

10 March 2006

Mr. Michael J. Hinton, P.E.
Environmental Engineer 2
New York State Department of Environmental Conservation
Division of Environmental Remediation - Region 9
270 Michigan Avenue
Buffalo, New York 14203

RE: Monthly Progress Report - February 2006
Greif Bros. Facility - Tonawanda, New York
NYSDEC VCP Number V00334-9



***Key Actions
This Period:***

- Continued operation and maintenance (O&M) of the dense, non-aqueous phase liquid (DNAPL) recovery system in the Varnish Pit Area.
- Collected and recorded DNAPL and ground water levels in recovery wells and nearby shallow wells and vapor monitoring points. A table summarizing these data is presented on Pages 4 and 5.
- Collected and recorded light, non-aqueous phase liquid (LNAPL) and ground water level measurements periodically from monitoring well MW-23. These data are summarized in a table on Pages 6 and 7.
- Removed LNAPL from monitoring well MW-23. LNAPL recovery data are summarized on Pages 6 and 7.
- Collected and recorded DNAPL and ground water level measurements periodically from monitoring well MW-20.
- Recovered DNAPL from monitoring well MW-20.
- Continued preparation of the Soil Interim Remedial Measure (IRM) Report including data reduction, preparation of tables and figures, and laboratory analytical data validation.
- Planning for implementation of a fluorescent dye tracing program for evaluation of the source of ground water beneath the building.

- Planning for preparation of the Focused Feasibility Study for affected soil and ground water beneath the building.

***Problems/
Resolutions:***

Several DNAPL recovery system valves required replacement. The valves were replaced to facilitate ongoing DNAPL recovery operations in the Varnish Pit Area.

***Analytical Data
Received:***

- Laboratory analytical report dated 20 February 2006 from STL-Buffalo (STL) with volatile organic compound (VOC) and selected monitored natural attenuation (MNA) parameters results for the January 2006 ground water sampling event.

Tables summarizing VOCs detected and MNA parameters are presented on Pages 8-12.

***Documents
Submitted:***

- E-mail correspondence dated 1 February 2006 advising NYSDEC of ERM's interpretation regarding laboratory analytical deliverables requirements outlined in the Site-specific Quality Assurance Project Plan (QAPP).
- E-mail correspondence dated 1 February 2006 responding to NYSDEC's request for an update of the Site-specific QAPP by proposing that the update be incorporated into the Remedial Action Work Plan.
- Monthly Progress Report for January 2006 dated 10 February 2006.

***Anticipated
Actions -
March 2006:***

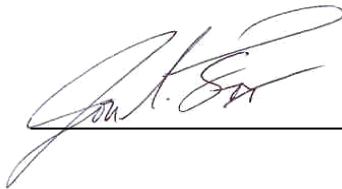
- Continuation of DNAPL recovery system O&M.
- Continuation of monitoring of DNAPL and ground water levels in recovery wells, nearby shallow monitoring wells, and vapor monitoring points.
- Continuation of LNAPL and ground water level measurements in monitoring well MW-23 and removal of LNAPL from the well.
- Continuation of DNAPL and ground water level measurements in monitoring well MW-20 and removal of DNAPL from the well.

- Ongoing management of wastes generated during IRM activities.
- Contact NYSDEC to schedule a meeting to discuss the proposed approach and outline for the FFS.
- Initiate preparation of the FFS for affected media beneath the building.
- Submission of the Soil IRM Report to NYSDEC on or before 31 March 2006.

**NYSDEC-
Approved Field
Decisions:**

None.

Prepared By:



Jon S. Fox, P.G.
Senior Project Manager

Date: 10 March 2006

Cc: Mr. Matt Forcucci (NYSDOH)
Mr. Pete Gruene (Palmetto Env. Mgmt. Solutions)
Mr. Gary Litwin (NYSDOH)
Mr. Robert Powell, C.S.P., A.R.M. (Sonoco)
Mr. Joseph Ryan, Esq. (NYSDEC)
Mr. Gregory Sutton, P.E. (NYSDEC)
Mr. A. Joseph White (NYSDEC)

