

Appendix E

Estimated Air Emissions by Option

TABLE 1
ESTIMATED CONSTRUCTION EQUIPMENT HOURS
Salinity Reduction Option 1A: Napa River & Napa Slough Discharge

Location	BASE STRUCTURE				FISH SCREENS	KNIFE VALVES	TOTAL HOURS FOR ITEM	Shallow Draft Tug	Runabout (Small Boat)	Truck	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Auger	Clamshell Dredge on Barge	Hydraulic Dredge on Barge
	Structure Type	Structure length, ft	Number of units	Diameter of units, inches	Number of units	Size and number of valves		120 hp	50 hp	100 hp	130 hp	120 hp	100 hp	50 hp	200 hp	300 hp	150 hp	300 hp
Initial Levee Repair	Ponds 1, 1A, 7, 7A, 8	-	18080	NA	NA	NA	2603.52	579	0	0	723	723	0	0	0	0	579	0
Monitoring- all	Includes replacement of monitoring equipment, as needed	-	50	NA	NA	NA	54750	0	36,500	18,250	0	0	0	0	0	0	0	0
POND 3																		
Napa River to Pond 3	Intake with fish screens	600	9	54	9	9 @ 54"	1782	329.4	0	0	419.4	14.4	405	180	180	0	253.8	0
Dutchman Slough to Pond 3	Intake with fish screens	300	3	48	3	3 @ 48"	351	50.4	0	0	89.4	3	61.2	24	24	0	99	0
Pond 3 to Napa River	Outfall with diffuser	1,100	4	52	NA	4 @ 52"	1052	198	0	0	196	0	214	128	128	0	188	0
PONDS 4/5/6/6A																		
Napa Slough to Pond 6A	Intake with fish screens	250	5	52	5	5 @ 52"	405	70	0	0	124	4.2	85	33.3	33.3	0	55	0
Pond 6A to Pond 6	Internal Levee Breach	100	4	NA	NA	NA	192	128	0	0	0	0	64	0	0	0	0	0
Pond 6 to Pond 5	Siphon	250	1	52	NA	1 @ 52"	127	22	0	0	46	0	30	0	16	0	13	0
Napa Slough to Pond 5	Intake with fish screens	500	7	54	7	7 @ 54"	1155	214	0	0	271.8	9.3	262.5	116.7	116.7	0	164.5	0
Pond 5 to Pond 4	Internal Levee Breach	100	4	NA	NA	NA	192	128	0	0	0	0	64	0	0	0	0	0
Pond 4 to Napa River	Outfall with diffuser	1,100	2	48	NA	2 @ 48"	526	99	0	0	98	0	107	64	64	0	94	0
PONDS 7/7A/8																		
Napa Slough to Pond 7A	Channel & Intake with fish screens	500	3	52	3	3 @ 52"	495	91.5	0	0	116.5	4	112.5	50	50	0	70.5	0
Pond 8 to Pond 8 Canal	Outlet	200	1	42	NA	1 @ 42"	640	8	0	53	144	0	213	0	107	107	8	0
Pond 8 Canal to Mixing Chamber	Siphon	350	1	42	NA	NA	127	22	0	0	46	0	30	0	16	0	13	0
Mixing Chamber with Inlets and Outlets	Mixing Chamber	NA	NA	NA	NA	1 @ 16", 4 @ 48"	410	0	0	80	226	0	80	0	24	0	0	0
Mix Chamber Outlet Canal to Napa Slough	Outfall with diffuser	300	1	42	NA	1 @ 42"	181.5	21	0	0	84	0	52.5	12	12	0	0	0
Valve Replacement	Replace all Pond 7/7A/8 Valves Once						80	0	0	40	0	0	20	0	20	0	0	0
TOTAL HOURS								18423	2585	758	1801	608	791	107	1537	0	0	0

TABLE 2
ESTIMATED CONSTRUCTION EQUIPMENT HOURS
Salinity Reduction Option 1B: Napa River Discharge with Controlled Levee Breaches

Location	BASE STRUCTURE				FISH SCREENS Number of units	KNIFE VALVES Size and number of valves	TOTAL HOURS FOR ITEM	Shallow Draft Tug	Runabout (Small Boat)	Truck	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Auger	Clamshell Dredge on Barge	Hydraulic Dredge on Barge
	Structure Type	Structure length, ft	Number of units	Diameter of units, inches				120 hp	50 hp	100 hp	130 hp	120 hp	100 hp	50 hp	200 hp	300 hp	150 hp	300 hp
Initial Levee Repair	Ponds 1, 1A, 7, 7A, 8	-	18080	NA	NA	NA	2603.52	579	0	0	723	723	0	0	0	0	579	0
Monitoring- all	Includes replacement of monitoring equipment, as needed	-	50	NA	NA	NA	54750	0	36,500	18,250	0	0	0	0	0	0	0	0
POND 3																		
Pond 3 to Napa River	External Levee Breach	100	1	NA	NA	NA	48	32	0	0	0	0	16	0	0	0	0	0
PONDS 4/5/6/6A																		
Napa Slough to Pond 6A	Intake with fish screens	250	5	52	5	5 @ 52"	405	70	0	0	124	4.2	85	33.3	33.3	0	55	0
Pond 6A to Pond 6	Internal Levee Breach	100	4	NA	NA	NA	192	128	0	0	0	0	64	0	0	0	0	0
Pond 6 to Pond 5	Siphon	250	1	52	NA	1 @ 52"	127	22	0	0	46	0	30	0	16	0	13	0
Napa Slough to Pond 5	Intake with fish screens	500	7	54	7	7 @ 54"	1155	214	0	0	271.8	9.3	262.5	116.7	116.7	0	164.5	0
Pond 5 to Pond 4	Internal Levee Breach	100	4	NA	NA	NA	192	128	0	0	0	0	64	0	0	0	0	0
Pond 4 to Napa River	Outfall with diffuser	1,100	2	48	NA	2 @ 48"	526	99	0	0	98	0	107	64	64	0	94	0
PONDS 7/7A/8																		
Napa Slough to Pond 7A	Channel & Intake with fish screens	500	3	52	3	3 @ 52"	486	84	0	0	149	5	102	40	40	0	66	0
Pond 8 to Pond 8 Canal	Outlet	200	1	42	NA	1 @ 42"	640	8	0	53	144	0	213	0	107	107	8	0
Pond 8 Canal to Mixing Chamber	Siphon	350	1	42	NA	NA	127	22	0	0	46	0	30	0	16	0	13	0
Mixing Chamber with Inlets and Outlets	Mixing Chamber	NA	NA	NA	NA	1 @ 16", 4 @ 48"	410	0	0	80	226	0	80	0	24	0	0	0
Mix Chamber Outlet Canal to Napa Slough	Outfall with diffuser	300	1	42	NA	1 @ 42"	181.5	21	0	0	84	0	52.5	12	12	0	0	0
Valve Replacement	Replace all Pond 7/7A/8 Valves Once						80	0	0	40	0	0	20	0	20	0	0	0
TOTAL HOURS								1406	36500	18423	1912	742	1126	266	449	107	992	0

TABLE 3
ESTIMATED CONSTRUCTION EQUIPMENT HOURS
Salinity Reduction Option 1C: Napa River Discharge with Controlled Pond Levee Breaches

Location	BASE STRUCTURE				FISH SCREENS	KNIFE VALVES	TOTAL HOURS FOR ITEM	Shallow Draft Tug	Runabout (Small Boat)	Truck	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Auger	Clamshell Dredge on Barge	Hydraulic Dredge on Barge
	Structure Type	Structure length, ft	Number of units	Diameter of units, inches	Number of units	Size and number of valves		120 hp	50 hp	100 hp	130 hp	120 hp	100 hp	50 hp	200 hp	300 hp	150 hp	300 hp
Initial Levee Repair	Ponds 1, 1A, 7, 7A, 8	-	18080	NA	NA	NA	2603.52	579	0	0	723	723	0	0	0	0	579	0
Monitoring- all	Includes replacement of monitoring equipment, as needed	-	50	NA	NA	NA	54750	0	36,500	18,250	0	0	0	0	0	0	0	0
POND 3								0	0	0	0	0	0	0	0	0	0	0
Pond 3 to Napa River	External Levee Breach	100	1	NA	NA	NA	48	32	0	0	0	0	16	0	0	0	0	0
PONDS 4/5/6/6A																		
Napa Slough to Pond 6A	Intake with fish screens	250	5	52	5	5 @ 52"	405	70	0	0	124	4.2	85	33.3	33.3	0	55	0
Pond 6A to Pond 6	Internal Levee Breach	100	4	NA	NA	NA	192	128	0	0	0	0	64	0	0	0	0	0
Pond 6 to Pond 5	Siphon	250	1	52	NA	1 @ 52"	127	22	0	0	46	0	30	0	16	0	13	0
Pond 5 to Pond 4	Internal Levee Breach	100	4	NA	NA	NA	192	128	0	0	0	0	64	0	0	0	0	0
Pond 4 to Napa River	Levee Breach	1,100	2	48	NA	2 @ 48"	48	32	0	0	0	0	16	0	0	0	0	0
PONDS 7/7A/8																		
Napa Slough to Pond 7A	Channel & Intake with fish screens	500	3	52	3	3 @ 52"	486	84	0	0	149	5	102	40	40	0	66	0
Pond 8 to Pond 8 Canal	Outlet	200	1	42	NA	1 @ 42"	640	8	0	53	144	0	213	0	107	107	8	0
Pond 8 Canal to Mixing Chamber	Siphon	350	1	42	NA	NA	127	22	0	0	46	0	30	0	16	0	13	0
Mixing Chamber with Inlets and Outlets	Mixing Chamber	NA	NA	NA	NA	1 @ 16", 4 @ 48"	410	0	0	80	226	0	80	0	24	0	0	0
Mix Chamber Outlet Canal to Napa Slough	Outfall with diffuser	300	1	42	NA	1 @ 42"	181.5	21	0	0	84	0	52.5	12	12	0	0	0
Valve Replacement	Replace all Pond 7/7A/8 Valves Once						80	0	0	40	0	0	20	0	20	0	0	0
TOTAL HOURS								1126	36500	18423	1542	732	773	85	268	107	734	0

**TABLE 4
ESTIMATED CONSTRUCTION EQUIPMENT HOURS
Salinity Reduction Option 2: San Pablo Bay Discharge**

Location	BASE STRUCTURE				FISH SCREENS	KNIFE VALVES	TOTAL HOURS FOR ITEM	Shallow Draft Tug	Runabout (Small Boat)	Truck	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Auger	Clamshell Dredge on Barge	Hydraulic Dredge on Barge
	Structure Type	Structure length, ft	Number of units	Diameter of units, inches	Number of units	Size and number of valves		120 hp	50 hp	100 hp	130 hp	120 hp	100 hp	50 hp	200 hp	300 hp	150 hp	300 hp
Initial Levee Repair	Ponds 1, 1A, 7, 7A, 8	-	18080	NA	NA	NA	2603.52	579	0	0	723	723	0	0	0	0	579	0
Monitoring- all	Includes replacement of monitoring equipment, as needed	-	50	NA	NA	NA	54750	0	36,500	18,250	0	0	0	0	0	0	0	0
PONDS 3/4/5																		
Napa Slough to Pond 5	Intake with fish screens	500	11	54	11	11 @ 54"	1815	335.5	0	0	427.2	14.7	412.5	183.3	183.3	0	258.5	0
Pond 5 to Pond 4	Internal Levee Breach	100	4	NA	NA	NA	192	128	0	0	0	0	64	0	0	0	0	0
Pond 3 to Pond 4	Siphon	350	1	48	NA	1 @ 48"	127	22	0	0	46	0	30	0	16	0	13	0
Napa River to Pond 3	Intake with fish screens	600	9	54	9	9 @ 54"	1782	329.4	0	0	419.4	14.4	405	180	180	0	253.8	0
Dutchman Slough to Pond 3	Intake with fish screens	300	3	48	3	3 @ 48"	291.6	50.4	0	0	89.4	3	61.2	24	24	0	39.6	0
Pond 3 to Napa River	Outfall with diffuser	1,100	2	52	NA	2 @ 52"	526	99	0	0	98	0	107	64	64	0	94	0
PONDS 7/7A/8																		
Napa Slough to Pond 7A	Channel & Intake with fish screens	500	7	54	7	7 @ 54"	1155	213.5	0	0	271.8	9.3	262.5	116.7	116.7	0	164.5	0
Pond 8 to Pond 8 Canal	Outlet	200	1	42	NA	1 @ 42"	640	8	0	53	144	0	213	0	107	107	8	0
Pond 8 Canal to Mixing Chamber	Siphon	350	1	42	NA	NA	127	22	0	0	46	0	30	0	16	0	13	0
Mixing Chamber with Inlets and Outlets	Mixing Chamber	NA	NA	NA	NA	1 @ 32", 4 @ 48"	410	0	0	80	226	0	80	0	24	0	0	0
Mixing Chamber Outlet Canal to Pond 6A	Siphon	350	1	52	NA	1 @ 52"	127	22	0	0	46	0	30	0	16	0	13	0
Valve Replacement	Replace all Pond 7/7A/8 Valves Once						80	0	0	40	0	0	20	0	20	0	0	0
PONDS 1/2/6/6A																		
Pond 6A to Pond 6	Internal Levee Breach	100	4	NA	NA	NA	192	128	0	0	0	0	64	0	0	0	0	0
Pond 6 to Pond 2	Siphon	300	2	54	NA	2 @ 54"	254	44	0	0	92	0	60	0	32	0	26	0
Pond 2 to Pond 1	Siphon	300	2	54	NA	2 @ 54"	254	44	0	0	92	0	60	0	32	0	26	0
Pond 1 to San Pablo Bay	Inlet/Outlet	200	1	72	NA	2 @ 72"	640	8	0	53	144	0	213	0	107	107	8	0
TOTAL HOURS								2032	36500	18476	2865	765	2112	568	938	214	1496	0

