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May 27, 2009

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Mr. Glenn May, C.P.G. New York State Department of Environmental Conservation 270 Michigan Avenue Buffalo, NY 14203

Subject: Semiannual Monitoring Report, April 2009

Scajaquada Creek Site (#915141B), Buffalo, NY

Dear Mr. May;

As required by the Operation and Maintenance (O&M) Plan, dated February 8, 2005, this report provides a semiannual summary of operations, maintenance, and field observations made by AECOM Environment (AECOM) (formerly the ENSR Corporation) at the Scajaquada Creek site. The period discussed herein is from June 2008 through April 2009.

Constructed Sediment Cap Observations

A site inspection was conducted on April 8, 2009 by Thomas Clark, P.E., of AECOM. No significant areas of cap disruption or erosion were noted. In one location, about 150 feet south of the railroad bridge on the west bank of the river, a small patch of geotextile was observed on the ground surface about 10 feet from the water surface. There did not appear to be any significant disruption in that area. Soil beneath the geotextile should be removed and stone should be placed on top to hold it in place. The armored expressway runoff channels were all intact.

Previous Period's DNAPL Systems Operations

The Northern and Southern DNAPL collection systems were checked by National Fuel Gas staff on August 7th, September 18th, December 4th, December 12th, December 31st, January 22nd, and March 4th. During these visits the automatic timer was adjusted to maximize the flow of DNAPL while minimizing the flow of groundwater, and tubing was advanced as needed to optimize the performance of the System's peristaltic pump.

The Southern DNAPL collection system was observed to function properly from June 2008 to March 2009. The flexible tubing that runs through the peristaltic pump was changed December 4, 2008 and December 12, 2008. Pumping run time was changed from 30 minutes to 45 minutes on January 22, 2009.

The Northern DNAPL collection system was observed to function properly from June 2008 to December 4th, 2008. Electrical service to the Northern DNAPL collection system was interrupted between December 4th and December 31st. This was likely due to the outside electric meter being broken. Electrical service was restored to the Northern system on December 31st. The system was restarted and was observed to function properly between December 31st, 2008 and March 4th, 2009.

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A large dead tree was removed along the west bank of the creek by Tree Care of Western New York on March 4th, 2009. The tree was removed to avoid damage to the cap.

The volumes of DNAPL recovered this period (49 gallons in the Southern System and 9 gallons in the Northern System) were calculated by taking measurements in the tanks with an oil/water interface probe. The volumes of DNAPL recovered to date were determined to be approximately 1386 gallons by the Southern System and 395 gallons by the Northern System. System monitoring logs are attached.

Conclusions

The constructed sediment cap is intact. The DNAPL recovery program continues and both systems are functioning properly.

Please call Jesse Lloyd at (607) 277-5716 if you have any questions or comments.

Thomas P. Clark, P.E.

