Lawler, Matusky & Skelly Engineers LLP
Environmental Science & Engineering Consultants

January 19, 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

Re: **Servall Laundry Site**
Bay Shore, Suffolk County
Site No. 1-52-077, Work Assignment No. D002676-39.2
Monthly Report - DECEMBER 1999

Dear Mr. Hoffman:

Attached please find the Monthly Report for December 1999, the second monthly report submitted under Work Assignment No. D002676-39.2.

The plant operated during December 1999 at an average flow rate of 159 gpm; a total volume of 4,735,780 gallons of water was processed. The influent VOC concentration has been rising over the past few months; increasing to 73.9 ppb (from 51 ppb) during the month of December. The plant removed approximately 99.1% of the influent VOC. However, the influent VOC concentrations continue to be low. Effluent concentrations of total manganese and total iron were within discharge limitations during the month of December.

The polymer feed pump has been temporarily removed from service due to an inoperative shutdown circuit. An improvement in reinjection well performance has been noted in the

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absence of the polymer. LMS in conjunction with H2M will continue to monitor the performance without the addition of polymer, and will return the polymer feed system upon your approval and repair of the circuit, if necessary.

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

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

Monthly Operations Report

December-99

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

650-395

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

Monthly Operations Report

Summary Report
Compliance Sampling
Treatability Testing
Graphical Data Trends
Summary Notes and Action Items
H2M Reports

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

650-395

Servall Laundry
Site No. 1-52-077
Groundwater Remediation -1999 Operation and Maintenance

Summary Report

Plant Operating Data	unit	Monthly Average	January-99	February-99	March-99	April-99	May-99	June-99	July-99
Flow Rate	gpm	91	63	109	123.29	116.65	125	51.08	48.57
Gallons processed	gallons	3,536,288	1,355,390	4,409,230	5,503,790	5,039,370	5,603,350	2,206,540	2,377,920
Percent of Time Operating	%	54%	20%	73%	82%	78%	84%	34%	36%
Influent VOC concentration	ug/L	119	-	19.5	144.1	373.7	275.3	114.8	73.5
Effluent VOC concentration	ug/L	1.43	-	2.3	3.5	1.8	1.8	1.4	0.8
VOC removal efficiency	%	97.6%	-	88.2%	97.6%	99.5%	99.3%	98.8%	98.9%
Pounds of VOCs Treated	lb	4.5	-	0.63	6.45	15.63	12.78	2.09	1.44
Influent Total Iron	ug/L	462	-	574	420	564	385	236	321
Influent Total Manganese	ug/L	574	-	629	565	496	517	492	719
Effluent Total Iron	ug/L	83	-	134	60.4	50	50	199	100
Effluent Total Manganese	ug/L	575	-	612	569	490	542	507	710
Total Iron removal efficiency	%	72.7%	-	76.7%	85.6%	91.1%	87.0%	15.7%	68.8%
Total Manganese removal efficiency	%	0.9%	-	2.7%	0.0%	1.2%	0.0%	0.0%	0.0%
Sodium hypochlorite (12%)	lb	734	510	1020	1020	1020	1020	1020	700
Polymer	lb	44	50	50	50	50	50	50	50
Hydrogen peroxide (50%)	lb	3092	1500	4500	3500	3500	3500	2200	2200
Caustic (50%)	lb	0	0	0	0	0	0	0	0
Hydrochloric Acid	lb	115	125	125	125	125	125	125	125
Cartridge Filters	ea	1	1	1	1	1	1	1	1
Spare Parts or other	at cost	$759	$0	$7,964	$0	$45	$0	$0	$0
Consumables cost	*$*	*$2,907*	*$1,341*	*$10,892*	*$2,428*	*$2,473*	*$2,428*	*$1,778*	*$1,723*
Sludge generated (20% dewatered)	gal	25	25	25	25	25	25	25	25
Sludge disposed of	gal	32	0	0	0	0	0	0	0
Sludge disposal cost	*$*	*$88.23*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	*$0.00*
Gas (estimated)	therms	895	980	980	935	935	935	935	935
Electricity (estimated)	kw hr	41943	21,200	61,320	61,320	51,560	38,720	38,720	38,720
Utilities cost	*$*	*$4,088*	*$2,251*	*$5,862*	*$5,846*	*$4,968*	*$3,812*	*$3,812*	*$3,812*
Compliance Sampling	at cost	$1,075.00	$0.00	$1,170.00	$1,560.00	$2,000.00	$2,695.00	$1,111.00	$1,111.00
Redevelopment	at cost	$3,583	$20,000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Operator	Month	$11,107	$11,275	$11,275	$11,275	$11,275	$11,275	$11,275	$11,275
Management & Engineering	at cost	$3,973	$7,000	$4,000	$6,114	$3,750	$4,000	$4,500	$3,000
Services cost	*$*	*$19,739*	*$38,275*	*$16,445*	*$18,949*	*$17,025*	*$17,970*	*$16,886*	*$15,386*
Operating Cost (Estimated)	***$***	***$26,822***	***$41,867***	***$33,198***	***$27,223***	***$24,465***	***$24,210***	***$22,476***	***$20,921***

Servall Laundry
Site No. 1-52-077
Groundwater Remediation -1999 Operation and Maintenance

Summary Report

Plant Operating Data	unit	Monthly Average	August-99	September-99	October-99	November-99	December-99	Total 1999
Flow Rate	gpm	91	23.88	57.34	81.02	135.39	158.79	-
Gallons processed	gallons	3,536,288	790,740	2,973,000	3,383,320	4,057,020	4,735,780	42,435,450
Percent of Time Operating	%	54%	12%	46%	51%	63%	71%	-
Influent VOC concentration	ug/L	119	-	25.5	39.1	51.6	73.9	-
Effluent VOC concentration	ug/L	1.43	-	0.5	0.6	0.9	0.7	-
VOC removal efficiency	%	97.6%		98.0%	98.5%	98.3%	99.1%	
Pounds of VOCs Treated	lb	4.5		0.62	1.09	1.72	2.89	45
Influent Total Iron	ug/L	462	-	172	979	716	248	-
Influent Total Manganese	ug/L	574	-	630	622	521	548	-
Effluent Total Iron	ug/L	83	-	130	35	35	35	-
Effluent Total Manganese	ug/L	575	-	660	613	519	524	-
Total Iron removal efficiency	%	72.7%		24.4%	96.4%	95.1%	85.9%	-
Total Manganese removal efficiency	%	0.9%	0.0%	0.0%	1.4%	0.4%	4.4%	-
Sodium hypochlorite (12%)	lb	734	500	500	500	500	500	8,810
Polymer	lb	44	50	50	50	25	0	525
Hydrogen peroxide (50%)	lb	3092	2200	3500	3500	3500	3500	37,100
Caustic (50%)	lb	0	0	0	0			0
Hydrochloric Acid	lb	115	125	125	125	125	0	1,375
Cartridge Filters	ea	1	1	1	3	2	0	14
Spare Parts or other	at cost	$759	$0	$0	$0	$1,100	$0	$9,109
Consumables cost	*$*	*$2,907*	*$1,689*	*$2,339*	*$2,579*	*$3,380*	*$1,835*	*$34,884*
Sludge generated (20% dewatered)	gal	25	25	25	25	25	25	600
Sludge disposed of	gal	32	385	0	0	0	0	385
Sludge disposal cost	*$*	*$88.23*	*$1,058.75*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	*$1,058.75*
Gas (estimated)	therms	895	900	800	800	800	800	10,735
Electricity (estimated)	kw hr	41943	38,720	38,720	38,720	37,800	37,800	503,320
Utilities cost	*$*	*$4,088*	*$3,800*	*$3,765*	*$3,765*	*$3,682*	*$3,682*	*$49,056*
Compliance Sampling	at cost	$1,075.00	$0.00	$800.00	$1,110.00	$693.00	$650.00	$12,900
Redevelopment	at cost	$3,583	$23,000.00	$0.00	$0.00	$0.00	$0.00	$43,000
Operator	Month	$11,107	$10,600	$10,600	$12,158.40	$12,500	$8,500	$133,283
Management & Engineering	at cost	$3,973	$2,800	$3,200	$3,217.00	$3,600	$2,500	$47,681
Services cost	*$*	*$19,739*	*$36,400*	*$14,600*	*$16,485*	*$16,793*	*$11,650*	*$236,865*
Operating Cost (Estimated)	***$***	***$26,822***	***$42,948***	***$20,704***	***$22,829***	***$23,855***	***$17,167***	***$321,864***

