Table 1-1. Portland Harbor RI/FS Reports and Deliverables Provided to EPA through April 2004.

Deliverable Date	Deliverable
2001	
April 24, 2001	Combined Sampling and Analysis Plan/Quality Assurance Plan for the Lower Willamette River Sediment Profile Image Survey
July 2, 2001	Multibeam Bathymetric Survey of the Lower Willamette River Work Plan
November 20, 2001	Memorandum: Meeting with US EPA, ODEQ, and LWG on DEQ File Information
December 20, 2001	Technical Memorandum: Proposed Database Approach
December 20, 2001	Data Quality Objectives for Historical Data
December 21, 2001	LWG Shared Server Established
December 27, 2001	Site Visit Report / Narrated Video
2002	
January 25, 2002	Documentation of Risk Assessment Scoping Meeting December 19, 2001
February 4, 2002	Preliminary Planning, Scoping, and Problem Formulation Document
February 15, 2002	Technical Memorandum: Juvenile Salmonid Residence Time in Portland Harbor
February 2002	Capping Material Evaluation Technical Memorandum
March 2002	Disposal Facility Siting Technical Memorandum
April 1, 2002	Preliminary Analytical Concentration Goals for Target Analytes in Sediment, Tissue and Water Samples
April 10, 2002	Lower Willamette River Multibeam Bathymetric Survey Report – December 2001/January 2002
April 22, 2002	Round 1A Field Sampling Plan
April 26, 2002	Integration of Sediment Trend Analysis (STA®) Survey Results with Historic Bathymetry in the Lower Willamette River
April 26, 2002	Sediment Profile Image Survey of the Lower Willamette River
April 26, 2002	Historical Database
June 7, 2002	Draft Round 1 Portland Harbor RI/FS Work Plan
June 14, 2002	Round 1 Field Sampling Plan
June 14, 2002	Round 1 Health and Safety Plan
July 19, 2002	Fish Tissue Sampling Standard Operating Procedure (SOP) for Round 1A
August 8, 2002	Fish Tissue Compositing & Shipping SOP
August 8, 2002	Fish Tissue Homogenization & Shipping and Axys Homogenization SOPs
November 22, 2002	Round 1 Quality Assurance Project Plan. Final Report
2003	
February 18, 2003	Technical Memorandum: Results of Seep Reconnaissance Survey River Mile 2-10.5 Lower Willamette River
February 26, 2003	Lower Willamette River Summer 2002 Multibeam Bathymetric Survey Report
	Multiplate Report
	Plant and Amphibian Reconnaissance

Table 1-1. Portland Harbor RI/FS Reports and Deliverables Provided to EPA through April 2004.

Deliverable Date	Deliverable
	Adult Lamprey Survey
February 28, 2003	Summary of Round 1 Field Sampling Activities
March 6, 2003	2002 Sediment Stake Erosion/ Accretion Monitoring Report
March 14, 2003	Round 1 Field Sampling Report
March 31, 2003	Portland Harbor RI/FS Programmatic Work Plan - Revised
April 4, 2003	Technical Memorandum: Hydrodynamic/Sedimentation Modeling
	Technical Memorandum: Adult Lamprey Harvest
April 17, 2003	Round 2A Quality Assurance Project Plan Addendum - Draft
	Round 2A Field Sampling Plan - Draft
May 9, 2003	Technical Memorandum: Proposed Fish Consumption Rates
May 20, 2003	Technical Memorandum: Benthic Analysis Approach
May 29, 2003	Historical Chemistry Data Category Reclassification Technical Memorandum
June 2, 2003	Upland Groundwater Data Review Report
June 3, 2003	Round 1 Sediment Chemistry Data Validation Reports
	Round 1 Validated Sediment Data Technical Memorandum
August 1, 2003	Framework for Evaluating Exposure to the Benthic Community and Humans from Chemicals Transported in Groundwater
October 8, 2003	Lower Willamette River May 2003 Multibeam Bathymetric Survey Report
November 13, 2003	Portland Harbor RI/FS Programmatic Work Plan - Revised
December 22, 2003	Round 2 FSP/HSP/QAPP Addendum
2004	
February 23, 2004	Technical Memorandum: Hydrodynamic/Sedimentation Modeling - Revised
February 24, 2004	Draft Beach Sampling FSP
March 1, 2004	Sediment Stake Erosion/Accretion Monitoring Report, July 2002 - January 2004
March 31, 2004	Draft Natural Attenuation Technical Memorandum - Step 1 Evaluation and Step 2 FSP and Data Evaluation Methods
March 22, 2004	Round 2 FSP Sediment Sampling and Benthic Toxicity Testing
April 2, 2004	Round 2A FSP Surface Water Sampling
April 12, 2004	Round 2 Quality Assurance Project Plan
April 22, 2004	April 2002 LWR ADCP Survey Results
April 22, 2004	May 2003 LWR ADCP Survey Results

Table 2-1. Portland Harbor Vertical Datum Conversion Table.

River Mile	NAVD88 Elev.	NGVD29/47 Elev.	CRD Elev.
0.4	10.0’	6.8’	5.4’
	0.0'	-3.2'	-4.6'
	-10.0'	-13.2'	-14.6'
1.3	10.0’	6.8’	5.4’
	0.0'	-3.2'	-4.7'
	-10.0'	-13.2'	-14.7'
5	10.0’	6.7’	4.9’
	0.0'	-3.3'	-5.1'
	-10.0'	-13.3'	-15.1'
9.8	10.0’	6.5’	4.7’
	0.0'	-3.5'	-5.3'
	-10.0'	-13.5'	-15.3'
12.8	10.0’	6.5’	4.6’
	0.0'	-3.5'	-5.4'
	-10.0'	-13.5'	-15.4
15.6	10.0’	6.5’	4.6’
	0.0'	-3.5'	-5.4'
	-10.0'	-13.5	-15.4'

Table 2-2. Willamette Basin Reservoir Summary.

Dam	Total Storage ac-ft	Summer Storage ac-ft	Year Completed	Power Generators	River	Comments
Fern Ridge	116,800	93,900	1941	none	Long Tom	High recreational, not drafted for low flow
Cottage Grove	32,900	28,700	1942	none	Coast Fork Willamette	Usually not drafted for low flow
Big Cliff	N/A	N/A	1953	1	North Santiam	Re-regulation dam for Detroit, limited recreation
Detroit	455,100	281,600	1953	2	North Santiam	Rarely drafted for low-flow augmentation
Dorena	77,600	65,000	1949	none	Row	Usually not drafted for low flow
Hills Creek	355,500	194,600	1961	1	Middle Fork Willamette	Drafted for low flow
Foster	60,700	24,800	1968	2	South Santiam	Rarely drafted for low-flow augmentation
Green Peter	428,100	249,900	1968	2	Middle Santiam	Drafted for low-flow augmentation, recreational use
Lookout Point	455,800	324,200	1954	3	Middle Fork Willamette	Drafted for low-flow augmentation, limited recreational use
Dexter	N/A	N/A	1954	1	Middle Fork Willamette	Re-regulation dam for Lookout Point, some recreation
Blue River	89,500	78,800	1969	3	Blue River	Drafted for low-flow augmentation, recreational use
Cougar	219,000	143,900	1964	2	South Fork McKenzie	Drafted for low-flow augmentation, recreational use
Fall Creek	125,000	108,200	1966	none	Fall Creek	High recreational use

Source: U.S. Army Corps of Engineers, Portland District

Table 2-3. Summary of ADCP Transect Time, Location, and Approximate Total Flow[1].

Transect	ADCP File	River Mile	Time (UTC)	Water Level CRD (Morrison Street Gauge)	Flow (ft^3/s)	Location Description
1	A109018R.000	1	1:13	10.87	35405	Columbia Slough
2	A109017R.000	2	1:05	10.9	34727	
3	A109016R.000	2.5	0:48	10.92	34886	
4	A109000R.000	3.1	18:50	11.47	69170	Multnohmah Channel
5	A109015R.000	4	0:42	10.92	67098	
6	A109001R.000	4.6	19:23	11.41	70928	Into Terminal 4 Slip 3
7	A109012R.000	5.8	23:57	10.99	66452	St. John's Bridge
8	A109010R.000	6.3	23:37	11.05	71113	Off Gasco
9	A109002R.000	6.8	20:11	11.18	71356	Into Willamette Cove
10	A109009R.000	7.8	23:00	11.1	67447	Off Willbridge Terminal
11	A109005R.000	8	21:14	11.27	68181	Downstream of PSY
12	A109003R.000		~20:45	11.31	-479	Swan Island Lagoon (mouth)
13	A109004R.000		21:00	11.29	183	Swan Island Lagoon (upper end)
14	A109008R.000	9.6	22:34	11.16	65452	Across deep hole in channel
15	A109007R.000	10	22:22	11.18	67643	
16	A109006R.000	11	22:04	11.19	69461	

[1] The ADCP survey was conducted by David Evans & Associates, Inc. during a high water event on April 19, 2002 (DEA 2002b).

Table 2-4. The Major Benthic Zones in the LWR based on the Results of the December 2001 Sediment-Profile Survey (SEA 2002b) and River Channel Morphology (DEA 2002a).

Zones	Regime	Description
RM 15.7-11.0 (Chute)	Erosional	This segment of river has the smallest cross-sectional areas and lacks large meanders to slow flow. It has low prism penetration depths and coarse-grained sediment is resistant to sediment transport. Apparent RPDs (surface biogenically mixed layers) are thinly developed.
RM 11.0 to 9.7 (Transition Zone)	Transitional	This relatively small stretch of the river represents the transition from the dynamic Upper Willamette River to the Portland Harbor segment. The river widens and cross-sectional areas increase and as a result flow velocities decrease.
RM 9.7 to 7.0 (Deposition Zone 1)	Depositional	As the river widens and cross-sectional areas increase, the river flow velocities decrease and the ability of the river to entrain and transport sediment decreases resulting in the deposition of bedload sediment and possibly sediments in suspension. Bottom sediments are organic, methanogenic silts with deep apparent RPDs that have been thickened by deposition of oxidized fine-grained sediment.
RM 7.0 to 5.1 (Transport Zone)	Static or Erosional	The narrowing river channel creates higher flow velocities in this segment of river. Consequently, the sediments in this segment are coarser grained and show evidence of fine-grained sediment being winnowed from the sediment-water interface. This zone also exhibits some localized depositional areas within the main body of the channel, potentially related to small scale bottom topographic features.
RM 5.1 to 3.0 (Deposition Zone 2)	Depositional	Sediment that passed through the more dynamic RM 7.0 to 5.1 may be deposited in this segment as the flow velocities decrease, associated with river widening. Riverbed sediment is composed primarily of silts with deep, depositional, apparent RPDs. Methane is present in the reach, but it is less widespread than upstream in Deposition Zone 1.
RM 3.0 to 1.1 (Deposition Zone 3)	Depositional	This zone is similar to Depositional Zone 2 in apparent flow regime, sediment type, and benthic community structure. In part, Deposition Zone 3 is separated from Depositional Zone 2 for site assessment purposes (the lower ISA boundary is RM 3.5) and because the Multnomah Channel enters the Willamette at the boundary of these zones (RM 3) and likely influences water and possibly sediment movement up and downstream of this point.
RM 1.1 to 0.0 (Columbia River Zone)	Static or Erosional	RM 1.1 to 0 segment is dominated by fine sands and silts. The fine sandy substrate is related to both the decreased river cross-sectional area and influence from the Columbia River, which modifies the Willamette River bottom and the biological community (e.g., tube-dwelling amphipods are seen only in this portion of the river).
Nearshore Zone (RM 15.7 to 0.0 at depths less than 20 feet CRD)	Mixed Case	At river margins in general, the ratio of river bottom to flow volume increases, with frictional drag lessening flow velocities. Sediments in many areas appear to episodically deposited or eroded (based on stratigraphic layering). Some nearshore areas appea to be modified by non-flow related physical processes (e.g., wind-generated waves) and/or anthropogenic disturbance factors (e.g., prop-wash, nearshore construction).

Table 2-5a. Evaluation of Bathymetric Change in Nearshore (< 20' CRD) Areas based on 1-square-meter Cell Counts.

Bathymetric Change	**River Mile**																
	0-1	**1-2**	**2-3**	**3-4**	**4-5**	**5-6**	**6-7**	**7-8**	**8-9**	**9-10**	**10-11**	**11-12**	**12-13**	**13-14**	**14-15.7**	**Totals**	
No Change (# of cells)																	
+/- 0.25'	12587	32390	54484	59375	20211	20540	43650	32609	64180	87220	10824	10511	2469	78558	164697	694,305	
Shoaling (# of cells)																	% shoaling (cumulative)
-0.5 - -0.25	3871	3970	2929	7661	5131	4648	8221	7529	10564	14318	5623	2697	662	8580	24290	110,694	42.19
-1 - -0.5	4067	2979	2456	6922	7769	4502	4906	6673	8774	8356	6453	2965	678	3824	14877	86,201	75.04
-2 - -1	2049	488	962	3802	8713	2140	2217	5932	6851	3392	4494	861	805	920	3717	47,343	93.08
-3 - -2	75	18	332	762	2487	316	493	1542	1769	704	1104	204	231	158	313	10,508	97.09
-4 - -3	3	1	58	226	1347	147	189	423	424	239	307	100	62	51	57	3,634	98.47
-5 - -4	0	1	5	79	804	53	105	142	145	87	220	69	24	17	3	1,754	99.14
-6 - -5	1	0	0	45	398	9	25	56	47	46	160	24	20	4	11	846	99.46
-7 - -6	0	1	1	34	388	3	3	41	31	23	113	3	9	2	9	661	99.71
-8 - -7	1	0	0	19	163	3	0	25	19	4	81	4	4	0	16	339	99.84
-9 - -8	0	0	1	23	67	0	2	8	17	2	67	3	3	0	6	199	99.92
-10 - -9	0	0	0	24	6	2	0	7	16	0	39	2	4	0	2	102	99.96
-30 - -10	0	0	0	61	4	5	0	6	23	3	3	0	3	1	3	112	100.00
-55 - -30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100.00
Total cells shoaling	10067	7458	6744	19658	27277	11828	16161	22384	28680	27174	18664	6932	2505	13557	43304	262,393	
Deepening (# of cells)																	% deepening (cumulative)
0.5-0.25	7887	24221	49959	36267	5470	7599	14689	17601	16901	27326	3524	10514	1915	26937	52622	303,432	46.91
0.5-1	19808	12119	17244	14227	7524	8061	10358	12470	11433	13485	3388	7470	5748	12162	39041	194,538	76.98
1-2	11482	5685	7978	5167	7172	5326	4803	3356	5281	6863	2833	4029	7858	6647	23617	108,097	93.69
2 - 3	3376	1726	812	1465	1305	1048	1055	831	1808	1949	1047	1258	2598	1276	4312	25,866	97.69
3 - 4	1643	776	393	433	359	270	231	266	498	418	227	438	1100	353	1121	8,526	99.01
4 - 5	537	339	127	123	119	77	57	49	217	43	94	151	641	106	321	3,001	99.47
5 - 6	169	176	43	61	48	29	4	19	95	18	43	70	388	24	117	1,304	99.67
6 - 7	49	69	15	32	47	6	2	7	62	0	11	43	273	9	90	715	99.78
7 - 8	15	40	13	19	23	8	0	0	33	0	6	18	131	12	119	437	99.85
8 - 9	5	28	12	16	23	2	3	2	21	0	2	6	62	8	176	366	99.91
9 - 10	5	26	6	10	11	5	0	0	15	0	0	5	16	4	131	234	99.94
10-45	4	29	0	27	42	25	14	0	50	0	0	9	32	26	108	366	100.00
Total cells deepening	44980	45234	76602	57847	22143	22456	31216	34601	36414	50102	11175	24011	20762	47564	121775	646,882	
TOTAL CELLS	67634	85082	137830	136880	69631	54824	91027	89594	129274	164496	40663	41454	25736	139679	329776	1,603,580	

Percentages	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15.7	
No change	19%	38%	40%	43%	29%	37%	48%	36%	50%	53%	27%	25%	10%	56%	50%	43.3%
Shoaling	15%	9%	5%	14%	39%	22%	18%	25%	22%	17%	46%	17%	10%	10%	13%	16.4%
Deepening	67%	53%	56%	42%	32%	41%	34%	39%	28%	30%	27%	58%	81%	34%	37%	40.3%

Total Shoaling, Deepening (> +/- 1ft)/Total cells: 13.4%

Total Nearshore Area with Shoaling, Deepening (> +/- 1ft): 214,410 square meters

Table 2-5b. Evaluation of Bathymetric Change in Channel (> 20' CRD) Areas based on 1-square-meter Cell Counts.

Bathymetric Change	**River Mile**																
	0-1	**1-2**	**2-3**	**3-4**	**4-5**	**5-6**	**6-7**	**7-8**	**8-9**	**9-10**	**10-11**	**11-12**	**12-13**	**13-14**	**14-15.7**	**Totals**	
No Change (# of cells)																	
+/- 0.25'	349841	368620	445942	564581	555357	296804	356247	622603	865419	399479	355772	209970	229735	286754	294186	6,201,310	
																	% shoaling
Shoaling (# of cells)																	(cumulative)
-0.5 - -0.25	52529	111435	52141	24510	53768	19958	22585	35391	79310	98041	32439	29464	23874	21135	50335	706,915	64.61
-1 - -0.5	18109	23359	10375	9738	33285	11212	11848	13742	27735	31432	16137	13324	11524	7334	39634	278,788	90.10
-2 - -1	4902	1056	1661	2972	6868	4027	3633	4153	12343	11849	5672	6675	4259	2159	16467	88,696	98.20
-3 - -2	336	190	276	126	1061	699	491	193	2340	1529	777	2228	797	513	2007	13,563	99.44
-4 - -3	16	17	130	62	388	284	60	24	615	241	262	619	244	194	200	3,356	99.75
-5 - -4	2	1	41	39	148	81	14	5	194	45	172	79	120	110	28	1,079	99.85
-6 - -5	1	2	34	16	59	6	5	3	48	16	131	34	76	47	12	490	99.89
-7 - -6	0	0	51	18	43	1	1	2	28	1	153	29	45	26	9	407	99.93
-8 - -7	0	3	37	7	26	0	0	2	8	1	196	21	24	18	8	351	99.96
-9 - -8	0	1	4	2	16	0	2	0	3	0	180	20	12	9	7	256	99.98
-10 - -9	0	0	0	3	9	0	1	0	2	0	10	15	11	11	2	64	99.99
-30 - -10	0	5	0	2	13	0	1	4	1	0	0	49	1	22	5	103	100.00
-55 - -30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100.00
Total cells shoaling	75895	136069	64750	37495	95684	36268	38641	53519	122627	143155	56129	52557	40987	31578	108714	1,094,068	
																	% deepening
Deepening (# of cells)																	(cumulative)
0.5-0.25	36073	83466	151562	88251	89875	142140	122040	149565	76964	78010	87573	109063	97349	72778	81995	1,466,704	69.11
0.5-1	36759	36982	47815	24602	25576	48992	31534	31167	23287	12560	15880	30739	57520	19609	58823	501,845	92.75
1-2	8659	5561	8875	3282	6112	6191	3749	5413	4831	3771	7963	9140	17782	3735	23578	118,642	98.34
2 - 3	1373	469	479	529	962	221	762	1748	966	1418	2951	2767	2349	569	1646	19,209	99.25
3 - 4	493	159	78	80	189	61	317	907	215	1224	1219	456	996	239	142	6,775	99.57
4 - 5	312	101	75	31	112	17	102	787	47	365	210	238	431	128	75	3,031	99.71
5 - 6	340	80	53	16	74	1	65	531	12	1	22	264	149	59	141	1,808	99.80
6 - 7	239	77	28	18	62	0	46	508	6	0	12	122	99	38	305	1,560	99.87
7 - 8	81	31	16	3	36	0	47	415	2	0	4	103	62	22	117	939	99.91
8 - 9	0	22	18	0	25	0	42	318	3	0	0	106	61	25	2	622	99.94
9 - 10	0	4	12	1	20	0	46	134	11	0	0	68	52	17	1	366	99.96
10-45	1	0	8	2	51	0	196	36	20		0	65	408	64	5	856	100.00
Total cells deepening	84330	126952	209019	116815	123094	197623	158946	191529	106364	97349	115834	153131	177258	97283	166830	2,122,357	
TOTAL CELLS	510066	631641	719711	718891	774135	530695	553834	867651	1094410	639983	527735	415658	447980	415615	569730	9,417,735	

Percentages	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15.7	
No change	69%	58%	62%	79%	72%	56%	64%	72%	79%	62%	67%	51%	51%	69%	52%	65.8%
Shoaling	15%	22%	9%	5%	12%	7%	7%	6%	11%	22%	11%	13%	9%	8%	19%	11.6%
Deepening	17%	20%	29%	16%	16%	37%	29%	22%	10%	15%	22%	37%	40%	23%	29%	22.5%

Total Shoaling, Deepening (> +/- 1ft)/Total cells: 2.8%

Total Channel Area with Shoaling, Deepening (> +/- 1ft): 262,173 square meters

Table 2-6. Federal and Port of Portland LWR Dredging Projects (1980-2001).

Description	Fiscal Year Dredged	Dredge Location			Purpose	Quantity (Cubic Yards)
		River Mile or Channel Station Positioning	Terminal	Berth		
POP Willamette River Dredging	1980	1	5	501	Maintenance	1,200
POP Willamette River Dredging	1980	10	2	205,206	Maintenance	30,000
POP Willamette River Dredging	1980	11	1	101,102,105,106	Maintenance	5,700
POP Willamette River Dredging	1981	8	PSY	DD 3	Maintenance	7,000
POP Willamette River Dredging	1981	10		Ports 'o Call	Borrow-fill	176,000
POP Willamette River Dredging	1982	1.5	5	503	Construction	30,000
POP Willamette River Dredging	1982	9+50+00 to 10+00+30		Entrance to Lagoon	Borrow-fill	631,000
POP Willamette River Dredging	1983	10	2	205,206	Maintenance	11,000
POP Willamette River Dredging	1984	4.5	4	410,411	Maintenance	5,000
POP Willamette River Dredging	1984	10	2	205,206	Maintenance	4,500
FY 84 Corps Manhattan Island (Hopper	1984	8 to 10			Maintenance	517,073
POP Willamette River Dredging	1985	9	PSY	315	Maintenance	153,416
POP Willamette River Dredging	1985	10	PSY	301,302,303,304,305	Maintenance	23,667
POP Willamette River Dredging	1985	10	2	203,204,205	Construction	237,000
POP Willamette River Dredging	1985	10		203,204,205	Borrow-fill	1,285,000
FY 85 Corps D.B. Seattle	1985	9+05 to 10+10			Maintenance	890,171
POP Willamette River Dredging	1986	8.5	PSY	306,307,308	Maintenance	1,200
POP Willamette River Dredging	1987	1	5	501	Maintenance	2,000
POP Willamette River Dredging	1987	4	4	401	Maintenance	2,000
POP Willamette River Dredging	1987	5	4	416	Maintenance	1,800
POP Willamette River Dredging	1988	1	5	501	Maintenance	1,600
FY 88 Corps Sundial Marine D.B. Vulture	1988	8			Maintenance	97,808
POP Willamette River Dredging	1988	10	2	205,206	Maintenance	7,500
POP Willamette River Dredging	1988	11	1	102,103	Maintenance	6,000
POP Willamette River Dredging	1988	11		Near T2	Borrow-fill	876,000
POP Willamette River Dredging	1988	4 to 4.5	4	401,403-408,414-416	Maintenance	28,900
POP Willamette River Dredging	1989	1	5	502	Construction	5,437
FY 89 Corps Smith Rice Super Scoop	1989	11+30+90 to 11+35+40			Maintenance	2,457
FY 89 Corps Smith Rice Super Scoop	1989	2+05 to 2+29+90			Maintenance	34,890
FY 89 Corps Smith Rice Super Scoop	1989	8+39 to 10+01			Maintenance	518,473
FY 89 Corps Smith Rice Super Scoop	1989	9+48 to 10+08			Maintenance	23,288
POP Willamette River Dredging	1990	10	2	204,205,206	Maintenance	13,000
FY 90 Corps Sea Vulture (debris removal)	1990	6+45			Debris removal	1,777
POP Willamette River Dredging	1992	1	5	501	Maintenance	1,250
POP Willamette River Dredging	1992	8	PSY	DD 1, DD 4	Maintenance	95,184
POP Willamette River Dredging	1992	11	1	104	Maintenance	2,000
POP Willamette River Dredging	1993	10	2	204,206	Maintenance	22,000
POP Willamette River Dredging	1994	4	4	408	Maintenance	2,300
POP Willamette River Dredging	1994	4.5	4	410, 411, 412	Maintenance	35,000
POP Willamette River Dredging	1994	8	PSY	DD 3	Maintenance	21,000
POP Willamette River Dredging	1994	10	2	203	Maintenance	1,410
FY 94 Corps by Dutra Marine D.B. #24 9	1994	8 to 10			Maintenance	499,897
POP Willamette River Dredging	1995	1.5	5	503	Maintenance	4,903
POP Willamette River Dredging	1995	10	2	204, 206	Maintenance	18,000
POP Willamette River Dredging	1996	1	5	501	Maintenance	1,250
POP Willamette River Dredging	1996	10	2	204, 206	Maintenance	22,297
POP Willamette River Dredging	1996	11	1	104	Maintenance	7,120
POP Willamette River Dredging	1997	4.5	4	410, 411	Maintenance	5,454
FY 97 Corps by Great Lakes #53 Clam	1997	8.5 to 10			Maintenance	346,000
POP Willamette River Dredging	2001	1	5	503	Maintenance	1,750

Notes: PSY = Portland Ship Yard
DD = Dry dock
POP = Port of Portland
Corps = U.S. Army Corps of Engineers
FY = Fiscal Year
T = Terminal

Table 3-1. Potential Contaminant Sources within the ISA.

Industrial Activity
Raw Materials Handling/Treatment
Chemical Manufacturing/Storage
Bulk Petroleum Storage/Distribution
Metal Salvage/Recycling
Marine Construction/Repair
Electric Power Generation
Railroad Operations/Maintenance
Marine Activities and Shipping
Ship Building and Ship Dismantling
Urban Activity
Waterfront Construction
Aquatic Recreation/Boating/Marinas
Automobiles
Development & Urbanization
Point Source Discharges
Industrial
Combined Sewer Overflows
Storm Drains
Non-point Source Discharges
Spills (Upland/Aquatic)
Stormwater Runoff
Exhaust and Emissions
Historic Practices
Direct Waste Disposal
Over-water Construction
Vessel Construction & Repair

Table 3-2. Chemicals Associated with Selected Industries Located in the LWR[1].

Industry	**Contaminant Type/Use**
Bulk petroleum storage/distribution	Total petroleum hydrocarbons (TPHs), polycyclic aromatic hydrocarbons (PAHs), benzene, ethylbenzene, toluene, and total xylenes (BTEX)
Chemical manufacturing/storage	Multiple organic chemicals, depending on process
Metals salvage/recycling (including automobiles)	Metals, polychorinated biphenyls (PCBs), TPHs, phthalates
Metals forging, fabrication, plating	Metals, TPHs, PCBs, cyanide, volatile organic compounds (VOCs)
Marine construction/repair	TPHs, metals, tributyltin (TBT), PCBs, phthalates, VOCs, semivolatile organic compounds (SVOCs)
Electrical power generation	TPHs, BTEX, PCBs, PAHs
Electric power substation operation and maintenance	TPHs, SVOCs, PCBs, herbicides
Railroad switching, shipping, maintenance	TPHs, PAHs, metals, VOCs, SVOCs, herbicides, multiple chemicals depending on materials handled
Shipping	TBT, TPHs, multiple chemicals depending on materials handled
Ship building and ship dismantling	Metals, TPHs, PAHs, PCBs, solvents, BETX compounds

[1]Additional facility-specific information is contained in Appendix E.

Table 3-3. Active NPDES Permitted Discharges to the ISA[1].

File No.	Facility	Location		Permit		River Mile
		Latitude	Longitude	Category	Type	
Major NPDES - Individual Permit						
68471	ATOFINA Chemicals, Inc. (CLOSED)	45.5708	-122.7448	IND	NPDES	7.4
108015	Portland, City of - Municipal Storm Water Permi	45.5506	-122.6204	STM	NPDES	multiple
93450	Wacker Siltronic Corporation	45.5767	-122.7506	IND	NPDES	6.3
Minor NPDES - Individual Permit						
100025	Kinder Morgan/Portland Bulk Terminal 4	45.6014	-122.7669	IND	NPDES	4.6
108460	Columbia River Sand & Gravel - Linnton Dist. Facility	45.5991	-122.7819	IND	NPDES	4.8
47430	Koppers Industries, Inc.	45.5686	-122.7528	IND	NPDES	6.4
70596	Cascade General, Inc.	45.5658	-122.7208	IND	NPDES	6.5
74995	Aventis CropScience	45.5664	-122.7475	IND	NPDES	7
100517	Univar	45.5500	-122.7171	IND	NPDES	9
General Permits						
111395	Boydstun Metal Works - N. Time Oil Rd.	45.6168	-122.7773	STM	GEN12Z	3.5
111952	CalBag Metals	45.6075	-122.7733	STM	GEN12Z	3.6
32876	Morse Bros.-Linnton Terminal	45.5972	-122.7995	STM	GEN12Z	3.8
108995	SAIA Motor Freight	45.5667	-122.7084	STM	GEN12Z	4
109845	Jefferson Smurfit Corporation	45.6117	-122.7727	STM	GEN12Z	4
6739	Northwest Pipe Company	45.6079	-122.7663	STM	GEN12Z	4
111236	Portland Container Repair, Inc.	45.6133	-122.7720	STM	GEN12Z	4
108103	Schnitzer Steel Products Co.	45.6081	-122.7663	STM	GEN12Z	4
6739	Northwest Pipe Company	45.6079	-122.7663	IND	GEN01	4
109186	Time Oil Co.	45.6164	-122.7821	STM	GEN12Z	4.1
65589	Owens Corning Linnton	45.6091	-122.791	IND	GEN01	4.2
65589	Owens Corning Linnton	45.6091	-122.791	IND	GEN05	4.2
65589	Owens Corning Linnton	45.6091	-122.791	IND	GEN13	4.2
4248	BP West Coast (formerly ARCO)	45.5944	-122.7791	IND	GEN15A	4.3
4248	BP West Coast (formerly ARCO)	45.5944	-122.7791	IND	GEN13	4.3
111396	Boydstun Metal Works - Sever Ct	45.6097	-122.7698	STM	GEN12Z	4.3
57374	Shore Terminals (formerly ExxonMobil)	45.5936	-122.7765	IND	GEN13	4.4
108460	Columbia River Sand & Gravel-Linnton Dist. Facility	45.5991	-122.7819	STM	GEN12Z	4.8
50782	Linnton Plywood Association	45.5992	-122.7847	STM	GEN12Z	4.8
107640	Port of Portland-Terminal 4	45.6000	-122.7669	IND	GEN15A	5
100726	Toyota Logistic Services/Vehicle Processors Inc	45.6011	-122.7623	STM	GEN12Z	5
106458	Borden Chemical, Inc.	45.6061	-122.7657	IND	GEN01	5
110170	International Raw Materials	45.6091	-122.7667	STM	GEN12Z	5
112017	ExxonMobil	45.5916	-122.7776	STM	GEN12Z	5.3
80841	Kinder Morgan-Willbridge Terminal	45.5661	-122.7451	IND	GEN13	5.4
109938	Shore Terminals Llc	45.6306	-122.7733	STM	GEN12Z	5.5
90845	ConocoPhillips (fomerly Tosco)	45.5723	-122.7424	IND	GEN13	5.7

Table 3-3. Active NPDES Permitted Discharges to the ISA[1].

File No.	Facility	Location		Permit		River Mile
		Latitude	Longitude	Category	Type	
100475	Crown Cork And Seal Co	45.5997	-122.7631	STM	GEN12Z	6
109794	Mar Com, Inc.	45.5875	-122.7626	STM	GEN12Z	6.2
87693	Equilon Enterprises-Portland Bulk Terminal	45.5333	-122.7276	IND	GEN15A	6.3
87693	Equilon Enterprises-Portland Bulk Terminal	45.5333	-122.7276	IND	GEN13	6.3
111880	Shell Oil Products	45.5493	-122.7273	IND	GEN15A	6.3
93450	Wacker Siltronic Corporation	45.5767	-122.7506	STM	GEN12Z	6.3
93450	Wacker Siltronic Corporation	45.5767	-122.7506	STM	GEN12C	6.3
62231	Northwest Natural Gas Company (LNG Plant)	45.5792	-122.7580	IND	GEN15A	6.4
111157	Fuel And Marine Marketing - Portland Terminal	45.5803	-122.7575	IND	GEN13	6.4
62231	Northwest Natural Gas Company (LNG Plant)	45.5792	-122.7580	IND	GEN01	6.4
70596	Cascade General, Inc.	45.5658	-122.7208	STM	GEN12Z	6.5
106456	SFPP, L.P. - Portland Station	45.5756	-122.7529	IND	GEN15A	7
8550	GS Roofing Products Company, Inc.	45.5689	-122.7487	STM	GEN12Z	7
8550	GS Roofing Products Company, Inc.	45.5689	-122.7487	IND	GEN01	7
107922	Air Liquide (See Liquid Air File 50791)	45.5709	-122.7449	STM	GEN12Z	7.3
110646	Metro Central Transfer Station	45.5680	-122.7463	STM	GEN12Z	7.5
107172	Quadra Chemicals	45.5667	-122.7368	STM	GEN12Z	7.5
54175	McCall Oil And Chemical Corporation Marine Terminal	45.5611	-122.7358	IND	GEN13	7.8
54175	McCall Oil And Chemical Corporation Marine Terminal	45.5611	-122.7358	IND	GEN05	7.8
100122	Willbridge Distribution Center (Chevron)	45.5658	-122.7415	IND	GEN13	7.9
110757	Chevron U.S.A.-Willbridge Yard	45.5617	-122.7405	STM	GEN12Z	8
16055	Chevron U.S.A. Products Company (Abn) - Willbridge Asphalt Refine	45.5611	-122.7175	STM	GEN12Z	8
107564	Chevron U.S.A.-Willbridge Transportation (Chevron)	45.5667	-122.7390	STM	GEN12Z	8
108053	Distribution, Inc.-FTL	45.5542	-122.7223	STM	GEN12Z	8
108673	Fred Meyer Dairy Plant	45.5583	-122.6984	STM	GEN12Z	8
110778	Rose City Moving & Storage Company	45.5606	-122.7002	STM	GEN12Z	8
104856	Tube Forgings of America	45.5667	-122.7326	STM	GEN12Z	8
101536	United Parcel Service Co.	45.563	-122.7036	STM	GEN12Z	8
101536	United Parcel Service, Inc.	45.5725	-122.7166	STM	GEN12Z	8
108394	USACE - US Government Moorings; St. Helens Road, Portland	45.5820	-122.7566	STM	GEN12Z	8
111878	RM Beverage Delaware (Maletis Beverage	45.5733	-122.7097	STM	GEN12Z	8.1
107658	ABF Freight System, Inc	ND	ND	STM	GEN12Z	8.5
101321	Freightliner, LLC	45.5675	-122.7030	STM	GEN12Z	8.5
100408	Freightliner, LLC	45.5736	-122.7157	STM	GEN12Z	8.5
107748	G. I. Trucking Company	45.5583	-122.7055	STM	GEN12Z	8.5
30386	Gunderson, Inc.	45.5486	-122.7196	STM	GEN12Z	8.5
101853	Mt. Hood Chemical Corp	45.5550	-122.7316	STM	GEN12Z	8.5
100408	Freightliner, LLC	45.5736	-122.7157	IND	GEN01	8.5
101321	Freightliner, LLC	45.5675	-122.7030	IND	GEN01	8.5

Table 3-3. Active NPDES Permitted Discharges to the ISA[1].

File No.	Facility	Location		Permit		River Mile
		Latitude	Longitude	Category	Type	
109872	Western Wire Works	45.5519	-122.7261	STM	GEN12Z	8.6
108730	HAJ, Inc. (DBA Christenson Oil)	45.5495	-122.7269	STM	GEN12Z	8.6
111221	A.G.G. Enterprises, Inc.	45.5629	-122.7144	STM	GEN12Z	8.8
111845	Becker Trucking	45.5658	-122.7085	STM	GEN12Z	8.9
103803	Owens Corning	45.5486	-122.7083	IND	GEN13	9
103380	Burlington Northern Portland Hub Ctr	45.5514	-122.7168	STM	GEN12Z	9
104250	Columbia Distributing Company-Elm Realty Partners	45.5717	-122.7056	STM	GEN12Z	9
110272	Container Recovery, Inc.	45.5358	-122.7258	STM	GEN12Z	9
101620	Active USA	45.5686	-122.7086	STM	GEN12Z	9
110199	Fed Express Mria Station	45.5550	-122.6961	STM	GEN12Z	9
109831	Fedex Ground	45.5703	-122.7018	STM	GEN12Z	9
111009	Mt. Hood Beverage Company	45.5466	-122.7153	STM	GEN12Z	9
103803	Owens Corning	45.5486	-122.7083	STM	GEN12Z	9
107443	Roadway Express Inc - Portland	45.5717	-122.7061	STM	GEN12Z	9
103803	Owens Corning	45.5486	-122.7083	IND	GEN05	9
110322	Oregon Transfer Co.	45.5670	-122.7106	IND	GEN01	9
103803	Owens Corning	45.5486	-122.7083	IND	GEN01	9
100447	Carson Oil	45.5452	-122.7172	STM	GEN12Z	9.1
100721	Wilhelm Trucking Co.	ND	ND	STM	GEN12Z	9.2

[1]Compiled April 2002 (DEQ 2002); updated March 2003 (Sanders et al. 2003).

DEFINITIONS:

GEN01	Cooling water/heat pumps	GEN15A	Petrolem hydrocarbon cleanups
GEN05	Boiler blowdown	IND	Industrial
GEN12C	Construction that disturbs five or more acres	DOM	Domestic
GEN12Z	Industrial stormwater	AGR	Agricultural
GEN13	Oil/water separators	ND	No Data

Table 3-4. Active NPDES Permitted Discharges to the LWR, Outside the ISA[1].

File No.	Facility	Location		Permit		River Mile
		Latitude	Longitude	Category	Type	
Major NPDES - Individual Permit						
108015	Portland, City of - Municipal Storm Water Permit	45.5506	-122.6204	STM	NPDES	multiple
16590	Clackamas Co./Kellogg Creek STP	45.5408	-122.7681	DOM	NPDES	18.5
62795	Oak Lodge STP	45.425	-122.6528	DOM	NPDES	20.1
70735	Tryon Creek WWTP (City Of Portland)	45.4167	-122.6625	DOM	NPDES	20.2
Minor NPDES - Individual Permit						
70613	Kinder Morgan (Portland Bulk Terminal 5)	45.6391	-122.777	IND	NPDES	1.5
64905	Oregon Steel Mills, Inc.	45.6292	-122.7797	IND	NPDES	2.7
3690	Ash Grove Cement	45.61861	-122.7808	IND	NPDES	3
110220	Union Station Housing Project	45.5333	-122.675	IND	NPDES	11.9
106060	OMSI	45.51	-122.6647	IND	NPDES	13.5
109444	Willamette Oaks Building	45.475	-122.6699	IND	NPDES	15.8
General Permits						
111283	Columbia Grain, Inc.	45.6411	-122.7689	STM	GEN12Z	1.1
105370	Alcatel Submarine Networks, Inc.	45.6416	-122.7626	IND	GEN01	1.5
102016	Statesman Journal	44.9583	-123.033	IND	GEN15A	2
100483	ESCO Corporation-Lower Finishing Area	45.5375	-122.7029	STM	GEN12Z	2
108730	Christenson Oil	45.5533	-122.7269	STM	GEN12Z	2
32300	Kinder Morgan Liquid Terminals-Linnton Terminal	45.60416	-122.7896	IND	GEN13	2.6
64905	Oregon Steel Mills, Inc.	45.6292	-122.7797	STM	GEN12Z	2.7
100514	Consolidated Metco Inc.	45.6248	-122.7802	STM	GEN12Z	3
100415	J. R. Simplot Company - Rivergate Terminal	ND	ND	STM	GEN12Z	3
100415	J. R. Simplot Company - Rivergate Terminal	ND	ND	IND	GEN01	3
84885	Steinfeld's Products Company	45.3964	-122.7725	STM	GEN12Z	3.1
84855	Morse Bros-Coffee Lake Division	45.3489	-122.8199	STM	GEN12A	3.1
111395	Boydstun Metal Works - N. Time Oil Rd.	45.6168	-122.7773	STM	GEN12Z	3.5
111029	Truax Harris Energy-Pacific Pride Cardlock Facility	45.5597	-122.7008	IND	GEN15A	9.4
111065	Container Management Services, LLC - St Helens Rd	45.5425	-122.7186	STM	GEN12Z	9.5
108997	Columbia American Plating Company (Abn)	45.544	-122.7177	STM	GEN12Z	9.5
109852	Portland Terminal Railroad Company	45.5517	-122.71	STM	GEN12Z	9.5
109872	Western Wire Works, Inc.	45.5522	-122.7261	STM	GEN12Z	9.7
104892	Galvanizers Company	45.54	-122.7125	STM	GEN12Z	9.9
107213	Goldendale Aluminum Company	45.5536	-122.6939	STM	GEN12Z	10

Table 3-4. Active NPDES Permitted Discharges to the LWR, Outside the ISA[1].

File No.	Facility	Location		Permit		River Mile
		Latitude	Longitude	Category	Type	
110261	Lincoln & Allen Company	45.545	-122.7013	STM	GEN12Z	10
109851	Peninsula Truck Lines, Inc.	45.545	-122.7036	STM	GEN12Z	10
107985	Stevedoring Services Of America, Inc.	45.5464	-122.7045	STM	GEN12Z	10
109737	Time Oil Site Grading	45.6156	-122.67	STM	GEN12C	10
110258	McCracken Motor Freight, Inc.	45.5444	-122.6999	STM	GEN12Z	10.2
104836	ESCO Corporation	45.5425	-122.7	STM	GEN12Z	10.5
107655	Savage Transload System	45.55	-122.68	STM	GEN12Z	10.5
102334	Sulzer Pumps	45.5458	-122.6976	STM	GEN12Z	10.5
102334	Sulzer Pumps	45.5458	-122.6976	IND	GEN01	10.5
460	CalBag (formerly ACME Trading & Supply Company)	45.55722	-122.73	STM	GEN12Z	11
111331	Sakrete of The Pacific Northwest	45.5402	-122.6814	STM	GEN12Z	11
105307	Jacobsen & Co. Inc., K.F.	45.5389	-122.6799	STM	GEN12A	11
44571	Glacier Northwest-River St. Cement Terminal	45.53694	-122.6769	IND	GEN01	11.1
100571	Tarr, Inc.	45.5416	-122.6725	STM	GEN12Z	11.2
110908	Hoyt Street Yards Infrastructure Improvements	45.5318	-122.6803	IND	GEN15A	11.4
110908	Hoyt Street Yards Infrastructure Improvements	45.5318	-122.6803	STM	GEN12C	11.4
111356	Cargill, Inc.	45.5357	-122.6736	STM	GEN12Z	11.5
109826	USNRPC (Amtrak) - Union Station, Portland	45.5306	-122.6747	STM	GEN12Z	11.5
107179	Calbag Metals Co	45.5411	-122.7	STM	GEN12Z	11.6
107609	USPS - Vehicle Maintenance Facility; Portland	45.6916	-122.68	STM	GEN12Z	12
38192	Hercules	45.5464	-122.7093	IND	GEN01	12
104545	Norcrest China Company; Wheat Marketing Center, Inc.	ND	ND	IND	GEN01	12
111290	Oregon Convention Center Expansion	45.5281	-122.6617	STM	GEN12C	12.3
106750	East Side Plating, Inc.	45.5139	-122.6639	STM	GEN12Z	13
107211	Darigold, Inc.	45.5028	-122.6389	STM	GEN12Z	14
104861	Zidell Marine Corporation	45.5	-122.6699	STM	GEN12Z	14
111433	Union Pacific Railroad-Track & Signal Improvements	45.4932	-122.6567	STM	GEN12C	14.5
109995	Minnesota Corn Processors, LLC	45.4852	-122.6438	STM	GEN12Z	15
108792	Oregon Coachways, Inc.	44.0443	-123.1794	STM	GEN12Z	15
109175	Raz Transportation Company	45.4739	-122.6947	IND	GEN15A	16.3
109175	Raz Transportation Company	45.4739	-122.6947	STM	GEN12Z	16.3
105053	Staff Jennings Inc.	ND	ND	IND	GEN15A	16.7
109735	Beaver Heat Treating Corporation	45.4583	-122.6358	STM	GEN12Z	17
62795	Oak Lodge STP	45.425	-122.6528	STM	GEN12Z	20.1

Table 3-4. Active NPDES Permitted Discharges to the LWR, Outside the ISA[1].

File No.	Facility	Location		Permit		River Mile
		Latitude	Longitude	Category	Type	
111407	Centex Homes-Falling Creek	45.4487	-122.7203	STM	GEN12C	20.1
107631	Barbur Texaco	45.4553	-122.7	IND	GEN15A	20.2
107659	Fort James - Lake Oswego Chip Reload	45.375	-122.6567	STM	GEN12Z	20.4
108705	Delco Petroleum Co., L.L.C.	45.3958	-122.6137	IND	GEN15A	20.5
107164	Ace Iron Works (Abn)	45.4173	-122.64	STM	GEN12Z	21
107661	Lake-Shore Concrete Co.	45.4203	-122.6613	STM	GEN12A	21
109386	Rivergate Development Company-Trillium Park Estates Project	45.3583	-122.5667	STM	GEN12C	22
111022	YAMCO	45.3	-122.96	STM	GEN12A	22
111287	Lake Oswego Block 136 Project	45.25	-122.4	IND	GEN15A	22.5
101733	Stanley Hydraulic Tools	45.4014	-122.624	STM	GEN12Z	23
48480	Lake Oswego WTP	45.3889	-122.6333	IND	GEN02	23
108243	Koss-Brod-Goodrich & Associates, Inc.-Cascade Summit Subdivision	45.3625	-122.648	STM	GEN12C	24
110296	W C R Company-Oatfield Estates	45.4139	-122.6142	STM	GEN12C	24.3

[1]Compiled April 2002 (DEQ 2002); updated March 2003.

DEFINITIONS:

GEN01	Cooling water/heat pumps
GEN02	Filter backwash
GEN03	Fish hatcheries
GEN05	Boiler blowdown
GEN12A	Stormwater from gravel mining
GEN12C	Construction that disturbs five or more acres
GEN12Z	Industrial stormwater
GEN13	Oli/water separators
GEN15A	Petrolem hydrocarbon cleanups
IND	Industrial
DOM	Domestic
AGR	Agricultural
ND	No Data

Table 3-5. Discharge Monitoring Requirements for Individual NPDES Permits in the LWR[1]

Facility	Conventional Monitoring Parameters	Chemical Monitoring Requirements
ISA		
ATOFINA Chemicals, Inc.	flow, pH, TSS, and oil & grease	total residual chlorine, lead, zinc, copper
Columbia River Sand & Gravel	suspended solids, turbidity, temperature	
Wacker Siltronic Corporation	flow, TSS, pH, temp, BOD, total phosphates, fluoride	total chromium, hexavalent chromium, total organics
Koppers Industries, Inc.	flow, oil & grease, pH, temp,	phenols, total PAH
Cascade General, Inc.	flow, pH, TSS, oil and grease	copper, lead, zinc
ACS-Portland (Phone-Poulenc)	flow, TSS, pH	phenols and chlorinated phenols, bromoxynil octanoate, arsenic, lead, chromium, mercury, methylene chloride, trichloroethene, 1,1,1,-trichloroethane, 1,4-dichlorobenzene, dioxin/furans
Vopak USA Inc.	pH, oil & grease	benzene, 1,2-dichloroethene, 1,1,1-TCA, 1,1,2-TCA, trichloroethene, tetrachloroethene, vinyl chloride
Portland, City of - Municipal Stormwater Permit	best management practices[2]	
Outside ISA		
Kellogg Creek Sewage Treatment Plant	flow, pH, TSS, BOD, nutrients, ammonia, bacteria, residual chlorine	metals, total phenols, total organic pollutants
Oak Lodge Sewage Treatment Plant	flow, pH, TSS, BOD, coliform, residual chlorine	
Tryon Creek WWTP (City of Portland)	flow, pH, BOD, TSS, total residual chlorine, E. coli, nutrients	metals (pretreatment, not outfall requirement)
Kinder Morgan (Portland Bulk Terminal 5)	flow, pH, TSS, oil and grease, TOC, sulfide, sulfate, ammonia	copper, lead, zinc, iron, manganese
Oregon Steel Mills, Inc.	flow, TSS, total dissolved solids, turbidity, oil & grease, pH, temp	lead, zinc
Ash Grove Cement	flow, TSS, pH	
GSL Properties (Union Station Housing Project)	pH	iron
OMSI	flow, temp, pH	
Willamette Oaks Building	flow, pH	halogenated volatile organics

[1] Permits may include multiple outfalls; not all parameters are monitored at each. Monitoring frequency ranges from daily to semi-annually.

[2] Examples of Best Management Practices (BMPs) include the City's Industrial Stormwater Management Program to control the discharge of pollutants from existing and developing industries to the public conveyance system, developing stormwater standards for new development, monitoring to eliminate illicit discharge, street sweeping, and public involvement and education.

Table 3-6. Summary of Basic Monitoring Requirements in General NPDES Permits.

Type		No. in ISA	Conventional Monitoring Parameters[1]	Chemicals Monitoring Requirements[1]	
				Parameter	Frequency
GEN01	Cooling water/heat pumps	9	flow, temp, pH, total residual chlorine	---	---
GEN05	Boiler blowdown	3	flow, temp, pH, TSS, total residual chlorine*	---	---
GEN12C	Construction that disturbs five or more acres	1	inspection/visual characteristics	---	---
GEN12Z	Industrial stormwater	56	pH, TSS, oil & grease, E. coli*, visual monitoring	copper, lead, zinc	twice per year
GEN13	Oil/water separators	10	flow, pH*, TSS*, oil & grease	copper*, lead*, zinc*, MTBE*, ethanol*	twice per year
GEN15A	Petrolem hydrocarbon cleanups	6	flow, pH, visual monitoring	TPH, BETX, benzene, lead*	weekly to quarterly

[1] Permits for specific facilities may include other parameters.

* Not applicable to all facilities.

Table 3-7. General Permit Waste Discharge Benchmarks or Limitations.

Parameter	**Benchmark[1]**	**Limitations[2]**
Total copper	0.1 mg/L	---
Total lead	0.4 mg/L	---
Total zinc	0.6 mg/L	---
TPH	---	1 mg/L
BETX	---	0.25 mg/L
Benzene	---	0.025 mg/L

[1] Guideline concentrations to assist the permittee in determining if the implementation of their Stormwater Prevention Control Plan is reducing pollutant concentrations below levels of concern.

[2] Concentration not to be exceeded.

Table 3-8. Summary of Industrial and Municipal Discharge Enforcement Actions in the ISA (1990-2000).

Year	Name	Discharge Type	Action	Penalty	Status
1999	Elf-Atochem North America	Industrial waste	Notice of permit violation	--	Response accepted
1997	Cascade General, Inc.	Industrial waste	Civil penalty	$3,600	Paid
	Cascade General, Inc.	Industrial waste	Notice of permit violation	NA	Response accepted

Source: DEQ (1995-2000)
NA = Not Available.

Table 3-9. Summary of Willamette River Subbasin TMDLs.

Subbasin	Parameter						
	Temperature	**Dissolved Oxygen**	**Bacteria**	**pH**	**Nutrient Related**	**Toxics**	**Other**
Due in 2003[1]							
Clackamas Subbasin	x[2]						habitat modification
McKenzie Subbasin	x						
North Santiam	x						
South Santiam	x		x				
Coast Fork	x		x		x	mercury	
Middle Fork	x						
Upper Willamette	x	x	x			mercury, PAHs, arsenic	turbidity, biological criteria, flow
Middle Willamette	x		x			mercury, dieldrin	biological criteria, flow
Lower Willamette	x	x	x	x	x	DDE, PCBs, DDT, lead, dieldrin, mercury	biological criteria, flow, habitat modification
Due in 2007							
Molla-Pudding	x	x	x			arsenic, iron, manganese, DDT	flow
Yamhill	x	x	x		x	chlorophyrifos	flow
Completed							
Tualatin	x	x	x	x	x	arsenic, manganese, iron	biological criteria
Columbia and Willamette						dioxin	

Source: DEQ 2000b, 2001.

[1]DEQ is currently developing TMDLs for the Willamette main stem for fecal coliform, mercury, and temperature. The remaining parameters will be addressed later.

[2]Indicates that one or more stream segments are listed for the parameter within the subbasin.

Table 4-1. Historical Sediment, Tissue, and Willamette River Water Chemical Investigations in Portland Harbor.

LWG Survey Code	Avocet QA	Data Useability Category	Rationale for Category 2	Survey Name	Begin Date	End Date
Sediment						
1.CLBC8494*	--	2	methods unknown, no COC, no laboratory QC data	Columbia River Basin Contaminant Sediment Data	1/1/1984	1/1/1994
2.COLWIL90	--	2	no COC or reference to COC procedures; holding conditions unknown	Columbia & Lower Willamette Rivers Channel Deepening Reconnaissance	5/3/1990	5/18/1990
3.MBCREOS1	--	1,2	Cr (VI) - extended holding times and low recovories of MS/MSD and LCS	McCormick & Baxter RI Phase 1	9/21/1990	10/17/1990
4.MBCREOS2	--	1,2	Cr (VI) - extended holding times and low recovories of MS/MSD and LCS	McCormick & Baxter RI Phase 2	9/1/1991	1/30/1992
5.MCAL0986	Y	1,2	most parameters - methods unknown, no COC, holding time unknown, no precision and limited accuracy documentation from laboratory QC data	McCall Oil Dock 9/1986	9/18/1986	9/18/1986
6.MCAL1286	Y	1,2	most parameters - methods unknown, no COC, holding time unknown, no precision and limited accuracy documentation from laboratory QC data	McCall Oil Dock 12/1986	12/15/1986	12/15/1986
7.MOOR0595	Y	1,2	grain size - method unknown	US Moorings May 1995	5/16/1995	5/17/1995
8.MOOR0694	Y	1,2	grain size - method unknown	US Moorings June 1994	6/14/1994	6/14/1994
9.MOOR1089	--	1,2	grain size - no COC and no replicates	US Moorings Sediment Quality Evaluation	10/12/1989	10/12/1989
10.MOOR1294	--	1	--	US Moorings Preliminary Assessment Sampling	12/20/1994	12/20/1994
11.PPTLDT24	--	1	--	Sediment Study Marine Terminals 2 and 4	9/15/1998	10/15/1998
12.PSBTH311	Y	1,2	most parameters - methods unknown, no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data	Port of Portland Berth 311 Dredge Data	9/9/1990	4/8/1992
13.PSYD&M97	Y	1	--	Portland Shipyard Env. Audit	11/26/1997	1/22/1998
14.PSYDD3	Y	1	--	Portland Shipyard DD-3 Post-Dredge Data	12/15/1994	12/15/1994
15.PSYDD4	Y	1,2	metals - no documentation of accuracy (MS, LCS, Surrogates)	Portland Shipyard DD-4 Post-Dredge Data	12/15/1992	12/15/1992
16.PSYSEA98	Y	1	--	Portland Shipyard Sediment Investigation	3/31/1998	4/16/1998
17.RIEDEL96		2	no source document and no supporting QC data	Focused ESA Riedel	9/3/1996	9/3/1996
18.RIEDEL97	Y	1	--	Baseline Sediment Assessment Riedel	8/12/1997	8/13/1997
19.TOSCO99	Y	1	--	TOSCO Sediment Sampling Results 1999	1/20/1999	1/22/1999

Table 4-1. Historical Sediment, Tissue, and Willamette River Water Chemical Investigations in Portland Harbor.

LWG Survey Code	Avocet QA	Data Useability Category	Rationale for Category 2	Survey Name	Begin Date	End Date
20.WBWRIR98	--	2	dioxins/furans - method unknown, no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data	USGS - Bonn	1/1/1992	1/1/1995
21.WLCAYH00	--	1	--	Union Pacific Railroad Albina Yard Expanded Preliminary Assess.	8/9/2000	8/17/2000
22.WLCARI99	--	*2 pending*	*Delivery of supporting documentation pending*	Assessment of Nearshore Sediments, ARCO Terminal 22T	9/1/1999	9/1/1999
23.WLCCIF01	--	1,2	grain size - no COC, holding time unknown, no replicates	Cargill Irving Elevator Permit Applications	6/29/2001	6/29/2001
24.WLCCPF01	--	1	--	Chevron Dredging Permit Application	6/6/2001	6/7/2001
25.WLCDRE87	--	2	methods unknown, no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data	Organic Compounds in Willamette Sediments	1/1/1982	12/31/1984
26.WLCGAF00	--	1	--	Goldendale Aluminum Dredge Phase 1	6/12/2000	6/12/2000
27.WLCGAL00	--	1	--	Goldendale Aluminum Dredge Phase 2	12/21/2000	12/21/2000
28.WLCGPE00	--	2	no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data	G-P Linnton Site Preliminary Assessment	5/16/2000	5/17/2000
29.WLCGSA96	--	1	--	Gasco PI Remedial Investigation	1/23/1996	1/24/1996
30.WLCGSD01	--	1	--	Gasco Source Control Evaluation	4/10/2001	4/11/2001
31.WLCGXV99	--	1	--	Environmental Site Assessment GATX Terminals Corp.	10/8/1999	10/8/1999
32.WLCMBA01	--	1	--	McCormick & Baxter RI Phase 4	1/5/2001	2/5/2001
33.WLCMBJ99	--	1	--	McCormick & Baxter RI Phase 3	10/1/1999	10/1/1999
34.WLCMCB02	--	1	--	MarCom Expanded Preliminary Assessment	2/8/2002	2/8/2002
35.WLCMFH00	--	1	--	Marine Finance Expanded Preliminary Assessment Data Report	8/8/2000	8/9/2000
36.WLCOFH02	--	1,2	grain size - no replicates for M-1 or 18; no COC for M-1; mercury - no precision QC data for 18	City of Portland Outfall Pilot Project, Outfall 18 and Outfall M-1	8/21/2002	8/23/2002
37.WLCOSJ00	--	1	--	Pre-Remedial Inv. Field Activities Data Report for Oregon Steel Mills	10/10/2000	10/11/2000
38.WLCRFE95	--	1,2	grain size - laboratory unknown, no COC, no replicates, holding time unknown	Rose Festival Fleet Moorage	5/11/1995	5/11/1995
39.WLCRIJ99	--	1	--	Ross Island Lagoon Baseline	10/26/1999	10/28/1999
40.WLCRIL99	--	1	--	Ross Island Site Investigation (Hart Crowser)	11/2/1999	4/28/2000
41.WLCRIV99	--	1	--	Ross Island Phase 1 (Landau)	10/7/1999	10/28/1999

Table 4-1. Historical Sediment, Tissue, and Willamette River Water Chemical Investigations in Portland Harbor.

LWG Survey Code	Avocet QA	Data Useability Category	Rationale for Category 2	Survey Name	Begin Date	End Date
42.WLCRPB95	--	1	--	Rhône-Poulenc St Helens Road Facility Q1,95	2/1/1995	2/1/1995
43.WLCT0F01	--	1	--	Terminal 2 and Terminal 5 2001 Dredge Characterization Study	6/27/2001	6/29/2001
44.WLCT0I98	Y	1	--	Sed Char Local Sponsors of Columbia/Willamette Chan Deep	9/14/1998	9/14/1998
45.WLCT0K96	--	1	--	Port of Portland T1, T2, and T5 Sediment Characterization Study	11/12/1996	11/13/1996
46.WLCT1F00	--	1	--	T1 South Sediment Study	6/22/2000	6/22/2000
47.WLCT1L91	--	1,2	grain size - no replicates	Port of Portland 1992 Terminal 1 Sediment Characterization Results	12/17/1991	12/17/1991
48.WLCT4J97	--	1,2	grain size - laboratory unknown, no COC, no replicates, holding time unknown	Port of Portland Terminal 4 Berth 416 1997 Sediment Characterization	10/23/1997	10/24/1997
49.WLCT4J98	Y	1	--	Port of Portland T4 RI	10/12/1998	10/15/1998
50.WLCT4K99	--	2	laboratory unknown, methods unknown, no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data	Port of Portland T4 - Slip 1 & Berth 401 Sediment Characterization	11/18/1999	11/19/1999
51.WLCT4L93	--	1,2	metals - no precision or accuracy documentation from laboratory QC data	T4 Berth 408 Maintenace Dredging	12/7/1993	12/7/1993
52.WLCT5K99	--	1,2	grain size - no replicates	1999, T5, Berths 501, 503 Sediment Characterization Study	11/22/1999	11/22/1999
53.WLCWCJ95	Y	1	--	Willamette Cove SA	10/19/1995	10/19/1995
54.WLCWTI00	--	1	--	Revised 60-Inch Storm Sewer Interim Remedial Actions Report, Tosco	9/21/2000	9/22/2000
55.WLFL0496	Y	2	metals & SVOCs - no COC, no precision of accuracy documentation from laboratory QC data; grain size - methods unknown	Willamette Falls Locks 1996 Flood Deposits Sediment Quality Evaluation	4/18/1996	4/18/1996
56.WLLRSH01	--	1,2	grain size - no COC, no replicates	Willamette River Reference Area Study (Phase I)	8/29/2001	8/29/2001
57.WLR0277	--	2	no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data; metals - methods unknown	Analyses of Bottom Materials from the Willamette River Portland Harbor	2/1/1977	2/1/1977
58.WLR0388	--	2	methods unknown, no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data	Broadway Bridge Evaluation of Sediment Lead Levels	3/22/1988	3/22/1988
59.WLR0488	Y	1,2	most parameters - methods unknown, no COC, holding time unknown, no precision and limited accuracy documentation from laboratory QC data	Lower Willamette River (March & April 1988)	3/30/1988	4/18/1988

Table 4-1. Historical Sediment, Tissue, and Willamette River Water Chemical Investigations in Portland Harbor.

LWG Survey Code	Avocet QA	Data Useability Category	Rationale for Category 2	Survey Name	Begin Date	End Date
60.WLR0499	--	1,2	metals - no precision or accuracy documentation from laboratory QC data; TOC - no replicates	Willamette River Sediment Quality Evaluation - April	4/29/1999	4/29/1999
61.WLR0577	--	2	methods unknown, no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data	Elutriation Study of Willamette River Bottom Material and…River Water	5/17/1977	5/17/1977
62.WLR0692	Y	1,2	most parameters - method unknown, no COC holding time unknown, no precision and limited accuracy documentation from laboratory QC data	Lower Willamette River, Portland Harbor 1992	6/3/1992	6/3/1992
63.WLR0789		2	methods unknown, no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data	Willamette River Burlington Northern RR Bridge Sediment Quality Eval.	7/19/1989	7/19/1989
64.WLR0797	Y	1,2	grain size & TVS - no COC, no replicates	CRCD - Willamette River Channel Deepening	7/22/1997	7/25/1997
65.WLR0988	--	1,2	most parameters - method unknown, no COC holding time unknown, no precision and limited accuracy documentation from laboratory QC data	Lower Willamette River (Sept. 1988)	9/7/1988	9/7/1988
66.WLR1083	--	2	no COC, holding time unknown, no precision or accuracy documentation from laboratory QC data	Quality of Bottom Materials & Elutriates in the LWR, Portland Or	10/1/1983	10/1/1983
67.WLR1196	Y	1,2	grain size - no COC, no replicates	Lower Willamette Portland Harbor 1996	11/13/1996	11/14/1996
68.WLR1199	--	1,2	metals & TOC - No precision or accuracy documentation from laboratory QC data	Willamette River Sediment Quality Evaluation - November	11/29/1999	11/29/1999
69.WLRELF99	Y	1	--	Elf Atochem Willamette River, 1999	11/23/1998	1/20/1999
70.WLRPT294	--	1	--	Terminal 2, Berth 203	3/15/1994	5/20/1994
71.WLRWQH92	--	2	methods unknown, laboratory unknown, no COC, holding time unknown, no precision or accuracy documentation from laboratory QC	Willamette River Toxic Pollutants Summary	1/1/1987	1/1/1992
72.WLRWTF98	Y	1	--	Willbridge Terminal Facility Remedial Investigation	12/17/1998	12/18/1998
73.WRD&M98	Y	1	--	Willamette River, 1998 Data	1/19/1998	1/21/1998
74.WRSTRM94	Y	1	--	Characterization of Stormwater Outfalls	7/15/1994	7/19/1994
75.WR-WSI98	--	1,2	chlorinated phenoxy herbicides - laboratory unknown, holding time unknown, no precision or accuracy documentation from laboratory QC	Portland Harbor Sediment Investigation	9/17/1997	2/2/1999

Table 4-1. Historical Sediment, Tissue, and Willamette River Water Chemical Investigations in Portland Harbor.

LWG Survey Code	Avocet QA	Data Useability Category	Rationale for Category 2	Survey Name	Begin Date	End Date
76.WLLRSI01	--	1	--	Willamette Reference Area Study (Phase 2)	9/17/2001	9/17/2001

Table 4-1. Historical Sediment, Tissue, and Willamette River Water Chemical Investigations in Portland Harbor.

LWG Survey Code	Avocet QA	Data Useability Category	Rationale for Category 2	Survey Name	Begin Date	End Date
Tissue						
CLBC8494*	--	2	laboratory unknown, no COC, holding time unknown, no precision and limited accuracy documentation; for most parameters - methods unknown	Columbia River Basin Contaminant Biota/Sediment Data	1/1/1984	1/1/1994
CLWLTC94	--	2	no COC, holding time unknown, no precision or accuracy documentation	Environmental Contaminants Great Blue Herons Lower Columbia/Willamette	3/1/1994	4/30/1995
PGERAP88	--	2	methods unknown, no COC, holding time unknown, no precision or accuracy documentation	Remedial Action Plan , Station "L" Site, Willamette River Sediments	--	1/1/1988
DEQWQP97	--	2	methods unknown, no COC, holding time unknown, no precision or accuracy documentation	DEQ Water Quality Program - Mercury (Gene Foster per Avocet)	1/1/1997	1/1/1997
ORRORS00	--	2	methods unknown, no COC, holding time unknown, no precision or accuracy documentation	The Oregonian's River of Risk Series	7/1/2000	7/1/2000
MBCREOS2	--	1,2	chlorinated pesticides & PCBs - no COC, holding time unknown, no precision or accuracy documentation	McCormick & Baxter Creosoting Remedial Investigation Report	9/1/1991	1/30/1992
WBWRIR98	--	2	no COC, holding time unknown, no precision or accuracy documentation	USGS - Bonn	1/1/1992	1/1/1995
WLLRSI01	--	1	--	Willamette Reference Area Study (Phase 2)	9/17/2001	9/17/2001
* Includes Curtis et al. 1993, Willamette River Toxics Study, Schmitt et al. 1990, Schmitt and Brumbaugh 1990						
Willamette River Water						
WLCMBJ99	--	1	--	McCormick & Baxter RI Phase 3	10/1/1999	10/1/1999
WLCRIL99	--	1	--	Ross Island Phase I	11/2/1999	4/28/2000
WLCRPB95	--	1	--	Rhône-Poulenc St Helens Road Facility Q1,95	2/1/1995	2/1/1995
WLR0577	--	2	methods unknown, no COC, holding time unknown, no precision or accuracy documentation	Elutriate Study of Willamette River Bottom Material and…River Water	5/17/1977	5/17/1977
WLCMBI02	--	1,2	petroleum hydrocarbons - no precision or accuracy documentation	Surface Water, Sediment, and Groundwater Sampling Report	9/5/2002	9/26/2002
Note: EPA's STORET water quality data, DEQ's Ambient Monitoring Data (LASAR), and USGS data are not included in the database. These data are Category 2 due to lack of supporting QA/QC information. USGS data may be reviewed in Anderson et al. 1996, Fuhrer et al. 1996, and Tetra Tech 1992.						

Table 4-2. Summary of Sediment Investigations Conducted in the Lower Willamette River Since 1990.

Survey Name	Survey ID	Study Objective	River Mile(s)	Begin Date	End Date	Number of Samples	Sample Intervals (cm)	Composite (Y/N)	Dredged (Y/N)	Conv.	Metals	Butyltins	SVOCs	PCBs	Pest.	PCB Cong.	Dioxin/ Furan	VOCs	Other	Comment	Reference
City outfall pilot project	WLCOFH02	Sediment quality study off Outfalls M1 and 18 (9 sediment grabs taken at each outfall)	9	8/21/2002	8/23/2002	18 surface sediment	0-15 cm	N	N	X	X		X	X	X				X	herbicides and petroleum also analyzed	City of Portland, 2002
MarCom Expanded Preliminary Assessment	WLCMCB02	Expanded Preliminary Assessment of MarCom property	6	2/8/2002	2/8/2002	3 surface sediment	0-15 cm	N	N		X	X	X							SVOCs limited to PAHs	Parametrix, 2002
Willamette Ref Area P2	WLLRSI01	Phase II reference area reconnaissance study	16, 19, 23, 24	9/17/2001	9/17/2001	8 surface sediment	0-10 cm or 0-30 cm	N	N	X	X	X	X	X	X					five samples analyzed for conventionals only; porewater analyzed for butyltins	Hart Crowser, 2002
Willamette Ref Area P1	WLLRSH01	Phase I reference area reconnaissance study	16, 17, 18, 19, 24	8/29/2001	8/29/2001	9 surface sediment	0-10 cm	N	N	X				X	X				X	Petroleum also analyzed	Hart Crowser, 2001b
Cargill Irving Elevator Permit Applications	WLCCIF01	Dredged material characterization	12	6/29/2001	6/29/2001	5 subsurface, 1 subsurface porewater	up to 109 cm	Y - 1 sample	Y	X	X	X	X	X	X					porewater analyzed for butyltins	Harding ESE, 2001
T2/T5 2001 Dredge Characterization Study	WLCT0F01	Dredged material characterization	2, 10	6/27/2001	6/29/2001	4 subsurface porewater, 7 subsurface sediment	up to 182 cm	Y	Y	X	X	X	X	X	X					porewater analyzed for butyltins	Hart Crowser, 2001a
Chevron Dredging Permit Application	WLCCPF01	Dredged material characterization	8	6/6/2001	6/7/2001	15 subsurface sediment	up to 244 cm	N	Y	X	X	X	X	X	X			X	X	petroleum analyzed	PNG Environment,al 2001
Gasco Source Control Evaluation	WLCGSD01	Characterization of nearshore conditions to validate groundwater modeling predictions	7	4/10/2001	4/11/2001	18 subsurface sediment, 9 surface sediment	surface 0-10 cm, subsurface to 40 cm	N	N	X	X		X					X		SVOCs limited to PAHs	Anchor Environmental, 2001
McCormick & Baxter RI Phase 4	WLCMBA01	Phase IV remedial investigation of McCormick & Baxter Creosoting Co.	8	1/5/2001	2/5/2001	32 subsurface sediment, 1 upriver reference surface sediment	0-38 cm	N	N	X			X							SVOCs limited to PAHs and phenols	Ecology & Environment, 2001
Goldendale Aluminum Phase 2	WLCGAL00	Dredged material characterization	11	12/21/2000	12/21/2000	4 surface sediment	0-30 cm	N	Y	X			X								CH2M Hill, 2001
Oregon Steel Mills Pre-Remedial Investigation Field Activities Data Report	WLCOSJ00	Pre-remedial investigation; sediments collected off outfalls to investigate storm water as potential pathway	2, 3	10/10/2000	10/11/2000	1 subsurface sediment, 15 surface sediment	surface 0-10 or 0-30 cm, subsurface 0-60	N	N	X	X		X	X					X	petroleum analyzed	Exponent, 2001
Willbridge 60-in outfall	WLCWTI00	Remedial investigation of sediments at 60-inch outfall location, Willbridge Terminal	8	9/21/2000	9/22/2000	13 subsurface sediment	up to 229 cm	N	N	X	X		X					X	X	Only one sample analyzed for metals, SVOCs and VOCs, petroleum analyzed	KHM Environmental Management, 2001
UP RR Albina Yard Expanded Preliminary Assessment Data Report	WLCAYH00	Expanded Preliminary Assessment of UPRR's Albina Yard	11, 12	8/9/2000	8/17/2000	3 subsurface sediment, 6 surface sediment	surface 0-20 cm; subsurface to 69 cm	N	N	X	X	X	X	X					X	petroleum analyzed	Jacobs Engineering, 2000b
Marine Finance Expanded Preliminary Assessment Data Report	WLCMFH00	Expanded Preliminary Assessment of Marine Finance Site	6	8/8/2000	8/9/2000	3 subsurface sediment, 6 surface sediment	surface 0-20 cm; subsurface to 66 cm	N	N	X	X	X	X	X					X	petroleum analyzed	Jacobs Engineering, 2000a
T1 South Sediment Study	WLCT1F00	Baseline sediment investigation associated with potential lease arrangement	11, 12	6/22/2000	6/22/2000	9 surface porewater, 9 surface sediment	0-10 cm	N	N	X	X	X	X	X	X			X		porewater analyzed for butyltins	SEA, 2000
Goldendale Aluminum Phase 1	WLCGAF00	Dredged material characterization	11	6/12/2000	6/12/2000	5 surface sediment, 1 reference surface sediment	0-30 cm	N	Y	X	X	X	X	X	X			X			CH2M Hill, 2001
G-P Linnton Site Preliminary Assessment	WLCGPE00	Preliminary Assessment of G-P Linnton Site	4	5/16/2000	5/17/2000	13 surface sediment	0-30 cm	N	N	X	X		X						X	SVOCs limited to PAHs and phenols, petroleum analyzed	CH2M Hill, 2000a
Willamette November Sediment Quality Evaluation	WLR1199	Dredged material characterization	9, 10, 12	11/29/1999	11/29/1999	9 subsurface sediment, 7 subsurface porewater, 1 surface sediment	surface 0-15 cm, subsurface up to 386 cm	N	N	X	X	X	X	X	X					porewater analyzed for butyltins	USACE, 2000
T5 1999 Berths 501-503 Sediment Characterization Study	WLCT5K99	Dredged material characterization	1, 2	11/22/1999	11/22/1999	5 subsurface sediment and 5 subsurface porewater	up to 182 cm	Y - 2 samples	Y	X	X	X	X	X	X					porewater analyzed for butyltins	Port of Portland, 2002
T4 Slip 1 Berth 401 Sediment Characterization	WLCT4K99	Dredged material characterization	5	11/18/1999	11/19/1999	19 surface sediment	0-10 cm	N	N	X	X		X	X	X					nine samples analyzed for conventionals only	Port of Portland, 2000b
Ross Island Phase I (Port)	WLCRIL99	Phase I remedial investigation of Ross Island Lagoon	15, 16	11/2/1999	4/28/2000	6 subsurface porewater, 20 subsurface sediment, 38 surface porewater, 41 surface sediment, 4 surface reference sediment	surface 0-10 cm, subsurface up to 1798 cm	Y - 1 sample	N	X	X	X	X	X	X			X	X	porewater analyzed for butyltins, petroleum analyzed	Hart Crowser, 2000
Ross Island Lagoon Baseline	WLCRIJ99	Baseline sediments investigation of Ross Island Lagoon	16	10/26/1999	10/28/1999	4 surface porewater, 12 surface sediment	0-10 cm	Y - 1 sample	N	X	X	X	X	X	X					porewater analyzed for butyltins	Landau Associates, 2000a
GATX Linnton Terminal ESA	WLCGXV99	Environmental site assessment	5	10/8/1999	10/8/1999	4 surface sediment, 4 subsurface sediment	surface 0-10 cm, subsurface to 40 cm	N	N	X	X		X	X	X			X		VOCs not analyzed in all samples	KHM Environmental Management, 1999
Ross Island Phase 1 (Ross Island Sand & Gravel)	WLCRIV99	Phase I remedial investigation of Ross Island Lagoon	15, 16	10/7/1999	10/28/1999	4 surface sediment, 41 subsurface sediment	surface 0-10cm, subsurface up to 79 cm	N	N	X	X	X	X	X	X			X	X	petroleum analyzed in subsurface only	Landau Associates, 2000c
McCormick & Baxter RI Phase 3	WLCMBJ99	Phase III remedial investigation of McCormick & Baxter Creosoting Co.	8	10/1/1999	10/1/1999	44 site and 4 upriver reference surface sediment	0-15 cm	N	N	X	X		X				X			SVOCs limited to PAHs and phenols; dioxinx/furans not analyzed in all samples	Ecology & Environment, 2001
ARCO Terminal 22T	WLCARI99	Forensic study of PAH sources to sediments adjacent to Arco/BP's Terminal 22T	5	9/1/1999	9/1/1999	17 surface sediment	0-10 cm	N	N	X	X		X					X			SECOR, 2002
Willamette April Sediment Quality Evaluation	WLR0499	Dredged material characterization	3, 9, 10	4/29/1999	4/29/1999	11 subsurface sediment and 3 porewater	up to 434 cm	N	N	X	X	X	X	X	X		X		X	all samples also analyzed for herbicides; 2 samples analyzed for dioxins/furans; porewater analyzed for butyltins	USACE, 2000
TOSCO 1999 Sediment Sampling Results	TOSCO99	Dredged material characterization	8	1/20/1999	1/22/1999	4 subsurface sediment, 1 surface reference	up to 304 cm	Y	Y	X	X		X	X	X						Exponent, 1999
Willbridge Terminal Facility RI	WLRWTF98	Remedial investigation of Willbridge Terminal	8	12/17/1998	12/18/1998	15 surface sediment	0-12.7 cm	N	N	X	X		X		X			X		SVOCs sometimes limited to PAHs	KHM Environmental Management, 2000
Elf Atochem 1999 Willamette River	WLRELF99	Sediment investigation of Atofina shoreline	8	11/23/1998	1/20/1999	15 subsurface sediment, 13 surface sediment	surface 0-10 cm, up to 90 cm	N	N	X			X		X			X			Elf Atochem, 1999
Port of Portland T4 RI	WLCT4J98	Remedial investigation of Terminal 4	5	10/12/1998	10/15/1998	18 subsurface sediment, 44 surface sediment, 2 surface reference sediment	surface 0-10 cm, subsurface up to 128 cm	N	N	X	X		X		X			X	X	not all samples analyzed for metals or VOCs, petroleum analyzed	Hart Crowser, 1999a
T2/T4 Sediment Study	PPTLDT24	Dredged material characterization	6, 10	9/15/1998	10/15/1998	3 subsurface porewater, 3 subsurface sediment	0-91 cm	Y	Y	X	X	X	X	X	X						Hart Crowser, 1999a, 1999b
Sediment Characterization Local Sponsors' Berths (conducted with Corps)	WLCT0I98	Dredged material characterization of Port of Portland berths	2, 5-8, 10-12	9/14/1998	9/14/1998	7 subsurface porewater, 7 subsurface sediment, 12 surface porewater, 12 surface sediment	surface 0-10 cm, subsurface up to 152 cm	Y - 6 subsurface	N	X	X	X	X	X	X					porewater analyzed for butyltins	Hart Crowser, 1999c
Portland Shipyard Sed. Inv.	PSYSEA98	Sediment investigation to characterize distribution of chemicals in surface and subsurface sediments, supporting property transfer	8, 9, 10, 11	3/31/1998	4/16/1998	65 subsurface sediment, 60 surface sediment, 61 surface porewater, 3 surface reference	surface 0-10 cm, subsurface to 490 cm	N	N	X	X	X	X	X	X			X		butyltins, pesticides, VOCs not analyzed in all samples; porewater analyzed for butyltins	SEA 1998
Willamette River 1998 Data	WRD&M98	Sediment investigation to identify chemicals in the vicinity of the shipyard and their distribution	7, 8, 9, 10, 11	1/19/1998	1/21/1998	12 surface sediment	0-10 cm	N	N	X	X	X	X	X						SVOCs limited to PAHs and phthalates, butyltins analyzed in 7 samples	Dames & Moore, 1998
Portland Shipyard Env. Audit	PSYD&M97	Sediment investigation to identify chemicals in the vicinity of the shipyard and their distribution	9	11/26/1997	1/22/1998	4 subsurface sediment, 8 surface	surface 0-10 cm; subsurface up to 304 cm	N	N	X	X	X	X	X				X		butyltins and VOCs not analyzed in all samples; SVOCs sometimes limited to PAHs and phthalates	Dames & Moore, 1998

Table 4-2. Summary of Sediment Investigations Conducted in the Lower Willamette River Since 1990.

Survey Name	Survey ID	Study Objective	River Mile(s)	Begin Date	End Date	Number of Samples	Sample Intervals (cm)	Composite (Y/N)	Dredged (Y/N)	Conv.	Metals	Butyltins	SVOCs	PCBs	Pest.	PCB Cong.	Dioxin/ Furan	VOCs	Other	Comment	Reference
T4 Berth 416 1997 Sediment Characterization Study	WLCT4J97	Dredged material characterization	5, 6	10/23/1997	10/24/1997	4 subsurface sediment and 4 subsurface porewater	up to 182 cm	Y - 1 sample	Y	X	X	X	X	X	X					porewater analyzed for butyltins	Hart Crowser, 1998
Portland Harbor Sediment Investigation	WR-WSI98	EPA's sediment inspection	4 - 10	9/17/1997	2/2/1999	158 surface sediment, 28 surface porewater, 39 subsurface sediment	surface 0-10 cm, subsurface 0-90 cm	Y - 12 samples	Y - SD029, SD032	X	X	X	X	X	X	X	X		X	some samples analyzed for herbicides, dioxin/furans, PCB congeners, butyltins; porewater analyzed for butyltins and metals	Roy F. Weston, 1998
Baseline Sediment Riedel	RIEDEL97	Baseline sediment assessment off Riedel's Portland Yard Site	8	8/12/1997	8/13/1997	19 subsurface sediment, 8 surface sediment	surface 0-15 cm, subsurface to 460 cm	N	N	X	X	X	X							limited SVOCs analyses	no source document
CRCD - Willamette River Channel Deepening	WLR0797	Dredged material characterization supporting proposed channel deepening project	1-9, 11, 12	7/22/1997	7/25/1997	18 surface sediment, 17 surface porewater, 50 subsurface sediment, and 1 subsurface porewater	surface up to 25 cm, subsurface up to 609 cm	Y- 3 samples	Y - WRGC30 and WRGC31	X	X	X	X	X	X					porewater analyzed for butyltins	USACE, 1999
Willamette 1996 Portland Harbor	WLR1196	Dredged material characterization	9, 10, 11	11/13/1996	11/14/1996	2 surface sediment, 4 subsurface sediment	surface 0-13 cm, subsurface up to 244 cm	N	Y	X	X	X	X	X	X						USACE, 1998
T1/T2/T5 Sediment Characterization Study	WLCT0K96	Dredged material characterization	2, 10, 11	11/12/1996	11/13/1996	7 subsurface sediment, 1 surface sediment	surface 0-15 cm, subsurface up to 121 cm	Y - 4 subsurface	Y	X	X	X	X	X	X					SVOCs limited to PAHs and phenols	Hart Crowser, 1997
Focused ESA Riedel	RIEDEL96	Environmental site assessment of Riedel's Portland Yard Site	8	9/3/1996	9/3/1996	7 subsurface sediment	up to 45 cm	N	N	X	X	X		X							Maul Foster & Alongi, 1996
Willamette Falls Locks 1996 Flood Deposits Sediment Quality Evaluation	WLFL0496	Dredged material characterization	26	4/18/1996	4/18/1996	1 subsurface composite sample, 3 subsurface for grain size	0-121 cm	Y - 1 sample	Y	X	X		X							three samples analyzed for conventionals only	USACE, 1998
Gasco Phase I Remedial Investigation	WLCGSA96	Phase I remedial investigation of Gasco Site, including a summary of existing information	7	1/23/1996	1/24/1996	10 subsurface sediment, 12 surface sediment	surface 0-15 cm, subsurface to 289 cm	N	N	X	X		X					X	X	SVOCs limited to PAHs, petroleum analyzed	Hahn and Associates, 1998
Willamette Cove SA	WLCWCJ95	Supplemental Environmental Site Assessment of St. Johns Riverfront Property, Willamette Cove	5	10/19/1995	10/19/1995	3 surface sediment	0-15 cm	Y	N		X	X	X	X				X		one sampled analyzed for butyltins	EMCON, 1996
US Moorings May 1995	MOOR0595	Sediment investigation of US Moorings Site	7	5/16/1995	5/17/1995	43 subsurface sediment, 1 surface sediment	up to 351 cm	N	N	X	X	X	X		X		X			dioxin/furans and butyltins not analyzed in all samples	USACE, 1998
Rose Festival Fleet Moorage	WLCRFE95	Dredged material characterization	13	5/11/1995	5/11/1995	5 surface sediment	0-15 cm	N	Y	X	X	X	X	X	X					SVOCs limited to PAHs	AGI Technologies, 1995
Rhône-Poulenc St Helens Road Facility Q1,95	WLCRPB95	Sampling associated with quarterly monitoring at Rhône-Poulenc discharge point	7, 8	2/1/1995	2/1/1995	5 surface sediment	0-15 cm	N	N	X	X		X		X		X	X	X	herbicides also analyzed	Woodward-Clyde Consultants, 1995
US Moorings Preliminary Assessment Sampling	MOOR1294	Preliminary Assessment of US Moorings Site	7	12/20/1994	12/20/1994	9 surface sediment	0-15 cm	N	N	X	X										USACE, 1998
PSY DD3 Post-Dredge Data	PSYDD3	Post-dredged material characterization	9	12/15/1994	12/15/1994	3 subsurface sediment, 8 surface sediment	surface 0-12 cm; subsurface up to 50 cm	N	N	X	X	X	X	X	X			X		Subsurface analyzed for conventionals, metals, and SVOCs only	Hartman & Associates, 1995
Characterization of Stormwater Outfalls	WRSTRM94	Characterization of sediments off stormwater discharges	5, 9, 10, 12, 14	7/15/1994	7/19/1994	25 surface sediment, 4 subsurface sediment	up to 10 cm	N	N	X	X		X	X	X			X			Hartman & Associates, 1995
US Moorings June 1994	MOOR0694	Sediment investigation of US Moorings Site	7	6/14/1994	6/14/1994	31 surface sediment	0-13 cm	Y - 6 samples	N	X	X	X	X	X	X		X				USACE, 1999
T2 Berth 203 Project	WLRPT294	Dredged material characterization	10	3/15/1994	5/20/1994	1 surface and 2 subsurface sediment	lower limit undefined	Y - 3 samples	Y	X	X	X	X	X	X			X		one samples analyzed for conventionals, miscellaneous SVOCs and VOCs	CAS, 1994
T4 Berth 408 Maintenance Dredging	WLCT4L93	Dredged material characterization	5	12/7/1993	12/7/1993	3 subsurface sediment	0-66 cm	N	Y	X	X	X	X	X	X			X			Port of Portland, 1994a
PSY DD4 Post-Dredge Data	PSYDD4	Post-dredged material characterization	8, 9	12/15/1992	12/15/1992	9 surface sediment	0-15 cm	N	N	X	X	X	X	X	X			X			Hartman & Associates, 1995
Willamette 1992 Portland Harbor	WLR0692	Dredged material characterization	9, 10, 11	6/3/1992	6/3/1992	6 subsurface sediment	up to 240 cm	N	N	X	X		X	X	X						USACE, 1998
USGS - Bonn	WBWRIR98	An occurrence and distribution study of dioxins/furans in the Willamette River Basin conducted from 1992 to 1995	5, 13	1/1/1992	1/1/1995	2 surface sediment	0-2 cm	N	N	X							X				USGS, 1998
T1 1992 Sediment Characterization Results	WLCT1L91	Dredged material characterization	11	12/17/1991	12/17/1991	2 subsurface sediment	lower depth unknown	N	Y	X			X	X	X			X			Port of Portland, 2000a
McCormick & Baxter RI Phase 2	MBCREOS2	Phase II remedial investigation of McCormick & Baxter Creosoting Co.	7	9/1/1991	1/30/1992	18 subsurface sediment, 6 surface sediment, 1 upriver reference surface	surface 0-6 cm; subsurface up to 2377 cm	N	N	X	X		X				X			dioxins/furans not analyzed in all samples	PTI, 1992
McCormick & Baxter RI Phase 1	MBCREOS1	Phase I remedial investigation of McCormick & Baxter Creosoting Co.	7	9/21/1990	10/17/1990	16 subsurface sediment,62 surface sediment, 1 upriver reference surface	surface 0-6 cm; subsurface up to 509 cm	Y - 6 surface (TR1-TR6)	Y - 2 locations (SC49, SC85)	X	X		X		X		X			pesticides and dioxins/furans not analyzed in all samples; SVOCs sometimes limited to PAHs	PTI, 1992
Berth 311 Dredge Data	PSBTH311	Dredged material characterization	9	9/9/1990	4/8/1992	8 subsurface sediment, 14 surface sediment	surface 0-20 cm, subsurface up to 40 cm	Y - 5 samples	Y - 4 locations (3, 4, 5, 6)	X	X	X	X	X	X			X		butyltins analyzed in composite samples only	Port of Portland, 1992
Col Wil Channel Deepening Reconnaissance Study	COLWIL90	Sediment quality reconnaissance study for proposed deepening of the navigation channel, primarily focused on extent of dioxins and furans	5, 7-10, 12	5/3/1990	5/18/1990	13 subsurface sediment	up to 142 cm	N	Y - 2 locations (WRGC06, WRGC09)	X								X				USACE, 1990
Columbia Basin Contaminant Data	CLBC8494*	DEQ (1994) - Study to determine presence and effects of toxic pollutants to RM 161; Curtis et al. (1993) - Study to determine extent of TCDD/TCDF to RM 314	11, 12	1/1/1984	1/1/1994	DEQ (1994) - 6 surface below RM 27 and only 1 (RM12) since 1990; Curtis et al. (1993) - 1 surface at RM 11	0-15 cm	N	N	X			X	X		X	X			DEQ (1992) - conv., SVOCs, PCB congeners, pesticides; Curtis et al (1993) - dioxin/furans, conv.	EPA, 1996

* Includes Curtis et al. 1993, Willamette River Toxics Study (DEQ 1994)

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Zinc (mg/kg)	574	574	100	17.3 G	2700 L	182	109	479	17.3 G	2700 L	182	109	479
Chromium (mg/kg)	547	547	100	8	819 J	40	31.9	50.6	8	819 J	40	31.9	50.6
Total solids (%)	368	368	100	10.9	98.3	54	49.7	84.8	10.9	98.3	54	49.7	84.8
Aluminum (mg/kg)	192	192	100	3560	46200	32924	37300	43400	3560	46200	32924	37300	43400
Iron (mg/kg)	189	189	100	19100	84900	41196	42100	51700	19100	84900	41196	42100	51700
Manganese (mg/kg)	189	189	100	277	1440	656	664	837	277	1440	656	664	837
Barium (mg/kg)	186	186	100	58.9 G	426	174	178	208	58.9 G	426	174	178	208
Cobalt (mg/kg)	173	173	100	11.3	55.5	19	18.3 J	20.7	11.3	55.5	19	18.3 J	20.7
Magnesium (mg/kg)	173	173	100	3500	14500	6633	6860	7590	3500	14500	6633	6860	7590
Vanadium (mg/kg)	173	173	100	66.6	160	101	103	122	66.6	160	101	103	122
Calcium (mg/kg)	160	160	100	4430 J	53800	8594	8250	9820	4430 J	53800	8594	8250	9820
Potassium (mg/kg)	160	160	100	320	50000	1605	1270	1530	320	50000	1605	1270	1530
Sodium (mg/kg)	160	160	100	330	49000	1704	1090	2420	330	49000	1704	1090	2420
Total volatile solids (%)	160	160	100	0.8	12.9	6.5	6.68	9.7 J	0.8	12.9	6.5	6.68	9.7 J
Titanium (mg/kg)	86	86	100	608	3680	1862	1900	2940	608	3680	1862	1900	2940
Total sulfides (mg/kg)	69	69	100	1	1830 G	92	17 G	249 G	1	1830 G	92	17 G	249 G
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng	33	33	100	26	220000	10586	380	18000	26	220000	10586	380	18000
Octachlorodibenzo-p-dioxin (ng/kg)	33	33	100	250	1700000	68955	2900 J	93000 J	250	1700000	68955	2900 J	93000 J
Barium (mg/l)	28	28	100	0.03	0.18	0.10	0.1	0.16	0.03	0.18	0.097	0.1	0.16
Calcium (mg/l)	28	28	100	10.2	163	78	71.4	136	10.2	163	78	71.4	136
Iron (mg/l)	28	28	100	0.49	43.4	12	8.17	26.9	0.49	43.4	12	8.17	26.9
Magnesium (mg/l)	28	28	100	3.77	55.3	27	24.1	46.6	3.77	55.3	27	24.1	46.6
Manganese (mg/l)	28	28	100	0.88	20.5	8.5	7.68	15.2	0.88	20.5	8.5	7.68	15.2
Potassium (mg/l)	28	28	100	1.2	5.1	3.3	3.4	4.7	1.2	5.1	3.3	3.4	4.7
Sodium (mg/l)	28	28	100	10.1	18.9	15	14.7	17.8	10.1	18.9	15	14.7	17.8
Heptachlorodibenzofuran (ng/kg)	19	19	100	12	39000	2565	160	4100	12	39000	2565	160	4100
Heptachlorodibenzo-p-dioxin (ng/kg)	19	19	100	83	430000	24885	440	11000	83	430000	24885	440	11000
Hexachlorodibenzofuran (ng/kg)	19	19	100	5.2	18000	1259	130	1800	5.2	18000	1259	130	1800
Acid Volatile Sulfides (umol/g)	6	6	100	0.005 G	0.03	0.02	0.01	0.03 G	0.005 G	0.030	0.016	0.01	0.03 G
Moisture (%)	6	6	100	39	220	76	51	54	39	220	76	51	54
pH (pH units)	4	4	100	6.4	7	6.6	6.4	6.6	6.4	7	6.6	6.4	6.6
Specific Gravity (Std_ Units)	4	4	100	2.49	2.75	2.7	2.71	2.74	2.49	2.75	2.7	2.71	2.74
Dioxin/furan TCDD toxicity equivalent (ng/kg)	2	2	100	16.09 T	38.96 T	27.53	16.09 T	16.09 T	16.09 T	38.96 T	28	16.09 T	16.09 T
Acridine (ug/kg)	1	1	100	3160	3160	3160	3160	3160	3160	3160	3160	3160	3160
Azulene (ug/kg)	1	1	100	260	260	260	260	260	260	260	260	260	260
Perylene (ug/kg)	1	1	100	1150	1150	1150	1150	1150	1150	1150	1150	1150	1150
Retene (ug/kg)	1	1	100	940	940	940	940	940	940	940	940	940	940
Total organic carbon (%)	568	567	100	0.04	14 M	1.7	1.5	3.53 J	0.04	14 M	1.7	1.5	3.53 J
Nickel (mg/kg)	504	503	100	9	594	26	24	34	9	594	26	24	34
Copper (mg/kg)	580	573	99	1	2000	78	43	154	1	2000	77	42.8	154
Ammonia (mg/l)	52	51	98	0.24	6.77	2.1	1.75	4.44	0.05 U	6.77	2.1	1.75	4.44
Octachlorodibenzofuran (ng/kg)	33	32	97	15	33000	2549	130	4800 J	15	33000	2473	130	4800 J
C1-Fluoranthene/pyrene (ug/kg)	29	28	97	7.9	3300	381	168	750	5 U	3300	368	160	750

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
C1-Phenanthrene/anthracene (ug/kg)	29	28	97	6.7	1820	274	106	517	5 U	1820	264	70	517
C2-Phenanthrene/anthracene (ug/kg)	29	28	97	5.3	6000	395	96	467	5 U	6000	381	63	467
Lead (mg/kg)	541	522	96	2.8	1160 E	45	18.8	155	2.8	1160 E	44	19.3	153 E
Aluminum (mg/l)	28	27	96	0.03	19.4	1.7	0.14	6.47	0.02 U	19.4	1.6	0.14	6.47
Arsenic (mg/l)	28	27	96	0.001	0.009	0.003	0.002	0.008	0.001 U	0.009	0.003	0.002	0.008
Tributyltin ion (ug/kg)	141	134	95	0.4 J	47000	2199	100	9660 H	0.4 J	47000	2091	92	9600
Hexachlorodibenzo-p-dioxin (ng/kg)	19	18	95	5	53000	3335	86	2000	5	53000	3160	85	2000
1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	33	31	94	6.3	16000	967	58	1800 J	5 U	16000	910	58	1800 J
C1-Chrysene (ug/kg)	29	27	93	3.9	1900	240	78	660	3.9	1900	224	72	660
C3-Phenanthrene/anthracene (ug/kg)	29	27	93	3.2	4200	276	47	448	3.2	4200	257	43	448
Cobalt (mg/l)	28	26	93	0.003	0.02	0.009	0.01	0.01	0.003 U	0.02	0.009	0.008	0.01
Ammonia (mg/kg)	49	45	92	12.2	224	91	85.8	161	12.2	224	93	86.8	167 UJ
High Molecular Weight PAH (ug/kg)	645	582	90	2 A	12268000 A	65500	1613 A	222000 A	2 A	12268000 A	59182	1429 A	180500 A
Polycyclic Aromatic Hydrocarbons (ug/kg)	645	581	90	4.5 A	26408000 A	147246	1950 A	402700 A	4.5 A	26408000 A	132727	1720 A	364840 A
Pyrene (ug/kg)	645	579	90	0.8 G	3400000	16710	332	54000	0.8 G	3400000	15081	310	43400
Pentachlorodibenzofuran (ng/kg)	19	17	89	5.2	2000	163	27	180	0.94 U	2000	146	15	180
Zinc (mg/l)	28	25	89	0.004	0.17	0.017	0.008	0.02	0.004 U	0.17	0.016	0.008	0.02
Fluoranthene (ug/kg)	656	585	89	0.8 G	3000000	18454	342	49000	0.8 G	3000000	16541	324	45000
Total Petroleum Hydrocarbons (mg/kg)	35	31	89	28	470	151	140	240	25 U	470	137	116	240
C2-Naphthalene (ug/kg)	29	25	86	2.4	1080	142	26	520	2.4	1080	124	22 U	520
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	33	28	85	2	12000	662	21	540	1.3 U	12000	562	16	540
Chrysene (ug/kg)	645	545	84	3 G	1300000	6646	190 G	23000	3 G	1300000	5728	164	16000
Pencil pitch (mg/kg)	44	37	84	310	14000	2274	1500	5200	100 U	14000	1938	1100 E	4500
C1-Fluorene (ug/kg)	29	24	83	3.3	1300	104	22	287	1.7 U	1300	88	17	287
C2-Dibenzothiophene (ug/kg)	29	24	83	5.5	1600	147	34	409	1.7 U	1600	123	20 U	409
C3-Naphthalene (ug/kg)	29	24	83	4.9	9000	538	36	1100	1.7 U	9000	447	22	1100
C4-Naphthalene (ug/kg)	29	24	83	4.3	18000	864	27	740	1.7 U	18000	717	20 U	740
Phenanthrene (ug/kg)	645	532	82	1 G	5400000	32108	200	74000	1 G	5400000	26570	160	40000
Low Molecular Weight PAH (ug/kg)	645	531	82	2.5 A	14140000 A	89320	379 A	165600 A	2.5 A	14140000 A	73632	284 A	90970 A
Benzo(b+k)fluoranthene (ug/kg)	626	515	82	6 A	1280000 A	8015	300 A	27000 A	5 UA	1280000 A	6695	237 A	22000 A
Benzo(b)fluoranthene (ug/kg)	543	446	82	3 G	930000	4349	120	12000 G	3 G	930000	3678	103	10000 G
1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	33	27	82	5	1300	125	18	460	1.2 U	1300	103	13	460
Benz(a)anthracene (ug/kg)	645	522	81	3 G	840000	5633	160	18000	3 G	840000	4657	124	14000
Benzo(a)pyrene (ug/kg)	643	515	80	3 G	1000000	5166	170	15000	3 G	1000000	4233	140	12000 G
Benzo(e)pyrene (ug/kg)	58	46	79	75	50000	5985	880	27000	21 U	50000	4943	660	27000
Tetrachlorodibenzofuran (ng/kg)	19	15	79	1.1	550	65	13	140	1 U	550	52	6.1	140
Benzo(k)fluoranthene (ug/kg)	543	424	78	3 G	350000	2754	100	11000	3 G	350000	2259	83	8300 G
Cyanide (mg/kg)	9	7	78	0.3 J	2.2	1.1	0.6	1.5	0.2 U	2.2	0.889	0.5	1.5
Chromium hexavalent (mg/kg)	58	45	78	0.07 G	0.99 G	0.43	0.4 G	0.85 G	0.07 G	0.99 G	0.355	0.29 G	0.85 G
C1-Naphthalene (ug/kg)	13	10	77	3.5	327	59	7.7	102	1.7 U	327	49	7.7	102
Dibenzothiophene (ug/kg)	30	23	77	3.6	3160	197	27	151	1.7 U	3160	153	21 U	151
C3-Dibenzothiophene (ug/kg)	29	22	76	5.6	1100	117	30	311	1.7 U	1100	90	20 U	311
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg	33	25	76	1 J	3200 J	271	10 J	180	1 J	3200 J	206	8 U	180

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Acid Volatile Sulfides (mg/kg)	85	63	74	0.8	1100 X	52	13.7	110 X	0.7 U	1100 X	39	6.1	100 X
Arsenic (mg/kg)	625	462	74	0.6 E	132	6.3	4.4	12	0.6 E	132	5.9	5 U	10.3
Mercury (mg/kg)	502	371	74	0.01	1.5	0.12	0.07	0.3	0.01	1.5	0.122	0.08	0.25
Cadmium (mg/kg)	512	377	74	0.05	6.6 G	0.62	0.4	2 G	0.0093 U	6.6 G	0.690	0.4	2 G
Beryllium (mg/kg)	250	184	74	0.22	1.1	0.64	0.66	0.83	0.22	4.8 U	0.837	0.7	1.1 U
Silver (mg/kg)	508	371	73	0.01 J	3.3	0.56	0.4	1.3	0.01 J	4.8 U	0.819	0.6	2 U
C2-Chrysene (ug/kg)	29	21	72	2	1600	153	34	200	2	1600	112	27	200
C2-Fluorene (ug/kg)	29	21	72	3.8	4400	278	22	350	1.7 U	4400	204	12	350
Indeno(1,2,3-cd)pyrene (ug/kg)	645	456	71	2 G	530000	3791	121	14000 G	2 G	530000	3004	91	10000
Benzo(g,h,i)perylene (ug/kg)	640	450	70	0.6 G	820000	4037	121	12000	0.6 G	820000	3129	95	10000
1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	33	23	70	3.1	770	84	9	160	0.88 U	770	60	6	160
2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	33	23	70	2.9	1100	75	9.9	75	0.41 U	1100	54	5 J	75
Tetrachlorodibenzo-p-dioxin (ng/kg)	19	13	68	1.6	310	39	11	66	0.93 U	310	27	3.1	66
Residual Range Organics (mg/kg)	19	13	68	72 Z	840	322	230 Z	640	32 U	840	291	230 Z	640
Bis(2-ethylhexyl) phthalate (ug/kg)	470	306	65	21	88000 J	1610	350	3700 B	15 U	88000 J	1421	280 G	4000 U
2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	34	22	65	1.6	98	19	10	50	1 U	98	13	4.5	50
Anthracene (ug/kg)	645	413	64	0.8 G	1100000	8127	97	26000	0.8 G	1100000	5358	50 U	11000
C4-Dibenzothiophene (ug/kg)	13	8	62	4.9	232	41	6.8	33	1.7 U	232	40	6.8	141 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	33	20	61	1.6	1400	144	13	1100	0.4 U	1400	89	4.9 U	93
Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	274	165	60	0.2 A	84909 A	949	10.3 A	1030 A	0.2 A	84909 A	575	6.7 UA	679 A
Thallium (mg/kg)	237	140	59	0.04 J	27	10	9	23	0.04 J	48 U	8.4	7	24
Fluorene (ug/kg)	645	364	56	0.5 G	1100000 J	16916	85 G	43000	0.5 G	1100000 J	9701	37	11000
Naphthalene (ug/kg)	645	361	56	0.5 G	5100000	34890	58	30200	0.5 G	5100000	19819	31	10000 U
C3-Chrysene (ug/kg)	29	16	55	5.5	830	96	25	176	1.7 U	830	56	8.8	120
Tin (mg/kg)	29	16	55	0.89 X	14.2 G	3.695	2.05 X	7.04 G	0.89 X	14.2 G	3.9	3.9 U	6.16 G
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	33	18	55	1.3	590	71	8.6	480	0.44 U	590	40	4.8 U	54
2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	33	18	55	1.9	740	78	15	290	0.65 U	740	45	7.6	130
Acenaphthene (ug/kg)	645	349	54	0.9 G	1600000	22298	100	51000	0.9 G	1600000	12234	45	15000
Vanadium (mg/l)	28	15	54	0.003	0.03	0.0066	0.004	0.01	0.003 U	0.03	0.005	0.003	0.01
Dibutyltin ion (ug/kg)	120	63	53	0.6 J	2020 GH	165	17	800	0.6 J	2020 GH	89	5.8 U	692 GH
C1-Dibenzothiophene (ug/kg)	29	15	52	2.1	7400	560	10	270	1.7 U	7400	294	5 U	247
1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	33	17	52	1.6 J	320	54	13	200	0.94 U	320	30	4.9 U	100
2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	34	17	50	0.51	100	11	1.62	43	0.24 U	100	6.2	1.2	10
1-Methylnaphthalene (ug/kg)	16	8	50	1	68	28	16	47	1	68	17	5 U	47
4,4'-DDD (ug/kg)	274	136	50	0.2 J	11000	159	6.7	194	0.2 J	11000	82	3.3 U	100 J
1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	33	16	48	2.2	690	86	7.2	530	0.18 U	690	44	4.9 U	31
C4-Phenanthrene/anthracene (ug/kg)	29	14	48	2.7	1500	151	22	201	1.7 U	1500	81	5 U	141 U
4,4'-DDE (ug/kg)	273	131	48	0.3 J	1480	33	3.3	100	0.3 J	1480	22	2.6	96 U
Pentachlorodibenzo-p-dioxin (ng/kg)	19	9	47	5.6	2200	325	24	300	0.56 U	2200	156	4.9 U	300
Selenium (mg/kg)	281	131	47	0.47	20	12	12	17	0.31 UJ	20	6.3	5 U	15
trans-Chlordane (ug/kg)	26	12	46	1.99 JP	25.3 P	9.7	7.23	19.9 P	0.99 U	41 U	8.2	2.3 JP	25.3 P
1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	33	15	45	2	650	86	10	350	1.9 U	650	47	9.6 U	100
4,4'-DDT (ug/kg)	274	120	44	0.2	81000	1088	10 G	2100	0.2	81000	481	6.7 U	620

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Dibenz(a,h)anthracene (ug/kg)	645	281	44	0.7 G	98000	879	61	2500	0.7 G	98000	841	32.1	3000 U
Butyltin ion (ug/kg)	120	52	43	0.6 J	740 J	35	10 G	95.5	0.6 J	740 J	18	5.8 U	58 H
Tributyltin ion (ug/l)	150	64	43	0.006 J	11	0.68	0.14	1.79	0.006 J	11	0.309	0.05 U	1.07
Diesel fuels (mg/kg)	140	57	41	16.2 JV	2100	235	92	720	10 U	2100	131	72	480
Carbazole (ug/kg)	270	108	40	2 J	44000	1708	64	5500	2 J	44000	860	33 J	3400 U
Lead (mg/l)	28	11	39	0.001	0.04	0.007	0.002	0.01	0.001	0.04	0.003	0.001 U	0.01
trans-Nonachlor (ug/kg)	18	7	39	8.64 P	19.1	13	9.74	15.3	4.9 U	19.1	8.6	6.58 U	15.3
C4-Fluorene (ug/kg)	13	5	38	4.3	66	31	13	38	1.7 U	141 U	28	13	66
C3-Fluorene (ug/kg)	29	11	38	5.6	370	73	16	123	1.7 U	370	31	5 U	117
4-Methylphenol (ug/kg)	374	141	38	20	1400	386	330	950	16 U	90000 U	774	100 U	3000 UG
Antimony (mg/kg)	426	159	37	0.02 G	15.2	3.0	0.59 J	10 J	0.02 UG	24 U	4.2	2.78 U	10.5 U
Polychlorinated biphenyls (ug/kg)	336	122	36	4 A	9300 A	392	105 A	1240 A	4 UJ	9300 A	216	39 UA	1000 A
Dibenzofuran (ug/kg)	493	179	36	0.9 J	620000	5635	42	1900	0.9 J	620000	2308	20 U	3000 U
2-Methylnaphthalene (ug/kg)	448	161	36	1 GB	1300000	12766	30	1700 G	1 GB	1300000	4760	20 U	3000 U
Acenaphthylene (ug/kg)	645	223	35	0.7 G	190000	2071	50.8	2600	0.7 G	190000	941	20 G	3000 U
Pristane (mg/kg)	44	15	34	0.5	7	1.62	0.7	5.3	0.5 U	7	0.882	0.5 U	1.5
2,4'-DDD (ug/kg)	18	6	33	6.07 P	24	13	9.42 P	17.5 P	4.71 U	24	8.145	5.94 U	17.5 P
Acetone (ug/kg)	55	16	29	10 J	340	114	50 J	310	8 U	5100 U	391	100 U	2500 U
Copper (mg/l)	28	8	29	0.002	0.13	0.03	0.003	0.04	0.002 U	0.13	0.009	0.002 U	0.02
Aroclor 1260 (ug/kg)	326	93	29	4 J	7000 H	193	42	390	3.21 U	7000 H	104	19.5	200 U
Butylbenzyl phthalate (ug/kg)	461	120	26	3 J	6000	176	43	385	3 J	20000 U	343	25	2000 G
Lube Oil (mg/kg)	108	28	26	81	2110	496	310 E	1100 E	3.22 U	2110	188	100 U	681 J
Phytane (mg/kg)	44	11	25	0.5	6.1	1.8	0.8	5.3	0.5 U	6.1	0.855	0.5 U	1
Disulfoton (ug/kg)	4	1	25	56	56	56	56	56	50 U	56	52	50 U	50 U
Chlorobenzene (ug/kg)	75	17	23	2 J	34000	2029	5 J	250	2 J	34000	478	5 U	100 U
Aroclor 1254 (ug/kg)	326	70	21	5 J	740	118	54 J	400	1.88 U	2000 U	85	20 U	380 U
Dibutyl phthalate (ug/kg)	460	98	21	1 J	640	56	26.7	180	1 J	20000 U	373	20 U	2400 UG
Di-n-octyl phthalate (ug/kg)	461	74	16	10	30100 J	912	52	4290	10 U	30100 J	493	23	3000 U
Xylene (ug/kg)	102	16	16	13	18000	1560	68	3200	2 U	18000	306	50 U	300 U
Tetrabutyltin (ug/kg)	96	14	15	0.3 J	150	17	1 J	32	0.3 J	150	6.6	5.7 U	6 U
C4-Chrysene (ug/kg)	29	4	14	2	810	205	2.5	3.5	1.7 U	810	40	5 U	22 U
2,4-D (ug/kg)	29	4	14	9	93	37	21	24	0.23 U	250 U	20	0.28 U	93
2,4-DB (ug/kg)	29	4	14	13	130	46	19	23	0.16 U	1000 U	66	0.2 U	130
Heavy oil (mg/kg)	41	5	12	9.6	5100	1107	91	240	9.6	5100	185	25 U	125 U
2,4'-DDE (ug/kg)	18	2	11	7.77 P	8.21 P	7.99	7.77 P	7.77 P	4.58 U	8.21 P	5.8	5.21 U	7.77 P
Dibutyltin ion (ug/l)	65	7	11	0.007 J	0.1	0.028	0.01 J	0.03 J	0.007 J	0.1	0.054	0.05 U	0.06 U
Chromium (mg/l)	28	3	11	0.006	0.02	0.011	0.006	0.007	0.005 U	0.02	0.006	0.005 U	0.006
Tetrachlorophenol (ug/kg)	21	2	9.5	9	13	11	9	9	5 U	425 UJ	94	31.8 U	337 UJ
Methylene chloride (ug/kg)	65	6	9.2	5 B	16 B	9	7 B	11 B	5 U	1020 U	96	10 U	500 U
alpha-Chlordane (ug/kg)	151	13	8.6	0.2 J	18.4 P	7.5	2.39 J	17.3 P	0.2 J	110 U	9.9	2 U	48 U
Aldrin (ug/kg)	237	20	8.4	0.2 J	60	8.6	2.2	28.6 P	0.2 J	200 U	13	2 UH	50 U
Natural gasoline (mg/kg)	13	1	7.7	300	300	300	300	300	10 U	300	42	20 U	50 U
Aroclor 1248 (ug/kg)	326	25	7.7	32.6	9300	834	190	1600	2.18 U	9300	117	13 U	420

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Ethylbenzene (ug/kg)	198	15	7.6	0.06 J	10000	897	8	2000	0.009 U	10000	106	10 U	300 U
Nickel (mg/l)	28	2	7.1	0.01	0.02	0.015	0.01	0.01	0.01 U	0.02	0.010	0.01 U	0.01 U
Silver (mg/l)	28	2	7.1	0.0002	0.0003	0.0003	0.0002	0.0002	0.0002 U	0.0003	0.0002	0.0002 U	0.0002 U
Benzoic acid (ug/kg)	355	25	7.0	35 J	4110 J	809	80 J	3300 J	35 J	220000 U	2952	200 U	20000 U
gamma-Chlordane (ug/kg)	125	8	6.4	2.5	10	4.8	3	7	0.45 U	99 U	10	2 U	48 U
Diethyl phthalate (ug/kg)	461	29	6.3	2 J	26.5 J	6.7	3 J	23.5 J	2 J	20000 U	308	20 U	970 U
Endrin aldehyde (ug/kg)	229	14	6.1	0.3 J	215	16.3	0.5 J	4	0.3 J	215	12	2 UH	60 U
Phenol (ug/kg)	448	27	6.0	6 J	420 J	87	58	210 J	6 J	45000 UJ	441	50 U	3000 U
m,p-Xylene (ug/kg)	105	6	5.7	0.05 J	0.64	0.17	0.08 J	0.1 J	0.02 U	408 U	16	5 U	11 U
o-Xylene (ug/kg)	105	6	5.7	0.03 J	0.87	0.22	0.07 J	0.21	0.008 U	204 U	11	5 U	11 U
cis-Nonachlor (ug/kg)	18	1	5.6	6.88	6.88	6.88	6.88	6.88	4.58 U	7.46 U	5.6	5.21 U	6.88
Pentachlorophenol (ug/kg)	550	30	5.5	0.89	7200 J	589	88 J	1600	0.19 U	60000 U	1459	100 U	6000 U
Endosulfan sulfate (ug/kg)	229	12	5.2	0.2 J	240	22	0.7 J	12	0.2 J	240	13	2 UH	60 U
Dimethyl phthalate (ug/kg)	461	21	4.6	0.6 J	171	26	14	42	0.6 J	20000 U	306	20 U	900 U
Toluene (ug/kg)	181	8	4.4	0.08 J	4200	918	54	2400	0.02 U	4200	82	10 U	300 U
beta-Hexachlorocyclohexane (ug/kg)	229	10	4.4	0.4 J	18	4.3	2.31 JP	7.03	0.4 UJ	600 U	24	2 U	49 U
1,2,4-Trichlorobenzene (ug/kg)	323	13	4.0	2 JB	190	19	5 JB	10	2 JB	22000 UJ	304	20 U	1900 U
Dieldrin (ug/kg)	237	9	3.8	0.2 J	10	2.7	0.3 J	6	0.2 J	400 UH	14	2 UH	95 U
Benzene (ug/kg)	190	7	3.7	0.05 J	22000	3145	1.3	7.3	0.01 U	22000	151	10 U	300 U
Mercury (mg/l)	28	1	3.6	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001 U	0.0001	0.0001 U	0.0001 U
Aroclor 1242 (ug/kg)	326	11	3.4	5	350	60	12	130	2.83 U	2000 U	60	10 U	137 U
gamma-Hexachlorocyclohexane (ug/kg)	237	7	3.0	0.2 J	540	79	1.5	6	0.2 J	540	14	2 U	48 U
3- and 4-Methylphenol Coelution (ug/kg)	70	2	2.9	7.3 J	11 J	9.15	7.3 J	7.3 J	7.3 J	12000 U	400	100 U	330 U
alpha-Endosulfan (ug/kg)	216	6	2.8	0.2 J	4.95 P	1.8	0.3 J	3.91	0.2 J	99 U	8.4	2 UH	41 U
1,2-Dichlorobenzene (ug/kg)	375	10	2.7	2 JB	1700 J	175	3 JB	22	1 U	9000 UJ	82	19 U	190 U
Tetrachloroethene (ug/kg)	114	3	2.6	10	60	28	10	15	1 U	250 U	19	9.4 U	100 U
1,4-Dichlorobenzene (ug/kg)	375	9	2.4	4.8	530	127	33	230	1 U	9000 UJ	82	19 U	204 U
Methylethyl ketone (ug/kg)	49	1	2.0	44	44	44	44	44	20 U	5100 U	483	100 U	2500 U
Benzyl alcohol (ug/kg)	361	7	1.9	6 G	160	31	9	15 G	6 U	45000 U	426	25 U	3000 U
Heptachlor (ug/kg)	237	4	1.7	0.4 J	6	1.9	0.6 J	0.7 J	0.4 UJ	200 U	12	2 U	48 U
Hexachlorobenzene (ug/kg)	412	6	1.5	3.2 P	440	135	5.44 P	340	2.45 U	20000 U	497	20 U	3000 U
Aniline (ug/kg)	71	1	1.4	94.4 J	94.4 J	94	94.4 J	94.4 J	50 U	20000 U	2898	200 U	10000 U
2,3,4,6-Tetrachlorophenol (ug/kg)	71	1	1.4	24	24	24	24	24	9.63 U	11000 U	935	200 U	2200 U
Endrin ketone (ug/kg)	156	2	1.3	1.2	1.6	1.4	1.2	1.2	0.45 U	200 U	14	2 U	95 U
Hexachloroethane (ug/kg)	320	4	1.3	38	1600	474	49	210	2.45 U	45000 UJ	486	21 U	3000 U
4-Chloro-3-methylphenol (ug/kg)	342	4	1.2	29.8 J	45000	11351	68 J	306	14 U	45000	414	48 U	3000 U
2,4-Dimethylphenol (ug/kg)	453	5	1.1	7	290	71	9	31	1.4 U	12000 U	319	20 U	3000 U
Bis(2-chloroethoxy) methane (ug/kg)	277	3	1.1	29	30	30	29	30	10 U	6000 U	302	20 U	3000 U
Hexachlorobutadiene (ug/kg)	425	3	0.7	200	270	233	200	230	2.45 U	22000 UJ	767	20 U	3000 U
1,3-Dichlorobenzene (ug/kg)	375	2	0.5	14	36	25	14	14	1 U	9000 UJ	79	19 U	200 U
alpha-Hexachlorocyclohexane (ug/kg)	217	1	0.5	1.03 J	1.03 J	1.03	1.03 J	1.03 J	0.4 UJ	200 U	14	2 U	60 U
2-Methylphenol (ug/kg)	441	2	0.5	17	51	34	17	17	1.4 U	90000 U	514	20 U	3000 U
Endrin (ug/kg)	229	1	0.4	6	6	6	6	6	0.4 UJ	200 U	11	2 U	40 U

