TABLE 3-1
SCREENING QUALITY GUIDELINES FOR SEDIMENT AND SURFACE WATER
PEYTON SLOUGH
MARTINEZ, CA

Media	Sediment/Soil			Surface Water and Groundwater			
Analytical Parameter	ER-L [a]	ER-M [a]	SFBRWQCB Ambient [b]	Salt Water Criterion Continuous Concentration (CCC) [c]	Fresh Water Criterion Continuous Concentration (CCC) [c]	Human Health for Consumption of Water and Organisms [c]	Human Health for Consumption of Organisms [c]
	(mg/kg, dry weight)			(ug/L)		(ug/L)	
pH	6.5			6.5-9	6.5-8.5	5.0-9	N/A
Copper	34	270	68.1	3.1	9	1300	N/A
Zinc	150	410	158	81	120	N/A	N/A

Notes:

N/A Not available

a Long et al., 1995. ER-L: Effects Range - Low ER-M= and Effects Range Median

b San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), 1998.

c EPA (2000a), California Toxics Rule. pH from EPA 1999, National Recommended Water Quality Criteria - Correction.

Table 4-1
Proposed Additional Samples, Analyses, and Rationale for Selection
Peyton Slough
Martinez, CA

Sample Area	Sample IDs	Condition	Interpretation	Additional Samples	Analyses	Rationale
Groundwater		low pH (3-6, average 4.3)	Acidic, metals as ion	Up to 12 existing groundwater wells distributed along the western bank of the Existing Slough	Cu, Zn, pH, sulfides/sulfate, DO, hardness, salinity, TSS	Used for groundwater evaluation/modeling and risk assessment to determine current groundwater condition impacting the Existing Slough.
		low to no sulfide (<0.4 ug/L)	No solids/precipitate, oxic			
		Cu 41-120,000 ug/L, most >1400 ug/L	Potential source of metals, pH	Up to 16 new groundwater wells, 8 guard wells along the eastern bank of the Existing Slough, and 8 POC wells along the western bank of the New Slough, adjacent to existing wells selected along the Existing Slough	Cu, Zn, pH, sulfides/sulfate, DO, hardness, salinity, TSS	Used for groundwater evaluation/modeling and risk assessment to characterize groundwater flows east of the Existing Slough and identify POC wells developed for New Slough.
		Zn 8300 - 850,000 ug/L, most >110,000 ug/L				
Dredge Spoil Piles and Trench Samples		low pH (3-7, average 4.3)	Acidic, metals as ion	Up to 10 soil/sediment samples at dredge spoil piles and surrounding areas to characterize "low contamination," copper only, zinc only, and copper and zinc exceedances. Samples taken at two depths (20) for chemical analysis and toxicity tests: suspended phase *Menidia* and *Mytilus* bioaccumulation *Macoma*.	0-gs (0 to 2-3'), gs - 3' bgs **Soil**: Cu, Zn, pH, sulfides/sulfate, grain size, ammonia, AVS/SEM **Tissue:** Cu, Zn (bioaccumulation)	Used to further characterize soil/sediment that can be left in place for aquatic/wetland organisms to survive and further characterize soil for risk assessments (>ER-M does not gurrantee toxicity). Provides site-specific tissue concentrations & bioaccumulation factors for risk
		low to no sulfide (<10 mg/kg)	No solids/precipitate, oxic			
		high sulfate (6.2-10,000 mg/kg	Oxic, metals as ion complexes			
		Cu 33-5900 mg/kg, most <1800 mg/kg	Potential source of metals, pH	Up to 6 soil samples around the Pond Polishing area.	Cu, Zn, pH, sulfides/sulfate	Uncharacterized area where industrial or maintenance workers may be exposed to dust and direct contact of soils
		Zn 77-3800, most <1200 mg/kg				
Bank		moderate pH (5.9-7.6)	Neutral, reaction reversing, solids coming out of solution, oxic	No additional samples		
		sulfides (<10 to 260 mg/kg)				
		Cu 9.1-1300 mg/kg, most <200 mg/kg	Potential source of metals, pH			
		Zn 38-3200, most <520 mg/kg				
Sediment		unknown pH	data gap	No additional samples		
		unknown sulfide/sulfate	data gap			
		Cu 51-452,000 mg/kg	Potential sink of metals, pH			
		Zn 81-88,300 mg/kg				
Surface Water (one sample)		pH 8.0	Neutral, reaction reversing, solids coming out of solution, oxic	Up to 6 surface water samples adjacent to existing and new groundwater wells	Cu, Zn, pH, sulfides/sulfate, DO, hardness, salinity, TSS	Used for groundwater evaluation/modeling to further characterize sinks of metals from groundwater and dredge spoils, and calibrate models. Only one sample collected in 2000 south of the tide gate. Limited pH and sulfides/sulfates data; form of metal uncertain.
		low to no sulfide (<0.4 ug/L)				
		Cu 12 ug/L	Metals precipitating from groundwater/dredge spoils from pH and oxygen changes			
		Zn 230 ug/L				
Pickleweed Samples		No data available	No data available	Up to 5 samples, 1 or 2 samples along the North and South Slough, where pickleweed is located and co-located with dredge spoil piles and surrounding sediment (uncontaminated) samples where possible	Cu, Zn	Used for mouse bioaccumulation factors for SSTLs in the risk assessment, and may indicate lower accumulation factors that would be taken from the literature.

Table 4.2
Field Sampling and Analysis Plan
Peyton Slough
Martinez, CA

Sample Media	Sampling Method	Description	Analytes	Laboratory Turn-Around Time	Minimum Sample Volumes and Containers Required	Analytical Laboratory
Groundwater	Monitoring Well Sample	Up to 12 existing groundwater wells distributed along the western bank of the Existing Slough: MW62, MW51, MW18, MW49, MW58, MW57, MW19, MW ***QC Samples:*** 10% field duplicates	Total Cu and Zn, dissolved Cu and Zn, total and dissolved sulfides/sulfate, pH, DO, hardness, salinity, TSS, TOC	**Standard (10-day)**	Poly and glass bottles as provided by lab TOC requires 2x40 mL VOAs	Curtis & Tompkins
		Guard wells along the eastern bank of the Existing Slough currently being installed by Gary Lowe. Currently 7 are planned, and a portion of those wells may be installed to date. ***QC Samples:*** 10% field duplicates	Total Cu and Zn, dissolved Cu and Zn, total and dissolved sulfides/sulfate, pH, DO, hardness, salinity, TSS, TOC	**Standard (10-day)**	Poly and glass bottles as provided by lab TOC requires 2x40 mL VOAs	Curtis & Tompkins
Dredge Spoil Piles	Hand Auger Samples at 10 soil/sediment samples in dredge spoil piles. Samples taken at two depths (20)	Dredge spoil samples collected at two depths in each location: (1) at the surface and (2) from 2 to 3 feet bgs. ***QC Samples:*** 10% field duplicates and shovel rinsate sample	Cu, Zn, pH	**REQUEST 48-hr**	8 oz. glass jar	Curtis & Tompkins
			Sulfides/sulfate, % moisture, TOC	**Standard (10-day)**	8 oz. glass jar	Curtis & Tompkins
			Grain size	**Standard (10-day)**	8 oz. glass jar	Signet
		Of the 20 samples collected in the dredge spoil piles, up to 3 will be selected for bioaccumulations tests.	Bioaccumulation using *Neathes*	**Standard (10-day)**	5 gallon bucket	Pacific Eco Risk
			Tissue tests (Cu, Zn, % moisture, % lipid)	**Standard (10-day)**	As much tissue as possible -- lab to collect samples	Colombia
		Of the 20 samples collected in the Dredge Spoil Piles, up to 10 will be selected for toxicity testing (bioassay).	Bioassay test using suspended phase for *Mytilus* Ammonia	**Standard (10-day)**	1 liter bucket	Pacific Eco Risk
Surface Soil Around the Polishing Pond	Hand Auger or Trowel (See Fig X). Note: One sample is located in the dredge spoil pile to the east of the Pond.	Up to 6 surface soil samples from 0 to 6 inches.	Cu, Zn, pH, sulfides/sulfate, TOC	**Standard (10-day)**	8 oz. glass jar	Curtis & Tompkins
Surface Water	Submersible bailer (See Fig. XX) for locations	Up to 6 surface water samples adjacent to existing and new groundwater wells ***QC Samples:*** 10% field duplicates	Total Cu and Zn, dissolved Cu and Zn, total and dissolved sulfides/sulfate, pH, DO, hardness, salinity, TSS, TOC	**Standard (10-day)**	Poly and glass bottles as provided by lab TOC requires 2x40 mL VOAs	Curtis & Tompkins
Pickleweed Samples	Cutting	Up to 5 samples, one or two samples along the North and South Slough, where pickleweed is located and co-located with dredge spoil piles and surrounding sediment (uncontaminated) samples where possible. ***QC Samples:*** 10% lab duplicates (must be requested on chain)	Cu, Zn, % moisture, pH	**Standard (10-day)**	16 oz. glass jar	Columbia