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

1999 Compliance Sampling

Influent																			
Constituents	Discharge Criteria	units	January		February		March (23)		March		April		May		June	
Chlorobenzene	5	ug/L	-			U		U		U		U		U		U
Vinyl Chloride	2	ug/L	-			U		U		U		U		U		U
1,1-Dichloroethene	5	ug/L	-			U		U		U		U		U		U
Trichloroethene	5	ug/L	-		1.2		1.5		1.9		5.6		3	JD	1.3	J
Tetrachloroethene	5	ug/L	-		17		150		140	E	350		260	D	110	B
1,1-Dichloroethane	5	ug/L	-			U		U		U		U		U		U
Toluene	5	ug/L	-			U		U		U		U	4.6	JDB	1	J
cis-1,2-Dichloroethene	5	ug/L	-		0.6		1.5		1.7			U		U	0.6	J
trans-1,2-Dichloroethene	5	ug/L	-			U		U		U		U		U		U
Methylene Chloride	N/A	ug/L	-			U				U	12	B	4.5	JD	1.3	JB
1,1,1-Trichloroethane	N/A	ug/L	-		0.7		0.6		0.5			U		U	0.6	J
Chloroform	N/A	ug/L	-			U		U		U	2.3	J		U		U
Bromodichloromethane	N/A	ug/L	-			U		U		U	3.8	J		U		U
Trichlorofluoromethane	N/A	ug/L	-			U		U		U		U		U		U
Methyl tert-Butly Ether	N/A	ug/L	-				N-A				5.7	J	3.2	JD		U
Total VOCs	**N/A**	**ug/L**	**-**		**19.5**		**153.6**		**144.1**		**373.7**		**275.3**		**114.8**	
Iron (total)	600[4]	ug/L	-		574		N/A		420		564		385		236	
Manganese (total)	600[4]	ug/L	-		629		N/A		565		496		517		492	
Alkalinity	N/A	mg/L	-		20		N/A		15.5		14		18		22	
Total Suspended Solids	N/A	mg/L	-		10		N/A		10		10	U	10	U	10	U
Total Solids	N/A	mg/L	-		64		N/A		144		86		183		142	

Effluent																
Constituents	Discharge Criteria	units	January		February		March (23)		March		April		May		June	
Chlorobenzene	5	ug/L	-			U	N-A			U		U		U		
Vinyl Chloride	2	ug/L	-			U	N-A			U		U		U		
1,1-Dichloroethene	5	ug/L	-			U	N-A			U		U		U		
Trichloroethene	5	ug/L	-			U	N-A			U	0.4	J		U		
Tetrachloroethene	5	ug/L	-			U	N-A		1		1.2		0.9		0.1	J
1,1-Dichloroethane	5	ug/L	-			U	N-A			U		U		U	0.1	J
Toluene	5	ug/L	-			U	N-A			U	0.1	J		U		
cis-1,2-Dichloroethene	5	ug/L	-			U	N-A			U		U		U		
trans-1,2-Dichloroethene	5	ug/L	-			U	N-A			U		U		U		
Methylene Chloride	N/A	ug/L	-			U				U		U		U		
1,1,1-Trichloroethane	N/A	ug/L	-		0.4	J	N-A		0.4	J		U	0.3	J	0.4	J
Chloroform	N/A	ug/L	-		1.2		N-A		1.3		0.1	J	0.6	B	0.5	J
Bromodichloromethane	N/A	ug/L	-		0.7		N-A		0.8			U		U	0.3	J
Methyl tert-Butly Ether	N/A	ug/L	-	U		U	N-A			U		U		U		
Total VOCs	**N/A**	**ug/L**	**-**		**2.3**		**N-A**		**3.5**		**1.8**		**1.8**		**1.4**	
Iron (total)	600[4]	ug/L	-		134		N-A		60.4		50		50	U	199	P
Manganese (total)	600[4]	ug/L	-		**612**		N-A		569		490		542		507	P
Alkalinity	N/A	mg/L	-		21		N-A		17		17		16.5		21	
Total Suspended Solids	N/A	mg/L	-		10		N-A		10		10	U	10	U	10	U
Total Solids	N/A	mg/L	-		48		N-A		156		90		186		154	

Notes:

1. Analytical data analyzed by STL Laboratories, February 1999.
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.

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

1999 Compliance Sampling

Influent															
Constituents	Discharge Criteria	units	July		August		September		October		November		December	
Chlorobenzene	5	ug/L		U	-			U		U		U		U
Vinyl Chloride	2	ug/L		U	-			U		U		U		U
1,1-Dichloroethene	5	ug/L	0.2	J	-			U		U		U		U
Trichloroethene	5	ug/L	1.3	JD	-		0.9		1		1.2		1.2	
Tetrachloroethene	5	ug/L	65	D	-		19		32	E	44	E	65	D
1,1-Dichloroethane	5	ug/L	0.2	J	-			U		U		U		U
Toluene	5	ug/L		U	-			U		U		U		U
cis-1,2-Dichloroethene	5	ug/L	0.3	J	-			U	0.3	J	0.4	J	0.6	
trans-1,2-Dichloroethene	5	ug/L		U	-			U		U		U		U
Methylene Chloride	N/A	ug/L	1.2	JD	-			U		U		U		U
1,1,1-Trichloroethane	N/A	ug/L	0.7	JD	-		0.6		0.6		0.5		0.5	
Chloroform	N/A	ug/L	0.9	JD	-			U		U		U		U
Bromodichloromethane	N/A	ug/L		U	-			U		U		U		U
Trichlorofluoromethane	N/A	ug/L	0.1	J	-			U		U		U		U
Methyl tert-Butly Ether	N/A	ug/L	3.6	D	-		5		5.2		5.5		6.6	
Total VOCs	N/A	ug/L	**73.5**		-		**25.5**		**39.1**		**51.6**		**73.9**	
Iron (total)	600[4]	ug/L	321		-		172		979		716		248	P
Manganese (total)	600[4]	ug/L	719		-		630		622		521		548	P
Alkalinity	N/A	mg/L	19		-		22		7.4		12		42	
Total Suspended Solids	N/A	mg/L	10	U	-		10	U	10	U	10	U	10	U
Total Solids	N/A	mg/L	142		-		154		164		129		155	
Effluent														
Constituents	Discharge Criteria	units	July		August		September		October		November		December	
Chlorobenzene	5	ug/L		U	-			U		U		U		U
Vinyl Chloride	2	ug/L		U	-			U		U		U		U
1,1-Dichloroethene	5	ug/L		U	-			U		U		U		U
Trichloroethene	5	ug/L		U	-			U		U		U		U
Tetrachloroethene	5	ug/L		U	-		0.3	J	0.3	J	0.6		0.2	J
1,1-Dichloroethane	5	ug/L	0.1	J	-			U		U		U		U
Toluene	5	ug/L		U	-			U		U		U		U
cis-1,2-Dichloroethene	5	ug/L		U	-			U		U		U		U
trans-1,2-Dichloroethene	5	ug/L		U	-			U		U		U		U
Methylene Chloride	N/A	ug/L		U	-			U		U		U		U
1,1,1-Trichloroethane	N/A	ug/L	0.5		-		0.2	J	0.3	J	0.3	J	0.3	J
Chloroform	N/A	ug/L	0.2	J	-			U		U		U	0.2	J
Bromodichloromethane	N/A	ug/L		U	-			U		U		U		U
Methyl tert-Butly Ether	N/A	ug/L		U	-			U		U		U		U
Total VOCs	N/A	ug/L	**0.8**		-		**0.5**		**0.6**		**0.9**		**0.7**	
Iron (total)	600[4]	ug/L	100	U	-		130		35	U	35		35	U
Manganese (total)	600[4]	ug/L	**710**		-		**660**		**613**		519		524	
Alkalinity	N/A	mg/L	18.5		-		24		30		2	U	6	
Total Suspended Solids	N/A	mg/L	10	U	-		10	U	10	U	10	U	10	U
Total Solids	N/A	mg/L	160		-		126		157		138		205	