SUMMARY OF DNAPL RECOVERY DATA
VARNISH PIT AREA DNAPL RECOVERY IRM

Date	Volume Recovered (gallons)		RW-1 Thickness (feet)		RW-2 Thickness (feet)		RW-4 Thickness (feet)	
	DNAPL	Water	DNAPL	Water	DNAPL	Water	DNAPL	Water
Pilot Test	270.0	0.0	5.62	3.56	0.88	3.90	NI	NI
12-Sept-05	54.9	1.9	1.79	7.75	1.56	7.94	1.47	7.42
1-Nov-05	4.8	296.2	2.57	6.66	3.39	5.81	2.17	6.32
11-Nov-05	3.6	38.8	1.77	6.17	3.42	5.68	1.30	7.18
14-Nov-05	0.6	97.2	1.74	6.49	3.14	5.68	1.28	7.11
15-Nov-05	14.1	49.0	1.73	5.79	2.27	6.53	1.30	7.00
16-Nov-05	0.0	120.3	1.86	4.64	2.32	6.29	1.28	6.89
17-Nov-05	2.0	77.6	1.75	5.54	2.27	6.02	1.28	6.77
18-Nov-05	0.0	52.9	1.79	6.88	2.37	6.33	1.28	6.81
21-Nov-05	0.0	338.8	1.98	1.07	2.67	5.27	1.32	6.29
22-Nov-05	0.0	50.3	2.04	2.63	2.69	5.40	1.31	6.29
23-Nov-05	0.0	74.0	2.06	6.08	2.72	5.51	1.33	6.28
28-Nov-05	5.6	362.4	2.13	5.63	2.78	4.86	1.56	5.54
1-Dec-05	0.0	8.7	2.11	5.77	2.80	5.05	1.76	5.44
2-Dec-05	0.0	52.0	2.08	5.39	2.69	4.58	1.59	5.45
6-Dec-05	10.4	163.2	2.24	3.06	2.76	4.69	1.58	5.04
7-Dec-05	3.4	48.0	2.02	0.02	2.77	4.66	1.63	4.96
8-Dec-05	1.8	48.5	2.02	0.16	2.62	0.42	1.58	4.90
9-Dec-05	7.4	24.6	1.99	0.18	2.60	0.26	1.58	4.81
12-Dec-05	30.3	72.8	2.01	0.15	2.81	4.34	1.56	2.74
13-Dec-05	6.3	14.6	2.03	0.02	3.62	0.94	2.96	3.08
14-Dec-05	7.6	0.6	2.00	0.08	2.68	1.15	3.04	3.14
15-Dec-05	17.0	29.8	2.03	0.01	2.63	1.18	1.61	0.25
19-Dec-05	1.9	5.7	2.00	0.07	2.81	4.17	2.63	3.55
21-Dec-05	12.3	38.7	2.00	0.10	2.66	1.68	1.78	1.04
22-Dec-05	7.6	6.5	1.99	0.07	2.66	2.95	1.41	0.22
27-Dec-05	8.0	18.5	2.03	0.03	2.49	0.17	2.20	3.95
28-Dec-05	7.4	18.6	2.00	0.10	2.56	0.05	1.37	0.03
29-Dec-05	5.3	2.9	2.00	0.10	2.57	0.05	1.37	0.03

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3-Jan-06	2.6	38.7	2.01	0.02	2.49	0.03	1.38	0.10
6-Jan-06	6.6	10.2	1.97	0.08	2.46	0.05	1.37	0.11
10-Jan-06	16.8	2.5	1.96	1.04	2.48	0.11	1.47	0.02
12-Jan-06	10.0	0.0	2.00	0.08	2.52	0.07	1.37	0.03
19-Jan-06	4.7	34.8	1.97	0.05	2.48	0.13	1.37	0.02
23-Jan-06	6.0	14.3	1.98	0.11	2.47	0.12	1.37	0.03
26-Jan-06	6.5	11.3	1.96	0.07	2.49	0.12	1.37	0.05
30-Jan-06	4.3	14.8	1.93	0.15	2.49	0.09	1.49	0.33
2-Feb-06	3.24	0.12	1.96	0.07	2.49	0.14	1.36	0.06
3-Feb-06	0.54	5.62	1.96	0.07	2.49	0.13	1.35	0.07
6-Feb-06	0.54	23.98	1.95	0.25	2.47	0.13	1.58	1.74
9-Feb-06	3.48	18.92	1.94	0.07	2.47	0.12	1.34	0.06
13-Feb-06	7.20	9.80	1.95	0.08	2.53	0.08	1.36	0.04
16-Feb-06	3.92	8.64	1.96	0.07	2.50	0.42	1.35	0.07
20-Feb-06	3.96	12.84	1.92	0.11	2.49	1.62	1.34	0.14
27-Feb-06	5.28	13.20	1.93	0.10	2.51	4.41	1.35	0.05
TOTAL	568.0	2332.8						

NOTES:

- Pilot test data reported at the end of the pilot test on 16 November 2004.
- NI = well not installed yet.
- Volume readings represent the volume recovered since the previous reading.