Table 4-3
Sampling Location Rationale for Toxicity and Bioaccumulation Tests
Existing Slough
Peyton Slough, Martinez, CA

Sample Location	pH Buffered?	Tested for Bioaccum.? Good survival?	Rationale
RA1-0		yes; yes	
RA1-2			Copper, zinc, and pH below screening levels; confirm that this location does not need to be removed.
RA2-0			Sample bounds vertical extent of high copper, zinc, and low pH (4.8); check whether this location needs to be removed.
RA2-2	yes		Confirm that low pH is not causing toxicity, and does not need to be removed; copper and zinc concentrations above ambient, but below ER-M.
RA3-0	yes		Confirm that low pH and moderately high zinc are not causing toxicity to eliminate spoil pile for removal.
RA3-2			Confirm high zinc concentrations are not causing toxicity for pile removal; pH above screening level of 6.5.
RA4-0	NA		
RA4-2	yes		Confirm moderately high zinc, moderate pH of 4.4 are not causing toxicity; upper sample needs to be remediated, sample bounds vertical extent
RA5-0	NA		
RA5-2	NA		
RA6-0		yes; no	
RA6-2			Confirm moderately elevated copper and zinc are not causing toxicity; pH above screening level of 6.5.
RA7-0	yes		Confirm that copper slightly above the ER-M and at a low pH not toxic, and potentially leave in place.
RA7-2	NA		
RA8-0	yes		Confirm that copper and zinc above ambient concentrations but at a low pH are not toxic; compare to results of RA6-0 and possibly rule out removal.
RA8-2	NA		
RA9-0	yes		Confirm high copper with low zinc (below ER-M) with moderately low pH (5.4) is not toxic.
RA9-2			Bound vertical extent of removal, copper moderately above the ER-M and moderately low pH (5.4).
RA10-0		yes; no	
RA10-2	yes		Moderately high copper and zinc, and low pH; confirm not toxic and bound vertical extent of delineation.
RA11-0		yes; no	
RA12-0		yes; no	
RA12-2	yes		Copper below ambient, zinc just above ambient, low pH (4.0); confirm pH not causing toxicity.

= Sample rerun for toxicity confirmation
NA = Not analyzed

TABLE 5-1. TIER 1 SCREENING FOR SOIL/SEDIMENT
UPLAND AREA (DREDGE SPOIL PILES AND SURROUNDING AREAS)
EXISTING SLOUGH
RHODIA MARTINEZ, PEYTON SLOUGH

Chemical of Concern	Max Detected	Ambient Conc.(1)	Max Detected Exceeds Amb Conc. YES/No	PRG Region IX Industrial (2)	Max Detected Exceeds PRG Industrial? YES/No	RBSLs Surface Soil (<3' bgs) Industrial/ Commercial (GW is not a current or potential source of drinking water) (3)	Max Detected Exceeds Industrial/Commercial RBSL (GW is not a current or potential source of drinking water)? YES/No
	[mg/kg]	[mg/kg]		[mg/kg]		[mg/kg]	
METALS							
Copper (mg/kg)	20,000	68	Yes	75,908	no	5,000	Yes
Zinc (mg/kg)	5,600	158	Yes	100,000	no	5,000	Yes

Notes:

(1) SFRWQCB 1998. Ambient Concentrations of Toxic Chemicals in SF Bay (100% fine)

(2) USEPA, 2000. Preliminary Remediation Goals (PRGs) Region 9, Industrial Soil

(3) Bay Area RWQCB, 2000. Surface Soil (< 3m bgs) soil and groundwater risk-based screening levels (RBSLs) (Groundwater is not a Current or Potential Source of Drinking Water).

TABLE 5-2. TIER 1 SCREENING FOR SEDIMENT
EXISTING SLOUGH (SLOUGH BOTTOM AND EMBANKMENT SAMPLES)
EXISTING SLOUGH
RHODIA MARTINEZ, PEYTON SLOUGH

Chemical of Concern	Max Detected [mg/kg]	Ambient Conc.(1) [mg/kg]	Max Detected Exceeds Amb Conc. YES/No
METALS			
Copper (mg/kg)	121,000	68	Yes
Zinc (mg/kg)	88,300	158	Yes

Notes:
(1) SFRWQCB 1998. Ambient Concentrations of Toxic Chemicals in SF Bay (100% fine)

TABLE 5-3. EXPOSURE FACTORS AND OTHER RELEVANT PARAMETERS
Rhodia Martinez, Peyton Slough

PARAMETER	Units	Name	Value	References
PARAMETERS FOR COMMERCIAL-INDUSTRIAL WORKERS EXPOSURE SCENARIO				
Exposure Duration	yr	ED_ind	**25**	USEPA, 1991 ASTM, 1995; USEPA, 1999a
Exposure Frequency	day/yr	EF_ind	**250**	USEPA, 1991 ASTM, 1995; USEPA, 1999a
Soil Ingestion Rate	mg/day	IRsoil_ind	**50**	USEPA, 1991
PARAMETERS FOR EXCAVATION/CONSTRUCTION WORKERS EXPOSURE SCENARIO				
Exposure Duration	yr	ED_exc	**7**	Modified from Massachusetts DEP (1994) RWQCB, 2000
Exposure Frequency	day/yr	EF_exc	**20**	Massachusetts DEP (1994), RWQCB, 2000
Soil Ingestion Rate	mg/day	IRsoil_exc	**480**	USEPA (1997) excavation worker, RWQCB, 2000
PARAMETERS FOR RECREATIONAL EXPOSURE SCENARIO - UPLAND AREA				
Exposure Duration	yr	ED_adrec	**24**	USEPA, 1991 (30 yrs recreational minus six years as child) DTSC, 1999; USEPA, 1999a
Exposure Frequency	day/yr	EF_adrec	**150**	Three days/wk, 50 wk/yr (150 rec-days/yr).
Soil Ingestion Rate	mg/day	IRsoil_adrec	**100**	USEPA, 1991 ASTM, 1995; DTSC, 1992; DTSC, 1999; USEPA, 1997
PARAMETERS FOR RECREATIONAL ANGLERS EXPOSURE SCENARIO				
Exposure Duration	yr	ED_fish	**24**	USEPA, 1991 DTSC, 1999; USEPA, 1999a
Exposure Frequency	days/yr	EF_fish	**50**	Catching fish twice per week, 50 wk/yr , half the time at the site
Daily Fish Ingestion Rate	kg/day	IR_fish	**0.025**	USEPA, 1997 (95th percentile for freshwater anglers)

Notes:

The exposure facors listed above are for the ingestion pathway only. The pathways related to inhalation and dermal contact are not applicable because there are no reference dose for metals and absorbtion through skin of metals is insignificant

TABLE 5-4. CHEMICAL-SPECIFIC TOXICITY FACTORS AND UPTAKE FACTORS

Rhodia Martinez, Peyton Slough

Chemical of Concern	Slope Factor [1/(mg/kg-day)]				Reference Dose [mg/kg-day]				ABS	BSAF(1)
	Oral	Ref.	Inhalation	Ref.	Oral	Ref.	Inhalation	Ref.	[--]	[(mg/kg$_{fish}$) / (mg/kg$_{sed}$)]
Copper and compounds	na	--	na	--	3.7E-2	HEAST	na	--	0.00	3.0E-2
Zinc	na	--	na	--	3.0E-1	IRIS	na	--	0.00	4.7E-1

Definitions of Parameters
BSAF=Sediment-to-Biota Accumulation Factor
ABS = Dermal Absorption Factor for Soil Exposure [--]
References (in order of priority)
Site specific BSAFs used for metals .
Cal/EPA = Cal/EPA 1994. Memorandum on California Cancer Potency Factors: Update 11/94 and 2001.
IRIS, HEAST = as referenced in USEPA 1999 Region 9 Preliminary Remediation Goals (PRGs).
IRIS = Integrated Risk Information System (IRIS). Online Database. USEPA (2000)
na = Not Applicable/Not Available.

TABLE 5-5. SUMMARY OF H-SSTLs

Rhodia Martinez, Peyton Slough

UPLAND AREA

Exposure Receptor Scenario	Copper [mg/kg]	Zinc [mg/kg]
Commercial/Industrial Workers	75,832	100,000 (*)
Construction/Excavation Workers	98,740	100,000 (*)
Recreators	63,194	100,000 (*)

EXISTING SLOUGH AREA

Exposure Receptor Scenario	Copper [mg/kg]	Zinc [mg/kg]
Anglers Consuming Their Catch	24,945	13,047

Notes:

* H-SSTL is above 10% metal soil maximum concentration, and hence a ceiling value of 100,000 mg/kg is selected (USEPA, 2002)

TABLE 5-6. SUMMARY OF H-SSTLs EXCEEDANCES
Rhodia Martinez, Peyton Slough

UPLAND AREA (no exceedances)

Minimum H-SSTLs	
Copper (mg/kg)	Zinc (mg/kg)
63,194	100,000

Max Detected in soil/sediment samples		
Copper (mg/kg)	Zinc (mg/kg)	Sample ID
20,000	5,600	T1-S-1.5

EXISTING SLOUGH AREA

H-SSTLs for Anglers Consuming Their Catch	
Copper (mg/kg)	Zinc (mg/kg)
24,945	13,047

Sample Exceedances Results		
Copper (mg/kg)	Zinc (mg/kg)	Sample ID
61,100	**21,700**	5N
121,000	7,680	7N
71,700	**88,300**	1S
18,400	**19,300**	2S
53,900	**25,100**	4S

Notes:
In bold, samples concentration exceeding H-SSTL

Table 6-1
Partitioning Coefficients and Toxicity Reference Values
Rhodia Martinez, Peyton Slough

Chemical of Concern	Sediment - Water Kd[a] (L/kg)	Plant Uptake Factor[b] (kg/kg)	Aquatic Macrophyte BCF[c] (L/kg)	Invertebrate-Based BSAF[d] (kg/kg)	Fish-Based BSAF[e] (L/kg)	Food Chain Multiplier (FCM) for All Trophic Levels[e]
Copper	50,119	0.03	17	0.40	0.03	1
Zinc	316,228	0.1	510	0.54	0.47	1

Chemical of Concern	Avian TRV[f] (mg/kg - body weight/day)		Mammalian TRV[f] (mg/kg - body weight/day)	
	TRV_{Low}[g]	TRV_{High}[h]	TRV_{Low}[g]	TRV_{High}[h]
Copper	2.3	52.26	2.67 (1.91)	631.58 (447.34)
Zinc	17.2	172	9.6 (6.81)	411.43

[a] Sanudo-Wilhelmy et al. (1996)

[b] Calculated from site-specific measurements of COCs in pickleweed and sediment (Table 6-3).

[c] Copper - USEPA AQUIRE database (2001), average BCF for freshwater aquatic plants (blue-green/green algae) based on longest exposure duration available per study (48 hours, 20-50 days, 48 hours)
Zinc - USEPA (1999)

[d] Calculated from site-specific measurements of COCs in benthic invertebrates and sediment (Table 6-2).

[e] URS (2001b)

[f] DTSC (2000); for mammalian receptors, value shown in paranthesis represents the allometrically converted TRV used for the river otter

[g] TRV based on No-Observable-Adverse-Effects Level (NOAEL)

[h] TRV based on Lowest-Observable-Adverse-Effects Level (LOAEL)

Table 6-2
Development of Invertebrate-Based Biota Sediment Accumulation Factors (BSAFs)
Rhodia Martinez, Peyton Slough

Sample Location[a]	Copper (mg/kg)	Zinc (mg/kg)
RA1(E)	8.6	63.5
RA1(A)	12.5	72.8
RA1(B)	7.7	469
RA1(C)	7.8	63.3
RA1(D)	6.9	59.9
Average Tissue Conc. for RA1	8.7	145.7
Co-located Sediment Sample	64	150
BSAF for RA1	0.1	1.0
RA6(A,D)	358	85.4
RA6(C,D)	384	96.2
Average Tissue Conc. for RA6	371	90.8
Co-located Sediment Sample	640	620
BSAF for RA6	0.6	0.1
RA10(E)	198	130
RA10(C)	210	310
RA10(D)	321	344
Average Tissue Conc. for RA10	243	261.3
Co-located Sediment Sample	1900	1400
BSAF for RA10	0.1	0.2
RA11(B)	128	217
RA11(C,D,E)	356	542
Average Tissue Conc. for RA11	242	379.5
Co-located Sediment Sample	300	2400
BSAF for RA11	0.8	0.2
RA12(A,B,C,E)	532	581
RA12(D)	320	150
Average Tissue Conc. for RA12	426	365.5
Co-located Sediment Sample	1300	300
BSAF for RA12	0.3	1.2
Selected BSAF[b]	**0.40**	**0.54**

Notes:

[a] Letters in paranthesis following the sample location designate the tissue replicate identification for that sample.

[b] Represents the average BSAF calculated amongst the five sample locations.

Table 6-3
Development ofSite-Specific Plant Uptake Factors
Rhodia Martinez, Peyton Slough

Vegetation Sample Co-Located Sediment Sample	PW-HL-1 PWS-HL-1	PW-ML-2 PWS-ML-2	PW-HL-3 PWS-HL-3	PW-LH-4 PWS-LH-4	PW-XY-6 PWS-XY-6	Selected Plant Uptake Factor[c]
Copper						
Concentration in Pickleweed (mg/kg)	5.5	7.4	2.7	7.3	5.2	
Concentration in Co-located Sediment (mg/kg)	865 [b]	1,000	140	85	600	0.03
Plant Uptake Factor[a]	0.006	0.007	0.02	0.09	0.009	
Zinc						
Concentration in Pickleweed (mg/kg)	57.7	57.9	21.2	26	43.2	
Concentration in Co-located Sediment (mg/kg)	270	350	250	150	990	0.1
Plant Uptake Factor[a]	0.2	0.2	0.08	0.2	0.04	

Notes:

[a] Plant uptake factors (kg sediment dry weight/kg plant dry weight) were calculated by dividing the analyte concentration in plant tissue (mg/kg dry weight) by the analyte concentration in the co-located sediment sample (mg/kg dry weight).

[b] Average of regular and duplicate sample results for this location.

