

Draft Technical Report
for
Tentative Cleanup and Abatement
Order No. ~~R9-2011-0001~~R9-2012-0024

APPENDIX FOR SECTION 31

ECONOMIC FEASIBILITY CONSIDERATIONS

~~September 15, 2010~~March 14, 2012

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Scenario	Number of Polygons Dredged*	Cumulative Volume Inside (cy)	Cumulative Volume Outside (cy)	Cumulative Area (sf)	Cumulative Under Pier Areas (sf)
1	6	16,266	8,226	121,907	40,923
2	12	49,660	14,383	302,565	70,030
3	18	81,811	14,383	430,477	115,222
4	24	116,982	24,175	669,166	131,898
5	30	207,058	44,081	1,092,249	139,841
6	36	254,295	51,057	1,434,870	180,359
7	42	288,048	82,215	1,829,641	183,491
8	48	301,962	306,722	2,979,320	210,594
9	54	366,133	349,355	3,700,249	251,828
10	60	464,316	474,903	4,812,792	310,025
11	66	464,316	683,453	6,167,316	313,842

Scenario	Cumulative Shoreline Protection (tons)	Probable Likely Cost
1	5,304	\$13,500,000
2	11,278	\$24,300,000
3	15,025	\$32,900,000
4	20,054	\$44,900,000
5	21,600	\$69,400,000
6	24,434	\$85,200,000
7	26,540	\$101,500,000
8	30,924	\$155,100,000
9	35,197	\$184,800,000
10	45,273	\$237,900,000
11	45,817	\$288,200,000

Notes:

* Per composite SWAC ranking

		SWAC				
Scenario	Construction Seasons Required	PCB	Hg	Cu	TBT	HPAH
1	1	247	0.71	170	136	3086
2	2	208	0.68	160	120	2790
3	2	183	0.67	156	111	2543
4	3	165	0.66	151	101	2306
5	4	149	0.63	141	89	1934
6	5	131	0.60	136	81	1495
7	6	126	0.54	132	77	1382
8	8	109	0.53	116	44	1106
9	10	101	0.52	112	39	962
10	12	89	0.54	112	23	729
11	14	84	0.57	121	22	673

		Exposure Reduction					
Scenario	Construction Seasons Required	PCB	Hg	Cu	TBT	HPAH	Average
1	1	27.4%	20.3%	25.6%	18.4%	17.9%	21.9%
2	2	44.5%	36.4%	40.3%	30.2%	28.0%	35.9%
3	2	55.6%	42.3%	46.5%	36.4%	36.4%	43.4%
4	3	63.9%	52.3%	54.9%	43.6%	44.4%	51.8%
5	4	70.9%	69.1%	69.1%	52.1%	57.1%	63.7%
6	5	78.9%	81.6%	77.7%	57.9%	72.0%	73.6%
7	6	81.3%	115.9%	82.6%	60.6%	75.9%	83.3%
8	8	89.0%	124.4%	107.1%	84.1%	85.3%	98.0%
9	10	92.6%	125.8%	114.0%	88.2%	90.2%	102.1%
10	12	97.7%	117.4%	113.1%	99.2%	98.1%	105.1%
11	14	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Background	84	0.57	121	22	673	
	Pre-Remedy	308	0.75	187	162	3612	

Scenario	Cumulative Exposure Reduction	Incremental Exposure Reduction	Avg. COPC Plot Data		Cumulative Exposure Reduction per \$10 million	Incremental Exposure Reduction per \$10 million	Cost Range
			Cumulative Cost	Incremental Cost			
1	21.9%	21.9%	\$13,500,000	\$13,500,000	16.3%	16.3%	\$0 - \$14
2	35.9%	13.9%	\$24,300,000	\$10,800,000	14.8%	12.9%	\$14 - \$24
3	43.4%	7.6%	\$32,900,000	\$8,600,000	13.2%	8.8%	\$24 - \$33
4	51.8%	8.4%	\$44,900,000	\$12,000,000	11.5%	7.0%	\$33 - \$45
5	63.7%	11.8%	\$69,400,000	\$24,500,000	9.2%	4.8%	\$45 - \$69
6	73.6%	10.0%	\$85,200,000	\$15,800,000	8.6%	6.3%	\$69 - \$85
7	83.3%	9.6%	\$101,500,000	\$16,300,000	8.2%	5.9%	\$85 - \$102
8	98.0%	14.7%	\$155,100,000	\$53,600,000	6.3%	2.7%	\$102 - \$155
9	102.1%	4.2%	\$184,800,000	\$29,700,000	5.5%	1.4%	\$155 - \$185
10	105.1%	3.0%	\$237,900,000	\$53,100,000	4.4%	0.6%	\$185 - \$238
11	100.0%	-5.1%	\$288,200,000	\$50,300,000	3.5%	-1.0%	\$238 - \$288

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Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	150000	200000	250000	150000	200000	250000
Surveys and Engineering Design	1	LUMP SUM	300000	400000	500000	300000	400000	500000
Permitting	1	LUMP SUM	200000	300000	400000	200000	300000	400000
CEQA EIR	1	LUMP SUM	400000	700000	900000	400000	700000	900000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	1	CONSTRUCTION SEASONS	200000	250000	300000	200000	250000	300000
Demolition	1	LUMP SUM	150000	250000	350000	150000	250000	350000
DREDGING								
Unconstrained open-water dredging □(outside of leasehold area)	8226	CY	6	7	10	49356	57582	82260
Constrained dredging from inner shipyard □(within leasehold area)	16266	CY	10	13	18	162660	211458	292788
Dredging Surface/Subsurface Debris	1224.6	CY	70	89	120	85722	108989.4	146952
Engineering Controls (silt curtain, oil boom)	1	CONSTRUCTION SEASONS	25000	28000	32000	25000	28000	32000
Additional Dredging (if needed)	4500	CY	10	13	18	45000	58500	81000
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Structures	5304	TON	25	35	45	132600	185640	238680
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Area	1	CONSTRUCTION SEASONS	200000	250000	300000	200000	250000	300000
Preparation of Sediment Offloading Area	1	LUMP SUM	100000	200000	300000	100000	200000	300000
Rehandling and Dewatering	28992	CY	10	16	25	289920	463872	724800
Transportation and Disposal at Landfill	43488	TON	50	62.5	75	2174400	2718000	3261600
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers and overwater structures	40923	SF	15	20	30	613845	818460	1227690
PLACEMENT OF CLEAN SAND COVER								
SW04 Cleanout, BMP Installation, Investigation	6772.61111	CY	20	35	40	135452.2222	237041.3889	270904.4444
TOTAL DIRECT CONSTRUCTION COSTS						5900000	8000000	10400000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	1	CONSTRUCTION SEASONS	300000	375000	450000	300000	375000	450000
CONTINGENCY								
	0.3	percent				1865250	2518500	3262500
MONITORING COSTS								
Water Quality Monitoring during construction	7.898211111	week	11000	15000	18000	86880.32222	118473.1667	142167.8
Post-Dredging Confirmational Sampling	7.276359045	samples	4000	6000	8000	29105.43618	43658.15427	58210.87236
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION) COSTS								
Eel Grass Habitat Mitigation (if needed)	0.139929982	ACRES	200000	400000	600000	27985.99633	55971.99265	83957.98898
Eel Grass Land Lease Costs (in perpetuity)	0.139929982	ACRES	500000	1000000	1500000	69964.99082	139929.9816	209894.9725
Internal Shipyard Costs	1	LUMP SUM	150000	200000	250000	150000	200000	250000
RWQCB Oversight Costs	8	years	30000	36000	45000	240000	288000	360000
GRAND TOTAL						10000000	13500000	17600000

VOLUME AND AREA LEDGER	TOTAL
Total volume being dredged (CY)	28992
Total volume being dredged (TONS)	43488
Total area of dredging (sq. ft.)	121907
Total area of dredging (acres)	2.79859633

ESTIMATION OF CONSTRUCTION DURATION				
Dredging, inner shipyards, cy	16266	add 10%		17892.6
Dredging, open water, cy	8226	add 10%		9048.6
Rock placement, tons	5304			
Clean sand cover, cy	6772.611111			
Underpier sand, sq.ft.	40923			
Time to dredge inner shipyard, days	35.7852	Daily rate (cy)		500
	Weeks	5.9642	Days per week	6
	Months	1.49105		
Time to dredge outer shipyard, days	7.5405	Daily rate (cy)		1200
	Weeks	1.25675	Days per week	6
	Months	0.3141875		
Time to place rock, days	7.072	Daily rate (tons)		750
	Weeks	1.178666667	Days per week	6
	Months	0.294666667		
Time to place clean sand, days	3.386305556	Daily rate (cy)		2000
	Weeks	0.564384259	Days per week	6
	Months	0.141096065		
Time to place underpier sand, days	0.677261111	Daily rate (sf)		10000
	Weeks	0.112876852	Days per week	6
	Months	0.028219213		
Total weeks of in-water work	9.076877778			
Total months of in-water work	2.269219444			
CONSTRUCTION SEASONS	1	Months per season		6

Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	150000	200000	250000	150000	200000	250000
Surveys and Engineering Design	1	LUMP SUM	300000	400000	500000	300000	400000	500000
Permitting	1	LUMP SUM	200000	300000	400000	200000	300000	400000
CEQA EIR	1	LUMP SUM	400000	700000	900000	400000	700000	900000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	2	CONSTRUCTION SEASONS	200000	250000	300000	400000	500000	600000
Demolition	1	LUMP SUM	150000	250000	350000	150000	250000	350000
DREDGING								
Unconstrained open-water dredging (outside of leasehold area)	14383	CY	6	7	10	86298	100681	143830
Constrained dredging from inner shipyard (within leasehold area)	49660	CY	10	13	18	496600	645580	893880
Dredging Surface/Subsurface Debris	3202.15	CY	70	89	120	224150.5	284991.35	384258
Engineering Controls (silt curtain, oil boom)	2	CONSTRUCTION SEASONS	25000	28000	32000	50000	56000	64000
Additional Dredging (if needed)	11200	CY	10	13	18	112000	145600	201600
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Structures	11278	TON	25	35	45	281950	394730	507510
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Area	2	CONSTRUCTION SEASONS	200000	250000	300000	400000	500000	600000
Preparation of Sediment Offloading Area	1	LUMP SUM	100000	200000	300000	100000	200000	300000
Rehandling and Dewatering	75243	CY	10	16	25	752430	1203888	1881075
Transportation and Disposal at Landfill	112864.5	TON	50	62.5	75	5643225	7054031.25	8464837.5
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers and overwater structures	70030	SF	15	20	30	1050450	1400600	2100900
PLACEMENT OF CLEAN SAND COVER								
SW04 Cleanout, BMP Installation, Investigation	16809.16667	CY	35	35	40	336183.3333	588320.8333	672366.6667
	1	LUMP SUM	500000	600000	703048	500000	600000	703048
TOTAL DIRECT CONSTRUCTION COSTS								
						11600000	15500000	19900000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	2	CONSTRUCTION SEASONS	300000	375000	450000	600000	750000	900000
CONTINGENCY								
	0.3	percent				3665250	4881000	6247500
MONITORING COSTS								
Water Quality Monitoring during construction	22.08698611	week	11000	15000	18000	242956.8472	331304.7917	397565.75
Post-Dredging Confirmational Sampling	18.05943526	samples	4000	6000	8000	72237.74105	108356.6116	144475.4821
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION) COSTS								
Eel Grass Habitat Mitigation (if needed)	0.347296832	ACRES	200000	400000	600000	69459.36639	138918.7328	208378.0992
Eel Grass Land Lease Costs (in perpetuity)	0.347296832	ACRES	500000	1000000	1500000	173648.416	347296.832	520945.2479
Internal Shipyard Costs	1	LUMP SUM	150000	200000	250000	150000	200000	250000
RWQCB Oversight Costs	9	years	30000	36000	45000	270000	324000	405000
GRAND TOTAL						18200000	24300000	31400000

