed	04/20/01	04/20/01	04/20/01	

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
 Quant. Factor = a numerical value which takes into account any
 variation in sample weight/volume, % moisture and
 sample dilution.

TABLE VO-1.1
7001-0834A
EARTH TECHNOLOGY
524.2 VOLATILE ORGANICS

Aqueous
page 1 of 3

All values are ug/L.

Client Sample I.D.	UV-OX	TRIP BLANK		Quant. Limits with no Dilution
Lab Sample I.D.	010834A-03	010834A-04		
Method Blank I.D.	VBLKO2	VBLKO2		
Quant. Factor	1.00	1.00		
Dichlorodifluoromethane	U	U		0.50
Chloromethane	U	U		0.50
Vinyl Chloride	U	U		0.50
Bromomethane	U	U		0.50
Chloroethane	U	U		0.50
Freon 123A	U	U		0.50
Trichlorofluoromethane	U	U		0.50
Diethyl ether	U	U		25
1,1,2-Trichloro(1,2,2)trifluor	U	U		0.50
1,1-Dichloroethene	U	U		0.50
Acetone	8.4B	U		2.5
Propionitrile	U	U		25
Methyl tert-Butyl ether	.56J	U		25
Carbon Disulfide	U	U		25
Bromodichloromethane	U	U		0.50
Iodomethane	U	U		0.50
Allyl Chloride	U	U		25
Acrylonitrile	U	U		25
Methylene Chloride	.58JB	2.9B		1.0
trans-1,2-Dichloroethene	U	U		0.50
1,1-Dichloroethane	U	U		0.50
2,2-Dichloropropane	U	U		0.50
2-Butanone	U	U		2.5
cis-1,2-Dichloroethene	U	U		0.50
Bromochloromethane	U	U		0.50
Chloroform	.15J	U		0.50
1,1,1-Trichloroethane	.19J	U		0.50
Carbon Tetrachloride	U	U		0.50
1,1-Dichloropropene	U	U		0.50
Methacrylonitrile	U	U		25
Benzene	U	U		0.50
1,2-Dichloroethane	U	U		0.50
Ethyl Methacrylate	U	U		25
1,4-Dioxane	U	U		50
Chloroacetonitrile	U	U		25
Date Received	04/17/01	04/17/01		
Date Extracted	N/A	N/A		
Date Analyzed	04/20/01	04/20/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any
variation in sample weight/volume, % moisture and
sample dilution.

TABLE VO-1.1
7001-0834A
EARTH TECHNOLOGY
524.2 VOLATILE ORGANICS

Aqueous
page 2 of 3

All values are ug/L.

Client Sample I.D.	UV-OX	TRIP BLANK		Quant. Limits with no Dilution
Lab Sample I.D.	010834A-03	010834A-04		
Method Blank I.D.	VBLKO2	VBLKO2		
Quant. Factor	1.00	1.00		
1-Chlorobutane	U	U		25
1,1-Dichloro-2-propanone	U	U		2.5
Trichloroethene	U	U		0.50
Tetrahydrofuran	U	U		25
1,2-Dichloropropane	U	U		0.50
Methyl Acrylate	U	U		25
Dibromomethane	U	U		0.50
cis-1,3-Dichloropropene	U	U		0.50
4-Methyl-2-pentanone	U	U		2.5
Methyl Methacrylate	U	U		25
Toluene	U	U		0.50
trans-1,3-Dichloropropene	U	U		0.50
2-Chloroethylvinylether	U	U		0.50
1,1,2-Trichloroethane	U	U		0.50
Tetrachloroethene	.44J	U		0.50
2-Hexanone	U	U		2.5
1,3-Dichloropropane	U	U		0.50
Dibromochloromethane	U	U		0.50
1,2-Dibromoethane	U	U		0.50
Chlorobenzene	U	U		0.50
1,1,1,2-Tetrachloroethane	U	U		0.50
Ethylbenzene	U	U		0.50
mp-xylene	U	U		1.0
o-Xylene	U	U		0.50
Styrene	U	U		0.50
Bromoform	U	U		0.50
Isopropylbenzene	U	U		0.50
Bromobenzene	U	U		0.50
1,1,2,2-Tetrachloroethane	U	U		0.50
1,2,3-Trichloropropane	U	U		0.50
n-Propylbenzene	U	U		0.50
2-Chlorotoluene	U	U		0.50
4-Chlorotoluene	U	U		0.50
1,3,5-Trimethylbenzene	U	U		0.50
tert-Butylbenzene	U	U		0.50
Date Received	04/17/01	04/17/01		
Date Extracted	N/A	N/A		
Date Analyzed	04/20/01	04/20/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any
variation in sample weight/volume, % moisture and
sample dilution.

TABLE VO-1.1
7001-0834A
EARTH TECHNOLOGY
524.2 VOLATILE ORGANICS

0008

Aqueous

page 3 of 3

All values are ug/L.

Client Sample I.D.	UV-OX	TRIP BLANK		Quant. Limits with no Dilution
Lab Sample I.D.	010834A-03	010834A-04		
Method Blank I.D.	VBLK02	VBLK02		
Quant. Factor	1.00	1.00		
1,2,4-Trimethylbenzene	U	U		0.50
1-Chlorohexane	U	U		0.50
sec-Butylbenzene	U	U		0.50
1,3-Dichlorobenzene	U	U		0.50
4-Isopropyltoluene	U	U		0.50
1,4-Dichlorobenzene	U	U		0.50
1,2-Dichlorobenzene	U	U		0.50
n-Butylbenzene	U	U		0.50
1,2-Dibromo-3-Chloropropane	U	U		0.50
Benzyl Chloride	U	U		0.50
trans-1,4-Dichloro-2-butene	U	U		25
Hexachloroethane	U	U		25
Nitrobenzene	U	U		25
Pentachloroethane	U	U		0.50
2-Nitropropane	U	U		25
1,2,4-Trichlorobenzene	U	U		0.50
Hexachlorobutadiene	U	U		0.50
Naphthalene	U	U		0.50
1,2,3-Trichlorobenzene	U	U		0.50
Date Received	04/17/01	04/17/01		
Date Extracted	N/A	N/A		
Date Analyzed	04/20/01	04/20/01		

See Appendix for qualifier definitions

Note: Compound detection limit = quantitation limit x quantitation factor
Quant. Factor = a numerical value which takes into account any
variation in sample weight/volume, % moisture and
sample dilution.

TABLE AS-1.0
7001-0834A
EARTH TECHNOLOGY
MISCELLANEOUS ATOMIC SPECTROSCOPY

Aqueous

All values are ug/L.

Client Sample I.D.	INFLUENT	EFFLUENT	UV-OX	
Lab Sample I.D.	010834A-01	010834A-02	010834A-03	
Iron	240.	100.U	233.	
Manganese	815.	813.	859.	

See Appendix for qualifier definitions

1
WET CHEM ANALYSIS DATA SHEET

INFLUENT

Contract: _____

SDG No. : A0834

Lab Sample ID: 010834A-01

Date Received: 04/17/01

Comments :

1

WET CHEM ANALYSIS DATA SHEET

EFFLUENT

Date Received: 04/17/01

Comments :

SAMPLE NO.

UV-OX

Contract: _____

Lab Sample ID: 010834A-03

Date Received: 04/17/01

[illegible]

Comments :