[c] Selected plant uptake factors represent the average values calculated.

Table 6-4
Exposure Factors for Ecological Receptors
Rhodia - Martinez

Parameter	Units	Salt Marsh Harvest Mouse	Mallard	California Clapper Rail	Great Blue Heron	River Otter	Reference
Habitat	--	Semiaquatic; Saline Emergent Wetlands	Semiaquatic; Brackish Emergent Wetlands	Semiaquatic; Saline Emergent Wetlands	Semiaquatic; Brackish Emergent Wetlands	Semiaquatic; Brackish Emergent Wetlands	Zeiner et al. (1990a,b)
Trophic Level	--	Level 1	Level 2-3	Level 4	Level 4	Level 4	Zeiner et al. (1990a,b)
Occurrence	--	Resident	Resident	Resident	Resident	Resident	Zeiner et al. (1990a,b)
Status	--	Federal and State Endangered Species	None	Federal and State Endangered Species	None	None	CNDDB (1999)
Home Range (species-specific)	acres	0.35	1,433	0.99	20.8	859	Geissel et al. 1988; USEPA 1993b; Eddleman and Conway 1998; UEPA 1993b; USEPA 1993b
Area Use Factor (home range / site area)	--	1	0.08	1	1	0.13	Cal-EPA 1996 and USEPA 1997 (calculated based on site area)
Seasonality Factor (year fraction)	--	1	1	1	1	1	Cal-EPA 1996 (recommended default value)
Body Weight	kg	0.0099	1.134	0.36	2.39	8	Fisler 1963 (as cited in Cal-EPA Ecotox database); USEPA 1993b; personal comm. Schwartzbach (USFWS) 2002; UEPA 1993b; USEPA 1993b
Diet Composition	--	Pickleweed and Saltgrass	Macrophytes and Benthic Invertebrates	Benthic Invertebrates	Fish	Benthic Invertebrates and Fish	Zeiner et al. 1990a,b and personal communication
Diet - Above Ground Vegetation (fraction)	--	1	0	0	0	0	Zeiner et al. 1990a,b, USEPA 1993b, and Professional Judgement
Diet - Macrophytes (fraction)	--	0	0.5	0	0	0	
Diet - Benthic Infauna Level 2 Invert (fraction)	--	0	0.5	0.25	0	0	
Diet - Epibenthic Level 3 Invert (fraction)	--	0	0	0.75	0	0.8	
Diet - Trophic Level 2 Fish (fraction)		0	0	0	0.5	0	
Diet - Trophic Level 3 Fish (fraction)		0	0	0	0.5	0.2	
Food Ingestion Rate (dry weight)	kg/day	0.0024	0.117	0.025	0.11	0.4	Fisler 1963 (as cited in Cal-EPA Ecotox database); USEPA 1993b; USEPA 1993b; UEPA 1993b; ROPS 2001[a]
Water Ingestion Rate	L/day	0.0016	0.064	0.03	0.106	0.65	USEPA 1993b
Incidental Sediment Ingestion Rate (dry weight)	kg/day	0.00005	0.0039	0.0075	0.01	0.038	Beyer et al. 1994; USEPA 1999; Beyer et al. 1994; USEPA 1999; USEPA 1999

Notes:
[a] River Otter Preservation Society for North America (website accessed 10/2001).

Table 6-5
No Observable Adverse Effects Level (NOAEL) - Based Ecological Site-Specific Target Levels (E-SSTLs) for the Wetland Habitat
Rhodia Martinez, Peyton Slough

Chemical of Concern	Salt Marsh Harvest Mouse			California Clapper Rail		
	Plant Uptake Factor for Pickleweed[a] (kg plant tissue dry weight/ kg sediment dry weight)	NOAEL-Based TRV for Mammals[a] (mg/kg - body weight/day)	$E\text{-}SSTL_{SEDIMENT}$[b] for the Mouse (mg/kg dry weight)	Invertebrate-Based (BSAF)[a] (kg invertebrate tissue dry weight/ kg sediment dry weight)	NOAEL-Based TRV for Birds[a] (mg/kg - body weight/day)	$E\text{-}SSTL_{SEDIMENT}$[b] for the Rail (mg/kg dry weight)
Copper	0.03	2.67	**239**	0.40	2.3	**46**
Zinc	0.1	9.6	**251**	0.54	17.2	**296**

[a] See Table 6-1.

[b] As described in Section 6.4.2:

$$E - SSTL = C_{sediment} = \frac{TRV \times BW}{[IR_{food}([AF_1 \times df_1] + [AF_2 \times df_2] + \ldots) + IR_{sediment}] \times AUF \times SF}$$

Using additional exposure-variable values below:

Description	Variable	Salt Marsh Harvest Mouse	Clapper Rail
Body Weight	BW	0.0099 kg	0.36 kg
Food Ingestion	IR_{food}	0.0024 kg dw/day	0.025 kg dw/day
Accumulation Factor Food Type 1	AF_1	chemical-specific PUF	chemical-specific BSAF
Dietary Fraction, Food Type 1	df_1	100%	50%
Accumulation Factor Food Type 2	AF_2	none	chemical-specific BSAF
Dietary Fraction, Food Type 2	df_2	none	50%
Sediment Ingestion	$IR_{sediment}$	0.00005 kg dw/day	0.0075 kg dw/day
Area Use Factor	AUF	1	1
Seasonality Factor	SF	1	1

Table 6-6
No Observable Adverse Effects Level (NOAEL) - Based Ecological Site-Specific Target Levels (E-SSTLs) for the Aquatic Habitat
Rhodia Martinez, Peyton Slough

	Mallard Duck				Great Blue Heron		
Chemical of Concern	**Invertebrate-Based (BSAF)[a] (kg invertebrate tissue dry weight/ kg sediment dry weight)**	**Aquatic Plant/Macrophyte-Based (L water/kg plant tissue)**	**NOAEL-Based TRV for Birds[a] (mg/kg - body weight/day)**	**E-SSTL$_{SEDIMENT}$[b] for the Duck(mg/kg dry weight)**	**Fish-Based BSAF[a] (kg fish tissue dry weight/ kg sediment dry weight)**	**NOAEL-Based TRV for Birds[a] (mg/kg - body weight/day)**	**E-SSTL$_{SEDIMENT}$[b] for the Heron (mg/kg dry weight)**
Copper	0.40	17	2.3	**1,214**	0.03	2.3	**412**
Zinc	0.54	510	17.2	**6,958**	0.47	17.2	**678**

	River Otter			
Chemical of Concern	**Invertebrate-Based (BSAF)[a] (kg invertebrate tissue dry weight/ kg sediment dry weight)**	**Fish-Based (BSAF)[a] (kg fish tissue dry weight/ kg sediment dry weight)**	**NOAEL-Based TRV for Mammals[a] (mg/kg - body weight/day)**	**E-SSTL$_{SEDIMENT}$[b] for the Otter (mg/kg dry weight)**
Copper	0.40	0.03	1.91	**691**
Zinc	0.54	0.47	6.81	**1,662**

Notes:

[a] See Table 6-1.