Notes:

1. Analytical data analyzed by STL Laboratories, February
2. (U) Undetected.
3. (J) Estimate value. Result is below sample practical quar
instrument detection limit.
4. The combined effluent concentration of Iron and Mangan
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% di

Servall Laundry Site
Site No. 1-52-077

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-Butly Ether							0.3	
Trichlorofluoromethane								
Total	19.5	0.9	0.5	0.5	144.1	3.7	**8.5**	**8**

Notes:
1. Analytical data analyzed by STL Laboratories. Units are ug/L unless otherwise noted.
2. 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

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-Butly 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:
1. Analytical data analyzed by STL Laboratories. Units are ug/L unless otherwise noted.
2. 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
Groundwater Remediation - Operation and Maintenance

1999 Graphical Data Trends

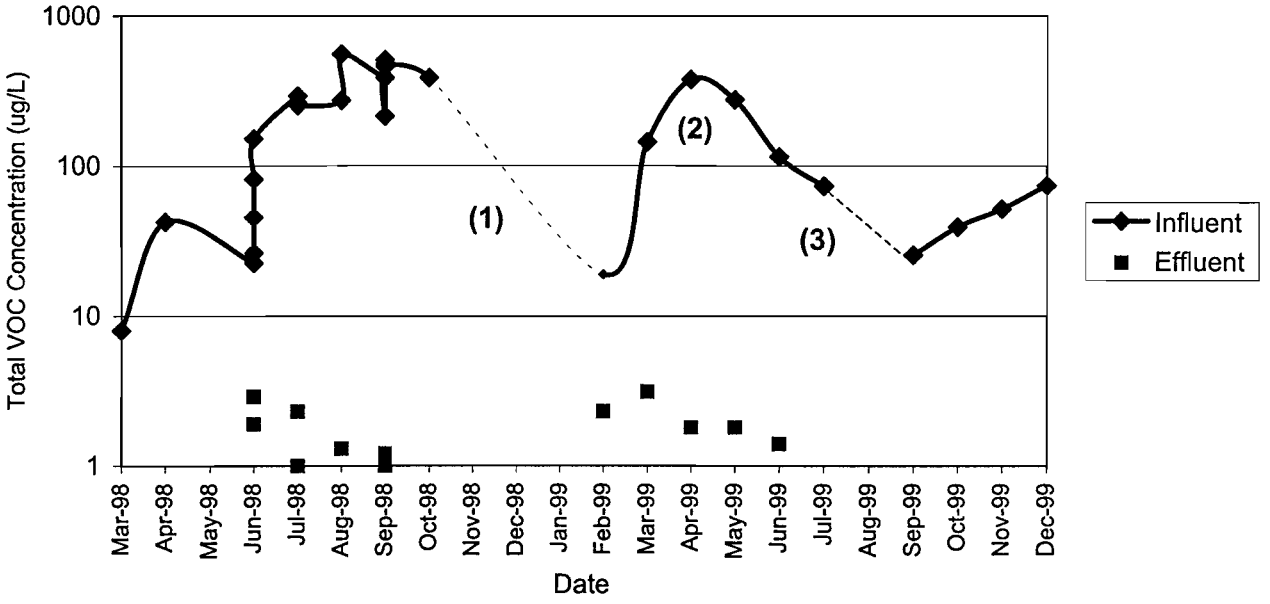

Figure 1 - Total Volatile Organic Compound (VOC) Influent and Effluent Trends

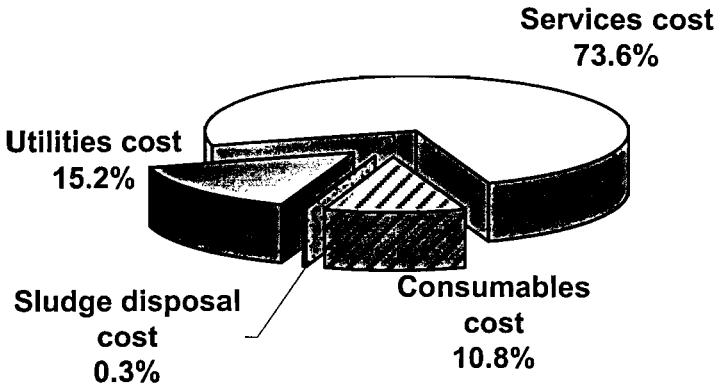

Figure 2 - Average Operating Cost Breakdown - 1999 monthly average to date is $26,822

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.