VOLUME AND AREA LEDGER	TOTAL
Total volume being dredged (CY)	75243
Total volume being dredged (TONS)	112864.5
Total area of dredging (sq. ft.)	302565
Total area of dredging (acres)	6.945936639

ESTIMATION OF CONSTRUCTION DURATION			
Dredging, inner shipyards, cy	49660	add 10%	54626
Dredging, open water, cy	14383	add 10%	15821.3
Rock placement, tons	11278		
Clean sand cover, cy	16809.16667		
Underpier sand, sq.ft.	70030		
Time to dredge inner shipyard, days	109.252	Daily rate (cy)	500
	Weeks 18.20866667	Days per week	6
	Months 4.552166667		
Time to dredge outer shipyard, days	13.18441667	Daily rate (cy)	1200
	Weeks 2.197402778	Days per week	6
	Months 0.549350694		
Time to place rock, days	15.03733333	Daily rate (tons)	750
	Weeks 2.506222222	Days per week	6
	Months 0.626555556		
Time to place clean sand, days	8.404583333	Daily rate (cy)	2000
	Weeks 1.400763889	Days per week	6
	Months 0.350190972		
Time to place underpier sand, days	1.680916667	Daily rate (sf)	10000
	Weeks 0.280152778	Days per week	6
	Months 0.070038194		
Total weeks of in-water work	24.59320833		
Total months of in-water work	6.148302083		
CONSTRUCTION SEASONS	2	Months per season	6

Item		Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING									
	Additional Pre-Design Site Characterization	1	LUMP SUM	210000	275000	348000	210000	275000	348000
	Surveys and Engineering Design	1	LUMP SUM	400000	500000	675000	400000	500000	675000
	Permitting	1	LUMP SUM	200000	300000	400000	200000	300000	400000
CEQA EIR		1	LUMP SUM	400000	700000	900000	400000	700000	900000
CONSTRUCTION PREPARATION									
	Mobilization(s) and Demobilization(s)	2	CONSTRUCTION SEASONS	200000	250000	300000	400000	500000	600000
	Demolition	1	LUMP SUM	300000	400000	500000	300000	400000	500000
DREDGING									
	Unconstrained open-water dredging (outside of leasehold area)	14383	CY	6	7	10	86298	100681	143830
	Constrained dredging from inner shipyard (within leasehold area)	8181	CY	10	13	18	818110	1063543	1472598
	Dredging Surface/Subsurface Debris	4809.7	CY	70	89	120	336679	428063.3	577164
	Engineering Controls (silt curtain, oil boom)	2	CONSTRUCTION SEASONS	25000	28000	32000	50000	56000	64000
	Additional Dredging (if needed)	15900	CY	10	13	18	159000	206700	286200
MARINE STRUCTURES									
	Placement of Quarry Run Rock for Protection of Marine Structures	15025	TON	25	35	45	375625	525875	676125
SEDIMENT OFFLOADING AND DISPOSAL									
	Acquisition or Several-Year Lease of Sediment Offloading Area	2	CONSTRUCTION SEASONS	200000	250000	300000	400000	500000	600000
	Preparation of Sediment Offloading Area	1	LUMP SUM	100000	200000	300000	100000	200000	300000
	Rehandling and Dewatering	112094	CY	10	16	25	1120940	1793504	2802350
	Transportation and Disposal at Landfill	168141	TON	50	62.5	75	8407050	10508812.5	12610575
UNDERPIER REMEDIATION									
	Purchase and place 3 feet of clean sand/gravel beneath piers and overwater structures	115222	SF	15	20	30	1728330	2304440	3456660
PLACEMENT OF CLEAN SAND COVER									
	SW04 Cleanout, BMP Installation, Investigation	23915.38889	CY	20	35	40	478307.7778	837038.6111	956615.5556
		1	LUMP SUM	500000	600000	703048	500000	600000	703048
TOTAL DIRECT CONSTRUCTION COSTS									
							16500000	21800000	28100000
BID MANAGEMENT AND SUPPORT									
		1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT									
		2	CONSTRUCTION SEASONS	300000	375000	450000	600000	750000	900000
CONTINGENCY									
		0.3	percent				5135250	6771000	8707500
MONITORING COSTS									
	Water Quality Monitoring during construction	34.58630833	week	11000	15000	18000	380449.3917	518794.625	622553.55
	Post-Dredging Confirmational Sampling	25.69421947	samples	4000	6000	8000	102776.8779	154165.3168	205553.7557
	Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
	SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION) COSTS									
	Eel Grass Habitat Mitigation (if needed)	0.494119605	ACRES	200000	400000	600000	98823.92103	197647.8421	296471.7631
	Eel Grass Land Lease Costs (in perpetuity)	0.494119605	ACRES	500000	1000000	1500000	247059.8026	494119.6051	741179.4077
	Internal Shipyard Costs	1	LUMP SUM	175000	200000	250000	175000	200000	250000
	RWOCB Oversight Costs	9	years	30000	36000	45000	270000	324000	405000
GRAND TOTAL									
							24900000	32900000	42600000

VOLUME AND AREA LEDGER	TOTAL
Total volume being dredged (CY)	112094
Total volume being dredged (TONS)	168141
Total area of dredging (sq. ft.)	430477
Total area of dredging (acres)	9.882392103

ESTIMATION OF CONSTRUCTION DURATION			
Dredging, inner shipyards, cy	81811	add 10%	89992.1
Dredging, open water, cy	14383	add 10%	15821.3
Rock placement, tons	15025		
Clean sand cover, cy	23915.38889		
Underpier sand, sq.ft.	115222		
Time to dredge inner shipyard, days	179.9842	Daily rate (cy)	500
	Weeks	29.99736667	Days per week
	Months	7.499341667	
Time to dredge outer shipyard, days	13.18441667	Daily rate (cy)	1200
	Weeks	2.197402778	Days per week
	Months	0.549350694	
Time to place rock, days	20.03333333	Daily rate (tons)	750
	Weeks	3.338888889	Days per week
	Months	0.834722222	
Time to place clean sand, days	11.95769444	Daily rate (cy)	2000
	Weeks	1.992949074	Days per week
	Months	0.498237269	
Time to place underpier sand, days	2.391538889	Daily rate (sf)	10000
	Weeks	0.398589815	Days per week
	Months	0.099647454	
Total weeks of in-water work	37.92519722		
Total months of in-water work	9.481299306		
CONSTRUCTION SEASONS	2	Months per season	6

Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	210000	275000	348000	210000	275000	348000
Surveys and Engineering Design	1	LUMP SUM	400000	500000	675000	400000	500000	675000
Permitting	1	LUMP SUM	200000	300000	400000	200000	300000	400000
CEQA EIR	1	LUMP SUM	400000	700000	900000	400000	700000	900000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	3	CONSTRUCTION SEASONS	200000	250000	300000	600000	750000	900000
Demolition	1	LUMP SUM	300000	400000	500000	300000	400000	500000
DREDGING								
Unconstrained open-water dredging (outside of leasehold area)	24175	CY	6	7	10	145050	169225	241750
Constrained dredging from inner shipyard (within leasehold area)	116982	CY	10	13	18	1169820	1520766	2105676
Dredging Surface/Subsurface Debris	7057.85	CY	70	89	120	494049.5	628148.65	846942
Engineering Controls (silt curtain, oil boom)	3	CONSTRUCTION SEASONS	25000	28000	32000	75000	84000	96000
Additional Dredging (if needed)	24800	CY	10	13	18	248000	322400	446400
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Structures	20054	TON	25	35	45	501350	701890	902430
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Area	3	CONSTRUCTION SEASONS	200000	250000	300000	600000	750000	900000
Preparation of Sediment Offloading Area	1	LUMP SUM	100000	200000	300000	100000	200000	300000
Rehandling and Dewatering	165957	CY	10	16	25	1659570	2655312	4148925
Transportation and Disposal at Landfill	248935.5	TON	50	62.5	75	1244677.5	15558468.75	18670162.5
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers and overwater structures	131898	SF	15	20	30	1978470	2637960	3956940
PLACEMENT OF CLEAN SAND COVER								
SW04 Cleanout, BMP Installation, Investigation	37175.88889	CY	20	35	40	743517.7778	1301156.111	1487035.556
TOTAL DIRECT CONSTRUCTION COSTS								
						22800000	30100000	38500000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	3	CONSTRUCTION SEASONS	300000	375000	450000	900000	1125000	1350000
CONTINGENCY								
	0.3	percent				7115250	9373500	11962500
MONITORING COSTS								
Water Quality Monitoring during construction	50.30439167	week	11000	15000	18000	553348.3083	754565.875	905479.05
Post-Dredging Confirmational Sampling	39.94103765	samples	4000	6000	8000	159764.1506	239646.2259	319528.3012
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION) COSTS								
Eel Grass Habitat Mitigation (if needed)	0.768096878	ACRES	200000	400000	600000	153619.3756	307238.7511	460858.1267
Eel Grass Land Lease Costs (in perpetuity)	0.768096878	ACRES	500000	1000000	1500000	384048.4389	768096.8779	1152145.317
Internal Shipyard Costs	1	LUMP SUM	175000	200000	250000	175000	200000	250000
RWQCB Oversight Costs	10	years	30000	36000	45000	300000	360000	450000
GRAND TOTAL						33900000	44900000	57800000

VOLUME AND AREA LEDGER		TOTAL
Total volume being dredged (CY)		165957
Total volume being dredged (TONS)		248935.5
Total area of dredging (sq. ft.)		669166
Total area of dredging (acres)		15.36193756

ESTIMATION OF CONSTRUCTION DURATION			
Dredging, inner shipyards, cy	116982	add 10%	128680.2
Dredging, open water, cy	24175	add 10%	26592.5
Rock placement, tons	20054		
Clean sand cover, cy	37175.88889		
Underpier sand, sq.ft.	131898		
Time to dredge inner shipyard, days	257.3604	Daily rate (cy)	500
	Weeks 42.8934	Days per week	6
	Months 10.72335		
Time to dredge outer shipyard, days	22.16041667	Daily rate (cy)	1200
	Weeks 3.693402778	Days per week	6
	Months 0.923350694		
Time to place rock, days	26.73866667	Daily rate (tons)	750
	Weeks 4.456444444	Days per week	6
	Months 1.114111111		
Time to place clean sand, days	18.58794444	Daily rate (cy)	2000
	Weeks 3.097990741	Days per week	6
	Months 0.774497685		
Time to place underpier sand, days	3.717588889	Daily rate (sf)	10000
	Weeks 0.619598148	Days per week	6
	Months 0.154899537		
Total weeks of in-water work	54.76083611		
Total months of in-water work	13.69020903		
CONSTRUCTION SEASONS	3	Months per season	6

Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	210000	275000	348000	210000	275000	348000
Surveys and Engineering Design	1	LUMP SUM	400000	500000	675000	400000	500000	675000
Permitting	1	LUMP SUM	200000	300000	400000	200000	300000	400000
CEQA EIR	1	LUMP SUM	400000	700000	900000	400000	700000	900000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	4	CONSTRUCTION SEASONS	200000	250000	300000	800000	1000000	1200000
Demolition	1	LUMP SUM	300000	400000	500000	300000	400000	500000
DREDGING								
Unconstrained open-water dredging (outside of leasehold area)	44081	CY	6	7	10	264486	308567	440810
Constrained dredging from inner shipyard (within leasehold area)	207058	CY	10	13	18	2070580	2691754	3727044
Dredging Surface/Subsurface Debris	12556.95	CY	70	89	120	878986.5	1117568.55	1506834
Engineering Controls (silt curtain, oil boom)	4	CONSTRUCTION SEASONS	25000	28000	32000	100000	112000	128000
Additional Dredging (if needed)	40500	CY	10	13	18	405000	526500	729000
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Structures	21600	TON	25	35	45	540000	756000	972000
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Area	4	CONSTRUCTION SEASONS	200000	250000	300000	800000	1000000	1200000
Preparation of Sediment Offloading Area	1	LUMP SUM	100000	200000	300000	100000	200000	300000
Rehandling and Dewatering	291639	CY	10	16	25	2916390	4666224	7290975
Transportation and Disposal at Landfill	437458.5	TON	50	62.5	75	21872925	27341156.25	32809387.5
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers area	139841	SF	15	20	30	2097615	2796820	4195230
PLACEMENT OF CLEAN SAND COVER	60680.5	CY	20	35	40	1213610	2123817.5	2427220
SW04 Cleanout, BMP Installation, Investigation	1	LUMP SUM	500000	600000	703048	500000	600000	703048
TOTAL DIRECT CONSTRUCTION COSTS								
						36100000	47400000	60500000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	4	CONSTRUCTION SEASONS	300000	375000	450000	1200000	1500000	1800000
CONTINGENCY								
	0.3	percent				11195250	14676000	18697500
MONITORING COSTS								
Water Quality Monitoring during construction	88.72391389	week	11000	15000	18000	975963.0528	1330858.708	1597030.45
Post-Dredging Confirmation Sampling	65.19392562	samples	4000	6000	8000	260775.7025	391163.5537	521551.405
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION COSTS)								
Eel Grass Habitat Mitigation (if needed)	1.253729339	ACRES	200000	400000	600000	250745.8678	501491.7355	752237.6033
Eel Grass Land Lease Costs (in perpetuity)	1.253729339	ACRES	500000	1000000	1500000	626864.6694	1253729.339	1880594.008
Internal Shipyard Costs	1	LUMP SUM	175000	200000	250000	175000	200000	250000
RWQCB Oversight Costs	11	years	30000	36000	45000	330000	396000	495000
GRAND TOTAL						52500000	69400000	88900000

VOLUME AND AREA LEDGER	TOTAL
Total volume being dredged (CY)	291639
Total volume being dredged (TONS)	437458.5
Total area of dredging (sq. ft.)	1092249
Total area of dredging (acres)	25.07458678

ESTIMATION OF CONSTRUCTION DURATION			
Dredging, inner shipyards, cy	207058	add 10%	227763.8
Dredging, open water, cy	44081	add 10%	48489.1
Rock placement, tons	21600		
Clean sand cover, cy	60680.5		
Underpier sand, sq.ft.	139841		
Time to dredge inner shipyard, days	455.5276	Daily rate (cy)	500
	Weeks 75.92126667	Days per week	6
	Months 18.98031667		
Time to dredge outer shipyard, days	40.40758333	Daily rate (cy)	1200
	Weeks 6.734597222	Days per week	6
	Months 1.683649306		
Time to place rock, days	28.8	Daily rate (tons)	750
	Weeks 4.8	Days per week	6
	Months 1.2		
Time to place clean sand, days	30.34025	Daily rate (cy)	2000
	Weeks 5.056708333	Days per week	6
	Months 1.264177083		
Time to place underpier sand, days	6.06805	Daily rate (sf)	10000
	Weeks 1.011341667	Days per week	6
	Months 0.252835417		
	Total weeks of in-water work		
	93.52391389		
	Total months of in-water work		
	23.38097847		
	CONSTRUCTION SEASONS	Months per season	6
	4		

Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	30000	40000	50000	30000	40000	50000
Surveys and Engineering Design	1	LUMP SUM	50000	65000	80000	50000	65000	80000
Permitting	1	LUMP SUM	20000	30000	40000	20000	30000	40000
CEQA EIR	1	LUMP SUM	40000	70000	90000	40000	70000	90000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	5	CONSTRUCTION SEASONS	20000	25000	30000	100000	125000	150000
Demolition	1	LUMP SUM	40000	50000	60000	40000	50000	60000
DREDGING								
Unconstrained open-water dredging □(outside of leasehold are	51057	CY	6	7	10	306342	357399	510570
Constrained dredging from inner shipyard □(within leasehold	254295	CY	10	13	18	2542950	3305835	4577310
Dredging Surface/Subsurface Debris	15267.6	CY	70	89	120	1068732	1358816.4	1832112
Engineering Controls (silt curtain, oil boom)	5	CONSTRUCTION SEASONS	25000	28000	32000	125000	140000	160000
Additional Dredging (if needed)	53100	CY	10	13	18	531000	690300	955800
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Struct	24434	TON	25	35	45	610850	855190	1099530
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Ar	5	CONSTRUCTION SEASONS	20000	25000	30000	100000	125000	150000
Preparation of Sediment Offloading Area	1	LUMP SUM	10000	20000	30000	10000	20000	30000
Rehandling and Dewatering	358452	CY	10	16	25	3584520	5735232	8961300
Transportation and Disposal at Landfill	537678	TON	50	62.5	75	26883900	33604875	40325850
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers at	180359	SF	15	20	30	2705385	3607180	5410770
PLACEMENT OF CLEAN SAND COVER								
SW04 Cleanout, BMP Installation, Investigation	79715	CY	20	35	40	1594300	2790025	3188600
	1	LUMP SUM	500000	600000	703048	500000	600000	703048
TOTAL DIRECT CONSTRUCTION COSTS						44400000	58300000	74200000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	5	CONSTRUCTION SEASONS	300000	375000	450000	1500000	1875000	2250000
CONTINGENCY								
	0.3	percent				13775250	18058500	22942500
MONITORING COSTS								
Water Quality Monitoring during construction	109.013375	week	11000	15000	18000	1199147.125	1635200.625	1962240.75
Post-Dredging Confirmational Sampling	85.64421488	samples	4000	6000	8000	342576.8595	513865.2893	685153.719
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION) COSTS								
Eel Grass Habitat Mitigation (if needed)	1.647004132	ACRES	200000	400000	600000	329400.8264	658801.6529	988202.4793
Eel Grass Land Lease Costs (in perpetuity)	1.647004132	ACRES	500000	1000000	1500000	823502.0661	1647004.132	2470506.198
Internal Shipyard Costs	1	LUMP SUM	250000	375000	500000	250000	375000	500000
RWQCB Oversight Costs	12	years	30000	36000	45000	360000	432000	540000
GRAND TOTAL						64400000	85200000	109000000

VOLUME AND AREA LEDGER		TOTAL
Total volume being dredged (CY)	358452	
Total volume being dredged (TONS)	537678	
Total area of dredging (sq. ft.)	1434870	
Total area of dredging (acres)	32.94008264	

ESTIMATION OF CONSTRUCTION DURATION			
Dredging, inner shipyards, cy	254295	add 10%	279724.5
Dredging, open water, cy	51057	add 10%	56162.7
Rock placement, tons	24434		
Clean sand cover, cy	79715		
Underpier sand, sq.ft.	180359		
Time to dredge inner shipyard, days	559.449	Daily rate (cy)	500
	93.2415	Days per week	6
	23.310375		
Time to dredge outer shipyard, days	46.80225	Daily rate (cy)	1200
	7.800375	Days per week	6
	1.95009375		
Time to place rock, days	32.57866667	Daily rate (tons)	750
	5.42977778	Days per week	6
	1.357444444		
Time to place clean sand, days	39.8575	Daily rate (cy)	2000
	6.642916667	Days per week	6
	1.660729167		
Time to place underpier sand, days	7.9715	Daily rate (sf)	10000
	1.328583333	Days per week	6
	0.332145833		
Total weeks of in-water work	114.4431528		
Total months of in-water work	28.61078819		
CONSTRUCTION SEASONS	5	Months per season	6

Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	300000	400000	500000	300000	400000	500000
Surveys and Engineering Design	1	LUMP SUM	500000	650000	800000	500000	650000	800000
Permitting	1	LUMP SUM	200000	300000	400000	200000	300000	400000
CEQA EIR	1	LUMP SUM	400000	700000	900000	400000	700000	900000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	6	CONSTRUCTION SEASONS	200000	250000	300000	1200000	1500000	1800000
Demolition	1	LUMP SUM	400000	500000	600000	400000	500000	600000
DREDGING								
Unconstrained open-water dredging □(outside of leasehold are	82215	CY	6	7	10	493290	575505	822150
Constrained dredging from inner shipyard □(within leasehold	288048	CY	10	13	18	2880480	3744624	5184864
Dredging Surface/Subsurface Debris	18513.15	CY	70	89	120	1295920.5	1647670.35	2221578
Engineering Controls (silt curtain, oil boom)	6	CONSTRUCTION SEASONS	25000	28000	32000	150000	168000	192000
Additional Dredging (if needed)	67800	CY	10	13	18	678000	881400	1220400
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Struct	26540	TON	25	35	45	663500	928900	1194300
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Are	6	CONSTRUCTION SEASONS	200000	250000	300000	1200000	1500000	1800000
Preparation of Sediment Offloading Area	1	LUMP SUM	100000	200000	300000	100000	200000	300000
Rehandling and Dewatering	438063	CY	10	16	25	4380630	7009008	10951575
Transportation and Disposal at Landfill	657094.5	TON	50	62.5	75	32854725	41068406.25	49282087.5
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers ar	183491	SF	15	20	30	2752365	3669820	5504730
PLACEMENT OF CLEAN SAND COVER								
SW04 Cleanout, BMP Installation, Investigation	101646.7222	CY	20	35	40	2032934.444	3557635.278	4065868.889
	1	LUMP SUM	500000	600000	703048	500000	600000	703048
TOTAL DIRECT CONSTRUCTION COSTS								
						53000000	69600000	88400000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	6	CONSTRUCTION SEASONS	300000	375000	450000	1800000	2250000	2700000
CONTINGENCY								
	0.3	percent				16445250	21561000	27337500
MONITORING COSTS								
Water Quality Monitoring during construction	128.3428972	week	11000	15000	18000	1411771.869	1925143.458	2310172.15
Post-Dredging Confirmational Sampling	109.2072222	samples	4000	6000	8000	436828.8889	655243.3333	873657.7778
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION) COSTS								
Eel Grass Habitat Mitigation (if needed)	2.100138889	ACRES	200000	400000	600000	420027.7778	840055.5556	1260083.3333
Eel Grass Land Lease Costs (in perpetuity)	2.100138889	ACRES	500000	1000000	1500000	1050069.444	2100138.889	3150208.3333
Internal Shipyard Costs	1	LUMP SUM	250000	375000	500000	250000	375000	500000
RWQCB Oversight Costs	13	years	30000	36000	45000	390000	468000	585000
GRAND TOTAL								
						76600000	101500000	129500000

VOLUME AND AREA LEDGER	TOTAL
Total volume being dredged (CY)	438063
Total volume being dredged (TONS)	657094.5
Total area of dredging (sq. ft.)	1829641
Total area of dredging (acres)	42.00277778