SeniorEngineer

Jesse Lloyd

Project Manager

Attachments: South DNAPL System Monitoring Log

North DNAPL System Monitoring Log

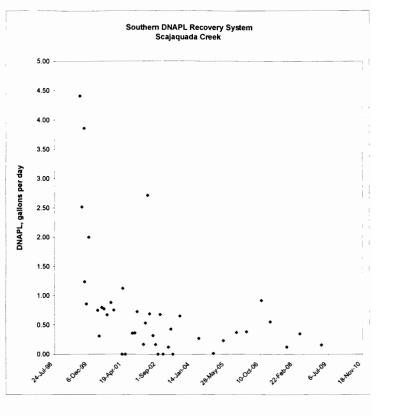
CC: B. Sadowski - NYSDEC, Buffalo

J. Clark, T. Alexander - NFG

K. Hogan – PLHB&B File: 04870-024-750

" SOUTHERN SYSTEM

24-Jun-99 r 29-Jun-99 mr 23-Jul-99 mr 30-Jul-99 (26-Aug-99 mr 28-Sep-99 mr 28-Sep-99 mr 3-Oct-99 r 11-Oct-99 29-Oct-99 2-Dec-99 mr	mrh mrh/day mrh/day day jhe mrh/bdc mrh/cc mrh/cc	(a) Maurinole rim to 9.05 6.80 6.34 5.90 5.79	Manhole rim to Manhole rim to to cop of Water (ft) (80 00 00 00 00 00 00 00 00 00 00 00 00 0	Manhole rim to	Manhole rim to 60 90 bottom of Tank (ft)	C LNAPL (gal)	Water (gal)	DNAPL (gal)	otal (gal)	crease (gal)	increase (gal)	NAPL	(pdb)	(pd6)			
29-Jun-99 mr 23-Jul-99 mr 30-Jul-99 c 26-Aug-99 mr 28-Sep-99 mr 28-Sep-99 mr 3-Oct-99 r 11-Oct-99 29-Oct-99 2-Dec-99 mr	nrh/day nrh/day day jhe nrh/bdc nrh/cc nrh/cc	6 80 6 80 6.34 5.90	6 80 6 80	9.05		Δ.			Ē	Water Incr	NAPL Incr	% NA	NAPL (Total Flow	Operator's Notes	Transporter	Disposal Facilty
23-Jul-99 mr 30-Jul-99 c 26-Aug-99 mr 16-Sep-99 mr 28-Sep-99 m 3-Oct-99 r 11-Oct-99 29-Oct-99 2-Dec-99 mr	inth/day day jhe inth/bdc inth/cc inth/cc inth/cc inth/cc	6 80 6.34 5.90	6 80		0.05	0	0	0	0	0	0	0%		0	90% construction complete, begin initial testing		
30-Jul-99 (26-Aug-99) mr 28-Sep-99 mr 3-Oct-99 r 11-Oct-99 29-Oct-99 2-Dec-99 mr 16-Dec-99	day jhe nrh/bdc nrh/cc nrh/cc mrh	6.34 5.90		C OF		0	695	0	695	695	0	0%		139	Complete initial system test, PW2003 has silt damage		
26-Aug-99 mr 16-Sep-99 mr 28-Sep-99 mr 28-Sep-99 mr 3-Oct-99 r 11-Oct-99 29-Oct-99 mr 16-Dec-99 mr	jhe nrh/bdc nrh/cc nrh/cc mrh	5.90	6.34	9 05	9.05	0	695	0	695	0	0	0%		0	Recommence shakedown with peristaltic pump		
16-Sep-99 mr 28-Sep-99 m 28-Sep-99 m 3-Oct-99 r 11-Oct-99 29-Oct-99 2-Dec-99 mr 16-Dec-99	nrh/bdc nrh/cc mrh/cc mrh			8.95	9.05	0	806	31	837	111	31	22%	4.41	20	Shakedown, flow adjustment		
28-Sep-99 m 28-Sep-99 m 3-Oct-99 r 11-Oct-99 29-Oct-99 2-Dec-99 mr 16-Dec-99	nrh/cc mrh/cc mrh	5.79	5.90	8 73 8.75	9.05 9.05	3	911	99	973 1007	68 37	-3	50%	2.52	5	Routine system check, slow drip from tank bung noted (0.5 gpd?)		
