Lawler, Matusky & Skelly Engineers LLP

Environmental Science & Engineering Consultants

September 21, 2000
File No. 650-395

Mr. Carl Hoffman
New York State 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

SEP 25

Re: **Servall Laundry Site**
Bay Shore, Suffolk County
Site No. 1-52-077, Work Assignment No. D002676-39.2
Monthly Report – JULY & August 2000

Dear Mr. Hoffman:

Attached please find the Monthly Report for July & August 2000, the ninth and tenth monthly report submitted under Work Assignment No. D002676-39.2.

The plant operated at an average flow rate of 149 and 147 gpm for the month of July and August, respectively. A total volume of 5,795,020 gallons of water for was processed. The influent VOC concentration was 43 ppb and 104 ppb for July and August, respectively. The plant removed approximately 87%-90% of the influent VOCs. Effluent concentrations of total VOCs were within discharge limitations. Effluent concentrations of iron and manganese exceeded the discharge limit of 600 ppb with a concentration of 732 ppb and 841 ppb, respectively for the month of July. The July data reveals that the effluent iron concentration was greater than the influent concentration suggesting analytical error or sample collection error. The total iron concentration in the August sampling also revealed that the effluent concentration was greater than the influent concentration further suggesting error in the sampling procedure.

Influent and effluent compliance data has revealed that presence of MTBE (and styrene) has recently diminished. These constituents had been detected in the February 2000 to June 2000 compliance sample's data. Effluent MTBE (and styrene) concentrations in July and August 2000 were 0.82 ppb and 0.3 ppb, respectively. More recent compliance data showed no detection of both MTBE and Styrene in effluent. The presence of MTBE (and styrene), gasoline constituents, is indicative of a gasoline spill and not typically found at a site impacted by dry cleaner operations.

In addition, Tetrahydrofuran (THF) was detected in July and August sampling events at influent concentrations of 16 and 100 ppb, respectively and effluent concentrations of THF were 2.9 and 6.6 ppb, respectively. Tetrahydrofuran is widely used in industry with applications in the manufacture of polymers and resins, lacquers, glues, paints, and inks. Tetrahydrofuran has a groundwater class GA standard of 50 ug/L; the effluent samples from July and August were below this limit. Another noticeable trend relates to the concentration of TCE. The concentration of TCE, which is typically the most predominant compound, has dropped off from May 2000 and

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continues to decrease. The concentrations of Tetrachloroethene in the influent were 22 ppb and 1.2 ppb in July and August. It has been noted that the predominant compound changed from Tetrachoroethene to Tetrahydrofuran starting with May 2000 data. It was at the same time that analytical method changed to Revision 4 (534.2 method) from Revision 3 according to STL-CT. It was postulated that THF and TCE create some interference in analysis. However, STL indicated this was not the case. Sudden migration of THF from an off-site source is another possibility. Effluent concentrations of both THF and TCE were below their respective discharge limits.

The September data was collected early this month and the results were expected due to the September 30, 2000 deadline. We can better assess the overall compliance sampling issues that have been evident for a few months once we recover the September data. The September data will arrive this week.

LMS will continue to provide task management of the plant operations until September 30, 2000 unless otherwise directed by the NYSDEC. If you have any questions or comments please feel free to contact me at x 249.

Very Truly Yours,

Robert DeGiorgio, P.E.
Project Manager

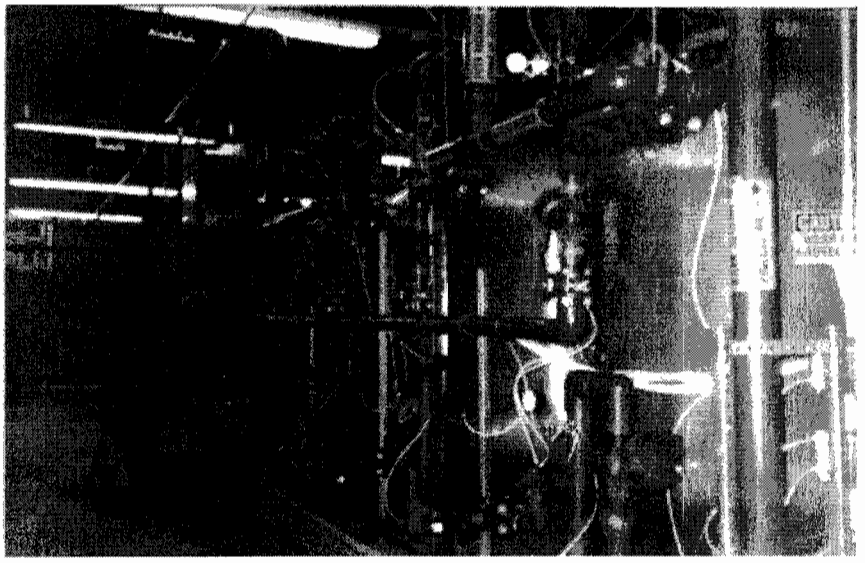
Enclosures

cc: Phil Schade, H2M

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

Monthly Operations Report

July-00



LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

650-395

Servall Laundry
Site No. 1-52-077
Groundwater Remediation -2000 Operation and Maintenance

