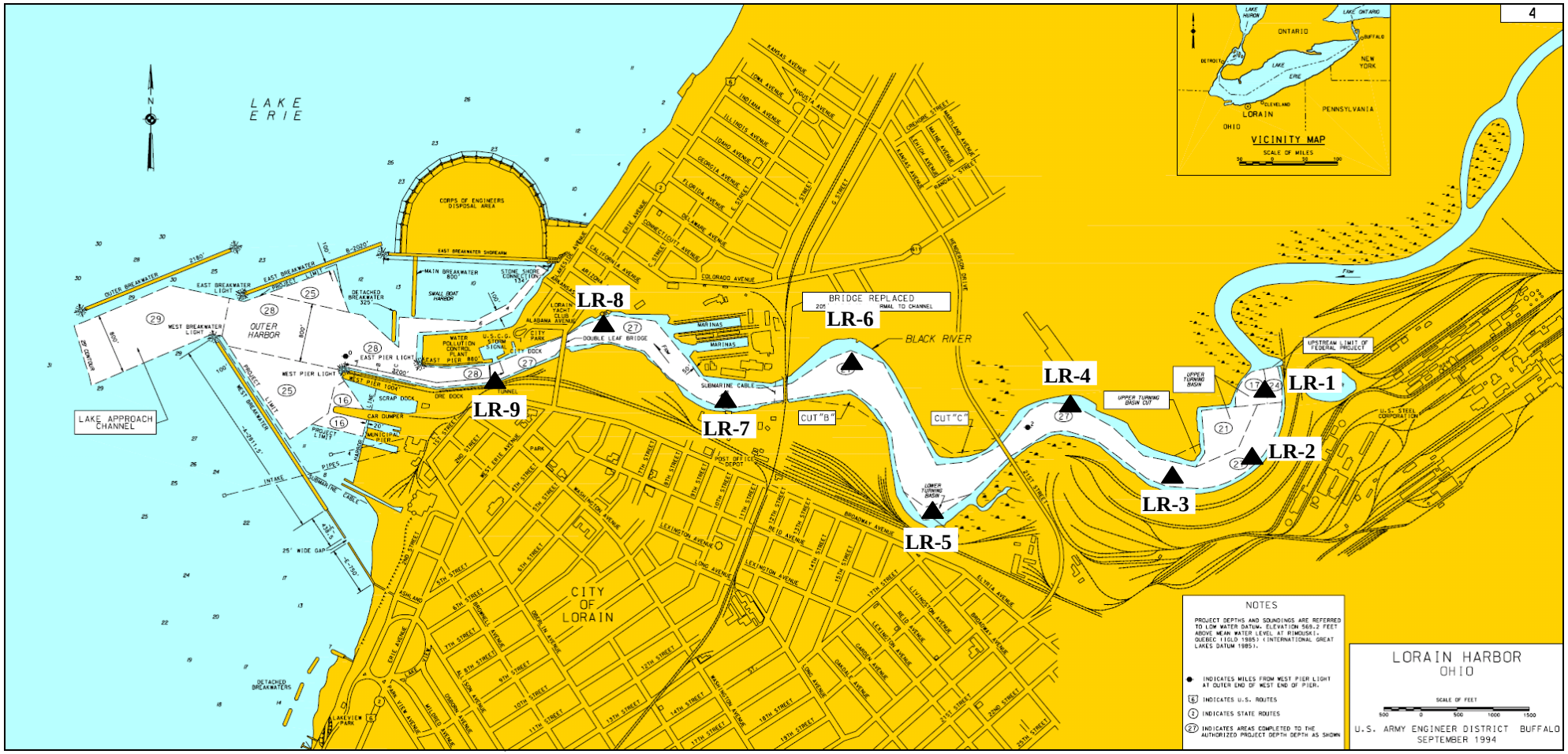
