

May 2011 Monthly Operations Report

Groundwater Extraction and Treatment System

Groveland Wells Site Groveland, Massachusetts

Long-Term Response Action
EPA Task Order No. 0012-RA-LR-0132

REMEDIAL ACTION CONTRACT No. EP-S1-06-03

FOR

**US Environmental Protection Agency
Region 1**

BY

Nobis Engineering, Inc.

Nobis Project No. 80012

June 2011

U.S. Environmental Protection Agency

Region 1
5 Post Office Square, Suite 100
Boston, Massachusetts 02109 3919



Nobis Engineering, Inc.

Lowell, Massachusetts
Concord, New Hampshire

Phone (800) 394 4182
www.nobisengineering.com

May 2011 Monthly Operations Report

Groundwater Extraction and Treatment System

Groveland Wells Site
Groveland, Massachusetts
Long-Term Response Action
EPA Task Order No. 0012-RA-LR-0132

REMEDIAL ACTION CONTRACT
No. EP-S1-06-03

For
US Environmental Protection Agency
Region 1

By
Nobis Engineering, Inc.

Nobis Project No. 80012

June 2011

A handwritten signature in black ink, appearing to read "Diane M. Baxter", written over a horizontal line.

Diane M. Baxter
Senior Project Manager

A handwritten signature in black ink, appearing to read "Frederick R. Symmes", written over a horizontal line.

Frederick R. Symmes, P.E.
Technical Manager, Weston Solutions, Inc.



EPA Region 1 RAC 2 Contract No. EP-S1-06-03

June 23, 2011

Nobis Project No. 80012

Via Electronic Submittal

U.S. Environmental Protection Agency, Region 1
Attention: Mr. Derrick Golden, Task Order Project Officer
Mail Code: OSRR07-4
5 Post Office Square, Suite 100
Boston, Massachusetts 02119-3912

Subject: May 2011 Monthly Operations Report
Groundwater Extraction and Treatment System
Groveland Wells Superfund Site, Groveland, Massachusetts
Long-Term Response Action
Task Order No. 0012-RA-LR-0132

Dear Mr. Golden:

This letter presents a summary of the operations and maintenance activities conducted during May 2011 at the Groveland Wells Superfund Site.

1.0 GENERAL FACILITY OPERATIONS

The groundwater extraction and treatment system operated continuously throughout the month of May 2011, with the exception of minor maintenance shutdowns as described in Sections 4.0 and 5.0 of this report. A total of 2,508,600 gallons of groundwater were processed through the facility during May 2011. Daily operations logs, which detail the system operating parameters, are provided in Attachment I. The average flow rates for the individual extraction wells and treatment system as a whole are detailed in Attachment II.

During May 2011, the iron concentration in the treatment plant influent from the extraction wells averaged approximately 1.3 milligrams per liter (mg/L), which was not sufficient to require addition of polymer for flocculation of iron in the inclined plate clarifier. Multi-media filters F-1A, F-1B, and F-1C were backwashed on May 3, April 30, and May 6, respectively, following changeout of the filter media and prior to being returned to service. All three filters were also backwashed on May 20.

One of the four reactors in the ultraviolet/chemical oxidation (UV-OX) system was operated during the month of May. The hydrogen peroxide dose in the UV-OX influent was maintained at

approximately 7.8 mg/L. A total of 102 gallons of hydrogen peroxide were dosed into the process water during May 2011.

2.0 FACILITY PERFORMANCE MONITORING

Monthly samples of the treatment system influent and effluent were collected on May 4, in accordance with the *Quality Assurance Project Plan, Revision 3* (Nobis, 2009). The analytical results are presented in Attachment III. There has been a slight increasing trend in the concentration of trichloroethene (TCE) in the treatment plant influent since the in situ thermal remediation (ISTR) operations ended in February 2011. However, the influent TCE concentration (20 micrograms per liter [$\mu\text{g/L}$]) remains less than 10 percent of the 434 $\mu\text{g/L}$ effluent discharge limit for TCE.

A low level (9.9 $\mu\text{g/L}$) of acetone was detected in the treatment plant effluent. This presence of acetone may be a residual from the elevated acetone concentrations that were generated in groundwater at the site during operation of the ISTR system. There is no discharge limit for acetone.

The arsenic concentration in the primary effluent sample was 0.76 $\mu\text{g/L}$, which is slightly greater than the arsenic discharge limit of 0.75 $\mu\text{g/L}$. The arsenic concentration in the duplicate effluent sample was 0.65 $\mu\text{g/L}$, which is less than the discharge limit. In the past there have been occasional slight exceedances of the arsenic discharge limit followed by a return to concentrations below the discharge limit. If, in the future, there is an increasing trend in the effluent arsenic concentration, then it is recommended that the polymer system be activated to provide more aggressive metals removal in the clarifier.

The on-site VOC Analyzer has been out of service since March 28. For more information on the condition of the VOC Analyzer please refer to Section 5.0.

The Peroxide Destruction Unit (PDU) reduced the approximately 6.5 mg/L of hydrogen peroxide in the UV-OX system effluent to a maximum of 3.0 mg/L in the treatment system effluent throughout the month of May 2011, as reported in the Field Sampling Data Logs in Attachment I.

3.0 GROUNDWATER AND SURFACE WATER LEVELS

Groundwater and surface water elevations were not measured in May 2011. The next quarterly water level measurement round is scheduled for July 2011.

4.0 SCHEDULED PREVENTIVE MAINTENANCE

Monthly maintenance of the UV-OX system, which included the replacement of the lamp in UV Reactor No. 3, was conducted on May 25. Scheduled maintenance activities were conducted in accordance with the *Operations and Maintenance Manual*. Documentation of all maintenance activities is maintained on-site. The Weekly Preventive Maintenance Logs and Preventive Maintenance Schedule are provided in Attachment VI.

5.0 UNSCHEDULED MAINTENANCE/ISSUE RESOLUTION

The unscheduled maintenance events, and associated issue resolutions, conducted at the Groveland Wells Site during May 2011 are listed below:

- The VOC Analyzer, which failed in March 2011 because of a burned out semiconductor on the valve control circuit board, remained out of service during May 2011. It was decided by the U.S. Environmental Protection Agency (EPA), in consultation with the Massachusetts Department of Environmental Protection (MassDEP), that replacement of the VOC Analyzer was not necessary. This determination was based on the fact that the treatment system had demonstrated reliable attainment of the discharge limits for volatile organic compounds throughout the 11-year operations period.
- Training of the operations staff for the MassDEP contractor (Weston and Sampson) was conducted throughout the month of May. This training included an overview of the treatment system, equipment-specific training, testing of all equipment for proper operation, plant operations and maintenance, review and use of maintenance forms, monthly sampling activities, daily plant readings, on-site analytical testing and techniques, site-specific health and safety training, and a complete check of the inventory of all treatment system equipment. During this time, a punch list was developed of items to be addressed prior to takeover of the facility by MassDEP. All items on the punch list were repaired, replaced, or otherwise addressed to the satisfaction of EPA and MassDEP prior to MassDEP takeover on June 1, 2011.
- The treatment system was shut down for replacement of the media in the multi-media filters and catalytic carbon in the PDU from April 18 until April 30. During backwashing of Filter F-1C on April 25, after installation of the new media and before the filter was returned to service, it was observed that some of the collection laterals in the bottom of the filter vessel were clogged with gravel media. The laterals were cleaned and F-1C was tested and backwashed again on May 6. After repairs to leaking underdrain piping, F-1C was returned to service on May 10. No plugging occurred in the collection laterals in F-1A and F-1B. Vessel F-1B was returned to service on April 30 and F-1A was returned to service on May 3.
- The exhaust fan for the compressor at EW-M3 was replaced on May 18.
- Light bulbs in the interior lighting of the treatment plant were replaced as necessary on May 17. Light bulbs, two ballast sets, and a light sensor were replaced in the exterior light fixtures on May 19.
- The control arm on the check valve adjacent to Influent Pump P-1B did not operate properly on May 16. On May 19, the check valve assembly was dismantled and the key that locks the position of the arm on the valve shaft was replaced, thereby returning the control arm and valve to proper operation.
- The plant was shut down manually at 7:30 AM on May 24 to reconnect the influent line from EW-S1, EW-S2, and EW-S3 to the treatment system. This pipeline was disconnected in July 2010, prior to startup of the ISTR system, in order to provide a piping connection for the liquids transferred from the ISTR system to the treatment plant. The line reconnection was completed, and the plant was returned to normal operation at 8:20 AM the same day.
- Piping above the PDU that transfers the treated water to Effluent Tank T-7 unit was observed to have a small leak resulting from corrosion. The leaking section of piping

was replaced along with adjacent pipe and fittings that were also showing signs of corrosion. These repairs were completed on May 25.

- A new submersible pneumatic pump was installed in Extraction Well EW-S5 on May 26. The pump house exhaust fan malfunctioned on the same day and was replaced on May 31.
- Spent Backwash Pump P-9B was replaced with a new pump on May 30.
- Three roll off containers containing spent media from the multimedia filters and dewatered sludge from the filter press were shipped off-site for disposal on May 31.

6.0 MATERIALS AND SPARE PARTS USAGE

Chemical use for the month of May 2011 was as follows:

- Hydrogen Peroxide 102 gallons
- Polymer 0 gallons

7.0 PERSONNEL

A summary of the facility staffing is provided in Attachment VII. Please note that the personnel working at or visiting the site for operation or deconstruction of the ISTR system (Task Order 37) are documented in the reports issued for that effort.

8.0 WEATHER

Precipitation and temperature data for May 2011 are provided in Attachment VIII.

9.0 PROJECTED ACTIVITIES FOR JUNE 2011

- Preparations for reactivation of the controls and pumps for EW-S1, EW-S2, and EW-S3.
- Determination of the final disposition of the VOC Analyzer, which is no longer operable and cannot be repaired.

If you have any questions concerning activities at the Groveland Wells Site, please contact me at 978-703-6025, or via email at dbaxter@nobisengineering.com.

Sincerely,

NOBIS ENGINEERING, INC.



Diane Baxter
Senior Project Manager

WESTON SOLUTIONS, INC.



Frederick R. Symmes, P.E.
Technical Manager

Attachment

c: File 80012/MA

ATTACHMENT I

FACILITY OPERATIONS LOGS

- Facility Operation Log
- Field Sampling Data
- Daily Report Log
- Sampler Comments Report
- Traffic and Chain of Custody Report

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	2-May-11	3-May-11	4-May-11	5-May-11	6-May-11
R. A. Ricard	Time	12:00	15:00	12:00	12:00	14:00
Centrifugal Extraction Well Pumps Flow and Level Data						
EW-S1	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
EW-S2	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
EW-S3	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
EW-S4	gpm	41	41	41	41	41
Level	ft	34.00	33.82	33.92	34.15	34.00
Total	gal	N/A	N/A	N/A	N/A	N/A
FCV	%	Manual	Manual	Manual	Manual	Manual
Hours	hr.	92,905.40	92,929.40	92,948.40	92,972.5	92,997.3
EW-M1	gpm	Off	Off	15	15	15
Level	ft	24.82	12.17	9.66	8.21	8.00
Total	gal	N/A	N/A	N/A	N/A	N/A
FCV	%	Manual	Manual	Manual	Manual	Manual
Hours	hr.	35,195.3	35,201.9	35,221.0	35,245.0	35,269.9
EW-M2	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
G1	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
G2	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	2-May-11	3-May-11	4-May-11	5-May-11	6-May-11
R. A. Ricard	Time	12:00	15:00	12:00	12:00	14:00
Pneumatic Extraction Well Pump Data						
EW-M3	On/Off	On	On	On	On	On
Counter reading	Cycles	790,742	793,103	795,992	799,042	802,629
Total Gallons pumped	Gallons	679,170	679,536	679,984	680,457	681,012
Estimated Flow	gpm	0.3	0.3	0.3	0.3	0.4
EW-S5	On/Off	OFF	OFF	OFF	OFF	OFF
Counter reading	Cycles					
Total Gallons pumped	Gallons					
Estimated Flow	gpm					
Plant Flow Measurements						
P-1A,B	gpm	41	41	53	54	56
Total	gal	39,317,800	39,378,300	39,442,400	39,519,100	39,606,100
	Total gal	463,774,325	463,834,825	463,898,925	463,975,625	464,062,625
UV-OX Influent (P-2A&B)	gpm	42	42	54	55	56
Total	gal	40,494,600	40,555,400	40,623,800	40,701,700	40,786,800
	Total gal	468,405,825	468,466,625	468,535,025	468,612,925	468,698,025
Effluent	gpm	44	44	55	57	58
Total	gal	38,705,200	38,761,000	38,828,700	38,908,800	38,987,000
	Total gal	465,516,325	465,572,125	465,639,825	465,719,925	465,798,125
Gallons Discharged Since Previous Reading	gal	-----	55,800	67,700	80,100	78,200
Process Forward Flow Pump Pressure and Speed						
Influent Equa. Pump	1A or 1B	A	A	A	A	A
Discharge Pressure	psi	8.0	8.0	12.0	7.0	8.0
Pump Speed	Hz	32.6	32.6	40.5	40.5	42.5
Pump Hours	hrs.	45,846.2	45,870.5	45,891.6	45,916.0	45,942.4
Filter Feed Pump	2A or 2B	A	A	A	A	A
Discharge Pressure	psi	12.0	1.0	12.0	12.0	13.0
Pump Speed	Hz	26.0	24.6	27.0	27.0	27.2
Pump Hours	hrs.	45,847.5	45,871.9	45,893.0	45,917.5	45,943.8
Sludge Management						
T-3 Operating Level	ft	CV-97	Full	Full	Full	CV-97
T-3 Sludge Level	ft	None	None	None	None	None
T-4 Sludge Level	ft	2.24	2.22			2.27
P-5A/B Cont. (T/BL/both)	T/BL/both	OFF	OFF	OFF	OFF	OFF
Recycle interval	sec/cycle					
P-5A	On/Off					
P-5B	On/Off					
T-4 to Forward Flow	Yes/No	No	No	No	No	No
Sludge Handling Comments & Clarifier Performance Observations:						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	2-May-11	3-May-11	4-May-11	5-May-11	6-May-11
R. A. Ricard	Time	12:00	15:00	12:00	12:00	14:00
Process Tank Level Measurements						
T-1 Influent	ft	6.04	7.31	5.19	5.22	6.66
T-2 Filter Feed	ft	2.52	2.52	2.52	2.52	4.00
T-7 Effluent	ft	12.21	12.07	12.18	12.10	12.24
Backwash Water Management						
T-6 Backwash Holding	ft	1.25	1.88	1.87	1.87	9.05
Operating Transfer Pump	P-9A or B	Off	Off	Off	Off	Off
Desired Return Rate	gpm	Off	Off	Off	Off	Off
Actual Strokes/minute	#/min.	Off	Off	Off	Off	Off
Gal/Stoke (A=.09 B=.43)	gal	Off	Off	Off	Off	Off
Actual Return Rate	gpm	Off	Off	Off	Off	Off
Backwash Water Handling Notes:						
Sand Filter Units						
F-1A IN	psi	Off	10	12	11	12
F-1A OUT	psi	Off	11	11	11	11
F-1A Flow	gpm	Off	0	0	0	0
F-1B IN	psi	10	9	10	11	12
F-1B OUT	psi	11	10	11	11	11
F-1B Flow	gpm	0	0	0	0	0
F-1C IN	psi	Off	Off	Off	Off	Off
F-1C OUT	psi	Off	Off	Off	Off	Off
F-1C Flow	gpm	Off	Off	Off	Off	Off
Sand Filter Backwash Notes & Frequencies						
Vapor Phase Carbon Adsorption Units						
VC-1A IN	in. Hg	0	0	0	0	0
VC-1A OUT	in. Hg	0	0	0	0	0
VC-1B IN	in. Hg	0	0	0	0	0
VC-1B OUT	in. Hg	0	0	0	0	0
Notes or Change out Data:						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)		Date	2-May-11	3-May-11	4-May-11	5-May-11	6-May-11
R. A. Ricard		Time	12:00	15:00	12:00	12:00	14:00
Filtrate or Supernatant Management							
T-5 Filtrate/Supernatant	ft		3.33	7.91	1.00	0.93	6.47
Operating Transfer Pump	P-6A or B		Off	Off	Off	Off	Off
Desired Return Rate	gpm		Off	Off	Off	Off	Off
Actual Strokes/minute	#/min.		Off	Off	Off	Off	Off
Gal/Stoke (A=.09 B=.43)	gal		Off	Off	Off	Off	Off
Actual Return Rate	gpm		Off	Off	Off	Off	Off
Filtrate Management Notes							
Ultraviolet Oxidation (Rayox)							
Inlet Water Pressure	psi		8.0	8.0	9.0	8.0	8.0
Outlet Water Pressure	psi		7.0	7.0	8.0	8.0	8.0
Flow Rate	gpm		42.5	54.0	54.2	54.9	56.5
Air supply pressure	psi		90	90	90	90	90
Target H ₂ O ₂ dose	mg/l		6.0	6.0	6.0	6.0	6.0
Reactor 1 Volts	volts		0	0	0	0	0
Reactor 1 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 1 Hours	hrs		144	144	144	144	144
Reactor 2 Volts	volts		2593	2595	2591	2586	2592
Reactor 2 Amps	amps		8.0	8.0	8.0	7.9	8.0
Reactor 2 Hours	hrs		1526	1550	1569	1593	1619
Reactor 3 Volts	volts		0	0	0	0	0
Reactor 3 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 3 Hours	hrs		2634	2634	2634	2634	2634
Reactor 4 Volts	volts		0	0	0	0	0
Reactor 4 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 4 Hours	hrs		696	696	696	696	696
Comments/Observations:							
Peroxide Destruction Unit							
Inlet Pressure	psi		7.0	7.0	8.0	8.0	8.0
Outlet Pressure	psi		3.0	3.0	4.0	4.0	4.0
Comments/Observations:							