28-Sep-99 m 3-Oct-99 r 11-Oct-99 29-Oct-99 2-Dec-99 mr 16-Dec-99	mrh/cc mrh	3.30	5.80 3.32	8.61	9.05	6	1633	136	1775	723	46	6%	3.86	64	Significant (2 gpd?) DNAPL loss through bung drip, PW2003 reinstaled Tank emptied (was full, pump off), bung replaced,	IWR / BFC	Research Oil
3-Oct-99 r 11-Oct-99 29-Oct-99 2-Dec-99 mr 16-Dec-99	mrh	9.05	9 05	9.05	9.05	0	0	0	0	0	0	0%	0.00	0	vault cleaned, flow setting reduced to 45	TWIN 7 BFC	Research Oil
29-Oct-99 mr 2-Dec-99 mr 16-Dec-99	СС	8 75	8.75	9.03	9.05	0	86	6	93	86	6	7%	1.24	19	Measurements are visual estimates only, flow setting reduced to 3.5		
2-Dec-99 mr 16-Dec-99		8 75	8 75	9 03	9.05	0	86	6	93	0	0	0%		0	No flow observed, flow setting increased to 5.0		
16-Dec-99	cc	6 81	6.81	8 98	9.05	0	670	22	692	584	15	3%	0.86	33	Flow setting decreased to 4.0		
	nrh/day	6 09	6 10	8 77	9.05	3	824	86	914	154	68	31%	2.00	7	Flow setting increased to 4.7 (24 gpd), timer installed/set for 1pm to 2pm operation		
9-Mar-00 mr	œ														Pump running but no flow, Timer reset for 3 hr per day operation		
	nrh/day	6 09	6.10	8 89	9.05	3	861	49	914	37	-37	_		0	PW2000 running but no flow, Peristaltic installed (2 hr/day), DNAPL thickened over time		
11-Apr-00 mr	nrh/day	4 71	4 73	8.82	9.05	6	1263	71	1340	401	25	6%	0.75	13	New peristaltic purchased/installed. Flow setting #7 (for 2 hr/day).	-	
	rh/dms	4.62	4.64	8 80	9.05	6	1284	77	1368	22	6	22%	0.31	1	No flow (tubing collapsed). Repaired.		
	day/jc	4.62	4 64	8 80	9.05	6	1284	77	1368	0	0	0%		0	No flow (tubing leak). Tank emptied. System turned off.	IWR / BFC	Puretech Systems
	mrh/jtf	9 05	9 05	9.05	9.05	0	0	0	0	0	0	0%	0.00	0	Original tubing replaced with silicon. System restarted at flow setting #3 (for 2 hr/day).		
8-Jun-00 mr 10-Jul-00 mrl	nrh/day	8.55 8.10	8.56 8.11	8 98 8 90	9.05	3	130	22 46	154	130	25	16%	0.80	5	Backfill settled around vault. Total depth shallow, measurements estimated. Tubing adjusted.		
	day	7 30	7 31	8 80	9.05 9.05	3	244 460	77	293 540	114 216	25 31	18% 12%	0.77 0.67	5	Tubing was worn; adjusted.		
	mrh	6.25	6 26	8 64	9.05	3	735	127	865	275	49	15%	0.88	6	Tubing adjusted. Tubing wom; adjusted.		
	mrh	5.75	5.77	8 55	9.05	6	858	154	1019	124	31	20%	0.75	4	Tubing worn; adjusted. Flow rate setting reduced from 3.0 to 1.5; timer not changed		
	mrh	5 75	5 77	8.55	9.05	6	858	154	1019	0	0		0.70	0	Pump starts rough and sounds bad. Pump removed and sent in for repairs.		