[b] As described in Section 6.4.2:

$$E-SSTL = C_{sediment} = \frac{TRV \times BW}{[IR_{food}([AF_1 \times df_1]+[AF_2 \times df_2]+\ldots)+IR_{sediment}]\times AUF \times SF}$$

Using additional exposure-variable values below:

Description	Variable	Mallard Duck	Great Blue Heron	River Otter
Body Weight	BW	1.134 kg	2.39 kg	8 kg
Food Ingestion	IR_{food}	0.117 kg dw/day	0.11 kg dw/day	0.4 kg dw/day
Accumulation Factor Food Type 1	AF_1	chemical-specific BSAF	chemical-specific BSAF	chemical-specific BSAF
Dietary Fraction, Food Type 1	df_1	50%	50%	50%
Accumulation Factor Food Type 2	AF_2	chemical-specific BCF	chemical-specific BSAF	chemical-specific BSAF
Dietary Fraction, Food Type 2	df_2	50%	50%	50%
Sediment Ingestion	$IR_{soil\ or\ sediment}$	0.0039 kg dw/day	0.01 kg dw/day	0.038 kg dw/day
Area Use Factor	AUF	0.08	1	0.13
Seasonality Factor	SF	1	1	1

Table 6-7
Lowest Observable Adverse Effects Level (LOAEL) - Based Ecological Site-Specific Target Levels (E-SSTLs) for the Wetland Habitat
Rhodia Martinez, Peyton Slough

Chemical of Concern	Salt Marsh Harvest Mouse			California Clapper Rail		
	Plant Uptake Factor for Pickleweed[a] (kg plant tissue dry weight/ kg sediment dry weight)	LOAEL-Based TRV for Mammals[a] (mg/kg - body weight/day)	E-SSTL$_{SEDIMENT}$[b] Ffor the Mouse (mg/kg dry weight)	Invertebrate-Based BSAF[a] (kg invertebrate tissue dry weight/ kg sediment dry weight)	LOAEL-Based TRV for Birds[a] (mg/kg - body weight/day)	E-SSTL$_{SEDIMENT}$[b] Ffor the Rail (mg/kg dry weight)
Copper	0.03	631.58	**56,632**	0.40	52.26	**1,081**
Zinc	0.1	411.43	**10,752**	0.54	172	**2,959**

[a] See Table 6-1.

[b] As described in Section 6.4.2:

$$E-SSTL = C_{sediment} = \frac{TRV \times BW}{[IR_{food}([AF_1 \times df_1]+[AF_2 \times df_2]+\ldots)+IR_{sediment}]\times AUF \times SF}$$

Using additional exposure-variable values below:

Description	Variable	Salt Marsh Harvest Mouse	Clapper Rail
Body Weight	BW	0.0099 kg	0.36 kg
Food Ingestion	IR_{food}	0.0024 kg dw/day	0.025 kg dw/day
Accumulation Factor Food Type 1	AF_1	chemical-specific PUF	chemical-specific BSAF
Dietary Fraction, Food Type 1	df_1	100%	50%
Accumulation Factor Food Type 2	AF_2	none	chemical-specific BSAF
Dietary Fraction, Food Type 2	df_2	none	50%
Sediment Ingestion	$IR_{sediment}$	0.00005 kg dw/day	0.0075 kg dw/day
Area Use Factor	AUF	1	1
Seasonality Factor	SF	1	1

Table 6-8
Lowest Observable Adverse Effects Level (LOAEL) - Based Ecological Site-Specific Target Levels (E-SSTLs) for the Aquatic Habitat
Rhodia Martinez, Peyton Slough

	Mallard Duck				Great Blue Heron		
Chemical of Concern	**Invertebrate-Based BSAF[a] (kg invertebrate tissue dry weight/ kg sediment dry weight)**	**Aquatic Plant/Macrophyte-Based Bioconcentration Factor (BCF)[a] (L water/kg plant tissue)**	**LOAEL-Based TRV for Birds[a] (mg/kg - body weight/day)**	**E-SSTL$_{SEDIMENT}$[b] for the Duck (mg/kg dry weight)**	**FISH-Based BSAF[a] (kg fish tissue dry weight/ kg sediment dry weight)**	**LOAEL-Based TRV for Birds[a] (mg/kg - body weight/day)**	**E-SSTL$_{SEDIMENT}$[b] for the Heron (mg/kg dry weight)**
Copper	0.40	17	52.26	**27,586**	0.03	52.26	**9,365**
Zinc	0.54	510	172	**69,580**	0.47	172	**6,777**

	River Otter			
Chemical of Concern	**Invertebrate-Based BSAF[a] (kg invertebrate tissue dry weight/ kg sediment dry weight)**	**Fish-Based BSAF[a] (kg fish tissue dry weight/ kg sediment dry weight)**	**LOAEL-Based TRV for Mammals[a] (mg/kg - body weight/day)**	**E-SSTL$_{SEDIMENT}$[b] for the Otter(mg/kg dry weight)**
Copper	0.40	0.03	447.34	**161,874**
Zinc	0.54	0.47	411.43	**100,500**

Notes:

[a] See Table 6-1.

[b] As described in Section 6.4.2:

$$E-SSTL = C_{sediment} = \frac{TRV \times BW}{[IR_{food}([AF_1 \times df_1]+[AF_2 \times df_2]+\ldots)+IR_{sediment}] \times AUF \times SF}$$

Using additional exposure-variable values below:

Description	Variable	Mallard Duck	Great Blue Heron	River Otter
Body Weight	BW	1.134 kg	2.39 kg	8 kg
Food Ingestion	IR_{food}	0.117 kg dw/day	0.11 kg dw/day	0.4 kg dw/day
Accumulation Factor Food Type 1	AF_1	chemical-specific BSAF	chemical-specific BSAF	chemical-specific BSAF
Dietary Fraction, Food Type 1	df_1	50%	50%	50%
Accumulation Factor Food Type 2	AF_2	chemical-specific BCF	chemical-specific BSAF	chemical-specific BSAF
Dietary Fraction, Food Type 2	df_2	50%	50%	50%
Sediment Ingestion	$IR_{soil\ or\ sediment}$	0.0039 kg dw/day	0.01 kg dw/day	0.038 kg dw/day
Area Use Factor	AUF	0.08	1	0.13
Seasonality Factor	SF	1	1	1

Table 6-9
Summary of Toxicity and Bioaccumulation Test Results
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA

Sample Location	pH	Mytilus Mean Development (Elutriate)						Nereis Virens Mean #Survival (Bioaccumulation)
		Control	6.25%	12.5%	25%	50%	100%	
HOME CONTROL	--	na						21.6
RA 1-0	6.6	94.2	na	na	na	na	na	22.2
RA 1-2	7.4		95.8	93.5	94.2	92.0	10.2*	na
RA 2-0	4.8		0*	0*	0*	0*	0*	na
RA 2-2[a]	4.3		0* (0*)	0* (0*)	0* (0*)	0* (0*)	0* (0*)	na
RA 3-0	4.4		0* (0*)	0* (0*)	0* (0*)	0* (0*)	0* (0*)	na
RA 3-2	7.2		95.5	95.2	94.2	27.5*	0*	na
RA 4-2	4.4		0* (0*)	0* (0*)	0* (0*)	0* (0*)	0* (0*)	na
RA 6-0	7.1		na	na	na	na	na	4.6
RA 6-2	6.5		0*	0*	0*	0*	0*	na
RA 7-0	4.0		0* (0*)	0* (0*)	0* (0*)	0* (0*)	0* (0*)	na
RA 8-0	4.4		0* (0*)	0* (0*)	0* (0*)	0* (0*)	0* (0*)	na
RA 9-0	4.2		0* (61.5*)	0* (0*)	0* (0*)	0* (0*)	0* (0*)	na
RA 9-2	5.4		0*	0*	0*	0*	0*	na
RA 10-0	4.4		na	na	na	na	na	9.2
RA 10-2	4.2		0* (0*)	0* (0*)	0* (0*)	0* (0*)	0* (0*)	na
RA 11-0	5.4		na	na	na	na	na	5.6
RA 12-0	5.1		na	na	na	na	na	4.25
RA 12-2	4.0		87.0* (91.2*)	0* (0*)	0* (0*)	0* (0*)	0* (0*)	na

Notes:

* = Significantly less than the control at $p<0.05$.

na = not applicable

[a] Value in parathensis represents result by adjusting the pH of the elutriate prior to the test.