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	2-May-11	3-May-11	4-May-11	5-May-11	6-May-11
R. A. Ricard	Time	12:00	15:00	12:00	12:00	14:00
H₂O₂						
T-8 Level	ft.	4.26	4.25	4.23	4.23	4.22
UV-Oxidation Chemical Feed - P-10A&B or P-171A&B						
Target Dose	mg/l	6	6	6	6	6
P-10A or 10B	A or B	B	B	B	B	B
Pump Stroke	No.	75	75	75	75	75
Discharge Pressure	PSI	15.0	15.0	15.0	20.0	18.0
Output Flow	ml/min	6.0	6.0	7.0	6.0	5.0
Pacing Multiplier	No.	0.25	0.25	0.25	0.25	0.25
Metals Precipitations Feed (Influent Equalization T-1) P-11A & B or P-177A & B						
Target Dose	mg/l	2	2	2	2	2
P-11A or 11B	A or B	B	B	B	B	B
Pump Stroke	No.	75	75	75	75	75
Discharge Pressure	PSI	20.0	20.0	20.0	30.0	25.0
Output Flow	ml/min	4.0	4.0	3.0	4.0	3.5
Pacing Multiplier	No.	0.45	0.45	0.45	0.45	0.45
Polymer						
Container Level	gal	OFF	OFF	OFF	OFF	OFF
Polymer Concentration	%					
Amount used	gal					
Actual dose	mg/l					
Pacing Multiplier	No.					
Dilution Water Rate	gph					
Polymer Stroke	#					
Floc. Mixer M-4 Speed	rpm					
Chemical Notes						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Field Sampling Summary**

Location	Date & Time	Iron (mg/L)	pH	Turbidity (NTU)	H ₂ O ₂ (mg/L)
Combined Influent (S1)	5/5/2011 11:50	1.04	6.4	1.80	N/A
Combined Influent (S1)					
Influent Equalization (S2)	5/5/2011 11:30	0.85	6.5	2.04	2.0*
Influent Equalization (S2)					
Influent Equalization (S2)					
Influent Equalization (S2)					
Clarifier Effluent (S4)	5/5/2011 11:15	0.68	6.7	1.52	2.2*
Filter Effluent A			N/A	N/A	N/A
Filter Effluent B			N/A	N/A	N/A
Filter Effluent C			N/A	N/A	N/A
Filter Effluent (S5)	5/5/2011 10:40	0.07	6.7	0.12	1.8*
UV-OX Influent (S6)	5/5/2011 10:05	0.02	6.8	0.07	8
UV-OX Influent (S6)					
UV-OX Influent (S6)					
UV-OX Eff. React. 1 (S7A)					
UV-OX Eff. React. 2 (S7B)					
UV-OX Eff. React. 3 (S7C)					
UV-OX Effluent (S7D)	5/5/2011 9:35	0.06	6.7	0.05	8
UV-OX Effluent (S7D)					
Peroxide Dest. Eff. (S8)	5/5/2011 9:15	0.03	6.8	0.07	2.00
Peroxide Dest. Eff. (S8)					
Peroxide Dest. Eff. (S8)					
Effluent (S9)	5/3/2011 14:45	0.06	6.3	0.08	2.2*
Effluent (S9)	5/4/2011 14:10	0.09	6.9	0.27	1.6*
Effluent (S9)	5/5/2011 8:55	0.03	6.6	0.08	1.2*
Effluent (S9)	5/6/2011 7:45	0.05	6.5	0.06	2.8*
Effluent (S9)	5/6/2011 9:50	---	---	---	2.0*
Effluent (S9)					
Clarifier Effluent					

* 0.2 Titration method used

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

1-May-11

Time	Comments
15:00	Fred Symmes and Bryce Fletcher at site working on Filter C - pressure cleaning of laterals.
20:00	Fred and Bryce left site.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

4-May-11

Time	Comments
7:15	Arrived at site, checked plant and preparing for monthly sampling activities.
7:30	Sample designated time for PE and Trip Blank samples. PE samples HG5851 (MA43X7) for ICP/AES mercury, IS5983 (MA43X8) for
	ICP/AES metals medium/low, MS03432 (MA43X9) for ICP/MS metals low modified analysis 2083.0, VT00343 (A43Y6) for CLP trace
	volatiles, A43Y5 (VLM0236) for CLP Volatiles, EWT1-05042011 (A43Y4) trip blank for trace volatiles.
8:00	Plant influent sampled for ICP/AES metals and CLP volatiles, A43Y0/A43Y1. MA43Y0/MA43Y1.
9:00	Plant effluent sampled for ICP/MS metals and CLP trace volatiles, A43Y2. MA43Y2/MA43Y3. No duplicate on the VOCs.
9:50	Scaffolding being moved.
10:00	Sludge being sampled.
10:30	Working on forms for sample shipment. Picking up Ice.
12:00	Daily readings.
12:30	Packing samples.
14:00	Dropping samples off at FedEx in Haverhill.
14:10	Checked effluent.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

6-May-11

Time	Comments
5:00	Arrived at site due to alarm for high floor sump. Valve at P-5 B left open and drained slowly to floor, completed work on P-5 B. Confirmed
	order for lighting and man lift. Continued work on minor leaks at filter C. Groveland power at site for checking for dig safe for removal of cap.
11:45	Purchased boxes at Staples for the shipment of the VOC analyzer for repair evaluation.
13:00	Mike Alessi at site to check on the cap removal. Backwashing Filter C in preparation for use. Dropped off Sentex unit at FedEx.
14:00	Weekly checks on the compressors 3 and 4 and process centrifugal pumps.
17:00	Left site

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)		Date	9-May-11	10-May-11	11-May-11	12-May-11	13-May-11
M. Gavin/B. Ricard		Time	12:00	12:00	12:00	12:00	12:00
Centrifugal Extraction Well Pumps Flow and Level Data							
EW-S1	gpm	OFF	OFF	OFF	OFF	OFF	OFF
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
EW-S2	gpm	OFF	OFF	OFF	OFF	OFF	OFF
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
EW-S3	gpm	OFF	OFF	OFF	OFF	OFF	OFF
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
EW-S4	gpm	41	41	41	41	41	41
Level	ft	33.73	33.78	33.71	33.72	33.65	
Total	gal	N/A	N/A	N/A	N/A	N/A	N/A
FCV	%	Manual	Manual	Manual	Manual	Manual	Manual
Hours	hr.	93,067.5	93,091.5	93,115.7	93,139.6	93,159.6	
EW-M1	gpm	15	15	15	15	51	
Level	ft	7.86	7.90	7.39	7.72	7.66	
Total	gal	N/A	N/A	N/A	N/A	N/A	N/A
FCV	%	Manual	Manual	Manual	Manual	Manual	Manual
Hours	hr.	35,340.0	35,364.1	35,388.3	35,412.1	35,342.1	
EW-M2	gpm	OFF	OFF	OFF	OFF	OFF	OFF
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
G1	gpm	OFF	OFF	OFF	OFF	OFF	OFF
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
G2	gpm	OFF	OFF	OFF	OFF	OFF	OFF
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	9-May-11	10-May-11	11-May-11	12-May-11	13-May-11
M. Gavin/B. Ricard	Time	12:00	12:00	12:00	12:00	12:00
Pneumatic Extraction Well Pump Data						
EW-M3	On/Off	On	On	On	On	On
Counter reading	Cycles	812,853	816,571	819,775	823,622	826,545
Total Gallons pumped	Gallons	682,597	683,174	683,670	684,266	684,719
Estimated Flow	gpm	0.3	0.4	0.3	0.4	0.3
EW-S5	On/Off	OFF	OFF	OFF	OFF	OFF
Counter reading	Cycles					
Total Gallons pumped	Gallons					
Estimated Flow	gpm					
Plant Flow Measurements						
P-1A,B	gpm	55	55	63	56	55
Total	gal	39,836,300	39,916,600	39,996,400	40,079,400	40,145,200
	Total gal	464,292,825	464,373,125	464,452,925	464,535,925	464,601,725
UV-OX Influent (P-2A&B)	gpm	55	63	64	57	55
Total	gal	41,022,700	41,105,100	41,187,900	41,274,400	41,342,200
	Total gal	468,933,925	469,016,325	469,099,125	469,185,625	469,253,425
Effluent	gpm	58	63	66	59	57
Total	gal	39,225,600	39,309,700	39,393,700	39,482,800	39,551,300
	Total gal	466,036,725	466,120,825	466,204,825	466,293,925	466,362,425
Gallons Discharged Since Previous Reading	gal		84,100	84,000	89,100	68,500
Process Forward Flow Pump Pressure and Speed						
Influent Equa. Pump	1A or 1B	A	B	B	B	B
Discharge Pressure	psi	8.0	8.0	8.0	8.0	8.0
Pump Speed	Hz	43.4	40.1	40.0	40.0	42.1
Pump Hours	hrs.	46,013.4	46,015.9	49,159.1	49,183.3	49,203.7
Filter Feed Pump	2A or 2B	B	B	B	B	B
Discharge Pressure	psi	13.0	12.0	13.0	12.0	12.0
Pump Speed	Hz	27.8	31.0	30.8	28.4	30.0
Pump Hours	hrs.	46,014.9	46,017.3	49,138.9	49,163.1	49,183.4
Sludge Management						
T-3 Operating Level	ft	Full	Full	Full	CV-97	CV-97+
T-3 Sludge Level	ft	None	None	None	None	None
T-4 Sludge Level	ft	2.25	2.24	2.24	2.23	2.23
P-5A/B Cont. (T/BL/both)	T/BL/both	OFF	OFF	OFF	OFF	OFF
Recycle interval	sec/cycle					
P-5A	On/Off					
P-5B	On/Off					
T-4 to Forward Flow	Yes/No	No	No	No	No	No
Sludge Handling Comments & Clarifier Performance Observations:						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	9-May-11	10-May-11	11-May-11	12-May-11	13-May-11
M. Gavin/B. Ricard	Time	12:00	12:00	12:00	12:00	12:00
Process Tank Level Measurements						
T-1 Influent	ft	5.28	4.46	6.31	4.85	3.77
T-2 Filter Feed	ft	4.00	4.06	4.00	4.00	4.00
T-7 Effluent	ft	12.25	12.24	12.23	12.22	12.11
Backwash Water Management						
T-6 Backwash Holding	ft	9.04	9.04	6.03	1.25	1.25
Operating Transfer Pump	P-9A or B	Off	Off	Off	Off	Off
Desired Return Rate	gpm	Off	Off	Off	Off	Off
Actual Strokes/minute	#/min.	Off	Off	Off	Off	Off
Gal/Stoke (A=.09 B=.43)	gal	Off	Off	Off	Off	Off
Actual Return Rate	gpm	Off	Off	Off	Off	Off
Backwash Water Handling Notes:						
Sand Filter Units						
F-1A IN	psi	13	13	14	13	13
F-1A OUT	psi	11	12	13	12	12
F-1A Flow	gpm	0	0	0	0	0
F-1B IN	psi	12	13	14	14	12
F-1B OUT	psi	11	11	12	12	12
F-1B Flow	gpm	0	0	0	0	0
F-1C IN	psi	Off	Off	12	12	12
F-1C OUT	psi	Off	Off	Broken	11	11
F-1C Flow	gpm	Off	Off	0	0	0
Sand Filter Backwash Notes & Frequencies						
Vapor Phase Carbon Adsorption Units						
VC-1A IN	in. Hg	0	0	0	0	0
VC-1A OUT	in. Hg	0	0	0	0	0
VC-1B IN	in. Hg	0	0	0	0	0
VC-1B OUT	in. Hg	0	0	0	0	0
Notes or Change out Data:						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)		Date	9-May-11	10-May-11	11-May-11	12-May-11	13-May-11
M. Gavin/B. Ricard		Time	12:00	12:00	12:00	12:00	12:00
Filtrate or Supernatant Management							
T-5 Filtrate/Supernatant	ft		6.46	2.66	1.50	1.50	1.44
Operating Transfer Pump	P-6A or B		Off	Off	Off	Off	Off
Desired Return Rate	gpm		Off	Off	Off	Off	Off
Actual Strokes/minute	#/min.		Off	Off	Off	Off	Off
Gal/Stoke (A=.09 B=.43)	gal		Off	Off	Off	Off	Off
Actual Return Rate	gpm		Off	Off	Off	Off	Off
Filtrate Management Notes							
Ultraviolet Oxidation (Rayox)							
Inlet Water Pressure	psi		8.0	8.0	10.0	10.0	10.0
Outlet Water Pressure	psi		8.0	10.0	9.0	8.0	9.0
Flow Rate	gpm		55.6	62.6	63.5	56.3	56.4
Air supply pressure	psi		90	90	90	90	90
Target H ₂ O ₂ dose	mg/l		6.0	6.0	6.0	6.0	6.0
Reactor 1 Volts	volts		0	0	0	0	0
Reactor 1 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 1 Hours	hrs		144	144	144	144	144
Reactor 2 Volts	volts		2591	2586	2591	2587	2590
Reactor 2 Amps	amps		7.9	7.9	7.9	7.9	7.9
Reactor 2 Hours	hrs		1689	1713	1737	1761	1781
Reactor 3 Volts	volts		0	0	0	0	0
Reactor 3 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 3 Hours	hrs		2634	2634	2634	2634	2634
Reactor 4 Volts	volts		0	0	0	0	0
Reactor 4 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 4 Hours	hrs		696	696	696	696	696
Comments/Observations:							
Peroxide Destruction Unit							
Inlet Pressure	psi		8.0	8.0	10.0	9.0	10.0
Outlet Pressure	psi		3.0	4.0	5.0	4.0	4.0
Comments/Observations:							

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	9-May-11	10-May-11	11-May-11	12-May-11	13-May-11
M. Gavin/B. Ricard	Time	12:00	12:00	12:00	12:00	12:00
H₂O₂						
T-8 Level	ft.	4.19	4.18	4.18	4.17	4.17
UV-Oxidation Chemical Feed - P-10A&B or P-171A&B						
Target Dose	mg/l	6	6	6	6	6
P-10A or 10B	A or B	B	B	B	B	B
Pump Stroke	No.	75	75	75	75	75
Discharge Pressure	PSI	17.0	10.0	10.0	14.0	15.0
Output Flow	ml/min	5.0	5.0	5.0	5.0	5.0
Pacing Multiplier	No.	0.25	0.25	0.25	0.25	0.25
Metals Precipitations Feed (Influent Equalization T-1) P-11A & B or P-177A & B						
Target Dose	mg/l	2	2	2	2	2
P-11A or 11B	A or B	A	B	B	B	B
Pump Stroke	No.	75	75	75	75	75
Discharge Pressure	PSI	20.0	25.0	27.0	14.0	25.0
Output Flow	ml/min	4.0	3.5	3.0	3.5	3.5
Pacing Multiplier	No.	0.45	0.45	0.45	0.45	0.45
Polymer						
Container Level	gal	OFF	OFF	OFF	OFF	OFF
Polymer Concentration	%					
Amount used	gal					
Actual dose	mg/l					
Pacing Multiplier	No.					
Dilution Water Rate	gph					
Polymer Stroke	#					
Floc. Mixer M-4 Speed	rpm					
Chemical Notes						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Field Sampling Summary**

Location	Date & Time	Iron (mg/L)	pH	Turbidity (NTU)	H ₂ O ₂ (mg/L)
Combined Influent (S1)	5/11/2011 9:30	0.74	6.4	1.08	N/A
Combined Influent (S1)					
Influent Equalization (S2)	5/11/2011 9:20	0.69	6.7	1.75	2.2*
Influent Equalization (S2)					
Influent Equalization (S2)					
Influent Equalization (S2)					
Clarifier Effluent (S4)	5/11/2011 9:10	0.57	6.5	1.34	1.9*
Filter Effluent A			N/A	N/A	N/A
Filter Effluent B			N/A	N/A	N/A
Filter Effluent C			N/A	N/A	N/A
Filter Effluent (S5)	5/11/2011 8:55	0.03	6.7	0.06	0.4*
UV-OX Influent (S6)	5/11/2011 8:45	0.03	6.7	0.06	8
UV-OX Influent (S6)					
UV-OX Influent (S6)					
UV-OX Eff. React. 1 (S7A)					
UV-OX Eff. React. 2 (S7B)					
UV-OX Eff. React. 3 (S7C)					
UV-OX Effluent (S7D)	5/11/2011 8:05	0.05	6.7	0.07	5
UV-OX Effluent (S7D)					
Peroxide Dest. Eff. (S8)	5/11/2011 7:50	0.05	6.7	0.05	2.6*
Peroxide Dest. Eff. (S8)					
Peroxide Dest. Eff. (S8)					
Effluent (S9)	5/9/2011 10:15	0.05	6.8	0.04	2.6*
Effluent (S9)	5/10/2011 9:15	0.04	6.4	0.06	3.0*
Effluent (S9)	5/11/2010 7:40	0.04	6.5	0.03	3.0*
Effluent (S9)	5/12/2011 10:00	0.02	6.5	0.06	2.6*
Effluent (S9)	5/13/2011 11:15	0.03	6.5	0.07	2.0*
Effluent (S9)					
Clarifier Effluent					

* 0.2 Titration method used

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

9-May-11

Time	Comments
7:00	Arrived at site, checked mail.
7:30	H&S inspection with Mike and Dave from Weston and Sampson.
9:00	Inspection completed.
9:45	Diane Baxter called regarding plant operations, bulb replacement and meeting.
10:00	Expenses.
10:15	Answering questions to Lauren on filter start ups, PPE in roll offs. Checked effluent.
11:00	Monthly maintenance on the Process Centrifugal Pumps.
12:00	Daily Readings.
12:30	Checked well field #1.
13:00	Left to purchase supplies for piping of Filter C.
14:30	Pumping water from drums in facility from well drilling, cleaning P-5 A/B, and sump. Also switched from A to B series pumps.
15:15	Checked on wells EW-S4,S5 and S1. Temperature in EW-S1 was 162 degrees Fahrenheit.
17:30	Leaving for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

10-May-11

Time	Comments
6:15	Arrived at site, preparing for weekly meeting.
7:40	Draining tank T-5 to plant process forward flow.
9:15	Checked effluent.
10:00	Weekly progress meeting.
11:30	Meeting completed.
12:00	Daily readings. Filter C online.
12:40	Checked lower well field.
13:45	Plant inventory check and review.
17:30	Inventory completed, leaving for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

11-May-11

Time	Comments
7:00	Arrived at site, checking mail and time sheet.
7:40	Weekly water quality checks started.
9:30	Completed checks. Weekly checks on HVAC equipment showers and sump pumps.
12:00	Daily readings.
12:30	Continuing with training. Checked compressors, peroxide feed pumps, vapor phase carbon system and sump pumps.
17:00	Leaving for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

13:May 11

Time	Comments
5:00	Arrived at site, updating and checked logs.
7:00	Continued with training
11:15	Checked effluent.
12:00	Daily readings.
13:00	Weekly checks on diaphragm pumps, mixers, HVAC equipment and emergency showers.
15:00	Leaving for day.