Summary Report

Plant Operating Data	unit	Monthly Average (to date)	Monthly Average (2000)	January-00	February-00	March-00	April-00	May-00	June-00	July-00	Total Year 2000
Flow Rate	gpm	114	155	160.44	160.39	160.2	158.57	152.09	144.05	149.45	155
Gallons processed	gallons	3,416,288	3,296,289	4,154,420	5,390,400	3,744,760	3,862,440	3,408,300	1,839,960	2,771,780	25,172,060
Percent of Time Operating	%	278%	502%	62%	86%	56%	60%	51%	28%	43%	55%
Pounds of VOCs Treated	lb	1.6	3.6	2.16	4.42	4.51	4.58	3.63	5.00	0.86	25.17
Influent VOC concentration	ug/L	108	99	63.9	100.3	150.6	145.45	131.82	350.93	42.89	-
Effluent VOC concentration	ug/L	3.81	6.79	1.5	2	6.1	3.22	3.97	25.16	5.57	-
Influent Total Iron	ug/L	948	1555	1270	308	689	426	1430	6320	444	-
Effluent Total Iron	ug/L	412	823	100	32	32	75.5	3010	1780	732	-
Influent Total Manganese	ug/L	629	675	593	542	517	499	864	2900	992	-
Effluent Total Manganese	ug/L	449	344	583	533	492	506	417	16.6	841	-
VOC removal efficiency	%	96.5%	95.2%	97.7%	98.0%	95.9%	97.8%	97.0%	92.8%	87.0%	-
Total Iron removal efficiency	%	48.3%	36.6%	92.1%	89.6%	95.4%	82.3%	-110.5%	71.8%	-64.9%	-
Total Manganese removal efficiency	%	12.2%	24.7%	1.7%	1.7%	4.8%	-1.4%	51.7%	99.4%	15.2%	-
Cartridge Filters	ea	1	0	3	0	0	0	0	0	0	3
Sodium hypochlorite (12%)	lb	617	500	500	500	500	500	500	500	500	3,500
Polymer	lb	26	0	0	0	0	0	0	0	0	0
Hydrogen peroxide (50%)	lb	3662	4517	4538	4538	4538	4538	4538	4392	4538	31,622
Caustic (50%)	lb	1867	4667	5534	5177	5534	5355	5534	5355	179	32,666
Hydrochloric Acid	lb	69	0	0	0	0	0	0	0	0	0
Spare Parts or other	at cost	$467	$28	$196	$0	$0	$0	$0	$0	$0	$196
Sludge generated (20% dewatered)	gal	25	25	25	25	25	25	25	25	25	175
Sludge disposed of	gal	19	0	0	0	0	0	0	0	0	0
Electricity (estimated)	kw hr	39955	36971	37,800	37,800	37,800	37,800	37,800	32,000	37800	258,800
Gas (estimated)	therms	857	800	800	800	800	800	800	800	800	5,600
Compliance Sampling	at cost	$862.75	$650.50	$655.50	$650.00	$650.00	$650.00	$650.00	$650.00	$650.00	4,556
Operator	Month	$9,117	$6,131	$5,790	$6,500	$7,190	$4,548	$4,549	$7,593	$6,749	42,919
Redevelopment	at cost	$2,150	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0
Management & Engineering	at cost	$2,799	$1,038	$931	$1,239.99	$1,200.00	$856.00	$856.00	$1,065.00	$1,118.60	7,267
Consumables cost	*$*	*$3,132*	*$3,416*	*$4,162*	*$3,441*	*$3,516*	*$3,479*	*$3,516*	*$3,406*	*$2,392*	$23,911
Sludge disposal cost	*$*	*$44.11*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	$0
Utilities cost	*$*	*$3,896*	*$3,607*	*$3,682*	*$3,682*	*$3,682*	*$3,682*	*$3,682*	*$3,160*	*$3,682*	$25,252
Services cost	*$*	*$14,929*	*$7,820*	*$7,376*	*$8,390*	*$9,040*	*$6,054*	*$6,055*	*$9,308*	*$8,518*	$54,741
Operating Cost (Estimated)	***$***	***$22,000***	***$14,843***	***$15,221***	***$15,513***	***$16,238***	***$13,215***	***$13,253***	***$15,874***	***$14,591***	**$103,904**