ESTIMATION OF CONSTRUCTION DURATION			
Dredging, inner shipyards, cy	288048	add 10%	316852.8
Dredging, open water, cy	82215	add 10%	90436.5
Rock placement, tons	26540		
Clean sand cover, cy	101646.7222		
Underpier sand, sq.ft.	183491		
Time to dredge inner shipyard, days	633.7056	Daily rate (cy)	500
	105.6176	Days per week	6
	26.4044		
Time to dredge outer shipyard, days	75.36375	Daily rate (cy)	1200
	12.560625	Days per week	6
	3.14015625		
Time to place rock, days	35.38666667	Daily rate (tons)	750
	5.897777778	Days per week	6
	1.474444444		
Time to place clean sand, days	50.82336111	Daily rate (cy)	2000
	8.470560185	Days per week	6
	2.117640046		
Time to place underpier sand, days	10.16467222	Daily rate (sf)	10000
	1.694112037	Days per week	6
	0.423528009		
	134.240675		
	33.56016875		
CONSTRUCTION SEASONS	6	Months per season	6

Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	30000	40000	50000	30000	40000	50000
Surveys and Engineering Design	1	LUMP SUM	50000	65000	80000	50000	65000	80000
Permitting	1	LUMP SUM	20000	30000	40000	20000	30000	40000
CEQA EIR	1	LUMP SUM	40000	70000	90000	40000	70000	90000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	8	CONSTRUCTION SEASONS	20000	25000	30000	160000	200000	240000
Demolition	1	LUMP SUM	40000	50000	60000	40000	50000	60000
DREDGING								
Unconstrained open-water dredging (outside of leasehold area)	306722	CY	6	7	10	1840332	2147054	3067220
Constrained dredging from inner shipyard (within leasehold area)	301962	CY	10	13	18	3019620	3925506	5435316
Dredging Surface/Subsurface Debris	30434.2	CY	70	89	120	2130394	2708643.8	3652104
Engineering Controls (silt curtain, oil boom)	8	CONSTRUCTION SEASONS	25000	28000	32000	20000	22400	25600
Additional Dredging (if needed)	110300	CY	10	13	18	1103000	1433900	1985400
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Structures	30924	TON	25	35	45	773100	1082340	1391580
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Area	8	CONSTRUCTION SEASONS	20000	25000	30000	160000	200000	240000
Preparation of Sediment Offloading Area	1	LUMP SUM	10000	20000	30000	10000	20000	30000
Rehandling and Dewatering	718984	CY	10	16	25	7189840	11503744	17974600
Transportation and Disposal at Landfill	1078476	TON	50	62.5	75	53923800	67404750	80885700
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers area	210594	SF	15	20	30	3158910	4211880	6317820
PLACEMENT OF CLEAN SAND COVER	165517.7778	CY	20	35	40	3310355.556	5793122.222	6620711.111
SW04 Cleanout, BMP Installation, Investigation	1	LUMP SUM	50000	60000	703048	50000	60000	703048
TOTAL DIRECT CONSTRUCTION COSTS								
						82200000	107800000	136600000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	8	CONSTRUCTION SEASONS	30000	37500	45000	240000	300000	360000
CONTINGENCY								
	0.3	percent				25385250	33246000	42067500
MONITORING COSTS								
Water Quality Monitoring during construction	174.1314833	week	11000	15000	18000	1915446.317	2611972.25	3134366.7
Post-Dredging Confirmational Sampling	177.8290174	samples	4000	6000	8000	711316.0698	1066974.105	1422632.14
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	40000	50000	595437	40000	50000	595437
OTHER (NON-CONSTRUCTION) COSTS								
Eel Grass Habitat Mitigation (if needed)	3.419788797	ACRES	20000	40000	60000	683957.7594	1367915.519	2051873.278
Eel Grass Land Lease Costs (in perpetuity)	3.419788797	ACRES	50000	100000	150000	1709894.399	3419788.797	5129683.196
Internal Shipyard Costs	1	LUMP SUM	25000	37500	50000	25000	37500	50000
RWQCB Oversight Costs	15	years	3000	3600	4500	45000	54000	67500
GRAND TOTAL						117100000	155100000	197600000

VOLUME AND AREA LEDGER	TOTAL
Total volume being dredged (CY)	718984
Total volume being dredged (TONS)	1078476
Total area of dredging (sq. ft.)	2979320
Total area of dredging (acres)	68.39577594

ESTIMATION OF CONSTRUCTION DURATION				
Dredging, inner shipyards, cy	301962	add 10%		332158.2
Dredging, open water, cy	306722	add 10%		337394.2
Rock placement, tons	30924			
Clean sand cover, cy	165517.7778			
Underpier sand, sq. ft.	210594			
Time to dredge inner shipyard, days	664.3164	Daily rate (cy)	500	
	110.7194	Days per week	6	
	27.67985			
Time to dredge outer shipyard, days	281.1618333	Daily rate (cy)	1200	
	46.86030556	Days per week	6	
	11.71507639			
Time to place rock, days	41.232	Daily rate (tons)	750	
	6.872	Days per week	6	
	1.718			
Time to place clean sand, days	82.75888889	Daily rate (cy)	2000	
	13.79314815	Days per week	6	
	3.448287037			
Time to place underpier sand, days	16.55177778	Daily rate (sf)	10000	
	2.75862963	Days per week	6	
	0.689657407			
Total weeks of in-water work	181.0034833			
Total months of in-water work	45.25087083			
CONSTRUCTION SEASONS	8	Months per season	6	

Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	400000	500000	600000	400000	500000	600000
Surveys and Engineering Design	1	LUMP SUM	600000	750000	900000	600000	750000	900000
Permitting	1	LUMP SUM	200000	300000	400000	200000	300000	400000
CEQA EIR	1	LUMP SUM	400000	700000	900000	400000	700000	900000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	10	CONSTRUCTION SEASONS	200000	250000	300000	2000000	2500000	3000000
Demolition	1	LUMP SUM	500000	650000	800000	500000	650000	800000
DREDGING								
Unconstrained open-water dredging □(outside of leasehold area)	349355	CY	6	7	10	2096130	2445485	3493550
Constrained dredging from inner shipyard □(within leasehold area)	366133	CY	10	13	18	3661330	4759729	6590394
Dredging Surface/Subsurface Debris	35774.4	CY	70	89	120	2504208	3183921.6	4292928
Engineering Controls (silt curtain, oil boom)	10	CONSTRUCTION SEASONS	25000	28000	32000	250000	280000	320000
Additional Dredging (if needed)	137000	CY	10	13	18	1370000	1781000	2466000
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Structures	35197	TON	25	35	45	879925	1231895	1583865
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Area	10	CONSTRUCTION SEASONS	200000	250000	300000	2000000	2500000	3000000
Preparation of Sediment Offloading Area	1	LUMP SUM	100000	200000	300000	100000	200000	300000
Rehandling and Dewatering	852488	CY	10	16	25	8524880	13639808	21312200
Transportation and Disposal at Landfill	1278732	TON	50	62.5	75	63936600	79920750	95904900
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers and piles	251828	SF	15	20	30	3777420	5036560	7554840
PLACEMENT OF CLEAN SAND COVER								
SW04 Cleanout, BMP Installation, Investigation	205569.3889	CY	20	35	40	4111387.778	7194928.611	8222775.556
SW04 Cleanout, BMP Installation, Investigation	1	LUMP SUM	500000	600000	703048	500000	600000	703048
TOTAL DIRECT CONSTRUCTION COSTS								
						97800000	128200000	162300000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	10	CONSTRUCTION SEASONS	300000	375000	450000	3000000	3750000	4500000
CONTINGENCY								
	0.3	percent				30245250	39591000	50047500
MONITORING COSTS								
Water Quality Monitoring during construction	208.1793861	week	11000	15000	18000	2289973.247	3122690.792	3747228.95
Post-Dredging Confirmational Sampling	220.859674	samples	4000	6000	8000	883438.6961	1325158.044	1766877.392
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION) COSTS								
Eel Grass Habitat Mitigation (if needed)	4.247301423	ACRES	200000	400000	600000	849460.2847	1698920.569	2548380.854
Eel Grass Land Lease Costs (in perpetuity)	4.247301423	ACRES	500000	1000000	1500000	2123650.712	4247301.423	6370952.135
Internal Shipyard Costs	1	LUMP SUM	300000	500000	700000	300000	500000	700000
RWQCB Oversight Costs	17	years	30000	36000	45000	510000	612000	765000
GRAND TOTAL								
						139400000	184800000	235200000

VOLUME AND AREA LEDGER	TOTAL
Total volume being dredged (CY)	852488
Total volume being dredged (TONS)	1278732
Total area of dredging (sq. ft.)	3700249
Total area of dredging (acres)	84.94602847

ESTIMATION OF CONSTRUCTION DURATION			
Dredging, inner shipyards, cy	366133	add 10%	402746.3
Dredging, open water, cy	349355	add 10%	384290.5
Rock placement, tons	35197		
Clean sand cover, cy	205569.3889		
Underpier sand, sq.ft.	251828		
Time to dredge inner shipyard, days	805.4926	Daily rate (cy)	500
	Weeks 134.2487667	Days per week	6
	Months 33.56219167		
Time to dredge outer shipyard, days	320.2420833	Daily rate (cy)	1200
	Weeks 53.37368056	Days per week	6
	Months 13.34342014		
Time to place rock, days	46.92933333	Daily rate (tons)	750
	Weeks 7.821555556	Days per week	6
	Months 1.955388889		
Time to place clean sand, days	102.7846944	Daily rate (cy)	2000
	Weeks 17.13078241	Days per week	6
	Months 4.282695602		
Time to place underpier sand, days	20.55693889	Daily rate (sf)	10000
	Weeks 3.426156481	Days per week	6
	Months 0.85653912		
Total weeks of in-water work	216.0009417		
Total months of in-water work	54.00023542		
CONSTRUCTION SEASONS	10	Months per season	6

Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	40000	50000	60000	40000	50000	60000
Surveys and Engineering Design	1	LUMP SUM	70000	85000	100000	70000	85000	100000
Permitting	1	LUMP SUM	20000	30000	40000	20000	30000	40000
CEQA EIR	1	LUMP SUM	400000	700000	900000	400000	700000	900000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	12	CONSTRUCTION SEASONS	20000	25000	30000	240000	300000	360000
Demolition	1	LUMP SUM	50000	65000	80000	50000	65000	80000
DREDGING								
Unconstrained open-water dredging (outside of leasehold area)	474903	CY	6	7	10	2849418	3324321	4749030
Constrained dredging from inner shipyard (within leasehold area)	464316	CY	10	13	18	4643160	6036108	8357688
Dredging Surface/Subsurface Debris	46960.95	CY	70	89	120	3287266.5	4179524.55	5635314
Engineering Controls (silt curtain, oil boom)	12	CONSTRUCTION SEASONS	25000	28000	32000	300000	336000	384000
Additional Dredging (if needed)	178300	CY	10	13	18	1783000	2317900	3209400
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Structures	45273	TON	25	35	45	1131825	1584555	2037285
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Area	12	CONSTRUCTION SEASONS	20000	25000	30000	240000	300000	360000
Preparation of Sediment Offloading Area	1	LUMP SUM	10000	20000	30000	10000	20000	30000
Rehandling and Dewatering	1117519	CY	10	16	25	11175190	17880304	27937975
Transportation and Disposal at Landfill	1676278.5	TON	50	62.5	75	83813925	104767406.3	125720887.5
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers and piles	310025	SF	15	20	30	4650375	6200500	9300750
PLACEMENT OF CLEAN SAND COVER								
SW04 Cleanout, BMP Installation, Investigation	267377.3333	CY	20	35	40	5347546.667	9358206.667	10695093.33
TOTAL DIRECT CONSTRUCTION COSTS								
						126600000	165800000	209900000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	12	CONSTRUCTION SEASONS	30000	37500	45000	360000	450000	540000
CONTINGENCY								
	0.3	percent				39065250	51096000	64597500
MONITORING COSTS								
Water Quality Monitoring during construction	269.5415583	week	11000	15000	18000	2964957.142	4043123.375	4851748.05
Post-Dredging Confirmational Sampling	287.2649036	samples	4000	6000	8000	1149059.614	1723589.421	2298119.229
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION) COSTS								
Eel Grass Habitat Mitigation (if needed)	5.524325069	ACRES	20000	40000	60000	1104865.014	2209730.028	3314595.041
Eel Grass Land Lease Costs (in perpetuity)	5.524325069	ACRES	50000	100000	150000	2762162.534	5524325.069	8286487.603
Internal Shipyard Costs	1	LUMP SUM	40000	60000	80000	40000	60000	80000
RWQCB Oversight Costs	19	years	3000	3600	4500	57000	68400	85500
GRAND TOTAL								
						179600000	237900000	302700000