**TABLE 5
ESTIMATED CONSTRUCTION EQUIPMENT HOURS
Habitat Restoration Option 1**

COST ITEM	ESTIMATE BASIS			Construction or Operation?	TOTAL HOURS	EQUIPMENT TYPE													
	UNITS	UNIT COST (Note 1)	QUANTITY			Shallow Draft Tug	Runabout (Small Boat)	Truck	Truck	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Horizontal Drill Auger	Clamshell Dredge on Barge	Hydraulic Dredge on Barge
						120 hp	50 hp	100 hp	300 hp	130 hp	120 hp	115 hp	100 hp	100 hp	50 hp	200 hp	300 hp	150 hp	300 hp
Initial Levee Repair for 2, 6, & 6A	lineal feet	\$19	28,380	C	3860	908	0	0	0	1,135	1,135	0	0	0	0	0	681	0	
Levee Breaching for Habitat Restoration	no. of breaches	\$25,500	23	C	2737	1,357	161	161	0	0	0	0	552	0	0	0	506	0	
Ditch Blocks with Levee Lowering	no. of blocks	\$85,100	22	C	4,620	880	110	110	0	1,760	1,760	0	0	0	0	0	0	0	
Supplemental Levee Lowering	lineal feet	\$51	10,900	C	1,973	610	76	76	0	1,210	0	0	0	0	0	0	0	0	
Starter Channels with Berms	lineal feet	\$336	27,500	C	880	275	41	41	0	0	0	0	0	0	0	0	0	523	
Fill Area for Interim Mid-Marsh Replacement	per acre	\$49,300	-	C	0														
Recreational Features	LS	\$2,000,000	1 (Note 7)	C/O	2,178	0	0	0	1,742	0	0	392	44	0	0	0	0	0	
Recycled Water Pipeline Installation (includes PED, RE, S&A, and permitting)	LS	\$14,250,000	1	C	0														
Real Estate (incl. Administrative Costs)	LS	\$9,000,000	1	C	0														
Monitoring, all (includes replacement of monitoring equipment, as needed)	years	\$12,200,000	50	O	54,750	0	36,500	18,250	0	0	0	0	0	0	0	0	0	0	
Repair/Replacement of Water Control Structures (Knife Valves) (Note 5)	LS	\$2,447,855	12	O	96	48	0	0	0	0	0	0	24	0	24	0	0	0	
On-Going Levee Maintenance	lineal feet	\$19	357,700	O	26,828	8,943	0	0	0	17,885	0	0	0	0	0	0	0	0	
Other O&M (Note 6)	annual cost	\$75,000	50	O	73,000	0	36,500	36,500	0	0	0	0	0	0	0	0	0	0	
TOTAL HOURS BY EQUIPMENT					341,842	13,021	73,389	55,139	1,742	21,990	2,895	392	44	576	0	24	0	1,187	523

NOTES:

Decommissioning of some intakes and outfalls is required after desalination. It is assumed that the salvage value of the facilities will be equal to the cost of decommissioning; no added funds are included for decommissioning.

1. All unit costs include indirect costs at 15%, mobilization at 11%, and contractor's overhead and profit at 17% -- a total
2. Initial Levee Maintenance is required for Ponds 1, 1A, 2, 6, 6A, 7, 7A, and 8
3. Assumes 2 42-inch diameter outlets with knife valves (one functions a combined intake and outfall)
4. Assumes 50% of the cost of the Pond 4 outfall that serves the combined Pond 4/5
5. Repair/replacement of water control structures and on-going levee maintenance is required for Ponds 1, 1A, 2, 6, 6A, 7, 7A, and 8
6. Other O&M includes operating managed ponds, repair and maintenance of recreational facilities, etc.
7. Based on an assumed paved area of 5 acres, plus incidental structures

**TABLE 6
ESTIMATED CONSTRUCTION EQUIPMENT HOURS
Habitat Restoration Option 2**

COST ITEM	ESTIMATE BASIS			Construction or Operation?	TOTAL HOURS	EQUIPMENT TYPE													
	UNITS	UNIT COST (Note 1)	QUANTITY			Shallow Draft Tug	Runabout (Small Boat)	Truck	Truck	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Horizontal Drill Auger	Clamshell Dredge on Barge	Hydraulic Dredge on Barge
						120 hp	50 hp	100 hp	300 hp	130 hp	120 hp	115 hp	100 hp	100 hp	50 hp	200 hp	300 hp	150 hp	300 hp
Levee Breaching for Habitat Restoration	no. of breaches	\$25,500	26	C	3094	1,534	182	182	0	0	0	0	0	624	0	0	0	572	0
Ditch Blocks with Levee Lowering	no. of blocks	\$85,100	23	C	4,830	920	115	115	0	1,840	1,840	0	0	0	0	0	0	0	0
Supplemental Levee Lowering	lineal feet	\$51	14,900	C	2,697	834	104	104	0	1,654	0	0	0	0	0	0	0	0	0
Starter Channels with Berms	lineal feet	\$336	40,600	C	1,299	406	61	61	0	0	0	0	0	0	0	0	0	0	771
Fill Area for Interim Mid-Marsh Replacement	per acre	\$49,300	-	C	0														
Recreational Features	LS	\$2,000,000	1	C	2,178	0	0	0	1,742	0	0	392	44	0	0	0	0	0	0
Recycled Water Pipeline Installation (includes PED, RE, S&A, and permitting)	LS	\$14,250,000	1	C	0														
Real Estate (incl. Administrative Costs)	LS	\$9,000,000	1	C	0														
Monitoring, all (includes replacement of monitoring equipment, as needed)	years	\$12,200,000	50	O	54,750	0	36,500	18,250	0	0	0	0	0	0	0	0	0	0	0
Repair/Replacement of Water Control Structures (Knife Valves) (Note 5)	per valve	\$0	6	O	48	24	0	0	0	0	0	0	0	12	0	12	0	0	0
On-Going Levee Maintenance	lineal feet	\$19	245,796	O	18,435	6,145	0	0	0	12,290	0	0	0	0	0	0	0	0	0
Other O&M (Note 6)	years	\$75,000	50	O	73,000	0	36,500	36,500	0	0	0	0	0	0	0	0	0	0	0
TOTAL HOURS BY EQUIPMENT					320,662	9,863	73,462	55,212	1,742	15,784	1,840	392	44	636	0	12	0	572	771

NOTES:

Decommissioning of some intakes and outfalls is required after desalination. It is assumed that the salvage value of the facilities will be equal to the cost of decommissioning; no added funds are included for decommissioning.

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2. Initial Levee Maintenance is require for Ponds 1, 1A, 2, 6, 6A, 7, 7A, and 8
3. Assumes 2 42-inch diameter outlets iwht knife valves (one functions a combined intake and outfall)
4. Assumes 50% of the cost of the Pond 4 outfall that serves the combined Pond 4/5
5. Repair/replacement of water control structures and on-going levee maintenance is required for Ponds 1, 1A, 2, 6, 6A, 7, 7A, and 8
6. Other O&M includes labor associated with operating managed ponds, repair and maintenance of recreational facilities, etc.

**TABLE 7
ESTIMATED CONSTRUCTION EQUIPMENT HOURS
Habitat Restoration Option 3**

COST ITEM	ESTIMATE BASIS			Construction or Operation?	TOTAL HOURS	EQUIPMENT TYPE													
	UNITS	UNIT COST (Note 1)	QUANTITY			Shallow Draft Tug	Runabout (Small Boat)	Truck	Truck	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Horizontal Drill Auger	Clamshell Dredge on Barge	Hydraulic Dredge on Barge
						120 hp	50 hp	100 hp	300 hp	130 hp	120 hp	115 hp	100 hp	100 hp	50 hp	200 hp	300 hp	150 hp	300 hp
Initial Levee Repair for 2, 5, 6, & 6A	lineal feet	\$19	29,590	C	4,024	947	0	0	0	1,184	1,184	0	0	0	0	0	0	710	0
Second Pipeline Under Highway 37	LS	\$0	-	C															
Replace Pond 1 Pump Station and Pond 1 to 2 Siphon	LS	\$0	1	C															
Replace Pond 2 Water Control Structures (Note 3)	LS	\$0	1	C															
Pond 2 Internal Levee	LS	\$4,606,000	-	C															
Breach Pond 3	LS	\$0	1	C															
Pond 4/5 Water Control Structures and Internal Levee Breaches	LS	\$0	1	C															
Pond 5 Outfall (Note 4)	number of intakes	\$0	2	C	390	67	0	0	0	93	3	0	0	90	40	40	0	56	0
Pond 6 Water Control Structures and Internal Levee Breaches (incl. Pond 5 to 6 Siphon)	LS	\$0	1	C	0														
Napa Slough Siphon	LS	\$0	-	C	0														
Pond 6 to Pond 2 Siphon	LS	\$0	1	C	0														
Ponds 7, 7A, and 8 Water Control Structures and Mixing Chamber	LS	\$0	1	C	0														
Discharge from Mixing Chamber to Napa Slough	LS	\$0	1	C	0														
Repair Pond 4/5 Levee	lineal feet		400	C	54	13	0	0	0	16	16	0	0	0	0	0	0	10	0
Levee Breaching for Habitat Restoration	no. of breaches	\$25,500	16	C	1,904	944	112	112	0	0	0	0	384	0	0	0	0	352	0
Ditch Blocks with Levee Lowering	no. of blocks	\$85,100	16	C	3,360	640	80	80	0	1,280	1,280	0	0	0	0	0	0	0	0
Supplemental Levee Lowering	lineal feet	\$51	7,700	C	1,394	431	54	54	0	855	0	0	0	0	0	0	0	0	0
Starter Channels with Berms	lineal feet	\$336	19,600	C	627	196	29	29	0	0	0	0	0	0	0	0	0	0	372
Fill Area for Interim Mid-Marsh Replacement	per acre	\$49,300	-	C	0														
Recreational Features	LS	\$2,000,000	1	C	2,178	0	0	0	1,742	0	0	392	44	0	0	0	0	0	0
Recycled Water Pipeline Installation (includes PED, RE, S&A, and permitting)	LS	\$14,250,000	1	C	0														
Real Estate (incl. Administrative Costs)	LS	\$9,000,000	1	C	0														
Monitoring, all (includes replacement of monitoring equipment, as needed)	years	\$12,200,000	50	O	54,750	0	36,500	18,250	0	0	0	0	0	0	0	0	0	0	0
Repair/Replacement of Water Control Structures (Knife Valves) (Note 5)	per valve	\$0	21	O	168	84	0	0	0	0	0	0	0	42	0	42	0	0	0
On-Going Levee Maintenance	lineal feet	\$19	417,113	O	31,283	10,428	0	0	0	20,856	0	0	0	0	0	0	0	0	0
Other O&M (Note 6)	years	\$75,000	50	O	73,000	0	36,500	36,500	0	0	0	0	0	0	0	0	0	0	0
TOTAL					173,133	13,750	73,275	55,025	1,742	24,283	2,483	392	44	516	40	82	0	1,128	372

- NOTES:
Decommissioning of some intakes and outfalls is required after desalination. It is assumed that the salvage value of the facilities will be equal to the cost of decommissioning; no added funds are included for decommissioning.
- All unit costs include indirect costs at 15%, mobilization at 11%, and contractor's overhead and profit at 17% -- a totl 1
 - Initial Levee Maintenance is require for Ponds 1, 1A, 2, 6, 6A, 7, 7A, and 8
 - Assumes 2 42-inch diameter outlets iwht knife valves (one functions a combined intake and outfall)
 - Assumes 50% of the cost of the Pond 4 outfall that serves the combined Pond 4/5
 - Other O&M includes labor associated with operating managed ponds, repair and maintenance of recreational facilities, etc.

