

10 June 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 - May 2006  
Greif Bros. Facility - Tonawanda, New York  
NYSDEC VCP Number V00334-9



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***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 as an Interim Remedial Measure (IRM).
- 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. LNAPL present within MW-23 was pumped from the monitoring well and transferred to a 55-gallon drum. These data are summarized in a table on Pages 6 and 7.
- Collected and recorded DNAPL and ground water level measurements periodically from monitoring well MW-20. DNAPL present in the monitoring well is pumped into a 55-gallon drum.
- Secondary containment and barrier fencing were installed around the temporary 1500-gallon aqueous waste container associated with DNAPL recovery operations.
- Collected a characterization sample of clean topsoil imported to the site for use as backfill in the western portion of the Soil Excavation IRM work area and submitted the sample to the project laboratory for

analysis of VOCs of potential concern. A summary of the laboratory analytical results is presented on Page 8.

- Installed and graded clean topsoil fill in the western portion of the Soil Excavation IRM work area followed by seeding and emplacement of straw.
- Received, reviewed, and summarized ground water laboratory analytical data from the April 2006 quarterly sampling event, tables are located on Page 8.
- Restoration of the work area for the former drum storage area IRM.

***Problems/  
Resolutions:*** None.

***Analytical Data  
Received:***

- Laboratory analytical report for a characterization sample of clean topsoil imported to the site for use as backfill in the Former Drum Storage Area work area.
- Laboratory analytical results for the April 2006 quarterly ground water sampling event.

A summary of unvalidated laboratory analytical results received in May 2006 is presented on Page 8.

***Documents  
Submitted:***

- E-mail correspondence to NYSDEC dated 8 May 2006 providing NYSDEC and others with a digital copy of the Soil Excavation IRM Report and a digital copy of the presentation from the 25 April 2006 site meeting.
- Monthly Progress Report for April 2006 dated 10 May 2006.
- E-mail correspondence to NYSDEC dated 18 May and 21 May 2006 regarding planning, installation of secondary containment, and temporary storage of aqueous hazardous waste from DNAPL recovery operations in an on-site 1500-gallon waste container.

***Anticipated  
Actions -  
June 2006:***

- Off-site transport and disposal of two drums of hazardous waste (one drum of recovered DNAPL and one drum of used personnel protective equipment) generated during operation of the

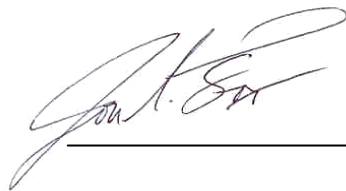
DNAPL recovery system.

- Submission of a revised project schedule to NYSDEC.
- Continuation of DNAPL recovery system O&M and planning for implementation of low-vacuum enhancements to the recovery system.
- 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 and removal of DNAPL from monitoring well MW-20.
- Initiate preparation of the Focused Feasibility Study for the Varnish Pit Area, including scheduling of soil sampling for electrical resistivity bench testing.

**NYSDEC-  
Approved Field  
Decisions:**

None.

**Prepared By:**



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

**Date:** 10 June 2006

Cc: Mr. Matt Forcucci (NYSDOH)  
Mr. Pete Gruene (Palmetto Env. Mgmt. Solutions)  
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
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	3.2	0.1	1.96	0.07	2.49	0.14	1.36	0.06
3-Feb-06	0.5	5.6	1.96	0.07	2.49	0.13	1.35	0.07
6-Feb-06	0.5	24.0	1.95	0.25	2.47	0.13	1.58	1.74
9-Feb-06	3.5	18.9	1.94	0.07	2.47	0.12	1.34	0.06

Date	Volume Recovered (gallons)		RW-1 Thickness (feet)		RW-2 Thickness (feet)		RW-4 Thickness (feet)	
	DNAPL	Water	DNAPL	Water	DNAPL	Water	DNAPL	Water
13-Feb-06	7.2	9.8	1.95	0.08	2.53	0.08	1.36	0.04
16-Feb-06	3.9	8.6	1.96	0.07	2.50	0.42	1.35	0.07
20-Feb-06	4.0	12.8	1.92	0.11	2.49	1.62	1.34	0.14
27-Feb-06	5.3	13.2	1.93	0.10	2.51	4.41	1.35	0.05
3-Mar-06	2.6	32.0	1.93	0.17	2.42	0.16	1.35	0.03
7-Mar-06	2.6	21.6	1.94	0.09	2.42	0.08	1.35	0.10
10-Mar-06	0.0	5.8	1.94	0.01	2.43	0.05	1.36	0.11
13-Mar-06	1.4	12.2	1.93	0.17	2.38	0.18	1.35	0.04
16-Mar-06	0.7	12.3	1.94	0.08	2.39	0.19	1.35	0.05
20-Mar-06	2.4	11.7	1.48	0.06	2.02	0.20	1.05	2.33
23-Mar-06	4.0	16.2	1.46	0.14	1.99	0.17	0.82	0.03
30-Mar-06	4.9	15.7	1.46	0.07	1.96	0.23	0.80	0.07
3-April-06	3.5	31.3	1.46	0.12	1.96	0.18	0.80	0.04
7-Apr-06	4.8	15.5	1.46	0.07	1.96	0.20	0.81	0.04
11-Apr-06	4.0	6.9	1.46	0.13	1.96	0.20	0.80	0.04
13-Apr-06	2.2	7.9	1.47	0.12	1.96	0.18	0.80	0.02
17-Apr-06	1.1	21.4	1.45	0.08	1.96	0.23	0.80	0.08
21-Apr-06	3.2	13.7	1.44	0.14	1.96	0.16	0.80	0.02
28-Apr-06	4.3	21.9	1.46	0.07	2.01	0.07	0.80	0.10
09-May-06	10.2	32.8	1.46	0.04	1.99	0.19	0.80	0.05
11-May-06	2.4	10.4	1.46	0.13	2.04	0.12	0.80	0.05
16-May-06	3.9	13.7	1.44	0.10	2.00	0.20	0.80	0.08
19-May-06	4.0	9.6	1.46	0.07	2.01	0.19	0.80	0.08
23-May-06	5.3	19.8	1.45	0.13	1.97	0.15	0.80	0.05
25-May-06	6.2	28.9	NM	NM	NM	NM	NM	NM
<b>TOTAL</b>	<b>641.7</b>	<b>2,944.9</b>						