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Methoxychlor (ug/kg)	229	1	0.4	1 J	1 J	1	1 J	1 J	0.8 UJ	2000 UH	52	5 U	190 U
2,4-Dinitrotoluene (ug/kg)	277	1	0.4	260	260	260	260	260	19.9 U	45000 U	652	97 U	3000 U
2,6-Dinitrotoluene (ug/kg)	277	1	0.4	22000	22000	22000	22000	22000	10 U	22000	445	97 U	3000 U
3-Nitroaniline (ug/kg)	277	1	0.4	475 J	475 J	475	475 J	475 J	26 U	450000 U	3676	120 UJ	20000 U
Nitrobenzene (ug/kg)	277	1	0.4	300	300	300	300	300	8.9 U	22000 UJ	377	20 U	3000 U
N-Nitrosodipropylamine (ug/kg)	277	1	0.4	3 J	3 J	3	3 J	3 J	3 J	45000 U	488	39 U	3000 U
Aroclor 1016 (ug/kg)	326	1	0.3	46	46	46	46	46	5.94 U	2000 U	58	10 U	100 UH
2,4,5-Trichlorophenol (ug/kg)	394	1	0.3	190 J	190 J	190	190 J	190 J	14 U	29000 UJ	601	97 U	3000 UG
2,4,6-Trichlorophenol (ug/kg)	394	0	0						1.4 U	11000 U	392	96 U	3000 U
2,4-Dichlorophenol (ug/kg)	380	0	0						16.8 U	45000 U	1074	100 U	3000 UX
N-Nitrosodiphenylamine (ug/kg)	361	0	0						8.9 U	60000 U	482	20 U	3000 U
2-Chlorophenol (ug/kg)	342	0	0						14 U	22000 U	323	29.6 U	2900 U
4-Nitrophenol (ug/kg)	330	0	0						0.15 U	45000 U	1554	100 UG	10200 U
4,6-Dinitro-2-methylphenol (ug/kg)	328	0	0						56.5 U	90000 U	1828	190 UJ	12000 U
Aroclor 1221 (ug/kg)	325	0	0						2.26 U	4000 U	98	20 U	200 U
Aroclor 1232 (ug/kg)	325	0	0						3.84 U	2000 U	59	10 U	100 U
2-Nitrophenol (ug/kg)	317	0	0						21.4 U	22000 U	389	96 U	3000 U
2,4-Dinitrophenol (ug/kg)	304	0	0						23 U	45000 UJ	1817	250 U	20000 U
2-Chloronaphthalene (ug/kg)	277	0	0						4.58 U	6000 U	295	19 U	3000 U
2-Nitroaniline (ug/kg)	277	0	0						10 U	450000 U	3524	97 U	20000 U
4-Bromophenyl phenyl ether (ug/kg)	277	0	0						8.9 U	22000 U	376	20 U	3000 U
4-Chloroaniline (ug/kg)	277	0	0						14.2 UJ	90000 U	873	58 UJ	3000 U
4-Chlorophenyl phenyl ether (ug/kg)	277	0	0						8.9 U	9000 U	320	20 U	3000 U
4-Nitroaniline (ug/kg)	277	0	0						9.9 U	450000 U	3550	98 U	20000 U
Bis(2-chloroethyl) ether (ug/kg)	277	0	0						8.9 U	9000 UJ	334	39 U	3000 U
Isophorone (ug/kg)	277	0	0						8.9 U	6000 U	299	20 U	3000 U
3,3'-Dichlorobenzidine (ug/kg)	276	0	0						16.8 U	40000 U	1681	97 UJ	20000 U
Hexachlorocyclopentadiene (ug/kg)	260	0	0						21.5 U	12000 U	496	99 U	3000 U
beta-Endosulfan (ug/kg)	229	0	0						0.4 UJ	200 U	11	2 UH	40 U
delta-Hexachlorocyclohexane (ug/kg)	229	0	0						0.4 UJ	200 U	12	2 U	49 U
Heptachlor epoxide (ug/kg)	229	0	0						0.4 UJ	360 U	9.6	2 U	48 U
Toxaphene (ug/kg)	229	0	0						14.3 U	12000 U	598	95 U	4800 U
Bis(2-chloro-1-methylethyl) ether (ug/kg)	207	0	0						10 U	6000 U	323	20 U	3000 U
Trichloroethene (ug/kg)	149	0	0						1 U	204 U	13	5 U	50 U
Chlordane (cis & trans) (ug/kg)	111	0	0						1 U	1000 U	68	10 U	150 U
Bis(2-chloroisopropyl) ether (ug/kg)	69	0	0						8.9 U	90000 U	1721	15 U	1650 U
N-Nitrosodimethylamine (ug/kg)	65	0	0						10 U	40000 U	6086	228 UJ	20000 U
Tetrabutyltin (ug/l)	65	0	0						0.02 U	0.1 UJ	0.040	0.05 U	0.05 U
1,1,1-Trichloroethane (ug/kg)	65	0	0						1 U	250 U	27	9 U	100 U
1,1,2,2-Tetrachloroethane (ug/kg)	65	0	0						2 U	250 U	27	9 U	100 U
1,1,2-Trichloroethane (ug/kg)	65	0	0						2 U	204 U	22	5 U	100 U
1,1-Dichloroethane (ug/kg)	65	0	0						1 U	204 U	22	5 U	100 U
1,2-Dichloroethane (ug/kg)	65	0	0						2 U	204 U	22	5 U	100 U

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
1,2-Dichloropropane (ug/kg)	65	0	0						2 U	204 U	22	5 U	100 U
Bromodichloromethane (ug/kg)	65	0	0						2 U	204 U	22	5 U	100 U
Bromoform (ug/kg)	65	0	0						4 U	204 U	24	9 U	100 U
Bromomethane (ug/kg)	65	0	0						5 U	2040 U	130	10 U	500 UJ
Carbon tetrachloride (ug/kg)	65	0	0						1 U	408 U	34	9 U	200 U
Chlorodibromomethane (ug/kg)	65	0	0						2 U	204 U	22	5 U	100 U
Chloroethane (ug/kg)	65	0	0						5 U	500 U	68	10 U	500 U
Chloroform (ug/kg)	65	0	0						1 U	204 U	22	5 U	100 U
Chloromethane (ug/kg)	65	0	0						5 U	1020 U	91	10 U	500 U
Vinyl chloride (ug/kg)	65	0	0						2 U	500 U	60	10 U	500 U
Vinylidene chloride (ug/kg)	65	0	0						1 U	204 U	22	5 U	100 U
2,6-Dichlorophenol (ug/kg)	64	0	0						130 U	45000 U	4900	650 U	22000 UJ
2,3,4,5-Tetrachlorophenol (ug/kg)	61	0	0						14 U	11000 U	982	200 U	2200 U
Methyl N-butyl ketone (ug/kg)	61	0	0						20 U	2040 U	179	50 U	1000 U
Styrene (ug/kg)	61	0	0						5 U	250 U	28	9 U	100 U
Trichlorofluoromethane (ug/kg)	59	0	0						5 U	500 U	49	10 U	204 U
Carbon disulfide (ug/kg)	58	0	0						5 U	2040 U	208	100 U	1000 U
Anthanthrene (ug/kg)	56	0	0						68 U	22000 U	3063	340 U	18000 U
trans-1,3-Dichloropropene (ug/kg)	56	0	0						2 U	204 U	19	5 U	100 U
Gasoline (mg/kg)	53	0	0						10 UJ	140 U	30	20 UJ	54 U
trans-1,2-Dichloroethene (ug/kg)	52	0	0						5 U	204 U	20	5 U	100 U
cis-1,3-Dichloropropene (ug/kg)	51	0	0						4 U	204 U	19	5 U	100 U
Methyl isobutyl ketone (ug/kg)	49	0	0						20 U	1020 U	164	50 U	500 U
Butyltin ion (ug/l)	48	0	0						0.05 U	0.1 U	0.056	0.05 U	0.07 U
cis-1,2-Dichloroethene (ug/kg)	47	0	0						5 U	204 U	20	5 U	100 U
Jet fuel A (mg/kg)	36	0	0						10 U	50 U	23	10 U	50 U
JP-4 jet fuel (mg/kg)	36	0	0						10 U	50 UJ	23	10 UJ	50 UJ
Kerosene (mg/kg)	36	0	0						10 U	50 U	23	10 U	50 U
Mineral spirits (mg/kg)	36	0	0						10 U	50 U	23	10 U	50 U
Naphtha distillate (mg/kg)	36	0	0						10 U	50 UJ	23	10 UJ	50 UJ
Non-petroleum hydrocarbons (mg/kg)	35	0	0						50 U	250 U	114	50 U	250 U
Dichlorodifluoromethane (ug/kg)	34	0	0						5 U	1020 U	127	10 U	500 U
Ethylene dibromide (ug/kg)	34	0	0						4 U	204 U	45	37 U	100 U
1,1,1,2-Tetrachloroethane (ug/kg)	30	0	0						5 U	204 U	29	10 U	100 U
1,1-Dichloropropene (ug/kg)	30	0	0						5 U	204 U	29	10 U	100 U
1,2,3-Trichlorobenzene (ug/kg)	30	0	0						20 U	204 U	50	40 U	100 U
1,2,3-Trichloropropane (ug/kg)	30	0	0						5 U	250 U	49	10 U	250 U
1,2-Dibromo-3-chloropropane (ug/kg)	30	0	0						20 U	250 U	70	40 U	250 U
1,3,5-Trimethylbenzene (ug/kg)	30	0	0						20 U	204 U	50	40 U	100 U
1,3-Dichloropropane (ug/kg)	30	0	0						5 U	204 U	29	10 U	100 U
2,2-Dichloropropane (ug/kg)	30	0	0						5 U	204 U	29	10 U	100 U
2-Chlorotoluene (ug/kg)	30	0	0						20 U	204 U	50	40 U	100 U
4-Chlorotoluene (ug/kg)	30	0	0						20 U	204 U	50	40 U	100 U

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Bromobenzene (ug/kg)	30	0	0						5 U	204 U	29	10 U	100 U
Bromochloromethane (ug/kg)	30	0	0						5 U	204 U	34	10 U	100 U
Isopropylbenzene (ug/kg)	30	0	0						20 U	204 U	50	40 U	100 U
Methylene bromide (ug/kg)	30	0	0						5 U	204 U	29	10 U	100 U
n-Propylbenzene (ug/kg)	30	0	0						20 U	204 U	50	40 U	100 U
Pseudocumene (ug/kg)	30	0	0						20 U	204 U	50	40 U	100 U
2,4,5-T (ug/kg)	29	0	0						0.27 U	50 U	3.9	0.33 U	5 U
2-Chloroethyl vinyl ether (ug/kg)	29	0	0						10 U	200 U	21	10 U	40 U
Dalapon (ug/kg)	29	0	0						0.13 U	1000 U	66	0.16 U	100 U
Dicamba (ug/kg)	29	0	0						0.13 U	100 U	6.7	0.16 U	10 U
Dichloroprop (ug/kg)	29	0	0						0.22 U	250 U	17	0.27 U	25 U
Dinoseb (ug/kg)	29	0	0						0.19 U	250 U	16	0.23 U	25 U
MCPA (ug/kg)	29	0	0						0.26 U	50000 U	2969	0.32 U	5000 U
MCPP (ug/kg)	29	0	0						0.11 U	50000 U	2969	0.14 U	5000 U
Silvex (ug/kg)	29	0	0						0.22 U	50 U	3.8	0.27 U	5 U
Antimony (mg/l)	28	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
Beryllium (mg/l)	28	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
Cadmium (mg/l)	28	0	0						0.002 U	0.002 U	0.002	0.002 U	0.002 U
Selenium (mg/l)	28	0	0						0.001 U	0.002 U	0.001	0.001 U	0.001 U
Thallium (mg/l)	28	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
Sec-butylbenzene (ug/kg)	27	0	0						20 U	204 U	50	37 UJ	100 U
tert-Butylbenzene (ug/kg)	27	0	0						20 U	204 U	50	37 U	100 U
Trichlorotrifluoroethane (ug/kg)	25	0	0						10 U	200 U	23	10 U	40 U
Vinyl acetate (ug/kg)	25	0	0						50 U	1000 U	120	50 U	200 U
n-Butylbenzene (ug/kg)	22	0	0						20 U	204 U	50	39 U	100 U
Cymene (ug/kg)	20	0	0						20 U	100 U	38	35 U	100 U
Aroclor 1262 (ug/kg)	18	0	0						3.14 U	4.62 U	3.6	3.59 U	4.46 U
Aroclor 1268 (ug/kg)	18	0	0						3.14 U	4.62 U	3.6	3.59 U	4.46 U
1,2-Dichloroethene (ug/kg)	18	0	0						1 U	250 U	42	10 U	250 U
2,4'-DDT (ug/kg)	18	0	0						4.58 U	7.46 U	5.5	5.21 U	6.59 U
Oxychlordane (ug/kg)	18	0	0						4.58 U	7.46 U	5.5	5.21 U	6.59 U
1,3-Dichloropropene (ug/kg)	14	0	0						4 U	100 U	31	10 U	100 U
Endosulfan (ug/kg)	13	0	0						0.9 U	9 U	3.4	3 U	6 U
Hexachlorocyclohexanes (ug/kg)	12	0	0						10 U	40 U	20	10 U	40 U
Benzidine (ug/kg)	10	0	0						250 U	1600 U	790	250 U	1600 U
p-Cymene (ug/kg)	10	0	0						20 U	204 U	74	40 U	100 U
Butylbenzene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
1,2-Diphenylhydrazine (ug/kg)	4	0	0						1600 U	1600 U	1600	1600 U	1600 U
1-Chloronaphthalene (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
1-Naphthylamine (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
2-Methylpyridine (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
2-Naphthylamine (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
3-Methylcholanthrene (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
4-Aminobiphenyl (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
7,12-Dimethylbenz(a)anthracene (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
Acetophenone (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
alpha,alpha-Dimethylphenethylamine (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
Diphenylamine (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
Ethyl methanesulfonate (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
Methyl methanesulfonate (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
N-Nitrosodibutylamine (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
N-Nitrosopiperidine (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
p-Dimethylaminoazobenzene (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
Pentachloronitrobenzene (ug/kg)	4	0	0						1600 U	1600 U	1600	1600 U	1600 U
Phenacetin (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
Pronamide (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
1,1,2-Trichloro-1,2,2-trifluoroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
1,2,4,5-Tetrachlorobenzene (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
2,4-Dichloro-6-methylphenol (ug/kg)	4	0	0						200 U	570 U	300	200 U	230 U
4-Chloro-o-cresol (ug/kg)	4	0	0						81 U	230 U	121	82 U	92 U
4-Chlorophenol (ug/kg)	4	0	0						330 U	910 U	485	330 U	370 U
Azinphosmethyl (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Bromoxynil (ug/kg)	4	0	0						25 U	250 U	105	25 U	120 U
Chlordane (technical) (ug/kg)	4	0	0						150 U	919 U	455	150 U	600 U
Chlorpyrifos (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Coumaphos (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Cresol (ug/kg)	4	0	0						41 U	110 U	60	41 U	46 U
Demeton (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Diazinon (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Dichlorvos (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Ethoprop (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Fensulfothion (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Fenthion (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Malathion (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Merphos (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Methyl parathion (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Mevinphos (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Naled (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Pentachlorobenzene (ug/kg)	4	0	0						330 U	330 U	330	330 U	330 U
Perthane (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
Phorate (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Prothiophos (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Ronnel (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Stirofos (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Sulprofos (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Tetraethyl pyrophosphate (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U

Table 4-3. Historical Category 1 and 2 Surface Sediment and Porewater Chemical Data Summary (1990-present).

Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
				Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Trichloronate (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
Pyridine (ug/kg)	1	0	0						382 UJ	382 UJ	382	382 UJ	382 UJ
2,2'-Dichlorobiphenyl (ug/kg)	1	0	0						25 U	25 U	25	25 U	25 U
2,3,3',4,4'-Pentachlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
2,3-Dichlorobiphenyl (ug/kg)	1	0	0						3 U	3 U	3	3 U	3 U
2-Chlorobiphenyl (ug/kg)	1	0	0						125 U	125 U	125	125 U	125 U
3,3',4,4',5,5'-Hexachlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
3,3',4,4',5-Pentachlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
3,3',4,4'-Tetrachlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
3-Chlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
4-Chlorobiphenyl (ug/kg)	1	0	0						25 U	25 U	25	25 U	25 U

Notes:

A - Detected quantities of analytes added together as defined in WAC 173-204-320 for LPAH and HPAH, as in DMMO 2000 for DDT, and for all Aroclors or congeners for PCB.

B - Possible method blank contamination.

E - Estimate, usually applied because the value exceeded the instrument calibration range.

G - Estimate is greater than value shown.

H - Holding time exceeded.

J - Estimate, usually applied because the value is less than the method reporting limit but greater than the method detection limit, or for QA/QC concerns.

L - Value is less than the maximum shown.

N - Presumptive evidence of presence of material.

U - Not detected at detection limit shown.

X - Recovery less than 10%.

Surface sediment is defined as any sediment sample that was exposed to the water column at the time of collection to a maximum depth of 30 cm.

No samples that have been dredged are included in the statistical summary.

Table 4-4. Historical Category 1 and 2 Subsurface Sediment and Porewater Chemical Data Summary (1990-present).

		N	%	Detected Concentrations					Detected and Nondetected Concentrations				
Analyte	N	Detected	Detected	Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Total solids (%)	342	342	100	40.3	92.8	64	64.4	85.2	40.3	92.8	64	64.4	85.2
Zinc (mg/kg)	308	308	100	10.8	1500 L	148	90.1 G	469 G	10.8	1500 L	148	90.1 G	469 G
Nickel (mg/kg)	284	284	100	4.4	112	23	22	33 G	4.4	112	23	22	33 G
Chromium (mg/kg)	275	275	100	6.6	199 J	27	24.9	44	6.6	199 J	27	24.9	44
Total volatile solids (%)	106	106	100	0.7	18.3	5	5.2	8.8	0.7	18.3	5	5.2	8.8
Barium (mg/kg)	43	43	100	67.1	330	191	189	274	67.1	330	191	189	274
Iron (mg/kg)	41	41	100	34700	53900	41871	41100	46400	34700	53900	41871	41100	46400
Manganese (mg/kg)	41	41	100	344	872	622	587	836	344	872	622	587	836
Aluminum (mg/kg)	38	38	100	19000	45900	38189	38300	44100	19000	45900	38189	38300	44100
Calcium (mg/kg)	38	38	100	4310	16000	8683	8440	13800	4310	16000	8683	8440	13800
Cobalt (mg/kg)	38	38	100	16	24.6	18	17.8	20.6	16	24.6	18	17.8	20.6
Magnesium (mg/kg)	38	38	100	4900	8510	6875	7010	7670	4900	8510	6875	7010	7670
Potassium (mg/kg)	38	38	100	1000	1550	1289	1310	1470	1000	1550	1289	1310	1470
Sodium (mg/kg)	38	38	100	380	57800 J	2694	1100	2180 J	380	57800 J	2694	1100	2180 J
Vanadium (mg/kg)	38	38	100	84	136	102	103	111	84	136	102	103	111
Titanium (mg/kg)	27	27	100	1790	3490	2054	1950	2590	1790	3490	2054	1950	2590
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/k	25	25	100	13 J	25000 J	2030	220	7800 J	13 J	25000 J	2030	220	7800 J
Octachlorodibenzofuran (ng/kg)	25	25	100	6.8	7600 J	1188	130	5200	6.8	7600 J	1188	130	5200
Octachlorodibenzo-p-dioxin (ng/kg)	25	25	100	92 J	92000 J	8942	2300 B	22000 J	92 J	92000 J	8942	2300 B	22000 J
Total sulfides (mg/kg)	18	18	100	2 G	796 G	101	32	276 G	2 G	796 G	101	32	276 G
Pencil pitch (mg/kg)	16	16	100	21	2300	703	385	2000	21	2300	703	385	2000
Hexachlorodibenzofuran (ng/kg)	9	9	100	25	1200	283	52	770	25	1200	283	52	770
Pentachlorodibenzofuran (ng/kg)	9	9	100	5.9	680	136	20	240	5.9	680	136	20	240
Heptachlorodibenzofuran (ng/kg)	8	8	100	10	1300	315	77	650	10	1300	315	77	650
Heptachlorodibenzo-p-dioxin (ng/kg)	8	8	100	180	3400	951	410	1700	180	3400	951	410	1700
Hexachlorodibenzo-p-dioxin (ng/kg)	8	8	100	27	340	135	110	200	27	340	135	110	200
Tetrachlorodibenzofuran (ng/kg)	8	8	100	4.4	270	57	13	91	4.4	270	57	13	91
Tetrachlorodibenzo-p-dioxin (ng/kg)	8	8	100	1	34	8	4.3	7.2	1	34	7.6	4.3	7.2
Bromine (ug/kg)	7	7	100	5.5	15	11	10	13	5.5	15	11	10	13
Chlorine (ug/kg)	7	7	100	137	2380	843	286	1780	137	2380	843	286	1780
Tin (mg/kg)	3	3	100	2.28 G	4.46 G	3.72	2.28 G	4.42 G	2.28 G	4.46 G	3.72	2.28 G	4.42 G
Copper (mg/kg)	320	318	99	8.9	2200	79	32.7	166 G	8.9	2200	79	32.4	166 G
Total organic carbon (%)	323	316	98	0.03	37	1.6	1.21	3.7	0.03	37	1.6	1.18	3.3
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg)	25	24	96	0.95 J	180	23	6.3	90 J	0.95 J	180	22	5.6	90 J
1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	24	23	96	1.6	5400	554	42	2300	1.6	5400	531	42	2300
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	24	23	96	0.46	990	91	15	330	0.46	990	88	15	330
2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	24	23	96	0.28	15000	676	17	84	0.28	15000	648	17	84
Ammonia (mg/kg)	28	26	93	1.4	327	133	120	239	1.4	327	129	119	239
Lead (mg/kg)	348	323	93	1.2	1080	46	22	169	1.2	1080	45	22	146
Chromium hexavalent (mg/kg)	8	7	88	0.1 G	0.6 G	0.35	0.32 GM	0.57 G	0.1 G	0.6 G	0.33	0.32 GM	0.57 G
Acid Volatile Sulfides (mg/kg)	32	27	84	0.6	53	18	13 G	42	0.6	53	15	10.2	42
Polycyclic Aromatic Hydrocarbons (ug/kg)	390	326	84	2.8 A	10096000 A	172261	2398 A	583600 A	2.8 A	10096000 A	144038	1316 A	562000 A
Residual Range Organics (mg/kg)	6	5	83	100 J	2300	858	430	730	100 J	2300	780	430	730
High Molecular Weight PAH (ug/kg)	390	321	82	2 A	2063000 A	70645	1930 A	307240 A	2 A	2063000 A	58196	957 A	247400 A

Table 4-4. Historical Category 1 and 2 Subsurface Sediment and Porewater Chemical Data Summary (1990-present).

		N	%	Detected Concentrations					Detected and Nondetected Concentrations				
Analyte	N	Detected	Detected	Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Pyrene (ug/kg)	390	317	81	0.9 G	670000	20360	450 G	110000	0.9 G	670000	16598	300 U	77000
Arsenic (mg/kg)	328	264	80	0.5	140	5.2	3.2	12 G	0.2 UJ	140	5	3.16	9
2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	25	20	80	0.59	11000	588	23	230	0.39 U	11000	471	10	86
Fluoranthene (ug/kg)	390	307	79	0.7 G	910000	20203	440	96000	0.7 G	910000	15962	300 U	81600
Beryllium (mg/kg)	56	44	79	0.38	0.74	0.58	0.59	0.7	0.38	1.05 U	0.67	0.61	1 U
Cyanide (mg/kg)	18	14	78	0.2 J	5.4	1.7	1	3.7	0.2 U	5.4	1.4	0.9	3.7
1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	25	19	76	1.4	2200	252	22	1300	0.4 U	2200	192	17	360
Mercury (mg/kg)	264	200	76	0.01	2.1	0.17	0.09	0.55	0.01	2.1	0.16	0.1	0.39
Low Molecular Weight PAH (ug/kg)	390	295	76	1.4 A	8230000 A	113491	726 A	370800 A	1.4 A	8230000 A	85909	321 A	212300 A
1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	24	18	75	0.44	22000 J	1420	78	1000	0.44	22000 J	1074	62 U	700
Phenanthrene (ug/kg)	390	291	75	0.9 G	2000000	39530	384	140000 JM	0.9 G	2000000	29560	260	100000
Chrysene (ug/kg)	390	289	74	0.7 G	180000	6729	250	30000	0.7 G	180000	5050	200	21000
Benzo(b)fluoranthene (ug/kg)	358	262	73	2 G	160000	4393	210	18500	2 U	160000	3283	180	14000
Selenium (mg/kg)	54	39	72	0.93	14	9.3	9	13	0.45 UJ	14	7.2	8	13
Benzo(b+k)fluoranthene (ug/kg)	390	281	72	2 A	217000 A	7947	380 A	36000 A	2 A	217000 A	5790	300 UA	26000 A
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	25	18	72	0.86	50	8.8	2.4	40 J	0.5 U	50	7.1	2 U	30
1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	25	18	72	0.37	2700	162	11	48	0.17 U	2700	117	4.3	25
Total Petroleum Hydrocarbons (mg/kg)	67	48	72	9 J	640	168	100 J	640	9 J	640	142	100 U	312
Benz(a)anthracene (ug/kg)	390	279	72	0.7 G	150000	6150	230	26400	0.7 G	150000	4465	170	20000
Benzo(a)pyrene (ug/kg)	390	277	71	0.5 G	180000	5809	210	24000	0.5 G	180000	4200	170 G	18000
Benzo(k)fluoranthene (ug/kg)	358	252	70	1 G	92000	3633	170	17000	1 G	92000	2629	140	14000
Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg	202	142	70	0.2 A	51000 A	1071	20 A	2646 A	0.2 A	51000 A	755	6.7 UA	1970 A
Silver (mg/kg)	264	185	70	0.03	3.4	0.51	0.3	1.4	0.004 U	3.4	0.47	0.21	1.5
Tributyltin ion (ug/kg)	109	76	70	0.2 J	90000	3242	32	17000	0.2 J	90000	2264	11 U	12000
1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	25	17	68	0.71 J	190	47	19	150	0.2 U	5600 UJ	259	13	150
2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	25	17	68	0.51	1300	113	9.5 J	210	0.26 U	1300	77	3.8 U	160
Cadmium (mg/kg)	271	182	67	0.03	5.3	0.50	0.3	1.62	0.03	5.3	0.51	0.3 U	1.62
Pentachlorodibenzo-p-dioxin (ng/kg)	9	6	67	0.46	3.8	1.5	1.2	1.4	0.46	3.8	1.5	1.3	1.6 U
Benzo(g,h,i)perylene (ug/kg)	389	259	67	0.7 G	140000	4371	166	19100	0.7 G	140000	3276	120	15000
Indeno(1,2,3-cd)pyrene (ug/kg)	390	253	65	0.8 G	90000	4545	180	20000	0.7 U	90000	3122	118	15000
1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	25	16	64	0.32	360	69	49	150	0.2 U	18000 U	764	24	150
4,4'-DDD (ug/kg)	202	129	64	0.2	29000	591	14	1900	0.2	29000	380	3.4 U	735
Bis(2-ethylhexyl) phthalate (ug/kg)	227	139	61	10 B	16000 G	561	200 J	1780	10 U	21500 U	707	200 J	3600
Anthracene (ug/kg)	390	229	59	0.6 G	430000	10085	144 GH	36000	0.6 G	430000	6054	67	22000
Tributyltin ion (ug/l)	18	10	56	0.02	27	3.194	0.13	3.4	0.02	27	1.8	0.04 U	3.4
Naphthalene (ug/kg)	393	218	55	0.4 G	3500000 J	53113	130	57700	0.4 G	3500000 J	29596	63	17000
4,4'-DDE (ug/kg)	202	112	55	0.2 J	2800	73	4	110	0.2 J	7500 U	85	3	100
Acenaphthene (ug/kg)	390	214	55	0.7 G	1200000	21544	220	68000 J	0.7 G	1200000	11952	79.4	30000
Fluorene (ug/kg)	390	211	54	0.7 G	1100000 J	16002	190	55000	0.7 G	1100000 J	8791	68 U	24000 J
Dibutyltin ion (ug/kg)	92	49	53	0.3 J	1300 J	95	6 H	320	0.3 J	1300 J	56	4	270 U
2-Methylnaphthalene (ug/kg)	274	144	53	0.6 G	51000 JM	2165	60	12000	0.6 G	51000 JM	1239	50 U	4180
Thallium (mg/kg)	49	24	49	0.06	12	5.0	5	9	0.06	12	4.8	5 U	9
Carbazole (ug/kg)	90	44	49	0.6 J	60000	2342	93 J	2900	0.6 J	60000	1262	27 U	2400 U
Polychlorinated biphenyls (ug/kg)	211	103	49	4 A	7100 A	310	73 A	1620 A	4 A	150000 UA	969	32 UA	710 A

Table 4-4. Historical Category 1 and 2 Subsurface Sediment and Porewater Chemical Data Summary (1990-present).

		N	%	Detected Concentrations					Detected and Nondetected Concentrations				
Analyte	N	Detected	Detected	Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	25	12	48	0.3 J	11	3.4	1.2	10	0.3 J	11	2.7	1.3	9
Aroclor 1260 (ug/kg)	210	88	42	4 J	7100	183	33	490	4 J	75000 U	494	16 U	232
Butyltin ion (ug/kg)	91	38	42	0.3 J	260	29	4	140	0.3 J	270 U	17	3 U	63
Dibenzofuran (ug/kg)	299	124	41	0.5 G	32000 JM	635	45 G	1500	0.5 G	32000 JM	447	50 U	1500
Dibenz(a,h)anthracene (ug/kg)	390	158	41	0.8 GB	87000	1499	77 G	5100	0.8 GB	87000	1051	55.9	4000 U
Benzo(e)pyrene (ug/kg)	31	12	39	38	15000	2246	430	3600 M	12 U	17000 U	1505	38	3600 M
4-Methylphenol (ug/kg)	111	40	36	23	450	139	97	370	19 U	6000 U	393	100 U	1400 U
Aroclor 1254 (ug/kg)	210	75	36	4	1900	188	48	1200	4	75000 U	486	15 U	290
Dibutyltin ion (ug/l)	14	5	36	0.07 J	1.1	0.376	0.19	0.32	0.02 U	1.1	0.16	0.04 U	0.32
Acenaphthylene (ug/kg)	390	131	34	0.2 G	28000	797	31 N	3220	0.2 G	28000	507	50 U	2300
2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	25	8	32	0.62	4.3	1.9	1.2	3 J	0.1 U	8.7 U	1.7	0.78 U	4.3
4,4'-DDT (ug/kg)	202	64	32	0.2	22000	1059	40	2600	0.2	22000	347	6 J	730
Antimony (mg/kg)	216	67	31	0.03 G	8.6 J	1.1	0.2 X	5.3 J	0.02 UG	170 U	8.6	0.28 J	10.5 U
Tetrabutyltin (ug/kg)	79	21	27	0.4 J	130	20	4	44	0.4 J	270 U	12	3 U	28
Methylene chloride (ug/kg)	43	10	23	2 J	59	14	2 J	55	2 J	500 U	26	10 U	55
Acetone (ug/kg)	31	7	23	12 J	200	47	20 J	39 J	12 J	1000 U	96	50 U	200 U
Butyltin ion (ug/l)	14	3	21	0.04	0.2	0.10	0.04	0.05 J	0.02 U	0.2	0.05	0.04 U	0.05 J
Tetrabutyltin (ug/l)	14	3	21	0.05	0.2	0.13	0.05	0.15	0.02 U	0.2	0.06	0.04 U	0.15
Butylbenzyl phthalate (ug/kg)	227	45	20	2 J	260	41	19	140	2 J	6000 U	253	35 U	660 U
Dibutyl phthalate (ug/kg)	227	45	20	4.4 JB	1500	66	16	130	4.4 JB	10800 U	320	35	1000 U
3- and 4-Methylphenol Coelution (ug/kg)	107	19	18	4.8 J	360	93	33	300	4.8 J	12000 U	534	200 U	360
Diesel fuels (mg/kg)	95	16	17	40 J	12400	4053	703	11600	10 U	12400	702	25 U	6850
alpha-Hexachlorocyclohexane (ug/kg)	152	25	16	0.9 J	30	5.3	3 J	10	0.9 J	3800 U	31	2 U	10
Methylethyl ketone (ug/kg)	31	5	16	2 J	5 J	3.6	3 J	4 J	2 J	1000 U	74	20 U	200 U
o-Xylene (ug/kg)	101	15	15	0.02 J	513	35	0.09 J	4	0.008 U	513	10	5 U	10 U
Xylene (ug/kg)	14	2	14	1300	6000	3650	1300	1300	10 U	6000	696	300 U	1300
Benzoic acid (ug/kg)	178	25	14	8.7 J	2600	438	380	860	8.7 J	45000 U	2019	250 U	10800 U
Ethylbenzene (ug/kg)	115	14	12	0.05 J	6200	555	0.36	1300	0.009 U	6200	93	5 U	300 U
m,p-Xylene (ug/kg)	101	12	12	0.03 J	740	63	0.1 J	5.1	0.02 U	740	12	5 U	10 U
gamma-Hexachlorocyclohexane (ug/kg)	168	19	11	0.2 J	360	70	10	300	0.2 J	3800 U	39	2 U	45.9
Aldrin (ug/kg)	168	15	8.9	0.2 J	9 J	4.9	5 J	9 J	0.2 J	3800 U	52	2 U	40 U
Natural gasoline (mg/kg)	25	2	8.0	44	110	77	44	44	10 U	110	17	10 U	20 U
p-Cymene (ug/kg)	27	2	7.4	6 J	253	130	6 J	6 J	6 J	253	30	20 U	28 U
Benzene (ug/kg)	115	8	7.0	0.03 J	1800	226	0.04 J	6.4	0.01 U	1800	45	5 U	300 U
Heavy oil (mg/kg)	87	6	6.9	100 G	910	353	280	380	25 U	910	104	100 U	300 U
Phenol (ug/kg)	224	15	6.7	4.9 J	300	36	9 J	52	4.9 J	6000 U	296	50 U	1000 U
Endrin (ug/kg)	164	9	5.5	0.5 J	10	3.8	0.8 J	9 J	0.5 J	7500 U	60	2 U	43.3 U
Endrin aldehyde (ug/kg)	164	9	5.5	0.5 J	6	2.4	0.9 J	5.6	0.5 J	7500 U	61	2 U	60 U
Pentachlorophenol (ug/kg)	274	15	5.5	3.2 J	1700	158	19	200 J	2.4 U	45000 U	1374	142 U	7080 U
Toluene (ug/kg)	115	6	5.2	0.03 J	66	15	0.07 J	21	0.01 U	300 U	32	5 U	300 U
1,3,5-Trimethylbenzene (ug/kg)	39	2	5.1	5 J	630	318	5 J	5 J	5 J	630	44	20 U	45 U
n-Butylbenzene (ug/kg)	39	2	5.1	5 J	3190	1598	5 J	5 J	5 J	3190	109	20 U	45 U
Pseudocumene (ug/kg)	39	2	5.1	14 J	2210	1112	14 J	14 J	14 J	2210	84	20 U	45 U
Sec-butylbenzene (ug/kg)	39	2	5.1	3 J	1640	822	3 J	3 J	3 J	1640	70	20 U	45 U

Table 4-4. Historical Category 1 and 2 Subsurface Sediment and Porewater Chemical Data Summary (1990-present).

		N	%	Detected Concentrations					Detected and Nondetected Concentrations				
Analyte	N	Detected	Detected	Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Heptachlor epoxide (ug/kg)	164	8	4.9	2 J	10	6.6	7 J	10	0.94 U	3800 U	34	2 U	40 U
Chlorobenzene (ug/kg)	43	2	4.7	1900	18000	9950	1900	1900	5 U	18000	471	5 U	11 U
delta-Hexachlorocyclohexane (ug/kg)	164	7	4.3	0.14 J	8 J	3.7	2 J	6 J	0.14 J	3800 UJ	32	2 U	25 U
Dieldrin (ug/kg)	168	7	4.2	0.4	13	3.7	2	3.8	0.4	7500 U	58	2 U	48 U
Di-n-octyl phthalate (ug/kg)	227	9	4.0	11	3180	480	18	851	10 U	12000 U	327	45.4	1000 U
Lube Oil (mg/kg)	76	3	3.9	79	200	140	79	140	25 U	200	68	100 U	100 U
Benzyl alcohol (ug/kg)	182	7	3.8	5.5 JN	9.4 JN	7.6	7.3 J	9 J	5.5 JN	6000 U	246	30 UG	1200 U
Hexachloroethane (ug/kg)	158	6	3.8	31	20000	3407	95	160	10 U	20000	439	50 U	1000 U
Diethyl phthalate (ug/kg)	227	8	3.5	3 J	16.3 J	8.7	5 J	16 J	3 J	6000 U	252	20 U	910 U
Dimethyl phthalate (ug/kg)	227	8	3.5	0.5 J	99 G	24	10 G	59 N	0.5 J	6000 U	250	20 U	660 U
Tetrachloroethene (ug/kg)	61	2	3.3	8	19	14	8	8	5 U	100 U	8.7	5 U	11 U
2,3,4,6-Tetrachlorophenol (ug/kg)	32	1	3.1	26	26	26	26	26	2.4 U	6100 U	364	66 UJ	700 U
beta-Endosulfan (ug/kg)	164	5	3.0	1 J	30	9.2	2 J	7 J	1 U	7500 U	60	2 U	50 U
Heptachlor (ug/kg)	168	5	3.0	0.34 J	6 J	3.7	2 J	5 J	0.34 J	3800 U	31	2 U	25 U
Aroclor 1242 (ug/kg)	210	6	2.9	7	69 J	33	26	43	7	75000 U	424	10 U	100 U
Gasoline (mg/kg)	37	1	2.7	40 J	40 J	40	40 J	40 J	10 U	100 U	22	10 UJ	69 U
Isopropylbenzene (ug/kg)	39	1	2.6	588	588	588	588	588	20 U	588	43	20 U	45 U
n-Propylbenzene (ug/kg)	39	1	2.6	1840	1840	1840	1840	1840	20 U	1840	75	20 U	45 U
tert-Butylbenzene (ug/kg)	39	1	2.6	128	128	128	128	128	20 U	200 U	31	20 U	45 U
1,2,4-Trichlorobenzene (ug/kg)	157	4	2.5	12	530	156	40 G	41	5 U	6000 U	132	20 U	300 U
Hexachlorobenzene (ug/kg)	213	4	1.9	25	14000	3897	61	1500	9.7 U	35000 U	571	24 U	2400 U
Hexachlorobutadiene (ug/kg)	216	4	1.9	19	34000	15019	57	26000	9.7 U	87000 UJ	1175	39 U	4000 U
alpha-Endosulfan (ug/kg)	164	3	1.8	0.5 J	6 J	2.5	0.5 J	1 J	0.5 J	3800 U	33	2 U	40 U
Methoxychlor (ug/kg)	164	3	1.8	1 J	2	1.3	1 J	1 J	1 J	38000 U	281	5 U	200 U
1,4-Dichlorobenzene (ug/kg)	173	3	1.7	5.8 J	23	12	5.8 J	6	1 U	910 U	65	15 U	300 U
Non-petroleum hydrocarbons (mg/kg)	67	1	1.5	8 J	8 J	8	8 J	8 J	8 J	100 U	73	50 U	100 U
gamma-Chlordane (ug/kg)	72	1	1.4	0.2 J	0.2 J	0.2	0.2 J	0.2 J	0.2 J	3800 U	69	2 U	40 U
2-Chlorophenol (ug/kg)	158	2	1.3	51	93	72	51	51	12 U	6000 U	211	50 U	330 U
Endosulfan sulfate (ug/kg)	164	2	1.2	0.2 J	0.5 J	0.35	0.2 J	0.2 J	0.2 J	7500 UJ	60	2 U	50 U
Chlordane (cis & trans) (ug/kg)	92	1	1.1	47	47	47	47	47	10 U	1000 U	105	17 U	500 U
2,4,5-Trichlorophenol (ug/kg)	189	2	1.1	35	73	54	35	35	2.4 U	12000 U	342	98 U	970 U
2,4,6-Trichlorophenol (ug/kg)	189	2	1.1	57	100	79	57	57	2.4 U	6100 U	275	88 U	650 U
4-Chloroaniline (ug/kg)	116	1	0.86	4 J	4 J	4	4 J	4 J	4 J	21500 U	584	74 U	2000 U
Isophorone (ug/kg)	116	1	0.86	43	43	43	43	43	9.7 U	6000 U	239	35 U	500 U
2,4-Dinitrophenol (ug/kg)	149	1	0.67	18 J	18 J	18	18 J	18 J	12 U	45000 U	1264	300 U	2000 U
4-Nitrophenol (ug/kg)	156	1	0.64	600 J	600 J	600	600 J	600 J	12 U	45000 U	1049	100 UG	2000 U
beta-Hexachlorocyclohexane (ug/kg)	164	1	0.61	1 J	1 J	1	1 J	1 J	0.94 U	3800 U	33	2 U	30 U
N-Nitrosodiphenylamine (ug/kg)	182	1	0.55	3800 M	3800 M	3800	3800 M	3800 M	9.7 U	6000 U	262	20 U	660 U
2,4-Dichlorophenol (ug/kg)	187	1	0.53	140	140	140	140	140	12 U	26000 UJ	592	100 UG	1400 U
Aroclor 1232 (ug/kg)	210	1	0.48	10	10	10	10	10	10 U	75000 U	423	10 U	100 U
Aroclor 1248 (ug/kg)	210	1	0.48	1420	1420	1420	1420	1420	10 U	75000 U	430	10 U	144 U
2,4-Dimethylphenol (ug/kg)	224	0	0						6 U	12000 U	377	20 U	1000 U
2-Methylphenol (ug/kg)	224	0	0						6 U	12000 U	292	100 U	910 U
Aroclor 1016 (ug/kg)	210	0	0						10 U	75000 U	423	10 U	100 U

Table 4-4. Historical Category 1 and 2 Subsurface Sediment and Porewater Chemical Data Summary (1990-present).

		N	%	Detected Concentrations					Detected and Nondetected Concentrations				
Analyte	N	Detected	Detected	Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Aroclor 1221 (ug/kg)	210	0	0						10 U	150000 U	834	20 U	200 U
1,2-Dichlorobenzene (ug/kg)	173	0	0						1 U	910 U	65	15 U	300 U
1,3-Dichlorobenzene (ug/kg)	173	0	0						1 U	910 U	65	15 U	300 U
Toxaphene (ug/kg)	164	0	0						30 U	380000 U	3608	98 UJ	4000 U
4,6-Dinitro-2-methylphenol (ug/kg)	158	0	0						12 U	45000 U	1186	190 UJ	2000 U
4-Chloro-3-methylphenol (ug/kg)	158	0	0						12 U	6000 U	226	50 U	390 U
2-Nitrophenol (ug/kg)	146	0	0						12 U	6000 U	279	97 U	530 U
2,4-Dinitrotoluene (ug/kg)	116	0	0						12 U	21500 U	612	99 U	2000 U
2,6-Dinitrotoluene (ug/kg)	116	0	0						10 U	6000 U	347	99 U	970 U
2-Chloronaphthalene (ug/kg)	116	0	0						2.8 U	6000 U	237	35 U	500 U
2-Nitroaniline (ug/kg)	116	0	0						10 U	45000 U	1313	170 U	2000 U
3,3'-Dichlorobenzidine (ug/kg)	116	0	0						12 U	45000 U	1395	200 U	2000 U
3-Nitroaniline (ug/kg)	116	0	0						12 U	45000 U	1568	280 U	3000 U
4-Bromophenyl phenyl ether (ug/kg)	116	0	0						9.7 U	6000 U	241	35 U	500 U
4-Chlorophenyl phenyl ether (ug/kg)	116	0	0						9.7 U	6000 U	239	35 U	500 U
4-Nitroaniline (ug/kg)	116	0	0						10 U	45000 U	1360	170 U	2000 U
Bis(2-chloroethoxy) methane (ug/kg)	116	0	0						10 U	6000 U	245	35 U	500 U
Bis(2-chloroethyl) ether (ug/kg)	116	0	0						9.7 U	6000 U	257	50 U	500 U
Nitrobenzene (ug/kg)	116	0	0						9.7 U	6000 U	241	35 U	500 U
N-Nitrosodipropylamine (ug/kg)	116	0	0						9.7 U	6000 U	262	50 U	590 U
Hexachlorocyclopentadiene (ug/kg)	107	0	0						12 U	12000 U	583	300 U	1000 U
Endrin ketone (ug/kg)	91	0	0						1.9 U	7500 UJ	103	2.8 U	40 U
Trichloroethene (ug/kg)	87	0	0						4 U	100 U	7.5	5 U	10 U
alpha-Chlordane (ug/kg)	76	0	0						0.94 U	3800 UJ	67	2 U	43.3 U
Jet fuel A (mg/kg)	68	0	0						10 U	25 U	17	10 UJ	25 U
Kerosene (mg/kg)	68	0	0						10 U	25 U	17	10 U	25 U
Mineral spirits (mg/kg)	68	0	0						10 U	25 U	17	10 U	25 U
Bis(2-chloro-1-methylethyl) ether (ug/kg)	67	0	0						10 U	6000 U	144	19 U	300 U
Bis(2-chloroisopropyl) ether (ug/kg)	49	0	0						9.7 U	3550 U	395	300 U	660 U
Aniline (ug/kg)	44	0	0						50 U	20000 U	1390	1000 U	1000 U
1,1,1-Trichloroethane (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
1,1,2,2-Tetrachloroethane (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
1,1,2-Trichloroethane (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
1,1-Dichloroethane (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
1,2-Dichloroethane (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
1,2-Dichloropropane (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
Bromodichloromethane (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
Bromoform (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
Bromomethane (ug/kg)	43	0	0						5 U	500 U	20	5 UJ	20 U
Carbon disulfide (ug/kg)	43	0	0						5 U	1000 U	48.2	5 U	200 U
Carbon tetrachloride (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
Chlorodibromomethane (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
Chloroethane (ug/kg)	43	0	0						5 U	100 U	11	5 U	20 U
Chloroform (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U

Table 4-4. Historical Category 1 and 2 Subsurface Sediment and Porewater Chemical Data Summary (1990-present).

		N	%	Detected Concentrations					Detected and Nondetected Concentrations				
Analyte	N	Detected	Detected	Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Chloromethane (ug/kg)	43	0	0						5 U	500 U	20	5 UJ	20 U
cis-1,2-Dichloroethene (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
cis-1,3-Dichloropropene (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
Methyl N-butyl ketone (ug/kg)	43	0	0						20 U	1000 U	58	20 U	100 U
Styrene (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
trans-1,2-Dichloroethene (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
trans-1,3-Dichloropropene (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
Trichlorofluoromethane (ug/kg)	43	0	0						5 U	100 U	11	5 UJ	20 U
Vinyl chloride (ug/kg)	43	0	0						5 U	100 U	11	5 U	20 U
Vinylidene chloride (ug/kg)	43	0	0						5 U	100 U	9.6	5 U	11 U
N-Nitrosodimethylamine (ug/kg)	41	0	0						2000 U	45000 U	3073	2000 U	2000 U
1,1,1,2-Tetrachloroethane (ug/kg)	39	0	0						5 U	100 U	9.6	5 U	11 U
1,1-Dichloropropene (ug/kg)	39	0	0						5 U	100 U	9.6	5 U	11 U
1,2,3-Trichlorobenzene (ug/kg)	39	0	0						20 U	200 U	30	20 U	45 U
1,2,3-Trichloropropane (ug/kg)	39	0	0						5 U	100 U	9.6	5 U	11 U
1,2-Dibromo-3-chloropropane (ug/kg)	39	0	0						20 U	500 U	41	20 U	45 U
1,3-Dichloropropane (ug/kg)	39	0	0						5 U	100 U	9.6	5 U	11 U
2,2-Dichloropropane (ug/kg)	39	0	0						5 U	100 U	9.6	5 U	11 U
2-Chlorotoluene (ug/kg)	39	0	0						20 U	200 U	30	20 U	45 U
4-Chlorotoluene (ug/kg)	39	0	0						20 U	200 U	30	20 U	45 U
Bromobenzene (ug/kg)	39	0	0						5 U	100 U	9.6	5 U	11 U
Bromochloromethane (ug/kg)	39	0	0						5 U	100 U	9.6	5 U	11 U
Dichlorodifluoromethane (ug/kg)	39	0	0						5 U	500 U	20	5 UJ	11 UG
Ethylene dibromide (ug/kg)	39	0	0						20 U	200 U	30	20 U	45 U
Methylene bromide (ug/kg)	39	0	0						5 U	100 U	9.6	5 U	11 U
JP-4 jet fuel (mg/kg)	35	0	0						10 U	10 UJ	10	10 U	10 UJ
Naphtha distillate (mg/kg)	35	0	0						10 U	10 UJ	10	10 UJ	10 UJ
Anthanthrene (ug/kg)	31	0	0						59 U	87000 U	4027	88 U	8600 U
2,3,4,5-Tetrachlorophenol (ug/kg)	31	0	0						2.4 U	6100 U	375	66 UJ	700 U
Methyl isobutyl ketone (ug/kg)	31	0	0						20 U	500 U	47	20 U	100 U
2,6-Dichlorophenol (ug/kg)	30	0	0						120 U	26000 U	2252	140 U	12000 U
Cymene (ug/kg)	12	0	0						20 U	200 U	43	20 U	45 U
Hexachlorocyclohexanes (ug/kg)	12	0	0						10 U	400 U	51	10 U	40 U
2,4,5-T (ug/kg)	11	0	0						14 U	21 U	17	17 U	19 U
2,4-D (ug/kg)	11	0	0						14 U	21 U	17	17 U	19 U
2,4-DB (ug/kg)	11	0	0						14 U	21 U	17	17 U	19 U
Dalapon (ug/kg)	11	0	0						69 U	110 U	88	86 U	96 U
Dicamba (ug/kg)	11	0	0						27 U	42 U	35	34 U	38 U
Dichloroprop (ug/kg)	11	0	0						14 U	21 U	17	17 U	19 U
Dinoseb (ug/kg)	11	0	0						14 U	21 U	17	17 U	19 U
MCPA (ug/kg)	11	0	0						14 U	21 U	17	17 U	19 U
MCPP (ug/kg)	11	0	0						14 U	21 U	17	17 U	19 U
Silvex (ug/kg)	11	0	0						14 U	21 U	17	17 U	19 U
2-Chloroethyl vinyl ether (ug/kg)	4	0	0						20 U	20 U	20	20 U	20 U

Table 4-4. Historical Category 1 and 2 Subsurface Sediment and Porewater Chemical Data Summary (1990-present).

		N	%	Detected Concentrations					Detected and Nondetected Concentrations				
Analyte	N	Detected	Detected	Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
Chlordane (technical) (ug/kg)	4	0	0						150 U	968 U	430	150 U	450 U
trans-Chlordane (ug/kg)	4	0	0						6.7 U	43.3 U	19	6.7 U	20.1 U
Trichlorotrifluoroethane (ug/kg)	4	0	0						20 U	20 U	20	20 U	20 U
Vinyl acetate (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
Benzidine (ug/kg)	3	0	0						250 U	250 UG	250	250 U	250 U
Phytane (mg/kg)	3	0	0						0.5 U	0.5 U	0.5	0.5 U	0.5 U
Pristane (mg/kg)	3	0	0						0.5 U	0.5 U	0.5	0.5 U	0.5 U
Methyl tert-butyl ether (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U

Notes:
A - Detected quantities of analytes added together as defined in WAC 173-204-320 for LPAH and HPAH, as in DMMO 2000 for DDT, and for all Aroclors or congeners for PCB.
B - Possible method blank contamination.
E - Estimate, usually applied because the value exceeded the instrument calibration range.
G - Estimate is greater than value shown.
H - Holding time exceeded.
J - Estimate, usually applied because the value is less than the method reporting limit but greater than the method detection limit, or for QA/QC concerns.
L - Value is less than the maximum shown.
N - Presumptive evidence of presence of material.
U - Not detected at detection limit shown.
X - Recovery less than 10%.
No samples that have been dredged are included in the statistical summary.

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
1	2-Methylnaphthalene (ug/kg)	2	2	100	1 GB	2 GB	1.5	1 GB	1 GB	1 GB	2 GB	1.5	1 GB	1 GB
1	Acenaphthene (ug/kg)	2	2	100	0.9 G	1 G	0.95	0.9 G	0.9 G	0.9 G	1 G	0.95	0.9 G	0.9 G
1	Acenaphthylene (ug/kg)	2	2	100	1 G	2 G	1.5	1 G	1 G	1 G	2 G	1.5	1 G	1 G
1	Anthracene (ug/kg)	2	2	100	1 G	1 G	1	1 G	1 G	1 G	1 G	1	1 G	1 G
1	Arsenic (mg/kg)	2	2	100	1 E	1.2 E	1.1	1 E	1 E	1 E	1.2 E	1.1	1 E	1 E
1	Benz(a)anthracene (ug/kg)	2	2	100	3 G	4 G	3.5	3 G	3 G	3 G	4 G	3.5	3 G	3 G
1	Benzo(a)pyrene (ug/kg)	2	2	100	9 G	11 G	10	9 G	9 G	9 G	11 G	10	9 G	9 G
1	Benzo(b)fluoranthene (ug/kg)	2	2	100	7 G	7 G	7	7 G	7 G	7 G	7 G	7	7 G	7 G
1	Benzo(b+k)fluoranthene (ug/kg)	2	2	100	13 A	14 A	13.5	13 A	13 A	13 A	14 A	13.5	13 A	13 A
1	Benzo(g,h,i)perylene (ug/kg)	2	2	100	9 GB	12 GB	10.5	9 GB	9 GB	9 GB	12 GB	10.5	9 GB	9 GB
1	Benzo(k)fluoranthene (ug/kg)	2	2	100	6 G	7 G	6.5	6 G	6 G	6 G	7 G	6.5	6 G	6 G
1	Cadmium (mg/kg)	2	2	100	0.19	0.21	0.2	0.19	0.19	0.19	0.21	0.2	0.19	0.19
1	Chromium (mg/kg)	2	2	100	10.5	11.9	11.2	10.5	10.5	10.5	11.9	11.2	10.5	10.5
1	Chrysene (ug/kg)	2	2	100	3 G	5 G	4	3 G	3 G	3 G	5 G	4	3 G	3 G
1	Copper (mg/kg)	2	2	100	8	8.8	8.4	8	8	8	8.8	8.4	8	8
1	Dibenz(a,h)anthracene (ug/kg)	2	2	100	3 GB	3 GB	3	3 GB	3 GB	3 GB	3 GB	3	3 GB	3 GB
1	Fines (%)	2	2	100	5.2	7.4	6.3	5.2	5.2	5.2	7.4	6.3	5.2	5.2
1	Fluoranthene (ug/kg)	2	2	100	4 G	10 G	7	4 G	4 G	4 G	10 G	7	4 G	4 G
1	Fluorene (ug/kg)	2	2	100	0.7 G	1 G	0.85	0.7 G	0.7 G	0.7 G	1 G	0.85	0.7 G	0.7 G
1	Gravel (%)	2	2	100	9.3	13.7	11.5	9.3	9.3	9.3	13.7	11.5	9.3	9.3
1	High Molecular Weight PAH (ug/kg)	2	2	100	66 A	71 A	68.5	66 A	66 A	66 A	71 A	68.5	66 A	66 A
1	Indeno(1,2,3-cd)pyrene (ug/kg)	2	2	100	8 GB	12 GB	10	8 GB	8 GB	8 GB	12 GB	10	8 GB	8 GB
1	Lead (mg/kg)	2	2	100	5	5.3	5.15	5	5	5	5.3	5.15	5	5
1	Low Molecular Weight PAH (ug/kg)	2	2	100	10.9 A	11.7 A	11.3	10.9 A	10.9 A	10.9 A	11.7 A	11.3	10.9 A	10.9 A
1	Mean grain size (mm)	2	2	100	0.47	0.64	0.555	0.47	0.47	0.47	0.64	0.555	0.47	0.47
1	Median grain size (mm)	2	2	100	0.28	0.3	0.29	0.28	0.28	0.28	0.3	0.29	0.28	0.28
1	Mercury (mg/kg)	2	2	100	0.02	0.03	0.025	0.02	0.02	0.02	0.03	0.025	0.02	0.02
1	Naphthalene (ug/kg)	2	2	100	1 GB	1 GB	1	1 GB	1 GB	1 GB	1 GB	1	1 GB	1 GB
1	Nickel (mg/kg)	2	2	100	9	9.4	9.2	9	9	9	9.4	9.2	9	9
1	Phenanthrene (ug/kg)	2	2	100	4 GB	5 G	4.5	4 GB	4 GB	4 GB	5 G	4.5	4 GB	4 GB
1	Polycyclic Aromatic Hydrocarbons (ug/kg)	2	2	100	76.9 A	82.7 A	79.8	76.9 A	76.9 A	76.9 A	82.7 A	79.8	76.9 A	76.9 A
1	Pyrene (ug/kg)	2	2	100	5 G	9 G	7	5 G	5 G	5 G	9 G	7	5 G	5 G
1	Sand (%)	2	2	100	79.8	85.5	82.65	79.8	79.8	79.8	85.5	82.65	79.8	79.8
1	Silt (%)	2	2	100	5.2	7.4	6.3	5.2	5.2	5.2	7.4	6.3	5.2	5.2
1	Silver (mg/kg)	2	2	100	0.04	0.05	0.045	0.04	0.04	0.04	0.05	0.045	0.04	0.04
1	Total organic carbon (%)	2	2	100	0.13	0.16	0.145	0.13	0.13	0.13	0.16	0.145	0.13	0.13
1	Total solids (%)	2	2	100	73	75.1	74.05	73	73	73	75.1	74.05	73	73
1	Total volatile solids (%)	2	2	100	0.8	0.9	0.85	0.8	0.8	0.8	0.9	0.85	0.8	0.8
1	Zinc (mg/kg)	2	2	100	51	52.6	51.8	51	51	51	52.6	51.8	51	51
1	4,4'-DDD (ug/kg)	2	1	50	0.2	0.2	0.2	0.2	0.2	0.2	2 U	1.1	0.2	0.2
1	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	2	1	50	0.2 A	0.2 A	0.2	0.2 A	0.2 A	0.2 A	2 UA	1.1	0.2 A	0.2 A
1	4,4'-DDE (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
1	4,4'-DDT (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
1	Acid Volatile Sulfides (mg/kg)	2	0	0						0.7 U	0.7 U	0.7	0.7 U	0.7 U
1	Aroclor 1016 (ug/kg)	2	0	0						10 U	10 UG	10	10 U	10 U
1	Aroclor 1221 (ug/kg)	2	0	0						10 U	10 UG	10	10 U	10 U
1	Aroclor 1232 (ug/kg)	2	0	0						10 U	10 UG	10	10 U	10 U
1	Aroclor 1242 (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
1	Aroclor 1248 (ug/kg)	2	0	0						10 U	10 UG	10	10 U	10 U
1	Aroclor 1254 (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
1	Aroclor 1260 (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
1	Clay (%)	2	0	0						0.1 U	0.1 U	0.1	0.1 U	0.1 U
1	Dibenzofuran (ug/kg)	2	0	0						5 UG	5 UG	5	5 UG	5 UG
1	Polychlorinated biphenyls (ug/kg)	2	0	0						10 UA	10 UA	10	10 UA	10 UA
1	Tributyltin ion (ug/l)	2	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
1	Aldrin (ug/kg)	2	0	0						2 UG	2 U	2	2 UG	2 UG
1	alpha-Endosulfan (ug/kg)	2	0	0						2 UG	2 U	2	2 UG	2 UG
1	alpha-Hexachlorocyclohexane (ug/kg)	2	0	0						2 UG	2 U	2	2 UG	2 UG
1	beta-Endosulfan (ug/kg)	2	0	0						2 UG	2 U	2	2 UG	2 UG
1	beta-Hexachlorocyclohexane (ug/kg)	2	0	0						2 UG	2 U	2	2 UG	2 UG
1	Chlordane (cis & trans) (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
1	delta-Hexachlorocyclohexane (ug/kg)	2	0	0						2 U	2 UG	2	2 U	2 U
1	Dieldrin (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
1	Endosulfan sulfate (ug/kg)	2	0	0						2 U	2 UG	2	2 U	2 U
1	Endrin (ug/kg)	2	0	0						2 U	2 UG	2	2 U	2 U
1	Endrin aldehyde (ug/kg)	2	0	0						2 U	2 UG	2	2 U	2 U
1	gamma-Hexachlorocyclohexane (ug/kg)	2	0	0						2 U	2 UG	2	2 U	2 U
1	Heptachlor (ug/kg)	2	0	0						2 U	2 UG	2	2 U	2 U
1	Heptachlor epoxide (ug/kg)	2	0	0						2 U	2 UG	2	2 U	2 U
1	Methoxychlor (ug/kg)	2	0	0						4 U	4 UG	4	4 U	4 U
1	Toxaphene (ug/kg)	2	0	0						30 U	30 UG	30	30 U	30 U
2	Arsenic (mg/kg)	3	3	100	0.6 E	2.5 E	1.8	0.6 E	2.2	0.6 E	2.5 E	1.8	0.6 E	2.2
2	Chromium (mg/kg)	3	3	100	21.7 J	28.9	26.1	21.7 J	27.6	21.7 J	28.9	26.1	21.7 J	27.6
2	Clay (%)	3	3	100	0.25	4.7	2.8	0.25	3.4	0.25	4.7	2.8	0.25	3.4
2	Copper (mg/kg)	3	3	100	12.8	30.4	23.8	12.8	28.2	12.8	30.4	23.8	12.8	28.2
2	Nickel (mg/kg)	3	3	100	12.5	20.9	17.7	12.5	19.7	12.5	20.9	17.7	12.5	19.7
2	Polychlorinated biphenyls (ug/kg)	3	3	100	5 A	140 A	50.7	5 A	7 A	5 A	140 A	50.7	5 A	7 A
2	Silt (%)	3	3	100	7.15	70.6	48.75	7.15	68.5	7.15	70.6	48.75	7.15	68.5
2	Total organic carbon (%)	3	3	100	0.16	1.33	0.90	0.16	1.2	0.16	1.33	0.90	0.16	1.2
2	Total solids (%)	3	3	100	51.5	95.2	67.0	51.5	54.2	51.5	95.2	67.0	51.5	54.2
2	Zinc (mg/kg)	3	3	100	68.9	139	107.6	68.9	115	68.9	139	108	68.9	115
2	4,4'-DDD (ug/kg)	2	2	100	1	1	1	1	1	1	1	1	1	1
2	4,4'-DDE (ug/kg)	2	2	100	2	2	2	2	2	2	2	2	2	2
2	Acid Volatile Sulfides (mg/kg)	2	2	100	14.8	65	39.9	14.8	14.8	14.8	65	39.9	14.8	14.8
2	Fines (%)	2	2	100	71.9	75.3	73.6	71.9	71.9	71.9	75.3	73.6	71.9	71.9
2	Gravel (%)	2	2	100	0.1	35.4	17.75	0.1	0.1	0.1	35.4	17.75	0.1	0.1
2	Mean grain size (mm)	2	2	100	0.04	0.07	0.055	0.04	0.04	0.04	0.07	0.055	0.04	0.04
2	Median grain size (mm)	2	2	100	0.03	0.04	0.035	0.03	0.03	0.03	0.04	0.035	0.03	0.03
2	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	2	2	100	3 A	3 A	3	3 A	3 A	3 A	3 A	3	3 A	3 A
2	Total volatile solids (%)	2	2	100	3.6	4.2	3.9	3.6	3.6	3.6	4.2	3.9	3.6	3.6
2	Aldrin (ug/kg)	2	2	100	0.4 J	0.4 J	0.4	0.4 J	0.4 J	0.4 J	0.4 J	0.4	0.4 J	0.4 J
2	Coarse sand (%)	1	1	100	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
2	Fine sand (%)	1	1	100	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2	Medium sand (%)	1	1	100	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9
2	Sand (%)	1	1	100	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6
2	Very coarse sand (%)	1	1	100	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47	6.47

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
2	Very fine sand (%)	1	1	100	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
2	2-Methylnaphthalene (ug/kg)	3	2	67	3 GB	6 GB	4.5	3 GB	3 GB	3 GB	9.9 U	6.3	3 GB	6 GB
2	Acenaphthene (ug/kg)	3	2	67	2 G	6 G	4	2 G	2 G	2 G	9.9 U	6.0	2 G	6 G
2	Acenaphthylene (ug/kg)	3	2	67	3 G	5 G	4	3 G	3 G	3 G	9.9 U	6.0	3 G	5 G
2	Anthracene (ug/kg)	3	2	67	6 G	11 G	8.5	6 G	6 G	6 G	11 G	9.0	6 G	9.9 U
2	Aroclor 1260 (ug/kg)	3	2	67	5	7	6	5	5	5	100 U	37.3	5	7
2	Benz(a)anthracene (ug/kg)	3	2	67	14 G	42 G	28	14 G	14 G	9.9 U	42 G	22.0	9.9 U	14 G
2	Benzo(a)pyrene (ug/kg)	3	2	67	36 G	109 G	72.5	36 G	36 G	9.9 U	109 G	51.6	9.9 U	36 G
2	Benzo(b)fluoranthene (ug/kg)	3	2	67	25 G	84 G	54.5	25 G	25 G	9.9 U	84 G	39.6	9.9 U	25 G
2	Benzo(b+k)fluoranthene (ug/kg)	3	2	67	50 A	163 A	106.5	50 A	50 A	9.9 UA	163 A	74.3	9.9 UA	50 A
2	Benzo(g,h,i)perylene (ug/kg)	3	2	67	33 G	91 G	62	33 G	33 G	20 U	91 G	48	20 U	33 G
2	Benzo(k)fluoranthene (ug/kg)	3	2	67	25 G	79 G	52	25 G	25 G	9.9 U	79 G	38.0	9.9 U	25 G
2	Cadmium (mg/kg)	3	2	67	0.65	0.93	0.79	0.65	0.65	0.65	1.02 U	0.87	0.65	0.93
2	Chrysene (ug/kg)	3	2	67	17 G	49 G	33	17 G	17 G	9.9 U	49 G	25.3	9.9 U	17 G
2	Dibenz(a,h)anthracene (ug/kg)	3	2	67	8 GB	22 G	15	8 GB	8 GB	8 GB	22 G	16.7	8 GB	20 U
2	Dibenzofuran (ug/kg)	3	2	67	0.9 G	3 G	1.95	0.9 G	0.9 G	0.9 G	9.9 U	4.6	0.9 G	3 G
2	Fluoranthene (ug/kg)	3	2	67	23 G	73 G	48	23 G	23 G	9.9 U	73 G	35.3	9.9 U	23 G
2	Fluorene (ug/kg)	3	2	67	3 G	6 G	4.5	3 G	3 G	3 G	9.9 U	6.3	3 G	6 G
2	High Molecular Weight PAH (ug/kg)	3	2	67	240 A	713 A	476.5	240 A	240 A	20 UA	713 A	324	20 UA	240 A
2	Indeno(1,2,3-cd)pyrene (ug/kg)	3	2	67	33 G	97 G	65	33 G	33 G	20 U	97 G	50	20 U	33 G
2	Lead (mg/kg)	3	2	67	15.9	19.6	17.75	15.9	15.9	15.9	20.4 U	18.6	15.9	19.6
2	Low Molecular Weight PAH (ug/kg)	3	2	67	33 A	80 A	56.5	33 A	33 A	9.9 UA	80 A	41.0	9.9 UA	33 A
2	Mercury (mg/kg)	3	2	67	0.06	0.08	0.07	0.06	0.06	0.02 U	0.08	0.05	0.02 U	0.06
2	Naphthalene (ug/kg)	3	2	67	2 GB	8 GB	5	2 GB	2 GB	2 GB	9.9 U	6.6	2 GB	8 GB
2	Phenanthrene (ug/kg)	3	2	67	14 G	38 G	26	14 G	14 G	9.9 U	38 G	20.6	9.9 U	14 G
2	Polycyclic Aromatic Hydrocarbons (ug/kg)	3	2	67	273 A	793 A	533	273 A	273 A	20 UA	793 A	362	20 UA	273 A
2	Pyrene (ug/kg)	3	2	67	26 G	67 G	46.5	26 G	26 G	9.9 U	67 G	34.3	9.9 U	26 G
2	Silver (mg/kg)	3	2	67	0.16	0.21	0.185	0.16	0.16	0.16	2.04 U	0.80	0.16	0.21
2	beta-Hexachlorocyclohexane (ug/kg)	2	1	50	0.4 J	0.4 J	0.4	0.4 J	0.4 J	0.4 J	2 U	1.2	0.4 J	0.4 J
2	Aroclor 1248 (ug/kg)	3	1	33	140	140	140	140	140	10 U	140	53	10 U	10 U
2	Aroclor 1016 (ug/kg)	3	0	0						10 U	100 U	40	10 U	10 U
2	Aroclor 1221 (ug/kg)	3	0	0						10 U	200 U	73	10 U	10 U
2	Aroclor 1232 (ug/kg)	3	0	0						10 U	100 U	40	10 U	10 U
2	Aroclor 1242 (ug/kg)	3	0	0						10 U	100 U	40	10 U	10 U
2	Aroclor 1254 (ug/kg)	3	0	0						10 U	100 U	40	10 U	10 U
2	4,4'-DDT (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	Tributyltin ion (ug/l)	2	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
2	alpha-Endosulfan (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	alpha-Hexachlorocyclohexane (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	beta-Endosulfan (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	Chlordane (cis & trans) (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
2	delta-Hexachlorocyclohexane (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	Dieldrin (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	Endosulfan sulfate (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	Endrin (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	Endrin aldehyde (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	gamma-Hexachlorocyclohexane (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	Heptachlor (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
2	Heptachlor epoxide (ug/kg)	2	0	0						2 U	2 U	2	2 U	2 U
2	Methoxychlor (ug/kg)	2	0	0						4 U	4 U	4	4 U	4 U
2	Toxaphene (ug/kg)	2	0	0						30 U	30 U	30	30 U	30 U
2	2,4-Dinitrotoluene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
2	2,6-Dinitrotoluene (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
2	2-Chloronaphthalene (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	2-Nitroaniline (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
2	3,3'-Dichlorobenzidine (ug/kg)	1	0	0						70 UJ	70 UJ	70	70 UJ	70 UJ
2	3-Nitroaniline (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
2	4-Bromophenyl phenyl ether (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	4-Chloroaniline (ug/kg)	1	0	0						50 UJ	50 UJ	50	50 UJ	50 UJ
2	4-Chlorophenyl phenyl ether (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	4-Nitroaniline (ug/kg)	1	0	0						99 U	99 U	99	99 U	99 U
2	Antimony (mg/kg)	1	0	0						10.2 U	10.2 U	10.2	10.2 U	10.2 U
2	Benzoic acid (ug/kg)	1	0	0						400 U	400 U	400	400 U	400 U
2	Benzyl alcohol (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
2	Beryllium (mg/kg)	1	0	0						1.02 U	1.02 U	1.02	1.02 U	1.02 U
2	Bis(2-chloroethoxy) methane (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
2	Bis(2-chloroethyl) ether (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	Bis(2-chloroisopropyl) ether (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	Hexachlorobutadiene (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	Hexachlorocyclopentadiene (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
2	Hexachloroethane (ug/kg)	1	0	0						40 U	40 U	40	40 U	40 U
2	Isophorone (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	Nitrobenzene (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	N-Nitrosodiphenylamine (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	N-Nitrosodipropylamine (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	Selenium (mg/kg)	1	0	0						1.04 U	1.04 U	1.04	1.04 U	1.04 U
2	Thallium (mg/kg)	1	0	0						1.04 U	1.04 U	1.04	1.04 U	1.04 U
2	1,2,4-Trichlorobenzene (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	1,2-Dichlorobenzene (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	1,3-Dichlorobenzene (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	1,4-Dichlorobenzene (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	2,4,5-Trichlorophenol (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
2	2,4,6-Trichlorophenol (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
2	2,4-Dichlorophenol (ug/kg)	1	0	0						99 U	99 U	99	99 U	99 U
2	2,4-Dimethylphenol (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
2	2,4-Dinitrophenol (ug/kg)	1	0	0						300 U	300 U	300	300 U	300 U
2	2-Chlorophenol (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
2	2-Methylphenol (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
2	2-Nitrophenol (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
2	3- and 4-Methylphenol Coelution (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
2	4,6-Dinitro-2-methylphenol (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
2	4-Chloro-3-methylphenol (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
2	4-Nitrophenol (ug/kg)	1	0	0						99 U	99 U	99	99 U	99 U
2	Bis(2-ethylhexyl) phthalate (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
2	Butylbenzyl phthalate (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
2	Carbazole (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
2	Dibutyl phthalate (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
2	Diethyl phthalate (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	Dimethyl phthalate (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	Di-n-octyl phthalate (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
2	Hexachlorobenzene (ug/kg)	1	0	0						9.9 U	9.9 U	9.9	9.9 U	9.9 U
2	Pentachlorophenol (ug/kg)	1	0	0						300 U	300 U	300	300 U	300 U
2	Phenol (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
3	Chromium (mg/kg)	17	17	100	13.1 J	819 J	269	223 J	693 J	13.1 J	819 J	269	223 J	693 J
3	Copper (mg/kg)	17	17	100	11.1	148	56	36.7	145	11.1	148	56	36.7	145
3	Nickel (mg/kg)	17	17	100	12.4	60.8	27	19.7	58.4	12.4	60.8	27	19.7	58.4
3	Total solids (%)	17	17	100	24.2	97.2	80	89.2	95.6	24.2	97.2	80	89.2	95.6
3	Zinc (mg/kg)	17	17	100	43.1	823	264	137	698	43.1	823	264	137	698
3	Clay (%)	16	16	100	0	5.7	1.2	0.05	5.5	0	5.7	1.2	0.05	5.5
3	Silt (%)	16	16	100	2.67	67.3	18	7.08	65.2	2.67	67.3	18	7.08	65.2
3	Coarse sand (%)	13	13	100	3.29	24.6	15	13.9	19.7	3.29	24.6	15	13.9	19.7
3	Fine sand (%)	13	13	100	0.53	11.5	4.24	2.53	11.46	0.53	11.5	4.24	2.53	11.46
3	Gravel (%)	13	13	100	0.41	84.6	46	47.6	79.1	0.41	84.6	46	47.6	79.1
3	Medium sand (%)	13	13	100	4.48	71.8	28	17.9	70	4.48	71.8	28	17.9	70
3	Very coarse sand (%)	13	13	100	0.53	15.5	7.69	6	13.1	0.53	15.5	7.7	6	13.1
3	Very fine sand (%)	13	13	100	0.04	2.17	0.53	0.13	1.44	0.04	2.17	0.53	0.13	1.44
3	4,4'-DDD (ug/kg)	3	3	100	1	2	1.7	1	2	1	2	1.7	1	2
3	4,4'-DDE (ug/kg)	3	3	100	1	2	1.7	1	2	1	2	1.7	1	2
3	Acid Volatile Sulfides (mg/kg)	3	3	100	2.9	47	32.3	2.9	47	2.9	47	32	2.9	47
3	Fines (%)	3	3	100	69.1	72.2	71	69.1	70.9	69.1	72.2	71	69.1	70.9
3	Mean grain size (mm)	3	3	100	0.06	0.13	0.09	0.06	0.07	0.06	0.13	0.09	0.06	0.07
3	Median grain size (mm)	3	3	100	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
3	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	3	3	100	2.3 A	4.3 A	3.5	2.3 A	4 A	2.3 A	4.3 A	3.5	2.3 A	4 A
3	Total volatile solids (%)	3	3	100	3.9	5	4.6	3.9	4.9	3.9	5	4.6	3.9	4.9
3	Aldrin (ug/kg)	3	3	100	0.3 J	0.4 J	0.37	0.3 J	0.4 J	0.3 J	0.4 J	0.37	0.3 J	0.4 J
3	Sand (%)	1	1	100	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9
3	Lube Oil (mg/kg)	1	1	100	81	81	81	81	81	81	81	81	81	81
3	Arsenic (mg/kg)	17	16	94	1.8	132	12	3	9.3	1.8	132	11	2.8	9.3
3	Total organic carbon (%)	16	15	94	0.11	1.91	0.70	0.42	1.84	0.05 U	1.91	0.66	0.42	1.84
3	Polychlorinated biphenyls (ug/kg)	17	15	88	4 A	9300 A	1371	550 A	2790 A	4 A	9300 A	1233	290 A	2790 A
3	High Molecular Weight PAH (ug/kg)	17	13	76	24 A	39000 A	3562	196 A	2643 A	19 UA	39000 A	2729	132 A	2643 A
3	Polycyclic Aromatic Hydrocarbons (ug/kg)	17	13	76	24 A	53093 A	4704	196 A	2899 A	19 UA	53093 A	3602	132 A	2899 A
3	Pyrene (ug/kg)	17	13	76	10	5700	510	22	265 G	9.7 U	5700	392	16	265 G
3	Aroclor 1248 (ug/kg)	17	12	71	180	9300	1579	770	2500	10 U	9300	1128	290	2500
3	Benzo(b+k)fluoranthene (ug/kg)	17	12	71	11 A	7100 A	720	42 A	539 A	9.7 UA	7100 A	511	30 A	539 A
3	Chrysene (ug/kg)	17	12	71	11	3800	370	26	180 G	9.7 U	3800	264	18	180 G
3	Lead (mg/kg)	17	12	71	14.8	166	75.55	75.6	110	14.8	166	59	21 U	110
3	Mercury (mg/kg)	17	12	71	0.02	0.09	0.05	0.05	0.08	0.02	0.09	0.04	0.03	0.08
3	4,4'-DDT (ug/kg)	3	2	67	0.3	0.3	0.3	0.3	0.3	0.3	2 U	0.87	0.3	0.3
3	Tributyltin ion (ug/l)	3	2	67	0.1	0.1	0.1	0.1	0.1	0.05 U	0.1	0.08	0.05 U	0.1
3	Endrin aldehyde (ug/kg)	3	2	67	0.3 J	0.4 J	0.35	0.3 J	0.3 J	0.3 J	2 U	0.9	0.3 J	0.4 J
3	Aroclor 1260 (ug/kg)	17	11	65	4	390	147	140	290	4	1000 U	183	100 U	390
3	Benzo(a)pyrene (ug/kg)	17	11	65	18	4300	500	28	459 G	9.6 U	4300	327	19	459 G
3	Benzo(b)fluoranthene (ug/kg)	17	11	65	11	3500	388	22	270 G	9.7 U	3500	255.2	19 U	270 G

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
3	Benzo(k)fluoranthene (ug/kg)	17	11	65	13	3600	397	20	269 G	9.6 U	3600	260	17	269 G
3	Fluoranthene (ug/kg)	17	11	65	12	7600	757	34	208 G	9.6 U	7600	494	12	208 G
3	Benzo(g,h,i)perylene (ug/kg)	17	9	53	20	2900	418	26	385 G	19 U	2900	241	20	385 G
3	Benz(a)anthracene (ug/kg)	17	8	47	15	4000	557	58 G	158 G	8.9 U	4000	267	9.9 U	158 G
3	Indeno(1,2,3-cd)pyrene (ug/kg)	17	7	41	23	3600	631	31	383 G	18 U	3600	282	20 U	383 G
3	Anthracene (ug/kg)	17	6	35	12	1900	335	17 G	36 G	8.9 U	1900	124	9.9 U	36 G
3	Cadmium (mg/kg)	17	6	35	0.54	2.1	1.17	0.71	1.5	0.54	2.1	1.1	1.04 U	1.5
3	Low Molecular Weight PAH (ug/kg)	17	6	35	54 A	14093 A	2475	147 A	256 A	8.9 UA	14093 A	880	9.9 UA	256 A
3	Phenanthrene (ug/kg)	17	6	35	40	7700	1347	66 G	120 G	8.9 U	7700	482	9.9 U	120 G
3	gamma-Hexachlorocyclohexane (ug/kg)	3	1	33	0.3 J	0.3 J	0.3	0.3 J	0.3 J	0.3 J	2 U	1.4	0.3 J	2 U
3	Acenaphthylene (ug/kg)	17	5	29	10 G	25 G	16.8	12	23	8.9 U	25 G	12	9.9 U	23
3	Dibenzofuran (ug/kg)	17	5	29	3 G	1000	206	6 G	14	3 G	1000	67	9.7 U	14
3	Naphthalene (ug/kg)	17	5	29	10	3100	635	19 G	23 G	8.9 U	3100	194	9.9 U	23 G
3	Silver (mg/kg)	17	5	29	0.16	2.3	1.038	0.25	2.2	0.16	2.48 U	1.8	2.08 U	2.35 U
3	2-Methylnaphthalene (ug/kg)	17	4	24	13 G	440	124	21 G	22 G	8.9 U	440	37	9.9 U	22 G
3	Acenaphthene (ug/kg)	17	4	24	9 G	270	76	11 G	14 G	8.9 U	270	26	9.9 U	20 U
3	Fluorene (ug/kg)	17	4	24	9 G	1100	285	14 G	16 G	8.9 U	1100	74	9.9 U	16 G
3	Dibenz(a,h)anthracene (ug/kg)	17	3	18	26 G	66 G	44	26 G	39 G	18 U	970 U	90	20 U	200 U
3	Butylbenzyl phthalate (ug/kg)	14	1	7	34	34	34	34	34	18 U	34	20	19 U	20 U
3	Carbazole (ug/kg)	14	1	7	1500	1500	1500	1500	1500	8.9 U	1500	116	9.9 U	10 U
3	Phenol (ug/kg)	14	1	7	72	72	72	72	72	44 U	72	50.5	49 U	50 U
3	Aroclor 1016 (ug/kg)	17	0	0						10 U	1000 U	137	100 U	100 U
3	Aroclor 1221 (ug/kg)	17	0	0						10 U	2000 U	272	200 U	200 U
3	Aroclor 1232 (ug/kg)	17	0	0						10 U	1000 U	137	100 U	100 U
3	Aroclor 1242 (ug/kg)	17	0	0						10 U	1000 U	137	100 U	100 U
3	Aroclor 1254 (ug/kg)	17	0	0						10 U	1000 U	137	100 U	100 U
3	2,4-Dinitrotoluene (ug/kg)	14	0	0						44 U	50 U	49	49 U	50 U
3	2,6-Dinitrotoluene (ug/kg)	14	0	0						18 U	20 U	19	19 U	20 U
3	2-Chloronaphthalene (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	2-Nitroaniline (ug/kg)	14	0	0						18 U	20 U	19	19 U	20 U
3	3,3'-Dichlorobenzidine (ug/kg)	14	0	0						70 UJ	300 UJ	89	70 UJ	80 UJ
3	3-Nitroaniline (ug/kg)	14	0	0						180 U	200 U	194	190 U	200 U
3	4-Bromophenyl phenyl ether (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	4-Chloroaniline (ug/kg)	14	0	0						44 UJ	50 UJ	49	49 UJ	50 UJ
3	4-Chlorophenyl phenyl ether (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	4-Nitroaniline (ug/kg)	14	0	0						9.9 U	100 U	91	97 U	100 U
3	Antimony (mg/kg)	14	0	0						9.89 U	12.4 U	11	10.5 U	11.8 U
3	Benzoic acid (ug/kg)	14	0	0						360 U	400 U	392	390 U	400 U
3	Benzyl alcohol (ug/kg)	14	0	0						44 U	50 U	49	49 U	50 U
3	Beryllium (mg/kg)	14	0	0						1 U	1.24 U	1.1	1.05 U	1.18 U
3	Bis(2-chloroethoxy) methane (ug/kg)	14	0	0						18 U	20 U	19	19 U	20 U
3	Bis(2-chloroethyl) ether (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	Bis(2-chloroisopropyl) ether (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	Hexachlorobutadiene (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	Hexachlorocyclopentadiene (ug/kg)	14	0	0						180 U	200 U	194	190 U	200 U
3	Hexachloroethane (ug/kg)	14	0	0						36 U	40 U	39	39 U	40 U
3	Isophorone (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	Nitrobenzene (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
3	N-Nitrosodiphenylamine (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	N-Nitrosodipropylamine (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	Selenium (mg/kg)	14	0	0						1 U	1.2 U	1.1	1.05 U	1.19 U
3	Thallium (mg/kg)	14	0	0						1 U	1.2 U	1.1	1.05 U	1.19 U
3	1,2,4-Trichlorobenzene (ug/kg)	14	0	0						8.9 U	20 U	10	9.7 U	10 U
3	1,2-Dichlorobenzene (ug/kg)	14	0	0						8.9 U	20 U	10	9.7 U	10 U
3	1,3-Dichlorobenzene (ug/kg)	14	0	0						8.9 U	20 U	10	9.7 U	10 U
3	1,4-Dichlorobenzene (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	2,4,5-Trichlorophenol (ug/kg)	14	0	0						44 U	500 U	81	49 U	50 U
3	2,4,6-Trichlorophenol (ug/kg)	14	0	0						44 U	50 U	49	49 U	50 U
3	2,4-Dichlorophenol (ug/kg)	14	0	0						89 U	100 U	97	97 U	100 U
3	2,4-Dimethylphenol (ug/kg)	14	0	0						180 U	200 U	194	190 U	200 U
3	2,4-Dinitrophenol (ug/kg)	14	0	0						270 U	300 U	294	290 U	300 U
3	2-Chlorophenol (ug/kg)	14	0	0						44 U	50 U	49	49 U	50 U
3	2-Methylphenol (ug/kg)	14	0	0						180 U	200 U	194	190 U	200 U
3	2-Nitrophenol (ug/kg)	14	0	0						44 U	50 U	49	49 U	50 U
3	3- and 4-Methylphenol Coelution (ug/kg)	14	0	0						180 U	200 U	194	190 U	200 U
3	4,6-Dinitro-2-methylphenol (ug/kg)	14	0	0						180 U	200 U	194	190 U	200 U
3	4-Chloro-3-methylphenol (ug/kg)	14	0	0						44 U	90 U	52	49 U	50 U
3	4-Nitrophenol (ug/kg)	14	0	0						89 U	100 U	97	97 U	100 U
3	Bis(2-ethylhexyl) phthalate (ug/kg)	14	0	0						180 U	2000 U	323	190 U	200 U
3	Dibutyl phthalate (ug/kg)	14	0	0						18 U	20 U	19	19 U	20 U
3	Diethyl phthalate (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	Dimethyl phthalate (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	Di-n-octyl phthalate (ug/kg)	14	0	0						180 U	200 U	194	190 U	200 U
3	Hexachlorobenzene (ug/kg)	14	0	0						8.9 U	10 U	9.7	9.7 U	10 U
3	Pentachlorophenol (ug/kg)	14	0	0						270 U	300 U	294	290 U	300 U
3	alpha-Endosulfan (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	alpha-Hexachlorocyclohexane (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	beta-Endosulfan (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	beta-Hexachlorocyclohexane (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	Chlordane (cis & trans) (ug/kg)	3	0	0						10 U	10 U	10	10 U	10 U
3	delta-Hexachlorocyclohexane (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	Dieldrin (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	Endosulfan sulfate (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	Endrin (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	Heptachlor (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	Heptachlor epoxide (ug/kg)	3	0	0						2 U	2 U	2	2 U	2 U
3	Methoxychlor (ug/kg)	3	0	0						4 U	4 U	4	4 U	4 U
3	Toxaphene (ug/kg)	3	0	0						30 U	30 U	30	30 U	30 U
3	Diesel fuels (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Gasoline (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Heavy oil (mg/kg)	1	0	0						25 U	25 U	25	25 U	25 U
3	Jet fuel A (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	JP-4 jet fuel (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Kerosene (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Mineral spirits (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Naphtha distillate (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
4	Chromium (mg/kg)	30	30	100	17.6	44.7	33	35.5	39.1	17.6	44.7	33.3	35.5	39.1
4	Copper (mg/kg)	30	30	100	15.3	64.8	39	39.3	47.9	15.3	64.8	39	39.3	47.9
4	Fluoranthene (ug/kg)	30	30	100	22	3850	636	226 E	2200	22	3850	636	226 E	2200
4	High Molecular Weight PAH (ug/kg)	30	30	100	62 A	18489 A	3332	1294 A	9598 A	62 A	18489 A	3332	1294 A	9598 A
4	Lead (mg/kg)	30	30	100	5	28.7	13	12.3	20	5	28.7	13	12.3	20
4	Nickel (mg/kg)	30	30	100	17.4	34.5	27	27.9	30.4	17.4	34.5	26.97	27.9	30.4
4	Polycyclic Aromatic Hydrocarbons (ug/kg)	30	30	100	62 A	23274 A	4025	1501 A	11593 A	62 A	23274 A	4025	1501 A	11593 A
4	Pyrene (ug/kg)	30	30	100	20	4600	660	236 E	1740	20	4600	659.9	236 E	1740
4	Total organic carbon (%)	30	30	100	0.37	12	2.1	1.73	3.02	0.37	12	2.1	1.73	3.02
4	Zinc (mg/kg)	30	30	100	66	226	112	102	151	66	226	112.33	102	151
4	Aluminum (mg/kg)	28	28	100	16600	42700	32889	32200	42100	16600	42700	32889	32200	42100
4	Barium (mg/kg)	28	28	100	115	322	174	176	196	115	322	174	176	196
4	Beryllium (mg/kg)	28	28	100	0.37	1.1	0.7	0.7	0.88	0.37	1.1	0.69	0.7	0.88
4	Cobalt (mg/kg)	28	28	100	12.7	26.2	18	17.9 J	20.4	12.7	26.2	18	17.9 J	20.4
4	Iron (mg/kg)	28	28	100	27600	47600	36186	35400	43500	27600	47600	36186	35400	43500
4	Magnesium (mg/kg)	28	28	100	3830	7480	6232	6440	7240	3830	7480	6232	6440	7240
4	Manganese (mg/kg)	28	28	100	385	815	593	592	725	385	815	593	592	725
4	Vanadium (mg/kg)	28	28	100	69.6	112	91	88	107	69.6	112	91	88	107
4	Clay (%)	17	17	100	1.15	19.32	8.27	8.71	12.36	1.15	19.32	8.27	8.71	12.36
4	Fines (%)	17	17	100	4.32	79	52	59.5	72.43	4.32	79	52	59.5	72.43
4	Silt (%)	17	17	100	3.17	72.1	44	42.71	67.31	3.17	72.1	44	42.71	67.31
4	Titanium (mg/kg)	17	17	100	608	1960	1182	1030	1880	608	1960	1182	1030	1880
4	Sand (%)	16	16	100	21.19	94.98	49	40.05	82.29	21.19	94.98	49	40.05	82.29
4	Calcium (mg/kg)	15	15	100	5770	9850	7992	8060	9820	5770	9850	7992	8060	9820
4	Potassium (mg/kg)	15	15	100	790	1670	1226	1270	1520	790	1670	1226	1270	1520
4	Sodium (mg/kg)	15	15	100	870	1330	1136	1140	1290	870	1330	1136	1140	1290
4	Thallium (mg/kg)	15	15	100	5	23	12	9	23	5	23	12	9	23
4	< 0_075 mm (%)	13	13	100	59.5	95.6	82	85.9	92	59.5	95.6	82	85.9	92
4	0_075 to 0_85 mm (%)	13	13	100	4.3	39.5	18	12.9	34.4	4.3	39.5	18	12.9	34.4
4	C1-Chrysene (ug/kg)	13	13	100	3.9	779	124	56	174	3.9	779	124	56	174
4	C1-Fluoranthene/pyrene (ug/kg)	13	13	100	7.9	1850	306	95	655	7.9	1850	306	95	655
4	C1-Phenanthrene/anthracene (ug/kg)	13	13	100	6.7	1820	276	55	517	6.7	1820	276	55	517
4	C2-Chrysene (ug/kg)	13	13	100	2	393	67	31	128	2	393	67	31	128
4	C2-Phenanthrene/anthracene (ug/kg)	13	13	100	5.3	1530	252	50	467	5.3	1530	252	50	467
4	C3-Phenanthrene/anthracene (ug/kg)	13	13	100	3.2	631	164	43	448	3.2	631	164	43	448
4	Gravel (%)	13	13	100	0.04	2.87	0.52	0.15	0.98	0.04	2.87	0.522	0.15	0.98
4	Diesel fuels (mg/kg)	13	13	100	21	262	97	69	160	21	262	97	69	160
4	4,4'-DDD (ug/kg)	6	6	100	1	7.3 J	3.1	1.4 J	5.8 J	1	7.3 J	3.1	1.4 J	5.8 J
4	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	6	6	100	1.4 A	25 A	7.11	2.94 A	7.4 A	1.4 A	25 A	7.1	2.94 A	7.4 A
4	Tributyltin ion (ug/kg)	4	4	100	16	47000	11779	18 J	81	16	47000	11779	18 J	81
4	Aluminum (mg/l)	3	3	100	0.3	9.01	3.27	0.3	0.51	0.3	9.01	3.3	0.3	0.51
4	Barium (mg/l)	3	3	100	0.05	0.09	0.07	0.05	0.07	0.05	0.09	0.07	0.05	0.07
4	Calcium (mg/l)	3	3	100	10.2	61.2	41	10.2	52.2	10.2	61.2	41.2	10.2	52.2
4	Iron (mg/l)	3	3	100	0.69	8.17	5.12	0.69	6.49	0.69	8.17	5.12	0.69	6.49
4	Magnesium (mg/l)	3	3	100	3.77	20	14	3.77	18.1	3.77	20	14	3.77	18.1
4	Manganese (mg/l)	3	3	100	0.88	5.94	3.80	0.88	4.59	0.88	5.94	3.80	0.88	4.59
4	Potassium (mg/l)	3	3	100	1.9	3.4	2.7	1.9	2.9	1.9	3.4	2.7	1.9	2.9
4	Sodium (mg/l)	3	3	100	11	16.3	14	11	14.7	11	16.3	14	11	14.7

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
4	Acid Volatile Sulfides (mg/kg)	2	2	100	4.6	17.5	11.1	4.6	4.6	4.6	17.5	11.1	4.6	4.6
4	Mean grain size (mm)	2	2	100	0.07	0.18	0.13	0.07	0.07	0.07	0.18	0.13	0.07	0.07
4	Median grain size (mm)	2	2	100	0.04	0.13	0.09	0.04	0.04	0.04	0.13	0.09	0.04	0.04
4	Total solids (%)	2	2	100	46.2	70.1	58	46.2	46.2	46.2	70.1	58	46.2	46.2
4	Total volatile solids (%)	2	2	100	3.5	5.3	4.4	3.5	3.5	3.5	5.3	4.4	3.5	3.5
4	Benz(a)anthracene (ug/kg)	30	29	97	9.2	1680	293	122	940	9.2	1680	284	122	940
4	Benzo(a)pyrene (ug/kg)	30	29	97	10	1890	374	160	1100	10	1890	363	160	1100
4	Benzo(b)fluoranthene (ug/kg)	30	29	97	13	1960	383	180	1100	13	1960	371	180	1100
4	Benzo(b+k)fluoranthene (ug/kg)	30	29	97	16.3 A	2419 A	585	250 A	1730 A	16.3 A	2419 A	567	250 A	1730 A
4	Benzo(g,h,i)perylene (ug/kg)	30	29	97	7.1	1610	279	133	860 G	7.1	1610	270	133	860 G
4	Benzo(k)fluoranthene (ug/kg)	30	29	97	3.3	967 G	202	100	600	3.3	967 G	196	100	600
4	Chrysene (ug/kg)	30	29	97	8.5	1360	311	120	1100	8.5	1360	301	120	1100
4	Indeno(1,2,3-cd)pyrene (ug/kg)	30	29	97	5.3	1080	224	96	806	5.3	1080	217	96	806
4	Low Molecular Weight PAH (ug/kg)	30	29	97	25.2 A	4785 A	717	222 A	1992 A	20 UA	4785 A	693	222 A	1992 A
4	Mercury (mg/kg)	30	29	97	0.02	0.36	0.09	0.08	0.18	0.01 U	0.36	0.09	0.08	0.18
4	Phenanthrene (ug/kg)	30	29	97	12	3040	416	136 G	1120	12	3040	403	136 G	1120
4	C2-Dibenzothiophene (ug/kg)	13	11	85	5.5	515	123	14	409	1.7 U	515	106	14	409
4	C2-Naphthalene (ug/kg)	13	11	85	2.4	1080	154	15	242	2.4	1080	134	16	242
4	C3-Chrysene (ug/kg)	13	11	85	5.5	176	38	13	84	1.7 U	176	34	13	84
4	C3-Dibenzothiophene (ug/kg)	13	11	85	5.6	404	94	11	311	1.7 U	404	81	11	311
4	C3-Fluorene (ug/kg)	13	11	85	5.6	370	73	16	123	1.7 U	370	64	16	123
4	4,4'-DDE (ug/kg)	6	5	83	0.7	2.7	1.4	0.84 J	1.6 J	0.7	2.7	1.5	1	1.9 U
4	Anthracene (ug/kg)	30	24	80	2.4	613	97	35	200	2.4	613	81.2	31 G	200
4	C1-Fluorene (ug/kg)	13	10	77	3.3	287	54	9.4	90	1.7 U	287	45	9.4	90
4	C1-Naphthalene (ug/kg)	13	10	77	3.5	327	59	7.7	102	1.7 U	327	49	7.7	102
4	C2-Fluorene (ug/kg)	13	10	77	3.8	366	74	12	113	1.7 U	366	60	12	113
4	C3-Naphthalene (ug/kg)	13	10	77	4.9	1240	198	14	285	1.7 U	1240	155	14	285
4	C4-Naphthalene (ug/kg)	13	10	77	4.3	835	139	11	174	1.7 U	835	110	11	174
4	C4-Phenanthrene/anthracene (ug/kg)	13	10	77	2.7	201	52	11	106	1.7 U	201	52	11	141 U
4	Dibenz(a,h)anthracene (ug/kg)	30	23	77	5.4	207 G	51	27	140	1.7 U	207 G	47	23 G	141 U
4	Acenaphthene (ug/kg)	30	22	73	2.9	411	79	50	150	2.9	411	63.4	21	150
4	Arsenic (mg/kg)	30	22	73	2.6 E	21.6	8.6	8.9	13	2.6 E	21.6	7.6	5 U	13
4	Fluorene (ug/kg)	30	22	73	2.5	265	59	40	110	2.5	265	49	21 U	110
4	Naphthalene (ug/kg)	30	22	73	5.4	358	106	35 G	270	5.4	358	83.2	24	270
4	C1-Dibenzothiophene (ug/kg)	13	9	69	2.1	247	64	5.8	126	1.7 U	247	50	5.8	126
4	Dibenzothiophene (ug/kg)	13	9	69	3.6	340	78	8.3	151	1.7 U	340	59	9.4	151
4	Carbazole (ug/kg)	15	10	67	19 J	220 J	52.4	31 J	67 J	19 U	220 J	41	24 J	67 J
4	4,4'-DDT (ug/kg)	6	4	67	0.2	15	4.3	1 J	1	0.2	15	3.5	1	2 U
4	Arsenic (mg/l)	3	2	67	0.001	0.002	0.0015	0.001	0.001	0.001 U	0.002	0.001	0.001 U	0.001
4	Cobalt (mg/l)	3	2	67	0.004	0.006	0.005	0.004	0.004	0.003 U	0.006	0.004	0.003 U	0.004
4	Zinc (mg/l)	3	2	67	0.004	0.02	0.012	0.004	0.004	0.004 U	0.02	0.01	0.004 U	0.004
4	Acenaphthylene (ug/kg)	30	19	63	6.1	153	49	25	132	1.7 U	153	37	20 U	107 G
4	Cadmium (mg/kg)	30	19	63	0.2	1.3	0.4	0.3	0.84	0.2	1.3	0.57	0.4	0.98 U
4	C4-Dibenzothiophene (ug/kg)	13	8	62	4.9	232	41	6.8	33	1.7 U	232	40	6.8	141 U
4	Silver (mg/kg)	30	16	53	0.1	0.7	0.5	0.4	0.7	0.1	2 U	1.0	0.7	1.9 U
4	2-Methylnaphthalene (ug/kg)	17	9	53	22 G	140	64	38	100	19 U	140	43	20 U	100
4	Dibenzofuran (ug/kg)	17	8	47	6 G	53	30	27	48	6 G	53	24	20 U	48
4	Tributyltin ion (ug/l)	5	2	40	0.03	0.14	0.09	0.03	0.03	0.02 U	0.14	0.05	0.02 U	0.05 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
4	C4-Fluorene (ug/kg)	13	5	38	4.3	66	31	13	38	1.7 U	141 U	28	13	66
4	Antimony (mg/kg)	28	10	36	4 J	11 J	8.7	9 J	11 J	0.72 U	11 J	4.3	4 UJ	10 J
4	Aroclor 1260 (ug/kg)	6	2	33	5	9	7	5	5	5	20 U	15	19 UJ	20 U
4	Polychlorinated biphenyls (ug/kg)	6	2	33	5 A	9 A	7	5 A	5 A	5 A	40 UA	28	37 UA	39 UA
4	Chromium (mg/l)	3	1	33	0.007	0.007	0.007	0.007	0.007	0.005 U	0.007	0.006	0.005 U	0.005 U
4	Copper (mg/l)	3	1	33	0.006	0.006	0.006	0.006	0.006	0.002 U	0.006	0.003	0.002 U	0.002 U
4	Lead (mg/l)	3	1	33	0.004	0.004	0.004	0.004	0.004	0.001 U	0.004	0.002	0.001 U	0.001 U
4	Vanadium (mg/l)	3	1	33	0.01	0.01	0.01	0.01	0.01	0.003 U	0.01	0.01	0.003 U	0.003 U
4	Phenol (ug/kg)	28	9	32	28	152	89	81	108	17 U	152	42	20 U	103
4	4-Methylphenol (ug/kg)	28	8	29	23	76	39	25	71	16 U	76	25	20 U	37
4	Selenium (mg/kg)	28	7	25	0.9	12	8.3	11	11	0.66 U	12	4.0	3 U	11
4	Butyltin ion (ug/kg)	4	1	25	740 J	740 J	740	740 J	740 J	5.6 UJ	740 J	189	5.9 UJ	6 U
4	Dibutyltin ion (ug/kg)	4	1	25	800	800	800	800	800	5.6 U	800	204	5.9 UJ	6 U
4	Tetrabutyltin (ug/kg)	4	1	25	150	150	150	150	150	0.59 UJ	150	41	5.6 U	6 U
4	C4-Chrysene (ug/kg)	13	3	23	2	3.5	2.7	2	2.5	1.7 U	141 U	21	3.5	22 U
4	Aldrin (ug/kg)	6	1	17	0.3 J	0.3 J	0.3	0.3 J	0.3 J	0.3 J	2 UG	1.03	0.97 U	0.99 U
4	Bis(2-ethylhexyl) phthalate (ug/kg)	15	2	13	210	320	265	210	210	35 UJ	1200 UJ	192	110 UJ	320
4	Di-n-octyl phthalate (ug/kg)	15	1	7	21	21	21	21	21	19 U	21	19	19 U	20 U
4	Pentachlorophenol (ug/kg)	28	1	4	110 J	110 J	110	110 J	110 J	14 U	110 J	61	94 UJ	99 UJ
4	2,4,5-Trichlorophenol (ug/kg)	28	0	0						14 U	99 U	60	94 U	99 U
4	2,4,6-Trichlorophenol (ug/kg)	28	0	0						1.4 U	99 U	53	94 U	99 U
4	2,4-Dimethylphenol (ug/kg)	28	0	0						1.4 U	20 U	11	19 U	20 U
4	2-Chlorophenol (ug/kg)	28	0	0						14 U	22 U	19	19 U	21 U
4	2-Methylphenol (ug/kg)	28	0	0						1.4 U	20 U	11	19 U	20 U
4	4-Chloro-3-methylphenol (ug/kg)	28	0	0						14 U	40 U	29	37 U	40 U
4	2,4-Dinitrotoluene (ug/kg)	15	0	0						94 U	99 U	97	96 U	99 U
4	2,6-Dinitrotoluene (ug/kg)	15	0	0						94 U	99 U	97	96 U	99 U
4	2-Chloronaphthalene (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	2-Nitroaniline (ug/kg)	15	0	0						94 U	99 U	97	96 U	99 U
4	3,3'-Dichlorobenzidine (ug/kg)	15	0	0						94 U	99 UJ	97	96 U	99 U
4	3-Nitroaniline (ug/kg)	15	0	0						110 U	120 UJ	117	120 U	120 UJ
4	4-Bromophenyl phenyl ether (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	4-Chloroaniline (ug/kg)	15	0	0						56 U	60 UJ	58	58 U	60 U
4	4-Chlorophenyl phenyl ether (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	4-Nitroaniline (ug/kg)	15	0	0						94 UJ	99 UJ	97	96 UJ	99 UJ
4	Benzoic acid (ug/kg)	15	0	0						190 U	200 U	193	190 U	200 U
4	Benzyl alcohol (ug/kg)	15	0	0						19 UJ	20 UJ	19	19 UJ	20 UJ
4	Bis(2-chloro-1-methylethyl) ether (ug/kg)	15	0	0						19 UJ	20 U	19	19 U	20 U
4	Bis(2-chloroethoxy) methane (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	Bis(2-chloroethyl) ether (ug/kg)	15	0	0						37 U	40 U	39	38 U	40 U
4	Hexachlorobutadiene (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	Hexachlorocyclopentadiene (ug/kg)	15	0	0						94 UJ	99 UJ	97	96 UJ	99 UJ
4	Hexachloroethane (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	Isophorone (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	Nitrobenzene (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	N-Nitrosodiphenylamine (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	N-Nitrosodipropylamine (ug/kg)	15	0	0						37 U	40 UJ	39	38 UJ	40 U
4	1,2,4-Trichlorobenzene (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
4	1,2-Dichlorobenzene (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	1,3-Dichlorobenzene (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	1,4-Dichlorobenzene (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	2,4-Dichlorophenol (ug/kg)	15	0	0						56 U	60 U	58	58 U	60 U
4	2,4-Dinitrophenol (ug/kg)	15	0	0						190 UJ	200 UJ	193	190 UJ	200 UJ
4	2-Nitrophenol (ug/kg)	15	0	0						94 U	99 U	97	96 U	99 U
4	4,6-Dinitro-2-methylphenol (ug/kg)	15	0	0						190 U	200 UJ	193	190 UJ	200 UJ
4	4-Nitrophenol (ug/kg)	15	0	0						94 U	99 U	97	96 U	99 U
4	Butylbenzyl phthalate (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	Dibutyl phthalate (ug/kg)	15	0	0						19 UJ	20 UJ	19	19 UJ	20 UJ
4	Diethyl phthalate (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	Dimethyl phthalate (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	Hexachlorobenzene (ug/kg)	15	0	0						19 U	20 U	19	19 U	20 U
4	Tin (mg/kg)	13	0	0						3.6 U	5 U	4.2	4.1 U	4.9 U
4	Aroclor 1016 (ug/kg)	6	0	0						10 U	20 U	16	19 U	20 U
4	Aroclor 1221 (ug/kg)	6	0	0						10 U	40 U	29	37 UJ	39 U
4	Aroclor 1232 (ug/kg)	6	0	0						10 U	20 U	16	19 UJ	20 U
4	Aroclor 1242 (ug/kg)	6	0	0						10 U	20 U	16	19 UJ	20 U
4	Aroclor 1248 (ug/kg)	6	0	0						10 U	20 U	16	19 UJ	20 U
4	Aroclor 1254 (ug/kg)	6	0	0						10 U	20 U	16	19 UJ	20 U
4	alpha-Endosulfan (ug/kg)	6	0	0						0.94 UJ	2 U	1.31	0.98 U	2 UG
4	alpha-Hexachlorocyclohexane (ug/kg)	6	0	0						0.94 UJ	2 U	1.31	0.98 UJ	2 UG
4	beta-Endosulfan (ug/kg)	6	0	0						1.9 UJ	2 U	2.0	2 UG	2 U
4	beta-Hexachlorocyclohexane (ug/kg)	6	0	0						0.94 UJ	2 U	1.31	0.98 U	2 UG
4	delta-Hexachlorocyclohexane (ug/kg)	6	0	0						0.94 UJ	2.5 UIJ	1.84	2 U	2 UIJ
4	Dieldrin (ug/kg)	6	0	0						1.9 UJ	2 U	2.0	2 U	2 U
4	Endosulfan sulfate (ug/kg)	6	0	0						1.9 U	2 UG	2.0	2 U	2 U
4	Endrin (ug/kg)	6	0	0						1.9 U	2 UG	2.0	2 U	2 U
4	Endrin aldehyde (ug/kg)	6	0	0						0.5 UG	2 U	1.7	1.9 UJ	2 U
4	gamma-Hexachlorocyclohexane (ug/kg)	6	0	0						0.94 UJ	2 U	1.31	0.98 U	2 UG
4	Heptachlor (ug/kg)	6	0	0						0.94 UJ	2 U	1.31	0.98 U	2 UG
4	Heptachlor epoxide (ug/kg)	6	0	0						0.94 UJ	2 U	1.31	0.98 U	2 UG
4	Methoxychlor (ug/kg)	6	0	0						4 UG	9.9 U	7.8	9.4 UJ	9.8 U
4	Toxaphene (ug/kg)	6	0	0						30 U	99 U	75.5	94 UJ	98 U
4	alpha-Chlordane (ug/kg)	4	0	0						0.94 UJ	0.99 U	0.97	0.97 U	0.98 U
4	Endrin ketone (ug/kg)	4	0	0						1.9 U	2 U	2.0	1.9 UJ	2 U
4	gamma-Chlordane (ug/kg)	4	0	0						0.94 UJ	0.99 U	0.97	0.97 U	0.98 U
4	Antimony (mg/l)	3	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
4	Beryllium (mg/l)	3	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
4	Butyltin ion (ug/l)	3	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
4	Cadmium (mg/l)	3	0	0						0.002 U	0.002 U	0.002	0.002 U	0.002 U
4	Dibutyltin ion (ug/l)	3	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
4	Mercury (mg/l)	3	0	0						0.0001 U	0.0001 U	0.0001	0.0001 U	0.0001 U
4	Nickel (mg/l)	3	0	0						0.01 U	0.01 U	0.01	0.01 U	0.01 U
4	Selenium (mg/l)	3	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
4	Silver (mg/l)	3	0	0						0.0002 U	0.0002 U	0.0002	0.0002 U	0.0002 U
4	Tetrabutyltin (ug/l)	3	0	0						0.02 U	0.02 U	0.02	0.02 U	0.02 U
4	Thallium (mg/l)	3	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
4	Chlordane (cis & trans) (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
5	Total organic carbon (%)	90	90	100	0.15	4.72	1.7	1.7	2.74 J	0.15	4.72	1.7	1.7	2.74 J
5	Chromium (mg/kg)	87	87	100	8	165	34	29	49.4	8	165	34	29	49.4
5	Copper (mg/kg)	87	87	100	15	151	45	41.2	71	15	151	45	41.2	71
5	Zinc (mg/kg)	87	87	100	66	1330 G	210	109 G	563 G	66	1330 G	210	109 G	563 G
5	Nickel (mg/kg)	83	83	100	12 G	56 G	25	24	31	12 G	56 G	25	24	31
5	Total solids (%)	82	82	100	27.2	94.3	51	47	73.8	27.2	94.3	51	47	73.8
5	Clay (%)	62	62	100	0.03	20.7	11	10.42	17.6	0.03	20.7	11	10.42	17.6
5	Silt (%)	62	62	100	0.12	81	53	59.92	74.71	0.12	81	53	59.92	74.71
5	Fines (%)	47	47	100	19.1	94.5	70	74.74	91.03	19.1	94.5	70	74.74	91.03
5	Sand (%)	47	47	100	5.5	80.7	29	24.82	64.4	5.5	80.7	29	24.82	64.4
5	Gravel (%)	43	43	100	0	60.3	5.1	0.21	27.4	0	60.3	5.1	0.21	27.4
5	Ammonia (mg/kg)	38	38	100	12.2	224	95	85.9	171	12.2	224	95	85.9	171
5	Total volatile solids (%)	36	36	100	1.4	12.9	6.6	6.37	9	1.4	12.9	6.6	6.37	9
5	Total sulfides (mg/kg)	34	34	100	1.6 E	1830 G	136	17.5 G	590 G	1.6 E	1830 G	136	17.5 G	590 G
5	Barium (mg/kg)	28	28	100	97.5	201	178	183	194	97.5	201	178	183	194
5	Aluminum (mg/kg)	24	24	100	36300	44000	39725	39700	41700	36300	44000	39725	39700	41700
5	Calcium (mg/kg)	24	24	100	7740 J	9190	8271	8220	8540	7740 J	9190	8271	8220	8540
5	Cobalt (mg/kg)	24	24	100	17.4	19.9	19	18.7	19.4	17.4	19.9	19	18.7	19.4
5	Iron (mg/kg)	24	24	100	38900	48000	42454	42300	44200	38900	48000	42454	42300	44200
5	Magnesium (mg/kg)	24	24	100	6560	7780	7027	7040	7280	6560	7780	7027	7040	7280
5	Manganese (mg/kg)	24	24	100	571	854	723	723	792	571	854	723	723	792
5	Potassium (mg/kg)	24	24	100	1230	1580	1359	1340	1500	1230	1580	1359	1340	1500
5	Sodium (mg/kg)	24	24	100	978	1490	1134	1120	1220	978	1490	1134	1120	1220
5	Vanadium (mg/kg)	24	24	100	97.5	114	105	105	110	97.5	114	105	105	110
5	< 0_075 mm (%)	19	19	100	6.2	96.3	67	83.2	95.8	6.2	96.3	67	83.2	95.8
5	> 0_075 mm (%)	19	19	100	3.7	93.8	33	16.2	90.2	3.7	93.8	33	16.2	90.2
5	Coarse sand (%)	15	15	100	0.18	33.5	9.24	1.82	31	0.18	33.5	9.24	1.82	31
5	Fine sand (%)	15	15	100	1.71	30.8	10	8.3	22.3	1.71	30.8	10	8.3	22.3
5	Medium sand (%)	15	15	100	0.08	55.5	11	5.1	32.7	0.08	55.5	11	5.1	32.7
5	Very coarse sand (%)	15	15	100	0.14	28.8	5.64	0.84	12.9	0.14	28.8	5.64	0.84	12.9
5	Very fine sand (%)	15	15	100	0.02	18.7	6.16	3.89	15.7	0.02	18.7	6.16	3.89	15.7
5	>10 Phi clay (%)	4	4	100	0	4.5	1.1	0	0	0	4.5	1.1	0	0
5	8-9 Phi clay (%)	4	4	100	0	12.9	4.35	0	4.5	0	12.9	4.35	0	4.5
5	9-10 Phi clay (%)	4	4	100	4.3	12	8.0	6.7	9.1	4.3	12	8.0	6.7	9.1
5	Aluminum (mg/l)	4	4	100	0.06	0.9	0.38	0.12	0.42	0.06	0.9	0.38	0.12	0.42
5	Arsenic (mg/l)	4	4	100	0.002	0.008	0.004	0.002	0.004	0.002	0.008	0.004	0.002	0.004
5	Barium (mg/l)	4	4	100	0.12	0.17	0.14	0.12	0.13	0.12	0.17	0.14	0.12	0.13
5	Calcium (mg/l)	4	4	100	76.9	163	114.5	96.1	122	76.9	163	115	96.1	122
5	Coarse silt (%)	4	4	100	20.6	51.3	34	24.3	41.6	20.6	51.3	34	24.3	41.6
5	Cobalt (mg/l)	4	4	100	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01
5	Fine silt (%)	4	4	100	3	12.9	6.8	4.5	6.7	3	12.9	6.8	4.5	6.7
5	Iron (mg/l)	4	4	100	8.95	26.9	19	18.5	21.6	8.95	26.9	19	18.5	21.6
5	Magnesium (mg/l)	4	4	100	24.3	55.3	38	31.8	41.8	24.3	55.3	38	31.8	41.8
5	Manganese (mg/l)	4	4	100	8.9	20.5	14	11.7	14.2	8.9	20.5	14	11.7	14.2
5	Medium silt (%)	4	4	100	6.7	9.1	8.4	8.6	9	6.7	9.1	8.4	8.6	9
5	Potassium (mg/l)	4	4	100	3.9	5.1	4.2	3.9	4	3.9	5.1	4.2	3.9	4
5	Sieve 10 (%)	4	4	100	0.3	7.5	2.2	0.4	0.7	0.3	7.5	2.2	0.4	0.7