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	16-May-11	17-May-11	18-May-11	19-May-11	20-May-11
M Gavin/B Ricard	Time	12:00	12:00	12:00	12:00	12:00
Centrifugal Extraction Well Pumps Flow and Level Data						
EW-S1	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
EW-S2	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
EW-S3	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
EW-S4	gpm	41	41	41	41	41
Level	ft	33.74	33.77	33.72	33.84	33.69
Total	gal	N/A	N/A	N/A	N/A	N/A
FCV	%	Manual	Manual	Manual	Manual	Manual
Hours	hr.	93,235.4	93,259.4	93,283.5	93,307.5	93,331.5
EW-M1	gpm	15	15	15	15	15
Level	ft	7.49	7.41	8.54	8.28	8.36
Total	gal	N/A	N/A	N/A	N/A	N/A
FCV	%	Manual	Manual	Manual	Manual	Manual
Hours	hr.	35,508.0	35,531.9	35,556.1	35,580.1	35,604.1
EW-M2	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
G1	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
G2	gpm	OFF	OFF	OFF	OFF	OFF
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)		Date	16-May-11	17-May-11	18-May-11	19-May-11	20-May-11
M Gavin/B Ricard		Time	12:00	12:00	12:00	12:00	12:00
Pneumatic Extraction Well Pump Data							
EW-M3	On/Off	On	On	On	On	On	On
Counter reading	Cycles	836,547	839,656	842,555	845,444	850,715	
Total Gallons pumped	Gallons	686,270	686,752	687,201	687,649	688,466	
Estimated Flow	gpm	0.3	0.3	0.3	0.3	0.6	
EW-S5	On/Off	OFF	OFF	OFF	OFF	OFF	OFF
Counter reading	Cycles						
Total Gallons pumped	Gallons						
Estimated Flow	gpm						
Plant Flow Measurements							
P-1A,B	gpm	55	55	57	55	51	
Total	gal	40,394,000	40,472,700	40,550,800	40,629,300	40,708,700	
	Total gal	464,850,525	464,929,225	465,007,325	465,085,825	465,165,225	
UV-OX Influent (P-2A&B)	gpm	56	56	58	56	50	
Total	gal	41,599,400	41,678,700	41,760,000	41,840,100	41,920,700	
	Total gal	469,510,625	469,589,925	469,671,225	469,751,325	469,831,925	
Effluent	gpm	58	58	61	60	56	
Total	gal	39,810,600	39,892,300	39,974,700	40,056,400	40,131,400	
	Total gal	466,621,725	466,703,425	466,785,825	466,867,525	466,942,525	
Gallons Discharged Since Previous Reading	gal		81,700	82,400	81,700	75,000	
Process Forward Flow Pump Pressure and Speed							
Influent Equa. Pump	1A or 1B	B	B	A	A	A	
Discharge Pressure	psi	8.0	8.0	8.0	8.0	7.0	
Pump Speed	Hz	40.0	40.1	40.1	40.1	43.3	
Pump Hours	hrs.	49,281.0	49,305.2	46,018.0	46,042.4	46,066.8	
Filter Feed Pump	2A or 2B	B	B	B	B	B	
Discharge Pressure	psi	13.0	13.0	12.0	12.0	12.0	
Pump Speed	Hz	30.4	30.5	30.5	30.3	29.6	
Pump Hours	hrs.	49,260.7	49,285.0	49,309.4	49,333.7	49,358.2	
Sludge Management							
T-3 Operating Level	ft	CV-97+	CV-97+	CV-97	CV-97	CV-97	
T-3 Sludge Level	ft	None	None	None	None	None	
T-4 Sludge Level	ft	2.23	2.22	2.22	2.23	2.23	
P-5A/B Cont. (T/BL/both)	T/BL/both	OFF	OFF	OFF	OFF	OFF	
Recycle interval	sec/cycle						
P-5A	On/Off						
P-5B	On/Off						
T-4 to Forward Flow	Yes/No	No	No	No	No	No	
Sludge Handling Comments & Clarifier Performance Observations:							

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	16-May-11	17-May-11	18-May-11	19-May-11	20-May-11
M Gavin/B Ricard	Time	12:00	12:00	12:00	12:00	12:00
Process Tank Level Measurements						
T-1 Influent	ft	3.75	3.71	2.87	3.08	2.98
T-2 Filter Feed	ft	4.00	4.00	4.00	4.00	4.00
T-7 Effluent	ft	12.02	12.21	12.20	12.22	12.19
Backwash Water Management						
T-6 Backwash Holding	ft	1.25	1.25	1.24	1.25	7.00
Operating Transfer Pump	P-9A or B	Off	Off	Off	Off	Off
Desired Return Rate	gpm	Off	Off	Off	Off	Off
Actual Strokes/minute	#/min.	Off	Off	Off	Off	Off
Gal/Stoke (A=.09 B=.43)	gal	Off	Off	Off	Off	Off
Actual Return Rate	gpm	Off	Off	Off	Off	Off
Backwash Water Handling Notes:						
Sand Filter Units						
F-1A IN	psi	13	14	14	13	13
F-1A OUT	psi	12	12	12	12	12
F-1A Flow	gpm	0	0	0	0	0
F-1B IN	psi	13	14	14	14	13
F-1B OUT	psi	12	12	12	12	12
F-1B Flow	gpm	0	0	0	0	0
F-1C IN	psi	13	13	14	13	12
F-1C OUT	psi	12	12	12	12	12
F-1C Flow	gpm	0	0	0	0	0
Sand Filter Backwash Notes & Frequencies						
Vapor Phase Carbon Adsorption Units						
VC-1A IN	in. Hg	0	0	0	0	0
VC-1A OUT	in. Hg	0	0	0	0	0
VC-1B IN	in. Hg	0	0	0	0	0
VC-1B OUT	in. Hg	0	0	0	0	0
Notes or Change out Data:						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)		Date	16-May-11	17-May-11	18-May-11	19-May-11	20-May-11
M Gavin/B Ricard		Time	12:00	12:00	12:00	12:00	12:00
Filtrate or Supernatant Management							
T-5 Filtrate/Supernatant	ft		1.48	1.49	1.49	1.50	1.50
Operating Transfer Pump	P-6A or B		Off	Off	Off	Off	Off
Desired Return Rate	gpm		Off	Off	Off	Off	Off
Actual Strokes/minute	#/min.		Off	Off	Off	Off	Off
Gal/Stoke (A=.09 B=.43)	gal		Off	Off	Off	Off	Off
Actual Return Rate	gpm		Off	Off	Off	Off	Off
Filtrate Management Notes							
Ultraviolet Oxidation (Rayox)							
Inlet Water Pressure	psi		10.0	10.0	10.0	10.0	10.0
Outlet Water Pressure	psi		10.0	9.0	9.0	9.0	8.0
Flow Rate	gpm		55.8	55.6	58.1	55.4	51.1
Air supply pressure	psi		90	90	90	90	90
Target H ₂ O ₂ dose	mg/l		6.0	6.0	6.0	6.0	6.0
Reactor 1 Volts	volts		0	0	0	0	0
Reactor 1 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 1 Hours	hrs		144	144	144	144	144
Reactor 2 Volts	volts		2572	2570	2570	2570	2571
Reactor 2 Amps	amps		7.5	7.5	7.5	7.5	7.5
Reactor 2 Hours	hrs		1857	1881	1905	1929	1953
Reactor 3 Volts	volts		0	0	0	0	0
Reactor 3 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 3 Hours	hrs		2634	2634	2634	2634	2634
Reactor 4 Volts	volts		0	0	0	0	0
Reactor 4 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 4 Hours	hrs		696	696	696	696	696
Comments/Observations:							
Peroxide Destruction Unit							
Inlet Pressure	psi		10.0	10.0	10.0	10.0	10.0
Outlet Pressure	psi		5.0	5.0	4.0	5.0	5.0
Comments/Observations:							

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	16-May-11	17-May-11	18-May-11	19-May-11	20-May-11
M Gavin/B Ricard	Time	12:00	12:00	12:00	12:00	12:00
H₂O₂						
T-8 Level	ft.	4.14	4.13	4.12	4.11	4.10
UV-Oxidation Chemical Feed - P-10A&B or P-171A&B						
Target Dose	mg/l	6	6	6	6	6
P-10A or 10B	A or B	B	B	B	B	B
Pump Stroke	No.	75	75	75	75	75
Discharge Pressure	PSI	11.0	10.0	15.0	15.0	15.0
Output Flow	ml/min	5.0	5.0	4.0	4.0	5.0
Pacing Multiplier	No.	0.25	0.25	0.25	0.25	0.25
Metals Precipitations Feed (Influent Equalization T-1) P-11A & B or P-177A & B						
Target Dose	mg/l	2	2	2	2	2
P-11A or 11B	A or B	B	B	B	B	B
Pump Stroke	No.	75	75	75	75	75
Discharge Pressure	PSI	25.0	24.0	25.0	25.0	25.0
Output Flow	ml/min	3.5	3.5	3.5	3.5	3.5
Pacing Multiplier	No.	0.45	0.45	0.45	0.45	0.45
Polymer						
Container Level	gal	OFF	OFF	OFF	OFF	OFF
Polymer Concentration	%					
Amount used	gal					
Actual dose	mg/l					
Pacing Multiplier	No.					
Dilution Water Rate	gph					
Polymer Stroke	#					
Floc. Mixer M-4 Speed	rpm					
Chemical Notes						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Field Sampling Summary**

Location	Date & Time	Iron (mg/L)	pH	Turbidity (NTU)	H ₂ O ₂ (mg/L)
Combined Influent (S1)	5/20/2011 13:35	2.30	6.5	1.75	N/A
Combined Influent (S1)					
Influent Equalization (S2)	5/20/2011 13:30	1.50	1.5	1.00	1.8*
Influent Equalization (S2)					
Influent Equalization (S2)					
Influent Equalization (S2)					
Influent Equalization (S2)					
Clarifier Effluent (S4)	5/20/2011 12:00	0.88	6.7	1.00	3.0*
Filter Effluent A			N/A	N/A	N/A
Filter Effluent B			N/A	N/A	N/A
Filter Effluent C			N/A	N/A	N/A
Filter Effluent (S5)	5/20/2011 11:50	0.01	6.7	0.06	1.4*
UV-OX Influent (S6)	5/20/2011 11:40	0.01	6.8	0.11	7
UV-OX Influent (S6)					
UV-OX Influent (S6)					
UV-OX Eff. React. 1 (S7A)					
UV-OX Eff. React. 2 (S7B)					
UV-OX Eff. React. 3 (S7C)					
UV-OX Effluent (S7D)	5/20/2011 11:25	0.04	6.7	0.06	6
UV-OX Effluent (S7D)					
Peroxide Dest. Eff. (S8)	5/20/2011 11:05	0.02	6.7	0.12	2.6*
Peroxide Dest. Eff. (S8)					
Peroxide Dest. Eff. (S8)					
Effluent (S9)	5/16/2011 9:10	0.02	6.5	0.07	2.0*
Effluent (S9)	5/17/2011 13:35	0.02	6.3	0.17	2.0*
Effluent (S9)	5/18/2011 12:15	0.02	6.4	0.08	2.0*
Effluent (S9)	5/19/2011 12:15	0.02	6.5	0.07	1.8*
Effluent (S9)	5/20/2011 10:40	0.01	6.8	0.13	3.0*
Effluent (S9)					
Clarifier Effluent					

* 0.2 Titration method used

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

16-May-11

Time	Comments
6:00	Arrived at site, Updating logs from April.
7:00	Man lift arrived, checked lighting outside which has 250 Watt bulb. Ordered at Grainger's for pick up at 9 am tomorrow.
8:00	Working on Weston materials to be removed from site.
8:30	Information sent to Fred.
9:00	Mike from East Coast at site, discussed mowing of lawn. Checked effluent.
9:30	Discussed plant operations with Lauren Soos.
9:50	Lauren Soos called for temperature reading on EW-S1.
10:00	Checked temperature at EW-S1. 159 degrees F.
11:00	Conference call for camera from AIT.
12:00	Daily readings.
12:15	Left to purchase parts for upper piping on PDU.
14:00	Working on exhaust fan at EW-M3.
17:00	Justin left for day.
18:45	Leaving for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

17-May-11

Time	Comments
6:30	Arrived at site.
7:00	Continuing with training.
10:00	Weekly progress meeting.
11:30	Meeting completed.
12:00	Daily readings.
12:30	Weekly checks on well fields. Continuing work on punch list items.
13:35	Checked effluent.
14:00	Weekly checks on the UV oxidation equipment.
19:00	Leaving for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

18-May-11

Time	Comments
6:00	Arrived at site.
7:30	Volvo at site with smaller lift, did not work reaching final light fixture.
8:30	Working on PDU replacement piping.
9:00	Completed M-3 fan equipment replacement.
9:30	Replaced handle at EW-G2.
9:55	Working on check valve at P-1B. Switched to pump P-1A.
12:00	Daily readings and checked effluent.
12:30	Continuing work on P-1B.
14:15	Contacted Daniels Electric about exterior lightings. Will work on it tomorrow.
14:45	Weekly checks on process centrifugal pumps and diaphragm pumps.
16:00	Leaving for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

19-May-11

Time	Comments
6:30	Arrived at site.
7:00	TerraTherm at site.
8:00	Daniels Electric at site working on exterior light fixtures which need 2 ballast sets and a new light sensor.
9:45	Left to purchase gasket materials for P-1B check valve.
10:45	Returned to site.
11:30	Left to pick up bolts for P-1B check valve.
12:00	Daily readings and checked effluent.
12:30	Rebuilding check valve assembly.
12:40	Fred called with operation questions.
12:50	Sprayed bolts on PDU with penetrating oil in preparation of removal of corroded piping.
13:00	Expenses.
14:00	Updating logs. Justin at site working on cleaning facility.
14:45	Weekly checks on vapor phase carbon, sump pumps, clarifier, and polymer system.
16:15	Weekly checks on peroxide feed equipment and compressors 1 and 2.
17:15	Weekly checks on compressors 3 and 4.
18:00	Leaving for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

20-May-11

Time	Comments
7:00	Arrived at site.
9:00	Discussed plant electrical situation with Nick Mattioni.
10:30	Starting weekly process water quality checks.
11:05	Ordered new calibration standard from HF Scientific, Inc.
12:00	Daily readings
13:35	Completed weekly water quality checks.
14:15	Weekly checks on HVAC equipment and emergency showers.
15:30	Weekly checks on the peroxide feed equipment and the process mixers.
18:00	Leaving for day.