**NOTES:**

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

**SUMMARY OF LNAPL RECOVERY DATA - WELL MW-23**

<b>Date</b>	<b>Volume of LNAPL Recovered (gallons)</b>	<b>LNAPL Thickness in MW-23 (feet)</b>	<b>Water Thickness in MW-23 (feet)</b>
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
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

<b>Date</b>	<b>Volume of LNAPL Recovered (gallons)</b>	<b>LNAPL Thickness in MW-23 (feet)</b>	<b>Water Thickness in MW-23 (feet)</b>
3-Mar-06	0.03	0.17	0.48
7-Mar-06	0.03	0.17	0.38
10-Mar-06	0.01	0.08	0.38
13-Mar-06	0.04	0.28	0.0
16-Mar-06	0.00	0.27	0.0
23-Mar-06	0.02	0.10	0.39
30-Mar-06	0.02	0.14	0.30
3-Apr-06	0.02	0.10	0.20
7-Apr-06	0.01	0.07	0.23
11-Apr-06	0.01	0.06	0.26
13-Apr-06	0.02	0.11	0.26
18-Apr-06	0.03	0.16	0.16
16-May-06	0.00	0.21	0.25
<b>TOTAL</b>	<b>0.83</b>		

**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 RESULTS  
 RECEIVED IN MAY 2006**

**ANALYSIS OF TOPSOIL FILL IMPORTED TO SITE**

COMPOUND	μG/KG	Q
Methylene Chloride	1	BJ

(No other compounds detected)

**QUARTERLY GROUND WATER SAMPLING EVENT - APRIL 2006**

Sample Designation	MW-18	MW-21I	MW-22	MW-12	MW-13	MW-14	MW-21S	MW-24	MW-25
Ground Water Zone	Int	Int	Int	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Date Sampled	4/18/2006	4/18/2006	4/18/2006	4/18/2006	4/18/2006	4/18/2006	4/18/2006	4/18/2006	4/18/2006
<b>VOCs (μg/L)</b>									
Acetone	----	----	----	----	----	----	----	----	----
Benzene	----	----	----	----	----	----	----	32	----
2-Butanone	----	----	----	----	----	----	----	----	----
Chloroethane	35 J	----	----	----	----	----	----	----	0.72 J
Chloroform	----	----	----	----	----	----	----	----	----
1,1-Dichloroethane	2,100	----	1.8	2,000	8,300	2,600	----	30	10
1,2-Dichloroethane	----	----	----	----	----	----	----	----	----
1,1-Dichloroethene	190	----	----	450	12,000	----	----	8.6	1.2
cis-1,2-Dichloroethene	360	----	0.78 J	2,200	9,800	530 J	----	3,300	18.0
Trans-1,2-Dichloroethene	----	----	----	49	----	----	----	12	----
Ethylbenzene	23 J	----	----	----	----	----	----	2.8 J	----
Methylene chloride	----	----	----	----	----	----	----	2.9 J	----
4-Methyl-2-pentanone	----	----	----	----	----	----	----	----	----
Tetrachloroethene	----	----	----	----	----	----	----	8	----
Toluene	----	----	----	----	----	----	----	12	----
1,1,1-Trichloroethane	820	1.6	0.89 J	400	34,000	----	4.5	2.2 J	4.8
1,1,2-Trichloroethane	----	----	----	----	----	----	----	----	----
Trichloroethene	180	0.66 J	6.6	420	54,000	52,000	1.6	6,700	2.1
1,2,4-Trimethylbenzene	----	----	----	----	----	----	----	2.2 J	----
Vinyl chloride	100	----	----	140	----	----	----	49	0.66 J
Xylene (total)	74 J	----	----	----	----	----	----	8.1 J	----
<b>Natural Attenuation Parameters (mg/L)</b>									
Nitrate	----	----	----	----	----	----	----	.13	1.4
Soluble Organic Carbon	4.7	1.7	1.2	3.3	14.2	2.1	2.6	6.3	3.2
Sulfate	414	120	519	145	182	134	83.1	1020	1960
Sulfide	----	----	----	----	----	----	----	----	----
Total Alkalinity	207	448	401	694	602	514	479	222	178
Bicarbonate Alkalinity	185	448	401	694	602	514	479	222	178
Carbonate Alkalinity	22.6	----	----	----	----	----	----	----	----
Hydroxyl Alkalinity	----	----	----	----	----	----	----	----	----
Total Dissolved Solids	1080	574	1160	1040	1960	733	538	2820	3700
Total Hardness	432	351	643	688	2.7	508	381	1500	1870

**NOTES:**

- J = an estimated value; the data indicates the presence of a compound that meets identification criteria but the result is less than the sample quantitation limit but greater than zero.
- B = the compound was detected in the laboratory's internal quality control method blank.