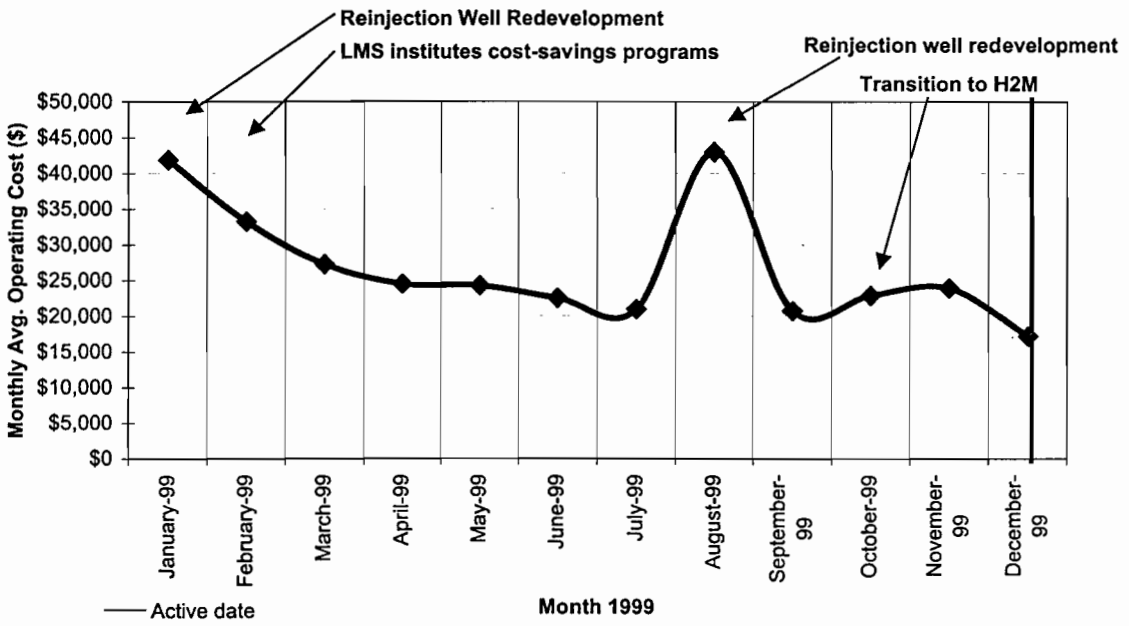

Figure 3 - Average Operating Cost Trends

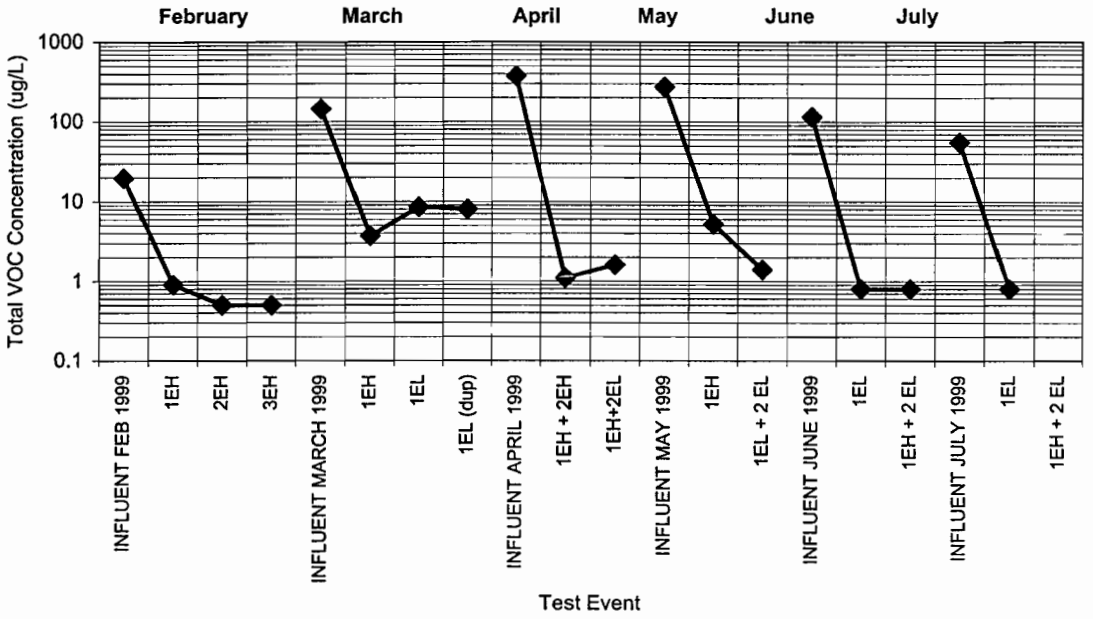

Figure 4 - UV Treatability Testing

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
Groundwater Remediation

Summary Notes and Action Items

Month	Notes	Action	Resolutions
January	Plant down until last week of the month, redevelopment conducted the week of January 18, 1999	Plant on-line week of January 26, 1999. No compliance sampling conducted this month due to plant downtime	None
February	Influent VOC concentration fairly low at 17 ppb.	None	None
March	Evidence of MTBE was detected in MW-6B at a concentration of 6.2 ppb and in the influent sample collected 3/23/99 at a concentration of 2.6 ppb. Latest compliance sampling shows levels of influent VOCs to be about 140 ppb.	Continue UV Treatability Testing in order to reduce UV power and electrical costs.	NYDEC decides to reduce UV lamp power to one lamp full power followed by the second lamp low power, the third lamp is shutdown.
April	Pump 6B experienced operating problems, unit was disassembled and cleaned, each pump was fitted with new lubrication oil. Still evidence of MTBE in influent samples. Carbon shipped off-site as haz. waste #NYG0681768	Continue UV Treatability Testing in order to reduce UV power and electrical costs.	None
May	Backflow Valve inspected and certified	Continue UV Treatability Testing in order to reduce UV power and electrical costs.	None
June	Reinjection well requires redevelopment. Plant flow rate is about 60 gpm.	Redevelop reinjection well as soon as possible. First reinjection was effective for about 6 months.	Reduced flow rate results in a reduced capture zone. Influent concentrations in June are lower than previous months - likely due to reduced flow rate/capture zone.
July	Reinjection well requires redevelopment. Plant flow rate is about 50 gpm.	Redevelop reinjection well as soon as possible. First reinjection was effective for about 6 months.	Reduced flow rate results in a reduced capture zone. Influent concentrations in July are lower than previous months - likely due to reduced flow rate/capture zone.
August	Reinjection well requires redevelopment. Plant flow rate is about 25 gpm.	Reinjection well redevelop successfully - about 6.5 months between redevelopments	No compliance sampling performed.
September	Influent and effluent VOC concentrations fairly low at 25.5 and 0.5 ppb.	None	None
October	Plant flow rate reached 130 gpm during October, but can not run at 150 gpm for any length of time.	None	None
November	Polymer feed system off line due to fouling in circuit. Improvement in reinjection performance noted.	LMS and H2M to monitor performance of reinjection in the absence of polymer until circuit repaired.	None
December	Dramatic increase in reinjection well performance without polymer addition	Influent VOC's continue to be low; although on the rise	

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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
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January 14, 2000

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

Re: Servall Laundry QWETP,
Bay Shore, New York
December 1999 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 effort performed with respect to the groundwater extraction and treatment plant for the month of December, 1999 is provided below:

Overview

Routine equipment maintenance was performed and daily process equipment readings were collected during the month. In a continued effort to eliminate the on-site bulk storage of sulfuric acid and sodium hydroxide, the gradual pumping of these products into the process stream has continued.

Event Schedule

The following timeline represents specific tasks completed during the December period.

- 12/3/99 Mr. Scott Hamarich replaced Mr. Philip Sachs as the primary facility operator.
- 12/7/99 Received delivery of 1,904.7 gallons of hydrogen peroxide from FMC Corporation. Noticed PVC attachment for pH adjustment tank's pH probe had broken at the bracket. Repaired PVC attachment and reattached.
- 12/8/99 Diaphragm pump for tank 12B had stopped working. Disassembled pump and found debris lodged in one of the ball valves. Filter press filters cleaned and prepared for usage.
- 12/15/99 Collected monthly compliance samples, packed them on ice and shipped them to Severn-Trent Laboratories for analysis. Samples sent via Federal Express, overnight delivery.
- 12/15/99 Increased speed of sulfuric acid pump to 30 from 25 to increase rate of acid depletion.

