CHAPTER II

SECTION 3 TABLES

Table II-3-1: Summary of Total and Tri+PCB Mass and MPA

Total PCB

CU	Dredge Pass 1 (kg)	Dredge Pass 2 (kg)	Dredge Pass 3 (kg)	Dredge Pass 4 (kg)	Dredge Pass 5 (kg)	Total (kg)	GE Estimate - Design Removal Mass-2005 Bathymetry (kg)	GE Original Estimate Adjusted for 2009 Bathymetry and Rip-Rap Offsets, excluding side slopes(kg)	Ratio of Actual Over Original Estimate	Ratio of Actual Over Adjusted Original Estimate	CU Size (acres)	Design MPA (g/m^2), based on GE Design Removal Mass Estimate (2005 Bathymetry)	Adjusted CU Size (acres)	Adjusted MPA (g/m^2) based on Adjusted GE Mass Estimate (2009 Bathymetry, Rip-Rap Offsets)	Actual MPA (g/m^2)
1	148	33	95	129	150	550	130	139	4.2	4.0	3.39	9.5	3.26	11	42
2	1,232	936	279	58	-	2,500	1,330	1,330	1.9	1.9	5.06	65	4.92	67	125
3	2,741	1,239	219	-	-	4,200	2,810	2,726	1.5	1.5	4.87	143	4.87	138	213
4	2,686	1,617	106	-	-	4,410	2,835	2,649	1.6	1.7	4.51	155	4.39	149	248
5	396	265	23	-	-	680	640	492	1.1	1.4	4.77	33	4.77	25	35
6	267	188	146	-	-	600	500	396	1.2	1.5	4.94	25	4.76	21	31
7	454	463	276	58	-	1,250	690	436	1.8	2.9	4.71	36	4.15	26	74
8	576	716	113	137	-	1,540	775	584	2.0	2.6	4.91	39	4.71	31	81
17	1,221	412	102	-	-	1,730	1,350	1,099	1.3	1.6	4.99	67	4.99	54	86
18	1,803	728	8	-	-	2,540	1,940	1,578	1.3	1.6	6.04	79	6.02	65	104
Total Mass	11,523	6,597	1,366	381	150	20,020	13,000	11,400	1.5	1.8					
Percentage of Total Mass	58%	33%	7%	2%	1%										
Total Mass (without CU1)	11,375	6,565	1,271	253	-	19,450	12,870	11,300	1.5	1.7					
Percentage of Total Mass (without CU-1)	58%	34%	7%	1%											

Tri+ PCB

CU	Dredge Pass 1 (kg)	Dredge Pass 2 (kg)	Dredge Pass 3 (kg)	Dredge Pass 4 (kg)	Dredge Pass 5 (kg)	Total (kg)	GE Estimate - Design Removal Mass-2005 Bathymetry (kg)	GE Original Estimate Adjusted for 2009 Bathymetry and Rip-Rap Offsets, excluding side slopes(kg)	Ratio of Actual Over of Original Estimate	Ratio of Actual Over of Adjusted Original Estimate	CU Size (acres)	Design MPA (g/m^2), based on GE Design Removal Mass Estimate (2005 Bathymetry)	Adjusted CU Size (acres)	Adjusted MPA (g/m^2) based on Adjusted GE Mass Estimate (2009 Bathymetry, Rip-Rap Offsets)	Actual MPA (g/m^2)
1	123	20	52	73	64	330	108	116	2.0	1.8	3.39	7.9	3.26	8.8	25.0
2	353	251	77	20	-	700	382	382	0.8	0.8	5.06	18.6	4.92	19.2	35.1
3	695	319	55	-	-	1,070	712	691	0.5	0.5	4.87	36.1	4.87	35.0	54.3
4	698	408	26	-	-	1,130	737	688	0.5	0.6	4.51	40.4	4.39	38.7	63.6
5	132	119	11	-	-	260	213	164	0.2	0.6	4.77	11.1	4.77	8.5	13.5
6	98	69	48	-	-	220	184	146	0.2	0.5	4.94	9.2	4.76	7.6	11.4
7	158	151	70	14	-	390	240	151	0.6	1.6	4.71	12.6	4.15	9.0	23.2
8	164	196	46	44	-	450	220	166	1.0	1.7	4.91	11.1	4.71	8.7	23.6
17	266	104	26	-	-	400	294	240	0.4	0.7	4.99	14.6	4.99	11.9	19.8
18	349	159	2	-	-	510	375	305	0.4	0.7	6.04	15.4	6.02	12.5	20.9
Total Mass	3,036	1,798	413	150	64	5,460	3,470	3,000	1.6	1.8					
Percentage of Total Mass	56%	33%	8%	3%	1%										
Total Mass (without CU1)	2,913	1,777	360	78	-	5,130	3,360	2,900	1.5	1.8					

