

10 January 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 - December 2005  
Greif Bros. Facility - Tonawanda, New York  
NYSDEC VCP Number V00334-9



***Key Actions  
This Period:***

- Completed removal of grossly-affected soil outside the cofferdam cell in the soil boring GB-10/Former Drum Storage Area (FDSA) soil excavation Interim Remedial Measure (IRM).
- Demolition and removal of previously unknown concrete foundations encountered within the excavation area.
- Determination of the function/status of previously unknown subsurface pipes encountered within the excavation area.
- Management of excavated soil and other generated wastes.
- De-watering of excavation areas into a frac container as necessary for subsequent transportation and disposal off site.
- Collected three confirmation soil samples from the excavation outside the cofferdam cell for laboratory analysis of volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) of potential concern as listed in the NYSDEC-approved IRM Work Plan.
- Characterization sampling of "clean" excavated soil pile #2 temporarily staged on-Site for laboratory analysis of VOCs and SVOCs.
- Completed backfilling operations outside the cofferdam cell with "clean" excavated soil and

“clean” #2 stone imported to the site as approved by the NYSDEC.

- Completed measurement of elevations at structural control stations outside and inside the building to monitor for potential subsidence in the work area.
- Implementation of the Community Air Monitoring Program and odor suppression activities in the excavation work area.
- Maintenance of moisture, erosion, and sedimentation control measures within the work area.
- Off-Site transport and disposal of hazardous aqueous wastewater and hazardous soil wastes generated during soil excavation activities.
- Completed decontamination and demobilization of equipment, including the de-icing, decontamination and off-Site removal of the 10,000-gallon frac container.
- Held a final inspection with NYSDEC on 22 December 2005 resulting in substantial completion of the GB-10/FDSA soil IRM.
- Continued operation of the dense, non-aqueous phase liquid (DNAPL) recovery system in the Varnish Pit Area.
- Daily monitoring of DNAPL and ground water levels in recovery wells and weekly monitoring at nearby shallow wells and vapor monitoring points.
- Collected light, non-aqueous phase liquid (LNAPL) and ground water level measurements from monitoring well MW-23 and removal of LNAPL from the well.
- Transfer of aqueous waste generated during operation of the DNAPL recovery system to a 10,000-gallon frac container temporarily staged on-Site.
- Procurement and mobilization of a 1,500-gallon polyethylene container into the facility for temporary storage of DNAPL IRM aqueous wastes (necessary due to anticipated cold weather).

***Problems/  
Resolutions:***

Several large concrete foundations were discovered in and around the cofferdam in the FDSA. Greif Bros. personnel suggested that these foundations may have

been associated with a water tower that was formerly used to store water for the original fire suppression system. These foundations had to be demolished and removed from the work area to allow for additional excavation of grossly-affected soil in and outside of the cofferdam.

The total mass and volume of grossly-affected soil was significantly larger than originally estimated. Grossly-affected soil was concentrated around and beneath the previously unknown concrete foundations, a concrete vault, and piping associated with an older fire protection system, indicating that these subsurface features acted as conduits and preferential pathways for additional contaminant migration.

Existing monitoring wells MW-1, MW-7, and MW-9 were damaged by the remediation subcontractor during performance of soil excavation and associated handling at the Site. NYSDEC advised ERM that these wells might be needed in the future for ground water sampling and analysis. Therefore, these wells will be repaired in January 2006. Monitoring wells MW-1 and MW-7 are intermediate overburden ground water monitoring wells that will be replaced by overdrilling. The replacement wells will be designated MW-1A and MW-7A, respectively. Monitoring well MW-9 is a deep overburden monitoring well that will be re-developed using air-lift methods.

NYSDEC verbally requested on 15 December 2005 that DNAPL and LNAPL recovery data be presented in subsequent Monthly Progress Reports. As requested, DNAPL and LNAPL recovery data are summarized in tables on Pages 7 and 8, respectively.