- 12/20/99 Equalization tank pH level significantly reduced, resulting in system shutdown. Temporarily discontinued use of sulfuric acid.

- 12/21/99 Collected samples for metals analysis, packed them on ice and shipped them to Severn-Trent Laboratories for analysis. Samples sent via Federal Express, overnight delivery. Sodium hypochlorite pump not functioning properly. Pump's ball valves stuck. Ball valves repaired and pump returned to service.

- 12/22/99 Collected samples for metals analysis, packed them on ice and shipped them to Severn-Trent Laboratories for analysis. Samples sent via Federal Express, overnight delivery.

- 12/23/99 Sodium hydroxide pump not pumping properly. Pinhole identified in pump line. Pump line repaired and pump returned to operation.

- 12/24/99 Effluent filters removed, acid washed and replaced with previously cleaned filters.

- 12/28/99 Diaphragm pump for Tank 12B not operating properly. Pump's air valve stuck. Removed, cleaned and oiled air valve. Pump's discharge line clogged with debris. Discharge line cleaned.

- 12/29/99 Adjusted instantaneous trip setting for air compressor breaker. Breaker set to trip at 120 amps instantaneous peak. Adjusted air-compressor's upper limit set point to 170 psi from 165 psi. During high air demand (backwash cycle) air compressor now cycles on every 2 minutes 45 seconds for 1 minute 30 second duration.

- 12/30/99 Adjusted instantaneous trip setting for air compressor breaker. Breaker set to trip at 135 amps instantaneous peak. Sodium hypochlorite pump not functioning properly. Pump's ball valves stuck. Ball valves repaired and pump returned to service.

Plant Performance

Between November 30, 1999 and December 30, 1999, the treatment plant discharged 4,735,780 gallons of treated water. The average flowrate of the UV/Oxidation system was 158.79 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.

The plant experienced electrical shutdown of equipment on several occasions during the month. The primary cause of the shutdowns has been determined to be a problem associated with the air compression system. The air compressor's apparent frequent on and off cycling during times of high air demand, results in the electric supply circuit breaker tripping. The air-compressors upper set point has been increased as well as increasing the air compressor breaker's instantaneous trip setting. Other factors attributing to this problem are being investigated.

Following periods of system shutdown various pumps have experienced problems with returning to a proper functioning state. Typically the pumps require dismantling and minor repairs.

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

If you should have any questions or require additional information, please contact Scott Hamarich at (516) 756-8000, extension 1624 or Philip Schade at extension 1623.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Philip J. Schade, P.E
Project Manager

Scott E. Hamarich
Project Engineer

SEH/
Enclosures

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Daily Operation Check List
Servall Laundry Site

Day	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
Date	12/27/99	12/28/99	12/29/99	12/30/99	1/3/00	1/4/00	1/5/00	1/6/00	1/7/00	
Time	9:45	15:15	16:35	16:50	17:20	8:10	14:35	8:30	9:05	
Extraction Well Level (feet)	54.1	54.8	54.1	54.9	55.5	56.8	57.1	57.7	58.6	
Influent Flow Rate (gpm)	160.02	160.09	160.49	160.01	159.88	160.00	160.08	160.06	159.76	
Influent Filter in Service (yes/no)	NO	NO	NO	NO	NO	NO	NO	NO	NO	
Inlet Pressure (psi)	20	20	20	20	20	20	20	20	20	
Outlet Pressure (psi)	15	15	15	15	15	15	18	18	16	
Cartridge Filter Flow Rate (gpm)	140.20	140.09	140.23	140.28	140.07	140.14	140.10	140.10	141.52	
Equalization Tank										
Level (inches)	52.05	51.84	52.11	51.97	52.08	52.02	51.98	51.94	51.96	
pH	6.69	6.86	5.60	2.98	2.85	3.33	3.37	3.40	2.76	
Mixer (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
Acid Pump Settings: Speed / Stroke	OFF	OFF	OFF	20/35	20/35	20/35	20/35	20/35	20/35	
UV/Oxidation Pump in Service (4A/4B)	4B	4A	4A	4A	4A	4A	4A	4A	4B	
UV/Oxidation Flow Rate (gpm)	151.36	149.56	156.04	152.48	148.75	152.58	149.82	154.14	154.73	
UV/Oxidation Unit										
Lamp # 1 (on/off)	ON	ON	ON	ON	ON	ON	ON	ON	ON	
KV	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	
Time	9028.23	9043.52	9047.20	9050.77	9071.42	9086.38	9116.49	9134.37	9135.85	
Lamp # 2 (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
KV	0	0	0	0	0	0	0	0	0	
Amps	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	
Lamp # 3 (on/off)	ON	ON	ON	ON	ON	ON	ON	ON	ON	
KV	258	258	258	258	258	258	258	258	258	
Amps	7.0	6.8	7.0	7.0	6.8	6.8	7.0	7.0	7.0	
Time	7455.64	7470.93	7474.60	7478.17	7498.82	7513.78	7543.89	7561.77	7563.24	
Peroxide Pump Settings: Speed / Stroke	50/50	50/50	50/50	50/50	50/50	50/50	50/50	50/50	50/50	
Peroxide Residual Concentration (mg/l)	15	18	17	12	14	5	16	19	16	
Totalizer Reading (gpm)	70920720	71056960	71088470	71120190	71305160	71440600	71710130	71870500	71883160	

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Daily Operation Check List
Servall Laundry Site

Date	12/27/99	12/28/99	12/29/99	12/30/99	1/3/00	1/4/00	1/5/00	1/6/00	1/7/00	
pH Adjust Tank										
Level (inches)	50.12	52.42	55.18	50.03	50.01	50.17	50.19	52.54	50.08	
pH	5.97	6.85	6.91	6.49	6.50	6.57	6.55	6.57	6.17	
Mixer (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	
Caustic Pump Settings: Speed / Stroke	40/50	40/50	40/50	20/40	20/40	20/40	20/40	20/40	20/45	
Polmer Feed Settings	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)	6B	6B	6B	6B	6B	6B	6B	6B	6A	
Sand Filters										
Filter # 1 inlet pressure (psi)	26	34	35	24	30	32	32	30	30	
Filter #1 outlet pressure (psi)	24	30	32	22	30	31	30	28	24	
Filter # 2 inlet pressure (psi)	25	32	34	24	32	32	31	28	28	
Filter #2 outlet pressure (psi)	23	30	31	21	30	30	30	28	24	
Filter # 3 inlet pressure (psi)	24	32	33	22	30	32	30	28	28	
Filter #3 outlet pressure (psi)	24	31	33	22	30	31	32	29	24	
Filter # 4 inlet pressure (psi)	28	34	35	24	32	34	34	30	31	
Filter #4 outlet pressure (psi)	22	30	32	22	30	30	32	28	24	
Effluent Flow Rate (gpm)	140.70	140.36	147.26	141.18	141.20	139.35	143.21	152.78	138.58	
Effluent Filter in Service (yes/no)	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Inlet Pressure (psi)	18	24	27	16	24	26	26	22	20	
Outlet Pressure (psi)	10	10	10	10	10	10	10	10	10	
Reinjection Well Level (feet)	61.65	61.86	61.89	61.59	61.45	61.46	61.76	62.35	61.60	
Chemical Storage Levels										
Caustic Level (NaOH)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Peroxide Level (H_2O_2)	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	
Acid Level (H_2SO_4)	56.7	56.8	56.6	56.7	57.1	56.7	56.4	56.5	56.5	
Air Compressor (psi)	150	150	160	165	165	140	145	160	165	
Compressed Air Dryer (on/off)	ON	ON	ON	ON	ON	ON	ON	ON	ON	
Chlorine Pump: Speed / Stroke	80/80	80/80	80/80	70/90	70/90	70/90	70/90	70/90	70/90	
Chlorine Residual Concentration (mg/l)	0.2	0.3	0.0	1.2	0.9	0.0	0.5	0.1	0.1	