Table II-3.1.1-1 Summary of PCB Concentrations, Inventory Volumes, Mass of Total PCB and Bulk Density by CU

CU	Average Tri+PCB by volume[1] (ppm)	Average PCB Tot by volume[1] (ppm)	Total Inventory Sediment[1] (cy)	Mass of Total PCB[2,4] (kg)	Area[2] (acres)	Average Bulk Density[3] (kg/L)
CU 1	10	12	13,000	130	3.39	1.09
CU 2	35	122	14,500	1,330	5.06	0.98
CU 3	55	217	26,700	2,810	4.87	0.63
CU 4	66	254	18,300	2,835	4.51	0.80
CU 5	22	66	9,500	640	4.77	1.34
CU 6	42	114	9,100	500	4.94	0.63
CU 7	25	72	15,500	690	4.71	0.81
CU 8	23	81	14,200	775	4.91	0.88
CU 9	18	51	12,700	460	4.99	0.93
CU 10	17	34	10,900	415	4.86	1.46
CU 11	22	68	11,300	750	4.93	1.28
CU 12	25	47	14,800	700	4.94	1.32
CU 13	20	60	12,500	670	4.86	1.17
CU 14	33	110	19,500	1,060	5	0.65
CU 15	32	106	20,200	1,490	4.87	0.91
CU 16	33	85	12,300	990	5.5	1.24
CU 17	63	289	11,300	1,350	4.99	0.54
CU 18	42	217	18,200	1,940	6.1	0.64
All	32 (Avg)	111 (Avg)	264,500	19,535	88	0.96 (Avg)

Notes:

[1]Value was obtained from 2009-07-15 Resuspension Engineering Evaluation Report from GE to EPA.

[2]Value was obtained from Parsons map, Figure 1 - Phase 1 Certification Unit Locations and Summary Info Hudson River PCBs Superfund Site.

[3]Value was calculated from the average Total PCB concentration, mass and volume.

[4]GE reported an alternate set of inventory estimates in their Phase 1 Evaluation Report. Some estimates changed by as much as 40%. The reason for these revisions by GE is unknown.