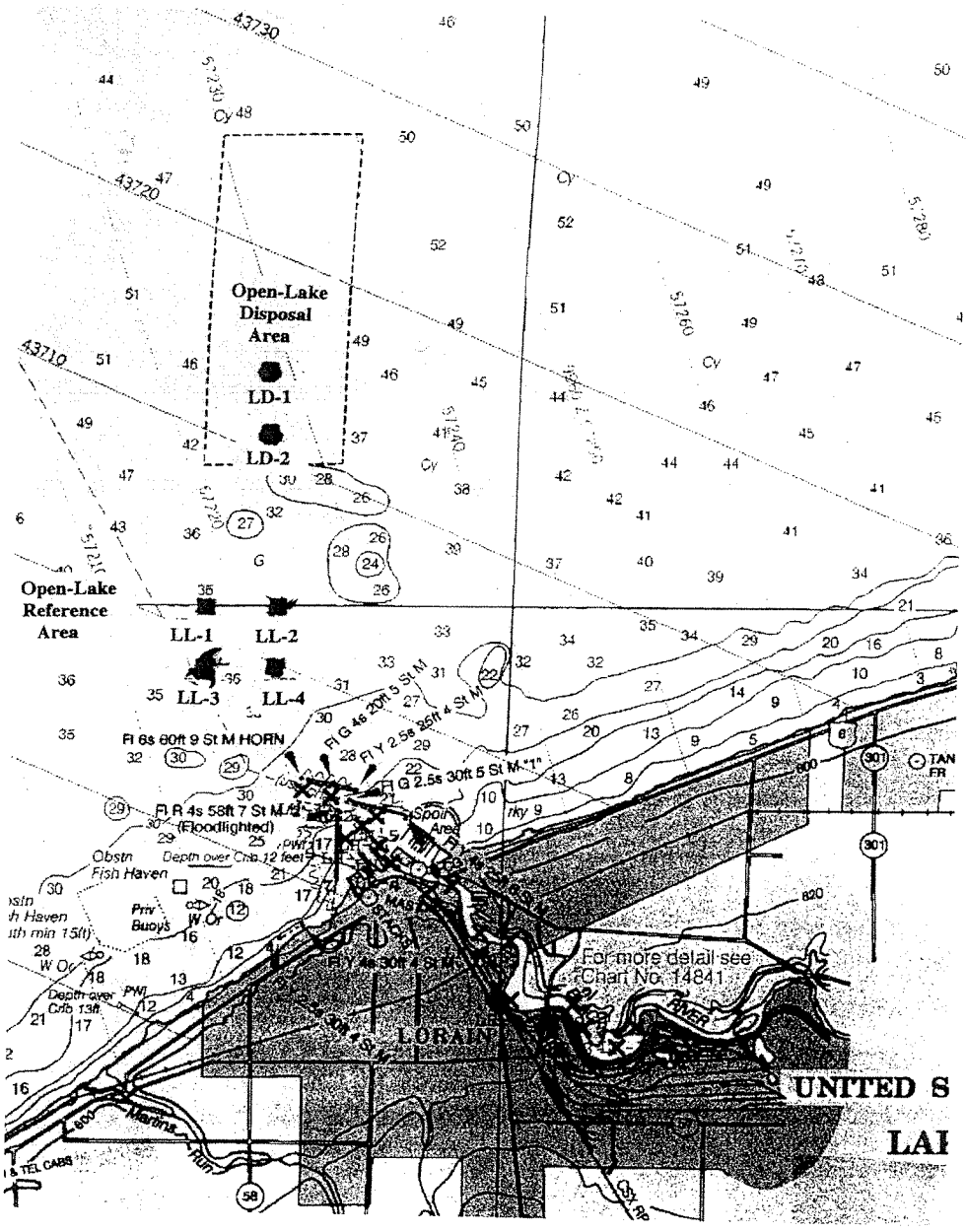
APPENDIX F