TABLE 8
ESTIMATED CONSTRUCTION EQUIPMENT HOURS
Habitat Restoration Option 4

COST ITEM	ESTIMATE BASIS			Construction or Operation?	TOTAL HOURS	EQUIPMENT TYPE													
	UNITS	UNIT COST (Note 1)	QUANTITY			Shallow Draft Tug	Runabout (Small Boat)	Truck	Truck	Hydraulic Excavator	Front End Loader	Scrapper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Horizontal Drill Auger	Clamshell Dredge on Barge	Hydraulic Dredge on Barge
						120 hp	50 hp	100 hp	300 hp	130 hp	120 hp	115 hp	100 hp	100 hp	50 hp	200 hp	300 hp	150 hp	300 hp
Initial Levee Repair for 2, 6, & 6A	lineal feet	\$19	28,380	C	3860	908	0	0	0	1,135	1,135	0	0	0	0	0	681	0	
Second Pipeline Under Highway 37	LS	\$0	-	C															
Replace Pond 1 Pump Station and Pond 1 to 2 Siphon	LS	\$0	1	C															
Replace Pond 2 Water Control Structures (Note 3)	LS	\$0	1	C															
Pond 2 Internal Levee Breach Pond 3	LS	\$4,606,000	-	C															
Pond 4/5 Water Control Structures and Internal Levee Breaches	LS	\$0	1	C															
Pond 5 Outfall (Note 4)	LS	\$0	-	C															
Pond 6 Water Control Structures and Internal Levee Breaches (incl. Pond 5 to 6 Siphon)	LS	\$0	1	C															
Napa Slough Siphon	LS	\$0	-	C															
Pond 6 to Pond 2 Siphon	LS	\$0	1	C															
Ponds 7, 7A, and 8 Water Control Structures and Mixing Chamber	LS	\$0	1	C															
Discharge from Mixing Chamber to Napa Slough	LS	\$0	1	C															
Levee Breaching for Habitat Restoration	no. of breaches	\$25,500	22	C	2,618	1,298	154	154	0	0	0	0	0	528	0	0	0	484	0
Ditch Blocks with Levee Lowering	no. of blocks	\$85,100	22	C	4,620	880	110	110	0	1,760	1,760	0	0	0	0	0	0	0	0
Supplemental Levee Lowering	lineal feet	\$51	10,900	C	1,973	610	76	76	0	1,210	0	0	0	0	0	0	0	0	0
Starter Channels with Berms	lineal feet	\$336	55,300	C	1,770	553	83	83	0	0	0	0	0	0	0	0	0	0	1,051
Fill Area for Interim Mid-Marsh Replacement	per acre	\$49,300	100	C	4,800	1,600	0	0	0	0	0	0	0	0	0	0	0	0	3,200
Recreational Features	LS	\$2,000,000	1	C	2,178	0	0	0	1,742	0	0	392	44	0	0	0	0	0	0
Recycled Water Pipeline Installation (includes PED, RE, S&A, and permitting)	LS	\$14,250,000	1	C	0														
Real Estate (incl. Administrative Costs)	LS	\$9,000,000	1	C	0														
Monitoring, all (includes replacement of monitoring equipment, as needed)	years	\$12,200,000	50	O	54,750	0	36,500	18,250	0	0	0	0	0	0	0	0	0	0	0
Repair/Replacement of Water Control Structures (Knife Valves) (Note 5)	per valve	\$0	12	O	96	48	0	0	0	0	0	0	24	0	24	0	0	0	
On-Going Levee Maintenance	lineal feet	\$19	357,700	O	26,828	8,943	0	0	0	17,885	0	0	0	0	0	0	0	0	
Other O&M (Note 6)	years	\$75,000	50	O	73,000	0	36,500	36,500	0	0	0	0	0	0	0	0	0	0	
TOTAL					352,983	14,840	73,423	55,173	1,742	21,990	2,895	392	44	552	0	24	0	1,165	4,251

- NOTES:
- Decommissioning of some intakes and outfalls is required after desalination. It is assumed that the salvage value of the facilities will be equal to the cost of decommissioning; no added funds are included for decommissioning.
 - All unit costs include indirect costs at 15%, mobilization at 11%, and contractor's overhead and profit at 17% -- a total of 43%
 - Initial Levee Maintenance is required for Ponds 1, 1A, 2, 6, 6A, 7, 7A, and 8
 - Assumes 2 42-inch diameter outlets with knife valves (one functions a combined intake and outfall)
 - Assumes 50% of the cost of the Pond 4 outfall that serves the combined Pond 4/5
 - Repair/replacement of water control structures and on-going levee maintenance is required for Ponds 1, 1A, 2, 6, 6A, 7, 7A, and 8
 - Other O&M includes labor associated with operating managed ponds, repair and maintenance of recreational facilities, etc.

**TABLE 9
INITIAL LEVEE REPAIR AND MAINTENANCE REQUIREMENTS BY ALTERNATIVE (FT.)**

Pond No.	Levee Length (ft)	Initial Repair (lineal ft)	Alt 1		Alt 6		Alt 7		Alt 8		Alt 9		Alt 17	
			Initial	Repair	Initial	Repair	Initial	Repair	Initial	Repair	Initial	Repair	Initial	Repair
1	17,750	10,650	-	-	10,650	17,750	10,650	17,750	10,650	17,750	10,650	17,750	10,650	17,750
1A	25,250	3,790	-	-	3,790	25,250	3,790	25,250	3,790	25,250	3,790	25,250	3,790	25,250
2	30,250	24,200	-	-	24,200	30,250	-	-	24,200	30,250	24,200	30,250	24,200	30,250
2W	19,325	6,050	-	-	-	-	6,050	19,325	-	-	-	-	-	-
3	41,250	12,380	-	-	-	-	-	-	-	-	-	-	-	-
4	33,750	-	-	-	-	-	-	-	-	-	-	-	-	-
5	24,250	1,210	-	-	-	-	-	-	1,210	24,250	-	-	-	-
6	18,500	930	-	-	930	18,500	-	-	930	18,500	930	18,500	930	18,500
6A	16,250	3,250	-	-	3,250	16,250	-	-	3,250	16,250	3,250	16,250	3,250	16,250
7	12,375	1,860	-	-	1,860	12,375	1,860	12,375	1,860	12,375	1,860	12,375	1,860	12,375
7A	15,625	780	-	-	780	15,625	780	15,625	780	15,625	780	15,625	780	15,625
8	10,000	1,000	-	-	1,000	10,000	1,000	10,000	1,000	10,000	1,000	10,000	1,000	10,000
TOTAL INITIAL REPAIRS FOR ALT			-	-	46,460	-	24,130	-	47,670	-	46,460	-	46,460	-
ANNUAL MAINT. FOR ALT			-	-	-	7,300	-	5,016	-	8,513	-	7,300	-	7,300
TOTAL LEVEE MAINT. FOR ALT			-	-	-	357,700	-	245,796	-	417,113	-	357,700	-	357,700

Note: Given the 50-year project life, all alternatives require 49 years of levee maintenance

**AIR APPENDIX TABLE 10
ESTIMATED NO_x AIR EMISSIONS
Salinity Reduction Option 1A**

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
NO_x Emission Factor (g/hp-hr.)		7.923	7.923	7.923	9.049	8.726	8.936	9.403	9.049	8.714	1.363	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	99	0	89	3	61	24	24	0	0	351
Pond 3 to Napa River -Outfall with diffuser	C	198	188	0	196	0	214	128	128	0	0	1,052
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5 - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa Slough to Pond 5- intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	92	71	0	117	4	113	50	50	0	0	495
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
Total Construction Tons:		1.56	0.81	6.38	1.34	0.50	1.09	0.13	0.57	0.19	1.71	0.00
TOTAL PROJECT TONS:		1.56	0.8	6.4	1.3	0.5	1.1	0.1	0.6	0.2	1.7	14.3

**AIR APPENDIX TABLE 11
ESTIMATED NO_x AIR EMISSIONS
Salinity Reduction Option 1B**

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
NO_x Emission Factor (g/hp-hr.)		7.923	7.923	7.923	9.049	8.726	8.936	9.403	9.049	8.714	1.363	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Pond 3 to Napa River -External Levee Breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa Slough to Pond 5- intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>
Total Construction Hours:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
Total Construction Tons:		<i>0.66</i>	<i>0.22</i>	<i>6.38</i>	<i>0.62</i>	<i>0.01</i>	<i>0.68</i>	<i>0.06</i>	<i>0.32</i>	<i>0.19</i>	<i>1.71</i>	<i>0.00</i>
TOTAL PROJECT TONS:		0.66	0.2	6.4	0.6	0.0	0.7	0.1	0.3	0.2	1.7	10.8

AIR APPENDIX TABLE 12
ESTIMATED NO_x AIR EMISSIONS
Salinity Reduction Option 1C

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
NO_x Emission Factor (g/hp-hr.)		7.923	7.923	7.923	9.049	8.726	8.936	9.403	9.049	8.714	1.363	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Pond 3 to Napa River -External Levee Breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- levee breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
Total Construction Tons:		0.44	0.08	6.38	0.42	0.01	0.47	0.02	0.19	0.19	1.71	0.00
TOTAL PROJECT TONS:		0.44	0.1	6.4	0.4	0.0	0.5	0.0	0.2	0.2	1.7	9.9

**AIR APPENDIX TABLE 13
ESTIMATED NO_x AIR EMISSIONS
Salinity Reduction Option 2**

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment												
Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
NO_x Emission Factor (g/hp-hr.)		7.923	7.923	7.923	9.049	8.726	8.936	9.403	9.049	8.714	1.363	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa Slough to Pond 5- Intake with fish screens	C	336	259	0	427	15	413	183	183	0	0	1,815
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 3 to Pond 4 -siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	40	0	89	3	61	24	24	0	0	292
Pond 3 to Napa River -Outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,155
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Pond 6A- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 2- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 2 to Pond 1- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 1 to San Pablo Bay- inlet/outlet	C	8	8	0	144	0	213	0	107	107	53	640
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
Total Construction Tons:		1.16	0.48	6.38	1.11	0.03	1.28	0.12	0.67	0.39	1.71	0.00
TOTAL PROJECT TONS:		1.16	0.5	6.4	1.1	0.0	1.3	0.1	0.7	0.4	1.7	13.3

AIR APPENDIX TABLE 14
ESTIMATED NO_x AIR EMISSIONS
Habitat Restoration Option 1

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
NO_x Emission Factor (g/hp-hr.)		7.923	7.923	7.923	7.923	9.049	8.726	8.811	8.845	8.936	9.049	1.363	0.591	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,357	506	0	161	0	0	0	0	552	0	161	0	2,737
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	275	0	523	41	0	0	0	0	0	0	41	0	880
Recreational Features	C/O	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		13,021	1,187	523	73,388	21,990	2,895	392	44	576	24	55,138	1,742	170,920
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	196	22	24	24	54,750	871	155,763
Total Operational Tons:		7.16	0.00	0.00	12.75	9.28	0.00	0.11	0.02	0.01	0.02	5.08	0.08	0.00
Total Construction Hours:		4,030	1,187	523	388	4,105	2,895	196	22	552	0	388	871	15,157
Total Construction Tons:		3.21	0.62	0.55	0.07	2.13	1.89	0.11	0.02	0.34	0.00	0.04	0.08	0.00
TOTAL PROJECT TONS:		10.37	0.6	0.5	12.8	11.4	1.9	0.2	0.0	0.3	0.0	5.1	0.2	43.5

AIR APPENDIX TABLE 15
ESTIMATED NO_x AIR EMISSIONS
Habitat Restoration Option 2

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
NO_x Emission Factor (g/hp-hr.)		7.923	7.923	7.923	7.923	9.049	8.726	8.811	8.845	8.936	9.049	1.363	0.591	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Levee Breaching for Habitat Restoration	C	1,534	572	0	182	0	0	0	0	624	0	182	0	3,094
Ditch Blocks with Levee Lowering	C	920	0	0	115	1,840	1,840	0	0	0	0	115	0	4,830
Supplemental Levee Lowering	C	834	0	0	104	1,654	0	0	0	0	0	104	0	2,696
Starter Channels with Berms	C	406	0	771	61	0	0	0	0	0	0	61	0	1,299
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	24	0	0	0	0	0	0	0	12	12	0	0	48
On-Going Levee Maintenance	O	6,145	0	0	0	12,290	0	0	0	0	0	0	0	18,435
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		9,863	572	771	73,462	15,784	1,840	392	44	636	12	55,212	1,742	160,330
TOTAL Operational Hours:		6,169	0	0	73,000	12,290	0	0	0	12	12	54,750	0	146,233
Total Operational Tons:		4.91	0.00	0.00	12.75	6.37	0.00	0.00	0.00	0.01	0.01	5.08	0.00	0.00
Total Construction Hours:		3,694	572	771	462	3,494	1,840	392	44	624	0	462	1,742	14,097
Total Construction Tons:		2.94	0.30	0.81	0.08	1.81	1.20	0.22	0.03	0.38	0.00	0.04	0.16	0.00
TOTAL PROJECT TONS:		7.86	0.3	0.8	12.8	8.2	1.2	0.2	0.0	0.4	0.0	5.1	0.2	37.1