Table II-3.1.2-1. List of Post-Dredging Cores After Dredge Pass 1

CoreID	SampleID	Tri+ PCB Concentration (mg/kg)	Total PCB Concentration (mg/kg)
SLC-CU004-FI000001	SLC-CU004-FI000001-000006	3.56	9.2
	SLC-CU004-FI000001-006012	0.83	2.6
SLC-CU004-FI000002	SLC-CU004-FI000002-000006	0.14	0.25
SRC-CU004-FI000001	SRC-CU004-FI000001-000006	2.97	12.6
SRC-CU004-FI000002	SRC-CU004-FI000002-000006	1.87	6.43
SRC-CU004-FI000003	SRC-CU004-FI000003-000006	35.64	133
SRC-CU004-FI000004	SRC-CU004-FI000004-000006	2.39	7.8
SRC-CU004-FI000005	SRC-CU004-FI000005-000006	76.55	246
SRC-CU004-FI000006	SRC-CU004-FI000006-000006	34.06	121
SRC-CU004-FI000007	SRC-CU004-FI000007-000006	0.28	0.73
SRC-CU004-FI000008	SRC-CU004-FI000008-000006	66.92	244
SRC-CU004-FI000009	SRC-CU004-FI000009-000006	26.28	113
SRC-CU004-FI000010	SRC-CU004-FI000010-000006	10.53	39.6
SRC-CU004-FI000011	SRC-CU004-FI000011-000006	20.87	74
SRC-CU004-FI000012	SRC-CU004-FI000012-000006	145.01	636
SRC-CU004-FI000013	SRC-CU004-FI000013-000006	48.3	223
SRC-CU004-FI000014	SRC-CU004-FI000014-000006	4.29	20.8
SRC-CU004-FI000015	SRC-CU004-FI000015-000006	5.83	16.6
SRC-CU004-FI000016	SRC-CU004-FI000016-000006	1.13	2.92
SRC-CU004-FI000017	SRC-CU004-FI000017-000006	84.1	297
	SRC-CU004-FI000017-006012	119.64	380
	SRC-CU004-FI000017-012019	11.27	38
SRC-CU004-FI000018	SRC-CU004-FI000018-000006	54.97	290
	SRC-CU004-FI000018-006013	61.74	290
SRC-CU004-FI000019	SRC-CU004-FI000019-000006	33.91	81
	SRC-CU004-FI000019-006012	17.95	70
	SRC-CU004-FI000019-012018	63.26	290
	SRC-CU004-FI000019-018024	186.5	890
	SRC-CU004-FI000019-024030	174.31	762
	SRC-CU004-FI000019-030034	145.34	653
SRC-CU004-FI000020	SRC-CU004-FI000020-000006	14.22	37
	SRC-CU004-FI000020-006012	4.25	7.9
	SRC-CU004-FI000020-012019	16.91	36
SRC-CU004-FI000021	SRC-CU004-FI000021-000006	0.5	1.36
SRC-CU004-FI000022	SRC-CU004-FI000022-000006	2.74	8.3
SRC-CU004-FI000023	SRC-CU004-FI000023-000006	123.34	257
	SRC-CU004-FI000023-006012	57.98	170
	SRC-CU004-FI000023-012018	119.32	300
SRC-CU004-FI000024	SRC-CU004-FI000024-000006	10.07	22.2
	SRC-CU004-FI000024-006012	0.65	1.3
SRC-CU004-FI000025	SRC-CU004-FI000025-000006	0.09	0.28

CoreID	SampleID	Tri+ PCB Concentration (mg/kg)	Total PCB Concentration (mg/kg)
SRC-CU004-FI000026	SRC-CU004-FI000026-000006	62.02	196
	SRC-CU004-FI000026-006012	517.82	2400
	SRC-CU004-FI000026-012018	35.78	120
SRC-CU004-FI000027	SRC-CU004-FI000027-000006	6.31	23.1
	SRC-CU004-FI000027-006012	0.69	2
SRC-CU004-FI000028	SRC-CU004-FI000028-000006	0.53	1.25
SRC-CU004-FI000029	SRC-CU004-FI000029-000006	0.63	1.97
SRC-CU004-FI000030	SRC-CU004-FI000030-000006	27.57	68
	SRC-CU004-FI000030-006012	9.67	20
SRC-CU004-FI000031	SRC-CU004-FI000031-000006	2.2	5.9
SRC-CU004-FI000032	SRC-CU004-FI000032-000006	39.92	197
	SRC-CU004-FI000032-006012	71.22	370
	SRC-CU004-FI000032-012018	28.96	110
	SRC-CU004-FI000032-018024	24.34	94
	SRC-CU004-FI000032-024028	7.2	23.2
SRC-CU004-FI000033	SRC-CU004-FI000033-000006	39.08	97
	SRC-CU004-FI000033-006012	47.08	130
SRC-CU004-FI000034	SRC-CU004-FI000034-000006	49.11	241
	SRC-CU004-FI000034-006012	89.06	460
	SRC-CU004-FI000034-012018	117.52	560
	SRC-CU004-FI000034-018024	252.73	1000
	SRC-CU004-FI000034-024030	47.8	197
SRC-CU004-FI000035	SRC-CU004-FI000035-000006	57.64	126
	SRC-CU004-FI000035-006012	13.86	39
	SRC-CU004-FI000035-012018	1.15	3.4
SRC-CU004-FI000036	SRC-CU004-FI000036-000006	5.86	15
	SRC-CU004-FI000036-006012	0.55	1.1
SRC-CU004-FI000037	SRC-CU004-FI000037-000006	38.96	179
	SRC-CU004-FI000037-006012	85.94	330
	SRC-CU004-FI000037-012018	69.56	250
	SRC-CU004-FI000037-018024	0.99	3.1
SRC-CU004-FI000038	SRC-CU004-FI000038-000006	6.1	16.1
	SRC-CU004-FI000038-006012	1.06	2.5
SRC-CU004-FI000039	SRC-CU004-FI000039-000006	4.16	6.86
SRC-CU004-FI000040	SRC-CU004-FI000040-000006	3.98	7.85