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

2000 Compliance Sampling

Influent														
Constituents	Discharge Criteria	units	January		February		March		April		May		June	
Chlorobenzene	5	ug/L		U				U		U		U		
Vinyl Chloride	2	ug/L		U				U		U		U		
1,1-Dichloroethene	5	ug/L	0.1	J				U		U		U		
Trichloroethene	5	ug/L	1		1		1		1 1		0.8			
Tetrachloroethene	5	ug/L	54	E	87		140	E	130	E	47	E	14	
1,1-Dichloroethane	5	ug/L	0.2	J				U		U		U		
Toluene	5	ug/L		U	0.5			U		U		U	0.34	JD
cis-1,2-Dichloroethene	5	ug/L	0.3	J	0.6		0.8		0.6		0.3	J	7 5	
trans-1,2-Dichloroethene	5	ug/L		U				U		U		U		
Methylene Chloride	N/A	ug/L		U	1.6	JD		U	2.6	JDB	0 4	JB	13	D
1,1,1-Trichloroethane	N/A	ug/L	0.5					U	0.4	J	0 4	J		
Chloroform	N/A	ug/L	0.2	J	0.2			U	1.9	JDB	6.4		5.2	
Bromodichloromethane	N/A	ug/L		U				U		U	0.38	J		
Trichlorofluoromethane	N/A	ug/L		U				U		U	0.1	J		
Tetrahydrofuran	N/A	ug/L									73		310	E
Methyl tert-Butly Ether	N/A	ug/L	7.6		9.4		8.8		8.8	J	3 1	J	0.89	J
Total VOCs	**N/A**	**ug/L**	**63.9**		**100.3**		**150.6**		**145.5**		**131.8**		**350.93**	
pH														
Iron (total)	600[4]	ug/L	1270		308		689		426		1430		6320	
Manganese (total)	600[4]	ug/L	593		542		517		499		864		2900	
Alkalinity	N/A	mg/L	27		29		16		15		89		44.2	
Total Suspended Solids	N/A	mg/L	10	U	10	U	10	U	5	U	6		7	
Total Solids	N/A	mg/L	159		162		145		156		261		344	
Effluent														
Constituents	Discharge Criteria	units	January		February		March		April		May		June	
Chlorobenzene	5	ug/L		U				U		U		U		
Vinyl Chloride	2	ug/L		U				U		U		U		
1,1-Dichloroethene	5	ug/L		U				U		U		U		
Trichloroethene	5	ug/L		U				U		U		U		
Tetrachloroethene	5	ug/L	0.7		1.4		4.2		2.4		2.2		0.98	
1,1-Dichloroethane	5	ug/L		U				U		U		U		
Styrene	5 (POC)	ug/L											5.5	DB
Toluene	5	ug/L		U	0.2	JB		U		U		U		
cis-1,2-Dichloroethene	5	ug/L		U				U		U		U		
trans-1,2-Dichloroethene	5	ug/L		U				U		U		U		
Methylene Chloride	N/A	ug/L		U				U	0.2	JB	0.38	JB	7 6LE	D
1,1,1-Trichloroethane	N/A	ug/L	0.3	J				U		U		U		
Chloroform	N/A	ug/L	0.3	J			0 7	B	0 1	JB	0.84		0 45	J
Tetrahydrofuran	50	ug/L											18	J
Acetone	N/A	ug/L											100LE	
2-Butanone	N/A	ug/L											49LE	DB
Bromodichloromethane	N/A	ug/L	0.2	J			0.4	J		U		U		
Methyl tert-Butly Ether	N/A	ug/L		U	0.4		0.8		0.5	J	0.55	J	0.23	J
Total VOCs	**N/A**	**ug/L**	**1.5**		**2**		**6.1**		**3.2**		**3.97**		**25.16**	
pH														
Iron (total)	600[4]	ug/L	100		32		32	U	75.5	B	**3010**		**1780**	
Manganese (total)	600[4]	ug/L	583		533		492		506		417		16.6	
Alkalinity	N/A	mg/L	2	U	38		41		43		25.8		2100	
Total Suspended Solids	N/A	mg/L	10	U	10	U	10	U	5	U	5	U	43	
Total Solids	N/A	mg/L	170		171		163		183		168		2420	

Notes.

