FID#246090900

Moraine Environmental, Inc.
Design • Engineer • Construct

May 20, 2014

Proj. Ref. #5323

RECEIVED
MAY 20
2014
By PSC
via email

John Feeney
Wisconsin Department of Natural Resources
1155 Pilgrim Parkway
Plymouth, WI 53073

RE: Village of Thiensville-Highway Department
120 W. Friestadt Road, Thiensville
BRRT's #02-46-000366

Dear John:

Per our discussion, Moraine Environmental, Inc. (Moraine) has conducted a considerable amount of work at the above referenced site. While Moraine has identified various shallow PAH levels in the soil, no groundwater standard exceedances have been identified.

Various reports have been completed and we are almost ready to submit the Case Closure/GIS package to the WDNR. Moraine is just waiting to hear from the Thiensville DPW director and Fire Chief as to the type of surface cover (asphalt or traffic bond/recycled concrete) to be implemented as the engineered cap.

Rather than send you all the various reports at this time, I am just enclosing a copy of the site map showing the field work that has been performed to date.

The Case Closure/GIS report should be sent to you in the next 4-6 weeks.

Sincerely,
MORAINE ENVIRONMENTAL, INC.

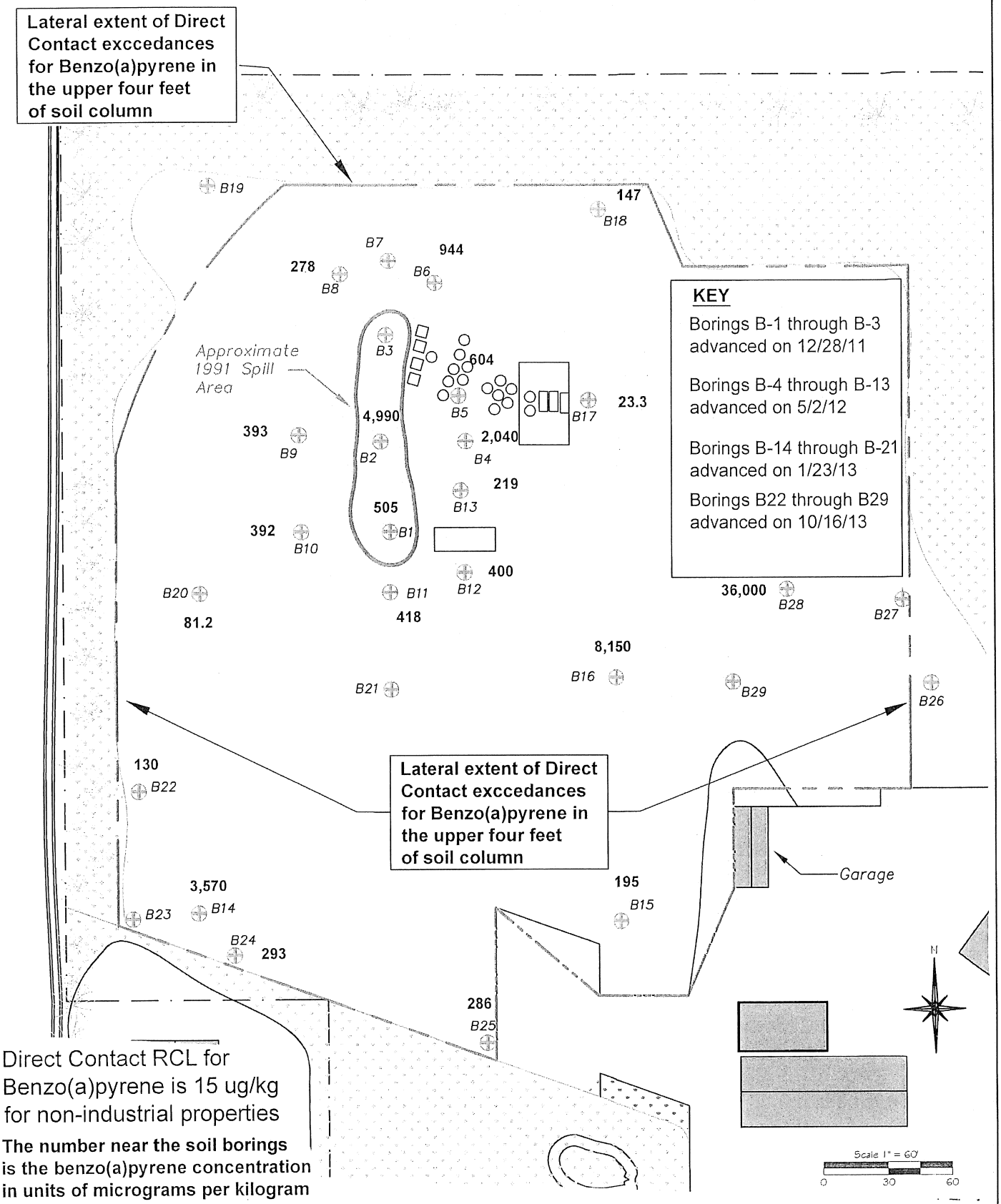
Thomas C. Sweet
President

enclosures

F:\WORD\Mswteh53\5323 Status letter to John Feeney 051914.doc

1402 7th Avenue • Grafton, WI 53024-2330 • (262) 377-9060 • Fax (262) 377-9770 • (800) 920-2205
Email: moraine@execpc.com • www.moraineenvironmental.com

Benzo(a)pyrene Concentrations in units of ug/kg



Scale 1" = 60 Revised by CTS Revised: 2-12-14 Project File: Metek53\5323 Working.dwg *Note: Depiction prepared from field notes and measurements	FIGURE 7 Soil Benzo(a)pyrene Concentrations in units of ug/kg VILLAGE OF THIENSVILLE 120 W. FREISTADT RD. THIENSVILLE, WI 53092	Moraine Environmental, Inc. Environmental Management Services

Village of Thiensville Highway Department Property
120 W. Freistadt Road,
Thiensville, WI

Data Table A. 2.
Pre-remedial Soil Analytical Table
VOC, PAH and SVOC Soil Quality Results