Table II-3.1.2-2. List of Post-Dredging Cores After Dredge Pass 2

CoreID	SampleID	Tri+ PCB Concentration (mg/kg)	Total PCB Concentration (mg/kg)
SRC-CU004-SI000005	SRC-CU004-SI000005-000006	101.73	376
	SRC-CU004-SI000005-006012	16.98	39
SRC-CU004-SI000006	SRC-CU004-SI000006-000003	14.61	54.01
SRC-CU004-SI000010	SRC-CU004-SI000010-000006	22.92	89
SRC-CU004-SI000012	SRC-CU004-SI000012-000006	153.09	594
	SRC-CU004-SI000012-006012	16.23	58
	SRC-CU004-SI000012-012018	1.79	6
SRC-CU004-SI000013	SRC-CU004-SI000013-000006	28.26	105
SRC-CU004-SI000018	SRC-CU004-SI000018-000006	16.45	53
SRC-CU004-SI000019	SRC-CU004-SI000019-000006	28.5	125
	SRC-CU004-SI000019-006012	11.82	43
	SRC-CU004-SI000019-012018	1.46	5.3
SRC-CU004-SI000020	SRC-CU004-SI000020-000006	14.52	39
SRC-CU004-SI000023	SRC-CU004-SI000023-000006	95.33	428
	SRC-CU004-SI000023-006012	26.74	100
	SRC-CU004-SI000023-012018	1.74	5.9
	SRC-CU004-SI000023-018025	0.93	3.4
SRC-CU004-SI000028	SRC-CU004-SI000028-000006	35.36	97.4
SRC-CU004-SI000030	SRC-CU004-SI000030-000006	9.06	37.05
SRC-CU004-SI000032	SRC-CU004-SI000032-000006	39.7	188
	SRC-CU004-SI000032-006012	22.48	110
	SRC-CU004-SI000032-012018	49.98	240
	SRC-CU004-SI000032-018024	126.6	660
SRC-CU004-SI000035	SRC-CU004-SI000035-000002	9	23.02
SRC-CU004-SI000037	SRC-CU004-SI000037-000006	17.1	73

Table II-3.1.2-3 List of Post-Dredging Cores After Dredge Pass 3

CoreID	SampleID	Tri+ PCB Concentration (mg/kg)	Total PCB Concentration (mg/kg)	Action
SRC-CU004-FR000010	SRC-CU004-FR000010-000006	10.31	36.4	CAPPING
SRC-CU004-SI000006	SRC-CU004-SI000006-000003	14.61	54.01	CAPPING
SRC-CU004-SI000020	SRC-CU004-SI000020-000006	14.52	39	CAPPING
SRC-CU004-SI000026	SRC-CU004-SI000026-000006	9.05	38	CAPPING
SRC-CU004-SI000026	SRC-CU004-SI000026-006012	1.08	2.7	CAPPING
SRC-CU004-SI000028	SRC-CU004-SI000028-000006	35.36	97.4	CAPPING
SRC-CU004-SI000030	SRC-CU004-SI000030-000006	9.06	37.05	CAPPING
SRC-CU004-SI000035	SRC-CU004-SI000035-000002	9	23.02	CAPPING
SRC-CU004-SI000037	SRC-CU004-SI000037-000006	17.1	73	CAPPING

Table II-3.1.4-1. Example of Total PCB Mass Removed per Dredging Pass for CU-4

CU Number	Dredging Pass	Number of Core	Number of Core Segment	Average Total PCB Concentration[1,2] (mg/kg)	Bulk Density[3] (kg/L)	Volume of Sediment Removed[4] (cy)	Total PCB Mass (kg)
4	1			254	0.80	17,300	2,680
4	2	42	76	185	0.80	14,400	1,630
4	3	14	25	142	0.80	1,200	104
4		8	9	45			
					Total	32,900	4,400