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
5	Sieve 140 (%)	4	4	100	2.4	7.8	5.5	5.2	6.7	2.4	7.8	5.5	5.2	6.7
5	Sieve 20 (%)	4	4	100	0.5	5.3	1.8	0.6	0.6	0.5	5.3	1.8	0.6	0.6
5	Sieve 200 (%)	4	4	100	0.3	4.4	2.1	1.3	2.2	0.3	4.4	2.1	1.3	2.2
5	Sieve 230 (%)	4	4	100	2.6	6.7	5.1	5.3	5.9	2.6	6.7	5.1	5.3	5.9
5	Sieve 4 (%)	4	4	100	0	8.3	2.3	0	0.9	0	8.3	2.3	0	0.9
5	Sieve 40 (%)	4	4	100	1	2	1.5	1.3	1.5	1	2	1.5	1.3	1.5
5	Sieve 60 (%)	4	4	100	1.1	3.1	2	1.6	2.2	1.1	3.1	2	1.6	2.2
5	Sodium (mg/l)	4	4	100	15	17.8	16	15.1	15.5	15	17.8	16	15.1	15.5
5	Titanium (mg/kg)	4	4	100	1850	2040	1930	1870	1960	1850	2040	1930	1870	1960
5	Tributyltin ion (ug/kg)	4	4	100	8.2	72	37.3	14	55	8.2	72	37.3	14	55
5	Vanadium (mg/l)	4	4	100	0.003	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.004	0.004
5	Very fine silt (%)	4	4	100	3	9.1	5.775	4.3	6.7	3	9.1	5.775	4.3	6.7
5	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	1	1	100	19	19	19	19	19	19	19	19	19	19
5	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/	1	1	100	98	98	98	98	98	98	98	98	98	98
5	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	1	1	100	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
5	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg	1	1	100	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
5	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	1	100	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
5	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	1	1	100	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
5	Acid Volatile Sulfides (mg/kg)	1	1	100	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
5	Heptachlorodibenzofuran (ng/kg)	1	1	100	65	65	65	65	65	65	65	65	65	65
5	Heptachlorodibenzo-p-dioxin (ng/kg)	1	1	100	180	180	180	180	180	180	180	180	180	180
5	Hexachlorodibenzofuran (ng/kg)	1	1	100	23	23	23	23	23	23	23	23	23	23
5	Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	29	29	29	29	29	29	29	29	29	29
5	Mean grain size (mm)	1	1	100	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
5	Median grain size (mm)	1	1	100	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
5	Moisture (%)	1	1	100	54	54	54	54	54	54	54	54	54	54
5	Octachlorodibenzofuran (ng/kg)	1	1	100	49	49	49	49	49	49	49	49	49	49
5	Octachlorodibenzo-p-dioxin (ng/kg)	1	1	100	890	890	890	890	890	890	890	890	890	890
5	Tetrachlorodibenzofuran (ng/kg)	1	1	100	13	13	13	13	13	13	13	13	13	13
5	Tetrachlorodibenzo-p-dioxin (ng/kg)	1	1	100	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
5	Lead (mg/kg)	87	86	99	9	1160 E	96	26	322	9	1160 E	95	24	322
5	High Molecular Weight PAH (ug/kg)	95	92	97	186 A	765000 A	68368	9910 A	333200 A	186 A	765000 A	66251	8790 A	333200 A
5	Polycyclic Aromatic Hydrocarbons (ug/kg)	95	92	97	193 A	868000 A	74097	10774 A	364840 A	193 A	868000 A	71799	10641 A	364840 A
5	Pyrene (ug/kg)	95	92	97	14	110000	9897	1600	40000	14	110000	9626	1600 G	40000
5	Fluoranthene (ug/kg)	106	102	96	16	130000	10234	2300	28000	16	130000	9917	2300	28000
5	Benz(a)anthracene (ug/kg)	95	90	95	13	81000	5935	940	28000	13	81000	5718	940	28000
5	Benzo(a)pyrene (ug/kg)	95	90	95	18	86000	6866	1200	31000	18	86000	6599	1200	31000
5	Benzo(k)fluoranthene (ug/kg)	95	90	95	17	63000	4668	670	21000	17	63000	4517	670	21000
5	Chrysene (ug/kg)	95	90	95	21	78000	6096	1100	30000	21	78000	5870	1100	30000
5	Indeno(1,2,3-cd)pyrene (ug/kg)	95	90	95	31	110000	7848	1000	40000	31	110000	7530	1000	40000
5	C1-Fluoranthene/pyrene (ug/kg)	16	15	94	30	3300	447	200	750	5 U	3300	419	200	750
5	C1-Phenanthrene/anthracene (ug/kg)	16	15	94	14	1700	271	130	440	5 U	1700	255	130	440
5	C2-Phenanthrene/anthracene (ug/kg)	16	15	94	11	6000	519	96	430	5 U	6000	487	96	430
5	Benzo(b)fluoranthene (ug/kg)	95	89	94	18	83000	5994	920	23000	5 U	83000	5710	920	23000
5	Benzo(g,h,i)perylene (ug/kg)	95	89	94	32	55000	4673	740	22000	32	55000	4490	740	22000
5	Low Molecular Weight PAH (ug/kg)	95	89	94	7 A	114000 A	5923	1225 A	26950 A	7 A	114000 A	5629	1070 A	26950 A
5	Phenanthrene (ug/kg)	95	89	94	7	74000	4078	820	16000	7	74000	3901	730 G	16000
5	Benzo(b+k)fluoranthene (ug/kg)	79	74	94	124 A	144000 A	12696	2200 A	55000 A	124 A	144000 A	12006	2190 A	55000 A

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
5	C1-Chrysene (ug/kg)	16	14	88	25	1900	349	200	660	5 U	1900	306	180	660
5	C1-Fluorene (ug/kg)	16	14	88	7	1300	140	23	290	5 U	1300	123	17	290
5	C2-Naphthalene (ug/kg)	16	14	88	8	840	132	37	520	5 U	840	116	26	520
5	C3-Naphthalene (ug/kg)	16	14	88	9	9000	781	36	1100	5 U	9000	684	34	1100
5	C3-Phenanthrene/anthracene (ug/kg)	16	14	88	17	4200	380	59	400	5 U	4200	333	35	400
5	C4-Naphthalene (ug/kg)	16	14	88	10	18000	1382	35	740	5 U	18000	1210	27	740
5	Anthracene (ug/kg)	95	81	85	5	12000	776	140	2000	5 U	20000 U	1163	210 G	5000 U
5	Pencil pitch (mg/kg)	44	37	84	310	14000	2274	1500	5200	100 U	14000	1938	1100 E	4500
5	C2-Dibenzothiophene (ug/kg)	16	13	81	9	1600	168	31	190	5 U	1600	137	23	190
5	Dibenzothiophene (ug/kg)	16	13	81	8	150	51	27	97	5 U	150	42	22	97
5	Acenaphthene (ug/kg)	95	77	81	6	14000	644	120	1600	5 U	20000 U	1024	120 G	5000 U
5	Arsenic (mg/kg)	87	68	78	1.8	14 G	4.8	4	9 G	1.8	14 G	4.9	5 U	7
5	Dibenz(a,h)anthracene (ug/kg)	95	73	77	6	11000	874	173 G	3600	6	20000 U	1280	220	5000 U
5	Fluorene (ug/kg)	95	72	76	8	14000	463	95	730 G	5 U	20000 U	854	85 G	3000 U
5	Zinc (mg/l)	4	3	75	0.005	0.01	0.007	0.005	0.005	0.004 U	0.01	0.006	0.005	0.005
5	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	31	23	74	1.2 A	39 A	15	10.4 A	28.4 A	1.2 A	41 UA	15	10 UA	29.2 A
5	Silver (mg/kg)	87	64	74	0.1	2	0.6	0.4	1.15	0.1	2.04 U	0.9	0.7	2 U
5	Mercury (mg/kg)	77	56	73	0.02 E	0.5	0.10	0.07	0.2	0.02 E	0.5	0.1	0.09 E	0.2 U
5	Carbazole (ug/kg)	24	17	71	25	2800 J	290	42	420	19 U	2800 J	211	37 J	390
5	C2-Fluorene (ug/kg)	16	11	69	8	4400	464	30	350	5 U	4400	321	10	350
5	C3-Dibenzothiophene (ug/kg)	16	11	69	7	1100	139	30	130	5 U	1100	97	20	130
5	Cadmium (mg/kg)	87	59	68	0.16	6.6 G	1.1	0.4	4	0.16	6.6 G	1.0	0.6	2.6 G
5	4,4'-DDE (ug/kg)	31	21	68	1	15	4.8	3.3	10	1	41 U	8.1	5 G	20 UG
5	Naphthalene (ug/kg)	95	64	67	6	2200	171	57	450	5 U	20000 U	731	50	3000 U
5	4,4'-DDD (ug/kg)	31	19	61	1 G	18.3	5.6	3.4	12	1 G	41 U	8.1	6.7 U	18.3
5	4,4'-DDT (ug/kg)	31	18	58	1	26 G	7.2	6.2	13	1	41 U	10	10 G	26 G
5	Bis(2-ethylhexyl) phthalate (ug/kg)	78	45	58	50	38000	1479	350	3200	50	38000	1948	300	10000 U
5	Beryllium (mg/kg)	45	25	56	0.6	1	0.7	0.7	0.7	0.6	1 U	0.83	0.7	1 U
5	Thallium (mg/kg)	45	23	51	6	25	15	11	24	1 U	25	8.1	6	23
5	1-Methylnaphthalene (ug/kg)	16	8	50	1	68	28	16	47	1	68	16.5	5 U	47
5	C2-Chrysene (ug/kg)	16	8	50	14	1600	292	110	200	5 U	1600	149	5 U	200
5	Dibenzofuran (ug/kg)	95	46	48	4 G	860	118	52	270	4 G	20000 U	687	31 G	3000 U
5	Tributyltin ion (ug/l)	7	3	43	0.03	0.05 G	0.04	0.03	0.05 G	0.02 U	0.05 G	0.03	0.02 U	0.05 U
5	Acenaphthylene (ug/kg)	95	40	42	11	3600	186	58	460 G	5 U	20000 U	707	31	3370 U
5	Antimony (mg/kg)	82	32	39	0.02 G	13 J	4.09	0.8 G	11	0.02 UG	13 J	5.11	5 UJ	10 J
5	Aroclor 1260 (ug/kg)	26	10	38	4	110	39	21	77	4	500 U	67	26	110
5	Polychlorinated biphenyls (ug/kg)	26	10	38	4 A	135 A	52	21 A	119 A	4 A	500 UA	89	40 UA	137 UA
5	C1-Dibenzothiophene (ug/kg)	16	6	38	7	7400	1305	20	270	5 U	7400	492	5 U	270
5	Pristane (mg/kg)	44	15	34	0.5	7	1.62	0.7	5.3	0.5 U	7	0.9	0.5 U	1.5
5	2-Methylnaphthalene (ug/kg)	60	20	33	6	420	75	30	410	5 U	5000 U	329	20 U	3000 U
5	C3-Chrysene (ug/kg)	16	5	31	52	830	224	52	120	5 U	830	73	5 U	120
5	Phytane (mg/kg)	44	11	25	0.5	6.1	1.8	0.8	5.3	0.5 U	6.1	0.9	0.5 U	1
5	C4-Phenanthrene/anthracene (ug/kg)	16	4	25	19	1500	400	24	56	5 U	1500	104	5 U	56
5	Diesel fuels (mg/kg)	44	10	23	230	2100	657	440	960	25 U	2100	227	100 U	550 E
5	Selenium (mg/kg)	49	11	22	7	12	11	11	12	0.5 U	12	4.4	1 U	12
5	4-Methylphenol (ug/kg)	64	14	22	20	640	271	130	620	19 U	20000 U	907	20 UG	3000 UG
5	Aroclor 1242 (ug/kg)	26	5	19	12	42	25	12	35	10 U	137 U	43	19 UJ	100 U
5	gamma-Chlordane (ug/kg)	21	4	19	2.5	5.8	3.4	2.6	2.7	0.95 U	20 UG	6.9	1.7 U	20 UG

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
5	Lube Oil (mg/kg)	44	7	16	160 E	1100 E	479	340 E	650 E	100 U	1100 E	160	100 U	390 E
5	Butylbenzyl phthalate (ug/kg)	78	12	15	20	3000	312	36 G	340	10 U	20000 U	823	20 U	3370 U
5	Methylene chloride (ug/kg)	9	1	11	11 B	11 B	11	11 B	11 B	5 U	1020 U	295	11 B	500 U
5	alpha-Chlordane (ug/kg)	25	2	8	1.1	2.1	1.6	1.1	1.1	0.95 U	41 U	8.7	1.7 U	20 UG
5	C4-Chrysene (ug/kg)	16	1	6	810	810	810	810	810	5 U	810	55	5 U	5 U
5	Di-n-octyl phthalate (ug/kg)	78	4	5	40	190	105	91	100	10 U	20000 U	820	20 U	3370 U
5	Xylene (ug/kg)	21	1	5	190	190	190	190	190	5 U	200 U	105	100 U	200 U
5	2,4-Dimethylphenol (ug/kg)	68	3	4	7	31	16	7	9	6 U	10200 U	634	19 U	3000 U
5	beta-Hexachlorocyclohexane (ug/kg)	29	1	3	2.1	2.1	2.1	2.1	2.1	0.95 U	41 U	13	6.7 U	30 U
5	Endosulfan sulfate (ug/kg)	29	1	3	12	12	12	12	12	1 U	41 U	9.8	6.7 U	20 UG
5	Aldrin (ug/kg)	31	1	3	0.3 J	0.3 J	0.3	0.3 J	0.3 J	0.3 J	41 U	8.6	2 U	20 UG
5	gamma-Hexachlorocyclohexane (ug/kg)	31	1	3	0.2 J	0.2 J	0.2	0.2 J	0.2 J	0.2 J	41 U	8.6	2 U	20 UG
5	2-Methylphenol (ug/kg)	68	2	3	17	51	34	17	17	6 U	6000 U	456	19 U	3000 U
5	Phenol (ug/kg)	68	2	3	55	110	83	55	55	19 U	20000 U	892	20 UG	3370 U
5	Toluene (ug/kg)	57	1	2	600	600	600	600	600	5 U	600	60	10 U	200 U
5	Benzoic acid (ug/kg)	68	1	1	110	110	110	110	110	100 U	100000 U	4633	190 U	20000 U
5	Benzyl alcohol (ug/kg)	68	1	1	12 G	12 G	12	12 G	12 G	6 U	6000 U	455	19 UJ	3000 U
5	Dibutyl phthalate (ug/kg)	78	1	1	43	43	43	43	43	10 U	20000 U	934	20 U	5000 U
5	Diethyl phthalate (ug/kg)	78	1	1	25	25	25	25	25	10 U	20000 U	778	20 U	3370 U
5	Dimethyl phthalate (ug/kg)	78	0	0						10 U	20000 U	778	20 U	3370 U
5	Hexachlorobutadiene (ug/kg)	68	0	0						19 U	20000 U	1070	20 UG	5000 U
5	N-Nitrosodiphenylamine (ug/kg)	68	0	0						12 U	12000 U	642	19 U	3370 U
5	Hexachlorobenzene (ug/kg)	68	0	0						19 U	20000 U	890	20 U	3370 U
5	Pentachlorophenol (ug/kg)	68	0	0						60 U	60000 U	3342	97 U	20000 UG
5	1,2-Dichlorobenzene (ug/kg)	67	0	0						1 U	204 U	23	10 U	100 U
5	1,3-Dichlorobenzene (ug/kg)	67	0	0						1 U	204 U	23	10 U	100 U
5	1,4-Dichlorobenzene (ug/kg)	67	0	0						1 U	204 U	23	10 U	100 U
5	Benzene (ug/kg)	57	0	0						5 U	204 U	34	10 U	100 U
5	Ethylbenzene (ug/kg)	57	0	0						5 U	204 U	51	10 U	200 U
5	Tetrachloroethene (ug/kg)	41	0	0						5 U	204 U	23	10 U	100 U
5	Trichloroethene (ug/kg)	41	0	0						5 U	204 U	23	10 U	100 U
5	m,p-Xylene (ug/kg)	36	0	0						5 U	408 U	36	10 U	200 U
5	o-Xylene (ug/kg)	36	0	0						5 U	204 U	22	10 U	100 U
5	2,4-Dinitrotoluene (ug/kg)	33	0	0						95 U	20400 U	1549	98 U	5000 U
5	2,6-Dinitrotoluene (ug/kg)	33	0	0						95 U	5100 U	722	98 U	3000 U
5	2-Chloronaphthalene (ug/kg)	33	0	0						19 U	5000 U	552	20 U	3000 U
5	2-Nitroaniline (ug/kg)	33	0	0						95 U	35000 U	2670	98 U	20000 U
5	3,3'-Dichlorobenzidine (ug/kg)	33	0	0						95 U	35000 U	3040	98 U	20000 U
5	3-Nitroaniline (ug/kg)	33	0	0						110 U	35000 U	3060	120 U	20000 U
5	4-Bromophenyl phenyl ether (ug/kg)	33	0	0						19 U	5000 U	552	20 U	3000 U
5	4-Chloroaniline (ug/kg)	33	0	0						57 U	20400 U	1511	59 U	5000 U
5	4-Chlorophenyl phenyl ether (ug/kg)	33	0	0						19 U	5000 U	552	20 U	3000 U
5	4-Nitroaniline (ug/kg)	33	0	0						95 U	35000 U	2670	98 U	20000 U
5	Bis(2-chloroethoxy) methane (ug/kg)	33	0	0						19 U	5000 U	552	20 U	3000 U
5	Bis(2-chloroethyl) ether (ug/kg)	33	0	0						38 U	5000 U	571	39 U	3000 U
5	Hexachlorocyclopentadiene (ug/kg)	33	0	0						95 U	10200 U	997	98 U	5000 U
5	Hexachloroethane (ug/kg)	33	0	0						19 U	10200 U	922	20 U	5000 U
5	Isophorone (ug/kg)	33	0	0						19 U	5000 U	552	20 U	3000 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
5	Nitrobenzene (ug/kg)	33	0	0						19 U	5000 U	552	20 U	3000 U
5	N-Nitrosodipropylamine (ug/kg)	33	0	0						38 U	5000 U	571	39 U	3000 U
5	1,2,4-Trichlorobenzene (ug/kg)	33	0	0						19 U	5000 U	386	20 U	3000 U
5	2,4,5-Trichlorophenol (ug/kg)	33	0	0						95 U	5000 U	628	98 U	3000 UG
5	2,4,6-Trichlorophenol (ug/kg)	33	0	0						95 U	5000 U	628	98 U	3000 UG
5	2,4-Dichlorophenol (ug/kg)	33	0	0						57 U	5000 U	590	59 U	3000 UG
5	2-Chlorophenol (ug/kg)	33	0	0						19 U	5000 U	552	20 U	3000 UG
5	2-Nitrophenol (ug/kg)	33	0	0						95 U	5000 U	628	98 U	3000 UG
5	4-Chloro-3-methylphenol (ug/kg)	33	0	0						38 U	5000 U	571	39 U	3000 UG
5	4-Nitrophenol (ug/kg)	33	0	0						95 U	35000 U	3040	98 U	20000 UX
5	4,6-Dinitro-2-methylphenol (ug/kg)	32	0	0						190 U	35000 U	3225	200 U	20000 UX
5	Dieldrin (ug/kg)	31	0	0						1 U	41 U	9.2	2.3 U	20 UG
5	Heptachlor (ug/kg)	31	0	0						0.95 U	41 U	8.69	2 U	20 UG
5	Bis(2-chloro-1-methylethyl) ether (ug/kg)	29	0	0						19 U	5000 U	421	19 UJ	3000 U
5	alpha-Endosulfan (ug/kg)	29	0	0						0.95 U	41 U	9.17	6.7 U	20 UG
5	alpha-Hexachlorocyclohexane (ug/kg)	29	0	0						0.95 U	41 U	9.17	6.7 U	20 UG
5	beta-Endosulfan (ug/kg)	29	0	0						1 U	41 U	10	6.7 U	20 UG
5	delta-Hexachlorocyclohexane (ug/kg)	29	0	0						0.96 U	41 U	9.27	6.7 U	20 UG
5	Endrin (ug/kg)	29	0	0						1 U	41 U	9.3	6.7 U	20 UG
5	Endrin aldehyde (ug/kg)	29	0	0						1 U	41 U	9.8	6.7 U	20 UG
5	Heptachlor epoxide (ug/kg)	29	0	0						0.95 U	41 U	9.17	6.7 U	20 UG
5	Methoxychlor (ug/kg)	29	0	0						1 U	70 U	17	9.7 UJ	40 UG
5	Toxaphene (ug/kg)	29	0	0						30 U	2000 UI	381	250 UI	1200 UI
5	2,4-Dinitrophenol (ug/kg)	28	0	0						190 UJ	35000 U	3223	200 UJ	20000 UX
5	Aroclor 1016 (ug/kg)	26	0	0						10 U	137 U	41	15 U	100 U
5	Aroclor 1221 (ug/kg)	26	0	0						10 U	274 U	61	30 U	134 U
5	Aroclor 1232 (ug/kg)	26	0	0						10 U	137 U	41	15 U	100 U
5	Aroclor 1248 (ug/kg)	26	0	0						10 U	500 U	56	15 U	100 UH
5	Aroclor 1254 (ug/kg)	26	0	0						10 U	500 U	56	15 U	100 UH
5	Endrin ketone (ug/kg)	23	0	0						1 U	52 UI	13	5.8 UI	26.8 U
5	C3-Fluorene (ug/kg)	16	0	0						5 U	5 U	5	5 U	5 U
5	1,1,1-Trichloroethane (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	1,1,2,2-Tetrachloroethane (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	1,1,2-Trichloroethane (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	1,1-Dichloroethane (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	1,2-Dichloroethane (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	1,2-Dichloropropane (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	Acetone (ug/kg)	9	0	0						100 U	5100 U	1678	200 U	2500 U
5	Bromodichloromethane (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	Bromoform (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	Bromomethane (ug/kg)	9	0	0						10 U	2040 U	588	20 U	1000 U
5	Carbon disulfide (ug/kg)	9	0	0						100 U	2040 U	838	200 U	2000 U
5	Carbon tetrachloride (ug/kg)	9	0	0						5 U	408 U	126	10 U	200 U
5	Chlorobenzene (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	Chlorodibromomethane (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	Chloroethane (ug/kg)	9	0	0						10 U	408 U	140	20 U	200 U
5	Chloroform (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	Chloromethane (ug/kg)	9	0	0						10 U	1020 U	308	20 U	500 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
5	cis-1,2-Dichloroethene (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	cis-1,3-Dichloropropene (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	Methyl isobutyl ketone (ug/kg)	9	0	0						50 U	1020 U	419	100 U	1000 U
5	Methyl N-butyl ketone (ug/kg)	9	0	0						50 U	2040 U	699	100 U	1000 U
5	Methylethyl ketone (ug/kg)	9	0	0						100 U	5100 U	1678	200 U	2500 U
5	Styrene (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	trans-1,2-Dichloroethene (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	trans-1,3-Dichloropropene (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	Trichlorofluoromethane (ug/kg)	9	0	0						10 U	204 U	84	20 U	200 U
5	Vinyl chloride (ug/kg)	9	0	0						10 U	204 U	84	20 U	200 U
5	Vinylidene chloride (ug/kg)	9	0	0						5 U	204 U	70	10 U	100 U
5	Chlordane (cis & trans) (ug/kg)	6	0	0						10 U	100 UH	85	100 U	100 U
5	Aniline (ug/kg)	5	0	0						1000 U	15000 U	7400	1000 U	10000 U
5	N-Nitrosodimethylamine (ug/kg)	5	0	0						2000 U	35000 U	15800	2000 U	20000 U
5	2-Chloroethyl vinyl ether (ug/kg)	5	0	0						10 U	200 U	50	10 U	20 U
5	Trichlorotrifluoroethane (ug/kg)	5	0	0						10 U	200 U	50	10 U	20 U
5	Vinyl acetate (ug/kg)	5	0	0						50 U	1000 U	250	50 U	100 U
5	Antimony (mg/l)	4	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
5	Beryllium (mg/l)	4	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
5	Bis(2-chloroisopropyl) ether (ug/kg)	4	0	0						330 U	3370 U	1503	660 U	1650 U
5	Butyltin ion (ug/kg)	4	0	0						5.7 U	5.9 U	5.8	5.8 U	5.8 U
5	Cadmium (mg/l)	4	0	0						0.002 U	0.002 U	0.002	0.002 U	0.002 U
5	Chromium (mg/l)	4	0	0						0.005 U	0.005 U	0.005	0.005 U	0.005 U
5	Copper (mg/l)	4	0	0						0.002 U	0.002 U	0.002	0.002 U	0.002 U
5	Dibutyltin ion (ug/kg)	4	0	0						5.7 U	5.9 U	5.8	5.8 U	5.8 U
5	Dibutyltin ion (ug/l)	4	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
5	Lead (mg/l)	4	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
5	Mercury (mg/l)	4	0	0						0.0001 U	0.0001 U	0.0001	0.0001 U	0.0001 U
5	Nickel (mg/l)	4	0	0						0.01 U	0.01 U	0.01	0.01 U	0.01 U
5	Selenium (mg/l)	4	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
5	Silver (mg/l)	4	0	0						0.0002 U	0.0002 U	0.0002	0.0002 U	0.0002 U
5	Tetrabutyltin (ug/kg)	4	0	0						5.7 U	5.9 U	5.8	5.8 U	5.8 U
5	Tetrabutyltin (ug/l)	4	0	0						0.02 U	0.02 U	0.02	0.02 U	0.02 U
5	Thallium (mg/l)	4	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
5	1,1,1,2-Tetrachloroethane (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	1,1-Dichloropropene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	1,2,3-Trichlorobenzene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	1,2,3-Trichloropropane (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	1,2-Dibromo-3-chloropropane (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	1,3,5-Trimethylbenzene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	1,3-Dichloropropane (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	2,2-Dichloropropane (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	2-Chlorotoluene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	3- and 4-Methylphenol Coelution (ug/kg)	4	0	0						330 U	3370 U	1502.5	660 U	1650 U
5	4-Chlorotoluene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	Bromobenzene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	Bromochloromethane (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	Chlordane (technical) (ug/kg)	4	0	0						150 U	919 U	454.75	150 U	600 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
5	Dichlorodifluoromethane (ug/kg)	4	0	0						500 U	1020 U	630	500 U	500 U
5	Ethylene dibromide (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	Isopropylbenzene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	Methylene bromide (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	n-Butylbenzene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	n-Propylbenzene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	p-Cymene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	Pseudocumene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	Sec-butylbenzene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	tert-Butylbenzene (ug/kg)	4	0	0						100 U	204 U	126	100 U	100 U
5	trans-Chlordane (ug/kg)	4	0	0						6.7 U	41 U	20.3	6.7 U	26.8 U
5	Butyltin ion (ug/l)	3	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
5	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	1	0	0						0.88 U	0.88 U	0.88	0.88 U	0.88 U
5	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	1	0	0						2.2 U	2.2 U	2.2	2.2 U	2.2 U
5	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	1	0	0						2.1 U	2.1 U	2.1	2.1 U	2.1 U
5	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	0	0						2.2 U	2.2 U	2.2	2.2 U	2.2 U
5	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	1	0	0						2.2 U	2.2 U	2.2	2.2 U	2.2 U
5	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	1	0	0						0.94 U	0.94 U	0.94	0.94 U	0.94 U
5	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	1	0	0						2.2 U	2.2 U	2.2	2.2 U	2.2 U
5	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	1	0	0						0.94 U	0.94 U	0.94	0.94 U	0.94 U
5	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	1	0	0						0.85 U	0.85 U	0.85	0.85 U	0.85 U
5	Pentachlorodibenzofuran (ng/kg)	1	0	0						0.94 U	0.94 U	0.94	0.94 U	0.94 U
5	Pentachlorodibenzo-p-dioxin (ng/kg)	1	0	0						2.2 U	2.2 U	2.2	2.2 U	2.2 U
6	Chromium (mg/kg)	37	37	100	14.3	220	42	33.6	109	14.3	220	42	33.6	109
6	Copper (mg/kg)	37	37	100	15.2	1150	90	37.8	140	15.2	1150	90	37.8	140
6	Lead (mg/kg)	37	37	100	4.5	577	60	16	232	4.5	577	60	16	232
6	Nickel (mg/kg)	37	37	100	14	167	31	26	50	14	167	31	26	50
6	Zinc (mg/kg)	37	37	100	52.3	2010	184	98.6	388	52.3	2010	184	98.6	388
6	Benz(a)anthracene (ug/kg)	29	29	100	64	6100	630	140	2100	64	6100	630	140	2100
6	Benzo(a)pyrene (ug/kg)	29	29	100	56	6800	759	150	2000	56	6800	759	150	2000
6	Benzo(b)fluoranthene (ug/kg)	29	29	100	54 G	6400	588	170	2200	54 G	6400	588	170	2200
6	Benzo(k)fluoranthene (ug/kg)	29	29	100	38	3800 G	403	140	1000	38	3800 G	403	140	1000
6	Chrysene (ug/kg)	29	29	100	94	7200	767	180	2300	94	7200	767	180	2300
6	Fluoranthene (ug/kg)	29	29	100	140	17000	1781	380	4100	140	17000	1781	380	4100
6	High Molecular Weight PAH (ug/kg)	29	29	100	798 A	78600 A	8049	2085 A	20407 A	798 A	78600 A	8049	2085 A	20407 A
6	Indeno(1,2,3-cd)pyrene (ug/kg)	29	29	100	41	5600	552	100	1600	41	5600	552	100	1600
6	Low Molecular Weight PAH (ug/kg)	29	29	100	115 A	19320 A	2026	444 A	4420 A	115 A	19320 A	2026	444 A	4420 A
6	Phenanthrene (ug/kg)	29	29	100	79	15000	1247	254	2200	79	15000	1247	254	2200
6	Polycyclic Aromatic Hydrocarbons (ug/kg)	29	29	100	913 A	97920 A	10074	2483 A	23617 A	913 A	97920 A	10074	2483 A	23617 A
6	Pyrene (ug/kg)	29	29	100	140	21000	1924	380	4100	140	21000	1924	380	4100
6	Benzo(b+k)fluoranthene (ug/kg)	26	26	100	113 A	8800 A	1016	260 A	2410 A	113 A	8800 A	1016	260 A	2410 A
6	Total organic carbon (%)	26	26	100	0.38	2.79	1.445	1.3	2.49	0.38	2.79	1.445	1.3	2.49
6	Aluminum (mg/kg)	20	20	100	8470	40900	30954	33200	40900	8470	40900	30954	33200	40900
6	Barium (mg/kg)	20	20	100	111	426	183	173	232	111	426	183	173	232
6	Calcium (mg/kg)	20	20	100	5360 J	53800	12547	8230 J	52700	5360 J	53800	12547	8230 J	52700
6	Cobalt (mg/kg)	20	20	100	12.9	55.5	21	17.7	36.7	12.9	55.5	21	17.7	36.7
6	Iron (mg/kg)	20	20	100	19100	84900	40650	39700	50100	19100	84900	40650	39700	50100
6	Magnesium (mg/kg)	20	20	100	3710	14500	6881	6460	11900	3710	14500	6881	6460	11900

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
6	Manganese (mg/kg)	20	20	100	322	1440	699	637	1330	322	1440	699	637	1330
6	Potassium (mg/kg)	20	20	100	760	50000	4276	1230	10200	760	50000	4276	1230	10200
6	Sodium (mg/kg)	20	20	100	753	49000	4165	1110	10700	753	49000	4165	1110	10700
6	Vanadium (mg/kg)	20	20	100	71.9	147	99	99	112	71.9	147	99	99	112
6	Fines (%)	19	19	100	1.9	74.34	48	47.73	72.09	1.9	74.34	48	47.73	72.09
6	Silt (%)	19	19	100	1.9	72.04	41	39.61	62.42	1.9	72.04	41	39.61	62.42
6	Sand (%)	18	18	100	25.5	96.8	49	42.7	84.69	25.5	96.8	49	42.7	84.69
6	Gravel (%)	17	17	100	0.01	14.18	1.20	0.11	1.77	0.01	14.18	1.20	0.11	1.77
6	Total solids (%)	17	17	100	41.9	78.4	55	47.6	76.6	41.9	78.4	55	47.6	76.6
6	Titanium (mg/kg)	9	9	100	1520	1980	1807	1760	1970	1520	1980	1807	1760	1970
6	Aluminum (mg/l)	6	6	100	0.05	0.61	0.20	0.08	0.24	0.05	0.61	0.20	0.08	0.24
6	Arsenic (mg/l)	6	6	100	0.001	0.008	0.003	0.002	0.002	0.001	0.008	0.003	0.002	0.002
6	Barium (mg/l)	6	6	100	0.04	0.13	0.08	0.08	0.1	0.04	0.13	0.08	0.08	0.1
6	Calcium (mg/l)	6	6	100	25.8	108	74	71.4	103	25.8	108	74	71.4	103
6	Iron (mg/l)	6	6	100	0.49	24	6.65	2.21	5.83	0.49	24	6.65	2.21	5.83
6	Magnesium (mg/l)	6	6	100	15	37.9	27	24.1	35.2	15	37.9	27	24.1	35.2
6	Manganese (mg/l)	6	6	100	2.66	12.9	7.69	7.27	10.5	2.66	12.9	7.69	7.27	10.5
6	Potassium (mg/l)	6	6	100	2.1	4.7	3.2	2.8	3.9	2.1	4.7	3.2	2.8	3.9
6	Sodium (mg/l)	6	6	100	10.1	17.6	15	15.5	16.4	10.1	17.6	15	15.5	16.4
6	Total volatile solids (%)	3	3	100	1.4	4.97	2.86	1.4	2.2	1.4	4.97	2.86	1.4	2.2
6	Mean grain size (mm)	2	2	100	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
6	Median grain size (mm)	2	2	100	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
6	Ammonia (mg/kg)	1	1	100	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5
6	Total sulfides (mg/kg)	1	1	100	52	52	52	52	52	52	52	52	52	52
6	Anthracene (ug/kg)	29	28	97	25	4400 G	287	62	680	20 U	4400 G	277	55	680
6	Tributyltin ion (ug/kg)	18	17	94	0.7 J	819	133	43.7	480 J	0.7 J	819	126	43.7	480 J
6	Fluorene (ug/kg)	29	27	93	16	1600	173	50	410	16	1600	162	46	410
6	Carbazole (ug/kg)	23	21	91	9 J	650 J	120	48 J	210 J	9 J	650 J	112	41 J	210 J
6	Dibenz(a,h)anthracene (ug/kg)	29	26	90	10 G	690 G	93	45	300	10 G	690 G	85	40	300
6	Clay (%)	19	17	89	2.23	11.23	7.49	7.99	9.98	0.1 U	11.23	6.71	7.82	9.98
6	4,4'-DDD (ug/kg)	8	7	88	1.6 J	4.1	2.6	2	3.3	1.6 J	4.1	2.7	2.6	3.3
6	4,4'-DDT (ug/kg)	8	7	88	1.7 J	14	6.0	2.4	11	1.7 J	14	6.1	3.9	11
6	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	8	7	88	3.3 A	17.5 A	9.1	4.7 A	17.3 A	3.3 A	17.5 A	8.8	6.5 A	17.3 A
6	Acenaphthene (ug/kg)	29	25	86	28	1700 G	231	66	760	20 U	1700 G	203	56	760
6	Benzo(g,h,i)perylene (ug/kg)	29	25	86	44	5700	660	170	1700	19 UJ	5700	571	110	1700
6	Naphthalene (ug/kg)	29	25	86	4 J	680	113	50	300 J	4 J	680	101	37	300 J
6	4-Methylphenol (ug/kg)	18	15	83	21	1000	372	300	680	19 U	1000	313	280	680
6	Cobalt (mg/l)	6	5	83	0.007	0.01	0.008	0.008	0.008	0.003 U	0.01	0.007	0.008	0.008
6	Zinc (mg/l)	6	5	83	0.005	0.01	0.008	0.006	0.01	0.004 U	0.01	0.007	0.006	0.01
6	2-Methylnaphthalene (ug/kg)	25	20	80	2 J	530	73	32	240	2 J	530	62	27	135 G
6	Beryllium (mg/kg)	34	26	76	0.39	0.86	0.57	0.57	0.7	0.39	4.8 U	1.39	0.6	4.5 U
6	Silver (mg/kg)	37	28	76	0.05	1.16	0.5975	0.7	0.9	0.05	4.8 U	1.35	0.7	4.5 U
6	Dibenzofuran (ug/kg)	26	19	73	6 J	290	67	31	220	6 J	290	54	25	200 J
6	Mercury (mg/kg)	37	27	73	0.02	0.12	0.06	0.05	0.11	0.02	0.2 U	0.09	0.07	0.2 U
6	Cadmium (mg/kg)	37	25	68	0.06	0.5	0.30	0.3	0.4	0.06	4.8 U	1.12	0.3	4.5 U
6	Diesel fuels (mg/kg)	6	4	67	92	720	280	99	210	92	720	222	99	210
6	Arsenic (mg/kg)	37	22	59	1.8	105	13	4.3	30.6	1.8	105	9.53	5 U	30.6
6	Thallium (mg/kg)	34	20	59	0.07	27	12	20	25	0.07	48 U	17	20	45 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
6	Selenium (mg/kg)	34	19	56	0.47	15	10	11	14	0.47	15	6.40	2.38 U	14
6	Bis(2-ethylhexyl) phthalate (ug/kg)	24	12	50	50 J	430	184	170	300 J	50 J	12000 U	648	130 U	300 J
6	Dibutyltin ion (ug/kg)	18	9	50	0.8 J	253	40	7	45	0.8 J	253	22	5.8 U	45
6	Lead (mg/l)	6	3	50	0.001	0.002	0.002	0.001	0.002	0.001	0.002	0.001	0.001 U	0.002
6	Residual Range Organics (mg/kg)	6	3	50	410	840	630	410	640	380 U	840	520	410	640
6	Acid Volatile Sulfides (mg/kg)	2	1	50	0.9	0.9	0.9	0.9	0.9	0.7 U	0.9	0.8	0.7 U	0.7 U
6	Acenaphthylene (ug/kg)	29	14	48	6 J	406 G	82.3	33 J	280 J	6 J	406 G	50	20	110
6	Butyltin ion (ug/kg)	18	8	44	2	95.5	18	3	24 J	1 U	95.5	11	5.7 U	24 J
6	Aroclor 1260 (ug/kg)	14	5	36	4	19	11	8 J	13	4	20 U	14	13	20 U
6	Polychlorinated biphenyls (ug/kg)	14	5	36	4 A	19 A	11	8 A	13 A	4 A	40 UA	24	20 UA	39 UA
6	Butylbenzyl phthalate (ug/kg)	24	7	29	3 J	37	19	6 J	30	3 J	1200 U	69.5	20 U	30 U
6	4,4'-DDE (ug/kg)	8	2	25	0.7	2.4	1.55	0.7	0.7	0.7	2.4	1.9	2 U	2.3 U
6	Antimony (mg/kg)	35	8	23	0.14	15.2	3.62	0.62	10.1	0.02 UG	24 U	7.78	5 UJ	23 U
6	Tetrabutyltin (ug/kg)	18	4	22	0.5 J	7.14	2.41	1 J	1 J	0.5 J	7.14	4.13	5.6 U	5.9 U
6	Tributyltin ion (ug/l)	9	2	22	0.03	0.25	0.14	0.03	0.03	0.02 U	0.25	0.05	0.02 U	0.05 U
6	Benzoic acid (ug/kg)	24	5	21	50 J	80 J	68	50 J	80 J	50 J	23000 U	1115	190 U	200 U
6	Diethyl phthalate (ug/kg)	24	5	21	2 J	10 J	4.4	3 J	4 J	2 J	970 U	56	19 U	20 U
6	Dimethyl phthalate (ug/kg)	24	4	17	0.6 J	36	9.65	1 J	1 J	0.6 J	580 U	41	19 U	20 U
6	Phenol (ug/kg)	24	4	17	6 J	7 J	6.25	6 J	6 J	6 J	2900 U	140	19 U	20 U
6	Copper (mg/l)	6	1	17	0.003	0.003	0.003	0.003	0.003	0.002 U	0.003	0.002	0.002 U	0.002 U
6	Vanadium (mg/l)	6	1	17	0.003	0.003	0.003	0.003	0.003	0.003 U	0.003	0.003	0.003 U	0.003 U
6	Endosulfan sulfate (ug/kg)	7	1	14	0.7 J	0.7 J	0.7	0.7 J	0.7 J	0.7 J	20 U	4.3	1.9 U	2 U
6	Methoxychlor (ug/kg)	7	1	14	1 J	1 J	1	1 J	1 J	1 J	40 U	13	9.5 U	9.9 U
6	Bis(2-chloroethoxy) methane (ug/kg)	23	3	13	29	30	30	29	30	19 UJ	1200 U	73	20 U	30
6	Dibutyl phthalate (ug/kg)	24	2	8	21	43	32	21	21	19 U	1200 U	72	20 U	30 U
6	N-Nitrosodipropylamine (ug/kg)	23	1	4	3 J	3 J	3	3 J	3 J	3 J	580 U	57	39 U	40 U
6	2,4-Dimethylphenol (ug/kg)	24	1	4	290	290	290	290	290	6 U	12000 U	576	20 U	300 U
6	Pentachlorophenol (ug/kg)	24	1	4	88 J	88 J	88	88 J	88 J	61 U	17000 U	872	98 UJ	440 U
6	Benzyl alcohol (ug/kg)	24	0	0						6 U	2900 U	150	20 UJ	74 U
6	Hexachlorobutadiene (ug/kg)	24	0	0						15 U	580 U	42	19 U	20 U
6	N-Nitrosodiphenylamine (ug/kg)	24	0	0						12 U	580 U	42	19 U	20 U
6	1,2-Dichlorobenzene (ug/kg)	24	0	0						1 U	580 U	41	19 U	20 U
6	1,3-Dichlorobenzene (ug/kg)	24	0	0						1 U	580 U	41	19 U	20 U
6	1,4-Dichlorobenzene (ug/kg)	24	0	0						1 U	580 U	41	19 U	20 U
6	2-Methylphenol (ug/kg)	24	0	0						6 U	12000 U	576	20 U	300 U
6	Di-n-octyl phthalate (ug/kg)	24	0	0						19 U	12000 U	576	20 U	300 U
6	Hexachlorobenzene (ug/kg)	24	0	0						15 U	580 U	42	19 U	20 U
6	2,4-Dinitrotoluene (ug/kg)	23	0	0						73 U	2900 U	214	97 U	100 U
6	2,6-Dinitrotoluene (ug/kg)	23	0	0						29 U	1200 U	131	97 U	100 U
6	2-Chloronaphthalene (ug/kg)	23	0	0						15 U	580 U	43	19 U	20 U
6	2-Nitroaniline (ug/kg)	23	0	0						29 U	1200 U	131	97 U	100 U
6	3,3'-Dichlorobenzidine (ug/kg)	23	0	0						90 U	4000 U	285	98 U	200 U
6	3-Nitroaniline (ug/kg)	23	0	0						110 UJ	12000 U	673	120 UJ	300 U
6	4-Bromophenyl phenyl ether (ug/kg)	23	0	0						15 U	580 U	43	19 U	20 U
6	4-Chloroaniline (ug/kg)	23	0	0						57 UJ	2900 U	185	59 UJ	74 U
6	4-Chlorophenyl phenyl ether (ug/kg)	23	0	0						15 U	580 U	43	19 U	20 U
6	4-Nitroaniline (ug/kg)	23	0	0						94 UJ	5800 U	357	98 UJ	150 U
6	Bis(2-chloroethyl) ether (ug/kg)	23	0	0						15 U	580 U	57	39 U	40 UJ

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
6	Hexachlorocyclopentadiene (ug/kg)	23	0	0						94 UJ	12000 U	658	98 UJ	300 U
6	Hexachloroethane (ug/kg)	23	0	0						19 U	2300 U	127	20 U	59 U
6	Isophorone (ug/kg)	23	0	0						15 U	580 U	43	19 U	20 U
6	Nitrobenzene (ug/kg)	23	0	0						15 U	580 U	43	19 U	20 U
6	1,2,4-Trichlorobenzene (ug/kg)	23	0	0						15 U	580 U	43	19 U	20 U
6	2,4,5-Trichlorophenol (ug/kg)	23	0	0						73 U	2900 U	214	97 U	100 U
6	2,4,6-Trichlorophenol (ug/kg)	23	0	0						73 U	2900 U	214	97 U	100 U
6	2,4-Dichlorophenol (ug/kg)	23	0	0						57 U	5800 U	328	59 U	150 U
6	2-Chlorophenol (ug/kg)	23	0	0						19 U	2900 U	157	20 U	74 U
6	2-Nitrophenol (ug/kg)	23	0	0						73 U	2900 U	214	97 U	100 U
6	4,6-Dinitro-2-methylphenol (ug/kg)	23	0	0						190 U	12000 U	730	200 U	300 U
6	4-Chloro-3-methylphenol (ug/kg)	23	0	0						38 U	2900 U	171	39 U	74 U
6	4-Nitrophenol (ug/kg)	23	0	0						94 U	5800 U	357	98 U	150 U
6	Bis(2-chloro-1-methylethyl) ether (ug/kg)	17	0	0						19 UJ	20 U	19	19 U	20 U
6	Aroclor 1016 (ug/kg)	14	0	0						10 U	20 U	14	10 U	20 U
6	Aroclor 1221 (ug/kg)	14	0	0						10 U	40 U	26	20 U	39 U
6	Aroclor 1232 (ug/kg)	14	0	0						10 U	20 U	16	18 U	20 U
6	Aroclor 1242 (ug/kg)	14	0	0						10 U	20 U	15	13 U	20 U
6	Aroclor 1248 (ug/kg)	14	0	0						10 U	20 U	14	10 U	20 U
6	Aroclor 1254 (ug/kg)	14	0	0						10 U	38 U	17	10 U	29 UI
6	2,4-Dinitrophenol (ug/kg)	14	0	0						190 UJ	17000 U	1484	200 UJ	450 U
6	Aldrin (ug/kg)	8	0	0						0.94 U	20 U	3.57	0.98 U	2 U
6	Dieldrin (ug/kg)	8	0	0						1.9 U	2.3 U	2	2 U	2 U
6	gamma-Hexachlorocyclohexane (ug/kg)	8	0	0						0.94 U	20 U	3.57	0.98 U	2 U
6	Heptachlor (ug/kg)	8	0	0						0.94 U	20 U	3.57	0.98 U	2 U
6	alpha-Endosulfan (ug/kg)	7	0	0						0.94 U	20 U	3.83	0.96 U	2 U
6	alpha-Hexachlorocyclohexane (ug/kg)	7	0	0						0.94 U	20 U	3.83	0.96 U	2 U
6	beta-Endosulfan (ug/kg)	7	0	0						1.9 U	20 U	4.53	1.9 U	2 U
6	beta-Hexachlorocyclohexane (ug/kg)	7	0	0						0.94 U	20 U	3.83	0.96 U	2 U
6	delta-Hexachlorocyclohexane (ug/kg)	7	0	0						0.94 U	20 U	3.95	0.98 U	2 U
6	Endrin (ug/kg)	7	0	0						1.9 U	20 U	4.53	1.9 U	2 U
6	Endrin aldehyde (ug/kg)	7	0	0						1.9 U	20 U	4.53	1.9 U	2 U
6	Heptachlor epoxide (ug/kg)	7	0	0						0.94 U	20 U	3.83	0.96 U	2 U
6	Toxaphene (ug/kg)	7	0	0						30 U	99 U	77	94 U	98 U
6	Antimony (mg/l)	6	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
6	Beryllium (mg/l)	6	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
6	Bis(2-chloroisopropyl) ether (ug/kg)	6	0	0						15 U	580 U	109	15 U	15 U
6	Cadmium (mg/l)	6	0	0						0.002 U	0.002 U	0.002	0.002 U	0.002 U
6	Chromium (mg/l)	6	0	0						0.005 U	0.005 U	0.005	0.005 U	0.005 U
6	Dibutyltin ion (ug/l)	6	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
6	Mercury (mg/l)	6	0	0						0.0001 U	0.0001 U	0.0001	0.0001 U	0.0001 U
6	Nickel (mg/l)	6	0	0						0.01 U	0.01 U	0.01	0.01 U	0.01 U
6	Selenium (mg/l)	6	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
6	Silver (mg/l)	6	0	0						0.0002 U	0.0002 U	0.0002	0.0002 U	0.0002 U
6	Tetrabutyltin (ug/l)	6	0	0						0.02 U	0.02 U	0.02	0.02 U	0.02 U
6	Thallium (mg/l)	6	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
6	3- and 4-Methylphenol Coelution (ug/kg)	6	0	0						290 U	12000 U	2247	300 U	300 U
6	alpha-Chlordane (ug/kg)	6	0	0						0.94 U	1.7 U	1.09	0.96 U	0.99 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
6	gamma-Chlordane (ug/kg)	6	0	0						0.94 U	1.7 U	1.09	0.96 U	0.99 U
6	Gasoline (mg/kg)	6	0	0						40 U	140 U	58	40 U	48 U
6	Endrin ketone (ug/kg)	5	0	0						1.9 U	2 U	1.94	1.9 U	2 U
6	Chlordane (cis & trans) (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
6	Butyltin ion (ug/l)	1	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
7	Total organic carbon (%)	91	91	100	0.08	14 M	2.36	1.85	5.1	0.08	14 M	2.36	1.85	5.1
7	Fines (%)	90	90	100	0	93.4 J	47	50.7 J	90.3 J	0	93.4 J	47	50.7 J	90.3 J
7	Sand (%)	89	89	100	6.6 J	98.3	49	46.02	95.26	6.6 J	98.3	49	46.02	95.26
7	Chromium (mg/kg)	85	85	100	9.3	56.4	28	28.4	41	9.3	56.4	28	28.4	41
7	Zinc (mg/kg)	85	85	100	35 JM	490 JM	130	114	210	35 JM	490 JM	130	114	210
7	Copper (mg/kg)	82	82	100	12	150 M	46	44	84	12	150 M	46	44	84
7	Lead (mg/kg)	73	73	100	2.8	86.9	25	25	47	2.8	86.9	25	25	47
7	Silt (%)	71	71	100	0.4	80.7 J	50	59.54	77.9 J	0.4	80.7 J	50	59.54	77.9 J
7	Gravel (%)	64	64	100	0.01	46.31	5.68	1.66	26.95	0.01	46.31	5.68	1.66	26.95
7	Nickel (mg/kg)	60	60	100	11	37	24	23	33	11	37	24	23	33
7	Total solids (%)	45	45	100	26.5	82.2	52	45	76.5	26.5	82.2	52	45	76.5
7	Iron (mg/kg)	28	28	100	28000 J	64500	43493	43600	54200	28000 J	64500	43493	43600	54200
7	Manganese (mg/kg)	28	28	100	360	909	634	624	840	360	909	634	624	840
7	Aluminum (mg/kg)	27	27	100	14000	43300	32533	33200	42600	14000	43300	32533	33200	42600
7	Barium (mg/kg)	27	27	100	101	229	169	170	208	101	229	169	170	208
7	Calcium (mg/kg)	27	27	100	4500	10300 J	7443	7410 J	8780 J	4500	10300 J	7443	7410 J	8780 J
7	Cobalt (mg/kg)	27	27	100	11.3	27	19	18.4	23.9	11.3	27	19	18.4	23.9
7	Magnesium (mg/kg)	27	27	100	3500	7590	6007	6090	7310	3500	7590	6007	6090	7310
7	Potassium (mg/kg)	27	27	100	320	1500	1054	1080	1380	320	1500	1054	1080	1380
7	Sodium (mg/kg)	27	27	100	330	1250	891	928	1190	330	1250	891	928	1190
7	Total volatile solids (%)	27	27	100	1.1	12.3	8.3	9.2 J	10.1 J	1.1	12.3	8.3	9.2 J	10.1 J
7	Vanadium (mg/kg)	27	27	100	66.6	160	109.1	107	147	66.6	160	109	107	147
7	Tributyltin ion (ug/kg)	26	26	100	7.6 JN	410 G	123.6	93 G	240 G	7.6 JN	410 G	124	93 G	240 G
7	Mean grain size (mm)	23	23	100	0.02	0.6	0.07	0.02	0.09	0.02	0.6	0.07	0.02	0.09
7	Median grain size (mm)	23	23	100	0.01	0.5	0.06	0.02	0.06	0.01	0.5	0.06	0.02	0.06
7	Total sulfides (mg/kg)	18	18	100	1	720 G	73	20 G	170 G	1	720 G	73	20 G	170 G
7	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/	17	17	100	26	6900 M	916	210	3800	26	6900 M	916	210	3800
7	Octachlorodibenzofuran (ng/kg)	17	17	100	15	2800 JM	341	110	740	15	2800 JM	341	110	740
7	Octachlorodibenzo-p-dioxin (ng/kg)	17	17	100	250	56000 JM	7598	1600	29000	250	56000 JM	7598	1600	29000
7	Heptachlorodibenzofuran (ng/kg)	9	9	100	12	1300	300	140	590	12	1300	300	140	590
7	Heptachlorodibenzo-p-dioxin (ng/kg)	9	9	100	87	6900	1357	320	3100	87	6900	1357	320	3100
7	Hexachlorodibenzofuran (ng/kg)	9	9	100	6.7	1100	261	83	550	6.7	1100	261	83	550
7	Titanium (mg/kg)	7	7	100	1910	3200	2543	2110	2940	1910	3200	2543	2110	2940
7	Aluminum (mg/l)	4	4	100	0.61	3.66	1.47	0.62	1	0.61	3.66	1.47	0.62	1
7	Arsenic (mg/l)	4	4	100	0.002	0.009	0.004	0.002	0.004	0.002	0.009	0.004	0.002	0.004
7	Barium (mg/l)	4	4	100	0.03	0.12	0.06	0.04	0.05	0.03	0.12	0.06	0.04	0.05
7	Calcium (mg/l)	4	4	100	14.3	66.6	36	22.8	41.6	14.3	66.6	36	22.8	41.6
7	Cobalt (mg/l)	4	4	100	0.003	0.01	0.006	0.004	0.005	0.003	0.01	0.006	0.004	0.005
7	Copper (mg/l)	4	4	100	0.002	0.02	0.007	0.003	0.003	0.002	0.02	0.007	0.003	0.003
7	Iron (mg/l)	4	4	100	5.04	33.8	12.84	5.06	7.44	5.04	33.8	12.84	5.06	7.44
7	Lead (mg/l)	4	4	100	0.002	0.01	0.004	0.002	0.002	0.002	0.01	0.004	0.002	0.002
7	Magnesium (mg/l)	4	4	100	6.03	21.2	12	7.78	12	6.03	21.2	12	7.78	12
7	Manganese (mg/l)	4	4	100	1.56	8.5	3.95	2.07	3.68	1.56	8.5	3.95	2.07	3.68

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Potassium (mg/l)	4	4	100	1.2	3.8	2.2	1.7	2.2	1.2	3.8	2.2	1.7	2.2
7	Sodium (mg/l)	4	4	100	11.1	16.1	14	14.1	14.7	11.1	16.1	14	14.1	14.7
7	Zinc (mg/l)	4	4	100	0.008	0.01	0.009	0.008	0.009	0.008	0.01	0.009	0.008	0.009
7	Heavy oil (mg/kg)	4	4	100	9.6	5100	1360	91	240	9.6	5100	1360	91	240
7	Ammonia (mg/kg)	3	3	100	14.2	128	52.5	14.2	15.3	14.2	128	52.5	14.2	15.3
7	Moisture (%)	3	3	100	41	220	104	41	51	41	220	104	41	51
7	pH (pH units)	3	3	100	6.4	7	6.7	6.4	6.6	6.4	7	6.7	6.4	6.6
7	Specific Gravity (Std_ Units)	3	3	100	2.49	2.74	2.65	2.49	2.71	2.49	2.74	2.65	2.49	2.71
7	Mean grain size (%)	1	1	100	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
7	Median grain size (%)	1	1	100	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
7	Tin (mg/kg)	1	1	100	3.46 G	3.46 G	3.46	3.46 G	3.46 G	3.46 G	3.46 G	3.46	3.46 G	3.46 G
7	Fluoranthene (ug/kg)	113	110	97	0.8 G	3000000	52573	2600 G	140000	0.8 G	3000000	51186	2400	140000
7	High Molecular Weight PAH (ug/kg)	113	110	97	2 A	12268000 A	202810	12439 A	524200 A	2 A	12268000 A	197434	11450 A	524200 A
7	Polycyclic Aromatic Hydrocarbons (ug/kg)	113	110	97	4.5 A	26408000 A	422233	17950 A	1045000 A	4.5 A	26408000 A	411032	16563 A	1045000 A
7	Pyrene (ug/kg)	113	110	97	0.8 G	3400000	55883	2500	140000	0.8 G	3400000	54408	2400	140000
7	Clay (%)	71	69	97	0.1	15.8 J	8.6	9.15	14 J	0.1	15.8 J	8.3	9.1 J	14 J
7	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	37	35	95	1.7 A	3800 A	276	65 A	900 A	1.7 A	3800 A	261	55 A	900 A
7	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	17	16	94	6.3	930 JM	128	45	330	6.3	930 JM	125	45	330
7	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	17	16	94	5.3	190 M	43	20	140	4.9 U	190 M	40	13	140
7	Acid Volatile Sulfides (mg/kg)	17	16	94	3.6	1100 X	126	41 X	250 X	0.7 U	1100 X	119	41 X	250 X
7	Benzo(b+k)fluoranthene (ug/kg)	113	106	94	15 A	1280000 A	21793	1900	47000 A	5 UA	1280000 A	20456	1800	47000 A
7	Chrysene (ug/kg)	113	106	94	12	1300000	21367	1200	42000	5 UG	1300000	20187	1100	42000
7	Low Molecular Weight PAH (ug/kg)	113	106	94	2.5 A	14140000 A	227703	4860 A	511000 A	2.5 A	14140000 A	213607	2890 A	511000 A
7	Phenanthrene (ug/kg)	113	106	94	1 G	5400000	90383	1700	220000	1 G	5400000	84794	1500	220000
7	Benzo(b)fluoranthene (ug/kg)	72	67	93	15	930000	19902	397	33000	5 UG	930000	18534	330 U	33000
7	Benz(a)anthracene (ug/kg)	113	105	93	11	840000	15468	1100 G	39000	5 UG	840000	14384	960	39000
7	Benzo(a)pyrene (ug/kg)	112	103	92	12	1000000	17130	1200	39000	5 UG	1000000	15776	950	39000
7	4,4'-DDT (ug/kg)	37	34	92	1.7	2500	205	36 J	900 J	1.7	2500	189	30 HJ	900 J
7	Beryllium (mg/kg)	30	27	90	0.33	0.9	0.66	0.7	0.79	0.33	1 U	0.70	0.7	1 U
7	Mercury (mg/kg)	54	48	89	0.01	0.36	0.10	0.09	0.2	0.01	0.36	0.10	0.09	0.2 U
7	Hexachlorodibenzo-p-dioxin (ng/kg)	9	8	89	5	970	209	38	450	5	970	186	23	450
7	Pentachlorodibenzofuran (ng/kg)	9	8	89	5.2	180	57	38	110	4.9 U	180	52	6.4	110
7	Benzo(k)fluoranthene (ug/kg)	72	61	85	12	350000	11436	340	21000	5 UG	350000	9718	311	21000
7	Benzo(e)pyrene (ug/kg)	25	21	84	75	13000	2163	630	5600	75	13000	2191	630	5700 UJ
7	4,4'-DDD (ug/kg)	37	31	84	4.8 J	1200	79	30 H	110	0.4 UJ	1200	66	20 H	110
7	Cadmium (mg/kg)	54	45	83	0.05	1.77 E	0.40	0.34	0.55	0.05	1.77 E	0.45	0.4	1 U
7	Anthracene (ug/kg)	113	94	83	17	1100000	21720	860 G	55000	5 UG	1100000	18080	420	52000
7	Silver (mg/kg)	51	42	82	0.06 E	1.7	0.75	0.6	1.4	0.06 E	2 U	0.84	0.8	1.7
7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	17	14	82	2	250	54	15	230 M	1.3 U	250	45	12	230 M
7	Arsenic (mg/kg)	104	85	82	0.7	17	4.7	4.1	8.6	0.7	17	5.1	4.7	9 U
7	Naphthalene (ug/kg)	113	90	80	0.5 G	5100000	75035	350	140000	0.5 G	5100000	60456	280	130000
7	Acenaphthene (ug/kg)	113	89	79	17	1600000	36588	750	90000	5 UG	1600000	28841	380	86200
7	Fluorene (ug/kg)	113	89	79	17	800000	23763	750	94000	5 UG	800000	18731	330 U	56400
7	Cyanide (mg/kg)	9	7	78	0.3 J	2.2	1.1	0.6	1.5	0.2 U	2.2	0.9	0.5	1.5
7	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	17	13	76	1.6 J	86	22	13	40	1.6 J	86	18	6.2	40
7	Benzo(g,h,i)perylene (ug/kg)	112	85	76	0.6 G	820000	15400	600	31000	0.6 G	820000	12234	600	26000
7	Vanadium (mg/l)	4	3	75	0.003	0.01	0.01	0.003	0.003	0.003 U	0.01	0.005	0.003	0.003
7	Indeno(1,2,3-cd)pyrene (ug/kg)	113	84	74	11	530000	11190	740	24000	5 UG	530000	8859	560	22000

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Selenium (mg/kg)	30	22	73	9	17	13	13	17	0.31 UJ	17	9.87	12	17
7	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	17	12	71	5	100 M	20	9	33	1.6 U	100 M	15	5.6	33
7	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	17	12	71	1.7 J	20 M	12	10	20	1 U	20 M	9.0	6 J	20
7	4,4'-DDE (ug/kg)	36	25	69	2.4 J	100	9.464	5 H	10	0.54 U	100	16	5 H	96 U
7	2-Methylnaphthalene (ug/kg)	51	34	67	1 G	220000 J	9386	170	18000	1 G	220000 J	6330	130	11000
7	Tetrachlorodibenzofuran (ng/kg)	9	6	67	1.4	91	36.4	20	70	1 U	91	25	1.4	70
7	m,p-Xylene (ug/kg)	9	6	67	0.05 J	0.64	0.17	0.08 J	0.1 J	0.02 U	0.64	0.12	0.05 J	0.1 J
7	o-Xylene (ug/kg)	9	6	67	0.03 J	0.87	0.22	0.07 J	0.21	0.008 U	0.87	0.15	0.03 J	0.21
7	Tetrachlorophenol (ug/kg)	3	2	67	9	13	11	9	9	5 U	13	9	5 U	9
7	Butyltin ion (ug/kg)	26	17	65	6 G	52 J	18	12 G	39 G	5.6 U	52 J	14	11 G	26 G
7	Dibutyltin ion (ug/kg)	26	17	65	11 G	120 G	44	36 G	80 G	5.6 U	120 G	31	26 G	60 G
7	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg	17	11	65	1 J	73	21	6.8	65 JM	1 J	73	14	4.9 U	65 JM
7	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	17	11	65	1.9	45 M	17	12	34	1.9	45 M	13	7.2	34
7	Chromium hexavalent (mg/kg)	23	14	61	0.07 G	0.86 G	0.35	0.17 G	0.82 G	0.07 G	0.86 G	0.25	0.13 UG	0.75 G
7	Dibenzofuran (ug/kg)	54	32	59	20	73000	3315	120	3700	5 UG	73000	2217	92	3700
7	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	17	10	59	3.6	38	15	7 J	35 JM	0.77 U	38	10	4.9 U	35 JM
7	Acenaphthylene (ug/kg)	113	63	56	7.1	190000	6197	160	6700	5 UG	190000	3678	100 U	6000 J
7	Dibenz(a,h)anthracene (ug/kg)	113	63	56	11.7	98000	2665	230	6400	5 UG	98000	2131	200 U	9100 G
7	Tetrachlorodibenzo-p-dioxin (ng/kg)	9	5	56	5	66	24	11	22	1 U	66	14	1 U	22
7	Bis(2-ethylhexyl) phthalate (ug/kg)	52	28	54	76	1100 J	400	340	700	15 U	10000 U	642	300 U	1000
7	2,4-D (ug/kg)	8	4	50	9	93	37	21	24	2.8 U	250 U	68	24	120 U
7	2,4-DB (ug/kg)	8	4	50	13	130	46	19	23	4.2 U	1000 U	224	23	500 U
7	Carbazole (ug/kg)	48	23	48	21 J	8400 J	1647	190	5500	19 U	8400 J	1238	130 UJ	5700 UJ
7	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	17	8	47	2.2	33	11	3.7	25 M	0.4 U	33	7.2	3.7	25 M
7	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	17	8	47	5.5	65	21	10	45 JM	2.6 U	65	17	9.6 U	54 UJ
7	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	17	8	47	3.3	24	11	7.2	20 JM	0.3 U	24	6.8	4.9 U	20 JM
7	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	17	8	47	1.3	18	6.7875	3	14 JM	0.44 U	18	4.9	3 U	14 JM
7	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	17	8	47	0.51	6 M	2.27875	1.5	3.4	0.24 U	6 M	1.8	1 U	3.4
7	4-Methylphenol (ug/kg)	48	21	44	31	570	252	200	500	20 U	10000 U	567	130	900 U
7	Diesel fuels (mg/kg)	8	3	38	50 G	50 G	50	50 G	50 G	50 U	50 G	50	50 U	50 G
7	Lube Oil (mg/kg)	8	3	38	100 G	100 G	100	100 G	100 G	100 U	100 G	100	100 U	100 G
7	Antimony (mg/kg)	14	5	36	0.02 G	12 J	6.204	5.3 J	7.5 J	0.02 G	12 J	5.79	5.3 J	10 UG
7	Thallium (mg/kg)	30	10	33	0.78	8	4.241	5	8	0.5 U	10 U	4.997	5 U	9 U
7	Pentachlorodibenzo-p-dioxin (ng/kg)	9	3	33	5.6	80	37	5.6	24	1 U	80	14	4.8 U	24
7	Disulfoton (ug/kg)	3	1	33	56	56	56	56	56	50 U	56	52	50 U	50 U
7	Ethylbenzene (ug/kg)	23	7	30	0.06 J	10000	1429	0.09 J	2	0.009 U	10000	540	1 U	300 U
7	Tributyltin ion (ug/l)	8	2	25	0.18 J	0.42	0.3	0.18 J	0.18 J	0.02 U	0.42	0.09	0.02 UG	0.18 J
7	Silver (mg/l)	4	1	25	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002 U	0.0002	0.0002	0.0002 U	0.0002 U
7	Benzene (ug/kg)	23	5	22	0.05 J	22000	4401	0.36	1.4	0.01 U	22000	1062	1.3	300 U
7	Chlorobenzene (ug/kg)	6	1	17	4.6	4.6	4.6	4.6	4.6	2.5 U	15 U	5.6	4 U	5 U
7	Natural gasoline (mg/kg)	9	1	11	300	300	300	300	300	10 U	300	50	20 U	20 U
7	Pentachlorophenol (ug/kg)	91	8	9	16	860	218	26	480 J	16	30500 U	1326	240	4400 UJ
7	Toluene (ug/kg)	23	2	9	0.08 J	4200	2100	0.08 J	0.08 J	0.02 U	4200	288	1 U	300 U
7	Polychlorinated biphenyls (ug/kg)	35	3	9	13 A	54 J	39	13 A	51 A	4 UJ	2000 UA	154	54 J	300 UA
7	1,2-Dichlorobenzene (ug/kg)	36	3	8	4.8	1700 J	575.6	4.8	22	1 U	1700 J	125	20 U	700 U
7	Xylene (ug/kg)	14	1	7	18000	18000	18000	18000	18000	2 U	18000	1459	300 U	300 U
7	Aroclor 1254 (ug/kg)	31	2	6	51	54 J	53	51	51	10 U	990 U	105	70 UH	200 U
7	Dibutyl phthalate (ug/kg)	52	3	6	21	34	27	21	26.3	15 U	10000 U	298	50 U	350 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Benzoic acid (ug/kg)	36	2	6	100 G	1200	650	100 G	100 G	100 G	50000 U	2720	200 U	6000 U
7	1,4-Dichlorobenzene (ug/kg)	36	2	6	4.8	530	267	4.8	4.8	1 U	900 U	93	20 U	530
7	Aldrin (ug/kg)	36	2	6	2.2	60	31	2.2	2.2	0.4 UJ	60	9.6	4 UH	48 U
7	2,3,4,6-Tetrachlorophenol (ug/kg)	29	1	3	24	24	24	24	24	14 U	8000 U	982	240 U	2200 U
7	Aroclor 1260 (ug/kg)	30	1	3	13	13	13	13	13	10 U	990 U	96	40 UH	200 U
7	Endrin aldehyde (ug/kg)	33	1	3	0.56 J	0.56 J	0.56	0.56 J	0.56 J	0.56 J	99 U	14	2 UJ	95 U
7	Benzyl alcohol (ug/kg)	36	1	3	15 G	15 G	15	15 G	15 G	15 G	3500 U	320	20 UJ	900 U
7	gamma-Hexachlorocyclohexane (ug/kg)	36	1	3	540	540	540	540	540	0.4 UJ	540	23	2 UH	48 U
7	Butylbenzyl phthalate (ug/kg)	52	1	2	55 G	55 G	55	55 G	55 G	15 U	10000 U	302	50 U	350 U
7	Di-n-octyl phthalate (ug/kg)	52	1	2	5510 JB	5510 JB	5510	5510 JB	5510 JB	15 U	10000 U	403	50 U	900 U
7	Hexachlorobutadiene (ug/kg)	57	0	0						19 U	16000 U	1315	120 UJ	9700 UJ
7	2,4,5-Trichlorophenol (ug/kg)	54	0	0						14 U	29000 UJ	1353	240 U	3500 U
7	2,4,6-Trichlorophenol (ug/kg)	54	0	0						5 U	8000 U	539	100 U	1800 U
7	2,4-Dichlorophenol (ug/kg)	53	0	0						56 U	31000 U	1895	240 U	5700 UJ
7	Hexachlorobenzene (ug/kg)	53	0	0						19 U	10000 U	779	59 U	5700 UJ
7	Diethyl phthalate (ug/kg)	52	0	0						13 UJ	10000 U	297	50 U	350 U
7	Dimethyl phthalate (ug/kg)	52	0	0						13 U	10000 U	297	50 U	350 U
7	Phenol (ug/kg)	51	0	0						19 U	10000 U	377	100 U	900 U
7	2,4-Dimethylphenol (ug/kg)	50	0	0						6 U	3000 U	161	59 U	300 UG
7	2-Methylphenol (ug/kg)	48	0	0						6 U	7000 U	341	100 U	900 U
7	N-Nitrosodiphenylamine (ug/kg)	36	0	0						12 UG	60000 U	1807	20 UJ	900 U
7	1,3-Dichlorobenzene (ug/kg)	36	0	0						1 U	900 U	79	20 U	200 U
7	Dieldrin (ug/kg)	36	0	0						0.4 UJ	99 U	14	2 UH	95 U
7	Heptachlor (ug/kg)	36	0	0						0.4 UJ	60 U	8.7	2 UH	48 U
7	2,4-Dinitrotoluene (ug/kg)	33	0	0						94 U	3500 U	383	100 U	980 U
7	2,6-Dinitrotoluene (ug/kg)	33	0	0						76 U	1800 U	318	99 U	980 U
7	2-Chloronaphthalene (ug/kg)	33	0	0						15 U	900 U	138	20 U	350 U
7	2-Nitroaniline (ug/kg)	33	0	0						94 U	35000 U	2045	100 U	6000 U
7	3,3'-Dichlorobenzidine (ug/kg)	33	0	0						30 U	6000 U	689	99 UJ	2000 U
7	3-Nitroaniline (ug/kg)	33	0	0						110 U	35000 U	2078	120 U	6000 U
7	4-Bromophenyl phenyl ether (ug/kg)	33	0	0						19 U	1800 U	193	20 U	900 U
7	4-Chloroaniline (ug/kg)	33	0	0						56 U	7000 U	451	60 UJ	900 U
7	4-Chlorophenyl phenyl ether (ug/kg)	33	0	0						19 U	900 U	151	20 U	700 U
7	4-Nitroaniline (ug/kg)	33	0	0						94 U	35000 U	2045	100 U	6000 U
7	Bis(2-chloroethoxy) methane (ug/kg)	33	0	0						15 U	900 U	138	20 U	350 U
7	Bis(2-chloroethyl) ether (ug/kg)	33	0	0						30 U	900 U	183	40 U	700 U
7	Hexachloroethane (ug/kg)	33	0	0						19 U	3500 U	257	20 U	900 U
7	Isophorone (ug/kg)	33	0	0						15 U	900 U	138	20 U	350 U
7	Nitrobenzene (ug/kg)	33	0	0						19 U	1800 U	193	20 U	900 U
7	N-Nitrosodipropylamine (ug/kg)	33	0	0						38 U	3500 U	288	40 U	900 U
7	1,2,4-Trichlorobenzene (ug/kg)	33	0	0						19 U	1800 U	159	20 U	330 U
7	2,4-Dinitrophenol (ug/kg)	33	0	0						23 U	6000 U	874	200 UJ	3500 U
7	2-Chlorophenol (ug/kg)	33	0	0						19 U	1900 U	169	20 U	900 U
7	2-Nitrophenol (ug/kg)	33	0	0						23 U	1800 U	292	98 U	980 U
7	4,6-Dinitro-2-methylphenol (ug/kg)	33	0	0						190 U	7000 U	1078	200 U	6000 U
7	4-Chloro-3-methylphenol (ug/kg)	33	0	0						23 U	3500 U	262	40 U	900 U
7	4-Nitrophenol (ug/kg)	33	0	0						45 U	6000 U	722	99 U	3500 U
7	alpha-Endosulfan (ug/kg)	33	0	0						0.4 UJ	60 U	9.4	2 UH	48 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
7	alpha-Hexachlorocyclohexane (ug/kg)	33	0	0						0.4 UJ	60 U	9.4	2 UH	48 U
7	beta-Endosulfan (ug/kg)	33	0	0						0.4 UJ	99 U	15	2 UH	95 U
7	beta-Hexachlorocyclohexane (ug/kg)	33	0	0						0.4 UJ	60 U	11	5 UH	48 U
7	delta-Hexachlorocyclohexane (ug/kg)	33	0	0						0.4 UJ	60 U	9.4	2 UH	48 U
7	Endosulfan sulfate (ug/kg)	33	0	0						0.4 UJ	99 U	16	2 UH	95 U
7	Endrin (ug/kg)	33	0	0						0.4 UJ	99 U	15	2 UH	95 U
7	Heptachlor epoxide (ug/kg)	33	0	0						0.4 UJ	60 U	9.4	2 UH	48 U
7	Methoxychlor (ug/kg)	33	0	0						0.8 UJ	500 U	80	20 UH	480 U
7	Toxaphene (ug/kg)	33	0	0						17 UJ	12000 U	981	180 U	4800 U
7	Aroclor 1016 (ug/kg)	30	0	0						10 U	990 U	87	40 UH	200 U
7	Aroclor 1242 (ug/kg)	30	0	0						10 U	990 U	91	40 UH	200 U
7	Aroclor 1248 (ug/kg)	30	0	0						10 U	990 U	91	40 UH	200 U
7	Aroclor 1221 (ug/kg)	29	0	0						10 U	2000 U	175	40 UH	300 UH
7	Aroclor 1232 (ug/kg)	29	0	0						10 U	990 U	98	40 UH	200 U
7	Hexachlorocyclopentadiene (ug/kg)	29	0	0						76 U	1000 U	288	99 UJ	970 U
7	2,6-Dichlorophenol (ug/kg)	28	0	0						130 U	31000 UJ	3545	550 U	16000 U
7	2,3,4,5-Tetrachlorophenol (ug/kg)	26	0	0						14 U	8000 U	911	220 U	2200 U
7	Anthanthrene (ug/kg)	25	0	0						68 U	16000 UJ	2463	310 U	9700 UJ
7	Bis(2-chloro-1-methylethyl) ether (ug/kg)	25	0	0						19 UJ	330 U	81	20 UJ	330 U
7	Chlordane (cis & trans) (ug/kg)	21	0	0						10 U	1000 U	106	70 UH	80 U
7	alpha-Chlordane (ug/kg)	15	0	0						0.45 U	50 U	12	1 UJ	48 U
7	Endrin ketone (ug/kg)	15	0	0						0.45 U	99 U	26	4 UIJ	96 U
7	gamma-Chlordane (ug/kg)	15	0	0						0.45 U	50 U	12	1.7 U	48 U
7	Tetrabutyltin (ug/kg)	10	0	0						5.6 U	6 U	5.85	5.9 U	6 U
7	Bis(2-chloroisopropyl) ether (ug/kg)	8	0	0						300 U	7000 U	1349	480 U	900 U
7	2,4,5-T (ug/kg)	8	0	0						2.8 U	50 U	12	3.4 U	25 U
7	Dalapon (ug/kg)	8	0	0						27 U	1000 U	219	32 U	500 U
7	Dicamba (ug/kg)	8	0	0						2.8 U	100 U	22	3.4 U	50 U
7	Dichloroprop (ug/kg)	8	0	0						7.8 U	250 U	57	15 U	120 U
7	Dinoseb (ug/kg)	8	0	0						4.2 UJ	250 U	52	5.1 UJ	120 U
7	MCPA (ug/kg)	8	0	0						140 U	50000 U	10100	170 U	25000 U
7	MCPP (ug/kg)	8	0	0						140 U	50000 U	10100	170 U	25000 U
7	Silvex (ug/kg)	8	0	0						2.8 U	50 U	12	3.4 U	25 U
7	Aniline (ug/kg)	6	0	0						330 U	3000 U	1332	330 U	3000 U
7	N-Nitrosodimethylamine (ug/kg)	6	0	0						330 U	6000 U	2498	330 U	6000 U
7	1,1,1-Trichloroethane (ug/kg)	5	0	0						1 U	15 U	4.6	1 U	5 U
7	1,1,2,2-Tetrachloroethane (ug/kg)	5	0	0						2 U	15 U	5.2	2 U	5 U
7	1,1,2-Trichloroethane (ug/kg)	5	0	0						2 U	15 U	5.2	2 U	5 U
7	1,1-Dichloroethane (ug/kg)	5	0	0						1 U	15 U	4.6	1 U	5 U
7	1,2-Dichloroethane (ug/kg)	5	0	0						2 U	15 U	5.2	2 U	5 U
7	1,2-Dichloropropane (ug/kg)	5	0	0						2 U	15 U	5.2	2 U	5 U
7	Bromodichloromethane (ug/kg)	5	0	0						2 U	15 U	5.2	2 U	5 U
7	Bromoform (ug/kg)	5	0	0						5 U	15 U	10	10 U	10 U
7	Bromomethane (ug/kg)	5	0	0						5 U	15 U	10	10 U	10 U
7	Carbon tetrachloride (ug/kg)	5	0	0						1 U	15 U	4.6	1 U	5 U
7	Chlorodibromomethane (ug/kg)	5	0	0						2 U	15 U	5.2	2 U	5 U
7	Chloroethane (ug/kg)	5	0	0						5 U	15 U	10	10 U	10 U
7	Chloroform (ug/kg)	5	0	0						1 U	15 U	4.6	1 U	5 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Chloromethane (ug/kg)	5	0	0						5 U	15 U	10	10 U	10 U
7	cis-1,3-Dichloropropene (ug/kg)	5	0	0						4 U	15 U	6.4	4 U	5 U
7	Dichlorodifluoromethane (ug/kg)	5	0	0						5 U	20 U	16	15 U	20 U
7	Ethylene dibromide (ug/kg)	5	0	0						4 U	60 U	18.4	4 U	20 U
7	Methylene chloride (ug/kg)	5	0	0						10 U	30 U	14	10 U	10 U
7	Tetrachloroethene (ug/kg)	5	0	0						1 U	15 U	4.6	1 U	5 U
7	trans-1,3-Dichloropropene (ug/kg)	5	0	0						2 U	15 U	5.2	2 U	5 U
7	Trichloroethene (ug/kg)	5	0	0						1 U	15 U	4.6	1 U	5 U
7	Trichlorofluoromethane (ug/kg)	5	0	0						5 U	20 U	16	15 U	20 U
7	Vinyl chloride (ug/kg)	5	0	0						2 U	15 U	5.2	2 U	5 U
7	Vinylidene chloride (ug/kg)	5	0	0						1 U	15 U	4.6	1 U	5 U
7	Antimony (mg/l)	4	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
7	Beryllium (mg/l)	4	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
7	Cadmium (mg/l)	4	0	0						0.002 U	0.002 U	0.002	0.002 U	0.002 U
7	Chromium (mg/l)	4	0	0						0.005 U	0.005 U	0.005	0.005 U	0.005 U
7	Dibutyltin ion (ug/l)	4	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
7	Mercury (mg/l)	4	0	0						0.0001 U	0.0001 U	0.0001	0.0001 U	0.0001 U
7	Nickel (mg/l)	4	0	0						0.01 U	0.01 U	0.01	0.01 U	0.01 U
7	Selenium (mg/l)	4	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
7	Tetrabutyltin (ug/l)	4	0	0						0.02 U	0.02 U	0.02	0.02 U	0.02 U
7	Thallium (mg/l)	4	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
7	1,2-Diphenylhydrazine (ug/kg)	3	0	0						1600 U	1600 U	1600	1600 U	1600 U
7	1-Chloronaphthalene (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	1-Naphthylamine (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	2-Methylpyridine (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	2-Naphthylamine (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	3-Methylcholanthrene (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	4-Aminobiphenyl (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	7,12-Dimethylbenz(a)anthracene (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	Acetophenone (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	alpha,alpha-Dimethylphenethylamine (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	Benzidine (ug/kg)	3	0	0						1600 U	1600 U	1600	1600 U	1600 U
7	Diphenylamine (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	Ethyl methanesulfonate (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	Methyl methanesulfonate (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	N-Nitrosodibutylamine (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	N-Nitrosopiperidine (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	p-Dimethylaminoazobenzene (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	Pentachloronitrobenzene (ug/kg)	3	0	0						1600 U	1600 U	1600	1600 U	1600 U
7	Phenacetin (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	Pronamide (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	1,1,2-Trichloro-1,2,2-trifluoroethane (ug/kg)	3	0	0						10 U	10 U	10	10 U	10 U
7	1,2,4,5-Tetrachlorobenzene (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	1,2-Dichloroethene (ug/kg)	3	0	0						1 U	1 U	1	1 U	1 U
7	2,4-Dichloro-6-methylphenol (ug/kg)	3	0	0						200 U	570 U	333	200 U	230 U
7	2-Chloroethyl vinyl ether (ug/kg)	3	0	0						10 U	10 U	10	10 U	10 U
7	4-Chloro-o-cresol (ug/kg)	3	0	0						82 U	230 U	135	82 U	92 U
7	4-Chlorophenol (ug/kg)	3	0	0						330 U	910 U	537	330 U	370 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Azinphosmethyl (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Bromoxynil (ug/kg)	3	0	0						25 U	250 U	132	25 U	120 U
7	Chlorpyrifos (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Coumaphos (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Cresol (ug/kg)	3	0	0						41 U	110 U	66	41 U	46 U
7	Demeton (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Diazinon (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Dichlorvos (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Ethoprop (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Fensulfothion (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Fenthion (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Malathion (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Merphos (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Methyl parathion (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Mevinphos (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Naled (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Pentachlorobenzene (ug/kg)	3	0	0						330 U	330 U	330	330 U	330 U
7	Perthane (ug/kg)	3	0	0						100 U	100 U	100	100 U	100 U
7	Phorate (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Prothiophos (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Ronnel (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Stirofos (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Sulprofos (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Tetraethyl pyrophosphate (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	Trichloronate (ug/kg)	3	0	0						50 U	50 U	50	50 U	50 U
7	1,1,1,2-Tetrachloroethane (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	1,1-Dichloropropene (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	1,2,3-Trichlorobenzene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	1,2,3-Trichloropropane (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	1,2-Dibromo-3-chloropropane (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	1,3,5-Trimethylbenzene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	1,3-Dichloropropane (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	2,2-Dichloropropane (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	2-Chlorotoluene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	4-Chlorotoluene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	Acetone (ug/kg)	2	0	0						50 U	150 U	100	50 U	50 U
7	Bromobenzene (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	Bromochloromethane (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	Carbon disulfide (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	cis-1,2-Dichloroethene (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	Isopropylbenzene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	Methyl isobutyl ketone (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	Methyl N-butyl ketone (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	Methylene bromide (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	Methylethyl ketone (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	n-Butylbenzene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	n-Propylbenzene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	p-Cymene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Pseudocumene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	Sec-butylbenzene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	Styrene (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
7	tert-Butylbenzene (ug/kg)	2	0	0						20 U	60 U	40	20 U	20 U
7	trans-1,2-Dichloroethene (ug/kg)	2	0	0						5 U	15 U	10	5 U	5 U
8	Total organic carbon (%)	120	120	100	0.04	5.6	1.75	1.5	3.7	0.04	5.60	1.8	1.5	3.7
8	Sand (%)	118	118	100	5.84	100	45	34	98.16	5.84	100	45	34	98.16
8	Fines (%)	114	114	100	0	93.5	52	64.4	88.5	0	93.5	52	64.4	88.5
8	Copper (mg/kg)	109	109	100	1	330	60	47	120	1	330	60	47	120
8	Chromium (mg/kg)	108	108	100	11	50.6	33	36	41	11	50.6	33	36	41
8	Gravel (%)	104	104	100	0	13.3	1.3	0.29	5.14	0	13.3	1.3	0.29	5.14
8	Zinc (mg/kg)	100	100	100	17.3 G	350	123.7	105 J	230	17.3 G	350	123.7	105 J	230
8	Silt (%)	97	97	100	0.02	85.17	54	61.13	78.84	0.02	85.17	54	61.13	78.84
8	Nickel (mg/kg)	60	60	100	16.1	38.5	27	29	32.7	16.1	38.5	27	29	32.7
8	Barium (mg/kg)	55	55	100	58.9 G	197	166	178	190	58.9 G	197	166	178	190
8	Iron (mg/kg)	49	49	100	29200	46200	41410	42500	44600	29200	46200	41410	42500	44600
8	Manganese (mg/kg)	49	49	100	277	836	631	674	770	277	836	631	674	770
8	Aluminum (mg/kg)	46	46	100	15800	45500	38128	40500	44000	15800	45500	38128	40500	44000
8	Beryllium (mg/kg)	46	46	100	0.33	0.89	0.64	0.7	0.7	0.33	0.89	0.64	0.7	0.7
8	Calcium (mg/kg)	46	46	100	4430 J	9190	7981	8370 J	8930	4430 J	9190	7981	8370 J	8930
8	Cobalt (mg/kg)	46	46	100	12.1	20 M	18	18.2	19.8	12.1	20 M	18	18.2	19.8
8	Magnesium (mg/kg)	46	46	100	3720	7860	6762	7040	7520	3720	7860	6762	7040	7520
8	Potassium (mg/kg)	46	46	100	650	1600	1258	1300	1520	650	1600	1258	1300	1520
8	Sodium (mg/kg)	46	46	100	400	21500	2026	1140 J	3960	400	21500	2026	1140 J	3960
8	Vanadium (mg/kg)	46	46	100	73.7	112	102	105	110	73.7	112	102	105	110
8	Total solids (%)	40	40	100	10.9	98.3	55	50.6	93.6	10.9	98.3	55	50.6	93.6
8	Titanium (mg/kg)	24	24	100	1300	3450	2067	2020	2190	1300	3450	2067	2020	2190
8	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	11	11	100	8.3	7600 J	951	80	1800 J	8.3	7600 J	951	80	1800 J
8	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/	11	11	100	40	77000 J	9746	880	18000	40	77000 J	9746	880	18000
8	Octachlorodibenzofuran (ng/kg)	11	11	100	38	32000 J	3517	170	4800 J	38	32000 J	3517	170	4800 J
8	Octachlorodibenzo-p-dioxin (ng/kg)	11	11	100	350	220000 J	35895	5800	93000 J	350	220000 J	35895	5800	93000 J
8	Total volatile solids (%)	11	11	100	2.5	7.71	6.13	6.3	7.6	2.5	7.71	6.13	6.3	7.6
8	Arsenic (mg/l)	6	6	100	0.001	0.003	0.002	0.002	0.002	0.001	0.003	0.002	0.002	0.002
8	Barium (mg/l)	6	6	100	0.05	0.12	0.09	0.1	0.11	0.05	0.12	0.09	0.1	0.11
8	Calcium (mg/l)	6	6	100	48.5	115	88.7	94.2	107	48.5	115	89	94.2	107
8	Cobalt (mg/l)	6	6	100	0.006	0.01	0.009	0.01	0.01	0.006	0.01	0.009	0.01	0.01
8	Heptachlorodibenzofuran (ng/kg)	6	6	100	33	1400	464	330	440	33	1400	464	330	440
8	Heptachlorodibenzo-p-dioxin (ng/kg)	6	6	100	83	11000	3191	1600	2900	83	11000	3191	1600	2900
8	Hexachlorodibenzofuran (ng/kg)	6	6	100	5.2	1800	456	210	300	5.2	1800	456	210	300
8	Hexachlorodibenzo-p-dioxin (ng/kg)	6	6	100	5.2	2000	549	280	560	5.2	2000	549	280	560
8	Iron (mg/l)	6	6	100	4.18	12.1	8.11	5.11	11.5	4.18	12.1	8.11	5.11	11.5
8	Magnesium (mg/l)	6	6	100	16.3	40.3	31	32.4	37.8	16.3	40.3	31	32.4	37.8
8	Manganese (mg/l)	6	6	100	3.85	12.9	9.77	10.3	12.4	3.85	12.9	9.77	10.3	12.4
8	Pentachlorodibenzofuran (ng/kg)	6	6	100	8.6	100	35	14	49	8.6	100	35	14	49
8	Potassium (mg/l)	6	6	100	2	3.9	3.3	3.5	3.6	2	3.9	3.3	3.5	3.6
8	Sodium (mg/l)	6	6	100	10.4	18.9	14	13	14.7	10.4	18.9	14	13	14.7
8	Zinc (mg/l)	6	6	100	0.005	0.01	0.007	0.007	0.008	0.005	0.01	0.007	0.007	0.008
8	Ammonia (mg/l)	5	5	100	1.01	2.71	1.774	1.04	2.5	1.01	2.71	1.774	1.04	2.5

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
8	Mean grain size (mm)	3	3	100	0.16	0.3	0.21	0.16	0.16	0.16	0.3	0.21	0.16	0.16
8	Median grain size (mm)	3	3	100	0.08	0.32	0.16	0.08	0.08	0.08	0.32	0.16	0.08	0.08
8	Tin (mg/kg)	3	3	100	0.89 X	5.37 G	3.52	0.89 X	4.29 G	0.89 X	5.37 G	3.52	0.89 X	4.29 G
8	Ammonia (mg/kg)	2	2	100	72.4	122	97	72.4	72.4	72.4	122	97	72.4	72.4
8	Dioxin/furan TCDD toxicity equivalent (ng/kg)	2	2	100	16.09 T	38.96 T	28	16.09 T	16.09 T	16.09 T	38.96 T	28	16.09 T	16.09 T
8	Total sulfides (mg/kg)	2	2	100	7	90	48.5	7	7	7	90	48.5	7	7
8	Moisture (%)	1	1	100	39	39	39	39	39	39	39	39	39	39
8	pH (pH units)	1	1	100	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
8	Specific Gravity (Std_ Units)	1	1	100	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
8	Heavy oil (mg/kg)	1	1	100	96	96	96	96	96	96	96	96	96	96
8	Clay (%)	96	95	99	0.03	23.81	8.16	8.73	13.82	0.03	23.81	8.07	8.73	13.82
8	Tributyltin ion (ug/kg)	30	29	97	3	19300 H	913	180	540 J	3	19300 H	882	180	540 J
8	Cadmium (mg/kg)	70	67	96	0.08	5.79	0.75	0.4	1.89 E	0.08	5.79	0.75	0.4	1.89 E
8	High Molecular Weight PAH (ug/kg)	139	131	94	25.5 A	2169000 A	67644	621 A	230000 A	6.7 UA	2169000 A	63754	528 A	230000 A
8	Fluoranthene (ug/kg)	139	130	94	6 G	960000	29373	144	100000	6 G	960000	27475	120	100000
8	Polycyclic Aromatic Hydrocarbons (ug/kg)	139	130	94	25.5 A	8929000 A	241498	795 A	650000 A	6.7 UA	8929000 A	225864	576 A	650000 A
8	Thallium (mg/kg)	46	43	93	0.91 J	17	9.19	8	15	0.91 J	17	8.96	8	15
8	Pyrene (ug/kg)	139	129	93	6 G	610000	19138	130	61000	6 G	610000	17764	120	61000
8	Lead (mg/kg)	80	73	91	5.9	186	20	14	44	5.9	186	20.12	14.9	44
8	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	11	10	91	15	4100	547	80	540	2 U	4100	498	59	540
8	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg	11	10	91	4.9	3200 J	367	27	180	1.4 U	3200 J	334	23	180
8	Chrysene (ug/kg)	139	124	89	3 G	170000	5990	110	26000	3 G	170000	5348	61	26000
8	Chromium hexavalent (mg/kg)	35	31	89	0.1 G	0.99 G	0.46	0.44 G	0.85 G	0.1 G	0.99 G	0.42	0.42 G	0.85 G
8	Aluminum (mg/l)	6	5	83	0.03	0.11	0.068	0.04	0.1	0.02 U	0.11	0.06	0.04	0.1
8	Tetrachlorodibenzofuran (ng/kg)	6	5	83	1.1	19	6.3	1.8	6.1	1 U	19	5.4	1.8	6.1
8	Low Molecular Weight PAH (ug/kg)	139	114	82	8 A	6907000 A	197661	212 A	382000 A	6.7 UA	6907000 A	162115	108 A	368000 A
8	Phenanthrene (ug/kg)	139	114	82	4 G	1900000 J	61589	110	160000	4 G	1900000 J	50517	67	120000
8	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	11	9	82	5	1300	212	15	460	1.2 U	1300	174	13	460
8	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	11	9	82	3 J	1100	145	13	89	0.48 U	1100	119	12	89
8	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	11	9	82	4.5	270	45	9.9	60	0.41 U	270	37	7.7	60
8	Benzo(b+k)fluoranthene (ug/kg)	139	113	81	6 A	170000	6925	141 A	20000 JM	6 A	170000	5674	88.4 A	19300 A
8	Benzo(e)pyrene (ug/kg)	31	25	81	110	50000	9196	1100	46000	78 U	50000	7479	730	46000
8	Mercury (mg/kg)	70	56	80	0.02	0.26	0.07	0.06	0.13	0.02	0.26	0.07	0.06	0.12 U
8	Benzo(b)fluoranthene (ug/kg)	105	83	79	3 G	11000	231	44	260	3 G	11000	190	33	260
8	Selenium (mg/kg)	55	43	78	8	18	13	13	16	0.37 UJ	18	9.90	11	16
8	Benz(a)anthracene (ug/kg)	139	108	78	7.6	170000	6747	97	24000	5 UG	170000	5282	44 G	12000 J
8	Benzo(a)pyrene (ug/kg)	138	107	78	3 G	58000	2052	67	9000	3 G	58000	1610	44	8500 M
8	Silver (mg/kg)	69	53	77	0.08 E	1.4	0.81	0.9	1.2	0.08 E	1.4	0.78	0.8	1.2
8	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	41	30	73	2.4 A	84909 A	4842	444 A	12822 A	2.4 A	84909 A	3545	22 UA	3740 A
8	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	11	8	73	3.1	770	125	8.3	160	1.1 U	770	91	5.9	160
8	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	11	8	73	3.7	590	86	8.6	48	0.45 U	590	64	6.3	48
8	Benzo(k)fluoranthene (ug/kg)	105	74	70	3 G	8300 G	178	36	200	3 G	8300 G	134	24	180
8	Bis(2-ethylhexyl) phthalate (ug/kg)	78	54	69	21	88000 J	2182	240	2300 M	20 U	88000 J	1775	210	2300 M
8	4-Methylphenol (ug/kg)	62	42	68	42	1300	471	420	880	19 U	90000 U	1977	420	1100
8	Pentachlorodibenzo-p-dioxin (ng/kg)	6	4	67	6.3	210	80	22	80	0.85 U	210	54	6.3	80
8	Tetrachlorodibenzo-p-dioxin (ng/kg)	6	4	67	1.6	12	7.4	4	12	0.93 U	12	5.255	1.6	12
8	Arsenic (mg/kg)	128	85	66	1.22	18 J	5.59	4.7	11	1.22	18 J	5.44	5 U	10
8	4,4'-DDD (ug/kg)	41	25	61	1.3	11000	749	84 L	2300	1.3	11000	459	10 U	420

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
8	4,4'-DDT (ug/kg)	41	25	61	1.6 J	81000	4927	370	10000	1.6 J	81000	3008	17	3100
8	Benzo(g,h,i)perylene (ug/kg)	135	81	60	3 G	15000	633	41	1700	3 G	21000 U	868	30	3100 G
8	Indeno(1,2,3-cd)pyrene (ug/kg)	139	80	58	2 G	19000	528	43	2100	2 G	21000 U	956	31	4700 G
8	Anthracene (ug/kg)	139	76	55	0.8 G	290000	16100	77	41000 JM	0.8 G	290000	8814	20 U	31000
8	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	11	6	55	5.1	530	100	6.6	31	0.18 U	530	56	4.9 U	31
8	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	11	6	55	1.6	90	26	4.8 J	50	1 U	90	15	1.6	50
8	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	11	6	55	0.84	100	18	1.2	4	0.31 U	100	11	1.1	4
8	4,4'-DDE (ug/kg)	41	22	54	0.7	1480	152	26	509	0.7	1480	101	16 U	220
8	Diesel fuels (mg/kg)	2	1	50	50 G	50 G	50	50 G	50 G	50 U	50 G	50	50 U	50 U
8	Fluorene (ug/kg)	139	66	47	0.5 G	1100000 J	60515	91	96000	0.5 G	1100000 J	28748	20 U	68000
8	Naphthalene (ug/kg)	139	66	47	1 G	2500000 J	87731	61	65000 J	1 G	2500000 J	41670	20 U	15000
8	Acenaphthene (ug/kg)	139	64	46	7	1300000 J	69510	107	100000 JM	5 UG	1300000 J	32020	20 U	69000
8	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	11	5	45	2	350	92	2.9	100	1.9 U	350	53	6.9	100
8	Tributyltin ion (ug/l)	16	7	44	0.01 J	0.27	0.09	0.02 J	0.14	0.01 J	0.27	0.051875	0.02 U	0.14
8	Acid Volatile Sulfides (mg/kg)	8	3	38	0.8	11.4	4.6	0.8	1.5	0.8	11.4	2.775	1.7 U	1.7 U
8	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	11	4	36	7.6	290	109	9	130	0.65 U	290	46	4.9 U	130
8	Vanadium (mg/l)	6	2	33	0.003	0.003	0.003	0.003	0.003	0.003 U	0.003	0.003	0.003 U	0.003
8	Dibutyltin ion (ug/kg)	29	9	31	2	692 GH	85	3	33	2	692 GH	30	5.8 U	15 J
8	Chlorobenzene (ug/kg)	13	4	31	11	34000	8598	130	250	2.5 U	34000	2649	5 U	250
8	Acenaphthylene (ug/kg)	139	35	25	0.7 G	17000	1744	86	15000	0.7 G	17000	499	19 U	1800 M
8	Carbazole (ug/kg)	87	21	24	13	44000	6492	230	35000	10 U	44000	1811	20 U	4500 U
8	Antimony (mg/kg)	54	13	24	0.02 G	8 J	5.62	6.3	8 J	0.02 UG	8 J	4.73	5 UJ	7 J
8	Dibenz(a,h)anthracene (ug/kg)	139	30	22	0.7 G	4100	313	29.5	870 M	0.7 G	22000 U	890	19 U	4100
8	Dibutyl phthalate (ug/kg)	77	16	21	10	640	82	23	180	10 U	4500 U	221	20 U	1000 UG
8	Dibenzofuran (ug/kg)	80	16	20	3 G	620000	55081	35	260000 J	3 G	620000	11092	20 U	500 UG
8	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	11	2	18	100	200	150	100	100	0.97 U	200	31	4.8 U	100
8	2-Methylnaphthalene (ug/kg)	78	14	18	1 G	1300000	123596	24	430000 J	1 G	1300000	22261	19 U	500 UG
8	Lead (mg/l)	6	1	17	0.002	0.002	0.002	0.002	0.002	0.001 U	0.002	0.001	0.001 U	0.001 U
8	Nickel (mg/l)	6	1	17	0.01	0.01	0.01	0.01	0.01	0.01 U	0.01	0.01	0.01 U	0.01 U
8	Butylbenzyl phthalate (ug/kg)	78	12	15	15	120	42	25	82	10 U	4500 UJ	149	20 U	500 UG
8	Aroclor 1254 (ug/kg)	29	4	14	22	200	69	26	27	10 U	2000 U	174	20 U	980 U
8	Polychlorinated biphenyls (ug/kg)	32	4	13	26 A	200 A	97	63 A	97 A	7.8 U	4000 UA	314	39 UA	2000 UA
8	Tetrabutyltin (ug/kg)	28	3	11	3	7.9	4.6	3	3	1 U	7.9	5.1	5.8 U	5.9 U
8	Di-n-octyl phthalate (ug/kg)	78	8	10	25	10100 B	1318	58	110	10 U	10100 B	281	20 U	500 UG
8	Pentachlorophenol (ug/kg)	116	11	9	68	7200 J	1411	680	1700	18 UJ	22000 U	858	99 U	2400 UG
8	Aroclor 1242 (ug/kg)	29	2	7	5	6	5.5	5	5	5	2000 U	166	20 U	980 U
8	Aroclor 1260 (ug/kg)	29	2	7	30	70	50	30	30	10 U	2000 U	171	20 U	980 U
8	Xylene (ug/kg)	17	1	6	23	23	23	23	23	2 U	300 U	79	50 U	300 U
8	Hexachloroethane (ug/kg)	67	3	4	38	1600	562	38	49	19 U	45000 UJ	929	20 U	1000 UG
8	Butyltin ion (ug/kg)	29	1	3	2 G	2 G	2	2 G	2 G	1 UG	11.8 UH	5.0	5.8 U	5.9 U
8	1,2,4-Trichlorobenzene (ug/kg)	67	2	3	10	190	100	10	10	10 U	22000 UJ	455	19 U	500 UG
8	Benzyl alcohol (ug/kg)	69	2	3	6 G	9	7.5	6 G	6 G	6 G	45000 U	813	20 U	500 UG
8	Diethyl phthalate (ug/kg)	78	2	3	23.5 J	26.5 J	25	23.5 J	23.5 J	10 U	4500 U	144	19 U	500 UG
8	Endosulfan sulfate (ug/kg)	39	1	3	240	240	240	240	240	0.78 U	240	38	10 U	200 U
8	Endrin aldehyde (ug/kg)	39	1	3	215	215	215	215	215	1.6 U	215	38	10 U	200 U
8	Aldrin (ug/kg)	41	1	2	0.2 J	0.2 J	0.2	0.2 J	0.2 J	0.2 J	200 U	25	9.9 U	97 U
8	Dieldrin (ug/kg)	41	1	2	0.4	0.4	0.4	0.4	0.4	0.4	235 U	40	10 U	200 U
8	Hexachlorobenzene (ug/kg)	97	2	2	19 J	340	179.5	19 J	19 J	10 U	9000 U	546	20 U	3400 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
8	Hexachlorobutadiene (ug/kg)	99	2	2	200	270	235	200	200	10 U	22000 UJ	1292	20 U	8500 UJ
8	Benzoic acid (ug/kg)	66	1	2	2100	2100	2100	2100	2100	100 UG	220000 U	3965	200 U	1000 UG
8	2,6-Dinitrotoluene (ug/kg)	67	1	1	22000	22000	22000	22000	22000	10 U	22000	502	97 U	500 UG
8	4-Chloro-3-methylphenol (ug/kg)	72	1	1	45000	45000	45000	45000	45000	23 U	45000	789	39 U	500 UG
8	Dimethyl phthalate (ug/kg)	78	1	1	25	25	25	25	25	10 U	4500 U	144	19 U	500 UG
8	2,4,5-Trichlorophenol (ug/kg)	102	1	1	190 J	190 J	190	190 J	190 J	18 UJ	22000 U	792	98 U	2100 U
8	2,4,6-Trichlorophenol (ug/kg)	102	0	0						18 UJ	11000 U	445	98 U	1200 UG
8	2,4-Dichlorophenol (ug/kg)	102	0	0						56 U	45000 U	2184	100 U	9200 U
8	2,4-Dimethylphenol (ug/kg)	75	0	0						6 U	9000 U	303	20 U	1000 UG
8	Phenol (ug/kg)	75	0	0						19 U	45000 UJ	747	20 U	500 UG
8	2-Methylphenol (ug/kg)	74	0	0						6 U	90000 U	1439	20 U	500 UG
8	2-Chlorophenol (ug/kg)	72	0	0						19 U	22000 U	426	20 U	500 UG
8	4,6-Dinitro-2-methylphenol (ug/kg)	72	0	0						100 U	90000 U	1660	190 U	1000 UG
8	1,2-Dichlorobenzene (ug/kg)	70	0	0						1 U	9000 UJ	289	19 U	1000 UG
8	1,3-Dichlorobenzene (ug/kg)	70	0	0						1 U	9000 UJ	289	19 U	1000 UG
8	1,4-Dichlorobenzene (ug/kg)	70	0	0						1 U	9000 UJ	289	19 U	1000 UG
8	N-Nitrosodiphenylamine (ug/kg)	69	0	0						10 U	9000 U	231	19 UJ	500 UG
8	4-Nitrophenol (ug/kg)	69	0	0						45 U	45000 U	936	99 U	1000 UG
8	2,4-Dinitrotoluene (ug/kg)	67	0	0						20 U	45000 U	881	97 U	500 UG
8	2-Chloronaphthalene (ug/kg)	67	0	0						5 U	4500 U	162	19 U	500 UG
8	2-Nitroaniline (ug/kg)	67	0	0						10 U	450000 U	7558	97 UJ	1200 UG
8	3-Nitroaniline (ug/kg)	67	0	0						110 U	450000 U	7676	120 U	1600 U
8	4-Bromophenyl phenyl ether (ug/kg)	67	0	0						10 U	22000 U	452	19 U	500 UG
8	4-Chloroaniline (ug/kg)	67	0	0						50 U	90000 U	1813	58 UJ	2000 UG
8	4-Chlorophenyl phenyl ether (ug/kg)	67	0	0						10 U	9000 U	237	19 U	500 UG
8	4-Nitroaniline (ug/kg)	67	0	0						10 U	450000 U	7558	97 UJ	1200 UG
8	Bis(2-chloroethoxy) methane (ug/kg)	67	0	0						10 U	4500 U	163	19 U	500 UG
8	Bis(2-chloroethyl) ether (ug/kg)	67	0	0						10 U	9000 UJ	250	39 U	500 UG
8	Isophorone (ug/kg)	67	0	0						10 UG	4500 U	163	19 U	500 UG
8	Nitrobenzene (ug/kg)	67	0	0						10 U	22000 UJ	452	19 U	500 UG
8	N-Nitrosodipropylamine (ug/kg)	67	0	0						10 U	45000 U	842	39 U	500 UG
8	3,3'-Dichlorobenzidine (ug/kg)	66	0	0						40 U	9000 UJ	371	97 UJ	1000 UG
8	Bis(2-chloro-1-methylethyl) ether (ug/kg)	64	0	0						10 U	1200 UG	94	19 UJ	500 UG
8	2,4-Dinitrophenol (ug/kg)	61	0	0						23 U	45000 UJ	1233	200 UJ	2000 UG
8	2-Nitrophenol (ug/kg)	60	0	0						23 U	22000 U	557	98 U	500 UG
8	Hexachlorocyclopentadiene (ug/kg)	55	0	0						94 U	2400 UG	264	98 U	1000 UG
8	gamma-Hexachlorocyclohexane (ug/kg)	41	0	0						0.78 U	200 U	24	9.9 U	97 U
8	Heptachlor (ug/kg)	41	0	0						0.78 U	200 U	24	9.9 U	97 U
8	beta-Endosulfan (ug/kg)	39	0	0						0.78 U	200 U	33	10 U	190 U
8	beta-Hexachlorocyclohexane (ug/kg)	39	0	0						0.78 U	600 U	36	10 U	99 U
8	delta-Hexachlorocyclohexane (ug/kg)	39	0	0						0.78 U	200 U	26	10 U	99 U
8	Endrin (ug/kg)	39	0	0						0.78 U	200 U	33	10 U	190 U
8	Heptachlor epoxide (ug/kg)	39	0	0						0.78 U	360 U	30	10 U	99 U
8	Methoxychlor (ug/kg)	39	0	0						1.6 U	990 U	138	20 U	970 U
8	Toxaphene (ug/kg)	39	0	0						30 U	9900 U	1879	300 U	9700 U
8	alpha-Endosulfan (ug/kg)	38	0	0						0.78 U	99 U	21	10 U	97 U
8	alpha-Chlordane (ug/kg)	36	0	0						0.78 U	110 U	24	10 U	99 U
8	gamma-Chlordane (ug/kg)	36	0	0						0.78 U	99 U	22	10 U	97 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
8	Endrin ketone (ug/kg)	35	0	0						0.78 U	200 U	37	10 U	190 U
8	2,3,4,6-Tetrachlorophenol (ug/kg)	34	0	0						18 UJ	11000 U	1105	210 U	1900 UJ
8	2,6-Dichlorophenol (ug/kg)	34	0	0						130 U	45000 U	6288	830 U	36000 UJ
8	2,3,4,5-Tetrachlorophenol (ug/kg)	33	0	0						18 UJ	11000 U	1090	200 U	1900 UJ
8	Anthanthrene (ug/kg)	29	0	0						100 U	22000 U	3782	390 U	18000 U
8	Aroclor 1016 (ug/kg)	29	0	0						10 U	2000 U	167	20 U	980 U
8	Aroclor 1221 (ug/kg)	29	0	0						10 U	4000 U	328	39 U	2000 U
8	Aroclor 1232 (ug/kg)	29	0	0						10 U	2000 U	168	20 U	980 U
8	Aroclor 1248 (ug/kg)	29	0	0						10 U	2000 U	167	20 U	980 U
8	Ethylbenzene (ug/kg)	29	0	0						1 U	300 U	49	11 U	120 UG
8	Benzene (ug/kg)	28	0	0						1 U	300 U	50	50 U	120 UG
8	Toluene (ug/kg)	28	0	0						1 U	300 U	50	50 U	120 UG
8	alpha-Hexachlorocyclohexane (ug/kg)	27	0	0						0.78 U	200 U	28	3.35 U	99 U
8	Tetrachloroethene (ug/kg)	14	0	0						1 U	11 U	7	5 U	10 U
8	Trichloroethene (ug/kg)	14	0	0						1 U	11 U	7	5 U	10 U
8	1,1,1-Trichloroethane (ug/kg)	13	0	0						1 U	11 U	7	5 U	10 U
8	1,1,2,2-Tetrachloroethane (ug/kg)	13	0	0						2 U	11 U	7	5 U	10 U
8	1,1,2-Trichloroethane (ug/kg)	13	0	0						2 U	11 U	7	5 U	10 U
8	1,1-Dichloroethane (ug/kg)	13	0	0						1 U	11 U	7	5 U	10 U
8	1,2-Dichloroethane (ug/kg)	13	0	0						2 U	11 U	7	5 U	10 U
8	1,2-Dichloropropane (ug/kg)	13	0	0						2 U	11 U	7	5 U	10 U
8	Bromodichloromethane (ug/kg)	13	0	0						2 U	11 U	7	5 U	10 U
8	Bromoform (ug/kg)	13	0	0						5 U	11 U	8	5 U	10 U
8	Bromomethane (ug/kg)	13	0	0						5 UJ	11 U	8	5 UJ	10 UG
8	Carbon tetrachloride (ug/kg)	13	0	0						1 U	11 U	7	5 U	10 U
8	Chlorodibromomethane (ug/kg)	13	0	0						2 U	11 U	7	5 U	10 U
8	Chloroethane (ug/kg)	13	0	0						5 U	11 U	8	5 U	10 U
8	Chloroform (ug/kg)	13	0	0						1 U	11 U	7	5 U	10 U
8	Chloromethane (ug/kg)	13	0	0						5 U	11 U	8	5 UJ	10 UG
8	cis-1,3-Dichloropropene (ug/kg)	13	0	0						4 U	11 U	7	5 U	10 U
8	Dichlorodifluoromethane (ug/kg)	13	0	0						5 U	20 U	8	5 UJ	11 U
8	Ethylene dibromide (ug/kg)	13	0	0						4 U	44 U	28	20 U	42 U
8	Methylene chloride (ug/kg)	13	0	0						10 U	22 U	14	10 U	21 U
8	trans-1,3-Dichloropropene (ug/kg)	13	0	0						2 U	11 U	7	5 U	10 U
8	Trichlorofluoromethane (ug/kg)	13	0	0						5 UJ	20 U	8	5 UJ	11 U
8	Vinyl chloride (ug/kg)	13	0	0						2 U	11 U	7	5 U	10 U
8	Vinylidene chloride (ug/kg)	13	0	0						1 U	11 U	7	5 U	10 U
8	1,1,1,2-Tetrachloroethane (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	1,1-Dichloropropene (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	1,2,3-Trichlorobenzene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	1,2,3-Trichloropropane (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	1,2-Dibromo-3-chloropropane (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	1,3,5-Trimethylbenzene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	1,3-Dichloropropane (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	2,2-Dichloropropane (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	2-Chlorotoluene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	4-Chlorotoluene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	Bromobenzene (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
8	Bromochloromethane (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	Carbon disulfide (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	Chlordane (cis & trans) (ug/kg)	12	0	0						10 U	150 U	66	75 U	150 U
8	cis-1,2-Dichloroethene (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	Cymene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	Hexachlorocyclohexanes (ug/kg)	12	0	0						10 U	40 U	20	10 U	40 U
8	Isopropylbenzene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	m,p-Xylene (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	Methyl N-butyl ketone (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	Methylene bromide (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	n-Butylbenzene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	n-Propylbenzene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	o-Xylene (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	Pseudocumene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	Sec-butylbenzene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 UJ
8	Styrene (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	tert-Butylbenzene (ug/kg)	12	0	0						20 U	44 U	30	20 U	42 U
8	trans-1,2-Dichloroethene (ug/kg)	12	0	0						5 U	11 U	7	5 U	10 U
8	Antimony (mg/l)	6	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
8	Beryllium (mg/l)	6	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
8	Cadmium (mg/l)	6	0	0						0.002 U	0.002 U	0.002	0.002 U	0.002 U
8	Chromium (mg/l)	6	0	0						0.005 U	0.005 U	0.005	0.005 U	0.005 U
8	Copper (mg/l)	6	0	0						0.002 U	0.002 U	0.002	0.002 U	0.002 U
8	Dibutyltin ion (ug/l)	6	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
8	Mercury (mg/l)	6	0	0						0.0001 U	0.0001 U	0.0001	0.0001 U	0.0001 U
8	Selenium (mg/l)	6	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
8	Silver (mg/l)	6	0	0						0.0002 U	0.0002 U	0.0002	0.0002 U	0.0002 U
8	Tetrabutyltin (ug/l)	6	0	0						0.02 U	0.02 U	0.02	0.02 U	0.02 U
8	Thallium (mg/l)	6	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
8	3- and 4-Methylphenol Coelution (ug/kg)	6	0	0						200 U	200 UJ	200	200 U	200 UJ
8	2,4,5-T (ug/kg)	3	0	0						2.6 U	5 U	3.6	2.6 U	3.3 U
8	2,4-D (ug/kg)	3	0	0						2.6 U	25 U	10.3	2.6 U	3.3 U
8	2,4-DB (ug/kg)	3	0	0						3.9 U	100 U	36.3	3.9 U	5 U
8	Dalapon (ug/kg)	3	0	0						25 U	100 U	52	25 U	31 U
8	Dicamba (ug/kg)	3	0	0						2.6 U	10 U	5.3	2.6 U	3.3 U
8	Dichloroprop (ug/kg)	3	0	0						2.6 U	25 U	15	2.6 U	16 U
8	Dinoseb (ug/kg)	3	0	0						3.9 UJ	25 U	11	3.9 UJ	5 UJ
8	MCPA (ug/kg)	3	0	0						130 U	5000 U	1767	130 U	170 U
8	MCPP (ug/kg)	3	0	0						130 U	5000 U	1767	130 U	170 U
8	Silvex (ug/kg)	3	0	0						2.6 U	5 U	3.6	2.6 U	3.3 U
8	Bis(2-chloroisopropyl) ether (ug/kg)	2	0	0						7600 U	90000 U	48800	7600 U	7600 U
8	Lube Oil (mg/kg)	2	0	0						100 U	100 U	100	100 U	100 U
8	Natural gasoline (mg/kg)	2	0	0						20 U	20 U	20	20 U	20 U
8	1,2-Diphenylhydrazine (ug/kg)	1	0	0						1600 U	1600 U	1600	1600 U	1600 U
8	1-Chloronaphthalene (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	1-Naphthylamine (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	2-Methylpyridine (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	2-Naphthylamine (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
8	3-Methylcholanthrene (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	4-Aminobiphenyl (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	7,12-Dimethylbenz(a)anthracene (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	Acetophenone (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	alpha,alpha-Dimethylphenethylamine (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	Aniline (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	Benzidine (ug/kg)	1	0	0						1600 U	1600 U	1600	1600 U	1600 U
8	Butyltin ion (ug/l)	1	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
8	Diphenylamine (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	Ethyl methanesulfonate (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	Methyl methanesulfonate (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	N-Nitrosodibutylamine (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	N-Nitrosodimethylamine (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	N-Nitrosopiperidine (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	p-Dimethylaminoazobenzene (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	Pentachloronitrobenzene (ug/kg)	1	0	0						1600 U	1600 U	1600	1600 U	1600 U
8	Phenacetin (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	Pronamide (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	1,1,2-Trichloro-1,2,2-trifluoroethane (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
8	1,2,4,5-Tetrachlorobenzene (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	1,2-Dichloroethene (ug/kg)	1	0	0						1 U	1 U	1	1 U	1 U
8	2,4-Dichloro-6-methylphenol (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
8	2-Chloroethyl vinyl ether (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
8	4-Chloro-o-cresol (ug/kg)	1	0	0						81 U	81 U	81	81 U	81 U
8	4-Chlorophenol (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	Azinphosmethyl (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Bromoxynil (ug/kg)	1	0	0						25 U	25 U	25	25 U	25 U
8	Chlorpyrifos (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Coumaphos (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Cresol (ug/kg)	1	0	0						41 U	41 U	41	41 U	41 U
8	Demeton (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Diazinon (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Dichlorvos (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Disulfoton (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Endosulfan (ug/kg)	1	0	0						9 U	9 U	9	9 U	9 U
8	Ethoprop (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Fensulfothion (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Fenthion (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Malathion (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Merphos (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Methyl parathion (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Mevinphos (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Naled (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Pentachlorobenzene (ug/kg)	1	0	0						330 U	330 U	330	330 U	330 U
8	Perthane (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U
8	Phorate (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Prothiophos (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Ronnel (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
8	Stirofos (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Sulprofos (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Tetraethyl pyrophosphate (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
8	Trichloronate (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
9	Chromium (mg/kg)	110	110	100	11.1	148	35	33.3	56.4	11.1	148	35	33.3	56.4
9	Copper (mg/kg)	110	110	100	15 B	2000	175	75.7 B	610	15 B	2000	175	75.7 B	610
9	Nickel (mg/kg)	110	110	100	11.4 B	594	30	24.3	31	11.4 B	594	30	24.3	31
9	Zinc (mg/kg)	110	110	100	57 B	2700 L	247	183	593	57 B	2700 L	247	183	593
9	Total organic carbon (%)	92	92	100	0.07	3.8	1.66	1.72	2.61	0.07	3.8	1.66	1.72	2.61
9	Sand (%)	88	88	100	1.67 E	94.69	28	17.91	88.2	1.67 E	94.69	28	17.91	88.2
9	Silt (%)	88	88	100	1.4	95.7	61	69.9	85.7	1.4	95.7	61	69.9	85.7
9	Clay (%)	86	86	100	0.2	36	11	9.41	21.2	0.2	36	11	9.41	21.2
9	Total solids (%)	62	62	100	27.6	92.9	49	43.8	76.13	27.6	92.9	49	43.8	76.13
9	Gravel (%)	54	54	100	0.01	23.37	1.43	0.2	4.5	0.01	23.37	1.43	0.2	4.5
9	Total volatile solids (%)	49	49	100	1.62	12.1	6.77	6.87	9.23	1.62	12.1	6.77	6.87	9.23
9	Fines (%)	46	46	100	3.78	97.6	71	80.65	96.5	3.78	97.6	71	80.65	96.5
9	Aluminum (mg/kg)	42	42	100	3560	46200	24680	31700	42100	3560	46200	24680	31700	42100
9	Iron (mg/kg)	30	30	100	31600	55600	43493	42900	53500	31600	55600	43493	42900	53500
9	Manganese (mg/kg)	30	30	100	323	1000	688	691	845	323	1000	688	691	845
9	Barium (mg/kg)	24	24	100	138	276	185	181	212	138	276	185	181	212
9	Calcium (mg/kg)	24	24	100	5960 J	14400	8643	8380 J	11400 J	5960 J	14400	8643	8380 J	11400 J
9	Cobalt (mg/kg)	24	24	100	12.5	20.6	18	18.5	19.8	12.5	20.6	18	18.5	19.8
9	Magnesium (mg/kg)	24	24	100	4090	8560	6954	7100	7760	4090	8560	6954	7100	7760
9	Potassium (mg/kg)	24	24	100	570	1520	1225	1210	1420	570	1520	1225	1210	1420
9	Sodium (mg/kg)	24	24	100	693	1170 J	1014	1030 J	1130	693	1170 J	1014	1030 J	1130
9	Vanadium (mg/kg)	24	24	100	68.6	123	103	105	119	68.6	123	103	105	119
9	Diesel fuels (mg/kg)	18	18	100	16.2 JV	777 V	210	166 V	541 V	16.2 JV	777 V	210	166 V	541 V
9	Titanium (mg/kg)	17	17	100	1120	2170	1845	1900	2160	1120	2170	1845	1900	2160
9	Acid Volatile Sulfides (umol/g)	6	6	100	0.00501 G	0.03	0.016	0.01	0.03 G	0.00501 G	0.03	0.02	0.01	0.03 G
9	Tin (mg/kg)	6	6	100	1.33 X	4.06 X	2.18	1.6 X	2.94 X	1.33 X	4.06 X	2.18	1.6 X	2.94 X
9	Aluminum (mg/l)	5	5	100	0.03	19.4	5.324	0.03	6.47	0.03	19.4	5.324	0.03	6.47
9	Arsenic (mg/l)	5	5	100	0.002	0.007	0.004	0.003	0.004	0.002	0.007	0.004	0.003	0.004
9	Barium (mg/l)	5	5	100	0.09	0.18	0.134	0.11	0.16	0.09	0.18	0.134	0.11	0.16
9	Calcium (mg/l)	5	5	100	31.6	145	96	43.2	136	31.6	145	96	43.2	136
9	Cobalt (mg/l)	5	5	100	0.006	0.02	0.011	0.008	0.01	0.006	0.02	0.011	0.008	0.01
9	Iron (mg/l)	5	5	100	13	43.4	24	13.7	24.2	13	43.4	24	13.7	24.2
9	Magnesium (mg/l)	5	5	100	15	48.4	34	17.7	46.6	15	48.4	34	17.7	46.6
9	Manganese (mg/l)	5	5	100	2.78	15.9	10	4.07	15.2	2.78	15.9	10	4.07	15.2
9	Potassium (mg/l)	5	5	100	2.9	5.1	3.82	3.1	4.4	2.9	5.1	3.82	3.1	4.4
9	Sodium (mg/l)	5	5	100	14	18.8	15	14.2	14.8	14	18.8	15	14.2	14.8
9	Zinc (mg/l)	5	5	100	0.008	0.17	0.053	0.009	0.07	0.008	0.17	0.053	0.009	0.07
9	Ammonia (mg/l)	42	41	98	0.24	6.77	1.96	1.6	3.48	0.05 U	6.77	1.92	1.6	3.48
9	Lead (mg/kg)	110	105	95	5.45 B	210 B	42	26.6	120 G	5.45 B	210 B	41	26.1	120 G
9	Fluoranthene (ug/kg)	109	103	94	23.1	3600	448	258	1400	10 U	3600	442	300	1400
9	High Molecular Weight PAH (ug/kg)	109	103	94	45 A	17268 A	1919	1089 A	5486 A	10 UA	17268 A	1833	1038 A	5486 A
9	Polycyclic Aromatic Hydrocarbons (ug/kg)	109	103	94	45 A	19735 A	2382	1325 A	7626 A	10 UA	19735 A	2270	1220 A	7626 A
9	Pyrene (ug/kg)	109	103	94	19 J	4280	414	261	1100	10 U	4280	410	300 U	1100
9	Bis(2-ethylhexyl) phthalate (ug/kg)	108	102	94	56	39200 J	2063	760	3510	56	39200 J	1964	730	3510