***Analytical Data  
Received:***

- Laboratory analytical report dated 5 December 2005 from the project laboratory (STL-Buffalo) with VOC and SVOC results for three confirmation soil samples collected from the GB-10/FDSA soil excavation.
- Laboratory analytical report dated 6 December 2005

from STL-Buffalo with VOC and SVOC results for two confirmation soil samples collected from the GB-10/FDSA excavation.

- Laboratory analytical report dated 15 December 2005 from STL-Buffalo with VOC, SVOC, and pH results for a characterization sample collected from "clean" soil pile #2 temporarily staged on-site.
- Laboratory analytical report dated 19 December 2005 from STL-Buffalo with VOC and SVOC results for a soil sample collected from test pit #2.
- Laboratory analytical report dated 21 December 2005 from STL-Buffalo with VOC and SVOC results for soil confirmation samples collected from the excavation outside the cofferdam cell.
- Laboratory analytical report dated 27 December 2005 from STL-Buffalo with VOC and SVOC results for five soil confirmation samples and one blind duplicate soil sample collected from the excavation outside the cofferdam cell. This report also includes VOC, SVOC, and pH results for one characterization sample and one matrix spike/matrix spike duplicate soil sample collected from "clean" soil pile #3 temporarily staged on site.

Tables summarizing laboratory analytical data received in December 2005 are presented on Pages 9-12. All confirmation soil samples collected from the outside extent (walls and floors) of the excavated area met the IRM remedial standard of absence of grossly-affected soil based on visual and olfactory observations, field screening with a calibrated flame ionization detector, and lack of visible sheen or non-aqueous phase liquid (NAPL) as determined by application of the soil-water agitation test.

***Documents  
Submitted:***

- E-mail correspondence dated 5 December 2005 requesting NYSDEC approval for the on site re-use of "clean" excavated soil pile #1.
- E-mail correspondence dated 9 December 2005 requesting NYSDEC approval for the on site re-use of "clean" excavated soil pile #2.

- E-mail correspondence dated 9 December 2005 requesting a two-day extension for submission of the Monthly Progress Report for November 2005.
- E-mail correspondence dated 12 December 2005 in response to a request from NYSDEC providing the estimated mass of clean soil pile #2.
- Monthly Progress Report for November 2005 dated 12 December 2005.
- E-mail correspondence dated 27 December 2005 providing a clarification response to the NYSDEC correspondence dated 8 December 2005 regarding the on site re-use of the "clean" soil at the Site.

*Anticipated  
Actions -  
January 2006:*

- Installation of two shallow monitoring wells (MW-24 and MW-25) in the GB-10/FDSA.
- Repair of existing monitoring wells MW-1, MW-7, and MW-9.
- Collection of ground water samples from 11 monitoring wells as described in Section 2.2.5 of the NYSDEC-approved IRM Work Plan.
- Continuation of DNAPL Recovery IRM system operations and maintenance.
- Continuation of monitoring of DNAPL and/or ground water levels in recovery wells, nearby shallow monitoring wells, and vapor monitoring points.
- Additional development of recovery well RW-5 as requested by NYSDEC.
- Continuation of LNAPL and ground water level measurements in monitoring well MW-23 and removal of LNAPL from the well.
- Ongoing management of wastes generated during IRM activities.

*NYSDEC-  
Approved Field  
Decisions:*

None.

**Prepared By:**



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

**Date:** 10 January 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**  
**DNAPL RECOVERY INTERIM REMEDIAL MEASURE**  
**GREIF BROS. FACILITY - TONAWANDA, NEW YORK**  
**NYSDEC VCP NUMBER V00334-9**

Date	Volume of Liquids Recovered (gallons)		Thicknesses in RW-1 (feet)		Thicknesses in RW-2 (feet)		Thicknesses in RW-4 (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
<b>TOTAL</b>	<b>482.3</b>	<b>2113.1</b>						

**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**  
**DNAPL RECOVERY INTERIM REMEDIAL MEASURE**  
**GREIF BROS. FACILITY - TONAWANDA, NEW YORK**  
**NYSDEC VCP NUMBER V00334-9**

<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
<b>TOTAL</b>	<b>0.47</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 LABORATORY ANALYTICAL DATA  
 RECEIVED IN DECEMBER 2005  
 GREIF BROS. FACILITY - TONAWANDA, NEW YORK  
 NYSDEC VCP NUMBER V00334-9**