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Daily Operation Check List
Servall Laundry Site

Day	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Date	12/13/99	12/14/99	12/15/99	12/16/99	12/17/99	12/20/99	12/21/99	12/22/99	12/23/99	12/24/99
Time	8:00	7:35	7:40	7:20	15:20	18:05	7:30	13:10	9:05	8:50
Extraction Well Level (feet)	56.2	53.7	54.0	54.0	52.9	53,1	52.8	53,1	52.9	54.6
Influent Flow Rate (gpm)	160,13	160.12	159.93	160.05	159.93	160,02	160,12	159.86	159.81	160.03
Influent Filter in Service (yes/no)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Inlet Pressure (psi)	20	20	20	20	20	20	20	20	20	20
Outlet Pressure (psi)	15	15	15	15	15	15	15	15	15	15
Cartridge Filter Flow Rate (gpm)	140.49	140.23	140.44	140.25	140,32	140,19	140.09	140.39	140.29	140.49
Equalization Tank										
Level (inches)	52.07	51.99	51.97	52.07	51,98	52.02	52.06	51.99	51,92	51.99
pH	—	3,24	3.01	2.95	3.01	2.44	4.47	5.67	6.30	6.31
Mixer (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Acid Pump Settings: Speed / Stroke	20/35	20/35	20/35	30/35	30/35	OFF	OFF	OFF	OFF	OFF
UV/Oxidation Pump in Service (4A/4B)	4A	4A	4A	4A	4A	4A	4A	4A	4B	4B
UV/Oxidation Flow Rate (gpm)	148.8	152.53	151,52	148.90	147.46	148,5	154.14	150.73	156,29	153.62
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	8804,28	8827.88	8851.05	8874,72	8906,72	8945,51	8958,88	8970.84	8990,61	8995,58
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	6.8	6.8	6.8	6.8	6.8	7.0	6.8	6.8	7.0	7.0
Time	7231.72	7255,31	7278.48	7302.14	7334.14	7372.93	7386,31	7398.26	7418.02	7422,99
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)	6	14	18	15	10	13	12	12	14	13
Totalizer Reading (gpm)	68908620	69121250	69329400	69542780	69831520	70178290	70299020	70405490	70584010	70626720

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Daily Operation Check List
Servall Laundry Site

Date	12/13/99	12/14/99	12/15/99	12/16/99	12/17/99	12/18/99	12/21/99	12/22/99	12/23/99	12/24/99
pH Adjust Tank										
Level (inches)	50.03	61.92	56.36	63.12	49.88	58.02	50.10	49.94	60.72	49.98
pH	5.76	5.60	5.63	5.83	5.83	5.84	5.38	5.95	6.10	6.00
Mixer (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Caustic Pump Settings: Speed / Stroke	40/50	40/50	40/50	40/50	40/50	40/50	40/50	40/50	40/50	40/50
Polmer 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)	6B	6B	6B	6B	6B	6B	6B	6B	6A	6A
Sand Filters										
Filter # 1 inlet pressure (psi)	30	32	33	32	32	32	34	31	35	24
Filter #1 outlet pressure (psi)	28	30	30	30	30	31	30	30	30	20
Filter # 2 inlet pressure (psi)	29	32	32	31	30	32	32	31	34	24
Filter #2 outlet pressure (psi)	28	30	30	31	29	30	30	30	30	20
Filter # 3 inlet pressure (psi)	28	30	31	30	30	30	32	30	32	22
Filter #3 outlet pressure (psi)	28	31	32	31	30	31	32	31	32	22
Filter # 4 inlet pressure (psi)	30	32	34	32	32	33	34	32	35	24
Filter #4 outlet pressure (psi)	26	30	31	30	30	31	31	30	30	22
Effluent Flow Rate (gpm)	140.45	144.89	142.90	144.59	142.22	151.54	140.43	141.13	139.38	139.33
Effluent Filter in Service (yes/no)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inlet Pressure (psi)	23	24	25	25	25	26	26	25	24	
Outlet Pressure (psi)	10	10	10	10	10	10	10	10	10	
Reinjection Well Level (feet)	62.90	63.53	63.25	63.30	62.76	63.00	62.15	61.84	61.83	61.92
Chemical Storage Levels										
Caustic Level (NaOH)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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)	57.1	57.1	56.8	56.8	57.0	56.7	56.5	56.5	56.6	56.5
Air Compressor (psi)	148	150	151	148	150	150	148	148	148	158
Compressed Air Dryer (on/off)	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Chlorine Pump: Speed / Stroke	80/80	80/80	80/80	80/80	80/80	80/80	80/80	80/80	80/80	80/80
Chlorine Residual Concentration (mg/l)	1.2	0.2	0.1	0.1	0.2	0.2	0.0	0.3	0.2	0.2

Daily Operation Check List

Servall Laundry

Day	THURSDAY	FRIDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Date	12/2/99	12/3/99	12/6/99	12/7/99	12/8/99	12/9/99	12/10/99
Time	10:00	11:05	9:00	7:20	14:15	14:50	8:00
Extraction Well Level	58.5	57.2	66.4	58.5	59.3	58.4	57.8
Influent Flow Rate	149.80	152.54	160.29	160.13	158.92	159.92	160.01
Influent Filter In Service	NO	NO	NO	NO	NO	NO	NO
Inlet psi	12	10	20	20	20	20	20
Outlet psi	9	8	15	15	15	15	15
Cartridge Filter Flow Rate (GPM)	132.3	133.6	140.74	140.88	140.56	140.57	140.42
EQ Tank Level (inches)	51.95	51.98	51.99	51.92	51.72	51.96	51.96
EQ Tank Mixer	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Acid Pump: Speed/Stroke	20/35	20/35	20/35	20/35	20/35	20/35	20/35
UV/OX Pump in Service	4B	4B	4B	4B	4B	4B	4B
UV/OX Flow Rate	137.4	140.1	148.28	149.58	153.92	153.86	150.29
UV/OX Unit							
Lamp # 1 (on/off)	ON	ON	ON	ON	ON	ON	ON
KV	253	252	252	252	252	252	252
Amps	7.8	7.8	7.8	7.8	7.8	7.8	7.8
Time	8590.38	8615.21	8684.97	8707.50	8738.32	8762.92	8780.07
Lamp # 2 (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	OFF
KV		0	0	0	0	0	0
Amps		0	0	0	0	0	0
Time	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
KV	258	258	258	258	258	258	258
Amps	6.8	6.9	6.8	6.8	6.8	6.8	6.8
Time	7017.83	7042.66	7112.42	7134.94	7165.76	7190.36	7207.50
Peroxide Pump: Speed/Stroke	50/50	50/50	50/50	50/50	50/50	50/50	50/50
Peroxide Residual	18 mg/l	6 mg/l	15 mg/l	34 mg/l	6 mg/l	8 mg/l	8 mg/l
pH Adjust Tank Level (inches)	50.04	50.00	50.01	53.93	49.95	50.01	60.08
pH	5.49	5.56	5.52	5.52	5.53	5.53	5.51