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

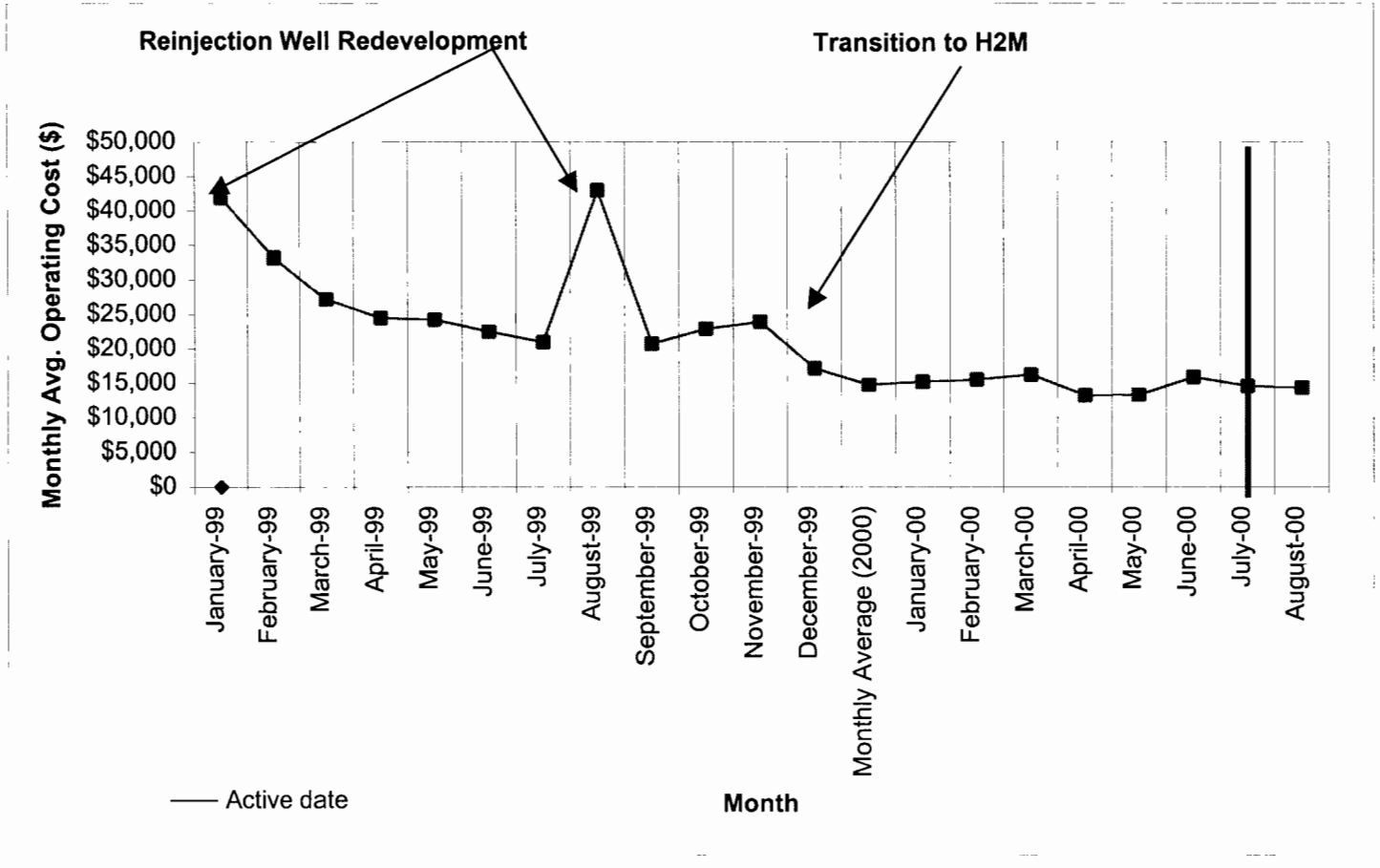


Figure 3 - Average Operating Cost Trends (Estimated)

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

Summary Notes and Action Items

Month	Notes	Action	Resolutions
January	None		
February	MTBE detected, indicative of a gasoline spill unrelated to Servall site		
March	Increase in PCE concentration. Air compressor circuit trip was often	Effluent concentrations below effluent limit.	Recommend the air compressor circuit is re-designed to prevent frequent faults. NYSDEC to respond.
April	None		
May			
June	Analytical data reveals anomaly compounds such as Tetrahydrofuran, Styrene and Acetone. It is likely that the Acetone, 2 butanone in the effluent is due to lab error; the presence of styrene is indicative of gasoline or motor oil as is the case for the MTBE. MTBE has been present for a few months and of all the gasoline constituents travels the fastest in groundwater and appears before the other gas. compounds such as BTEX or styrene. Toluene and Styrene have now been observed in the influent lending more credence to the presence of a gas plume being drawn inward.	Continue to monitor for SPDES compliance	
July			
August			
September			
October			
November			
December			

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	Jul-98	Jul-98
		Time	8am	8am	9am	1pm	2:50pm	6:50am	9am	6:30am	3pm
INFLUENT	Design Concentration (ug/l)	Average of Samplig Results (ug/l)									
TOTAL VOCs	**14,104**	**200**	**8**	**42.5**	**22.6**	**26.4**	**45.5**	**81.4**	**151.3**	**291.7**	**261.4**
Iron (mg/L)	0.5 - 5	1.14	0.19	0.98	0.67	1.1	1.1	1.2	1.7	1.8	1.5
Manganese (mg/L)	0.675	0.88	0.73	1	0.97	1.1	1.1	1.1	1.1	1.2	1
EFFLUENT											
TOTAL VOCs		**1**	**0**	**0**	**0**	**0**	**0.5**	**1.9**	**2.9**	**0.9**	**2.3**
Removal Efficiencies		99.48%	100%	100%	100%	100%	99%	98%	98%	100%	99%
Iron (mg/L)		0.24	0.1	0.45	0.08	0.06	0.05	0.04	0.06	0.14	0.14
Manganese (mg/L)		0.89	0.66	0.87	0.91	1.7	1	1.1	1	1.2	1.1

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

		Date	Jul-98	Aug-98	Aug-98	Sep-98	Sep-98	Sep-98	Sep-98	Sep-98	Oct-98
		Time	9:30am	4:30pm	4pm		8am			1pm	9am
INFLUENT	Design Concentration (ug/l)	Average of Samplig Results (ug/l)									
TOTAL VOCs	**14,104**	**200**	**252**	**272.2**	**552.5**	**382.8**	**503.2**	**473.1**	**213**	**453.6**	**383.3**
Iron (mg/L)	0.5 - 5	1.14		1.5	1.7	1.4	1.2	1.4	1.2	1.1	0.9
Manganese (mg/L)	0.675	0.88		0.96	0.82	0.85	0.8	0.74	0.69	0.73	0.67
EFFLUENT											
TOTAL VOCs		**1**	**1**	**0**	**1.3**	**0**	**1.1**	**1**	**0.6**	**1.2**	**0.6**
Removal Efficiencies		99.48%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Iron (mg/L)		0.24		0.17	2.4	0.19	0.05	0.11	0.05	0.15	0.06
Manganese (mg/L)		0.89		0.97	0.79	0.84	0.79	0.74	0.72	0.72	0.66