SEDIMENT SAMPLING RESULTS

Figure 3.1 Black River Channel Sample Locations Lorain Harbor, Ohio.





LEGEND

LORAIN HARBOR OPEN LAKE DISPOSAL AREA SAMPLING SITES LD-1 & LD-2

LORAIN HARBOR OPEN LAKE REFERENCE SAMPLING SITES LL-1, LL-2, LL-3, & LL-4

SCALE: NOT TO SCALE

Engineering & Environment, inc.	**Lake Erie Reference Disposal and Sampling Areas** *Lorain Harbor and Black River Sediment Sampling and Testing Lorain, Ohio*	**Figure 3.2**

Figure 3.3 Black River Management Units, Lorain Harbor, Ohio.

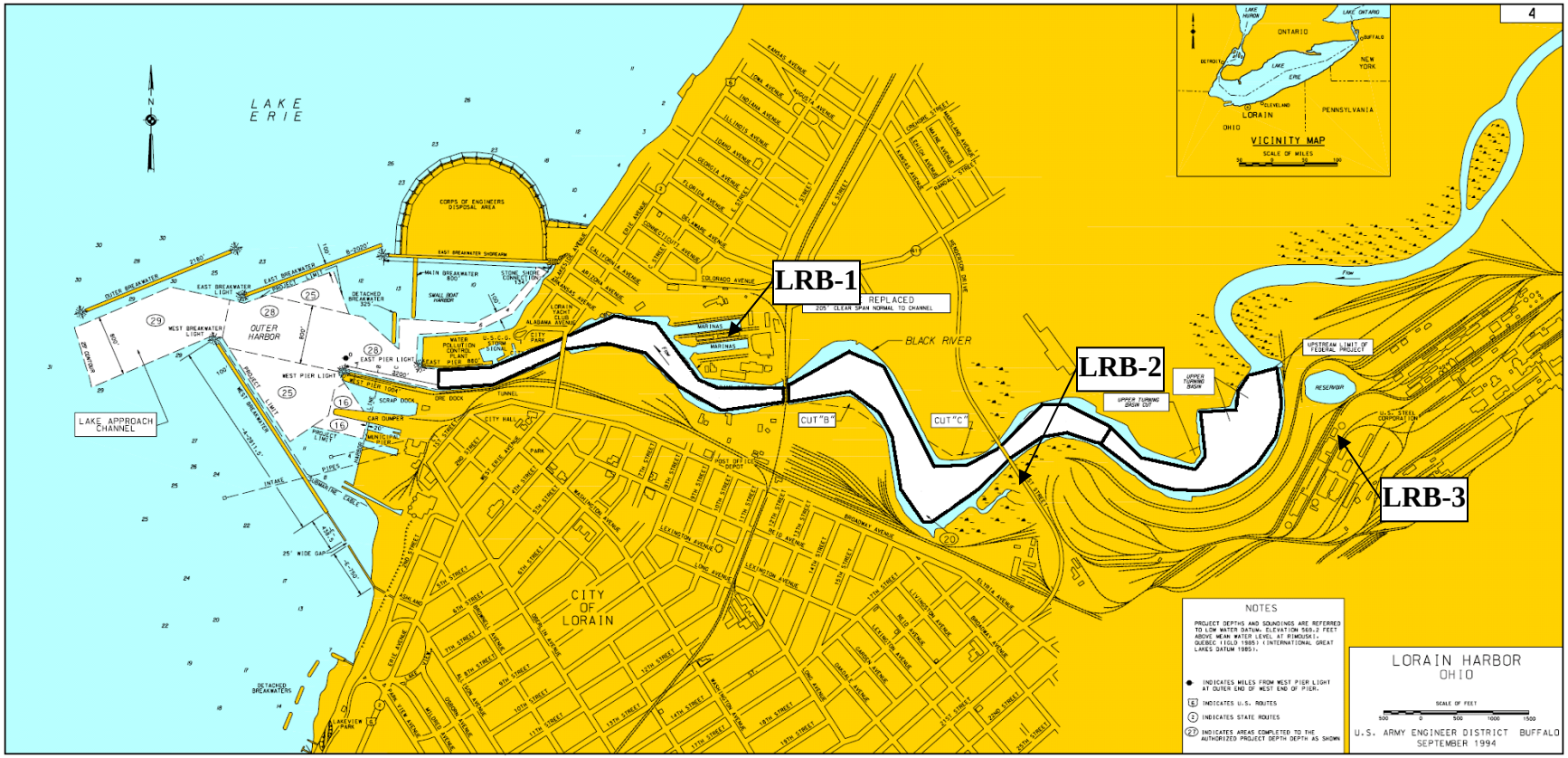


TABLE 3.3. Particle size distribution of River Channel sediments, Lorain Harbor, Ohio (from EEI 2005)

Particle Size	River Channel Sediments									Open-lake Sediments					
	Sampling Sites									Reference Area Sampling Sites				Placement Area Sampling Sites	
	LR-1	LR-2	LR-3	LR-4	LR-5	LR-6	LR-7	LR-8	LR-9	LL-1	LL-2	LL-3	LL-4	LD-1	LD-2
Gravel	0	1.4	0	0	0	0.1	0	1.3	5.1	0	0	0	0	7.2	5.3
Sand	33.9	10.7	6.5	10.2	2.1	4.4	5.9	14.9	47.6	5	16	8.1	0.7	75.4	81.9
Silt	41.3	39.1	56.2	55.4	51.7	42.7	29.4	50.7	23.7	39.9	34.9	27	49.5	4.3	3.7
Clay	24.8	48.8	37.3	34.4	46.2	52.8	64.7	33.1	23.6	55.1	49.1	64.9	49.8	13.1	9.1

TABLE 3.4. Bulk inorganic analyses of River Channel sediments, Lorain Harbor, Ohio.