**VOC RESULTS**

Sample Designation	Sample Matrix	Sample Date	Compounds Detected	Concentration (µg/kg)
<b>Soil IRM</b>				
GREIF-EXC-CELL-EAST	Soil	16-Nov-05	1,1-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene Ethylbenzene Tetrachloroethene Trichloroethene 1,2,4-Trimethylbenzene Total Xylenes	49 6 J 880 D 34 3 J 3 J 14000 D 3 J 8 J
GREIF-EXC-CELL-NORTH	Soil	16-Nov-05	1,1-Dichloroethane 1,2-Dichloroethane cis-1,2-Dichloroethene trans-1,2-Dichloroethene Ethylbenzene 1,2,4-Trimethylbenzene Total Xylenes	9 2 J 1600 D 27 2 J 5 11 J
GREIF-EXC-CELL-SOUTH	Soil	16-Nov-05	1,1-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene Tetrachloroethene 1,1,1-Trichloroethane Trichloroethene	210 J 140 J 340 J 780 J 920 42000 D
GREIF-EXC-CELLBOTTOM	Soil	21-Nov-05	1,1-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene Ethylbenzene Toluene 1,1,1-Trichloroethane Trichloroethene 1,2,4-Trimethylbenzene Total Xylenes	94 28 560 DJ 9 31 4 J 45 8500 D 4 J 91
GREIF-EXC-CELLWEST 8	Soil	21-Nov-05	None	----
GREIF-EX-TP-02 6.5-7	Soil	28-Nov-05	1,1-Dichloroethane cis-1,2-Dichloroethene 1,1,1-Trichloroethane Trichloroethene Total Xylenes	3 J 2 J 32 10 5 J

GREIF-EX-PB-CSP-2	Soil	6-Dec-05	1,1-Dichloroethane cis-1,2-Dichloroethene Ethylbenzene 1,1,1-Trichloroethane Total Xylenes	2 J 4 J 1 J 12 6 J
GREIF-EX-SC-EWALL (3)	Soil	8-Dec-05	Trichloroethene	48
GREIF-EX-SC-FLR (6.5)	Soil	8-Dec-05	1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene cis-1,2-Dichloroethene Ethylbenzene Toluene 1,1,1-Trichloroethane Trichloroethene Total Xylenes	200 D 14 86 19 220 D 7 30 D 39 1300 D
GREIF-EX-SC-WWALL (4)	Soil	8-Dec-05	Ethylbenzene 1,1,1-Trichloroethane 1,2,4-Trimethylbenzene Total Xylenes	23 4 J 11 240
GREIF-EX-GB-10-EAST	Soil	12-Dec-05	1,1-Dichloroethane cis-1,2-Dichloroethene Ethylbenzene Tetrachloroethene Toluene Trichloroethene 1,2,4-Trimethylbenzene Xylenes (total)	3 J 100 4 J 8 6 280 D 14 25
GREIF-EX-GB-10-FLOOR	Soil	12-Dec-05	Acetone 1,1-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene Ethylbenzene Tetrachloroethene Toluene 1,1,1-Trichloroethane Trichloroethene 1,2,4-Trimethylbenzene Xylenes (total)	56 15 5 J 760 DJ 20 34 90 3 J 14000 D 23 87
GREIF-EX-GB-10-SOUTH	Soil	12-Dec-05	Acetone 1,1-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene Ethylbenzene Tetrachloroethene Toluene Trichloroethene 1,2,4-Trimethylbenzene Xylenes (total)	30 J 77 20 4500 D 13 49 73 58 13000 D 44 160