Daily Operation Check List

Servall Laundry

	12/2/99	12/3/99	12/6/99	12/7/99	12/8/99	12/9/99	12/10/99
Mixer (on/off)							
Totalizer reading	66990660	67200750	67831630	68034730	68313850	68535710	68690310
Caustic Pump: Speed/Stroke	40/50	40/50	40/50	40/50	40/50	40/50	40/50
Polymer Feed Settings	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Solution Pump: Speed/Stroke							
Dilution Water Rate							
Polymer Bucket Wt.							
Sand Filter Pump In Service	6A	6A	6A	6A	6A	6A	6A
Sand Filters							
Filter #1 Inlet psi	23	25	28	30	30	30	32
Filter #1 Outlet psi	22	23	26	30	28	28	30
Filter #2 Inlet psi	24	24	28	30	30	30	32
Filter #2 Outlet psi	23	23	26	28	28	28	30
Filter #3 Inlet psi	22	22	28	29	28	28	30
Filter #3 Outlet psi	22	22	29	30	28	28	32
Filter #4 Inlet psi	26	26	30	32	30	32	32
Filter #4 Outlet psi	23	23	28	30	28	29	30
Effluent Flow Rate	136.2	136.01	143.37	148.01	139.83	142.90	145.46
Effluent Filter in Service	YES	Yes	Yes	Yes	Yes	Yes	Yes
Inlet psi	19	19	20	22	24	24	24
Outlet psi	10	10	10	10	10	10	10
Reinjection Well level	63.01	62.89	63.32	63.98	63.33	63.59	63.85
Chemical Storage Levels							
NaOH (caustic) Level	31.0	30.1	0.0	0.0	0.0	0.0	0.0
H_2O_2 (peroxide) Level	58.3	58.3	58.3	58.3	58.3	58.3	53.3
H_2SO_4 (acid) Level	57.7	57.6	57.2	57.6	57.4	57.1	57.2
Air Compressor (psi)	148	150	148	150	149	152	150
Compressed Air Dryer	ON	ON	ON	ON	ON	ON	ON
Chlorine Pump: Speed/Stroke	30/80	80/80	80/80	80/80	80/80	80/80	80/80
Chlorine Residual	0.2	0.3	0.3	0.3	0.2	0.2	0.3

Daily Operation Check List

Servall Laundry

Day	FRIDAY	MONDAY	TUESDAY	WEDNESDAY	MONDAY THURSDAY	TUESDAY	WEDNESDAY
Date	11/19/99	11/22/99	11/23/99	11/24/99	11/29/99	11/30/99	12/1/99
Time	4:00 PM	9:30 AM	9:45 AM	3:30 PM	10:00 AM	12:50 PM	10:30 AM
Extraction Well Level	63.0	56.1	55.9	56.2	57.6	57.8	57.4
Influent Flow Rate	109.97	141.18	152.14	150.04	149.94	150.11	149.92
Influent Filter In Service	NO	NO	NO	NO	NO	NO	NO
Inlet psi	70	8	9	18	17	16	17
Outlet psi	70	3	3	10	10	10	10
Cartridge Filter Flow Rate (GPM)	102.5	124.5	134.3	132.6	132.7	132.5	132.8
EQ Tank Level (inches)	51.96	51.97	53.67	51.95	52.09	51.94	51.91
EQ Tank Mixer	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Acid Pump: Speed/Stroke	OFF	OFF	OFF	OFF	OFF	30/50	10/40
UV/OX Pump in Service	4A	4A	4A	4A	4A	4A	4A
UV/OX Flow Rate	103.5	133.5	140.1	142.8	146.7	146.7	
UV/OX Unit							
Lamp # 1 (on/off)	ON	ON	ON	ON	ON	ON	
KV	255	253	255	255	255	255	
Amps	7.8	7.7	7.6	7.9	7.9	7.8	
Time	8284.91	8350.76	8325.45	8403.32	8518.41	8546.03	
Lamp # 2 (on/off)	OFF	OFF	OFF	OFF	OFF	OFF	
KV							
Amps							
Time							
Lamp # 3 (on/off)	ON	ON	ON	ON	ON	ON	
KV	256	256	257	258	258	258	
Amps	7.0	6.8	6.8	7.0	7.0	6.9	
Time	6712.36	6778.20	6802.87	6830.76	6945.85	6973.47	
Peroxide Pump: Speed/Stroke	50/50	50/50	50/50	50/50	50/50	50/50	
Peroxide Residual	~~50.03~~	25	23	21	4	5	
pH Adjust Tank Level (inches)	5001	49.95	49.90	50.00	50.01	50.09	
pH					5.38	5.97	

* 11/24 SLUDGE TRANSFER PUMP DISASSEMBLED, CLEANED. SOLIDS TRAPPED, PREVENTING OPERATION

* 11/19 U.S PEROXIDE (MICKEGAND) ON SITE TO INSPECT H_2O_2 STORAGE TANK. TANK WASHED

Daily Operation Check List

Servall Laundry

Mixer (on/off)	ON	ON	~~ON~~ OFF	OFF	OFF	OFF	
Totalizer reading	64612940	64983860	65178790	65411250	66384410	66617790	
Caustic Pump: Speed/Stroke	OFF	OFF	OFF	OFF	OFF	20/50	
Polymer Feed Settings	OFF	OFF	OFF	OFF	OFF	OFF	
Solution Pump: Speed/Stroke							
Dilution Water Rate							
Polymer Bucket Wt.							
Sand Filter Pump In Service	6B	6B	6B	6B	6B	6B	
Sand Filters	1	1					
Filter #1 Inlet psi	20	20	20	20	23	20	
Filter #1 Outlet psi	15	18	19	19	20	19	
Filter #2 Inlet psi	19	18	19	20	22	20	
Filter #2 Outlet psi	14	17	16	18	20	18	
Filter #3 Inlet psi	18	19	18	18	21	20	
Filter #3 Outlet psi	16	19	18	18	21	20	
Filter #4 Inlet psi	22	21	21	22	23	24	
Filter #4 Outlet psi	16	16	19	19	20	22	
Effluent Flow Rate	94.13	125.0	131.6	134.2	135.5	131.6	
Effluent Filter in Service	YES	YES	YES	YES	YES	YES	
Inlet psi	13	14	14	15	16	19	
Outlet psi	10	10	10	10	10	10	
Reinjection Well level	67.67	66.26	65.43	64.86	64.73	66.42	
Chemical Storage Levels							
NaOH (caustic) Level	67.1	67.1	67.1	87.8	82.6	36.1	
H_2O_2 (peroxide) Level	58.3	58.3	58.3	58.3	58.3	58.3	
H_2SO_4 (acid) Level	59.2	58.2	58.3	58.8	58.2	58.6	
Air Compressor (psi)	154	150	148	145	152	148	
Compressed Air Dryer	ON	ON	ON	ON	ON	ON	
Chlorine Pump: Speed/Stroke	100/100	OFF-LINE	80/80	80/80	80/80	80/80	
Chlorine Residual	0.5 mg/L		0.8	0.4	0.1	0.2	