Metals (mg/kg)	River Channel Sediments									Open-lake Sediments					
	Sampling Sites									Reference Area Sampling Sites				Placement Area Sampling Sites	
	LR-1	LR-2	LR-3	LR-4	LR-5	LR-6	LR-7	LR-8	LR-9	LL-1	LL-2	LL-3	LL-4	LD-1	LD-2
Aluminum	8890	17700	13200	15400	15400	17500	172500	13100	10300	25500	28900	27900	21600	9760	4590
Antimony	0.724	1.39	0.841	0.855	1.03	1.31	1.17	1.32	0.947	1.43	1.98	1.51	1.03	1.85	2.32
Arsenic	**7.53**	**10.7**	**10.3**	**10.2**	**10.8**	**11.2**	**9.83**	**12.1**	**9.84**	7.67	7.51	7.37	7.22	13.1	8.12
Barium	39.8	64.4	54.3	60.1	59.2	66.8	65.5	65.8	54.4	104	102	107	95.4	52.3	32.1
Beryllium	0.358	0.597	0.491	0.539	0.568	0.692	0.613	**2.72**	**4.03**	1.03	1.02	1.06	0.973	1.19	0.509
Cadmium	2.43	3.92	2.28	2.71	2.69	3.71	2.77	**14.8**	**8.68**	2.38	2.37	2.27	2.12	15.5	5.74
Chromium	18.1	28.7	18.9	22.5	22.1	27.8	23.9	**82.1**	44.7	50.6	50.6	50.1	47.2	106	47.4
Cobalt	6.63	10.5	9.24	9.71	9.76	10.1	10.1	8.76	7.23	12.4	11.9	12.1	11.3	7.32	5.63
Copper	32.2	54.4	37.2	42.3	41.9	53.8	45.4	**117**	**70.1**	56.1	55.1	55.2	51.5	127	70.4
Iron	21500	41300	31900	32300	34000	38400	35200	42100	32200	37300	46600	41600	33400	57200	64200
Lead	20.1	38.1	23.4	27.7	27.2	37.9	32.3	**82.9**	**56.1**	54.7	55.1	51.9	49.1	74.4	33.7
Magnesium	2730	4340	3840	4220	4500	5720	4930	4330	7030	10900	10000	10200	9160	3500	3120
Manganese	409	**930**	**636**	554	**603**	**617**	552	**590**	**796**	570	533	506	432	664	575
Mercury	0.0611	0.124	0.114	0.0971	0.101	0.157	0.113	0.601	0.191	0.419	0.384	0.373	0.291	0.296	0.198
Nickel	23.1	31.1	25.5	27.2	27.9	30.4	29.8	40.1	**56.9**	51.9	51.8	51.8	49.1	40.3	24.7
Selenium	0.613	0.804	0.688	0.745	0.725	0.679	0.583	1.35	0.777	0.859	0.893	0.954	0.898	1.22	0.716
Silver	0.143	0.377	0.164	0.206	0.201	0.249	0.303	**0.973**	**0.639**	0.638	0.497	0.467	0.412	0.484	0.201
Thallium	0.317	0.431	0.351	0.401	0.416	0.459	0.407	0.605	0.501	1.16	0.531	0.565	0.445	0.418	0.301
Vanadium	17.4	24.1	20.2	23.5	23.9	25.3	24.9	21.3	17.6	42.1	40.5	42.4	38.1	23.1	17.9
Zinc	93.1	164	107	131	133	275	152	**844**	**529**	184	178	178	166	644	248
Misc. (mg/kg)	**LR-1**	**LR-2**	**LR-3**	**LR-4**	**LR-5**	**LR-6**	**LR-7**	**LR-8**	**LH-9**	**LL-1**	**LL-2**	**LL-3**	**LL-4**	**LD-1**	**LD-2**
Oil & Grease	**120**	94.7	82.1	67.2	57.2U	67.1	89.5	**631**	**321**	124U	112	109U	111U	1470	801
Phosphorus	137	173	150	162	153	128	5.14	126	125	120	135	170	219	88.8	103
TOC	30300	34600	29300	29000	29400	30900	26600	36100	30500	14600	16600	13400	13300	24200	42800
Cyanide	**0.573**	0.219U	0.463	0.31	0.406	**0.862**	0.474	**1.67**	**4.26**	0.468U	0.538J	0.477U	0.473U	3.26	4.22
Ammonia	183	**444**	**284**	249	214	189	225	113	73.2	203	249	191	181	68.3	68.1

Boldfaced values indicate concentrations that exceeded the open-lake reference area levels (from EEI 2005).

U: Not detected at or above the specified minimum detection limit

TABLE 3.5 Bulk polycyclic aromatic hydrocarbon (PAH) analyses of River Channel sediments, Lorain Harbor, Ohio.