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
9	Lube Oil (mg/kg)	18	17	94	125	2110	598	267	1800	3.22 U	2110	565	267	1800
9	Phenanthrene (ug/kg)	109	101	93	14	2000	288	120	1100	10 U	2000	287	128	1100
9	Low Molecular Weight PAH (ug/kg)	109	100	92	14 A	3090 A	476	201 A	2173 A	10 UA	3090 A	457	201 A	2140 A
9	Benzo(b)fluoranthene (ug/kg)	84	77	92	18.8	1150	198	108	600	10 U	1150	207	120	537
9	Tributyltin ion (ug/kg)	34	31	91	2.1	42900 H	6940	1300	27100 H	2.1	42900 H	6328	1158	27100 H
9	Cadmium (mg/kg)	110	100	91	0.06 J	2.3	0.55	0.4	1.48	0.00927 U	2.3	0.5505	0.4	1.37
9	Benzo(k)fluoranthene (ug/kg)	84	76	90	12.6	1120	144	83	390	10 U	1120	156	85	500 U
9	Silver (mg/kg)	110	98	89	0.01 J	3.3	0.51	0.36 G	1.4	0.01 J	3.3	0.60	0.4	1.9
9	Benzo(b+k)fluoranthene (ug/kg)	109	94	86	22 A	2270 A	359	234 A	900	6.72 U	2270 A	331	198.1 A	890 A
9	Chrysene (ug/kg)	109	94	86	19.8	2140	242	132	590	8.97 U	2140	232	130	570
9	Benz(a)anthracene (ug/kg)	109	92	84	11.3	1480	176	99	561	9.31 U	1480	172	93	520
9	Tributyltin ion (ug/l)	42	35	83	0.02	11	1.17	0.5 J	3.51	0.02 U	11	0.98	0.34	2.24
9	Beryllium (mg/kg)	29	24	83	0.3	0.8	0.6	0.6	0.7	0.3	1 U	0.7	0.6	1 U
9	Mercury (mg/kg)	110	90	82	0.04	1.5	0.19	0.11	0.6	0.01 U	1.5	0.17	0.1	0.54
9	Benzo(a)pyrene (ug/kg)	109	88	81	13.7	1630	181	116	499	8.97 U	1630	171	100 UJ	500 U
9	Arsenic (mg/kg)	110	88	80	2	98	8.6	5.7	18	2	98	7.95	5.59	17
9	Vanadium (mg/l)	5	4	80	0.004	0.03	0.012	0.005	0.01	0.003 U	0.03	0.010	0.004	0.01
9	Indeno(1,2,3-cd)pyrene (ug/kg)	109	84	77	10	889	118	76	300	3.56 U	889	113	59	350
9	Thallium (mg/kg)	29	22	76	6	15	10	9	12	1 U	15	8	9	12
9	Benzo(g,h,i)perylene (ug/kg)	109	81	74	11	854	109	70	256	2.52 U	854	104	49	300 UH
9	Acid Volatile Sulfides (mg/kg)	42	29	69	1.9	434 H	34	8.3	84.9	1.7 U	434 H	24	4	44.1
9	trans-Chlordane (ug/kg)	18	12	67	1.99 JP	25.3 P	9.69	7.23	19.9 P	0.99 U	25.3 P	6.82	2.3 JP	19.9 P
9	Butylbenzyl phthalate (ug/kg)	108	67	62	10	2010 J	122	56	280	10 U	2010 J	114	50 U	407
9	Anthracene (ug/kg)	109	66	61	4.97 J	1100	108	40	356	4.97 J	1100	96	24 U	429
9	Polychlorinated biphenyls (ug/kg)	90	52	58	8.79 A	2500 A	291	163.9 A	710 A	6.18 UA	2500 A	187	100 UA	610 A
9	Fluorene (ug/kg)	109	59	54	9.02 J	310	77	37	230	6.7 UJ	500 U	67	20 U	285
9	Selenium (mg/kg)	47	25	53	0.61 J	20	12	12	17	0.42 U	20	6.68	1 U	16
9	Antimony (mg/kg)	104	55	53	0.03	7 J	1.70	0.59 J	6 J	0.03	10 U	2.34	0.5 G	7 J
9	Aroclor 1254 (ug/kg)	89	47	53	11	740	151	70	460	1.88 U	740	97	52	390
9	Dibutyl phthalate (ug/kg)	108	54	50	11	350	58	36.1	136	10 U	1960 UJ	149	40	500 U
9	Xylene (ug/kg)	26	13	50	13	3200	519	54	2300	5 U	3200	271	28	430
9	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	43	21	49	1.03 A	178.5 A	50	11 A	153 A	0.63 UA	178.5 A	27	4 UA	124.4 A
9	Acenaphthene (ug/kg)	109	53	49	8.14	1200	83	26.7	220	6.7 U	1200	70	20 U	272
9	Aroclor 1260 (ug/kg)	90	43	48	8.79	2500	144	49.5	200	3.21 U	2500	91	27	190 U
9	Dibutyltin ion (ug/kg)	19	9	47	110	2020 GH	847	639 GH	1280 GH	5.7 U	2020 GH	404	5.8 U	1280 GH
9	Di-n-octyl phthalate (ug/kg)	108	51	47	11	30100 J	989	46	2610 B	10 U	30100 J	507	43.4 U	1050 J
9	4,4'-DDE (ug/kg)	43	20	47	1.03 JP	124	29	6	78.9	0.56 U	124	15	4 U	65.1
9	Naphthalene (ug/kg)	109	50	46	8.93 J	148	41	27	120	6.7 U	500 U	50	19 U	132
9	Butyltin ion (ug/kg)	19	8	42	36 H	144 H	70	58 H	97	5.7 U	144 H	33	5.8 U	97
9	Chromium (mg/l)	5	2	40	0.006	0.02	0.013	0.006	0.006	0.005 U	0.02	0.0082	0.005 U	0.006
9	Copper (mg/l)	5	2	40	0.04	0.13	0.085	0.04	0.04	0.002 U	0.13	0.0352	0.002 U	0.04
9	Lead (mg/l)	5	2	40	0.01	0.04	0.025	0.01	0.01	0.001 U	0.04	0.0106	0.001 U	0.01
9	trans-Nonachlor (ug/kg)	18	7	39	8.64 P	19.1	13	9.74	15.3	4.9 U	19.1	8.55	6.58 U	15.3
9	alpha-Chlordane (ug/kg)	26	10	38	1.57 J	18.4 P	9.455	9.27	17.3 P	0.95 U	18.4 P	4.63	1.66 JP	15 P
9	Acetone (ug/kg)	16	6	38	71	340	222	200	310	50 U	500 U	230	200	500 U
9	gamma-Chlordane (ug/kg)	8	3	38	5	10	7	5	7	0.95 U	10	3.74	2 U	7
9	4-Methylphenol (ug/kg)	102	35	34	23	1400	469	360	1100	20 U	1400	238	100 U	780
9	Dibenzofuran (ug/kg)	102	34	33	10	204	54	33	150	10 U	500 U	58	19.4 U	240 UJ

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
9	2,4'-DDD (ug/kg)	18	6	33	6.07 P	24	13	9.42 P	17.5 P	4.71 U	24	8.145	5.94 U	17.5 P
9	2-Methylnaphthalene (ug/kg)	103	34	33	9.42 J	210	51	26	147	2.49 U	500 U	49	19 U	189
9	4,4'-DDD (ug/kg)	43	14	33	1.1 J	82.7	23	10.6	54.5	0.47 U	82.7	9.8	4 U	36.7
9	Dibenz(a,h)anthracene (ug/kg)	109	35	32	12	125	42	34	85	3.56 U	500 U	45	19 U	120
9	Ethylbenzene (ug/kg)	26	8	31	8	2000	431	53	1000	5 U	2000	145	10 U	280
9	Aldrin (ug/kg)	43	9	21	5.03 P	28.6 P	11.77	6.48 P	24.2 P	0.95 U	200 U	23	2 U	200 U
9	Dibutyltin ion (ug/l)	5	1	20	0.1	0.1	0.1	0.1	0.1	0.06 U	0.1	0.07	0.06 U	0.06 U
9	Mercury (mg/l)	5	1	20	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001 U	0.0001	0.0001 U	0.0001 U
9	Nickel (mg/l)	5	1	20	0.02	0.02	0.02	0.02	0.02	0.01 U	0.02	0.012	0.01 U	0.01 U
9	Silver (mg/l)	5	1	20	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002 U	0.0003	0.00022	0.0002 U	0.0002 U
9	Carbazole (ug/kg)	48	9	19	25 N	130	71	60	130	19 U	877 UJ	105	55	665 UJ
9	Acenaphthylene (ug/kg)	109	20	18	9.93	88	21	16	51.2	6.7 U	500 U	41	16.5	90.2 UJ
9	Benzoic acid (ug/kg)	53	9	17	178 J	4110 J	1775	480 J	3990 J	52 U	4110 J	674	200 U	3000 U
9	Tetrabutyltin (ug/kg)	12	2	17	29	32	31	29	29	5.7 U	32	9.9	5.8 U	29
9	beta-Hexachlorocyclohexane (ug/kg)	43	7	16	1.19 JP	7.03	3.24	2.31 JP	4.91	0.9 U	600 U	61	1.58 U	600 U
9	Methylene chloride (ug/kg)	19	3	16	7 B	16 B	11	7 B	9 B	5 U	1000 U	165	40 U	1000 U
9	Dimethyl phthalate (ug/kg)	108	15	14	11	171	32	16	58	10 U	500 U	49	19 U	228 UJ
9	Aroclor 1248 (ug/kg)	90	12	13	32.6	407	147	106	316	2.18 U	407	47	10 U	158
9	4,4'-DDT (ug/kg)	43	5	12	1.33 J	140	32	1.4 J	10	0.59 U	140	6.42	2 U	10 U
9	2,4'-DDE (ug/kg)	18	2	11	7.77 P	8.21 P	7.99	7.77 P	7.77 P	4.58 U	8.21 P	5.78	5.21 U	7.77 P
9	Benzene (ug/kg)	19	2	11	4.8	7.3	6.05	4.8	4.8	4 U	100 U	27	7.3	100 U
9	Chlorobenzene (ug/kg)	19	2	11	8.8	10	9.4	8.8	8.8	4 U	100 U	27	8.8	100 U
9	alpha-Endosulfan (ug/kg)	31	3	10	1.38 JP	4.95 P	3.41	1.38 JP	3.91	0.95 U	10 U	3.07	1.26 U	10 U
9	Endosulfan sulfate (ug/kg)	43	4	9	2.06 JP	4	3.42	3.74 JP	3.88 JP	0.85 U	10 U	3.21	2 U	10 U
9	Pentachlorophenol (ug/kg)	112	9	8	0.89	168	23	3.49	8.45	0.19 U	3000 U	210	100 U	434 UJ
9	Dieldrin (ug/kg)	43	3	7	6	10	7	6	6	0.75 U	10 U	3.24	2 U	10 U
9	Hexachlorobenzene (ug/kg)	59	4	7	3.2 P	440	113	4.65 P	5.44 P	2.45 U	500 U	73	19 U	440
9	cis-Nonachlor (ug/kg)	18	1	6	6.88	6.88	6.88	6.88	6.88	4.58 U	7.46 U	5.60	5.21 U	6.88
9	Methylethyl ketone (ug/kg)	19	1	5	44	44	44	44	44	20 U	1250 U	323	100 U	1250 U
9	Phenol (ug/kg)	102	5	5	24	163	83	52	119	19 U	500 U	73	50 U	341 UJ
9	Endrin aldehyde (ug/kg)	43	2	5	3	4	3.5	3	3	0.93 U	10 U	3.24	2 U	10 U
9	Aniline (ug/kg)	29	1	3	94.4 J	94.4 J	94	94.4 J	94.4 J	50 U	2000 U	463	85.4 U	2000 U
9	4-Chloro-3-methylphenol (ug/kg)	95	3	3	29.8 J	306	135	29.8 J	68 J	16.8 U	500 U	73	50 U	300 U
9	alpha-Hexachlorocyclohexane (ug/kg)	43	1	2	1.03 J	1.03 J	1.03	1.03 J	1.03 J	0.5 U	200 U	30	0.98 U	200 U
9	Endrin (ug/kg)	43	1	2	6	6	6	6	6	0.82 U	10 U	3.09	2 U	10 U
9	gamma-Hexachlorocyclohexane (ug/kg)	43	1	2	6	6	6	6	6	0.87 U	200 U	21	1.02 U	200 U
9	Heptachlor (ug/kg)	43	1	2	6	6	6	6	6	0.78 UJ	200 U	21	1 U	200 U
9	2,4-Dinitrotoluene (ug/kg)	53	1	2	260	260	260	260	260	19.9 U	500 U	119	96 U	300 UH
9	3-Nitroaniline (ug/kg)	53	1	2	475 J	475 J	475	475 J	475 J	26 U	3000 U	363	120 U	2000 UH
9	Nitrobenzene (ug/kg)	53	1	2	300	300	300	300	300	19 U	500 U	85	21.9 U	308 UJ
9	Hexachloroethane (ug/kg)	57	1	2	210	210	210	210	210	2.45 U	500 U	84	19 U	427 UJ
9	Hexachlorobutadiene (ug/kg)	65	1	2	230	230	230	230	230	2.45 U	500 U	69	20 U	300 U
9	1,4-Dichlorobenzene (ug/kg)	68	1	1	230	230	230	230	230	5 U	360 UJ	43	20 U	230
9	Aroclor 1016 (ug/kg)	90	1	1	46	46	46	46	46	5.94 U	200 U	29	10 U	100 U
9	Aroclor 1242 (ug/kg)	90	1	1	28.7	28.7	28.7	28.7	28.7	2.83 U	200 U	28	10 U	100 U
9	2,4-Dimethylphenol (ug/kg)	102	1	1	18.4 J	18.4 J	18.4	18.4 J	18.4 J	16.8 U	500 U	49	20 UG	228 UJ
9	Diethyl phthalate (ug/kg)	108	1	1	15.6	15.6	15.6	15.6	15.6	10 U	500 U	52	19 U	300 UH
9	2-Methylphenol (ug/kg)	102	0	0						18.3 U	500 U	83	50 U	248 UJ

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
9	4-Nitrophenol (ug/kg)	99	0	0						0.15 U	3000 U	230	100 U	427 UJ
9	2,4,5-Trichlorophenol (ug/kg)	95	0	0						27.5 U	500 U	100	40 U	321 UJ
9	2,4,6-Trichlorophenol (ug/kg)	95	0	0						20.3 U	500 U	78	30 U	299 UJ
9	2,4-Dichlorophenol (ug/kg)	95	0	0						16.8 U	500 U	96	100 U	247 UJ
9	2,4-Dinitrophenol (ug/kg)	95	0	0						36.7 U	3000 U	361	300 U	539 UJ
9	2-Chlorophenol (ug/kg)	95	0	0						19 U	500 U	69	50 U	300 UH
9	2-Nitrophenol (ug/kg)	95	0	0						21.4 U	500 U	83	40 U	300 U
9	4,6-Dinitro-2-methylphenol (ug/kg)	95	0	0						56.5 U	3000 U	286	100 U	832 UJ
9	Aroclor 1221 (ug/kg)	90	0	0						2.26 U	400 U	35	10 U	100 U
9	Aroclor 1232 (ug/kg)	90	0	0						3.84 U	200 U	28	10 U	100 U
9	1,2-Dichlorobenzene (ug/kg)	68	0	0						5 U	232 UJ	32	19 U	50 U
9	1,3-Dichlorobenzene (ug/kg)	68	0	0						5 U	315 UJ	37	20 U	50 U
9	1,2,4-Trichlorobenzene (ug/kg)	61	0	0						12.7 U	500 U	68	20 U	300 U
9	2,6-Dinitrotoluene (ug/kg)	53	0	0						27.5 U	500 U	125	96 U	405 UJ
9	2-Chloronaphthalene (ug/kg)	53	0	0						4.58 U	500 U	60	19 U	300 UH
9	2-Nitroaniline (ug/kg)	53	0	0						19.9 U	3000 U	343	97 U	2000 UH
9	3,3'-Dichlorobenzidine (ug/kg)	53	0	0						16.8 U	3000 U	339	97 U	2000 UH
9	4-Bromophenyl phenyl ether (ug/kg)	53	0	0						19 U	500 U	80	21.2 U	300 UH
9	4-Chloroaniline (ug/kg)	53	0	0						14.2 UJ	500 U	90	58 U	300 UH
9	4-Chlorophenyl phenyl ether (ug/kg)	53	0	0						19 U	500 U	87	26.4 U	378 UJ
9	4-Nitroaniline (ug/kg)	53	0	0						26 U	3000 U	351	97 U	2000 UH
9	Benzyl alcohol (ug/kg)	53	0	0						19 U	500 U	95	33 U	472 UJ
9	Bis(2-chloroethoxy) methane (ug/kg)	53	0	0						18.3 U	500 U	77	20 U	300 U
9	Bis(2-chloroethyl) ether (ug/kg)	53	0	0						29.2 UJ	500 U	100	39 U	429 UJ
9	Hexachlorocyclopentadiene (ug/kg)	53	0	0						21.5 U	500 U	117	96 U	317 UJ
9	Isophorone (ug/kg)	53	0	0						19 U	500 U	81	22.3 U	315 UJ
9	N-Nitrosodiphenylamine (ug/kg)	53	0	0						12.2 U	500 U	70	19 U	300 UH
9	N-Nitrosodipropylamine (ug/kg)	53	0	0						16.8 U	500 U	84	39 U	300 UH
9	beta-Endosulfan (ug/kg)	43	0	0						0.88 U	10 U	3.02	2 U	10 U
9	delta-Hexachlorocyclohexane (ug/kg)	43	0	0						0.6 U	200 U	21	1.03 U	200 U
9	Heptachlor epoxide (ug/kg)	43	0	0						0.8 U	10 U	2.81	1.06 U	10 U
9	Methoxychlor (ug/kg)	43	0	0						2 U	20 U	6.0	4 U	20 U
9	Toxaphene (ug/kg)	43	0	0						14.3 U	300 U	64	30 U	300 U
9	Bis(2-chloro-1-methylethyl) ether (ug/kg)	35	0	0						19 U	500 U	82	20 U	500 U
9	Chlordane (cis & trans) (ug/kg)	35	0	0						1 U	100 U	18	4.07 U	100 U
9	Endrin ketone (ug/kg)	26	0	0						0.64 U	6 U	1.30	0.81 U	2 U
9	Tetrachloroethene (ug/kg)	26	0	0						5 U	250 U	33	5 U	50 U
9	Trichloroethene (ug/kg)	26	0	0						4 U	100 U	21	5 U	50 U
9	N-Nitrosodimethylamine (ug/kg)	23	0	0						16.8 U	3000 U	614	20 U	3000 U
9	1,1,1-Trichloroethane (ug/kg)	19	0	0						5 U	250 U	44	10 U	250 U
9	1,1,2,2-Tetrachloroethane (ug/kg)	19	0	0						5 U	250 U	44	10 U	250 U
9	1,1,2-Trichloroethane (ug/kg)	19	0	0						4 U	100 U	27	5 U	100 U
9	1,1-Dichloroethane (ug/kg)	19	0	0						4 U	100 U	27	5 U	100 U
9	1,2-Dichloroethane (ug/kg)	19	0	0						4 U	100 U	27	5 U	100 U
9	1,2-Dichloropropane (ug/kg)	19	0	0						4 U	100 U	27	5 U	100 U
9	Bromodichloromethane (ug/kg)	19	0	0						4 U	100 U	27	5 U	100 U
9	Bromoform (ug/kg)	19	0	0						4 U	100 U	35	5 U	100 U
9	Bromomethane (ug/kg)	19	0	0						5 U	500 UJ	145	20 U	500 UJ

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
9	Carbon tetrachloride (ug/kg)	19	0	0						5 U	250 U	44	10 U	250 U
9	Chlorodibromomethane (ug/kg)	19	0	0						4 U	100 U	27	5 U	100 U
9	Chloroethane (ug/kg)	19	0	0						5 U	500 U	145	20 U	500 U
9	Chloroform (ug/kg)	19	0	0						4 U	100 U	27	5 U	100 U
9	Chloromethane (ug/kg)	19	0	0						5 U	500 UJ	145	20 U	500 UJ
9	Methyl isobutyl ketone (ug/kg)	19	0	0						20 U	500 U	143	50 U	500 U
9	Methyl N-butyl ketone (ug/kg)	19	0	0						20 U	500 U	143	50 U	500 U
9	Styrene (ug/kg)	19	0	0						5 U	250 U	44	10 U	250 U
9	Toluene (ug/kg)	19	0	0						4 U	100 U	27	5 U	100 U
9	Vinyl chloride (ug/kg)	19	0	0						5 U	500 U	145	20 U	500 U
9	Vinylidene chloride (ug/kg)	19	0	0						4 U	100 U	27	5 U	100 U
9	Aroclor 1262 (ug/kg)	18	0	0						3.14 U	4.62 U	3.64	3.59 U	4.46 U
9	Aroclor 1268 (ug/kg)	18	0	0						3.14 U	4.62 U	3.64	3.59 U	4.46 U
9	Bis(2-chloroisopropyl) ether (ug/kg)	18	0	0						39.7 U	584 UJ	148	45.8 U	538 UJ
9	2,4,5-T (ug/kg)	18	0	0						0.27 U	0.42 U	0.32	0.31 U	0.4 U
9	2,4-D (ug/kg)	18	0	0						0.23 U	0.36 U	0.27	0.26 U	0.34 U
9	2,4-DB (ug/kg)	18	0	0						0.16 U	0.26 U	0.19	0.19 U	0.24 U
9	2,4'-DDT (ug/kg)	18	0	0						4.58 U	7.46 U	5.52	5.21 U	6.59 U
9	Dalapon (ug/kg)	18	0	0						0.13 U	0.21 U	0.15	0.15 U	0.19 U
9	Dicamba (ug/kg)	18	0	0						0.13 U	0.21 U	0.16	0.15 U	0.2 U
9	Dichloroprop (ug/kg)	18	0	0						0.22 U	0.34 U	0.26	0.25 U	0.32 U
9	Dinoseb (ug/kg)	18	0	0						0.19 U	0.3 U	0.22	0.21 U	0.28 U
9	MCPA (ug/kg)	18	0	0						0.26 U	0.41 U	0.30	0.29 U	0.38 U
9	MCPP (ug/kg)	18	0	0						0.11 U	0.18 U	0.13	0.13 U	0.17 U
9	Oxychlordane (ug/kg)	18	0	0						4.58 U	7.46 U	5.52	5.21 U	6.59 U
9	Silvex (ug/kg)	18	0	0						0.22 U	0.35 U	0.26	0.25 U	0.32 U
9	Tetrachlorophenol (ug/kg)	18	0	0						28.9 U	425 UJ	108	33.3 U	391 UJ
9	Carbon disulfide (ug/kg)	16	0	0						5 U	500 U	134	25 U	500 U
9	1,2-Dichloroethene (ug/kg)	14	0	0						5 U	250 U	54	10 U	250 U
9	1,3-Dichloropropene (ug/kg)	14	0	0						4 U	100 U	31	10 U	100 U
9	Trichlorofluoromethane (ug/kg)	13	0	0						5 U	500 U	128	10 U	500 U
9	Endosulfan (ug/kg)	12	0	0						0.9 U	6 U	2.96	3 U	5 U
9	trans-1,2-Dichloroethene (ug/kg)	10	0	0						5 U	50 U	14.5	5 U	25 U
9	trans-1,3-Dichloropropene (ug/kg)	10	0	0						5 U	50 U	14.5	5 U	25 U
9	1,1,1,2-Tetrachloroethane (ug/kg)	8	0	0						5 U	50 U	27	25 U	50 U
9	1,1-Dichloropropene (ug/kg)	8	0	0						5 U	50 U	28	25 U	50 U
9	1,2,3-Trichlorobenzene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
9	1,2,3-Trichloropropane (ug/kg)	8	0	0						5 U	250 U	102	25 U	250 U
9	1,2-Dibromo-3-chloropropane (ug/kg)	8	0	0						20 U	250 U	126	100 U	250 U
9	1,3,5-Trimethylbenzene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
9	1,3-Dichloropropane (ug/kg)	8	0	0						5 U	50 U	28	25 U	50 U
9	2,2-Dichloropropane (ug/kg)	8	0	0						5 U	50 U	28	25 U	50 U
9	2-Chlorotoluene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
9	4-Chlorotoluene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
9	Bromobenzene (ug/kg)	8	0	0						5 U	50 U	27	25 U	50 U
9	Bromochloromethane (ug/kg)	8	0	0						5 U	100 U	46	25 U	100 U
9	Butylbenzene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
9	Cymene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
9	Dichlorodifluoromethane (ug/kg)	8	0	0						5 U	500 U	196	25 U	500 U
9	Ethylene dibromide (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
9	Isopropylbenzene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
9	Methylene bromide (ug/kg)	8	0	0						5 U	50 U	28	25 U	50 U
9	n-Propylbenzene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
9	Pseudocumene (ug/kg)	8	0	0						20 U	100 U	51	50 U	100 U
9	Benzidine (ug/kg)	6	0	0						250 U	250 U	250	250 U	250 U
9	2,3,4,6-Tetrachlorophenol (ug/kg)	6	0	0						9.63 U	15.6 U	12	10.8 U	12.5 U
9	Antimony (mg/l)	5	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
9	Beryllium (mg/l)	5	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
9	Cadmium (mg/l)	5	0	0						0.002 U	0.002 U	0.002	0.002 U	0.002 U
9	Selenium (mg/l)	5	0	0						0.001 U	0.002 U	0.0014	0.001 U	0.002 U
9	Tetrabutyltin (ug/l)	5	0	0						0.02 U	0.02 U	0.02	0.02 U	0.02 U
9	Thallium (mg/l)	5	0	0						0.001 U	0.001 U	0.001	0.001 U	0.001 U
9	2-Chloroethyl vinyl ether (ug/kg)	5	0	0						10 U	50 U	20	10 U	20 U
9	cis-1,2-Dichloroethene (ug/kg)	5	0	0						5 U	50 U	15	5 U	10 U
9	cis-1,3-Dichloropropene (ug/kg)	5	0	0						5 U	50 U	15	5 U	10 U
9	Sec-butylbenzene (ug/kg)	5	0	0						20 U	100 U	52	20 U	100 U
9	tert-Butylbenzene (ug/kg)	5	0	0						20 U	100 U	52	20 U	100 U
9	Trichlorotrifluoroethane (ug/kg)	5	0	0						10 U	50 U	20	10 U	20 U
9	Vinyl acetate (ug/kg)	5	0	0						50 U	250 U	120	50 U	200 U
9	Butyltin ion (ug/l)	3	0	0						0.06 U	0.06 U	0.06	0.06 U	0.06 U
9	Pyridine (ug/kg)	1	0	0						382 UJ	382 UJ	382	382 UJ	382 UJ
10	Chromium (mg/kg)	16	16	100	12	44	26	25	41	12	44	26	25	41
10	Lead (mg/kg)	16	16	100	10.7	95	36	22	91	10.7	95	36	22	91
10	Zinc (mg/kg)	16	16	100	60.6	1750	453	118	1480	60.6	1750	453	118	1480
10	Total organic carbon (%)	11	11	100	0.89	1.96	1.63	1.58	1.87	0.89	1.96	1.63	1.58	1.87
10	Sand (%)	9	9	100	13.98	71.05	39	30.54	70.8	13.98	71.05	39	30.54	70.8
10	Silt (%)	9	9	100	23.42	76.55	54	54	66.3	23.42	76.55	54	54	66.3
10	Clay (%)	8	8	100	1.1	9.25	5.91	5.3	8.9	1.1	9.25	5.91	5.3	8.9
10	Total solids (%)	8	8	100	43.2	84	58	46.2	79.4	43.2	84	58	46.2	79.4
10	Gravel (%)	7	7	100	0.03	1.9	0.62	0.22	1.1	0.03	1.9	0.62	0.22	1.1
10	Fines (%)	6	6	100	28.2	85.8	56	59	69.06	28.2	85.8	56	59	69.06
10	Iron (mg/kg)	6	6	100	29700	47200	37233	33100	47000	29700	47200	37233	33100	47000
10	Manganese (mg/kg)	6	6	100	475	783	615	610	699	475	783	615	610	699
10	Titanium (mg/kg)	5	5	100	1080	2120	1502	1210	1850	1080	2120	1502	1210	1850
10	Acid Volatile Sulfides (mg/kg)	3	3	100	3.3	6.1	4.4	3.3	3.7	3.3	6.1	4.4	3.3	3.7
10	Aluminum (mg/kg)	3	3	100	25900	41000	35700	25900	40200	25900	41000	35700	25900	40200
10	Ammonia (mg/l)	3	3	100	1.98	2.92	2.36	1.98	2.19	1.98	2.92	2.36	1.98	2.19
10	Barium (mg/kg)	3	3	100	148	203	182	148	194	148	203	182	148	194
10	Calcium (mg/kg)	3	3	100	6440	8740 J	7923	6440	8590 J	6440	8740 J	7923	6440	8590 J
10	Cobalt (mg/kg)	3	3	100	14	20	18	14	19.8	14	20	18	14	19.8
10	Magnesium (mg/kg)	3	3	100	6020	7530	6967	6020	7350	6020	7530	6967	6020	7350
10	Potassium (mg/kg)	3	3	100	1180	1330	1277	1180	1320	1180	1330	1277	1180	1320
10	Sodium (mg/kg)	3	3	100	805 J	1080	985	805 J	1070	805 J	1080	985	805 J	1070
10	Tin (mg/kg)	3	3	100	1.25 X	2.05 X	1.54	1.25 X	1.32 X	1.25 X	2.05 X	1.54	1.25 X	1.32 X
10	Total volatile solids (%)	3	3	100	6.87	7.03	6.94	6.87	6.93	6.87	7.03	6.94	6.87	6.93
10	Vanadium (mg/kg)	3	3	100	84.6	115	104	84.6	113	84.6	115	104	84.6	113

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
10	Total sulfides (mg/kg)	2	2	100	3 G	3 G	3	3 G	3 G	3 G	3 G	3	3 G	3 G
10	Nickel (mg/kg)	16	15	94	16.8 G	38	22	18.3	34	10 U	38	21	18.3	34
10	Copper (mg/kg)	16	14	88	24 E	72.7	43	32.4 E	70	21.6 UG	72.7	40	32.2	70
10	Bis(2-ethylhexyl) phthalate (ug/kg)	16	14	88	100	6000	1037	410 G	3260 B	100	6000	1282	435 B	3260 B
10	Arsenic (mg/kg)	16	13	81	2 G	6	3.3	3	4	2 G	6 U	3.59	3.48	6
10	Tributyltin ion (ug/kg)	5	4	80	2	7.7	5.875	6.8	7	2	7.7	5.84	5.7 U	7
10	Toluene (ug/kg)	5	4	80	18	2400	636	54	70	5 U	2400	509	18	70
10	Benz(a)anthracene (ug/kg)	16	11	69	18 G	193	79	27 G	185	18 G	6000 U	873	94	3000 U
10	Benzo(a)pyrene (ug/kg)	16	11	69	18 G	209	83	36 G	198	18 G	6000 U	876	93	3000 U
10	Benzo(b)fluoranthene (ug/kg)	16	11	69	24 G	271	99	33.3	248	24 G	6000 U	887	120	3000 U
10	Benzo(b+k)fluoranthene (ug/kg)	16	11	69	43 A	446 A	168	56 A	392 A	43 A	6000 UA	935	206 A	3000 UA
10	Benzo(k)fluoranthene (ug/kg)	16	11	69	15.7	175	70	24 G	144	15.7	6000 U	867	96	3000 U
10	Cadmium (mg/kg)	16	11	69	0.1	1.45	0.6	0.2	1.35	0.1	1.45	0.7	1 U	1.35
10	Chrysene (ug/kg)	16	11	69	28	256	114	32 G	241	28	6000 U	897	160	3000 U
10	Fluoranthene (ug/kg)	16	11	69	38.6	409	188	96	324	38.6	6000 U	948	288	3000 U
10	High Molecular Weight PAH (ug/kg)	16	11	69	239.9 A	2212.1 A	941	326 A	2003.7 A	239.9 A	6000 UA	1466	1112 A	3000 UA
10	Indeno(1,2,3-cd)pyrene (ug/kg)	16	11	69	16	122	52	29 G	121	16	6000 U	855	68	3000 U
10	Low Molecular Weight PAH (ug/kg)	16	11	69	19 A	628 A	173	28.81 A	366.79 A	19 A	8000 UA	1388	222 A	6000 UA
10	Phenanthrene (ug/kg)	16	11	69	19	393	120	26 G	254	19	6000 U	901	163	3000 U
10	Polycyclic Aromatic Hydrocarbons (ug/kg)	16	11	69	268.71 A	2578.89 A	1114	345 A	2320.5 A	268.71 A	8000 UA	2035	1313 A	6000 UA
10	Pyrene (ug/kg)	16	11	69	45.5	445	199	82	375	45.5	6000 U	955	260	3000 U
10	Benzo(g,h,i)perylene (ug/kg)	16	10	63	18	123	55	33	113	18	6000 U	855	64	3000 U
10	Butylbenzyl phthalate (ug/kg)	16	10	63	11	2000 G	233	32.3	100	11	6000 U	924	40	3000 U
10	Tetrachloroethene (ug/kg)	5	3	60	10	60	28	10	15	5 U	60	20	10 U	15
10	Mercury (mg/kg)	16	9	56	0.05	0.27	0.15	0.07	0.27	0.05	0.27	0.15	0.2	0.27
10	Silver (mg/kg)	16	8	50	0.2	0.9	0.4	0.22 G	0.9	0.2	2 U	1.0	0.9	2 U
10	Polychlorinated biphenyls (ug/kg)	15	7	47	14 A	7000 A	1340	109 A	1000 A	10 UA	7000 A	767	40 UA	1900 UA
10	Aroclor 1260 (ug/kg)	15	6	40	14	7000 H	1537	110	1000 H	10 U	7000 H	692	20 U	1000 H
10	1,4-Dichlorobenzene (ug/kg)	10	4	40	33	160	88	73	84	1 U	160	42	20 U	84
10	Chlorobenzene (ug/kg)	5	2	40	23	31	27	23	23	5 U	31	18	10 U	23
10	Dibutyl phthalate (ug/kg)	16	6	38	12 G	445	98	24	51	10 U	6000 U	861	24	3000 U
10	Beryllium (mg/kg)	8	3	38	0.45	0.7	0.6	0.45	0.6	0.45	1 U	0.8	1 U	1 U
10	Selenium (mg/kg)	8	3	38	10	15	13	10	13	1 U	15	5.4	1 U	13
10	Carbazole (ug/kg)	3	1	33	23	23	23	23	23	19 U	23	22	19 U	23 U
10	Anthracene (ug/kg)	16	5	31	19	85	52	23	82.8	6.7 U	6000 U	841	23 U	3000 U
10	Fluorene (ug/kg)	16	5	31	18 J	73	30	19 J	21.4 J	6.7 UJ	6000 U	834	20.2 J	3000 U
10	Di-n-octyl phthalate (ug/kg)	16	5	31	10	148 B	54	21	61.1 B	10	6000 U	846	32 G	3000 U
10	4-Methylphenol (ug/kg)	13	4	31	260	810	658	760	800	20 U	6000 U	1228	300 UH	3000 UG
10	Naphthalene (ug/kg)	16	4	25	6.81	32	16	13.4	13.7	6.81	6000 U	830	20 UG	3000 U
10	Thallium (mg/kg)	8	2	25	11	15	13	11	11	1 U	15	4.4	1 U	11
10	Antimony (mg/kg)	13	3	23	5 J	8 J	6.7	5 J	7 J	0.1 UG	10 U	5	3 U	10 U
10	1,3-Dichlorobenzene (ug/kg)	10	2	20	14	36	25	14	14	1 U	36	15	14	23 U
10	Acetone (ug/kg)	5	1	20	170	170	170	170	170	8 U	300 U	156	100 U	200 U
10	Acenaphthene (ug/kg)	16	3	19	20.3	45	29.9	20.3	24.3	6.7 U	8000 UG	1282	20.3	6000 U
10	Dibenz(a,h)anthracene (ug/kg)	16	3	19	19 J	32.1	27.6	19 J	31.7	6.7 U	6000 U	831	20 UG	3000 U
10	Aroclor 1254 (ug/kg)	15	2	13	46	109	77.5	46	46	10 U	1000 UH	266	20 U	1000 U
10	Acenaphthylene (ug/kg)	16	2	13	8.79	11.6	10.195	8.79	8.79	6.7 U	6000 U	966	20 U	3000 UG
10	Benzyl alcohol (ug/kg)	10	1	10	8 G	8 G	8	8 G	8 G	6 UG	6000 U	1318	23 U	3000 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
10	2-Methylnaphthalene (ug/kg)	11	1	9	36	36	36	36	36	10 UG	6000 U	1202	23 U	3000 U
10	4,4'-DDT (ug/kg)	12	1	8	3	3	3	3	3	2 U	95 U	21	6 U	70 UH
10	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	12	1	8	3 A	3 A	3	3 A	3 A	2 UA	95 UA	21	6 UA	70 UA
10	Dibenzofuran (ug/kg)	13	1	8	13	13	13	13	13	10 U	6000 U	1018	20 UG	3000 U
10	Diethyl phthalate (ug/kg)	16	1	6	14.7	14.7	14.7	14.7	14.7	10 U	6000 U	830	20 U	3000 U
10	Dimethyl phthalate (ug/kg)	16	0	0						10 U	6000 U	829	20 U	3000 U
10	Aroclor 1016 (ug/kg)	15	0	0						10 U	950 U	205	20 U	600 UH
10	Aroclor 1221 (ug/kg)	15	0	0						10 U	1900 U	274	40 U	600 UH
10	Aroclor 1232 (ug/kg)	15	0	0						10 U	950 U	206	20 U	600 UH
10	Aroclor 1242 (ug/kg)	15	0	0						10 U	950 U	205	20 U	600 UH
10	Aroclor 1248 (ug/kg)	15	0	0						10 U	950 U	205	20 U	600 UH
10	2,4-Dimethylphenol (ug/kg)	13	0	0						6 U	6000 U	1018	20 U	3000 UG
10	2-Methylphenol (ug/kg)	13	0	0						6 U	6000 U	1036	100 U	3000 UG
10	Pentachlorophenol (ug/kg)	13	0	0						61 U	40000 U	6749	100 U	20000 UG
10	Phenol (ug/kg)	13	0	0						19 U	6000 U	1027	50 U	3000 UG
10	4,4'-DDD (ug/kg)	12	0	0						1.7 U	95 U	14	2 U	20 U
10	4,4'-DDE (ug/kg)	12	0	0						1.7 U	95 U	14	2 U	20 U
10	Aldrin (ug/kg)	12	0	0						0.84 U	200 U	26	6 U	48 U
10	alpha-Endosulfan (ug/kg)	12	0	0						0.94 UI	48 U	10	2 U	20 U
10	alpha-Hexachlorocyclohexane (ug/kg)	12	0	0						0.84 U	200 U	25	2 U	48 U
10	beta-Endosulfan (ug/kg)	12	0	0						1.7 U	95 U	14	2 U	20 U
10	beta-Hexachlorocyclohexane (ug/kg)	12	0	0						0.84 U	60 U	20	2 U	48 U
10	delta-Hexachlorocyclohexane (ug/kg)	12	0	0						0.84 U	48 U	10	2 U	20 U
10	Dieldrin (ug/kg)	12	0	0						1.7 U	400 UH	47	6 U	95 U
10	Endosulfan sulfate (ug/kg)	12	0	0						1.7 U	95 U	20	2 U	60 UH
10	Endrin (ug/kg)	12	0	0						2 U	95 U	15	6 U	30 U
10	Endrin aldehyde (ug/kg)	12	0	0						2 U	95 U	20	3.3 UI	80 UH
10	gamma-Hexachlorocyclohexane (ug/kg)	12	0	0						0.84 U	48 U	11	6 U	20 U
10	Heptachlor (ug/kg)	12	0	0						0.84 U	48 U	11	6 U	20 U
10	Heptachlor epoxide (ug/kg)	12	0	0						0.84 U	48 U	10	2 U	20 U
10	Methoxychlor (ug/kg)	12	0	0						4 U	2000 UH	220	8.4 U	480 U
10	Toxaphene (ug/kg)	12	0	0						30 U	4800 U	923	84 U	2000 UH
10	2,4,5-Trichlorophenol (ug/kg)	11	0	0						40 U	6000 U	1230	99 U	3000 UG
10	2,4,6-Trichlorophenol (ug/kg)	11	0	0						30 U	6000 U	1228	99 U	3000 UG
10	2,4-Dichlorophenol (ug/kg)	11	0	0						57 U	6000 U	1235	100 U	3000 UG
10	2,4-Dinitrophenol (ug/kg)	11	0	0						190 U	40000 U	8047	300 U	20000 UG
10	2-Chlorophenol (ug/kg)	11	0	0						19 U	6000 U	1210	50 U	3000 UG
10	2-Nitrophenol (ug/kg)	11	0	0						40 U	6000 U	1230	99 U	3000 UG
10	4,6-Dinitro-2-methylphenol (ug/kg)	11	0	0						100 U	40000 U	7993	200 U	20000 UG
10	4-Chloro-3-methylphenol (ug/kg)	11	0	0						38 U	6000 U	1216	50 U	3000 UG
10	4-Nitrophenol (ug/kg)	11	0	0						95 U	40000 U	7965	100 U	20000 UG
10	Benzoic acid (ug/kg)	10	0	0						100 UG	40000 U	8782	230 U	20000 U
10	Hexachlorobutadiene (ug/kg)	10	0	0						19 U	6000 U	1320	23 U	3000 U
10	N-Nitrosodiphenylamine (ug/kg)	10	0	0						12 UG	6000 U	1319	23 U	3000 U
10	1,2-Dichlorobenzene (ug/kg)	10	0	0						1 U	23 U	12	10 U	20 U
10	Hexachlorobenzene (ug/kg)	10	0	0						19 U	6000 U	1320	23 U	3000 U
10	2,4-Dinitrotoluene (ug/kg)	8	0	0						95 U	6000 U	1677	300 UH	3000 U
10	2,6-Dinitrotoluene (ug/kg)	8	0	0						95 U	6000 U	1677	300 UH	3000 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
10	2-Chloronaphthalene (ug/kg)	8	0	0						19 U	6000 U	1645	300 UH	3000 U
10	2-Nitroaniline (ug/kg)	8	0	0						95 U	40000 U	10914	2000 UH	20000 U
10	3,3'-Dichlorobenzidine (ug/kg)	8	0	0						95 U	40000 U	10914	2000 UH	20000 U
10	3-Nitroaniline (ug/kg)	8	0	0						110 U	40000 U	10921	2000 UH	20000 U
10	4-Bromophenyl phenyl ether (ug/kg)	8	0	0						19 U	6000 U	1645	300 UH	3000 U
10	4-Chloroaniline (ug/kg)	8	0	0						57 U	6000 U	1661	300 UH	3000 U
10	4-Chlorophenyl phenyl ether (ug/kg)	8	0	0						19 U	6000 U	1645	300 UH	3000 U
10	4-Nitroaniline (ug/kg)	8	0	0						95 U	40000 U	10914	2000 UH	20000 U
10	Bis(2-chloro-1-methylethyl) ether (ug/kg)	8	0	0						19 U	6000 U	1645	300 UH	3000 U
10	Bis(2-chloroethoxy) methane (ug/kg)	8	0	0						19 U	6000 U	1645	300 U	3000 U
10	Bis(2-chloroethyl) ether (ug/kg)	8	0	0						38 U	6000 U	1653	300 UH	3000 U
10	Hexachlorocyclopentadiene (ug/kg)	8	0	0						95 U	6000 U	1677	300 UH	3000 U
10	Hexachloroethane (ug/kg)	8	0	0						19 U	6000 U	1583	300 UH	3000 U
10	Isophorone (ug/kg)	8	0	0						19 U	6000 U	1645	300 UH	3000 U
10	Nitrobenzene (ug/kg)	8	0	0						19 U	6000 U	1645	300 UH	3000 U
10	N-Nitrosodipropylamine (ug/kg)	8	0	0						38 U	6000 U	1653	300 UH	3000 U
10	1,2,4-Trichlorobenzene (ug/kg)	8	0	0						19 U	6000 U	1645	300 UH	3000 U
10	alpha-Chlordane (ug/kg)	7	0	0						0.84 U	48 U	8	2 U	2 U
10	Endrin ketone (ug/kg)	7	0	0						2 U	95 U	16	2 U	6.4 UI
10	gamma-Chlordane (ug/kg)	7	0	0						1.4 UI	48 U	8	2 U	2 U
10	Aniline (ug/kg)	5	0	0						1000 UH	20000 U	8800	3000 UG	10000 U
10	N-Nitrosodimethylamine (ug/kg)	5	0	0						2000 UH	40000 U	17400	5000 UG	20000 U
10	Tributyltin ion (ug/l)	5	0	0						0.02 UG	0.02 U	0.02	0.02 UG	0.02 U
10	1,1,1-Trichloroethane (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	1,1,2,2-Tetrachloroethane (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	1,1,2-Trichloroethane (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	1,1-Dichloroethane (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	1,2-Dichloroethane (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	1,2-Dichloropropane (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	2-Chloroethyl vinyl ether (ug/kg)	5	0	0						10 U	40 U	26	20 U	39 U
10	Benzene (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Bromodichloromethane (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Bromoform (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Bromomethane (ug/kg)	5	0	0						10 U	40 U	26	20 U	39 U
10	Carbon disulfide (ug/kg)	5	0	0						100 U	400 U	240	200 U	300 U
10	Carbon tetrachloride (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Chlordane (cis & trans) (ug/kg)	5	0	0						100 U	600 UH	420	300 U	600 U
10	Chlorodibromomethane (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Chloroethane (ug/kg)	5	0	0						10 U	40 U	26	20 U	39 U
10	Chloroform (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Chloromethane (ug/kg)	5	0	0						10 U	40 U	26	20 U	39 U
10	cis-1,2-Dichloroethene (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	cis-1,3-Dichloropropene (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Ethylbenzene (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Methyl isobutyl ketone (ug/kg)	5	0	0						50 U	200 U	160	150 U	200 U
10	Methyl N-butyl ketone (ug/kg)	5	0	0						50 U	200 U	160	150 U	200 U
10	Methylene chloride (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Methylethyl ketone (ug/kg)	5	0	0						100 U	400 U	240	200 U	300 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
10	Styrene (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 UH
10	trans-1,2-Dichloroethene (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	trans-1,3-Dichloropropene (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Trichloroethene (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Trichlorofluoromethane (ug/kg)	5	0	0						10 U	40 U	26	20 U	39 U
10	Trichlorotrifluoroethane (ug/kg)	5	0	0						10 U	40 U	26	20 U	39 U
10	Vinyl acetate (ug/kg)	5	0	0						50 U	200 U	130	100 U	150 U
10	Vinyl chloride (ug/kg)	5	0	0						10 U	39 U	26	20 U	39 U
10	Vinylidene chloride (ug/kg)	5	0	0						5 U	20 U	12	10 U	15 U
10	Xylene (ug/kg)	5	0	0						5 U	15 U	11	10 U	15 U
10	Ammonia (mg/kg)	2	0	0						88.1 UJ	106 UJ	97	88.1 UJ	88.1 UJ
10	Butyltin ion (ug/kg)	2	0	0						5.7 U	5.8 U	5.75	5.7 U	5.7 U
10	Dibutyltin ion (ug/kg)	2	0	0						5.7 U	5.8 U	5.75	5.7 U	5.7 U
10	Tetrabutyltin (ug/kg)	2	0	0						5.7 U	5.8 U	5.75	5.7 U	5.7 U
11	Arsenic (mg/kg)	17	17	100	2	5.86	3.76	3.9	5.5	2	5.86	3.76	3.9	5.5
11	Chromium (mg/kg)	17	17	100	12.1	42.3	28	26.2	40.4	12.1	42.3	28	26.2	40.4
11	Lead (mg/kg)	17	17	100	9.88	61.3	22	17.3	47.6	9.88	61.3	22	17.3	47.6
11	Nickel (mg/kg)	17	17	100	10.4	34.8	24	24 E	32.8	10.4	34.8	24	24 E	32.8
11	Total organic carbon (%)	17	17	100	0.93	2.65	1.85	1.87	2.37	0.93	2.65	1.85	1.87	2.37
11	Zinc (mg/kg)	17	17	100	63.2 G	171	101	98.8	130 E	63.2 G	171	101	98.8	130 E
11	Bis(2-ethylhexyl) phthalate (ug/kg)	16	16	100	80 J	1300 B	447	220	1000	80 J	1300 B	447	220	1000
11	Silt (%)	12	12	100	27.9	69.6	55	54.5	68.6	27.9	69.6	55	54.5	68.6
11	Sand (%)	11	11	100	30.1	48.23	39	37.61	46.86	30.1	48.23	39	37.61	46.86
11	Fines (%)	10	10	100	31.9	69.6	60	58.2	68.6	31.9	69.6	60	58.2	68.6
11	Clay (%)	9	9	100	3.22	7.8	5.3	4.22	6.99	3.22	7.8	5.3	4.22	6.99
11	Gravel (%)	9	9	100	0.1	1	0.4	0.2	0.58	0.1	1	0.4	0.2	0.58
11	Total solids (%)	9	9	100	44.8	59.8	49	46.8	52	44.8	59.8	49.2	46.8	52
11	Total sulfides (mg/kg)	8	8	100	2.9	39 G	10	3.6	16.1	2.9	39 G	10	3.6	16.1
11	Acetone (ug/kg)	6	6	100	30 J	90 J	47	40 J	50 J	30 J	90 J	47	40 J	50 J
11	Chlorobenzene (ug/kg)	6	6	100	2 J	5 J	3.7	4 J	5 J	2 J	5 J	3.7	4 J	5 J
11	Acid Volatile Sulfides (mg/kg)	3	3	100	7.3	22	15	7.3	16.4	7.3	22	15	7.3	16.4
11	Beryllium (mg/kg)	3	3	100	0.22	0.46	0.32	0.22	0.29	0.22	0.46	0.32	0.22	0.29
11	Iron (mg/kg)	3	3	100	41600	47700	44600	41600	44500	41600	47700	44600	41600	44500
11	Manganese (mg/kg)	3	3	100	802	969	867	802	831	802	969	867	802	831
11	Thallium (mg/kg)	3	3	100	0.04 J	0.1	0.1	0.04 J	0.05	0.04 J	0.1	0.1	0.04 J	0.05
11	Tin (mg/kg)	3	3	100	6.16 G	14.2 G	9.1	6.16 G	7.04 G	6.16 G	14.2 G	9.1	6.16 G	7.04 G
11	Titanium (mg/kg)	3	3	100	2700	3680	3257	2700	3390	2700	3680	3257	2700	3390
11	Total volatile solids (%)	3	3	100	3.8	5.65	4.86	3.8	5.13	3.8	5.65	4.86	3.8	5.13
11	Carbazole (ug/kg)	3	3	100	2 J	9 J	6	2 J	7 J	2 J	9 J	6	2 J	7 J
11	Diesel fuels (mg/kg)	3	3	100	60 J	84	72	60 J	72	60 J	84	72	60 J	72
11	Residual Range Organics (mg/kg)	3	3	100	200 J	360	287	200 J	300 J	200 J	360	287	200 J	300 J
11	Ammonia (mg/l)	2	2	100	4.76	6.43	5.595	4.76	4.76	4.76	6.43	5.60	4.76	4.76
11	Dibutyltin ion (ug/kg)	2	2	100	0.8 J	4	2.4	0.8 J	0.8 J	0.8 J	4	2.4	0.8 J	0.8 J
11	Mean grain size (mm)	1	1	100	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
11	Median grain size (mm)	1	1	100	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
11	Cadmium (mg/kg)	17	16	94	0.15	2.13 E	0.42	0.24	1.08 E	0.15	2.13 E	0.43	0.24	1.08 E
11	Mercury (mg/kg)	17	16	94	0.05	1.06	0.15	0.07	0.21	0.05	1.06	0.14	0.06	0.21
11	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	11	10	91	3 A	5.3 A	4.7	4.9 A	5.2 A	2 UA	5.3 A	4.4	4.8 A	5.2 A

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
11	Copper (mg/kg)	17	15	88	23.3	57.2 N	37	33.8	45.4 N	20.5 UG	57.2 N	35	33.4 N	45.4 N
11	Fluoranthene (ug/kg)	17	15	88	21	1210	160	71 J	206	20 U	1210	144	66	206
11	High Molecular Weight PAH (ug/kg)	17	15	88	44 A	7905 A	857	277 A	786 A	20 UA	7905 A	759	261 A	786 A
11	Polycyclic Aromatic Hydrocarbons (ug/kg)	17	15	88	44 A	8761.2 A	973	316 A	960 A	20 UA	8761.2 A	861	309 A	960 A
11	Pyrene (ug/kg)	17	15	88	23	1820	198	72	175	20 U	1820	177	63	175
11	Silver (mg/kg)	17	14	82	0.12	0.65	0.27	0.22 G	0.6	0.12	1 UG	0.4	0.22	1 UG
11	4,4'-DDE (ug/kg)	11	9	82	2	3.7	2.6	2.4	3	2 U	3.7	2.5	2.3	3
11	Butylbenzyl phthalate (ug/kg)	10	8	80	3 J	46.9	22	18.8	33	3 J	130 U	33	22	46.9
11	Antimony (mg/kg)	13	10	77	0.1 EG	0.48	0.21	0.13 N	0.4	0.1 EG	0.48	0.20	0.13 N	0.4
11	Benzo(b)fluoranthene (ug/kg)	17	13	76	15 J	790	98	27	72 J	15 J	790	79	24	72 J
11	Benzo(b+k)fluoranthene (ug/kg)	17	13	76	20 A	1254 A	154	49 A	118.4 A	20 A	1254 A	123	32 A	118.4 A
11	Benz(a)anthracene (ug/kg)	17	12	71	10 J	472	70	32	67	10 J	472	56	25	67
11	Benzo(a)pyrene (ug/kg)	17	12	71	10 J	944	110	33 G	68.6	10 J	944	84	22	68.6
11	Chrysene (ug/kg)	17	12	71	10 J	637	95	40 G	84	10 J	637	73	27	84
11	Low Molecular Weight PAH (ug/kg)	17	12	71	25 A	856.2 A	145	66 A	198 A	20 UA	856.2 A	108	39 A	198 A
11	Phenanthrene (ug/kg)	17	12	71	20 J	552	92	48	92 J	20 J	552	71	28	92 J
11	Tributyltin ion (ug/kg)	3	2	67	3	3	3	3	3	3	5.8 U	3.9	3	3
11	Benzo(k)fluoranthene (ug/kg)	17	11	65	5 J	464	67	24	47.8	5 J	464	50	20 U	47.8
11	Dibutyl phthalate (ug/kg)	10	6	60	9 J	101	39	14	71.4	9 J	101	31	20 U	71.4
11	Benzoic acid (ug/kg)	5	3	60	40 J	70 J	53	40 J	50 J	40 J	100 U	72	50 J	100 U
11	Indeno(1,2,3-cd)pyrene (ug/kg)	17	10	59	10 J	776	105	27 G	61	10 J	776	70	20 U	61
11	Polychlorinated biphenyls (ug/kg)	17	10	59	7 A	550 A	89	17 A	105 A	7 A	550 A	65	20 UA	105 A
11	4,4'-DDD (ug/kg)	11	6	55	1.4	1.8	1.6	1.7	1.7	1 U	2 U	1.7	1.7	2 U
11	4,4'-DDT (ug/kg)	11	6	55	0.9	5	2.3	1.2	3	0.9	5	1.9	1.1	3
11	Anthracene (ug/kg)	17	9	53	5 J	117	26	11.7	28 J	5 J	117	23	20 U	28 J
11	Benzo(g,h,i)perylene (ug/kg)	17	9	53	10 J	647	101	30 G	81.3	10 J	647	63	20 U	81.3
11	Butyltin ion (ug/kg)	2	1	50	2	2	2	2	2	1 U	2	1.5	1 U	1 U
11	Naphthalene (ug/kg)	17	8	47	4 J	76.8	21	8 J	41 G	4 J	76.8	20	20 U	41 G
11	2-Methylnaphthalene (ug/kg)	12	5	42	1 J	18 G	7.2	1 J	12	1 J	20 U	14	18 G	20 U
11	Aroclor 1254 (ug/kg)	17	7	41	9 J	200	51	17	51	9 J	200	29	10 U	51
11	Aroclor 1260 (ug/kg)	17	7	41	6 J	49	25	14	40	6 J	49	18	10 U	40
11	Di-n-octyl phthalate (ug/kg)	10	4	40	27	116 JB	71.9	72 JB	72.7 JB	10 U	290 U	119	72 JB	280 U
11	Dibenz(a,h)anthracene (ug/kg)	17	6	35	3 J	145	31	10 J	10.9	3 J	145	23	20 U	29 U
11	Selenium (mg/kg)	3	1	33	2.2	2.2	2.2	2.2	2.2	1.1 U	2.2	1.8	1.1 U	1.95 U
11	Diethyl phthalate (ug/kg)	10	3	30	2 J	10 J	5	2 J	3 J	2 J	20 U	11	10 U	20 U
11	Acenaphthylene (ug/kg)	17	5	29	6 G	50.8	19	6 J	22 J	6 G	50.8	17	20 U	22 J
11	Fluorene (ug/kg)	17	5	29	2 J	34	14	7 J	15 G	2 J	34	16	15 G	20 U
11	Dibenzofuran (ug/kg)	14	4	29	0.9 J	7 G	3.7	2 J	5 J	0.9 J	20 U	14	20 U	20 U
11	gamma-Chlordane (ug/kg)	4	1	25	3	3	3	3	3	2 U	3	2.25	2 U	2 U
11	Benzyl alcohol (ug/kg)	5	1	20	9	9	9	9	9	6 U	73 U	46	9	71 U
11	1,4-Dichlorobenzene (ug/kg)	5	1	20	10 J	10 J	10	10 J	10 J	1 U	15 U	8.2	1 U	14 U
11	gamma-Hexachlorocyclohexane (ug/kg)	11	2	18	1.5	1.8	1.65	1.5	1.5	1 U	6 U	2	1.7 U	2 U
11	Acenaphthene (ug/kg)	17	3	18	10 J	25.6	17	10 J	16 G	6.7 U	25.6	16	16 G	20 U
11	Phenol (ug/kg)	7	1	14	7 J	7 J	7	7 J	7 J	7 J	73 U	42	20 U	71 U
11	Aroclor 1242 (ug/kg)	17	2	12	12	350	181	12	12	10 U	350	32	10 U	20 U
11	4-Methylphenol (ug/kg)	10	1	10	117	117	117	117	117	20 U	120 U	98	120 U	120 U
11	Dimethyl phthalate (ug/kg)	10	1	10	0.6 J	0.6 J	0.6	0.6 J	0.6 J	0.6 J	20 U	13	13 U	20 U
11	Endrin ketone (ug/kg)	10	1	10	1.2	1.2	1.2	1.2	1.2	1 U	2 U	1.4	1 U	2 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
11	Aroclor 1016 (ug/kg)	17	0	0						10 U	20 U	12	10 U	20 U
11	Aroclor 1221 (ug/kg)	17	0	0						10 U	60 U	22	20 U	40 U
11	Aroclor 1232 (ug/kg)	17	0	0						10 U	50 U	16	10 U	40 U
11	Aroclor 1248 (ug/kg)	17	0	0						10 U	20 U	12	10 U	20 U
11	2,4-Dimethylphenol (ug/kg)	13	0	0						6 U	290 U	83	29 U	280 U
11	Pentachlorophenol (ug/kg)	13	0	0						61 U	440 U	170	100 U	430 U
11	Tributyltin ion (ug/l)	11	0	0						0.02 U	0.05 UX	0.04	0.05 U	0.05 UX
11	Aldrin (ug/kg)	11	0	0						1 U	6 U	2	1 U	2 U
11	alpha-Endosulfan (ug/kg)	11	0	0						1 U	2 U	1	1 U	2 U
11	alpha-Hexachlorocyclohexane (ug/kg)	11	0	0						1 U	2 U	1	1 U	2 U
11	beta-Endosulfan (ug/kg)	11	0	0						1 U	2 U	1	1 U	2 U
11	beta-Hexachlorocyclohexane (ug/kg)	11	0	0						1 U	2 U	1	1 U	2 U
11	delta-Hexachlorocyclohexane (ug/kg)	11	0	0						1 U	2 U	1	1.2 U	2 U
11	Dieldrin (ug/kg)	11	0	0						1 U	6 U	2	1 U	2 U
11	Endosulfan sulfate (ug/kg)	11	0	0						1 U	2 U	1	1 U	2 U
11	Endrin (ug/kg)	11	0	0						1 U	6 U	2	1 U	2 U
11	Endrin aldehyde (ug/kg)	11	0	0						1 U	2 U	1	1 U	2 U
11	Heptachlor (ug/kg)	11	0	0						1 U	6 U	2	1 U	2 U
11	Heptachlor epoxide (ug/kg)	11	0	0						1 U	2 U	1	1 U	2 U
11	Methoxychlor (ug/kg)	11	0	0						1 U	4 U	2	1 U	4 U
11	Toxaphene (ug/kg)	11	0	0						30 U	70 UB	49	50 U	70 UB
11	2-Methylphenol (ug/kg)	7	0	0						6 U	290 U	152	100 U	280 U
11	Chlordane (cis & trans) (ug/kg)	7	0	0						10 U	10 U	10	10 U	10 U
11	Benzene (ug/kg)	6	0	0						1 U	10 U	8	9.5 U	10 U
11	Ethylbenzene (ug/kg)	6	0	0						2 U	10 U	8	9.5 U	10 U
11	m,p-Xylene (ug/kg)	6	0	0						3 U	10 U	9	9.5 U	10 U
11	o-Xylene (ug/kg)	6	0	0						2 U	10 U	8	9.5 U	10 U
11	Tetrachloroethene (ug/kg)	6	0	0						1 U	10 U	8	9.5 U	10 U
11	Trichloroethene (ug/kg)	6	0	0						2 U	10 U	8	9.5 U	10 U
11	Xylene (ug/kg)	6	0	0						2 U	10 U	8	9.5 U	10 U
11	Hexachlorobutadiene (ug/kg)	5	0	0						14 U	20 U	17	14 U	20 U
11	N-Nitrosodiphenylamine (ug/kg)	5	0	0						12 U	15 U	13	12 U	14 U
11	1,2-Dichlorobenzene (ug/kg)	5	0	0						1 U	15 U	9	1 U	14 U
11	1,3-Dichlorobenzene (ug/kg)	5	0	0						1 U	15 U	9	1 U	14 U
11	2,4,5-Trichlorophenol (ug/kg)	5	0	0						40 U	73 U	59	40 U	71 U
11	2,4,6-Trichlorophenol (ug/kg)	5	0	0						30 U	73 U	55	30 U	71 U
11	2,4-Dichlorophenol (ug/kg)	5	0	0						100 U	150 U	126	100 U	140 U
11	2,4-Dinitrophenol (ug/kg)	5	0	0						300 U	440 U	378	300 U	430 U
11	2-Chlorophenol (ug/kg)	5	0	0						50 U	73 U	63	50 U	71 U
11	2-Nitrophenol (ug/kg)	5	0	0						40 U	73 U	59	40 U	71 U
11	4,6-Dinitro-2-methylphenol (ug/kg)	5	0	0						100 U	290 U	210	100 U	280 U
11	4-Chloro-3-methylphenol (ug/kg)	5	0	0						50 U	73 U	63	50 U	71 U
11	4-Nitrophenol (ug/kg)	5	0	0						100 U	150 U	126	100 U	140 U
11	Hexachlorobenzene (ug/kg)	5	0	0						14 U	20 U	17	14 U	20 U
11	alpha-Chlordane (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
11	2,4-Dinitrotoluene (ug/kg)	3	0	0						71 U	73 U	72	71 U	71 U
11	2,6-Dinitrotoluene (ug/kg)	3	0	0						28 U	29 U	28	28 U	28 U
11	2-Chloronaphthalene (ug/kg)	3	0	0						14 U	15 U	14	14 U	14 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
11	2-Nitroaniline (ug/kg)	3	0	0						28 U	29 U	28	28 U	28 U
11	3,3'-Dichlorobenzidine (ug/kg)	3	0	0						90 U	290 U	157	90 U	90 U
11	3-Nitroaniline (ug/kg)	3	0	0						280 U	290 U	283	280 U	280 U
11	4-Bromophenyl phenyl ether (ug/kg)	3	0	0						14 U	15 U	14	14 U	14 U
11	4-Chloroaniline (ug/kg)	3	0	0						71 U	73 U	72	71 U	71 U
11	4-Chlorophenyl phenyl ether (ug/kg)	3	0	0						14 U	15 U	14	14 U	14 U
11	4-Nitroaniline (ug/kg)	3	0	0						140 U	150 U	143	140 U	140 U
11	Bis(2-chloroethoxy) methane (ug/kg)	3	0	0						28 U	29 U	28	28 U	28 U
11	Bis(2-chloroethyl) ether (ug/kg)	3	0	0						14 U	15 U	14	14 U	14 U
11	Bis(2-chloroisopropyl) ether (ug/kg)	3	0	0						14 U	15 U	14	14 U	14 U
11	Hexachlorocyclopentadiene (ug/kg)	3	0	0						280 U	290 U	283	280 U	280 U
11	Hexachloroethane (ug/kg)	3	0	0						57 U	59 U	58	57 U	57 U
11	Isophorone (ug/kg)	3	0	0						14 U	15 U	14	14 U	14 U
11	Nitrobenzene (ug/kg)	3	0	0						14 U	15 U	14	14 U	14 U
11	N-Nitrosodipropylamine (ug/kg)	3	0	0						14 U	15 U	14	14 U	14 U
11	1,2,4-Trichlorobenzene (ug/kg)	3	0	0						14 U	15 U	14	14 U	14 U
11	3- and 4-Methylphenol Coelution (ug/kg)	3	0	0						280 U	290 U	283	280 U	280 U
11	Gasoline (mg/kg)	3	0	0						52 U	78 U	61	52 U	54 U
11	Ammonia (mg/kg)	2	0	0						96.6 UJ	167 UJ	132	96.6 UJ	96.6 UJ
11	Tetrabutyltin (ug/kg)	2	0	0						3 U	3 U	3	3 U	3 U
12	Arsenic (mg/kg)	10	10	100	2	4.7	3.3	3	4.4	2	4.7	3.3	3	4.4
12	Chromium (mg/kg)	10	10	100	23.2	41	31	30	40	23.2	41	31	30	40
12	Copper (mg/kg)	10	10	100	28.7	1640	211	46	108	28.7	1640	211	46	108
12	Lead (mg/kg)	10	10	100	10.7	333	108	91	174	10.7	333	108	91	174
12	Nickel (mg/kg)	10	10	100	13	28.9	22	22.5	26.7	13	28.9	22	22.5	26.7
12	Total solids (%)	10	10	100	46.5	83.1	72	78.1	82.4	46.5	83.1	72	78.1	82.4
12	Zinc (mg/kg)	10	10	100	86.2 N	410	197	203	271	86.2 N	410	197	203	271
12	Total organic carbon (%)	5	5	100	0.7	2.08	1.4	1.14	1.76	0.7	2.08	1.4	1.14	1.76
12	Gravel (%)	4	4	100	0.59	11.9	3.53	0.77	0.86	0.59	11.9	3.53	0.77	0.86
12	Sand (%)	4	4	100	37.31	89.1	65	65.89	66.04	37.31	89.1	65	65.89	66.04
12	Clay (%)	3	3	100	1.94	3.73	2.57	1.94	2.04	1.94	3.73	2.57	1.94	2.04
12	Fines (%)	3	3	100	26.8	62.4	41	26.8	33.4	26.8	62.4	41	26.8	33.4
12	Silt (%)	3	3	100	24.9	58.7	38	24.9	31.4	24.9	58.7	38	24.9	31.4
12	Total sulfides (mg/kg)	3	3	100	1.5	9.4	5.7	1.5	6.1	1.5	9.4	5.7	1.5	6.1
12	Carbazole (ug/kg)	2	2	100	5 J	30	17.5	5 J	5 J	5 J	30	17.5	5 J	5 J
12	Acridine (ug/kg)	1	1	100	3160	3160	3160	3160	3160	3160	3160	3160	3160	3160
12	Azulene (ug/kg)	1	1	100	260	260	260	260	260	260	260	260	260	260
12	Butyltin ion (ug/kg)	1	1	100	2	2	2	2	2	2	2	2	2	2
12	Dibenzothiophene (ug/kg)	1	1	100	3160	3160	3160	3160	3160	3160	3160	3160	3160	3160
12	Dibutyltin ion (ug/kg)	1	1	100	3	3	3	3	3	3	3	3	3	3
12	Mean grain size (mm)	1	1	100	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
12	Median grain size (mm)	1	1	100	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
12	Perylene (ug/kg)	1	1	100	1150	1150	1150	1150	1150	1150	1150	1150	1150	1150
12	Total volatile solids (%)	1	1	100	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
12	Tributyltin ion (ug/kg)	1	1	100	12	12	12	12	12	12	12	12	12	12
12	Diesel fuels (mg/kg)	1	1	100	80	80	80	80	80	80	80	80	80	80
12	Residual Range Organics (mg/kg)	1	1	100	300 J	300 J	300	300 J	300 J	300 J	300 J	300	300 J	300 J
12	Retene (ug/kg)	1	1	100	940	940	940	940	940	940	940	940	940	940

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
12	Bis(2-ethylhexyl) phthalate (ug/kg)	10	6	60	100 J	38000	7145	270	4000	100 J	38000	5487	3000 U	4000
12	High Molecular Weight PAH (ug/kg)	11	5	45	20 A	43480 A	8951	53 A	793 A	20 A	43480 A	5705	3000 UA	3000 UA
12	Polycyclic Aromatic Hydrocarbons (ug/kg)	11	5	45	20 A	127750 A	25867	53 A	944 A	20 A	127750 A	13394	3000 UA	3000 UA
12	Pyrene (ug/kg)	11	5	45	20	15500	3161	28	170 J	20	15500	3073	3000 U	3000 U
12	Antimony (mg/kg)	10	4	40	0.09 N	0.24	0.15	0.12 N	0.13 N	0.09 N	10 U	6.06	10 U	10 U
12	Cadmium (mg/kg)	10	4	40	0.17	0.21	0.19	0.18	0.2	0.17	1 U	0.68	1 U	1 U
12	Mercury (mg/kg)	10	4	40	0.04	0.56	0.18	0.06	0.07	0.04	0.56	0.19	0.2 U	0.2 U
12	Silver (mg/kg)	10	4	40	0.11	0.19	0.14	0.13	0.14	0.11	2 U	1.26	2 U	2 U
12	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	10	4	40	1.8 A	9 A	5.6	4.8 A	6.7 A	1.8 A	10 UA	8.23	10 UA	10 UA
12	Fluoranthene (ug/kg)	11	4	36	25	17400	4431	68	230 J	20 U	17400	3249	3000 U	3000 U
12	Acetone (ug/kg)	9	3	33	10 J	20 J	13	10 J	10 J	10 J	100 U	71	100 U	100 U
12	Endrin ketone (ug/kg)	3	1	33	1.6	1.6	1.6	1.6	1.6	1 U	1.6	1.2	1 U	1 U
12	4,4'-DDD (ug/kg)	10	3	30	1.4	9	4.0	1.4	1.5	1 U	10 U	7.29	10 U	10 U
12	4,4'-DDE (ug/kg)	10	3	30	1.8	2.3	2.1	1.8	2.2	1.8	10 U	7.13	10 U	10 U
12	Anthracene (ug/kg)	11	3	27	23	8300	2787	23	37 J	20 U	8300	2400	3000 U	3000 U
12	Benz(a)anthracene (ug/kg)	11	3	27	34	2950	1028	34	100	20 U	3000 U	1920	2950	3000 U
12	Benzo(a)pyrene (ug/kg)	11	3	27	40	340	140	40	40	20 U	3000 U	1678	340	3000 U
12	Benzo(b)fluoranthene (ug/kg)	11	3	27	36	2060	724	36	75 J	20 U	3000 U	1837	2060	3000 U
12	Benzo(b+k)fluoranthene (ug/kg)	11	3	27	66 A	3380 A	1181	66 A	98 A	20 UA	3380 A	1962	3000 UA	3000 UA
12	Benzo(g,h,i)perylene (ug/kg)	11	3	27	20 J	410	155	20 J	36	20 U	3000 U	1682	410	3000 U
12	Benzo(k)fluoranthene (ug/kg)	11	3	27	23	1320	458	23	30	20 U	3000 U	1765	1320	3000 U
12	Chrysene (ug/kg)	11	3	27	44	2900	1018	44	110	20 U	3000 U	1918	2900	3000 U
12	Indeno(1,2,3-cd)pyrene (ug/kg)	11	3	27	20 J	440	166	20 J	37	20 J	3000 U	1685	440	3000 U
12	Low Molecular Weight PAH (ug/kg)	11	3	27	151 A	84270 A	28193	151 A	157 A	20 UA	84270 A	9329	3000 UA	3000 UA
12	Naphthalene (ug/kg)	11	3	27	4 J	30200	10081	4 J	38	4 J	30200	4389	3000 U	3000 U
12	Phenanthrene (ug/kg)	11	3	27	90 J	27600	9262	90 J	96	20 U	27600	4166	3000 U	3000 U
12	Chlorobenzene (ug/kg)	9	2	22	2 J	4 J	3	2 J	2 J	2 J	6.6 U	4.7	5 U	5 U
12	4,4'-DDT (ug/kg)	10	2	20	1	3.1	2.05	1	1	1	10 U	7.01	10 U	10 U
12	Aroclor 1260 (ug/kg)	10	2	20	12	19	16	12	12	10 U	100 U	65	100 U	100 U
12	Acenaphthylene (ug/kg)	11	2	18	10 J	110	60	10 J	10 J	10 J	3000 U	1653	110	3000 U
12	Dibenz(a,h)anthracene (ug/kg)	11	2	18	5 J	160	83	5 J	5 J	5 J	3000 U	1657	160	3000 U
12	Dibenzofuran (ug/kg)	11	2	18	3 J	11400	5702	3 J	3 J	3 J	11400	2678	3000 U	3000 U
12	Fluorene (ug/kg)	11	2	18	10 J	3160	1585	10 J	10 J	10 J	3160	1930	3000 U	3000 U
12	Polychlorinated biphenyls (ug/kg)	11	2	18	19 A	35 A	27	19 A	19 A	19 A	125 UA	74	100 UA	100 UA
12	Benzoic acid (ug/kg)	7	1	14	60 J	60 J	60	60 J	60 J	60 J	20000 U	17151	20000 U	20000 U
12	Beryllium (mg/kg)	7	1	14	0.42	0.42	0.42	0.42	0.42	0.42	1 U	0.9	1 U	1 U
12	Thallium (mg/kg)	7	1	14	0.06	0.06	0.06	0.06	0.06	0.06	1 U	0.9	1 U	1 U
12	1,4-Dichlorobenzene (ug/kg)	7	1	14	18	18	18	18	18	5 U	18	8	5 U	15 U
12	Butylbenzyl phthalate (ug/kg)	7	1	14	5 J	5 J	5	5 J	5 J	5 J	3000 U	2572	3000 U	3000 U
12	Diethyl phthalate (ug/kg)	7	1	14	7 J	7 J	7	7 J	7 J	7 J	3000 U	2572	3000 U	3000 U
12	Phenol (ug/kg)	7	1	14	10 J	10 J	10	10 J	10 J	10 J	3000 UG	2573	3000 UG	3000 UG
12	2-Methylnaphthalene (ug/kg)	10	1	10	2 J	2 J	2	2 J	2 J	2 J	3000 U	1806	3000 U	3000 U
12	Aroclor 1254 (ug/kg)	10	1	10	23	23	23	23	23	10 U	100 U	65	100 U	100 U
12	beta-Hexachlorocyclohexane (ug/kg)	10	1	10	18	18	18	18	18	1 U	30 U	20	30 U	30 U
12	gamma-Hexachlorocyclohexane (ug/kg)	10	1	10	1.7	1.7	1.7	1.7	1.7	1 U	10 U	6.93	10 U	10 U
12	Acenaphthene (ug/kg)	11	1	9	14900	14900	14900	14900	14900	15 U	14900	2998	3000 U	3000 U
12	Aroclor 1016 (ug/kg)	10	0	0						10 U	100 U	64	100 U	100 U
12	Aroclor 1221 (ug/kg)	10	0	0						20 U	100 U	68	100 U	100 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
12	Aroclor 1232 (ug/kg)	10	0	0						10 U	100 U	64	100 U	100 U
12	Aroclor 1242 (ug/kg)	10	0	0						10 U	100 U	64	100 U	100 U
12	Aroclor 1248 (ug/kg)	10	0	0						10 U	100 U	64	100 U	100 U
12	2,4-Dimethylphenol (ug/kg)	10	0	0						29 U	3000 UG	1839	3000 U	3000 UG
12	Aldrin (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	alpha-Endosulfan (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	alpha-Hexachlorocyclohexane (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	beta-Endosulfan (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	Chlordane (cis & trans) (ug/kg)	10	0	0						10 U	100 U	66	100 U	100 U
12	delta-Hexachlorocyclohexane (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	Dieldrin (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	Endosulfan sulfate (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	Endrin (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	Endrin aldehyde (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	Heptachlor (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	Heptachlor epoxide (ug/kg)	10	0	0						1 U	10 U	6.8	10 U	10 U
12	Methoxychlor (ug/kg)	10	0	0						1 U	20 U	13	20 U	20 U
12	Pentachlorophenol (ug/kg)	10	0	0						100 U	20000 UG	12074	20000 U	20000 UG
12	Toxaphene (ug/kg)	10	0	0						25 U	300 U	198	300 U	300 U
12	4-Methylphenol (ug/kg)	9	0	0						120 U	3000 UG	2040	3000 U	3000 UG
12	Benzene (ug/kg)	9	0	0						5 U	7.9 U	5.8	5 U	7.3 U
12	Ethylbenzene (ug/kg)	9	0	0						5 U	7.9 U	5.8	5 U	7.3 U
12	Tetrachloroethene (ug/kg)	9	0	0						5 U	7.9 U	5.8	5 U	7.3 U
12	Trichloroethene (ug/kg)	9	0	0						5 U	7.9 U	5.8	5 U	7.3 U
12	Xylene (ug/kg)	9	0	0						5 U	7.9 U	5.8	5 U	7.3 U
12	2,4-Dinitrotoluene (ug/kg)	7	0	0						74 U	3000 U	2582	3000 U	3000 U
12	2,6-Dinitrotoluene (ug/kg)	7	0	0						30 U	3000 U	2576	3000 U	3000 U
12	2-Chloronaphthalene (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	2-Nitroaniline (ug/kg)	7	0	0						30 U	20000 U	17147	20000 U	20000 U
12	3,3'-Dichlorobenzidine (ug/kg)	7	0	0						100 U	20000 U	17157	20000 U	20000 U
12	3-Nitroaniline (ug/kg)	7	0	0						300 U	20000 U	17186	20000 U	20000 U
12	4-Bromophenyl phenyl ether (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	4-Chloroaniline (ug/kg)	7	0	0						74 U	3000 U	2582	3000 U	3000 U
12	4-Chlorophenyl phenyl ether (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	4-Nitroaniline (ug/kg)	7	0	0						150 U	20000 U	17164	20000 U	20000 U
12	Benzyl alcohol (ug/kg)	7	0	0						74 U	3000 U	2582	3000 U	3000 U
12	Bis(2-chloroethoxy) methane (ug/kg)	7	0	0						30 U	3000 U	2576	3000 U	3000 U
12	Bis(2-chloroethyl) ether (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	Hexachlorobutadiene (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	Hexachlorocyclopentadiene (ug/kg)	7	0	0						300 U	3000 U	2614	3000 U	3000 U
12	Hexachloroethane (ug/kg)	7	0	0						59 U	3000 U	2580	3000 U	3000 U
12	Isophorone (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	Nitrobenzene (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	N-Nitrosodiphenylamine (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	N-Nitrosodipropylamine (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	Selenium (mg/kg)	7	0	0						1 U	1.95 U	1.1	1 U	1 U
12	1,2,4-Trichlorobenzene (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	1,2-Dichlorobenzene (ug/kg)	7	0	0						5 U	15 U	6.4	5 U	5 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
12	1,3-Dichlorobenzene (ug/kg)	7	0	0						5 U	15 U	6.4	5 U	5 U
12	2,4,5-Trichlorophenol (ug/kg)	7	0	0						74 U	3000 UG	2582	3000 UG	3000 UG
12	2,4,6-Trichlorophenol (ug/kg)	7	0	0						74 U	3000 UG	2582	3000 UG	3000 UG
12	2,4-Dichlorophenol (ug/kg)	7	0	0						150 U	3000 UG	2593	3000 UG	3000 UG
12	2,4-Dinitrophenol (ug/kg)	7	0	0						440 U	20000 UG	17206	20000 UG	20000 UG
12	2-Chlorophenol (ug/kg)	7	0	0						74 U	3000 UG	2582	3000 UG	3000 UG
12	2-Methylphenol (ug/kg)	7	0	0						300 U	3000 UG	2614	3000 UG	3000 UG
12	2-Nitrophenol (ug/kg)	7	0	0						74 U	3000 UG	2582	3000 UG	3000 UG
12	4,6-Dinitro-2-methylphenol (ug/kg)	7	0	0						300 U	20000 UG	17186	20000 UG	20000 UG
12	4-Chloro-3-methylphenol (ug/kg)	7	0	0						74 U	3000 UG	2582	3000 UG	3000 UG
12	4-Nitrophenol (ug/kg)	7	0	0						150 U	20000 UG	17164	20000 UG	20000 UG
12	Dibutyl phthalate (ug/kg)	7	0	0						30 U	3000 U	2576	3000 U	3000 U
12	Dimethyl phthalate (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	Di-n-octyl phthalate (ug/kg)	7	0	0						300 U	3000 U	2614	3000 U	3000 U
12	Hexachlorobenzene (ug/kg)	7	0	0						15 U	3000 U	2574	3000 U	3000 U
12	Aniline (ug/kg)	6	0	0						10000 U	10000 U	10000	10000 U	10000 U
12	Bis(2-chloro-1-methylethyl) ether (ug/kg)	6	0	0						3000 U	3000 U	3000	3000 U	3000 U
12	N-Nitrosodimethylamine (ug/kg)	6	0	0						20000 U	20000 U	20000	20000 U	20000 U
12	1,1,1-Trichloroethane (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	1,1,2,2-Tetrachloroethane (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	1,1,2-Trichloroethane (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	1,1-Dichloroethane (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	1,2-Dichloroethane (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	1,2-Dichloropropane (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	2-Chloroethyl vinyl ether (ug/kg)	6	0	0						10 U	10 U	10	10 U	10 U
12	Bromodichloromethane (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Bromoform (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Bromomethane (ug/kg)	6	0	0						10 U	10 U	10	10 U	10 U
12	Carbon disulfide (ug/kg)	6	0	0						100 U	100 U	100	100 U	100 U
12	Carbon tetrachloride (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Chlorodibromomethane (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Chloroethane (ug/kg)	6	0	0						10 U	10 U	10	10 U	10 U
12	Chloroform (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Chloromethane (ug/kg)	6	0	0						10 U	10 U	10	10 U	10 U
12	cis-1,2-Dichloroethene (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	cis-1,3-Dichloropropene (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Methyl isobutyl ketone (ug/kg)	6	0	0						50 U	50 U	50	50 U	50 U
12	Methyl N-butyl ketone (ug/kg)	6	0	0						50 U	50 U	50	50 U	50 U
12	Methylene chloride (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Methylethyl ketone (ug/kg)	6	0	0						100 U	100 U	100	100 U	100 U
12	Styrene (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Toluene (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	trans-1,2-Dichloroethene (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	trans-1,3-Dichloropropene (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Trichlorofluoromethane (ug/kg)	6	0	0						10 U	10 U	10	10 U	10 U
12	Trichlorotrifluoroethane (ug/kg)	6	0	0						10 U	10 U	10	10 U	10 U
12	Vinyl acetate (ug/kg)	6	0	0						50 U	50 U	50	50 U	50 U
12	Vinyl chloride (ug/kg)	6	0	0						10 U	10 U	10	10 U	10 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
12	Vinylidene chloride (ug/kg)	6	0	0						5 U	5 U	5	5 U	5 U
12	Tributyltin ion (ug/l)	3	0	0						0.05 UX	0.05 UX	0.05	0.05 UX	0.05 UX
12	m,p-Xylene (ug/kg)	3	0	0						6.6 U	7.9 U	7.3	6.6 U	7.3 U
12	o-Xylene (ug/kg)	3	0	0						6.6 U	7.9 U	7.3	6.6 U	7.3 U
12	Bis(2-chloroisopropyl) ether (ug/kg)	1	0	0						15 U	15 U	15	15 U	15 U
12	Tetrabutyltin (ug/kg)	1	0	0						3 U	3 U	3	3 U	3 U
12	2,2'-Dichlorobiphenyl (ug/kg)	1	0	0						25 U	25 U	25	25 U	25 U
12	2,3,3',4,4'-Pentachlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
12	2,3-Dichlorobiphenyl (ug/kg)	1	0	0						3 U	3 U	3	3 U	3 U
12	2-Chlorobiphenyl (ug/kg)	1	0	0						125 U	125 U	125	125 U	125 U
12	3- and 4-Methylphenol Coelution (ug/kg)	1	0	0						300 U	300 U	300	300 U	300 U
12	3,3',4,4',5,5'-Hexachlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
12	3,3',4,4',5-Pentachlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
12	3,3',4,4'-Tetrachlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
12	3-Chlorobiphenyl (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
12	4-Chlorobiphenyl (ug/kg)	1	0	0						25 U	25 U	25	25 U	25 U
12	Gasoline (mg/kg)	1	0	0						61 U	61 U	61	61 U	61 U
13	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	1	1	100	30	30	30	30	30	30	30	30	30	30
13	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/	1	1	100	130	130	130	130	130	130	130	130	130	130
13	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	1	1	100	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
13	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	1	1	100	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
13	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	1	1	100	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
13	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	1	100	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
13	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg	1	1	100	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
13	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	1	1	100	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
13	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg	1	1	100	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
13	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	1	1	100	4	4	4	4	4	4	4	4	4	4
13	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	1	100	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
13	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	1	1	100	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
13	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	1	1	100	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
13	Heptachlorodibenzofuran (ng/kg)	1	1	100	94	94	94	94	94	94	94	94	94	94
13	Heptachlorodibenzo-p-dioxin (ng/kg)	1	1	100	280	280	280	280	280	280	280	280	280	280
13	Hexachlorodibenzofuran (ng/kg)	1	1	100	48	48	48	48	48	48	48	48	48	48
13	Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	38	38	38	38	38	38	38	38	38	38
13	Moisture (%)	1	1	100	51	51	51	51	51	51	51	51	51	51
13	Octachlorodibenzofuran (ng/kg)	1	1	100	150	150	150	150	150	150	150	150	150	150
13	Octachlorodibenzo-p-dioxin (ng/kg)	1	1	100	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
13	Pentachlorodibenzofuran (ng/kg)	1	1	100	15	15	15	15	15	15	15	15	15	15
13	Tetrachlorodibenzofuran (ng/kg)	1	1	100	22	22	22	22	22	22	22	22	22	22
13	Tetrachlorodibenzo-p-dioxin (ng/kg)	1	1	100	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
13	Total organic carbon (%)	1	1	100	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
13	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	1	0	0						0.56 U	0.56 U	0.56	0.56 U	0.56 U
13	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	1	0	0						0.8 U	0.8 U	0.8	0.8 U	0.8 U
13	Pentachlorodibenzo-p-dioxin (ng/kg)	1	0	0						0.56 U	0.56 U	0.56	0.56 U	0.56 U
14	Arsenic (mg/kg)	4	4	100	2	2	2	2	2	2	2	2	2	2
14	Chromium (mg/kg)	4	4	100	19	47	28	22 E	25	19	47	28	22 E	25
14	Copper (mg/kg)	4	4	100	68	149 X	98	68	105	68	149 X	98	68	105
14	Lead (mg/kg)	4	4	100	145	405	257	198	278 L	145	405	257	198	278 L

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
14	Nickel (mg/kg)	4	4	100	13	17 E	16	16	16	13	17 E	16	16	16
14	Total solids (%)	4	4	100	80	84.8	83	82.2	84.1	80	84.8	83	82.2	84.1
14	Zinc (mg/kg)	4	4	100	685	1530	1186	1110	1420	685	1530	1186	1110	1420
14	Cadmium (mg/kg)	4	3	75	1	2 E	1.7	1	2	1 U	2 E	1.5	1	2
14	Bis(2-ethylhexyl) phthalate (ug/kg)	4	3	75	3000	8000	5000	3000	4000	3000 U	8000	4500	3000	4000
14	Methylene chloride (ug/kg)	4	2	50	5 B	6 B	5.5	5 B	5 B	5 U	6 B	5.25	5 U	5 B
14	4,4'-DDT (ug/kg)	4	1	25	10	10	10	10	10	10 U	10	10	10 U	10 U
14	Aroclor 1254 (ug/kg)	4	1	25	200	200	200	200	200	100 U	200	125	100 U	100 U
14	Polychlorinated biphenyls (ug/kg)	4	1	25	200 A	200 A	200	200 A	200 A	100 UA	200 A	125	100 UA	100 UA
14	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	4	1	25	10 A	10 A	10	10 A	10 A	10 UA	10 A	10	10 UA	10 UA
14	Butylbenzyl phthalate (ug/kg)	4	1	25	6000	6000	6000	6000	6000	3000 U	6000	3750	3000 U	3000 U
14	Toluene (ug/kg)	4	1	25	5	5	5	5	5	5 U	5	5	5 U	5 U
14	2,4-Dinitrotoluene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	2,6-Dinitrotoluene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	2-Chloronaphthalene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	2-Methylnaphthalene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	2-Nitroaniline (ug/kg)	4	0	0						20000 U	20000 U	20000	20000 U	20000 U
14	3,3'-Dichlorobenzidine (ug/kg)	4	0	0						20000 U	20000 U	20000	20000 U	20000 U
14	3-Nitroaniline (ug/kg)	4	0	0						20000 U	20000 U	20000	20000 U	20000 U
14	4,4'-DDD (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	4,4'-DDE (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	4-Bromophenyl phenyl ether (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	4-Chloroaniline (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	4-Chlorophenyl phenyl ether (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	4-Nitroaniline (ug/kg)	4	0	0						20000 U	20000 U	20000	20000 U	20000 U
14	Acenaphthene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Acenaphthylene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Aniline (ug/kg)	4	0	0						10000 U	10000 U	10000	10000 U	10000 U
14	Anthracene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Antimony (mg/kg)	4	0	0						10 U	10 UG	10	10 U	10 U
14	Aroclor 1016 (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
14	Aroclor 1221 (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
14	Aroclor 1232 (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
14	Aroclor 1242 (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
14	Aroclor 1248 (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
14	Aroclor 1260 (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
14	Benz(a)anthracene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Benzo(a)pyrene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Benzo(b)fluoranthene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Benzo(b+k)fluoranthene (ug/kg)	4	0	0						3000 UA	3000 UA	3000	3000 UA	3000 UA
14	Benzo(g,h,i)perylene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Benzo(k)fluoranthene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Benzoic acid (ug/kg)	4	0	0						20000 U	20000 U	20000	20000 U	20000 U
14	Benzyl alcohol (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Beryllium (mg/kg)	4	0	0						1 U	1 U	1	1 U	1 U
14	Bis(2-chloro-1-methylethyl) ether (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Bis(2-chloroethoxy) methane (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Bis(2-chloroethyl) ether (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
14	Chrysene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Dibenz(a,h)anthracene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Dibenzofuran (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Fluoranthene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Fluorene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Hexachlorobutadiene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Hexachlorocyclopentadiene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Hexachloroethane (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	High Molecular Weight PAH (ug/kg)	4	0	0						3000 UA	3000 UA	3000	3000 UA	3000 UA
14	Indeno(1,2,3-cd)pyrene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Isophorone (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Low Molecular Weight PAH (ug/kg)	4	0	0						3000 UA	3000 UA	3000	3000 UA	3000 UA
14	Mercury (mg/kg)	4	0	0						0.2 U	0.2 U	0.2	0.2 U	0.2 U
14	Naphthalene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Nitrobenzene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	N-Nitrosodimethylamine (ug/kg)	4	0	0						20000 U	20000 U	20000	20000 U	20000 U
14	N-Nitrosodiphenylamine (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	N-Nitrosodipropylamine (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Phenanthrene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Polycyclic Aromatic Hydrocarbons (ug/kg)	4	0	0						3000 UA	3000 UA	3000	3000 UA	3000 UA
14	Pyrene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Selenium (mg/kg)	4	0	0						1 U	1 UG	1	1 U	1 U
14	Silver (mg/kg)	4	0	0						2 U	2 U	2	2 U	2 U
14	Thallium (mg/kg)	4	0	0						1 U	1 U	1	1 U	1 U
14	1,1,1-Trichloroethane (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	1,1,2,2-Tetrachloroethane (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	1,1,2-Trichloroethane (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	1,1-Dichloroethane (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	1,2,4-Trichlorobenzene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	1,2-Dichlorobenzene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	1,2-Dichloroethane (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	1,2-Dichloropropane (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	1,3-Dichlorobenzene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	1,4-Dichlorobenzene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	2,4,5-Trichlorophenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	2,4,6-Trichlorophenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	2,4-Dichlorophenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	2,4-Dimethylphenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	2,4-Dinitrophenol (ug/kg)	4	0	0						20000 UG	20000 UX	20000	20000 UX	20000 UG
14	2-Chloroethyl vinyl ether (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	2-Chlorophenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	2-Methylphenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	2-Nitrophenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	4,6-Dinitro-2-methylphenol (ug/kg)	4	0	0						20000 UG	20000 UX	20000	20000 UX	20000 UG
14	4-Chloro-3-methylphenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	4-Methylphenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	4-Nitrophenol (ug/kg)	4	0	0						20000 UG	20000 UX	20000	20000 UX	20000 UG
14	Acetone (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
14	Aldrin (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	alpha-Endosulfan (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	alpha-Hexachlorocyclohexane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Benzene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	beta-Endosulfan (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	beta-Hexachlorocyclohexane (ug/kg)	4	0	0						30 U	30 U	30	30 U	30 U
14	Bromodichloromethane (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Bromoform (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Bromomethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Carbon disulfide (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
14	Carbon tetrachloride (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Chlordane (cis & trans) (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
14	Chlorobenzene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Chlorodibromomethane (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Chloroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Chloroform (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Chloromethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	cis-1,2-Dichloroethene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	cis-1,3-Dichloropropene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	delta-Hexachlorocyclohexane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Dibutyl phthalate (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Dieldrin (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Diethyl phthalate (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Dimethyl phthalate (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Di-n-octyl phthalate (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Endosulfan sulfate (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Endrin (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Endrin aldehyde (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Ethylbenzene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	gamma-Hexachlorocyclohexane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Heptachlor (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Heptachlor epoxide (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Hexachlorobenzene (ug/kg)	4	0	0						3000 U	3000 U	3000	3000 U	3000 U
14	Methoxychlor (ug/kg)	4	0	0						20 U	20 U	20	20 U	20 U
14	Methyl isobutyl ketone (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
14	Methyl N-butyl ketone (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
14	Methylethyl ketone (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
14	Pentachlorophenol (ug/kg)	4	0	0						20000 UG	20000 UX	20000	20000 UX	20000 UG
14	Phenol (ug/kg)	4	0	0						3000 UG	3000 UX	3000	3000 UX	3000 UG
14	Styrene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Tetrachloroethene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Toxaphene (ug/kg)	4	0	0						300 U	300 U	300	300 U	300 U
14	trans-1,2-Dichloroethene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	trans-1,3-Dichloropropene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Trichloroethene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Trichlorofluoromethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Trichlorotrifluoroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Vinyl acetate (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
14	Vinyl chloride (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
14	Vinylidene chloride (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
14	Xylene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
15	Clay (%)	14	14	100	2	36	17	13	36	2	36	17	13	36
15	Lead (mg/kg)	14	14	100	6.4	17.9	13	12.6	17.3	6.4	17.9	13	12.6	17.3
15	Nickel (mg/kg)	14	14	100	15.9 J	28.6	21	20.2	24.1 J	15.9 J	28.6	21	20.2	24.1 J
15	Silt (%)	14	14	100	4	76	44	35	73.4	4	76	44	35	73.4
15	Total organic carbon (%)	14	14	100	0.17	1.69	1.24	1.33	1.68	0.17	1.69	1.24	1.33	1.68
15	Total solids (%)	14	14	100	30.6	69.6	47	44.1	66.7	30.6	69.6	47	44.1	66.7
15	Zinc (mg/kg)	14	14	100	51.3 J	102	75	72.5	89.3 J	51.3 J	102	75	72.5	89.3 J
15	Sand (%)	10	10	100	1	91	33	16	64	1	91	33	16	64
15	Gravel (%)	5	5	100	0.03	49	11	0.05	7	0.03	49	11	0.05	7
15	Butyltin ion (ug/kg)	4	4	100	0.6 J	3	1.9	2	2	0.6 J	3	1.9	2	2
15	Chromium (mg/kg)	4	4	100	20.1	30.5	24	22.7	23.1	20.1	30.5	24	22.7	23.1
15	Coarse sand (%)	4	4	100	0.02	14.2	3.71	0.07	0.55	0.02	14.2	3.71	0.07	0.55
15	Dibutyltin ion (ug/kg)	4	4	100	0.6 J	3	1.6	0.9 J	2	0.6 J	3	1.6	0.9 J	2
15	Fine sand (%)	4	4	100	0.19	48.2	15	1.76	8.69	0.19	48.2	15	1.76	8.69
15	Medium sand (%)	4	4	100	0.04	42.1	14	0.23	12.2	0.04	42.1	14	0.23	12.2
15	Tributyltin ion (ug/kg)	4	4	100	0.4 J	11	4.5	0.69 J	6	0.4 J	11	4.5	0.69 J	6
15	Very coarse sand (%)	4	4	100	0.03	0.29	0.14	0.1	0.12	0.03	0.29	0.14	0.1	0.12
15	Very fine sand (%)	4	4	100	1.25	21	10.4	7.75	11.6	1.25	21	10	7.75	11.6
15	Copper (mg/kg)	14	13	93	20.4 J	55.6	33	31.6	42.9 J	14.4 U	55.6	32	31.6	42.9 J
15	Total Petroleum Hydrocarbons (mg/kg)	10	8	80	65	187	147	150	180	25 U	187	123	118	180
15	Silver (mg/kg)	14	11	79	0.16	0.38	0.27	0.27	0.34	0.16	0.38	0.26	0.26	0.34
15	High Molecular Weight PAH (ug/kg)	14	7	50	56 A	213 A	126	88 A	177 A	50 UA	213 A	88	50 UA	177 A
15	Polycyclic Aromatic Hydrocarbons (ug/kg)	14	7	50	56 A	268 A	142	102 A	209 A	50 UA	268 A	96	50 UA	209 A
15	Pyrene (ug/kg)	14	7	50	16	73	46	38	67	16	73	48	50 U	67
15	Fluoranthene (ug/kg)	14	6	43	14	69	39	29	61	14	69	45	50 U	61
15	2-Methylnaphthalene (ug/kg)	14	4	29	1 J	3 J	2	2 J	2 J	1 J	50 U	36	50 U	50 U
15	4,4'-DDD (ug/kg)	14	4	29	0.4 J	0.5 J	0.5	0.5 J	0.5 J	0.4 J	3.3 U	2.5	3.3 U	3.3 U
15	4,4'-DDE (ug/kg)	14	4	29	0.5 J	0.8 J	0.6	0.6 J	0.6 J	0.5 J	2.3 U	1.8	2.3 U	2.3 U
15	Anthracene (ug/kg)	14	4	29	1 J	5 J	2.75	1 J	4 J	1 J	50 U	37	50 U	50 U
15	Antimony (mg/kg)	14	4	29	0.08 J	0.17 J	0.13	0.12 J	0.15 J	0.08 J	2.65 U	1.77	2.33 U	2.5 U
15	Arsenic (mg/kg)	14	4	29	3	5	3.5	3	3.09	2.27 U	5	2.7	2.46 U	3.09
15	Benz(a)anthracene (ug/kg)	14	4	29	6 J	15	10	7 J	11	6 J	50 U	39	50 U	50 U
15	Benzo(a)pyrene (ug/kg)	14	4	29	6 J	18	12	8 J	17	6 J	50 U	39	50 U	50 U
15	Benzo(b)fluoranthene (ug/kg)	14	4	29	7 J	16	11	7 J	14	7 J	50 U	39	50 U	50 U
15	Benzo(b+k)fluoranthene (ug/kg)	14	4	29	13 A	29 A	20	13 A	26 A	13 A	50 UA	42	50 UA	50 UA
15	Benzo(g,h,i)perylene (ug/kg)	14	4	29	7	21	14	8	20	7	50 U	40	50 U	50 U
15	Benzo(k)fluoranthene (ug/kg)	14	4	29	6 J	13	9.25	6 J	12	6 J	50 U	38	50 U	50 U
15	Cadmium (mg/kg)	14	4	29	0.16	0.3	0.23	0.21	0.23	0.08 U	0.32 U	0.26	0.3 U	0.3
15	Chrysene (ug/kg)	14	4	29	8 J	22	14	9 J	17	8 J	50 U	40	50 U	50 U
15	Indeno(1,2,3-cd)pyrene (ug/kg)	14	4	29	6	17	11.5	7	16	6	50 U	39	50 U	50 U
15	Low Molecular Weight PAH (ug/kg)	14	4	29	11 A	55 A	28	14 A	32 A	11 A	55 A	44	50 UA	50 UA
15	Mercury (mg/kg)	14	4	29	0.04	0.08	0.07	0.06	0.08	0.04	0.2 U	0.16	0.19 U	0.2 U
15	Naphthalene (ug/kg)	14	4	29	3 J	13 J	6.5	3 J	7 J	3 J	50 U	38	50 U	50 U
15	Phenanthrene (ug/kg)	14	4	29	7 J	28	16	10 J	18	7 J	50 U	40	50 U	50 U
15	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	14	4	29	0.9 A	2.3 A	1.5	1.1 A	1.7 A	0.9 A	6.7 UA	5.2	6.7 UA	6.7 UA