Table 6-10
Tier 1 Screening for Sediment
Slough Bottom and Embankment Samples
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Sulfide (mg/kg)	ERMq Cu	ERMq Zn	Mean ERMq
Ecological Screening Values									
ERM			270	410					
ERL			34	150					
SSL					6.5				
Ambient Concentration									
RWQCB			68.1	158					
NORTH SLOUGH									
1N	1998	--	**1,610**	**2,120**	--	--	6.0	5.2	**5.6**
2N	1998	--	**501**	**1,640**	--	--	1.9	4.0	**2.9**
3N	1998	--	**3,980**	**2,830**	--	--	14.7	6.9	**10.8**
4N	1998	--	**10,300**	**7,260**	--	--	38.1	17.7	**27.9**
5N	1998	--	**61,100**	**21,700**	--	--	226.3	52.9	**139.6**
6N	1998	--	**2,980**	**1,220**	--	--	11.0	3.0	**7.0**
7N	1998	--	**121,000**	**7,680**	--	--	448.1	18.7	**233.4**
8N	1998	--	51	81	--	--	0.2	0.2	0.2
North SL1	2000	--	42	68	7.2	--	0.2	0.2	0.2
North SL1 Mouth	2000	--	35	65	7.1	--	0.1	0.2	0.1
North SL2 A	2000	--	57	90	7.4	--	0.2	0.2	0.2
North SL2 B	2000	--	34	73	7.3	--	0.1	0.2	0.2
North SL2 C	2000	--	18	32	7.4	--	0.1	0.1	0.1
SOUTH SLOUGH									
1S	1999	--	**71,700**	**88,300**	--	--	265.6	215.4	**240.5**
2S	1999	--	**18,400**	**19,300**	--	--	68.1	47.1	**57.6**
3S	1999	--	**950**	**3180**	--	--	3.5	7.8	**5.6**
4S	1999	--	**53,900**	**25100**	--	--	199.6	61.2	**130.4**
5S	1999	--	**705**	**1310**	--	--	2.6	3.2	**2.9**
6S	1999	--	**156**	**398**	--	--	0.6	1.0	**0.8**
7S	1999	--	**3,200**	**3810**	--	--	11.9	9.3	**10.6**

Table 6-10
Tier 1 Screening for Sediment
Slough Bottom and Embankment Samples
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Sulfide (mg/kg)	ERMq Cu	ERMq Zn	Mean ERMq
Ecological Screening Values									
ERM			270	410					
ERL			34	150					
SSL					6.5				
Ambient Concentration									
RWQCB			68.1	158					
EMBANKMENT SAMPLES									
S1E-0	2000	0	31	**260**	7.4	74	0.1	0.6	0.4
S1W-0	2000	0	**540**	**450**	5.9	<10	2.0	1.1	**1.5**
S2E-0	2000	0	**1,000**	**520**	7.3	130	3.7	1.3	**2.5**
S2W-0	2000	0	**190**	**210**	5.9	<10	0.7	0.5	**0.6**
S3E-0	2000	0	**190**	**360**	7.4	260	0.7	0.9	**0.8**
S3W-0	2000	0	**560**	**510**	6.9	<10	2.1	1.2	**1.7**
S4E-0	2000	0	**160**	**290**	7.3	<10	0.6	0.7	**0.6**
S4W-0	2000	0	**110**	**240**	6.3	<10	0.4	0.6	**0.5**
S5E-0	2000	0	**200**	120	7.0	110	0.7	0.3	**0.5**
S5W-0	2000	0	**95**	**660**	7.3	140	0.4	1.6	**1.0**
N1E-0	2000	0	**1,300**	**2,000**	6.6	<10	4.8	4.9	**4.8**
N1W-0	2000	0	**75**	**240**	5.9	<10 UJ	0.3	0.6	0.4
N2E-0	2000	0	**78**	98	6.7	38	0.3	0.2	0.3
N2W-0	2000	0	**75**	110	6.4	54 J	0.3	0.3	0.3
N3E-0	2000	0	**75**	140	6.6	38	0.3	0.3	0.3
N3W-0	2000	0	63	150	6.3	<10 UJ	0.2	0.4	0.3
N4E-0	2000	0	**390**	**1,400**	7.6	<10	1.4	3.4	**2.4**
N4W-0	2000	0	10	38	6.7	35 J	0.0	0.1	0.1
N5E-0	2000	0	34	92	6.7	<10 UJ	0.1	0.2	0.2
N5W-0	2000	0	**82**	**330**	6.8	19 J	0.3	0.8	**0.6**
SIW-2	2000	2	9	**3,200**	5.2	--	0.0	7.8	**3.9**
S2E-2	2000	2	29	79	7.3	--	0.1	0.2	0.2
S3W-3	2000	3	**72**	100	7.0	--	0.3	0.2	0.3
S5W-2	2000	2	**73**	43	7.0	--	0.3	0.1	0.2

Table 6-10
Tier 1 Screening for Sediment
Slough Bottom and Embankment Samples
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Sulfide (mg/kg)
Ecological Screening Values						
ERM			270	410		
ERL			34	150		
SSL					6.5	
Ambient Concentration						
RWQCB			68.1	158		
N1E-2	2000	2	53	150	--	--
N4E-3	2000	3	**110**	**820**	7.6	--

ERMq Cu	ERMq Zn	Mean ERMq
0.2	0.4	0.3
0.4	2.0	**1.2**

Notes:

	Indicates that results or reporting limits exceed ERM or SSL.
0.022	Boldface indicates that results or reporting limits exceed RWQCB ambient concentrations.
SSL =	Personal communication with Dr. Scott Ogle of Pacific EcoRisk (laboratory used for toxicity and bioaccumulation testing).
ERL/ERM =	From Long et al. (1995).
RWQCB =	Regional Water Quality Control Board 1998. San Francisco Estuary Sediment Ambient Concentrations.
TOC =	Total Organic Carbon.
--	Indicates that no data are available.
nd =	Not Detected.
J=	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ=	The analyte was not detected above the sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Notes:

	Indicates that ERMq is greater than 1.5.
0.022	Boldface indicates that ERMq is greater than 0.5.
ERMq =	ERM Quotient (Analytical result divided by ERM value).
Mean =	ERMq divided by number of analytes.
na=	Not Applicable.