SUMMARY OF LNAPL RECOVERY DATA - WELL MW-23

Date	Volume of LNAPL Recovered (gallons)	LNAPL Thickness in MW-23 (feet)	Water Thickness in MW-23 (feet)
9-Sept-05	0.00	0.40	3.38
12-Sept-05	0.00	0.41	3.23
20-Sept-05	0.00	0.52	2.98
11-Oct-05	0.00	0.56	2.67
21-Oct-05	0.00	0.57	2.78
26-Oct-05	0.00	0.60	2.78
2-Nov-05	0.00	0.68	2.67
11-Nov-05	0.04	0.27	2.53
15-Nov-05	0.10	0.61	2.10
16-Nov-05	0.04	0.25	1.55
17-Nov-05	0.03	0.18	1.22
18-Nov-05	0.00	0.08	0.97
21-Nov-05	0.02	0.15	1.09
22-Nov-05	0.04	0.27	0.68
23-Nov-05	0.04	0.26	0.49
29-Nov-05	0.04	0.23	0.54
2-Dec-05	0.00	0.20	0.42
6-Dec-05	0.03	0.20	0.51
7-Dec-05	0.00	0.16	0.36
8-Dec-05	0.03	0.16	0.40
9-Dec-05	0.00	0.07	0.35
12-Dec-05	0.00	0.07	0.41
19-Dec-05	0.00	0.17	0.39
22-Dec-05	0.03	0.17	0.54
27-Dec-05	0.00	0.14	0.45
29-Dec-05	0.03	0.17	0.48
3-Jan-06	0.02	0.15	0.37
6-Jan-06	0.00	0.12	0.30
10-Jan-06	0.00	0.08	0.42
12-Jan-06	0.00	0.13	0.35
19-Jan-06	0.02	0.12	0.48

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26-Jan-06	0.03	0.18	0.50
30-Jan-06	0.00	0.18	0.57
2-Feb-06	0.03	0.17	0.61
3-Feb-06	0.00	0.17	0.40
6-Feb-06	0.00	0.20	0.40
9-Feb-06	0.00	0.20	0.45
13-Feb-06	0.00	0.20	0.54
16-Feb-06	0.00	0.14	0.66
20-Feb-06	0.00	0.07	0.75
27-Feb-06	0.02	0.15	0.75
TOTAL	0.59		

NOTES:

- Data refers to light, non-aqueous phase liquid (LNAPL) measured and recovered from monitoring well MW-23 (the only well observed with LNAPL to date).
- LNAPL volumes are estimated based on the measured thickness of LNAPL in the well prior to removal and the cross-sectional volume of the well screen and are thought to be conservatively low (additional LNAPL migration into the well during bailing is not accounted for).
- Volume readings represent the volume recovered since the previous reading.
- LNAPL and ground water thickness data were collected as static level measurements prior to bailing of the well.

**SUMMARY OF UNVALIDATED LABORATORY ANALYTICAL DATA
 RECEIVED IN FEBRUARY 2006
 GREIF BROS. FACILITY - TONAWANDA, NEW YORK
 NYSDEC VCP NUMBER V00334-9**