AIR APPENDIX TABLE 16
ESTIMATED NOx AIR EMISSIONS
Habitat Restoration Option 3

Equipment	EQUIPMENT TYPE														TOTAL HOURS
	Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Pickup Truck	Dump Truck		
Load Factor	0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.62	0.4300	0.57	0.57		
Operating Factor	0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333		
Horsepower	120	150	300	50	130	120	115	151	100	92	200	130	300		
NOx Emission Factor (g/hp-hr.)	7.923	7.923	7.923	7.923	9.049	8.726	8.811	8.845	8.936	9.403	9.049	1.363	0.591		
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	
Initial Levee Repair for Ponds 2, 5, 6, & 6A	C	947	710	0	0	1,184	1,184	0	0	0	0	0	0	0	4,025
Pond 5 Outfall	C	67	56	0	0	93	3	0	0	90	40	40	0	0	389
Repair Pond 4/5 Levee	C	13	10	0	0	16	16	0	0	0	0	0	0	0	55
Levee Breaching for Habitat Restoration	C	944	352	0	112	0	0	0	0	384	0	0	112	0	1,904
Ditch Blocks with Levee Lowering	C	640	0	0	80	1,280	1,280	0	0	0	0	80	0	0	3,360
Supplemental Levee Lowering	C	431	0	0	54	855	0	0	0	0	0	54	0	0	1,394
Starter Channels with Berms	C	196	0	372	29	0	0	0	0	0	0	29	0	0	626
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	84	0	0	0	0	0	0	0	42	0	42	0	0	168
On-Going Levee Maintenance	O	10,428	0	0	0	20,856	0	0	0	0	0	0	0	0	31,284
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	0	73,000
TOTAL PROJECT HOURS:		13,750	1,128	372	73,275	24,284	2,483	392	44	516	40	82	55,025	1,742	173,133
TOTAL Operational Hours:		10,512	0	0	73,000	20,856	0	0	0	42	0	42	54,750	0	159,202
Total Operational Tons:		8.37	0.00	0.00	12.75	10.82	0.00	0.00	0.00	0.03	0.00	0.03	5.08	0.00	0.00
Total Construction Hours:		3,238	1,128	372	275	3,428	2,483	392	44	474	40	40	275	1,742	13,931
Total Construction Tons:		2.58	0.59	0.39	0.05	1.78	1.62	0.22	0.03	0.29	0.01	0.03	0.03	0.16	0.00
TOTAL PROJECT TONS:		10.95	0.6	0.4	12.8	12.6	1.6	0.2	0.0	0.3	0.0	0.1	5.1	0.2	44.8

AIR APPENDIX TABLE 17
ESTIMATED NO_x AIR EMISSIONS
Habitat Restoration Option 4

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
NO_x Emission Factor (g/hp-hr.)		7.923	7.923	7.923	7.923	9.049	8.726	8.811	8.845	8.936	9.049	1.363	0.591	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,298	484	0	154	0	0	0	0	528	0	154	0	2,618
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	553	0	1,051	83	0	0	0	0	0	0	83	0	1,770
Fill Area for Interim Mid-Marsh Replacement	C	1,600	0	3,200	0	0	0	0	0	0	0	0	0	4,800
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		14,840	1,165	4,251	73,423	21,990	2,895	392	44	552	24	55,173	1,742	176,491
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	0	0	24	24	54,750	0	154,674
Total Operational Tons:		7.16	0.00	0.00	12.75	9.28	0.00	0.00	0.00	0.01	0.02	5.08	0.00	0.00
Total Construction Hours:		5,849	1,165	4,251	423	4,105	2,895	392	44	528	0	423	1,742	21,817
Total Construction Tons:		4.66	0.61	4.46	0.07	2.13	1.89	0.22	0.03	0.32	0.00	0.04	0.16	0.00
TOTAL PROJECT TONS:		11.82	0.6	4.5	12.8	11.4	1.9	0.2	0.0	0.3	0.0	5.1	0.2	48.9

**AIR APPENDIX TABLE 18
ESTIMATED ROG AIR EMISSIONS
Salinity Reduction Option 1A**

Equipment		EQUIPMENT TYPE														TOTAL HOURS
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	Dump Truck	
Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.62	0.4300	0.75	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	92	200	300	130	300	
ROG Emission Factor (g/hp-hr.)		0.070	0.070	0.070	0.070	0.826	0.773	0.787	0.792	0.776	1.138	0.826	0.775	0.272	0.118	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	0	723	723	0	0	0	0	0	0	0	0	2,604
Napa River to Pond 3- Intake with fish screens	C	329	254	0	0	419	14	0	0	405	180	180	0	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	99	0	0	89	3	0	0	61	24	24	0	0	0	351
Pond 3 to Napa River -Outfall with diffuser	C	198	188	0	0	196	0	0	0	214	128	128	0	0	0	1,052
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	0	124	4	0	0	85	33	33	0	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	0	0	0	64	0	0	0	0	0	192
Pond 6 to Pond 5 - siphon	C	22	13	0	0	46	0	0	0	30	0	16	0	0	0	127
Napa Slough to Pond 5- intake with fish screens	C	214	165	0	0	272	9	0	0	263	117	117	0	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	0	0	0	64	0	0	0	0	0	192
Pond 4 to Napa River- outfall with diffuser	C	99	94	0	0	98	0	0	0	107	64	64	0	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	92	71	0	0	117	4	0	0	113	50	50	0	0	0	495
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	0	144	0	0	0	213	0	107	107	53	0	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	0	46	0	0	0	30	0	16	0	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	0	226	0	0	0	80	0	24	0	80	0	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	0	84	0	0	0	53	12	12	0	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	0	0	0	20	0	20	0	40	0	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	0	36,500	0	0	0	0	0	0	0	0	18,250	0	54,750
TOTAL PROJECT HOURS:		1,960	1,538	0	36,500	2,584	758	0	0	1,801	608	791	107	18,423	0	65,070
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,960	1,538	0	36,500	2,584	758	0	0	1,801	608	791	107	18,423	0	65,070
Total Construction Tons:		0.01	0.01	0.00	0.06	0.12	0.04	0.00	0.00	0.09	0.02	0.05	0.02	0.34	0.00	0.00
TOTAL PROJECT TONS:		0.01	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.3	0.0	0.8

**AIR APPENDIX TABLE 19
ESTIMATED ROG AIR EMISSIONS
Salinity Reduction Option 1B**

Equipment	EQUIPMENT TYPE										TOTAL HOURS	
	Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck		
Load Factor	0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57		
Operating Factor	0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333		
Horsepower	120	150	50	130	120	100	92	200	300	130		
ROG Emission Factor (g/hp-hr.)	0.070	0.070	0.070	0.826	0.773	0.776	1.138	0.826	0.775	0.272		
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Pond 3 to Napa River -External Levee Breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa Slough to Pond 5- intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
Total Construction Tons:		0.01	0.00	0.06	0.06	0.00	0.06	0.01	0.03	0.02	0.34	0.00
TOTAL PROJECT TONS:		0.01	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.3	0.6

**AIR APPENDIX TABLE 21
ESTIMATED ROG AIR EMISSIONS
Salinity Reduction Option 2**

Equipment		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
ROG Emission Factor (g/hp-hr.)		0.070	0.070	0.070	0.826	0.773	0.776	1.138	0.826	0.775	0.272	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa Slough to Pond 5- Intake with fish screens	C	336	259	0	427	15	413	183	183	0	0	1,815
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 3 to Pond 4 -siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	40	0	89	3	61	24	24	0	0	292
Pond 3 to Napa River -Outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,155
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Pond 6A- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 2- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 2 to Pond 1- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 1 to San Pablo Bay- inlet/outlet	C	8	8	0	144	0	213	0	107	107	53	640
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
Total Construction Tons:		0.01	0.00	0.06	0.10	0.00	0.11	0.01	0.06	0.03	0.34	0.00
TOTAL PROJECT TONS:		0.01	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.3	0.7

AIR APPENDIX TABLE 22
ESTIMATED ROG AIR EMISSIONS
Habitat Restoration Option 1

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
ROG Emission Factor (g/hp-hr.)		0.070	0.070	0.070	0.070	0.826	0.773	0.787	0.792	0.776	0.826	0.272	0.118	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,357	506	0	161	0	0	0	0	552	0	161	0	2,737
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	275	0	523	41	0	0	0	0	0	0	41	0	880
Recreational Features	C/O	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		13,021	1,187	523	73,388	21,990	2,895	392	44	576	24	55,138	1,742	170,920
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	196	22	24	24	54,750	871	155,763
Total Operational Tons:		0.06	0.00	0.00	0.11	0.85	0.00	0.01	0.00	0.00	0.00	1.01	0.02	0.00
Total Construction Hours:		4,030	1,187	523	388	4,105	2,895	196	22	552	0	388	871	15,157
Total Construction Tons:		0.03	0.01	0.00	0.00	0.19	0.17	0.01	0.00	0.03	0.00	0.01	0.02	0.00
TOTAL PROJECT TONS:		0.09	0.01	0.00	0.11	1.04	0.17	0.02	0.00	0.03	0.00	1.02	0.03	2.5

AIR APPENDIX TABLE 23
ESTIMATED ROG AIR EMISSIONS
Habitat Restoration Option 2

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
ROG Emission Factor (g/hp-hr.)		0.070	0.070	0.070	0.070	0.826	0.773	0.787	0.792	0.776	0.826	0.272	0.118	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	
Levee Breaching for Habitat Restoration	C	1,534	572	0	182	0	0	0	0	624	0	182	0	3,094
Ditch Blocks with Levee Lowering	C	920	0	0	115	1,840	1,840	0	0	0	0	115	0	4,830
Supplemental Levee Lowering	C	834	0	0	104	1,654	0	0	0	0	0	104	0	2,696
Starter Channels with Berms	C	406	0	771	61	0	0	0	0	0	0	61	0	1,299
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	24	0	0	0	0	0	0	0	12	12	0	0	48
On-Going Levee Maintenance	O	6,145	0	0	0	12,290	0	0	0	0	0	0	0	18,435
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		9,863	572	771	73,462	15,784	1,840	392	44	636	12	55,212	1,742	160,330
TOTAL Operational Hours:		6,169	0	0	73,000	12,290	0	0	0	12	12	54,750	0	146,233
Total Operational Tons:		0.04	0.00	0.00	0.11	0.58	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00
Total Construction Hours:		3,694	572	771	462	3,494	1,840	392	44	624	0	462	1,742	14,097
Total Construction Tons:		0.03	0.00	0.01	0.00	0.17	0.11	0.02	0.00	0.03	0.00	0.01	0.03	0.00
TOTAL PROJECT TONS:		0.07	0.00	0.01	0.11	0.75	0.11	0.02	0.00	0.03	0.00	1.02	0.03	2.2

**AIR APPENDIX TABLE 24
ESTIMATED ROG AIR EMISSIONS
Habitat Restoration Option 3**

		EQUIPMENT TYPE												TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.62	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	92	200	130	300	
ROG Emission Factor (g/hp-hr.)		0.070	0.070	0.070	0.070	0.826	0.773	0.787	0.792	0.776	1.138	0.826	0.272	0.118	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 5, 6, & 6A	C	947	710	0	0	1,184	1,184	0	0	0	0	0	0	0	4,025
Pond 5 Outfall	C	67	56	0	0	93	3	0	0	90	40	40	0	0	389
Repair Pond 4/5 Levee	C	13	10	0	0	16	16	0	0	0	0	0	0	0	55
Levee Breaching for Habitat Restoration	C	944	352	0	112	0	0	0	0	384	0	0	112	0	1,904
Ditch Blocks with Levee Lowering	C	640	0	0	80	1,280	1,280	0	0	0	0	0	80	0	3,360
Supplemental Levee Lowering	C	431	0	0	54	855	0	0	0	0	0	0	54	0	1,394
Starter Channels with Berms	C	196	0	372	29	0	0	0	0	0	0	0	29	0	626
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	84	0	0	0	0	0	0	0	42	0	42	0	0	168
On-Going Levee Maintenance	O	10,428	0	0	0	20,856	0	0	0	0	0	0	0	0	31,284
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		13,750	1,128	372	73,275	24,284	2,483	392	44	516	40	82	55,025	1,742	173,133
TOTAL Operational Hours:		10,512	0	0	73,000	20,856	0	0	0	42	0	42	54,750	0	159,202
Total Operational Tons:		0.07	0.00	0.00	0.11	0.99	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00
Total Construction Hours:		3,238	1,128	372	275	3,428	2,483	392	44	474	40	40	275	1,742	13,931
Total Construction Tons:		0.02	0.01	0.00	0.00	0.16	0.14	0.02	0.00	0.03	0.00	0.00	0.01	0.03	0.00
TOTAL PROJECT TONS:		0.10	0.01	0.00	0.11	1.15	0.14	0.02	0.00	0.03	0.00	0.01	1.02	0.03	2.6

**AIR APPENDIX TABLE 25
ESTIMATED ROG AIR EMISSIONS
Habitat Restoration Option 4**

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
ROG Emission Factor (g/hp-hr.)		0.070	0.070	0.070	0.070	0.826	0.773	0.787	0.792	0.776	0.826	0.272	0.118	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,298	484	0	154	0	0	0	0	528	0	154	0	2,618
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	553	0	1,051	83	0	0	0	0	0	0	83	0	1,770
Fill Area for Interim Mid-Marsh Replacement	C	1,600	0	3,200	0	0	0	0	0	0	0	0	0	4,800
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		14,840	1,165	4,251	73,423	21,990	2,895	392	44	552	24	55,173	1,742	176,491
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	0	0	24	24	54,750	0	154,674
Total Operational Tons:		0.06	0.00	0.00	0.11	0.85	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00
Total Construction Hours:		5,849	1,165	4,251	423	4,105	2,895	392	44	528	0	423	1,742	21,817
Total Construction Tons:		0.04	0.01	0.04	0.00	0.19	0.17	0.02	0.00	0.03	0.00	0.01	0.03	0.00
TOTAL PROJECT TONS:		0.10	0.01	0.04	0.11	1.04	0.17	0.02	0.00	0.03	0.00	1.02	0.03	2.6