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
15	Bis(2-ethylhexyl) phthalate (ug/kg)	14	4	29	120	420	253	120	350	100 U	420	165	100 U	350
15	Diethyl phthalate (ug/kg)	14	4	29	2 J	5 J	3.5	3 J	4 J	2 J	100 U	72	100 U	100 U
15	Dieldrin (ug/kg)	4	1	25	0.3 J	0.3 J	0.3	0.3 J	0.3 J	0.3 J	2 U	1.58	2 U	2 U
15	Endosulfan sulfate (ug/kg)	4	1	25	0.3 J	0.3 J	0.3	0.3 J	0.3 J	0.3 J	2 U	1.58	2 U	2 U
15	Endrin aldehyde (ug/kg)	4	1	25	0.4 J	0.4 J	0.4	0.4 J	0.4 J	0.4 J	2 U	1.6	2 U	2 U
15	Aroclor 1254 (ug/kg)	14	3	21	5 J	12	8	5 J	8 J	5 J	12	10	10 U	10 U
15	Polychlorinated biphenyls (ug/kg)	14	3	21	5 A	12 A	8	5 A	8 A	5 A	20 UA	18	20 UA	20 UA
15	4,4'-DDT (ug/kg)	14	2	14	0.6 J	1 J	0.8	0.6 J	0.6 J	0.6 J	6.7 U	5.2	6.7 U	6.7 U
15	Acenaphthylene (ug/kg)	14	2	14	3 J	5 J	4	3 J	3 J	3 J	50 U	38	50 U	50 U
15	Dibenz(a,h)anthracene (ug/kg)	14	2	14	1 J	1 J	1	1 J	1 J	1 J	50 U	37	50 U	50 U
15	Dibenzofuran (ug/kg)	14	2	14	1 J	3 J	2	1 J	1 J	1 J	50 U	37	50 U	50 U
15	Dibutyl phthalate (ug/kg)	14	2	14	1 J	3 J	2	1 J	1 J	1 J	100 U	73	100 U	100 U
15	Tributyltin ion (ug/l)	10	1	10	0.1	0.1	0.1	0.1	0.1	0.02 UJ	0.1 U	0.05	0.05 U	0.1
15	Fluorene (ug/kg)	14	1	7	4 J	4 J	4	4 J	4 J	4 J	50 U	38	50 U	50 U
15	Acenaphthene (ug/kg)	14	0	0						10 U	50 U	39	50 U	50 U
15	Aroclor 1016 (ug/kg)	14	0	0						10 U	10 U	10	10 U	10 U
15	Aroclor 1221 (ug/kg)	14	0	0						20 U	20 U	20	20 U	20 U
15	Aroclor 1232 (ug/kg)	14	0	0						10 U	10 U	10	10 U	10 U
15	Aroclor 1242 (ug/kg)	14	0	0						10 U	10 U	10	10 U	10 U
15	Aroclor 1248 (ug/kg)	14	0	0						10 U	10 U	10	10 U	10 U
15	Aroclor 1260 (ug/kg)	14	0	0						10 U	10 U	10	10 U	10 U
15	Benzoic acid (ug/kg)	14	0	0						250 U	250 UJ	250	250 U	250 U
15	Benzyl alcohol (ug/kg)	14	0	0						25 U	50 U	32	25 U	50 U
15	Hexachlorobutadiene (ug/kg)	14	0	0						10 U	20 U	17	20 U	20 U
15	Hexachloroethane (ug/kg)	14	0	0						40 U	50 U	47	50 U	50 U
15	N-Nitrosodiphenylamine (ug/kg)	14	0	0						10 U	20 U	17	20 U	20 U
15	1,2,4-Trichlorobenzene (ug/kg)	14	0	0						10 U	20 U	17	20 U	20 U
15	1,2-Dichlorobenzene (ug/kg)	14	0	0						10 U	10 U	10	10 U	10 U
15	1,3-Dichlorobenzene (ug/kg)	14	0	0						10 U	10 U	10	10 U	10 U
15	1,4-Dichlorobenzene (ug/kg)	14	0	0						10 U	10 U	10	10 U	10 U
15	2,4-Dimethylphenol (ug/kg)	14	0	0						20 U	200 U	71	20 U	200 U
15	2-Methylphenol (ug/kg)	14	0	0						20 U	100 U	43	20 U	100 U
15	Benzene (ug/kg)	14	0	0						5 U	10 U	6	5 U	10 U
15	Butylbenzyl phthalate (ug/kg)	14	0	0						10 U	100 U	74	100 U	100 U
15	Dimethyl phthalate (ug/kg)	14	0	0						10 U	100 U	74	100 U	100 U
15	Di-n-octyl phthalate (ug/kg)	14	0	0						10 U	100 UJ	74	100 U	100 U
15	Ethylbenzene (ug/kg)	14	0	0						5 U	10 U	6	5 U	10 U
15	Hexachlorobenzene (ug/kg)	14	0	0						10 U	20 U	17	20 U	20 U
15	m,p-Xylene (ug/kg)	14	0	0						5 U	10 U	6	5 U	10 U
15	o-Xylene (ug/kg)	14	0	0						5 U	10 U	6	5 U	10 U
15	Pentachlorophenol (ug/kg)	14	0	0						250 U	300 U	264	250 U	300 U
15	Phenol (ug/kg)	14	0	0						50 U	100 U	86	100 U	100 U
15	Toluene (ug/kg)	14	0	0						5 U	10 U	6	5 U	10 U
15	Trichloroethene (ug/kg)	14	0	0						5 U	10 U	6	5 U	10 U
15	Butyltin ion (ug/l)	10	0	0						0.05 U	0.1 U	0.06	0.05 U	0.05 U
15	Dibutyltin ion (ug/l)	10	0	0						0.05 U	0.1 U	0.06	0.05 U	0.05 U
15	Tetrabutyltin (ug/l)	10	0	0						0.05 U	0.1 U	0.06	0.05 U	0.05 UJ
15	3- and 4-Methylphenol Coelution (ug/kg)	10	0	0						100 U	100 U	100	100 U	100 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
15	Diesel fuels (mg/kg)	10	0	0						10 U	50 U	28	20 U	50 U
15	Gasoline (mg/kg)	10	0	0						10 UJ	50 UJ	28	20 UJ	50 UJ
15	Heavy oil (mg/kg)	10	0	0						25 U	120 U	68	50 U	120 U
15	Jet fuel A (mg/kg)	10	0	0						10 U	50 U	28	20 U	50 U
15	JP-4 jet fuel (mg/kg)	10	0	0						10 UJ	50 UJ	28	20 UJ	50 UJ
15	Kerosene (mg/kg)	10	0	0						10 U	50 U	28	20 U	50 U
15	Lube Oil (mg/kg)	10	0	0						25 U	120 U	68	50 U	120 U
15	Mineral spirits (mg/kg)	10	0	0						10 U	50 U	28	20 U	50 U
15	Naphtha distillate (mg/kg)	10	0	0						10 UJ	50 UJ	28	20 UJ	50 UJ
15	Non-petroleum hydrocarbons (mg/kg)	10	0	0						50 U	250 U	125	100 U	250 U
15	2,4-Dinitrotoluene (ug/kg)	4	0	0						20 U	20 U	20	20 U	20 U
15	2,6-Dinitrotoluene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	2-Chloronaphthalene (ug/kg)	4	0	0						5 U	5 U	5	5 U	5 U
15	2-Nitroaniline (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	3,3'-Dichlorobenzidine (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	3-Nitroaniline (ug/kg)	4	0	0						200 U	200 U	200	200 U	200 U
15	4-Bromophenyl phenyl ether (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	4-Chloroaniline (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
15	4-Chlorophenyl phenyl ether (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	4-Nitroaniline (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Aniline (ug/kg)	4	0	0						200 U	200 U	200	200 U	200 U
15	Bis(2-chloro-1-methylethyl) ether (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Bis(2-chloroethoxy) methane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Bis(2-chloroethyl) ether (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Hexachlorocyclopentadiene (ug/kg)	4	0	0						200 U	200 U	200	200 U	200 U
15	Isophorone (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Nitrobenzene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	N-Nitrosodimethylamine (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	N-Nitrosodipropylamine (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Tetrabutyltin (ug/kg)	4	0	0						3 U	3 U	3	3 U	3 U
15	1,1,1,2-Tetrachloroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	1,1,1-Trichloroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	1,1,2,2-Tetrachloroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	1,1,2-Trichloroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	1,1-Dichloroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	1,1-Dichloropropene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	1,2,3-Trichlorobenzene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	1,2,3-Trichloropropane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	1,2-Dibromo-3-chloropropane (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	1,2-Dichloroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	1,2-Dichloropropane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	1,3,5-Trimethylbenzene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	1,3-Dichloropropane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	2,2-Dichloropropane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	2,4,5-Trichlorophenol (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	2,4,6-Trichlorophenol (ug/kg)	4	0	0						30 U	30 U	30	30 U	30 U
15	2,4-Dichlorophenol (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
15	2,4-Dinitrophenol (ug/kg)	4	0	0						300 U	300 U	300	300 U	300 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
15	2-Chlorophenol (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
15	2-Chlorotoluene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	2-Nitrophenol (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	4,6-Dinitro-2-methylphenol (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
15	4-Chloro-3-methylphenol (ug/kg)	4	0	0						50 U	50 U	50	50 U	50 U
15	4-Chlorotoluene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	4-Methylphenol (ug/kg)	4	0	0						200 U	200 U	200	200 U	200 U
15	4-Nitrophenol (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
15	Acetone (ug/kg)	4	0	0						100 U	100 U	100	100 U	100 U
15	Aldrin (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	alpha-Chlordane (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	alpha-Endosulfan (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	alpha-Hexachlorocyclohexane (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	beta-Endosulfan (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	beta-Hexachlorocyclohexane (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	Bromobenzene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Bromochloromethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Bromodichloromethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Bromoform (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Bromomethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Carbon disulfide (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Carbon tetrachloride (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Chlorobenzene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Chlorodibromomethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Chloroethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Chloroform (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Chloromethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	cis-1,2-Dichloroethene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	cis-1,3-Dichloropropene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	delta-Hexachlorocyclohexane (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	Dichlorodifluoromethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Endrin (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	Endrin ketone (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	Ethylene dibromide (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	gamma-Hexachlorocyclohexane (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	Heptachlor (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	Heptachlor epoxide (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	Isopropylbenzene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	Methoxychlor (ug/kg)	4	0	0						4 U	4 U	4	4 U	4 U
15	Methyl isobutyl ketone (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	Methyl N-butyl ketone (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	Methylene bromide (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Methylene chloride (ug/kg)	4	0	0						20 U	20 U	20	20 U	20 U
15	Methylethyl ketone (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	n-Butylbenzene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	n-Propylbenzene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	p-Cymene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	Pseudocumene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
15	Sec-butylbenzene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	Styrene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	tert-Butylbenzene (ug/kg)	4	0	0						40 U	40 U	40	40 U	40 U
15	Tetrachloroethene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Toxaphene (ug/kg)	4	0	0						30 U	30 U	30	30 U	30 U
15	trans-1,2-Dichloroethene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	trans-1,3-Dichloropropene (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	trans-Chlordane (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 U
15	Trichlorofluoromethane (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Vinyl chloride (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
15	Vinylidene chloride (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
16	Total solids (%)	37	37	100	26.4	73.4	48	45	71.5	26.4	73.4	48	45	71.5
16	Lead (mg/kg)	36	36	100	4.56	27.8	14	15.1	23.6	4.56	27.8	14	15.1	23.6
16	Nickel (mg/kg)	36	36	100	12.5 J	31.3	21	20.3 J	29.7	12.5 J	31.3	21	20.3 J	29.7
16	Total organic carbon (%)	36	36	100	0.16	1.61	0.92	0.85	1.52	0.16	1.61	0.92	0.85	1.52
16	Zinc (mg/kg)	36	36	100	33.2 J	191 J	83	69.7 J	130	33.2 J	191 J	83	69.7 J	130
16	Clay (%)	31	31	100	1	37	17	15	33.8	1	37	17	15	33.8
16	Silt (%)	31	31	100	2	82.2	46	43	71.2	2	82.2	46	43	71.2
16	Sand (%)	22	22	100	2	96	54	56	93	2	96	54	56	93
16	Gravel (%)	13	13	100	0	18	1.5	0	1.02	0	18	1.5	0	1.02
16	Chromium (mg/kg)	12	12	100	14.3	33.6	26	26.4	32.4	14.3	33.6	26	26.4	32.4
16	Coarse sand (%)	12	12	100	0	1.32	0.225	0.05	0.48	0	1.32	0.225	0.05	0.48
16	Fine sand (%)	12	12	100	0.27	45.5	5.91	0.58	11.6	0.27	45.5	5.91	0.58	11.6
16	Medium sand (%)	12	12	100	0.07	37.9	3.66	0.29	2.41	0.07	37.9	3.66	0.29	2.41
16	Very coarse sand (%)	12	12	100	0.01	0.6	0.09	0.02	0.22	0.01	0.6	0.09	0.02	0.22
16	Very fine sand (%)	12	12	100	1.5	34.2	7.7	3.29	19	1.5	34.2	7.7	3.29	19
16	Butyltin ion (ug/kg)	11	11	100	3	11	6	6	8	3	11	6	6	8
16	Dibutyltin ion (ug/kg)	11	11	100	4	19	6	5	6	4	19	6	5	6
16	Tributyltin ion (ug/kg)	11	11	100	15	117	29	17	32	15	117	29	17	32
16	Fines (%)	3	3	100	4.6	7	5.9	4.6	6.1	4.6	7	5.9	4.6	6.1
16	Total volatile solids (%)	3	3	100	2.62	3.97	3.31	2.62	3.35	2.62	3.97	3.31	2.62	3.35
16	Mean grain size (mm)	2	2	100	0.21	0.22	0.215	0.21	0.21	0.21	0.22	0.215	0.21	0.21
16	Median grain size (mm)	2	2	100	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16	Copper (mg/kg)	36	34	94	15	56.9	34	30.7	54.9	14.8 UJ	56.9	33	29.5	54.9
16	Total Petroleum Hydrocarbons (mg/kg)	24	22	92	28	470	149	110	200	25 U	470	139	110	200
16	High Molecular Weight PAH (ug/kg)	36	25	69	53 A	2080 A	489	280 A	1376 A	50 UA	2080 A	355	187 A	1376 A
16	Polycyclic Aromatic Hydrocarbons (ug/kg)	36	25	69	53 A	2240 A	530	325 A	1471 A	50 UA	2240 A	384	223 A	1471 A
16	Pyrene (ug/kg)	36	25	69	10 J	370	99	61	200	10 J	370	84	50 J	200
16	Fluoranthene (ug/kg)	36	23	64	5.6 J	280	87	70	210	5.6 J	280	74	50 U	210
16	Benz(a)anthracene (ug/kg)	36	21	58	4.8 J	160	50	23	110	4.8 J	160	50	50 U	110
16	Benzo(b)fluoranthene (ug/kg)	36	21	58	6.6 J	160	50	28	97	6.6 J	160	50	50 U	97
16	Benzo(b+k)fluoranthene (ug/kg)	36	21	58	11.6 A	300 A	84	50 A	176 A	11.6 A	300 A	70	50 UA	176 A
16	Chrysene (ug/kg)	36	21	58	5.1 J	190	61	33	130	5.1 J	190	56	50 U	130
16	Silver (mg/kg)	36	21	58	0.1	0.42	0.31	0.3	0.4	0.1	0.42	0.26	0.2 U	0.4
16	Benzo(a)pyrene (ug/kg)	36	19	53	11	270	71	31	190	11	270	61	50 U	170
16	Low Molecular Weight PAH (ug/kg)	36	18	50	10.8 A	184 A	58	45 A	160 A	10.8 A	184 A	54	50 UA	95 A
16	Phenanthrene (ug/kg)	36	18	50	4.3 J	160	46	26	110	4.3 J	160	48	50 U	95
16	Bis(2-ethylhexyl) phthalate (ug/kg)	36	18	50	40 JB	180	99	90 JB	180	40 JB	310 U	106	100 U	180

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
16	Endrin aldehyde (ug/kg)	14	7	50	0.4 J	1 J	0.6	0.5 J	0.9 J	0.4 J	2 U	1.2	1 J	2 U
16	Benzo(g,h,i)perylene (ug/kg)	36	17	47	13	270	65	31	150	13	270	57	50 U	140
16	Benzo(k)fluoranthene (ug/kg)	36	17	47	5 J	140	42	22	130	5 J	140	46	50 U	79
16	Indeno(1,2,3-cd)pyrene (ug/kg)	36	17	47	11	260	65	27	170	11	260	57	50 U	160
16	Arsenic (mg/kg)	36	14	39	2.7	7.7	5.4	5.4	7.7	2.31 U	7.7	3.78	2.51 U	6.6
16	Tetrabutyltin (ug/kg)	11	4	36	0.3 J	1 J	0.55	0.4 J	0.5 J	0.3 J	3 U	2.1	3 U	3 U
16	Mercury (mg/kg)	36	13	36	0.02	0.8	0.14	0.08	0.18	0.02	0.8	0.17	0.18 U	0.2 U
16	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	38	13	34	0.73 A	2.7 A	1.67	1.4 A	2.6 A	0.73 A	6.7 UA	4.70	6.7 UA	6.7 UA
16	Antimony (mg/kg)	36	12	33	0.12 J	0.47 J	0.2	0.17 J	0.23 J	0.12 J	2.93 UJ	1.74	2.44 UJ	2.78 U
16	Naphthalene (ug/kg)	36	12	33	3 J	8	5	5 J	6 J	3 J	50 U	35	50 U	50 U
16	Tributyltin ion (ug/l)	24	8	33	0.006 J	0.08	0.037	0.03	0.07	0.006 J	0.08	0.042	0.05 U	0.05 UJ
16	4,4'-DDE (ug/kg)	38	12	32	0.3 J	2.6	0.8	0.6 J	1 J	0.3 J	2.6	1.8	2.3 U	2.3 U
16	2-Methylnaphthalene (ug/kg)	36	11	31	1 J	5 J	2	2 J	3 J	1 J	50 U	34	50 U	50 U
16	Anthracene (ug/kg)	36	11	31	1 J	25	6	4 J	9	1 J	50 U	36	50 U	50 U
16	Cadmium (mg/kg)	36	11	31	0.07	0.7	0.26	0.23	0.31	0.07	0.7 U	0.30	0.3 U	0.7
16	1,2,4-Trichlorobenzene (ug/kg)	36	11	31	2 JB	5 JB	4.3	5 JB	5 JB	2 JB	20 U	15	20 U	20 U
16	Diethyl phthalate (ug/kg)	36	11	31	2 J	4 J	2.9	3 J	4 J	2 J	100 U	68	100 U	100 U
16	4,4'-DDD (ug/kg)	38	11	29	0.2 J	1 J	0.5	0.4 J	0.9 J	0.2 J	3.3 U	2.4	3.3 U	3.3 U
16	Dieldrin (ug/kg)	14	4	29	0.2 J	0.6 J	0.325	0.2 J	0.3 J	0.2 J	2 U	1.4	1.6 U	2 U
16	Endosulfan sulfate (ug/kg)	14	4	29	0.2 J	0.3 J	0.25	0.2 J	0.3 J	0.2 J	2 U	1.4	1.6 U	2 U
16	Dibenz(a,h)anthracene (ug/kg)	36	10	28	2 J	32	7	4 J	8	2 J	50 U	36	50 U	50 U
16	4,4'-DDT (ug/kg)	38	10	26	0.3 J	1 J	0.6	0.6 J	0.73 JP	0.3 J	6.7 U	4.6	6.7 U	6.7 U
16	Acenaphthylene (ug/kg)	36	9	25	2 J	4 J	3	3 J	4 J	2 J	50 U	34.95	50 U	50 U
16	Dibenzofuran (ug/kg)	36	8	22	2 J	7	2.75	2 J	3 J	2 J	50 U	35	50 U	50 U
16	alpha-Endosulfan (ug/kg)	14	3	21	0.2 J	0.3 J	0.2	0.2 J	0.2 J	0.2 J	2 U	1.5	2 U	2 U
16	Heptachlor (ug/kg)	14	3	21	0.4 J	0.7 J	0.6	0.4 J	0.6 J	0.4 J	2 U	1.6	2 U	2 U
16	Fluorene (ug/kg)	36	7	19	2 J	15	5	3 J	5 J	2 J	50 U	36	50 U	50 U
16	1,2-Dichlorobenzene (ug/kg)	36	7	19	2 JB	3 JB	3	3 JB	3 JB	2 JB	20 U	10	10 U	20 U
16	Dibutyl phthalate (ug/kg)	36	6	17	3 J	8 J	4	3 J	4 J	3 J	100 U	69	100 U	100 U
16	Dibutyltin ion (ug/l)	24	4	17	0.007 J	0.03 J	0.014	0.009 J	0.01 J	0.007 J	0.1 U	0.048	0.05 U	0.05 U
16	Polychlorinated biphenyls (ug/kg)	38	5	13	11 A	130 A	57	11 A	116 A	11 A	130 A	27	20 UA	40 UA
16	Acenaphthene (ug/kg)	36	4	11	2 J	24	8	3 J	3 J	2 J	50 U	37	50 U	50 U
16	Phenol (ug/kg)	36	3	8	210 J	420 J	280	210 J	210 J	46 U	420 J	98	100 U	210 J
16	Aroclor 1254 (ug/kg)	38	3	8	7 J	17	12	7 J	11	7 J	20 U	11	10 U	17
16	Aldrin (ug/kg)	14	1	7	0.3 J	0.3 J	0.3	0.3 J	0.3 J	0.3 J	2 U	1.8	2 U	2 U
16	alpha-Chlordane (ug/kg)	14	1	7	0.2 J	0.2 J	0.2	0.2 J	0.2 J	0.2 J	2 U	1.8	2 U	2 U
16	Aroclor 1260 (ug/kg)	38	2	5	4 J	116	60	4 J	4 J	4 J	116	14	10 U	20 U
16	Benzyl alcohol (ug/kg)	36	1	3	160	160	160	160	160	16 U	160	36	25 U	50 U
16	Aroclor 1242 (ug/kg)	38	1	3	130	130	130	130	130	10 U	130	14	10 U	20 U
16	Aroclor 1016 (ug/kg)	38	0	0						10 U	20 U	11	10 U	16 U
16	Aroclor 1221 (ug/kg)	38	0	0						20 U	40 U	22	20 U	31 U
16	Aroclor 1232 (ug/kg)	38	0	0						10 U	20 U	11	10 U	16 U
16	Aroclor 1248 (ug/kg)	38	0	0						10 U	20 U	11	10 U	16 U
16	Hexachlorobutadiene (ug/kg)	36	0	0						10 U	20 U	17	20 U	20 U
16	Hexachloroethane (ug/kg)	36	0	0						16 U	50 UJ	46	50 U	50 U
16	N-Nitrosodiphenylamine (ug/kg)	36	0	0						10 U	20 U	17	20 U	20 U
16	1,3-Dichlorobenzene (ug/kg)	36	0	0						10 U	20 U	11	10 U	20 U
16	1,4-Dichlorobenzene (ug/kg)	36	0	0						10 U	20 U	11	10 U	20 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
16	Butylbenzyl phthalate (ug/kg)	36	0	0						10 U	100 U	70	100 U	100 U
16	Dimethyl phthalate (ug/kg)	36	0	0						10 U	100 U	70	100 U	100 U
16	Di-n-octyl phthalate (ug/kg)	36	0	0						10 U	100 UJ	70	100 U	100 U
16	Hexachlorobenzene (ug/kg)	36	0	0						10 U	20 U	17	20 U	20 U
16	Benzoic acid (ug/kg)	33	0	0						250 U	310 U	252	250 U	250 U
16	2,4-Dimethylphenol (ug/kg)	33	0	0						20 U	200 U	82	20 U	200 U
16	2-Methylphenol (ug/kg)	33	0	0						16 U	100 U	47	20 U	100 U
16	Pentachlorophenol (ug/kg)	33	0	0						150 U	300 U	264	250 U	300 U
16	Diesel fuels (mg/kg)	26	0	0						10 U	50 U	22	10 U	50 U
16	Butyltin ion (ug/l)	24	0	0						0.05 U	0.1 U	0.06	0.05 U	0.07 U
16	Tetrabutyltin (ug/l)	24	0	0						0.05 U	0.1 UJ	0.06	0.05 U	0.07 U
16	Benzene (ug/kg)	24	0	0						5 U	10 U	6	5 U	10 U
16	Ethylbenzene (ug/kg)	24	0	0						5 U	10 U	6	5 U	10 U
16	Gasoline (mg/kg)	24	0	0						10 UJ	50 UJ	21	10 UJ	50 UJ
16	Heavy oil (mg/kg)	24	0	0						25 U	125 U	55	25 U	120 U
16	Jet fuel A (mg/kg)	24	0	0						10 U	50 U	23	10 U	50 U
16	JP-4 jet fuel (mg/kg)	24	0	0						10 U	50 UJ	23	10 UJ	50 UJ
16	Kerosene (mg/kg)	24	0	0						10 U	50 U	23	10 U	50 U
16	Lube Oil (mg/kg)	24	0	0						25 U	125 U	55	25 U	120 U
16	m,p-Xylene (ug/kg)	24	0	0						5 U	10 U	6	5 U	10 U
16	Mineral spirits (mg/kg)	24	0	0						10 U	50 U	23	10 U	50 U
16	Naphtha distillate (mg/kg)	24	0	0						10 U	50 UJ	23	10 UJ	50 UJ
16	Non-petroleum hydrocarbons (mg/kg)	24	0	0						50 U	250 U	113	50 U	250 U
16	o-Xylene (ug/kg)	24	0	0						5 U	10 U	6	5 U	10 U
16	Toluene (ug/kg)	24	0	0						5 U	10 U	6	5 U	10 U
16	Trichloroethene (ug/kg)	24	0	0						5 U	10 U	6	5 U	10 U
16	3- and 4-Methylphenol Coelution (ug/kg)	22	0	0						16 U	100 U	96	100 U	100 U
16	alpha-Hexachlorocyclohexane (ug/kg)	14	0	0						1.4 U	2 U	1.9	2 U	2 U
16	beta-Endosulfan (ug/kg)	14	0	0						1.4 U	2 U	1.9	2 U	2 U
16	beta-Hexachlorocyclohexane (ug/kg)	14	0	0						1.4 U	2 U	1.9	2 U	2 U
16	delta-Hexachlorocyclohexane (ug/kg)	14	0	0						1.4 U	2 U	1.9	2 U	2 U
16	Endrin (ug/kg)	14	0	0						1.4 U	2 U	1.9	2 U	2 U
16	Endrin ketone (ug/kg)	14	0	0						1.4 U	2 U	1.9	2 U	2 U
16	gamma-Chlordane (ug/kg)	14	0	0						1.4 U	2 U	1.9	2 U	2 U
16	gamma-Hexachlorocyclohexane (ug/kg)	14	0	0						1.4 U	2 U	1.9	2 U	2 U
16	Heptachlor epoxide (ug/kg)	14	0	0						1.4 U	2 U	1.9	2 U	2 U
16	Methoxychlor (ug/kg)	14	0	0						1.4 U	4 U	3.5	4 U	4 U
16	Toxaphene (ug/kg)	14	0	0						30 U	76 U	39	30 U	71 U
16	2,4-Dinitrotoluene (ug/kg)	11	0	0						20 U	20 U	20	20 U	20 U
16	2,6-Dinitrotoluene (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	2-Chloronaphthalene (ug/kg)	11	0	0						5 U	5 U	5	5 U	5 U
16	2-Nitroaniline (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	3,3'-Dichlorobenzidine (ug/kg)	11	0	0						40 U	40 U	40	40 U	40 U
16	3-Nitroaniline (ug/kg)	11	0	0						200 U	200 U	200	200 U	200 U
16	4-Bromophenyl phenyl ether (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	4-Chloroaniline (ug/kg)	11	0	0						50 U	50 U	50	50 U	50 U
16	4-Chlorophenyl phenyl ether (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	4-Nitroaniline (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
16	Aniline (ug/kg)	11	0	0						200 U	200 U	200	200 U	200 U
16	Bis(2-chloroethoxy) methane (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	Bis(2-chloroethyl) ether (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	Bis(2-chloroisopropyl) ether (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	Hexachlorocyclopentadiene (ug/kg)	11	0	0						200 U	200 U	200	200 U	200 U
16	Isophorone (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	Nitrobenzene (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	N-Nitrosodimethylamine (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	N-Nitrosodipropylamine (ug/kg)	11	0	0						10 U	10 U	10	10 U	10 U
16	2,4,5-Trichlorophenol (ug/kg)	11	0	0						40 U	40 U	40	40 U	40 U
16	2,4,6-Trichlorophenol (ug/kg)	11	0	0						30 U	30 U	30	30 U	30 U
16	2,4-Dichlorophenol (ug/kg)	11	0	0						100 U	100 U	100	100 U	100 U
16	2,4-Dinitrophenol (ug/kg)	11	0	0						300 U	300 U	300	300 U	300 U
16	2-Chlorophenol (ug/kg)	11	0	0						50 U	50 U	50	50 U	50 U
16	2-Nitrophenol (ug/kg)	11	0	0						40 U	40 U	40	40 U	40 U
16	4,6-Dinitro-2-methylphenol (ug/kg)	11	0	0						100 U	100 U	100	100 U	100 U
16	4-Chloro-3-methylphenol (ug/kg)	11	0	0						50 U	50 U	50	50 U	50 U
16	4-Methylphenol (ug/kg)	11	0	0						200 U	200 U	200	200 U	200 U
16	4-Nitrophenol (ug/kg)	11	0	0						100 U	100 U	100	100 U	100 U
16	Natural gasoline (mg/kg)	2	0	0						10 U	50 U	30	10 U	10 U
16	Residual Range Organics (mg/kg)	2	0	0						34 U	35 U	34.5	34 U	34 U
17	Sand (%)	2	2	100	49.2	58	53.6	49.2	49.2	49.2	58	53.6	49.2	49.2
17	Total solids (%)	2	2	100	55.1	57.7	56.4	55.1	55.1	55.1	57.7	56.4	55.1	55.1
17	Clay (%)	1	1	100	8	8	8	8	8	8	8	8	8	8
17	Copper (mg/kg)	1	1	100	21	21	21	21	21	21	21	21	21	21
17	Fines (%)	1	1	100	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8
17	Lead (mg/kg)	1	1	100	9.69	9.69	9.69	9.69	9.69	9.69	9.69	9.69	9.69	9.69
17	Mean grain size (mm)	1	1	100	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
17	Nickel (mg/kg)	1	1	100	18.2 J	18.2 J	18.2	18.2 J	18.2 J	18.2 J	18.2 J	18.2	18.2 J	18.2 J
17	Silt (%)	1	1	100	34	34	34	34	34	34	34	34	34	34
17	Total organic carbon (%)	1	1	100	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
17	Total volatile solids (%)	1	1	100	6.03	6.03	6.03	6.03	6.03	6.03	6.03	6.03	6.03	6.03
17	Zinc (mg/kg)	1	1	100	60.5 J	60.5 J	60.5	60.5 J	60.5 J	60.5 J	60.5 J	60.5	60.5 J	60.5 J
17	Bis(2-ethylhexyl) phthalate (ug/kg)	1	1	100	120	120	120	120	120	120	120	120	120	120
17	Residual Range Organics (mg/kg)	1	1	100	190 Z	190 Z	190	190 Z	190 Z	190 Z	190 Z	190	190 Z	190 Z
17	Total Petroleum Hydrocarbons (mg/kg)	1	1	100	240	240	240	240	240	240	240	240	240	240
17	Diesel fuels (mg/kg)	2	1	50	34 Z	34 Z	34	34 Z	34 Z	10 U	34 Z	22	10 U	10 U
17	4,4'-DDD (ug/kg)	2	0	0						1.8 U	3.3 U	2.55	1.8 U	1.8 U
17	4,4'-DDE (ug/kg)	2	0	0						1.8 U	2.3 U	2.05	1.8 U	1.8 U
17	4,4'-DDT (ug/kg)	2	0	0						1.8 U	6.7 U	4.25	1.8 U	1.8 U
17	Aroclor 1016 (ug/kg)	2	0	0						10 U	18 U	14	10 U	10 U
17	Aroclor 1221 (ug/kg)	2	0	0						20 U	35 U	28	20 U	20 U
17	Aroclor 1232 (ug/kg)	2	0	0						10 U	18 U	14	10 U	10 U
17	Aroclor 1242 (ug/kg)	2	0	0						10 U	18 U	14	10 U	10 U
17	Aroclor 1248 (ug/kg)	2	0	0						10 U	18 U	14	10 U	10 U
17	Aroclor 1254 (ug/kg)	2	0	0						10 U	18 U	14	10 U	10 U
17	Aroclor 1260 (ug/kg)	2	0	0						10 U	18 U	14	10 U	10 U
17	Polychlorinated biphenyls (ug/kg)	2	0	0						20 UA	35 UA	28	20 UA	20 UA

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
17	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	2	0	0						1.8 UA	6.7 UA	4.3	1.8 UA	1.8 UA
17	Gasoline (mg/kg)	2	0	0						10 UJ	33 U	22	10 UJ	10 UJ
17	2-Methylnaphthalene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Acenaphthene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Acenaphthylene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Anthracene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Antimony (mg/kg)	1	0	0						2.52 UJ	2.52 UJ	2.52	2.52 UJ	2.52 UJ
17	Arsenic (mg/kg)	1	0	0						2.52 U	2.52 U	2.52	2.52 U	2.52 U
17	Benz(a)anthracene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Benzo(a)pyrene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Benzo(b)fluoranthene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Benzo(b+k)fluoranthene (ug/kg)	1	0	0						50 UA	50 UA	50	50 UA	50 UA
17	Benzo(g,h,i)perylene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Benzo(k)fluoranthene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Benzoic acid (ug/kg)	1	0	0						250 U	250 U	250	250 U	250 U
17	Benzyl alcohol (ug/kg)	1	0	0						25 U	25 U	25	25 U	25 U
17	Butyltin ion (ug/l)	1	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
17	Cadmium (mg/kg)	1	0	0						0.3 UJ	0.3 UJ	0.3	0.3 UJ	0.3 UJ
17	Chrysene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Dibenz(a,h)anthracene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Dibenzofuran (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Dibutyltin ion (ug/l)	1	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
17	Fluoranthene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Fluorene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Hexachlorobutadiene (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
17	Hexachloroethane (ug/kg)	1	0	0						50 UJ	50 UJ	50	50 UJ	50 UJ
17	High Molecular Weight PAH (ug/kg)	1	0	0						50 UA	50 UA	50	50 UA	50 UA
17	Indeno(1,2,3-cd)pyrene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Low Molecular Weight PAH (ug/kg)	1	0	0						50 UA	50 UA	50	50 UA	50 UA
17	Mercury (mg/kg)	1	0	0						0.19 U	0.19 U	0.19	0.19 U	0.19 U
17	Naphthalene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	N-Nitrosodiphenylamine (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
17	Phenanthrene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Polycyclic Aromatic Hydrocarbons (ug/kg)	1	0	0						50 UA	50 UA	50	50 UA	50 UA
17	Pyrene (ug/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	Silver (mg/kg)	1	0	0						0.2 U	0.2 U	0.2	0.2 U	0.2 U
17	Tetrabutyltin (ug/l)	1	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
17	Tributyltin ion (ug/l)	1	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
17	1,2,4-Trichlorobenzene (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
17	1,2-Dichlorobenzene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
17	1,3-Dichlorobenzene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
17	1,4-Dichlorobenzene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
17	2,4-Dimethylphenol (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
17	2-Methylphenol (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
17	3- and 4-Methylphenol Coelution (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U
17	Aldrin (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	alpha-Chlordane (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	alpha-Endosulfan (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
17	alpha-Hexachlorocyclohexane (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Benzene (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
17	beta-Endosulfan (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	beta-Hexachlorocyclohexane (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Butylbenzyl phthalate (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U
17	delta-Hexachlorocyclohexane (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Dibutyl phthalate (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U
17	Dieldrin (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Diethyl phthalate (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U
17	Dimethyl phthalate (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U
17	Di-n-octyl phthalate (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U
17	Endosulfan sulfate (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Endrin (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Endrin aldehyde (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Endrin ketone (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Ethylbenzene (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
17	gamma-Chlordane (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	gamma-Hexachlorocyclohexane (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Heavy oil (mg/kg)	1	0	0						25 U	25 U	25	25 U	25 U
17	Heptachlor (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Heptachlor epoxide (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Hexachlorobenzene (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
17	Jet fuel A (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
17	JP-4 jet fuel (mg/kg)	1	0	0						10 UJ	10 UJ	10	10 UJ	10 UJ
17	Kerosene (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
17	Lube Oil (mg/kg)	1	0	0						25 U	25 U	25	25 U	25 U
17	m,p-Xylene (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
17	Methoxychlor (ug/kg)	1	0	0						1.8 U	1.8 U	1.8	1.8 U	1.8 U
17	Mineral spirits (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
17	Naphtha distillate (mg/kg)	1	0	0						10 UJ	10 UJ	10	10 UJ	10 UJ
17	Non-petroleum hydrocarbons (mg/kg)	1	0	0						50 U	50 U	50	50 U	50 U
17	o-Xylene (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
17	Pentachlorophenol (ug/kg)	1	0	0						250 U	250 U	250	250 U	250 U
17	Phenol (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U
17	Toluene (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
17	Toxaphene (ug/kg)	1	0	0						87 U	87 U	87	87 U	87 U
17	Trichloroethene (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
18	Fines (%)	3	3	100	2.42	63.9	27	2.42	16	2.42	63.9	27.4	2.42	16
18	Sand (%)	3	3	100	36.1	97.49	72	36.1	83.9	36.1	97.49	72	36.1	83.9
18	Gravel (%)	2	2	100	0.09	0.1	0.10	0.09	0.09	0.09	0.1	0.10	0.09	0.09
18	Mean grain size (mm)	2	2	100	0.04	0.11	0.08	0.04	0.04	0.04	0.11	0.08	0.04	0.04
18	Total solids (%)	2	2	100	52.1	66.9	59.5	52.1	52.1	52.1	66.9	59.5	52.1	52.1
18	Total volatile solids (%)	2	2	100	4.27	7.11	5.69	4.27	4.27	4.27	7.11	5.69	4.27	4.27
18	Residual Range Organics (mg/kg)	2	2	100	72 Z	290 Z	181	72 Z	72 Z	72 Z	290 Z	181	72 Z	72 Z
18	Arsenic (mg/kg)	1	1	100	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
18	Benz(a)anthracene (ug/kg)	1	1	100	11	11	11	11	11	11	11	11	11	11
18	Benzo(a)pyrene (ug/kg)	1	1	100	12	12	12	12	12	12	12	12	12	12
18	Benzo(b)fluoranthene (ug/kg)	1	1	100	15	15	15	15	15	15	15	15	15	15

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
18	Benzo(b+k)fluoranthene (ug/kg)	1	1	100	15 A	15 A	15	15 A	15 A	15 A	15 A	15	15 A	15 A
18	Chrysene (ug/kg)	1	1	100	15	15	15	15	15	15	15	15	15	15
18	Fluoranthene (ug/kg)	1	1	100	19	19	19	19	19	19	19	19	19	19
18	High Molecular Weight PAH (ug/kg)	1	1	100	91 A	91 A	91	91 A	91 A	91 A	91 A	91	91 A	91 A
18	Median grain size (mm)	1	1	100	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
18	Polycyclic Aromatic Hydrocarbons (ug/kg)	1	1	100	91 A	91 A	91	91 A	91 A	91 A	91 A	91	91 A	91 A
18	Pyrene (ug/kg)	1	1	100	19	19	19	19	19	19	19	19	19	19
18	Diesel fuels (mg/kg)	2	1	50	56 Z	56 Z	56	56 Z	56 Z	28 U	56 Z	42	28 U	28 U
18	4,4'-DDD (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	4,4'-DDE (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	4,4'-DDT (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Aroclor 1016 (ug/kg)	2	0	0						15 U	20 U	17.5	15 U	15 U
18	Aroclor 1221 (ug/kg)	2	0	0						30 U	39 U	35	30 U	30 U
18	Aroclor 1232 (ug/kg)	2	0	0						15 U	20 U	18	15 U	15 U
18	Aroclor 1242 (ug/kg)	2	0	0						15 U	20 U	18	15 U	15 U
18	Aroclor 1248 (ug/kg)	2	0	0						15 U	20 U	18	15 U	15 U
18	Aroclor 1254 (ug/kg)	2	0	0						15 U	20 U	18	15 U	15 U
18	Aroclor 1260 (ug/kg)	2	0	0						15 U	20 U	18	15 U	15 U
18	Polychlorinated biphenyls (ug/kg)	2	0	0						30 UA	39 UA	35	30 UA	30 UA
18	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	2	0	0						1.5 UA	2 UA	1.8	1.5 UA	1.5 UA
18	Aldrin (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	alpha-Chlordane (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	alpha-Endosulfan (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	alpha-Hexachlorocyclohexane (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	beta-Endosulfan (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	beta-Hexachlorocyclohexane (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	delta-Hexachlorocyclohexane (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Dieldrin (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Endosulfan sulfate (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Endrin (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Endrin aldehyde (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Endrin ketone (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	gamma-Chlordane (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	gamma-Hexachlorocyclohexane (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Gasoline (mg/kg)	2	0	0						28 U	37 U	33	28 U	28 U
18	Heptachlor (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Heptachlor epoxide (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Methoxychlor (ug/kg)	2	0	0						1.5 U	2 U	1.8	1.5 U	1.5 U
18	Toxaphene (ug/kg)	2	0	0						75 U	96 U	86	75 U	75 U
18	Acenaphthene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Acenaphthylene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Anthracene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Benzo(g,h,i)perylene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Benzo(k)fluoranthene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Dibenz(a,h)anthracene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Fluorene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Indeno(1,2,3-cd)pyrene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Low Molecular Weight PAH (ug/kg)	1	0	0						10 UA	10 UA	10	10 UA	10 UA

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
18	Naphthalene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Phenanthrene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
18	Pentachlorophenol (ug/kg)	1	0	0						60 U	60 U	60	60 U	60 U
19	Fines (%)	3	3	100	3.3	66.3	42	3.3	55	3.3	66.3	42	3.3	55
19	Total volatile solids (%)	3	3	100	2.35	7.23	5.25	2.35	6.16	2.35	7.23	5.25	2.35	6.16
19	Gravel (%)	2	2	100	0.1	19.6	9.85	0.1	0.1	0.1	19.6	9.85	0.1	0.1
19	Mean grain size (mm)	2	2	100	0.03	1.55	0.79	0.03	0.03	0.03	1.55	0.79	0.03	0.03
19	Sand (%)	2	2	100	45	77.1	61	45	45	45	77.1	61	45	45
19	Total solids (%)	2	2	100	54.1	77.9	66	54.1	54.1	54.1	77.9	66	54.1	54.1
19	Acenaphthylene (ug/kg)	1	1	100	4.5 J	4.5 J	4.5	4.5 J	4.5 J	4.5 J	4.5 J	4.5	4.5 J	4.5 J
19	Antimony (mg/kg)	1	1	100	0.06 J	0.06 J	0.06	0.06 J	0.06 J	0.06 J	0.06 J	0.06	0.06 J	0.06 J
19	Arsenic (mg/kg)	1	1	100	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
19	Benz(a)anthracene (ug/kg)	1	1	100	8.1 J	8.1 J	8.1	8.1 J	8.1 J	8.1 J	8.1 J	8.1	8.1 J	8.1 J
19	Benzo(a)pyrene (ug/kg)	1	1	100	8.8 J	8.8 J	8.8	8.8 J	8.8 J	8.8 J	8.8 J	8.8	8.8 J	8.8 J
19	Benzo(b)fluoranthene (ug/kg)	1	1	100	11 J	11 J	11	11 J	11 J	11 J	11 J	11	11 J	11 J
19	Benzo(b+k)fluoranthene (ug/kg)	1	1	100	15.4 A	15.4 A	15.4	15.4 A	15.4 A	15.4 A	15.4 A	15.4	15.4 A	15.4 A
19	Benzo(g,h,i)perylene (ug/kg)	1	1	100	9.6 J	9.6 J	9.6	9.6 J	9.6 J	9.6 J	9.6 J	9.6	9.6 J	9.6 J
19	Benzo(k)fluoranthene (ug/kg)	1	1	100	4.4 J	4.4 J	4.4	4.4 J	4.4 J	4.4 J	4.4 J	4.4	4.4 J	4.4 J
19	Benzoic acid (ug/kg)	1	1	100	64 J	64 J	64	64 J	64 J	64 J	64 J	64	64 J	64 J
19	Cadmium (mg/kg)	1	1	100	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
19	Chromium (mg/kg)	1	1	100	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5
19	Chrysene (ug/kg)	1	1	100	9.5 J	9.5 J	9.5	9.5 J	9.5 J	9.5 J	9.5 J	9.5	9.5 J	9.5 J
19	Coarse sand (%)	1	1	100	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19	Copper (mg/kg)	1	1	100	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9	50.9
19	Dibutyltin ion (ug/l)	1	1	100	0.03 J	0.03 J	0.03	0.03 J	0.03 J	0.03 J	0.03 J	0.03	0.03 J	0.03 J
19	Fine sand (%)	1	1	100	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
19	Fluoranthene (ug/kg)	1	1	100	18 J	18 J	18	18 J	18 J	18 J	18 J	18	18 J	18 J
19	High Molecular Weight PAH (ug/kg)	1	1	100	96.6 A	96.6 A	96.6	96.6 A	96.6 A	96.6 A	96.6 A	96.6	96.6 A	96.6 A
19	Indeno(1,2,3-cd)pyrene (ug/kg)	1	1	100	8.2 J	8.2 J	8.2	8.2 J	8.2 J	8.2 J	8.2 J	8.2	8.2 J	8.2 J
19	Lead (mg/kg)	1	1	100	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
19	Low Molecular Weight PAH (ug/kg)	1	1	100	23.3 A	23.3 A	23.3	23.3 A	23.3 A	23.3 A	23.3 A	23.3	23.3 A	23.3 A
19	Median grain size (mm)	1	1	100	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19	Medium sand (%)	1	1	100	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
19	Mercury (mg/kg)	1	1	100	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
19	Naphthalene (ug/kg)	1	1	100	7.8 J	7.8 J	7.8	7.8 J	7.8 J	7.8 J	7.8 J	7.8	7.8 J	7.8 J
19	Nickel (mg/kg)	1	1	100	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7	35.7
19	Phenanthrene (ug/kg)	1	1	100	11 J	11 J	11	11 J	11 J	11 J	11 J	11	11 J	11 J
19	Polycyclic Aromatic Hydrocarbons (ug/kg)	1	1	100	119.9 A	119.9 A	119.9	119.9 A	119.9 A	119.9 A	119.9 A	119.9	119.9 A	119.9 A
19	Pyrene (ug/kg)	1	1	100	19 J	19 J	19	19 J	19 J	19 J	19 J	19	19 J	19 J
19	Silver (mg/kg)	1	1	100	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
19	Total organic carbon (%)	1	1	100	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
19	Tributyltin ion (ug/l)	1	1	100	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
19	Very coarse sand (%)	1	1	100	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19	Very fine sand (%)	1	1	100	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
19	Zinc (mg/kg)	1	1	100	96.8	96.8	96.8	96.8	96.8	96.8	96.8	96.8	96.8	96.8
19	3- and 4-Methylphenol Coelution (ug/kg)	1	1	100	11 J	11 J	11	11 J	11 J	11 J	11 J	11	11 J	11 J
19	Dibutyl phthalate (ug/kg)	1	1	100	9 J	9 J	9	9 J	9 J	9 J	9 J	9	9 J	9 J
19	Diesel fuels (mg/kg)	2	1	50	39 Z	39 Z	39	39 Z	39 Z	13 U	39 Z	26	13 U	13 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River			N	%	Detected Concentrations					Detected and Nondetected Concentrations				
Mile	Analyte	N	Detected	Detected	Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
19	Residual Range Organics (mg/kg)	2	1	50	230 Z	230 Z	230	230 Z	230 Z	32 U	230 Z	131	32 U	32 U
19	4,4'-DDD (ug/kg)	3	1	33	0.99 JP	0.99 JP	0.99	0.99 JP	0.99 JP	0.99 JP	1.9 U	1.4	0.99 JP	1.3 U
19	4,4'-DDE (ug/kg)	3	1	33	0.76 J	0.76 J	0.76	0.76 J	0.76 J	0.76 J	1.9 U	1.32	0.76 J	1.3 U
19	4,4'-DDT (ug/kg)	3	1	33	1.4 JP	1.4 JP	1.4	1.4 JP	1.4 JP	1.3 U	1.9 U	1.5	1.3 U	1.4 JP
19	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	3	1	33	3.15 A	3.15 A	3.15	3.15 A	3.15 A	1.3 UA	3.15 A	2.1	1.3 UA	1.9 UA
19	Aroclor 1016 (ug/kg)	3	0	0						13 U	21 U	18	13 U	19 U
19	Aroclor 1221 (ug/kg)	3	0	0						26 U	42 U	35	26 U	37 U
19	Aroclor 1232 (ug/kg)	3	0	0						13 U	21 U	18	13 U	19 U
19	Aroclor 1242 (ug/kg)	3	0	0						13 U	21 U	18	13 U	19 U
19	Aroclor 1248 (ug/kg)	3	0	0						13 U	21 U	18	13 U	19 U
19	Aroclor 1254 (ug/kg)	3	0	0						13 U	21 U	18	13 U	19 U
19	Aroclor 1260 (ug/kg)	3	0	0						13 U	21 U	18	13 U	19 U
19	Polychlorinated biphenyls (ug/kg)	3	0	0						26 UA	42 UA	35	26 UA	37 UA
19	Aldrin (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	alpha-Chlordane (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	alpha-Endosulfan (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	alpha-Hexachlorocyclohexane (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	beta-Endosulfan (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	beta-Hexachlorocyclohexane (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	delta-Hexachlorocyclohexane (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	Dieldrin (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	Endosulfan sulfate (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	Endrin (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	Endrin aldehyde (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	Endrin ketone (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	gamma-Chlordane (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	gamma-Hexachlorocyclohexane (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	Heptachlor (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	Heptachlor epoxide (ug/kg)	3	0	0						1.3 U	2.1 U	1.8	1.3 U	1.9 U
19	Methoxychlor (ug/kg)	3	0	0						1.3 U	2.4 U	1.9	1.3 U	1.9 U
19	Toxaphene (ug/kg)	3	0	0						65 U	110 U	89	65 U	93 U
19	Gasoline (mg/kg)	2	0	0						13 U	35 U	24	13 U	13 U
19	2-Methylnaphthalene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Acenaphthene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Anthracene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Benzyl alcohol (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Butyltin ion (ug/l)	1	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
19	Dibenz(a,h)anthracene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Dibenzofuran (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Fluorene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Hexachlorobutadiene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Hexachloroethane (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	N-Nitrosodiphenylamine (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Tetrabutyltin (ug/l)	1	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
19	1,2,4-Trichlorobenzene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	1,2-Dichlorobenzene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	1,3-Dichlorobenzene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	1,4-Dichlorobenzene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
19	2,4-Dimethylphenol (ug/kg)	1	0	0						110 U	110 U	110	110 U	110 U
19	2-Methylphenol (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Bis(2-ethylhexyl) phthalate (ug/kg)	1	0	0						420 U	420 U	420	420 U	420 U
19	Butylbenzyl phthalate (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Diethyl phthalate (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Dimethyl phthalate (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Di-n-octyl phthalate (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Hexachlorobenzene (ug/kg)	1	0	0						21 U	21 U	21	21 U	21 U
19	Pentachlorophenol (ug/kg)	1	0	0						210 U	210 U	210	210 U	210 U
19	Phenol (ug/kg)	1	0	0						63 U	63 U	63	63 U	63 U
22	Arsenic (mg/kg)	1	1	100	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
22	Fines (%)	1	1	100	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
22	Gravel (%)	1	1	100	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
22	Sand (%)	1	1	100	99.36	99.36	99.36	99.36	99.36	99.36	99.36	99.36	99.36	99.36
22	Acenaphthene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Acenaphthylene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Anthracene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Benz(a)anthracene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Benzo(a)pyrene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Benzo(b)fluoranthene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Benzo(b+k)fluoranthene (ug/kg)	1	0	0						10 UA	10 UA	10	10 UA	10 UA
22	Benzo(g,h,i)perylene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Benzo(k)fluoranthene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Chrysene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Dibenz(a,h)anthracene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Fluoranthene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Fluorene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	High Molecular Weight PAH (ug/kg)	1	0	0						10 UA	10 UA	10	10 UA	10 UA
22	Indeno(1,2,3-cd)pyrene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Low Molecular Weight PAH (ug/kg)	1	0	0						10 UA	10 UA	10	10 UA	10 UA
22	Naphthalene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Phenanthrene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Polycyclic Aromatic Hydrocarbons (ug/kg)	1	0	0						10 UA	10 UA	10	10 UA	10 UA
22	Pyrene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
22	Pentachlorophenol (ug/kg)	1	0	0						60 U	60 U	60	60 U	60 U
23	Fines (%)	2	2	100	0.46	38.5	19.48	0.46	0.46	0.46	38.5	19.48	0.46	0.46
23	Gravel (%)	2	2	100	0.2	0.39	0.30	0.2	0.2	0.2	0.39	0.30	0.2	0.2
23	Arsenic (mg/kg)	1	1	100	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
23	Benz(a)anthracene (ug/kg)	1	1	100	20	20	20	20	20	20	20	20	20	20
23	Benzo(a)pyrene (ug/kg)	1	1	100	28	28	28	28	28	28	28	28	28	28
23	Benzo(b)fluoranthene (ug/kg)	1	1	100	32	32	32	32	32	32	32	32	32	32
23	Benzo(b+k)fluoranthene (ug/kg)	1	1	100	43 A	43 A	43	43 A	43 A	43 A	43 A	43	43 A	43 A
23	Benzo(g,h,i)perylene (ug/kg)	1	1	100	18	18	18	18	18	18	18	18	18	18
23	Benzo(k)fluoranthene (ug/kg)	1	1	100	11	11	11	11	11	11	11	11	11	11
23	Chrysene (ug/kg)	1	1	100	32	32	32	32	32	32	32	32	32	32
23	Coarse sand (%)	1	1	100	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
23	Fine sand (%)	1	1	100	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
23	Fluoranthene (ug/kg)	1	1	100	75	75	75	75	75	75	75	75	75	75

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
23	High Molecular Weight PAH (ug/kg)	1	1	100	305 A	305 A	305	305 A	305 A	305 A	305 A	305	305 A	305 A
23	Indeno(1,2,3-cd)pyrene (ug/kg)	1	1	100	14	14	14	14	14	14	14	14	14	14
23	Low Molecular Weight PAH (ug/kg)	1	1	100	71 A	71 A	71	71 A	71 A	71 A	71 A	71	71 A	71 A
23	Medium sand (%)	1	1	100	25	25	25	25	25	25	25	25	25	25
23	Phenanthrene (ug/kg)	1	1	100	71	71	71	71	71	71	71	71	71	71
23	Polycyclic Aromatic Hydrocarbons (ug/kg)	1	1	100	376 A	376 A	376	376 A	376 A	376 A	376 A	376	376 A	376 A
23	Pyrene (ug/kg)	1	1	100	75	75	75	75	75	75	75	75	75	75
23	Sand (%)	1	1	100	99.15	99.15	99.15	99.15	99.15	99.15	99.15	99.15	99.15	99.15
23	Total organic carbon (%)	1	1	100	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49
23	Total solids (%)	1	1	100	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3
23	Total volatile solids (%)	1	1	100	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83
23	Very coarse sand (%)	1	1	100	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
23	Very fine sand (%)	1	1	100	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
23	Acenaphthene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
23	Acenaphthylene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
23	Anthracene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
23	Dibenz(a,h)anthracene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
23	Fluorene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
23	Naphthalene (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
23	Pentachlorophenol (ug/kg)	1	0	0						60 U	60 U	60	60 U	60 U
24	Fines (%)	8	8	100	1.05	89.9	48.6	51.1	73.2	1.05	89.9	49	51.1	73.2
24	Total volatile solids (%)	7	7	100	4.39	7.41	5.9	5	6.65	4.39	7.41	5.9	5	6.65
24	Gravel (%)	6	6	100	0.1	0.3	0.1	0.1	0.15	0.1	0.3	0.1	0.1	0.15
24	Total solids (%)	6	6	100	33.2	59.3	49.1	50.9	57.5	33.2	59.3	49.1	50.9	57.5
24	Coarse sand (%)	5	5	100	0.2	1.6	0.6	0.3	0.5	0.2	1.6	0.6	0.3	0.5
24	Fine sand (%)	5	5	100	5	29.9	18.6	6.2	26.7	5	29.9	19	6.2	26.7
24	Medium sand (%)	5	5	100	0.6	25.6	9.28	2.1	13.5	0.6	25.6	9.28	2.1	13.5
24	Total organic carbon (%)	5	5	100	1.18	2.27	1.60	1.23	2.04	1.18	2.27	1.60	1.23	2.04
24	Very coarse sand (%)	5	5	100	0.1	0.3	0.26	0.3	0.3	0.1	0.3	0.26	0.3	0.3
24	Very fine sand (%)	5	5	100	2.2	21.2	13.5	7.9	19.3	2.2	21.2	13.5	7.9	19.3
24	Sand (%)	3	3	100	41.2	98.8	66.5	41.2	59.4	41.2	98.8	66	41.2	59.4
24	Arsenic (mg/kg)	2	2	100	3	3.3	3.15	3	3	3	3.3	3.15	3	3
24	Mean grain size (mm)	2	2	100	0.07	0.11	0.09	0.07	0.07	0.07	0.11	0.09	0.07	0.07
24	Residual Range Organics (mg/kg)	2	2	100	160 Z	200 Z	180	160 Z	160 Z	160 Z	200 Z	180	160 Z	160 Z
24	Antimony (mg/kg)	1	1	100	0.05 J	0.05 J	0.05	0.05 J	0.05 J	0.05 J	0.05 J	0.05	0.05 J	0.05 J
24	Benzoic acid (ug/kg)	1	1	100	35 J	35 J	35	35 J	35 J	35 J	35 J	35	35 J	35 J
24	Cadmium (mg/kg)	1	1	100	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
24	Chromium (mg/kg)	1	1	100	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4
24	Copper (mg/kg)	1	1	100	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1
24	Dibutyltin ion (ug/l)	1	1	100	0.01 J	0.01 J	0.01	0.01 J	0.01 J	0.01 J	0.01 J	0.01	0.01 J	0.01 J
24	Lead (mg/kg)	1	1	100	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21
24	Median grain size (mm)	1	1	100	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
24	Mercury (mg/kg)	1	1	100	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
24	Nickel (mg/kg)	1	1	100	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2
24	Silver (mg/kg)	1	1	100	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
24	Tributyltin ion (ug/l)	1	1	100	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
24	Zinc (mg/kg)	1	1	100	72.7	72.7	72.7	72.7	72.7	72.7	72.7	72.7	72.7	72.7
24	3- and 4-Methylphenol Coelution (ug/kg)	1	1	100	7.3 J	7.3 J	7.3	7.3 J	7.3 J	7.3 J	7.3 J	7.3	7.3 J	7.3 J

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
24	Dibutyl phthalate (ug/kg)	1	1	100	6.5 J	6.5 J	6.5	6.5 J	6.5 J	6.5 J	6.5 J	6.5	6.5 J	6.5 J
24	Phenol (ug/kg)	1	1	100	11 J	11 J	11	11 J	11 J	11 J	11 J	11	11 J	11 J
24	Acenaphthylene (ug/kg)	2	1	50	3.5 J	3.5 J	3.5	3.5 J	3.5 J	3.5 J	10 U	6.8	3.5 J	3.5 J
24	Anthracene (ug/kg)	2	1	50	5 J	5 J	5	5 J	5 J	5 J	10 U	7.5	5 J	5 J
24	Benz(a)anthracene (ug/kg)	2	1	50	13 J	13 J	13	13 J	13 J	10 U	13 J	12	10 U	10 U
24	Benzo(a)pyrene (ug/kg)	2	1	50	13 J	13 J	13	13 J	13 J	10 U	13 J	12	10 U	10 U
24	Benzo(b)fluoranthene (ug/kg)	2	1	50	14 J	14 J	14	14 J	14 J	10 U	14 J	12	10 U	10 U
24	Benzo(b+k)fluoranthene (ug/kg)	2	1	50	19.2 A	19.2 A	19.2	19.2 A	19.2 A	10 UA	19.2 A	15	10 UA	10 UA
24	Benzo(g,h,i)perylene (ug/kg)	2	1	50	14 J	14 J	14	14 J	14 J	10 U	14 J	12	10 U	10 U
24	Benzo(k)fluoranthene (ug/kg)	2	1	50	5.2 J	5.2 J	5.2	5.2 J	5.2 J	5.2 J	10 U	7.6	5.2 J	5.2 J
24	Chrysene (ug/kg)	2	1	50	13 J	13 J	13	13 J	13 J	10 U	13 J	12	10 U	10 U
24	Fluoranthene (ug/kg)	2	1	50	21	21	21	21	21	10 U	21	16	10 U	10 U
24	High Molecular Weight PAH (ug/kg)	2	1	50	131.2 A	131.2 A	131.2	131.2 A	131.2 A	10 UA	131.2 A	71	10 UA	10 UA
24	Indeno(1,2,3-cd)pyrene (ug/kg)	2	1	50	8 J	8 J	8	8 J	8 J	8 J	10 U	9	8 J	8 J
24	Low Molecular Weight PAH (ug/kg)	2	1	50	28.6 A	28.6 A	28.6	28.6 A	28.6 A	10 UA	28.6 A	19.3	10 UA	10 UA
24	Naphthalene (ug/kg)	2	1	50	6.1 J	6.1 J	6.1	6.1 J	6.1 J	6.1 J	10 U	8.1	6.1 J	6.1 J
24	Phenanthrene (ug/kg)	2	1	50	14 J	14 J	14	14 J	14 J	10 U	14 J	12	10 U	10 U
24	Polycyclic Aromatic Hydrocarbons (ug/kg)	2	1	50	159.8 A	159.8 A	159.8	159.8 A	159.8 A	10 UA	159.8 A	85	10 UA	10 UA
24	Pyrene (ug/kg)	2	1	50	30	30	30	30	30	10 U	30	20	10 U	10 U
24	Diesel fuels (mg/kg)	2	1	50	38 Z	38 Z	38	38 Z	38 Z	28 U	38 Z	33	28 U	28 U
24	4,4'-DDD (ug/kg)	3	1	33	0.77 J	0.77 J	0.77	0.77 J	0.77 J	0.77 J	2 U	1.49	0.77 J	1.7 U
24	4,4'-DDE (ug/kg)	3	1	33	0.8 J	0.8 J	0.8	0.8 J	0.8 J	0.8 J	2 U	1.5	0.8 J	1.7 U
24	4,4'-DDT (ug/kg)	3	1	33	13	13	13	13	13	1.7 U	13	5.6	1.7 U	2 U
24	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/k	3	1	33	14.57 A	14.57 A	14.57	14.57 A	14.57 A	1.7 UA	14.57 A	6.09	1.7 UA	2 UA
24	Aroclor 1016 (ug/kg)	3	0	0						17 U	20 U	19	17 U	19 U
24	Aroclor 1221 (ug/kg)	3	0	0						34 U	40 U	37	34 U	38 U
24	Aroclor 1232 (ug/kg)	3	0	0						17 U	20 U	19	17 U	19 U
24	Aroclor 1242 (ug/kg)	3	0	0						17 U	20 U	19	17 U	19 U
24	Aroclor 1248 (ug/kg)	3	0	0						17 U	20 U	19	17 U	19 U
24	Aroclor 1254 (ug/kg)	3	0	0						17 U	20 U	19	17 U	19 U
24	Aroclor 1260 (ug/kg)	3	0	0						17 U	20 U	19	17 U	19 U
24	Polychlorinated biphenyls (ug/kg)	3	0	0						34 UA	40 UA	37	34 UA	38 UA
24	Aldrin (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	alpha-Chlordane (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	alpha-Endosulfan (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	alpha-Hexachlorocyclohexane (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	beta-Endosulfan (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	beta-Hexachlorocyclohexane (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	delta-Hexachlorocyclohexane (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	Dieldrin (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	Endosulfan sulfate (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	Endrin (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	Endrin aldehyde (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	Endrin ketone (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	gamma-Chlordane (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	gamma-Hexachlorocyclohexane (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	Heptachlor (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	Heptachlor epoxide (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U

Table 4-5. Historical Surface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
24	Methoxychlor (ug/kg)	3	0	0						1.7 U	2 U	1.9	1.7 U	1.9 U
24	Toxaphene (ug/kg)	3	0	0						85 U	98 U	92	85 U	93 U
24	Acenaphthene (ug/kg)	2	0	0						10 U	19 U	15	10 U	10 U
24	Dibenz(a,h)anthracene (ug/kg)	2	0	0						10 U	19 U	15	10 U	10 U
24	Fluorene (ug/kg)	2	0	0						10 U	19 U	15	10 U	10 U
24	Gasoline (mg/kg)	2	0	0						28 U	34 U	31	28 U	28 U
24	Pentachlorophenol (ug/kg)	2	0	0						60 U	190 U	125	60 U	60 U
24	2-Methylnaphthalene (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Benzyl alcohol (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Butyltin ion (ug/l)	1	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
24	Dibenzofuran (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Hexachlorobutadiene (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Hexachloroethane (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	N-Nitrosodiphenylamine (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Tetrabutyltin (ug/l)	1	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
24	1,2,4-Trichlorobenzene (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	1,2-Dichlorobenzene (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	1,3-Dichlorobenzene (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	1,4-Dichlorobenzene (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	2,4-Dimethylphenol (ug/kg)	1	0	0						94 U	94 U	94	94 U	94 U
24	2-Methylphenol (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Bis(2-ethylhexyl) phthalate (ug/kg)	1	0	0						380 U	380 U	380	380 U	380 U
24	Butylbenzyl phthalate (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Diethyl phthalate (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Dimethyl phthalate (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Di-n-octyl phthalate (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
24	Hexachlorobenzene (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U

Notes:
A - Detected quantities of analytes added together as defined in WAC 173-204-320 for LPAH and HPAH, as in DMMO 2000 for DDT, and for all Aroclors or congeners for PCB.
B - Possible method blank contamination.
E - Estimate, usually applied because the value exceeded the instrument calibration range.
G - Estimate is greater than value shown.
H - Holding time exceeded.
J - Estimate, usually applied because the value is less than the method reporting limit but greater than the method detection limit, or for QA/QC concerns.
L - Value is less than the maximum shown.
N - Presumptive evidence of presence of material.
U - Not detected at detection limit shown.
X - Recovery less than 10%.
Surface sediment is defined as any sediment sample that was exposed to the water column at the time of collection to a maximum depth of 30 cm.

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
1	Tributyltin ion (ug/l)	1	0	0						0.05 U	0.05 U	0.05	0.05 U	0.05 U
1	4,4'-DDT (ug/kg)	9	0	0						2 U	2 U	2	2 U	2 U
1	Aroclor 1016 (ug/kg)	9	0	0						10 U	10 UG	10	10 U	10 U
1	Aroclor 1221 (ug/kg)	9	0	0						10 U	10 UG	10	10 U	10 U
1	Aroclor 1232 (ug/kg)	9	0	0						10 U	10 UG	10	10 U	10 U
1	Aroclor 1248 (ug/kg)	9	0	0						10 U	10 UG	10	10 U	10 U
1	alpha-Endosulfan (ug/kg)	9	0	0						2 U	2 U	2	2 U	2 U
1	alpha-Hexachlorocyclohexane (ug/kg)	9	0	0						2 U	2 U	2	2 U	2 U
1	beta-Endosulfan (ug/kg)	9	0	0						2 U	2 U	2	2 U	2 U
1	beta-Hexachlorocyclohexane (ug/kg)	9	0	0						2 U	2 U	2	2 U	2 U
1	Chlordane (cis & trans) (ug/kg)	9	0	0						10 U	10 U	10	10 U	10 U
1	delta-Hexachlorocyclohexane (ug/kg)	9	0	0						2 U	2 UG	2	2 U	2 U
1	Dieldrin (ug/kg)	9	0	0						2 U	5 U	2	2 U	2 U
1	Endosulfan sulfate (ug/kg)	9	0	0						2 U	2 UG	2	2 U	2 U
1	Endrin (ug/kg)	9	0	0						2 U	2 UG	2	2 U	2 U
1	Endrin aldehyde (ug/kg)	9	0	0						2 U	2 UG	2	2 U	2 U
1	gamma-Hexachlorocyclohexane (ug/kg)	9	0	0						2 U	2 UG	2	2 U	2 U
1	Heptachlor (ug/kg)	9	0	0						2 U	2 UG	2	2 U	2 U
1	Heptachlor epoxide (ug/kg)	9	0	0						2 U	2 UG	2	2 U	2 U
1	Methoxychlor (ug/kg)	9	0	0						4 U	4 UG	4	4 U	4 U
1	Toxaphene (ug/kg)	9	0	0						30 U	65 U	34	30 U	30 UG
1	Aroclor 1242 (ug/kg)	9	1	11	29	29	29	29	29	10 U	29	12	10 U	10 U
1	Aroclor 1254 (ug/kg)	9	1	11	43	43	43	43	43	10 U	43	14	10 U	10 U
1	Aldrin (ug/kg)	9	1	11	0.2 J	0.2 J	0.2	0.2 J	0.2 J	0.2 J	2 U	1.8	2 U	2 UG
1	Aroclor 1260 (ug/kg)	9	2	22	5	7	6	5	5	5	10 U	9	10 U	10 U
1	Polychlorinated biphenyls (ug/kg)	9	3	33	5 A	72 A	28	5 A	7 A	5 A	72 A	16	10 UA	10 UA
1	Gravel (%)	5	2	40	0.1	5.7	2.9	0.1	0.1	0.1	5.7	1.2	0.1 U	0.1 U
1	4,4'-DDD (ug/kg)	9	4	44	0.7	7	3.4	1	5	0.7	7	2.6	2 U	5
1	4,4'-DDE (ug/kg)	9	4	44	0.4	7	3.0	0.7	4	0.4	7	2.5	2 U	4
1	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	9	4	44	1.1 A	12 A	6.5	1.7 A	11 A	1.1 A	12 A	4.0	2 UA	11 A
1	Dibenzofuran (ug/kg)	9	6	67	0.5 G	8 G	2.5	1 G	4 G	0.5 G	8 G	3.4	1 G	5 UG
1	Clay (%)	11	8	73	1.8	8.9	5.1	4.2	7.5	0.1 U	8.9	4.1	3.1	7.5
1	Acenaphthene (ug/kg)	9	7	78	0.7 G	16 G	4.2	1 G	7 G	0.7 G	16 G	4.4	1 G	7 G
1	Acid Volatile Sulfides (mg/kg)	9	8	89	0.8	53	14.4	4.8	30	0.8 U	53	12.9	1.9	30
1	Anthracene (ug/kg)	9	8	89	0.6 G	27 G	7.3	2 G	18 G	0.6 G	27 G	7.1	2 G	18 G
1	Benz(a)anthracene (ug/kg)	9	8	89	1 G	86 G	22	4 G	44 G	1 G	86 G	20	3 G	44 G
1	Benzo(b)fluoranthene (ug/kg)	9	8	89	2 G	81 G	23	4 G	59 G	2 G	81 G	21	4 G	59 G
1	Benzo(k)fluoranthene (ug/kg)	9	8	89	1 G	79 G	23	3 G	63 G	1 G	79 G	21	3 G	63 G
1	Sand (%)	5	5	100	6.1	91.9	31.5	7.3	26.9	6.1	91.9	31.5	7.3	26.9
1	2-Methylnaphthalene (ug/kg)	9	9	100	2 GB	27 G	6	2 GB	12 G	2 GB	27 G	6	2 GB	12 G
1	Acenaphthylene (ug/kg)	9	9	100	0.3 G	11 G	2.7	0.7 G	5 G	0.3 G	11 G	2.7	0.7 G	5 G
1	Arsenic (mg/kg)	9	9	100	0.6 E	5.8 E	2.7	1.3 E	5.6 E	0.6 E	5.8 E	2.7	1.3 E	5.6 E
1	Benzo(a)pyrene (ug/kg)	9	9	100	0.9 GB	123 G	32.0	4 GB	103 G	0.9 GB	123 G	32.0	4 GB	103 G
1	Benzo(b+k)fluoranthene (ug/kg)	9	9	100	3 A	160 A	42	7 A	122 A	3 A	160 A	42	7 A	122 A
1	Benzo(g,h,i)perylene (ug/kg)	9	9	100	1 GB	115 GB	29	5 GB	77 GB	1 GB	115 GB	29	5 GB	77 GB
1	Cadmium (mg/kg)	9	9	100	0.03	1.62	0.50	0.16	1.36	0.03	1.62	0.50	0.16	1.36

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
1	Chromium (mg/kg)	9	9	100	6.6	26.8	18.3	15.9	25.2	6.6	26.8	18.3	15.9	25.2
1	Chrysene (ug/kg)	9	9	100	0.7 G	112 G	24.7	2 G	52 G	0.7 G	112 G	24.7	2 G	52 G
1	Copper (mg/kg)	9	9	100	8.9	26.4	18.0	14.5	24.6	8.9	26.4	18.0	14.5	24.6
1	Dibenz(a,h)anthracene (ug/kg)	9	9	100	0.8 GB	19 G	5.4	1 GB	13 GB	0.8 GB	19 G	5.4	1 GB	13 GB
1	Fluoranthene (ug/kg)	9	9	100	0.7 G	158 G	37.5	4 G	83 G	0.7 G	158 G	37.5	4 G	83 G
1	Fluorene (ug/kg)	9	9	100	0.7 G	19 G	4.4	1 G	10 G	0.7 G	19 G	4.4	1 G	10 G
1	High Molecular Weight PAH (ug/kg)	9	9	100	6 A	1079 A	263	38 A	654 A	6 A	1079 A	263	38 A	654 A
1	Indeno(1,2,3-cd)pyrene (ug/kg)	9	9	100	1 GB	108 G	28	5 GB	76 G	1 GB	108 G	28	5 GB	76 G
1	Lead (mg/kg)	9	9	100	1.2	27	10.6	7.1	23.7	1.2	27	10.6	7.1	23.7
1	Low Molecular Weight PAH (ug/kg)	9	9	100	6.7 A	227 A	53.8	12.4 A	140 A	6.7 A	227 A	53.8	12.4 A	140 A
1	Mercury (mg/kg)	9	9	100	0.01	0.13	0.06	0.03	0.12	0.01	0.13	0.06	0.03	0.12
1	Naphthalene (ug/kg)	9	9	100	0.6 GB	31 G	7.6	2 GB	24 G	0.6 GB	31 G	7.6	2 GB	24 G
1	Nickel (mg/kg)	9	9	100	4.4	19.8	14.2	12.8	19.3	4.4	19.8	14.2	12.8	19.3
1	Phenanthrene (ug/kg)	9	9	100	2 GB	96 G	23	4 G	65 G	2 GB	96 G	23	4 G	65 G
1	Polycyclic Aromatic Hydrocarbons (ug/kg)	9	9	100	19 A	1306 A	317	48.6 A	699 A	19 A	1306 A	317	48.6 A	699 A
1	Pyrene (ug/kg)	9	9	100	0.9 G	198 G	47.5	5 G	101 G	0.9 G	198 G	47.5	5 G	101 G
1	Silver (mg/kg)	9	9	100	0.03	0.18	0.11	0.08	0.16	0.03	0.18	0.11	0.08	0.16
1	Total organic carbon (%)	9	9	100	0.06	0.99	0.58	0.38	0.99	0.06	0.99	0.58	0.38	0.99
1	Total solids (%)	9	9	100	53.4	77	64.7	63.7	69.1	53.4	77	64.7	63.7	69.1
1	Zinc (mg/kg)	9	9	100	10.8	166	75.1	53.6	138	10.8	166	75.1	53.6	138
1	Fines (%)	11	11	100	2.4	100.5	58.7	64.8	93.9	2.4	100.5	58.7	64.8	93.9
1	Mean grain size (mm)	11	11	100	0.02	0.48	0.11	0.05	0.24	0.02	0.48	0.11	0.05	0.24
1	Median grain size (mm)	11	11	100	0.01	0.3	0.08	0.03	0.21	0.01	0.3	0.08	0.03	0.21
1	Silt (%)	11	11	100	2.4	91.6	54.6	60.6	90.8	2.4	91.6	54.6	60.6	90.8
1	Total volatile solids (%)	11	11	100	0.7	3.6	2.6	2.5	3.6	0.7	3.6	2.6	2.5	3.6
2	4,4'-DDD (ug/kg)	2	2	100	3.9	9.9	6.9	3.9	3.9	3.9	9.9	6.9	3.9	3.9
2	4,4'-DDE (ug/kg)	2	2	100	2.6	5	3.8	2.6	2.6	2.6	5	3.8	2.6	2.6
2	Acenaphthene (ug/kg)	2	2	100	28	33	30.5	28	28	28	33	30.5	28	28
2	Ammonia (mg/kg)	2	2	100	70.5	119	94.8	70.5	70.5	70.5	119	94.8	70.5	70.5
2	Antimony (mg/kg)	2	2	100	0.03 G	0.05 G	0.04	0.03 G	0.03 G	0.03 G	0.05 G	0.04	0.03 G	0.03 G
2	Aroclor 1260 (ug/kg)	2	2	100	13	14	14	13	13	13	14	14	13	13
2	Arsenic (mg/kg)	2	2	100	1.2	2.6	1.9	1.2	1.2	1.2	2.6	1.9	1.2	1.2
2	Benz(a)anthracene (ug/kg)	2	2	100	34	130	82	34	34	34	130	82	34	34
2	Benzo(a)pyrene (ug/kg)	2	2	100	38	180	109	38	38	38	180	109	38	38
2	Benzo(b)fluoranthene (ug/kg)	2	2	100	32	120	76	32	32	32	120	76	32	32
2	Benzo(b+k)fluoranthene (ug/kg)	2	2	100	58 A	220 A	139	58 A	58 A	58 A	220 A	139	58 A	58 A
2	Benzo(g,h,i)perylene (ug/kg)	2	2	100	23	100	62	23	23	23	100	62	23	23
2	Benzo(k)fluoranthene (ug/kg)	2	2	100	26	100	63	26	26	26	100	63	26	26
2	Cadmium (mg/kg)	2	2	100	0.44	0.85	0.65	0.44	0.44	0.44	0.85	0.65	0.44	0.44
2	Chromium (mg/kg)	2	2	100	13.3	16.3	14.8	13.3	13.3	13.3	16.3	14.8	13.3	13.3
2	Chrysene (ug/kg)	2	2	100	42	160	101	42	42	42	160	101	42	42
2	Copper (mg/kg)	2	2	100	14.7	19.7	17.2	14.7	14.7	14.7	19.7	17.2	14.7	14.7
2	Fluoranthene (ug/kg)	2	2	100	93	300	197	93	93	93	300	197	93	93
2	High Molecular Weight PAH (ug/kg)	2	2	100	438 A	1630 A	1034	438 A	438 A	438 A	1630 A	1034	438 A	438 A
2	Indeno(1,2,3-cd)pyrene (ug/kg)	2	2	100	30	130	80	30	30	30	130	80	30	30
2	Lead (mg/kg)	2	2	100	11.1	18.2	14.7	11.1	11.1	11.1	18.2	14.7	11.1	11.1

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
2	Low Molecular Weight PAH (ug/kg)	2	2	100	190 A	368 A	279	190 A	190 A	190 A	368 A	279	190 A	190 A
2	Mercury (mg/kg)	2	2	100	0.05	0.11	0.08	0.05	0.05	0.05	0.11	0.08	0.05	0.05
2	Nickel (mg/kg)	2	2	100	16.1	16.2	16.2	16.1	16.1	16.1	16.2	16.2	16.1	16.1
2	Phenanthrene (ug/kg)	2	2	100	140	250	195	140	140	140	250	195	140	140
2	Polychlorinated biphenyls (ug/kg)	2	2	100	14 A	35 A	25	14 A	14 A	14 A	35 A	25	14 A	14 A
2	Polycyclic Aromatic Hydrocarbons (ug/kg)	2	2	100	628 A	1998 A	1313	628 A	628 A	628 A	1998 A	1313	628 A	628 A
2	Pyrene (ug/kg)	2	2	100	120	390	255	120	120	120	390	255	120	120
2	Silver (mg/kg)	2	2	100	0.16	0.18	0.17	0.16	0.16	0.16	0.18	0.17	0.16	0.16
2	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	2	2	100	6.5 A	14.9 A	10.7	6.5 A	6.5 A	6.5 A	14.9 A	10.7	6.5 A	6.5 A
2	Total organic carbon (%)	2	2	100	0.52	0.54	0.53	0.52	0.52	0.52	0.54	0.53	0.52	0.52
2	Total solids (%)	2	2	100	62.1	69.6	65.9	62.1	62.1	62.1	69.6	65.9	62.1	62.1
2	Total sulfides (mg/kg)	2	2	100	41	45	43	41	41	41	45	43	41	41
2	Total volatile solids (%)	2	2	100	2.79	5.72	4.26	2.79	2.79	2.79	5.72	4.26	2.79	2.79
2	Zinc (mg/kg)	2	2	100	75.5	112	93.8	75.5	75.5	75.5	112	93.8	75.5	75.5
2	Tributyltin ion (ug/l)	1	1	100	0.03 G	0.03 G	0.03	0.03 G	0.03 G	0.03 G	0.03 G	0.03	0.03 G	0.03 G
2	Anthracene (ug/kg)	2	1	50	35	35	35	35	35	20 U	35	27.5	20 U	20 U
2	Aroclor 1242 (ug/kg)	2	1	50	22	22	22	22	22	10 U	22	16	10 U	10 U
2	Dibenz(a,h)anthracene (ug/kg)	2	1	50	20	20	20	20	20	20	20 U	20	20	20
2	Fluorene (ug/kg)	2	1	50	22	22	22	22	22	20 U	22	21	20 U	20 U
2	Naphthalene (ug/kg)	2	1	50	50	50	50	50	50	20 U	50	35	20 U	20 U
2	4-Methylphenol (ug/kg)	2	1	50	77	77	77	77	77	20 U	77	49	20 U	20 U
2	Bis(2-ethylhexyl) phthalate (ug/kg)	2	1	50	56	56	56	56	56	36 U	56	46	36 U	36 U
2	4,4'-DDT (ug/kg)	2	0	0						6.7 U	6.7 U	6.7	6.7 U	6.7 U
2	Acenaphthylene (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
2	Aroclor 1016 (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
2	Aroclor 1221 (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
2	Aroclor 1232 (ug/kg)	2	0	0						10 U	20 U	15	10 U	10 U
2	Aroclor 1248 (ug/kg)	2	0	0						10 U	20 U	15	10 U	10 U
2	Aroclor 1254 (ug/kg)	2	0	0						15 U	20 U	17.5	15 U	15 U
2	Benzoic acid (ug/kg)	2	0	0						100 U	100 U	100	100 U	100 U
2	Benzyl alcohol (ug/kg)	2	0	0						6 U	6 U	6	6 U	6 U
2	Dibenzofuran (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
2	Hexachlorobutadiene (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
2	N-Nitrosodiphenylamine (ug/kg)	2	0	0						12 U	12 U	12	12 U	12 U
2	1,2-Dichlorobenzene (ug/kg)	2	0	0						1 U	1 U	1	1 U	1 U
2	1,3-Dichlorobenzene (ug/kg)	2	0	0						1 U	1 U	1	1 U	1 U
2	1,4-Dichlorobenzene (ug/kg)	2	0	0						1 U	1 U	1	1 U	1 U
2	2,4-Dimethylphenol (ug/kg)	2	0	0						6 U	6 U	6	6 U	6 U
2	2-Methylphenol (ug/kg)	2	0	0						6 U	6 U	6	6 U	6 U
2	Aldrin (ug/kg)	2	0	0						1.7 U	1.7 U	1.7	1.7 U	1.7 U
2	alpha-Chlordane (ug/kg)	2	0	0						1.7 U	1.7 U	1.7	1.7 U	1.7 U
2	Butylbenzyl phthalate (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
2	Dibutyl phthalate (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
2	Dieldrin (ug/kg)	2	0	0						2.3 U	2.3 U	2.3	2.3 U	2.3 U
2	Diethyl phthalate (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
2	Dimethyl phthalate (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
2	Di-n-octyl phthalate (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
2	gamma-Chlordane (ug/kg)	2	0	0						1.7 U	1.7 U	1.7	1.7 U	1.7 U
2	gamma-Hexachlorocyclohexane (ug/kg)	2	0	0						1.7 U	1.7 U	1.7	1.7 U	1.7 U
2	Heptachlor (ug/kg)	2	0	0						1.7 U	1.7 U	1.7	1.7 U	1.7 U
2	Hexachlorobenzene (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
2	Pentachlorophenol (ug/kg)	2	0	0						61 U	61 U	61	61 U	61 U
2	Phenol (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
3	Arsenic (mg/kg)	5	5	100	2.2	4.9	3.34	2.5 E	3.8	2.2	4.9	3.3	2.5 E	3.8
3	Benz(a)anthracene (ug/kg)	5	5	100	11	373 G	97	17	56	11	373 G	97	17	56
3	Benzo(a)pyrene (ug/kg)	5	5	100	20	530 G	144	27	96	20	530 G	144	27	96
3	Benzo(b)fluoranthene (ug/kg)	5	5	100	22	517 G	136	27	76	22	517 G	136	27	76
3	Benzo(b+k)fluoranthene (ug/kg)	5	5	100	34.3 A	1061 A	258.7	43 A	99 A	34.3 A	1061 A	258.7	43 A	99 A
3	Benzo(g,h,i)perylene (ug/kg)	5	5	100	17	832 G	193	25	50	17	832 G	193	25	50
3	Benzo(k)fluoranthene (ug/kg)	5	5	100	7.3	544 G	122.5	17	23	7.3	544 G	122.5	17	23
3	Chrysene (ug/kg)	5	5	100	17	452 G	118	26	65	17	452 G	118	26	65
3	Clay (%)	5	5	100	4.1	14.7	8.14	6.6	8.7	4.1	14.7	8.14	6.6	8.7
3	Copper (mg/kg)	5	5	100	30.2	40	35.0	31.6	39	30.2	40	35.0	31.6	39
3	Fines (%)	5	5	100	56.2	81.3	71.9	67.5	80.43	56.2	81.3	71.9	67.5	80.43
3	High Molecular Weight PAH (ug/kg)	5	5	100	167 A	5654 A	1424	209.3 A	699 A	167 A	5654 A	1424	209.3 A	699 A
3	Indeno(1,2,3-cd)pyrene (ug/kg)	5	5	100	17	802 G	180	22	35	17	802 G	180	22	35
3	Mean grain size (mm)	5	5	100	0.03	0.2	0.10	0.05	0.16	0.03	0.2	0.10	0.05	0.16
3	Median grain size (mm)	5	5	100	0.02	0.06	0.03	0.02	0.03	0.02	0.06	0.03	0.02	0.03
3	Nickel (mg/kg)	5	5	100	17	24	20	17.2	21.7	17	24	20	17.2	21.7
3	Polycyclic Aromatic Hydrocarbons (ug/kg)	5	5	100	167 A	7138 A	1838	294.6 A	1021 A	167 A	7138 A	1838	294.6 A	1021 A
3	Pyrene (ug/kg)	5	5	100	13	789 G	219	47	160	13	789 G	219	47	160
3	Silt (%)	5	5	100	52.1	74.7	63.7	60.9	65.7	52.1	74.7	63.7	60.9	65.7
3	Total solids (%)	5	5	100	52.7	79.7	59.5	54.4	55.3	52.7	79.7	59.5	54.4	55.3
3	Total volatile solids (%)	5	5	100	4.1	8.24	6.56	4.7	7.96	4.1	8.24	6.56	4.7	7.96
3	Zinc (mg/kg)	5	5	100	87	234	148	120	170	87	234	148	120	170
3	Sand (%)	4	4	100	18.7	31.4	23.6	19.57	24.9	18.7	31.4	23.6	19.57	24.9
3	Total organic carbon (%)	4	4	100	1.62	2.4	1.98	1.9	2	1.62	2.4	1.98	1.9	2
3	Chromium (mg/kg)	2	2	100	28.1	199 J	113.6	28.1	28.1	28.1	199 J	113.6	28.1	28.1
3	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	1	1	100	25 B	25 B	25	25 B	25 B	25 B	25 B	25	25 B	25 B
3	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/kg	1	1	100	190 B	190 B	190	190 B	190 B	190 B	190 B	190	190 B	190 B
3	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	11 B	11 B	11	11 B	11 B	11 B	11 B	11	11 B	11 B
3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	5.2 J	5.2 J	5.2	5.2 J	5.2 J	5.2 J	5.2 J	5.2	5.2 J	5.2 J
3	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	1	1	100	3 B	3 B	3	3 B	3 B	3 B	3 B	3	3 B	3 B
3	Acid Volatile Sulfides (mg/kg)	1	1	100	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
3	Octachlorodibenzofuran (ng/kg)	1	1	100	73 B	73 B	73	73 B	73 B	73 B	73 B	73	73 B	73 B
3	Octachlorodibenzo-p-dioxin (ng/kg)	1	1	100	1800 B	1800 B	1800	1800 B	1800 B	1800 B	1800 B	1800	1800 B	1800 B
3	Lube Oil (mg/kg)	1	1	100	79	79	79	79	79	79	79	79	79	79
3	Acenaphthene (ug/kg)	5	4	80	12	122 G	58	44	52	9.7 U	122 G	48	12	52
3	Acenaphthylene (ug/kg)	5	4	80	6.3	62 G	26	12	23	6.3	62 G	23	9.7 U	23
3	Anthracene (ug/kg)	5	4	80	11	160 G	57	17	40	9.7 U	160 G	48	11	40
3	Fluoranthene (ug/kg)	5	4	80	40	673 G	233	67	150	9.7 U	673 G	188	40	150
3	Fluorene (ug/kg)	5	4	80	6.9	105 G	41	26	27	6.9	105 G	35	9.7 U	27

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
3	Low Molecular Weight PAH (ug/kg)	5	4	80	85.3 A	1484 A	518	181.3 A	322 A	9.7 UA	1484 A	416	85.3 A	322 A
3	Naphthalene (ug/kg)	5	4	80	4.1	221 G	66	9.3	30	4.1	221 G	55	9.3	30
3	Phenanthrene (ug/kg)	5	4	80	45	684 G	238	73	150	9.7 U	684 G	192.3	45	150
3	4,4'-DDD (ug/kg)	4	3	75	2	5.4	3.4	2	2.9 J	2	5.4	3.4	2.9 J	3.4 U
3	4,4'-DDE (ug/kg)	4	3	75	2	5.9	3.5	2	2.5 J	2	5.9	3.5	2.5 J	3.4 U
3	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	4	3	75	4 A	11.3 A	6.9	4 A	5.4 A	3.4 UA	11.3 A	6.0	4 A	5.4 A
3	3- and 4-Methylphenol Coelution (ug/kg)	4	3	75	24	28	27	24	28	24	190 U	68	28	28
3	Bis(2-ethylhexyl) phthalate (ug/kg)	4	3	75	27 B	34 B	31	27 B	31	27 B	190 U	71	31	34 B
3	Gravel (%)	3	2	67	1	1.08	1.04	1	1	0.1 U	1.08	0.73	0.1 U	1
3	2-Methylnaphthalene (ug/kg)	5	3	60	23	130 G	66	23	45	3.2 U	130 G	42.2	9.7 U	45
3	Dibenzofuran (ug/kg)	5	3	60	9.7 J	33 G	18.2	9.7 J	12 J	9.7 U	33 G	16.1	9.7 J	16 U
3	Lead (mg/kg)	5	3	60	19	40.9	27.3	19	22	19	62 U	35	22	40.9
3	Mercury (mg/kg)	5	3	60	0.04	0.16	0.10	0.04	0.09	0.04	0.19 U	0.128	0.09	0.16 U
3	Silver (mg/kg)	5	3	60	0.25	2.09	0.90	0.25	0.36 J	0.25	2.09	0.90	0.36 J	0.93 U
3	Aroclor 1260 (ug/kg)	4	2	50	21	200	111	21	21	17 U	200	64	19 U	21
3	Polychlorinated biphenyls (ug/kg)	4	2	50	28 A	1620 A	824	28 A	28 A	28 A	1620 A	430	34 UA	37 UA
3	Pentachlorophenol (ug/kg)	4	2	50	19	21	20	19	19	15 U	290 U	86	19	21
3	Cadmium (mg/kg)	5	2	40	0.41 J	0.43	0.42	0.41 J	0.41 J	0.41 J	1.9 U	1.10	0.43	1.7 U
3	Antimony (mg/kg)	4	1	25	1.6 JB	1.6 JB	1.6	1.6 JB	1.6 JB	1.6 JB	150 U	75.5	10.5 U	140 U
3	Aroclor 1242 (ug/kg)	4	1	25	7	7	7	7	7	7	100 U	36	17 U	19 U
3	Aroclor 1248 (ug/kg)	4	1	25	1420	1420	1420	1420	1420	10 U	1420	367	17 U	19 U
3	Benzoic acid (ug/kg)	4	1	25	11 J	11 J	11	11 J	11 J	11 J	390 U	108	15 U	16 U
3	Benzyl alcohol (ug/kg)	4	1	25	7.3 J	7.3 J	7.3	7.3 J	7.3 J	6 U	49 U	19	7.3 J	15 U
3	Aldrin (ug/kg)	4	1	25	0.36 J	0.36 J	0.36	0.36 J	0.36 J	0.36 J	2 U	1.49	1.7 U	1.9 U
3	beta-Endosulfan (ug/kg)	4	1	25	1 J	1 J	1	1 J	1 J	1 J	3.7 U	2.9	3.4 U	3.4 U
3	Dibutyl phthalate (ug/kg)	4	1	25	4.6 JB	4.6 JB	4.6	4.6 JB	4.6 JB	4.6 JB	19 U	13.7	15 U	16 U
3	Endrin aldehyde (ug/kg)	4	1	25	0.5 J	0.5 J	0.5	0.5 J	0.5 J	0.5 J	3.7 U	2.75	3.4 U	3.4 U
3	Heptachlor (ug/kg)	4	1	25	0.34 J	0.34 J	0.34	0.34 J	0.34 J	0.34 J	2 U	1.49	1.7 U	1.9 U
3	Dibenz(a,h)anthracene (ug/kg)	5	1	20	142 G	142 G	142	142 G	142 G	2.9 U	142 G	34.0	2.9 U	19 U
3	4,4'-DDT (ug/kg)	4	0	0						2 U	3.7 U	3.1	3.4 U	3.4 U
3	Aroclor 1016 (ug/kg)	4	0	0						10 U	100 U	37	17 U	19 U
3	Aroclor 1221 (ug/kg)	4	0	0						10 U	200 U	70	34 U	37 U
3	Aroclor 1232 (ug/kg)	4	0	0						10 U	100 U	37	17 U	19 U
3	Aroclor 1254 (ug/kg)	4	0	0						10 U	100 U	37	17 U	19 U
3	Hexachlorobutadiene (ug/kg)	4	0	0						9.7 U	16 U	13.9	15 U	15 U
3	Hexachloroethane (ug/kg)	4	0	0						15 U	39 U	21	15 U	16 U
3	N-Nitrosodiphenylamine (ug/kg)	4	0	0						9.7 U	16 U	13.9	15 U	15 U
3	1,2,4-Trichlorobenzene (ug/kg)	4	0	0						9.7 U	16 U	13.9	15 U	15 U
3	1,2-Dichlorobenzene (ug/kg)	4	0	0						9.7 U	16 U	13.9	15 U	15 U
3	1,3-Dichlorobenzene (ug/kg)	4	0	0						9.7 U	16 U	13.9	15 U	15 U
3	1,4-Dichlorobenzene (ug/kg)	4	0	0						9.7 U	16 U	13.9	15 U	15 U
3	2,4-Dimethylphenol (ug/kg)	4	0	0						15 U	190 U	59	15 U	16 U
3	2-Methylphenol (ug/kg)	4	0	0						15 U	190 U	59	15 U	16 U
3	alpha-Endosulfan (ug/kg)	4	0	0						1.7 U	2 U	1.8	1.7 U	1.9 U
3	alpha-Hexachlorocyclohexane (ug/kg)	4	0	0						1.7 U	2 U	1.8	1.7 U	1.9 U
3	beta-Hexachlorocyclohexane (ug/kg)	4	0	0						1.7 U	2 U	1.8	1.7 U	1.9 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
3	Butylbenzyl phthalate (ug/kg)	4	0	0						15 U	19 U	16	15 U	16 U
3	Chlordane (cis & trans) (ug/kg)	4	0	0						10 U	19 U	16	17 U	17 U
3	delta-Hexachlorocyclohexane (ug/kg)	4	0	0						1.7 U	2 U	1.8	1.7 U	1.9 U
3	Dieldrin (ug/kg)	4	0	0						2 U	3.7 U	3.1	3.4 U	3.4 U
3	Diethyl phthalate (ug/kg)	4	0	0						9.7 U	16 U	13.9	15 U	15 U
3	Dimethyl phthalate (ug/kg)	4	0	0						9.7 U	16 U	13.9	15 U	15 U
3	Di-n-octyl phthalate (ug/kg)	4	0	0						15 U	190 U	59	15 U	16 U
3	Endosulfan sulfate (ug/kg)	4	0	0						2 U	3.7 U	3.1	3.4 U	3.4 U
3	Endrin (ug/kg)	4	0	0						2 U	3.7 U	3.1	3.4 U	3.4 U
3	gamma-Hexachlorocyclohexane (ug/kg)	4	0	0						1.7 U	2 U	1.8	1.7 U	1.9 U
3	Heptachlor epoxide (ug/kg)	4	0	0						1.7 U	2 U	1.8	1.7 U	1.9 U
3	Hexachlorobenzene (ug/kg)	4	0	0						9.7 U	16 U	13.9	15 U	15 U
3	Methoxychlor (ug/kg)	4	0	0						4 U	19 U	14	17 U	17 U
3	Phenol (ug/kg)	4	0	0						15 U	49 U	24	15 U	16 U
3	Toxaphene (ug/kg)	4	0	0						40 U	190 U	143	170 U	170 U
3	2,4-Dinitrotoluene (ug/kg)	3	0	0						15 U	49 U	27	15 U	16 U
3	2,6-Dinitrotoluene (ug/kg)	3	0	0						15 U	19 U	17	15 U	16 U
3	2-Chloronaphthalene (ug/kg)	3	0	0						2.9 U	9.7 U	5.3	2.9 U	3.2 U
3	2-Nitroaniline (ug/kg)	3	0	0						15 U	19 U	17	15 U	16 U
3	3,3'-Dichlorobenzidine (ug/kg)	3	0	0						15 U	80 UJ	37	15 U	16 U
3	3-Nitroaniline (ug/kg)	3	0	0						15 U	190 U	74	15 U	16 U
3	4-Bromophenyl phenyl ether (ug/kg)	3	0	0						9.7 U	16 U	13.6	9.7 U	15 U
3	4-Chloroaniline (ug/kg)	3	0	0						15 U	49 UJ	27	15 U	16 U
3	4-Chlorophenyl phenyl ether (ug/kg)	3	0	0						9.7 U	16 U	13.6	9.7 U	15 U
3	4-Nitroaniline (ug/kg)	3	0	0						15 U	97 U	43	15 U	16 U
3	Bis(2-chloroethoxy) methane (ug/kg)	3	0	0						15 U	19 U	17	15 U	16 U
3	Bis(2-chloroethyl) ether (ug/kg)	3	0	0						9.7 U	16 U	13.6	9.7 U	15 U
3	Hexachlorocyclopentadiene (ug/kg)	3	0	0						15 U	190 U	74	15 U	16 U
3	Isophorone (ug/kg)	3	0	0						9.7 U	16 U	13.6	9.7 U	15 U
3	Nitrobenzene (ug/kg)	3	0	0						9.7 U	16 U	13.6	9.7 U	15 U
3	N-Nitrosodipropylamine (ug/kg)	3	0	0						9.7 U	16 U	13.6	9.7 U	15 U
3	2,4,5-Trichlorophenol (ug/kg)	3	0	0						15 U	49 U	27	15 U	16 U
3	2,4,6-Trichlorophenol (ug/kg)	3	0	0						15 U	49 U	27	15 U	16 U
3	2,4-Dichlorophenol (ug/kg)	3	0	0						15 U	97 U	43	15 U	16 U
3	2,4-Dinitrophenol (ug/kg)	3	0	0						15 U	290 U	107	15 U	16 U
3	2-Chlorophenol (ug/kg)	3	0	0						15 U	49 U	27	15 U	16 U
3	2-Nitrophenol (ug/kg)	3	0	0						15 U	49 U	27	15 U	16 U
3	4,6-Dinitro-2-methylphenol (ug/kg)	3	0	0						15 U	190 U	74	15 U	16 U
3	4-Chloro-3-methylphenol (ug/kg)	3	0	0						15 U	49 U	27	15 U	16 U
3	4-Nitrophenol (ug/kg)	3	0	0						15 U	97 U	43	15 U	16 U
3	Endrin ketone (ug/kg)	3	0	0						3.4 U	3.7 U	3.5	3.4 U	3.4 U
3	Bis(2-chloro-1-methylethyl) ether (ug/kg)	2	0	0						15 U	16 U	15.5	15 U	15 U
3	Butyltin ion (ug/l)	2	0	0						0.02 U	0.03 U	0.025	0.02 U	0.02 U
3	Dibutyltin ion (ug/l)	2	0	0						0.02 U	0.03 U	0.025	0.02 U	0.02 U
3	Tetrabutyltin (ug/l)	2	0	0						0.02 U	0.03 U	0.025	0.02 U	0.02 U
3	Tributyltin ion (ug/l)	2	0	0						0.02 U	0.03 U	0.025	0.02 U	0.02 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
3	2,4,5-T (ug/kg)	2	0	0						18 U	19 U	18.5	18 U	18 U
3	2,4-D (ug/kg)	2	0	0						18 U	19 U	18.5	18 U	18 U
3	2,4-DB (ug/kg)	2	0	0						18 U	19 U	18.5	18 U	18 U
3	Dalapon (ug/kg)	2	0	0						88 U	96 U	92	88 U	88 U
3	Dicamba (ug/kg)	2	0	0						35 U	38 U	36.5	35 U	35 U
3	Dichloroprop (ug/kg)	2	0	0						18 U	19 U	18.5	18 U	18 U
3	Dinoseb (ug/kg)	2	0	0						18 U	19 U	18.5	18 U	18 U
3	MCPA (ug/kg)	2	0	0						18 U	19 U	18.5	18 U	18 U
3	MCPP (ug/kg)	2	0	0						18 U	19 U	18.5	18 U	18 U
3	Silvex (ug/kg)	2	0	0						18 U	19 U	18.5	18 U	18 U
3	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	1	0	0						2.8 U	2.8 U	2.8	2.8 U	2.8 U
3	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	1	0	0						4.4 U	4.4 U	4.4	4.4 U	4.4 U
3	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	1	0	0						1.7 U	1.7 U	1.7	1.7 U	1.7 U
3	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	0	0						2.1 U	2.1 U	2.1	2.1 U	2.1 U
3	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	1	0	0						0.19 U	0.19 U	0.19	0.19 U	0.19 U
3	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	1	0	0						1.9 U	1.9 U	1.9	1.9 U	1.9 U
3	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	1	0	0						0.89 U	0.89 U	0.89	0.89 U	0.89 U
3	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	0	0						1.1 U	1.1 U	1.1	1.1 U	1.1 U
3	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	1	0	0						1.3 U	1.3 U	1.3	1.3 U	1.3 U
3	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	1	0	0						0.68 U	0.68 U	0.68	0.68 U	0.68 U
3	Beryllium (mg/kg)	1	0	0						1.05 U	1.05 U	1.05	1.05 U	1.05 U
3	Bis(2-chloroisopropyl) ether (ug/kg)	1	0	0						9.7 U	9.7 U	9.7	9.7 U	9.7 U
3	Selenium (mg/kg)	1	0	0						1 U	1 U	1	1 U	1 U
3	Thallium (mg/kg)	1	0	0						1 U	1 U	1	1 U	1 U
3	Carbazole (ug/kg)	1	0	0						9.7 U	9.7 U	9.7	9.7 U	9.7 U
3	Diesel fuels (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Gasoline (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Heavy oil (mg/kg)	1	0	0						25 U	25 U	25	25 U	25 U
3	Jet fuel A (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	JP-4 jet fuel (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Kerosene (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Mineral spirits (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
3	Naphtha distillate (mg/kg)	1	0	0						10 U	10 U	10	10 U	10 U
4	2-Methylnaphthalene (ug/kg)	3	3	100	360	1400	717	360	390	360	1400	717	360	390
4	Acenaphthene (ug/kg)	3	3	100	600	4100	1780	600	640	600	4100	1780	600	640
4	Acenaphthylene (ug/kg)	3	3	100	71	400	188	71	94	71	400	188	71	94
4	Aluminum (mg/kg)	3	3	100	38300	41300	39967	38300	40300	38300	41300	39967	38300	40300
4	Anthracene (ug/kg)	3	3	100	360	3000	1303	360	550	360	3000	1303	360	550
4	Barium (mg/kg)	3	3	100	175	192	186	175	191	175	192	186	175	191
4	Benz(a)anthracene (ug/kg)	3	3	100	600	4200	1897	600	890	600	4200	1897	600	890
4	Benzo(a)pyrene (ug/kg)	3	3	100	770	5700	2467	770	930	770	5700	2467	770	930
4	Benzo(b)fluoranthene (ug/kg)	3	3	100	620	4200	1870	620	790	620	4200	1870	620	790
4	Benzo(b+k)fluoranthene (ug/kg)	3	3	100	1030 A	7100 A	3117	1030 A	1220 A	1030 A	7100 A	3117	1030 A	1220 A
4	Benzo(g,h,i)perylene (ug/kg)	3	3	100	770	4600	2097	770	920	770	4600	2097	770	920
4	Benzo(k)fluoranthene (ug/kg)	3	3	100	410	2900	1247	410	430	410	2900	1247	410	430
4	Beryllium (mg/kg)	3	3	100	0.59	0.65	0.62	0.59	0.63	0.59	0.65	0.62	0.59	0.63

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
4	Cadmium (mg/kg)	3	3	100	0.7	0.8	0.73	0.7	0.7	0.7	0.8	0.7	0.7	0.7
4	Calcium (mg/kg)	3	3	100	8240	8860	8607	8240	8720	8240	8860	8607	8240	8720
4	Chromium (mg/kg)	3	3	100	37.7	39.3	38.3	37.7	37.8	37.7	39.3	38.3	37.7	37.8
4	Chrysene (ug/kg)	3	3	100	800	5300	2400	800	1100	800	5300	2400	800	1100
4	Clay (%)	3	3	100	16.56	17.88	17.3	16.56	17.36	16.56	17.88	17.27	16.56	17.36
4	Cobalt (mg/kg)	3	3	100	16.3	18.4	17.4	16.3	17.4	16.3	18.4	17.4	16.3	17.4
4	Copper (mg/kg)	3	3	100	48.4	57.5	52.1	48.4	50.5	48.4	57.5	52.1	48.4	50.5
4	Dibenz(a,h)anthracene (ug/kg)	3	3	100	150	830	400	150	220	150	830	400	150	220
4	Dibenzofuran (ug/kg)	3	3	100	150	290	227	150	240	150	290	227	150	240
4	Fines (%)	3	3	100	63.41	77.45	72.45	63.41	76.49	63.41	77.45	72.45	63.41	76.49
4	Fluoranthene (ug/kg)	3	3	100	1400	14000	5833	1400	2100	1400	14000	5833	1400	2100
4	Fluorene (ug/kg)	3	3	100	360	2600	1160	360	520	360	2600	1160	360	520
4	Gravel (%)	3	3	100	0.17	1.8	0.74	0.17	0.24	0.17	1.8	0.74	0.17	0.24
4	High Molecular Weight PAH (ug/kg)	3	3	100	8060 A	63930 A	27550	8060 A	10660 A	8060 A	63930 A	27550	8060 A	10660 A
4	Indeno(1,2,3-cd)pyrene (ug/kg)	3	3	100	540	3200	1473	540	680	540	3200	1473	540	680
4	Iron (mg/kg)	3	3	100	39900	42100	41133	39900	41400	39900	42100	41133	39900	41400
4	Lead (mg/kg)	3	3	100	27	41	34	27	34	27	41	34	27	34
4	Low Molecular Weight PAH (ug/kg)	3	3	100	3891 A	31000 A	13465	3891 A	5504 A	3891 A	31000 A	13465	3891 A	5504 A
4	Magnesium (mg/kg)	3	3	100	6630	7150	6947	6630	7060	6630	7150	6947	6630	7060
4	Manganese (mg/kg)	3	3	100	495	587	542	495	545	495	587	542	495	545
4	Mercury (mg/kg)	3	3	100	0.23	0.34	0.28	0.23	0.27	0.23	0.34	0.28	0.23	0.27
4	Naphthalene (ug/kg)	3	3	100	1000	2900	1633	1000	1000	1000	2900	1633	1000	1000
4	Nickel (mg/kg)	3	3	100	30	32.6	31.4	30	31.5	30	32.6	31.4	30	31.5
4	Phenanthrene (ug/kg)	3	3	100	1500	18000	7400	1500	2700	1500	18000	7400	1500	2700
4	Polycyclic Aromatic Hydrocarbons (ug/kg)	3	3	100	11951 A	94930 A	41015	11951 A	16164 A	11951 A	94930 A	41015	11951 A	16164 A
4	Potassium (mg/kg)	3	3	100	1330	1400	1367	1330	1370	1330	1400	1367	1330	1370
4	Pyrene (ug/kg)	3	3	100	2000	19000	7867	2000	2600	2000	19000	7867	2000	2600
4	Sand (%)	3	3	100	22.38	34.79	26.81	22.38	23.27	22.38	34.79	26.8	22.38	23.27
4	Selenium (mg/kg)	3	3	100	8	11	9	8	8	8	11	9	8	8
4	Silt (%)	3	3	100	46.85	60.09	55.18	46.85	58.61	46.85	60.09	55.18	46.85	58.61
4	Silver (mg/kg)	3	3	100	1.3	1.5	1.4	1.3	1.4	1.3	1.5	1.4	1.3	1.4
4	Sodium (mg/kg)	3	3	100	1120 J	1230 J	1167	1120 J	1150 J	1120 J	1230 J	1167	1120 J	1150 J
4	Total organic carbon (%)	3	3	100	2.3	3	2.6	2.3	2.4	2.3	3	2.6	2.3	2.4
4	Vanadium (mg/kg)	3	3	100	98.7	103	101.6	98.7	103	98.7	103	101.6	98.7	103
4	Zinc (mg/kg)	3	3	100	152	255	201	152	196	152	255	201	152	196
4	4-Methylphenol (ug/kg)	3	3	100	230	450	307	230	240	230	450	307	230	240
4	Carbazole (ug/kg)	3	3	100	73 J	370 J	179	73 J	93 J	73 J	370 J	179	73 J	93 J
4	4,4'-DDD (ug/kg)	1	1	100	36 J	36 J	36	36 J	36 J	36 J	36 J	36	36 J	36 J
4	4,4'-DDE (ug/kg)	1	1	100	9.4 J	9.4 J	9.4	9.4 J	9.4 J	9.4 J	9.4 J	9.4	9.4 J	9.4 J
4	4,4'-DDT (ug/kg)	1	1	100	62 J	62 J	62	62 J	62 J	62 J	62 J	62	62 J	62 J
4	Titanium (mg/kg)	1	1	100	1970	1970	1970	1970	1970	1970	1970	1970	1970	1970
4	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	1	1	100	107.4 A	107.4 A	107.4	107.4 A	107.4 A	107.4 A	107.4 A	107.4	107.4 A	107.4 A
4	Bis(2-ethylhexyl) phthalate (ug/kg)	3	2	67	37	220	128.5	37	37	37	220	110	37	73 U
4	Antimony (mg/kg)	3	1	33	5 J	5 J	5	5 J	5 J	4 UJ	5 J	4	4 UJ	4 UJ
4	Arsenic (mg/kg)	3	1	33	5	5	5	5	5	4 U	5 U	5	4 U	5
4	Thallium (mg/kg)	3	1	33	5	5	5	5	5	4 U	5	5	4 U	5 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
4	2,4-Dinitrotoluene (ug/kg)	3	0	0						98 U	370 U	189	98 U	98 U
4	2,6-Dinitrotoluene (ug/kg)	3	0	0						98 U	370 U	189	98 U	98 U
4	2-Chloronaphthalene (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	2-Nitroaniline (ug/kg)	3	0	0						98 U	370 U	189	98 U	98 U
4	3,3'-Dichlorobenzidine (ug/kg)	3	0	0						98 U	370 U	189	98 U	98 U
4	3-Nitroaniline (ug/kg)	3	0	0						120 UJ	440 UJ	227	120 UJ	120 UJ
4	4-Bromophenyl phenyl ether (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	4-Chloroaniline (ug/kg)	3	0	0						59 U	220 U	113	59 U	59 U
4	4-Chlorophenyl phenyl ether (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	4-Nitroaniline (ug/kg)	3	0	0						98 UJ	370 UJ	189	98 UJ	98 UJ
4	Benzoic acid (ug/kg)	3	0	0						200 U	730 U	377	200 U	200 U
4	Benzyl alcohol (ug/kg)	3	0	0						20 UJ	73 UJ	38	20 UJ	20 UJ
4	Bis(2-chloro-1-methylethyl) ether (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Bis(2-chloroethoxy) methane (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Bis(2-chloroethyl) ether (ug/kg)	3	0	0						39 U	150 U	76	39 U	39 U
4	Hexachlorobutadiene (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Hexachlorocyclopentadiene (ug/kg)	3	0	0						98 UJ	370 UJ	189	98 UJ	98 UJ
4	Hexachloroethane (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Isophorone (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Nitrobenzene (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	N-Nitrosodiphenylamine (ug/kg)	3	0	0						20 UJ	73 UJ	38	20 UJ	20 UJ
4	N-Nitrosodipropylamine (ug/kg)	3	0	0						39 U	150 U	76	39 U	39 U
4	1,2,4-Trichlorobenzene (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	1,2-Dichlorobenzene (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	1,3-Dichlorobenzene (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	1,4-Dichlorobenzene (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	2,4,5-Trichlorophenol (ug/kg)	3	0	0						98 U	370 U	189	98 U	98 U
4	2,4,6-Trichlorophenol (ug/kg)	3	0	0						98 U	370 U	189	98 U	98 U
4	2,4-Dichlorophenol (ug/kg)	3	0	0						59 U	220 U	113	59 U	59 U
4	2,4-Dimethylphenol (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	2,4-Dinitrophenol (ug/kg)	3	0	0						200 UJ	730 UJ	377	200 UJ	200 UJ
4	2-Chlorophenol (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	2-Methylphenol (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	2-Nitrophenol (ug/kg)	3	0	0						98 U	370 U	189	98 U	98 U
4	4,6-Dinitro-2-methylphenol (ug/kg)	3	0	0						200 UJ	730 UJ	377	200 UJ	200 UJ
4	4-Chloro-3-methylphenol (ug/kg)	3	0	0						39 U	150 U	76	39 U	39 U
4	4-Nitrophenol (ug/kg)	3	0	0						98 U	370 U	189	98 U	98 U
4	Butylbenzyl phthalate (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Dibutyl phthalate (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Diethyl phthalate (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Dimethyl phthalate (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Di-n-octyl phthalate (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Hexachlorobenzene (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Pentachlorophenol (ug/kg)	3	0	0						98 UJ	370 UJ	189	98 UJ	98 UJ
4	Phenol (ug/kg)	3	0	0						20 U	73 U	38	20 U	20 U
4	Aroclor 1016 (ug/kg)	1	0	0						19 UJ	19 UJ	19	19 UJ	19 UJ

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
4	Aroclor 1221 (ug/kg)	1	0	0						39 UJ	39 UJ	39	39 UJ	39 UJ
4	Aroclor 1232 (ug/kg)	1	0	0						19 UJ	19 UJ	19	19 UJ	19 UJ
4	Aroclor 1242 (ug/kg)	1	0	0						19 UJ	19 UJ	19	19 UJ	19 UJ
4	Aroclor 1248 (ug/kg)	1	0	0						19 UJ	19 UJ	19	19 UJ	19 UJ
4	Aroclor 1254 (ug/kg)	1	0	0						19 UJ	19 UJ	19	19 UJ	19 UJ
4	Aroclor 1260 (ug/kg)	1	0	0						19 UJ	19 UJ	19	19 UJ	19 UJ
4	Butyltin ion (ug/kg)	1	0	0						11 U	11 U	11	11 U	11 U
4	Dibutyltin ion (ug/kg)	1	0	0						11 U	11 U	11	11 U	11 U
4	Polychlorinated biphenyls (ug/kg)	1	0	0						39 UA	39 UA	39	39 UA	39 UA
4	Tetrabutyltin (ug/kg)	1	0	0						11 U	11 U	11	11 U	11 U
4	Tributyltin ion (ug/kg)	1	0	0						11 U	11 U	11	11 U	11 U
4	Aldrin (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	alpha-Chlordane (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	alpha-Endosulfan (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	alpha-Hexachlorocyclohexane (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	beta-Endosulfan (ug/kg)	1	0	0						1.9 UJ	1.9 UJ	1.9	1.9 UJ	1.9 UJ
4	beta-Hexachlorocyclohexane (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	delta-Hexachlorocyclohexane (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	Dieldrin (ug/kg)	1	0	0						1.9 UJ	1.9 UJ	1.9	1.9 UJ	1.9 UJ
4	Endosulfan sulfate (ug/kg)	1	0	0						1.9 UJ	1.9 UJ	1.9	1.9 UJ	1.9 UJ
4	Endrin (ug/kg)	1	0	0						1.9 UJ	1.9 UJ	1.9	1.9 UJ	1.9 UJ
4	Endrin aldehyde (ug/kg)	1	0	0						1.9 UJ	1.9 UJ	1.9	1.9 UJ	1.9 UJ
4	Endrin ketone (ug/kg)	1	0	0						1.9 UJ	1.9 UJ	1.9	1.9 UJ	1.9 UJ
4	gamma-Chlordane (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	gamma-Hexachlorocyclohexane (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	Heptachlor (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	Heptachlor epoxide (ug/kg)	1	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
4	Methoxychlor (ug/kg)	1	0	0						9.6 UJ	9.6 UJ	9.6	9.6 UJ	9.6 UJ
4	Toxaphene (ug/kg)	1	0	0						96 UJ	96 UJ	96	96 UJ	96 UJ
5	Total organic carbon (%)	30	30	100	0.03	3.3	1.47	1.67	2.6	0.03	3.3	1.47	1.67	2.6
5	Chromium (mg/kg)	25	25	100	9	41.4	25.1	25.3	38.2	9	41.4	25.1	25.3	38.2
5	Copper (mg/kg)	25	25	100	13.3	103	42.7	38.4	78.3	13.3	103	42.7	38.4	78.3
5	Lead (mg/kg)	25	25	100	3	576	117.18	27	364	3	576	117	27	364
5	Total solids (%)	25	25	100	46.5	81.4	61.7	57.4	78.3	46.5	81.4	61.7	57.4	78.3
5	Zinc (mg/kg)	25	25	100	37 G	656 G	210	123	535	37 G	656 G	210	123	535
5	Ammonia (mg/kg)	24	24	100	1.4	327	136	142	239	1.4	327	136.0	142	239
5	Total volatile solids (%)	23	23	100	1.73	10.5	5.5	6.13	7.95	1.73	10.5	5.5	6.13	7.95
5	Nickel (mg/kg)	21	21	100	15 G	37.4	23.0	23 G	30	15 G	37.4	23.0	23 G	30
5	Pencil pitch (mg/kg)	16	16	100	21	2300	703	385	2000	21	2300	703	385	2000
5	Total sulfides (mg/kg)	14	14	100	2 G	796 G	120	31.4 G	276 G	2 G	796 G	120	31.4 G	276 G
5	Clay (%)	12	12	100	0.9	17.97	10.0	12.5	17.43	0.9	17.97	10.0	12.5	17.43
5	Fines (%)	12	12	100	3	80.1	51.0	62.9	76.54	3	80.1	51.0	62.9	76.54
5	Silt (%)	12	12	100	2.1	73.4	41.1	50.41	62.4	2.1	73.4	41.1	50.41	62.4
5	Sand (%)	11	11	100	22.98	96.9	51.39	34.24	96.8	22.98	96.9	51.39	34.24	96.8
5	Barium (mg/kg)	8	8	100	129	197	172	175	191	129	197	172	175	191
5	Gravel (%)	7	7	100	0.01	1.14	0.35	0.1	0.55	0.01	1.14	0.35	0.1	0.55