VOLUME AND AREA LEDGER	TOTAL
Total volume being dredged (CY)	1117519
Total volume being dredged (TONS)	1676278.5
Total area of dredging (sq. ft.)	4812792
Total area of dredging (acres)	110.4865014

ESTIMATION OF CONSTRUCTION DURATION				
Dredging, inner shipyards, cy	464316	add 10%		510747.6
Dredging, open water, cy	474903	add 10%		522393.3
Rock placement, tons	45273			
Clean sand cover, cy	267377.3333			
Underpier sand, sq.ft.	310025			
Time to dredge inner shipyard, days	1021.4952	Daily rate (cy)	500	
	170.2492	Days per week	6	
	42.5623			
Time to dredge outer shipyard, days	435.32775	Daily rate (cy)	1200	
	72.554625	Days per week	6	
	18.13865625			
Time to place rock, days	60.364	Daily rate (tons)	750	
	10.06066667	Days per week	6	
	2.515166667			
Time to place clean sand, days	133.6886667	Daily rate (cy)	2000	
	22.28144444	Days per week	6	
	5.570361111			
Time to place underpier sand, days	26.73773333	Daily rate (sf)	10000	
	4.456288889	Days per week	6	
	1.114072222			
Total weeks of in-water work	279.602225			
Total months of in-water work	69.90055625			
CONSTRUCTION SEASONS	12	Months per season	6	

Item	Probable Quantity	Unit	Probable Minimum Unit Cost	Probable Likely Unit Cost	Probable Maximum Unit Cost	Probable Minimum Cost	Probable Likely Cost	Probable Maximum Cost
DESIGN AND PERMITTING								
Additional Pre-Design Site Characterization	1	LUMP SUM	40000	50000	60000	40000	50000	60000
Surveys and Engineering Design	1	LUMP SUM	80000	100000	120000	80000	100000	120000
Permitting	1	LUMP SUM	20000	30000	40000	20000	30000	40000
CEQA EIR	1	LUMP SUM	400000	700000	900000	400000	700000	900000
CONSTRUCTION PREPARATION								
Mobilization(s) and Demobilization(s)	14	CONSTRUCTION SEASONS	20000	25000	30000	280000	350000	420000
Demolition	1	LUMP SUM	50000	65000	80000	50000	65000	80000
DREDGING								
Unconstrained open-water dredging □(outside of leasehold area)	683453	CY	6	7	10	4100718	4784171	6834530
Constrained dredging from inner shipyard □(within leasehold area)	464316	CY	10	13	18	4643160	6036108	8357688
Dredging Surface/Subsurface Debris	57388.45	CY	70	89	120	4017191.5	5107572.05	6886614
Engineering Controls (silt curtain, oil boom)	14	CONSTRUCTION SEASONS	25000	28000	32000	350000	392000	448000
Additional Dredging (if needed)	228400	CY	10	13	18	2284000	2969200	4111200
MARINE STRUCTURES								
Placement of Quarry Run Rock for Protection of Marine Structures	45817	TON	25	35	45	1145425	1603595	2061765
SEDIMENT OFFLOADING AND DISPOSAL								
Acquisition or Several-Year Lease of Sediment Offloading Area	14	CONSTRUCTION SEASONS	20000	25000	30000	280000	350000	420000
Preparation of Sediment Offloading Area	1	LUMP SUM	10000	20000	30000	10000	20000	30000
Rehandling and Dewatering	1376169	CY	10	16	25	13761690	22018704	3440225
Transportation and Disposal at Landfill	2064253.5	TON	50	62.5	75	103212675	129015843.8	154819012.5
UNDERPIER REMEDIATION								
Purchase and place 3 feet of clean sand/gravel beneath piers and piles	313842	SF	15	20	30	4707630	6276840	9415260
PLACEMENT OF CLEAN SAND COVER								
SW04 Cleanout, BMP Installation, Investigation	342628.6667	CY	20	35	40	6852573.333	11992003.33	13705146.67
TOTAL DIRECT CONSTRUCTION COSTS								
						153600000	201100000	254300000
BID MANAGEMENT AND SUPPORT								
	1	LUMP SUM	17500	20000	25000	17500	20000	25000
CONSTRUCTION MANAGEMENT								
	14	CONSTRUCTION SEASONS	30000	37500	45000	420000	525000	630000
CONTINGENCY								
	0.3	percent				47345250	61911000	78187500
MONITORING COSTS								
Water Quality Monitoring during construction	308.9284972	week	11000	15000	18000	3398213.469	4633927.458	5560712.95
Post-Dredging Confirmational Sampling	368.1134435	samples	4000	6000	8000	1472453.774	2208680.661	2944907.548
Long-Term Monitoring of Remediated Areas	30	locations	32000	40000	60000	960000	1200000	1800000
SW04 Long-Term Monitoring	1	LUMP SUM	400000	500000	595437	400000	500000	595437
OTHER (NON-CONSTRUCTION) COSTS								
Eel Grass Habitat Mitigation (if needed)	7.079104683	ACRES	200000	400000	600000	1415820.937	2831641.873	4247462.81
Eel Grass Land Lease Costs (in perpetuity)	7.079104683	ACRES	500000	1000000	1500000	3539552.342	7079104.683	10618657.02
Internal Shipyard Costs	1	LUMP SUM	50000	75000	100000	50000	75000	100000
RWQCB Oversight Costs	21	years	30000	36000	45000	630000	756000	945000
GRAND TOTAL								
						217500000	288200000	366500000

VOLUME AND AREA LEDGER	TOTAL
Total volume being dredged (CY)	1376169
Total volume being dredged (TONS)	2064253.5
Total area of dredging (sq. ft.)	6167316
Total area of dredging (acres)	141.5820937

ESTIMATION OF CONSTRUCTION DURATION				
Dredging, inner shipyards, cy	464316	add 10%		510747.6
Dredging, open water, cy	683453	add 10%		751798.3
Rock placement, tons	45817			
Clean sand cover, cy	342628.6667			
Underpier sand, sq.ft.	313842			
Time to dredge inner shipyard, days	1021.4952	Daily rate (cy)		500
	170.2492	Days per week		6
	42.5623			
Time to dredge outer shipyard, days	626.4985833	Daily rate (cy)		1200
	104.4164306	Days per week		6
	26.10410764			
Time to place rock, days	61.08933333	Daily rate (tons)		750
	10.18155556	Days per week		6
	2.545388889			
Time to place clean sand, days	171.3143333	Daily rate (cy)		2000
	28.55238889	Days per week		6
	7.138097222			
Time to place underpier sand, days	34.26286667	Daily rate (sf)		10000
	5.710477778	Days per week		6
	1.427619444			
Total weeks of in-water work	319.1100528			
Total months of in-water work	79.77751319			
CONSTRUCTION SEASONS	14	Months per season		6

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Econ Feas Scenario	Polygon Rank	Station	Area (ft2)	Station Concentrations			
				PCBs (µg/kg)	Mercury (mg/kg)	Copper (mg/kg)	TBT (µg/kg)
Pre-Remedy							
	1	SW04	22,682	4000	1.75	1500	3250
	2	SW08	16,829	2100	2.25	920	1850
	3	SW02	39,162	5450	4.45	580	167
	4	SW24	21,179	950	1.90	300	165
	5	SW09	24,479	710	0.96	660	910
1	6	SW13	38,257	490	0.86	800	790
	7	NA17	36,471	550	0.85	510	1350
	8	SW01	33,394	1600	1.45	560	450
	9	SW16	17,835	430	0.95	430	1100
	10	SW21	11,896	2400	1.40	260	170
	11	SW28	51,554	2100	0.88	265	150
2	12	NA06	61,035	640	2.35	395	225
	13	SW20	28,175	1600	0.99	290	130
	14	SW05	24,163	1200	0.96	230	170
	15	SW23	30,077	1000	1.00	280	210
	16	SW22	3,762	900	1.10	260	190
	17	SW17	55,898	540	0.98	270	440
3	18	NA19	32,043	990	0.78	270	570

Table A31-4

SWAC Calculations

Data Used for Table A31-1b

Econ Feas Scenario	Polygon Rank	Station	Station Concentrations				
			Area (ft2)	PCBs (µg/kg)	Mercury (mg/kg)	Copper (mg/kg)	TBT (µg/kg)
	19	NA07	30,298	495	1.45	225	110.5
	20	SW14	16,732	400	1.00	280	450
	21	NA15	47,633	340	0.98	250	670
	22	SW10	21,608	610	0.58	160	250
	23	NA23	68,000	510	1.10	350	120
4	24	SW29	62,497	820	0.93	220	190
	25	NA04	72,669	250	1.10	260	300
	26	NA01	99,788	375	1.06	252.5	157
	27	NA27	53,889	210	1.20	390	100
	28	NA16	38,254	590	1.09	252.5	175
	29	SW30	72,231	380	1.10	240	200
5	30	SW27	78,889	200	0.68	210	250
	31	NA03	118,384	370	1.10	220	180
	32	SW25	69,690	350	0.78	230	230.5
	33	SW15	55,766	380	0.90	230	170
	34	SW03	48,811	410	1.20	190	53
	35	SW06	25,751	380	0.75	170	100
6	36	SW18	52,601	440	0.75	220	130

Econ Feas Scenario	Polygon Rank	Station	Area (ft2)	Station Concentrations			
				PCBs (µg/kg)	Mercury (mg/kg)	Copper (mg/kg)	TBT (µg/kg)
	37	NA09	29,521	290	1.20	260	120
	38	SW19	214,747	94	2.10	110	37
	39	NA18	40,452	350	0.79	230	210
	40	NA08	20,352	310	0.82	270	110
	41	NA28	54,262	180	0.89	290	90
7	42	SW11	36,689	200	0.75	170	140
	43	NA21	476,122	180	0.51	150	410
	44	SW36	90,730	200	0.75	240	49
	45	NA24	65,314	290	0.88	200	59
	46	SW34	304,572	130	0.75	320	38
	47	NA11	37,813	190	0.85	180	38
8	48	NA02	164,015	210	0.70	170	82
	49	NA05	112,824	180	0.61	170	110
	50	NA13	255,727	170	0.65	185	68
	51	NA22	54,670	180	0.38	150	120
	52	NA10	29,136	160	0.58	160	91
	53	NA12	91,096	150	0.62	150	80
9	54	SW07	40,947	170	0.52	150	44