VOC RESULTS

Sample Designation	Sample Matrix	Sample Date	Compounds Detected	Concentration (ppb)
January 2006 Sampling Event				
Greif-MW-24 (01/06)	Ground Water	30-Jan-06	Benzene	1.5
			Chloroform	3.8
			cis-1,2-Dichloroethene	270
			trans-1,2-Dichloroethene	1.3
			Tetrachloroethene	1.6
			Toluene	1.0
			1,1,1-Trichloroethane	0.79 J
			Trichloroethene	430
			1,2,4-Trimethylbenzene	0.56 J
			Vinyl chloride	6.8
			Xylene (total)	1.8 J
Greif-MW-25 (01/06)	Ground Water	30-Jan-06	Chloroethane	1.6
			1,1-Dichloroethane	7.9
			1,1-Dichloroethene	0.62 J
			cis-1,2-Dichloroethene	12.0
			1,1,1-Trichloroethane	11.0
			Trichloroethene	1.5
			Vinyl chloride	0.74 J
Greif-MW-12 (01/06)	Ground Water	31-Jan-06	Chloroethane	6.6
			Chloroform	1.0
			1,1-Dichloroethane	1,900
			1,2-Dichloroethane	5.5
			1,1-Dichloroethene	390
			cis-1,2-Dichloroethene	1,900
			trans-1,2-Dichloroethene	47
			Ethylbenzene	0.5 J
			1,1,1-Trichloroethane	160
			1,1,2-Trichloroethane	270
Vinyl chloride	350			
Greif-MW-13 (01/06)	Ground Water	31-Jan-06	Benzene	3.1
			2-Butanone	95
			Chloroethane	1.6
			Chloroform	50
			1,1-Dichloroethane	9,200
			1,2-Dichloroethane	140 E
			1,1-Dichloroethene	15,000
			cis-1,2-Dichloroethene	9,700

Greif-MW-13 (01/06) (continued)	Ground Water	31-Jan-06	trans-1,2-Dichloroethene	300 E
			Ethylbenzene	19
			Methylene chloride	18
			4-Methyl-2-pentanone	10
			Tetrachloroethene	5.7
			Toluene	16
			1,1,1-Trichloroethane	37,000
			1,1,2-Trichloroethane	7.2
			Trichloroethene	63,000
			1,2,4-Trimethylbenzene	27
			Vinyl chloride	86
Xylene (total)	67			
Greif-DUP (01/06) (MW-13)	Ground Water	31-Jan-06	1,1-Dichloroethane	9100
			1,2-Dichloroethane	150 J
			1,1-Dichloroethene	14,000
			cis-1,2-Dichloroethene	9,700
			trans-1,2-Dichloroethene	330
			1,1,1-Trichloroethane	36,000
			Trichloroethene	63,000
Greif-MW-22 (01/06)	Ground Water	31-Jan-06	1,1-Dichloroethane	5.1
			1,1-Dichloroethene	4.0
			1,1,1-Trichloroethane	1.5
			Trichloroethene	12
Greif-MW-14 (01/06)	Ground Water	31-Jan-06	1,1-Dichloroethane	2,800
			1,1-Dichloroethene	2,300
			cis-1,2-Dichloroethene	240
			1,1,1-Trichloroethane	120 J
			Trichloroethene	66,000
Greif-MW-21S (01/06)	Ground Water	31-Jan-06	1,1-Dichloroethane	0.57 J
			1,1,1-Trichloroethane	5.0
			Trichloroethene	12
Greif-MW-21I (01/06)	Ground Water	31-Jan-06	Trichloroethene	0.84 J
Greif-MW-18 (01/06)	Ground Water	31-Jan-06	Chloroethane	110
			1,1-Dichloroethane	2,100
			1,1-Dichloroethene	250
			cis-1,2-Dichloroethene	490
			Ethylbenzene	74
			1,1,1-Trichloroethane	37,000
			Trichloroethene	280
			1,2,4-Trimethylbenzene	65
			Vinyl chloride	180
			Xylene (total)	260

NOTES:

- Compounds, elements, or other parameters listed are limited to those that were detected.
- ---- = not detected in this sample.
- J = Indicates an estimated value.
- B = Indicates that the analyte was found in the associated blank as well as in the sample.
- D = Indicates that the concentration was identified in an analysis at the secondary dilution factor.
- pH reported in standard units (analyzed in the field using a calibrated electronic pH meter)

**SUMMARY OF UNVALIDATED LABORATORY ANALYTICAL DATA
 RECEIVED IN FEBRUARY 2006 (Continued)
 GREIF BROS. FACILITY - TONAWANDA, NEW YORK
 NYSDEC VCP NUMBER V00334-9**