Sample Data				VOC's								PAHs																		SVOC's	
Sample ID	Sample Depth (feet bgs)	Sample Date	Analysis	Benzene	Ethyl benzene	Methyl-tert-butyl-ether	Toluene	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Total Xylenes	Naph thalene	1-Methyl naphthalene	2-Methyl naphthalene	Ace naphthene	Ace naphthylene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluor anthene	Benzo (g,h,i) perylene	Benzo(k) fluor anthene	Chrysene	Dibenz(a,h) anthracene	Fluoran thene	Fluorene	Indeno (1,2,3-cd) pyrene	Naph thalene	Phen anthrene	Pyrene	Carbazole	bis(2-Ethylhexyl) phthalate
Unit of Measure				ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Groundwater Pathway Residual Contaminant Level				5.1	1,570	27	1,107.2	1 379.3		3,940	658.7	NSE	NSE	NSE	NSE	196,744.2	NSE	470	480	NSE	NSE	145.1	NSE	88,817.9	14,814.8	NSE	658.7	NSE	54 472.5	NSE	2,880
Direct Contact Pathway Residual Contaminant Level				1,490	7,470	59,400	818,020	89,800	182,000	258,000	5 150	15,600	229,000	3,400,000	NSE	17,200,000	148	15	148	NSE	1,480	14,800	15	2,290,000	2,290,000	148	5,100	110,000	1,720,000	NSE	34,700
B-1	1	12/28/11	VOC, PAH, SVOC	<25.0	29.6 J	<25.0	2,980	36.2 J	<25.0	111.8 J	<25.0	NA	<38.7	<176	<37.7	<176	339 J	595	439	473	472	458	156 J	335 J	34.5 J	421	<41.1	369 J	868	<36.2	<71.9
B-1	3	12/28/11	VOC, PAH, SVOC	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	32.5 J	NA	<38.3	<174	<37.3	<174	420	431	435	342 J	420	527	113 J	463	64.7 J	326 J	<40.7	544	1,340	36.5 J	<71.2
B-1	7.5	12/28/11	VOC, PAH, SVOC	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	<25.0	NA	<20.5	<92.7	<19.9	<92.7	<20.9	<22.5	<21.9	<92.7	<29.3	<27.1	<34.0	<32.8	<9.3	<24.9	<21.7	<92.7	<45.2	<19.1	<38.0
B-2	1	12/28/11	VOC, PAH, SVOC	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	<25.0	NA	<76.9	<358	<76.8	<358	149 J	450 J	319 J	595 J	400 J	287 J	<131	<127	<36.0	544 J	<83.7	<358	397 J	<73.8	<147
B-2	5	12/28/11	VOC, PAH, SVOC	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	<25.0	NA	266 J	<848	<182	1,100 J	3,960	4,990	5,200	3,440	5,070	5,690	1,380 J	8,880	1,020 J	3,520	280 J	8,380	17,000	922 J	2,050
B-3	1	12/28/11	VOC, PAH, SVOC	<125	1,490	<125	19,500	152 J	<125	8,990	<125	NA	<416	<1,890	<405	<1,890	560 J	1,770 J	<446	<1,890	<596	827 J	<692	<658	<190	1,820 J	<442	<1,890	<919	<390	<773
B-3	3	12/28/11	VOC, PAH, SVOC	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	<25.0	NA	<405	<1,840	<394	<1,840	<414	<446	<434	<1,840	<580	<535	<673	<650	<185	<493	<430	<1,840	<895	<379	16,600
B-3	8	12/28/11	VOC, PAH, SVOC	<25.0	119	<25.0	1,190	39.9 J	<25.0	746	<25.0	NA	<23.0	<104	<22.4	<104	37.5 J	37.0 J	33.8 J	<104	45.8 J	42.2 J	<38.2	55.2 J	<10.5	37.0 J	<24.4	<104	79.8 J	<21.5	<42.7
B-4	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<57.6	<57.6	<53.0	78.9 J	597	1,830	2,040	2,100	1410	1,710	2,250	424	2,960	98 J	1,240	<66.0	805	2,520	NA	NA