Econ Feas Scenario	Polygon Rank	Station	Area (ft2)	Station Concentrations			
				PCBs (µg/kg)	Mercury (mg/kg)	Copper (mg/kg)	TBT (µg/kg)
	55	NA20	311,465	120	0.24	96	280
	56	NA30	240,838	100	0.71	140	22
	57	SW12	112,942	150	0.53	119.5	36
	58	NA29	202,964	190	0.55	110	58
	59	SW26	86,923	290	0.43	120	49
10	60	NA14	208,687	130	0.55	130	45
	61	SW32	78,477	160	0.51	92	30
	62	SW33	151,872	100	0.53	100	19
	63	NA26	302,544	180	0.48	80	37
	64	NA25	521,664	83	0.42	85	25
	65	NA31	229,185	68	0.35	71	20
11	66	SW31	83,499	66	0.23	54	36
		Total	6,232,430				

Notes:

SWAC values in each row result from remediation of all polygons up to and including that row

Areas include all under pier and technically infeasible areas

Chollas Creek mouth TMDL area not included in polygons NA20, NA21, and NA22

Costs and concentration data from July, 2010

Econ Feas Scenario	Polygon Rank	Station	Station Concentrations				
			HPAH (µg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
Pre-Remedy							
	1	SW04	13000	73.0	1.95	430	3450
	2	SW08	26000	24.0	0.73	225	830
	3	SW02	14000	13.8	3.18	170	585
	4	SW24	58000	10.0	0.33	88	300
	5	SW09	17000	27.0	1.10	220	1200
1	6	SW13	12000	15.0	0.42	93	580
	7	NA17	3900	14.5	0.41	115	620
	8	SW01	10000	13.5	0.71	145	520
	9	SW16	5700	12.0	0.66	97	370
	10	SW21	9700	11.0	0.51	120	330
	11	SW28	20000	14.0	0.32	100	330
2	12	NA06	4400	10.5	0.27	130	335
	13	SW20	11000	14.0	0.41	110	390
	14	SW05	13000	11.0	0.86	120	280
	15	SW23	11000	15.0	0.37	110	330
	16	SW22	12000	13.0	0.35	110	310
	17	SW17	10000	12.0	0.37	93	310
3	18	NA19	3000	14.0	0.37	100	450

Econ Feas Scenario	Polygon Rank	Station	Station Concentrations				
			HPAH (µg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
	19	NA07	15850	13.5	0.27	100	255
	20	SW14	8400	10.0	0.31	88	300
	21	NA15	3300	12.0	0.25	83	310
	22	SW10	16000	13.0	0.87	79	360
	23	NA23	3400	12.0	0.26	120	430
4	24	SW29	4600	8.3	0.49	72	230
	25	NA04	3500	12.0	0.27	93	310
	26	NA01	7550	10.2	0.24	84	297.5
	27	NA27	2800	13.0	0.29	110	500
	28	NA16	3700	10.5	0.36	89.75	312.5
	29	SW30	4900	8.9	0.23	72	300
5	30	SW27	12000	10.0	0.27	80	250
	31	NA03	6100	11.0	0.29	94	260
	32	SW25	11000	11.5	0.36	85.5	345
	33	SW15	7700	11.0	0.45	90	290
	34	SW03	6800	11.0	0.70	79	230
	35	SW06	12000	15.0	0.85	81	280
6	36	SW18	8100	11.0	0.33	86	280

Econ Feas Scenario	Polygon Rank	Station	Station Concentrations				
			HPAH (µg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
	37	NA09	2800	13.0	0.40	97	330
	38	SW19	1100	7.1	0.15	51	150
	39	NA18	2400	14.0	0.36	97	380
	40	NA08	3500	18.0	0.31	96	330
	41	NA28	3400	10.0	0.31	84	390
7	42	SW11	8000	9.6	0.24	74	240
	43	NA21	2100	11.0	0.39	83	250
	44	SW36	4000	9.9	0.21	79	300
	45	NA24	2100	9.6	0.20	88	280
	46	SW34	1400	8.3	0.21	99	310
	47	NA11	2800	9.3	0.28	73	230
8	48	NA02	2800	10.0	0.21	76	240
	49	NA05	2800	9.5	0.17	65	210
	50	NA13	1500	10.8	0.24	75	295
	51	NA22	3600	8.5	0.46	95	230
	52	NA10	1800	6.9	0.22	59	190
	53	NA12	2000	9.5	0.18	59	210
9	54	SW07	3800	8.1	0.19	57	170

Econ Feas Scenario	Polygon Rank	Station	Station Concentrations				
			HPAH (µg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
	55	NA20	2900	6.6	0.44	53	190
	56	NA30	1000	7.5	0.22	59	170
	57	SW12	3000	7.4	0.14	52	160
	58	NA29	1900	6.9	0.14	56	170
	59	SW26	1600	9.0	0.14	58	160
10	60	NA14	1100	9.0	0.25	66	200
	61	SW32	830	9.4	0.06	57	160
	62	SW33	1000	10.0	0.07	58	170
	63	NA26	850	6.2	0.11	41	140
	64	NA25	1100	6.0	0.11	41	130
	65	NA31	530	5.3	0.13	34	110
11	66	SW31	1200	4.0	0.06	21	80
Total							

Econ Feas Scenario	Polygon Rank	Station	PCB SWACs		
			SWAC ($\mu\text{g}/\text{kg}$)	Conc x Area	[Bkgd] x Area
Pre-Remedy			308		
	1	SW04	294	90,728,000	1,905,288
	2	SW08	288	35,340,900	1,413,636
	3	SW02	255	213,432,900	3,289,608
	4	SW24	252	20,120,050	1,779,036
	5	SW09	249	17,380,090	2,056,236
1	6	SW13	247	18,745,930	3,213,588
	7	NA17	244	20,059,050	3,063,564
	8	SW01	236	53,429,936	2,805,072
	9	SW16	235	7,669,050	1,498,140
	10	SW21	230	28,551,168	999,291
	11	SW28	214	108,263,400	4,330,536
2	12	NA06	208	39,062,400	5,126,940
	13	SW20	201	45,080,000	2,366,700
	14	SW05	197	28,995,600	2,029,692
	15	SW23	193	30,077,000	2,526,468
	16	SW22	192	3,385,602	315,990
	17	SW17	188	30,184,920	4,695,432
3	18	NA19	183	31,722,570	2,691,612

Econ Feas Scenario	Polygon Rank	Station	PCB SWACs		
			SWAC (µg/kg)	Conc x Area	[Bkgd] x Area
	19	NA07	181	14,997,277	2,544,993
	20	SW14	181	6,692,772	1,405,482
	21	NA15	179	16,195,220	4,001,172
	22	SW10	177	13,180,880	1,815,072
	23	NA23	172	34,680,000	5,712,000
4	24	SW29	165	51,247,540	5,249,748
	25	NA04	163	18,167,250	6,104,196
	26	NA01	158	37,420,500	8,382,192
	27	NA27	157	11,316,690	4,526,676
	28	NA16	154	22,569,860	3,213,336
	29	SW30	151	27,447,765	6,067,401
5	30	SW27	149	15,777,800	6,626,676
	31	NA03	144	43,802,080	9,944,256
	32	SW25	141	24,391,500	5,853,960
	33	SW15	138	21,191,080	4,684,344
	34	SW03	135	20,012,510	4,100,124
	35	SW06	134	9,785,380	2,163,084
6	36	SW18	131	23,144,440	4,418,484

PCB SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (µg/kg)	Conc x Area	[Bkgd] x Area
	37	NA09	130	8,561,090	2,479,764
	38	SW19	130	20,186,176	18,038,710
	39	NA18	128	14,158,200	3,397,968
	40	NA08	127	6,309,139	1,709,573
	41	NA28	127	9,767,153	4,558,005
7	42	SW11	126	7,337,800	3,081,876
	43	NA21	119	85,701,960	39,994,248
	44	SW36	117	18,146,000	7,621,320
	45	NA24	115	18,941,060	5,486,376
	46	SW34	113	39,594,360	25,584,048
	47	NA11	112	7,184,540	3,176,323
8	48	NA02	109	34,443,150	13,777,260
	49	NA05	107	20,308,320	9,477,216
	50	NA13	103	43,473,607	21,481,076
	51	NA22	102	9,840,600	4,592,280
	52	NA10	102	4,661,755	2,447,421
	53	NA12	101	13,664,400	7,652,064
9	54	SW07	101	6,960,990	3,439,548

PCB SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (µg/kg)	Conc x Area	[Bkgd] x Area
	55	NA20	99	37,375,800	26,163,060
	56	NA30	98	24,083,772	20,230,368
	57	SW12	97	16,941,300	9,487,128
	58	NA29	94	38,563,160	17,048,976
	59	SW26	91	25,207,670	7,301,532
10	60	NA14	89	27,129,365	17,529,743
	61	SW32	88	12,556,291	6,592,053
	62	SW33	88	15,187,214	12,757,260
	63	NA26	83	54,457,846	25,413,662
	64	NA25	83	43,298,100	43,819,764
	65	NA31	84	15,584,608	19,251,574
11	66	SW31	84	5,510,934	7,013,916
Total					

Mercury SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (mg/kg)	Conc x Area	[Bkgd] x Area
Pre-Remedy			0.75		
	1	SW04	0.75	39,694	12,929
	2	SW08	0.75	37,865	9,593
	3	SW02	0.72	174,271	22,322
	4	SW24	0.72	40,240	12,072
	5	SW09	0.72	23,500	13,953
1	6	SW13	0.71	32,901	21,806
	7	NA17	0.71	30,818	20,788
	8	SW01	0.71	48,421	19,034
	9	SW16	0.71	16,943	10,166
	10	SW21	0.70	16,655	6,781
	11	SW28	0.70	45,110	29,386
2	12	NA06	0.68	143,432	34,790
	13	SW20	0.68	27,893	16,060
	14	SW05	0.68	23,196	13,773
	15	SW23	0.68	30,077	17,144
	16	SW22	0.68	4,138	2,144
	17	SW17	0.67	54,780	31,862
3	18	NA19	0.67	24,994	18,265

Mercury SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (mg/kg)	Conc x Area	[Bkgd] x Area
	19	NA07	0.67	43,931	17,270
	20	SW14	0.67	16,732	9,537
	21	NA15	0.67	46,680	27,151
	22	SW10	0.67	12,533	12,317
	23	NA23	0.66	74,800	38,760
4	24	SW29	0.66	58,122	35,623
	25	NA04	0.65	79,936	41,421
	26	NA01	0.64	106,025	56,879
	27	NA27	0.64	64,667	30,717
	28	NA16	0.63	41,792	21,805
	29	SW30	0.63	79,454	41,172
5	30	SW27	0.63	53,645	44,967
	31	NA03	0.62	130,222	67,479
	32	SW25	0.61	54,010	39,723
	33	SW15	0.61	50,189	31,787
	34	SW03	0.61	58,573	27,822
	35	SW06	0.60	19,313	14,678
6	36	SW18	0.60	39,451	29,983