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
5	>10 Phi clay (%)	4	4	100	0	6.8	1.7	0	0	0	6.8	1.7	0	0
5	8-9 Phi clay (%)	4	4	100	0	6.8	2.6	0	3.7	0	6.8	2.6	0	3.7
5	9-10 Phi clay (%)	4	4	100	0	6.8	2.6	0	3.7	0	6.8	2.6	0	3.7
5	Aluminum (mg/kg)	4	4	100	37100	40900	39875	40700	40800	37100	40900	39875	40700	40800
5	Beryllium (mg/kg)	4	4	100	0.54	0.66	0.59	0.56	0.6	0.54	0.66	0.59	0.56	0.6
5	Calcium (mg/kg)	4	4	100	7490	8330	8013	7930	8300	7490	8330	8013	7930	8300
5	Coarse silt (%)	4	4	100	10.7	33.2	23.8	18.4	33	10.7	33.2	23.8	18.4	33
5	Cobalt (mg/kg)	4	4	100	17.2	20.3	18.5	17.3	19.1	17.2	20.3	18.5	17.3	19.1
5	Fine silt (%)	4	4	100	0	7.4	5.3	6.8	6.8	0	7.4	5.3	6.8	6.8
5	Iron (mg/kg)	4	4	100	40200	44100	42000	41100	42600	40200	44100	42000	41100	42600
5	Magnesium (mg/kg)	4	4	100	6510	7100	6845	6760	7010	6510	7100	6845	6760	7010
5	Manganese (mg/kg)	4	4	100	495	684	582	529	619	495	684	582	529	619
5	Medium silt (%)	4	4	100	0	13.6	5.1	0	6.8	0	13.6	5.1	0	6.8
5	Potassium (mg/kg)	4	4	100	1300	1410	1343	1330	1330	1300	1410	1343	1330	1330
5	Sieve 10 (%)	4	4	100	0	1.1	0.45	0.3	0.4	0	1.1	0.45	0.3	0.4
5	Sieve 140 (%)	4	4	100	3	51.7	24.2	14.4	27.7	3	51.7	24.2	14.4	27.7
5	Sieve 20 (%)	4	4	100	0.2	0.4	0.3	0.3	0.4	0.2	0.4	0.3	0.3	0.4
5	Sieve 200 (%)	4	4	100	0.6	5.6	3.0	0.7	5.2	0.6	5.6	3.0	0.7	5.2
5	Sieve 230 (%)	4	4	100	5.6	21.9	12.5	6.8	15.5	5.6	21.9	12.5	6.8	15.5
5	Sieve 4 (%)	4	4	100	0	6	2	0	0.2	0	6	2	0	0.2
5	Sieve 40 (%)	4	4	100	0.5	1.6	0.8	0.5	0.6	0.5	1.6	0.8	0.5	0.6
5	Sieve 60 (%)	4	4	100	0.7	10.7	3.9	1.9	2.3	0.7	10.7	3.9	1.9	2.3
5	Sodium (mg/kg)	4	4	100	1060 J	1230 J	1155	1130 J	1200 J	1060 J	1230 J	1155	1130 J	1200 J
5	Vanadium (mg/kg)	4	4	100	98.2	107	103.6	103	106	98.2	107	103.6	103	106
5	Very fine silt (%)	4	4	100	0	6.8	3.4	0	6.8	0	6.8	3.4	0	6.8
5	Carbazole (ug/kg)	4	4	100	99	1800	622	280 J	310 J	99	1800	622	280 J	310 J
5	Mean grain size (mm)	2	2	100	0.05	0.07	0.06	0.05	0.05	0.05	0.07	0.06	0.05	0.05
5	Median grain size (mm)	2	2	100	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
5	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	1	1	100	67	67	67	67	67	67	67	67	67	67
5	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/kg	1	1	100	380	380	380	380	380	380	380	380	380	380
5	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	1	1	100	12	12	12	12	12	12	12	12	12	12
5	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
5	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	1	100	11	11	11	11	11	11	11	11	11	11
5	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	21	21	21	21	21	21	21	21	21	21
5	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	1	1	100	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
5	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	11	11	11	11	11	11	11	11	11	11
5	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	1	1	100	24	24	24	24	24	24	24	24	24	24
5	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	1	100	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
5	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	1	1	100	10	10	10	10	10	10	10	10	10	10
5	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	1	1	100	19	19	19	19	19	19	19	19	19	19
5	Acid Volatile Sulfides (mg/kg)	1	1	100	17.9 G	17.9 G	17.9	17.9 G	17.9 G	17.9 G	17.9 G	17.9	17.9 G	17.9 G
5	Bromine (ug/kg)	1	1	100	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
5	Chlorine (ug/kg)	1	1	100	610	610	610	610	610	610	610	610	610	610
5	Heptachlorodibenzofuran (ng/kg)	1	1	100	260	260	260	260	260	260	260	260	260	260
5	Heptachlorodibenzo-p-dioxin (ng/kg)	1	1	100	710	710	710	710	710	710	710	710	710	710
5	Hexachlorodibenzofuran (ng/kg)	1	1	100	140	140	140	140	140	140	140	140	140	140

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
5	Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	140	140	140	140	140	140	140	140	140	140
5	Mean grain size (%)	1	1	100	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
5	Median grain size (%)	1	1	100	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
5	Octachlorodibenzofuran (ng/kg)	1	1	100	230	230	230	230	230	230	230	230	230	230
5	Octachlorodibenzo-p-dioxin (ng/kg)	1	1	100	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
5	Pentachlorodibenzofuran (ng/kg)	1	1	100	84	84	84	84	84	84	84	84	84	84
5	Tetrachlorodibenzofuran (ng/kg)	1	1	100	49	49	49	49	49	49	49	49	49	49
5	Tetrachlorodibenzo-p-dioxin (ng/kg)	1	1	100	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
5	Titanium (mg/kg)	1	1	100	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960
5	Tributyltin ion (ug/l)	1	1	100	0.04 G	0.04 G	0.04	0.04 G	0.04 G	0.04 G	0.04 G	0.04	0.04 G	0.04 G
5	Mercury (mg/kg)	25	23	92	0.02	0.33	0.13	0.09	0.21	0.02	0.33	0.12	0.09	0.21
5	Arsenic (mg/kg)	25	22	88	1	15 G	5	4.5	8 G	1	15 G	5	4.5	8 G
5	High Molecular Weight PAH (ug/kg)	29	25	86	920 A	198000 A	51541	8740 A	152700 A	20 UA	198000 A	44567	7360 A	152700 A
5	Polycyclic Aromatic Hydrocarbons (ug/kg)	29	25	86	2003 A	214890 A	57575	10590 A	190000 A	20 UA	214890 A	49769	8485 A	190000 A
5	Pyrene (ug/kg)	29	25	86	215 G	48000	8241	1900	24000	20 U	48000	7239	1840	24000
5	Fluoranthene (ug/kg)	29	24	83	217 G	34000	8413	2300	27000	20 U	34000	7154	1650 U	27000
5	Low Molecular Weight PAH (ug/kg)	29	24	83	108 A	62190 A	6285	1670 A	12770 A	20 UA	62190 A	5475	1290 A	12770 A
5	Phenanthrene (ug/kg)	29	24	83	87	42000	4727	1290	10000	20 U	42000	4185	1100	10000
5	Cadmium (mg/kg)	25	20	80	0.1 G	3.3 G	1.1	0.4	3.2 G	0.1 UG	3.3 G	0.9	0.5 U	2.8
5	Benz(a)anthracene (ug/kg)	29	23	79	74 G	20000	5283	1600	15000	20 U	20000	4405	790 G	15000
5	Benzo(a)pyrene (ug/kg)	29	23	79	81 G	24000	6484	1900	18000	20 U	24000	5357	960	18000
5	Benzo(b)fluoranthene (ug/kg)	29	23	79	63 G	21000	5226	1800	14000	20 U	21000	4360	960 G	14000
5	Benzo(b+k)fluoranthene (ug/kg)	29	23	79	121 A	36000 A	9596	3400 A	26000 A	20 UA	36000 A	7826	1520 A	26000 A
5	Benzo(g,h,i)perylene (ug/kg)	29	23	79	56 G	16000	4362	1300	13000	20 U	16000	3674	660 U	13000
5	Benzo(k)fluoranthene (ug/kg)	29	23	79	58 G	17000	4370	1600	12000	20 U	17000	3681	670	12000
5	Chrysene (ug/kg)	29	23	79	90 G	20000	5411	1800	14000	20 U	20000	4507	860	14000
5	Indeno(1,2,3-cd)pyrene (ug/kg)	29	23	79	55 G	32000	6826	2200	18000	20 U	32000	5628	1100 G	18000
5	4,4'-DDD (ug/kg)	8	6	75	2	32	16	14	23 J	2	43.3 U	18.2	14	32
5	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	8	6	75	4.8 A	479.8 A	99.3	32 A	41 A	4.8 A	479.8 A	80.7	32 A	43.3 UA
5	Silver (mg/kg)	25	18	72	0.12	1.6	0.75	0.4	1.4	0.1 U	2.15 U	0.72	0.4	1.4
5	Polychlorinated biphenyls (ug/kg)	8	5	63	12 A	194 A	69	19 A	85.9 A	12 A	288 UA	106	78 UA	194 A
5	Selenium (mg/kg)	8	5	63	0.93	11	6.6	6	9	0.5 U	11	4.4	1.08 U	9
5	2-Methylnaphthalene (ug/kg)	9	5	56	53	860	411	170 G	730	53	3550 U	916	330 U	1650 U
5	Antimony (mg/kg)	20	10	50	0.03 G	8 J	1.81	0.3 G	6 J	0.02 UG	8 J	1.44	0.2 G	6 J
5	Anthracene (ug/kg)	29	12	41	21	7800	1117	150	1800	20 U	7800	1453	330 U	4000 U
5	4,4'-DDE (ug/kg)	8	3	38	2	13.9	7.2	2	5.8	2	43.3 U	12.7	6.7 U	20.1 U
5	4,4'-DDT (ug/kg)	8	3	38	0.8	460	159.6	0.8	18 J	0.8	460	70.288	6.7 U	43.3 U
5	Aroclor 1260 (ug/kg)	8	3	38	12	32	21	12	19	12	144 U	60.75	67 U	78 UIJ
5	Acenaphthene (ug/kg)	29	9	31	30	5400	1241	148 G	2500	20 U	5400	1412	330 U	4000 U
5	Dibenz(a,h)anthracene (ug/kg)	29	8	28	11 G	4400	937	43	2100	11 G	4400	1305	330 U	4000 U
5	Aroclor 1254 (ug/kg)	8	2	25	85.9	194	140	85.9	85.9	10 U	194	77	67 U	144 U
5	Naphthalene (ug/kg)	29	7	24	84	1900	648	230 G	1500	20 U	4000 U	1198	330 U	4000 U
5	Fluorene (ug/kg)	29	6	21	27	4600	1230	133 G	1700	20 U	4600	1302	330 U	4000 U
5	Bis(2-ethylhexyl) phthalate (ug/kg)	28	5	18	36	420	227	120	380	20 U	21500 U	2245	380	4000 U
5	Dibenzofuran (ug/kg)	29	5	17	42	470	231	85 G	340	20 U	4000 U	1089	220	4000 U
5	4-Methylphenol (ug/kg)	24	4	17	23	280	122	26	160	20 U	4000 U	1031	160	4000 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
5	Methoxychlor (ug/kg)	6	1	17	1 J	1 J	1	1 J	1 J	1 J	43.3 U	16.8	6.7 U	23 UIJ
5	Acenaphthylene (ug/kg)	29	3	10	10 G	490	240	10 G	220	10 G	4000 U	1076	200 U	4000 U
5	m,p-Xylene (ug/kg)	18	1	6	5	5	5	5	5	5 U	10 U	6	5 U	10 U
5	Butylbenzyl phthalate (ug/kg)	28	1	4	240	240	240	240	240	19 U	4000 U	1096	200 U	4000 U
5	Benzoic acid (ug/kg)	28	0	0						100 U	20000 U	5079	1000 U	20000 U
5	Benzyl alcohol (ug/kg)	28	0	0						6 U	3550 U	489	60 U	1200 U
5	Hexachlorobutadiene (ug/kg)	28	0	0						19 U	10800 U	1545	200 U	4000 U
5	N-Nitrosodiphenylamine (ug/kg)	28	0	0						12 U	3550 U	748	120 U	2400 U
5	2,4-Dimethylphenol (ug/kg)	28	0	0						6 U	10800 U	939	60 U	2000 U
5	2-Methylphenol (ug/kg)	28	0	0						6 U	3550 U	489	60 U	1200 U
5	Dibutyl phthalate (ug/kg)	28	0	0						19 U	10800 U	1545	200 U	4000 U
5	Diethyl phthalate (ug/kg)	28	0	0						19 U	4000 U	1094	200 U	4000 U
5	Dimethyl phthalate (ug/kg)	28	0	0						19 U	4000 U	1094	200 U	4000 U
5	Di-n-octyl phthalate (ug/kg)	28	0	0						19 U	4000 U	1094	200 U	4000 U
5	Hexachlorobenzene (ug/kg)	28	0	0						19 U	4000 U	1094	200 U	4000 U
5	Phenol (ug/kg)	28	0	0						19 U	4000 U	1094	200 U	4000 U
5	Pentachlorophenol (ug/kg)	27	0	0						60 U	12000 U	3407	600 U	12000 U
5	1,2-Dichlorobenzene (ug/kg)	24	0	0						1 U	130 U	14	5 U	35 U
5	1,3-Dichlorobenzene (ug/kg)	24	0	0						1 U	130 U	14	5 U	35 U
5	1,4-Dichlorobenzene (ug/kg)	24	0	0						1 U	130 U	14	5 U	35 U
5	Benzene (ug/kg)	18	0	0						5 U	10 U	6	5 U	10 U
5	Ethylbenzene (ug/kg)	18	0	0						5 U	10 U	6	5 U	10 U
5	o-Xylene (ug/kg)	18	0	0						5 U	10 U	6	5 U	10 U
5	Tetrachloroethene (ug/kg)	18	0	0						5 U	10 U	6	5 U	10 U
5	Toluene (ug/kg)	18	0	0						5 U	10 U	6	5 U	10 U
5	Trichloroethene (ug/kg)	18	0	0						5 U	10 U	6	5 U	10 U
5	2,4-Dinitrotoluene (ug/kg)	8	0	0						97 U	21500 U	4831	640 U	10000 U
5	2,6-Dinitrotoluene (ug/kg)	8	0	0						97 U	5380 U	1316	500 U	2500 U
5	2-Chloronaphthalene (ug/kg)	8	0	0						19 U	3550 U	803	130 U	1650 U
5	2-Nitroaniline (ug/kg)	8	0	0						97 U	3550 U	917	330 U	1650 U
5	3,3'-Dichlorobenzidine (ug/kg)	8	0	0						97 U	10800 U	2493	640 U	5000 U
5	3-Nitroaniline (ug/kg)	8	0	0						120 U	10800 U	2524	770 UJ	5000 U
5	4-Bromophenyl phenyl ether (ug/kg)	8	0	0						19 U	3550 U	803	130 U	1650 U
5	4-Chloroaniline (ug/kg)	8	0	0						58 U	21500 U	4774	390 U	10000 U
5	4-Chlorophenyl phenyl ether (ug/kg)	8	0	0						19 U	3550 U	803	130 U	1650 U
5	4-Nitroaniline (ug/kg)	8	0	0						97 U	3550 U	917	330 U	1650 U
5	Aroclor 1016 (ug/kg)	8	0	0						10 U	144 U	49	19 UJ	67 U
5	Aroclor 1221 (ug/kg)	8	0	0						10 U	288 U	95	39 UJ	137 U
5	Aroclor 1232 (ug/kg)	8	0	0						10 U	144 U	49	19 UJ	67 U
5	Aroclor 1242 (ug/kg)	8	0	0						10 U	144 U	49	19 UJ	67 U
5	Aroclor 1248 (ug/kg)	8	0	0						10 U	144 U	49	19 UJ	67 U
5	Bis(2-chloroethoxy) methane (ug/kg)	8	0	0						19 U	3550 U	803	130 U	1650 U
5	Bis(2-chloroethyl) ether (ug/kg)	8	0	0						39 U	3550 U	832	260 U	1650 U
5	Hexachlorocyclopentadiene (ug/kg)	8	0	0						97 UJ	10800 U	2493	640 UJ	5000 U
5	Hexachloroethane (ug/kg)	8	0	0						19 U	10800 U	2379	130 U	5000 U
5	Isophorone (ug/kg)	8	0	0						19 U	3550 U	803	130 U	1650 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
5	Nitrobenzene (ug/kg)	8	0	0						19 U	3550 U	803	130 U	1650 U
5	N-Nitrosodipropylamine (ug/kg)	8	0	0						39 U	3550 U	832	260 U	1650 U
5	2,4,5-Trichlorophenol (ug/kg)	8	0	0						97 U	3550 U	917	330 U	1650 U
5	2,4,6-Trichlorophenol (ug/kg)	8	0	0						97 U	3550 U	917	330 U	1650 U
5	2,4-Dichlorophenol (ug/kg)	8	0	0						58 U	3550 U	860	330 U	1650 U
5	2,4-Dinitrophenol (ug/kg)	8	0	0						190 UJ	3550 U	1064	480 UJ	1650 U
5	2-Chlorophenol (ug/kg)	8	0	0						19 U	3550 U	803	130 U	1650 U
5	2-Nitrophenol (ug/kg)	8	0	0						97 U	3550 U	917	330 U	1650 U
5	4,6-Dinitro-2-methylphenol (ug/kg)	8	0	0						190 U	10800 U	2640	1000 U	5000 U
5	4-Chloro-3-methylphenol (ug/kg)	8	0	0						39 U	3550 U	832	260 U	1650 U
5	4-Nitrophenol (ug/kg)	8	0	0						97 U	10800 U	2493	640 U	5000 U
5	Aldrin (ug/kg)	8	0	0						0.97 UJ	43.3 U	10.40	2 U	20.1 U
5	Dieldrin (ug/kg)	8	0	0						1.9 UJ	43.3 U	10.7	2.3 U	20.1 U
5	gamma-Hexachlorocyclohexane (ug/kg)	8	0	0						0.97 UJ	43.3 U	10.40	2 U	20.1 U
5	Heptachlor (ug/kg)	8	0	0						0.97 UJ	43.3 U	10.40	2 U	20.1 U
5	alpha-Chlordane (ug/kg)	7	0	0						0.97 UJ	43.3 U	11.60	1.7 U	20.1 U
5	alpha-Endosulfan (ug/kg)	6	0	0						0.97 UJ	43.3 U	13.30	6.7 U	20.1 U
5	alpha-Hexachlorocyclohexane (ug/kg)	6	0	0						0.97 UJ	43.3 U	13.30	6.7 U	20.1 U
5	beta-Endosulfan (ug/kg)	6	0	0						1.9 UJ	43.3 U	13.5	6.7 U	20.1 U
5	beta-Hexachlorocyclohexane (ug/kg)	6	0	0						0.97 UJ	43.3 U	13.30	6.7 U	20.1 U
5	delta-Hexachlorocyclohexane (ug/kg)	6	0	0						0.97 UJ	43.3 U	13.30	6.7 U	20.1 U
5	Endosulfan sulfate (ug/kg)	6	0	0						1.9 UJ	43.3 U	13.5	6.7 U	20.1 U
5	Endrin (ug/kg)	6	0	0						1.9 UJ	43.3 U	13.5	6.7 U	20.1 U
5	Endrin aldehyde (ug/kg)	6	0	0						1.9 UJ	43.3 U	13.5	6.7 U	20.1 U
5	Heptachlor epoxide (ug/kg)	6	0	0						0.97 UJ	43.3 U	13.30	6.7 U	20.1 U
5	Toxaphene (ug/kg)	6	0	0						40 U	1290 U	405	200 U	600 U
5	Endrin ketone (ug/kg)	5	0	0						1.9 UJ	43.3 U	15.7	6.7 U	20.1 U
5	Bis(2-chloro-1-methylethyl) ether (ug/kg)	4	0	0						19 U	130 U	58	35 U	48 U
5	Bis(2-chloroisopropyl) ether (ug/kg)	4	0	0						330 U	3550 U	1548	660 U	1650 U
5	Thallium (mg/kg)	4	0	0						4 U	5 U	5	5 U	5 U
5	1,2,4-Trichlorobenzene (ug/kg)	4	0	0						19 U	130 U	58	35 U	48 U
5	3- and 4-Methylphenol Coelution (ug/kg)	4	0	0						330 U	3550 U	1548	660 U	1650 U
5	Chlordane (technical) (ug/kg)	4	0	0						150 U	968 U	430	150 U	450 U
5	trans-Chlordane (ug/kg)	4	0	0						6.7 U	43.3 U	19.2	6.7 U	20.1 U
5	Diesel fuels (mg/kg)	3	0	0						25 U	100 U	75	25 U	100 U
5	gamma-Chlordane (ug/kg)	3	0	0						0.97 UJ	1.7 U	1.46	0.97 UJ	1.7 U
5	Lube Oil (mg/kg)	3	0	0						100 U	100 U	100	100 U	100 U
5	Phytane (mg/kg)	3	0	0						0.5 U	0.5 U	0.5	0.5 U	0.5 U
5	Pristane (mg/kg)	3	0	0						0.5 U	0.5 U	0.5	0.5 U	0.5 U
5	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	1	0	0						62 U	62 U	62	62 U	62 U
5	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	1	0	0						1.5 U	1.5 U	1.5	1.5 U	1.5 U
5	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	1	0	0						0.58 U	0.58 U	0.58	0.58 U	0.58 U
5	Butyltin ion (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
5	Dibutyltin ion (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
5	Pentachlorodibenzo-p-dioxin (ng/kg)	1	0	0						1.5 U	1.5 U	1.5	1.5 U	1.5 U
5	Tetrabutyltin (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
5	Tributyltin ion (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
5	Chlordane (cis & trans) (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
6	Benzo(a)pyrene (ug/kg)	9	9	100	0.5 G	30000	5103	740	11000	0.5 G	30000	5103	740	11000
6	Benzo(b)fluoranthene (ug/kg)	9	9	100	5 G	25000	4312	930	8000	5 G	25000	4312	930	8000
6	Benzo(b+k)fluoranthene (ug/kg)	9	9	100	10 A	32900 A	6273	1440 A	14800 A	10 A	32900 A	6273	1440 A	14800 A
6	Benzo(g,h,i)perylene (ug/kg)	9	9	100	0.7 G	25000	4226	300	9800	0.7 G	25000	4226	300	9800
6	Benzo(k)fluoranthene (ug/kg)	9	9	100	5 G	7900	1962	490	6800	5 G	7900	1962	490	6800
6	Cadmium (mg/kg)	9	9	100	0.05	0.6	0.34	0.3	0.6	0.05	0.6	0.34	0.3	0.6
6	Chromium (mg/kg)	9	9	100	15.1	67.5	32.6	24.3	36.9	15.1	67.5	32.6	24.3	36.9
6	Copper (mg/kg)	9	9	100	13.5	151	49.8	36.5	64	13.5	151	49.8	36.5	64
6	Dibenzofuran (ug/kg)	9	9	100	2 J	1500	496	32	1300	2 J	1500	496	32	1300
6	Fluoranthene (ug/kg)	9	9	100	0.7 G	100000	16706.7	3000 J	33000	0.7 G	100000	16706.7	3000 J	33000
6	High Molecular Weight PAH (ug/kg)	9	9	100	3 A	402800 A	66888	9650 A	134900 A	3 A	402800 A	66888	9650 A	134900 A
6	Lead (mg/kg)	9	9	100	2.8	131	33.9	16	46	2.8	131	33.9	16	46
6	Mercury (mg/kg)	9	9	100	0.03	0.5	0.15	0.07	0.18	0.03	0.5	0.15	0.07	0.18
6	Nickel (mg/kg)	9	9	100	19.2	37 J	27.1	25.1	33 J	19.2	37 J	27.1	25.1	33 J
6	Polycyclic Aromatic Hydrocarbons (ug/kg)	9	9	100	3 A	583600 A	97420	13974 A	204310 A	3 A	583600 A	97420	13974 A	204310 A
6	Pyrene (ug/kg)	9	9	100	0.9 G	130000	20705.7	1500	40000	0.9 G	130000	20705.7	1500	40000
6	Silver (mg/kg)	9	9	100	0.06 E	1.3	0.75	0.49	1.2	0.06 E	1.3	0.75	0.49	1.2
6	Total organic carbon (%)	9	9	100	0.07	4.37	1.68	1.34	2.2	0.07	4.37	1.68	1.34	2.2
6	Zinc (mg/kg)	9	9	100	41.6	213	118.8	91.3	178	41.6	213	118.8	91.3	178
6	Beryllium (mg/kg)	8	8	100	0.41	0.62	0.535	0.56	0.61	0.41	0.62	0.535	0.56	0.61
6	Carbazole (ug/kg)	8	8	100	1 J	730	191.5	50	370	1 J	730	191.5	50	370
6	Fines (%)	6	6	100	0.4	82.42	54.64	61.58	67.22	0.4	82.42	54.64	61.58	67.22
6	Silt (%)	6	6	100	0.4	65.57	43.85	46.63	55.86	0.4	65.57	43.85	46.63	55.86
6	Aluminum (mg/kg)	5	5	100	33800	36700	35060	34400	35400	33800	36700	35060	34400	35400
6	Barium (mg/kg)	5	5	100	164	191	177	175	180	164	191	177	175	180
6	Calcium (mg/kg)	5	5	100	7350	12500	8880	7890	8760	7350	12500	8880	7890	8760
6	Cobalt (mg/kg)	5	5	100	16.6	18.8	18.1	17.6	18.8	16.6	18.8	18.1	17.6	18.8
6	Gravel (%)	5	5	100	0.01	5.6	1.40	0.09	1.13	0.01	5.6	1.40	0.09	1.13
6	Iron (mg/kg)	5	5	100	38900	45300	41480	40300	42100	38900	45300	41480	40300	42100
6	Magnesium (mg/kg)	5	5	100	6030	7560	6726	6610	6730	6030	7560	6726	6610	6730
6	Manganese (mg/kg)	5	5	100	524	704	633	607	668	524	704	633	607	668
6	Potassium (mg/kg)	5	5	100	1130	1270	1190	1140	1220	1130	1270	1190	1140	1220
6	Sand (%)	5	5	100	17.24	46.98	33.06	32.77	35.5	17.24	46.98	33.06	32.77	35.5
6	Sodium (mg/kg)	5	5	100	935	1040	990.2	936	1030	935	1040	990.2	936	1030
6	Titanium (mg/kg)	5	5	100	1790	1950	1870	1800	1940	1790	1950	1870	1800	1940
6	Vanadium (mg/kg)	5	5	100	94.6	102	98.2	96.3	100	94.6	102	98.2	96.3	100
6	Total solids (%)	4	4	100	64.4	77.9	68	64.7	65	64.4	77.9	68	64.7	65
6	Antimony (mg/kg)	3	3	100	0.16	0.56	0.30	0.16	0.19	0.16	0.56	0.30	0.16	0.19
6	Mean grain size (mm)	1	1	100	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
6	Median grain size (mm)	1	1	100	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
6	Total volatile solids (%)	1	1	100	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
6	2-Methylnaphthalene (ug/kg)	9	8	89	3 J	1400	386	77 N	920	3 J	1400	344	60	920
6	Acenaphthene (ug/kg)	9	8	89	10 J	18000	3580	410	7900	5 UG	18000	3183	310	7900
6	Acenaphthylene (ug/kg)	9	8	89	10 J	610	218	74 J	600 J	5 UG	610	194	60	600 J

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
6	Anthracene (ug/kg)	9	8	89	10 J	25000	4166	290	6200	5 UG	25000	3704	170 J	6200
6	Benz(a)anthracene (ug/kg)	9	8	89	100	28000	5160	950	8100	5 UG	28000	4587	870	8100
6	Chrysene (ug/kg)	9	8	89	100	34000	6183	880 N	9300	5 UG	34000	5496	840	9300
6	Fluorene (ug/kg)	9	8	89	8 J	16000	3360	370	6700	5 UG	16000	2987	310	6700
6	Indeno(1,2,3-cd)pyrene (ug/kg)	9	8	89	100 J	21000	4106	380	8900	5 UG	21000	3651	340	8900
6	Low Molecular Weight PAH (ug/kg)	9	8	89	130 A	180800 A	34349	3479 A	69410 A	5 UA	180800 A	30533	3447 A	69410 A
6	Naphthalene (ug/kg)	9	8	89	10 J	2000	574	230	1200	5 UG	2000	510	150	1200
6	Phenanthrene (ug/kg)	9	8	89	82 J	120000	22589	2300	46000	5 UG	120000	20080	2300	46000
6	Clay (%)	6	5	83	9.55	16.85	12.95	11.36	14.95	0.1 U	16.85	10.81	11.36	14.95
6	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	5	4	80	5 A	94 A	30	5.2 A	14.7 A	2 UA	94 A	24	5 A	14.7 A
6	4-Methylphenol (ug/kg)	5	4	80	54 N	120 J	81	64 JN	85	54 N	190 U	103	64 JN	120 J
6	Dibenz(a,h)anthracene (ug/kg)	9	7	78	42 N	1900	537	61 N	1400 N	5 UG	1900	452	61 N	1400 N
6	Benzoic acid (ug/kg)	8	6	75	50 J	580 J	323	240	550	50 J	24000 U	3480	470 J	1900 U
6	Diesel fuels (mg/kg)	3	2	67	570	2800	1685	570	570	97 U	2800	1156	97 U	570
6	Residual Range Organics (mg/kg)	3	2	67	730	2300	1515	730	730	390 U	2300	1140	390 U	730
6	Thallium (mg/kg)	8	5	63	0.06	9	3.24	0.07	7	0.06	9	4.53	4 U	8 U
6	Tributyltin ion (ug/kg)	8	5	63	5 J	1000	258	45	190	1 U	1000	163	6 U	190
6	4,4'-DDD (ug/kg)	5	3	60	2.5 JN	61	23.5	2.5 JN	7 JN	2 U	61	15	2 U	7 JN
6	4,4'-DDT (ug/kg)	5	3	60	4.5 J	33	14.2	4.5 J	5 J	2 U	33	9	2 UJ	5 J
6	Dibutyltin ion (ug/kg)	8	4	50	1	100 J	27	1	7.3 J	1	100 J	16	5.7 UJ	7.3 J
6	Polychlorinated biphenyls (ug/kg)	8	4	50	10 A	104 A	55	30 A	76 A	10 UA	350 UA	80	30 A	104 A
6	Selenium (mg/kg)	8	4	50	8	11	10	10	11	2.2 U	11	6.8	8	11
6	Arsenic (mg/kg)	9	4	44	1.4 E	3.8	3.1	3.6	3.7	1.4 E	8 U	4.6	3.8	8 U
6	4,4'-DDE (ug/kg)	5	2	40	2.7 JN	3.2 JN	3.0	2.7 JN	2.7 JN	2 U	17 U	5	2 U	3.2 JN
6	Aroclor 1260 (ug/kg)	8	3	38	10	76	46	10	51 J	10 U	170 U	48	20 U	76
6	Butyltin ion (ug/kg)	8	3	38	0.6 J	37	17.9	0.6 J	16	0.6 J	37	9.1	5.7 U	16
6	Bis(2-ethylhexyl) phthalate (ug/kg)	8	3	38	20 J	310	177	20 J	200 J	20 J	3000 U	500	140 U	310
6	Butylbenzyl phthalate (ug/kg)	8	3	38	26 N	100 J	51	26 N	28 N	19 U	190 U	55	28 N	100 J
6	Gasoline (mg/kg)	3	1	33	40 J	40 J	40	40 J	40 J	20 U	100 U	53	20 U	40 J
6	Aroclor 1254 (ug/kg)	8	2	25	30	53 J	42	30	30	10 U	170 U	39	10 U	53 J
6	Benzyl alcohol (ug/kg)	8	2	25	5.5 JN	9.4 JN	7.5	5.5 JN	5.5 JN	5.5 JN	3000 U	424.0	20 U	190 U
6	Diethyl phthalate (ug/kg)	8	2	25	3 J	3 J	3	3 J	3 J	3 J	990 U	158	20 U	190 U
6	Phenol (ug/kg)	8	2	25	9 J	26 J	18	9 J	9 J	9 J	3000 U	420	20 U	190 U
6	Tetrabutyltin (ug/kg)	8	1	13	8	8	8	8	8	3 U	8	5	5.7 U	6 U
6	4-Nitrophenol (ug/kg)	8	1	13	600 J	600 J	600	600 J	600 J	94 U	970 U	283	99 U	600 J
6	Dimethyl phthalate (ug/kg)	8	1	13	0.5 J	0.5 J	0.5	0.5 J	0.5 J	0.5 J	590 U	109.3	20 U	190 U
6	2,4-Dinitrotoluene (ug/kg)	8	0	0						73 U	3000 U	563	98 U	970 U
6	2,6-Dinitrotoluene (ug/kg)	8	0	0						29 U	1200 U	327	98 U	970 U
6	2-Chloronaphthalene (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	2-Nitroaniline (ug/kg)	8	0	0						29 U	1200 U	327	98 U	970 U
6	3,3'-Dichlorobenzidine (ug/kg)	8	0	0						94 U	4000 U	708	99 U	970 U
6	3-Nitroaniline (ug/kg)	8	0	0						110 U	12000 U	1783	120 U	1200 U
6	4-Bromophenyl phenyl ether (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	4-Chloroaniline (ug/kg)	8	0	0						57 U	3000 U	495	60 U	580 U
6	4-Chlorophenyl phenyl ether (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	4-Nitroaniline (ug/kg)	8	0	0						94 U	5900 U	945	99 U	970 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
6	Aroclor 1016 (ug/kg)	8	0	0						10 U	170 U	34	13 U	20 U
6	Aroclor 1221 (ug/kg)	8	0	0						10 U	350 U	70	38 UJ	40 U
6	Aroclor 1232 (ug/kg)	8	0	0						10 U	170 U	41	20 U	60 U
6	Aroclor 1242 (ug/kg)	8	0	0						10 U	170 U	37	19 UJ	35 U
6	Aroclor 1248 (ug/kg)	8	0	0						10 U	170 U	34	10 U	20 U
6	Bis(2-chloroethoxy) methane (ug/kg)	8	0	0						19 U	1200 U	191	20 U	190 U
6	Bis(2-chloroethyl) ether (ug/kg)	8	0	0						15 U	590 U	146	39 U	390 U
6	Hexachlorobutadiene (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	Hexachlorocyclopentadiene (ug/kg)	8	0	0						94 U	12000 U	1744	99 U	970 U
6	Hexachloroethane (ug/kg)	8	0	0						19 U	2400 U	348	20 U	190 U
6	Isophorone (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	Nitrobenzene (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	N-Nitrosodiphenylamine (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	N-Nitrosodipropylamine (ug/kg)	8	0	0						15 U	590 U	146	39 U	390 U
6	1,2,4-Trichlorobenzene (ug/kg)	8	0	0						5 U	590 U	110	20 U	190 U
6	1,2-Dichlorobenzene (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	1,3-Dichlorobenzene (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	1,4-Dichlorobenzene (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	2,4,5-Trichlorophenol (ug/kg)	8	0	0						73 U	3000 U	563	98 U	970 U
6	2,4,6-Trichlorophenol (ug/kg)	8	0	0						73 U	3000 U	563	98 U	970 U
6	2,4-Dichlorophenol (ug/kg)	8	0	0						57 U	5900 U	877	60 U	580 U
6	2,4-Dimethylphenol (ug/kg)	8	0	0						19 U	12000 U	1607	20 U	300 U
6	2,4-Dinitrophenol (ug/kg)	8	0	0						190 UJ	18000 U	2696	200 UJ	1900 UJ
6	2-Chlorophenol (ug/kg)	8	0	0						19 U	3000 U	427	20 U	190 U
6	2-Methylphenol (ug/kg)	8	0	0						19 U	12000 U	1607	20 U	300 U
6	2-Nitrophenol (ug/kg)	8	0	0						73 U	3000 U	563	98 U	970 U
6	4,6-Dinitro-2-methylphenol (ug/kg)	8	0	0						190 U	12000 U	1910	200 UJ	1900 U
6	4-Chloro-3-methylphenol (ug/kg)	8	0	0						38 U	3000 U	462	40 U	390 U
6	Dibutyl phthalate (ug/kg)	8	0	0						19 U	1200 U	191	20 U	190 U
6	Di-n-octyl phthalate (ug/kg)	8	0	0						19 U	12000 U	1607	20 U	300 U
6	Hexachlorobenzene (ug/kg)	8	0	0						15 U	590 U	111	20 U	190 U
6	Pentachlorophenol (ug/kg)	8	0	0						94 UJ	18000 U	2530	99 UJ	970 UJ
6	Bis(2-chloro-1-methylethyl) ether (ug/kg)	5	0	0						19 U	190 U	54	20 U	20 U
6	Aldrin (ug/kg)	5	0	0						0.95 UJ	8.7 U	2.73	0.99 U	2 U
6	alpha-Endosulfan (ug/kg)	5	0	0						0.95 UJ	8.7 U	2.73	0.99 U	2 U
6	alpha-Hexachlorocyclohexane (ug/kg)	5	0	0						0.95 UJ	8.7 U	2.73	0.99 U	2 U
6	beta-Endosulfan (ug/kg)	5	0	0						1.9 UJ	17 U	5.0	2 U	2 U
6	beta-Hexachlorocyclohexane (ug/kg)	5	0	0						0.95 UJ	8.7 U	2.73	0.99 U	2 U
6	delta-Hexachlorocyclohexane (ug/kg)	5	0	0						0.95 UJ	8.7 U	2.73	0.99 UJ	2 U
6	Dieldrin (ug/kg)	5	0	0						1.9 UJ	17 U	5.0	2 U	2 U
6	Endosulfan sulfate (ug/kg)	5	0	0						1.9 UJ	17 U	5.0	2 U	2 U
6	Endrin (ug/kg)	5	0	0						1.9 UJ	17 U	5.0	2 U	2 U
6	Endrin aldehyde (ug/kg)	5	0	0						1.9 UJ	17 U	5.0	2 U	2 U
6	gamma-Hexachlorocyclohexane (ug/kg)	5	0	0						0.95 UJ	8.7 U	2.73	0.99 U	2 U
6	Heptachlor (ug/kg)	5	0	0						0.95 UJ	8.7 U	2.73	0.99 U	2 U
6	Heptachlor epoxide (ug/kg)	5	0	0						0.95 UJ	8.7 U	2.73	0.99 U	2 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
6	Methoxychlor (ug/kg)	5	0	0						4 U	87 U	24	9.5 UJ	9.9 U
6	Toxaphene (ug/kg)	5	0	0						30 U	870 U	239	95 UJ	99 U
6	alpha-Chlordane (ug/kg)	4	0	0						0.95 UJ	8.7 U	2.91	0.99 U	0.99 U
6	Endrin ketone (ug/kg)	4	0	0						2 U	17 U	7	2 U	5.5 UIJ
6	gamma-Chlordane (ug/kg)	4	0	0						0.95 UJ	8.7 U	3.06	0.99 U	1.6 UI
6	Bis(2-chloroisopropyl) ether (ug/kg)	3	0	0						15 U	590 U	207	15 U	15 U
6	3- and 4-Methylphenol Coelution (ug/kg)	3	0	0						290 U	12000 U	4197	290 U	300 U
6	Acid Volatile Sulfides (mg/kg)	1	0	0						0.7 UG	0.7 UG	0.7	0.7 UG	0.7 UG
6	Chlordane (cis & trans) (ug/kg)	1	0	0						10 U	10 U	10	10 U	10 U
7	Total solids (%)	78	78	100	40.3	81.4	57.6	54.9	76.2	40.3	81.4	57.6	54.9	76.2
7	Lead (mg/kg)	72	72	100	2.28	416	39.10	26.1	64	2.28	416	39.10	26.1	64
7	Fines (%)	49	49	100	0	95.8	55.5	74.7	93	0	95.8	55.5	74.7	93
7	Sand (%)	47	47	100	4.2	98.3	40.2	20.9	94.9	4.2	98.3	40.2	20.9	94.9
7	Chromium (mg/kg)	41	41	100	12.1	64 J	28.4	27 J	41.3	12.1	64 J	28.4	27 J	41.3
7	Copper (mg/kg)	41	41	100	14	100	39	35 M	71.6	14	100	39	35 M	71.6
7	Zinc (mg/kg)	41	41	100	37 J	450 J	127	102 J	260 J	37 J	450 J	127	102 J	260 J
7	Gravel (%)	33	33	100	0	66.41	8.88	1	41.8	0	66.41	8.88	1	41.8
7	Silt (%)	29	29	100	1.6	85.3	52.6	63.52	78.3	1.6	85.3	52.6	63.52	78.3
7	Nickel (mg/kg)	26	26	100	14.8	36.2	25.2	25	31.3	14.8	36.2	25.2	25	31.3
7	Total volatile solids (%)	19	19	100	0.9	18.3	7.6	8.1	10	0.9	18.3	7.6	8.1	10
7	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/kg	13	13	100	29	25000 J	3640	270	11000	29	25000 J	3640	270	11000
7	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	13	13	100	1.8	1300	178.2	21	360	1.8	1300	178.2	21	360
7	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	13	13	100	0.32	150	55.07	49	130	0.32	150	55.07	49	130
7	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	13	13	100	0.76	230	52.70	36	86	0.76	230	52.70	36	86
7	Mean grain size (%)	13	13	100	0.01	0.06	0.02	0.02	0.03	0.01	0.06	0.02	0.02	0.03
7	Median grain size (%)	13	13	100	0.01	0.02	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.02
7	Octachlorodibenzofuran (ng/kg)	13	13	100	31	7600 J	1754	210	6800 J	31	7600 J	1754	210	6800 J
7	Octachlorodibenzo-p-dioxin (ng/kg)	13	13	100	180	92000 J	15161	3400 B	43000 J	180	92000 J	15161	3400 B	43000 J
7	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	12	12	100	13	3300 J	557	85 J	2300	13	3300 J	557	85 J	2300
7	Mercury (mg/kg)	8	8	100	0.02	0.56	0.17	0.11	0.18	0.02	0.56	0.17	0.11	0.18
7	Mean grain size (mm)	6	6	100	0.02	10.01	1.96	0.12	1.24	0.02	10.01	1.96	0.12	1.24
7	Median grain size (mm)	6	6	100	0.01	1.57	0.36	0.08	0.35	0.01	1.57	0.36	0.08	0.35
7	Aluminum (mg/kg)	5	5	100	19000	43100	34860	34100	42400	19000	43100	34860	34100	42400
7	Barium (mg/kg)	5	5	100	189	200	193	190	195	189	200	193	190	195
7	Beryllium (mg/kg)	5	5	100	0.47	0.74	0.63	0.6	0.7	0.47	0.74	0.63	0.6	0.7
7	Calcium (mg/kg)	5	5	100	5900	8450	7660	7440	8380	5900	8450	7660	7440	8380
7	Cobalt (mg/kg)	5	5	100	16	24.6	19.0	16.9	20.4	16	24.6	19.0	16.9	20.4
7	Iron (mg/kg)	5	5	100	38000	53900	43620	38200	44700	38000	53900	43620	38200	44700
7	Magnesium (mg/kg)	5	5	100	4900	7160	6296	5870	7010	4900	7160	6296	5870	7010
7	Manganese (mg/kg)	5	5	100	441	863	653	552	771	441	863	653	552	771
7	Potassium (mg/kg)	5	5	100	1000	1400	1204	1070	1350	1000	1400	1204	1070	1350
7	Sodium (mg/kg)	5	5	100	380	1230 J	954	932 J	1180 J	380	1230 J	954	932 J	1180 J
7	Vanadium (mg/kg)	5	5	100	84	136	107	99.7	111	84	136	107	99.7	111
7	Heavy oil (mg/kg)	5	5	100	160	910	404	280	380	160	910	404	280	380
7	Hexachlorodibenzofuran (ng/kg)	2	2	100	210	770	490	210	210	210	770	490	210	210
7	Pentachlorodibenzofuran (ng/kg)	2	2	100	150	240	195	150	150	150	240	195	150	150

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Titanium (mg/kg)	2	2	100	2090	2850	2470	2090	2090	2090	2850	2470	2090	2090
7	Bromine (ug/kg)	1	1	100	12	12	12	12	12	12	12	12	12	12
7	Chlorine (ug/kg)	1	1	100	1780	1780	1780	1780	1780	1780	1780	1780	1780	1780
7	Heptachlorodibenzofuran (ng/kg)	1	1	100	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
7	Heptachlorodibenzo-p-dioxin (ng/kg)	1	1	100	3400	3400	3400	3400	3400	3400	3400	3400	3400	3400
7	Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	340	340	340	340	340	340	340	340	340	340
7	Tetrachlorodibenzofuran (ng/kg)	1	1	100	91	91	91	91	91	91	91	91	91	91
7	Tetrachlorodibenzo-p-dioxin (ng/kg)	1	1	100	34	34	34	34	34	34	34	34	34	34
7	Total organic carbon (%)	44	43	98	0.06	37	3.53	1.9	8.76	0.05 U	37	3.45	1.9	8.76
7	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	44	41	93	2.2 A	2190 A	325.7	90 A	800 A	2.2 A	2190 A	305.9	90 A	800 A
7	Clay (%)	29	27	93	0.29	26	12.90	15.2	19.4	0.1 U	26	12.0	14.5	19.4
7	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	13	12	92	0.71 J	190	52.06	26 J	130	0.71 J	190	53.05	26 J	130
7	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg)	13	12	92	1.5 T	180	39.5	5.6	150 J	1.4 U	180	36.5	5.1	150 J
7	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	13	12	92	2	210	49	9.5 J	160	2	210	45	9.1 J	160
7	Polycyclic Aromatic Hydrocarbons (ug/kg)	109	100	92	3.4 A	6192000 A	399731	58600 A	1E+06 A	3 UA	6192000 A	366729	44900 A	1E+06 A
7	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	12	11	92	5 J	1000	253	93	650	5 J	1000	243	110 J	650
7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	12	11	92	3.1	990	177.2	15	500 J	3.1 U	990	162.7	15	500 J
7	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	12	11	92	2	84	37	30	62	0.3 U	84	33.6	30	62
7	4,4'-DDD (ug/kg)	44	40	91	0.2	2000	273.7	60	1200	0.2	2000	252.5	60	760
7	High Molecular Weight PAH (ug/kg)	109	99	91	2 A	2063000 A	166227	36410 A	740700 A	2 A	2063000 A	150981	27610 A	706000 A
7	Arsenic (mg/kg)	41	37	90	1.1	11 M	3.5	3.2	5.2 J	1.1	11 M	3.7	3.4	5.2 J
7	Fluoranthene (ug/kg)	109	98	90	6 J	540000	45159	8410	180000	2 U	540000	40603	6680	174000
7	Pyrene (ug/kg)	109	98	90	8.5	670000	51883	10600	213000	2 U	670000	46649	8110	210000
7	Cadmium (mg/kg)	8	7	88	0.09	0.6	0.39	0.33	0.6	0.09	0.7 U	0.43	0.4	0.6
7	Silver (mg/kg)	8	7	88	0.06 E	1.6	0.77	0.35	1.3	0.06 E	1.6	0.795	0.7	1.3
7	Benzo(b)fluoranthene (ug/kg)	91	79	87	5 G	160000	10239	2940	40300	2 U	160000	8892	2480	33000
7	2-Methylnaphthalene (ug/kg)	45	39	87	0.6 G	51000 JM	7579	2600	25600	0.6 G	51000 JM	6608.4	2090	21600
7	Low Molecular Weight PAH (ug/kg)	109	94	86	1.4 A	4977000 A	250177	25330 A	631400 A	1.4 A	4977000 A	215752	15070 A	547200 A
7	Benzo(k)fluoranthene (ug/kg)	91	78	86	4 J	92000	8056	2540	35000	3 U	92000	6910	1770	30000
7	Chrysene (ug/kg)	109	93	85	4 J	180000	15333	4330	66000	3 U	180000	13085	2990	52000
7	Phenanthrene (ug/kg)	109	93	85	5 J	1300000	94086	16000	380000	2 U	1300000	80278	8110	330000
7	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	13	11	85	2.5	48	16.1	11	22	0.4 U	48	13.7	10	22
7	Chromium hexavalent (mg/kg)	6	5	83	0.1 G	0.6 G	0.302	0.14 G	0.35 G	0.1 G	0.6 G	0.3	0.14 G	0.35 G
7	Benzo(b+k)fluoranthene (ug/kg)	109	90	83	4 A	217000 A	16897	5470 A	70300 A	3 UA	217000 A	13956	2880 A	66000 A
7	Benz(a)anthracene (ug/kg)	109	88	81	3 J	150000	13516	4290	52700	2 U	150000	10917	2340	48000
7	Benzo(a)pyrene (ug/kg)	109	88	81	0.6 G	180000	13179	3330	58000	0.6 G	180000	10663	1490	39100
7	Selenium (mg/kg)	5	4	80	6	14	10.75	10	13	0.45 UJ	14	8.69	6	13
7	Bis(2-ethylhexyl) phthalate (ug/kg)	5	4	80	48	1700 M	554.5	210	260	48	1700 M	461	86 UJ	260
7	Acenaphthene (ug/kg)	109	85	78	4 J	580000 J	37331	4000	86000	2 UJ	580000 J	29119	1670	85000
7	Cyanide (mg/kg)	18	14	78	0.2 J	5.4	1.7	1	3.7	0.2 U	5.4	1.4	0.9	3.7
7	o-Xylene (ug/kg)	18	14	78	0.02 J	4	0.45	0.09 J	0.84	0.008 U	4	0.348	0.04 J	0.84
7	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	13	10	77	0.9 T	50	14.3	3.6 T	40 J	0.6 U	50	11.3	2.1 T	40 J
7	Anthracene (ug/kg)	109	83	76	2 J	250000	20525	4980	72000	2 U	250000	15637	1490	63400
7	Naphthalene (ug/kg)	109	82	75	0.6 G	2900000 J	94231	1900 J	100000 J	0.6 G	2900000 J	70900	580	100000
7	Fluorene (ug/kg)	109	80	73	33	500000	25798	4040	81000	2 U	500000	18946	1150	70000 JM
7	Dibenzofuran (ug/kg)	45	33	73	5 G	32000 JM	1943	700	3600	5 G	32000 JM	1505	390	3120

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Benzo(g,h,i)perylene (ug/kg)	108	79	73	0.8 G	140000	10833	3080	47000	0.8 G	140000	8082	1500 M	39000
7	4,4'-DDE (ug/kg)	44	32	73	2 J	70	20	9 J	40	2 U	70	21	8 J	60 U
7	Indeno(1,2,3-cd)pyrene (ug/kg)	109	79	72	0.8 G	90000	8708	2860	40900	0.7 U	90000	6579	1300	32000
7	Acid Volatile Sulfides (mg/kg)	3	2	67	19	34 G	27	19	19	0.7 UG	34 G	18	0.7 UG	19
7	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	13	8	62	0.79 T	11	4.57	1.7 T	10	0.4 U	11	3.83	1.7 T	10
7	4-Methylphenol (ug/kg)	5	3	60	34	160	108	34	130	34	1400 U	367	110 U	160
7	m,p-Xylene (ug/kg)	18	10	56	0.03 J	5.1	0.72	0.1 J	1.2	0.02 U	5.1	0.41	0.04 U	1.2
7	Dibenz(a,h)anthracene (ug/kg)	109	60	55	3	16000	1767	850	7070	2 U	75000 U	1955	300 U	6600
7	alpha-Hexachlorocyclohexane (ug/kg)	44	23	52	1 J	30	6	3 J	10	0.94 U	30	4.01	2 J	10
7	Polychlorinated biphenyls (ug/kg)	6	3	50	21 A	78 A	52	21 A	57 A	10 UA	78 A	40	34 UJ	57 A
7	Pentachlorodibenzo-p-dioxin (ng/kg)	2	1	50	3.8	3.8	3.8	3.8	3.8	1.6 U	3.8	2.7	1.6 U	1.6 U
7	Ethylbenzene (ug/kg)	27	13	48	0.05 J	6200	578.60	0.28	1300	0.009 U	6200	356	0.28	300 U
7	4,4'-DDT (ug/kg)	44	21	48	2	690	84	40	150	1 U	690	58	40	150
7	Benzo(e)pyrene (ug/kg)	17	8	47	71	15000	3010	300	3600 M	12 U	15000	1431	19 U	3600 M
7	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	13	6	46	0.96	4.3	2.28	1.2	3 J	0.4 U	8.7 U	2.1	0.96	4.3
7	Acenaphthylene (ug/kg)	109	45	41	0.2 G	28000	2211	700	7400	0.2 G	28000	1071	300 U	4200
7	Aroclor 1260 (ug/kg)	5	2	40	21	52	36.5	21	21	10 U	52	30.6	20 UJ	50 UI
7	Benzoic acid (ug/kg)	5	2	40	400	1000	700	400	400	200 U	3600 U	1260	400	1100 U
7	Thallium (mg/kg)	5	2	40	1.5	9	5.25	1.5	1.5	1.5	9	5.5	4 U	8 U
7	gamma-Hexachlorocyclohexane (ug/kg)	44	16	36	2 J	360	80	20	300	0.94 U	360	30	1 U	160
7	Benzene (ug/kg)	27	8	30	0.03 J	1800	226	0.04 J	6.4	0.01 U	1800	156	0.03 J	300 U
7	Aldrin (ug/kg)	44	12	27	4 J	9 J	6	5 J	9 J	0.94 U	90 U	9	2 U	30 U
7	Carbazole (ug/kg)	22	6	27	36	23000	4946	660	5000	20 U	23000	1605	36	2400 U
7	Natural gasoline (mg/kg)	8	2	25	44	110	77	44	44	10 U	110	33	20 U	44
7	Tributyltin ion (ug/kg)	9	2	22	67	360	214	67	67	3 UH	360	50	3 UH	67
7	Xylene (ug/kg)	9	2	22	1300	6000	3650	1300	1300	300 U	6000	1044	300 U	1300
7	Antimony (mg/kg)	5	1	20	5.3 J	5.3 J	5.3	5.3 J	5.3 J	4 UJ	8 UJ	5	5 UJ	5.3 J
7	Aroclor 1242 (ug/kg)	5	1	20	26	26	26	26	26	10 U	26	17	10 U	20 UJ
7	Aroclor 1254 (ug/kg)	5	1	20	57	57	57	57	57	10 U	57	21	10 U	20 UJ
7	N-Nitrosodiphenylamine (ug/kg)	5	1	20	3800 M	3800 M	3800	3800 M	3800 M	20 U	3800 M	797	20 UJ	110 U
7	Diesel fuels (mg/kg)	5	1	20	50 G	50 G	50	50 G	50 G	50 U	50 G	50	50 U	50 U
7	Heptachlor epoxide (ug/kg)	44	8	18	2 J	10	7	7 J	10	0.94 U	60 U	10	2 U	30 U
7	Toluene (ug/kg)	27	4	15	0.03 J	0.3 J	0.11	0.03 J	0.07 J	0.01 U	300 U	100.03	0.02 U	300 U
7	delta-Hexachlorocyclohexane (ug/kg)	44	6	14	2 J	8 J	4	3 J	6 J	0.94 UJ	30 U	2.89	2 U	5 J
7	Endrin (ug/kg)	44	4	9	4 J	10	7	5	9 J	0.9 UG	60 U	9	2 U	60 U
7	Heptachlor (ug/kg)	44	4	9	2 J	6 J	5	5 J	5 J	0.94 U	40 U	2.32	1 U	5 J
7	beta-Endosulfan (ug/kg)	44	3	7	6 J	30	14	6 J	7 J	1 U	60 U	11	1 U	60 U
7	Pentachlorophenol (ug/kg)	42	2	5	120 J	1700	910	120 J	120 J	2.4 U	19000 U	1372	134 U	1900 U
7	2,4-Dichlorophenol (ug/kg)	22	1	5	140	140	140	140	140	59 U	26000 UJ	2604	140	12000 U
7	alpha-Endosulfan (ug/kg)	44	1	2	6 J	6 J	6	6 J	6 J	0.94 U	60 U	5.26	1 U	6 J
7	Dieldrin (ug/kg)	44	1	2	3 J	3 J	3	3 J	3 J	1.9 U	60 U	7	2 U	60 U
7	Endrin aldehyde (ug/kg)	44	1	2	2 J	2 J	2	2 J	2 J	1 UG	60 U	10	1 U	60 U
7	beta-Hexachlorocyclohexane (ug/kg)	44	0	0						0.94 U	3.4 UJ	1.96	2 U	2 U
7	Endosulfan sulfate (ug/kg)	44	0	0						1.9 U	60 U	10.6	2 U	60 U
7	Methoxychlor (ug/kg)	44	0	0						4 UG	300 U	42	5 U	200 U
7	Toxaphene (ug/kg)	44	0	0						30 U	6000 U	1955	2000 U	4000 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Chlordane (cis & trans) (ug/kg)	40	0	0						10 U	1000 U	216	21 U	900 U
7	Hexachlorobutadiene (ug/kg)	22	0	0						20 U	13000 U	1344	68 U	6100 UJ
7	2,4,5-Trichlorophenol (ug/kg)	22	0	0						2.4 U	12000 U	888	140 U	1300 U
7	2,4,6-Trichlorophenol (ug/kg)	22	0	0						2.4 U	6100 U	467	88 U	650 U
7	Hexachlorobenzene (ug/kg)	22	0	0						20 U	5200 U	539	35 U	2400 U
7	2,3,4,5-Tetrachlorophenol (ug/kg)	18	0	0						2.4 U	6100 U	521	68 U	900 U
7	2,3,4,6-Tetrachlorophenol (ug/kg)	18	0	0						2.4 U	6100 U	521	68 U	900 U
7	2,6-Dichlorophenol (ug/kg)	18	0	0						120 U	26000 U	3151	180 U	12000 U
7	Anthanthrene (ug/kg)	17	0	0						59 U	13000 U	1373	88 U	6100 U
7	Butyltin ion (ug/kg)	9	0	0						3 UGH	5.9 U	3.9	3 UGH	5.9 U
7	Dibutyltin ion (ug/kg)	9	0	0						3 UH	5.9 U	3.9	3 UH	5.9 U
7	2,4-Dinitrotoluene (ug/kg)	5	0	0						98 U	720 U	323	98 U	530 U
7	2,6-Dinitrotoluene (ug/kg)	5	0	0						98 U	530 U	251	98 U	360 U
7	2-Chloronaphthalene (ug/kg)	5	0	0						20 U	110 U	51	20 U	72 U
7	2-Nitroaniline (ug/kg)	5	0	0						98 U	7200 U	1619	98 U	530 U
7	3,3'-Dichlorobenzidine (ug/kg)	5	0	0						98 U	530 U	207	98 U	170 U
7	3-Nitroaniline (ug/kg)	5	0	0						120 U	7200 U	1656	120 UJ	630 U
7	4-Bromophenyl phenyl ether (ug/kg)	5	0	0						20 U	360 U	109	20 U	110 U
7	4-Chloroaniline (ug/kg)	5	0	0						59 U	1400 U	388	59 U	320 U
7	4-Chlorophenyl phenyl ether (ug/kg)	5	0	0						20 U	140 U	65	20 U	110 U
7	4-Nitroaniline (ug/kg)	5	0	0						98 U	7200 U	1619	98 UJ	530 U
7	Aroclor 1016 (ug/kg)	5	0	0						10 U	20 UJ	14	10 U	19 U
7	Aroclor 1221 (ug/kg)	5	0	0						10 U	39 UJ	22	10 UG	38 U
7	Aroclor 1232 (ug/kg)	5	0	0						10 U	20 UJ	14	10 UG	19 U
7	Aroclor 1248 (ug/kg)	5	0	0						10 U	20 UJ	14	10 U	19 U
7	Benzyl alcohol (ug/kg)	5	0	0						20 U	720 U	181	20 UJ	110 U
7	Bis(2-chloroethoxy) methane (ug/kg)	5	0	0						20 U	110 U	51	20 U	72 U
7	Bis(2-chloroethyl) ether (ug/kg)	5	0	0						39 U	210 U	99	39 U	140 U
7	Hexachloroethane (ug/kg)	5	0	0						20 U	720 UJ	181	20 U	110 U
7	Isophorone (ug/kg)	5	0	0						20 U	110 U	51	20 U	72 U
7	Nitrobenzene (ug/kg)	5	0	0						20 U	360 U	109	20 U	110 U
7	N-Nitrosodipropylamine (ug/kg)	5	0	0						39 U	720 U	215	39 U	210 U
7	1,2,4-Trichlorobenzene (ug/kg)	5	0	0						20 U	360 U	109	20 U	110 U
7	1,2-Dichlorobenzene (ug/kg)	5	0	0						20 U	140 UJ	65	20 U	110 U
7	1,3-Dichlorobenzene (ug/kg)	5	0	0						20 U	140 UJ	65	20 U	110 U
7	1,4-Dichlorobenzene (ug/kg)	5	0	0						20 U	140 UJ	65	20 U	110 U
7	2,4-Dimethylphenol (ug/kg)	5	0	0						20 U	140 U	65	20 U	110 U
7	2-Chlorophenol (ug/kg)	5	0	0						20 U	360 U	109	20 U	110 U
7	2-Methylphenol (ug/kg)	5	0	0						20 U	1400 U	317	20 U	110 U
7	2-Nitrophenol (ug/kg)	5	0	0						98 U	530 U	251	98 U	360 U
7	4,6-Dinitro-2-methylphenol (ug/kg)	5	0	0						200 U	1400 U	650	200 UJ	1100 U
7	4-Chloro-3-methylphenol (ug/kg)	5	0	0						39 U	720 U	215	39 U	210 U
7	4-Nitrophenol (ug/kg)	5	0	0						98 U	720 UJ	323	98 U	530 U
7	Butylbenzyl phthalate (ug/kg)	5	0	0						20 U	110 U	51	20 U	72 U
7	Dibutyl phthalate (ug/kg)	5	0	0						20 U	110 U	51	20 U	72 U
7	Diethyl phthalate (ug/kg)	5	0	0						20 U	110 U	51	20 U	72 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
7	Dimethyl phthalate (ug/kg)	5	0	0						20 U	110 U	51	20 U	72 U
7	Di-n-octyl phthalate (ug/kg)	5	0	0						20 U	110 U	51	20 U	72 U
7	Lube Oil (mg/kg)	5	0	0						100 U	100 U	100	100 U	100 U
7	Phenol (ug/kg)	5	0	0						20 U	720 U	181	20 U	110 U
7	Bis(2-chloro-1-methylethyl) ether (ug/kg)	4	0	0						20 U	110 U	46	20 U	35 U
7	Hexachlorocyclopentadiene (ug/kg)	4	0	0						98 UJ	530 UJ	224	98 UJ	170 UJ
7	2,4-Dinitrophenol (ug/kg)	4	0	0						200 UJ	1100 UJ	463	200 UJ	350 UJ
7	alpha-Chlordane (ug/kg)	4	0	0						0.94 UJ	3.4 UJ	1.57	0.96 U	0.98 UJ
7	Endrin ketone (ug/kg)	4	0	0						1.9 U	3.4 UJ	2.6	2 UJ	3.1 UIJ
7	gamma-Chlordane (ug/kg)	4	0	0						0.96 U	3.4 UJ	1.61	0.98 UJ	1.1 UI
7	Tetrabutyltin (ug/kg)	3	0	0						5.7 U	5.9 U	5.8	5.7 U	5.9 U
7	Bis(2-chloroisopropyl) ether (ug/kg)	1	0	0						1400 U	1400 U	1400	1400 U	1400 U
8	Total solids (%)	52	52	100	44.2	87.5	63.0	62.5	86.2	44.2	87.5	63.0	62.5	86.2
8	Chromium (mg/kg)	50	50	100	10	64 J	31	32	44	10	64 J	31	32	44
8	Fines (%)	45	45	100	0.13	93.3	51.2	65.6	89.72	0.13	93.3	51.2	65.6	89.72
8	Copper (mg/kg)	42	42	100	12	579	67	42	141	12	579	67	42	141
8	Zinc (mg/kg)	30	30	100	35	579 G	134	97.8	243	35	579 G	134	97.8	243
8	Nickel (mg/kg)	25	25	100	15.2	87	31	29	34	15.2	87	30.9	29	34
8	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	19	19	100	4.2 A	51000 A	6795	1270 A	22556 A	4.2 A	51000 A	6795	1270 A	22556 A
8	Barium (mg/kg)	13	13	100	67.1	330	191	184	281	67.1	330	191	184	281
8	Aluminum (mg/kg)	12	12	100	34400	44100	39325	37900	43900	34400	44100	39325	37900	43900
8	Calcium (mg/kg)	12	12	100	4310	13800	8524	8500	8920	4310	13800	8524	8500	8920
8	Cobalt (mg/kg)	12	12	100	16.2	19.8	17.9	17.5	19.6	16.2	19.8	17.9	17.5	19.6
8	Iron (mg/kg)	12	12	100	36100	45700	41183	39900	44200	36100	45700	41183	39900	44200
8	Magnesium (mg/kg)	12	12	100	5670	7670	7046	7300	7580	5670	7670	7046	7300	7580
8	Manganese (mg/kg)	12	12	100	344	846	634	558	836	344	846	634	558	836
8	Potassium (mg/kg)	12	12	100	1130	1420	1298	1280	1410	1130	1420	1298	1280	1410
8	Sodium (mg/kg)	12	12	100	948	57800 J	6233	1080 J	4480 J	948	57800 J	6233	1080 J	4480 J
8	Vanadium (mg/kg)	12	12	100	93.5	107	102	102	107	93.5	107	102	102	107
8	Titanium (mg/kg)	8	8	100	1800	2020	1923	1940	1960	1800	2020	1923	1940	1960
8	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	4	4	100	1.6	5400	1463	180	270	1.6	5400	1463	180	270
8	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/kg	4	4	100	13 J	1100 J	403	210	290	13 J	1100 J	403	210	290
8	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	4	4	100	0.44	22000 J	5694	77	700	0.44	22000 J	5694	77	700
8	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	4	4	100	0.46	22	14.62	17	19 J	0.46	22	14.62	17	19 J
8	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg)	4	4	100	0.95 J	13	7.46	7.3 J	8.6	0.95 J	13	7.46	7.3 J	8.6
8	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	4	4	100	0.51	1300	334	17	18	0.51	1300	334	17	18
8	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	4	4	100	1.9	11000	2768	9.5	61	1.9	11000	2768	9.5	61
8	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	4	4	100	0.28	15000	3778	1.2 J	110	0.28	15000	3778	1.2 J	110
8	Octachlorodibenzofuran (ng/kg)	4	4	100	6.8	4900	1524	530	660	6.8	4900	1524	530	660
8	Octachlorodibenzo-p-dioxin (ng/kg)	4	4	100	92 J	4500 J	2348	2100	2700	92 J	4500 J	2348	2100	2700
8	Chromium hexavalent (mg/kg)	2	2	100	0.4 G	0.57 G	0.49	0.4 G	0.4 G	0.4 G	0.57 G	0.49	0.4 G	0.4 G
8	Bromine (ug/kg)	1	1	100	13	13	13	13	13	13	13	13	13	13
8	Chlorine (ug/kg)	1	1	100	2380	2380	2380	2380	2380	2380	2380	2380	2380	2380
8	Heptachlorodibenzofuran (ng/kg)	1	1	100	650	650	650	650	650	650	650	650	650	650
8	Heptachlorodibenzo-p-dioxin (ng/kg)	1	1	100	630	630	630	630	630	630	630	630	630	630
8	Hexachlorodibenzofuran (ng/kg)	1	1	100	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
8	Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	130	130	130	130	130	130	130	130	130	130
8	Mean grain size (mm)	1	1	100	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
8	Median grain size (mm)	1	1	100	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
8	Pentachlorodibenzofuran (ng/kg)	1	1	100	680	680	680	680	680	680	680	680	680	680
8	Pentachlorodibenzo-p-dioxin (ng/kg)	1	1	100	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
8	Tetrachlorodibenzofuran (ng/kg)	1	1	100	270	270	270	270	270	270	270	270	270	270
8	Tetrachlorodibenzo-p-dioxin (ng/kg)	1	1	100	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
8	Total volatile solids (%)	1	1	100	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
8	p-Cymene (ug/kg)	1	1	100	253	253	253	253	253	253	253	253	253	253
8	Polycyclic Aromatic Hydrocarbons (ug/kg)	60	59	98	8 A	1E+07 A	198734	2000 A	164600 A	8 A	1E+07 A	195422	2000 A	164600 A
8	Sand (%)	45	43	96	6.7	100.16	45	30.1	94.41	6.7	100.16	47	30.37	96.8 U
8	High Molecular Weight PAH (ug/kg)	60	57	95	12 A	1866000 A	43469	1397 A	63000 A	5 UA	1866000 A	41297	1281 A	63000 A
8	Gravel (%)	39	37	95	0	14.9	1.9	0.46	5.58	0	14.9	1.9	0.46	5.58
8	4,4'-DDD (ug/kg)	19	18	95	2.2 J	29000	3391	147	16000	2.2 J	29000	3213	96	16000
8	Clay (%)	34	32	94	0.04	24.8	8.8	7.17	17.34	0.04	24.8	8.2	6.9	17.34
8	Silt (%)	34	32	94	0.12	77.3	44.9	53.73	75.79	0.08 U	77.3	42.3	53.19	75.79
8	Total organic carbon (%)	47	44	94	0.06	5.3	1.5	1.4	2.8	0.05 U	5.3	1.4	1.4	2.8
8	Selenium (mg/kg)	13	12	92	7	13	10.7	11	13	0.5 U	13	9.9	10	13
8	Pyrene (ug/kg)	60	55	92	13	530000	12134	350	18000	5 U	530000	11123	300	18000
8	Fluoranthene (ug/kg)	60	54	90	13.5 J	910000	20387	310	23000	5 U	910000	18349	240	23000
8	Benzo(b)fluoranthene (ug/kg)	46	41	89	14.5	9700	636	120	1300 G	5 U	9700	568	113	1300 G
8	Low Molecular Weight PAH (ug/kg)	60	53	88	8 A	8230000 A	174483	580 A	133000 A	5 UA	8230000 A	154127	521 A	133000 A
8	Benzo(k)fluoranthene (ug/kg)	46	40	87	11 J	16000	666	110	1380	5 U	16000	581	78.6	1000 G
8	Chrysene (ug/kg)	60	51	85	12 J	98000	3183	180	7100	5 U	98000	2717	130	7100
8	Phenanthrene (ug/kg)	60	51	85	19.3	2000000	44873	310	40000 J	5 U	2000000	38144	210	40000 J
8	Mercury (mg/kg)	19	16	84	0.06	0.32	0.13	0.09	0.28	0.05 U	0.32	0.12	0.09	0.28
8	Silver (mg/kg)	19	16	84	0.1	1.5	1.0	1.1	1.5	0.1	1.5	0.9	1.1	1.5
8	Tributyltin ion (ug/kg)	27	22	81	1	32000	4074	47	18000	1	32000	3321	28	18000
8	Benz(a)anthracene (ug/kg)	60	48	80	14.5 J	120000	3539	170	5000	5 U	120000	2844	111 J	5000
8	4,4'-DDT (ug/kg)	19	15	79	22	22000	4249	1100	17000	2 UJ	22000	3376	590	17000
8	Benzo(b+k)fluoranthene (ug/kg)	60	47	78	20 A	57000 J	2856	270 A	8600 A	5 UA	57000 J	2250	174 A	8600 A
8	Benzo(a)pyrene (ug/kg)	60	46	77	13 J	17000	853	150	1300 G	5 U	17000	695	86.7	1400
8	Thallium (mg/kg)	12	9	75	5	12	7	6	9	4 U	12	7	6	9
8	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	4	3	75	26	2200	792	26	150	0.4 U	2200	594	26	150
8	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	4	3	75	14	2700	913	14	25	0.3 U	2700	685	14	25
8	Bis(2-ethylhexyl) phthalate (ug/kg)	30	22	73	11 B	16000 G	1390	350	3040 G	11 B	16000 G	1036	260	3040 G
8	Arsenic (mg/kg)	50	36	72	1.69	35	6	4	21	1 U	35	6	4	21
8	Lead (mg/kg)	39	28	72	2.3 E	204	36	27	66	2.3 E	204	31	20 U	66
8	Acenaphthene (ug/kg)	60	43	72	6 GH	1200000	31464	92	23000	5 U	1200000	22556	53.9 U	23000
8	Fluorene (ug/kg)	60	43	72	8 GH	1100000 J	29293	110	24000 J	5 U	1100000 J	21000	50 U	24000 J
8	Diesel fuels (mg/kg)	13	9	69	153	12400	6713	6850	11600	50 U	12400	4663	703	11600
8	4,4'-DDE (ug/kg)	19	13	68	2 J	1840	332	100	1180	2 J	7500 U	672	100	1840
8	Anthracene (ug/kg)	60	41	68	11 J	430000	12650	90	9200	5 U	430000	8676	56	9200
8	Benzo(g,h,i)perylene (ug/kg)	60	41	68	7 J	4300	277	87	640	5 U	87000 U	1879	67 U	3200 U
8	Indeno(1,2,3-cd)pyrene (ug/kg)	60	40	67	7 J	87000	2545	97.2	1400	5 U	87000	1936	67 U	3200 U
8	4-Methylphenol (ug/kg)	18	12	67	45	410	167	120 J	370	45	410	145	100 U	370

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
8	2-Methylnaphthalene (ug/kg)	36	23	64	8 J	610	93	40	220	5 U	610	64	20 U	220
8	Naphthalene (ug/kg)	63	40	63	8	3500000 J	95759	100	45000 J	5 U	3500000 J	60810	41 U	22000
8	Beryllium (mg/kg)	19	12	63	0.49	0.7	0.60	0.56	0.7	0.49	1 U	0.75	0.66	1 U
8	Dibutyltin ion (ug/kg)	27	16	59	1	830	145	52 J	470	1	830	88	5.6 UJ	320
8	Dibenzofuran (ug/kg)	36	21	58	7 J	630	111	21	350	5 U	630	69	16	350
8	Cadmium (mg/kg)	26	15	58	0.2	0.8	0.5	0.5	0.7	0.1 U	1 U	0.6	0.5	1 U
8	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	4	2	50	1.2	1.7 J	1.45	1.2	1.2	0.5 U	11 U	3.6	1.2	1.7 J
8	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	4	2	50	9.8	150	79.9	9.8	9.8	0.2 U	5600 UJ	1440	9.8	150
8	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	4	2	50	3.3	360	181.7	3.3	3.3	0.2 U	18000 U	4591	3.3	360
8	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	4	2	50	0.3 J	1.2	0.8	0.3 J	0.3 J	0.3 J	6.9 U	2.2	0.4 U	1.2
8	Dibenz(a,h)anthracene (ug/kg)	60	24	40	6 J	87000	3789	40	990	5 U	87000	1768	36	1800 G
8	Carbazole (ug/kg)	37	14	38	14	60000	4863	57	2900	10 U	60000	1945	22	2900
8	Butyltin ion (ug/kg)	27	10	37	1 G	240	50	8	66 G	1 UG	240	21	3 U	63
8	Aroclor 1254 (ug/kg)	22	8	36	15 J	443	97	40	72	10 U	75000 U	3919	72	1600 U
8	Polychlorinated biphenyls (ug/kg)	22	8	36	15 A	605 A	152	72 A	230 A	10 UA	150000 UA	7758	101 A	3100 UA
8	Acenaphthylene (ug/kg)	60	20	33	11	190	48	33	170	5 U	17000 U	403	19 U	640 U
8	Tetrabutyltin (ug/kg)	20	6	30	1 H	130	33	12	28	1 U	130	12	5 U	28
8	Benzo(e)pyrene (ug/kg)	14	4	29	38	1300	717	430	1100	12 U	17000 U	1595	38	1700 U
8	Aroclor 1260 (ug/kg)	22	6	27	24	160	72	33	152	10 U	75000 U	3908	100 U	1600 U
8	Hexachloroethane (ug/kg)	24	6	25	31	20000	3407	95	160	19 U	20000	874	40 U	120
8	Benzoic acid (ug/kg)	20	5	25	230	2600	950	430	770	190 U	2600	406	250 U	770
8	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	4	1	25	0.63	0.63	0.63	0.63	0.63	0.1 U	6.9 U	2.0	0.3 U	0.63
8	Butylbenzyl phthalate (ug/kg)	30	7	23	10	42	21	18 G	24	10 U	47 U	17	18 G	24
8	Dibutyl phthalate (ug/kg)	30	6	20	12 G	1500	301	22	198 G	10 U	1500	73	19 U	53 G
8	Chlorobenzene (ug/kg)	13	2	15	1900	18000	9950	1900	1900	5 U	18000	1544	5 U	1900
8	1,2,4-Trichlorobenzene (ug/kg)	27	4	15	12	530	156	40 G	41	10 U	530	42	19 U	47 U
8	Phenol (ug/kg)	30	4	13	19	300	100	27	52	19 U	300	48	50 UG	50 UG
8	Hexachlorobenzene (ug/kg)	38	4	11	25	14000	3897	61	1500	10 U	35000 U	1491	20 U	3400 U
8	Hexachlorobutadiene (ug/kg)	41	4	10	19	34000	15019	57	26000	10 U	87000 UJ	3955	20 U	8600 UJ
8	1,3,5-Trimethylbenzene (ug/kg)	13	1	8	630	630	630	630	630	20 U	630	88	20 U	200 U
8	Isopropylbenzene (ug/kg)	13	1	8	588	588	588	588	588	20 U	588	85	20 U	200 U
8	m,p-Xylene (ug/kg)	13	1	8	740	740	740	740	740	5 U	740	67	5 U	50 U
8	n-Butylbenzene (ug/kg)	13	1	8	3190	3190	3190	3190	3190	20 U	3190	285	20 U	200 U
8	n-Propylbenzene (ug/kg)	13	1	8	1840	1840	1840	1840	1840	20 U	1840	181	20 U	200 U
8	o-Xylene (ug/kg)	13	1	8	513	513	513	513	513	5 U	513	49	5 U	50 U
8	Pseudocumene (ug/kg)	13	1	8	2210	2210	2210	2210	2210	20 U	2210	210	20 U	200 U
8	Sec-butylbenzene (ug/kg)	13	1	8	1640	1640	1640	1640	1640	20 U	1640	166	20 U	200 U
8	tert-Butylbenzene (ug/kg)	13	1	8	128	128	128	128	128	20 U	200 U	50	20 U	128
8	Tetrachloroethene (ug/kg)	13	1	8	8	8	8	8	8	5 U	100 U	18	8	50 U
8	2,3,4,6-Tetrachlorophenol (ug/kg)	14	1	7	26	26	26	26	26	17 U	700 U	163	64 U	470 U
8	Ethylbenzene (ug/kg)	14	1	7	244	244	244	244	244	5 U	300 U	48	9 U	244
8	Heavy oil (mg/kg)	14	1	7	100 G	100 G	100	100 G	100 G	75 U	500 U	204	100 G	300 U
8	Toluene (ug/kg)	14	1	7	21	21	21	21	21	5 U	300 U	39	9 U	100 U
8	2-Chlorophenol (ug/kg)	30	2	7	51	93	72	51	51	19 U	93	40	50 U	50 U
8	Antimony (mg/kg)	19	1	5	0.8 G	0.8 G	0.8	0.8 G	0.8 G	0.1 UG	10 U	5	5 UJ	10 U
8	gamma-Hexachlorocyclohexane (ug/kg)	19	1	5	45.9	45.9	45.9	45.9	45.9	0.94 U	3800 U	257	10 U	400 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
8	2,4,5-Trichlorophenol (ug/kg)	44	2	5	35	73	54	35	35	13 U	1400 U	149	94 U	410 U
8	2,4,6-Trichlorophenol (ug/kg)	44	2	5	57	100	78.5	57	57	13 U	700 U	96	63 U	230 U
8	Aroclor 1232 (ug/kg)	22	1	5	10	10	10	10	10	10 U	75000 U	3890	20 UJ	1600 U
8	2,4-Dinitrophenol (ug/kg)	22	1	5	18 J	18 J	18	18 J	18 J	18 J	470 UJ	243	200 UJ	300 UG
8	Isophorone (ug/kg)	24	1	4	43	43	43	43	43	10 U	47 U	17	19 U	20 U
8	Dimethyl phthalate (ug/kg)	30	1	3	10 G	10 G	10	10 G	10 G	10 U	47 U	15	10 U	20 U
8	Pentachlorophenol (ug/kg)	45	1	2	100	100	100	100	100	13 U	15100 U	721	100 UG	1340 U
8	2,4-Dichlorophenol (ug/kg)	42	0	0						56 U	6400 U	320	100 U	780 U
8	2,4-Dimethylphenol (ug/kg)	30	0	0						19 U	200 UJ	93	20 U	200 UJ
8	2-Methylphenol (ug/kg)	30	0	0						19 U	100 UJ	69	100 U	100 U
8	4,6-Dinitro-2-methylphenol (ug/kg)	30	0	0						100 U	470 U	147	100 U	200 UJ
8	4-Chloro-3-methylphenol (ug/kg)	30	0	0						38 U	93 U	47	50 UG	50 U
8	Diethyl phthalate (ug/kg)	30	0	0						10 U	47 U	15	10 U	20 U
8	Di-n-octyl phthalate (ug/kg)	30	0	0						10 U	47 U	15	10 UG	20 U
8	4-Nitrophenol (ug/kg)	28	0	0						94 U	230 U	104	100 UG	100 U
8	1,2-Dichlorobenzene (ug/kg)	27	0	0						5 U	100 U	19	11 UG	47 U
8	1,3-Dichlorobenzene (ug/kg)	27	0	0						5 U	100 U	19	11 UG	47 U
8	1,4-Dichlorobenzene (ug/kg)	27	0	0						5 U	100 U	19	11 UG	47 U
8	2,4-Dinitrotoluene (ug/kg)	24	0	0						20 U	230 U	64	20 U	99 U
8	2,6-Dinitrotoluene (ug/kg)	24	0	0						10 U	230 U	59	10 U	99 U
8	2-Chloronaphthalene (ug/kg)	24	0	0						5 U	47 U	13	5 U	20 U
8	2-Nitroaniline (ug/kg)	24	0	0						10 U	230 U	59	10 U	99 U
8	3,3'-Dichlorobenzidine (ug/kg)	24	0	0						40 U	230 U	74	40 UJ	99 U
8	3-Nitroaniline (ug/kg)	24	0	0						110 U	280 U	166	200 U	200 U
8	4-Bromophenyl phenyl ether (ug/kg)	24	0	0						10 U	47 U	16	10 U	20 U
8	4-Chloroaniline (ug/kg)	24	0	0						50 U	140 U	58	50 UJ	60 U
8	4-Chlorophenyl phenyl ether (ug/kg)	24	0	0						10 U	47 U	16	10 U	20 U
8	4-Nitroaniline (ug/kg)	24	0	0						10 U	230 U	59	10 U	99 U
8	Benzyl alcohol (ug/kg)	24	0	0						19 U	50 U	36	47 U	50 U
8	Bis(2-chloro-1-methylethyl) ether (ug/kg)	24	0	0						10 U	47 U	16	10 U	20 U
8	Bis(2-chloroethoxy) methane (ug/kg)	24	0	0						10 U	47 U	16	10 U	20 U
8	Bis(2-chloroethyl) ether (ug/kg)	24	0	0						10 U	93 U	27	10 U	40 U
8	Nitrobenzene (ug/kg)	24	0	0						10 U	47 U	16	10 UG	20 U
8	N-Nitrosodiphenylamine (ug/kg)	24	0	0						10 U	47 U	16	10 U	20 U
8	N-Nitrosodipropylamine (ug/kg)	24	0	0						10 U	93 U	27	10 U	40 U
8	Aroclor 1016 (ug/kg)	22	0	0						10 U	75000 U	3890	20 U	1600 U
8	Aroclor 1221 (ug/kg)	22	0	0						10 U	150000 U	7713	39 UJ	3100 U
8	Aroclor 1242 (ug/kg)	22	0	0						10 U	75000 U	3890	20 UJ	1600 U
8	Aroclor 1248 (ug/kg)	22	0	0						10 U	75000 U	3890	20 UJ	1600 U
8	Aldrin (ug/kg)	19	0	0						0.94 U	3800 U	427	10 U	3600 U
8	alpha-Chlordane (ug/kg)	19	0	0						0.94 U	3800 UJ	257	10 U	400 U
8	alpha-Endosulfan (ug/kg)	19	0	0						0.94 U	3800 U	257	10 U	400 U
8	beta-Endosulfan (ug/kg)	19	0	0						1.9 U	7500 U	475	10 U	750 U
8	beta-Hexachlorocyclohexane (ug/kg)	19	0	0						0.94 U	3800 U	257	10 U	400 U
8	delta-Hexachlorocyclohexane (ug/kg)	19	0	0						0.94 UJ	3800 UJ	257	10 U	400 U
8	Dieldrin (ug/kg)	19	0	0						1.9 U	7500 U	476	10 U	750 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
8	Endosulfan sulfate (ug/kg)	19	0	0						1.9 UJ	7500 UJ	475	10 U	750 UJ
8	Endrin (ug/kg)	19	0	0						1.9 U	7500 U	476	10 U	750 U
8	Endrin aldehyde (ug/kg)	19	0	0						1.9 U	7500 U	476	10 U	750 U
8	Endrin ketone (ug/kg)	19	0	0						1.9 UJ	7500 UJ	476	10 U	750 UJ
8	gamma-Chlordane (ug/kg)	19	0	0						0.95 U	3800 U	257	10 U	400 U
8	Heptachlor (ug/kg)	19	0	0						0.94 U	3800 U	257	10 U	400 U
8	Heptachlor epoxide (ug/kg)	19	0	0						0.94 U	3800 U	257	10 U	400 U
8	Methoxychlor (ug/kg)	19	0	0						9.4 U	38000 U	2280	20 U	3800 U
8	Toxaphene (ug/kg)	19	0	0						94 U	380000 U	26002	300 U	50000 U
8	2-Nitrophenol (ug/kg)	18	0	0						40 UG	230 U	86	96 U	99 U
8	Hexachlorocyclopentadiene (ug/kg)	16	0	0						94 U	230 UJ	131	98 UJ	200 U
8	Anthanthrene (ug/kg)	14	0	0						62 U	87000 U	7249	67 U	8600 U
8	Benzene (ug/kg)	14	0	0						5 U	300 U	38	9 U	100 U
8	1,1,1,2-Tetrachloroethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	1,1,1-Trichloroethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	1,1,2,2-Tetrachloroethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	1,1,2-Trichloroethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	1,1-Dichloroethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	1,1-Dichloropropene (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	1,2,3-Trichlorobenzene (ug/kg)	13	0	0						20 U	200 U	48	20 U	100 U
8	1,2,3-Trichloropropane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	1,2-Dibromo-3-chloropropane (ug/kg)	13	0	0						20 U	500 U	78	20 U	200 U
8	1,2-Dichloroethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	1,2-Dichloropropane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	1,3-Dichloropropane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	2,2-Dichloropropane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	2,3,4,5-Tetrachlorophenol (ug/kg)	13	0	0						13 U	700 U	173	64 U	470 U
8	2-Chlorotoluene (ug/kg)	13	0	0						20 U	200 U	48	20 U	100 U
8	4-Chlorotoluene (ug/kg)	13	0	0						20 U	200 U	48	20 U	100 U
8	Bromobenzene (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Bromochloromethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Bromodichloromethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Bromoform (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Bromomethane (ug/kg)	13	0	0						5 UJ	500 U	48	5 UJ	50 U
8	Carbon disulfide (ug/kg)	13	0	0						5 U	1000 U	87	5 U	50 U
8	Carbon tetrachloride (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Chlorodibromomethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Chloroethane (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Chloroform (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Chloromethane (ug/kg)	13	0	0						5 U	500 U	48	5 UJ	50 U
8	cis-1,2-Dichloroethene (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	cis-1,3-Dichloropropene (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Dichlorodifluoromethane (ug/kg)	13	0	0						5 U	500 U	48	5 UJ	50 U
8	Ethylene dibromide (ug/kg)	13	0	0						20 U	200 U	48	20 U	100 U
8	Gasoline (mg/kg)	13	0	0						20 U	20 U	20	20 U	20 U
8	Methyl N-butyl ketone (ug/kg)	13	0	0						20 U	1000 U	117	20 U	200 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
8	Methylene bromide (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Methylene chloride (ug/kg)	13	0	0						10 U	500 U	58	10 U	100 U
8	Styrene (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	trans-1,2-Dichloroethene (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	trans-1,3-Dichloropropene (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Trichloroethene (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Trichlorofluoromethane (ug/kg)	13	0	0						5 UJ	100 U	18	5 UJ	50 U
8	Vinyl chloride (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	Vinylidene chloride (ug/kg)	13	0	0						5 U	100 U	18	5 U	50 U
8	2,6-Dichlorophenol (ug/kg)	12	0	0						120 U	6400 U	903	130 U	1400 U
8	Cymene (ug/kg)	12	0	0						20 U	200 U	43	20 U	45 U
8	Hexachlorocyclohexanes (ug/kg)	12	0	0						10 U	400 U	51	10 U	40 U
8	alpha-Hexachlorocyclohexane (ug/kg)	7	0	0						0.94 U	3800 U	609	0.97 UJ	380 U
8	3- and 4-Methylphenol Coelution (ug/kg)	6	0	0						200 U	200 UJ	200	200 U	200 U
8	Acetone (ug/kg)	1	0	0						1000 U	1000 U	1000	1000 U	1000 U
8	Methyl isobutyl ketone (ug/kg)	1	0	0						500 U	500 U	500	500 U	500 U
8	Methyl tert-butyl ether (ug/kg)	1	0	0						100 U	100 U	100	100 U	100 U
8	Methylethyl ketone (ug/kg)	1	0	0						1000 U	1000 U	1000	1000 U	1000 U
8	Xylene (ug/kg)	1	0	0						300 U	300 U	300	300 U	300 U
9	Clay (%)	81	81	100	0.31	24.94	10.60	10.17	20.15	0.31	24.94	10.60	10.17	20.15
9	Fines (%)	81	81	100	1.11	98.15	57.99	61.54	90.34	1.11	98.15	57.99	61.54	90.34
9	Sand (%)	81	81	100	3.4	98.32	40.25	32.5	91.23	3.4	98.32	40.25	32.5	91.23
9	Silt (%)	81	81	100	0.83	86.3	47.39	50.2	75.21	0.83	86.3	47.39	50.2	75.21
9	Copper (mg/kg)	77	77	100	10.5	2200	166	34.8 G	729	10.5	2200	166	34.8 G	729
9	Nickel (mg/kg)	77	77	100	13	43 J	24	24	34	13	43 J	24	24	34
9	Zinc (mg/kg)	77	77	100	24	1500 L	205	93	872	24	1500 L	205	93	872
9	Chromium (mg/kg)	68	68	100	7	157	31	25	54 G	7	157	31	25	54 G
9	Total solids (%)	66	66	100	44.3	87	64	65.3	80.6	44.3	87	64	65.3	80.6
9	Gravel (%)	49	49	100	0.01	15.9	1.75	0.18	9.1	0.01	15.9	1.75	0.18	9.1
9	Iron (mg/kg)	10	10	100	34700	53300	42250	41400	49300	34700	53300	42250	41400	49300
9	Manganese (mg/kg)	10	10	100	419	872	621	506	817	419	872	621	506	817
9	3- and 4-Methylphenol Coelution (ug/kg)	9	9	100	4.8 J	300	82	29	180	4.8 J	300	82	29	180
9	Mean grain size (mm)	8	8	100	0.03	0.26	0.12	0.08	0.22	0.03	0.26	0.12	0.08	0.22
9	Median grain size (mm)	8	8	100	0.02	0.05	0.04	0.04	0.04	0.02	0.05	0.04	0.04	0.04
9	Titanium (mg/kg)	8	8	100	1870	3490	2255	1950	2590	1870	3490	2255	1950	2590
9	Total volatile solids (%)	8	8	100	4.79	8.22	7.13	7.12	7.89	4.79	8.22	7.13	7.12	7.89
9	Aluminum (mg/kg)	7	7	100	29200	44200	38614	40600	42100	29200	44200	38614	40600	42100
9	Barium (mg/kg)	7	7	100	168	281	222	203	274	168	281	222	203	274
9	Calcium (mg/kg)	7	7	100	6420	16000	10144	8590	14200	6420	16000	10144	8590	14200
9	Cobalt (mg/kg)	7	7	100	16.4	20.8	19	18	20.6	16.4	20.8	19	18	20.6
9	Magnesium (mg/kg)	7	7	100	5550	8510	7039	7150	7630	5550	8510	7039	7150	7630
9	Potassium (mg/kg)	7	7	100	1060	1550	1343	1310	1510	1060	1550	1343	1310	1510
9	Sodium (mg/kg)	7	7	100	714 J	1320 J	1089	1100	1170 J	714 J	1320 J	1089	1100	1170 J
9	Vanadium (mg/kg)	7	7	100	89.9	113	103	103	109	89.9	113	103	103	109
9	Tin (mg/kg)	3	3	100	2.28 G	4.46 G	3.72	2.28 G	4.42 G	2.28 G	4.46 G	3.72	2.28 G	4.42 G
9	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	2	2	100	33 B	36	35	33 B	33 B	33 B	36	35	33 B	33 B

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/kg	2	2	100	220 B	440	330	220 B	220 B	220 B	440	330	220 B	220 B
9	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	2	2	100	11	15 B	13	11	11	11	15 B	13	11	11
9	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg)	2	2	100	5.2	7.5 J	6.4	5.2	5.2	5.2	7.5 J	6.4	5.2	5.2
9	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	2	2	100	1.5	3.2 B	2.4	1.5	1.5	1.5	3.2 B	2.4	1.5	1.5
9	Octachlorodibenzofuran (ng/kg)	2	2	100	94 B	130	112	94 B	94 B	94 B	130	112	94 B	94 B
9	Octachlorodibenzo-p-dioxin (ng/kg)	2	2	100	2000 B	5400	3700	2000 B	2000 B	2000 B	5400	3700	2000 B	2000 B
9	Bromine (ug/kg)	1	1	100	10	10	10	10	10	10	10	10	10	10
9	Chlorine (ug/kg)	1	1	100	424	424	424	424	424	424	424	424	424	424
9	Heptachlorodibenzofuran (ng/kg)	1	1	100	140	140	140	140	140	140	140	140	140	140
9	Heptachlorodibenzo-p-dioxin (ng/kg)	1	1	100	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
9	Hexachlorodibenzofuran (ng/kg)	1	1	100	78	78	78	78	78	78	78	78	78	78
9	Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	200	200	200	200	200	200	200	200	200	200
9	Pentachlorodibenzofuran (ng/kg)	1	1	100	22	22	22	22	22	22	22	22	22	22
9	Pentachlorodibenzo-p-dioxin (ng/kg)	1	1	100	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
9	Tetrachlorodibenzofuran (ng/kg)	1	1	100	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
9	Tetrachlorodibenzo-p-dioxin (ng/kg)	1	1	100	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
9	Total organic carbon (%)	72	69	96	0.06	5.6	1.4	1.43	2.75	0.05 U	5.6	1.4	1.3	2.75
9	Bis(2-ethylhexyl) phthalate (ug/kg)	60	55	92	10 B	5000	454	107	1520	10 U	5000	430	107	1520
9	Arsenic (mg/kg)	77	67	87	2	140	8	3.46	14	2 U	140	8	3.3	14
9	Lead (mg/kg)	77	67	87	2.1	1080	55	20.1 E	140 G	2.1	1080	53	23.9	140 G
9	Butyltin ion (ug/kg)	5	4	80	8.4	260	106	16 J	140	8.4	270 U	139	16 J	260
9	Beryllium (mg/kg)	9	7	78	0.44	0.7	0.59	0.56	0.7	0.44	1 U	0.68	0.6	1 U
9	Selenium (mg/kg)	9	7	78	8	14	10	9	11	1 U	14	8	8	11
9	Polycyclic Aromatic Hydrocarbons (ug/kg)	59	43	73	8.9 A	16890 A	2457	1100 A	5839 A	6.7 UA	16890 A	1798	528 A	5839 A
9	Tributyltin ion (ug/kg)	22	16	73	1	90000	9340	570	17000	1 U	90000	6805	28	15000
9	High Molecular Weight PAH (ug/kg)	59	42	71	8.9 A	12880 A	1930	894 A	4872 A	6.7 UA	12880 A	1397	465 A	4872 A
9	Pyrene (ug/kg)	59	42	71	5.1	2800 G	433	263	930	5.1	2800 G	331	95	930
9	Mercury (mg/kg)	77	54	70	0.02	2.1	0.27	0.15	0.73	0.02	2.1	0.21	0.1	0.72
9	Low Molecular Weight PAH (ug/kg)	59	41	69	7.3 A	4490 A	600	255 A	1157 A	3.2 UA	4490 A	433	124 A	1157 A
9	Phenanthrene (ug/kg)	59	41	69	6.7	2600 G	375	127	1100	3.2 U	2600 G	277	61	1100
9	Benzo(b)fluoranthene (ug/kg)	59	40	68	5.3	1400	197	89	1000	3.2 U	1400	165	43	910 U
9	Benzo(b+k)fluoranthene (ug/kg)	59	40	68	7.9 A	2180 A	342	162 A	1440 A	3.2 UA	2180 A	263	80 A	1231 A
9	Chrysene (ug/kg)	59	40	68	6.9	1400 G	213	106	1000	3.2 U	1400 G	176	51 G	910 U
9	Fluoranthene (ug/kg)	59	40	68	3.8	2900	446	231	2200	3.8	2900	336	112	1200
9	Benz(a)anthracene (ug/kg)	59	39	66	4.7	1300	181	81	880	3.2 U	1300	152	40	880
9	Benzo(a)pyrene (ug/kg)	59	39	66	4.7	1100	173	81	770	2.8 U	1100	146	40	770
9	Benzo(k)fluoranthene (ug/kg)	59	38	64	3.3	780	129	76	440	2.8 U	910 U	114	39	500 U
9	Benzo(g,h,i)perylene (ug/kg)	59	36	61	6.3	740	121	65	430	2.8 U	910 U	106	27	500 U
9	Carbazole (ug/kg)	10	6	60	19 J	260 G	120	71	230	19 UJ	910 UJ	169	31 J	260 G
9	Dibutyltin ion (ug/kg)	5	3	60	26	1300 J	515	26	220 J	5.7 U	1300 J	364	26	270 U
9	Indeno(1,2,3-cd)pyrene (ug/kg)	59	35	59	5.5	970	137	79	450	2.3 U	970	113	32	500 U
9	Anthracene (ug/kg)	59	33	56	3	630 G	86	42	320	2.8 U	910 U	85	16	500 U
9	Cadmium (mg/kg)	77	40	52	0.1	5.3	0.7	0.4	1.6	0.1 U	5.3	0.6	0.3	1.6 U
9	Silver (mg/kg)	77	40	52	0.06 J	3.4	0.6	0.5	1.5	0.06 J	3.4	0.5	0.3	1.5
9	Naphthalene (ug/kg)	59	30	51	3.7	260 G	57	31	120	2.8 U	910 U	62	11	260 G
9	Dibutyl phthalate (ug/kg)	60	30	50	4.4 JB	135	29	19	88	4.4 JB	910 U	56	10 U	250 UG

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
9	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	2	1	50	4	4	4	4	4	3.5 U	4	3.75	3.5 U	3.5 U
9	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	2	1	50	3.6	3.6	3.6	3.6	3.6	2 U	3.6	2.8	2 U	2 U
9	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	2	1	50	0.92	0.92	0.92	0.92	0.92	0.92	1.4 U	1.16	0.92	0.92
9	Acetone (ug/kg)	2	1	50	200	200	200	200	200	200 U	200	200	200 U	200 U
9	Aroclor 1254 (ug/kg)	52	25	48	10	1800	307	84	1200	10 U	1800	159	22	567
9	Polychlorinated biphenyls (ug/kg)	52	25	48	10 A	2379 A	440	150 A	1640 A	10 UA	2379 A	227	40 UA	799 A
9	Butylbenzyl phthalate (ug/kg)	60	27	45	3.4 J	260	43	19	140	3.4 J	910 U	56	12 U	260
9	Fluorene (ug/kg)	59	25	42	3.9	570 G	98	39	340	2.3 U	910 U	76	10 U	430
9	2-Methylnaphthalene (ug/kg)	56	23	41	10	2000	134	23	210	2.3 U	2000	74	10 U	220 G
9	Aroclor 1260 (ug/kg)	52	21	40	18	810	156	77	440	10 U	810	75	20 U	232
9	Tetrabutyltin (ug/kg)	5	2	40	44	100	72	44	44	5.7 U	270 U	85	5.8 U	100
9	Acenaphthene (ug/kg)	59	23	39	3.1	430 G	86	36	320	2.3 U	910 U	67	10 UG	380
9	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	13	5	38	3 A	7.1 A	5	3.3 A	5.9 A	2.7 UA	10 UA	5.0	3.5 UA	10 UA
9	Dibenzofuran (ug/kg)	57	19	33	11	360 G	64	18	270	10 U	910 U	59	14 U	300 UH
9	Thallium (mg/kg)	9	3	33	4	6	5	4	5	1 U	10 U	5	5 U	9 U
9	Dibutyltin ion (ug/l)	3	1	33	0.32	0.32	0.32	0.32	0.32	0.03 U	0.32	0.13	0.03 U	0.03 U
9	Tetrabutyltin (ug/l)	3	1	33	0.15	0.15	0.15	0.15	0.15	0.03 U	0.15	0.07	0.03 U	0.03 U
9	Tributyltin ion (ug/l)	3	1	33	0.13	0.13	0.13	0.13	0.13	0.03 U	0.13	0.06	0.03 U	0.03 U
9	4,4'-DDD (ug/kg)	13	4	31	1.2 J	3.3 J	2.45	2.2 J	3.1	1.2 J	10 U	4.1	3.3 J	10 U
9	4,4'-DDE (ug/kg)	13	4	31	1.8 J	5.9	3.8	3.5	4	1.8 J	10 U	4.4	3.5 U	10 U
9	Dibenz(a,h)anthracene (ug/kg)	59	18	31	14	290	54	26	150 G	2.3 U	910 U	52	10 U	290
9	Acenaphthylene (ug/kg)	59	15	25	4.3	32	16.5	14	30	2.8 U	910 U	42	10 UG	50 UG
9	Benzoic acid (ug/kg)	21	5	24	8.7 J	860	364	9.7 J	560	8.7 J	9100 U	826	190 U	2000 UH
9	Antimony (mg/kg)	72	15	21	0.1 G	4.4	1.1	0.2 X	4	0.1 UG	140 U	13	0.1 UG	120 U
9	4-Methylphenol (ug/kg)	48	9	19	50	290	133	90	230	19 U	910 U	133	100 U	290
9	Benzyl alcohol (ug/kg)	21	3	14	5.7 J	9 J	7.3	5.7 J	7.3 J	5.7 J	910 U	99	19 U	300 UH
9	Di-n-octyl phthalate (ug/kg)	60	8	13	11	3180	538	18	851	10 U	3180	112	10 U	500 U
9	Pentachlorophenol (ug/kg)	57	7	12	9.4 J	47	20	15 J	22	9.4 J	4500 U	256	100 U	250 UG
9	Dimethyl phthalate (ug/kg)	60	5	8	3.1 J	99 G	36	10	59 N	3.1 J	910 U	43	10 U	99 G
9	Endrin (ug/kg)	13	1	8	0.62 J	0.62 J	0.62	0.62 J	0.62 J	0.62 J	10 U	4.0	3.4 U	10 U
9	Phenol (ug/kg)	57	4	7	5.1 J	22	14	8.4 J	20	5.1 J	910 U	68	50 U	50 UG
9	Diethyl phthalate (ug/kg)	60	3	5	15 J	16.3 J	16	15 J	16 J	10 U	910 U	42	10 U	50 U
9	Aroclor 1242 (ug/kg)	52	1	2	69 J	69 J	69	69 J	69 J	10 U	100 U	17	10 U	20 UB
9	2,4-Dimethylphenol (ug/kg)	57	0	0						12 U	910 U	50	20 U	50 UG
9	2-Methylphenol (ug/kg)	57	0	0						12 U	910 U	100	100 U	100 UG
9	2,4,5-Trichlorophenol (ug/kg)	55	0	0						12 U	4500 U	149	40 U	250 UG
9	2,4,6-Trichlorophenol (ug/kg)	55	0	0						12 U	4500 U	131	30 U	100 U
9	2,4-Dichlorophenol (ug/kg)	55	0	0						12 U	2700 U	140	100 UG	100 UG
9	2,4-Dinitrophenol (ug/kg)	55	0	0						12 U	9100 UJ	489	300 UG	300 UG
9	2-Chlorophenol (ug/kg)	55	0	0						12 U	910 U	70	50 UG	50 UG
9	2-Nitrophenol (ug/kg)	55	0	0						12 U	4500 U	138	40 U	100 U
9	4,6-Dinitro-2-methylphenol (ug/kg)	55	0	0						12 U	9100 UJ	358	100 U	250 UG
9	4-Chloro-3-methylphenol (ug/kg)	55	0	0						12 U	1800 U	89	50 U	50 UG
9	4-Nitrophenol (ug/kg)	55	0	0						12 U	4500 U	264	100 U	250 UG
9	Aroclor 1016 (ug/kg)	52	0	0						10 U	100 U	16	10 U	20 U
9	Aroclor 1221 (ug/kg)	52	0	0						10 U	100 U	21	10 U	40 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
9	Aroclor 1232 (ug/kg)	52	0	0						10 U	100 U	16	10 U	20 U
9	Aroclor 1248 (ug/kg)	52	0	0						10 U	100 U	16	10 U	20 UB
9	Hexachlorobutadiene (ug/kg)	21	0	0						12 U	910 U	100	19 U	300 UH
9	Hexachloroethane (ug/kg)	21	0	0						12 U	910 U	100	19 U	300 UH
9	N-Nitrosodiphenylamine (ug/kg)	21	0	0						12 U	910 U	100	19 U	300 UH
9	1,2,4-Trichlorobenzene (ug/kg)	21	0	0						12 U	910 U	100	19 U	300 UH
9	1,2-Dichlorobenzene (ug/kg)	21	0	0						10 U	910 U	63	15 U	50 U
9	1,3-Dichlorobenzene (ug/kg)	21	0	0						10 U	910 U	63	15 U	50 U
9	1,4-Dichlorobenzene (ug/kg)	21	0	0						10 U	910 U	63	15 U	50 U
9	Hexachlorobenzene (ug/kg)	21	0	0						12 U	910 U	100	19 U	300 UH
9	2,4-Dinitrotoluene (ug/kg)	19	0	0						12 U	4500 U	323	50 U	500 U
9	2,6-Dinitrotoluene (ug/kg)	19	0	0						12 U	4500 U	323	50 U	500 U
9	2-Chloronaphthalene (ug/kg)	19	0	0						2.8 U	910 U	105	19 U	500 U
9	2-Nitroaniline (ug/kg)	19	0	0						12 U	4500 U	575	96 U	3000 U
9	3,3'-Dichlorobenzidine (ug/kg)	19	0	0						12 U	4500 U	575	96 U	3000 U
9	3-Nitroaniline (ug/kg)	19	0	0						12 U	5500 U	635	120 U	3000 U
9	4-Bromophenyl phenyl ether (ug/kg)	19	0	0						12 U	910 U	109	19 U	500 U
9	4-Chloroaniline (ug/kg)	19	0	0						12 U	2700 U	216	50 U	500 U
9	4-Chlorophenyl phenyl ether (ug/kg)	19	0	0						12 U	910 U	109	19 U	500 U
9	4-Nitroaniline (ug/kg)	19	0	0						12 U	4500 UJ	575	96 UJ	3000 U
9	Bis(2-chloro-1-methylethyl) ether (ug/kg)	19	0	0						12 U	910 U	109	19 U	500 U
9	Bis(2-chloroethoxy) methane (ug/kg)	19	0	0						12 U	910 U	109	19 U	500 U
9	Bis(2-chloroethyl) ether (ug/kg)	19	0	0						12 U	1800 U	162	38 U	500 U
9	Hexachlorocyclopentadiene (ug/kg)	19	0	0						12 U	4500 U	323	50 U	500 U
9	Isophorone (ug/kg)	19	0	0						12 U	910 U	109	19 U	500 U
9	Nitrobenzene (ug/kg)	19	0	0						12 U	910 U	109	19 U	500 U
9	N-Nitrosodipropylamine (ug/kg)	19	0	0						12 U	1800 U	162	38 U	500 U
9	4,4'-DDT (ug/kg)	13	0	0						2.7 UIJ	10 U	4.4	3.4 U	10 U
9	Aldrin (ug/kg)	13	0	0						0.96 UJ	10 U	2.87	1.7 U	10 U
9	alpha-Endosulfan (ug/kg)	13	0	0						0.96 UJ	10 U	2.87	1.7 U	10 U
9	alpha-Hexachlorocyclohexane (ug/kg)	13	0	0						0.96 UJ	10 U	2.87	1.7 U	10 U
9	beta-Endosulfan (ug/kg)	13	0	0						1.9 UJ	10 U	4.2	3.4 U	10 U
9	beta-Hexachlorocyclohexane (ug/kg)	13	0	0						0.96 UJ	30 U	5.95	1.7 U	30 U
9	delta-Hexachlorocyclohexane (ug/kg)	13	0	0						0.96 UJ	10 U	2.87	1.7 U	10 U
9	Dieldrin (ug/kg)	13	0	0						1.9 UJ	10 U	4.2	3.4 U	10 U
9	Endosulfan sulfate (ug/kg)	13	0	0						1.9 UJ	10 U	4.2	3.4 U	10 U
9	Endrin aldehyde (ug/kg)	13	0	0						1.9 UJ	10 U	4.3	3.5 U	10 U
9	gamma-Hexachlorocyclohexane (ug/kg)	13	0	0						0.96 UJ	10 U	2.87	1.7 U	10 U
9	Heptachlor (ug/kg)	13	0	0						0.96 UJ	10 U	2.87	1.7 U	10 U
9	Heptachlor epoxide (ug/kg)	13	0	0						0.96 UJ	10 U	2.87	1.7 U	10 U
9	Methoxychlor (ug/kg)	13	0	0						9.6 UJ	20 U	16	17 U	20 U
9	Toxaphene (ug/kg)	13	0	0						96 UJ	300 U	179	170 U	300 U
9	Chlordane (cis & trans) (ug/kg)	11	0	0						14 U	100 U	32	17 U	100 U
9	Endrin ketone (ug/kg)	11	0	0						2.8 U	7.3 UIJ	3.8	3.5 U	3.9 UIJ
9	2,4,5-T (ug/kg)	7	0	0						14 U	19 U	17	17 U	17 U
9	2,4-D (ug/kg)	7	0	0						14 U	19 U	17	17 U	17 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
9	2,4-DB (ug/kg)	7	0	0						14 U	19 U	17	17 U	17 U
9	Dalapon (ug/kg)	7	0	0						69 U	94 U	84	84 U	87 U
9	Dicamba (ug/kg)	7	0	0						27 U	38 U	34	34 U	35 U
9	Dichloroprop (ug/kg)	7	0	0						14 U	19 U	17	17 U	17 U
9	Dinoseb (ug/kg)	7	0	0						14 U	19 U	17	17 U	17 U
9	MCPA (ug/kg)	7	0	0						14 U	19 U	17	17 U	17 U
9	MCPP (ug/kg)	7	0	0						14 U	19 U	17	17 U	17 U
9	Silvex (ug/kg)	7	0	0						14 U	19 U	17	17 U	17 U
9	Aniline (ug/kg)	5	0	0						50 U	2000 U	630	50 U	1000 UH
9	Benzidine (ug/kg)	3	0	0						250 U	250 UG	250	250 U	250 U
9	Butyltin ion (ug/l)	3	0	0						0.02 U	0.03 U	0.03	0.02 U	0.03 U
9	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	2	0	0						3.4 U	3.9 U	4	3.4 U	3.4 U
9	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	2	0	0						2.4 U	6.6 U	5	2.4 U	2.4 U
9	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	2	0	0						0.17 U	1.2 U	0.69	0.17 U	0.17 U
9	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	2	0	0						0.51 U	1.2 U	0.86	0.51 U	0.51 U
9	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	2	0	0						0.95 U	1.5 U	1.23	0.95 U	0.95 U
9	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	2	0	0						1.8 U	1.9 U	1.9	1.8 U	1.8 U
9	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	2	0	0						0.76 U	1.4 U	1.08	0.76 U	0.76 U
9	N-Nitrosodimethylamine (ug/kg)	2	0	0						2000 UH	3000 U	2500	2000 UH	2000 UH
9	1,1,1-Trichloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	1,1,2,2-Tetrachloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	1,1,2-Trichloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	1,1-Dichloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	1,2-Dichloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	1,2-Dichloropropane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	2-Chloroethyl vinyl ether (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
9	alpha-Chlordane (ug/kg)	2	0	0						0.96 UJ	0.96 UJ	0.96	0.96 UJ	0.96 UJ
9	Benzene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Bromodichloromethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Bromoform (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Bromomethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
9	Carbon disulfide (ug/kg)	2	0	0						200 U	200 U	200	200 U	200 U
9	Carbon tetrachloride (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Chlorobenzene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Chlorodibromomethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Chloroethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
9	Chloroform (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Chloromethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
9	cis-1,2-Dichloroethene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	cis-1,3-Dichloropropene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Ethylbenzene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	gamma-Chlordane (ug/kg)	2	0	0						1.3 UIJ	1.5 UIJ	1.4	1.3 UIJ	1.3 UIJ
9	Methyl isobutyl ketone (ug/kg)	2	0	0						100 U	100 U	100	100 U	100 U
9	Methyl N-butyl ketone (ug/kg)	2	0	0						100 U	100 U	100	100 U	100 U
9	Methylene chloride (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Methylethyl ketone (ug/kg)	2	0	0						200 U	200 U	200	200 U	200 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
9	Styrene (ug/kg)	2	0	0						10 UH	10 U	10	10 UH	10 UH
9	Tetrachloroethene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Toluene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	trans-1,2-Dichloroethene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	trans-1,3-Dichloropropene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Trichloroethene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Trichlorofluoromethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
9	Trichlorotrifluoroethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
9	Vinyl acetate (ug/kg)	2	0	0						100 U	100 U	100	100 U	100 U
9	Vinyl chloride (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
9	Vinylidene chloride (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
9	Xylene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Total organic carbon (%)	8	8	100	0.9	2.5	1.8	1.9	2.2	0.9	2.5	1.8	1.9	2.2
10	Clay (%)	7	7	100	4.9	14.56	8.8	6.5	11.5	4.9	14.56	8.8	6.5	11.5
10	Copper (mg/kg)	7	7	100	26	52.6	39	33	50	26	52.6	39	33	50
10	Fines (%)	7	7	100	17.4	78	56.4	56.4	70.3	17.4	78	56.4	56.4	70.3
10	Nickel (mg/kg)	7	7	100	12	31.6	21.5	20	27.7	12	31.6	21.5	20	27.7
10	Sand (%)	7	7	100	21.87	82.6	42.5	31.2	54.77	21.87	82.6	42.5	31.2	54.77
10	Silt (%)	7	7	100	12.5	63.8	47.5	50.9	63.44	12.5	63.8	47.5	50.9	63.44
10	Zinc (mg/kg)	7	7	100	88	1090	324	93	638	88	1090	324	93	638
10	Total volatile solids (%)	6	6	100	3.5	7.53	5.8	5.2	6.96	3.5	7.53	5.8	5.2	6.96
10	Gravel (%)	5	5	100	0.05	5.5	1.6	0.13	2	0.05	5.5	1.6	0.13	2
10	Mean grain size (mm)	5	5	100	0.05	0.19	0.10	0.05	0.1	0.05	0.19	0.10	0.05	0.1
10	Median grain size (mm)	5	5	100	0.03	0.15	0.06	0.03	0.04	0.03	0.15	0.06	0.03	0.04
10	Chromium (mg/kg)	4	4	100	12	40.7	28.2	26	34	12	40.7	28.2	26	34
10	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/kg	3	3	100	91	200	140	91	130	91	200	140.3	91	130
10	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	3	3	100	0.86	2	1.26	0.86	0.92	0.86	2	1.26	0.86	0.92
10	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	3	3	100	2.9	11	6.9	2.9	6.8	2.9	11	6.9	2.9	6.8
10	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg)	3	3	100	1.8	7.1	3.7	1.8	2.2	1.8	7.1	3.7	1.8	2.2
10	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	3	3	100	0.73	3.5	2.2	0.73	2.3	0.73	3.5	2.2	0.73	2.3
10	Heptachlorodibenzofuran (ng/kg)	3	3	100	10	77	34	10	15	10	77	34	10	15
10	Heptachlorodibenzo-p-dioxin (ng/kg)	3	3	100	180	410	287	180	270	180	410	287	180	270
10	Hexachlorodibenzofuran (ng/kg)	3	3	100	25	52	35	25	29	25	52	35	25	29
10	Hexachlorodibenzo-p-dioxin (ng/kg)	3	3	100	27	89	52	27	40	27	89	52	27	40
10	Octachlorodibenzofuran (ng/kg)	3	3	100	28	110	70	28	72	28	110	70	28	72
10	Octachlorodibenzo-p-dioxin (ng/kg)	3	3	100	670	1800	1323	670	1500	670	1800	1323	670	1500
10	Pentachlorodibenzofuran (ng/kg)	3	3	100	5.9	18	10.3	5.9	7	5.9	18	10.3	5.9	7
10	Tetrachlorodibenzofuran (ng/kg)	3	3	100	4.4	13	7.4	4.4	4.7	4.4	13	7.4	4.4	4.7
10	Tetrachlorodibenzo-p-dioxin (ng/kg)	3	3	100	1	4.5	2.7	1	2.7	1	4.5	2.7	1	2.7
10	Total solids (%)	3	3	100	52.5	62	57	52.5	57.9	52.5	62	57	52.5	57.9
10	3- and 4-Methylphenol Coelution (ug/kg)	3	3	100	20	190	87	20	52	20	190	87	20	52
10	Aluminum (mg/kg)	2	2	100	34100	45900	40000	34100	34100	34100	45900	40000	34100	34100
10	Barium (mg/kg)	2	2	100	171	199	185	171	171	171	199	185	171	171
10	Bromine (ug/kg)	2	2	100	6.1	15	10.6	6.1	6.1	6.1	15	10.6	6.1	6.1
10	Calcium (mg/kg)	2	2	100	7390	8700	8045	7390	7390	7390	8700	8045	7390	7390
10	Chlorine (ug/kg)	2	2	100	137	283	210	137	137	137	283	210	137	137