Table 6-11
Tier 1 Screening for Soil/Sediment
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Grain Size (% Fines)	TOC (%)	Copper (mg/kg)	Zinc (mg/kg)	pH	Moisture (%)	Sulfide (mg/kg)	Sulfate (mg/kg)	ERMq Cu	ERMq Zn	Mean ERMq
Ecological Screening Values													
ERM					270	410							
ERL					34	150							
SSL							6.5						
Ambient Concentrations													
RWQCB:					68.1	158							
DREDGE SPOIL PILES													
S1-0	2000	0	--	--	**270**	**360**	6.2	--	<10 UJ	410	1.0	0.9	**0.9**
S2-0	2000	0	--	--	**820**	**1,100**	3.6	--	<10 UJ	730	3.0	2.7	**2.9**
S3-0	2000	0	--	--	**280**	**360**	3.8	--	<10 UJ	1,200	1.0	0.9	**1.0**
S4-0	2000	0	--	--	**270**	**3,800**	5.7	--	<10 UJ	6,400	1.0	9.3	**5.1**
S5-0	2000	0	--	--	**170**	**1,200**	4.2	--	<10 UJ	9,800	0.6	2.9	**1.8**
S6-0	2000	0	--	--	**240**	**1,000**	3.4	--	<10 UJ	6,500	0.9	2.4	**1.7**
S7-0	2000	0	--	--	**1,800**	**530**	3.4	--	<10 UJ	2,300	6.7	1.3	**4.0**
S8-0	2000	0	--	--	**1,700**	**360**	3.3	--	<10 UJ	1,300	6.3	0.9	**3.6**
S9-0	2000	0	--	--	**1,700**	**290**	3.8	--	<10 UJ	910	6.3	0.7	**3.5**
S10-0	2000	0	--	--	**1,700**	**550**	3.1	--	<10 UJ	4,600	6.3	1.3	**3.8**
S11-0	2000	0	--	--	**230**	**330**	3.7	--	<10 UJ	930	0.9	0.8	**0.8**
N1-0	2000	0	--	--	**480**	**300**	4.1	--	<10 UJ	670	1.8	0.7	**1.3**
N2-0	2000	0	--	--	**75**	**810**	3.3	--	<10 UJ	10,000	0.3	2.0	**1.1**
N3-0	2000	0	--	--	**190**	**510**	4.4	--	<10 UJ	1,100	0.7	1.2	**1.0**
N4-0	2000	0	--	--	**180**	**300**	3.4	--	<10 UJ	2,200	0.7	0.7	**0.7**
N5-0	2000	0	--	--	33	77	6.4	--	<10 UJ	390	0.1	0.2	0.2
N6-0	2000	0	--	--	52	86	7.0	--	<10 UJ	6	0.2	0.2	0.2
N7-0	2000	0	--	--	**510**	**480**	4.1	--	<10 UJ	8,300	1.9	1.2	**1.5**
N8-0	2000	0	--	--	**880**	**650**	4.0	--	<10 UJ	2,100	3.3	1.6	**2.4**
N9-0	2000	0	--	--	**5,900**	**910**	4.3	--	<10	na	21.9	2.2	**12.0**
RA1	10/18/01	0-0.5	--	3.4	64	150	6.6	64	<28	2,300	0.2	0.4	0.3
RA1	10/18/01	2-2.5	--	0.71	**98**	**230**	7.4	48	<19	510	0.4	0.6	**0.5**
RA2	10/18/01	0-0.5	--	1.1	**390**	**1,200**	4.8	7	84	1,900	1.4	2.9	**2.2**
RA2	10/18/01	2-2.5	--	0.67	**120**	**310**	4.3	40	<17	470	0.4	0.8	**0.6**
RA3	10/18/01	0-0.5	--	3.0	**210**	**760**	4.4	39	<16	210	0.8	1.9	**1.3**
RA3	10/18/01	2-2.5	--	1.1	**150**	**1,400**	7.2	40	<17	810	0.6	3.4	**2.0**
RA4	10/18/01	0-0.5	--	1.5	**270**	**470**	3.4	26	<14	12,000	1.0	1.1	**1.1**
RA4	10/18/01	2-2.5	--	0.64	**73**	**580**	4.4	39	<16	4,300	0.3	1.4	**0.8**
RA5	10/18/01	0-0.5	--	1.5	**5,500**	**770**	4.6	23	<13	4,600	20.4	1.9	**11.1**
RA5	10/18/01	2-2.5	--	1.4	**1,500**	**2,000**	7.1	42	<17	700	5.6	4.9	**5.2**
RA6	10/18/01	0-0.5	58.3	1.3	**640**	**620**	7.1	6	<11	4,200	2.4	1.5	**1.9**
RA6	10/18/01	2-2.5	69.7	0.59	**870**	**470**	6.5	30	<14	2,100	3.2	1.1	**2.2**

Table 6-11
Tier 1 Screening for Soil/Sediment
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Grain Size (% Fines)	TOC (%)	Copper (mg/kg)	Zinc (mg/kg)	pH	Moisture (%)	Sulfide (mg/kg)	Sulfate (mg/kg)	ERMq Cu	ERMq Zn	Mean ERMq
Ecological Screening Values													
ERM					270	410							
ERL					34	150							
SSL							6.5						
Ambient Concentrations													
RWQCB:					68.1	158							
RA7	10/18/01	0-0.5	82.9	3.2	**330**	**310**	4.0	9	<11	2,300	1.2	0.8	**1.0**
RA7	10/18/01	2-2.5		1.9	**250**	**210**	4.2	35	<15	360	0.9	0.5	**0.7**
RA8	10/18/01	0-1.5	74.0	3.6	**670**	**610**	4.4	12	<11	86	2.5	1.5	**2.0**
RA8	10/18/01	1.5-2.5	--	1.2	**250**	**370**	5.6	47	<19	440	0.9	0.9	**0.9**
RA9	10/18/01	0-0.5	64.5	7.2	**740**	**380**	4.2	27	<14	1,300	2.7	0.9	**1.8**
RA9	10/18/01	2-2.5	88.2	2.3	**310**	**340**	5.4	48	<19	640	1.1	0.8	**1.0**
RA10	10/18/01	0-0.5	81.1	3.3	**1,900**	**1,400**	4.4	46	<19	1,000	7.0	3.4	**5.2**
RA10	10/18/01	2-2.5	87.5	0.66	**390**	**450**	4.2	21	<13	1,800	1.4	1.1	**1.3**
RA11	10/18/01	0-0.5	18.6	1.6	**300**	**2,400**	5.4	13	<11	2,000	1.1	5.9	**3.5**
RA11	10/18/01	2-2.5	--	2.4	**350**	**700**	6.1	52	<21	620	1.3	1.7	**1.5**
RA12	10/22/01	0-0.5	77.0	4.7	**1,300**	**330**	5.1	33	<15	3,900	4.8	0.8	**2.8**
RA12	10/22/01	2-2.5	66.8	4.6	63	**220**	4.0	55	<22	7,800	0.2	0.5	0.4
TRANSECTS													
Trans 1	10/22/01	0-0.5	--	--	**2,500**	**1,500**	3.2	15	--	--	9.3	3.7	**6.5**
Trans 2	10/22/01	0-0.5	--	--	**3,100**	**710**	4.2	24	--	--	11.5	1.7	**6.6**
Trans 3	10/22/01	0-0.5	--	--	**3,300**	**690**	5.2	30	--	--	12.2	1.7	**7.0**
Trans 4	10/22/01	0-0.5	--	--	**1,900**	**770**	5.3	33	--	--	7.0	1.9	**4.5**
Trans 5	10/22/01	0-0.5	--	--	**1,300**	**440**	5.2	32	--	--	4.8	1.1	**2.9**
Trans 6	10/22/01	0-0.5	--	--	**1,800**	**630**	5.1	32	--	--	6.7	1.5	**4.1**
SEDIMENT SAMPLES CO-LOCATED WITH PICKLEWEED SAMPLES													
PWS-HL-1A	11/9/01	0-0.5	--	6.3	**880**	**270**	5.2	25	--	--	3.3	0.7	**2.0**
PWS-HL-1B	11/9/01	0-0.5	--	7.7	**850**	**270**	5.2	26	--	--	3.1	0.7	**1.9**
PWS-HL-3	11/14/01	0-0.5	--	5.3	**140**	**250**	6.6	60	--	--	0.5	0.6	**0.6**
PWS-LH-4	11/9/01	0-0.5	--	2.2	**85**	150	6.9	52	--	--	0.3	0.4	0.3
PWS-ML-2	11/14/01	0-0.5	--	8.2	**1,000**	**350**	5.6	52	--	--	3.7	0.9	**2.3**
PWS-XX-5	11/14/01	0-0.5	--	6.5	**270**	**2,200**	7.1	57	--	--	1.0	5.4	**3.2**
PWS-XY-6	11/14/01	0-0.5	--	5.1	**600**	**990**	7.2	63	--	--	2.2	2.4	**2.3**
TRENCH SAMPLES													
T1-FILL	2000	--	--	--	**20,000**	**1,900**	4.9	--	--	--	74.1	4.6	**39.4**
T1-S-0.5	2000	0.5	--	--	**970**	**420**	5.7	--	<10	--	3.6	1.0	**2.3**
TI-S-1.5	2000	1.5	--	--	**20,000**	**5,600**	5.2	--	<10	--	74.1	13.7	**43.9**
T1-S-3	2000	3	--	--	**1,400**	**380**	3.8	--	<10	--	5.2	0.9	**3.1**
T2-SPOILS	2000	--	--	--	**1,100**	**480**	2.6	--	<10	--	4.1	1.2	**2.6**
T3-S-1	2000	1	--	--	**14,000**	**2,800**	4.8	--	<10	--	51.9	6.8	**29.3**
T3-S-2	2000	2	--	--	**1,600**	**500**	3.8	--	<10	--	5.9	1.2	**3.6**
T3-S-4	2000	4	--	--	**690**	**650**	3.7	--	<10	--	2.6	1.6	**2.1**