Mercury SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (mg/kg)	Conc x Area	[Bkgd] x Area
	37	NA09	0.60	35,425	16,827
	38	SW19	0.55	450,968	122,406
	39	NA18	0.55	31,957	23,058
	40	NA08	0.55	16,689	11,601
	41	NA28	0.54	48,293	30,929
7	42	SW11	0.54	27,517	20,913
	43	NA21	0.55	242,822	271,390
	44	SW36	0.54	68,048	51,716
	45	NA24	0.54	57,476	37,229
	46	SW34	0.53	228,429	173,606
	47	NA11	0.53	32,141	21,554
8	48	NA02	0.53	114,811	93,489
	49	NA05	0.53	68,823	64,310
	50	NA13	0.52	164,944	145,764
	51	NA22	0.52	20,775	31,162
	52	NA10	0.52	16,899	16,608
	53	NA12	0.52	56,480	51,925
9	54	SW07	0.52	21,292	23,340

Mercury SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (mg/kg)	Conc x Area	[Bkgd] x Area
	55	NA20	0.54	74,752	177,535
	56	NA30	0.53	170,995	137,278
	57	SW12	0.54	59,295	64,377
	58	NA29	0.54	111,630	115,689
	59	SW26	0.54	37,377	49,546
10	60	NA14	0.54	114,778	118,952
	61	SW32	0.54	40,023	44,732
	62	SW33	0.54	80,492	86,567
	63	NA26	0.54	145,221	172,450
	64	NA25	0.56	219,099	297,348
	65	NA31	0.57	80,215	130,636
11	66	SW31	0.57	19,205	47,594
Total					

			Copper SWACs		
Econ Feas Scenario	Polygon Rank	Station	SWAC (mg/kg)	Conc x Area	[Bkgd] x Area
Pre-Remedy			187		
	1	SW04	182	34,023,000	2,744,522
	2	SW08	180	15,482,680	2,036,309
	3	SW02	177	22,713,960	4,738,602
	4	SW24	176	6,353,700	2,562,659
	5	SW09	174	16,156,140	2,961,959
1	6	SW13	170	30,605,600	4,629,097
	7	NA17	168	18,600,210	4,412,991
	8	SW01	165	18,700,478	4,040,639
	9	SW16	165	7,669,050	2,158,035
	10	SW21	164	3,093,043	1,439,455
	11	SW28	163	13,661,810	6,238,034
2	12	NA06	160	24,108,825	7,385,235
	13	SW20	160	8,170,750	3,409,175
	14	SW05	159	5,557,490	2,923,723
	15	SW23	158	8,421,560	3,639,317
	16	SW22	158	978,063	455,175
	17	SW17	157	15,092,460	6,763,658
3	18	NA19	156	8,651,610	3,877,203

Econ Feas Scenario	Polygon Rank	Station	Copper SWACs		
			SWAC (mg/kg)	Conc x Area	[Bkgd] x Area
	19	NA07	156	6,816,944	3,666,001
	20	SW14	155	4,684,940	2,024,564
	21	NA15	154	11,908,250	5,763,593
	22	SW10	154	3,457,280	2,614,568
	23	NA23	152	23,800,000	8,228,000
4	24	SW29	151	13,749,340	7,562,137
	25	NA04	149	18,893,940	8,792,949
	26	NA01	147	25,196,470	12,074,348
	27	NA27	145	21,016,710	6,520,569
	28	NA16	144	9,659,135	4,628,734
	29	SW30	142	17,335,430	8,739,946
5	30	SW27	141	16,566,690	9,545,569
	31	NA03	139	26,044,480	14,324,464
	32	SW25	138	16,028,700	8,432,490
	33	SW15	137	12,826,180	6,747,686
	34	SW03	137	9,274,090	5,906,131
	35	SW06	137	4,377,670	3,115,871
6	36	SW18	136	11,572,220	6,364,721

Copper SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (mg/kg)	Conc x Area	[Bkgd] x Area
	37	NA09	135	7,675,460	3,572,041
	38	SW19	135	23,622,121	25,984,333
	39	NA18	135	9,303,960	4,894,692
	40	NA08	134	5,495,056	2,462,599
	41	NA28	133	15,735,968	6,565,697
7	42	SW11	132	6,237,130	4,439,369
	43	NA21	130	71,418,300	57,610,762
	44	SW36	129	21,775,200	10,978,330
	45	NA24	128	13,062,800	7,902,994
	46	SW34	118	97,463,040	36,853,212
	47	NA11	118	6,806,407	4,575,418
8	48	NA02	116	27,882,550	19,845,815
	49	NA05	115	19,180,080	13,651,704
	50	NA13	113	47,309,514	30,942,979
	51	NA22	113	8,200,500	6,615,070
	52	NA10	112	4,661,755	3,525,452
	53	NA12	112	13,664,400	11,022,616
9	54	SW07	112	6,142,050	4,954,587

Table A31-4

SWAC Calculations

Data Used for Table A31-1b

			Copper SWACs		
Econ Feas Scenario	Polygon Rank	Station	SWAC (mg/kg)	Conc x Area	[Bkgd] x Area
	55	NA20	113	29,900,640	37,687,265
	56	NA30	112	33,717,281	29,141,364
	57	SW12	112	13,496,569	13,665,982
	58	NA29	113	22,326,040	24,558,644
	59	SW26	113	10,430,760	10,517,683
10	60	NA14	112	27,129,365	25,251,178
	61	SW32	113	7,219,867	9,495,695
	62	SW33	113	15,187,214	18,376,529
	63	NA26	115	24,203,487	36,607,774
	64	NA25	118	44,341,428	63,121,327
	65	NA31	120	16,272,164	27,731,435
11	66	SW31	121	4,508,946	10,103,379
Total					

			TBT SWACs		
Econ Feas Scenario	Polygon Rank	Station	SWAC ($\mu\text{g}/\text{kg}$)	Conc x Area	[Bkgd] x Area
Pre-Remedy			162		
	1	SW04	151	73,716,500	499,004
	2	SW08	146	31,133,650	370,238
	3	SW02	145	6,540,054	861,564
	4	SW24	144	3,494,535	465,938
	5	SW09	141	22,275,890	538,538
1	6	SW13	136	30,223,030	841,654
	7	NA17	128	49,235,850	802,362
	8	SW01	126	15,027,170	734,662
	9	SW16	123	19,618,500	392,370
	10	SW21	123	2,022,374	261,719
	11	SW28	122	7,733,100	1,134,188
2	12	NA06	120	13,732,875	1,342,770
	13	SW20	119	3,662,750	619,850
	14	SW05	119	4,107,710	531,586
	15	SW23	118	6,316,170	661,694
	16	SW22	118	714,738	82,759
	17	SW17	114	24,595,120	1,229,756
3	18	NA19	111	18,264,510	704,946

TBT SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (µg/kg)	Conc x Area	[Bkgd] x Area
	19	NA07	111	3,347,877	666,546
	20	SW14	109	7,529,369	368,102
	21	NA15	105	31,914,110	1,047,926
	22	SW10	104	5,402,000	475,376
	23	NA23	103	8,160,000	1,496,000
4	24	SW29	101	11,874,430	1,374,934
	25	NA04	98	21,800,700	1,598,718
	26	NA01	96	15,666,716	2,195,336
	27	NA27	95	5,388,900	1,185,558
	28	NA16	94	6,694,450	841,588
	29	SW30	92	14,446,192	1,589,081
5	30	SW27	89	19,722,250	1,735,558
	31	NA03	86	21,309,120	2,604,448
	32	SW25	84	16,063,545	1,533,180
	33	SW15	82	9,480,220	1,226,852
	34	SW03	82	2,586,983	1,073,842
	35	SW06	82	2,575,100	566,522
6	36	SW18	81	6,838,130	1,157,222

TBT SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (µg/kg)	Conc x Area	[Bkgd] x Area
	37	NA09	80	3,542,520	649,462
	38	SW19	80	7,945,622	4,724,424
	39	NA18	79	8,494,920	889,944
	40	NA08	78	2,238,727	447,745
	41	NA28	78	4,883,576	1,193,763
7	42	SW11	77	5,136,460	807,158
	43	NA21	47	195,210,020	10,474,684
	44	SW36	47	4,445,770	1,996,060
	45	NA24	47	3,853,526	1,436,908
	46	SW34	46	11,573,736	6,700,584
	47	NA11	46	1,436,908	831,894
8	48	NA02	44	13,449,230	3,608,330
	49	NA05	43	12,410,640	2,482,128
	50	NA13	41	17,389,443	5,625,996
	51	NA22	40	6,560,400	1,202,740
	52	NA10	40	2,651,373	640,991
	53	NA12	39	7,287,680	2,004,112
9	54	SW07	39	1,801,668	900,834

TBT SWACs					
Econ Feas Scenario	Polygon Rank	Station	SWAC (µg/kg)	Conc x Area	[Bkgd] x Area
	55	NA20	26	87,210,200	6,852,230
	56	NA30	26	5,298,430	5,298,430
	57	SW12	25	4,065,912	2,484,724
	58	NA29	24	11,771,912	4,465,208
	59	SW26	24	4,259,227	1,912,306
10	60	NA14	23	9,390,934	4,591,123
	61	SW32	23	2,354,305	1,726,490
	62	SW33	23	2,885,571	3,341,187
	63	NA26	22	11,194,113	6,655,959
	64	NA25	22	13,041,597	11,476,605
	65	NA31	22	4,583,708	5,042,079
11	66	SW31	22	3,005,964	1,836,978
Total					

Econ Feas Scenario	Polygon Rank	Station	HPAH SWACs		
			SWAC ($\mu\text{g}/\text{kg}$)	Conc x Area	[Bkgd] x Area
Pre-Remedy			3,612		
	1	SW04	3,567	294,866,000	15,264,986
	2	SW08	3,499	437,554,000	11,325,917
	3	SW02	3,415	548,268,000	26,356,026
	4	SW24	3,220	1,228,382,000	14,253,467
	5	SW09	3,156	416,143,000	16,474,367
1	6	SW13	3,086	459,084,000	25,746,961
	7	NA17	3,068	142,236,900	24,544,983
	8	SW01	3,018	333,937,100	22,473,967
	9	SW16	3,003	101,659,500	12,002,955
	10	SW21	2,986	115,394,304	8,006,223
	11	SW28	2,826	1,031,080,000	34,695,842
2	12	NA06	2,790	268,554,000	41,076,555
	13	SW20	2,743	309,925,000	18,961,775
	14	SW05	2,695	314,119,000	16,261,699
	15	SW23	2,645	330,847,000	20,241,821
	16	SW22	2,638	45,141,360	2,531,678
	17	SW17	2,555	558,980,000	37,619,354
3	18	NA19	2,543	96,129,000	21,564,939

Table A31-4

SWAC Calculations

Data Used for Table A31-1b

Econ Feas Scenario	Polygon Rank	Station	HPAH SWACs		
			SWAC (µg/kg)	Conc x Area	[Bkgd] x Area
	19	NA07	2,469	480,215,851	20,390,238
	20	SW14	2,448	140,548,212	11,260,589
	21	NA15	2,428	157,188,900	32,057,009
	22	SW10	2,375	345,728,000	14,542,184
	23	NA23	2,345	231,200,000	45,764,000
4	24	SW29	2,306	287,486,200	42,060,481
	25	NA04	2,273	254,341,500	48,906,237
	26	NA01	2,163	753,399,400	67,157,324
	27	NA27	2,144	150,889,200	36,267,297
	28	NA16	2,126	141,539,800	25,744,942
	29	SW30	2,077	353,931,704	48,611,436
5	30	SW27	1,934	946,668,000	53,092,297
	31	NA03	1,830	722,142,400	79,672,432
	32	SW25	1,715	766,590,000	46,901,370
	33	SW15	1,652	429,398,200	37,530,518
	34	SW03	1,604	331,914,800	32,849,803
	35	SW06	1,557	309,012,000	17,330,423
6	36	SW18	1,495	426,068,100	35,400,473