**AIR APPENDIX TABLE 26
ESTIMATED CO AIR EMISSIONS
Salinity Reduction Option 1A**

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
CO Emission Factor (g/hp-hr.)		1.562	0.781	0.781	3.032	2.910	2.917	3.788	3.032	2.914	1.944	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	99	0	89	3	61	24	24	0	0	351
Pond 3 to Napa River -Outfall with diffuser	C	198	188	0	196	0	214	128	128	0	0	1,052
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5 - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa Slough to Pond 5- intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	92	71	0	117	4	113	50	50	0	0	495
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
Total Construction Tons:		0.31	0.08	0.63	0.45	0.17	0.36	0.05	0.19	0.06	2.44	0.00
TOTAL PROJECT TONS:		0.31	0.1	0.6	0.4	0.2	0.4	0.1	0.2	0.1	2.4	4.7

AIR APPENDIX TABLE 27
ESTIMATED CO AIR EMISSIONS
Salinity Reduction Option 1B

Equipment		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
CO Emission Factor (g/hp-hr.)		1.562	0.781	0.781	3.032	2.910	2.917	3.788	3.032	2.914	1.944	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
& 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Breach	C	32	0	0	0	0	16	0	0	0	0	48
fish screens	C	70	55	0	124	4	85	33	33	0	0	405
breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
Total Construction Tons:		0.13	0.02	0.63	0.21	0.00	0.22	0.02	0.11	0.06	2.44	0.00
TOTAL PROJECT TONS:		0.13	0.0	0.6	0.2	0.0	0.2	0.0	0.1	0.1	2.4	3.8

AIR APPENDIX TABLE 28
ESTIMATED CO AIR EMISSIONS
Salinity Reduction Option 1C

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
CO Emission Factor (g/hp-hr.)		1.562	0.781	0.781	3.032	2.910	2.917	3.788	3.032	2.914	1.944	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Pond 3 to Napa River -External Levee Breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- levee breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
Total Construction Tons:		0.09	0.01	0.63	0.14	0.00	0.15	0.01	0.06	0.06	2.44	0.00
TOTAL PROJECT TONS:		0.09	0.0	0.6	0.1	0.0	0.2	0.0	0.1	0.1	2.4	3.6

**AIR APPENDIX TABLE 29
ESTIMATED CO AIR EMISSIONS
Salinity Reduction Option 2**

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
CO Emission Factor (g/hp-hr.)		1.562	0.781	0.781	3.032	2.910	2.917	3.788	3.032	2.914	1.944	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa Slough to Pond 5- Intake with fish screens	C	336	259	0	427	15	413	183	183	0	0	1,815
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 3 to Pond 4 -siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	40	0	89	3	61	24	24	0	0	292
Pond 3 to Napa River -Outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,155
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Pond 6A- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 2- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 2 to Pond 1- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 1 to San Pablo Bay- inlet/outlet	C	8	8	0	144	0	213	0	107	107	53	640
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
Total Construction Tons:		0.23	0.05	0.63	0.37	0.01	0.42	0.05	0.22	0.13	2.44	0.00
TOTAL PROJECT TONS:		0.23	0.0	0.6	0.4	0.0	0.4	0.0	0.2	0.1	2.4	4.5

**AIR APPENDIX TABLE 30
ESTIMATED CO AIR EMISSIONS
Habitat Restoration Option 1**

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57		
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333		
Horsepower		120	150	300	50	130	120	115	151	100	200	130		
CO Emission Factor (g/hp-hr.)		1.562	0.781	0.781	0.781	3.032	2.910	2.942	2.955	2.917	3.032	1.944		
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,357	506	0	161	0	0	0	0	552	0	161	0	2,737
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	275	0	523	41	0	0	0	0	0	0	41	0	880
Recreational Features	C/O	0	0	0	0	0	0	392	44	0	0	0	0	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		13,021	1,187	523	73,388	21,990	2,895	392	44	576	24	55,138	0	170,920
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	196	22	24	24	54,750	0	155,763
Total Operational Tons:		1.41	0.00	0.00	1.26	3.11	0.00	0.04	0.01	0.00	0.01	7.24	0.00	0.00
Total Construction Hours:		4,030	1,187	523	388	4,105	2,895	196	22	552	0	388	0	15,157
Total Construction Tons:		0.63	0.06	0.05	0.01	0.71	0.63	0.04	0.01	0.11	0.00	0.05	0.00	0.00
TOTAL PROJECT TONS:		2.04	0.1	0.1	1.3	3.8	0.6	0.1	0.0	0.1	0.0	7.3	0.0	15.6

AIR APPENDIX TABLE 31
ESTIMATED CO AIR EMISSIONS
Habitat Restoration Option 2

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
CO Emission Factor (g/hp-hr.)		1.562	0.781	0.781	0.781	3.032	2.910	2.942	2.955	2.917	3.032	1.944	0.843	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Levee Breaching for Habitat Restoration	C	1,534	572	0	182	0	0	0	0	624	0	182	0	3,094
Ditch Blocks with Levee Lowering	C	920	0	0	115	1,840	1,840	0	0	0	0	115	0	4,830
Supplemental Levee Lowering	C	834	0	0	104	1,654	0	0	0	0	0	104	0	2,696
Starter Channels with Berms	C	406	0	771	61	0	0	0	0	0	0	61	0	1,299
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	24	0	0	0	0	0	0	0	12	12	0	0	48
On-Going Levee Maintenance	O	6,145	0	0	0	12,290	0	0	0	0	0	0	0	18,435
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		9,863	572	771	73,462	15,784	1,840	392	44	636	12	55,212	1,742	160,330
TOTAL Operational Hours:		6,169	0	0	73,000	12,290	0	0	0	12	12	54,750	0	146,233
Total Operational Tons:		0.97	0.00	0.00	1.26	2.14	0.00	0.00	0.00	0.00	0.00	7.24	0.00	0.00
Total Construction Hours:		3,694	572	771	462	3,494	1,840	392	44	624	0	462	1,742	14,097
Total Construction Tons:		0.58	0.03	0.08	0.01	0.61	0.40	0.07	0.01	0.12	0.00	0.06	0.23	0.00
TOTAL PROJECT TONS:		1.55	0.0	0.1	1.3	2.7	0.4	0.1	0.0	0.1	0.0	7.3	0.2	13.8

**AIR APPENDIX TABLE 32
ESTIMATED CO AIR EMISSIONS
Habitat Restoration Option 3**

		EQUIPMENT TYPE												TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Pickup Truck		Dump Truck
Equipment															
Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.62	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	92	200	130	300	
CO Emission Factor (g/hp-hr.)		1.562	0.781	0.781	0.781	3.032	2.910	2.942	2.955	2.917	3.788	3.032	1.944	0.843	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	
Initial Levee Repair for Ponds 2, 5, 6, & 6A	C	947	710	0	0	1,184	1,184	0	0	0	0	0	0	0	4,025
Pond 5 Outfall	C	67	56	0	0	93	3	0	0	90	40	40	0	0	389
Repair Pond 4/5 Levee	C	13	10	0	0	16	16	0	0	0	0	0	0	0	55
Levee Breaching for Habitat Restoration	C	944	352	0	112	0	0	0	0	384	0	0	112	0	1,904
Ditch Blocks with Levee Lowering	C	640	0	0	80	1,280	1,280	0	0	0	0	0	80	0	3,360
Supplemental Levee Lowering	C	431	0	0	54	855	0	0	0	0	0	0	54	0	1,394
Starter Channels with Berns	C	196	0	372	29	0	0	0	0	0	0	0	29	0	626
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	84	0	0	0	0	0	0	0	42	0	42	0	0	168
On-Going Levee Maintenance	O	10,428	0	0	0	20,856	0	0	0	0	0	0	0	0	31,284
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		13,750	1,128	372	73,275	24,284	2,483	392	44	516	40	82	55,025	1,742	173,133
TOTAL Operational Hours:		10,512	0	0	73,000	20,856	0	0	0	42	0	42	54,750	0	159,202
Total Operational Tons:		1.65	0.00	0.00	1.26	3.62	0.00	0.00	0.00	0.01	0.00	0.01	7.24	0.00	0.00
Total Construction Hours:		3,238	1,128	372	275	3,428	2,483	392	44	474	40	40	275	1,742	13,931
Total Construction Tons:		0.51	0.06	0.04	0.00	0.60	0.54	0.07	0.01	0.09	0.00	0.01	0.04	0.23	0.00
TOTAL PROJECT TONS:		2.16	0.1	0.0	1.3	4.2	0.5	0.1	0.0	0.1	0.0	0.0	7.3	0.2	16.0

**AIR APPENDIX TABLE 33
ESTIMATED CO AIR EMISSIONS
Habitat Restoration Option 4**

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
CO Emission Factor (g/hp-hr.)		1.562	0.781	0.781	0.781	3.032	2.910	2.942	2.955	2.917	3.032	1.944	0.843	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,298	484	0	154	0	0	0	0	528	0	154	0	2,618
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	553	0	1,051	83	0	0	0	0	0	0	83	0	1,770
Fill Area for Interim Mid-Marsh Replacement	C	1,600	0	3,200	0	0	0	0	0	0	0	0	0	4,800
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		14,840	1,165	4,251	73,423	21,990	2,895	392	44	552	24	55,173	1,742	176,491
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	0	0	24	24	54,750	0	154,674
Total Operational Tons:		1.41	0.00	0.00	1.26	3.11	0.00	0.00	0.00	0.00	0.01	7.24	0.00	0.00
Total Construction Hours:		5,849	1,165	4,251	423	4,105	2,895	392	44	528	0	423	1,742	21,817
Total Construction Tons:		0.92	0.06	0.44	0.01	0.71	0.63	0.07	0.01	0.10	0.00	0.06	0.23	0.00
TOTAL PROJECT TONS:		2.33	0.06	0.44	1.26	3.82	0.63	0.07	0.01	0.11	0.01	7.30	0.23	16.3

**AIR APPENDIX TABLE 34
ESTIMATED SO_x AIR EMISSIONS
Salinity Reduction Option 1A**

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment												
Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
SO_x Emission Factor (g/hp-hr.)		1.305	1.305	1.305	0.930	0.930	0.930	0.930	0.930	0.930	0.890	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	99	0	89	3	61	24	24	0	0	351
Pond 3 to Napa River -Outfall with diffuser	C	198	188	0	196	0	214	128	128	0	0	1,052
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5 - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa Slough to Pond 5- intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	92	71	0	117	4	113	50	50	0	0	495
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
Total Construction Tons:		0.26	0.13	1.05	0.14	0.05	0.11	0.01	0.06	0.02	1.12	0.00
TOTAL PROJECT TONS:		0.26	0.1	1.1	0.1	0.1	0.1	0.0	0.1	0.0	1.1	3.0

AIR APPENDIX TABLE 35
ESTIMATED SO_x AIR EMISSIONS
Salinity Reduction Option 1B

Equipment		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
SO_x Emission Factor (g/hp-hr.)		1.305	1.305	1.305	0.930	0.930	0.930	0.930	0.930	0.930	0.890	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
& 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Breach	C	32	0	0	0	0	16	0	0	0	0	48
fish screens	C	70	55	0	124	4	85	33	33	0	0	405
breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
Total Construction Tons:		0.11	0.04	1.05	0.06	0.00	0.07	0.01	0.03	0.02	1.12	0.00
TOTAL PROJECT TONS:		0.11	0.0	1.1	0.1	0.0	0.1	0.0	0.0	0.0	1.1	2.5

AIR APPENDIX TABLE 36
ESTIMATED SO_x AIR EMISSIONS
Salinity Reduction Option 1C

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
SO_x Emission Factor (g/hp-hr.)		1.305	1.305	1.305	0.930	0.930	0.930	0.930	0.930	0.930	0.890	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Pond 3 to Napa River -External Levee Breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- levee breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
Total Construction Tons:		0.07	0.01	1.05	0.04	0.00	0.05	0.00	0.02	0.02	1.12	0.00
TOTAL PROJECT TONS:		0.07	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.4

AIR APPENDIX TABLE 37
ESTIMATED SO_x AIR EMISSIONS
Salinity Reduction Option 2

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
SO_x Emission Factor (g/hp-hr.)		1.305	1.305	1.305	0.930	0.930	0.930	0.930	0.930	0.930	0.890	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa Slough to Pond 5- Intake with fish screens	C	336	259	0	427	15	413	183	183	0	0	1,815
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 3 to Pond 4 -siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	40	0	89	3	61	24	24	0	0	292
Pond 3 to Napa River -Outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,155
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Pond 6A- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 2- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 2 to Pond 1- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 1 to San Pablo Bay- inlet/outlet	C	8	8	0	144	0	213	0	107	107	53	640
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
Total Construction Tons:		0.19	0.08	1.05	0.11	0.00	0.13	0.01	0.07	0.04	1.12	0.00
TOTAL PROJECT TONS:		0.19	0.1	1.1	0.1	0.0	0.1	0.0	0.1	0.0	1.1	2.8