PAHs (µg/kg)	River Channel Sediments									Open-lake Sediments					
	Sampling Sites									Reference Area Sampling Sites				Placement Area	
	LR-1	LR-2	LR-3	LR-4	LR-5	LR-6	LR-7	LR-8	LR-9	LL-1	LL-2	LL-3	LL-4	LD-1	LD-2
Acenaphthene	**33.9**	**146**	**10.4**	**29.3**	**9.24**	**23.9**	**46.3**	**80.7**	**90.9**	0.0711U	0.0662U	0.0639U	3.56J	288	281
Acenaphthylene	**40**	**58.3**	10.8	**44.6**	15.6	**76.5**	**111**	**187**	**125**	6.60JU	7.11JU	7.79J	16.2	260	191
Anthracene	**64.7**	**132**	**31.3**	**80.5**	**19.7**	**89.7**	**190**	**248**	**200**	5.12J	5.09J	5.39J	15.9	704	646
Benzo(a)Anthracene	**181**	**296**	**111**	**246**	**74.4**	**199**	**438**	**459**	**386**	15.6	15.9	19	47.2	1070	795
Benzo(a)Pyrene	**181**	**298**	**113**	**254**	**88**	**188**	**391**	**444**	**342**	15	16.1	18.9	48.1	936	657
Benzo(b)Fluoranthene	**252**	**435**	**186**	**352**	**156**	**246**	**451**	**580**	**433**	18.4	19.4	26.1	61.8	1130	767
Benzo(g,h,i)Perylene	**130**	**286**	**109**	**156**	**90.9**	**116**	**183**	**289**	**217**	11.8	11.8	16.2	39.9	561	382
Benzo(k)Fluoranthene	**81.6**	**108**	**53.8**	**114**	**45.2**	**86**	**154**	**180**	**145**	5.93J	6.03J	8.39J	21	363	261
Chrysene	**185**	**304**	**122**	**241**	**97.8**	**186**	**357**	**426**	**355**	15.3	16.1	20.4	49	937	609
Dibenzo(a,h)Anthracene	**47.2**	**70.8**	**32.7**	**58.9**	**29.9**	**50.5**	**69.6**	**113**	**88.7**	0.1390J	20.9	0.1250U	28.4	215	148
Fluoranthene	**426**	**593**	**216**	**554**	**161**	**344**	**897**	**899**	**745**	28.4	29.4	32.3	89.3	2110	1700
Fluorene	**45.5**	**130**	**13**	**38.7**	**11.1**	**44.6**	**94.9**	**120**	**133**	0.0617U	3.16J	2.64J	7.42J	321	291
Indeno(1,2,3-c,d)Pyrene	**135**	**240**	**91.3**	**168**	**75.6**	**130**	**210**	**309**	**230**	11.8	11.9	15.4	38.2	618	420
Naphthalene	**73.4**	**146**	**19.5**	**63.6**	**21**	**118**	**41.3**	**187**	**232**	6.00J	7.07J	7.09J	20.1	434	246
Phenanthrene	**260**	**495**	**113**	**250**	**77.3**	**163**	**552**	**462**	**433**	9.95	11.2	11.8	30.1	1130	947
Pyrene	**257**	**511**	**189**	**323**	**152**	**199**	**520**	**615**	**478**	20.3	21.5	21.6	59.3	1260	962
TOTAL	**2390**	**4250**	**1420**	**2970**	**1120**	**2260**	**4710**	**5600**	**4630**	170	204	213	576	**12400**	**9300**
Naphthalene/total PAH (%)	3.1	3.4	1.3	2.1	1.8	5.2	0.88	3.3	5						
Fluoranthene:pyrene	1.7	1.2	1.1	1.7	1.1	1.7	1.7	1.5	1.6						

Boldfaced values indicate concentrations that exceeded the open-lake reference area levels (from EEI 2005).
U: Not detected at or above the specified minimum detection limit.
J: Estimated value between the minimum detection limit and reporting limit.

TABLE 3.6 TBP predictions for PAHs in Outer Harbor sediments, Lorain Harbor, Ohio.

