

**Draft Technical Report  
for  
Tentative Cleanup and Abatement  
Order No. R9-2011-0001**

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**APPENDIX FOR SECTION 31**

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**ECONOMIC FEASIBILITY CONSIDERATIONS**

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**September 15, 2010**

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**Table A31-1 Supporting Calculations Used for Figure 31-1**

Construction Seasons Required	SWAC					Exposure Reduction					
	PCB	Hg	Cu	TBT	HPAH	PCB	Hg	Cu	TBT	HPAH	Average
1	249	0.72	174	141	3,156	26.3%	19.4%	19.3%	15.7%	3.7%	16.9%
2	214	0.70	163	122	2,826	42.1%	26.7%	36.2%	29.3%	16.5%	30.2%
2	188	0.67	157	114	2,555	53.5%	41.7%	45.4%	34.8%	27.0%	40.5%
3	172	0.66	152	103	2,345	60.6%	50.3%	53.4%	42.8%	35.2%	48.5%
4	151	0.63	142	92	2,077	70.3%	68.3%	67.4%	50.4%	45.6%	60.4%
5	134	0.60	137	82	1,557	77.6%	80.8%	76.4%	57.6%	65.7%	71.6%
6	127	0.54	133	78	1,426	81.0%	115.3%	82.2%	60.4%	70.8%	81.9%
8	112	0.53	118	46	1,162	87.6%	122.5%	105.1%	83.1%	81.1%	95.9%
10	101	0.52	112	39	983	92.3%	126.0%	113.7%	88.1%	88.0%	101.6%
12	91	0.54	113	24	743	97.0%	117.8%	112.6%	98.7%	97.3%	104.7%
14	84	0.57	120	22	680	100.1%	102.5%	101.4%	99.9%	99.7%	100.7%
	84.0	0.6	121.0	22.0	673.0	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Plot Data			
Incremental Exposure	Incremental Cost	Exposure Reduction per \$10 million	Cost Range
30.2%	\$24,300,000	12.4%	\$0 - \$24
10.3%	\$8,600,000	12.0%	\$24 - \$33
8.0%	\$12,000,000	6.6%	\$33 - \$45
53.2%	\$139,900,000	3.8%	\$45 - \$185
0	\$50,300,000	0.0%	\$185 - \$288