AIR APPENDIX TABLE 38
ESTIMATED SO_x AIR EMISSIONS
Habitat Restoration Option 1

Equipment		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
SO_x Emission Factor (g/hp-hr.)		1.305	1.305	1.305	1.305	0.930	0.930	8.811	0.930	0.930	0.930	0.890	0.890	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,357	506	0	161	0	0	0	0	552	0	161	0	2,737
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	275	0	523	41	0	0	0	0	0	0	41	0	880
Recreational Features	C/O	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		13,021	1,187	523	73,388	21,990	2,895	392	44	576	24	55,138	1,742	170,920
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	196	22	24	24	54,750	871	155,763
Total Operational Tons:		1.18	0.00	0.00	2.10	0.95	0.00	0.11	0.00	0.00	0.00	3.32	0.12	0.00
Total Construction Hours:		4,030	1,187	523	388	4,105	2,895	196	22	552	0	388	871	15,157
Total Construction Tons:		0.53	0.10	0.09	0.01	0.22	0.20	0.11	0.00	0.03	0.00	0.02	0.12	0.00
TOTAL PROJECT TONS:		1.71	0.1	0.1	2.1	1.2	0.2	0.2	0.0	0.0	0.0	3.3	0.2	9.2

AIR APPENDIX TABLE 39
ESTIMATED SO_x AIR EMISSIONS
Habitat Restoration Option 2

Equipment		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
SO_x Emission Factor (g/hp-hr.)		1.408	1.305	1.305	1.305	0.930	0.930	8.811	0.930	0.930	0.930	0.890	0.890	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Levee Breaching for Habitat Restoration	C	1,534	572	0	182	0	0	0	0	624	0	182	0	3,094
Ditch Blocks with Levee Lowering	C	920	0	0	115	1,840	1,840	0	0	0	0	115	0	4,830
Supplemental Levee Lowering	C	834	0	0	104	1,654	0	0	0	0	0	104	0	2,696
Starter Channels with Berms	C	406	0	771	61	0	0	0	0	0	0	61	0	1,299
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	24	0	0	0	0	0	0	0	12	12	0	0	48
On-Going Levee Maintenance	O	6,145	0	0	0	12,290	0	0	0	0	0	0	0	18,435
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		9,863	572	771	73,462	15,784	1,840	392	44	636	12	55,212	1,742	160,330
TOTAL Operational Hours:		6,169	0	0	73,000	12,290	0	0	0	12	12	54,750	0	146,233
Total Operational Tons:		0.87	0.00	0.00	2.10	0.66	0.00	0.00	0.00	0.00	0.00	3.32	0.00	0.00
Total Construction Hours:		3,694	572	771	462	3,494	1,840	392	44	624	0	462	1,742	14,097
Total Construction Tons:		0.52	0.05	0.13	0.01	0.19	0.13	0.22	0.00	0.04	0.00	0.03	0.24	0.00
TOTAL PROJECT TONS:		1.40	0.0	0.1	2.1	0.8	0.1	0.2	0.0	0.0	0.0	3.3	0.2	8.5

**AIR APPENDIX TABLE 40
ESTIMATED SO_x AIR EMISSIONS
Habitat Restoration Option 3**

Equipment	EQUIPMENT TYPE													TOTAL HOURS	
	Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Pickup Truck	Dump Truck		
Load Factor	0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.62	0.4300	0.57	0.57		
Operating Factor	0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333		
Horsepower	120	150	300	50	130	120	115	151	100	92	200	130	300		
SO_x Emission Factor (g/hp-hr.)	1.408	1.305	1.305	1.305	0.930	0.930	8.811	0.930	0.930	0.930	0.930	0.890	0.890		
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	
Initial Levee Repair for Ponds 2, 5, 6, & 6A	C	947	710	0	0	1,184	1,184	0	0	0	0	0	0	4,025	
Pond 5 Outfall	C	67	56	0	0	93	3	0	0	90	40	40	0	389	
Repair Pond 4/5 Levee	C	13	10	0	0	16	16	0	0	0	0	0	0	55	
Levee Breaching for Habitat Restoration	C	944	352	0	112	0	0	0	384	0	0	112	0	1,904	
Ditch Blocks with Levee Lowering	C	640	0	0	80	1,280	1,280	0	0	0	0	80	0	3,360	
Supplemental Levee Lowering	C	431	0	0	54	855	0	0	0	0	0	54	0	1,394	
Starter Channels with Berms	C	196	0	372	29	0	0	0	0	0	0	29	0	626	
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178	
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750	
Repair/Replacement of Water Control Structures (Knife Valves)	O	84	0	0	0	0	0	0	42	0	42	0	0	168	
On-Going Levee Maintenance	O	10,428	0	0	0	20,856	0	0	0	0	0	0	0	31,284	
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000	
TOTAL PROJECT HOURS:		13,750	1,128	372	73,275	24,284	2,483	392	44	516	40	82	55,025	1,742	173,133
TOTAL Operational Hours:		10,512	0	0	73,000	20,856	0	0	0	42	0	42	54,750	0	159,202
Total Operational Tons:		1.49	0.00	0.00	2.10	1.11	0.00	0.00	0.00	0.00	0.00	0.00	3.32	0.00	0.00
Total Construction Hours:		3,238	1,128	372	275	3,428	2,483	392	44	474	40	40	275	1,742	13,931
Total Construction Tons:		0.46	0.10	0.06	0.01	0.18	0.17	0.22	0.00	0.03	0.00	0.00	0.02	0.24	0.00
TOTAL PROJECT TONS:		1.95	0.1	0.1	2.1	1.3	0.2	0.2	0.0	0.0	0.0	0.0	3.3	0.2	9.5

**AIR APPENDIX TABLE 41
ESTIMATED SO_x AIR EMISSIONS
Habitat Restoration Option 4**

Equipment		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
SO_x Emission Factor (g/hp-hr.)		1.408	1.305	1.305	1.305	0.930	0.930	8.811	0.930	0.930	0.930	0.890	0.890	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,298	484	0	154	0	0	0	0	528	0	154	0	2,618
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	553	0	1,051	83	0	0	0	0	0	0	83	0	1,770
Fill Area for Interim Mid-Marsh Replacement	C	1,600	0	3,200	0	0	0	0	0	0	0	0	0	4,800
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		14,840	1,165	4,251	73,423	21,990	2,895	392	44	552	24	55,173	1,742	176,491
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	0	0	24	24	54,750	0	154,674
Total Operational Tons:		1.27	0.00	0.00	2.10	0.95	0.00	0.00	0.00	0.00	0.00	3.32	0.00	0.00
Total Construction Hours:		5,849	1,165	4,251	423	4,105	2,895	392	44	528	0	423	1,742	21,817
Total Construction Tons:		0.83	0.10	0.73	0.01	0.22	0.20	0.22	0.00	0.03	0.00	0.03	0.24	0.00
TOTAL PROJECT TONS:		2.10	0.1	0.7	2.1	1.2	0.2	0.2	0.0	0.0	0.0	3.3	0.2	10.3

**AIR APPENDIX TABLE 42
ESTIMATED PM AIR EMISSIONS
Salinity Reduction Option 1A**

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
PM Emission Factor (g/hp-hr.)		0.196	0.196	0.196	0.508	0.461	0.462	0.852	0.508	0.461	0.078	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	99	0	89	3	61	24	24	0	0	351
Pond 3 to Napa River -Outfall with diffuser	C	198	188	0	196	0	214	128	128	0	0	1,052
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5 - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa Slough to Pond 5- intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	92	71	0	117	4	113	50	50	0	0	495
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
Total Construction Tons:		0.04	0.02	0.16	0.08	0.03	0.06	0.01	0.03	0.01	0.10	0.00
TOTAL PROJECT TONS:		0.04	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.53

AIR APPENDIX TABLE 43
ESTIMATED PM AIR EMISSIONS
Salinity Reduction Option 1B

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
PM Emission Factor (g/hp-hr.)		0.196	0.196	0.196	0.508	0.461	0.462	0.852	0.508	0.461	0.078	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
& 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Breach	C	32	0	0	0	0	16	0	0	0	0	48
fish screens	C	70	55	0	124	4	85	33	33	0	0	405
breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
Total Construction Tons:		0.02	0.01	0.16	0.03	0.00	0.04	0.00	0.02	0.01	0.10	0.00
TOTAL PROJECT TONS:		0.02	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.38

AIR APPENDIX TABLE 44
ESTIMATED PM AIR EMISSIONS
Salinity Reduction Option 1C

Equipment	EQUIPMENT TYPE										TOTAL HOURS	
	Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck		
Load Factor	0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57		
Operating Factor	0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333		
Horsepower	120	150	50	130	120	100	92	200	300	130		
PM Emission Factor (g/hp-hr.)	0.196	0.196	0.196	0.508	0.461	0.462	0.852	0.508	0.461	0.078		
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Pond 3 to Napa River -External Levee Breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- levee breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
Total Construction Tons:		0.01	0.00	0.16	0.02	0.00	0.02	0.00	0.01	0.01	0.10	0.00
TOTAL PROJECT TONS:		0.01	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.34

**AIR APPENDIX TABLE 45
ESTIMATED PM AIR EMISSIONS
Salinity Reduction Option 2**

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
PM Emission Factor (g/hp-hr.)		0.196	0.196	0.196	0.508	0.461	0.462	0.852	0.508	0.461	0.078	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa Slough to Pond 5- Intake with fish screens	C	336	259	0	427	15	413	183	183	0	0	1,815
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 3 to Pond 4 -siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	40	0	89	3	61	24	24	0	0	292
Pond 3 to Napa River -Outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,155
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Pond 6A- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 2- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 2 to Pond 1- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 1 to San Pablo Bay- inlet/outlet	C	8	8	0	144	0	213	0	107	107	53	640
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
Total Construction Tons:		0.03	0.01	0.16	0.06	0.00	0.07	0.01	0.04	0.02	0.10	0.00
TOTAL PROJECT TONS:		0.03	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.50

AIR APPENDIX TABLE 46
ESTIMATED PM AIR EMISSIONS
Habitat Restoration Option 1

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment														
Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
PM Emission Factor (g/hp-hr.)		0.208	0.196	0.196	0.196	0.508	0.461	0.474	0.479	0.462	0.508	0.078	0.034	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,357	506	0	161	0	0	0	0	552	0	161	0	2,737
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	275	0	523	41	0	0	0	0	0	0	41	0	880
Recreational Features	C/O	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		13,021	1,187	523	73,388	21,990	2,895	392	44	576	24	55,138	1,742	170,920
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	196	22	24	24	54,750	871	155,763
Total Operational Tons:		0.19	0.00	0.00	0.32	0.52	0.00	0.01	0.00	0.00	0.00	0.29	0.00	0.00
Total Construction Hours:		4,030	1,187	523	388	4,105	2,895	196	22	552	0	388	871	15,157
Total Construction Tons:		0.08	0.02	0.01	0.00	0.12	0.10	0.01	0.00	0.02	0.00	0.00	0.00	0.00
TOTAL PROJECT TONS:		0.27	0.02	0.01	0.32	0.64	0.10	0.01	0.00	0.02	0.00	0.29	0.01	1.7

AIR APPENDIX TABLE 47
ESTIMATED PM AIR EMISSIONS
Habitat Restoration Option 2

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
PM Emission Factor (g/hp-hr.)		0.208	0.196	0.196	0.196	0.508	0.461	0.474	0.479	0.462	0.508	0.078	0.034	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Levee Breaching for Habitat Restoration	C	1,534	572	0	182	0	0	0	0	624	0	182	0	3,094
Ditch Blocks with Levee Lowering	C	920	0	0	115	1,840	1,840	0	0	0	0	115	0	4,830
Supplemental Levee Lowering	C	834	0	0	104	1,654	0	0	0	0	0	104	0	2,696
Starter Channels with Berms	C	406	0	771	61	0	0	0	0	0	0	61	0	1,299
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	24	0	0	0	0	0	0	0	12	12	0	0	48
On-Going Levee Maintenance	O	6,145	0	0	0	12,290	0	0	0	0	0	0	0	18,435
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		9,863	572	771	73,462	15,784	1,840	392	44	636	12	55,212	1,742	160,330
TOTAL Operational Hours:		6,169	0	0	73,000	12,290	0	0	0	12	12	54,750	0	146,233
Total Operational Tons:		<i>0.13</i>	<i>0.00</i>	<i>0.00</i>	<i>0.32</i>	<i>0.36</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.29</i>	<i>0.00</i>	<i>0.00</i>
Total Construction Hours:		3,694	572	771	462	3,494	1,840	392	44	624	0	462	1,742	14,097
Total Construction Tons:		<i>0.08</i>	<i>0.01</i>	<i>0.02</i>	<i>0.00</i>	<i>0.10</i>	<i>0.06</i>	<i>0.01</i>	<i>0.00</i>	<i>0.02</i>	<i>0.00</i>	<i>0.00</i>	<i>0.01</i>	<i>0.00</i>
TOTAL PROJECT TONS:		<i>0.21</i>	<i>0.01</i>	<i>0.02</i>	<i>0.32</i>	<i>0.46</i>	<i>0.06</i>	<i>0.01</i>	<i>0.00</i>	<i>0.02</i>	<i>0.00</i>	<i>0.29</i>	<i>0.01</i>	<i>1.4</i>