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

		Date	Feb-99	Mar-99	Apr-99	May-99	Jun-99	Jul-99	Aug-99
		Time							
INFLUENT	Design Concentration (ug/l)	Average of Samplig Results (ug/l)							
TOTAL VOCs	**14,104**	**200**	**18.8**	**143.6**	**373.7**	**275.3**	**114.8**	**73.5**	**-**
Iron (mg/L)	0.5 - 5	1.14	0.574	0.42	0.564	0.385	0.236	0.321	#VALUE!
Manganese (mg/L)	0.675	0.88	0.629	0.565	0.496	0.517	0.492	0.719	#VALUE!
EFFLUENT									
TOTAL VOCs		**1**	**2.3**	**3.1**	**1.8**	**1.8**	**1.4**	**0.8**	**-**
Removal Efficiencies		99.48%	88%	98%	100%	99%	99%	99%	#VALUE!
Iron (mg/L)		0.24	0.134	0.0604	0.05	0.05	0.199	0.1	#VALUE!
Manganese (mg/L)		0.89	0.612	0.569	0.49	0.542	0.507	0.71	#VALUE!

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

		Date	Sep-99	Oct-99	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00
		Time							
INFLUENT	Design Concentration (ug/l)	Average of Samplig Results (ug/l)							
TOTAL VOCs	**14,104**	**200**	**25.5**	**39.1**	**51.6**	**73.9**	**63.9**	**100.3**	**150.6**
Iron (mg/L)	0.5 - 5	1.14	0.172	0.979	0.716	0.248	1.27	0.308	0.689
Manganese (mg/L)	0.675	0.88	0.63	0.622	0.521	0.548	0.593	0.542	0.517
EFFLUENT									
TOTAL VOCs		**1**	**0.5**	**0.6**	**0.9**	**0.7**	**1.5**	**2**	**6.1**
Removal Efficiencies		99.48%	98%	98%	98%	99%	98%	98%	96%
Iron (mg/L)		0.24	0.13	0.035	0.035	0.035	0.1	0.032	0.032
Manganese (mg/L)		0.89	0.66	0.613	0.519	0.524	0.583	0.533	0.492

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

		Date	Apr-00	May-00	Jun-00	Jul-00
		Time				
INFLUENT	Design Concentration (ug/l)	Average of Samplig Results (ug/l)				
TOTAL VOCs	**14,104**	**200**	**145.45**	**131.82**	**350.93**	**42.89**
Iron (mg/L)	0.5 - 5	1.14	0.426	1.43	6.32	0.444
Manganese (mg/L)	0.675	0.88	0.499	0.864	2.9	0.992
EFFLUENT						
TOTAL VOCs		**1**	**3.22**	**3.97**	**25.16**	**5.57**
Removal Efficiencies		99.48%	98%	97%	93%	87%
Iron (mg/L)		0.24	0.0755	3.01	1.78	0.732
Manganese (mg/L)		0.89	0.506	0.417	0.0166	0.841

H2MGROUP

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

ACEC Member
Supporting Excellence in Engineering

575 Broad Hollow Road, Melville, NY 11747-5076
(516) 756-8000 • Fax: (516) 694-4122

August 8, 2000

Robert J. DiGiorgio
Lawler, Matusky, & Skelly Engineers, LLP
One Blue Hill Plaza
Pearl River, NY 10965

Re: Servall Laundry QWETP
Bay Shore, New York
July 2000 Operations Report

Dear Mr. DeGiorgio:

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 July 2000 is provided below.

Overview

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

Event Schedule

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

- 7/7/00 Received supply of sodium hydroxide from Captree Chemical Corporation to replenish the holding tank.
- 7/10/00 Met with Robert DiGiorgio of LMS and NYSDEC representatives while the sampling of monitoring wells was being performed. A tour of the facility was given to the NYSDEC representatives.
- 7/12/00 Clean effluent filters were installed into their respective tanks.
- 7/26/00 Clean effluent filters were installed into their respective tanks.

H2M GROUP

Available treatment chemical volumes as of the end of June, 2000 are as follows:

Tank	Level	Volume
Acid	54 in.	2644 gal
Caustic	30 in.	1300 gal
Peroxide	26 in.	1350 gal

Plant Performance

Between July 1, 2000 and July 31, 2000, the treatment plant discharged 2,771,780 gallons of treated water. The average flowrate of the UV/Oxidation system was 149.45 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