Parameter	Outer Harbor											Open-lake Sediments			
	Sampling Sites											Reference Area Sampling Sites			
	LH-1	LH-2	LH-3	LH-4	LH-5	LH-6	LH-7	LH-8	LH-9	LH-10	LH-11	LL-1	LL-2	LL-3	LL-4
TOC (%)	2.14	2.27	2.29	2.65	2.16	2.65	2.11	2.18	2.26	2.2	3.15	1.46	1.66	1.34	1.33
PAH TBP (µg/kg)															
Acenaphthene	2.6	6.2	3.5	1.5	3	7.3	3.2	8.9	2.3	1.7	8.6	0	0	0	1.9
Acenaphthylene	5.5	5.6	5.5	1.7	3.2	7.7	5	17.5	3.5	2.2	8.7	2.1	2	2.7	5.6
Anthracene	11.1	18.6	11.6	3.5	5.9	21.6	9.6	56.1	6.9	3.4	21.2	2	1.8	2.3	6.9
Benzo(a)anthracene	21.4	23.2	20.4	7.2	15	33.7	18.8	72.5	14	7.2	42.9	3.8	3.4	5.1	12.8
Benzo(a)pyrene	30.4	33.9	32.8	12.4	24.8	50.3	29.7	111.2	22.4	12.3	67.1	6.4	6	8.7	22.4
Benzo(b)fluoranthene	34.7	42.4	40	14.7	38.3	55.5	32.3	111.9	23.5	14.1	85	6.6	6.1	10.1	24.2
Benzo(ghi)perylene	35.9	47.4	43.1	18.7	52.4	99.6	53.6	177.5	38.8	22.5	131	12.1	10.7	18.1	45
Benzo(k)fluoranthene	13.3	17	15.6	5.9	12.8	23	13.4	46.5	9	5.9	29.8	2.6	2.3	3.9	9.9
Chrysene	21.2	30.9	24.6	8.7	20.2	39.1	21.5	78.8	15.8	9	46.8	4.4	4.1	6.4	15.5
Dibenzo(a,h) anthracene	24.6	28.1	29.5	14.6	29.2	40.7	27.6	79.2	25.5	16.2	46.3	0.2	23.9	0.2	40.6
Fluoranthene	20.9	31.5	22.3	7.8	17	41.1	21.1	71.1	15.8	8.4	43.9	3.9	3.5	4.8	13.4
Fluorene	4.5	11.7	5.7	2.1	4.7	13.8	4.7	18	3.7	2.5	11	0	1.5	1.5	4.3
Indeno(1,2,3-cd) pyrene	46.6	55.6	54	22.1	53	111	61.2	213.7	46.8	25.4	133.8	13.7	12.2	19.5	48.8
Naphthalene	16.8	35.9	31.1	13	19.3	51.5	24.2	59.5	16.4	12.8	17.7	9.5	9.8	12.2	34.8
Phenanthrene	24.5	51.9	29.3	10.1	24.6	62.2	27	96.8	21.2	10.9	79.2	4.2	4.1	5.4	13.8
Pyrene	18.6	28.1	20.6	7.3	23.6	34.8	18.3	59.7	13.9	7.6	57.2	4.2	3.9	4.8	13.4
Total PAH TBP	**566**	**800**	**632**	232	**545**	**1092**	**581**	**2053**	433	244	**1370**	133	139	183	441

TABLE 3.7 Bulk polychlorinated biphenyl (PCB) analyses of River Channel sediments, Lorain Harbor, Ohio (from EEI 2005).

	River Channel Sediments									Open-lake Sediments					
	Sampling Sites									Reference Area Sampling Sites				ment Area Sampling	
PCBs (µg/kg)	LR-1	LR-2	LR-3	LR-4	LR-5	LR-6	LR-7	LR-8	LR-9	LL-1	LL-2	LL-3	LL-4	LD-1	LD-2
PCB-1016	2.25U	2.32U	2.22U	2.42U	2.51U	2.54U	2.42U	1.93U	1.80U	4.75U	4.92U	4.84U	4.67U	1.63U	1.88U
PCB-1221	2.25U	2.32U	2.22U	2.42U	2.51U	2.54U	2.42U	1.93U	1.80U	4.75U	4.92U	4.84U	4.67U	1.63U	1.88U
PCB-1232	2.25U	2.32U	2.22U	2.42U	2.51U	2.54U	2.42U	1.93U	1.80U	4.75U	4.92U	4.84U	4.67U	1.63U	1.88U
PCB-1242	2.25U	2.32U	2.22U	2.42U	2.51U	2.54U	2.42U	1.93U	1.80U	4.75U	4.92U	4.84U	4.67U	1.63U	1.88U
PCB-1248	2.25U	2.32U	2.22U	2.42U	2.51U	2.54U	2.42U	1.93U	1.80U	4.75U	4.92U	4.84U	4.67U	1.63U	1.88U
PCB-1254	2.25U	2.32U	2.22U	2.42U	2.51U	2.54U	2.42U	1.93U	1.80U	4.75U	4.92U	4.84U	4.67U	1.63U	1.88U
PCB-1260	2.25U	2.32U	2.22U	2.42U	2.51U	2.54U	2.42U	1.93U	1.80U	4.75U	4.92U	4.84U	4.67U	1.63U	1.88U
PCB-1262	2.25U	2.32U	2.22U	2.42U	2.51U	2.54U	2.42U	1.93U	1.80U	4.75U	4.92U	4.84U	4.67U	1.63U	1.88U

U: Not detected at or above the specified minimum detection limit.