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)		Date	23-May-11	24-May-11	25-May-11	26-May-11	27-May-11
R. A. Ricard		Time	12:00	15:00	14:00	14:00	13:00
Centrifugal Extraction Well Pumps Flow and Level Data							
EW-S1	gpm	OFF	OFF	OFF	OFF	OFF	OFF
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
EW-S2	gpm	OFF	OFF	OFF	OFF	OFF	OFF
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
EW-S3	gpm	OFF	OFF	OFF	OFF	OFF	OFF
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
EW-S4	gpm	40	40	40	40	40	
Level	ft	33.61	33.52	34.43	33.71	33.59	
Total	gal	N/A	N/A	N/A	N/A	N/A	
FCV	%	Manual	Manual	Manual	Manual	Manual	
Hours	hr.	93,403.2	93,429.2	93,446.0	93,469.8	93,492.7	
EW-M1	gpm	15	15	15	15	15	
Level	ft	7.59	7.61	8.20	7.75	7.74	
Total	gal	N/A	N/A	N/A	N/A	N/A	
FCV	%	Manual	Manual	Manual	Manual	Manual	
Hours	hr.	35,675.8	35,701.8	35,718.6	35,742.4	35,765.3	
EW-M2	gpm	OFF	OFF	OFF	OFF	OFF	
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
G1	gpm	OFF	OFF	OFF	OFF	OFF	
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						
G2	gpm	OFF	OFF	OFF	OFF	OFF	
Level	ft						
Total	gal						
FCV	%						
Hours	hr.						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)		Date	23-May-11	24-May-11	25-May-11	26-May-11	27-May-11
R. A. Ricard		Time	12:00	15:00	14:00	14:00	13:00
Pneumatic Extraction Well Pump Data							
EW-M3	On/Off	On	On	On	On	On	On
Counter reading	Cycles	861,399	864,769	868,260	872,140	876,025	
Total Gallons pumped	Gallons	690,122	690,644	691,185	691,787	692,389	
Estimated Flow	gpm	0.4	0.4	0.4	0.4	0.4	
EW-S5	On/Off	OFF	OFF	OFF	OFF	OFF	OFF
Counter reading	Cycles						
Total Gallons pumped	Gallons						
Estimated Flow	gpm						
Plant Flow Measurements							
P-1A,B	gpm	55	57	56	55	55	
Total	gal	40,945,800	41,036,400	41,101,300	41,181,300	41,258,300	
	Total gal	465,402,325	465,492,925	465,557,825	465,637,825	465,714,825	
UV-OX Influent (P-2A&B)	gpm	56	59	57	56	56	
Total	gal	42,161,500	42,252,300	42,317,400	42,398,400	42,477,100	
	Total gal	470,072,725	470,163,525	470,228,625	470,309,625	470,388,325	
Effluent	gpm	59	62	58	58	57	
Total	gal	40,373,300	40,463,300	40,522,200	40,605,100	40,685,500	
	Total gal	467,184,425	467,274,425	467,333,325	467,416,225	467,496,625	
Gallons Discharged Since Previous Reading	gal		90,000	58,900	82,900	80,400	
Process Forward Flow Pump Pressure and Speed							
Influent Equa. Pump	1A or 1B	A	A	B	B	B	
Discharge Pressure	psi	7.0	8.0	8.0	9.0	8.0	
Pump Speed	Hz	40.1	43.3	40.4	40.5	40.6	
Pump Hours	hrs.	46,139.8	46,167.1	49,328.2	49,352.6	49,376.0	
Filter Feed Pump	2A or 2B	B	B	B	B	B	
Discharge Pressure	psi	12.0	13.0	12.0	12.0	12.0	
Pump Speed	Hz						
Pump Hours	hrs.	49,431.1	49,458.4	49,478.1	49,502.5	49,526.0	
Sludge Management							
T-3 Operating Level	ft	CV-97+	CV-97+	CV-97+	CV-97+	CV-97+	
T-3 Sludge Level	ft	None	None	None	None	None	
T-4 Sludge Level	ft	2.22	2.23	2.23	2.22	2.23	
P-5A/B Cont. (T/BL/both)	T/BL/both	OFF	OFF	OFF	OFF	OFF	
Recycle interval	sec/cycle						
P-5A	On/Off						
P-5B	On/Off						
T-4 to Forward Flow	Yes/No	No	No	No	No	No	
Sludge Handling Comments & Clarifier Performance Observations:							

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	23-May-11	24-May-11	25-May-11	26-May-11	27-May-11
R. A. Ricard	Time	12:00	15:00	14:00	14:00	13:00
Process Tank Level Measurements						
T-1 Influent	ft	4.86	4.68	5.03	4.48	4.64
T-2 Filter Feed	ft	4.00	4.00	4.00	4.00	4.00
T-7 Effluent	ft	12.22	12.21	12.22	12.23	12.23
Backwash Water Management						
T-6 Backwash Holding	ft	11.94	11.93	11.94	11.94	11.94
Operating Transfer Pump	P-9A or B	Off	Off	Off	Off	Off
Desired Return Rate	gpm	Off	Off	Off	Off	Off
Actual Strokes/minute	#/min.	Off	Off	Off	Off	Off
Gal/Stoke (A=.09 B=.43)	gal	Off	Off	Off	Off	Off
Actual Return Rate	gpm	Off	Off	Off	Off	Off
Backwash Water Handling Notes:						
Sand Filter Units						
F-1A IN	psi	14	15	13	13	12
F-1A OUT	psi	12	13	12	12	12
F-1A Flow	gpm	0	0	0	0	0
F-1B IN	psi	13	14	14	13	12
F-1B OUT	psi	13	14	13	13	12
F-1B Flow	gpm	0	0	0	0	0
F-1C IN	psi	13	13	12	12	12
F-1C OUT	psi	12	13	12	12	12
F-1C Flow	gpm	0	0	0	0	0
Sand Filter Backwash Notes & Frequencies						
Vapor Phase Carbon Adsorption Units						
VC-1A IN	in. Hg	0	0	0	0	0
VC-1A OUT	in. Hg	0	0	0	0	0
VC-1B IN	in. Hg	0	0	0	0	0
VC-1B OUT	in. Hg	0	0	0	0	0
Notes or Change out Data:						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)		Date	23-May-11	24-May-11	25-May-11	26-May-11	27-May-11
R. A. Ricard		Time	12:00	15:00	14:00	14:00	13:00
Filtrate or Supernatant Management							
T-5 Filtrate/Supernatant	ft		1.44	1.50	1.50	1.48	6.35
Operating Transfer Pump	P-6A or B		Off	Off	Off	Off	Off
Desired Return Rate	gpm		Off	Off	Off	Off	Off
Actual Strokes/minute	#/min.		Off	Off	Off	Off	Off
Gal/Stoke (A=.09 B=.43)	gal		Off	Off	Off	Off	Off
Actual Return Rate	gpm		Off	Off	Off	Off	Off
Filtrate Management Notes							
Ultraviolet Oxidation (Rayox)							
Inlet Water Pressure	psi		5.0	5.0	5.0	4.0	5.0
Outlet Water Pressure	psi		4.0	5.0	10.0	9.0	4.0
Flow Rate	gpm		55.6	58.5	57.2	55.8	56.3
Air supply pressure	psi		90	90	90	90	90
Target H ₂ O ₂ dose	mg/l		6.0	6.0	6.0	6.0	6.0
Reactor 1 Volts	volts		0	0	0	0	0
Reactor 1 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 1 Hours	hrs		144	144	144	144	144
Reactor 2 Volts	volts		2577	2574	0	0	0
Reactor 2 Amps	amps		7.6	7.6	0.0	0.0	0.0
Reactor 2 Hours	hrs			2051	2067	2067	2067
Reactor 3 Volts	volts		0	0	2592	2602	2600
Reactor 3 Amps	amps		0.0	0.0	7.5	7.4	7.4
Reactor 3 Hours	hrs		2634	2634	0	24	47
Reactor 4 Volts	volts		0	0	0	0	0
Reactor 4 Amps	amps		0.0	0.0	0.0	0.0	0.0
Reactor 4 Hours	hrs		696	696	696	696	696
Comments/Observations:							
Peroxide Destruction Unit							
Inlet Pressure	psi		10.0	10.0	10.0	9.0	9.0
Outlet Pressure	psi		5.0	3.0	3.0	5.0	4.0
Comments/Observations:							

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)		Date	23-May-11	24-May-11	25-May-11	26-May-11	27-May-11
R. A. Ricard		Time	12:00	15:00	14:00	14:00	13:00
H₂O₂							
T-8 Level	ft.	4.08	4.06	4.05	4.04	4.03	
UV-Oxidation Chemical Feed - P-10A&B or P-171A&B							
Target Dose	mg/l	6	6	6	6	6	
P-10A or 10B	A or B	B	B	B	B	B	
Pump Stroke	No.	75	75	75	75	75	
Discharge Pressure	PSI	15.0	15.0	13.0	10.0	12.0	
Output Flow	ml/min	4.0	3.0	5.0	5.0	5.0	
Pacing Multiplier	No.	0.25	0.25	0.25	0.25	0.25	
Metals Precipitations Feed (Influent Equalization T-1) P-11A & B or P-177A & B							
Target Dose	mg/l	2	2	2	2	2	
P-11A or 11B	A or B	B	B	B	B	B	
Pump Stroke	No.	75	75	75	75	75	
Discharge Pressure	PSI	25.0	28.0	26.0	24.0	30.0	
Output Flow	ml/min	3.5	3.0	3.0	3.0	3.0	
Pacing Multiplier	No.	0.45	0.45	0.45	0.45	0.45	
Polymer							
Container Level	gal	OFF	OFF	OFF	OFF	OFF	
Polymer Concentration	%						
Amount used	gal						
Actual dose	mg/l						
Pacing Multiplier	No.						
Dilution Water Rate	gph						
Polymer Stroke	#						
Floc. Mixer M-4 Speed	rpm						
Chemical Notes							

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Field Sampling Summary**

Location	Date & Time	Iron (mg/L)	pH	Turbidity (NTU)	H ₂ O ₂ (mg/L)
Combined Influent (S1)	5/27/2011 14:50	1.22	6.5	2.11	N/A
Combined Influent (S1)					
Influent Equalization (S2)	5/27/2011 14:40	1.09	6.7	1.97	1.8*
Influent Equalization (S2)					
Influent Equalization (S2)					
Influent Equalization (S2)					
Clarifier Effluent (S4)	5/27/2011 14:30	1.08	6.7	1.99	2.2*
Filter Effluent A	5/27/2011 14:20	0.06	N/A	N/A	N/A
Filter Effluent B	5/27/2011 14:20	0.04	N/A	N/A	N/A
Filter Effluent C	5/27/2011 14:20	0.04	N/A	N/A	N/A
Filter Effluent (S5)	5/27/2011 14:10	0.04	6.8	0.06	0.2*
UV-OX Influent (S6)	5/27/2011 14:00	0.05	6.7	0.05	8
UV-OX Influent (S6)					
UV-OX Influent (S6)					
UV-OX Eff. React. 1 (S7A)					
UV-OX Eff. React. 2 (S7B)					
UV-OX Eff. React. 3 (S7C)					
UV-OX Effluent (S7D)	5/27/2011 13:50	0.05	6.8	0.07	7
UV-OX Effluent (S7D)					
Peroxide Dest. Eff. (S8)	5/27/2011 13:40	0.04	6.7	0.07	2.2*
Peroxide Dest. Eff. (S8)					
Peroxide Dest. Eff. (S8)					
Effluent (S9)	5/23/2011 15:20	0.04	6.9	0.17	2.6*
Effluent (S9)	5/24/2011 16:15	0.03	6.8	0.16	2.2*
Effluent (S9)	5/25/2011 14:20	0.02	6.7	0.17	2.4*
Effluent (S9)	5/26/2011 13:10	0.05	6.7	0.11	2.2*
Effluent (S9)	5/27/2011 13:30	0.02	6.7	0.09	2.0*
Effluent (S9)					
Clarifier Effluent					

* 0.2 Titration method used

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

23-May-11

Time	Comments
7:00	Arrived at site, checked well fields.
8:15	Weekly checks on the process centrifugal and diaphragm pumps.
10:00	M. Gavin at site, continuing with work on PDU piping repairs.
12:00	Daily readings.
12:30	Checked EW-M3.
13:00	Weekly checks on HVAC equipment and emergency showers.
15:20	Checked effluent.
15:45	Weekly checks on compressors 1 and 2.
17:30	Left for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

24-May-11

Time	Comments
7:00	Arrived on site. Preparing for meeting.
7:30	Shut down plant for removal of ISTR line from above S1, S2, S3 plant influent line.
8:20	Reattached plant influent line via valve. Restarted plant. Continued piping fabrication for above PDU unit.
9:00	David Wright from Weston and Sampson on site for meeting.
10:00	Meeting with Weston and Sampson, Weston Solutions, MassDEP, Nobis, & EPA. Completed pipe fabrication for above PDU unit. Cleaning
	back floor near Tank 8.
11:40	Meeting completed.
12:00	Tour with Weston and Sampson backup treatment plant operators.
13:00	Cleaning floor near UV and PDU units.
13:45	Began work on SOW for electrical work at Well Field 2.
15:00	Noticed condensate coming off of UV Unit. Daily readings.
15:15	Sent F. Symmes Draft SOW for electrical work.
15:20	Updated daily logs. Monthly maintenance on the filter press.
16:15	Checked effluent.
17:00	Leaving for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

25-May-11

Time	Comments
7:15	Arrived at site, working on piping for PDU. Dan Muzrall at site for work on computer. Shut down system for maintenance on the UV
	Oxidation equipment and replacement of bulb in reactor 3.
14:00	Daily readings.
14:20	Checked effluent. Left for day.
15:00	Weekly checks on clarifier and polymer blend system.
16:30	Leaving for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

26-May-11

Time	Comments
7:00	Arrived at site, work continuing on replacement of EW-S5 pump and diaphragm pump P-9B.
13:10	Checked effluent.
14:00	Daily readings.
15:00	Monthly maintenance on compressors and multimedia filters.
18:00	Leaving for day.

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	31-May-11				
B. Pollucci/B Ricard	Time	12:00				
Centrifugal Extraction Well Pumps Flow and Level Data						
EW-S1	gpm	OFF				
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
EW-S2	gpm	OFF				
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
EW-S3	gpm	OFF				
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
EW-S4	gpm	41				
Level	ft	33.52				
Total	gal	N/A				
FCV	%	Manual				
Hours	hr.	93,587.2				
EW-M1	gpm	15				
Level	ft	7.71				
Total	gal	N/A				
FCV	%	Manual				
Hours	hr.	35,859.8				
EW-M2	gpm	OFF				
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
G1	gpm	OFF				
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					
G2	gpm	OFF				
Level	ft					
Total	gal					
FCV	%					
Hours	hr.					

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	31-May-11				
B. Pollucci/B Ricard	Time	12:00				
<i>Pneumatic Extraction Well Pump Data</i>						
EW-M3	On/Off	On				
Counter reading	Cycles	887699				
Total Gallons pumped	Gallons	694198				
Estimated Flow	gpm	0.3				
EW-S5	On/Off	On				
Counter reading	Cycles	2,615				
Total Gallons pumped	Gallons	538,761				
Estimated Flow	gpm	0.0				
<i>Plant Flow Measurements</i>						
P-1A,B	gpm	55				
Total	gal	41,580,400				
	Total gal	466,036,925				
UV-OX Influent (P-2A&B)	gpm	63				
Total	gal	42,804,500				
	Total gal	470,715,725				
Effluent	gpm	64				
Total	gal	41,019,000				
	Total gal	467,830,125				
Gallons Discharged Since Previous Reading	gal					
<i>Process Forward Flow Pump Pressure and Speed</i>						
Influent Equa. Pump	1A or 1B	B				
Discharge Pressure	psi	8.0				
Pump Speed	Hz					
Pump Hours	hrs.	49,472.6				
Filter Feed Pump	2A or 2B	B				
Discharge Pressure	psi	13.0				
Pump Speed	Hz					
Pump Hours	hrs.	49,622.6				
<i>Sludge Management</i>						
T-3 Operating Level	ft	CV-97				
T-3 Sludge Level	ft	None				
T-4 Sludge Level	ft	2.22				
P-5A/B Cont. (T/BL/both)	T/BL/both	OFF				
Recycle interval	sec/cycle					
P-5A	On/Off					
P-5B	On/Off					
T-4 to Forward Flow	Yes/No	No				
Sludge Handling Comments & Clarifier Performance Observations:						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	31-May-11			
B. Pollucci/B Ricard	Time	12:00			
Process Tank Level Measurements					
T-1 Influent	ft	4.00			
T-2 Filter Feed	ft	4.07			
T-7 Effluent	ft	12.25			
Backwash Water Management					
T-6 Backwash Holding	ft	1.25			
Operating Transfer Pump	P-9A or B	Off			
Desired Return Rate	gpm	Off			
Actual Strokes/minute	#/min.	Off			
Gal/Stoke (A=.09 B=.43)	gal	Off			
Actual Return Rate	gpm	Off			
Backwash Water Handling Notes:					
Sand Filter Units					
F-1A IN	psi	15			
F-1A OUT	psi	14			
F-1A Flow	gpm	0			
F-1B IN	psi	14			
F-1B OUT	psi	14			
F-1B Flow	gpm	0			
F-1C IN	psi	14			
F-1C OUT	psi	14			
F-1C Flow	gpm	0			
Sand Filter Backwash Notes & Frequencies					
Vapor Phase Carbon Adsorption Units					
VC-1A IN	in. Hg	0			
VC-1A OUT	in. Hg	0			
VC-1B IN	in. Hg	0			
VC-1B OUT	in. Hg	0			
Notes or Change out Data:					

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	31-May-11			
B. Pollucci/B Ricard	Time	12:00			
Filtrate or Supernatant Management					
T-5 Filtrate/Supernatant	ft	6.40			
Operating Transfer Pump	P-6A or B	Off			
Desired Return Rate	gpm	Off			
Actual Strokes/minute	#/min.	Off			
Gal/Stoke (A=.09 B=.43)	gal	Off			
Actual Return Rate	gpm	Off			
Filtrate Management Notes					
Ultraviolet Oxidation (Rayox)					
Inlet Water Pressure	psi	12.0			
Outlet Water Pressure	psi	10.0			
Flow Rate	gpm	62.6			
Air supply pressure	psi	90			
Target H ₂ O ₂ dose	mg/l	6.0			
Reactor 1 Volts	volts	0			
Reactor 1 Amps	amps	0.0			
Reactor 1 Hours	hrs	144			
Reactor 2 Volts	volts	0			
Reactor 2 Amps	amps	0.0			
Reactor 2 Hours	hrs	2067			
Reactor 3 Volts	volts	2650			
Reactor 3 Amps	amps	7.4			
Reactor 3 Hours	hrs	142			
Reactor 4 Volts	volts	0			
Reactor 4 Amps	amps	0.0			
Reactor 4 Hours	hrs	696			
Comments/Observations:					
Peroxide Destruction Unit					
Inlet Pressure	psi	10.5			
Outlet Pressure	psi	4.0			
Comments/Observations:					