David Nadler
Environmental Scientist

DWN/

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

H2MGROUP

Daily Operation Check List

Servall Laundry Site

Day	Mon.	Wed	Thur	Fri	Mon	Tues.	Wed.	Thurs.	Fri	Mon.
Date	7/3	7/5	7/6	7/7	7/10	7/11	7/12	7/13	7/14	7/17
Time	8:00	8:30	9:05	7:50	8:05	8:55	9:00	8:15	8:10	7:50
Extraction Well Level (feet)	54.9	56.1	53.1	52.9	56.9	54.7	53.0	51.6	52.7	55.4
Influent Flow Rate (gpm)	150.31	149.22	152.70	150.79	152.38	154.27	155.08	152.70	151.20	153.72
Influent Filter in Service (yes/no)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Inlet Pressure (psi)	20	20	20	18	20	20	20	18	22	20
Outlet Pressure (psi)	18	16	16	14	16	18	16	16	16	18
Cartridge Filter Flow Rate (gpm)	145.39	148.30	150.04	149.69	151.27	150.36	151.27	150.17	153.18	150.16
Equalization Tank										
Level (inches)	54.90	53.67	53.17	52.91	53.72	54.19	53.62	54.42	52.96	53.90
pH	7.70	6.96	6.80	6.70	6.51	5.98	5.98	5.99	5.98	6.09
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)	4A	4A	4A	4A	4B	4B	4B	4B	4B	4A
UV/Oxidation Flow Rate (gpm)	148.31	148.09	150.00	148.29	149.53	147.33	146.38	149.23	150.99	151.23
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	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
Time	11495.27	11510.39	11527.40	11546.58	11559.25	11577.36	11592.11	11612.37	11629.43	11635.59
Lamp # 2 (on/off)	off	off	off	OFF	off	off	OFF	off	OFF	off
KV	0	0	0	0	0	0	0	0	0	0
Amps	0	0	0	0	0	0	0	0	0	0
Time	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86
Lamp # 3 (on/off)	ON	ON	on	ON	on	on	ON	ON	ON	on
KV	258	258	258	258	258	258	258	258	258	258
Amps	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Time	9962.29	9977.42	9994.42	10013.61	10026.27	10044.38	10059.14	10079.09	10096.21	10102.32
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
Peroxide Residual Concentration (mg/l)	11	13	14	13	14	13	12	12	13	12
Totalizer Reading (gpm)	93430590	93583590	93771560	93958120	94156900	94398220	94585580	94782990	95595400	95948520

H2MGROUP

Daily Operation Check List

Servall Laundry Site

Date	7/3	7/5	7/6	7/7	7/10	7/11	7/12	7/13	7/14	7/17
pH Adjust Tank										
Level (inches)	51.90	52.73	52.26	53.08	54.11	53.67	52.91	51.99	52.36	51.95
pH	8.04	8.00	7.99	7.96	7.93	7.94	7.95	7.94	7.94	7.92
Mixer (on/off)	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Caustic Pump Settings: Speed / Stroke	40/30	40/30	40/30	40/30	40/30	40/30	40/30	40/25	40/25	40/25
Polymer Feed Settings	off	OFF	off	off	OFF	off	off	OFF	off	off
Solution Pump: Speed / Stroke										
Dilution Water Rate										
Polymeer Bucket Weight (lbs.)										
Sand Filter Feed Pump in Service (6A/6B)	6A	6A	6A	6A	6A	6A	6B	6B	6B	6A
Sand Filters										
Filter # 1 inlet pressure (psi)	20	20	22	20	20	18	20	20	18	22
Filter #1 outlet pressure (psi)	22	20	20	20	20	20	20	22	22	20
Filter # 2 inlet pressure (psi)	20	20	20	20	22	18	24	20	22	22
Filter #2 outlet pressure (psi)	20	22	22	22	20	20	22	22	18	22
Filter # 3 inlet pressure (psi)	20	20	20	20	22	20	22	18	20	20
Filter #3 outlet pressure (psi)	20	20	20	22	20	22	24	22	20	22
Filter # 4 inlet pressure (psi)	18	20	22	22	18	22	20	18	20	20
Filter #4 outlet pressure (psi)	20	20	20	20	20	22	22	18	20	22
Effluent Flow Rate (gpm)	142.39	140.77	143.19	145.66	143.91	141.88	142.34	141.39	144.51	146.01
Effluent Filter in Service (yes/no)	yes	YES	yes	YES	yes	YES	yes	yes	YES	yes
Inlet Pressure (psi)	16	16	18	18	18	20	14	16	16	16
Outlet Pressure (psi)	10	12	12	12	12	14	10	10	10	10
Reinjection Well Level (feet)	53.71	52.31	51.84	53.40	52.96	51.61	52.33	51.91	52.34	51.93
Chemical Storage Levels										
Caustic Level (NaOH)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Peroxide Level (H_2O_2)	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3
Acid Level (H_2SO_4)	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9
Air Compressor (psi)	150	140	150	150	160	150	140	150	150	140
Compressed Air Dryer (on/off)	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Chlorine Pump: Speed / Stroke	60/85	60/85	60/85	60/85	60/85	60/85	60/85	60/85	60/85	60/85
Chlorine Residual Concentration (mg/l)	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.3	0.3	0.2