7-Feb-01 m	nrh/hs	5 75	5 77	8.55	9.05	6	858	154	1019	0	0	0%		0	Temporary FloJet pump installed but insufficient NPSH due to low creek elevation.	_	
30-Mar-01 r	mrh	5.75	5 77	8 55	9.05	6	858	154	1019	0	0	0%		0	Peristaltic (geopump) installed, full speed, 600 rpm, system OK. NAPL is hi viscocity/settled.		
10-Apr-01 r	mrh	5.70	5 72	8 51	9.05	6	861	167	1034	3	12	80%	1.12	1.4	3/16" id tubing replaced with 3/8" id tubing. Float switch replaced (plus relay).	_	_
18-May-01 dr	dms/jc	5 65	5.68	8.52	9.05	9	877	164	1050	15	0	0%	0.00	0.4	Tubing wom and soft; adjusted.		-
	nrh/hs	5.53	5.55	8.39	9.05	6	877	204	1087	0	37	100%	0.36	0.4	NAPL appears to be accumulated in well. Timer set to 3 hrs/day. Criginal peristaltic re-installed.		
	hs/jc	5.46	5 48	8 35	9.05	6	886	216	1108	9	12	57%	0.36	0.6	NAPL may still be accumulated in well. Timer increased to 4 hrs/day.		
	hs/jc	5.30	5.32	8 27	9.05	6	911	241	1158	25	25	50%	0.73	1.5	Additional NAPL purged from well after readings taken. Timer decreased to 3 hrs/day.		
	hs/jc hs/jc	3.89	3.91	8.22	9.05 9.05	6	1331	256 272	1593 1618	420 9	15	4% 62%	0.17	0.9	Adjusted peristaltic tubing.		
	mrh	3.43	3 45	7.88	9.05	6	1368	361	1735	28	90	76%	2.71	3.6	Adjusted peristaltic tubing. Adjusted tubing. Installed piston pump for one day test (then removed). Timer increased to 4 hrs.		
	hs/jc	3 15	3.17	7.82	9.05	6	1436	380	1822	68	19	21%	0.69	3.2	Tank full.	Frank's Vacuum	Chemtron
7-May-02	<i>'</i>	9.05	9 05	9.05	9.05	0	0	0	0		_				Tank pumped out.		
25-Jun-02	cd	6.00	6.02	9.02	9.05	6	926	9	942	926	15	2%	0.32	19.2	Depth's estimated. Pump set at #4, 3 hrs/day		
2-Aug-02 m	mrh/jc	3 15	3.17	9.00	9.05	6	1800	15	1822	874	6	1%	0.16	23.2	Tank full, mostly water.		-
6-Sep-02	jc	3.15	3 17	9.00	9.05	6	1800	15	1822	0	0	0%		0.0	Tank Emptied.	Frank's Vacuum	Clean Harbors, MD
6-Sep-02		9.05	9 05	9 05	9.05	0	0	0	0								
	mrh/jc	8 98	8.98	8.98	9.05	0	0	22	22	0	22	100%	0.68	0.7	Pump removed for repair	-	
	cd cd	8 98	8.98	8 98	9.05	0	0	22	22	0	0	0%	0.10	0.0	Pump reinstalled		Class Haters MD
	mrh/jc	4.32 9.05	4.32 9.05	8.95	9.05	0	1430	31	1460	1430	9	1%	0.12	18.4	Tank again full of mostly water (timer was left on manual?). Tank emptied.	Frank's Vacuum	Clean Harbors, MD