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Facility Operations Log**

Operator(s)	Date	31-May-11				
B. Pollucci/B Ricard	Time	12:00				
H₂O₂						
T-8 Level	ft.	3.99				
UV-Oxidation Chemical Feed - P-10A&B or P-171A&B						
Target Dose	mg/l	6				
P-10A or 10B	A or B	B				
Pump Stroke	No.	75				
Discharge Pressure	PSI	20.0				
Output Flow	ml/min	6.0				
Pacing Multiplier	No.	0.25				
Metals Precipitations Feed (Influent Equalization T-1) P-11A & B or P-177A & B						
Target Dose	mg/l	2				
P-11A or 11B	A or B	B				
Pump Stroke	No.	75				
Discharge Pressure	PSI	25.0				
Output Flow	ml/min	3.0				
Pacing Multiplier	No.	0.45				
Polymer						
Container Level	gal	OFF				
Polymer Concentration	%					
Amount used	gal					
Actual dose	mg/l					
Pacing Multiplier	No.					
Dilution Water Rate	gph					
Polymer Stroke	#					
Floc. Mixer M-4 Speed	rpm					
Chemical Notes						

**Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Field Sampling Summary**

Location	Date & Time	Iron (mg/L)	pH	Turbidity (NTU)	H ₂ O ₂ (mg/L)
Combined Influent (S1)					
Combined Influent (S1)					
Influent Equalization (S2)					
Influent Equalization (S2)					
Influent Equalization (S2)					
Influent Equalization (S2)					
Influent Equalization (S2)					
Clarifier Effluent (S4)					
Filter Effluent A			N/A	N/A	N/A
Filter Effluent B			N/A	N/A	N/A
Filter Effluent C			N/A	N/A	N/A
Filter Effluent (S5)					
UV-OX Influent (S6)					
UV-OX Influent (S6)					
UV-OX Influent (S6)					
UV-OX Eff. React. 1 (S7A)					
UV-OX Eff. React. 2 (S7B)					
UV-OX Eff. React. 3 (S7C)					
UV-OX Effluent (S7D)					
UV-OX Effluent (S7D)					
Peroxide Dest. Eff. (S8)					
Peroxide Dest. Eff. (S8)					
Peroxide Dest. Eff. (S8)					
Effluent (S9)	5/31/2011 12:00	0.11	6.8	0.27	1.60
Effluent (S9)					
Effluent (S9)					
Effluent (S9)					
Effluent (S9)					
Effluent (S9)					
Clarifier Effluent					

* 0.2 Titration method used

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

30-May-11

Time	Comments
8:00	Arrived at site, working on replacement of P-9B, boxing files, and moving files to remain at facility into the new filing cabinets.
15:00	Left for day.

Groveland Wells Superfund Site
Groundwater Extraction and Treatment System
Daily Report Log

31-May-11

Time	Comments
5:00	Arrived at site, cleaning facility in preparation for final operations meeting.
10:00	Weekly meeting.
11:00	B. Pollucci of W&S at site.
12:00	Daily readings and checking effluent.
12:30	Monthly maintenance on the polymer blend system. Reviewing operations with Bob Pollucci.
12:30	General cleaning of facility.
2:30	Completion of drainage of liquids from filter media rolloff. Filter media and sludge rolloff containers shipped off-site.
3:30	Installation of replacement exhaust fan in well house for EW-S5. Restart of EW-S5 well pumps
17:00	Leaving for Concord office.



**USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record**

Case No: 41234

DAS No:

R

Region: 1	Date Shipped: 5/4/2011	Chain of Custody Record	Sampler Signature:
Project Code: Nobis	Carrier Name: FedEx		Relinquished By (Date / Time)
Account Code:	Airbill: 875696704659	1	
CERCLIS ID: MAD982732317	Shipped to: Datachem Laboratories, Inc. 960 West LeVoy Drive Salt Lake City UT 84123 (801) 266-7700	2	
Spill ID: 32		3	
Site Name/State: Goveland Wells Case 41234/MA		4	
Project Leader: Robert Ricard			
Action: Long Term Response			
Sampling Co: Weston Solutions, Inc.			

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
A43Y0	Industrial Process Wastewater/ Robert Ricard	M/G	CLP VOA (14)	GW-3202 (HCL), GW-3203 (HCL), GW-3204 (HCL) (3)	S2-05042011	S: 5/4/2011 8:00	MA43Y0	Field Duplicate 1
A43Y1	Industrial Process Wastewater/ Robert Ricard	M/G	CLP VOA (14)	GW-3205 (HCL), GW-3206 (HCL), GW-3207 (HCL) (3)	S2D-05042011	S: 5/4/2011 8:00	MA43Y1	Field Duplicate 1
A43Y2	Industrial Process Wastewater/ Robert Ricard	L/G	CLP TVOA (14)	GW-3208 (HCL), GW-3209 (HCL), GW-3210 (HCL) (3)	S9-05042011	S: 5/4/2011 9:00	MA43Y2	Field Duplicate 2
A43Y4	Field QC/ Robert Ricard	L/G	CLP TVOA (14)	GW-3197 (HCL), GW-3198 (HCL), GW-3199 (HCL) (3)	EWT1-05042011	S: 5/4/2011 7:30		Trip Blank
A43Y5	PE Water/ Robert Ricard	M/G	CLP VOA (14)	GW-3200 (Ice Only) (1)	VLM0236	S: 5/4/2011 7:30		PE
A43Y6	PE Water/ Robert Ricard	L/G	CLP TVOA (14)	GW-3201 (Ice Only) (1)	VT00343	S: 5/4/2011 7:30		PE

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____
CLP TVOA = CLP TCL Trace Volatiles, CLP VOA = CLP TCL Volatiles			

TR Number: **1-233683488-050411-0002**

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 15000 Conference Center Dr., Chantilly, VA. 20151-3819 Phone 703/818-4200; Fax 703/818-4602

REGION COPY



**USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record**

Case No: 41234

DAS No:

R

Region: 1	Date Shipped: 5/4/2011	Chain of Custody Record	Sampler Signature:
Project Code: Nobis	Carrier Name: FedEx		Relinquished By (Date / Time)
Account Code:	Airbill: 875696704681	1	
CERCLIS ID: MAD982732317	Shipped to: Bonner Analytical Testing Company 2703 Oak Grove Rd Hattiesburg MS 39402 (601) 264-2854	2	
Spill ID: 32		3	
Site Name/State: Goveland Wells Case 41234/MA		4	
Project Leader: Robert Ricard			
Action: Long Term Response			
Sampling Co: Weston Solutions, Inc.			

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		ORGANIC SAMPLE No.	QC Type
MA43X7	PE Water/ Robert Ricard	M/G	PEM (Hg) (14)	GW-3190 (HNO3) (1)	HG5851	S: 5/4/2011	7:30		PE
MA43X8	PE Water/ Robert Ricard	M/G	PEM (med) (14)	GW-3191 (HNO3) (1)	IS5983	S: 5/4/2011	7:30		PE
MA43X9	PE Water/ Robert Ricard	L/G	PEM (low) (14)	GW-3192 (HNO3) (1)	MS03432	S: 5/4/2011	7:30		PE
MA43Y0	Industrial Process Wastewater/ Robert Ricard	M/G	Metals (1) (14)	GW-3193 (HNO3) (1)	S2-05042011	S: 5/4/2011	8:00	A43Y0	Field Duplicate 1
MA43Y1	Industrial Process Wastewater/ Robert Ricard	M/G	Metals (1) (14)	GW-3194 (HNO3) (1)	S2D-05042011	S: 5/4/2011	8:00	A43Y1	Field Duplicate 1
MA43Y2	Industrial Process Wastewater/ Robert Ricard	L/G	Metals (2) (14)	GW-3195 (HNO3) (1)	S9-05042011	S: 5/4/2011	9:00	A43Y2	Field Duplicate 2
MA43Y3	Industrial Process Wastewater/ Robert Ricard	L/G	Metals (2) (14)	GW-3196 (HNO3) (1)	S9D-05042011	S: 5/4/2011	9:00		Field Duplicate 2

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____
Metals (1) = Influent Metals see comments, Metals (2) = Effluent metals see comments., PEM (Hg) = PE Metals (mercury), PEM (low) = PE Metals (low), PEM (med) = PE Metals (medium)			

TR Number: **1-233683488-050411-0001**

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 15000 Conference Center Dr., Chantilly, VA. 20151-3819 Phone 703/818-4200; Fax 703/818-4602

REGION COPY

Sampler Comments Report

PROJECT NO. Nobis	PROJECT NAME	NAME & LOCATION OF FACILITY/SITE Case 41234
SAMPLERS: (SIGNATURE)		

STATION NO.	LOCATION/DESCRIPTION	DATE	TIME	Comp/Grab	NO. OF EPA CONTAINERS	SPLIT SAMPLE Y OR N	EPA SAMPLE TAG NO.'S
PE	HG5851	5/4/2011	7:30	G	1	No	3190
Comments:	MA43X7 - PE Metals Mercury - PEM (Hg) - ICP-AES - ISM01.2 for Hg.						
PE	IS5983	5/4/2011	7:30	G	1	No	3191
Comments:	MA43X8 - PE Metals Medium - PEM (med) - ICP-AES - ISM01.2 for Sb,As,Ba,Be,Cd,Cr,Fe,Pb,Mn,Ni,Se,Ag,V,Zn.						
PE	MS03432	5/4/2011	7:30	G	1	No	3192
Comments:	MA43X9 - PE Metals Low - PEM (low) - ICP-MS - ISM01.2 for Sb,Ba,Be,Cd,Cr,Fe,Pb,Mn,Ni,Se,V,Zn, Modified Analysis 2083.0 for As and Ag.						
S2	S2-05042011	5/4/2011	8:00	G	1	No	3193
Comments:	MA43Y0 - PE Influent Metals - (Metals 1) - ICP-AES - ISM01.2 for Sb,As,Ba,Be,Cd,Cr,Fe,Pb,Mn,Hg,Ni,Se,Ag,V,Zn.						
S2	S2D-05042011	5/4/2011	8:00	G	1	No	3194
Comments:	MA43Y1 - PE Influent Metals - (Metals 1) - ICP-AES - ISM01.2 for Sb,As,Ba,Be,Cd,Cr,Fe,Pb,Mn,Ni,Se,Ag,V,Zn. (no Hg required)						
S9	S9-05042011	5/4/2011	9:00	G	1	No	3195
Comments:	MA43Y2 - Effluent Metals - (Metals 2) - ICP-MS - ISM01.2 for Sb,Ba,Be,Cd,Cr,Fe,Pb,Mn,Ni,Se,V,Zn, Modified Analysis 2083.0 for As and Ag, ICP-AES - ISM01.2 for Hg.						
S9	S9D-05042011	5/4/2011	9:00	G	1	No	3196
Comments:	MA43Y3 - Effluent Metals - (Metals 2) - ICP-MS - ISM01.2 for Sb,Ba,Be,Cd,Cr,Fe,Pb,Mn,Ni,Se,V,Zn, Modified Analysis 2083.0 for As and Ag, ICP-AES - ISM01.2 for Hg.						

SPLIT SAMPLES TRANSFERRED BY: (PRINT)	DATE	SPLIT SAMPLES RECEIVED BY <input type="checkbox"/> OR DECLINED BY <input type="checkbox"/>	DATE/TIME
		(PRINT)	
(SIGN)	TIME	(SIGN)	TELEPHONE
		TITLE	

ATTACHMENT II

**EXTRACTION WELL AND TREATMENT
PROCESS FLOW SUMMARY TABLE**

**TABLE II-1
Daily Treatment Volumes and Average Daily Flow Rates
Groundwater Extraction and Treatment Facility
Groveland Wells Superfund Site**

May 2011

Date	Time	Elapsed Time Since Previous Reading	Extraction Wells ^{a,b,e}											
			EW-S4			EW-S5			EW-M1			EW-M3		
			Cumulative Total Flow Reading	Volume Processed Since Prev. Reading	Average Flow Since Previous Reading	Cumulative Total Flow	Volume Processed Since Prev. Reading	Average Flow Since Previous Reading	Cumulative Total Flow Reading	Volume Processed Since Prev. Reading	Average Flow Since Previous Reading	Cumulative Total Flow	Volume Processed Since Prev. Reading	Average Flow Since Previous Reading
(days)	(gallons)	(gallons)	(gpm)	(gallons)	(gallons)	(gpm)	(gallons)	(gallons)	(gpm)	(gallons)	(gallons)	(gpm)		
4/30/2011	13:00		123,921,921	10,080	42 ^c	549,968	0	0 ^c	103,473,974	2,400	10 ^c	677,547	2160	0.5 ^d
5/2/2011	12:00	1.96	124,037,541	125,460	41 ^c	549,968	0	0 ^c	103,502,174	0	0 ^c	679,170	1623	0.5 ^d
5/3/2011	15:00	1.13	124,103,961	66,420	41 ^c	549,968	0	0 ^c	103,502,174	0	0 ^c	679,536	366	0.2 ^d
5/4/2011	12:00	0.88	124,155,621	51,660	41 ^c	549,968	0	0 ^b	103,502,174	0	15 ^c	679,984	448	0.4 ^d
5/5/2011	12:00	1.00	124,214,661	59,040	41 ^c	549,968	0	0 ^b	103,523,774	21,600	15 ^c	680,457	473	0.3 ^d
5/6/2011	14:00	1.08	124,278,621	63,960	41 ^c	549,968	0	0 ^b	103,547,174	23,400	15 ^c	681,012	556	0.4 ^d
5/9/2011	12:00	2.92	124,450,821	172,200	41 ^c	549,968	0	0 ^b	103,610,174	63,000	15 ^c	682,597	1,585	0.4 ^d
5/10/2011	12:00	1.00	124,509,861	59,040	41 ^c	549,968	0	0 ^b	103,631,774	21,600	15 ^c	683,174	576	0.4 ^d
5/11/2011	12:00	1.00	124,568,901	59,040	41 ^c	549,968	0	0 ^b	103,653,374	21,600	15 ^c	683,670	497	0.3 ^d
5/12/2011	12:00	1.00	124,627,941	59,040	41 ^c	549,968	0	0 ^b	103,674,974	21,600	15 ^c	684,266	596	0.4 ^d
5/13/2011	12:00	1.00	124,686,981	59,040	41 ^c	549,968	0	0 ^b	103,748,414	73,440	51 ^c	684,719	453	0.3 ^d
5/16/2011	12:00	3.00	124,864,101	177,120	41 ^c	549,968	0	0 ^b	103,813,214	64,800	15 ^c	686,270	1,550	0.4 ^d
5/17/2011	12:00	1.00	124,923,141	59,040	41 ^c	549,968	0	0 ^b	103,834,814	21,600	15 ^c	686,752	482	0.3 ^d
5/18/2011	12:00	1.00	124,982,181	59,040	41 ^c	549,968	0	0 ^b	103,856,414	21,600	15 ^c	687,201	449	0.3 ^d
5/19/2011	12:00	1.00	125,041,221	59,040	41 ^c	549,968	0	0 ^b	103,878,014	21,600	15 ^c	687,649	448	0.3 ^d
5/20/2011	12:00	1.00	125,100,261	59,040	41 ^c	549,968	0	0 ^b	103,899,614	21,600	15 ^c	688,466	817	0.6 ^d
5/23/2011	12:00	3.00	125,273,061	172,800	40 ^c	549,968	0	0 ^b	103,964,414	64,800	15 ^c	690,122	1,656	0.4 ^d
5/24/2011	15:00	1.13	125,337,861	64,800	40 ^c	549,968	0	0 ^b	103,988,714	24,300	15 ^c	690,644	522	0.3 ^d
5/25/2011	14:00	0.96	125,393,061	55,200	40 ^c	549,968	0	0 ^b	104,009,414	20,700	15 ^c	691,185	541	0.4 ^d
5/26/2011	14:00	1.00	125,450,661	57,600	40 ^c	549,968	0	0 ^b	104,031,014	21,600	15 ^c	691,787	601	0.4 ^d
5/27/2011	13:00	0.96	125,505,861	55,200	40 ^c	549,968	0	0 ^b	104,051,714	20,700	15 ^c	692,389	602	0.4 ^d
5/31/2011	12:00	3.96	125,739,561	233,700	41 ^c	550,373	405	0.1 ^d	104,137,214	85,500	15 ^c	694,198	1,809	0.3 ^d

Notes: ^a EW-S1, EW-S2, and EW-S3 are off-line until demobilization of the in situ thermal remediation system and until groundwater temperatures drop to approximately 100F.

^b EW-S5 and EW-M2 are not in operation because low contaminant concentrations in those wells.

^c Estimated flow for EW-S4 and EW-M1 because the flow meters for those wells are not functioning.

^d Submersible pneumatic well pump flow based on cycle counter reading.