H2MGROUP

Daily Operation Check List

Servall Laundry Site

Day	Tues	Wed	Thur	Fri	Mon	Tues	Wed	Thurs	Fri	Mon
Date	7/18	7/19	7/20	7/21	7/24	7/25	7/26	7/27	7/28	7/31
Time	7:50	8:10	7:50	8:30	9:15	10:20	8:00	9:20	8:50	9:00
Extraction Well Level (feet)	54.23	53.66	54.60	52.61	51.17	53.72	52.19	51.79	54.20	53.90
Influent Flow Rate (gpm)	151.29	154.29	152.91	151.57	149.90	156.91	154.70	152.46	149.58	149.55
Influent Filter in Service (yes/no)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Inlet Pressure (psi)	22	20	20	20	20	18	20	20	20	22
Outlet Pressure (psi)	16	18	18	16	16	16	14	16	14	16
Cartridge Filter Flow Rate (gpm)	145.29	146.18	147.88	149.08	146.33	147.73	145.36	147.40	146.18	147.39
Equalization Tank										
Level (inches)	53.60	52.77	52.93	50.96	51.72	51.47	54.91	53.69	54.27	53.71
pH	5.99	5.99	5.95	5.92	5.99	5.96	5.96	6.01	6.04	6.05
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	4A	4A	4A	4A	4A	4A	4B
UV/Oxidation Flow Rate (gpm)	149.29	151.26	150.20	149.16	148.71	153.75	150.67	150.01	150.16	146.44
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	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
Time	11647.94	11654.55	11661.72	11674.30	11689.41	11701.91	11716.87	11729.33	11748.56	11768.61
Lamp # 2 (on/off)	off	off	OFF	off	OFF	OFF	off	off	OFF	OFF
KV	0	0	0	0	0	0	0	0	0	0
Amps	0	0	0	0	0	0	0	0	0	0
Time	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86	5984.86
Lamp # 3 (on/off)	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
KV	258	258	258	258	258	258	258	258	258	258
Amps	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Time	10114.65	10123.23	10128.40	10141.01	10146.17	10158.62	10173.58	10186.07	10205.31	10225.37
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
Peroxide Residual Concentration (mg/l)	12	13	14	13	14	13	14	12	14	13
Totalizer Reading (gpm)	95981020	96004010	96043110	96063130	96088240	96120650	96139420	96153930	96176470	96202370

H2MGROUP

Daily Operation Check List

Servall Laundry Site

Date	7/18	7/19	7/20	7/21	7/24	7/25	7/26	7/27	7/28	7/31
pH Adjust Tank										
Level (inches)	52.08	51.94	52.60	51.36	53.46	52.91	51.37	52.73	53.51	52.63
pH	7.90	7.93	7.92	7.95	7.94	7.90	7.91	7.97	7.98	7.92
Mixer (on/off)	ON	on	on	ON	on	ON	on	ON	on	ON
Caustic Pump Settings: Speed / Stroke	40/25	40/25	40/25	40/25	40/25	40/25	40/25	40/25	40/25	40/25
Polymer Feed Settings	OFF	OFF	OFF	off	OFF	off	OFF	off	OFF	off
Solution Pump: Speed / Stroke										
Dilution Water Rate										
Polymeer Bucket Weight (lbs.)										
Sand Filter Feed Pump in Service (6A/6B)	6A	6A	6A	6A	6A	6A	6A	6A	6A	6B
Sand Filters										
Filter # 1 inlet pressure (psi)	20	20	24	20	20	20	22	20	22	20
Filter #1 outlet pressure (psi)	20	20	20	18	18	16	20	20	20	20
Filter # 2 inlet pressure (psi)	22	20	20	20	20	20	22	20	20	20
Filter #2 outlet pressure (psi)	24	22	20	20	20	20	22	20	22	22
Filter # 3 inlet pressure (psi)	24	22	22	20	20	22	20	20	20	22
Filter #3 outlet pressure (psi)	20	18	22	18	18	18	20	20	24	20
Filter # 4 inlet pressure (psi)	22	24	22	22	20	20	22	20	20	20
Filter #4 outlet pressure (psi)	24	20	20	22	20	22	22	22	18	20
Effluent Flow Rate (gpm)	144.29	146.38	143.18	142.91	145.66	149.08	143.61	142.29	143.51	146.09
Effluent Filter in Service (yes/no)	yes	yes	yes	yes	yes	YES	yes	YES	YES	yes
Inlet Pressure (psi)	16	16	16	18	18	20	16	16	16	16
Outlet Pressure (psi)	12	12	14	14	12	16	10	10	12	10
Reinjection Well Level (feet)	53.41	52.91	51.87	53.50	54.06	53.19	52.40	51.56	53.77	54.69
Chemical Storage Levels										
Caustic Level (NaOH)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Peroxide Level (H_2O_2)	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3
Acid Level (H_2SO_4)	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9
Air Compressor (psi)	150	150	150	160	150	150	150	150	140	150
Compressed Air Dryer (on/off)	on	ON	on	ON	ON	on	on	ON	ON	ON
Chlorine Pump: Speed / Stroke	60/85	60/85	60/85	60/85	60/85	60/85	60/85	60/85	60/85	60/85
Chlorine Residual Concentration (mg/l)	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2

HZMGROUP

Servall Laundry Process Control Samples

Date	7/3	7/5	7/6	7/7	7/10	7/11	7/12	7/13	7/14	7/17	7/18	7/19
Time	9:00	9:35	9:55	8:30	8:40	9:40	10:05	9:00	8:50	8:30	8:50	8:45
Influent												
Flow	150.31	149.22	152.70	150.79	152.38	154.27	155.08	152.70	151.20	153.72	151.29	154.29
pH	5.92	5.95	5.99	6.00	5.94	5.93	5.96	5.99	6.00	5.93	5.98	5.96
Iron	0.6	0.7	0.6	0.5	0.7	0.6	0.8	0.5	0.6	0.6	0.5	0.7
UVOX												
Peroxide Residual	11	13	14	13	14	13	12	12	13	12	12	13
pH	5.95	5.94	5.91	5.84	5.86	5.96	5.90	5.87	5.91	5.96	5.89	5.90
Effluent												
pH	7.99	7.96	7.96	7.97	7.89	7.95	7.96	7.99	7.95	7.89	7.78	7.83
Iron	0.5	0.5	0.5	0.4	0.6	0.5	0.4	0.3	0.2	0.3	0.2	0.3
Chlorine	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.3	0.3	0.2	0.1	0.1