Notes:

[1]Average Total PCB concentration was based on post-dredging cores (see Tables II-3-2axx through c for individual sample)

[2]Average Total PCB concentraiton for dredging pass 1 was base on GE estimated average Total PCB concentration by volume (see Table II-3-1xx)

[3]Bulk density was calculated from design Total PCB mass, inventory volume and average Total PCB concentraion for each CU (see Table II-3-1xx)

[4]Volume removed was calculated based on bathymetry per dredging pass provided by GE to EPA

Table II-3.3-1. Comparison of Volume and Mass of Sediment Removed Estimates

Dredge Pass	Volume of Sediment (cy)		Mass of Total PCB (kg)		Total PCB Concentration4 (mg/kg)	
	GE Estimate1	EPA Estimate2	GE Estimate1	EPA Estimate3	GE Estimate	EPA Estimate
1	17,925	17,335	1,700	2,686	155	253
2	14,264	14,302	1,010	1,617	116	185
3	1,263	1,226	70	106	91	142
Total	33,452	32,864	2,780	4,409	136	219
	Difference :	-2%		37%		

Notes:

[1]GE volume estimate was obtained from Table D-11 of GE Draft Phase 1 Evaluation Report, 2010.

[2]EPA volume estimate was based on bathymetric survey provided by GE.

[3]EPA mass estimate was discussed in details in section II-3??? It was estimated based on average bulk density multiply by the average Total PCB concentration and volume per dredging pass.

[4]Total PCB concentration for was calculated by using bulk density of 0.8 kg/L which is based on the design mass, volume and average Total PCB for the CU.

Table II-3.3-2. Average Total PCB Concentration for the Un-dredged Sediment in Dredge Pass 1 for CU-4

Source	Volume (cy)	Design Inventory Mass of Total PCB (kg)	Un-dredged Sediment in Dredge Pass 1			
			Mass of Un-dredged Sediment (kg)	Volume of Un-dredged Sediment in Dredge Pass 1 (cy)	Average Bulk Density (kg/L)	Average Total PCB Concentration (mg/kg)
Actual Removed in Dredge Pass 1	17,925	1,700				
Parsons Figure 1 Map[2]	18,300	2,835	1,135	375	0.8	4,948
GE Draft Phase 1 Evaluation Report[3,4,5]	17,018	2,350	650	375	0.8	2,834

Table II-3.3-3. Inventory Mass and Volume for CU-4 Reported in Various GE Reports

Source	Design Inventory Volume (cy)	Design Inventory Mass of Total PCB (kg)
July 15, 2009 Engineering Evaluation Report[1]	18,300	NA
Parsons Figure 1 Map[2]	18,300	2,835
GE Draft Phase 1 Evaluation Report[3,4,5]	17,018	2,350
September 19, 2008 Memo[6]	19,600	NA

Notes:

[1]Source: "Hudson River PCBs Superfund Site - Resuspension Performance Standard Exceedance of 7-Day Running Average Control Level Criteria - Engineering Evaluation Report." Report submitted by GE to EPA. July 15, 2009.

[2]Source: ***Figure 1 - Phase 1 Certification Unit Locations and Summary Info Hudson River PCBs Superfund Site*** [map]. Scale as shown. Prepared by Parsons for General Electric, Fort Edward, NY. Job 442209.01401. June 15, 2009.

[3Source:] "Draft Phase 1 Evaluation Report Hudson River Superfund PCBs Site." Prepared for General Electric Company by Anchor QEA, LLC. and ARCADIS. Albany, NY. January 2010.

[4]Volume was the 'Est. Qty Design Inventroy' column of Table D-10 of GE Draft Phase 1 Evaluation Report

[5]Mass was the Expected (SSAP cores only) column of Table 4.2-3 of GE Draft Phase 1 Report

[6]Source: Memo Re: Adjustments and Pro-rating of Phase 1 Mass-Based PCB Load Criteria from Harry Zahakos to Scott Blaha - GE, dated September 19, 2008

NA = not available