^e Beginning on April 18 at 4:00PM, the system was shut down for filter maintenance and remained off until 2:00PM on April 30.

gpm = gallons per minute

**TABLE II-1
Daily Treatment Volumes and Average Daily Flow Rates
Groundwater Extraction and Treatment Facility
Groveland Wells Superfund Site**

May 2011

Date	Time	Elapsed Time Since Previous Reading	Treated Effluent Discharged to Mill Pond		
			Cumulative Volume Treated	Volume Processed Since Prev. Reading	Average Flow Since Previous Reading
		(days)	(gallons)	(gallons)	(gpm)
4/30/2011	13:00		465,390,701	69,176	42
5/2/2011	12:00	1.96	465,516,325	125,624	41
5/3/2011	15:00	1.13	465,572,125	55,800	34
5/4/2011	12:00	0.88	465,639,825	67,700	54
5/5/2011	12:00	1.00	465,719,925	80,100	56
5/6/2011	14:00	1.08	465,798,125	78,200	50
5/9/2011	12:00	2.92	466,036,725	238,600	57
5/10/2011	12:00	1.00	466,120,825	84,100	58
5/11/2011	12:00	1.00	466,204,825	84,000	58
5/12/2011	12:00	1.00	466,293,925	89,100	62
5/13/2011	12:00	1.00	466,362,425	68,500	48
5/16/2011	12:00	3.00	466,621,725	259,300	60
5/17/2011	12:00	1.00	466,703,425	81,700	57
5/18/2011	12:00	1.00	466,785,825	82,400	57
5/19/2011	12:00	1.00	466,867,525	81,700	57
5/20/2011	12:00	1.00	466,942,525	75,000	52
5/23/2011	12:00	3.00	467,184,425	241,900	56
5/24/2011	15:00	1.13	467,274,425	90,000	56
5/25/2011	14:00	0.96	467,333,325	58,900	43
5/26/2011	14:00	1.00	467,416,225	82,900	58
5/27/2011	13:00	0.96	467,496,625	80,400	58
5/31/2011	12:00	3.96	467,830,125	333,500	59

ATTACHMENT III

PROCESS MONITORING ANALYTICAL RESULTS

TABLE III-1

Influent and Effluent Analytical Results
Groundwater Extraction and Treatment System
Groveland Wells Superfund Site

Sample Date:	4-May-11				Effluent Discharge Limits	
Sample Location:	T-1 Effluent	T-1 Effluent Duplicate	Plant Effluent	Plant Effluent Duplicate	Daily Maximum	Average Monthly
Station Location:	S2-05042011	S2D-05042011	S9-05042011	S9D-05042011		
Parameter	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
<u>Volatile Organic Compounds</u>						
Organic Sample No.:	A43Y0	A43Y1	A43Y2			
Vinyl Chloride	5.0 U	5.0 U	0.50 U	NA	Not Listed	2,816
1,1-Dichloroethene	5.0 U	5.0 U	0.50 U	NA	Not Listed	17.2
Acetone	3.1 JB	3.0 JB	9.9	NA	Not Listed	Not Listed
2-Butanone	10 U	10 U	5.0 U	NA	Not Listed	Not Listed
Methylene Chloride	1.4 JB	1.3 JB	0.50 U	NA	Not Listed	8,600
1,2-Dichloroethene (total)	2.1 J	2.1 J	0.50 U	NA	Not Listed	172
1,1-Dichloroethane	5.0 U	5.0 U	0.50 U	NA	Not Listed	Not Listed
1,1,1-Trichloroethane	5.0 U	5.0 U	0.50 U	NA	Not Listed	500
Benzene	5.0 U	5.0 U	0.50 U	NA	Not Listed	381
Trichloroethene	20	19	0.50 U	NA	Not Listed	434
Toluene	5.0 U	5.0 U	0.50 U	NA	Not Listed	2,500
Carbon Tetrachloride	5.0 U	5.0 U	0.50 U	NA	Not Listed	Not Listed
1,1,2-Trichloroethane	5.0 U	5.0 U	0.50 U	NA	Not Listed	Not Listed
Tetrachloroethene	5.0 U	5.0 U	0.50 U	NA	Not Listed	47.7
Chlorobenzene	5.0 U	5.0 U	0.50 U	NA	Not Listed	112,600
<u>Metals</u>						
Inorganic Sample No.:	MA43Y0	MA43Y1	MA43Y2	MA43Y3		
Silver	10 U	10 U	0.037 J	0.042 J	0.9	Not Listed
Arsenic	10 U	1.5 J	0.76	0.65 J	Not Listed	0.75
Barium	10.8 J	10.4 J	23.3	23.4	Not Listed	5,400
Beryllium	5.0 U	5.0 U	0.042 J	1.0 U	Not Listed	10
Cadmium	5.0 U	5.0 U	0.044 J	0.049 J	2.3	2.0
Chromium (total)	10 U	10 U	0.11 J	0.13 J	41	27
Iron	831	828	30 J	34 J	Not Listed	Not Listed
Mercury	0.048 J	NA	0.20 U	0.15 J	Not Listed	0.273
Manganese	261	264	362	360	Not Listed	Not Listed
Nickel	4.7 J	4.3 J	7.5	7.6	355	39
Lead	10 U	10 U	0.09 J	0.10 J	34	1.3
Antimony	60 U	60 U	0.22 J	0.21 J	Not Listed	23,000
Selenium	35 U	35 U	5.0 U	5.0 U	Not Listed	12
Vanadium	50 U	50 U	1.1 J	1.0 J	Not Listed	Not Listed
Zinc	11.3 J	8.7 J	8.7	10.6	Not Listed	Not Listed

Notes: U = Analyte not detected. Reporting limit shown.

J = Estimated concentration below sample reporting limit.

µg/L = micrograms per liter.

B = Compound found in both blank and sample.

NA = Not Analyzed.

ATTACHMENT IV

VOC ANALYZER DATA

The VOC Analyzer was not operable during May 2011.

ATTACHMENT V

GROUNDWATER AND SURFACE WATER LEVEL DATA

Groundwater and surface water level measurements were not collected this month.

ATTACHMENT VI

PREVENTIVE MAINTENANCE LOGS

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 30 April 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
ELECTRIC WELL PUMPS			
EW-M1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/3/11
EW-M2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/3/11
EW-S1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/3/11
EW-S2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/3/11
EW-S3	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/3/11
EW-S4	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/3/11
EW-G1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/3/11
EW-G2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/3/11
PNEUMATIC WELL PUMPS			
EW-M3	Pneumatic Well Pump	Inspect/drain moisture from air lines. Monitor pump for proper operation and performance. Check cycle counter. Clean Building as necessary.	Checked daily with cycle counter readings.
EW-S5	Pneumatic Well Pump	Inspect/drain moisture from air lines. Monitor pump for proper operation and performance. Check cycle counter. Clean Building as necessary.	Weekly checks 5/3/11

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 30 April 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
P-1A	Influent Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance.	Weekly checks 5/6/11.
P-1B	Influent Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/6/11.
P-2A	Filter Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/6/11.
P-2B	Filter Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/6/11.
P-3A	Effluent/Recycle Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/6/11.
P-3B	Effluent/Recycle Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/6/11.
P-4A	Backwash Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/6/11.
P-4B	Backwash Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/6/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 30 April 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
DIAPHRAGM PUMPS			
P-5A	Clarifier Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.
P-5B	Clarifier Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.
P-6A	Filtrate/Decant Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.
P-6B	Filtrate/Decant Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.
P-7A	Thickener Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.
P-7B	Thickener Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.
P-8A	Filter Press Feed Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.
P-8B	Filter Press Feed Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.
P-9A	Spent Backwash Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.
P-9B	Spent Backwash Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/5/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 30 April 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
CHEMICAL METERING PUMPS			
P-10A	H ₂ O ₂ Feed Pump – UV	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/5/11.
P-10B	H ₂ O ₂ Feed Pump – UV	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/5/11.
P-11A	H ₂ O ₂ Feed Pump – EQ Tank	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/5/11.
P-11B	H ₂ O ₂ Feed Pump – EQ Tank	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/5/11.
P-1	Polymer	Check for proper operation of pump, and utility water solenoid/flowrate. Inspect tubing, piping, and valves for leaks and check mixer belt tension. Clean polymer lines, poppet valve and mixer if needed.	Weekly checks 5/5/11.
COMPRESSED AIR EQUIPMENT			
	Moisture separator	Check that drain float is functioning properly	Weekly checks 5/5/11.
	After cooler	Check fins, and clean as necessary	Weekly checks 5/5/11.
CA-1	Air compressor	Inspect oil level, V-belts for proper tension, bolts & mounting hardware for tightness, and clean unit.	Weekly checks 5/5/11.
CA-2	Air compressor	Inspect oil level, V-belts for proper tension, bolts & mounting hardware for tightness, and clean unit.	Weekly checks 5/5/11.
	Air Dryer	Inspect gauges and confirm satisfactory operation. Drain any water from coalescing or particulate filters.	Checked and drained daily during daily readings.
CA-3	Air compressor (EW-M3)	Inspect oil level, air filter discharge psi and clean unit.	Checked daily with cycle counter reading.
CA-4	Air compressor (EW-S5)	Inspect oil level, air filter discharge psi and clean unit.	
VAPOR PHASE CARBON SYSTEM			
B-1	Vapor Phase Carbon Blower	Inspect for excessive vibration and noise.	Weekly checks 5/5/11.
VC-1	Vapor Phase Carbon Unit	Check for excessive pressure drop across vessel.	Weekly checks 5/5/11.
VC-2	Vapor Phase Carbon Unit	Check for excessive pressure drop across vessel.	Weekly checks 5/5/11.
FLOOR SUMP AND PUMPS			
SP-1 & 2	Floor Sump and Pumps	Operate each pump manually and inspect operation. Inspect cleanliness of sump and clean as necessary.	Weekly checks 5/5/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 30 April 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
MIXERS			
M-1	Equalization Tank (T-1) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box, packing gland and motor.	Monthly maintenance checks 5/5/11.
M-2	Filter Feed Tank (T-2) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box, packing gland and motor.	Monthly maintenance checks 5/5/11.
M-5	Filtrate/Decant Tank (T-5) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box packing gland and motor.	Monthly maintenance checks 5/5/11.
M-6	Spent Backwash Water Holding Tank (T-6) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box packing gland and motor.	Monthly maintenance checks 5/5/11.
INCLINED PLATE CLARIFIER			
M-3, M-4, & S-1	Flash Mixer, Floc Mixer, and Sludge Auger	Inspect all equipment for excessive vibration and overheating, at gear box and motor.	Weekly checks 5/5/11.
ULTRAVIOLET CHEMICAL OXIDATION SYSTEM (UV-OX)			
NA	Air Supply to UV-OX	Check for Excessive Moisture and drain if necessary. Inspect lubricator level, and add if necessary.	Weekly checks 5/5/11.
NA	Solenoids	Check for proper solenoid operation.	Weekly checks 5/5/11.
NA	Performance Evaluation	Review Operating Logs and look for operating performance changes that may be caused by malfunctioning equipment.	Weekly checks 5/5/11.
NA	Moisture Sensor/Leaks	Inspect units for leaks, and inspect moisture sensor for proper operation and maintenance.	Weekly checks 5/5/11.
MISC. EQUIPMENT			
NA	Eyewash safety showers	Test for proper operation	Weekly checks 5/5/11.
NA	Motorized dampers	Monitor for proper operation of damper and linkage.	Weekly checks 5/5/11.
NA	Exhaust Fans/Air Handlers	Listen for abnormal noise or vibration.	Weekly checks 5/5/11.
NA	Unit heaters	Confirm all units are functioning during cold weather.	Weekly checks 5/5/11.
BR-1	Boiler	Inspect Boiler System Operation.	Weekly checks 5/5/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 30 April 2011
INSPECTOR: B. Ricard/M. Gavin

WEEKLY COMMENTS AND NOTES
Historical data was backed up on: 5/6/11

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 07 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
ELECTRIC WELL PUMPS			
EW-M1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/9/11.
EW-M2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off – Weekly checks 5/9/11.
EW-S1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off – Weekly checks 5/9/11. Temperature reading 5/9/11 15:10 = 162. degrees.
EW-S2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off – Weekly checks 5/9/11.
EW-S3	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off – Weekly checks 5/9/11.
EW-S4	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/9/11.
EW-G1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off – Weekly checks 5/9/11.
EW-G2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off – Weekly checks 5/9/11.
PNEUMATIC WELL PUMPS			
EW-M3	Pneumatic Well Pump	Inspect/drain moisture from air lines. Monitor pump for proper operation and performance. Check cycle counter. Clean Building as necessary.	Checked daily with cycle counter readings.
EW-S5	Pneumatic Well Pump	Inspect/drain moisture from air lines. Monitor pump for proper operation and performance. Check cycle counter. Clean Building as necessary.	Off – Weekly checks 5/9/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 07 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
P-1A	Influent Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance.	On – Monthly maintenance 5/9/11.
P-1B	Influent Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Off – Monthly maintenance 5/9/11.
P-2A	Filter Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	On – Monthly maintenance 5/9/11.
P-2B	Filter Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Off – Monthly maintenance 5/9/11.
P-3A	Effluent/Recycle Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Auto-Monthly maintenance 5/9/11.
P-3B	Effluent/Recycle Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Off – Monthly maintenance 5/9/11.
P-4A	Backwash Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Off – Monthly maintenance 5/9/11.
P-4B	Backwash Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Off – Monthly maintenance 5/9/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 07 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
DIAPHRAGM PUMPS			
P-5A	Clarifier Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.
P-5B	Clarifier Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.
P-6A	Filtrate/Decant Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.
P-6B	Filtrate/Decant Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.
P-7A	Thickener Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.
P-7B	Thickener Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.
P-8A	Filter Press Feed Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.
P-8B	Filter Press Feed Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.
P-9A	Spent Backwash Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.
P-9B	Spent Backwash Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/13/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 07 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
CHEMICAL METERING PUMPS			
P-10A	H ₂ O ₂ Feed Pump – UV	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/11/11.
P-10B	H ₂ O ₂ Feed Pump – UV	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/11/11.
P-11A	H ₂ O ₂ Feed Pump – EQ Tank	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/11/11.
P-11B	H ₂ O ₂ Feed Pump – EQ Tank	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/11/11.
P-1	Polymer	Check for proper operation of pump, and utility water solenoid/flowrate. Inspect tubing, piping, and valves for leaks and check mixer belt tension. Clean polymer lines, poppet valve and mixer if needed.	Weekly checks 5/12/11.
COMPRESSED AIR EQUIPMENT			
	Moisture separator	Check that drain float is functioning properly	Weekly checks 5/11/11.
	After cooler	Check fins, and clean as necessary	Weekly checks 5/11/11.
CA-1	Air compressor	Inspect oil level, V-belts for proper tension, bolts & mounting hardware for tightness, and clean unit.	Weekly checks 5/11/11.
CA-2	Air compressor	Inspect oil level, V-belts for proper tension, bolts & mounting hardware for tightness, and clean unit.	Weekly checks 5/11/11.
	Air Dryer	Inspect gauges and confirm satisfactory operation. Drain any water from coalescing or particulate filters.	Checked and drained daily during daily readings.
CA-3	Air compressor (EW-M3)	Inspect oil level, air filter discharge psi and clean unit.	Checked daily with cycle counter reading.
CA-4	Air compressor (EW-S5)	Inspect oil level, air filter discharge psi and clean unit.	Weekly checks 5/11/11.
VAPOR PHASE CARBON SYSTEM			
B-1	Vapor Phase Carbon Blower	Inspect for excessive vibration and noise.	Weekly checks 5/11/11.
VC-1	Vapor Phase Carbon Unit	Check for excessive pressure drop across vessel.	Weekly checks 5/11/11.
VC-2	Vapor Phase Carbon Unit	Check for excessive pressure drop across vessel.	Weekly checks 5/11/11.
FLOOR SUMP AND PUMPS			
SP-1 & 2	Floor Sump and Pumps	Operate each pump manually and inspect operation. Inspect cleanliness of sump and clean as necessary.	Weekly checks 5/11/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 07 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
MIXERS			
M-1	Equalization Tank (T-1) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box, packing gland and motor.	Weekly checks 5/13/11.
M-2	Filter Feed Tank (T-2) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box, packing gland and motor.	Weekly checks 5/13/11.
M-5	Filtrate/Decant Tank (T-5) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box packing gland and motor.	Weekly checks 5/13/11.
M-6	Spent Backwash Water Holding Tank (T-6) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box packing gland and motor.	Weekly checks 5/13/11.
INCLINED PLATE CLARIFIER			
M-3, M-4, & S-1	Flash Mixer, Floc Mixer, and Sludge Auger	Inspect all equipment for excessive vibration and overheating, at gear box and motor.	Weekly checks 5/12/11.
ULTRAVIOLET CHEMICAL OXIDATION SYSTEM (UV-OX)			
NA	Air Supply to UV-OX	Check for Excessive Moisture and drain if necessary. Inspect lubricator level, and add if necessary.	Weekly checks 5/12/11.
NA	Solenoids	Check for proper solenoid operation.	Weekly checks 5/12/11.
NA	Performance Evaluation	Review Operating Logs and look for operating performance changes that may be caused by malfunctioning equipment.	Weekly checks 5/12/11.
NA	Moisture Sensor/Leaks	Inspect units for leaks, and inspect moisture sensor for proper operation and maintenance.	Weekly checks 5/12/11.
MISC. EQUIPMENT			
NA	Eyewash safety showers	Test for proper operation	Weekly checks 5/13/11.
NA	Motorized dampers	Monitor for proper operation of damper and linkage.	Weekly checks 5/13/11.
NA	Exhaust Fans/Air Handlers	Listen for abnormal noise or vibration.	Weekly checks 5/13/11.
NA	Unit heaters	Confirm all units are functioning during cold weather.	Weekly checks 5/13/11.
BR-1	Boiler	Inspect Boiler System Operation.	Weekly checks 5/13/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 07 May 2011
INSPECTOR: B. Ricard/M. Gavin