Date	7/20	7/21	7/24	7/25	7/26	7/27	7/28	7/31				
Time	9:30	9:50	10:00	10:05	10:40	9:05	9:55	9:20				
Influent												
Flow	152.91	151.57	149.90	156.91	154.70	152.46	149.98	149.55				
pH	5.98	5.92	5.86	5.95	5.81	5.80	5.81	5.86				
Iron	0.5	0.7	0.8	0.6	0.5	0.5	0.6	0.6				
UVOX												
Peroxide Residual	14	13	14	13	14	12	14	13				
pH	5.88	5.86	5.95	5.92	5.90	5.79	5.86	5.91				
Effluent												
pH	7.72	7.75	7.76	7.70	7.68	7.75	7.73	7.80				
Iron	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.4				
Chlorine	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2				

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

Graphical Data Trends

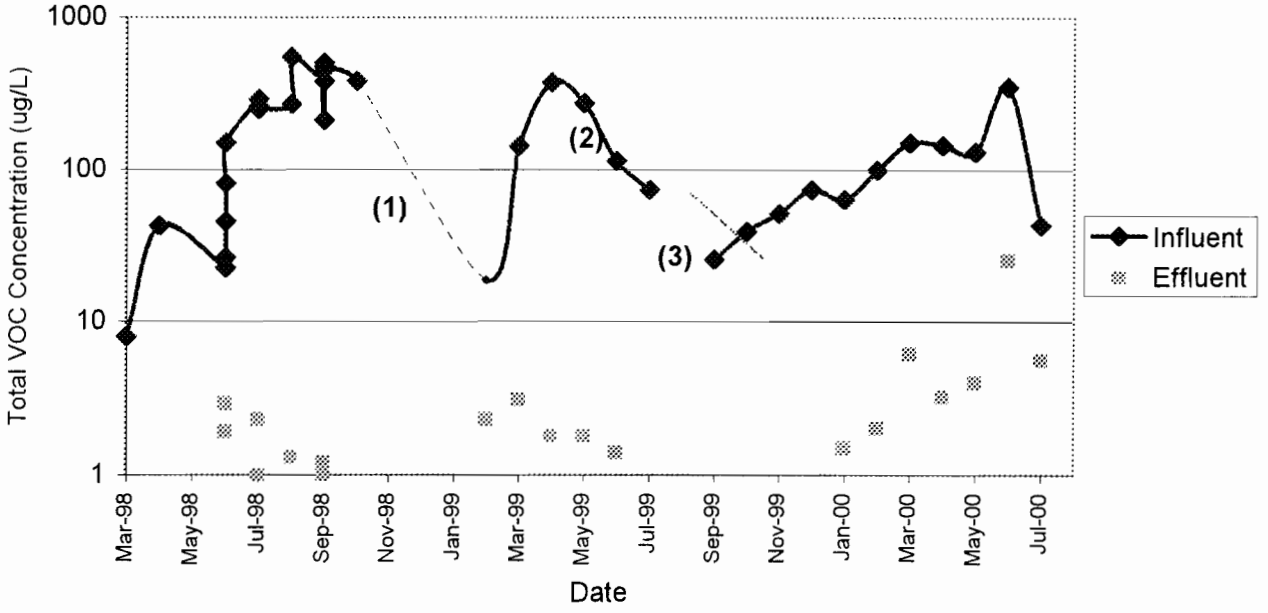


Figure 1 - Total Volatile Organic Compound (VOC) Influent and Effluent Trends

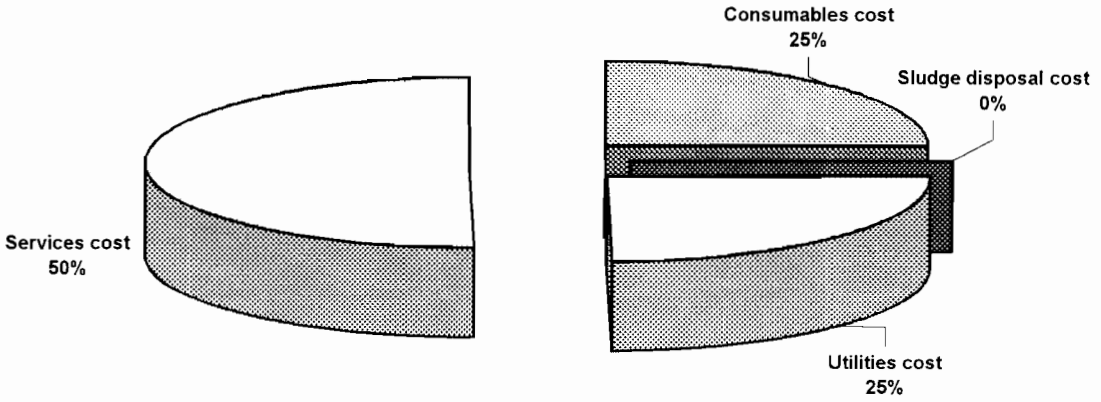


Figure 2 - Monthly Average Operating Cost Breakdown - to date is $23,915
Avg. Monthly operating costs in the Year 2000 is $14,422

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.