Servall Laundry Process Control Samples

Date	11/1/99	11/2/99	11/3/99	11/4/99	11/5/99	11/8/99	11/9/99	11/10/99	11/11/99	11/12/99	11/15	11/16
Time	10:50	12:10	12:10	12:05	10:30	10:45	9:00	10:45	7:15	11:15	11:30	9:00
Influent												
Flow	139.33	139.97	140.1	139.97	143.7	141.26	144.39	144.07	191.36	144.31	144.22	143.95
pH	N/A	N/A	5.60	5.06	5.03	5.05	5.05	5.06	5.26	5.43	5.50	5.38
Iron	0.4	0.5	0.4	0.3	0.5	1.0	1.1	0.5	0.5	0.7	N/A	N/A
UVOX												
Peroxide Residual	50 mg/l	5 mg/l	37 mg/l	3 mg/l	3 mg/l	3 mg/l	38 mg/l	5 mg/l	3 mg/l	19 mg/l	4 mg/l	3 mg/l
pH	N/A	N/A	5.48	5.24	4.85	5.06	5.30	5.29	5.28	5.59	5.78	5.74
Effluent												
pH	N/A	N/A	5.62	5.41	5.14	5.24	5.32	5.37	5.45	5.74	5.96	5.92
Iron	0.0	0.2	0.1	0.1	0.1	0.3	0.4	0.4	0.2	0.0	N/A	N/A
Chlorine	0.3	0.0	0.2	0.1	0.1	0.0	0.2	0.0	0.3	0.25	0.0	0.0

Date	11/19/99	11/22/99	11/23/99	11/24/99	11/29/99	11/30/99	12/2/99	12/3/99	12/6/99	12/7/99	12/8/99	12/9/99
Time	4:30	10:00	10:15	3:40	10:45	1:00	11:00	10:30	9:25	7:30	15:00	15:20
Influent												
Flow	109.97	141.18	152.14	150.09	149.94	150.11	149.80	152.54	160.29	160.13	159.92	159.92
pH	5.50	5.62	5.51	5.54	5.57	5.34	5.49	5.38	5.41	5.46	5.52	5.50
Iron	N/A	N/A	N/A	0.4	0.5	0.3	0.5	0.4	0.7	0.7	0.6	0.6
UVOX												
Peroxide Residual	3 mg/l	25 mg/l	23 mg/l	21 mg/l	4 mg/l	5 mg/l	18 mg/l	6 mg/l	15 mg/l	34 mg/l	6 mg/l	8 mg/l
pH	5.74	5.66	5.70	5.58	5.64	2.50	3.52	3.56	3.28	3.32	3.37	3.38
Effluent												
pH	6.03	5.91	5.94	5.95	5.89	2.63	5.07	4.81	4.77	4.86	4.89	4.89
Iron	N/A	N/A	N/A	0.0	0.0	5.0	0.0	0.0	0.2	0.2	0.0	0.3
Chlorine	0.5	~~N/A~~ (0.0)	0.8	0.4	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.2

Servall Laundry Process Control Samples

Date	12/10/99	12/13/99	12/14/99	12/15/99	12/16/99	12/17/99	12/20/99	12/21/99	12/22/99	12/23/99	12/24/99	12/27/99
Time	8:40	8:20	7:50	8:15	7:45	15:41	18:25	8:20	13:50	9:30	9:10	10:10
Influent												
Flow	160.01	160.13	160.12	159.93	160.05	159.93	160.02	160.12	159.86	159.81	160.03	160.02
pH	5.50	5.56	5.47	5.49	5.38	5.54	5.55	5.56	5.69	5.66	5.68	5.65
Iron	0.7	0.8	0.7	0.7	0.7	0.6	0.7	0.8	0.7	0.5	0.6	0.7
UVOX												
Peroxide Residual	8 mg/l	6 mg/l	14 mg/l	18 mg/l	15 mg/l	10 mg/l	13 mg/l	12 mg/l	12 mg/l	14 mg/l	13 mg/l	15 mg/l
pH	3.32	4.82	3.29	3.58	3.09	3.22	3.10	5.65	5.62	5.58	5.62	5.60
Effluent												
pH	4.74	3.50	4.31	3.97	3.52	3.55	3.89	5.93	6.36	6.09	6.13	5.98
Iron	0.3	0.6	0.4	0.3	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0
Chlorine	0.3	1.2	0.2	0.1	0.1	0.2	0.2	0.0	0.3	0.2	0.2	0.2

Date	12/28/99	12/29/99	12/30/99	1/3/00	1/4/00	1/5/00	1/6/00	1/7/00	1/10/00	1/11/00	1/12/00	
Time	15:40	17:05	17:15	17:50	8:30	15:30	8:50	9:30	17:40	8:20	7:25	
Influent												
Flow	160.09	160.49	160.01	159.88	160.00	160.08	160.06	159.76	160.90	160.13	159.97	
pH	6.16	5.69	5.63	5.65	5.44	5.64	5.59	5.73	5.65	5.80	5.60	
Iron	0.7	0.8	0.8	0.8	0.6	0.5	0.4	1.1	0.9	0.9	0.9	
UVOX												
Peroxide Residual	18 mg/l	17 mg/l	12 mg/l	14 mg/l	5 mg/l	16 mg/l	19 mg/l	16 mg/l	17 mg/l	30 mg/l	15 mg/l	
pH	5.98	5.58	3.62	3.79	3.46	3.42	3.43	5.66	3.42	5.66	3.41	
Effluent												
pH	6.05	6.65	4.52	6.60	4.65	4.63	3.46	5.07	5.00	5.77	7.61	
Iron	0.0	0.2	0.0	0.0	0.4	0.0	0.3	0.0	0.0	0.0	0.1	
Chlorine	0.3	0.0	1.2	0.9	0.0	0.5	0.1	0.1	0.0	0.1	0.1	

Lawler, Matusky & Skelly Engineers LLP

Environmental Science & Engineering Consultants

January 19, 2000
File No. 650-395

H_2M Group
575 Broad Hollow Road
Melville, NY 11747-5076

Attn: Phil Schade, P.E.

Re: **Servall Laundry Site**
Bay Shore, New York
December 1999 Operations Report
Comments

Dear Mr. Schade:

I have reviewed the subject document and offer the following comments:

1. The introduction of acid or hydroxide to the waste stream should be conducted to the benefit of the process; if lowering the influent pH does not increase VOC removal efficiency or performance, it should be discontinued. In addition, if the introduction of hydroxide to the pH adjustment tank does not promote enhanced removal of manganese, that too should be discontinued. Please advise on field observations regarding these two items.

2. Since the elimination of the polymer feed reinjection wall performance was increased and effluent inorganic constituents continue to meet their discharge limits. Proceed without the use of the polymer unless directed otherwise.

3. Your data sheets indicate the level of the caustic tank is 0%; have we extinguished the caustic supply? There seems to be an error on the last page of data sheets, please check the entries for the NaOH level and the H202 levels; they may be reversed.

4. Effluent pH seems low for the period 1/4/00-1/12/00. Please ensure that caustic delivery is operational and effluent pH is between 6-9. See Comment 1.

If you have any questions, please call me at x249.

Very truly yours,

Robert J. DeGiorgio, P.E.
Project Manager

RJD:mb

Mb/1/19/00/Group/650-395/ltr-PS-RD

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