**AIR APPENDIX TABLE 48
ESTIMATED PM AIR EMISSIONS
Habitat Restoration Option 3**

		EQUIPMENT TYPE												TOTAL HOURS
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Pile Driver	Crane	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.62	0.4300	0.57	0.57
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333
Horsepower		120	150	300	50	130	120	115	151	100	92	200	130	300
PM Emission Factor (g/hp-hr.)		0.208	0.196	0.196	0.196	0.508	0.461	0.474	0.479	0.462	0.852	0.508	0.078	0.034
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
Initial Levee Repair for Ponds 2, 5, 6, & 6A	C	947	710	0	0	1,184	1,184	0	0	0	0	0	0	0
Pond 5 Outfall	C	67	56	0	0	93	3	0	0	90	40	40	0	0
Repair Pond 4/5 Levee	C	13	10	0	0	16	16	0	0	0	0	0	0	0
Levee Breaching for Habitat Restoration	C	944	352	0	112	0	0	0	0	384	0	0	112	0
Ditch Blocks with Levee Lowering	C	640	0	0	80	1,280	1,280	0	0	0	0	0	80	0
Supplemental Levee Lowering	C	431	0	0	54	855	0	0	0	0	0	0	54	0
Starter Channels with Berms	C	196	0	372	29	0	0	0	0	0	0	0	29	0
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	0	1,742
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	0	18,250	0
Repair/Replacement of Water Control Structures (Knife Valves)	O	84	0	0	0	0	0	0	0	42	0	42	0	0
On-Going Levee Maintenance	O	10,428	0	0	0	20,856	0	0	0	0	0	0	0	0
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	0	36,500	0
TOTAL PROJECT HOURS:		13,750	1,128	372	73,275	24,284	2,483	392	44	516	40	82	55,025	1,742
TOTAL Operational Hours:		10,512	0	0	73,000	20,856	0	0	0	42	0	42	54,750	0
Total Operational Tons:		0.22	0.00	0.00	0.32	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00
Total Construction Hours:		3,238	1,128	372	275	3,428	2,483	392	44	474	40	40	275	1,742
Total Construction Tons:		0.07	0.01	0.01	0.00	0.10	0.09	0.01	0.00	0.01	0.00	0.00	0.00	0.01
TOTAL PROJECT TONS:		0.29	0.01	0.01	0.32	0.71	0.09	0.01	0.00	0.02	0.00	0.00	0.29	0.01

**AIR APPENDIX TABLE 49
ESTIMATED PM AIR EMISSIONS
Habitat Restoration Option 4**

Equipment	EQUIPMENT TYPE												TOTAL HOURS
	Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck	Dump Truck	
Load Factor	0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor	0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower	120	150	300	50	130	120	115	151	100	200	130	300	
PM Emission Factor (g/hp-hr.)	0.196	0.196	0.196	0.196	0.508	0.461	0.474	0.479	0.462	0.508	0.078	0.034	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,298	484	0	154	0	0	0	0	528	0	154	2,618
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	1,972
Starter Channels with Berms	C	553	0	1,051	83	0	0	0	0	0	0	83	1,770
Fill Area for Interim Mid-Marsh Replacement	C	1,600	0	3,200	0	0	0	0	0	0	0	0	4,800
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	73,000
TOTAL PROJECT HOURS:		14,840	1,165	4,251	73,423	21,990	2,895	392	44	552	24	55,173	176,491
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	0	0	24	24	54,750	154,674
Total Operational Tons:		0.18	0.00	0.00	0.32	0.52	0.00	0.00	0.00	0.00	0.00	0.29	0.00
Total Construction Hours:		5,849	1,165	4,251	423	4,105	2,895	392	44	528	0	423	21,817
Total Construction Tons:		0.12	0.02	0.11	0.00	0.12	0.10	0.01	0.00	0.02	0.00	0.00	0.01
TOTAL PROJECT TONS:		0.29	0.02	0.11	0.32	0.64	0.10	0.01	0.00	0.02	0.00	0.29	1.8

AIR APPENDIX TABLE 50
ESTIMATED PM10 AIR EMISSIONS
Salinity Reduction Option 1A

Equipment		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
PM10 Emission Factor (g/hp-hr.)		0.189	0.189	0.189	0.490	0.445	0.445	0.821	0.490	0.444	0.075	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	99	0	89	3	61	24	24	0	0	351
Pond 3 to Napa River -Outfall with diffuser	C	198	188	0	196	0	214	128	128	0	0	1,052
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5 - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa Slough to Pond 5- intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	92	71	0	117	4	113	50	50	0	0	495
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,960	1,538	36,500	2,584	758	1,801	608	791	107	18,423	65,070
Total Construction Tons:		0.04	0.02	0.15	0.07	0.03	0.05	0.01	0.03	0.01	0.09	0.00
TOTAL PROJECT TONS:		0.04	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.51

AIR APPENDIX TABLE 51
ESTIMATED PM10 AIR EMISSIONS
Salinity Reduction Option 1B

Equipment		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
PM10 Emission Factor (g/hp-hr.)		0.189	0.189	0.189	0.490	0.445	0.445	0.821	0.490	0.444	0.075	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
& 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Breach	C	32	0	0	0	0	16	0	0	0	0	48
fish screens	C	70	55	0	124	4	85	33	33	0	0	405
breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
screens	C	214	165	0	272	9	263	117	117	0	0	1,156
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
TOTAL OPERATIONAL HOURS:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		828	414	36,500	1,189	19	1,126	266	449	107	18,423	59,320
Total Construction Tons:		0.02	0.01	0.15	0.03	0.00	0.03	0.00	0.02	0.01	0.09	0.00
TOTAL PROJECT TONS:		0.02	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.37

**AIR APPENDIX TABLE 52
ESTIMATED PM10 AIR EMISSIONS
Salinity Reduction Option 1C**

Equipment	EQUIPMENT TYPE										TOTAL HOURS	
	Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck		
Load Factor	0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57		
Operating Factor	0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333		
Horsepower	120	150	50	130	120	100	92	200	300	130		
PM10 Emission Factor (g/hp-hr.)	0.189	0.189	0.189	0.490	0.445	0.445	0.821	0.490	0.444	0.075		
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Pond 3 to Napa River -External Levee Breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 6A- Intake with fish screens	C	70	55	0	124	4	85	33	33	0	0	405
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 5- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 4 to Napa River- levee breach	C	32	0	0	0	0	16	0	0	0	0	48
Napa Slough to Pond 7A -channel & intake with fish screens	C	84	66	0	149	5	102	40	40	0	0	486
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Napa Slough- outfall with diffuser	C	21	0	0	84	0	53	12	12	0	0	182
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
TOTAL OPERATIONAL HOURS:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		547	155	36,500	819	9	773	85	268	107	18,423	57,686
Total Construction Tons:		0.01	0.00	0.15	0.02	0.00	0.02	0.00	0.01	0.01	0.09	0.00
TOTAL PROJECT TONS:		0.01	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.33

**AIR APPENDIX TABLE 53
ESTIMATED PM10 AIR EMISSIONS
Salinity Reduction Option 2**

		EQUIPMENT TYPE										TOTAL HOURS
		Tug Boat	Clamshell Dredge	Runabout	Hydraulic Excavator	Front End Loader	Generator	Pile Driver	Crane	Horizontal Drill Auger	Pickup Truck	
Equipment Load Factor		0.80	0.80	0.80	0.80	0.68	0.74	0.62	0.4300	0.75	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.8333	0.8333	0.3500	0.8333	0.8333	0.8333	
Horsepower		120	150	50	130	120	100	92	200	300	130	
PM10 Emission Factor (g/hp-hr.)		0.189	0.189	0.189	0.490	0.445	0.445	0.821	0.490	0.444	0.075	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair Ponds 1, 1A, 7, 7A, & 8	C	579	579	0	723	723	0	0	0	0	0	2,604
Napa Slough to Pond 5- Intake with fish screens	C	336	259	0	427	15	413	183	183	0	0	1,815
Pond 5 to Pond 4- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 3 to Pond 4 -siphon	C	22	13	0	46	0	30	0	16	0	0	127
Napa River to Pond 3- Intake with fish screens	C	329	254	0	419	14	405	180	180	0	0	1,782
Dutchman Slough to Pond 3- Intake with fish screens	C	50	40	0	89	3	61	24	24	0	0	292
Pond 3 to Napa River -Outfall with diffuser	C	99	94	0	98	0	107	64	64	0	0	526
Napa Slough to Pond 7A -channel & intake with fish screens	C	214	165	0	272	9	263	117	117	0	0	1,155
Pond 8 to Pond 8 Canal - outlet	C	8	8	0	144	0	213	0	107	107	53	640
Pond 8 Canal to Mixing Chamber - siphon	C	22	13	0	46	0	30	0	16	0	0	127
Mixing Chamber with Inlets and Outlets	C	0	0	0	226	0	80	0	24	0	80	410
Mix Chamber Outlet Canal to Pond 6A- siphon	C	22	13	0	46	0	30	0	16	0	0	127
Valve Replacement Ponds 7/7A/8	C	0	0	0	0	0	20	0	20	0	40	80
Pond 6A to Pond 6- internal levee breach	C	128	0	0	0	0	64	0	0	0	0	192
Pond 6 to Pond 2- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 2 to Pond 1- siphon	C	44	26	0	92	0	60	0	32	0	0	254
Pond 1 to San Pablo Bay- inlet/outlet	C	8	8	0	144	0	213	0	107	107	53	640
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	0	0	36,500	0	0	0	0	0	0	18,250	54,750
TOTAL PROJECT HOURS:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
TOTAL Operational Hours:		0	0	0	0	0	0	0	0	0	0	0
Total Operational Tons:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Hours:		1,454	917	36,500	2,142	41	2,112	568	938	214	18,476	63,363
Total Construction Tons:		0.03	0.01	0.15	0.06	0.00	0.06	0.01	0.04	0.02	0.09	0.00
TOTAL PROJECT TONS:		0.03	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.48

**AIR APPENDIX TABLE 54
ESTIMATED PM10 AIR EMISSIONS
Habitat Restoration Option 1**

		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Equipment Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
PM10 Emission Factor (g/hp-hr.)		0.189	0.189	0.189	0.189	0.490	0.445	0.457	0.462	0.445	0.490	0.075	0.033	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,357	506	0	161	0	0	0	0	552	0	161	0	2,737
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	275	0	523	41	0	0	0	0	0	0	41	0	880
Recreational Features	C/O	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		13,021	1,187	523	73,388	21,990	2,895	392	44	576	24	55,138	1,742	170,920
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	196	22	24	24	54,750	871	155,763
Total Operational Tons:		0.17	0.00	0.00	0.30	0.50	0.00	0.01	0.00	0.00	0.00	0.28	0.00	0.00
Total Construction Hours:		4,030	1,187	523	388	4,105	2,895	196	22	552	0	388	871	15,157
Total Construction Tons:		0.08	0.01	0.01	0.00	0.12	0.10	0.01	0.00	0.02	0.00	0.00	0.00	0.00
TOTAL PROJECT TONS:		0.25	0.0	0.0	0.3	0.6	0.1	0.0	0.0	0.0	0.0	0.3	0.0	1.6

AIR APPENDIX TABLE 55
ESTIMATED PM10 AIR EMISSIONS
Habitat Restoration Option 2

Equipment		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
PM10 Emission Factor (g/hp-hr.)		0.189	0.189	0.189	0.189	0.490	0.445	0.457	0.462	0.445	0.490	0.075	0.033	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Levee Breaching for Habitat Restoration	C	1,534	572	0	182	0	0	0	0	624	0	182	0	3,094
Ditch Blocks with Levee Lowering	C	920	0	0	115	1,840	1,840	0	0	0	0	115	0	4,830
Supplemental Levee Lowering	C	834	0	0	104	1,654	0	0	0	0	0	104	0	2,696
Starter Channels with Berms	C	406	0	771	61	0	0	0	0	0	0	61	0	1,299
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	24	0	0	0	0	0	0	0	12	12	0	0	48
On-Going Levee Maintenance	O	6,145	0	0	0	12,290	0	0	0	0	0	0	0	18,435
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		9,863	572	771	73,462	15,784	1,840	392	44	636	12	55,212	1,742	160,330
TOTAL Operational Hours:		6,169	0	0	73,000	12,290	0	0	0	12	12	54,750	0	146,233
Total Operational Tons:		<i>0.12</i>	<i>0.00</i>	<i>0.00</i>	<i>0.30</i>	<i>0.35</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.28</i>	<i>0.00</i>	<i>0.00</i>
Total Construction Hours:		3,694	572	771	462	3,494	1,840	392	44	624	0	462	1,742	14,097
Total Construction Tons:		<i>0.07</i>	<i>0.01</i>	<i>0.02</i>	<i>0.00</i>	<i>0.10</i>	<i>0.06</i>	<i>0.01</i>	<i>0.00</i>	<i>0.02</i>	<i>0.00</i>	<i>0.00</i>	<i>0.01</i>	<i>0.00</i>
TOTAL PROJECT TONS:		0.19	0.0	0.0	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.3	0.0	1.3