GREIF-EX-GB-10-WEST	Soil	12-Dec-05	1,1-Dichloroethane cis-1,2-Dichloroethene Tetrachloroethene Trichloroethene	3 J 230 5 J 360 D
GREIF-EX-SC-PIPE	Soil	12-Dec-05	Acetone 1,1-Dichloroethane cis-1,2-Dichloroethene Ethylbenzene Trichloroethene 1,2,4-Trimethylbenzene	100 53 2 J 5 J 7 7
DUPE (GREIF-EX-SC-PIPE)	Soil	12-Dec-05	Acetone 2-Butanone 1,1-Dichloroethane cis-1,2-Dichloroethene Ethylbenzene Trichloroethene 1,2,4-Trimethylbenzene	87 15 J 16 2 J 3 J 15 6
GREIF-EX-CSP-3	Soil	12-Dec-05	1,1-Dichloroethane 1,1,1-Trichloroethane Trichloroethene	4 J 12 9

### SVOC RESULTS

Sample Designation	Sample Matrix	Sample Date	Compounds Detected	Concentration (µg/kg)
<b>Soil IRM</b>				
GREIF-EXC-CELL-EAST	Soil	16-Nov-05	None	----
GREIF-EXC-CELL-NORTH	Soil	16-Nov-05	None	----
GREIF-EXC-CELL-SOUTH	Soil	16-Nov-05	None	----
GREIF-EXC-CELLBOTTOM	Soil	21-Nov-05	None	----
GREIF-EXC-CELLWEST 8	Soil	21-Nov-05	None	----
GREIF-EX-TP-02 6.5-7	Soil	28-Nov-05	None	----
GREIF-EX-PB-CSP-2	Soil	6-Dec-05	Benzo (a) anthracene Benzo (b) fluoranthene Benzo (a) pyrene Chrysene Fluoranthene	110 J 130 J 100 J 95 J 190 J
GREIF-EX-SC-EWALL (3)	Soil	8-Dec-05	Benzo (a) anthracene Benzo (b) fluoranthene Benzo (a) pyrene Chrysene Fluoranthene	38 J 47 J 36 J 33 J 68 J
GREIF-EX-SC-FLR (6.5)	Soil	8-Dec-05	None	----
GREIF-EX-SC-WWALL (4)	Soil	8-Dec-05	None	----
GREIF-EX-GB-10-EAST	Soil	12-Dec-05	None	----
GREIF-EX-GB-10-FLOOR	Soil	12-Dec-05	None	----

GREIF-EX-GB-10-SOUTH	Soil	12-Dec-05	Benzo(a)anthracene	34 J
			Benzo(b)fluoranthene	34 J
			Benzo(a)pyrene	29 J
			Chrysene	30 J
			Fluoranthene	34 J
GREIF-EX-GB-10-WEST	Soil	12-Dec-05	None	---
GREIF-EX-GB-10-PIPE	Soil	12-Dec-05	Benzo(a)anthracene	220 J
			Benzo(b)fluoranthene	580
			Benzo(k)fluoranthene	630
			Benzo(a)pyrene	400 J
			Chrysene	200 J
			Fluoranthene	250 J
DUPE (GREIF-EX-GB-10-PIPE)	Soil	12-Dec-05	Benzo(a)anthracene	40 J
			Benzo(b)fluoranthene	62 J
			Benzo(k)fluoranthene	66 J
			Benzo(a)pyrene	36 J
			Chrysene	33 J
			Fluoranthene	82 J
GREIF-EX-CSP-3	Soil	12-Dec-05	Benzo(a)anthracene	270 J
			Benzo(b)fluoranthene	290 J
			Benzo(k)fluoranthene	100 J
			Benzo(a)pyrene	240 J
			Chrysene	220 J
			Fluoranthene	580
			Naphthalene	25 J

**NOTES:**

- All data are un-validated.
- Compounds, elements, or other parameters listed are limited to those that were detected.
- ---- = not detected in this sample.
- All results are reported on a dry weight basis in micrograms per kilogram (parts per billion).
- J = Indicates an estimated value.
- D= Indicates that the concentration was identified in an analysis at the secondary dilution factor.
- All confirmation soil samples collected from the outside extent (walls and floors) of the excavated area met the IRM remedial standard of absence of grossly-affected soil based on visual and olfactory observations, field screening with a calibrated flame ionization detector, and lack of visible sheen or non-aqueous phase liquid (NAPL) as determined by application of the soil-water agitation test.