B-4	5	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	4.5 J	4.2 J	7.7 J	4.0 J	27.2	29.9	42	40.5	15.5 J	30.7	37.7	6.2 J	74.5	9.9 J	15.5 J	6.5 J	77	82.6	NA	NA
B-5	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<11.4	12.9 J	<10.5	107	119	403	604	716	276	502	545	99.2	732	19.6 J	258	<13.1	161	755	NA	NA
B-5	5	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<2.7	<2.7	<2.5	<2.8	<4.1	<2.5	<2.9	<3.1	<2.3	<3.3	<3.2	<4.8	<8.9	<4.4	<2.5	<3.1	<3.9	<3.2	NA	NA
B-6	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<14.0	<14.0	33.7 J	214	307	650	944	913	473	807	768	174	1,350	82.2 J	473	29.0 J	553	1,160	NA	NA
B-6	5	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<5.5	<5.5	<5.1	102	125	221	289	308	115	257	246	44.4	301	13.6 J	110	<8.3	82.1	315	NA	NA
B-7	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<2.8	<2.8	<2.6	<2.9	<4.2	4.8 J	5.1 J	5.0 J	2.9 J	5.2 J	5.8 J	<4.9	<9.1	<4.5	2.6 J	<3.2	<4.0	7.6 J	NA	NA
B-7	5	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<2.8	<2.8	<2.5	<2.9	<4.2	<2.6	<3.0	<3.1	<2.4	<3.4	<3.3	<4.9	<9.1	<4.5	<2.6	<3.2	<4.0	<3.3	NA	NA
B-8	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	5.2 J	9.2 J	4.3 J	109	108	167	278	243	176	212	169	51.7	239	9.6 J	140	18.1	82	247	NA	NA
B-8	5	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<2.9	<2.9	<2.7	<3.0	<4.4	<2.7	<3.1	<3.3	<2.5	<3.5	<3.4	<5.2	<9.5	<4.7	<2.7	<3.3	<4.2	<3.5	NA	NA
B-9	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<5.7	8.4 J	13.0 J	55.1	114	264	393	390	215	364	352	74.9	539	27.0 J	194	16.7 J	253	458	NA	NA
B-9	6	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<2.8	<2.8	<2.6	<2.9	<4.3	3.4 J	7.5 J	6.2 J	4.4 J	5.6 J	6.4 J	<5.0	<9.2	<4.6	3.6 J	<3.2	<4.0	10.8 J	NA	NA
B-10	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<5.4	5.5 J	6.5 J	100	154	279	392	389	163	299	350	73.4	534	24.2 J	183	<8.2	236	532	NA	NA
B-10	6	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<2.9	3.6 J	3.5 J	8.6 J	24.4	40.3	44.9	43.4	19.1	39.3	49	7.5 J	84	8.7 J	17.8 J	14.2 J	51.2	74.7	NA	NA
B-11	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	6.4 J	10.0 J	12.3 J	88.1	168	322	418	482	174	323	365	65.6	616	27.6 J	167	9.9 J	248	543	NA	NA
B-11	6.5	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<2.8	<2.8	<2.6	<2.9	<4.3	3.6 J	3.2 J	<3.2	<2.4	<3.4	3.9 J	<5.0	<9.2	<4.6	<2.6	<3.2	5.3 J	7.5 J	NA	NA
B-12	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<11.3	<11.3	31.0 J	23.6 J	186	388	400	421	141	376	445	86.0 J	1,060	44.5 J	146	<13.0	604	897	NA	NA
B-12	5	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<75.0	NA	<2.8	<2.8	<2.6	<2.9	<4.3	7.6 J	8.8 J	9.0 J	4.5 J	9.5 J	11.1 J	<5.0	24	<4.6	4.4 J	<3.2	9.3 J	20.6	NA	NA
B-13	2	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	27.8 J	<25.0	<25.0	<75.0	NA	<5.5	6.3 J	9.7 J	29.3 J	77.4	164	219	241	118	226	230	34.2 J	404	13.2 J	95.7	10 J	161	337	NA	NA