**AIR APPENDIX TABLE 56
ESTIMATED PM10 AIR EMISSIONS
Habitat Restoration Option 3**

Equipment	EQUIPMENT TYPE												TOTAL HOURS
	Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck	Dump Truck	
Load Factor	0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor	0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower	120	150	300	50	130	120	115	151	100	200	130	300	
PM10 Emission Factor (g/hp-hr.)	0.189	0.189	0.189	0.189	0.490	0.445	0.457	0.462	0.445	0.490	0.075	0.033	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
Initial Levee Repair for Ponds 2, 5, 6, & 6A	C	947	710	0	0	1,184	1,184	0	0	0	0	0	4,025
Pond 5 Outfall	C	67	56	0	0	93	3	0	0	90	40	0	389
Repair Pond 4/5 Levee	C	13	10	0	0	16	16	0	0	0	0	0	55
Levee Breaching for Habitat Restoration	C	944	352	0	112	0	0	0	0	384	0	112	1,904
Ditch Blocks with Levee Lowering	C	640	0	0	80	1,280	1,280	0	0	0	0	80	3,360
Supplemental Levee Lowering	C	431	0	0	54	855	0	0	0	0	0	54	1,394
Starter Channels with Berms	C	196	0	372	29	0	0	0	0	0	0	29	626
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	84	0	0	0	0	0	0	0	42	42	0	168
On-Going Levee Maintenance	O	10,428	0	0	0	20,856	0	0	0	0	0	0	31,284
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	73,000
TOTAL PROJECT HOURS:		13,750	1,128	372	73,275	24,284	2,483	392	44	516	82	55,025	173,133
TOTAL Operational Hours:		10,512	0	0	73,000	20,856	0	0	0	42	42	54,750	159,202
Total Operational Tons:		0.20	0.00	0.00	0.30	0.59	0.00	0.00	0.00	0.00	0.00	0.28	0.00
Total Construction Hours:		3,238	1,128	372	275	3,428	2,483	392	44	474	40	275	13,931
Total Construction Tons:		0.06	0.01	0.01	0.00	0.10	0.08	0.01	0.00	0.01	0.00	0.00	0.00
TOTAL PROJECT TONS:		0.26	0.0	0.0	0.3	0.7	0.1	0.0	0.0	0.0	0.0	0.3	1.7

AIR APPENDIX TABLE 57
ESTIMATED PM10 AIR EMISSIONS
Habitat Restoration Option 4

Equipment		EQUIPMENT TYPE											TOTAL HOURS	
		Tug Boat	Clamshell Dredge	Hydraulic Dredge	Runabout	Hydraulic Excavator	Front End Loader	Scraper/ Dozer	Vibratory Roller	Generator	Crane	Pickup Truck		Dump Truck
Load Factor		0.80	0.80	0.80	0.80	0.80	0.68	0.59	0.56	0.74	0.4300	0.57	0.57	
Operating Factor		0.95	0.50	0.50	0.50	0.50	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	
Horsepower		120	150	300	50	130	120	115	151	100	200	130	300	
PM10 Emission Factor (g/hp-hr.)		0.189	0.189	0.189	0.189	0.490	0.445	0.457	0.462	0.445	0.490	0.075	0.033	
TASK	Construction or Operation?	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	TOTAL HOURS
Initial Levee Repair for Ponds 2, 6, & 6A	C	908	681	0	0	1,135	1,135	0	0	0	0	0	0	3,859
Levee Breaching for Habitat Restoration	C	1,298	484	0	154	0	0	0	0	528	0	154	0	2,618
Ditch Blocks with Levee Lowering	C	880	0	0	110	1,760	1,760	0	0	0	0	110	0	4,620
Supplemental Levee Lowering	C	610	0	0	76	1,210	0	0	0	0	0	76	0	1,972
Starter Channels with Berms	C	553	0	1,051	83	0	0	0	0	0	0	83	0	1,770
Fill Area for Interim Mid-Marsh Replacement	C	1,600	0	3,200	0	0	0	0	0	0	0	0	0	4,800
Recreational Features	C	0	0	0	0	0	0	392	44	0	0	0	1,742	2,178
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	0	0	0	36,500	0	0	0	0	0	0	18,250	0	54,750
Repair/Replacement of Water Control Structures (Knife Valves)	O	48	0	0	0	0	0	0	0	24	24	0	0	96
On-Going Levee Maintenance	O	8,943	0	0	0	17,885	0	0	0	0	0	0	0	26,828
Other O&M	O	0	0	0	36,500	0	0	0	0	0	0	36,500	0	73,000
TOTAL PROJECT HOURS:		14,840	1,165	4,251	73,423	21,990	2,895	392	44	552	24	55,173	1,742	176,491
TOTAL Operational Hours:		8,991	0	0	73,000	17,885	0	0	0	24	24	54,750	0	154,674
Total Operational Tons:		<i>0.17</i>	<i>0.00</i>	<i>0.00</i>	<i>0.30</i>	<i>0.50</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.28</i>	<i>0.00</i>	<i>0.00</i>
Total Construction Hours:		5,849	1,165	4,251	423	4,105	2,895	392	44	528	0	423	1,742	21,817
Total Construction Tons:		<i>0.11</i>	<i>0.01</i>	<i>0.11</i>	<i>0.00</i>	<i>0.12</i>	<i>0.10</i>	<i>0.01</i>	<i>0.00</i>	<i>0.02</i>	<i>0.00</i>	<i>0.00</i>	<i>0.01</i>	<i>0.00</i>
TOTAL PROJECT TONS:		<i>0.28</i>	<i>0.0</i>	<i>0.1</i>	<i>0.3</i>	<i>0.6</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>1.7</i>

TABLE 58
ESTIMATED CONSTRUCTION EQUIPMENT HOURS
No Project Alternative Option

COST ITEM	ESTIMATE BASIS			Construction or Operation?	TOTAL HOURS	EQUIPMENT TYPE	
	UNITS	UNIT COST	QUANTITY			Runabout (Small Boat)	Truck
						50 hp	100 hp
Monitoring, all (includes replacement of monitoring equipment, as needed)	years	\$500,000	10	C	10,950	7,300	3,650
Other O&M	annual cost	\$10,000	50	C	73,000	36,500	36,500
TOTAL HOURS BY EQUIPMENT					83,950	43,800	40,150

NOTES:

Other O&M task includes limited levee maintenance and water structure repair.

The amount of monitoring and maintenance and repair is limited to within the DFG budget.

All unit costs include indirect costs at 15%, mobilization at 11%, and contractor's overhead and profit at 17%

AIR APPENDIX TABLE 59
ESTIMATED NO_x AIR EMISSIONS
No Project Alternative Option

		EQUIPMENT TYPE		
		Runabout	Pickup Truck	
Equipment				
Load Factor		0.80	0.57	
Operating Factor		0.50	0.8333	
Horsepower		50	130	
NO_x Emission Factor (g/hp-hr.)		7.923	1.363	
TASK	Construction or Operation?	Hours	Hours	TOTAL TONS
Monitoring, all (includes replacement of monitoring equipment, as needed)		7,300	3,650	
<i>Tons per Task:</i>	O	1.28	0.34	1.6
Other O&M		36,500	36,500	
<i>Tons per Task:</i>	O	6.38	3.39	9.8
TOTAL PROJECT HOURS:		43,803	40,151	83,953
TOTAL Operational Hours:		0	0	0
Total Operational Tons:		0.00	0.00	0.0
Total Construction Hours:		43,800	40,150	0
Total Construction Tons:		7.65	3.72	0.00
TOTAL PROJECT TONS:		7.7	3.7	11.4

Note: The other O & M task includes limited levee maintenance and repair of water control structures.

AIR APPENDIX TABLE 60
ESTIMATED ROG AIR EMISSIONS
No Project Alternative Option

		EQUIPMENT TYPE		TOTAL TONS
		Runabout	Pickup Truck	
Equipment				
Load Factor		0.80	0.57	
Operating Factor		0.50	0.8333	
Horsepower		50	130	
ROG Emission Factor (g/hp-hr.)		0.070	0.272	
TASK	Construction or Operation?	Hours	Hours	TOTAL TONS
Monitoring, all (includes replacement of monitoring equipment, as needed)		7,300	3,650	
<i>Tons per Task:</i>	O	0.01	0.07	0.1
Other O&M		36,500	36,500	
<i>Tons per Task:</i>	O	0.06	0.68	0.7
TOTAL PROJECT HOURS:		43,800	40,150	83,950
TOTAL Operational Hours:		0	0	0
Total Operational Tons:		0.00	0.00	0.0
Total Construction Hours:		43,800	40,150	0
Total Construction Tons:		0.07	0.74	0.00
TOTAL PROJECT TONS:		0.1	0.7	0.8

Note: The other O& M task includes limited levee maintenance and repair of water control structures.

**AIR APPENDIX TABLE 61
ESTIMATED CO AIR EMISSIONS
No Project Alternative Option**

		EQUIPMENT TYPE		TOTAL TONS
		Runabout	Pickup Truck	
Equipment				
Load Factor		0.80	0.57	
Operating Factor		0.50	0.8333	
Horsepower		50	130	
NOx Emission Factor (g/hp-hr.)		0.781	1.944	
TASK	Construction or Operation?	Hours	Hours	
Monitoring, all (includes replacement of monitoring equipment, as needed)		7,300	3,650	
<i>Tons per Task:</i>	O	0.13	0.48	0.6
Other O&M		36,500	36,500	
<i>Tons per Task:</i>	O	0.63	4.83	5.5
TOTAL PROJECT HOURS:		43,800	40,151	83,951
TOTAL Operational Hours:		0	0	0
Total Operational Tons:		0.00	0.00	0.0
Total Construction Hours:		43,800	40,150	0
Total Construction Tons:		0.75	5.31	0.00
TOTAL PROJECT TONS:		0.8	5.3	6.1

Note: The other O& M task includes limited levee maintenance and repair of water control structures.

AIR APPENDIX TABLE 62
ESTIMATED SO_x AIR EMISSIONS
No Project Alternative Option

		EQUIPMENT TYPE		TOTAL TONS
		Runabout	Pickup Truck	
Equipment				
Load Factor		0.80	0.57	
Operating Factor		0.50	0.8333	
Horsepower		50	130	
NO_x Emission Factor (g/hp-hr.)		1.305	0.890	
TASK	Construction or Operation?	Hours	Hours	TOTAL TONS
Monitoring, all (includes replacement of monitoring equipment, as needed)	O	7,300	3,650	0.4
<i>Tons per Task:</i>		0.21	0.22	
Other O&M	O	36,500	36,500	3.3
<i>Tons per Task:</i>		1.05	2.21	
TOTAL PROJECT HOURS:		43,800	40,150	83,951
TOTAL Operational Hours:		0	0	0
Total Operational Tons:		0.00	0.00	0.0
Total Construction Hours:		43,800	40,150	0
Total Construction Tons:		1.26	2.43	0.00
TOTAL PROJECT TONS:		1.3	2.4	3.7

Note: The other O& M task includes limited levee maintenance and repair of water control structures.

AIR APPENDIX TABLE 63
ESTIMATED PM AIR EMISSIONS
No Project Alternative Option

		EQUIPMENT TYPE		TOTAL TONS
		Runabout	Pickup Truck	
Equipment				
Load Factor		0.80	0.57	
Operating Factor		0.50	0.8333	
Horsepower		50	130	
NOx Emission Factor (g/hp-hr.)		0.196	0.078	
TASK	Construction or Operation?	Hours	Hours	
Monitoring, all (includes replacement of monitoring equipment, as needed)		7,300	3,650	
<i>Tons per Task:</i>	O	0.03	0.02	0.1
Other O&M		36,500	36,500	
<i>Tons per Task:</i>	O	0.16	0.19	0.4
TOTAL PROJECT HOURS:		43,800	40,150	83,950
TOTAL Operational Hours:		0	0	0
Total Operational Tons:		0.00	0.00	0.0
Total Construction Hours:		43,800	40,150	0
Total Construction Tons:		0.19	0.21	0.00
TOTAL PROJECT TONS:		0.2	0.2	0.40

Note: The other O& M task includes limited levee maintenance and repair of water control structures.

AIR APPENDIX TABLE 64
ESTIMATED PM10 AIR EMISSIONS
No Project Alternative Option

		EQUIPMENT TYPE		TOTAL TONS
		Runabout	Pickup Truck	
Equipment				
Load Factor		0.80	0.57	
Operating Factor		0.50	0.8333	
Horsepower		50	130	
NOx Emission Factor (g/hp-hr.)		0.189	0.075	
TASK	Construction or Operation?	Hours	Hours	
Monitoring, all (includes replacement of monitoring equipment, as needed)	C	7,300	3,650	0.05
<i>Tons per Task:</i>		0.03	0.02	
Other O&M	C	36,500	36,500	0.34
<i>Tons per Task:</i>		0.15	0.19	
TOTAL PROJECT HOURS:		43,800	40,150	83,950
TOTAL Operational Hours:		0	0	0
Total Operational Tons:		0.00	0.00	0.0
Total Construction Hours:		43,800	40,150	0
Total Construction Tons:		0.18	0.20	0.00
TOTAL PROJECT TONS:		0.2	0.2	0.39

Note: The other O& M task includes limited levee maintenance and repair of water control structures.