WEEKLY COMMENTS AND NOTES	
Historical data was backed up on:	5/13/11

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 14 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
ELECTRIC WELL PUMPS			
EW-M1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/17/11.
EW-M2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-S1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-S2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-S3	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-S4	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/17/11.
EW-G1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-G2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
PNEUMATIC WELL PUMPS			
EW-M3	Pneumatic Well Pump	Inspect/drain moisture from air lines. Monitor pump for proper operation and performance. Check cycle counter. Clean Building as necessary.	Checked daily with cycle counter readings.
EW-S5	Pneumatic Well Pump	Inspect/drain moisture from air lines. Monitor pump for proper operation and performance. Check cycle counter. Clean Building as necessary.	Off

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 14 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
P-1A	Influent Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance.	Weekly checks 5/18/11.
P-1B	Influent Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/18/11.
P-2A	Filter Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/18/11.
P-2B	Filter Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/18/11.
P-3A	Effluent/Recycle Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/18/11.
P-3B	Effluent/Recycle Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/18/11.
P-4A	Backwash Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/18/11.
P-4B	Backwash Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/18/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 14 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
DIAPHRAGM PUMPS			
P-5A	Clarifier Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.
P-5B	Clarifier Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.
P-6A	Filtrate/Decant Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.
P-6B	Filtrate/Decant Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.
P-7A	Thickener Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.
P-7B	Thickener Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.
P-8A	Filter Press Feed Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.
P-8B	Filter Press Feed Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.
P-9A	Spent Backwash Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.
P-9B	Spent Backwash Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/18/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 14 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
CHEMICAL METERING PUMPS			
P-10A	H ₂ O ₂ Feed Pump – UV	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/20/11
P-10B	H ₂ O ₂ Feed Pump – UV	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/20/11
P-11A	H ₂ O ₂ Feed Pump – EQ Tank	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/20/11
P-11B	H ₂ O ₂ Feed Pump – EQ Tank	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/20/11
P-1	Polymer	Check for proper operation of pump, and utility water solenoid/flowrate. Inspect tubing, piping, and valves for leaks and check mixer belt tension. Clean polymer lines, poppet valve and mixer if needed.	Weekly checks 5/19/11.
COMPRESSED AIR EQUIPMENT			
	Moisture separator	Check that drain float is functioning properly	Weekly checks 5/19/11.
	After cooler	Check fins, and clean as necessary	Weekly checks 5/19/11.
CA-1	Air compressor	Inspect oil level, V-belts for proper tension, bolts & mounting hardware for tightness, and clean unit.	Weekly checks 5/19/11.
CA-2	Air compressor	Inspect oil level, V-belts for proper tension, bolts & mounting hardware for tightness, and clean unit.	Weekly checks 5/19/11.
	Air Dryer	Inspect gauges and confirm satisfactory operation. Drain any water from coalescing or particulate filters.	Checked and drained daily during daily readings.
CA-3	Air compressor (EW-M3)	Inspect oil level, air filter discharge psi and clean unit.	Checked daily with cycle counter reading.
CA-4	Air compressor (EW-S5)	Inspect oil level, air filter discharge psi and clean unit.	Weekly checks 5/19/11.
VAPOR PHASE CARBON SYSTEM			
B-1	Vapor Phase Carbon Blower	Inspect for excessive vibration and noise.	Weekly checks 5/19/11.
VC-1	Vapor Phase Carbon Unit	Check for excessive pressure drop across vessel.	Weekly checks 5/19/11.
VC-2	Vapor Phase Carbon Unit	Check for excessive pressure drop across vessel.	Weekly checks 5/19/11.
FLOOR SUMP AND PUMPS			
SP-1 & 2	Floor Sump and Pumps	Operate each pump manually and inspect operation. Inspect cleanliness of sump and clean as necessary.	Weekly checks 5/19/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 14 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
MIXERS			
M-1	Equalization Tank (T-1) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box, packing gland and motor.	Weekly checks 5/20/11
M-2	Filter Feed Tank (T-2) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box, packing gland and motor.	Weekly checks 5/20/11
M-5	Filtrate/Decant Tank (T-5) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box packing gland and motor.	Weekly checks 5/20/11
M-6	Spent Backwash Water Holding Tank (T-6) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box packing gland and motor.	Weekly checks 5/20/11
INCLINED PLATE CLARIFIER			
M-3, M-4, & S-1	Flash Mixer, Floc Mixer, and Sludge Auger	Inspect all equipment for excessive vibration and overheating, at gear box and motor.	Weekly checks 5/19/11.
ULTRAVIOLET CHEMICAL OXIDATION SYSTEM (UV-OX)			
NA	Air Supply to UV-OX	Check for Excessive Moisture and drain if necessary. Inspect lubricator level, and add if necessary.	Weekly checks 5/17/11.
NA	Solenoids	Check for proper solenoid operation.	Weekly checks 5/17/11.
NA	Performance Evaluation	Review Operating Logs and look for operating performance changes that may be caused by malfunctioning equipment.	Weekly checks 5/17/11.
NA	Moisture Sensor/Leaks	Inspect units for leaks, and inspect moisture sensor for proper operation and maintenance.	Weekly checks 5/17/11.
MISC. EQUIPMENT			
NA	Eyewash safety showers	Test for proper operation	Weekly checks 5/20/11
NA	Motorized dampers	Monitor for proper operation of damper and linkage.	Weekly checks 5/20/11
NA	Exhaust Fans/Air Handlers	Listen for abnormal noise or vibration.	Weekly checks 5/20/11
NA	Unit heaters	Confirm all units are functioning during cold weather.	Weekly checks 5/20/11
BR-1	Boiler	Inspect Boiler System Operation.	Weekly checks 5/20/11

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 14 May 2011
INSPECTOR: B. Ricard/M. Gavin

WEEKLY COMMENTS AND NOTES	
Historical data was backed up on:	5/20/11

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 21 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
ELECTRIC WELL PUMPS			
EW-M1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/23/11.
EW-M2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-S1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-S2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-S3	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-S4	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Weekly checks 5/23/11.
EW-G1	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
EW-G2	Extraction Well Pump	Monitor for proper operation and performance. Inspect vault for leaks, excessive water build-up and clean as necessary.	Off
PNEUMATIC WELL PUMPS			
EW-M3	Pneumatic Well Pump	Inspect/drain moisture from air lines. Monitor pump for proper operation and performance. Check cycle counter. Clean Building as necessary.	Checked daily with cycle counter readings.
EW-S5	Pneumatic Well Pump	Inspect/drain moisture from air lines. Monitor pump for proper operation and performance. Check cycle counter. Clean Building as necessary.	Checked daily with cycle counter readings. System brought on line 5/26/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 21 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
P-1A	Influent Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance.	Weekly checks 5/23/11.
P-1B	Influent Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/23/11.
P-2A	Filter Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/23/11.
P-2B	Filter Feed Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/23/11.
P-3A	Effluent/Recycle Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/23/11.
P-3B	Effluent/Recycle Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/23/11.
P-4A	Backwash Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/23/11.
P-4B	Backwash Pump	Inspect operation including; excessive shaft vibration, bearing and motor overheating, loose bolts, coupling guard integrity, and leaky seal. Check for change in pump performance	Weekly checks 5/23/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 21 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
DIAPHRAGM PUMPS			
P-5A	Clarifier Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.
P-5B	Clarifier Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.
P-6A	Filtrate/Decant Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.
P-6B	Filtrate/Decant Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.
P-7A	Thickener Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.
P-7B	Thickener Underflow Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.
P-8A	Filter Press Feed Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.
P-8B	Filter Press Feed Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.
P-9A	Spent Backwash Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.
P-9B	Spent Backwash Pump	Drain condensate from air filter, and inspect pump operation and observe for any possible abnormalities such as leaky diaphragm, loose bolts, and leaks	Weekly checks 5/23/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 21 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
CHEMICAL METERING PUMPS			
P-10A	H ₂ O ₂ Feed Pump – UV	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/27/11.
P-10B	H ₂ O ₂ Feed Pump – UV	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/27/11.
P-11A	H ₂ O ₂ Feed Pump – EQ Tank	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/27/11.
P-11B	H ₂ O ₂ Feed Pump – EQ Tank	Check for proper operation of pump, and inspect tubing, piping, and valves for leaks.	Weekly checks 5/27/11.
P-1	Polymer	Check for proper operation of pump, and utility water solenoid/flowrate. Inspect tubing, piping, and valves for leaks and check mixer belt tension. Clean polymer lines, poppet valve and mixer if needed.	Weekly checks 5/25/11.
COMPRESSED AIR EQUIPMENT			
	Moisture separator	Check that drain float is functioning properly	Monthly maintenance 5/26/11
	After cooler	Check fins, and clean as necessary	Monthly maintenance 5/26/11
CA-1	Air compressor	Inspect oil level, V-belts for proper tension, bolts & mounting hardware for tightness, and clean unit.	Monthly maintenance 5/26/11
CA-2	Air compressor	Inspect oil level, V-belts for proper tension, bolts & mounting hardware for tightness, and clean unit.	Monthly maintenance 5/26/11
	Air Dryer	Inspect gauges and confirm satisfactory operation. Drain any water from coalescing or particulate filters.	Monthly maintenance 5/26/11
CA-3	Air compressor (EW-M3)	Inspect oil level, air filter discharge psi and clean unit.	Monthly maintenance 5/26/11
CA-4	Air compressor (EW-S5)	Inspect oil level, air filter discharge psi and clean unit.	Monthly maintenance 5/26/11
VAPOR PHASE CARBON SYSTEM			
B-1	Vapor Phase Carbon Blower	Inspect for excessive vibration and noise.	Weekly checks 5/27/11.
VC-1	Vapor Phase Carbon Unit	Check for excessive pressure drop across vessel.	Weekly checks 5/27/11.
VC-2	Vapor Phase Carbon Unit	Check for excessive pressure drop across vessel.	Weekly checks 5/27/11.
FLOOR SUMP AND PUMPS			
SP-1 & 2	Floor Sump and Pumps	Operate each pump manually and inspect operation. Inspect cleanliness of sump and clean as necessary.	Weekly checks 5/27/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 21 May 2011

INSPECTOR: B. Ricard/M. Gavin

Tag No.	Equipment Description	Maintenance Description	Comments
MIXERS			
M-1	Equalization Tank (T-1) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box, packing gland and motor.	Weekly checks 5/27/11.
M-2	Filter Feed Tank (T-2) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box, packing gland and motor.	Weekly checks 5/27/11.
M-5	Filtrate/Decant Tank (T-5) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box packing gland and motor.	Weekly checks 5/27/11.
M-6	Spent Backwash Water Holding Tank (T-6) Mixer	Listen for unusual noise or vibration and feel for excessive heat at the gear box packing gland and motor.	Weekly checks 5/27/11.
INCLINED PLATE CLARIFIER			
M-3, M-4, & S-1	Flash Mixer, Floc Mixer, and Sludge Auger	Inspect all equipment for excessive vibration and overheating, at gear box and motor.	Weekly checks 5/25/11.
ULTRAVIOLET CHEMICAL OXIDATION SYSTEM (UV-OX)			
NA	Air Supply to UV-OX	Check for Excessive Moisture and drain if necessary. Inspect lubricator level, and add if necessary.	Monthly maintenance 5/25/11.
NA	Solenoids	Check for proper solenoid operation.	Monthly maintenance 5/25/11.
NA	Performance Evaluation	Review Operating Logs and look for operating performance changes that may be caused by malfunctioning equipment.	Monthly maintenance 5/25/11.
NA	Moisture Sensor/Leaks	Inspect units for leaks, and inspect moisture sensor for proper operation and maintenance.	Monthly maintenance 5/25/11.
MISC. EQUIPMENT			
NA	Eyewash safety showers	Test for proper operation	Weekly checks 5/23/11.
NA	Motorized dampers	Monitor for proper operation of damper and linkage.	Weekly checks 5/23/11.
NA	Exhaust Fans/Air Handlers	Listen for abnormal noise or vibration.	Weekly checks 5/23/11.
NA	Unit heaters	Confirm all units are functioning during cold weather.	Weekly checks 5/23/11.
BR-1	Boiler	Inspect Boiler System Operation.	Weekly checks 5/23/11.

If maintenance is required due to inspections, record maintenance activity on equipment record card.

**TABLE VI-1
GROVELAND - WEEKLY PREVENTIVE MAINTENANCE SCHEDULE**

WEEK OF: 21 May 2011
INSPECTOR: B. Ricard/M. Gavin

WEEKLY COMMENTS AND NOTES	
Historical data was backed up on:	5/27/11

If maintenance is required due to inspections, record maintenance activity on equipment record card.

TABLE VI-2

GROVELAND PREVENTIVE MAINTENANCE SCHEDULE

Equipment	Maintenance Description	Frequency	Date or Hours of Last service	Date or Hours of Next service
ELECTRIC EXTRACTION WELL PUMPS AND LEVEL PROBES				
EW-M1 & LT-1	Pull pump and transducer. Inspect for corrosion or damage and clean. Record Amperage readings and flow rate following return to operation.	Performance Decision	Pulled and cleaned 4/27/11	NA
EW-M2 & LT-2	Pull pump and transducer. Inspect for corrosion or damage and clean. Record Amperage readings and flow rate following return to operation.	Performance Decision	Pulled and cleaned 3/24/08	NA
EW-S1 & LT-3	Pull pump and transducer. Inspect for corrosion or damage and clean. Record Amperage readings and flow rate following return to operation.	Performance Decision	P&C 11/18/04 New filter 8/29 Pulled 7/15/10	NA
EW-S2 & LT-4	Pull pump and transducer. Inspect for corrosion or damage and clean. Record Amperage readings and flow rate following return to operation.	Performance Decision	P&C 1/18/03 New filter 8/29 Pulled 4/9/10	NA
EW-S3 & LT-5	Pull pump and transducer. Inspect for corrosion or damage and clean. Record Amperage readings and flow rate following return to operation.	Performance Decision	New pump head 6/22/06 Pulled 4/9/10	NA
EW-S4 & LT-6	Pull pump and transducer. Inspect for corrosion or damage and clean. Record Amperage readings and flow rate following return to operation.	Performance Decision	New level indicator installed 7/11/08	NA
EW-G1 & LT-7	Pull pump and transducer. Inspect for corrosion or damage and clean. Record Amperage readings and flow rate following return to operation.	Performance Decision	Off-new auxiliary heater 11/07	NA
EW-G2 & LT-8	Pull pump and transducer. Inspect for corrosion or damage and clean. Record Amperage readings and flow rate following return to operation.	Performance Decision	Off-auxiliary heater on 11/07	NA
PNEUMATIC EXTRACTION WELL PUMPS				
EW-M3	Cycle counter/general maintenance.	Performance Decision	Pump restarted Feb. 23, 2010	NA
	If pump performance in question, pull pump, and inspect.	Performance Decision	On – Feb. 2010	NA
EW-S5	Cycle counter/general maintenance.	Performance Decision	Pump pulled Aug. 2010 and moved to M-3	NA
	If pump performance in question, pull pump, and inspect.	Performance Decision	Off - Feb. 2010	NA

Notes: Update Equipment Record Card following completion of any preventive maintenance

TABLE VI-2

GROVELAND PREVENTIVE MAINTENANCE SCHEDULE

Equipment	Maintenance Description	Frequency	Date or Hours of Last service	Date or Hours of Next service
INGERSOLL DRESSER PROCESS CENTRIFUGAL PUMPS				
P-1A	Inspect and clean strainer	Monthly or as needed	5/9/11	June, 2011
	Grease Motor Bearings	Annually	6/16/10	June, 2011
	Align pump and motor shafts	Performance Decision	6/30/03	June, 2011
P-1B	Inspect and clean strainer	Monthly or as needed	5/9/11	June, 2011
	Grease Motor Bearings	Annually	6/16/10	June, 2011
	Align pump and motor shafts	Performance Decision	6/30/03	June, 2011
P-2A	Inspect and clean strainer	Monthly or as needed	5/9/11	June, 2011
	Grease Motor Bearings	Annually	6/16/10	June, 2011
	Align pump and motor shafts	Performance Decision	7/15/02	June, 2011
P-2B	Inspect and clean strainer	Monthly or as needed	5/9/11	June, 2011
	Grease Motor Bearings	Annually	6/16/10	June, 2011
	Align pump and motor shafts	Performance Decision	7/15/02	June, 2011
P-3A	Inspect and clean strainer	Monthly or as needed	5/9/11	June, 2011
	Grease Motor Bearings	Annually	6/16/10	June, 2011
	Align pump and motor shafts	Performance Decision	March, 2000	June, 2011
P-3B	Inspect and clean strainer	Monthly or as needed	5/9/11	June, 2011
	Grease Motor Bearings	Annually	6/16/10	June, 2011
	Align pump and motor shafts	Performance Decision	March, 2000	June, 2011
P-4A	Inspect and clean strainer	Monthly or as needed	5/9/11	June, 2011
	Grease Motor Bearings	Annually	6/16/10	June, 2011
	Align pump and motor shafts	Performance Decision	March, 2000	June, 2011
P-4B	Inspect and clean strainer	Monthly or as needed	5/9/11	June, 2011
	Grease Motor Bearings	Annually	6/16/10	June, 2011
	Align pump and motor shafts	Performance Decision	March, 2000	June, 2011

Notes: Update Equipment Record Card following completion of any preventive maintenance