4-Feb-03 12-Mar-03	jc	9.00	9.00	9.05	9.05 9.05	0	0	0 15	0 15	0	15	100%	0.43	0.4	Pump running fast, so removed for evaluation/repair.		
	mrh/jc	9.00	9.00	9.00	9.05	0	0	15	15	0	0	0%	0.43	0.0	Pump reinstalled: runs fast/variable with no load, runs OK with flow load. Timer set to 30 min/day, speed 8.		
	mrh/jc	8.78	8.78	8.78	9.05	0	0	83	83	0	68	100%	0.65	0.7	Additional system checks/adjustments made by J Clark on 5/5, 5/20, 6/12, and 6/24.		
	mrh	8 05	8.06	8.55	9.05	3	151	154	309	151	74	33%	0.27	0.8	Additional system checks/adjustments made by NFG on 8/01, 8/06, 9/05, 9/08, 9/11, 9/17, 9/25, 10/30, 11/18.		
24-Nov-04 j	jl,jc	7.31	7.32	8.54	9.05	3	377	157	537	225	3	1%	0.01	1.1	O/W Interface probe notacting precisely, actual DNAPL volume probably greater.		
19-Apr-05 mh,	n,jc,jl,sh	7.19	7.20	8 43	9.05	3	380	191	574	3	34	92%	0.23	0.3	Additional system checks/adjustments made by J Clark on 11/24, 1/20/2005, 3/7, 3/11, 4/12, 4/18.	_	
27-Oct-05 mi	nrh, jc	6.96	6.97	8.20	9.05	3	380	262	645	0	71	100%	0.37	0.4	New OWI probe, but readings inconsistent with previous readings. System checks by NFG 5/11, 6/24, 7/28, 8/25, 10/06.		
22-Mar-06 m		6.78	6.79	8.02	9.05	3	380	318	701	0	56	100%	0.38	0.4	Additional system checks by NFG 10/26/05, 12/14/05, 1/6/06, 2/24/06.		
24-Oct-06 mi		4.90	4.91	7.38	9.05	3	763	516	1281	383	198	34%	0.91	2.7	Depth to NAPL reading is approximate. Additional system checks by NFG 5/11, 6/29, 7/26, 9/07.		
	jc, cb	3 36	3.37	7.15	9.05	3	1167	587	1757	404	71	15%	0.55	3.7	Pump turned off 3/02/07 because tanknear full. Readings taken 4/25/07. Depth to DNAPL reading is approximate.		
23-Jun-07		9.05	9.05	9.05	9.05	0	0	0	0				6		Tank pumped out.		
30-Oct-07 dn		8.55 5.70	8.56	9 01	9.05	3	139	12	154	139	15	10%	0.12	1.2	Depth to DNAPL reading is approximate.		
13-May-08 dn 25-Mar-09 jl	ıms, jc jl, dz	5.79 7.90	5.81 7.91	8.80	9.05 9.05	6 3	923	77 46	1007 355	784 306	68 49	8% 13%	0.35	4.3	Depth to DNAPL reading is approximate. System checks/timer adjustments by NFG on 01/08/08, 3/20/08, and 05/08/08. Tank pumped out		
20-Wal -09 JI	j., uz	7.30	, 31	0.30	9.00	3	300	40	335	300	49	1370	0.16	1.1	O/W interface probe is working accurately		
Input values								Cumulative	gallons ·	9980	1386					* 309 gallon	ns per foot of tank height