Econ Feas Scenario	Polygon Rank	Station	HPAH SWACs		
			SWAC (µg/kg)	Conc x Area	[Bkgd] x Area
	37	NA09	1,485	82,658,800	19,867,633
	38	SW19	1,470	236,221,205	144,524,428
	39	NA18	1,459	97,084,800	27,224,196
	40	NA08	1,449	71,232,210	13,696,936
	41	NA28	1,426	184,490,664	36,518,299
7	42	SW11	1,382	293,512,000	24,691,697
	43	NA21	1,273	999,856,200	320,430,106
	44	SW36	1,225	362,920,000	61,061,290
	45	NA24	1,210	137,159,400	43,956,322
	46	SW34	1,175	426,400,800	204,976,956
	47	NA11	1,162	105,877,436	25,448,398
8	48	NA02	1,106	459,242,000	110,382,095
	49	NA05	1,067	315,907,200	75,930,552
	50	NA13	1,033	383,590,650	172,104,338
	51	NA22	1,008	196,812,000	36,792,910
	52	NA10	1,002	52,444,746	19,608,508
	53	NA12	983	182,192,000	61,307,608
9	54	SW07	962	155,598,600	27,557,331

Table A31-4

SWAC Calculations

Data Used for Table A31-1b

Econ Feas Scenario	Polygon Rank	Station	HPAH SWACs		
			SWAC (µg/kg)	Conc x Area	[Bkgd] x Area
	55	NA20	851	903,248,500	209,615,945
	56	NA30	838	240,837,720	162,083,786
	57	SW12	796	338,826,000	76,009,966
	58	NA29	756	385,631,600	136,594,772
	59	SW26	743	139,076,800	58,499,179
10	60	NA14	729	229,556,162	140,446,634
	61	SW32	727	65,135,761	52,814,900
	62	SW33	719	151,872,140	102,209,950
	63	NA26	711	257,162,052	203,611,836
	64	NA25	675	573,830,246	351,079,778
	65	NA31	680	121,468,267	154,241,781
11	66	SW31	673	100,198,800	56,194,827
Total					

[BLANK SHEET]

Survey station	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)
BACKGRND	7.5	0.33	57	121	53
NA01	10.2	0.24	70	253	84 <i>J</i>
NA02	10	0.21	67	170	76 <i>J</i>
NA03	11	0.29	69	220	94 <i>J</i>
NA04	12	0.27	73	260	93 <i>J</i>
NA05	9.5	0.17	57	170	65
NA06	11	0.27	62 <i>J</i>	395	130
NA07	14	0.27	61	225 <i>J</i>	100
NA08	18	0.31	79	270 <i>J</i>	96
NA09	13	0.40	75	260 <i>J</i>	97
NA10	6.9	0.22	52	160 <i>J</i>	59
NA11	9.3	0.28	59	180	73
NA12	9.5	0.18 <i>U</i>	54	150	59 <i>J</i>
NA13	10.8 <i>J</i>	0.24	59	185	75 <i>J</i>
NA14	9.0	0.25	56	130 <i>J</i>	66
NA15	12	0.25	62	250	83 <i>J</i>
NA16	10.5	0.36	70.3 <i>J</i>	252.5	89.8
NA17	15	0.41	74 <i>J</i>	510	115 <i>J</i>
NA18	14	0.36	67	230 <i>J</i>	97
NA19	14	0.37	65	270	100 <i>J</i>
NA20	6.6	0.44	26	96	53 <i>J</i>
NA21	11	0.39	51	150 <i>J</i>	83
NA22	8.5	0.46	39	150 <i>J</i>	95
NA23	12	0.26	77 <i>J</i>	350	120
NA24	9.6	0.20	60 <i>J</i>	200	88
NA25	6.0	0.11	33 <i>J</i>	85	41
NA26	6.2 <i>J</i>	0.11	32	80	41
NA27	13	0.29	100	390	110
NA28	10	0.31	86	290	84
NA29	6.9 <i>J</i>	0.14	39	110	56
NA30	7.5 <i>J</i>	0.22	37	140	59
NA31	5.3	0.13	29 <i>J</i>	71	34
SW01	14	0.71	79	560 <i>J</i>	145
SW02	14	3.2	119	580 <i>J</i>	170
SW03	11	0.70	52	190 <i>J</i>	79
SW04	73 <i>J</i>	2.0	88	1,500 <i>J</i>	430
SW05	11	0.86	53	230 <i>J</i>	120
SW06	15	0.85	56	170 <i>J</i>	81
SW07	8.1	0.19	43	150 <i>J</i>	57
SW08	24	0.73	83	920 <i>J</i>	225
SW09	27	1.1	56	660 <i>J</i>	220
SW10	13	0.87	45	160 <i>J</i>	79

Survey station	Arsenic (mg/kg dry)	Cadmium (mg/kg dry)	Chromium (mg/kg dry)	Copper (mg/kg dry)	Lead (mg/kg dry)
SW11	9.6	0.24	62	170	74
SW12	7.4 <i>J</i>	0.14	39	120 <i>J</i>	52
SW13	15	0.42	72	800	93
SW14	10	0.31	63	280	88
SW15	11	0.45	67	230	90
SW16	12	0.66	68	430	97
SW17	12	0.37	73	270	93
SW18	11	0.33	74	220	86
SW19	7.1	0.15	42	110 <i>J</i>	51
SW20	14	0.41	68	290 <i>J</i>	110
SW21	11	0.51	70	260	120
SW22	13	0.35	70	260 <i>J</i>	110
SW23	15	0.37	89	280 <i>J</i>	110
SW24	10 <i>J</i>	0.33	53	300 <i>J</i>	88
SW25	12 <i>J</i>	0.36	65	230 <i>J</i>	86
SW26	9.0	0.14	45	120 <i>J</i>	58
SW27	10	0.27	63	210	80
SW28	14 <i>J</i>	0.32	66	265	100 <i>J</i>
SW29	8.3	0.49	44 <i>J</i>	220	72
SW30	8.9	0.23	72	240	72
SW31	4.0 <i>J</i>	0.064	18	54	21
SW32	9.4 <i>J</i>	0.064	43 <i>J</i>	92	57
SW33	10 <i>J</i>	0.065	41	100	58
SW34	8.3 <i>J</i>	0.21	53	320	99
SW36	9.9	0.21	70 <i>J</i>	240 <i>J</i>	79

Survey station	Mercury (mg/kg dry)	Zinc (mg/kg dry)	Tributyltin (µg/kg dry)	Total PCB Congeners, full dl (ng/g dry)	Total HPAH, full dl (µg/kg dry)
BACKGRND	0.57	192	22	84	673
NA01	1.1 <i>J</i>	298	157 <i>J</i>	375	7,550
NA02	0.70	240	82	210	2,800
NA03	1.1	260	180	370	6,100
NA04	1.1	310	300	250	3,500
NA05	0.61	210 <i>J</i>	110	180	2,800
NA06	2 <i>J</i>	335 <i>J</i>	225 <i>J</i>	640	4,400
NA07	1.5	255 <i>J</i>	111	495	15,850
NA08	0.82	330 <i>J</i>	110	310	3,500
NA09	1.2	330 <i>J</i>	120	290	2,800
NA10	0.58	190 <i>J</i>	91	160	1,800
NA11	0.85	230 <i>J</i>	38 <i>J</i>	190	2,800
NA12	0.62	210	80	150	2,000
NA13	0.65	295	68	170	1,500
NA14	0.55	200 <i>J</i>	45	130	1,100
NA15	0.98	310	670	340	3,300
NA16	1.1 <i>J</i>	313 <i>J</i>	175	590	3,700
NA17	0.85 <i>J</i>	620 <i>J</i>	1,350	550	3,900
NA18	0.79	380 <i>J</i>	210	350	2,400
NA19	0.78	450	570	990	3,000
NA20	0.24	190	280	120	2,900
NA21	0.51	250 <i>J</i>	410	180	2,100
NA22	0.38	230 <i>J</i>	120	180	3,600
NA23	1.1	430 <i>J</i>	120	510	3,400
NA24	0.88 <i>J</i>	280 <i>J</i>	59	290	2,100
NA25	0.42 <i>J</i>	130 <i>J</i>	25	83	1,100
NA26	0.48	140	37	180	850
NA27	1.2	500	100	210	2,800
NA28	0.89	390	90	180	3,400
NA29	0.55	170	58	190	1,900
NA30	0.71	170	22	100	1,000
NA31	0.35 <i>J</i>	110 <i>J</i>	20 <i>J</i>	68	530
SW01	1.5 <i>J</i>	520 <i>J</i>	450	1,600	10,000
SW02	4.5 <i>J</i>	585 <i>J</i>	167 <i>J</i>	5,450	14,000
SW03	1.2	230 <i>J</i>	53	410	6,800
SW04	1.8	3,450 <i>J</i>	3,250 <i>J</i>	4,000	13,000
SW05	0.96	280 <i>J</i>	170	1,200	13,000
SW06	0.75	280 <i>J</i>	100	380	12,000
SW07	0.52	170 <i>J</i>	44	170	3,800
SW08	2.3	830 <i>J</i>	1,850 <i>J</i>	2,100	26,000
SW09	0.96	1,200 <i>J</i>	910	710	17,000
SW10	0.58	360 <i>J</i>	250	610	16,000

Survey station	Mercury (mg/kg dry)	Zinc (mg/kg dry)	Tributyltin (μ g/kg dry)	Total PCB Congeners, full dl (ng/g dry)	Total HPAH, full dl (μ g/kg dry)
SW11	0.75	240 <i>J</i>	140	200	8,000
SW12	0.53	160 <i>J</i>	36	150	3,000
SW13	0.86	580 <i>J</i>	790	490	12,000
SW14	1.0	300 <i>J</i>	450	400	8,400
SW15	0.90	290 <i>J</i>	170	380	7,700
SW16	0.95	370 <i>J</i>	1,100	430	5,700
SW17	0.98	310 <i>J</i>	440	540	10,000
SW18	0.75	280 <i>J</i>	130	440	8,100
SW19	2.1	150 <i>J</i>	37	94	1,100
SW20	0.99	390 <i>J</i>	130	1,600	11,000
SW21	1.4	330 <i>J</i>	170	2,400	9,700
SW22	1.1	310 <i>J</i>	190	900	12,000
SW23	1.0	330 <i>J</i>	210	1,000	11,000
SW24	1.9	300 <i>J</i>	165	950	58,000
SW25	0.78	345 <i>J</i>	231 <i>J</i>	350	11,000
SW26	0.43	160 <i>J</i>	49	290	1,600
SW27	0.68	250 <i>J</i>	250	200	12,000
SW28	0.88	330	150 <i>J</i>	2,100	20,000
SW29	0.93 <i>J</i>	230 <i>J</i>	190	820	4,600
SW30	1.1 <i>J</i>	300	200	380	4,900
SW31	0.23	80	36 <i>J</i>	66	1,200
SW32	0.51 <i>J</i>	160 <i>J</i>	30	160	830
SW33	0.53	170	19 <i>J</i>	100	1,000
SW34	0.75	310	38	130	1,400
SW36	0.75	300 <i>J</i>	49	200	4,000