NATURAL ATTENUATION PARAMETERS RESULTS

Sample Designation	Sample Matrix	Sample Date	Compounds Detected	Concentration (see notes)
Greif-MW-24 (01/06)	Ground Water	30-Jan-06	Bicarbonate Alkalinity *	91.4
			Methane**	4.3
			Nitrate***	0.40
			Soluble Organic Carbon *	10
			Sulfate *	844
			Total Alkalinity*	91.4
			Total Dissolved Solids*	1680
			Total Hardness*	969
Greif-MW-25 (01/06)	Ground Water	30-Jan-06	Iron (Dissolved)*^	0.4
			Bicarbonate Alkalinity *	204
			Methane**	6.8
			Nitrate ***	7.5
			Soluble Organic Carbon *	9.3
			Sulfate *	2240
			Total Alkalinity*	204
			Total Dissolved Solids*	3760
Greif-MW-12 (01/06)	Ground Water	31-Jan-06	Total Hardness*	2210
			Iron (Dissolved)*^	0.0
			Bicarbonate Alkalinity *	750
			Ethene**	3.4
			Methane**	52
			Soluble Organic Carbon *	8.3
			Sulfate *	156
			Sulfide*	2.4
Greif-MW-13 (01/06)	Ground Water	31-Jan-06	Total Alkalinity*	750
			Total Dissolved Solids*	1050
			Total Hardness*	699
			Iron (Dissolved)*^	1.3
			Bicarbonate Alkalinity *	637
			Ethane**	2.1
			Ethene**	12
			Methane**	470 E
Greif-MW-13 (01/06)	Ground Water	31-Jan-06	Soluble Organic Carbon *	24.2
			Sulfate *	213
			Total Alkalinity*	637
			Total Dissolved Solids*	1760
			Total Hardness*	1390
			Iron (Dissolved)*^	1.4

Greif-DUP (01/06) (MW-13)	Ground Water	31-Jan-06	Bicarbonate Alkalinity *	635
			Ethane**	430 E
			Soluble Organic Carbon *	23.8
			Sulfate *	209
			Total Alkalinity*	635
			Total Dissolved Solids*	1840
			Total Hardness*	1180
Greif-MW-22 (01/06)	Ground Water	31-Jan-06	Bicarbonate Alkalinity *	396
			Methane**	5.6
			Soluble Organic Carbon *	4.3
			Sulfate *	579
			Total Alkalinity*	396
			Total Dissolved Solids*	1180
			Total Hardness*	624
			Iron (Dissolved)*^	0.7
Greif-MW-14 (01/06)	Ground Water	31-Jan-06	Bicarbonate Alkalinity *	519
			Ethane**	1.7
			Methane**	2.2
			Soluble Organic Carbon *	6.6
			Sulfate *	101
			Total Alkalinity*	519
			Total Dissolved Solids*	739
			Total Hardness*	514
Greif-MW-21S (01/06)	Ground Water	31-Jan-06	Bicarbonate Alkalinity *	475
			Soluble Organic Carbon *	4.7
			Sulfate *	50.5
			Total Alkalinity*	475
			Total Dissolved Solids*	490
			Total Hardness*	385
			Iron (Dissolved)*^	0.2
Greif-MW-21I (01/06)	Ground Water	31-Jan-06	Bicarbonate Alkalinity *	448
			Methane**	4.3
			Soluble Organic Carbon *	5.0
			Sulfate *	99.4
			Total Dissolved Solids*	551
			Total Hardness*	384
Greif-MW-18 (01/06)	Ground Water	31-Jan-06	Bicarbonate Alkalinity *	77.7
			Carbonate Alkalinity *	24.7
			Ethane**	1.4
			Methane**	1.6
			Soluble Organic Carbon *	8.0
			Sulfate *	356
			Total Alkalinity*	102
			Total Dissolved Solids*	932
			Total Hardness*	428
Iron (Dissolved)*^	0.2			

NOTES:

- Compounds, elements, or other parameters listed are limited to those that were detected.
- ---- = not detected in this sample.
- E = Indicates that the concentration exceeds the calibration range of the instrument for that specific analysis.
- All compounds are reported in parts-per-billion (ppb) unless otherwise noted.
- * = mg/L (milligrams-per-liter or parts-per-million)
- ** = $\mu\text{g/L}$ (micrograms-per-liter or ppb)
- *** = mg/L-N (milligrams Nitrogen-per-liter).
- ^ Dissolved iron (ferrous iron) was analyzed in the field as per the IRM Work Plan.
- ^^ Sample was not reanalyzed at the secondary dilution factor due to insufficient sample