B-13	5	5/2/12	VOC, PAH	<25.0	<25.0	<25.0	28.4 J	<25.0	<25.0	<75.0	NA	<2.8	<2.8	<2.6	<3.0	5.3 J	9.4 J	9.7 J	9.8 J	3.6 J	8.1 J	9.5 J	<5.1	19.5	<4.70	3.6 J	<3.3	10.7 J	17.9 J	NA	NA
B-14	4	1/23/13	PAH	NA	NA	NA	NA	NA	NA	NA	NA	<175	51.1 J	352 J	451	2,300	3,860	3,570	2,980	2,210	3,350	4,250	810	10,200	710	2,000	<72.2	7,070	6,580	NA	NA
B-15	4	1/23/13	PAH	NA	NA	NA	NA	NA	NA	NA	NA	<8.3	4.6 J	<9.1	69.0	58.6	128	195	160	101	160	146	37.6	184	<9.1	99.0	5.1 J	35.5	197	NA	NA
B-16	4	1/23/13	PAH	NA	NA	NA	NA	NA	NA	NA	NA	<728	377 J	<797	3,400	7,230	6,690	8,150	5,940	4,500	7,760	8,720	1,630 J	22,000	3,560	4,090	310 J	18,000	15,600	NA	NA
B-17	4	1/23/13	PAH	NA	NA	NA	NA	NA	NA	NA	NA	<8.6	<1.8	<9.4	<9.4	8.1 J	16.4 J	23.3	24.9	24.1	18.5 J	20.9	<8.4	29.3	<9.4	17.8 J	<3.5	10.4 J	23.2	NA	NA
B-18	4	1/23/13	PAH	NA	NA	NA	NA	NA	NA	NA	NA	<8.7	6.4 J	<9.6	24.7	69.9	134	147	124	82.9	158	145	32.0	318	12.7 J	77.3	9.4 J	179	283	NA	NA
B-19	4	1/23/13	PAH	NA	NA	NA	NA	NA	NA	NA	NA	<8.8	5.1 J	<9.6	<9.6	3.7 J	<9.6	<9.6	6.3 J	<9.6	10.8 J	9.7 J	<9.6	15.9 J	<9.6	<9.6	9.9 J	10.0 J	12.9 J	NA	NA
B-20	4	1/23/13	PAH	NA	NA	NA	NA	NA	NA	NA	NA	<9.0	4.9 J	<9.9	30.5	20.4	48.4	81.2	72.5	62.5	59.7	60.4	15.0 J	64.5	<9.9	49.7	8.4 J	17.0 J	72.7	NA	NA
B-21	4	1/23/13	PAH	NA	NA	NA	NA	NA	NA	NA	NA	<8.6	<1.8	<9.5	<9.5	3.9 J	11.7 J	12.1 J	12.3 J	10.3 J	12.1 J	14.5 J	<9.5	26.5	<9.5	<9.5	<3.6	11.0 J	18.7 J	NA	NA
B-22	3-4	10/16/13	PAH, As, Cr	NA	NA	NA	NA	NA	NA	NA	NA	<3.5	<9.9	<9.9	13.9 J	43.3	111	130	109	73.8	122	133	26.9	262	<9.9	63.9	<9.9	116	210	NA	NA
B-23	3-4	10/16/13	PAH, As, Cr	NA	NA	NA	NA	NA	NA	NA	NA	<3.4	<9.6	<9.6	<9.6	<9.6	10.7 J	12.4 J	15.7 J	<9.6	9.4 J	15.7 J	<9.6	29.3	<9.6	<9.6	<9.6	20.4	26.4	NA	NA
B-24	3-4	10/16/13	PAH, As, Cr	NA	NA	NA	NA	NA	NA	NA	NA	6.8 J	<19.2	<19.2	47.8	93.1	248	293	260	210	271	313	67.5	506	29.8 J	176	<19.2	273	470	NA	NA
B-25	3-4	10/16/13	PAH, As, Cr	NA	NA	NA	NA	NA	NA	NA	NA	6.1 J	<9.6	<9.6	96.3	69.1	193	286	211	194	269	236	71.7	292	21.1	160	14.3 J	139	267	NA	NA
B-26	3-4	10/16/13	PAH, As, Cr	NA	NA	NA	NA	NA	NA	NA	NA	<3.1	<8.8	<8.8	<8.8	<8.8	9.3 J	7.1 J	8.9 J	<8.8	6.2 J	10.2 J	<8.8	22.5	<8.8	<8.8	<8.8	16.7 J	17.0 J	NA	NA
B-27	3-4	10/16/13	PAH, As, Cr	NA	NA	NA	NA	NA	NA	NA	NA	3.9 J	<8.7	<8.7	<8.7	<8.7	<8.7	<3.1	<8.7	<8.7	<3.1	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	<8.7	NA	NA
B-28	3-4	10/16/13	PAH, As, Cr	NA	NA	NA	NA	NA	NA	NA	NA	<626	<1,770	<1,770	3,570	15,300	35,400	36,000	31,700	19,900	31,100	37,900	6,260	80,300	3,190 J	17,200	<1,770	30,600	64,700	NA	NA
B-29	3-4	10/16/13	PAH, As, Cr	NA	NA	NA	NA	NA	NA	NA	NA	<3.2	<8.9	<8.9	<8.6	<8.9	<8.9	3.9 J	<8.6	<8.9	3.4 J	<8.9	<8.9	9.4 J	<8.9	<8.9	<8.9	<8.9	<8.9	NA	NA

Results in Italics are greater than the Groundwater Pathway RCL

Results in Bold are greater than the Direct Contact RCL

ug/kg - micrograms per kilogram (mg/kg)

NA = Not Analyzed

RCL - Residual Contaminant Level

J - Compound detected below the Limit of Quantitation and quantity is estimated