Table A31-2

Data Used for Table A31-1

Rank	Polygon	Total Area (9-11-10)	Dredging Area – inside (sf) <sup>1</sup>	Dredging Area – outside (sf) <sup>1</sup>	Under Pier Area (sf)	Rock Protection (tons)	Depth to Clean (ft) <sup>2</sup>	Dredging Depth (ft)	w/ 1' Overdepth (ft)	Volume Per Polygon - inside (cy)	Volume Per Polygon - outside (cy)	Cumulative Volume – inside (cy)	Cumulative Volume – outside (cy)	Cumulative Dredging Area (sf)	Cumulative Under Pier Areas (sf)	Cumulative Shoreline Protection (tons)
0										0	0	0	0	0	0	0
1	SW04	22,921	16,282		6,639	1,453	4.1	5	6	3,618	0	3,618	0	16,282	6,639	1,453
2	SW08	15,421	9,066		6,355	1,547	6	6	7	2,350	0	5,969	0	25,348	12,994	3,000
3	SW02	37,018		37,018		0	4.9	5	6	0	8,226	5,969	8,226	62,366	12,994	3,000
4	SW24	25,940	20,006		5,934	659	3	3	4	2,964	0	8,932	8,226	82,372	18,928	3,659
5	SW09	24,389	19,598		4,791	515	sur	3	4	2,903	0	11,836	8,226	101,970	23,719	4,175
6	SW13	37,141	19,937		17,204	1,130	sur	5	6	4,430	0	16,266	8,226	121,907	40,923	5,304
7	NA17	29,690	29,690			1,313	4	5	6	6,598	0	22,864	8,226	151,597	40,923	6,617
8	SW01	33,247		33,247		454	4	4	5	0	6,157	22,864	14,383	184,844	40,923	7,071
9	SW16	18,273	18,223		51	19	sur	5	6	4,049	0	26,914	14,383	203,066	40,973	7,090
10	SW21	13,641	13,641			490	sur	3	4	2,021	0	28,934	14,383	216,707	40,973	7,580
11	SW28	50,535	44,431		6,104	1,754	5.3	6	7	11,519	0	40,454	14,383	261,138	47,077	9,334
12	NA06	64,379	41,427		22,952	1,944	3.9	5	6	9,206	0	49,660	14,383	302,565	70,030	11,278
13	SW20	27,601	7,966		19,635	671	2.4	3	4	1,180	0	50,840	14,383	310,531	89,665	11,949
14	SW05	25,402	18,892		6,510	593	sur	5	6	4,198	0	55,038	14,383	329,423	96,175	12,542
15	SW23	26,842	16,950		9,892	369	sur	3	4	2,511	0	57,549	14,383	346,373	106,067	12,912
16	SW22	4,440	4,440			0	sur	3	4	658	0	58,207	14,383	350,813	106,067	12,912
17	SW17	56,117	46,963		9,155	1,322	6.2	7	8	13,915	0	72,122	14,383	397,776	115,222	14,234
18	NA19	32,701	32,701			791	5.8	7	8	9,689	0	81,811	14,383	430,477	115,222	15,025
19	NA07	32,593	32,593			531	sur	3	4	4,829	0	86,639	14,383	463,069	115,222	15,556
20	SW14	16,747	16,208		539	233	sur	3	4	2,401	0	89,040	14,383	479,277	115,761	15,790
21	NA15	51,282	51,282			1,727	sur	7	8	15,195	0	104,235	14,383	530,559	115,761	17,516
22	SW10	21,626	18,389		3,237	233	2	3	4	2,724	0	106,959	14,383	548,947	118,998	17,750
23	NA23	67,024	54,124		12,900	1,896	4	4	5	10,023	0	116,982	14,383	603,071	131,898	19,645
24	SW29	66,095		66,095		408	2	3	4	0	9,792	116,982	24,175	669,166	131,898	20,054
25	NA04	81,308	74,178		7,130	1,400	8.3	9	10	27,473	0	144,456	24,175	743,344	139,028	21,454
26	NA01	100,720	99,946		774	0	5.5	6	7	25,912	0	170,368	24,175	843,290	139,802	21,454
27	NA27	57,956	57,956			146	sur	3	4	8,586	0	178,954	24,175	901,246	139,802	21,600
28	NA16	36,736	36,736			0	6.1	7	8	10,885	0	189,838	24,175	937,982	139,802	21,600
29	SW30	76,779		76,779		0	6	6	7	0	19,906	189,838	44,081	1,014,761	139,802	21,600
30	SW27	77,527	77,488		39	0	4.25	5	6	17,220	0	207,058	44,081	1,092,249	139,841	21,600
31	NA03	120,986	120,725		261	597	sur	3	4	17,885	0	224,943	44,081	1,212,974	140,102	22,197
32	SW25	70,172	46,636		23,536	1,488	4.2	5	6	10,364	0	235,307	44,081	1,259,611	163,638	23,685
33	SW15	57,423	57,423			0	sur	3	4	8,507	0	243,814	44,081	1,317,034	163,638	23,685
34	SW03	47,090		47,090		0	sur	3	4	0	6,976	243,814	51,057	1,364,124	163,638	23,685
35	SW06	26,105	20,429		5,676	360	sur	3	4	3,026	0	246,840	51,057	1,384,553	169,313	24,045