TABLE VI-2

GROVELAND PREVENTIVE MAINTENANCE SCHEDULE

Equipment	Maintenance Description	Frequency	Date or Hours of Last service	Date or Hours of Next service
DIAPHRAGM PUMPS				
P-5A	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
P-5B	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
P-6A	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
P-6B	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
P-7A	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
P-7B	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
P-8A	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
P-8B	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
P-9A	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
P-9B	Clean air filter, and check all pump bolts for proper torque	Quarterly	3/8/11	June, 2011
CHEMICAL METERING EQUIPMENT				
P-10A	Replace Liquid End Assembly (Diaphragm, Valve balls, Injection Check Valve Spring, and Seal Rings	24 Months or as necessary	3/8/11	June, 2011
P-10B	Replace Liquid End Assembly (Diaphragm, Valve balls, Injection Check Valve Spring, and Seal Rings	24 Months or as necessary	3/8/11	June, 2011
P-11A	Replace Liquid End Assembly (Diaphragm, Valve balls, Injection Check Valve Spring, and Seal Rings	24 Months or as necessary	3/8/11	June, 2011
P-11B	Replace Liquid End Assembly (Diaphragm, Valve balls, Injection Check Valve Spring, and Seal Rings	24 Months or as necessary	3/8/11	June, 2011
POLYMER BLEND SYSTEM				
P-1	Check Belt for proper tension, and inspect for abnormal wear, or cracks. Replace as necessary.	Monthly	5/31/11	June, 2011
	Replace pump diaphragm, seals etc. (Spare parts kit).	Yearly or as needed	April, 2000	as needed
	Cleaning spring-loaded pop-it valve and mixer	Performance Decision	April, 2000	as needed

Notes: Update Equipment Record Card following completion of any preventive maintenance

TABLE VI-2

GROVELAND PREVENTIVE MAINTENANCE SCHEDULE

Equipment	Maintenance Description	Frequency	Date or Hours of Last service	Date or Hours of Next service
COMPRESSED AIR EQUIPMENT				
CA-1	Change oil. Thoroughly inspect belts for proper tension wear and cracks and replace as necessary. Inspect and tighten mounting hardware. Pull rings on all pressure relief valves and test.	Quarterly	3/15/11	June, 2011
	Clean Air Filter (Adjust frequency as needed), replace if necessary	Monthly	5/26/11	June, 2011
CA-2	Change oil. Thoroughly inspect belts for proper tension wear and cracks and replace as necessary. Inspect and tighten mounting hardware. Pull rings on all pressure relief valves and test.	Quarterly	3/15/11	June, 2011
	Clean Air Filter (Adjust frequency as needed), replace if necessary	Monthly	5/26/11	June, 2011
CA-3	Change Oil, Inspect mounting hardware	Quarterly	3/16/11	June, 2011
	Clean Air Filter (Adjust frequency as needed), replace if necessary	Monthly	5/26/11	June, 2011
CA-4	Change Oil, Inspect mounting hardware	Quarterly	3/21/11	June, 2011
	Clean Air Filter (Adjust frequency as needed), replace if necessary	Monthly	5/26/11	June, 2011
MIXERS				
M-1	Check Oil	Monthly	5/5/11	June, 2011
	Initial re-check of all bolt torques and oil change	50 hours	April 1, 2000 (32-hours)	NA – See Change Oil
	Change Oil	5000 hrs.	4/27/07	August, 2011
M-2	Check Oil	Monthly	5/5/11	June, 2011
	Initial re-check of all bolt torques and oil change	50 hours	April 1, 2000 26- hours	NA – See Change Oil
	Change Oil	5000 hrs.	4/30/07	August, 2011
M-5	Check Oil	Monthly	5/5/11	June, 2011
	Initial re-check of all bolt torques and oil change	50 hours	June, 2000 30-hours	NA – See Change Oil
	Change Oil	5000 hrs.	30-hours	August, 2011
M-6	Check Oil	Monthly	5/5/11	June, 2011
	Initial re-check of all bolt torques and oil change	50 hours	75 hrs	5075 hrs
	Change Oil	5000 hrs.	76 hrs	April, 2011

Notes: Update Equipment Record Card following completion of any preventive maintenance

TABLE VI-2

GROVELAND PREVENTIVE MAINTENANCE SCHEDULE

Equipment	Maintenance Description	Frequency	Date or Hours of Last service	Date or Hours of Next service
INCLINED PLATE CLARIFIER				
LC-1	Inspect and Clean plates. Inspect interior coating and repair if necessary.	As Needed	2/14/11	August, 2011
M-4	Change Gear Grease	5 years	3/30/10	March, 2016
S-1	Initial Oil Change	250 Hours	6/20/00	250 hours
	Normal Oil Change	1500 Hours	NA	1770.6
SAND FILTERS				
F-1, 2 & 3	Collect media sample (Anthracite) and record depth of media	Performance Decision	NA	NA
	Drain and clean differential pressure gauge lines	Monthly	5/26/11	June, 2011
	Drain and clean pressure gauge lines	Monthly	5/26/11	June, 2011
UV-OXIDATION EQUIPMENT				
General	Perform monthly performance review during monthly maintenance to identify problems, and or confirm maintenance frequencies.	Monthly	5/25/11	June, 2011
Transmittance Controller/Wiper Assemblies	Manually activate the transmittance controller. Check that the wiper travels the entire tube surface, and the travel is smooth and not vibrating.	Monthly	5/25/11	June, 2011
Stop Event Check	Press Emergency Stop and confirm unit shuts down and returns to ready mode upon acknowledging the stop command	Monthly	5/25/11	June, 2011
Rayox Reactors	Inspect/Clean each Rayox Reactor Cabinet and check for leaks.	Monthly	5/25/11	June, 2011
	Visually inspect each moisture sensor to ensure in good condition and is free of water and dirt.	Monthly	5/25/11	June, 2011
	Clean or replace air filter	Monthly	5/25/11	June, 2011
	Inspect lamps for damage and foreign material. Clean if necessary with methanol and rubber gloves.	Monthly	5/25/11	June, 2011
	Inspect quartz inner and outer surfaces for cleanliness. If necessary clean in accordance with Calgon O&M Requirements.	Monthly	5/25/11	June, 2011
	Inspect ceramic insulators for cracks and damage, replace as necessary.	Monthly	5/25/11	June, 2011
	Inspect quartz tube o-ring seals for burns and leaks. Replace if necessary	Monthly	5/25/11	June, 2011
Rayox Power Supplies	Inspect enclosure and clean if necessary.	Monthly	5/25/11	June, 2011
UV-Lamp	Replace lamp every 3000 hrs.	3000 hrs	5/25/11 Reactor #3	3000 hrs

Notes: Update Equipment Record Card following completion of any preventive maintenance

TABLE VI-2

GROVELAND PREVENTIVE MAINTENANCE SCHEDULE

Equipment	Maintenance Description	Frequency	Date or Hours of Last service	Date or Hours of Next service
FILTER PRESS				
Hydraulic unit	Inspect oil level, and check for leaks.	Monthly	May, 2011	June, 2011
	Change oil	Annually (2000 hrs)	6/15/10	June, 2011
Filter Press	Grease plate shifter chain, lubricate shifter, and check for proper tension	Monthly	May, 2011	June, 2011
	Service Eurodrive for plate shifter	Every 2 years	4/14/10	April, 2012
	Clean cloths and inspect/adjust light curtain operation	Monthly	May, 2011	June, 2011
	Inspect valve operations and adjust as necessary	Monthly	May, 2011	June, 2011
PROCESS TANKS AND EQUIPMENT				
T-1	Drain, inspect and clean tank. Inspect mixer and floats for proper installation.	Performance Decision	June, 2004	As Necessary
T-2	Drain, inspect and clean tank. Inspect mixer and floats for proper installation.	Performance Decision	April, 2000	As Necessary
T-3	Drain, inspect and clean tank	Performance Decision	January, 2007	As Necessary
T-4	Drain, inspect and clean tank	Performance Decision	June, 2005	As Necessary
T-5	Drain, inspect and clean tank and mixer as necessary	Performance Decision	April, 2000	As Necessary
T-6	Drain, inspect and clean tank. Inspect mixer and floats for proper installation.	Performance Decision	April, 2000	As Necessary
T-7	Drain, inspect and clean tank. Inspect floats for proper installation.	Performance Decision	April, 2000	As Necessary
T-8	Thoroughly inspect tank integrity for potential failures or future problems	Quarterly	4/11/11	July, 2011
	Evaluate tank contents to determine if tank draining and cleaning is required.	Quarterly	4/11/11	July, 2011
VARIABLE SPEED DRIVES				
VFD for P-1A	Clean cooling fins at rear of panel and panel internals. Inspect internal panel mounting hardware for proper tightness	6 Months or as needed	2/24/11	August, 2011
VFD for P-1B	Clean cooling fins at rear of panel and panel internals. Inspect internal panel mounting hardware for proper tightness	6 Months or as needed	2/24/11	August, 2011
VFD for P-2A	Clean cooling fins at rear of panel and panel internals. Inspect internal panel mounting hardware for proper tightness	6 Months or as needed	2/24/11	August, 2011
VFD for P-2B	Clean cooling fins at rear of panel and panel internals. Inspect internal panel mounting hardware for proper tightness	6 Months or as needed	2/24/11	August, 2011
VFD for P-3A	Clean cooling fins at rear of panel and panel internals. Inspect internal panel mounting hardware for proper tightness	6 Months or as needed	2/24/11	August, 2011
VFD for P-3B	Clean cooling fins at rear of panel and panel internals. Inspect internal panel mounting hardware for proper tightness	6 Months or as needed	2/24/11	August, 2011

Notes: Update Equipment Record Card following completion of any preventive maintenance

TABLE VI-2

GROVELAND PREVENTIVE MAINTENANCE SCHEDULE

Equipment	Maintenance Description	Frequency	Date or Hours of Last service	Date or Hours of Next service
HVAC EQUIPMENT				
BR-1	Contract annual maintenance service and cleaning by Subcontractor	Annually	10/28/10	October, 2011
AHU-1	Inspect, clean, or replace Air Filters	Quarterly (Performance Decision)	3/21/11	June, 2011
	Inspect drive motor, and fan for excessive vibration or noise. Inspect mounting hardware, and belt tension. Grease bearings as needed.	6 Months or as needed	12/16/10	June, 2011
AHU-2	Inspect, clean, or replace Air Filters	Quarterly (Performance Decision)	3/21/11	June, 2011
	Inspect drive motor, and fan for excessive vibration or noise. Inspect mounting hardware, and belt tension. Grease bearings as needed.	6 Months or as needed	1/24/11	June, 2011
EF-1	Inspect belts for proper tightness. Grease bearings as needed.	6 Months or as needed	12/16/10	June, 2011
EF-2	Inspect belts for proper tightness. Grease bearings as needed.	6 Months or as needed	12/16/10	June, 2011
EF-3	Inspect belts for proper tightness. Grease bearings as needed.	6 Months or as needed	12/16/10	June, 2011
EF-5	Inspect belts for proper tightness. Grease bearings as needed.	6 Months or as needed	12/16/10	June, 2011
EF-6	Inspect belts for proper tightness. Grease bearings as needed.	6 Months or as needed	12/16/10	June, 2011
EF-7	Inspect belts for proper tightness. Grease bearings as needed.	6 Months or as needed	12/16/10	June, 2011
UH-1	Clean entire heater	Annually	10/28/10	October, 2011
UH-2	Clean entire heater	Annually	10/28/10	October, 2011
UH-3	Clean entire heater	Annually	10/28/10	October, 2011
HP-1/ACU-1	Clean air filter, replace as necessary	Annually	6/16/10	June, 2011
VAPOR PHASE CARBON SYSTEM				
VC-1A	Replace spent carbon	6 Months or as needed	4/20/11	September, 2011
VC-2B	Replace spent carbon	6 Months or as needed	12/29/10	June, 2011
EXTRACTION WELL LINE CLEANING				
Well field #1	Clean well line (if needed)	As needed	6/12/09	June, 2011
Well field #2	Clean well line (if needed)	As needed	5/21/03	June, 2011
Well field #3	Clean well line (if needed)	As needed	5/21/03	June, 2011
AUTODIALER				
Autodialer	Replace batteries in unit	Every 3 Years	October, 2010	October, 2013
FIRE ALARM SYSTEM				
Fire Alarms	Check all detectors, horns and emergency lighting	Every Year	January, 2011	January, 2012

Notes: Update Equipment Record Card following completion of any preventive maintenance

TABLE VI-2

GROVELAND PREVENTIVE MAINTENANCE SCHEDULE

Equipment	Maintenance Description	Frequency	Date or Hours of Last service	Date or Hours of Next service
FIRE SUPPRESSION SYSTEM				
Sprinklers	Calibrate or replace pressure gauge, dismantle and check piping.	Every 5 Years if needed	January, 2011	January, 2012
COMPRESSED AIR DRYER UNIT				
Desiccant	Replace desiccant material.	Every 3 to 5 Years	June, 2008	June, 2011
Mufflers	Replace exhaust mufflers	Annually	8/16/10	August, 2011
Mufflers	Pull and clean exhaust mufflers of fines	Monthly	5/26/11	June, 2011
Control filter	Replace dryer control filter	As needed	7/13/09	June, 2011
FIRST AID KIT				
First Aid Kit	Inventory contents and check expiration dates	Monthly	12/30/10	June, 2011
PEROXIDE DESTRUCTION UNIT				
PDU	Change out media	Annually	April, 2011	April, 2012

Notes: Update Equipment Record Card following completion of any preventive maintenance

ATTACHMENT VII

OPERATIONS PERSONNEL STAFFING SUMMARY

TABLE VII-1

**OPERATIONS PERSONNEL SUMMARY
GROVELAND WELLS SUPERFUND SITE**

Date	Operator 1		Operator 2		Other Support Staff	On Call Operator	Visitors
	Name	Grade	Name	Grade			
5/1/2011	B. Fletcher		F. Symmes			Robert Ricard	
5/2/2011	R. Ricard	6	B. Fletcher		F. Symmes, O. Friend-Gray	Robert Ricard	
5/3/2011	R. Ricard	6	O. Friend-Gray		F. Symmes, D. Baxter	Robert Ricard	
5/4/2011	R. Ricard	6	O. Friend-Gray			Robert Ricard	
5/5/2011	R. Ricard	6	J. Warrington			Robert Ricard	
5/6/2011	R. Ricard	6	J. Warrington			Robert Ricard	Groveland Power
5/7/2011						Robert Ricard	
5/8/2011						Robert Ricard	
5/9/2011	R. Ricard	6	J. Warrington			Robert Ricard	
5/10/2011	R. Ricard	6	J. Warrington			Robert Ricard	MassDEP: S. Mahoney
5/11/2011	R. Ricard	6				Robert Ricard	
5/12/2011	R. Ricard	6	J. Saylor			Robert Ricard	
5/13/2011	R. Ricard	6				Robert Ricard	
5/14/2011						Robert Ricard	
5/15/2011						Robert Ricard	
5/16/2011	R. Ricard	6	J. Warrington			Robert Ricard	
5/17/2011	R. Ricard	6	J. Warrington			Robert Ricard	MassDEP: P. Hurley, S. Mahoney, J. Waldron
5/18/2011	R. Ricard	6	J. Warrington			Robert Ricard	
5/19/2011	R. Ricard	6	J. Warrington			Robert Ricard	Daniels Electric
5/20/2011	R. Ricard	6				Robert Ricard	
5/21/2011						Robert Ricard	
5/22/2011						Robert Ricard	
5/23/2011	R. Ricard	6				Robert Ricard	
5/24/2011	R. Ricard	6	J. Warrington		F. Symmes	Robert Ricard	MassDEP: P. Hurley, S. Mahoney, J. Waldron
5/25/2011	R. Ricard	6	J. Warrington		D. Muzrall	Robert Ricard	
5/26/2011	R. Ricard	6	J. Warrington			Robert Ricard	
5/27/2011	R. Ricard	6				Robert Ricard	
5/28/2011						Robert Ricard	
5/29/2011						Robert Ricard	
5/30/2011	R. Ricard	6				Robert Ricard	
5/31/2011	R. Ricard	6	J. Warrington		F. Symmes, D. Baxter	Robert Ricard	MassDEP: P. Hurley, S. Mahoney, J. Waldron

ATTACHMENT VIII

WEATHER DATA

TABLE VIII-I**MONTHLY WEATHER SUMMARY****GROVELAND WELLS SUPERFUND SITE****May 2011**

Date	Minimum Temperature (°F)	Maximum Temperature (°F)	Precipitation		Comments
			inches	type	
1	40	59			Weekend
2	38	71			
3	54	70			
4	48	65	0.30	Rain	
5	46	55			
6	41	70			
7	51	71	0.43	Rain	Weekend
8	49	63			Weekend
9	48	70			
10	50	60	0.10	Rain	
11	50	65			
12	48	65			
13	40	70			
14	45	60	0.18	Rain	Weekend
15	48	60	0.38	Rain	Weekend
16	48	50			
17	46	50	0.10	Rain	
18	48	50	0.40	Rain	
19	50	65	0.10	Rain	
20	51	63			
21	48	73			Weekend
22	48	56	0.16	Rain	Weekend
23	48	62	0.10	Rain	
24	63	80	0.80	Rain	
25	60	75			
26	55	85			
27	65	90			
28	57	79			Weekend
29	56	86			Weekend
30	68	88			
31	61	82			
Total Rain for Month (in.)			3.1		
Total Snow for Month (in.)			-		