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
10	Cobalt (mg/kg)	2	2	100	17.8	20.1	18.95	17.8	17.8	17.8	20.1	19.0	17.8	17.8
10	Iron (mg/kg)	2	2	100	38500	44600	41550	38500	38500	38500	44600	41550	38500	38500
10	Magnesium (mg/kg)	2	2	100	6390	7720	7055	6390	6390	6390	7720	7055	6390	6390
10	Manganese (mg/kg)	2	2	100	548	759	654	548	548	548	759	654	548	548
10	Potassium (mg/kg)	2	2	100	1100	1470	1285	1100	1100	1100	1470	1285	1100	1100
10	Sodium (mg/kg)	2	2	100	1000 J	1120 J	1060	1000 J	1000 J	1000 J	1120 J	1060	1000 J	1000 J
10	Titanium (mg/kg)	2	2	100	1820	1990	1905	1820	1820	1820	1990	1905	1820	1820
10	Tributyltin ion (ug/kg)	2	2	100	28	32	30	28	28	28	32	30	28	28
10	Vanadium (mg/kg)	2	2	100	93.1	108	101	93.1	93.1	93.1	108	101	93.1	93.1
10	Arsenic (mg/kg)	7	5	71	1	4.1 J	3	3	3.8	1	5 U	3	3.1 J	4.1 J
10	Benz(a)anthracene (ug/kg)	7	5	71	3.7	38	18	9.2	30	3.7	6000 U	913	9.7	300 U
10	Fluoranthene (ug/kg)	7	5	71	6.7	130	50	21	69	6.7	6000 U	935	21	300 U
10	High Molecular Weight PAH (ug/kg)	7	5	71	26.6 A	570 A	226	83.5 A	366 A	26.6 A	6000 UA	1062	85.6 A	570 A
10	Lead (mg/kg)	7	5	71	15	75	31	20	25	15	93 U	40	22	75
10	Low Molecular Weight PAH (ug/kg)	7	5	71	3.7 A	172 A	66	24.2 A	83 A	3.7 A	6000 UA	947	45.8 A	300 UA
10	Phenanthrene (ug/kg)	7	5	71	3.7	99	39	15	59	3.7	6000 U	928	17	300 U
10	Polycyclic Aromatic Hydrocarbons (ug/kg)	7	5	71	30.3 A	742 A	292	107.7 A	449 A	30.3 A	6000 UA	1109	131.4 A	742 A
10	Pyrene (ug/kg)	7	5	71	8.1	150	59	24	88	8.1	6000 U	942	25	300 U
10	Bis(2-ethylhexyl) phthalate (ug/kg)	7	5	71	22 B	400	144	40 B	210	22 B	6000 U	983	50 B	400
10	Aroclor 1260 (ug/kg)	6	4	67	25	400	139	31	100	16 U	400	99	25	100
10	Polychlorinated biphenyls (ug/kg)	6	4	67	48 A	400 A	162	100 A	101 A	32 UA	400 A	121	48 A	101 A
10	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	3	2	67	10	14	12	10	10	1.8 U	14	8.6	1.8 U	10
10	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	3	2	67	1.4	77	39	1.4	1.4	1.4	77	27	1.4	2.5 U
10	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	3	2	67	0.81	0.9	0.86	0.81	0.81	0.81	3.8 U	1.8	0.81	0.9
10	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	3	2	67	0.37	1.5	0.94	0.37	0.37	0.37	1.5	1.0	0.37	1 U
10	Pentachlorodibenzo-p-dioxin (ng/kg)	3	2	67	0.46	1.3	0.88	0.46	0.46	0.46	1.3 U	1.02	0.46	1.3
10	Benzo(b)fluoranthene (ug/kg)	7	4	57	8.1	58	28	9.2	35	2.9 U	6000 U	916	9.2	300 U
10	Benzo(b+k)fluoranthene (ug/kg)	7	4	57	8.1 A	94 A	46	13.5 A	69 A	2.9 UA	6000 UA	927	13.5 A	300 UA
10	Benzo(g,h,i)perylene (ug/kg)	7	4	57	7.3	32	20	13	26	3.4 U	6000 U	912	13	300 U
10	Chrysene (ug/kg)	7	4	57	7.5	64	33	11	50	3.4 U	6000 U	919	11	300 U
10	Mercury (mg/kg)	7	4	57	0.06	0.14 J	0.11	0.11	0.12	0.06	0.2 U	0.14	0.12	0.2 U
10	Beryllium (mg/kg)	4	2	50	0.49	0.65	0.57	0.49	0.49	0.49	1 U	0.785	0.65	1 U
10	Selenium (mg/kg)	4	2	50	7	10	8.5	7	7	1 U	10	4.75	1 U	7
10	4-Methylphenol (ug/kg)	4	2	50	46	92	69	46	46	46	6000 U	1610	92	300 U
10	Butyltin ion (ug/l)	2	1	50	0.04	0.04	0.04	0.04	0.04	0.03 U	0.04	0.035	0.03 U	0.03 U
10	Dibutyltin ion (ug/l)	2	1	50	0.19	0.19	0.19	0.19	0.19	0.03 U	0.19	0.11	0.03 U	0.03 U
10	Tetrabutyltin (ug/l)	2	1	50	0.05	0.05	0.05	0.05	0.05	0.03 U	0.05	0.04	0.03 U	0.03 U
10	Tributyltin ion (ug/l)	2	1	50	0.02	0.02	0.02	0.02	0.02	0.02	0.03 U	0.025	0.02	0.02
10	Tetrachloroethene (ug/kg)	2	1	50	19	19	19	19	19	10 U	19	14.5	10 U	10 U
10	Toluene (ug/kg)	2	1	50	66	66	66	66	66	10 U	66	38	10 U	10 U
10	Anthracene (ug/kg)	7	3	43	3.5	24	10.6	3.5	4.3	3.4 U	6000 U	908	4.3	300 U
10	Benzo(k)fluoranthene (ug/kg)	7	3	43	4.3	36	25	4.3	34	2.9 U	6000 U	912	4.3	300 U
10	Cadmium (mg/kg)	7	3	43	0.17 J	0.5	0.36	0.17 J	0.4	0.17 J	2.1 U	0.97	0.5	1.6 U
10	Naphthalene (ug/kg)	7	3	43	2.7	30	15.9	2.7	15	2.7	6000 U	910	15	300 U
10	Silver (mg/kg)	7	3	43	0.37 J	1	0.76	0.37 J	0.9	0.37 J	2 U	1.16	0.9	2 U
10	Butylbenzyl phthalate (ug/kg)	7	3	43	3 J	54	35	3 J	47	3 J	6000 U	920	19 U	300 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
10	Aroclor 1254 (ug/kg)	6	2	33	23	70	46.5	23	23	16 U	100 U	55	23	100 U
10	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	3	1	33	1.4	1.4	1.4	1.4	1.4	1.4	3.8 U	2.4	1.4	2 U
10	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	3	1	33	1.3	1.3	1.3	1.3	1.3	0.78 U	1.3	1.13	0.78 U	1.3 U
10	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	3	1	33	0.77	0.77	0.77	0.77	0.77	0.39 U	0.77	0.63	0.39 U	0.72 U
10	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	3	1	33	0.62	0.62	0.62	0.62	0.62	0.62	0.78 U	0.71	0.62	0.72 U
10	Acenaphthylene (ug/kg)	7	2	29	3	9.5	6.25	3	3	3	6000 U	907.7	9.5	300 U
10	Benzo(a)pyrene (ug/kg)	7	2	29	34	38	36	34	34	2.7 U	6000 U	912	3.4 U	300 U
10	Benzoic acid (ug/kg)	7	2	29	380	480	430	380	380	13 U	45000 U	6843	17 U	2000 U
10	Indeno(1,2,3-cd)pyrene (ug/kg)	7	2	29	6.9	24 J	15.45	6.9	6.9	2.7 U	6000 U	908	6.9	300 U
10	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	7	2	29	4.4 A	5.4 A	4.9	4.4 A	4.4 A	3.2 UA	10 UA	6	4.4 A	10 UA
10	1,4-Dichlorobenzene (ug/kg)	7	2	29	6	23	14.5	6	6	6	23	16	14 U	19 U
10	Dibutyl phthalate (ug/kg)	7	2	29	5.1 JB	5.4 JB	5.25	5.1 JB	5.1 JB	5.1 JB	6000 U	909	14 U	300 U
10	Pentachlorophenol (ug/kg)	7	2	29	3.2 J	67	35.1	3.2 J	3.2 J	3.2 J	45000 U	6754	67	2000 U
10	Thallium (mg/kg)	4	1	25	5	5	5	5	5	1 U	5	3	1 U	5 U
10	4,4'-DDD (ug/kg)	7	1	14	2.1 J	2.1 J	2.1	2.1 J	2.1 J	1.9 U	10 U	5	3.2 U	10 U
10	4,4'-DDE (ug/kg)	7	1	14	3.3	3.3	3.3	3.3	3.3	1.9 U	10 U	5	3.2 U	10 U
10	4,4'-DDT (ug/kg)	7	1	14	4.4	4.4	4.4	4.4	4.4	3.2 U	10 U	6.0	4.3 U	10 U
10	Acenaphthene (ug/kg)	7	1	14	21	21	21	21	21	2.7 U	6000 U	907	3.4 U	300 U
10	Antimony (mg/kg)	7	1	14	0.79 JB	0.79 JB	0.79	0.79 JB	0.79 JB	0.79 JB	170 U	46	5 UJ	120 U
10	Benzyl alcohol (ug/kg)	7	1	14	8.8 J	8.8 J	8.8	8.8 J	8.8 J	8.8 J	6000 U	911	14 U	300 U
10	Fluorene (ug/kg)	7	1	14	22	22	22	22	22	2.7 U	6000 U	907	3.4 U	300 U
10	delta-Hexachlorocyclohexane (ug/kg)	7	1	14	0.14 J	0.14 J	0.14	0.14 J	0.14 J	0.14 J	10 U	4	0.97 UJ	10 U
10	Di-n-octyl phthalate (ug/kg)	7	1	14	13 J	13 J	13	13 J	13 J	13 U	6000 U	911	14 U	300 U
10	Endrin (ug/kg)	7	1	14	0.64 J	0.64 J	0.64	0.64 J	0.64 J	0.64 J	10 U	5	1.9 U	10 U
10	Phenol (ug/kg)	7	1	14	4.9 J	4.9 J	4.9	4.9 J	4.9 J	4.9 J	6000 U	910	17 U	300 U
10	2-Methylnaphthalene (ug/kg)	7	0	0						2.7 U	6000 U	907	3.4 U	300 U
10	Dibenz(a,h)anthracene (ug/kg)	7	0	0						2.7 U	6000 U	907	3.4 U	300 U
10	Dibenzofuran (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	Hexachlorobutadiene (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	Hexachloroethane (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	N-Nitrosodiphenylamine (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	1,2,4-Trichlorobenzene (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	1,2-Dichlorobenzene (ug/kg)	7	0	0						10 U	19 U	15	13 U	19 U
10	1,3-Dichlorobenzene (ug/kg)	7	0	0						10 U	19 U	15	13 U	19 U
10	2,4-Dimethylphenol (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	2-Methylphenol (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	Aldrin (ug/kg)	7	0	0						0.96 U	10 U	3.89	1.6 U	10 U
10	alpha-Endosulfan (ug/kg)	7	0	0						0.96 U	10 U	3.89	1.6 U	10 U
10	alpha-Hexachlorocyclohexane (ug/kg)	7	0	0						0.96 U	10 U	3.89	1.6 U	10 U
10	beta-Endosulfan (ug/kg)	7	0	0						1.9 U	10 U	4.9	3.2 U	10 U
10	beta-Hexachlorocyclohexane (ug/kg)	7	0	0						0.96 U	30 U	9.6	1.6 U	30 U
10	Dieldrin (ug/kg)	7	0	0						1.9 U	10 U	4.9	3.2 U	10 U
10	Diethyl phthalate (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	Dimethyl phthalate (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	Endosulfan sulfate (ug/kg)	7	0	0						1.9 UJ	10 U	4.9	3.2 U	10 U
10	Endrin aldehyde (ug/kg)	7	0	0						1.9 U	10 U	4.9	3.2 U	10 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
10	gamma-Hexachlorocyclohexane (ug/kg)	7	0	0						0.96 U	10 U	3.89	1.6 U	10 U
10	Heptachlor (ug/kg)	7	0	0						0.96 U	10 U	3.89	1.6 U	10 U
10	Heptachlor epoxide (ug/kg)	7	0	0						0.96 U	10 U	3.89	1.6 U	10 U
10	Hexachlorobenzene (ug/kg)	7	0	0						13 U	6000 U	912	17 U	300 U
10	Methoxychlor (ug/kg)	7	0	0						9.6 U	21 U	16	16 U	20 U
10	Toxaphene (ug/kg)	7	0	0						96 U	300 U	189	160 U	300 U
10	2,4-Dinitrotoluene (ug/kg)	6	0	0						14 U	6000 U	1087	96 U	300 U
10	2,6-Dinitrotoluene (ug/kg)	6	0	0						14 U	6000 U	1087	96 U	300 U
10	2-Chloronaphthalene (ug/kg)	6	0	0						2.9 U	6000 U	1057	19 U	300 U
10	2-Nitroaniline (ug/kg)	6	0	0						14 U	45000 U	7871	96 U	2000 U
10	3,3'-Dichlorobenzidine (ug/kg)	6	0	0						14 U	45000 U	7871	96 U	2000 U
10	3-Nitroaniline (ug/kg)	6	0	0						14 U	45000 U	7879	120 U	2000 U
10	4-Bromophenyl phenyl ether (ug/kg)	6	0	0						14 U	6000 U	1062	19 U	300 U
10	4-Chloroaniline (ug/kg)	6	0	0						14 U	6000 U	1075	58 U	300 U
10	4-Chlorophenyl phenyl ether (ug/kg)	6	0	0						14 U	6000 U	1062	19 U	300 U
10	4-Nitroaniline (ug/kg)	6	0	0						14 U	45000 U	7871	96 UJ	2000 U
10	Aroclor 1016 (ug/kg)	6	0	0						16 U	100 U	46	19 U	100 U
10	Aroclor 1221 (ug/kg)	6	0	0						32 U	100 U	59	39 U	100 U
10	Aroclor 1232 (ug/kg)	6	0	0						16 U	100 U	46	19 U	100 U
10	Aroclor 1242 (ug/kg)	6	0	0						16 U	100 U	46	19 U	100 U
10	Aroclor 1248 (ug/kg)	6	0	0						16 U	100 U	46	19 U	100 U
10	Bis(2-chloro-1-methylethyl) ether (ug/kg)	6	0	0						14 U	6000 U	1062	19 U	300 U
10	Bis(2-chloroethoxy) methane (ug/kg)	6	0	0						14 U	6000 U	1062	19 U	300 U
10	Bis(2-chloroethyl) ether (ug/kg)	6	0	0						14 U	6000 U	1068	39 U	300 U
10	Hexachlorocyclopentadiene (ug/kg)	6	0	0						14 U	6000 U	1087	96 UJ	300 U
10	Isophorone (ug/kg)	6	0	0						14 U	6000 U	1062	19 U	300 U
10	Nitrobenzene (ug/kg)	6	0	0						14 U	6000 U	1062	19 U	300 U
10	N-Nitrosodipropylamine (ug/kg)	6	0	0						14 U	6000 U	1068	39 U	300 U
10	2,4,5-Trichlorophenol (ug/kg)	6	0	0						14 U	6000 U	1087	96 U	300 U
10	2,4,6-Trichlorophenol (ug/kg)	6	0	0						14 U	6000 U	1087	96 U	300 U
10	2,4-Dichlorophenol (ug/kg)	6	0	0						14 U	6000 U	1075	58 U	300 U
10	2,4-Dinitrophenol (ug/kg)	6	0	0						14 U	45000 U	7902	190 UJ	2000 U
10	2-Chlorophenol (ug/kg)	6	0	0						14 U	6000 U	1062	19 U	300 U
10	2-Nitrophenol (ug/kg)	6	0	0						14 U	6000 U	1087	96 U	300 U
10	4,6-Dinitro-2-methylphenol (ug/kg)	6	0	0						14 U	45000 U	7902	190 UJ	2000 U
10	4-Chloro-3-methylphenol (ug/kg)	6	0	0						14 U	6000 U	1068	39 U	300 U
10	4-Nitrophenol (ug/kg)	6	0	0						14 U	45000 U	7871	96 U	2000 U
10	Chlordane (cis & trans) (ug/kg)	5	0	0						16 U	100 U	50.6	16 U	100 U
10	Endrin ketone (ug/kg)	5	0	0						2.2 UIJ	4.9 UIJ	3.56	3.2 U	4.3 U
10	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	3	0	0						0.29 U	0.99 U	0.75	0.29 U	0.98 U
10	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	3	0	0						0.26 U	0.37 U	0.31	0.26 U	0.31 U
10	Aniline (ug/kg)	2	0	0						1000 U	20000 U	10500	1000 U	1000 U
10	Butyltin ion (ug/kg)	2	0	0						5.8 U	5.8 U	5.8	5.8 U	5.8 U
10	Dibutyltin ion (ug/kg)	2	0	0						5.8 U	5.8 U	5.8	5.8 U	5.8 U
10	N-Nitrosodimethylamine (ug/kg)	2	0	0						2000 U	45000 U	23500	2000 U	2000 U
10	Tetrabutyltin (ug/kg)	2	0	0						5.8 U	5.8 U	5.8	5.8 U	5.8 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
10	1,1,1-Trichloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	1,1,2,2-Tetrachloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	1,1,2-Trichloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	1,1-Dichloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	1,2-Dichloroethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	1,2-Dichloropropane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	2,4,5-T (ug/kg)	2	0	0						16 U	21 U	19	16 U	16 U
10	2,4-D (ug/kg)	2	0	0						16 U	21 U	19	16 U	16 U
10	2,4-DB (ug/kg)	2	0	0						16 U	21 U	19	16 U	16 U
10	2-Chloroethyl vinyl ether (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
10	Acetone (ug/kg)	2	0	0						200 U	200 U	200	200 U	200 U
10	alpha-Chlordane (ug/kg)	2	0	0						0.96 UJ	0.97 UJ	0.97	0.96 UJ	0.96 UJ
10	Benzene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Bromodichloromethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Bromoform (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Bromomethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
10	Carbazole (ug/kg)	2	0	0						19 U	19 U	19	19 U	19 U
10	Carbon disulfide (ug/kg)	2	0	0						200 U	200 U	200	200 U	200 U
10	Carbon tetrachloride (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Chlorobenzene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Chlorodibromomethane (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Chloroethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
10	Chloroform (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Chloromethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
10	cis-1,2-Dichloroethene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	cis-1,3-Dichloropropene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Dalapon (ug/kg)	2	0	0						81 U	110 U	96	81 U	81 U
10	Dicamba (ug/kg)	2	0	0						32 U	42 U	37	32 U	32 U
10	Dichloroprop (ug/kg)	2	0	0						16 U	21 U	19	16 U	16 U
10	Dinoseb (ug/kg)	2	0	0						16 U	21 U	19	16 U	16 U
10	Ethylbenzene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	gamma-Chlordane (ug/kg)	2	0	0						0.96 U	0.97 U	0.97	0.96 U	0.96 U
10	MCPA (ug/kg)	2	0	0						16 U	21 U	19	16 U	16 U
10	MCPP (ug/kg)	2	0	0						16 U	21 U	19	16 U	16 U
10	Methyl isobutyl ketone (ug/kg)	2	0	0						100 U	100 U	100	100 U	100 U
10	Methyl N-butyl ketone (ug/kg)	2	0	0						100 U	100 U	100	100 U	100 U
10	Methylene chloride (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Methylethyl ketone (ug/kg)	2	0	0						200 U	200 U	200	200 U	200 U
10	Silvex (ug/kg)	2	0	0						16 U	21 U	19	16 U	16 U
10	Styrene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	trans-1,2-Dichloroethene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	trans-1,3-Dichloropropene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Trichloroethene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Trichlorofluoromethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
10	Trichlorotrifluoroethane (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
10	Vinyl acetate (ug/kg)	2	0	0						100 U	100 U	100	100 U	100 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
10	Vinyl chloride (ug/kg)	2	0	0						20 U	20 U	20	20 U	20 U
10	Vinylidene chloride (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
10	Xylene (ug/kg)	2	0	0						10 U	10 U	10	10 U	10 U
11	Clay (%)	7	7	100	4.1	11.4	6.8	5.5	7.8	4.1	11.4	6.8	5.5	7.8
11	Fines (%)	7	7	100	35.9	90.6	67.5	59.3	85.9	35.9	90.6	67.5	59.3	85.9
11	Mean grain size (mm)	7	7	100	0.03	0.21	0.08	0.05	0.1	0.03	0.21	0.08	0.05	0.1
11	Median grain size (mm)	7	7	100	0.02	0.15	0.06	0.04	0.06	0.02	0.15	0.06	0.04	0.06
11	Silt (%)	7	7	100	31.8	80.4	60.6	52.7	79.2	31.8	80.4	60.6	52.7	79.2
11	Total volatile solids (%)	7	7	100	3.1	8.6	5.3	4.7	6.9	3.1	8.6	5.3	4.7	6.9
11	Aroclor 1260 (ug/kg)	6	6	100	9	43	24	15	42	9	43	24	15	42
11	Benzo(a)pyrene (ug/kg)	6	6	100	0.5 G	170 G	53.75	29	56	0.5 G	170 G	53.75	29	56
11	Benzo(b)fluoranthene (ug/kg)	6	6	100	22 G	88 G	46	37 G	63 J	22 G	88 G	46	37 G	63 J
11	Benzo(b+k)fluoranthene (ug/kg)	6	6	100	40 A	196 A	82	51 A	85 A	40 A	196 A	82	51 A	85 A
11	Benzo(g,h,i)perylene (ug/kg)	6	6	100	0.7 G	87 G	35	21 G	53	0.7 G	87 G	35	21 G	53
11	Benzo(k)fluoranthene (ug/kg)	6	6	100	10 J	108 G	36	21 G	35 G	10 J	108 G	36	21 G	35 G
11	Cadmium (mg/kg)	6	6	100	0.19	0.38	0.27	0.23	0.33	0.19	0.38	0.27	0.23	0.33
11	Chromium (mg/kg)	6	6	100	19.7	34.5	27.1	28.7	30.4	19.7	34.5	27.1	28.7	30.4
11	Copper (mg/kg)	6	6	100	31.5	35.9	33.65	33	35.9	31.5	35.9	33.65	33	35.9
11	Dibenzofuran (ug/kg)	6	6	100	3 J	8 G	6	5 G	8 G	3 J	8 G	6	5 G	8 G
11	Fluoranthene (ug/kg)	6	6	100	0.7 G	217 G	108	110 G	130 J	0.7 G	217 G	108	110 G	130 J
11	High Molecular Weight PAH (ug/kg)	6	6	100	2.8 A	1314 A	538	427 A	660 A	2.8 A	1314 A	538	427 A	660 A
11	Lead (mg/kg)	6	6	100	17.7	38.7	26.5	25.7	28.5	17.7	38.7	26.5	25.7	28.5
11	Mercury (mg/kg)	6	6	100	0.07	0.19 E	0.12	0.09	0.18 E	0.07	0.19 E	0.12	0.09	0.18 E
11	Nickel (mg/kg)	6	6	100	18.5	22.8	20.7	19.8	22.6	18.5	22.8	21	19.8	22.6
11	Polychlorinated biphenyls (ug/kg)	6	6	100	9 A	86 A	34	15 A	43 A	9 A	86 A	34	15 A	43 A
11	Polycyclic Aromatic Hydrocarbons (ug/kg)	6	6	100	2.8 A	1659 A	691	535 A	753 A	2.8 A	1659 A	691	535 A	753 A
11	Pyrene (ug/kg)	6	6	100	0.9 G	237 G	112.2	100 J	150 J	0.9 G	237 G	112.15	100 J	150 J
11	Silver (mg/kg)	6	6	100	0.22	0.41	0.3	0.29	0.38	0.22	0.41	0.3	0.29	0.38
11	Total organic carbon (%)	6	6	100	1.64	2.42	2.0	1.83	2.33	1.64	2.42	2.0	1.83	2.33
11	Zinc (mg/kg)	6	6	100	78	181	123	108	161	78	181	123	108	161
11	4,4'-DDD (ug/kg)	4	4	100	0.7	4	1.9	1	2	0.7	4	1.9	1	2
11	4,4'-DDE (ug/kg)	4	4	100	1	4	2.3	2	2	1	4	2.3	2	2
11	Acid Volatile Sulfides (mg/kg)	4	4	100	13 G	46 G	28	17	37	13 G	46 G	28	17	37
11	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	4	4	100	3.3 A	8 A	5.3	4 A	5.7 A	3.3 A	8 A	5.25	4 A	5.7 A
11	Total solids (%)	4	4	100	55.8	61.9	59	59.7	60.5	55.8	61.9	59	59.7	60.5
11	Sand (%)	3	3	100	9.4	40.6	21	9.4	14.1	9.4	40.6	21	9.4	14.1
11	Antimony (mg/kg)	2	2	100	0.23	0.25	0.24	0.23	0.23	0.23	0.25	0.24	0.23	0.23
11	Benzoic acid (ug/kg)	2	2	100	40 J	60 J	50	40 J	40 J	40 J	60 J	50	40 J	40 J
11	Beryllium (mg/kg)	2	2	100	0.38	0.44	0.41	0.38	0.38	0.38	0.44	0.41	0.38	0.38
11	Butyltin ion (ug/kg)	2	2	100	2	4	3	2	2	2	4	3	2	2
11	Dibutyltin ion (ug/kg)	2	2	100	2	4	3	2	2	2	4	3	2	2
11	Selenium (mg/kg)	2	2	100	2.1	4.5	3.3	2.1	2.1	2.1	4.5	3.3	2.1	2.1
11	Thallium (mg/kg)	2	2	100	0.08	0.1	0.09	0.08	0.08	0.08	0.1	0.09	0.08	0.08
11	Tributyltin ion (ug/kg)	2	2	100	4	13	8.5	4	4	4	13	8.5	4	4
11	Bis(2-ethylhexyl) phthalate (ug/kg)	2	2	100	100 J	200 J	150	100 J	100 J	100 J	200 J	150	100 J	100 J
11	Butylbenzyl phthalate (ug/kg)	2	2	100	8 J	9 J	8.5	8 J	8 J	8 J	9 J	8.5	8 J	8 J

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
11	Carbazole (ug/kg)	2	2	100	5 J	7 J	6	5 J	5 J	5 J	7 J	6	5 J	5 J
11	Dibutyl phthalate (ug/kg)	2	2	100	5 J	7 J	6	5 J	5 J	5 J	7 J	6	5 J	5 J
11	Diesel fuels (mg/kg)	2	2	100	130	300	215	130	130	130	300	215	130	130
11	Diethyl phthalate (ug/kg)	2	2	100	5 J	5 J	5	5 J	5 J	5 J	5 J	5	5 J	5 J
11	Phenol (ug/kg)	2	2	100	7 J	8 J	7.5	7 J	7 J	7 J	8 J	7.5	7 J	7 J
11	Residual Range Organics (mg/kg)	2	2	100	430	730	580	430	430	430	730	580	430	430
11	2-Methylnaphthalene (ug/kg)	6	5	83	2 J	42 G	20	7 J	25 G	2 J	42 G	17.5	7 J	25 G
11	Acenaphthylene (ug/kg)	6	5	83	6 G	66 G	19	7 J	10 J	5 UG	66 G	17	7 J	10 J
11	Anthracene (ug/kg)	6	5	83	5 J	42 G	19	15 G	19 G	5 UG	42 G	17	15 G	19 G
11	Arsenic (mg/kg)	6	5	83	0.5 E	4.4	2.8	2	3.6	0.5 U	4.4	2.4	2	3.6
11	Benz(a)anthracene (ug/kg)	6	5	83	28 G	157 G	65	37	52	5 UG	157 G	55	37	52
11	Chrysene (ug/kg)	6	5	83	42 G	137 G	70	45	74	5 UG	137 G	60	45	74
11	Dibenz(a,h)anthracene (ug/kg)	6	5	83	5 G	17 G	8	5 J	8 J	5 UG	17 G	8	5 J	8 J
11	Fluorene (ug/kg)	6	5	83	8 J	14 G	11	10 G	13 G	5 UG	14 G	10	10 G	13 G
11	Indeno(1,2,3-cd)pyrene (ug/kg)	6	5	83	18 G	96 G	43	20 J	52	5 UG	96 G	37	20 J	52
11	Low Molecular Weight PAH (ug/kg)	6	5	83	93 A	345 A	183	108 A	184 A	5 UA	345 A	153	108 A	184 A
11	Naphthalene (ug/kg)	6	5	83	6 J	55 G	25	10 J	32 G	5 UG	55 G	22	10 J	32 G
11	Phenanthrene (ug/kg)	6	5	83	58 J	124 G	80	63 J	82 G	5 UG	124 G	68	63 J	82 G
11	Acenaphthene (ug/kg)	6	4	67	9 J	21 G	12	9 G	10 G	5 UG	21 G	12	9 G	15 U
11	4,4'-DDT (ug/kg)	4	2	50	0.3	4	2.2	0.3	0.3	0.3	4	2.075	2 U	2 U
11	Dimethyl phthalate (ug/kg)	2	1	50	2 J	2 J	2	2 J	2 J	2 J	15 U	8.5	2 J	2 J
11	Aroclor 1254 (ug/kg)	6	2	33	14	44	29	14	14	10 U	44	16	10 U	14
11	Gravel (%)	3	1	33	0.1	0.1	0.1	0.1	0.1	0.1	0.1 U	0.1	0.1	0.1 U
11	alpha-Endosulfan (ug/kg)	4	1	25	0.5 J	0.5 J	0.5	0.5 J	0.5 J	0.5 J	2 UG	1.625	2 U	2 U
11	Dieldrin (ug/kg)	4	1	25	0.4	0.4	0.4	0.4	0.4	0.4	2 U	1.6	2 U	2 U
11	Aroclor 1016 (ug/kg)	6	0	0						10 U	12 U	10	10 U	10 UG
11	Aroclor 1221 (ug/kg)	6	0	0						10 U	37 U	16	10 U	20 U
11	Aroclor 1232 (ug/kg)	6	0	0						10 U	24 U	13	10 U	11 U
11	Aroclor 1242 (ug/kg)	6	0	0						10 U	12 U	10	10 U	10 U
11	Aroclor 1248 (ug/kg)	6	0	0						10 U	20 U	12	10 U	10 UG
11	Aldrin (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 UG
11	alpha-Hexachlorocyclohexane (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 UG
11	beta-Endosulfan (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 UG
11	beta-Hexachlorocyclohexane (ug/kg)	4	0	0						2 U	2 U	2	2 U	2 UG
11	Chlordane (cis & trans) (ug/kg)	4	0	0						10 U	10 U	10	10 U	10 U
11	delta-Hexachlorocyclohexane (ug/kg)	4	0	0						2 U	2 UG	2	2 U	2 U
11	Endosulfan sulfate (ug/kg)	4	0	0						2 U	2 UG	2	2 U	2 U
11	Endrin (ug/kg)	4	0	0						2 U	2 UG	2	2 U	2 U
11	Endrin aldehyde (ug/kg)	4	0	0						2 U	2 UG	2	2 U	2 U
11	gamma-Hexachlorocyclohexane (ug/kg)	4	0	0						2 U	2 UG	2	2 U	2 U
11	Heptachlor (ug/kg)	4	0	0						2 U	2 UG	2	2 U	2 U
11	Heptachlor epoxide (ug/kg)	4	0	0						2 U	2 UG	2	2 U	2 U
11	Methoxychlor (ug/kg)	4	0	0						4 U	4 UG	4	4 U	4 U
11	Toxaphene (ug/kg)	4	0	0						30 U	50 UG	45	50 U	50 U
11	2,4-Dinitrotoluene (ug/kg)	2	0	0						75 U	75 U	75	75 U	75 U
11	2,6-Dinitrotoluene (ug/kg)	2	0	0						30 U	30 U	30	30 U	30 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
11	2-Chloronaphthalene (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	2-Nitroaniline (ug/kg)	2	0	0						30 U	30 U	30	30 U	30 U
11	3,3'-Dichlorobenzidine (ug/kg)	2	0	0						200 U	200 U	200	200 U	200 U
11	3-Nitroaniline (ug/kg)	2	0	0						300 U	300 U	300	300 U	300 U
11	4-Bromophenyl phenyl ether (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	4-Chloroaniline (ug/kg)	2	0	0						75 U	75 U	75	75 U	75 U
11	4-Chlorophenyl phenyl ether (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	4-Nitroaniline (ug/kg)	2	0	0						150 U	150 U	150	150 U	150 U
11	Benzyl alcohol (ug/kg)	2	0	0						75 U	75 U	75	75 U	75 U
11	Bis(2-chloroethoxy) methane (ug/kg)	2	0	0						30 U	30 U	30	30 U	30 U
11	Bis(2-chloroethyl) ether (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	Bis(2-chloroisopropyl) ether (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	Hexachlorobutadiene (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	Hexachlorocyclopentadiene (ug/kg)	2	0	0						300 U	300 U	300	300 U	300 U
11	Hexachloroethane (ug/kg)	2	0	0						60 U	60 U	60	60 U	60 U
11	Isophorone (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	Nitrobenzene (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	N-Nitrosodiphenylamine (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	N-Nitrosodipropylamine (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	Tetrabutyltin (ug/kg)	2	0	0						3 U	3 U	3	3 U	3 U
11	1,2,4-Trichlorobenzene (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	1,2-Dichlorobenzene (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	1,3-Dichlorobenzene (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	1,4-Dichlorobenzene (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	2,4,5-Trichlorophenol (ug/kg)	2	0	0						75 U	75 U	75	75 U	75 U
11	2,4,6-Trichlorophenol (ug/kg)	2	0	0						75 U	75 U	75	75 U	75 U
11	2,4-Dichlorophenol (ug/kg)	2	0	0						150 U	150 U	150	150 U	150 U
11	2,4-Dimethylphenol (ug/kg)	2	0	0						300 U	300 U	300	300 U	300 U
11	2,4-Dinitrophenol (ug/kg)	2	0	0						450 U	450 U	450	450 U	450 U
11	2-Chlorophenol (ug/kg)	2	0	0						75 U	75 U	75	75 U	75 U
11	2-Methylphenol (ug/kg)	2	0	0						300 U	300 U	300	300 U	300 U
11	2-Nitrophenol (ug/kg)	2	0	0						75 U	75 U	75	75 U	75 U
11	3- and 4-Methylphenol Coelution (ug/kg)	2	0	0						300 U	300 U	300	300 U	300 U
11	4,6-Dinitro-2-methylphenol (ug/kg)	2	0	0						300 U	300 U	300	300 U	300 U
11	4-Chloro-3-methylphenol (ug/kg)	2	0	0						75 U	75 U	75	75 U	75 U
11	4-Nitrophenol (ug/kg)	2	0	0						150 U	150 U	150	150 U	150 U
11	Di-n-octyl phthalate (ug/kg)	2	0	0						300 U	300 U	300	300 U	300 U
11	Gasoline (mg/kg)	2	0	0						67 U	69 U	68	67 U	67 U
11	Hexachlorobenzene (ug/kg)	2	0	0						15 U	15 U	15	15 U	15 U
11	Pentachlorophenol (ug/kg)	2	0	0						450 U	450 U	450	450 U	450 U
12	Fines (%)	23	23	100	0.1	71.2	22.2	0.7	52.28	0.1	71.2	22.2	0.7	52.28
12	Mean grain size (mm)	23	23	100	0.04	4.45	0.77	0.35	1.71	0.04	4.45	0.77	0.35	1.71
12	Median grain size (mm)	23	23	100	0.02	1.12	0.36	0.25	0.63	0.02	1.12	0.36	0.25	0.63
12	Silt (%)	23	23	100	0.1	59.1	19.4	0.7	46.9	0.1	59.1	19.4	0.7	46.9
12	Total volatile solids (%)	23	23	100	0.8	8.99	3.5	1.4	7.41	0.8	8.99	3.52	1.4	7.41
12	Benz(a)anthracene (ug/kg)	20	20	100	0.7 G	6400	349	25	135 G	0.7 G	6400	349	25	135 G

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
12	Cadmium (mg/kg)	20	20	100	0.04	2.12	0.283	0.19	0.36 J	0.04	2.12	0.28	0.19	0.36 J
12	Chrysene (ug/kg)	20	20	100	0.7 G	8100	439	34	149 G	0.7 G	8100	439	34	149 G
12	Fluoranthene (ug/kg)	20	20	100	2 G	16000	885	87	310 G	2 G	16000	885	87	310 G
12	High Molecular Weight PAH (ug/kg)	20	20	100	6 A	74460 A	4112	291 A	1647 A	6 A	74460 A	4112	291 A	1647 A
12	Lead (mg/kg)	20	20	100	2.2	489	63	26	367	2.2	489	63	26	367
12	Low Molecular Weight PAH (ug/kg)	20	20	100	1.4 A	9654 A	620	97.4 A	671 A	1.4 A	9654 A	620	97.4 A	671 A
12	Mercury (mg/kg)	20	20	100	0.01 E	0.87 E	0.15	0.08 E	0.35	0.01 E	0.87 E	0.15	0.08 E	0.35
12	Nickel (mg/kg)	20	20	100	10.4	31	18	17.1	28	10.4	31	18	17.1	28
12	Phenanthrene (ug/kg)	20	20	100	0.9 G	6800	400	45 G	226 G	0.9 G	6800	400	45 G	226 G
12	Polycyclic Aromatic Hydrocarbons (ug/kg)	20	20	100	7.4 A	84114 A	4732	381.6 A	2318 A	7.4 A	84114 A	4732	381.6 A	2318 A
12	Pyrene (ug/kg)	20	20	100	1 G	19000	1038	68	450 G	1 G	19000	1038	68	450 G
12	Silver (mg/kg)	20	20	100	0.03	1.1	0.28	0.18 G	0.59 J	0.03	1.1	0.28	0.18 G	0.59 J
12	Total organic carbon (%)	20	20	100	0.07	3.1	1.41	1.4	2.74	0.07	3.1	1.41	1.4	2.74
12	Zinc (mg/kg)	20	20	100	29.4	230	104.98	102	190	29.4	230	105	102	190
12	Total solids (%)	17	17	100	53.2	92.8	72	66.6	89.7	53.2	92.8	72	66.6	89.7
12	Chromium (mg/kg)	16	16	100	13.9	47.8 G	24	19.6	35.4	13.9	47.8 G	24	19.6	35.4
12	Sand (%)	14	14	100	28.8	99.2	66	60.4	95	28.8	99.2	66	60.4	95
12	Gravel (%)	9	9	100	0.1	45.4	8.3	0.6	11	0.1	45.4	8.3	0.6	11
12	Bis(2-ethylhexyl) phthalate (ug/kg)	7	7	100	20 J	220	139	98 B	210 B	20 J	220	139	98 B	210 B
12	Total sulfides (mg/kg)	2	2	100	2 G	58 G	30	2 G	2 G	2 G	58 G	30	2 G	2 G
12	4-Methylphenol (ug/kg)	2	2	100	44	52	48	44	44	44	52	48	44	44
12	1,2,3,4,6,7,8-Heptachlorodibenzofuran (ng/kg)	1	1	100	19	19	19	19	19	19	19	19	19	19
12	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (ng/kg	1	1	100	160	160	160	160	160	160	160	160	160	160
12	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
12	1,2,3,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	1	100	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
12	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	17	17	17	17	17	17	17	17	17	17
12	1,2,3,7,8,9-Hexachlorodibenzofuran (ng/kg)	1	1	100	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
12	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
12	2,3,4,7,8-Pentachlorodibenzofuran (ng/kg)	1	1	100	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
12	2,3,7,8-Tetrachlorodibenzofuran (ng/kg)	1	1	100	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
12	4-Chloroaniline (ug/kg)	1	1	100	4 J	4 J	4	4 J	4 J	4 J	4 J	4	4 J	4 J
12	Beryllium (mg/kg)	1	1	100	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
12	Bromine (ug/kg)	1	1	100	13	13	13	13	13	13	13	13	13	13
12	Chlorine (ug/kg)	1	1	100	286	286	286	286	286	286	286	286	286	286
12	Dibutyltin ion (ug/kg)	1	1	100	0.5 J	0.5 J	0.5	0.5 J	0.5 J	0.5 J	0.5 J	0.5	0.5 J	0.5 J
12	Heptachlorodibenzofuran (ng/kg)	1	1	100	64	64	64	64	64	64	64	64	64	64
12	Heptachlorodibenzo-p-dioxin (ng/kg)	1	1	100	310	310	310	310	310	310	310	310	310	310
12	Hexachlorodibenzofuran (ng/kg)	1	1	100	47	47	47	47	47	47	47	47	47	47
12	Hexachlorodibenzo-p-dioxin (ng/kg)	1	1	100	110	110	110	110	110	110	110	110	110	110
12	Octachlorodibenzofuran (ng/kg)	1	1	100	69	69	69	69	69	69	69	69	69	69
12	Octachlorodibenzo-p-dioxin (ng/kg)	1	1	100	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
12	Pentachlorodibenzofuran (ng/kg)	1	1	100	20	20	20	20	20	20	20	20	20	20
12	Pentachlorodibenzo-p-dioxin (ng/kg)	1	1	100	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
12	Tetrachlorodibenzofuran (ng/kg)	1	1	100	15	15	15	15	15	15	15	15	15	15
12	Tetrachlorodibenzo-p-dioxin (ng/kg)	1	1	100	3	3	3	3	3	3	3	3	3	3
12	Thallium (mg/kg)	1	1	100	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
12	Carbazole (ug/kg)	1	1	100	0.6 J	0.6 J	0.6	0.6 J	0.6 J	0.6 J	0.6 J	0.6	0.6 J	0.6 J
12	Diesel fuels (mg/kg)	1	1	100	40 J	40 J	40	40 J	40 J	40 J	40 J	40	40 J	40 J
12	Residual Range Organics (mg/kg)	1	1	100	100 J	100 J	100	100 J	100 J	100 J	100 J	100	100 J	100 J
12	Benzo(a)pyrene (ug/kg)	20	19	95	0.6 G	7300	419	25	168 G	0.6 G	7300	399	25	168 G
12	Naphthalene (ug/kg)	20	19	95	0.4 G	212 G	37	11 G	190	0.4 G	212 G	36	20 U	190
12	2-Methylnaphthalene (ug/kg)	18	17	94	0.6 G	25	10	5.3	24 G	0.6 G	25	10	5.3	24 G
12	Benzo(g,h,i)perylene (ug/kg)	20	18	90	0.7 G	4400	284	21 G	270	0.7 G	4400	257	21 G	270
12	Copper (mg/kg)	20	18	90	11	70.1	28	30.4	42	11	70.1	27	26.6 UG	42
12	Acenaphthylene (ug/kg)	20	17	85	2 J	240	24	6 G	32 G	2 J	240	22	6 G	32 G
12	Benzo(b)fluoranthene (ug/kg)	20	17	85	2 J	2900	198	28	91 G	2 J	2900	169	25 G	91 G
12	Benzo(b+k)fluoranthene (ug/kg)	20	17	85	2 A	8000 A	519	50 A	183 A	2 A	8000 A	442	44 A	183 A
12	Fluorene (ug/kg)	20	17	85	0.9 J	190	23	6.5	50 G	0.9 J	190	21	6.5	50 G
12	Acid Volatile Sulfides (mg/kg)	13	11	85	0.6	42	16	2.9	42	0.6	42	13	2.9	42
12	Anthracene (ug/kg)	20	16	80	4.5	2200	156	13 G	56 G	4.5	2200	127	13 G	56 G
12	Benzo(k)fluoranthene (ug/kg)	20	16	80	9 G	5100	342	18 G	92 G	2.2 U	5100	275	16	92 G
12	Indeno(1,2,3-cd)pyrene (ug/kg)	20	16	80	1 J	4600	334	22 G	360	1 J	4600	268	16 G	360
12	3- and 4-Methylphenol Coelution (ug/kg)	5	4	80	44	360	174	130	160	44	360	199	130	300 U
12	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	19	14	74	0.3 A	23 A	5.4	2.9 A	15.4 A	0.3 A	23 A	5.4	2 UA	20 UA
12	Acenaphthene (ug/kg)	20	14	70	4 G	93 G	21	10 G	59 G	2.2 U	93 G	17	10 G	59 G
12	Dibenz(a,h)anthracene (ug/kg)	20	13	65	2 G	660	59	5 G	53	2 G	660	41	5 G	53
12	Dibenzofuran (ug/kg)	20	12	60	0.7 G	27	8.6	5 G	16	0.7 G	27	9	5 UG	20 U
12	4,4'-DDE (ug/kg)	19	11	58	0.5	5.4	2.7	2	5.4	0.5	20 U	3.4	2 U	5.4
12	Arsenic (mg/kg)	20	11	55	0.5	19.7	4.2	2.3	5	0.5 U	19.7	2.5	0.5 U	5
12	Aroclor 1260 (ug/kg)	20	10	50	6	7100	807	16	710	6	7100	410	13 U	710
12	Polychlorinated biphenyls (ug/kg)	20	10	50	10 A	7100 A	829	45 A	710 A	10 A	7100 A	424	26 UA	710 A
12	Clay (%)	23	11	48	2.2	12.1	5.8	4.36	10.9	0.1 U	12.1	2.8	0.1 U	7.5
12	4,4'-DDD (ug/kg)	19	9	47	0.3	19	3.1	0.8	3	0.3	20 U	3.6	2	19
12	Aroclor 1254 (ug/kg)	20	8	40	4	90	27	11	46	4	90	18	10 U	46
12	Tributyltin ion (ug/l)	3	1	33	0.05 G	0.05 G	0.05	0.05 G	0.05 G	0.04 U	0.05 G	0.04	0.04 U	0.04 U
12	4,4'-DDT (ug/kg)	19	6	32	0.2	10	2.9	1	3.4	0.2	20 U	3.3	2	10
12	Antimony (mg/kg)	7	2	29	0.14	1.1 J	0.62	0.14	0.14	0.14	4.8 U	2.2	0.26 UG	4.5 U
12	Benzoic acid (ug/kg)	7	2	29	11	52	32	11	11	10 U	590 U	125	11	100 U
12	Butylbenzyl phthalate (ug/kg)	7	2	29	2 J	28	15	2 J	2 J	2 J	28	13	10 U	20 U
12	Dibutyl phthalate (ug/kg)	7	2	29	12 B	13 B	13	12 B	12 B	10 U	30 U	16	12 B	20 U
12	Phenol (ug/kg)	7	2	29	7 J	20	14	7 J	7 J	7 J	20	14	10 U	20 U
12	Dieldrin (ug/kg)	19	4	21	2	13	6	3.4	3.8	2 U	65 UB	6	2 U	13
12	Endrin (ug/kg)	19	3	16	0.5 J	3.9	1.7	0.5 J	0.8 J	0.5 J	20 U	3	2 U	3.9
12	1,4-Dichlorobenzene (ug/kg)	7	1	14	5.8 J	5.8 J	5.8	5.8 J	5.8 J	1 U	15 U	8	5.8 J	12 U
12	Diethyl phthalate (ug/kg)	7	1	14	6 J	6 J	6	6 J	6 J	6 J	20 U	13	10 U	20 U
12	gamma-Hexachlorocyclohexane (ug/kg)	19	2	11	0.2 J	0.88 J	0.54	0.2 J	0.2 J	0.2 J	2 U	2	2 U	2 U
12	Methoxychlor (ug/kg)	19	2	11	1 J	2	2	1 J	1 J	1 J	40 U	8	4 U	16 U
12	Chlordane (cis & trans) (ug/kg)	17	1	6	47	47	47	47	47	10 U	47	13	10 U	16 U
12	Aldrin (ug/kg)	19	1	5	1 J	1 J	1	1 J	1 J	1 J	2 U	2	2 U	2 U
12	alpha-Endosulfan (ug/kg)	19	1	5	1 J	1 J	1	1 J	1 J	1 J	20 U	3	2 U	2 U
12	beta-Endosulfan (ug/kg)	19	1	5	2 J	2 J	2	2 J	2 J	2 U	20 U	3	2 U	3.2 U
12	beta-Hexachlorocyclohexane (ug/kg)	19	1	5	1 J	1 J	1	1 J	1 J	1 J	2 U	2	2 U	2 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
12	Endosulfan sulfate (ug/kg)	19	1	5	0.5 J	0.5 J	0.5	0.5 J	0.5 J	0.5 J	20 U	3	2 U	4 U
12	Endrin aldehyde (ug/kg)	19	1	5	5.6	5.6	5.6	5.6	5.6	2 U	190 UB	13	2 U	15 UB
12	Aroclor 1016 (ug/kg)	20	0	0						10 U	25 U	12	10 U	16 U
12	Aroclor 1221 (ug/kg)	20	0	0						10 U	32 U	15	10 U	29 U
12	Aroclor 1232 (ug/kg)	20	0	0						10 U	25 U	12	10 U	16 U
12	Aroclor 1242 (ug/kg)	20	0	0						10 U	16 U	11	10 U	15 U
12	Aroclor 1248 (ug/kg)	20	0	0						10 U	50 U	13	10 U	16 U
12	alpha-Hexachlorocyclohexane (ug/kg)	19	0	0						1.3 U	2 U	1.9	2 U	2 U
12	delta-Hexachlorocyclohexane (ug/kg)	19	0	0						1.3 U	2 U	1.9	2 U	2 U
12	Heptachlor (ug/kg)	19	0	0						1.3 U	2 U	1.9	2 U	2 U
12	Heptachlor epoxide (ug/kg)	19	0	0						1.3 U	2 U	1.9	2 U	2 U
12	Toxaphene (ug/kg)	19	0	0						30 U	300 UB	97	30 U	300 U
12	Benzyl alcohol (ug/kg)	7	0	0						6 U	74 U	18	10 U	12 U
12	Hexachlorobutadiene (ug/kg)	7	0	0						10 U	20 U	14	11 U	20 U
12	N-Nitrosodiphenylamine (ug/kg)	7	0	0						10 U	15 U	12	11 U	12 U
12	1,2-Dichlorobenzene (ug/kg)	7	0	0						1 U	15 U	9	10 U	12 U
12	1,3-Dichlorobenzene (ug/kg)	7	0	0						1 U	15 U	9	10 U	12 U
12	2,4-Dimethylphenol (ug/kg)	7	0	0						6 U	300 U	51	10 U	12 U
12	2-Methylphenol (ug/kg)	7	0	0						6 U	300 U	51	10 U	12 U
12	Dimethyl phthalate (ug/kg)	7	0	0						10 U	20 U	14	11 U	20 U
12	Di-n-octyl phthalate (ug/kg)	7	0	0						10 U	300 U	55	11 U	20 U
12	Hexachlorobenzene (ug/kg)	7	0	0						10 U	20 U	14	11 U	20 U
12	Pentachlorophenol (ug/kg)	7	0	0						10 U	450 U	88	11 U	61 U
12	Endrin ketone (ug/kg)	6	0	0						2 U	20 U	6	2.9 U	3.2 U
12	Hexachloroethane (ug/kg)	5	0	0						10 U	59 U	20	10 U	12 U
12	1,2,4-Trichlorobenzene (ug/kg)	5	0	0						10 U	15 U	12	10 U	12 U
12	Ammonia (mg/kg)	2	0	0						65 UJ	100 UJ	83	65 UJ	65 UJ
12	Butyltin ion (ug/l)	2	0	0						0.04 U	0.04 U	0.04	0.04 U	0.04 U
12	Dibutyltin ion (ug/l)	2	0	0						0.04 U	0.04 U	0.04	0.04 U	0.04 U
12	Tetrabutyltin (ug/l)	2	0	0						0.04 U	0.04 U	0.04	0.04 U	0.04 U
12	alpha-Chlordane (ug/kg)	2	0	0						2 U	20 U	11	2 U	2 U
12	gamma-Chlordane (ug/kg)	2	0	0						3 UB	20 U	12	3 UB	3 UB
12	1,2,3,4,7,8,9-Heptachlorodibenzofuran (ng/kg)	1	0	0						2.2 U	2.2 U	2.2	2.2 U	2.2 U
12	1,2,3,4,7,8-Hexachlorodibenzofuran (ng/kg)	1	0	0						4.5 U	4.5 U	4.5	4.5 U	4.5 U
12	1,2,3,7,8-Pentachlorodibenzofuran (ng/kg)	1	0	0						0.97 U	0.97 U	0.97	0.97 U	0.97 U
12	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (ng/kg)	1	0	0						1.5 U	1.5 U	1.5	1.5 U	1.5 U
12	2,3,4,6,7,8-Hexachlorodibenzofuran (ng/kg)	1	0	0						0.49 U	0.49 U	0.49	0.49 U	0.49 U
12	2,3,7,8-Tetrachlorodibenzo-p-dioxin (ng/kg)	1	0	0						1.3 U	1.3 U	1.3	1.3 U	1.3 U
12	2,4-Dinitrotoluene (ug/kg)	1	0	0						74 U	74 U	74	74 U	74 U
12	2,6-Dinitrotoluene (ug/kg)	1	0	0						30 U	30 U	30	30 U	30 U
12	2-Chloronaphthalene (ug/kg)	1	0	0						15 U	15 U	15	15 U	15 U
12	2-Nitroaniline (ug/kg)	1	0	0						30 U	30 U	30	30 U	30 U
12	3,3'-Dichlorobenzidine (ug/kg)	1	0	0						200 U	200 U	200	200 U	200 U
12	3-Nitroaniline (ug/kg)	1	0	0						300 U	300 U	300	300 U	300 U
12	4-Bromophenyl phenyl ether (ug/kg)	1	0	0						15 U	15 U	15	15 U	15 U
12	4-Chlorophenyl phenyl ether (ug/kg)	1	0	0						15 U	15 U	15	15 U	15 U

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River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
12	4-Nitroaniline (ug/kg)	1	0	0						150 U	150 U	150	150 U	150 U
12	Bis(2-chloroethoxy) methane (ug/kg)	1	0	0						30 U	30 U	30	30 U	30 U
12	Bis(2-chloroethyl) ether (ug/kg)	1	0	0						15 U	15 U	15	15 U	15 U
12	Bis(2-chloroisopropyl) ether (ug/kg)	1	0	0						15 U	15 U	15	15 U	15 U
12	Butyltin ion (ug/kg)	1	0	0						1 U	1 U	1	1 U	1 U
12	Hexachlorocyclopentadiene (ug/kg)	1	0	0						300 U	300 U	300	300 U	300 U
12	Isophorone (ug/kg)	1	0	0						15 U	15 U	15	15 U	15 U
12	Nitrobenzene (ug/kg)	1	0	0						15 U	15 U	15	15 U	15 U
12	N-Nitrosodipropylamine (ug/kg)	1	0	0						15 U	15 U	15	15 U	15 U
12	Selenium (mg/kg)	1	0	0						2 U	2 U	2	2 U	2 U
12	Tetrabutyltin (ug/kg)	1	0	0						3 U	3 U	3	3 U	3 U
12	Tributyltin ion (ug/kg)	1	0	0						1 U	1 U	1	1 U	1 U
12	2,4,5-Trichlorophenol (ug/kg)	1	0	0						74 U	74 U	74	74 U	74 U
12	2,4,6-Trichlorophenol (ug/kg)	1	0	0						74 U	74 U	74	74 U	74 U
12	2,4-Dichlorophenol (ug/kg)	1	0	0						150 U	150 U	150	150 U	150 U
12	2,4-Dinitrophenol (ug/kg)	1	0	0						450 U	450 U	450	450 U	450 U
12	2-Chlorophenol (ug/kg)	1	0	0						74 U	74 U	74	74 U	74 U
12	2-Nitrophenol (ug/kg)	1	0	0						74 U	74 U	74	74 U	74 U
12	4,6-Dinitro-2-methylphenol (ug/kg)	1	0	0						300 U	300 U	300	300 U	300 U
12	4-Chloro-3-methylphenol (ug/kg)	1	0	0						74 U	74 U	74	74 U	74 U
12	4-Nitrophenol (ug/kg)	1	0	0						150 U	150 U	150	150 U	150 U
12	Gasoline (mg/kg)	1	0	0						72 U	72 U	72	72 U	72 U
16	Total solids (%)	76	76	100	57.9	90.6	72.9	71.4	86.2	57.9	90.6	72.9	71.4	86.2
16	Copper (mg/kg)	74	74	100	10.5	1340	67	28.2 J	95.8 J	10.5	1340	67	28.2 J	95.8 J
16	Lead (mg/kg)	74	74	100	2	409	30	8.98	129	2	409	30	8.98	129
16	Nickel (mg/kg)	74	74	100	9.36	112	22	19.8	29.6	9.36	112	22	19.8	29.6
16	Zinc (mg/kg)	74	74	100	21.9	960	93	59.5	196 J	21.9	960	93	59.5	196 J
16	Total organic carbon (%)	69	69	100	0.06	7.35	0.75	0.52	1.6	0.06	7.35	0.75	0.52	1.6
16	Chromium (mg/kg)	40	40	100	7.07	26.8	15.5	15.1	24.4	7.07	26.8	15.5	15.1	24.4
16	Tributyltin ion (ug/l)	5	5	100	0.23	27	6.33	0.34	3.4	0.23	27	6.33	0.34	3.4
16	Arsenic (mg/kg)	74	60	81	1.1	24.4	3.5	2.6	7.5	0.2 UJ	24.4	3.2	2.51 U	5.8
16	Tributyltin ion (ug/kg)	36	27	75	0.2 J	2000	204	5	440	0.2 J	2000	153	1 U	440
16	Total Petroleum Hydrocarbons (mg/kg)	67	48	72	9 J	640	168	100 J	640	9 J	640	142	100 U	312
16	Silver (mg/kg)	74	49	66	0.05 J	0.7	0.20	0.14	0.6	0.004 U	0.7	0.19	0.2 U	0.5
16	Dibutyltin ion (ug/kg)	36	23	64	0.3 J	320	31	4	68	0.3 J	320	20	1 U	68
16	Cadmium (mg/kg)	74	46	62	0.03	1.7	0.26	0.14	0.9	0.03	1.7	0.27	0.23	0.6
16	Dibutyltin ion (ug/l)	5	3	60	0.07 J	1.1	0.46	0.07 J	0.2	0.05 U	1.1	0.29	0.05 U	0.2
16	Mercury (mg/kg)	74	43	58	0.01	1.43	0.13	0.04	0.32	0.01	1.43	0.14	0.1 U	0.23
16	Polycyclic Aromatic Hydrocarbons (ug/kg)	71	40	56	60 A	816600 A	44969	886 A	35962 A	50 UA	816600 A	25430	300 UA	25820 A
16	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	67	37	55	0.2 A	6500 A	233	4 A	754.7 A	0.2 A	6500 A	131	6.7 UA	209 A
16	High Molecular Weight PAH (ug/kg)	71	39	55	60 A	726000 A	40781	828 A	31740 A	50 UA	726000 A	22501	300 UA	19840 A
16	Butyltin ion (ug/kg)	35	19	54	0.3 J	37	6.0	1 J	20	0.3 J	37	3.7	1 UJ	15
16	Pyrene (ug/kg)	71	38	54	57	110000	6431	140	4700	50 U	110000	3546	200 J	4100
16	4,4'-DDD (ug/kg)	67	34	51	0.3 J	3700	116	3	59	0.3 J	3700	60	3.3 U	17
16	4,4'-DDE (ug/kg)	67	32	48	0.2 J	2800	96	2	88	0.2 J	2800	47	2.3 U	8
16	Fluoranthene (ug/kg)	71	33	46	55	120000	8120	150	5700	50 U	120000	3899	300 U	5100

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
16	Polychlorinated biphenyls (ug/kg)	67	31	46	4 A	2900 A	261	54 A	237 A	4 A	2900 A	131	20 UA	190 A
16	Bis(2-ethylhexyl) phthalate (ug/kg)	71	30	42	100 J	3600	539	200 J	1100	100 U	3600	361	300 U	740
16	Aroclor 1260 (ug/kg)	67	27	40	4 J	1000	115	19	156	4 J	1000	52	10 U	151
16	Butyltin ion (ug/l)	5	2	40	0.05 J	0.2	0.13	0.05 J	0.05 J	0.05 U	0.2	0.08	0.05 U	0.05 J
16	Antimony (mg/kg)	72	28	39	0.03	8.6 J	0.8	0.17	0.81	0.03	8.6 J	1.4	0.34 J	2.59 UJ
16	Methylene chloride (ug/kg)	26	10	38	2 J	59	14	2 J	55	2 J	59	12	10 U	14 U
16	Low Molecular Weight PAH (ug/kg)	71	27	38	58 A	90600 A	7714	200 A	5980 A	50 UA	90600 A	3063	300 UA	4222 A
16	Benzo(a)pyrene (ug/kg)	71	26	37	70 J	89000	7363	110	3500	50 U	89000	2830	300 U	1600
16	Benzo(b+k)fluoranthene (ug/kg)	71	26	37	72 A	122000 A	10246	200 A	5500 A	50 UA	122000 A	3886	300 UA	3000 A
16	Chrysene (ug/kg)	71	26	37	73	71000	6021	110	3400	50 U	71000	2339	300 U	2200
16	Indeno(1,2,3-cd)pyrene (ug/kg)	71	26	37	52	72000	5933	100	2900	50 U	72000	2306	300 U	1000
16	Phenanthrene (ug/kg)	71	26	37	58	53000	4719	200 J	3800	50 U	53000	1862	300 U	2700
16	Aroclor 1254 (ug/kg)	67	24	36	5 J	1900	202	33	136	5 J	1900	80	10 U	120
16	Benz(a)anthracene (ug/kg)	71	25	35	66	79000	6906	110	3400	50 U	79000	2570	300 U	2300
16	Benzo(b)fluoranthene (ug/kg)	71	25	35	72	63000	5547	100	3200	50 U	63000	2091	300 U	1700
16	Benzo(g,h,i)perylene (ug/kg)	71	24	34	60 J	51000	4545	100 J	2100	50 U	51000	1672	200	540
16	Tetrabutyltin (ug/kg)	36	12	33	0.4 J	28	5.4	1	15	0.4 J	28	3.8	3 U	8
16	Benzo(k)fluoranthene (ug/kg)	71	21	30	63	59000	6053	100 J	2300	50 U	59000	1938	300 U	1300
16	Acetone (ug/kg)	26	6	23	12 J	39 J	21	20 J	21 J	12 J	71 U	46	50 U	57 U
16	Tetrabutyltin (ug/l)	5	1	20	0.2	0.2	0.2	0.2	0.2	0.05 U	0.2	0.08	0.05 U	0.05 UJ
16	Methylethyl ketone (ug/kg)	26	5	19	2 J	5 J	3.6	3 J	4 J	2 J	30 U	19	20 U	28 U
16	Endrin aldehyde (ug/kg)	33	6	18	0.6 J	6	2.2	0.9 J	4	0.6 J	6	2.2	2 U	4
16	4,4'-DDT (ug/kg)	67	12	18	0.3 J	730	136	7	730	0.3 J	730	38	6.7 U	62
16	Anthracene (ug/kg)	71	12	17	50 J	14000	2560	90 J	14000	50 U	14000	597	300 U	460
16	Acenaphthene (ug/kg)	71	11	15	60 J	17000	3322	82	17000	50 U	17000	677	300 U	540
16	2-Methylnaphthalene (ug/kg)	71	9	13	67	940	355	69	940	50 U	940	215	300 U	300 U
16	Dibenz(a,h)anthracene (ug/kg)	71	9	13	30 J	12000	2815	56	12000	30 J	12000	524	300 U	300 U
16	Fluorene (ug/kg)	71	9	13	80 J	4800	1354	430	4800	50 U	4800	335	300 U	430
16	Dibenzofuran (ug/kg)	71	7	10	100 J	1700	649	180	1700	50 U	1700	236	300 U	300 U
16	Naphthalene (ug/kg)	71	7	10	60 J	1800	621	82	1800	50 U	1800	233	300 U	300 U
16	alpha-Hexachlorocyclohexane (ug/kg)	33	2	6	0.9 J	1 J	0.95	0.9 J	0.9 J	0.9 J	4 U	2.0	2 U	2 U
16	1,3,5-Trimethylbenzene (ug/kg)	26	1	4	5 J	5 J	5	5 J	5 J	5 J	30 U	21	20 U	28 U
16	n-Butylbenzene (ug/kg)	26	1	4	5 J	5 J	5	5 J	5 J	5 J	30 U	21	20 U	28 U
16	p-Cymene (ug/kg)	26	1	4	6 J	6 J	6	6 J	6 J	6 J	30 U	21	20 U	28 U
16	Pseudocumene (ug/kg)	26	1	4	14 J	14 J	14	14 J	14 J	14 J	30 U	22	20 U	28 U
16	Sec-butylbenzene (ug/kg)	26	1	4	3 J	3 J	3	3 J	3 J	3 J	30 U	21	20 U	28 U
16	Dieldrin (ug/kg)	33	1	3	0.5 J	0.5 J	0.5	0.5 J	0.5 J	0.5 J	4 U	2.0	2 U	2 U
16	Endosulfan sulfate (ug/kg)	33	1	3	0.2 J	0.2 J	0.2	0.2 J	0.2 J	0.2 J	4 U	2.0	2 U	2 U
16	gamma-Chlordane (ug/kg)	33	1	3	0.2 J	0.2 J	0.2	0.2 J	0.2 J	0.2 J	4 U	2.0	2 U	2 U
16	Lube Oil (mg/kg)	67	2	3	140	200	170	140	140	25 U	200	64	25 U	100 U
16	Dibutyl phthalate (ug/kg)	71	2	3	130	130	130	130	130	100 U	500 U	216	300 U	300 U
16	Aroclor 1242 (ug/kg)	67	1	1	43	43	43	43	43	10 U	100 U	13	10 U	10 U
16	Diesel fuels (mg/kg)	67	1	1	540	540	540	540	540	10 U	540	25	10 UJ	25 U
16	Non-petroleum hydrocarbons (mg/kg)	67	1	1	8 J	8 J	8	8 J	8 J	8 J	100 U	73	50 U	100 U
16	Pentachlorophenol (ug/kg)	69	1	1	200 J	200 J	200	200 J	200 J	200 J	15000 U	1590	2000 U	2000 U
16	Acenaphthylene (ug/kg)	71	0	0						50 U	500 U	193	300 U	300 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
16	Benzoic acid (ug/kg)	71	0	0						250 U	12500 U	1507	2000 U	2000 U
16	Benzyl alcohol (ug/kg)	71	0	0						25 U	2500 U	238	300 U	300 U
16	Hexachlorobutadiene (ug/kg)	71	0	0						20 U	500 U	129	160 U	300 U
16	Hexachloroethane (ug/kg)	71	0	0						50 U	2000 U	235	300 U	300 U
16	N-Nitrosodiphenylamine (ug/kg)	71	0	0						20 U	500 U	179	300 U	300 U
16	1,2,4-Trichlorobenzene (ug/kg)	71	0	0						20 U	500 U	129	160 U	300 U
16	2,4-Dimethylphenol (ug/kg)	71	0	0						20 U	10000 U	447	300 U	300 U
16	2-Methylphenol (ug/kg)	71	0	0						20 U	5000 U	306	300 U	300 U
16	3- and 4-Methylphenol Coelution (ug/kg)	71	0	0						100 U	10000 U	483	300 U	300 U
16	Butylbenzyl phthalate (ug/kg)	71	0	0						100 U	500 U	218	300 U	300 U
16	Diethyl phthalate (ug/kg)	71	0	0						100 U	500 U	215	300 U	300 U
16	Dimethyl phthalate (ug/kg)	71	0	0						100 U	500 U	215	300 U	300 U
16	Di-n-octyl phthalate (ug/kg)	71	0	0						100 U	500 U	218	300 U	300 U
16	Hexachlorobenzene (ug/kg)	71	0	0						20 U	500 U	179	300 U	300 U
16	Phenol (ug/kg)	71	0	0						100 U	2500 U	272	300 U	300 U
16	Aroclor 1016 (ug/kg)	67	0	0						10 U	100 U	13	10 U	10 U
16	Aroclor 1221 (ug/kg)	67	0	0						20 U	200 U	25	20 U	20 U
16	Aroclor 1232 (ug/kg)	67	0	0						10 U	100 U	13	10 U	10 U
16	Aroclor 1248 (ug/kg)	67	0	0						10 U	100 U	13	10 U	10 U
16	Heavy oil (mg/kg)	67	0	0						25 UJ	100 U	62	25 U	100 U
16	Jet fuel A (mg/kg)	67	0	0						10 U	25 U	17	10 UJ	25 U
16	Kerosene (mg/kg)	67	0	0						10 U	25 U	17	10 U	25 U
16	Mineral spirits (mg/kg)	67	0	0						10 U	25 U	17	10 U	25 U
16	1,2-Dichlorobenzene (ug/kg)	63	0	0						7.9 U	300 U	120	152.5 U	300 U
16	1,3-Dichlorobenzene (ug/kg)	63	0	0						7.9 U	300 U	120	152.5 U	300 U
16	1,4-Dichlorobenzene (ug/kg)	63	0	0						7.9 U	300 U	120	152.5 U	300 U
16	Benzene (ug/kg)	52	0	0						4 U	7.4 U	5.3	5 U	6.6 U
16	Ethylbenzene (ug/kg)	52	0	0						4 U	7.4 U	5.3	5 U	6.6 U
16	m,p-Xylene (ug/kg)	52	0	0						4 U	7.4 U	5.3	5 U	6.6 U
16	o-Xylene (ug/kg)	52	0	0						4 U	7.4 U	5.3	5 U	6.6 U
16	Toluene (ug/kg)	52	0	0						4 U	7.4 U	5.3	5 U	6.6 U
16	Trichloroethene (ug/kg)	52	0	0						4 U	7.4 U	5.3	5 U	6.6 U
16	2,4-Dinitrotoluene (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	2,6-Dinitrotoluene (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	2-Chloronaphthalene (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	2-Nitroaniline (ug/kg)	37	0	0						2000 U	2000 U	2000	2000 U	2000 U
16	3,3'-Dichlorobenzidine (ug/kg)	37	0	0						2000 U	2000 U	2000	2000 U	2000 U
16	3-Nitroaniline (ug/kg)	37	0	0						2000 U	2000 U	2000	2000 U	2000 U
16	4-Bromophenyl phenyl ether (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	4-Chloroaniline (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	4-Chlorophenyl phenyl ether (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	4-Nitroaniline (ug/kg)	37	0	0						2000 U	2000 U	2000	2000 U	2000 U
16	Aniline (ug/kg)	37	0	0						1000 U	1000 U	1000	1000 U	1000 U
16	Bis(2-chloroethoxy) methane (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	Bis(2-chloroethyl) ether (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	Bis(2-chloroisopropyl) ether (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
16	Hexachlorocyclopentadiene (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	Isophorone (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	Nitrobenzene (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	N-Nitrosodimethylamine (ug/kg)	37	0	0						2000 U	2000 U	2000	2000 U	2000 U
16	N-Nitrosodipropylamine (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	2,4,5-Trichlorophenol (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	2,4,6-Trichlorophenol (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	2,4-Dichlorophenol (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	2,4-Dinitrophenol (ug/kg)	37	0	0						2000 U	2000 U	2000	2000 U	2000 U
16	2-Chlorophenol (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	2-Nitrophenol (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	4,6-Dinitro-2-methylphenol (ug/kg)	37	0	0						2000 U	2000 U	2000	2000 U	2000 U
16	4-Chloro-3-methylphenol (ug/kg)	37	0	0						300 U	300 U	300	300 U	300 U
16	4-Nitrophenol (ug/kg)	37	0	0						2000 U	2000 U	2000	2000 U	2000 U
16	JP-4 jet fuel (mg/kg)	34	0	0						10 U	10 UJ	10	10 UJ	10 UJ
16	Naphtha distillate (mg/kg)	34	0	0						10 U	10 UJ	10	10 UJ	10 UJ
16	Aldrin (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	alpha-Chlordane (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	alpha-Endosulfan (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	beta-Endosulfan (ug/kg)	33	0	0						2 U	11 U	2.3	2 U	2 U
16	beta-Hexachlorocyclohexane (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	delta-Hexachlorocyclohexane (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	Endrin (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	Endrin ketone (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	gamma-Hexachlorocyclohexane (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	Heptachlor (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	Heptachlor epoxide (ug/kg)	33	0	0						2 U	4 U	2.1	2 U	2 U
16	Methoxychlor (ug/kg)	33	0	0						4 U	8 U	4.1	4 U	4 U
16	Toxaphene (ug/kg)	33	0	0						30 U	200 U	42	30 U	97 U
16	1,1,1,2-Tetrachloroethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	1,1,1-Trichloroethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	1,1,2,2-Tetrachloroethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	1,1,2-Trichloroethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	1,1-Dichloroethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	1,1-Dichloropropene (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	1,2,3-Trichlorobenzene (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	1,2,3-Trichloropropane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	1,2-Dibromo-3-chloropropane (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	1,2-Dichloroethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	1,2-Dichloropropane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	1,3-Dichloropropane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	2,2-Dichloropropane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	2-Chlorotoluene (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	4-Chlorotoluene (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	Bromobenzene (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Bromochloromethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
16	Bromodichloromethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Bromoform (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Bromomethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Carbon disulfide (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Carbon tetrachloride (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Chlorobenzene (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Chlorodibromomethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Chloroethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Chloroform (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Chloromethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	cis-1,2-Dichloroethene (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	cis-1,3-Dichloropropene (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Dichlorodifluoromethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Ethylene dibromide (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	Isopropylbenzene (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	Methyl isobutyl ketone (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	Methyl N-butyl ketone (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	Methylene bromide (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	n-Propylbenzene (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	Styrene (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	tert-Butylbenzene (ug/kg)	26	0	0						20 U	30 U	22	20 U	28 U
16	Tetrachloroethene (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	trans-1,2-Dichloroethene (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	trans-1,3-Dichloropropene (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Trichlorofluoromethane (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Vinyl chloride (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Vinylidene chloride (ug/kg)	26	0	0						5 U	7.4 U	5.5	5 U	7 U
16	Gasoline (mg/kg)	17	0	0						10 UJ	10 UJ	10	10 UJ	10 UJ
16	Natural gasoline (mg/kg)	17	0	0						10 U	10 UJ	10	10 U	10 U
24	Fines (%)	1	1	100	21	21	21	21	21	21	21	21	21	21
24	Gravel (%)	1	1	100	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
24	Sand (%)	1	1	100	78.9	78.9	78.9	78.9	78.9	78.9	78.9	78.9	78.9	78.9
24	Total solids (%)	1	1	100	62.7	62.7	62.7	62.7	62.7	62.7	62.7	62.7	62.7	62.7
24	Acenaphthene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Acenaphthylene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Anthracene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Benz(a)anthracene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Benzo(a)pyrene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Benzo(b)fluoranthene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Benzo(b+k)fluoranthene (ug/kg)	1	0	0						13.4 UA	13.4 UA	13.4	13.4 UA	13.4 UA
24	Benzo(g,h,i)perylene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Benzo(k)fluoranthene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Chrysene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Dibenz(a,h)anthracene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Fluoranthene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Fluorene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U

Table 4-6. Historical Subsurface Sediment and Porewater Chemical Data Summary by River Mile.

River Mile	Analyte	N	N Detected	% Detects	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
24	High Molecular Weight PAH (ug/kg)	1	0	0						13.4 UA	13.4 UA	13.4	13.4 UA	13.4 UA
24	Indeno(1,2,3-cd)pyrene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Low Molecular Weight PAH (ug/kg)	1	0	0						13.4 UA	13.4 UA	13.4	13.4 UA	13.4 UA
24	Naphthalene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Phenanthrene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Polycyclic Aromatic Hydrocarbons (ug/kg)	1	0	0						13.4 UA	13.4 UA	13.4	13.4 UA	13.4 UA
24	Pyrene (ug/kg)	1	0	0						13.4 U	13.4 U	13.4	13.4 U	13.4 U
24	Pentachlorophenol (ug/kg)	1	0	0						67 U	67 U	67	67 U	67 U

Notes:
A - Detected quantities of analytes added together as defined in WAC 173-204-320 for LPAH and HPAH, as in DMMO 2000 for DDT, and for all Aroclors or congeners for PCB.
B - Possible method blank contamination.
E - Estimate, usually applied because the value exceeded the instrument calibration range.
G - Estimate is greater than value shown.
H - Holding time exceeded.
J - Estimate, usually applied because the value is less than the method reporting limit but greater than the method detection limit, or for QA/QC concerns.
L - Value is less than the maximum shown.
N - Presumptive evidence of presence of material.
U - Not detected at detection limit shown.
X - Recovery less than 10%.
Subsurface sediment is defined as any sediment sample that was collected 30 cm or more below sediment/water interface.

Table 4-7. Water Quality Monitoring Locations in the Lower Willamette River.

Organization	Primary Station ID	River Mile	Location	Available Data (1990 - 2000)						Data Usability Category
				Conventional Parameters	Major Metals	Trace Metals	Pesticides/ PCBs	Volatiles/ Semivolatiles	Dioxins	
DEQ	402000*	7	Willamette R. at SP&S Railroad Bridge	x	x					2
	402478*	~8.4	Swan Island Channel Midpoint	x	x					2
	402288*	13.2	Willamette R. at Hawthorne Bridge	x	x					2
USGS	14211720	12.8	Willamette R. at Portland	x	x	x	x			2
DEQ	SW99-01	7	McCormick & Baxter					x		1
	SW99-02	7	McCormick & Baxter					x		1
	SW99-03	8	McCormick & Baxter					x		1
	SW99-04	8	McCormick & Baxter					x		1
	SW99-05	8	McCormick & Baxter					x		1
Woodward-Clyde	WR-1	8	Rhône-Poulenc St Helens Road Facility	x	x	x	x	x	x	1
	WR-2	7	Rhône-Poulenc St Helens Road Facility	x	x	x	x	x	x	1
	WR-3	7	Rhône-Poulenc St Helens Road Facility	x	x	x	x	x	x	1
	WR-4	7	Rhône-Poulenc St Helens Road Facility	x	x	x	x	x	x	1
EPA, Region 10	SED-1	7	McCormick & Baxter		x			x		1
	SED-2	7	McCormick & Baxter		x			x		1
	SED-3	7	McCormick & Baxter		x			x		1
	SED-4	7	McCormick & Baxter		x			x		1
	SED-5	7	McCormick & Baxter		x			x		1
	SED-6	7	McCormick & Baxter		x			x		1
	SED-7	7	McCormick & Baxter		x			x		1
	SED-8	7	McCormick & Baxter		x			x		1
	SED-9	7	McCormick & Baxter		x			x		1
DEQ/OSU	SPMD-1	7	McCormick & Baxter		x			x		1
	SPMD-2	7	McCormick & Baxter		x			x		1
	SPMD-3	7	McCormick & Baxter		x			x		1

Table 4-7. Water Quality Monitoring Locations in the Lower Willamette River.

Organization	Primary Station ID	River Mile	Location	Available Data (1990 - 2000)						Data Usability Category
				Conventional Parameters	Major Metals	Trace Metals	Pesticides/ PCBs	Volatiles/ Semivolatiles	Dioxins	
DEQ/OSU	SPMD-4	7	McCormick & Baxter		x			x		1
	SPMD-5	7	McCormick & Baxter		x			x		1
	SPMD-6	7	McCormick & Baxter		x			x		1
	SPMD-7	7	McCormick & Baxter		x			x		1
	SPMD-8	7	McCormick & Baxter		x			x		1
	SPMD-9	7	McCormick & Baxter		x			x		1
	SPMD-10	7	McCormick & Baxter		x			x		1
	SPMD-11	7	McCormick & Baxter		x			x		1
	SPMD-12	7	McCormick & Baxter		x			x		1
	SPMD-14	7	McCormick & Baxter		x			x		1
	SPMD-15	7	McCormick & Baxter		x			x		1
	SPMD-16	7	McCormick & Baxter		x			x		1
	SPMD-17	7	McCormick & Baxter		x			x		1
	SPMD-18	7	McCormick & Baxter		x			x		1
	SPMD-19	7	McCormick & Baxter		x			x		1
	SPMD-20	7	McCormick & Baxter		x			x		1

Notes:
*STORET number

Table 4-8a. Dissolved Metals and Selected Conventional Water Quality Data Summary, 1990-2001.

Parameter[1]	Station[2]	Data Summary			
		Number of Measurements	Minimum	Maximum	Mean
Temperature (°C)	402000	77	3.0	24.5	14.2
	402288	155	3.0	24.5	13.4
	402478	65	5.0	24.0	13.5
	14211720	100	4.8	24.2	12.6
Dissolved Oxygen (mg/L)	402000	77	6.4	14.2	10.6
	402288	155	7.5	15.2	10.8
	402478	66	7.5	14.2	11.1
	14211720	97	6.96	14.97	11.2
pH	402000	75	6.8	8.3	7.4
	402288	152	6.9	8.3	7.4
	402478	64	7.1	8.9	7.6
	14211720	100	6.79	7.92	7.3
Hardness (mg/L)	402000	101	16	41	26
	402288	194	17	33	24
	402478	83	13	34	27
	14211720	51	17	35	27
Turbidity (NTU)	402000	21	3.0	50.0	12.06
	402288	46	3.0	58.0	10.37
	402478	23	3.0	37.0	9.70
	14211720	85	0.9	99.0	11.82
Total Suspended Solids[3] (mg/L)	402000	80	2	110	11
	402288	78	1	770	28
	402478	78	1	120	9
	14211720	---	---	---	---
Aluminum (µg/L)	402000	47	19.0	400.0	127.3
	402288	106	0.2	600.0	129.2
	402478	44	24.0	700.0	133.0
	14211720	67	2.6	170	40.3
Antimony (µg/L)	14211720	43	<1.0	<1.0	<1.0
Arsenic (µg/L)	14211720	62	<1.0	<1.0	<1.0
Beryllium (µg/L)	402000	2	<10.0	<10.0	<10.0
	402288	2	<10.0	<10.0	<10.0
	402478	2	<10.0	<10.0	<10.0
	14211720	52	<0.5	<1.0	<1.0
Cadmium (µg/L)	402000	2	<10.0	<10.0	<10.0
	402288	2	<10.0	<10.0	<10.0
	402478	2	<10.0	<10.0	<10.0
	14211720	52	<1.0	<1.0	<1.0
Chromium (µg/L)	402000	2	<30.0	<30.0	<30.0
	402288	2	<30.0	<30.0	<30.0
	402478	2	<30.0	<30.0	<30.0
	14211720	52	<1.0	<5.0	<1.0

Table 4-8a. Dissolved Metals and Selected Conventional Water Quality Data Summary, 1990-2001.

Parameter[1]	Station[2]	Data Summary			
		Number of Measurements	Minimum	Maximum	Mean
Copper (µg/L)	402000	2	<20.0	<20.0	<20.0
	402288	2	<20.0	<20.0	<20.0
	402478	2	<20.0	<20.0	<20.0
	14211720	52	<1.0	<10	1.7
Iron (µg/L)	402000	47	<40	506	121
	402288	106	0.3	520	119
	402478	44	<40	570	144
	14211720	86	16.2	290	66
Lead (µg/L)	14211720	51	<1.0	1.0	1.0
Manganese (µg/L)	402000	47	6.9	50	19
	402288	106	0.02	100	17
	402478	44	3.3	149	29
	14211720	77	1	35	9
Mercury (µg/L)	14211720	12	<0.10	0.6 E	0.14
Nickel (µg/L)	402000	2	<40.0	<40.0	<40.0
	402288	2	<40.0	<40.0	<40.0
	402478	2	<40.0	<40.0	<40.0
	14211720	67	<1.0	<10.0	1.2
Selenium (µg/L)	402000	1	<5.0	<5.0	<5.0
	402288	1	<5.0	<5.0	<5.0
	402478	1	<5.0	<5.0	<5.0
	14211720	77	<1.0	1.1	1.0
Silver (µg/L)	402000	2	<10.0	<10.0	<10.0
	402288	2	<10.0	<10.0	<10.0
	402478	2	<10.0	<10.0	<10.0
	14211720	67	<1.0	<1.0	<1.0
Zinc (µg/L)	402000	2	<20.0	<20.0	<20.0
	402288	2	<20.0	<20.0	<20.0
	402478	2	<20.0	<20.0	<20.0
	14211720	52	1.0	12.0	3.0

Notes:

[1]Parameters most relevant to sediments and indicative of general water quality in the LWR are included here. See Section 4.3.2.
[2]Routine monitoring stations sampled by DEQ and USGS. Station location information is provided in Table 4-7.

[3]If TSS results from February 1996 (flood period) are omitted, maximum TSS values at the three stations range from 20-42 mg/L and mean TSS is reduced to 6 - 9 mg/L.

Table 4-8b. Metal Concentrations in Unfiltered Water Samples from Lower Willamette River Monitoring Stations[1].

Metal (ug/L)	DEQ 402000	DEQ 402288	DEQ 402478[2]	USGS 14211720
Barium	<30.0	<30.0	<30.0	--
Beryllium	<10.0	<10.0	<10.0	--
Cadmium	<10.0	<10.0	<10.0	<1.0
Chromium	<30.0	<30.0	<30.0	1.1
Cobalt	<60.0	<60.0	<60.0	--
Copper	<20.0	<20.0	<20.0	2.0
Lead	--	--	--	<1.0
Molybdenum	<50.0	<50.0	<50.0	--
Nickel	<40.0	<40.0	<40.0	1.0
Selenium	<5.0	<5.0	<5.0	--
Silver	<10.0	<10.0	<10.0	--
Vanadium	<30.0	<30.0	<30.0	--
Zinc	90.0	<20.0	40.0	<10.0

Notes:

Station numbers are shown on Map 4-39.

[1]DEQ samples for total recoverable metals were collected 2/21/96. USGS samples for total metals were collected 10/29/94. (Methods are not comparable)

[2]Mean of duplicate results.

Table 4-8c. Organic Chemicals in Water Samples from USGS Station 14211720, 1993-1998. (Concentrations are dissolved, unless otherwise noted.)

Chemical (ug/L)	Number of Measurements	Number of Detected Values	Minimum	Maximum
1-Naphthol	7	0	< 0.007	< 0.05
2,4,5-T	7	0	< 0.007	< 0.05
2,4-D	7	0	< 0.035	0 0.05
2,4-DB	7	0	< 0.035	< 0.05
2,6-Diethylaniline	69	0	< 0.003	< 0.003
3-Hydroxycarbofuran	7	0	< 0.014	< 0.05
Acetochlor	63	0	< 0.002	< 0.002
Acifluorfen	7	0	< 0.035	< 0.05
Alachlor	69	3	< 0.002	< 0.003 E
Aldicarb Sulfone	7	0	< 0.016	< 0.05
Aldicarb Sulfoxide	7	0	< 0.021	< 0.05
Aldicarb	7	0	< 0.016	< 0.05
Aldrin, Total	9	0	< 0.001	< 0.001
Alpha Bhc	69	0	< 0.002	< 0.002
Atrazine	69	65	< 0.001	0.328
Benfluralin	69	1	0.0012 E	< 0.002
Bentazon	7	0	< 0.014	< 0.05
Bromacil	7	0	< 0.035	< 0.05
Bromoxynil	7	0	< 0.035	< 0.05
Butylate	69	0	< 0.002	< 0.003
Carbaryl	76	15	0.0025 E	< 0.05
Carbofuran	76	9	< 0.003	0.181 E
Chloramben	7	0	< 0.011	< 0.05
Chlordane, Total	9	0	< 0.1	< 0.1
Chlorothalonil	7	0	< 0.035	< 0.05
Chlorpyrifos	69	27	0.003 E	0.014
Clopyralid	7	0	< 0.05	< 0.05
Cyanazine	69	0	< 0.004	< 0.004
Dacthal, Mono-Acid	7	0	< 0.017	< 0.05
DCPA	69	3	0.001 E	0.004
Deethyl Atrazine	69	55	0.001 E	0.026 E
Diazinon	69	28	< 0.002	0.009
Dicamba	7	0	< 0.035	0.12
Dichlobenil	7	0	< 0.02	< 0.05
Dichlorprop	7	0	< 0.0332	< 0.05
Dieldrin, Dissolved	69	0	< 0.001	< 0.001
Dieldrin, Total	9	1	< 0.001	0.002
Dinoseb	7	0	< 0.035	< 0.05
Disulfoton	69	0	< 0.017	< 0.017
Diuron	7	3	< 0.02	0.24
DNOC	7	0	< 0.035	< 0.05
Endosulfan I, Total	9	0	< 0.001	< 0.001
Endrin, Unfiltered	9	0	< 0.001	< 0.001
EPTC	69	15	0.001	0.026
Esfenvalerate	7	0	< 0.019	< 0.05
Ethalfluralin	69	0	< 0.004	< 0.004

Table 4-8c. Organic Chemicals in Water Samples from USGS Station 14211720, 1993-1998. (Concentrations are dissolved, unless otherwise noted.)

Chemical (ug/L)	Number of Measurements	Number of Detected Values	Minimum	Maximum
Ethoprop	69	12	0.002 E	0.029
Fenuron	7	0	< 0.013	< 0.05
Fluometuron	7	0	< 0.035	< 0.05
Fonofos	69	9	0.0015 E	0.01
Heptachlor Epoxide, Total	9	0	< 0.001	< 0.001
Heptachlor, Total	9	0	< 0.001	< 0.001
Lindane, Dissolved	69	0	< 0.004	< 0.004
Lindane, Total	9	1	< 0.001	0.007
Linuron	76	0	< 0.002	< 0.05
Malathion	69	0	< 0.005	< 0.005
MCPA	7	0	< 0.035	< 0.05
MCPA	7	0	< 0.035	< 0.05
Methiocarb	7	0	< 0.026	< 0.05
Methomyl	7	0	< 0.017	< 0.05
Methoxychlor, Total	9	0	< 0.01	< 0.01
Methyl Azinphos	69	0	< 0.001	< 0.001
Methyl Parathion	69	0	< 0.006	< 0.006
Metolachlor	69	64	< 0.002	0.122
Metribuzin, (Sencor)	69	28	< 0.004	0.075
Mirex, Total	9	0	< 0.01	< 0.01
Molinate	69	0	< 0.004	< 0.004
Napropamide	69	19	< 0.003	0.068
Neburon	7	0	< 0.015	< 0.05
Norflurazon	7	0	< 0.024	< 0.05
Oryzalin	7	0	< 0.019	< 0.05
Oxamyl	7	0	< 0.018	< 0.05
P,P' DDE	69	3	0.00046 E	< 0.006
P,P'-DDD	9	0	< 0.001	< 0.001
P,P'-DDE, Total	9	1	< 0.001	0.001
P,P'-DDT	9	2	< 0.001	0.001
Parathion	69	0	< 0.004	< 0.004
PCB, Total	9	0	< 0.1	< 0.1
PCNS	9	0	< 0.1	< 0.1
Pebulate	69	0	< 0.004	< 0.004
Pendimethalin	69	0	< 0.004	< 0.004
Permethrin, Cis	69	0	< 0.005	< 0.005
Perthane, Total	9	0	< 0.1	< 0.1
Phorate	69	0	< 0.002	< 0.002
Picloram	7	0	< 0.05	< 0.05
Prometon	69	5	0.003 E	< 0.018
Pronamide	69	32	0.0023 E	0.082
Propachlor	69	2	0.004 E	0.007 E
Propanil	69	0	< 0.004	< 0.004
Propargite	69	1	< 0.013	0.014
Propham	7	0	< 0.035	< 0.05
Propoxur	7	0	< 0.035	< 0.05

Table 4-8c. Organic Chemicals in Water Samples from USGS Station 14211720, 1993-1998. (Concentrations are dissolved, unless otherwise noted.)

Chemical (ug/L)	Number of Measurements	Number of Detected Values	Minimum	Maximum
Silvex	7	0	< 0.021	< 0.05
Simazine	69	62	0.0036 E	0.157
Tebuthiuron	69	15	0.0029 E	0.015 E
Terbacil	69	35	0.0034 E	< 0.1
Terbufos	69	0	< 0.013	< 0.013
Thiobencarb	69	0	< 0.002	< 0.002
Toxaphene, Total	9	0	< 1	< 1
Triallate	69	9	< 0.001	0.047
Triclopyr	7	0	< 0.05	< 0.05
Trifluralin	69	5	< 0.002	0.009

Notes:
E = Estimated value

Table 4-8d. Water Quality Data Results from Rhone-Polenc St. Helens Road Facility.

Parameter	Data Summary					
	Unit	Number of Measurements	Minimum	Maximum	Mean	Number Detected
Arsenic	mg/L	10	0.005 U	0.0092	0.0056	2
Cadmium	mg/L	10	0.0005 U	0.0027	0.00094	1
Chromium	mg/L	10	0.001	0.016	0.0041	4
Lead	mg/L	10	0.005 U	0.21	0.049	2
Mercury	mg/L	10	0.0002 U	0.0014	0.00036	2
Zinc	mg/L	10	0.02 U	0.57	0.14	2
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/L	5	1.2 U	120	47	2
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	pg/L	5	5.3 U	540	220	2
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/L	5	0.35 U	12 U	5.4	0
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/L	5	0.84 U	16 U	7.5	0
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	pg/L	5	1.3 U	4.9 U	2.8	0
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/L	5	0.63 U	11 U	4.9	0
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	pg/L	5	1.2 U	20 U	8.6	0
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/L	5	0.56 U	2 U	1	0
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	pg/L	5	1.3 U	15 U	6.7	0
1,2,3,7,8-Pentachlorodibenzofuran	pg/L	5	1.3 U	4.9 U	3.4	0
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	pg/L	5	1.2 U	2.7 U	1.9	0
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/L	5	0.46 U	7.3 U	3.5	0
2,3,4,7,8-Pentachlorodibenzofuran	pg/L	5	1.2 U	5.6 U	3.1	0
2,3,7,8-Tetrachlorodibenzofuran	pg/L	5	0.76 U	6.4	4.2	2
2,3,7,8-Tetrachlorodibenzo-p-dioxin	pg/L	5	0.84 U	4.4 U	2.1	0
Heptachlorodibenzofuran	pg/L	5	1.2 U	340	140	1
Heptachlorodibenzo-p-dioxin	pg/L	5	5.3 U	1100	420	2
Hexachlorodibenzofuran	pg/L	5	0.84 U	87	36	2
Hexachlorodibenzo-p-dioxin	pg/L	5	1.3 U	79	31	2
Octachlorodibenzofuran	pg/L	5	3.6 U	340	140	2
Octachlorodibenzo-p-dioxin	pg/L	5	48 U	6200	2400	3
Pentachlorodibenzofuran	pg/L	5	1.3 U	25 U	11	0
Pentachlorodibenzo-p-dioxin	pg/L	5	1.3 U	8.4 U	4	0
Tetrachlorodibenzofuran	pg/L	5	1.3 U	90	35	3
Tetrachlorodibenzo-p-dioxin	pg/L	5	2 UJ	31 J	10	2
pH		4	7.81	8.15	8.01	4
1,1,1-Trichloroethane	µg/L	5	0.5 U	0.5 U	0.5	0
1,1,2,2-Tetrachloroethane	µg/L	5	1 U	1 U	1	0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	5	5 U	5 U	5	0
1,1,2-Trichloroethane	µg/L	5	1 U	1 U	1	0
1,1-Dichloroethane	µg/L	5	0.5 U	0.5 U	0.5	0
1,2,4,5-Tetrachlorobenzene	µg/L	5	10 U	10 U	10	0
1,2,4-Trichlorobenzene	µg/L	5	10 U	10 U	10	0
1,2-Dichlorobenzene	µg/L	5	1 U	1 U	1	0
1,2-Dichloroethane	µg/L	5	1 U	1 U	1	0
1,2-Dichloroethene	µg/L	5	0.5 U	0.5 U	0.5	0
1,2-Dichloropropane	µg/L	5	1 U	1 U	1	0
1,2-Diphenylhydrazine	µg/L	5	50 U	50 U	50	0
1,3-Dichlorobenzene	µg/L	5	1 U	1 U	1	0
1,4-Dichlorobenzene	µg/L	5	1 U	1 U	1	0

Table 4-8d. Water Quality Data Results from Rhone-Polenc St. Helens Road Facility.

Parameter	Data Summary					
	Unit	Number of Measurements	Minimum	Maximum	Mean	Number Detected
1-Chloronaphthalene	µg/L	5	10 U	10 U	10	0
1-Naphthylamine	µg/L	5	10 U	10 U	10	0
2,2'-Oxybis(1-chloropropane)	µg/L	5	10 U	10 U	10	0
2,3,4,6-Tetrachlorophenol	µg/L	5	50 U	50 U	50	0
2,4,5-T	µg/L	5	0.05 U	0.05 U	0.05	0
2,4,5-Trichlorophenol	µg/L	5	10 U	10 U	10	0
2,4,6-Trichlorophenol	µg/L	5	1 U	1 U	1	0
2,4-D	µg/L	5	0.25 U	1.2	0.59	2
2,4-DB	µg/L	5	0.1 U	1 U	0.82	0
2,4-Dichloro-6-methylphenol	µg/L	5	5 U	5 U	5	0
2,4-Dichlorophenol	µg/L	5	0.5 U	0.5 U	0.5	0
2,4-Dimethylphenol	µg/L	5	0.5 U	0.5 U	0.5	0
2,4-Dinitrophenol	µg/L	5	1 U	1 U	1	0
2,4-Dinitrotoluene	µg/L	5	10 U	10 U	10	0
2,6-Dichlorophenol	µg/L	5	3 U	3 U	3	0
2,6-Dinitrotoluene	µg/L	5	10 U	10 U	10	0
2-Chloroethyl vinyl ether	µg/L	5	5 U	5 U	5	0
2-Chloronaphthalene	µg/L	5	10 U	10 U	10	0
2-Chlorophenol	µg/L	5	0.5 U	0.5 U	0.5	0
2-Methylnaphthalene	µg/L	5	10 U	10 U	10	0
2-Naphthylamine	µg/L	5	10 U	10 U	10	0
2-Nitroaniline	µg/L	5	50 U	50 U	50	0
2-Nitrophenol	µg/L	5	0.5 U	0.5 U	0.5	0
2-Picoline	µg/L	5	10 U	10 U	10	0
3,3'-Dichlorobenzidine	µg/L	5	20 U	20 U	20	0
3-Methylcholanthrene	µg/L	5	10 U	10 U	10	0
3-Nitroaniline	µg/L	5	50 U	50 U	50	0
4,4'-DDD	µg/L	5	0.1 U	0.1 U	0.1	0
4,4'-DDE	µg/L	5	0.1 U	0.1 U	0.1	0
4,4'-DDT	µg/L	5	0.1 U	0.2 U	0.12	0
4,6-Dinitro-2-methylphenol	µg/L	10	1 U	50 U	26	0
4-Aminobiphenyl	µg/L	5	10 U	10 U	10	0
4-Bromophenyl phenyl ether	µg/L	5	10 U	10 U	10	0
4-Chloro-3-methylphenol	µg/L	5	0.5 U	0.5 U	0.5	0
4-Chloroaniline	µg/L	5	10 U	10 U	10	0
4-Chloro-o-cresol	µg/L	5	2 U	2 U	2	0
4-Chlorophenol	µg/L	5	8 U	8 U	8	0
4-Chlorophenyl phenyl ether	µg/L	5	10 U	10 U	10	0
4-Nitroaniline	µg/L	5	50 U	50 U	50	0
4-Nitrophenol	µg/L	5	1 U	1 U	1	0
7,12-Dimethylbenz(a)anthracene	µg/L	5	10 U	10 U	10	0
Acenaphthene	µg/L	5	10 U	10 U	10	0
Acenaphthylene	µg/L	5	10 U	10 U	10	0
Acetophenone	µg/L	5	10 U	10 U	10	0
Aldrin	µg/L	5	0.05 U	0.05 U	0.05	0
alpha,alpha-Dimethylphenethylamine	µg/L	5	10 U	10 U	10	0

Table 4-8d. Water Quality Data Results from Rhone-Polenc St. Helens Road Facility.

Parameter	Data Summary					
	Unit	Number of Measurements	Minimum	Maximum	Mean	Number Detected
alpha-Endosulfan	µg/L	5	0.05 U	0.05 U	0.05	0
alpha-Hexachlorocyclohexane	µg/L	5	0.05 U	0.05 U	0.05	0
Aniline	µg/L	5	10 U	10 U	10	0
Anthracene	µg/L	5	10 U	10 U	10	0
Azinphosmethyl	µg/L	5	1 U	1 U	1	0
Benz(a)anthracene	µg/L	5	10 U	10 U	10	0
Benzene	µg/L	5	0.5 U	0.5 U	0.5	0
Benzidine	µg/L	5	50 U	50 U	50	0
Benzo(a)pyrene	µg/L	5	10 U	10 U	10	0
Benzo(b)fluoranthene	µg/L	5	10 U	10 U	10	0
Benzo(b+k)fluoranthene	µg/L	5	10 U	10 U	10	0
Benzo(g,h,i)perylene	µg/L	5	10 U	10 U	10	0
Benzo(k)fluoranthene	µg/L	5	10 U	10 U	10	0
Benzoic acid	µg/L	5	50 U	50 U	50	0
Benzyl alcohol	µg/L	5	10 U	10 U	10	0
beta-Endosulfan	µg/L	5	0.1 U	0.1 U	0.1	0
beta-Hexachlorocyclohexane	µg/L	5	0.05 U	0.05 U	0.05	0
Bis(2-chloroethoxy)methane	µg/L	5	10 U	10 U	10	0
Bis(2-chloroethyl)ether	µg/L	5	10 U	10 U	10	0
Bis(2-ethylhexyl) phthalate	µg/L	5	10 U	10 U	10	0
Bromodichloromethane	µg/L	5	1 U	1 U	1	0
Bromoform	µg/L	5	5 U	5 U	5	0
Bromomethane	µg/L	5	5 U	5 U	5	0
Bromoxynil	µg/L	5	0.25 U	1.2 U	0.44	0
Butylbenzyl phthalate	µg/L	5	10 U	10 U	10	0
Carbon tetrachloride	µg/L	5	0.5 U	0.5 U	0.5	0
Chlordane (alpha & gamma)	µg/L	5	0.5 U	0.71	0.57	2
Chlorobenzene	µg/L	10	0.5 U	2	1.3	1
Chlorodibromomethane	µg/L	5	1 U	1 U	1	0
Chloroethane	µg/L	5	5 U	5 U	5	0
Chloroform	µg/L	5	0.5 U	0.5 U	0.5	0
Chloromethane	µg/L	5	5 U	5 U	5	0
Chlorpyrifos	µg/L	5	1 U	1 U	1	0
Chrysene	µg/L	5	10 U	10 U	10	0
cis-1,3-Dichloropropene	µg/L	5	2 U	2 U	2	0
Coumaphos	µg/L	5	1 U	1 U	1	0
Cresol	µg/L	5	1 U	1 U	1	0
Dalapon	µg/L	5	5 U	5 U	5	0
delta-Hexachlorocyclohexane	µg/L	5	0.05 U	0.05 U	0.05	0
Demeton	µg/L	5	1 U	1 U	1	0
Diazinon	µg/L	5	1 U	1 U	1	0
Dibenz(a,h)anthracene	µg/L	5	10 U	10 U	10	0
Dibenzofuran	µg/L	5	10 U	10 U	10	0
Dibutyl phthalate	µg/L	5	10 U	10 U	10	0
Dicamba	µg/L	5	0.1 U	0.1 U	0.1	0
Dichlorodifluoromethane	µg/L	5	10 U	10 U	10	0

Table 4-8d. Water Quality Data Results from Rhone-Polenc St. Helens Road Facility.

Parameter	Data Summary					
	Unit	Number of Measurements	Minimum	Maximum	Mean	Number Detected
Dichloroprop	µg/L	5	0.25 U	0.25 U	0.25	0
Dichlorvos	µg/L	5	2 U	2 U	2	0
Dieldrin	µg/L	5	0.1 U	0.1 U	0.1	0
Diethyl phthalate	µg/L	5	10 U	10 U	10	0
Dimethyl phthalate	µg/L	5	10 U	10 U	10	0
Di-n-octyl phthalate	µg/L	5	10 U	10 U	10	0
Dinoseb	µg/L	5	0.25 U	0.25 U	0.25	0
Diphenylamine	µg/L	5	10 U	10 U	10	0
Disulfoton	µg/L	5	1 U	1 U	1	0
Endosulfan sulfate	µg/L	5	0.1 U	0.1 U	0.1	0
Endrin	µg/L	5	0.1 U	0.1 U	0.1	0
Endrin aldehyde	µg/L	5	5 U	5 U	5	0
Endrin ketone	µg/L	5	0.1 U	0.1 U	0.1	0
Ethoprop	µg/L	5	1 U	1 U	1	0
Ethyl methanesulfonate	µg/L	5	10 U	10 U	10	0
Ethylbenzene	µg/L	5	0.5 U	0.5 U	0.5	0
Ethylene dibromide	µg/L	5	2 U	2 U	2	0
Fensulfothion	µg/L	5	1 U	1 U	1	0
Fenthion	µg/L	5	1 U	1 U	1	0
Fluoranthene	µg/L	5	10 U	10 U	10	0
Fluorene	µg/L	5	10 U	10 U	10	0
gamma-Hexachlorocyclohexane	µg/L	5	0.035 U	0.05	0.047	1
Heptachlor	µg/L	5	0.05 U	0.05 U	0.05	0
Heptachlor epoxide	µg/L	5	0.05 U	0.05 U	0.05	0
Hexachlorobutadiene	µg/L	5	10 U	10 U	10	0
Hexachlorocyclopentadiene	µg/L	5	10 U	10 U	10	0
Hexachloroethane	µg/L	5	10 U	10 U	10	0
Indeno(1,2,3-cd)pyrene	µg/L	5	10 U	10 U	10	0
Isophorone	µg/L	5	10 U	10 U	10	0
Malathion	µg/L	5	1 U	9.8	2.8	1
MCPA	µg/L	5	50 U	50 U	50	0
MCPP	µg/L	5	50 U	50 U	50	0
Merphos	µg/L	5	1 U	1 U	1	0
Methoxychlor	µg/L	5	0.5 U	0.5 U	0.5	0
Methyl methanesulfonate	µg/L	5	10 U	10 U	10	0
Methyl parathion	µg/L	5	1 U	1 U	1	0
Methylene chloride	µg/L	5	5 U	5 U	5	0
Mevinphos	µg/L	5	1 U	1 U	1	0
Naled	µg/L	5	2 U	2 U	2	0
Naphthalene	µg/L	5	10 U	10 U	10	0
Nitrobenzene	µg/L	5	10 U	10 U	10	0
N-Nitrosodibutylamine	µg/L	5	10 U	10 U	10	0
N-Nitrosodimethylamine	µg/L	5	10 U	10 U	10	0
N-Nitrosodiphenylamine	µg/L	5	10 U	10 U	10	0
N-Nitrosodipropylamine	µg/L	5	10 U	10 U	10	0
N-Nitrosopiperidine	µg/L	5	10 U	10 U	10	0

Table 4-8d. Water Quality Data Results from Rhone-Polenc St. Helens Road Facility.

Parameter	Data Summary					
	Unit	Number of Measurements	Minimum	Maximum	Mean	Number Detected
p-Dimethylaminoazobenzene	µg/L	5	10 U	10 U	10	0
Pentachlorobenzene	µg/L	5	10 U	10 U	10	0
Pentachloronitrobenzene	µg/L	5	50 U	50 U	50	0
Pentachlorophenol	µg/L	5	1 U	1 U	1	0
Perthane	µg/L	5	1 U	1 U	1	0
Phenacetin	µg/L	5	10 U	10 U	10	0
Phenanthrene	µg/L	5	10 U	10 U	10	0
Phenol	µg/L	5	0.5 U	0.5 U	0.5	0
Phorate	µg/L	5	1 U	1 U	1	0
Pronamide	µg/L	5	10 U	10 U	10	0
Prothiophos	µg/L	5	1 U	1 U	1	0
Pyrene	µg/L	5	10 U	10 U	10	0
Ronnel	µg/L	5	1 U	1 U	1	0
Silvex	µg/L	5	0.05 U	0.11	0.07	2
Sulprofos	µg/L	5	1 U	1 U	1	0
Tetrachloroethene	µg/L	5	0.5 U	0.5 U	0.5	0
Tetrachlorvinphos	µg/L	5	1 U	1 U	1	0
Tetraethyl pyrophosphate	µg/L	5	2.5 U	2.5 U	2.5	0
Toluene	µg/L	5	0.5 U	0.77	0.6	2
Toxaphene	µg/L	5	1 U	1 U	1	0
trans-1,3-Dichloropropene	µg/L	5	1 U	1 U	1	0
Trichloroethene	µg/L	5	0.5 U	0.5 U	0.5	0
Trichlorofluoromethane	µg/L	5	10 U	10 U	10	0
Trichloronate	µg/L	5	1 U	1 U	1	0
Vinyl chloride	µg/L	5	1 U	5 U	1.8	0
Vinylidene chloride	µg/L	5	0.5 U	0.5 U	0.5	0
Xylene	µg/L	5	1 U	1 U	1	0

Notes:

U - Undetected at concentration shown

J - Estimated value

Table 4-8e. Water Quality Data results from McCormick & Baxter (1992) (RI Phase 3).

Parameter	Data Summary				
	Number of Measurements	Minimum (ug/L)	Maximum (ug/L)	Mean (ug/L)	Number Detected
Acenaphthene	6	0.1 U	1.2	0.67	1
Acenaphthylene	6	0.1 U	0.1 U	0.1	0
Anthracene	6	0.1 U	0.1 U	0.1	0
Benz(a)anthracene	6	0.1 U	0.1 U	0.1	0
Benzo(a)pyrene	6	0.1 U	0.1 U	0.1	0
Benzo(b)fluoranthene	6	0.1 U	0.1 U	0.1	0
Benzo(b+k)fluoranthene	6	0.1 U	0.1 U	0.1	0
Benzo(g,h,i)perylene	6	0.1 U	0.1 U	0.1	0
Benzo(k)fluoranthene	6	0.1 U	0.1 U	0.1	0
Chrysene	6	0.1 U	0.1 U	0.1	0
Dibenz(a,h)anthracene	6	0.1 U	0.1 U	0.1	0
Fluoranthene	6	0.1 U	0.4	0.27	1
Fluorene	6	0.1 U	0.7	0.43	1
High Molecular Weight PAH	6	0.1 U	0.6	0.38	1
Indeno(1,2,3-cd)pyrene	6	0.1 U	0.1 U	0.1	0
Low Molecular Weight PAH	6	0.3 U	2.4	1.8	1
Naphthalene	6	0.1 U	1.1	0.38	1
Pentachlorophenol	6	0.5 U	1 U	0.92	0
Phenanthrene	6	0.1 U	0.5	0.4	1
Polycyclic Aromatic Hydrocarbons	6	0.3 U	3	2.2	1
Pyrene	6	0.1 U	0.2	0.13	1

Notes:

U - Undetected at concentration shown

Table 4-8f. Grab Sample Water Quality Data results from McCormick & Baxter September 2002 Sampling Report.

Parameter	Data Summary (Unfiltered)					Data Summary (Filtered)				
	Number of Measurements	Minimum (ug/L)	Maximum (ug/L)	Mean (ug/L)	Number Detected	Number of Measurements	Minimum (ug/L)	Maximum (ug/L)	Mean (ug/L)	Number Detected
Arsenic	20	0.001 U	0.005 U	0.004	0	7	0.001 U	0.001	0.001	1
Chromium	20	0.001 U	0.040	0.013	15	7	0.001 U	0.001 U	0.001	0
Copper	20	0.002	1.7	0.941	20	7	0.001	0.003	0.002	7
Zinc	20	0.005 U	0.022	0.006	0	7	0.005 U	0.005 U	0.005	0
Acenaphthene	17	0.013	9.8	0.596	2	7	0.024 U	0.027 U	0.025	0
Acenaphthylene	17	0.018 U	0.042	0.022	1	7	0.024 U	0.027 U	0.025	0
Anthracene	17	0.018 U	3.8	0.243	1	7	0.024 U	0.027 U	0.025	0
Benz(a)anthracene	17	0.004	1.5	0.114	3	7	0.024 U	0.027 U	0.025	0
Benzo(a)pyrene	17	0.024 U	0.44	0.055	1	7	0.024 U	0.027 U	0.025	0
Benzo(b)fluoranthene	17	0.018 U	0.77	0.065	1	7	0.024 U	0.027 U	0.025	0
Benzo(k)fluoranthene	17	0.018 U	0.39	0.043	1	7	0.024 U	0.027 U	0.025	0
Benzo(g,h,i)perylene	17	0.018 U	0.087	0.025	1	7	0.024 U	0.027 U	0.025	0
Chrysene	17	0.004	1.2	0.096	3	7	0.024 U	0.027 U	0.025	0
Dibenz(a,h)anthracene	17	0.036 U	0.093	0.045	1	7	0.047 U	0.054 U	0.049	0
Fluoranthene	17	0.004	11.9	0.718	10	7	0.024 U	0.060	0.029	1
Fluorene	7	0.024 U	0.025 U	0.024	0	7	0.024 U	0.027 U	0.025	0
High Molecular Weight PAH	17	0.004	21.81	1.314	10	7	0.047 U	0.102	0.056	1
Indeno(1,2,3-cd)pyrene	17	0.024 U	0.13	0.037	1	7	0.024 U	0.027 U	0.025	0
Low Molecular Weight PAH	17	0.009 U	39.6	2.352	4	7	0.024 U	0.027 U	0.025	0
Naphthalene	17	0.018 U	3.3	0.214	1	7	0.024 U	0.027 U	0.025	0
Pentachlorophenol	17	0.018 U	0.253 U	0.120	5	7	0.236 U	0.270 U	0.025	0
Phenanthrene	17	0.009	22.7	1.354	4	7	0.024 U	0.027 U	0.025	0
Polycyclic Aromatic Hydrocarbons	17	0.004	61.45	3.651	10	7	0.047 U	0.102	0.056	1
Pyrene	17	0.011	5.3	0.331	4	7	0.024 U	0.0423	0.027	1

Notes:

U - Undetected at concentration shown

Table 4-8g. SPMD/DGT Water Quality Data Results from McCormick & Baxter September 2002 Sampling Report.