**Table A31-2 Data Used for Table A31-1, Continued**

Rank	Polygon	Total Area (9-11-10)	Dredging Area – inside (sf) <sup>1</sup>	Dredging Area – outside (sf) <sup>1</sup>	Under Pier Area (sf)	Rock Protection (tons)	Depth to Clean (ft) <sup>2</sup>	Dredging Depth (ft)	w/ 1' Overdepth (ft)	Volume Per Polygon - inside (cy)	Volume Per Polygon - outside (cy)	Cumulative Volume – inside (cy)	Cumulative Volume – outside (cy)	Cumulative Dredging Area (sf)	Cumulative Under Pier Areas (sf)	Cumulative Shoreline Protection (tons)
36	SW18	61,364	50,318		11,046	389	sur	3	4	7,454	0	254,295	51,057	1,434,870	180,359	24,434
37	NA09	28,922	28,922			1,132	8	9	10	10,712	0	265,007	51,057	1,463,793	180,359	25,566
38	SW19	210,320		210,320		0	2	3	4	0	31,158	265,007	82,215	1,674,113	180,359	25,566
39	NA18	45,370	45,370			476	sur	3	4	6,722	0	271,728	82,215	1,719,483	180,359	26,042
40	NA08	19,632	19,632			245	sur	3	4	2,908	0	274,637	82,215	1,739,114	180,359	26,287
41	NA28	56,241	56,241			0	sur	3	4	8,332	0	282,969	82,215	1,795,355	180,359	26,287
42	SW11	37,417	34,286		3,131	253	sur	3	4	5,079	0	288,048	82,215	1,829,641	183,491	26,540
43	NA21	514,183		491,946	22,236	2,659	6	6	7	0	127,542	288,048	209,757	2,321,588	205,727	29,199
44	SW36	101,104		101,104		0	4.25	5	6	0	22,468	288,048	232,225	2,422,692	205,727	29,199
45	NA24	60,391	55,524		4,867	1,725	2	3	4	8,226	0	296,274	232,225	2,478,216	210,594	30,924
46	SW34	302,142		302,142		0	2	3	4	0	44,762	296,274	276,987	2,780,358	210,594	30,924
47	NA11	38,392	38,392			0	sur	3	4	5,688	0	301,962	276,987	2,818,750	210,594	30,924
48	NA02	160,570		160,570		0	3.7	4	5	0	29,735	301,962	306,722	2,979,320	210,594	30,924
49	NA05	113,895	107,040		6,855	681	sur	3	4	15,858	0	317,819	306,722	3,086,360	217,450	31,605
50	NA13	255,537		255,537	0	1,225	2	3	4	0	37,857	317,819	344,579	3,341,897	217,450	32,830
51	NA22	235,799	206,207		29,592	1,780	sur	3	4	30,549	0	348,368	344,579	3,548,104	247,042	34,610
52	NA10	29,008	29,008			0	sur	3	4	4,297	0	352,666	344,579	3,577,112	247,042	34,610
53	NA12	90,903	90,903			218	sur	3	4	13,467	0	366,133	344,579	3,668,014	247,042	34,828
54	SW07	37,022		32,235	4,787	369	sur	3	4	0	4,776	366,133	349,355	3,700,249	251,828	35,197
55	NA20	322,869	265,095		57,773	9,892	8.1	9	10	98,184	0	464,316	349,355	3,965,345	309,602	45,089
56	NA30	239,380		239,380		0	2	3	4	0	35,464	464,316	384,818	4,204,725	309,602	45,089
57	SW12	106,435		106,371	64	58	2	3	4	0	15,759	464,316	400,577	4,311,095	309,666	45,147
58	NA29	203,451		203,451		0	2	3	4	0	30,141	464,316	430,718	4,514,546	309,666	45,147
59	SW26	87,094		86,734	360	126	sur	3	4	0	12,849	464,316	443,567	4,601,280	310,025	45,273
60	NA14	211,512		211,512		0	sur	3	4	0	31,335	464,316	474,903	4,812,792	310,025	45,273
61	SW32	70,925		70,925		0	sur	6	7	0	18,388	464,316	493,291	4,883,718	310,025	45,273
62	SW33	150,157		150,157		0	2.5	3	4	0	22,246	464,316	515,536	5,033,875	310,025	45,273
63	NA26	299,493		299,493		0	2	3	4	0	44,369	464,316	559,905	5,333,368	310,025	45,273
64	NA25	513,303		513,303		0	sur	3	4	0	76,045	464,316	635,950	5,846,671	310,025	45,273
65	NA31	239,878		239,878		0	sur	3	4	0	35,537	464,316	671,488	6,086,549	310,025	45,273
66	SW31	84,584		80,767	3,817	544	2	3	4	0	11,966	464,316	683,453	6,167,316	313,842	45,817
		6,481,158	2,151,260	4,016,055	313,842	45,817										
				6,167,316												

Notes: Remedial Areas Updated per Anchor QEA 9-11-09 (confirmed with Exponent 7-13-10)  
Dredging Depths Updated per Area and Volumes Tabulation 6-7-10