J: Estimated value between the minimum detection limit and reporting limit.

TABLE 3.8 Bulk pesticides analyses of River Channel sediments, Lorain Harbor, Ohio.

	River Channel Sediments									Open-lake Sediments					
	Sampling Sites									Reference Area Sampling Sites				ment Area Sampling	
Pesticides (µg/kg)	**LR-1**	**LR-2**	**LR-3**	**LR-4**	**LR-5**	**LR-6**	**LR-7**	**LR-8**	**LR-9**	**LL-1**	**LL-2**	**LL-3**	**LL-4**	**LD-1**	**LD-2**
Alpha-BHC	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U
Beta-BHC	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.79
Delta-BHC	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	4.75
Gamma-BHC	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U
Heptachlor	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U
Aldrin	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.6
Heptachlor Epoxide	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U
Endosulfan I	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U
Dieldrin	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	4.73
4,4'-DDT	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	**2.41**	1.90U	1.97U	1.94U	1.87U	0.979U	5.56
4,4'-DDE	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	2.67
DDD	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.77
Endrin	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U
Endosulfan II	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.39
Methoxychlor	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	**2.08**	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	15.9
Toxaphene	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U
Alpha-Chlordane	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U
Gamma-Chlordane	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	**3.85**	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	4.91
Endrin aldehyde	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U
Endosulfan sulfate	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	2.04
Endrin ketone	1.35U	1.39U	1.33U	1.44U	1.40U	1.52U	1.45U	1.16U	1.08U	1.90U	1.97U	1.94U	1.87U	0.979U	1.13U

Boldfaced values indicate concentrations that exceeded the open-lake reference area levels (from EEI 2005).
U: Not detected at or above the specified minimum detection limit.
J: Estimated value between the minimum detection limit and reporting limit.

TABLE 3.9 Modified elutriate test results for metals on River Channel sediments, Lorain Harbor, Ohio (from EEI 2005).

	River Channel Sediments					
	Management Units					
	LRB-1		LRB-2		LRB-3	
Metals (µg/kg)	**total**	**filtered**	**total**	**filtered**	**total**	**filtered**
Aluminum	6720	281	8310	32.1	3760	139
Antimony	1.17	1.58	0.100U	0.100U	2.96	2.76
Arsenic	5.17	0.461	147	0.400U	3.64	0.400U
Barium	81.4	61.1	123	74.3	71.4	109
Beryllium	0.241	0.119U	0.421	0.119U	0.791	0.119
Cadmium	2.36	0.251	2.36	1.68U	1.89	1.68
Chromium	14.6	4.71	17.8	2.91	19.6	1.84
Cobalt	4.46	2.67	7.44	2.58	0.701	1.19
Copper	14.3	3.35	24.1	2.56	17.8	3.74
Iron	8240	307	17600	78.6	3850	131
Lead	13.4	1.17U	24.3	1.17U	18.7	1.17U
Magnesium	13100	11500	17500	15200	9660	9960
Manganese	742	135	1990	1030	341	98
Mercury	0.277	0.215	0.249	0.222	0.435	0.225
Nickel	11.9	3.78	15.3	3.71	10.1	1.91
Selenium	1.17U	1.17U	1.17U	1.17U	1.23	1.17U
Silver	0.400U	0.400U	0.400U	0.400U	0.400U	0.400U
Thallium	0.601	0.491	0.481	0.301	5.87	0.271
Vanadium	10.3	2.15	13.1	2.61	6.38	0.641
Zinc	50.3	12.2	97.1	5.15	114	6.69
	LRB-1		LRB-2		LRB-3	
Misc (µg/kg)	**total**	**filtered**	**total**	**filtered**	**total**	**filtered**
Oil/Grease	59.6	96.5	37.4	30.0U	51.5	43.7
Cyanide	2.50U	2.50U	2.50U	2.50U	2.50U	2.50U
Phosphorus	160	30	380	50	80	20.0U
Ammonia	10800	8760	9490	8960	3430	3500

TABLE 3.10 Modified elutriate test results for PAHs on River Channel sediments, Lorain Harbor, Ohio (EEI, 2005)