Parameter	Data Summary				
	Number of Measurements	Minimum (ug/L)	Maximum (ug/L)	Mean (ug/L)	Number Detected
Arsenic	20	0.002 U	0.002 U	0.002	0
Chromium	20	0.002 U	0.54	0.261	9
Copper	20	0.005 U	0.03	0.007	3
Zinc	20	0.002 U	0.002 U	0.002	0
Acenaphthene	19	0.0055	0.0671	0.028	19
Acenaphthylene	19	0.0021 U	0.0021 U	0.002	0
Anthracene	19	0.0025	0.0351	0.011	19
Benz(a)anthracene	0				0
Benzo(a)pyrene	19	0.00033 U	0.00033 U	0.000	0
Benzo(b)fluoranthene	19	0.00015 U	0.00015 U	0.000	0
Benzo(k)fluoranthene	19	0.00015 U	0.00015 U	0.000	0
Benzo(g,h,i)perylene	19	0.0149 U	0.0149 U	0.015	0
Chrysene	0				0
Dibenz(a,h)anthracene	19	0.007 U	0.007 U	0.007	0
Fluoranthene	19	0.0237	0.445	0.116	19
Fluorene	19	0.0952	0.6750	0.300	19
High Molecular Weight PAH	19	0.0446	0.499	0.192	19
Indeno(1,2,3-cd)pyrene	19	0.0152 U	0.0152 U	0.015	0
Low Molecular Weight PAH	19	0.1206	0.9322	0.389	19
Naphthalene	19	0.0014 U	0.0014 U	0.001	0
Pentachlorophenol	20				0
Phenanthrene	19	0.0124	0.1550	0.050	19
Polycyclic Aromatic Hydrocarbons	19	0.1652	1.3742	0.581	19
Pyrene	19	0.0209	0.154	0.075	19

Notes:

U - Undetected at concentration shown

SPMD - Semipermeable membrane device

DGT - Diffusive gel thinfilm

Table 4-9. QA/QC Summary of Existing Willamette River Bioassay Data.

Citation	Location	Project Type	Tests Completed	Samples	Surface vs. Subsurface[1]	Data Usability Category
Maul, Foster & Alongi (1996)	Moody Ave. Waterfront	Remedial Investigation	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.*	4 + 1 ref 1 1	surface	First 5 samples tested are Category 1. Last 2 samples (WRS25-1&WRS26-1) are Category 2 for both tests due to hold time exceedances.
Ecology and Environment (2001)	McCormick & Baxter RD Ph. I and II	Remedial Design	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.*	39 + 4 ref 17 + 1 ref	Ph. I surface, Ph. II subsurface	Category 1. No raw data sheets available for independent review. All data found usable by E&E.
Harding ESE (2001)	Cargill Elevator Terminal	Dredging	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.*	3	subsurface	Category 1. No reference sample(s).
Hart Crowser (2000)	Ross Island	Site Investigation	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.*	11 + 3 ref	surface	Category 1.
Corps, Portland District (1999)	Willamette River	Dredging	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.* 28-Day Bioaccumulation-*Lumbriculus*	4 + 1 ref	subsurface	Category 1. Amphipod and Midge tests. Category 2. Organism behavorial information and mortality data not recorded for 28-Day bioaccumulation test.
Landau Associates (2000b)	Ross Island	Remedial Investigation	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.*	1 + 4 ref	surface	Category 1.
Exponent (1999)	TOSCO Terminal	Dredging	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.*	2 + 1 ref	subsurface	Category 1.
Hart Crowser (1999a)	Terminal 4, Slip 3 Ph. I and II	Remedial Investigation	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.*	6 + 2 ref 10 + 2 ref	surface	Category 1.
Hart Crowser (1999d)	Terminal 4, Berth 416	Dredging	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.*	1 + 1 ref	subsurface	Category 1.
Hart Crowser (1999c)	Terminal 2, Berths 203-206	Dredging	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.*	2 + 1 ref	subsurface	Category 1.
SEA (1998)	Portland Shipyard	Site Investigation	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus t.* Microtox-saline extract	36 + 3 ref	surface	Category 1, except 25 samples with Microtox holding time exceedances of reconstituted bacteria. These are Category 2.
Dames & Moore (1998)	Portland Shipyard	Site Investigation	10-Day - *Hyalella azteca*	2	surface	Category 1. No reference sample(s).
Dames & Moore (1998 - data collected 12/97)	Portland Shipyard	Site Investigation	10-Day - *Hyalella azteca*	5	surface	Category 1. No reference sample(s).

Table 4-9. QA/QC Summary of Existing Willamette River Bioassay Data.

Citation	Location	Project Type	Tests Completed	Samples	Surface vs. Subsurface[1]	Data Usability Category
Port of Portland (1994b)	Terminal 2, Berth 203	Dredging	10-Day Amphipod-*Hyalella azteca* 48-Hour *Daphnia magna* Mortality	1	subsurface	Category 1. No reference sample(s) for solid phase test.
PTI (1992)	McCormick & Baxter Ph. I and II	Remedial Investigation	10-Day Amphipod-*Hyalella azteca* Microtox-porewater	46 + 4 ref 6 + 1 ref	surface	Category 2. Generally no supporting documentation, one data validation memorandum available for Phase I data only.
Port of Portland - 1991 (as reported in Dames & Moore, 1998)	Portland Shipyard - Dry Dock 4	Dredging	10-Day Amphipod-*Hyalella azteca* 48-Hour *Daphnia magna* Mortality *96-Hour Daphnia magna* Mortality Rainbow Trout Mortality and Bioaccumulation	1	subsurface	Category 2. Generally, no supporting documentation. No reference sediment for solid phase tests.
DEQ (1994)	Willamette River	Willamette River Toxics Study	10-Day Amphipod-*Hyalella azteca* Midge Mortality and Growth-*Chironomus r.* 48-Hour *Daphnia magna* Mortality Microtox-porewater	6 in 88&89, 14 Microtox	surface	Category 2. Generally, no supporting documentation and no methods references.
Corps, Portland District (1990)	Lower Willamette River	Dredging	Midge Mortality and Growth-Chironomus r. 48-Hour Mortality *Daphnia magna* Elutriate Mortality *Daphnia magna*	4	subsurface	Category 2. No reference sample(s). No QA/QC back-up so data could not be validated.

Notes:

[1] Surface samples were generally collected using a surface grab and represented the top 6 inches of sediment. Subsurface samples were collected with a coring device and represented samples collected below the top 6 inches.

Table 4-10. Bioassay Data Sets from Environmental Investigations in the Lower Willamette River.

Citation	Title	Test Start Date
Maul, Foster & Alongi (1996)	Zidell Waterfront RI	Nov-00, Dec-00, Jan-01
Ecology and Environment (2001)	McCormick & Baxter Creosoting Company, Sediment Remedial Design	Oct-01
Harding ESE (2001)	Results of Sediment Sampling and Analysis, Cargill Elevator Terminal	Aug-01
Hart Crowser (2000)	Site Investigation Report, Port of Portland Confined Dredged Material Disposal, Ross Island Facility	Dec-99
Corps, Portland District (1999)	Willamette River Sediment Sampling Evaluation, Portland District	Nov-99
Landau Associates (2000c)	Phase I Remedial Investigation, Ross Island Sand & Gravel Co.	Nov-99
Exponent (1999)	January 1999 Sediment Sampling Results for TOSCO Terminal	Jan-99
Hart Crowser (1999a)	Remedial Investigation Report, Terminal 4, Slip 3 Sediments, Port of Portland (Phase I and Phase II data)	Oct-98, Dec-98
Hart Crowser (1999d)	Sediment Characterization Study, Marine Terminal 4, Berth 416, Port of Portland	Oct-98
Hart Crowser (1999c)	Sediment Characterization Study Marine Terminal 2, Berths 203-206, Port of Portland	Oct-98
SEA (1998)	Portland Shipyard Sediment Investigation	Apr-98
Dames & Moore (1998)	Portland Shipyard Environmental Audit	Dec-97, Jan-98
Port of Portland (1994b)	Dredging Study Marine Terminal 2, Berth 203	May-94
PTI (1992)	McCormick & Baxter Creosoting Company Remedial Investigation (Phase I and Phase II data)	Sep-90, Jan-92
Port of Portland - 1991 (as reported in Dames & Moore, 1998)	Port of Portland Dry Dock 4	Dec-91
DEQ (1994)	Willamette River Toxics Study (1988-1991)	Aug-88, Jan-88
Corps, Portland District (1990)	Lower Willamette River sediment samples	Mar-88

Table 4-11. Tissue Data Summary.

Chemical	*d*	Min	units	DQ	Max	units	DQ
Wet weight							
Signal crayfish (*Pacifastacus leniusculus*)							
Low Molecular Weight PAH	4	130	ppb	L	160	ppb	L
Naphthalene	4	26	ppb		57	ppb	
Zinc	6	14	ppm		15	ppm	M
Acenaphthene	1	21	ppb		21	ppb	
Arsenic	6	0.14	ppm	E	0.24	ppm	E
Chromium	6	0.48	ppm		1.6	ppm	
Copper	6	9.4	ppm		13	ppm	
Mercury	1	0.069	ppm		0.069	ppm	
4,4'-DDE	1	4.6	ppb		4.6	ppb	
Largescale sucker (*Catostomus macrocheilus*)							
Acenaphthene	7	10	ppb	E	57	ppb	
Chromium	17	0.072	ppm	E	0.55	ppm	
Copper	15	0.053	ppm		0.5	ppm	
Mercury	18	0.07	ppm		0.37	ppm	
Fluorene	3	16	ppb	E	46	ppb	
High Molecular Weight PAH	1	180	ppb	LM	180	ppb	LM
Low Molecular Weight PAH	7	110	ppb	L	220	ppb	L
Pyrene	1	17	ppb	E	17	ppb	E
Naphthalene	7	21	ppb		78	ppb	M
Zinc	18	3.6	ppm		7.4	ppm	E
Sturgeon (*Acipenser* spp.)							
Mercury	1	0.18	ppm		0.18	ppm	
Smallmouth bass (*Micropterus dolomieu*)							
Mercury	12	0.11	ppm		0.54	ppm	
2,2',5,5'-Tetrachlorobiphenyl	7	2.6	ppb		17	ppb	
2,2',4,5'-Tetrachlorobiphenyl	5	3.4	ppb		8.9	ppb	
2,3,4,4'-Tetrachlorobiphenyl	4	2.65	ppb		5.5	ppb	
2,2',4,5,5'-Pentachlorobiphenyl	12	2	ppb		50	ppb	
2,2',4,4',5-Pentachlorobiphenyl	9	1.7	ppb		27	ppb	
2,3,4,4',5,6-Hexachlorobiphenyl	4	3.2	ppb		5.7	ppb	
2,2',3,3',4,4'-Hexachlorobiphenyl	7	3.1	ppb		16	ppb	
alpha-Chlordane	4	0.5	ppb		3.8	ppb	
4,4'-DDE	16	15	ppb		450	ppb	
4,4'-DDD	11	2.2	ppb		32	ppb	
4,4'-DDT	15	2.46	ppb		79	ppb	
Dieldrin	7	1.34	ppb		3.6	ppb	
gamma-Hexachlorocyclohexane	3	0.19	ppb		2	ppb	
beta-Hexachlorocyclohexane	2	0.04	ppb		2	ppb	
gamma-Chlordane	3	0.25	ppb		2	ppb	
alpha-Hexachlorocyclohexane	1	2	ppb		2	ppb	
delta-Hexachlorocyclohexane	1	2	ppb		2	ppb	
Heptachlor	1	2	ppb		2	ppb	
Aldrin	1	2	ppb		2	ppb	
Heptachlor epoxide	1	2	ppb		2	ppb	

Table 4-11. Tissue Data Summary.

Chemical	*d*	Min	units	DQ	Max	units	DQ
Black crappie (*Pomoxis nigromaculatus*)							
Mercury	7	0.013	ppm		0.52	ppm	
2,2',5,5'-Tetrachlorobiphenyl	9	2.3	ppb		3.7	ppb	
2,2',4,5'-Tetrachlorobiphenyl	4	2.37	ppb		3.6	ppb	
2,2',4,5,5'-Pentachlorobiphenyl	12	3.2	ppb		9.7	ppb	
2,2',4,4',5-Pentachlorobiphenyl	12	2.4	ppb		6.7	ppb	
2,3,4,4',5,6-Hexachlorobiphenyl	1	2.4	ppb		2.4	ppb	
2,2',3,3',4,4'-Hexachlorobiphenyl	1	2.7	ppb		2.7	ppb	
alpha-Chlordane	5	0.47	ppb		0.88	ppb	
4,4'-DDE	14	14	ppb		130	ppb	
4,4'-DDD	12	3	ppb		11	ppb	
4,4'-DDT	14	1.8	ppb		15	ppb	
Dieldrin	7	0.95	ppb		2.7	ppb	
gamma-Hexachlorocyclohexane	5	0.09	ppb		0.18	ppb	
gamma-Chlordane	5	0.24	ppb		0.37	ppb	
Common carp (*Cyprinus carpio*)							
Mercury	19	0.054	ppm		0.49	ppm	
2,2',5,5'-Tetrachlorobiphenyl	6	2	ppb		13	ppb	
2,2',4,5'-Tetrachlorobiphenyl	5	3.1	ppb		10	ppb	
2,2',4,5,5'-Pentachlorobiphenyl	6	4.6	ppb		59.2	ppb	
2,2',4,4',5-Pentachlorobiphenyl	4	5.1	ppb		11	ppb	
2,2',3,3',4,4'-Hexachlorobiphenyl	5	2.6	ppb		7.3	ppb	
2,3,4,4'-Tetrachlorobiphenyl	1	2.1	ppb		2.1	ppb	
alpha-Chlordane	2	2.5	ppb		8.2	ppb	
4,4'-DDE	6	25	ppb		85	ppb	
4,4'-DDD	6	7.2	ppb		37	ppb	
4,4'-DDT	6	3.3	ppb		16	ppb	
Dieldrin	3	3.2	ppb		4.6	ppb	
gamma-Chlordane	1	4.2	ppb		4.2	ppb	
Chinook salmon, spring (*Oncorhynchus tshawytscha*)							
Mercury	2	0.08	ppm		0.12	ppm	
gamma-Chlordane	2	0.19	ppb		0.23	ppb	
alpha-Chlordane	2	0.65	ppb		0.68	ppb	
4,4'-DDE	2	6	ppb		7.45	ppb	
Dieldrin	2	0.52	ppb		0.73	ppb	
4,4'-DDD	2	1.97	ppb		2.03	ppb	
4,4'-DDT	1	1.56	ppb		1.56	ppb	
2,2',5,5'-Tetrachlorobiphenyl	1	2.5	ppb		2.5	ppb	
beta-Hexachlorocyclohexane	1	0.05	ppb		0.05	ppb	
Heptachlor epoxide	1	0.14	ppb		0.14	ppb	
Sucker (*Catostomus* spp.)							
Mercury	3	0.05	ppm		0.35	ppm	
Peamouth (*Mylocheilus caurinus*)							
Mercury	2	0.05	ppm		0.17	ppm	
Chiselmouth (*Acrocheilus alutaceus*)							
Mercury	2	0.04	ppm		0.13	ppm	

Table 4-11. Tissue Data Summary.

Chemical	*d*	Min	units	DQ	Max	units	DQ
Northern pikeminnow (*Ptychocheilus oregonensis*)							
Mercury	2	0.8	ppm		0.8	ppm	
Largemouth bass (*Micropterus salmoides*)							
Mercury	5	0.16	ppm		0.91	ppm	
White crappie (*Pomoxis annularis*)							
Mercury	1	0.23	ppm		0.23	ppm	
Dry weight							
Common carp (*Cyprinus carpio*)							
Tetrachlorodibenzo-p-dioxin	1	7	ppt		7	ppt	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1	3.4	ppt		3.4	ppt	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1	25	ppt		25	ppt	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1	1.3	ppt		1.3	ppt	
Hexachlorodibenzo-p-dioxin	1	30	ppt		30	ppt	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1	33	ppt		33	ppt	
Heptachlorodibenzo-p-dioxin	1	34	ppt		34	ppt	
Octachlorodibenzo-p-dioxin	1	31	ppt		31	ppt	
Tetrachlorodibenzofuran	1	19	ppt		19	ppt	
1,2,3,7,8-Pentachlorodibenzofuran	1	1.8	ppt		1.8	ppt	
2,3,4,7,8-Pentachlorodibenzofuran	1	7	ppt		7	ppt	
Pentachlorodibenzofuran	1	8.7	ppt		8.7	ppt	
2,3,4,6,7,8-Hexachlorodibenzofuran	1	1.2	ppt		1.2	ppt	
1,2,3,4,7,8-Hexachlorodibenzofuran	1	2.6	ppt		2.6	ppt	
1,2,3,6,7,8-Hexachlorodibenzofuran	1	1.3	ppt		1.3	ppt	
Hexachlorodibenzofuran	1	7.9	ppt		7.9	ppt	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1	2.8	ppt		2.8	ppt	
Heptachlorodibenzofuran	1	2.8	ppt		2.8	ppt	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	7	0.26	ppt		7	ppt	
2,3,7,8-Tetrachlorodibenzofuran	7	0.28	ppt		17	ppt	
Cadmium	2	0.02	ppm		0.02	ppm	
Copper	10	0.13	ppm		0.78	ppm	
Mercury	10	0.11	ppm		0.46	ppm	J
Zinc	10	4.85	ppm	J	14.56	ppm	
Chromium	1	0.04	ppm		0.04	ppm	
Lead	1	0.03	ppm		0.03	ppm	
alpha-Hexachlorocyclohexane	3	4	ppb		4	ppb	
delta-Hexachlorocyclohexane	4	2	ppb		5	ppb	
gamma-Hexachlorocyclohexane	1	2	ppb		2	ppb	
4,4'-DDD	12	4	ppb		144	ppb	
4,4'-DDE	13	12	ppb		268	ppb	
4,4'-DDT	9	5	ppb		216	ppb	
Heptachlor	6	2	ppb		68	ppb	
Heptachlor epoxide	2	4	ppb		6	ppb	
Dieldrin	3	10	ppb		352	ppb	

Table 4-11. Tissue Data Summary.

Chemical	*d*	Min	units	DQ	Max	units	DQ
alpha-Endosulfan	2	2	ppb		148	ppb	
Endosulfan sulfate	2	19	ppb		26	ppb	
Endrin aldehyde	2	25	ppb		88	ppb	
Methoxychlor	1	832	ppb		832	ppb	
Aroclor 1254	3	160	ppb		360	ppb	
Aroclor 1260	4	25	ppb		1403	ppb	
Aroclor 1232	1	6.7	ppb		6.7	ppb	
3,3',4,4'-Tetrachlorobiphenyl	1	37	ppb		37	ppb	
2,3,3',4,4'-Pentachlorobiphenyl	1	6	ppb		6	ppb	
3,3',4,4',5-Pentachlorobiphenyl	1	21	ppb		21	ppb	
Acenaphthene	1	500	ppb		500	ppb	
Naphthalene	1	500	ppb		500	ppb	
Northern pikeminnow (*Ptychocheilus oregonensis*)							
2,3,7,8-Tetrachlorodibenzo-p-dioxin	6	0.8	ppt		1.89	ppt	
2,3,7,8-Tetrachlorodibenzofuran	6	1.13	ppt		30.31	ppt	
Arsenic	1	0.3	ppm		0.3	ppm	
Copper	2	0.24	ppm		0.57	ppm	
Mercury	2	0.21	ppm		0.34	ppm	
Lead	1	0.03	ppm		0.03	ppm	
Selenium	1	0.25	ppm		0.25	ppm	
Zinc	2	4.98	ppm		16.35	ppm	
Aroclor 1254	1	200	ppb		200	ppb	
Aroclor 1260	3	96	ppb		209	ppb	
alpha-Chlordane	1	10	ppb		10	ppb	
4,4'-DDD	1	20	ppb		20	ppb	
4,4'-DDE	2	52	ppb		130	ppb	
4,4'-DDT	1	10	ppb		10	ppb	
cis-Nonachlor	1	10	ppb		10	ppb	
trans-Nonachlor	1	10	ppb		10	ppb	
Pentachloroanisole	1	10	ppb		10	ppb	
3,3',4,4'-Tetrachlorobiphenyl	2	7	ppb		11	ppb	
3,3',4,4',5-Pentachlorobiphenyl	1	6	ppb		6	ppb	
alpha-Hexachlorocyclohexane	1	4	ppb		4	ppb	
Peamouth (*Mylocheilus caurinus*)							
Arsenic	2	0.06	ppm		0.07	ppm	
Cadmium	2	0.01	ppm		0.01	ppm	
Copper	2	0.5	ppm		0.59	ppm	
Mercury	2	0.04	ppm		0.05	ppm	
Lead	2	0.05	ppm		0.08	ppm	
Selenium	2	0.11	ppm		0.13	ppm	
Zinc	2	17.48	ppm		17.55	ppm	
Aroclor 1254	2	10	ppb		100	ppb	

Table 4-11. Tissue Data Summary.

Chemical	*d*	Min	units	DQ	Max	units	DQ
Aroclor 1260	1	100	ppb		100	ppb	
alpha-Chlordane	2	10	ppb		10	ppb	
4,4'-DDD	2	10	ppb		10	ppb	
4,4'-DDE	2	30	ppb		30	ppb	
4,4'-DDT	1	10	ppb		10	ppb	
trans-Nonachlor	2	10	ppb		10	ppb	
Pentachloroanisole	2	10	ppb		10	ppb	
Dieldrin	1	10	ppb		10	ppb	
Bass (*Micropterus* spp.)							
Copper	1	0.23	ppm		0.23	ppm	
Mercury	1	0.1	ppm		0.1	ppm	
Zinc	1	5.8	ppm		5.8	ppm	
Sucker (*Catostomus* spp.)							
Copper	1	0.27	ppm		0.27	ppm	
Mercury	1	0.05	ppm		0.05	ppm	
Zinc	1	5.64	ppm		5.64	ppm	
Heptachloro-1,1'-biphenyl	1	84.3	ppb		84.3	ppb	
Octachloro-1,1'-biphenyl	1	12.6	ppb		12.6	ppb	
alpha-Hexachlorocyclohexane	1	7.17	ppb		7.17	ppb	
gamma-Hexachlorocyclohexane	1	18.6	ppb		18.6	ppb	
4,4'-DDE	1	37.1	ppb		37.1	ppb	
Pentachloroanisole	1	5.24	ppb		5.24	ppb	
Biphenyl	1	7.33	ppb		7.33	ppb	
Signal crayfish (*Pacifastacus leniusculus*)							
Heptachlorodibenzo-p-dioxin	1	34.42	ppt		34.42	ppt	
Heptachlorodibenzofuran	1	6.44	ppt		6.44	ppt	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1	1.76	ppt		1.76	ppt	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1	10.05	ppt		10.05	ppt	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1	1.42	ppt		1.42	ppt	
1,2,3,4,7,8-Hexachlorodibenzofuran	1	18.85	ppt	*	18.85	ppt	*
1,2,3,6,7,8-Hexachlorodibenzofuran	1	10.15	ppt		10.15	ppt	
1,2,3,7,8,9-Hexachlorodibenzofuran	1	0.23	ppt		0.23	ppt	
2,3,4,6,7,8-Hexachlorodibenzofuran	1	0.87	ppt		0.87	ppt	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1	3.75	ppt		3.75	ppt	
1,2,3,7,8-Pentachlorodibenzofuran	1	54.32	ppt		54.32	ppt	
2,3,4,7,8-Pentachlorodibenzofuran	1	19.02	ppt		19.02	ppt	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1	2.61	ppt		2.61	ppt	
2,3,7,8-Tetrachlorodibenzofuran	1	48.14	ppt		48.14	ppt	
Largemouth bass (*Micropterus salmoides*)							
Heptachlorodibenzo-p-dioxin	1	0.43	ppt		0.43	ppt	
Heptachlorodibenzofuran	1	0.24	ppt		0.24	ppt	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1	0.82	ppt		0.82	ppt	
2,3,4,7,8-Pentachlorodibenzofuran	1	0.34	ppt		0.34	ppt	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1	0.74	ppt		0.74	ppt	
2,3,7,8-Tetrachlorodibenzofuran	1	1.09	ppt		1.09	ppt	

Table 4-11. Tissue Data Summary.

Chemical	*d*	Min	units	DQ	Max	units	DQ
Largescale sucker (*Catostomus macrocheilus*)							
Heptachlorodibenzo-p-dioxin	1	16.57	ppt		16.57	ppt	
Heptachlorodibenzofuran	1	2.66	ppt		2.66	ppt	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1	1.1	ppt		1.1	ppt	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1	4.06	ppt		4.06	ppt	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1	0.61	ppt		0.61	ppt	
1,2,3,4,7,8-Hexachlorodibenzofuran	1	3.02	ppt	*	3.02	ppt	*
2,3,4,6,7,8-Hexachlorodibenzofuran	1	1.16	ppt		1.16	ppt	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1	3.31	ppt		3.31	ppt	
1,2,3,7,8-Pentachlorodibenzofuran	1	0.91	ppt		0.91	ppt	
2,3,4,7,8-Pentachlorodibenzofuran	1	2.27	ppt		2.27	ppt	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1	2.25	ppt		2.25	ppt	
2,3,7,8-Tetrachlorodibenzofuran	1	3.35	ppt		3.35	ppt	
Prickly sculpin (*Cottus asper*)							
Polychlorinated biphenyls	4	190	ppb		630	ppb	

Notes:

d Total number of detections

Data Qualifier (DQ) Codes

* Coelution of 1,2,3,4,7,8-HxCDF with 1,2,3,4,6,7-HxCDF on the GC column

E Estimate, value exceeds highest calibration standard

EM Combination qualifier code

L Value is less than the maximum shown

LM Combination qualifier code

M Value is a mean

Tissue data were compiled from the following sources:

DEQ (1994). Willamette River Toxics Study (1988-1991).

DEQ (2000b). DEQ Water Quality Program--Mercury Data from Gene Foster per Avocet.

EPA (1992). EPA National Study of Chemical Residues in Fish.

Hart Crowser, Inc. (1988). Remedial Action Plan, Station "L" Site, Willamette River Sediments.

The Oregonian (2000). River of Risk Series.

PTI (1992). McCormick & Baxter Creosoting Company Remedial Investigation Report

Bonn (1998). Dioxins and Furans in Bed Sediments and Fish Tissue of the Willamette Basin, Oregon.

Table 4-12. 28-Day Bioaccumulation Testing (*Lumbriculus variegates*) (USACE 1999).

Sample I.D.	Micrograms per kilogram (ug/kg)			
	4,4′-DDD	4,4′-DDE	4,4′-DDT	Total DDT
Control				
Rep-1	<2.1	9.9	<5.2	9.9
Rep-2	<2.1	11	<5.1	11
Rep-3	<1.9	11	<4.7	11
Rep-4	<2.0	10	<5.0	10
Rep-5	<2.3	30	15	45
CR-VC-01R				
Rep-1	<2.3	72	<5.7	72
Rep-2	<1.7	78	<4.2	78
Rep-3	<2.1	87	<5.2	87
Rep-4	<2.3	75	<5.8	75
Rep-5	<1.8	74	<4.5	74
WR-VC-02				
Rep-1	7.1	30	<5.8	37.1
Rep-2	9.1	47	<3.8	56.1
Rep-3	9.3	47	<5.4	56.3
Rep-4	7.2	37	<5.9	44.2
Rep-5	11	44	<5.0	55
WR-VC-03				
Rep-1	4.2	36	<4.1	40.2
Rep-2	4.6	38	<5.0	42.6
Rep-3	3.8	42	<5.1	45.8
Rep-4	2.8	31	<4.2	33.8
Rep-5	4.6	37	<4.5	41.6
WR-VC-04				
Rep-1	2.8	26	<4.1	28.8
Rep-2	3.2	28	<5.3	31.2
Rep-3	4.2	33	<7.9	37.2
Rep-4	<12.0	40	<29.0	40
Rep-5	*	*	*	*
WR-VC-05				
Rep-1	<17.0	32	<42.0	32
Rep-2	*	*	*	*
Rep-3	<4.9	31	<12.0	31
Rep-4	11	30	<26.0	41
Rep-5	*	*	*	*

Notes:

* Tissue samples not sent for chemical analysis.

< Chemical not detected at the reported limit.

Total DDT = Sum of detected DDD, DDE, and DDT concentrations.

Table 4-13. Number of Post-1990 Category 1 Sediment Samples in Portland Harbor by River Mile.

Surface Sediment	River Mile 0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	Total
Aroclors	2	4	17	6	16	14	31	31	91	17	24	253
Butyltins	2	3	3	9	11	27	34	48	77	12	19	245
Conventionals	2	4	17	17	82	34	86	124	159	22	27	574
Dioxins_Furans	--	--	--	--	--	--	14	8	--	--	--	22
Herbicides	--	--	--	--	--	--	8	3	18	--	--	29
Metals	2	4	17	20	67	43	93	108	109	18	22	503
PAHs	2	4	17	17	82	29	89	112	110	18	27	507
Pesticides	2	3	3	6	21	8	33	40	44	14	18	192
Petroleum	--	--	1	--	44	6	9	4	18	--	3	85
SVOCs	2	3	17	17	71	26	51	83	106	16	24	416
Phenols	--	2	14	15	70	24	67	98	102	14	20	426
Phthalates	--	1	14	15	70	24	47	77	108	17	23	396
VOCs	--	--	--	--	41	--	23	31	26	6	13	140

Subsurface Sediment	River Mile 0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	Total
Aroclors	10	7	4	1	12	11	5	30	55	16	11	162
Butyltins	3	7	2	1	6	11	9	33	26	12	7	117
Conventionals	11	8	5	3	33	11	91	101	144	17	12	436
Dioxins_Furans	--	--	1	--	--	--	10	3	1	--	--	15
Herbicides	--	--	2	--	--	--	--	--	7	2	--	11
Metals	10	7	2	3	26	12	80	56	71	12	11	290
PAHs	10	7	5	3	33	12	100	73	64	18	12	337
Pesticides	10	7	4	1	12	8	43	34	16	18	9	162
Petroleum	--	--	1	--	16	3	9	26	--	--	2	57
SVOCs	10	6	5	3	33	12	53	63	62	17	8	272
Phenols	1	7	4	3	32	11	33	63	59	16	7	236
Phthalates	1	6	4	3	32	11	4	45	60	12	2	180
VOCs	--	--	--	--	21	--	27	27	2	2	--	79

Notes: River mile 0 is the confluence with the Columbia River.

Table 6-1. Portland Harbor RI/FS Deliverable Descriptions

Phase	Deliverable	Purpose
Project Scoping	Process to Identify COPCs TM	Describes the process and timing for identifying COPCs based on Round 1 and Round 2A data. Result of the screening will be identification of COPCs that will be the focus of future sampling rounds and risk analysis and will be limited to those chemicals that are identified as COPCs by screening methods or based on preliminary risk estimates. Descriptions of COPC screening methods used in the ERA and HHRA will be included. This technical memorandum will identify the steps in the RI process at which COPC identification will occur (e.g., the Ecological Preliminary Risk Evaluation and Round 2 Site Characterization and Summary Report). The technical memorandum will also identify potential interim steps where additional risk evaluation may be needed to support data gaps analysis or risk communication needs.
	Process for Derivation of PRGs TM	Explains the approach to be used for developing PRGs. Development of initial PRGs is expected to occur after Round 2, which will be used in identifying data gaps for Round 3. These initial PRGs will be revised based on results of Round 3 and used to develop refined PRGs for use in the FS. In addition to addressing the requirements of the SOW, the possible approaches include deriving site-specific BSAFs, using an aquatic food web model, using the benthic predictive model, and/or evaluating potential reduction in risk under various exposure scenarios.
	Ecological and Human Health Groundwater Pathways Assessment/ Groundwater Sampling Approach TM	Specifies a framework for identifying data uses and data needs for evaluating the effects of COIs in groundwater discharging to the Transition Zone and surface water. Identifies which sites to conduct additional evaluation of the groundwater pathway to the river, summarizes exposure scenarios to COIs discharging to the Transition Zone and surface water, identifies how existing data and field data collected as part of the RI/FS will be used, establishes a process for identifying locations where additional data to assess groundwater discharge are needed, and identifies data needs from those locations.
	Approach to Determining Background for the Portland Harbor Superfund Site / Process for Delineating the Extent of Contamination Upstream and Downstream of the ISA	Describes the definition and approach for determining background levels for the Site. This information will be used, following the risk characterization in the risk assessment, as a risk management tool, consistent with EPA guidelines (EPA 2002c). Describes the general approach to determine the data and analyses needed upstream and downstream of the ISA for EPA to determine Site boundaries.
	Conceptual Site Model Update	Presents existing upland site information for potential sources and source-related data as well as data on potential past and/or current pathways to sediment, surface water, and Transition Zone water, from groundwater, storm and wastewater discharges, erosion, and over-water activities. The update will focus on providing detailed data on the groundwater transport pathway to facilitate scoping of Round 2B subsurface sediment sampling. The CSM will be more completely updated in the Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report.
	Round 2 Quality Assurance Project Plan	Describes laboratory and QA/QC procedures applicable to Round 2 sediment and surface water sampling

Table 6-1. Portland Harbor RI/FS Deliverable Descriptions

Phase	Deliverable	Purpose
Project Scoping	Cultural Resource Survey	Reviews agency records, historical documents, and other published and unpublished materials to define locations of known or reported cultural resources and locations where cultural resources are likely to be present. The survey area extends from the mouth of the Willamette River to Willamette Falls. Will include information gathered by certain Tribes on traditional and present cultural use of the study area.
Hydrodynamic Modeling	Hydrodynamic Modeling TM	Presents and analyzes existing data about physical processes that could influence hydrodynamic and sedimentation in the Lower Willamette River. Identifies those processes that should be included in a model description of the study area. Proposes the model to be used to simulate hydrodynamic and sedimentation processes in the Lower Willamette River. Proposes the extent of the area to be modeled and the approach to model calibration and application.
	Step 1 Hydrodynamic Modeling Results	Presents the development of the model grid to the Lower Willamette River and Multnomah Channel. Presents the preparation of model input and calibration data. Presents and analyzes the model calibration to observations (hydrodynamic and sediment). Presents a sensitivity analysis of study area processes. Recommends whether the 2-D model is adequate for application to evaluate remedial alternatives or whether a 3-D model should be developed from the 2-D model grid. Identifies types and locations of additional data that could benefit the modeling processes.
	Step 2 Hydrodynamic Modeling Results	Assuming that the 2-D model adequately represents hydrodynamic and sedimentation processes in the study area, the report presents the development of hydrodynamic and sediment conditions to be used to evaluate remedial alternatives. Presents and analyzes the results of the simulation of remedial alternatives. (If a 3-D model is needed, or if significant additional data are needed to validate either the 2-D or 3-D model, the report also presents the re-calibration of the model.)
Ecological Risk Assessment	TRV Selection TM	Explains the identification process of chemicals of interest and the selection process of TRVs based on Round 1 data to be used in the ERA. The methods and guidelines used to prioritize the available literature for TRV selection, detailed discussion of the selection process for each TRV, and the results of the TRV selection process for each receptor (i.e., benthic invertebrate tissue-based approach, fish, bird, and mammals) will also be included. For wildlife and dietary update to fish, TRVs will be based on conservative assumptions using a food-web model. For whole-body fish tissue and invertebrate tissue, tissue-based TRVs will be developed for direct comparison to Round 1 tissue data. The technical memorandum will present the recommended TRVs for wildlife, fish, and invertebrate tissue. Amphibian and plant TRVs will be developed following collection of Round 2 surface water and sediment data.
	Preliminary Risk Evaluation Approach TM	Explains the approach for Preliminary Risk Evaluation (PRE). Includes outline of PRE and description of how risks to aquatic feeding wildlife and fish and invertebrates will be assessed in the PRE. Describes how the various receptor groups (i.e., fish, birds, mammals) will be assessed with respect to potential exposure and how data from each medium will be aggregated to estimate exposure point concentrations (EPCs). (Note: TRVs for wildlife, fish, and invertebrate tissue will be approved by EPA before this TM is approved.)

Table 6-1. Portland Harbor RI/FS Deliverable Descriptions

Phase	Deliverable	Purpose
Ecological Risk Assessment	Benthic Assessment Interpretive Approach TM	Describes the development and application of a predictive relationship model between chemical concentrations in the sediment and bioassay responses. Several different explorative approaches to evaluate the relationship will be described including, but not limited to, determining the reliability of published sediment quality guidelines to predict toxicity in Portland Harbor sediments, and developing site-specific relationships between chemical contaminants detected in sediment and toxicity (e.g. logistic regression model). Other models may be identified. The appropriate model or approach may vary for different COPCs, receptors, or uses. This technical memorandum will also propose the collection of bioassay samples at reference locations for later use in risk characterization and risk management.
	Comprehensive ERA Approach TM	Characterizes how the various receptor groups (i.e., benthic invertebrates, fish, birds, mammals, and plants) will be assessed with respect to potential exposure and how data from each medium will be aggregated to estimate EPCs. Linkage between assessment endpoints and measures, including prioritization of lines-of-evidence for risk management decisions, will be presented. This memorandum will also describe the analysis framework for assessing each assessment endpoint in the risk characterization. Spatial data analysis methods that account for habitat preferences for each species to be evaluated in the baseline ERA will also be presented. Chemical-specific evaluation methods will be discussed.
	Food Web Model TM	Provides details on the use of BSAFs and/or a food web model for the RI/FS. The TM will include the objectives for selection of either the BSAFs and/or a food web model, including the need to assess steady-state versus time-varying conditions at the site as well as spatially varying conditions. The TM will describe the model selection process, including the use of historical data and data collected in Round 1 (e.g., co-located sediment and tissue samples) to perform initial runs of the candidate food web models. The following components of the model will be described: model setup, model calibration, model validation, sensitivity analysis, and uncertainty analysis. The sensitivity and uncertainty analyses will identify parameters that have the greatest impact on the results. The results of this initial modeling effort, as well as the results of the sensitivity and uncertainty analyses, will be used to select the preferred food web model that will be further evaluated after collection of Round 2 data and to identify data gaps in the food web model. The level of effort needed to apply the model should be discussed for both the modeling itself as well as for collecting additional site-specific data (other than Round 2 data, which will be incorporated into the food web model report), if needed. The TM should also give examples of other sites where the selected food web model has been calibrated and validated in an environment similar to the Portland Harbor site.

Table 6-1. Portland Harbor RI/FS Deliverable Descriptions

Phase	Deliverable	Purpose
Ecological Risk Assessment	Ecological Preliminary Risk Evaluation (PRE)	Includes a risk characterization based on historical, pre-AOC, and Round 1 data for benthic invertebrates using the tissue-residue approach, fish, and wildlife. Results will be used, in part, to help identify COPCs related to contaminant concentrations in fish and invertebrate tissue. This applies primarily to risks to aquatic-feeding wildlife that consume fish or invertebrates from the river, and risks to invertebrates and fish containing the compounds. This COPC identification is narrowly focused because sediment data from Round 2 are needed to identify a comprehensive list of COPCs. The PRE will not rely on the benthic assessment technical memorandum, which addresses the analysis framework for the sediment toxicity data to be collected during Round 2. The preliminary risk estimates and the associated uncertainty will help to identify ERA data and information gaps that may be filled during subsequent investigations/evaluations prior to the baseline ERA.
	Round 2 Benthic Assessment Report	Uses the results of Round 2 sediment bioassays to implement the analyses described in the Benthic Assessment Interpretive Approach TM. Objectives are to 1) develop and apply a predictive relationship model between chemical concentrations in the sediment and bioassay responses, and 2) confirm toxicity in high priority areas.
	Food Web Modeling Report	Uses Round 2 data to supplement Round 1 data to perform additional runs of food web model identified in the food web model TM. If the available data were insufficient for selecting a food web model in the TM, a model will be selected after incorporation of the Round 2 data. If none of the steady-state models evaluated can be used to achieve the objectives outlined in the food web model TM, the need for the collection of additional data and/or the evaluation of non-steady-state (i.e., time-varying) models that incorporate the results of hydrodynamic and fate and transport modeling will be discussed with EPA and its partners. Additional data needs for model calibration and validation (which will be separate from those data used to develop the model) will also be discussed. An approach and schedule for collecting additional data and food web model reports, if necessary, will be included.
Human Health Risk Assessment	Fish Tissue Exposure Point Concentrations Interim Deliverable	Provides exposure point concentrations (EPCs) for fish and crayfish tissue for human health evaluation. Information will be provided in a format agreed to by EPA and the LWG. EPCs will be calculated as described in Appendix C.
	Round 1 Data Gaps Analysis Interim Deliverable	Analyzes Round 1 data to determine if data gaps for fish tissue or beach sediment exist for the HHRA.
	COPC Selection Interim Deliverable	Describes COPC selection methods for beach sediment, in-water sediment and surface water (see Section 2.3 of Appendix C). This interim deliverable will include a description of these procedures and the resulting COPC lists for these media. A list of detected chemicals in fish tissues will be included. Any other media that may be included in the HHRA will be screened for COPCs according to methods determined through future discussions with EPA and its partners. For purposes of the RI/FS and associated baseline risk assessment, COPC identification will be developed for the Comprehensive Round 2 Site Characterization Summary Report. However, additional COPC selection may be needed to support interim risk communication needs outside of the RI/FS, such as the ODH public health assessment that is scheduled to be completed before the RI/FS.
	EPC Calculation Approach TM	Describes the process for calculating EPCs for in-water sediment, surface water, and seep water (see Section 3.4 of Appendix C).

Table 6-1. Portland Harbor RI/FS Deliverable Descriptions

Phase	Deliverable	Purpose
Human Health Risk Assessment	Summary of Exposure Factors Interim Deliverable	Provides a summary of all exposure factors developed for use in the HHRA by receptor and exposure pathway. Exposure factors are discussed qualitatively in several parts of Appendix C and specifically in Section 3.5.1 (Receptor Specific Assumptions) and are presented in Tables 5 through 14 of Appendix C for beach sediment and surface water. Exposure factors for media and pathways not included in the Work Plan (i.e., in-water sediment, seep water) also will be included in the interim deliverable and will be developed through discussions with EPA.
	Toxicity Values Interim Deliverable	Presents a summary of selected toxicity values for chemicals detected in Round 1 beach sediment and biota evaluated for human health. Toxicity values for additional COPCs identified from subsequent sampling rounds will be added; any values updated prior to future risk evaluations will be revised, as needed, through discussion with EPA. The hierarchy of sources for toxicity values for the HHRA is defined in Section 4.1 of Appendix C.
	HHRA Uncertainty Analysis Outline	Discusses the areas of uncertainty inherent in the risk assessment process (such as estimates of exposure and toxicity).
Site Characterization	Validated Analytical Results	Provides validated analytical data in electronic format showing locations, media, and results. As specified in the AOC, and upon request, analytical data will be made available to EPA within 60 days of each sampling activity.
	Field Sampling Reports	Summarizes field sampling activities, including sampling locations (maps), requested sample analyses, sample collection methods, and any deviations from the FSP.
	Site Characterization Summary Reports	Provides validated sample analysis results in tabular format. Provides chemical concentration maps showing the distribution of sample analysis results for selected COIs. Data validation reports and a summary of data validation results also will be included in each site characterization summary report. EPCs for human health will be submitted as interim deliverables with site characterization summary reports.
	Bioassay Data Report	Documents all activities associated with the collection, handling, and analysis of Round 2 bioassay samples. Includes a brief review of the study design and methods, data tables summarizing the testing, deviations from the protocols appended to the approved QAPP, copies of chain-of-custody forms, data validation reports, and tables of all raw data.

Table 6-1. Portland Harbor RI/FS Deliverable Descriptions

Phase	Deliverable	Purpose
Site Characterization	Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report	Summarizes pre-AOC, Round 1, and Round 2 investigation results; presents preliminary evaluation of risks to human health (as described in Appendix C of Work Plan) and ecological receptors (as described in Appendix B of Work Plan and associated technical memoranda) based on site-specific data for purposes of identifying COPCs 'risk drivers' and data gaps to be addressed in Round 3 sampling; provides a comprehensive update of the CSM; provides initial PRGs; presents a screening of pre-AOC, Round 1, and Round 2 data relative to PRGs; and identifies any data gaps to be addressed in Round 3. Also provides the most current results of the food web model, its application to development of initial PRGs, and food web modeling data gaps. This summary reviews the investigative activities and displays Site information and data documenting the location and characteristics of surface and subsurface features and contamination at the Site, including sample locations, chemical concentration distributions, and the results of any biological testing. This evaluation will include, to the extent practicable, COPC concentration distributions relative to known sources, and the extent of contaminant migration through the in-water portion of the Site. The data compilation and summary will provide EPA with a preliminary reference for evaluating the risk assessments, the development and screening of remedial alternatives, and the further identification of ARARs.
	Draft RI Report and Baseline Risk Assessment Reports	Includes 1) a characterization of the distribution of chemicals and sources that affect the river; 2) an assessment of ecological risk including risks to benthos, fish, wildlife, and other receptors of concern; 3) an assessment of human health risks from contact with sediment and water, and fish and shellfish ingestion; 4) a preliminary delineation of SMAs and sediment volumes that pose unacceptable risks; 5) a preliminary delineation of principal threat areas, and 6) a preliminary understanding of the potential for natural attenuation as a remedial alternative.
	Final RI Report and Baseline Risk Assessment Reports	See draft RI Report above.
Feasibility Study	2003 Sediment Stake Results Report	Describes data collected in 2003 from shoreline stakes that measure changes in sediment elevation changes throughout the ISA. These data will be compared to available bathymetry changes in deeper waters near these stations.
	Step 1 Natural Attenuation Evaluation and Step 2 Field Sampling Plan and Data Evaluation Methods TM	Describes the selection of sampling locations and types based on Step 1 of the Natural Attenuation Evaluation process described in Appendix A. Also describes the field sampling plan for Step 2 of the process as well as the data evaluation procedures that will be employed once Step 2 data are received. EPA may request that the field sampling plan be separated from the data evaluation procedures, resulting in two separate submittals (Round 2 FSP Addendum and Natural Attenuation Data Evaluation Methods TM).
	Step 2 Natural Attenuation Evaluation Report	Presents results from the data collected per the Step 1 Evaluation and Step 2 Field Sampling Plan and Data Evaluation Methods memorandum above. In addition, it will present data evaluations, including any necessary modeling efforts to identify potential areas for further investigation of natural attenuation as a remedial technology.

Table 6-1. Portland Harbor RI/FS Deliverable Descriptions

Phase	Deliverable	Purpose
Feasibility Study	Step 3 Natural Attenuation TM and Field Sampling Plan	Presents proposed methods for determination of candidate areas for natural attenuation as a remedial technology. Includes methods for selection of sampling locations and types as well as data evaluation procedures (including any modeling) that will be employed once Step 3 data are received.
	Step 3 Natural Attenuation Field Sampling Report	Presents results from the data collected per the Step 3 Natural Attenuation TM and Field Sampling Plan (above). Additionally presents data evaluations, including any necessary modeling efforts to identify candidate areas for natural attenuation as a remedial technology to be considered in the FS Report.
	Facility Siting Inventory Report	Presents an inventory of possible disposal sites and screens those sites based on several criteria (see Appendix A) to obtain a refined list of potential disposal sites for contaminated sediments.
	Facility Siting Re-Screen Report	Presents an additional screening of potential disposal sites identified from the Inventory Report (above) based on Portland Harbor-specific information that will be available later in the RI/FS process (e.g., areas and volumes of sediments that are potentially contaminated). The report will present a refined list of disposal sites for further evaluation (see Appendix A).
	Facility Siting Final Ranking Report	Uses the list of disposal sites from the Facility Siting Re-Screen Report (above), and criteria and methods described in Appendix A, to obtain a final ranking of potential disposal sites for Portland Harbor contaminated sediments.
	Recontamination Potential Modeling Approach TM	Presents the types of sampling and data evaluation procedures that will be used to determine the level and extent of recontamination potential that may exist at the site. Includes the general types of sampling, the target locations of such sampling, and the data evaluation procedures (including any modeling) that will be used to determine the potential for recontamination after remediation of sediments takes place.
	Literature Survey of Treatability Studies	This memorandum (described in detail in Appendix A)will contain a review of literature to determine: 1) which treatment technologies are effective and cost competitive (potentially suitable) as compared to other remedial technologies, and 2) for those potentially suitable technologies, whether treatability studies would be needed to determine the appropriateness of the technologies for this specific site. The survey will contain a conclusion section that will describe whether further treatability studies are needed, and if so, the general extent of those studies.
	Refined Preliminary RAOs TM	Includes updated RAOs and PRGs to be used in the FS. As required by the SOW, general types of PRGs (e.g., national or regional numeric sediment guidelines) will be considered when refining PRGs. However, refined PRGs will be primarily based on the results of the risk assessment and other work (e.g., food web modeling) conducted during the RI. As with the preliminary RAOs, the refined RAOs will specify the chemicals and media of interest, exposure pathways and receptors, and an acceptable chemical level or range of levels (i.e., a PRG). PRGs will be location-specific within the project study area where risks estimates vary across the study area due to differences in exposure levels/routes or other site-specific risk parameters.
	Alternatives Development and Screening Report	Per Section 9.2 of the SOW, this task summarizes results of the identification, assembly, refinement, and screening of remedial alternatives. It will contain the results of Sections 5.3 through 5.7 of Appendix A, which describes these studies in detail.

Table 6-1. Portland Harbor RI/FS Deliverable Descriptions

Phase	Deliverable	Purpose
Feasibility Study	Draft FS Report	As described in Appendix A, the LWG will complete the detailed analysis of remedial alternatives including recommending remedial alternatives that meet the refined RAOs and include any appropriate restoration components. A justification for the selection of this recommendation will also be included. This recommendation, along with all the supporting analysis and information developed in Sections 3, 4 and 5 of Appendix A, will be submitted in a Draft Feasibility Study Report to EPA.
	Final FS Report	See Draft FS Report above
Field Sampling Plans	Round 2 Shorebird FSP Addendum	Describes sampling locations and procedures for Round 2 beach sampling to support ecological and human health risk assessments
	Round 2 Surface Water FSP	Describes surface water sampling locations and procedures
	Round 2A Sediment Coring FSP Addendum	Describes Round 2A sediment coring sampling locations and procedures.
	Round 2B Sediment Coring FSP Addendum	Describes Round 2B sediment coring sampling locations and procedures
	Round 2 Groundwater Impacts Sampling FSP	Describes groundwater sampling locations and procedures. Includes a QAPP, if necessary.
	Round 2 Seep Sampling FSP	Describes seep sampling locations and procedures. Includes a QAPP, if necessary.
	Round 3 Surface Water FSP (if required)	Describes surface water sampling locations and procedures. Includes a QAPP, if necessary.
	Round 3 FSP	Describes Round 3 sampling necessary to support baseline risk assessments, site characterization and/or feasibility study. Describes sampling locations and procedures. Includes a QAPP, if necessary.

Table 7-1. Overview of Data Collections to Fill Data Gaps for the Preliminary RAO and RI/FS Site Characterization Objectives.

	Site Characterization					Preliminary Remedial Action Objectives[1]				
	Understand Physical System	**Understand Chemical Distributions and Sources**	**Understand Ecological Risks**	**Understand Human Health Risks**	**Conduct Feasibility Study**	**1**	**2**	**3**	**4**	**5**
Existing Information										
Geology/Groundwater	X	X	X	X	X			G		G
Hydrology/Sediment Transport	X	X	X	X	X				G	
Bathymetry/Dredging Records	X	X			X	G			G	
Sediment/Water/Tissue Chemistry	X	X	X	X	X	G	G	G	G	G
Biology/Toxicity/Habitat/T&E Species			X						G	G
Upland Source Information (DEQ)	X	X			X	G		G	G	G
Demography				X		G	G	G		
Site Use		X	X	X	X	G	G	G		
Pre-AOC										
SPI	X	X	X		X				G	
Bathymetry - High Flow (Dec. 2001)	X	X	X		X				G	G
Salmonid Residence Time			X						G	G
Other										
Water Velocities - High Flow	X				X			G		G
Round 1										
Fish Tissue Chemistry			X	X			G		G	G
Epibenthic Multiplates			X						G	
Plants/Amphibians Reconnaissance			X							G
Adult Lamprey Reconnaissance				X			G			
Infauna/Juvenile Lamprey Reconnaissance			X						G	G
Beach Sediment Chemistry		X	X	X		G			G	
Co-located Sediment Chemistry		X	X	X			G		G	
Sediment Stakes	X		X		X				G	
Bathymetry - Low Flow (Summer 2002)	X		X		X				G	G
Bathymetry - High Flow (Spring 2003)	X		X		X				G	G
Seep Reconnaissance Survey	X	X		X				G		
Source/Groundwater Data Review	X	X	X	X	X			G	G	G
Round 2										
Surface Sediment Chemistry		X	X	X	X		G		G	
Subsurface Sediment Chemistry	X	X	X		X				G	

Table 7-1. Overview of Data Collections to Fill Data Gaps for the Preliminary RAO and RI/FS Site Characterization Objectives.

	Site Characterization					Preliminary Remedial Action Objectives[1]				
	Understand Physical System	**Understand Chemical Distributions and Sources**	**Understand Ecological Risks**	**Understand Human Health Risks**	**Conduct Feasibility Study**	**1**	**2**	**3**	**4**	**5**
Sediment Bioassays			X						G	
Surface Water Chemistry		X	X	X	X		G	G		G
Groundwater Screening and Data Needs Assessment		X	X	X				G	G	G
Porewater Chemistry	X	X	X						G	G
Seep Chemistry	X	X		X				G		
Pilot Natural Attenuation					X	G			G	
Round 3										
Risk Assessment Data Gaps (water, sediment, bioassays)		X	X	X		G	G	G	G	G
FS-related Sediment Chemistry Data Gaps		X			X	G			G	
Natural Attenuation Sampling	X				X	G			G	
Recontamination Sampling	X	X			X	G			G	
Sediment Physical/Engineering Properties					X	G			G	
Disposal Site Sampling					X	G			G	

Notes:

More detailed descriptions of the Preliminary Remedial Action Objectives (RAOs) are provided in Appendix A and Section 6.1 of the Work Plan, and are summarized below for the purposes of this table.

G - An RI/FS data collection effort may be needed to fill identified data gap associated with this preliminary RAO.

[1] - The preliminary RAOs are:

1. Reduce human health risks from direct contact with and incidental ingestion of chemicals of concern (COCs) in sediments in the Site to acceptable levels.
2. Reduce COC concentrations in sediments in the Site to levels that will result in acceptable risks to humans that eat fish and shellfish from the Site.
3. Reduce human health risks from direct contact with and incidental ingestion of COCs in water in the Site to acceptable levels.
4. Reduce ecological risks from contact with and ingestion of COCs in sediments or prey in the Site to acceptable levels.
5. Reduce ecological risks from contact with and ingestion of COCs in water in the Site to acceptable levels.

Table 7-2. The DQO Process for Understanding the Physical River System.

DQO Step	**Output**
1. State the Problem	The spatial and temporal scales of sediment movement and transport are not known. Sediment transport may affect contaminant nature and extent, source transport, recontamination potential, and ecological and human health exposure. Sediment transport processes / hydrodynamics also affect selection of remedial alternatives.
2. Identify the Decision to be Made	Determine the effect of sediment transport on risk estimates. Determine whether physical processes could expose previously buried contaminated sediment. Determine whether physical processes could result in burial of contaminated sediment. Determine physical system types for SMA development. Determine short- and long-term flow regimes for remedial alternatives development.
3. Identify the Inputs to the Decision	Time-series bathymetric surveys (high and low flow conditions). Sediment erosion/accretion stake measurements in beach areas where bathymetry cannot be measured. Temporal surface sediment chemistry comparisons in areas with appropriate historical data. Physical and chemical surface and subsurface sediment data Hydrodynamic/sediment transport model; inputs will include: • Bathymetry • Surface and subsurface bed sediment data • Tidal data • River flows • Sediment inflows (sands and fines) • Wind speed and direction • Others (TBD by modeler) The model must document uncertainties and identify which parameters most strongly affect the outcome of the model.

Table 7-2. The DQO Process for Understanding the Physical River System.

DQO Step	Output
4. Define the Boundaries	Model hydrodynamic conditions from Willamette to confluence with Columbia River, focus sediment transport modeling on RM 2 to 11. Model to span annual high and low flow conditions. Hydrodynamic portion of model needs to predict both major flood years and non-flood years.
5. Develop a Decision Rule	Define the distributions of physical system types (i.e., potential for and magnitudes of erosional, depositional, transitional transport and stable regimes under a range of flow conditions). Define peak bed velocities under a variety of flow conditions at various locations for use in remedial alternatives evaluation.
6. Specify Tolerable Limits on Decision Error (per US EPA DQO guidance)	Null Hypothesis 1: Potential sediment transport does not significantly affect risk. Alternative Hypothesis 1: Potential sediment transport does significantly affect risk (by exposing subsurface sediments). Null Hypothesis 2: Potential sediment transport does not significantly affect remedial alternatives and evaluations. Alternative Hypothesis 2: Potential sediment transport does significantly affect remedial alternatives and evaluations. Decision Error: Error rate in physical measurements cannot be greater than the depth over which a decision will be made: • Need ± 6 inches on bathymetric measurements. Based on model calibration and validation results, model must be sufficiently accurate at a reasonable confidence level. Risk assessments and remedial alternatives identification and evaluation must take into account model results and associated uncertainties.

Table 7-2. The DQO Process for Understanding the Physical River System.

DQO Step	Output
7. Optimize the Design	Collect bathymetry and flow (ADCP) data during a high flow (> 100,000 cfs) in the LWR. Continue to monitor sediment stakes in beach areas in Round 2. Select and set up hydrodynamic model using existing data during Round 2. Calibrate model to period December 2001 to September 2002 using bathymetric change data from that period. Validate the model over the period from September 2002 to February 2004 using bathymetric change data from that period. Following the preliminary modeling effort: • Identify data types and subareas where additional data are needed to meet modeling objectives • Identify subareas that may warrant additional focus due to the sediment exposure potential or for the remedial alternatives evaluation

Table 7-3. The DQO Process for Understanding Chemical Distributions in Sediments and Sources.

DQO Step	Output
1. State the Problem	Historical data show that chemicals are present in sediments in the Lower Willamette River. However, documentation of the distribution of sediment chemical concentrations, although extensive, is not complete in all areas and the influence of sources is also not well understood in all areas. Surface sediments may act as a source of chemicals to other areas of the river and the transport of chemicals into and out of the ISA is not well understood. The stability of sediment chemical distributions is uncertain, based on known physical transport processes. Chemicals bound to sediments may pose a risk to human and ecological receptors.
2. Identify the Decision to be Made	Determine the nature and extent of chemicals in sediment including in areas that have not been characterized previously. Determine whether spatial trends in chemical distributions in sediment are consistent over time. Determine whether potential source areas influence sediment chemical distributions. Determine whether contiguous contamination posing unacceptable risk extends beyond the ISA.
3. Identify the Inputs to the Decision	Existing Category 1 sediment data from the Weston (1998) study and other in-water investigations (assume historical Category 1 data are acceptable for characterization of sediment quality). Sediment physical properties based on bathymetric studies, sediment trend analysis, sediment profile imaging, sediment stakes, and hydrodynamic modeling. Information on upland sources. New surface and subsurface sediment data.

Table 7-3. The DQO Process for Understanding Chemical Distributions in Sediments and Sources.

DQO Step	Output
4. Define the Boundaries	Focus on the ISA and include limited sampling above and below the ISA. Surface sediment is defined as the surficial 1 ft (30 cm) of sediment. Subsurface sediment is defined as sediment deeper than 30 cm below the mudline. Bank areas to bottom of channel to coincide with risk assessment exposure areas. Collect new surface sediment data during low flow conditions (i.e., July – October) when physical transport processes are reduced. Detection limits will be those currently achievable by the analytical laboratory conducting the analyses under the EPA-approved QAPP. Detection limits will be lower (if analytically achievable) than risk-based values for protection of sediment.
5. Develop a Decision Rule	Areas affected by sources will be identified by an analysis of concentration gradients of COPCs. Areas exceeding risk-based thresholds will be referred to the feasibility study as potential sediment management areas.
6. Specify Tolerable Limits on Decision Error	Sampling density is sufficient to evaluate ecological receptor and human use areas. Temporal variability in chemical concentrations does not mask chemical distribution trends associated with sources.

Table 7-3. The DQO Process for Understanding Chemical Distributions in Sediments and Sources.

DQO Step	Output
7. Optimize the Design	Stratify sediment sampling by depth of the riverbed with a greater number of stations in shallower areas near known and suspected sources and fewer stations in the channel. Sample where potential human or ecological receptor exposure areas have been identified and where historical Category 1 data are lacking. Evaluate temporal trends in surface sediment concentrations by collecting data in some areas with historic data and comparing spatial trends over time. Define and sample surface sediment as the top 1 ft (30 cm) of sediment because that thickness accounts for the majority of sediment elevation changes over time and includes the biologically active zone. Sample subsurface sediments where scour may re-expose buried sediment deposits and in navigation/maintenance dredge and sediment management areas.

Table 7-4. The DQO Process for Understanding Chemical Distributions in Surface Water.

DQO Step	Output
1. State the Problem	Information on concentrations and distribution of chemicals in the water column is limited.
2. Identify the Decision to be Made	Determine the nature and extent of chemicals in surface water entering, within, and exiting the ISA. Determine whether the distribution of chemicals in surface water is spatially and temporally consistent. Determine whether chemical concentrations representing a risk extend contiguously beyond the ISA. Determine potential for widespread source effects to river water and associated risks to ecological and human receptors. Refer to EPA and DEQ for source control as appropriate.
3. Identify the Inputs to the Decision	Existing Category 1 water quality data. Distributions and concentrations of chemicals in the water column (Round 2). Risk-based water quality action levels may need to be identified.
4. Define the Boundaries	Immediately upstream, downstream, and within the ISA. Generate new water column data during an early fall "first flush" stormwater event and both low-flow and high-flow conditions near the surface and near the bottom of the river. Detection limits will be those currently achievable by the analytical laboratory conducting the analyses, as approved by EPA in the QAPP. Detection limits will be lower (if analytically achievable) than risk-based values for protection of water quality.
5. Develop a Decision Rule	If concentrations exceed risk-based water quality screening levels, refer to EPA and DEQ for source control follow-up. Time-series chemistry data for each chemical are within the same range of concentrations over time and trigger the same risk management decision.

Table 7-4. The DQO Process for Understanding Chemical Distributions in Surface Water.

DQO Step	Output
6. Specify Tolerable Limits on Decision Error	Sampling density is sufficient to estimate water quality entering, within, and exiting the ISA. Sampling frequency is sufficient to estimate water quality under low flow and high flow conditions. Detection limits for sampling and analytical methods are adequate to be below risk-based water quality screening levels. Sample location and density must be adequate to understand the potential for source effects to river water and sediments, but not for identifying and characterizing individual sources.
7. Optimize the Design	Collect water samplesusing a cross-sectional integrated flow sampling method (high-volume and grabs) suitable to achieve the target detection limits. Collect water samples using high-volume and grab sampling methods in Round 2 along three transects from shore to shore in the ISA. Locations of transects will be chosen to measure water quality parameters entering the ISA (RM 11), within the ISA (RM 6), and leaving the ISA (RM 3.5). Collect water samples using grab sampling methods at potential swimming areas. Collect water samples in Round 2 during summertime low flows and in the fall shortly after flows have increased and storm drains have potentially been flushed of particulates that accumulated over the previous summer. Collect water samples using high-volume and grab sampling methods in Round 2 at four locations (Rhone-Poulenc, Willamette Cove, ATOFINA, and Portland Shipyard) during optimum-flow sampling event.

Table 7-5. The DQO Process for Understanding the Hydrogeologic Physical System, the Effects of Groundwater Discharges on Ecological and Human Health Risks and the Distribution of Chemicals in Sediment.

DQO Step	Output
1. State the Problem	**Ecological Risk Assessment**: Potential significant contributions to risk to ecological receptors from groundwater flow through sediments within the ISA are unknown. **Human Health Risk Assessment**: The potential exposure of human receptors at potential human uses areas within the ISA to groundwater COIs is unknown. **Hydrogeologic Physical System**: A better understanding of the relationship between groundwater and surface water is necessary as a basis for the evaluation of the potential effects of the groundwater physical system on exposure pathways for the site. **Chemical Distribution and Sources**: Flow of contaminated groundwater through sediments can affect sediment quality. A better understanding of the locations of upland contaminated groundwater sources is needed to identify locations and prioritize sites where groundwater may adversely affect sediments and environmental receptors in the river.

Table 7-5. The DQO Process for Understanding the Hydrogeologic Physical System, the Effects of Groundwater Discharges on Ecological and Human Health Risks and the Distribution of Chemicals in Sediment.

DQO Step	Output
2. Identify the Decision to be Made	**Ecological Risk Assessment**: Determine where COIs in groundwater have the potential to adversely impact to sediment and/or porewater quality. Determine where potentially ecotoxic groundwater contaminants are not captured through whole sediment analysis. Determine the scale of investigation necessary for assessing ecological risks from groundwater COIs Determine whether and where collection of bulk sediment and porewater data may be necessary for ecological risk assessment purposes. Identify locations where groundwater data are lacking and where additional investigation and/or sampling may be needed to support risk-based evaluations. Determine whether contaminated groundwater in the harbor represents unacceptable risks to ecological receptors. If risk is unacceptable, determine the location and extent of source control and/or remediation. **Human Health Risk Assessment**: Determine if and where COIs in groundwater could discharge to the surface in potential human use areas. Determine if additional investigation of the groundwater pathway is necessary in potential human use areas. **Hydrogeologic Physical System**: Determine the scope of sample collection activities for the ecological and human health risk assessments based on understanding the spatial and temporal relationships between groundwater and surface water in the ISA. **Chemical Distribution and Sources**: Determine where COIs in groundwater have the potential to adversely affect sediments and environmental receptors in the river.

Table 7-5. The DQO Process for Understanding the Hydrogeologic Physical System, the Effects of Groundwater Discharges on Ecological and Human Health Risks and the Distribution of Chemicals in Sediment.

DQO Step	Output
3. Identify the Inputs to the Decisions	**Ecological Risk Assessment**: Existing regional, ISA-wide and site specific hydrogeologic data; Existing upland groundwater quality data from upland groundwater investigations under DEQ oversight including the locations and the ranges of concentrations of COIs in groundwater from upland sites adjacent to the ISA and are likely to affect sediment (including porewater) quality. Porewater data from locations where groundwater COIs in sediments are not adequately characterized by the whole sediment sampling and analysis or the benthic approach are likely present, and could cause a significant risk to ecological receptors. **Human Health Risk Assessment**: Locations of identified seeps based on seep reconnaissance survey results Locations of identified potential human use areas Existing upland groundwater quality data in areas adjacent to potential human use areas and/or groundwater quality data from the seeps. **Hydrogeologic Physical System**: Existing regional, ISA-wide and site specific hydrogeologic data; **Chemical Distribution and Sources**: Existing regional, ISA-wide and site specific hydrogeologic data; Existing upland groundwater quality data from upland groundwater investigations including the locations and the ranges of concentrations of COIs in groundwater from upland sites adjacent to the ISA and are likely to affect sediment quality.

Table 7-5. The DQO Process for Understanding the Hydrogeologic Physical System, the Effects of Groundwater Discharges on Ecological and Human Health Risks and the Distribution of Chemicals in Sediment.

DQO Step	Output
4. Define the Boundaries	**Ecological Risk Assessment**: Within the ISA The initial assessment of groundwater contributions to risks to ecological receptors will be spatially focused on areas where COIs are likely to be discharging to sediments. Porewater sample collection will be spatially focused on areas where COIs are determined to be discharging to sediments, the COIs may cause an unacceptable risk, and the risk from COIs will not be captured by bulk sediment analysis and bioassays. **Human Health Risk Assessment**: Within the ISA Assessment of potential human health risks from groundwater will be spatially focused on locations where COIs potentially discharge in seeps at potential human use areas. **Hydrogeologic Physical System**: RM 2 to 11 for hydrogeologic conceptual model refinement. The conceptual model will encompass the hydrostratigraphic units from the CRBG up through surficial soils. The shallow and intermediate groundwater systems (e.g., groundwater present in the FGF) will be the basis for determining where groundwater contaminants may affect sediment quality except at locations where available information indicates that deeper units (e.g., the CGF and CRBG) are impacted by groundwater contaminants. **Chemical Distribution and Sources**: RM 2 to 11 for identifying the locations where contaminated groundwater has the potential to adversely affect sediment quality. Locations where potential for known groundwater plumes to reach the river both in the past and present.

Table 7-5. The DQO Process for Understanding the Hydrogeologic Physical System, the Effects of Groundwater Discharges on Ecological and Human Health Risks and the Distribution of Chemicals in Sediment.

DQO Step	Output
5. Develop a Decision Rule	**Ecological Risk Assessment**: If the chemical concentration in groundwater or porewater at the point of exposure for COIs is greater than the NOEC (potential risk to sensitive species) or AWQC (for aquatic organisms), the locations will be targeted for future sediment/biota sampling (Round 2) and the area will be referred to DEQ for further evaluation or action. **Human Health Risk Assessment**: Presence of groundwater COIs adjacent to the location of a seep or in the seep itself in a potential human use area. Refer site to DEQ for further assessment under the source control program. **Hydrogeologic Physical System**: Concentrate risk assessment screening and characterization activities at the locations with COIs in groundwater where discharge to the river from the flow system is focused. **Chemical Distribution and Sources**: Locate shallow grab sediment sample stations in the vicinity of where COIs detected in upland groundwater are identified as having a potential to intersect the river

Table 7-5. The DQO Process for Understanding the Hydrogeologic Physical System, the Effects of Groundwater Discharges on Ecological and Human Health Risks and the Distribution of Chemicals in Sediment.

DQO Step	Output
6. Specify Tolerable Limits on Decision Errors	**Ecological Risk Assessment**: Existing upland groundwater COI data are representative of groundwater COI concentrations reasonably expected to reach the Transition Zone. **Human Health Risk Assessment**: Existing upland groundwater data are sufficient to assess the presence of groundwater COIs in the vicinity of seeps at potential human use areas. **Hydrogeologic Physical System**: Existing data are sufficient to assess temporal and spatial variability in groundwater interactions with the river to identify locations of potential contaminant discharge at a scale relevant to site risk decisions. **Chemical Distribution and Sources**: Existing data are sufficient to identify the types and general locations where COIs in groundwater could intersect the river at a scale relevant to site risk decisions.

Table 7-5. The DQO Process for Understanding the Hydrogeologic Physical System, the Effects of Groundwater Discharges on Ecological and Human Health Risks and the Distribution of Chemicals in Sediment.

DQO Step	Output
7. Optimize the Design for Obtaining Data	Review available upland groundwater and geologic data to identify the locations, types and concentrations of groundwater COIs that potentially could discharge to the river. Screen for groundwater COIs and identify high priority sites. Review data from the high priority sites, as available, to assess risk, identify where groundwater data are lacking, and assess the need for additional assessment and/or porewater or sediment sampling. Conduct preliminary porewater/sediment investigations at select locations to help determine the overall likelihood that contaminated groundwater affects porewater/sediment exposures in the river. Collect porewater/sediment samples at locations identified by ecological risk screening process (1) if the data are not already available from PRP efforts conducted under individual upland source control or early action programs, and (2) if and where warranted because of RI/FS timing issues. Apply the results of the ecological risk screening process and sampling results to assess if other porewater/sediment sampling is necessary within the ISA.

Table 7-6. The DQO Process for the Ecological Risk Evaluation: Fish.

DQO Step	Output
1. State the Problem	Fish may be at risk from exposure to chemicals resulting from historical and ongoing releases and / or sources within the ISA.
2. Identify the Decision to be Made	Determine whether exposure to hazardous substances in the ISA poses an unacceptable risk to fish in the area. The testable hypotheses are: Are levels of contaminants in abiotic and biotic media in the ISA sufficient to cause adverse effects to the growth, survival or reproduction of detritivorous fish utilizing the habitat within the ISA? Are levels of contaminants in abiotic and biotic media in the ISA sufficient to cause adverse effects to the growth, survival or reproduction of invertivorous fish utilizing the habitat within the ISA? Are levels of contaminants in abiotic and biotic media in the ISA sufficient to cause adverse effects to the growth, survival or reproduction of piscivorous fish utilizing the habitat within the ISA? Are levels of contaminants in abiotic and biotic media in the ISA sufficient to cause adverse effects to the growth, survival or reproduction of herbivorous fish utilizing the habitat within the ISA?
3. Identify the Inputs to the Decision	Existing Category 1 and Category 2 data were evaluated to define the conceptual site model and identify data gaps. Category 1 data will continue to be used to update the conceptual site model and re-evaluate data gaps. Existing fish life history information (described in Appendix B) will be evaluated to determine potential exposure areas. Toxicological literature will be evaluated to determine potential toxicity and/or bioavailability issues. Tissue residue data from the literature will be used to determine adverse effect levels. Surface sediment, surface water, invertebrate tissue (benthic infauna) and fish tissue (sculpin, juvenile chinook salmon, largescale sucker, peamouth, pikeminnow, smallmouth bass) data were or will be collected in exposure areas.* Tissue concentrations of dioxin-like compounds and PCB coplanars measured in carp for the human risk assessment will be used to assess risk to fish (and higher trophic levels, see Appendix B, Section 5.3).

Table 7-6. The DQO Process for the Ecological Risk Evaluation: Fish.

DQO Step	Output
4. Define the Boundaries	The ISA will be the initial geographic boundary. Spatial boundaries on exposure areas are different for each fish species and will depend on fish foraging habits within the river. Fish and invertebrate tissue and surface sediment have been collected and surface water will be collected. Detection limits will be those currently achievable by the analytical laboratory conducting the analyses. Detection limits will be lower (if analytically achievable) than risk-based values for protection of fish.
5. Develop a Decision Rule	If the COPC concentration using the 95th UCL or maximum concentration is greater than the NOEC in the special-status species assessment, the COPC will be retained for further evaluation. If the COPC concentration using the 95th UCL or maximum concentration is greater than the LOEC in the population level assessment, the COPC will be retained for further evaluation.
6. Specify Tolerable Limits on Decision Errors	Null Hypothesis: Fish may have unacceptable risk from exposure to hazardous substances within the ISA. Alternate hypothesis: There is no risk to fish from exposure to hazardous substances within the ISA. Evaluate ecosystem and receptor characteristics that may modify/impact risk management decision. Evaluate uncertainty of exposure concentrations relative to sample design. Evaluate uncertainty of toxicity values relative to decision rule.
7. Optimize the Design	Collect surface water samples for comparison to effects-based criteria (e.g., AWQC). Collect additional fish tissue, if warranted, from exposure areas to compare to tissue residue effects data. Collect additional invertebrate tissue, if warranted, and sediment grab samples to evaluate dietary pathway (dietary-based NOEAL or LOAEL) in exposure areas.

*The ecological risk assessment will also evaluate the tissue samples of carp, brown bullhead, and black crappie collected for the human health risk assessment. This evaluation will be done in the uncertainly section to provide additional information in order to address uncertainties with the risk characterization conducted on the representative species.

Table 7-7. The DQO Process for the Ecological Risk Evaluation: Birds.

DQO Step	Output
1. State the Problem	Birds may be at risk from exposure to chemicals resulting from historical and ongoing releases and / or sources within the ISA.
2. Identify the Decision to be Made	Determine whether or not exposure to hazardous substances in the ISA poses an unacceptable risk to birds that may forage in the area. The testable hypotheses are: Are levels of contaminants in abiotic and biotic media in the ISA sufficient to cause adverse effects to the growth, survival or reproduction of diving carnivorous birds utilizing the habitat within the ISA? Are levels of contaminants in abiotic and biotic media in the ISA sufficient to cause adverse effects to the growth, survival or reproduction of sediment probing invertivorous birds utilizing the habitat within the ISA? Are levels of contaminants in abiotic and biotic media in the ISA sufficient to cause adverse effects to the growth, survival or reproduction of piscivorous birds utilizing the habitat within the ISA?
3. Identify the Inputs to the Decision	Existing Category 1 and Category 2 data were evaluated to determine potential exposure areas and data gaps. Existing life history information of representative avian species will be reviewed to select appropriate representative species and exposure parameters. Toxicological literature will be searched to develop no observed adverse effects level (NOAEL) and lowest observed adverse effects level (LOAEL) for birds to determine relative sensitivities. Bird exposure areas will be determined based on a reconnaissance habitat survey and evaluation of their local life-history characteristics. Surface sediment and prey (crayfish, clams, fish) were collected in bird exposure areas.
4. Define the Boundaries	The ISA will be the initial geographic boundary. Sediment and fish and invertebrate tissue were collected in bird exposure areas within the ISA. Data was collected in summer/fall 2002. Detection limits will be those currently achievable by the analytical laboratory conducting the analyses as described in the approved QAPP. Detection limits will be lower (if analytically achievable) than risk-based values for protection of avian species.

Table 7-7. The DQO Process for the Ecological Risk Evaluation: Birds.

DQO Step	Output
5. Develop a Decision Rule	If the dose estimate using the 95th UCL or maximum concentration is greater than the NOAEL in the special-status species assessment, the COPC will be retained for further evaluation. If the dose estimate using the 95th UCL or maximum concentration is greater than the LOAEL in the population level assessment, the COPC will be retained for further evaluation.
6. Specify Tolerable Limits on Decision Errors	Null Hypothesis: Birds may have unacceptable risk from exposure to hazardous substances within the ISA. Alternate Hypothesis: There is no risk to birds from exposure to hazardous substances within the ISA. Evaluate ecosystem and receptor characteristics that may modify/impact risk management decision. Evaluate uncertainty of exposure concentrations relative to sample design. Evaluate uncertainty of toxicity values relative to decision rule.
7. Optimize the Design	Collect additional surface sediment samples, if warranted, in each shorebird bird exposure area and at other bird habitat areas. Collect additional prey tissue (invertebrate and/or fish tissue), if warranted, from each bird exposure area. Additional sampling may be conducted based on the results of the iterative risk assessment to reduce uncertainties.

Table 7-8. The DQO Process for the Ecological Risk Evaluation – Mammals.

DQO Step	Output
1. State the Problem	Mammals may be at risk from exposure to chemicals resulting from historical and ongoing releases and / or sources within the ISA.
2. Identify the Decision	Determine whether exposure to hazardous substances in the ISA poses an unacceptable risk to mammals that may forage in the area. The testable hypothesis is: Are levels of contaminants in abiotic and biotic media in the ISA sufficient to cause adverse effects to the growth, survival or reproduction of mammals utilizing the habitat within the ISA?
3. Identify the Inputs to the Decision	Existing Category 1 and Category 2 data were evaluated to determine potential exposure areas and data gaps. Existing life history information of representative mammals were reviewed to select an appropriate representative species and exposure parameters. Toxicological literature will be searched to develop no observed adverse effects level (NOAEL) and lowest observed adverse effects level (LOAEL) for mammals to determine relative sensitivities. Surface sediment and prey data (crayfish, clams, fish) were collected in mammalian exposure areas.
4. Define the Boundaries	The ISA will be the initial geographic boundary. Surface sediment and fish/invertebrate tissue chemistry data were collected from mammalian exposure areas. Detection limits will be those currently achievable by the analytical laboratory conducting the analyses as described in the approved QAPP. Detection limits will be lower (if analytically achievable) than risk-based values for protection of mammalian species.
5. Develop a Decision Rule	If the dose estimate using the 95th UCL or maximum concentration is greater than the NOAEL in the special-status species assessment, the COPC will be retained for further evaluation. If the dose estimate using the 95th UCL or maximum concentration is greater than the LOAEL in the population level assessment, the COPC will be retained for further evaluation.

Table 7-8. The DQO Process for the Ecological Risk Evaluation – Mammals.

DQO Step	Output
6. Specify Tolerable Limits on Decision Errors	Null Hypothesis: Mammals may have unacceptable risk from exposure to hazardous substances within the ISA. Alternate Hypothesis: There is no risk to mammals from exposure to hazardous substances within the ISA. Evaluate ecosystem and receptor characteristics that may modify/impact risk management decision. Evaluate uncertainty of exposure concentrations relative to sample design. Evaluate uncertainty of toxicity values relative to decision rule.
7. Optimize the Design	Collect additional surface sediment samples, if warranted, in each mammalian exposure area. Collect additional co-located prey tissue (invertebrate and/or fish tissue), if warranted, from each mammalian exposure area.

Table 7-9. The DQO Process for the Ecological Risk Evaluation: Amphibians, Reptiles, and Plants.

DQO Step	Output
1. State the Problem	Amphibians and Reptiles: Amphibians and/or reptiles may be at risk from exposure to chemicals resulting from historical and ongoing releases and/or sources within the ISA. Aquatic Plants: Aquatic plants may be at risk from exposure to chemicals resulting from historical and ongoing releases and / or sources within the ISA.
2. Identify the Decision	Determine whether exposure to hazardous substances in the ISA poses an unacceptable risk to amphibians or reptiles that may forage in the area or aquatic plants. The testable hypothesis is: Are levels of contaminants in abiotic and biotic media in the ISA sufficient to cause adverse effects to the growth, survival or reproduction of amphibians, reptiles or aquatic plants utilizing the habitat within the ISA?
3. Identify the Inputs to the Decision	Presence/absence of amphibian and aquatic plants was confirmed with field reconnaissance survey. Reptiles were not found but have been found in the ISA during other field surveys. Evaluation of existing amphibian life history information and plant community information to determine potential habitat areas and potential for exposure. Evaluation of toxicological literature to determine potential toxicity and/or bioavailability. Collection of surface water in quiescent areas and other potential exposure areas.
4. Define the Boundaries	The ISA will be the initial geographic boundary. Risk to amphibians will be assessed quantitatively if possible. Risk to aquatic plants cannot be quantitatively assessed because of lack of appropriate toxicity data. Amphibians will be used as surrogate to assess the risk to reptiles. If suitable reptile habitat is found within the ISA a comparative evaluation of toxicity will be performed using literature data. Temporal variability will influence study design. Detection limits will be those currently achievable by the analytical laboratory conducting the analyses as described in the approved QAPP. Detection limits will be lower (if analytically achievable) than risk-based values for protection of amphibians and aquatic plants.

Table 7-9. The DQO Process for the Ecological Risk Evaluation: Amphibians, Reptiles, and Plants.

DQO Step	Output
5. Develop a Decision Rule	If the COPC concentration using the maximum concentration is greater than the NOEC/LOEC for amphibians, the COPC will be retained for further evaluation (NOEC used for sensitive species). Aquatic plants will be assessed qualitatively. Amphibian assessment will be a surrogate for the reptile evaluation since the amphibians are more sensitive.
6. Specify Tolerable Limits on Decision Errors	Null Hypothesis: Amphibians and aquatic plants are exposed to hazardous substances within the ISA. Alternate Hypothesis: Amphibians and aquatic plants are not exposed to hazardous substances within the ISA. Evaluation of variability of exposure concentrations relative to sample design. Evaluation of the variability of toxicity values relative to the decision rule.
7. Optimize the Design	Surface water samples will be collected in quiescent areas and within other potential habitat areas.

Table 7-10. The DQO Process for the Human Health Risk Assessment.

DQO Step	Output
1. State the Problem	Need to estimate potential risks to human health associated with exposure to chemicals in sediment, surface water, groundwater seeps, and/or biota that are a result of historic and ongoing activities in the ISA.
2. Identify the Decision	Determine whether chemicals in sediment, surface water, groundwater seeps, or biota that are the result of historic and ongoing activities in the Site result in unacceptable risks to human health and warrant consideration of further investigation or possible response action.
3. Identify the Inputs to the Decision	Zoning maps, city plans, discussions with EPA and its partners, and site reconnaissance surveys were used to identify potential human use areas prior to Round 1 and Round 2. Beach sediment samples collected in potential human use areas during Round 1 and in-water sediment samples collected in the Site will be used to estimate potential exposure to chemicals in sediment. Surface water data will be collected during Round 2 and will be used to estimate potential exposure to chemicals in surface water. Technically defensible studies or EPA guidance that are appropriate for Portland Harbor will be used to identify ingestion rates that can be used for biota. Resident fish and shellfish tissue samples collected during Round 1, and salmon, sturgeon, and lamprey samples collected in the summer of 2003 by ODHS, ATSDR, ODF&W, City of Portland, and USEPA, Region 10 along with identified appropriate ingestion rates, will be used to estimate potential exposure to chemicals in tissue. A Seep Reconnaissance Survey was conducted to identify locations of groundwater seeps where human exposure may occur. Existing groundwater data or new groundwater or seep data collected during the RI may be used to estimate potential exposures to and risks from groundwater. Toxicity information will be derived in concordance with EPA Directive OSWER Directive 9285.7-53, Human Health Toxicity Values in Superfund Risk Assessments (December 5, 2003). Analytical concentration goals were developed to be protective of human health.

Table 7-10. The DQO Process for the Human Health Risk Assessment.

DQO Step	Output
4. Define the Boundaries	Target populations: • Sediment samples • Surface water samples • Tissue samples Spatial boundaries: • Beach sediment – Surface beach sediment within human use areas of the Site • In-water sediment – Selected in-water sediments collected in Round 2 in areas within the Site where fishing occurs or commercial diving has been documented. • Surface water – River water samples within areas of the Site adjacent to beaches potentially used for recreation (e.g., Swan Island Lagoon) • Tissue – Resident fish and shellfish collected within the Site • Tissue – Salmon, sturgeon, and lamprey collected by ODHS, ATSDR, ODF&W, City of Portland, and USEPA, Region 10 during summer 2003. Time frame: • Beach sediment – During low water when most of bank is exposed and during summer when beach use is most likely. • In-Water sediment – All times • Surface water – During summer when swimming would occur • Tissue – All times with emphasis during April through October Practical constraints: • Field samples collected during times when access is adequate • Tissue – Sufficient quantity of individual species within ISA for composite samples

Table 7-10. The DQO Process for the Human Health Risk Assessment.

DQO Step	Output
5. Develop a Decision Rule	If the risk estimate exceeds 1×10^{-6} for cancer risks and/or the hazard index exceeds 1.0 for noncancer risks, then evaluate the need for further investigations to gather additional site-specific data. The necessity for such site-specific data in making risk management decisions required for the ROD will be assessed prior to conducting further studies.
6. Specify Tolerable Limits on Decision Error	Conservative assumptions will be used and risks will be estimated using ranges of potential exposure values.
7. Optimize the Design	Collect surface sediment samples in human use areas Collect fish and shellfish tissue – whole body and fillets Collect surface water samples in human use areas

Table 8-1. The DQO Process for Natural Attenuation Potential.

DQO Step	Output
1. State the Problem	Need to understand specific elements of the physical system sufficient to make a determination of candidate natural attenuation areas.
2. Identify the Decision	Determine if natural attenuation is a viable alternative that needs further investigation. If so, identify the areas most likely to be suitable for natural attenuation that require further study.
3. Identify Inputs to the Decision	Need the following data sufficient to run proposed natural attenuation models: • Surface sediment chemistry • Water content, specific gravity, and grain size • Hydrodynamic model results • Uncertainty and sensitivity analysis of the hydrodynamic model • Sedimentation rates based on select Be^7 and Pb^{210} cores (Rounds 2 and 3) • Chemistry of incoming sediments based on select water column samples for TSS, dissolved and total chemical analyses (Round 2) and sediment trap studies (Round 3) • Mixed Layer Depth – Select Be^7 and Pb^{210}cores (Rounds 2 and 3) • Mixing Rate – Radioisotope studies (Round 3) • Biodegradation Rates – from literature values • Groundwater velocities and chemical concentrations where this process is important – Round 3 • Analysis of existing sediment chemistry trends information to understand if natural attenuation already occurring (only applies to areas where sources have been controlled).
4. Define the Boundaries to the Study	Conduct select Round 2 data gathering in areas of the ISA that may have potential for processes that support natural attenuation. Conduct Round 3 data gathering in areas that likely support natural attenuation processes including within the ISA as well as any expanded ISA areas that are at risk based on results of risk assessment

Table 8-1. The DQO Process for Natural Attenuation Potential.

DQO Step	Output
5. Develop a Decision Rule	Use existing physical information to determine most likely types of physical environments that have processes that may support natural attenuation. Conduct select sampling described in step 3, in these areas. Use resulting information to define a range of model parameter values. Input range of values into model and identify types of areas with physical processes that have a reasonable probability of supporting natural attenuation. Focus Round 3 investigations on types of areas with likely physical processes and refine natural attenuation estimates in these areas that also exhibit unacceptable risks based on the preliminary risk assessment. Define areas for the FS that may have natural attenuation as a viable remedial alternative for consideration and comparison against other remedial alternatives.
6. Specify Tolerable Limits on Decision Errors	Null hypothesis: Natural attenuation is an unacceptable remedial alternative in the ISA. Sampling and hydrodynamic modeling must be sufficient to provide a reasonable confidence that the spatial range of possible conditions has been sampled. This includes groundwater data collected through other efforts in this Work Plan and directed by DEQ at upland sites. Potential ranges of model inputs for each parameter must be established. Therefore sampling must include understanding of both spatial and temporal variability within areas that appear to support natural attenuation processes.
7. Optimize the Design for Obtaining Data	The detailed approach to natural attenuation modeling is described in the natural attenuation memorandum (Appendix A, Attachment A4). Keep Round 3 efforts flexible so that they can benefit from information gathered in Round 2.

Table 8-2. Current Site-Specific Data Gaps for Natural Attenuation Evaluation.

Data Needs	**Step 1**	**Step 2**	**Step 3**
Grain Size	+	+	Gap
STA Results	+	+	+
Bathymetry	+	+	+
Surface Sediment Chemistry	+	Gap	Gap
Water Content/Specific Gravity	NR	Gap	Gap
Hydrodynamic Modeling	NR	Gap	Gap
Sedimentation Rate	NR	Gap	Gap
Chemistry of Incoming Sediments	NR	Gap	Gap
Mixed Layer Depth	NR	Gap	Gap
Mixing Rate	NR	NR	Gap
Biodegradation Rate	NR	NR	Gap
Subsurface Sediment Chemistry	NR	NR	Gap
Groundwater Flow/Chemistry	NR	NR	Gap

+ Existing information sufficient for this step.

NR - This information not required for this step.

Table 8-3. Proposed Studies to Fill Data Gaps for Natural Attenuation Evaluation.

Data Needs	**Step 1**	**Step 2**	**Step 3**
Grain Size			Round 3 sampling
STA Results			
Bathymetry			
Surface Sediment Chemistry		Round 2 sampling	Round 3 sampling
Water Content/Specific Gravity		Round 2 sampling	Round 3 sampling
Hydrodynamic Modeling		Preliminary model runs	Detailed model runs
Sedimentation Rate		Water column samples and selection of radioisotope cores (Round 2)	Water column samples, sediment traps, and/or radioisotope studies (Round 3)
Chemistry of Incoming Sediments		Water column samples (Round 2)	Water column samples/sediment traps (Round 3)
Mixed Layer Depth		Selection of radioisotope cores (Round 2)/redox boundary in cores	Radioisotope cores (Round 3)/redox boundary in cores
Mixing Rate			Radioisotope cores (Round 3)
Biodegradation Rate		Literature values	Literature values
Subsurface Sediment Chemistry			From Round 2 and 3 Subsurface Cores
Groundwater Flow/Chemistry		LWG Lead and DEQ Lead Groundwater Studies	LWG Lead and DEQ Lead Groundwater Studies

Table 9-1. Contact Information for Designated Project Coordinators.

Name/Affliation	Address	Phone/FAX	Email
Chip Humphrey Project Coordinator U.S. Environmental Protection Agency	811 SW 6th Avenue, 3rd Floor Portland, OR 97204	Ph: (503) 326-2678 Fax: (503) 326-3399	humphrey.chip@epa.gov
Tara Martich Project Coordinator U.S. Environmental Protection Agency	1200 Sixth Avenue, M/S ECL-115 Seattle, WA 98101	Ph: (206) 553-0039 Fax: (206) 553-0124	martich.tara@epa.gov
Jim Anderson Project Coordinator Oregon Department of Environmental Quality	2020 SW 4th Ave. #400 Portland, OR 97201	Ph: (503) 229-6825 Fax: (503) 229-6899	anderson.jim@deq.state.or.us
Bob Wyatt LWG Co-Chair	Northwest Natural 220 NW Second Avenue Portland, OR 97209	Ph: (503) 226-4211 ext. 5425 Fax: (503) 273-4815	rjw@nwnatural.com
Jim McKenna LWG Co-Chair	Port of Portland 121 NW Everett St., P.O. Box 3529 Portland, OR 97208	Ph: (503) 944-7325 Fax: (503) 944-7353	mckenj@portptld.com
Rick Kepler Oregon Department of Fish & Wildlife	2501 SW First Avenue Portland, OR 97207	Ph: (503) 872-5255 ext.5426 Fax: (503) 872-5269	rick.j.kepler@state.or.us
Helen Hillman NOAA Resources Coordinator	c/o EPA Region 10 1200 Sixth Avenue (M/S ECL 17) Seattle, WA 98101	Ph: (206) 553-4974 Fax: (206) 553-0124	hillman.helen@noaa.gov
Preston Sleeger U.S. Department of Interior, Regional Environmental Officer Pacific Northwest Region	500 NE Multnomah St. Suite 356 Portland, OR 97232	Ph: (503) 321-6157 Fax: (503) 231-2361	preston_sleeger@ios.doi.gov
Brian Cunninghame Confederated Tribes of the Warm Springs Reservation of Oregon Natural Resources Department	5520 Skyline Drive Hood River, OR 97031	Ph: (541) 490-2009	cunninghame@gorge.net
Paul Ward Confederated Tribes and Bands of the Yakama Nation,	P.O. Box 151 4690 SR 22 Toppenish, WA 98948	Ph: (509) 949-4129 Fax: (509) 865-6293	ward@yakama.com
Rod Thompson Confederated Tribes of the Grand Ronde Community of Oregon	47010 W Hebo Rd., P.O. Box 10 Grand Ronde, OR 97347	Ph: (503) 879-2385	rod.thompson@grandronde.org
Tom Downey Environmental Specialist Confederated Tribes of the Siletz Indians of Oregon	P.O. Box 549 Siletz, OR 97380	Ph: (541) 444-8226 Fax: (541) 444-9688	tomd@ctsi.nsn.us
Audie Huber Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	73239 Confederated Way Pendelton, OR 97801	Ph: (541) 966-2334 Fax: (503) 276-3317	audiehuber@ctuir.com
Rick Eichstaedt Nez Perce Tribe	P.O. Box 305 Lapwai, ID 83540	Ph: (208) 843-7355	ricke@nezperce.org

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Project Scoping	**Process to Identify COPCs TM**	Describes the process and timing for identifying COPCs based on Round 1 and Round 2A data. Result of the screening will be identification of COPCs that will be the focus of future sampling rounds and risk analysis and will be limited to those chemicals that are identified as COPCs by screening methods or based on preliminary risk estimates. Descriptions of COPC screening methods used in the ERA and HHRA will be included. This technical memorandum will identify the steps in the RI process at which COPC identification will occur (e.g., the Ecological Preliminary Risk Evaluation and Round 2 Site Characterization and Summary Report). The technical memorandum will also identify potential interim steps where additional risk evaluation may be needed to support data gaps analysis or risk communication needs.	7/28/2004
	Process for Derivation of PRGs TM	Explains the approach to be used for developing PRGs. Development of initial PRGs is expected to occur after Round 2, which will be used in identifying data gaps for Round 3. These initial PRGs will be revised based on results of Round 3 and used to develop refined PRGs for use in the FS. In addition to addressing the requirements of the SOW, the possible approaches include deriving site-specific BSAFs, using an aquatic food web model, using the benthic predictive model, and/or evaluating potential reduction in risk under various exposure scenarios.	1/20/2005
	Ecological and Human Health Groundwater Pathways Assessment/ Groundwater Sampling Approach TM	Specifies a framework for identifying data uses and data needs for evaluating the effects of COIs in groundwater discharging to the Transition Zone and surface water. Identifies which sites to conduct additional evaluation of the groundwater pathway to the river, summarizes exposure scenarios to COIs discharging to the Transition Zone and surface water, identifies how existing data and field data collected as part of the RI/FS will be used, establishes a process for identifying locations where additional data to assess groundwater discharge are needed, and identifies data needs from those locations.	7/12/2004

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	**Deliverable**[1]	**Purpose**	**Submittal Deadline**[2]
Project Scoping	*Approach to Determining Background for the Portland Harbor Superfund Site / Process for Delineating the Extent of Contamination Upstream and Downstream of the ISA*	Describes the definition and approach for determining background levels for the Site. This information will be used, following the risk characterization in the risk assessment, as a risk management tool, consistent with EPA guidelines (EPA 2002c). Describes the general approach to determine the data and analyses needed upstream and downstream of the ISA for EPA to determine Site boundaries.	6/21/2005
	Conceptual Site Model Update	Presents existing upland site information for potential sources and source-related data as well as data on potential past and/or current pathways to sediment, surface water, and Transition Zone water, from groundwater, storm and wastewater discharges, erosion, and over-water activities. The update will focus on providing detailed data on the groundwater transport pathway to facilitate scoping of Round 2B subsurface sediment sampling. The CSM will be more completely updated in the Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report.	8/17/2004
	Round 2 Quality Assurance Project Plan	Describes laboratory and QA/QC procedures applicable to Round 2 sediment and surface water sampling	4/12/2004
	Cultural Resource Survey	Reviews agency records, historical documents, and other published and unpublished materials to define locations of known or reported cultural resources and locations where cultural resources are likely to be present. The survey area extends from the mouth of the Willamette River to Willamette Falls. Will include information gathered by certain Tribes on traditional and present cultural use of the study area.	300 days following receipt of scope from EPA
Hydrodynamic Modeling	Hydrodynamic Modeling TM	Presents and analyzes existing data about physical processes that could influence hydrodynamic and sedimentation in the Lower Willamette River. Identifies those processes that should be included in a model description of the study area. Proposes the model to be used to simulate hydrodynamic and sedimentation processes in the Lower Willamette River. Proposes the extent of the area to be modeled and the approach to model calibration and application.	4/4/2003

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Hydrodynamic Modeling	Step 1 Hydrodynamic Modeling Results	Presents the development of the model grid to the Lower Willamette River and Multnomah Channel. Presents the preparation of model input and calibration data. Presents and analyzes the model calibration to observations (hydrodynamic and sediment). Presents a sensitivity analysis of study area processes. Recommends whether the 2-D model is adequate for application to evaluate remedial alternatives or whether a 3-D model should be developed from the 2-D model grid. Identifies types and locations of additional data that could benefit the modeling processes.	120 days following EPA approval of Hydrodynamic Model TM
	Step 2 Hydrodynamic Modeling Results	Assuming that the 2-D model adequately represents hydrodynamic and sedimentation processes in the study area, the report presents the development of hydrodynamic and sediment conditions to be used to evaluate remedial alternatives. Presents and analyzes the results of the simulation of remedial alternatives. (If a 3-D model is needed, or if significant additional data are needed to validate either the 2-D or 3-D model, the report also presents the re-calibration of the model.)	180 days following receipt of EPA comments on Step 1 Hydrodynamic Modeling Results
Ecological Risk Assessment	**TRV Selection TM**	Explains the identification process of chemicals of interest and the selection process of TRVs based on Round 1 data to be used in the ERA. The methods and guidelines used to prioritize the available literature for TRV selection, detailed discussion of the selection process for each TRV, and the results of the TRV selection process for each receptor (i.e., benthic invertebrate tissue-based approach, fish, bird, and mammals) will also be included. For wildlife and dietary update to fish, TRVs will be based on conservative assumptions using a food-web model. For whole-body fish tissue and invertebrate tissue, tissue-based TRVs will be developed for direct comparison to Round 1 tissue data. The technical memorandum will present the recommended TRVs for wildlife, fish, and invertebrate tissue. Amphibian and plant TRVs will be developed following collection of Round 2 surface water and sediment data.	4/28/2004
	Preliminary Risk Evaluation Approach TM	Explains the approach for Preliminary Risk Evaluation (PRE). Includes outline of PRE and description of how risks to aquatic feeding wildlife and fish and invertebrates will be assessed in the PRE. Describes how the various receptor groups (i.e., fish, birds, mammals) will be assessed with respect to potential exposure and how data from each medium will be aggregated to estimate exposure point concentrations (EPCs). (Note: TRVs for wildlife, fish, and invertebrate tissue will be approved by EPA before this TM is approved.)	5/28/2004

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Ecological Risk Assessment	**Benthic Assessment Interpretive Approach TM**	Describes the development and application of a predictive relationship model between chemical concentrations in the sediment and bioassay responses. Several different explorative approaches to evaluate the relationship will be described including, but not limited to, determining the reliability of published sediment quality guidelines to predict toxicity in Portland Harbor sediments, and developing site-specific relationships between chemical contaminants detected in sediment and toxicity (e.g. logistic regression model). Other models may be identified. The appropriate model or approach may vary for different COPCs, receptors, or uses. This technical memorandum will also propose the collection of bioassay samples at reference locations for later use in risk characterization and risk management.	5/28/2004
	Comprehensive ERA Approach TM	Characterizes how the various receptor groups (i.e., benthic invertebrates, fish, birds, mammals, and plants) will be assessed with respect to potential exposure and how data from each medium will be aggregated to estimate EPCs. Linkage between assessment endpoints and measures, including prioritization of lines-of-evidence for risk management decisions, will be presented. This memorandum will also describe the analysis framework for assessing each assessment endpoint in the risk characterization. Spatial data analysis methods that account for habitat preferences for each species to be evaluated in the baseline ERA will also be presented. Chemical-specific evaluation methods will be discussed.	6/27/2004

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Ecological Risk Assessment	Food Web Model TM	Provides details on the use of BSAFs and/or a food web model for the RI/FS. The TM will include the objectives for selection of either the BSAFs and/or a food web model, including the need to assess steady-state versus time-varying conditions at the site as well as spatially varying conditions. The TM will describe the model selection process, including the use of historical data and data collected in Round 1 (e.g., co-located sediment and tissue samples) to perform initial runs of the candidate food web models. The following components of the model will be described: model setup, model calibration, model validation, sensitivity analysis, and uncertainty analysis. The sensitivity and uncertainty analyses will identify parameters that have the greatest impact on the results. The results of this initial modeling effort, as well as the results of the sensitivity and uncertainty analyses, will be used to select the preferred food web model that will be further evaluated after collection of Round 2 data and to identify data gaps in the food web model. The level of effort needed to apply the model should be discussed for both the modeling itself as well as for collecting additional site-specific data (other than Round 2 data, which will be incorporated into the food web model report), if needed. The TM should also give examples of other sites where the selected food web model has been calibrated and validated in an environment similar to the Portland Harbor site.	7/28/2004
	Ecological Preliminary Risk Evaluation (PRE)	Includes a risk characterization based on historical, pre-AOC, and Round 1 data for benthic invertebrates using the tissue-residue approach, fish, and wildlife. Results will be used, in part, to help identify COPCs related to contaminant concentrations in fish and invertebrate tissue. This applies primarily to risks to aquatic-feeding wildlife that consume fish or invertebrates from the river, and risks to invertebrates and fish containing the compounds. This COPC identification is narrowly focused because sediment data from Round 2 are needed to identify a comprehensive list of COPCs. The PRE will not rely on the benthic assessment technical memorandum, which addresses the analysis framework for the sediment toxicity data to be collected during Round 2. The preliminary risk estimates and the associated uncertainty will help to identify ERA data and information gaps that may be filled during subsequent investigations/evaluations prior to the baseline ERA.	90 days following EPA approval of PRE Approach TM

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Ecological Risk Assessment	*Round 2 Benthic Assessment Report*	Uses the results of Round 2 sediment bioassays to implement the analyses described in the Benthic Assessment Interpretive Approach TM. Objectives are to 1) develop and apply a predictive relationship model between chemical concentrations in the sediment and bioassay responses, and 2) confirm toxicity in high priority areas.	180 days following completion of Round 2 bioassay sampling
	Food Web Modeling Report	Uses Round 2 data to supplement Round 1 data to perform additional runs of food web model identified in the food web model TM. If the available data were insufficient for selecting a food web model in the TM, a model will be selected after incorporation of the Round 2 data. If none of the steady-state models evaluated can be used to achieve the objectives outlined in the food web model TM, the need for the collection of additional data and/or the evaluation of non-steady-state (i.e., time-varying) models that incorporate the results of hydrodynamic and fate and transport modeling will be discussed with EPA and its partners. Additional data needs for model calibration and validation (which will be separate from those data used to develop the model) will also be discussed. An approach and schedule for collecting additional data and food web model reports, if necessary, will be included.	90 days following completion of Round 2 surface sediment and summer 2004 surface water sampling and analysis
Human Health Risk Assessment	*Fish Tissue Exposure Point Concentrations Interim Deliverable*	Provides exposure point concentrations (EPCs) for fish and crayfish tissue for human health evaluation. Information will be provided in a format agreed to by EPA and the LWG. EPCs will be calculated as described in Appendix C.	6/1/2004
	Round 1 Data Gaps Analysis Interim Deliverable	Analyzes Round 1 data to determine if data gaps for fish tissue or beach sediment exist for the HHRA.	7/28/2004
	COPC Selection Interim Deliverable	Describes COPC selection methods for beach sediment, in-water sediment and surface water (see Section 2.3 of Appendix C). This interim deliverable will include a description of these procedures and the resulting COPC lists for these media. A list of detected chemicals in fish tissues will be included. Any other media that may be included in the HHRA will be screened for COPCs according to methods determined through future discussions with EPA and its partners. For purposes of the RI/FS and associated baseline risk assessment, COPC identification will be developed for the Comprehensive Round 2 Site Characterization Summary Report. However, additional COPC selection may be needed to support interim risk communication needs outside of the RI/FS, such as the ODH public health assessment that is scheduled to be completed before the RI/FS.	8/21/2005

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Human Health Risk Assessment	**EPC Calculation Approach TM**	Describes the process for calculating EPCs for in-water sediment, surface water, and seep water (see Section 3.4 of Appendix C).	9/15/2004
	Summary of Exposure Factors Interim Deliverable	Provides a summary of all exposure factors developed for use in the HHRA by receptor and exposure pathway. Exposure factors are discussed qualitatively in several parts of Appendix C and specifically in Section 3.5.1 (Receptor Specific Assumptions) and are presented in Tables 5 through 14 of Appendix C for beach sediment and surface water. Exposure factors for media and pathways not included in the Work Plan (i.e., in-water sediment, seep water) also will be included in the interim deliverable and will be developed through discussions with EPA.	12/1/2004
	Toxicity Values Interim Deliverable	Presents a summary of selected toxicity values for chemicals detected in Round 1 beach sediment and biota evaluated for human health. Toxicity values for additional COPCs identified from subsequent sampling rounds will be added; any values updated prior to future risk evaluations will be revised, as needed, through discussion with EPA. The hierarchy of sources for toxicity values for the HHRA is defined in Section 4.1 of Appendix C.	7/1/2004
	HHRA Uncertainty Analysis Outline	Discusses the areas of uncertainty inherent in the risk assessment process (such as estimates of exposure and toxicity).	3/1/2005
Site Characterization	*Validated Analytical Results*	Provides validated analytical data in electronic format showing locations, media, and results. As specified in the AOC, and upon request, analytical data will be made available to EPA within 60 days of each sampling activity.	90 days following completion of each sampling activity, 180 days following completion of natural attenuation sampling
	Field Sampling Reports	Summarizes field sampling activities, including sampling locations (maps), requested sample analyses, sample collection methods, and any deviations from the FSP.	60 days following completion of each sampling activity
	Site Characterization Summary Reports	Provides validated sample analysis results in tabular format. Provides chemical concentration maps showing the distribution of sample analysis results for selected COIs. Data validation reports and a summary of data validation results also will be included in each site characterization summary report. EPCs for human health will be submitted as interim deliverables with site characterization summary reports.	120 days following completion of each sampling and analysis activity

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Site Characterization	Bioassay Data Report	Documents all activities associated with the collection, handling, and analysis of Round 2 bioassay samples. Includes a brief review of the study design and methods, data tables summarizing the testing, deviations from the protocols appended to the approved QAPP, copies of chain-of-custody forms, data validation reports, and tables of all raw data.	60 days following completion of Round 2 bioassay sampling and analysis
	Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report	Summarizes pre-AOC, Round 1, and Round 2 investigation results; presents preliminary evaluation of risks to human health (as described in Appendix C of Work Plan) and ecological receptors (as described in Appendix B of Work Plan and associated technical memoranda) based on site-specific data for purposes of identifying COPCs 'risk drivers' and data gaps to be addressed in Round 3 sampling; provides a comprehensive update of the CSM; provides initial PRGs; presents a screening of pre-AOC, Round 1, and Round 2 data relative to PRGs; and identifies any data gaps to be addressed in Round 3. Also provides the most current results of the food web model, its application to development of initial PRGs, and food web modeling data gaps. This summary reviews the investigative activities and displays Site information and data documenting the location and characteristics of surface and subsurface features and contamination at the Site, including sample locations, chemical concentration distributions, and the results of any biological testing. This evaluation will include, to the extent practicable, COPC concentration distributions relative to known sources, and the extent of contaminant migration through the in-water portion of the Site. The data compilation and summary will provide EPA with a preliminary reference for evaluating the risk assessments, the development and screening of remedial alternatives, and the further identification of ARARs.	180 days from completion of all Round 2 sampling, excluding groundwater impacts sampling
	Draft RI Report and Baseline Risk Assessment Reports	Includes 1) a characterization of the distribution of chemicals and sources that affect the river; 2) an assessment of ecological risk including risks to benthos, fish, wildlife, and other receptors of concern; 3) an assessment of human health risks from contact with sediment and water, and fish and shellfish ingestion; 4) a preliminary delineation of SMAs and sediment volumes that pose unacceptable risks; 5) a preliminary delineation of principal threat areas, and 6) a preliminary understanding of the potential for natural attenuation as a remedial alternative.	180 days from completion of Round 3 sampling

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Site Characterization	**Final RI Report and Baseline Risk Assessment Reports**	See draft RI Report above.	90 days from receipt of EPA comments on Draft RI Report and Baseline Risk Assessment Reports
Feasibility Study	*2003 Sediment Stake Results Report*	Describes data collected in 2003 from shoreline stakes that measure changes in sediment elevation changes throughout the ISA. These data will be compared to available bathymetry changes in deeper waters near these stations.	4/16/2004
	Step 1 Natural Attenuation Evaluation and Step 2 Field Sampling Plan and Data Evaluation Methods TM	Describes the selection of sampling locations and types based on Step 1 of the Natural Attenuation Evaluation process described in Appendix A. Also describes the field sampling plan for Step 2 of the process as well as the data evaluation procedures that will be employed once Step 2 data are received. EPA may request that the field sampling plan be separated from the data evaluation procedures, resulting in two separate submittals (Round 2 FSP Addendum and Natural Attenuation Data Evaluation Methods TM).	4/1/2004
	Step 2 Natural Attenuation Evaluation Report	Presents results from the data collected per the Step 1 Evaluation and Step 2 Field Sampling Plan and Data Evaluation Methods memorandum above. In addition, it will present data evaluations, including any necessary modeling efforts to identify potential areas for further investigation of natural attenuation as a remedial technology.	270 days following completion of Step 2 natural attenuation sampling activity
	Step 3 Natural Attenuation TM and Field Sampling Plan	Presents proposed methods for determination of candidate areas for natural attenuation as a remedial technology. Includes methods for selection of sampling locations and types as well as data evaluation procedures (including any modeling) that will be employed once Step 3 data are received.	60 days following EPA approval of Step 2 Natural Attenuation Evaluation Report
	Step 3 Natural Attenuation Field Sampling Report	Presents results from the data collected per the Step 3 Natural Attenuation TM and Field Sampling Plan (above). Additionally presents data evaluations, including any necessary modeling efforts to identify candidate areas for natural attenuation as a remedial technology to be considered in the FS Report.	60 days following completion of Step 3 natural attenuation sampling
	Facility Siting Inventory Report	Presents an inventory of possible disposal sites and screens those sites based on several criteria (see Appendix A) to obtain a refined list of potential disposal sites for contaminated sediments.	7/12/2004

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Feasibility Study	Facility Siting Re-Screen Report	Presents an additional screening of potential disposal sites identified from the Inventory Report (above) based on Portland Harbor-specific information that will be available later in the RI/FS process (e.g., areas and volumes of sediments that are potentially contaminated). The report will present a refined list of disposal sites for further evaluation (see Appendix A).	3/14/2005
	Facility Siting Final Ranking Report	Uses the list of disposal sites from the Facility Siting Re-Screen Report (above), and criteria and methods described in Appendix A, to obtain a final ranking of potential disposal sites for Portland Harbor contaminated sediments.	4/12/2006
	Recontamination Potential Modeling Approach TM	Presents the types of sampling and data evaluation procedures that will be used to determine the level and extent of recontamination potential that may exist at the site. Includes the general types of sampling, the target locations of such sampling, and the data evaluation procedures (including any modeling) that will be used to determine the potential for recontamination after remediation of sediments takes place.	150 days following completion of all Round 2 sampling activities
	Literature Survey of Treatability Studies	This memorandum (described in detail in Appendix A)will contain a review of literature to determine: 1) which treatment technologies are effective and cost competitive (potentially suitable) as compared to other remedial technologies, and 2) for those potentially suitable technologies, whether treatability studies would be needed to determine the appropriateness of the technologies for this specific site. The survey will contain a conclusion section that will describe whether further treatability studies are needed, and if so, the general extent of those studies.	9/9/2005
	Refined Preliminary RAOs TM	Includes updated RAOs and PRGs to be used in the FS. As required by the SOW, general types of PRGs (e.g., national or regional numeric sediment guidelines) will be considered when refining PRGs. However, refined PRGs will be primarily based on the results of the risk assessment and other work (e.g., food web modeling) conducted during the RI. As with the preliminary RAOs, the refined RAOs will specify the chemicals and media of interest, exposure pathways and receptors, and an acceptable chemical level or range of levels (i.e., a PRG). PRGs will be location-specific within the project study area where risks estimates vary across the study area due to differences in exposure levels/routes or other site-specific risk parameters.	90 days from receipt of EPA comments on Round 2 Groundwater Impacts Site Characterization Summary Report

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	Deliverable[1]	Purpose	Submittal Deadline[2]
Feasibility Study	Alternatives Development and Screening Report	Per Section 9.2 of the SOW, this task summarizes results of the identification, assembly, refinement, and screening of remedial alternatives. It will contain the results of Sections 5.3 through 5.7 of Appendix A, which describes these studies in detail.	90 days from receipt of EPA comments on Refined Preliminary RAOs TM
	Draft FS Report	As described in Appendix A, the LWG will complete the detailed analysis of remedial alternatives including recommending remedial alternatives that meet the refined RAOs and include any appropriate restoration components. A justification for the selection of this recommendation will also be included. This recommendation, along with all the supporting analysis and information developed in Sections 3, 4 and 5 of Appendix A, will be submitted in a Draft Feasibility Study Report to EPA.	150 days from receipt of EPA comments on Draft RI Report and Baseline Risk Assessment Reports
	Final FS Report	See Draft FS Report above	60 days from receipt of EPA comments on Draft FS Report
Field Sampling Plans	**Round 2 Shorebird FSP Addendum**	Describes sampling locations and procedures for Round 2 beach sampling to support ecological and human health risk assessments	2/24/2004
	Round 2 Surface Water FSP	Describes surface water sampling locations and procedures	4/2/2004
	Round 2A Sediment Coring FSP Addendum	Describes Round 2A sediment coring sampling locations and procedures.	6/5/2004
	Round 2B Sediment Coring FSP Addendum	Describes Round 2B sediment coring sampling locations and procedures	60 days following receipt of EPA comments on Revised CSM
	Round 2 Groundwater Impacts Sampling FSP	Describes groundwater sampling locations and procedures. Includes a QAPP, if necessary.	60 days following EPA approval of Groundwater Pathways TM
	Round 2 Seep Sampling FSP	Describes seep sampling locations and procedures. Includes a QAPP, if necessary.	60 days following EPA approval of Groundwater Pathways TM
	Round 3 Surface Water FSP (if required)	Describes surface water sampling locations and procedures. Includes a QAPP, if necessary.	120 days following completion of Round 2 surface water sampling if directed by EPA

Table 9-2. Portland Harbor RI/FS Deliverable Descriptions and Submittal Deadlines

Phase	**Deliverable**[1]	**Purpose**	**Submittal Deadline**[2]
Field Sampling Plans	**Round 3 FSP**	Describes Round 3 sampling necessary to support baseline risk assessments, site characterization and/or feasibility study. Describes sampling locations and procedures. Includes a QAPP, if necessary.	180 days following completion of all Round 2 sampling
Sampling Programs	*Not Applicable*	Initiate Sampling	30 days following EPA approval of applicable FSP or as directed by EPA

Notes:

[1] - **Bolded Deliverables** are primary deliverables per Section XIX., Paragraph 4, of AOC (EPA 2001a).
Unbolded Deliverables are secondary deliverables per Section XIX, Paragraph 5, of AOC.
Italicized Deliverables do not have stipulated penalty amounts.

[2] - Listed Submittal Deadlines are for draft documents. Unless otherwise specified, all final documents are due to EPA 30 days following receipt of comments from EPA.