

Table 12. Remedial Alternatives and Associated Remedial Technologies, Remedial Action Levels, and Actively Remediated Acres

Remedial Alternatives and Technologies ^a	Remedial Action Levels ^a					Actively Remediated Area (Acres)
	PCBs (mg/kg OC) ^b	Arsenic (mg/kg dw)	Dioxins/Furans (ng TEQ/kg dw)	cPAHs (µg TEQ/kg dw)	Benthic SMS (41 Contaminants) ^d	
Alternative 1 No Further Action after removal or capping of Early Action Areas	n/a	n/a	n/a	n/a	n/a	29 acres
Alternative 2 (2R) – dredge emphasis with upland disposal/MNR	65 to 110 (LDW-wide);	93	50	5,500	CSL to 3 × CSL	32 acres
Alternative 2 with CAD (2R-CAD) – dredge emphasis with contained aquatic disposal/MNR	10-yr post-construction target: 65 ^c				10-yr post-const. target: CSL	
Alternative 3 removal (3R) – dredge emphasis with upland disposal/MNR	65 (LDW-wide)	93 (LDW-wide)	35 (LDW-wide)	3,800 (LDW-wide)	CSL toxicity or chemistry	58 acres
Alternative 3 combined technologies (3C) – ENR/in situ /cap/MNR where appropriate, otherwise dredge with upland disposal		28 (intertidal)	28 (intertidal)	900 (intertidal)		
Alternative 4 removal (4R) – dredge emphasis with upland disposal/MNR	12 to 35 (LDW-wide)	57 (LDW-wide)	25 (site-wide)	1,000 (LDW-wide)	SQS to CSL	107 acres
Alternative 4 combined technologies (4C) – ENR/in situ /cap/MNR where appropriate, otherwise dredge with upland disposal	10-yr post-const. target: 12 ^c	28 (intertidal)	28 (intertidal)	900 (intertidal)	10-yr post-const. target: SQS	
Alternative 5 removal (5R) – dredge emphasis with upland disposal	12 (LDW-wide)	57 (LDW-wide)	25 (LDW-wide)	1,000 (LDW-wide)	SQS toxicity or chemistry	157 acres
Alternative 5 removal with treatment (5R-T) – dredge with soil washing treatment and disposal/re-use		28 (intertidal)	28 (intertidal)	900 (intertidal)		
Alternative 5 combined technologies (5C) – ENR/in situ /cap where appropriate, otherwise dredge with upland disposal						
Alternative 6 removal (6R) – dredge emphasis with upland disposal	5 (LDW-wide)	15 (LDW-wide)	15 (LDW-wide)	1,000 (LDW-wide)	SQS toxicity or chemistry	302 acres
Alternative 6 combined technologies (6C) – ENR/in situ /cap where appropriate, otherwise dredge with upland disposal		28 (intertidal)	28 (intertidal)	900 (intertidal)		
Preferred Alternative (5C Plus) - ENR/in situ /cap where appropriate, otherwise dredge with upland disposal.	12 (LDW-wide)	57 (LDW-wide)	25 (LDW-wide)	1,000 (LDW-wide)	2 X SQS chemistry (not to exceed CSL) ^e or SQS toxicity 10-year post-const. target: SQS	156 acres
	65 (intertidal)	28 (intertidal)	28 (intertidal)	900 (intertidal)		
	195 (subtidal subsurface)					

- LDW-wide remedial action levels are applied in the upper 10 cm of sediment throughout the LDW and in the upper 60 cm in potential scour areas (i.e., Recovery Category 1 areas). Intertidal remedial action levels are applied in the upper 45 cm of sediment in intertidal areas (above -4 ft MLLW). An intertidal PCB RAL of 65 mg/kg OC was added in Alternative 5C Plus in the top 45 cm in intertidal areas. Alternative 5C Plus added a subtidal PCB RAL of 195 mg/kg OC for top 60 cm in Recovery Category 2 and 3 areas in areas of potential vessel scour. These potential scour areas comprise: north of the 1st Avenue South bridge (located at approximately RM 2) in water depths from -4 to -24 ft MLLW, and south of the 1st Avenue S bridge, in water depths from -4 to -18 ft MLLW.
- PCB RALs are normalized to organic carbon (OC) for consistency with the SMS, and because the organic content of sediments affects the bioavailability and toxicity of PCBs.
- The RALs for SMS contaminants (except arsenic) are a range for Alternatives 2 and 4. The upper RALs are used where conditions for recovery are predicted to be more favorable (Recovery Category 3); the lower RALs are used where conditions for recovery are predicted to be limited or less certain (Recovery Categories 1 or 2), or where the BCM does not predict recovery to the 10-yr post-construction target concentration.
- See Table 14 for these values.

Table 13. Remedial Alternative Areas, Volumes, and Costs

Site-wide Remedial Alternative	Remedial Alternative Technology and Areas								Total Dredge Volume (cy)	Construction Time Frame (years)	Net Present Value Cost ^c (\$MM)
	EAA's (acres) ^a	Dredge (acres)	Partial Dredge and Cap (acres)	Cap (acres)	ENR/ in situ (acres)	MNR To SQS ^b (acres)	MNR (MNR Below SQS in Alt 5C Plus) (acres)	Total Active Remedy (acres)			
1 No Further Action	29	0	0	0	0	0	412	0	n/a	n/a	\$9
2 Removal	29	29	3	0	0	148	232	32	580,000	4	\$210
2 Removal with CAD	29	29	3	0	0	148	232	32	580,000	4	\$200
3 Removal	29	50	8	0	0	122	232	58	760,000	6	\$270
3 Combined Technology	29	29	8	11	10	122	232	58	490,000	3	\$200
4 Removal	29	93	14	0	0	73	232	107	1,200,000	11	\$360
4 Combined Technology	29	50	18	23	16	73	232	107	690,000	6	\$260
5 Removal	29	143	14	0	0	23	232	157	1,600,000	17	\$470
5 Removal with Treatment	29	143	14	0	0	23	232	157	1,600,000	17	\$510
5 Combined Technology	29	57	23	24	53	23	232	157	750,000	7	\$290
Preferred Alternative (5 Combined Technology Plus)	29	64	20	24	48	33	223	156	790,000	7	\$305
6 Removal	29	274	28	0	0	0	110	302	3,900,000	42	\$810
6 Combined Technology	29	108	42	51	101	0	110	302	1,600,000	16	\$530

- a. The 29 acres addressed by the EAAs are not included in area estimates for other alternatives.
- b. Includes areas that the FS predicted will have naturally recovered enough that concentration levels are below the SQS by the time sampling is conducted for remedial design (called "verification monitoring" in the FS).
- c. Net Present Value calculated using a 2.3% annual discount rate