PAHs (µg/kg)	River Channel Sediments					
	Management Units					
	LRB-1		LRB-2		LRB-3	
	total	filtered	total	filtered	total	filtered
Acenaphthene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Acenaphthylene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Anthracene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Benzo(a)Anthracene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Benzo(a)Pyrene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Benzo(b)Fluoranthene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Benzo(g,h,i)Perylene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Benzo(k)Fluoranthene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Chrysene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Dibenzo(a,h)Anthracene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Fluoranthene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Fluorene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Indeno(1,2,3-c,d)Pyrene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Naphthalene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Phenanthrene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U
Pyrene	0.200U	0.200U	0.200U	0.200U	0.200U	0.200U

TABLE 3.11 Modified elutriate test results for PCBs on River Channel sediments, Lorain Harbor, Ohio (EEI, 2005)

PCBs (µg/kg)	River Channel Sediments					
	Management Units					
	LRB-1		LRB-2		LRB-3	
	total	filtered	total	filtered	total	filtered
PCB-1016	0.500U	0.500U	0.500U	0.500U	0.500U	0.500U
PCB-1221	0.500U	0.500U	0.500U	0.500U	0.500U	0.500U
PCB-1232	0.500U	0.500U	0.500U	0.500U	0.500U	0.500U
PCB-1242	0.500U	0.500U	0.500U	0.500U	0.500U	0.500U
PCB-1248	0.500U	0.500U	0.500U	0.500U	0.500U	0.500U
PCB-1254	0.500U	0.500U	0.500U	0.500U	0.500U	0.500U
PCB-1260	0.500U	0.500U	0.500U	0.500U	0.500U	0.500U
PCB-1262	0.500U	0.500U	0.500U	0.500U	0.500U	0.500U

TABLE 3.12 Modified elutriate test results for pesticides on River Channel sediments, Lorain Harbor, Ohio (EEI, 2005)						
	River Channel Sediments					
	Management Units					
	LRB-1		LRB-2		LRB-3	
Pesticides (µg/kg)	total	filtered	total	filtered	total	filtered
Alpha-BHC	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Beta-BHC	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Delta-BHC	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Gamma-BHC	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Heptachlor	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Aldrin	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Heptachlor Epoxide	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Endosulfan I	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Dieldrin	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
4,4'-DDT	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
4,4'-DDE	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
DDD	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Endrin	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Endosulfan II	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Methoxychlor	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Toxaphene	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Alpha-Chlordane	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Gamma-Chlordane	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Endrin aldehyde	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Endosulfan sulfate	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U
Endrin ketone	0.100U	0.100U	0.100U	0.100U	0.100U	0.100U

TABLE 3.13 Results of bioassays on Lorain Harbor, Ohio sediments (EEI 2001; 2005).

	Bioassay		
	H. azteca	*C. tentans*	
Sediment sample	Survival (mean %)	Survival (mean %)	Growth (mean dry weight, mg)
Harbor, LB-1*	94±8.9	88±13	1.68±0.30
Harbor, LB-2*	96±5.5	90±12.2	1.71±0.09
Harbor, LB-3*	100±0	92±11	1.81±0.14
Harbor, LB-4*	88±17.9	86±16.7	1.68±0.25
River, LRB-1**	86±11	72±23	1.38±0.29
River, LRB-2**	94±6	72±15	1.74±0.25
River, LRB-3**	70±24	**68±13**	1.85±0.45
Reference Area*	90±14	95±5.8	1.72±0.46
Disposal Area*	10±17.3	48±25.1	0.30±0.10
Control*	100±0	96±5.5	1.24±0.20
Control***	100±0	96±6	1.33±0.13

*2005 data.

**2001 data compared to 2005 open-lake reference area data.

***2001 data.

Boldfaced values indicate that harbor sediments did not meet Federal guidelines for open-lake placement.

TABLE 3.14 Results of Lorain Harbor (Black River Channel) sediment *C. tentans* bioassay (from ASCi 2006a).

Sediment sample	Measurement endpoint	
	Survival (mean %)	Growth (mean dry weight, mg)
LRB-1	80±18.7	1.31±0.29
LRB-2	80±12.2	1.22±0.32
LRB-3	**23±34.9***	**0.77±0.34**
Reference Area	80±12.2	1.32±0.11
Control	84±8.9	1.37±0.06

*High variability of the low survival for this sample rendered no statistically significant difference; due to this anomaly, the material was determined to not meet Federal guidelines for open-lake placement.

Boldfaced values indicate that harbor sediments did not meet Federal guidelines for open-lake placement.