Scajaquada Creek DNAPL System Monitoring Log

NORTHERN SYSTEM

National Fuel Gas ENSR/AECOM 04870-024-750

		Field Mea	surements	(by OWI p	orobe)	Calculation	ons (total ta	ank content	ts) *	Calculation	ns (this pe	eriod recov	ery)				
Date	Initials	Manhole rim to top of LNAPL (ft)	Manhole rim to top of Water (ft) (estimated)	Manhole rim to top of DNAPL (ft)	Manhole rim to bottom of Tank (ft)	LNAPL (gal)	Water (gal)	DNAPL (gal)	Total (gal)	Water Increase (gal)	NAPL Increase (gal)	% NAPL	NAPL (gpd)	Total Flow (gpd)	Operator's Notes	Transporter	Disposal Facility
28-Nov-01	mrh/∞d	8.89	8.89	8.89	8.89	0	0	0	0	0	0	0%	0.00	0.0	Develop well with hand operated diaphragm pump. Measurements are approximate.		
7-Feb-02	hs/jc	8 62	8.62	8.85	8.89	0	71	12	83	71	12	15%	0.17	1.2	Pump well by hand.		-
8- Ma r-02	hs/jc	8 61	8 61	8 85	8.89	0	74	12	86	3	0	0%	0.00	0.1	Pump well by hand.		
10-Apr-02	mrh	8 59	8 59	8.84	8.89	0	77	15	93	3	3	50%	0.09	0.2	Pump well by hand.		
7 -M ay-02	hs/jc	8.51	8.51	8.83	8.89	0	99	19	117	22	3	12%	0.11	0.9	Hand pump not working well.		
25-Jun-02	cd	8 51	8 51	8 83	8.89	0	99	19	117	0	0	0%	0.00	0.0	Hand pump not working. Discarded.		
2-Aug-02	mrh/jc	8.51	8.51	8 83	8.89	0	99	19	117	0	0	0%	0.00	0.0	Begin peristaltic startup. Setting #6.5, 2hr 15 min per day		
8-Oct-02	mrh/jc	7 43	7 44	8 55	8.89	3	343	105	451	244	90	27%	1.34	5.0	Additional system checks/adjustments made by J Clark on 8/15, 8/21, 8/27, 9/09, and 9/12.		
4-Feb-03	mrh/jc	7 36	7 37	8.52	8.89	3	355	114	472	12	9	43%	0.08	0.2	Numbers approximate. Surface of contents frozen. Turn on heat.		
10-Apr-03	mrh/jc	7 28	7 29	8.50	8.89	3	374	120	497	19	6	25%	0.10	0.4	Pumping mostly water, changed timer to 30 min/week.		
23-Jul-03	mrh	7 05	7 06	8 49	8.89	3	442	124	568	68	3	4%	0.03	0.7	Additional system checks/adjustments made by J Clark on 5/5, 5/20, 6/12, and 6/24.		
23-Apr-04	mrh	6 90	6.91	8 42	8.89	3	466	145	614	25	22	47%	0.08	0.2	Additional system checks/adjustments made by NFG on 8/01, 8/06, 9/05, 9/08, 9/11, 9/17, 9/25, 10/30, 11/18.		
24-Nov-04	jl, jc	6.66	6.67	8.41	8.89	3	537	148	689	71	3	4%	0.01	0.3	O/W interface probe not working accurately, depth of DNAPL is estimated.		
19-Apr-05	mh,jc,jl,sh	6.45	6.46	8.39	8.89	3	596	154	753	59	6	10%	0.04	0.4	Additional system checks/adjustments made by J Clark on 11/24, 1/20/2005, 3/7, 3/11, 4/12, 4/18.		
26-Oct-05	mrh, jc	6 33	6.34	8 30	8.89	3	605	182	790	9	28	75%	0.15	0.2	New OWI probe, but readings inconsistent with previous readings. System checks by NFG 5/11, 6/24, 7/28, 8/25, 10/06.		
22 -M ar-06	mrh, jc	6 20	6.21	8.23	8.89	3	624	204	831	19	22	54%	0.15	0.3	Additional system checks by NFG 10/26/05, 12/14/05, 1/6/06, 2/24/06.		
24-Oct-06	mrh, jc	5.20	5 21	7.89	8.89	3	828	309	1139	204	105	34%	0.49	1.4	Depth to NAPL reading is approximate. Additional system checks by NFG 5/11, 6/29, 7/26, 9/07.		
25-Apr-07	mrh, jc	4.90	4 91	7.80	8.89	3	892	337	1232	65	28	30%	0.15	0.5	Depth to NAPL reading is approximate. Additional system checks by NFG 10/31/2006, 11/16/2006, 3/02/2007.		
30-Oct-07	dms, jc	4.68	4.69	7 70	8.89	3	929	367	1300	37	31	45%	0.16	0.4	Depth to NAPL reading is approximate. Tubing changed out.		
13-May-08	dms, jc	3.46	3.47	7 65	8.89	3	1291	383	1677	361	15	4%	0.08	1.9	Depth of DNAPL is estimated. Additional system checks by NFG on 1/08/08, 3/20/08 and 5/08/08. Tank pumped out.		-
25-Mar-09	jl, dz	8 75	8.76	8 87	8.89	3	34	6	43	34	9	20%	0.03	0.1	O/W interface probe is working accurately		
Input values	put values Cumulative gallons 1325 395								e gallons ·	1325	395					* 309 gallo	ns per foot of tank heig
										Water	NAPL	-			•	projects\NFGD102111\dnap	lsystem\systemmonitoringlog