Table 6-11
Tier 1 Screening for Soil/Sediment
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Grain Size (% Fines)	TOC (%)	Copper (mg/kg)	Zinc (mg/kg)	pH	Moisture (%)	Sulfide (mg/kg)	Sulfate (mg/kg)	ERMq Cu	ERMq Zn	Mean ERMq
Ecological Screening Values													
ERM					270	410							
ERL					34	150							
SSL							6.5						
Ambient Concentrations													
RWQCB:					68.1	158							
T4-SPOILS	2000	--	--	--	**810**	**640**	3.0	--	<10	--	3.0	1.6	**2.3**
T4-FILL	2000	--	--	--	**1,500**	**580**	4.0	--	--	--	5.6	1.4	**3.5**
T5-S-0.5	2000	0.5	--	--	**180**	**160**	4.0	--	<10	--	0.7	0.4	**0.5**
T5-S-1	2000	1	--	--	**1,500**	**930**	3.3	--	<10	--	5.6	2.3	**3.9**
T5-S-2	2000	2	--	--	**540**	**570**	3.1	--	<10	--	2.0	1.4	**1.7**
T5-S-2.5	2000	2.5	--	--	**330**	**580**	3.0	--	<10	--	1.2	1.4	**1.3**
T5-S-4	2000	4	--	--	**610**	**840**	4.0	--	<10	--	2.3	2.0	**2.2**
T7-S-0.5	2000	0.5	--	--	22	90	6.6	--	<10	--	0.1	0.2	0.2
T7-S-1	2000	1	--	--	**2,100**	**2,000**	6.4	--	<10	--	7.8	4.9	**6.3**
T7-S-1.5	2000	1.5	--	--	**900**	**600**	5.5	--	<10	--	3.3	1.5	**2.4**
T9-S-2	2000	2	--	--	**6,700**	**2,000**	4.1	--	<10	--	24.8	4.9	**14.8**
T11-S-0.5	2000	0.5	--	--	**540**	**3,700**	7.0	--	<10	--	2.0	9.0	**5.5**
T12-S-0.5	2000	0.5	--	--	66	97	3.5	--	<10	--	0.2	0.2	0.2
T12-S-1	2000	1	--	--	**110**	120	3.1	--	<10	--	0.4	0.3	0.4
T12-S-2.5	2000	2.5	--	--	**1,300**	**1,000**	4.9	--	<10	--	4.8	2.4	**3.6**
T12-S-4	2000	4	--	--	**460**	**2,400**	5.7	--	62	--	1.7	5.9	**3.8**

Notes:

	Indicates that results or reporting limits exceed ERM or SSL.
0.022	Boldface indicates that results or reporting limits exceed RWQCB ambient concentrations.
SSL =	Personal communication with Dr. Scott Ogle of Pacific EcoRisk (laboratory used for toxicity and bioaccumulation testing).
ERL/ERM =	From Long et al. (1995).
RWQCB =	Regional Water Quality Control Board 1998. San Francisco Estuary Sediment Ambient Concentrations.
TOC =	Total Organic Carbon.
--	Indicates that no data are available.
J =	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ =	The analyte was not detected above the sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Notes:

	Indicates that ERMq is greater than 1.5.
0.022	Boldface indicates that ERMq is greater than 0.5.
ERMq =	ERM Quotient (Analytical result divided by ERM value).
Mean =	ERMq divided by number of analytes.

Table 6-12
Tier 1 Screening for Surface Water
Existing Slough
Peyton Slough, Martinez, CA

Sample Location	Date	Hardness (as $CaCO_3$) (mg/L)	TOC (mg/L)	TSS (mg/L)	Salinity (%)	Total Copper (mg/L)	Dissolved Copper (mg/L)	Total Zinc (mg/L)	Dissolved Zinc (mg/L)	pH	Total Sulfide (mg/L)	Dissolved Sulfide (mg/L)	Sulfate (mg/L)
Ecological Screening Values													
AWQS						0.0031[a]	0.0031	0.081[a]	0.081				
IML										6.5-9.0			
Ambient Concentrations													
SFEI:						0.0058	0.0014	0.0099	0.00071				
PSS-SW	2000	--	--	--	<0.36	**0.012**	--	**0.23**	--	8.0	0.058J	--	--
SG-2	3/1/01	--	--	--	--	**0.028**	--	**0.15**	--	7.0	--	--	--
SG-3	3/1/01	--	--	--	--	**0.023**	--	**0.23**	--	6.9	--	--	--
SW1	11/9/01	2,700	1.4	68	1.4	**0.012**	**0.0054**	**0.011**	**<0.02**	7.5	<0.04	<0.04	1000
SW2	11/9/01	2,200	2.3	51	1.0	**0.013**	**0.008**	**0.019**	**<0.02**	7.5	<0.04	<0.04	830
SW3	11/9/01	1,900	3.9	110	0.85	**0.028**	**0.0066**	**0.042**	**<0.02**	7.4	<0.04	<0.04	750
SW4	11/9/01	2,300	2.8	49	1.0	**0.021**	**0.0054**	**0.057**	**0.028**	7.7	<0.04	<0.04	840
SW5	11/9/01	790	9.2	160	0.64	**0.016**	**0.0042**	**0.037**	**0.032**	7.8	<0.04	<0.04	530
SW6	11/9/01	700	18	270	<0.36	**<0.01**	**0.0025**	**0.035**	**<0.02**	8.1	<0.04	<0.04	330

Notes:
- Shaded cell: Indicates that results or reporting limits exceed AWQS or IML.
- **0.022**: Boldface indicates that results or reporting limits exceed San Francisco Estuary Institute concentrations.
- AWQS = Ambient Water Quality Standards, California Toxics Rule, US EPA (2000).
- IML = Instantaneous Maximum Level, California Inland Surface Waters Plan, Marshak (1998).
- SFEI = San Francisco Estuary Institute (1999). Average of available 1999 data for Honker Bay, Grizzly Bay, and Pacheco Creek.
- TOC = Total Organic Carbon.
- TSS = Total Suspended Solids.
- N/A = Not Applicable.
- -- Indicates that no data are available.
- [a] Dissolved concentration used for total comparison.
- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Table 6-13
Tier 2 NOAEL-Based E-SSTL Screening for Sediment
Slough Bottom and Embankment Samples
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Sulfide (mg/kg)
NOAEL-Based E-SSTLs						
Wetland Habitat						
Salt Marsh Harvest Mouse			**239**	**251**		
California Clapper Rail			**46**	**296**		
Aquatic Habitat						
Mallard Duck			**1,214**	**6,958**		
Great Blue Heron			**412**	**678**		
River Otter			**691**	**1,662**		
North Slough						
1N	1998	--	**1,610**	**2,120**	--	--
2N	1998	--	**501**	**1,640**	--	--
3N	1998	--	**3,980**	**2,830**	--	--
4N	1998	--	**10,300**	**7,260**	--	--
5N	1998	--	**61,100**	**21,700**	--	--
6N	1998	--	**2,980**	**1,220**	--	--
7N	1998	--	**121,000**	**7,680**	--	--
8N	1998	--	51	81	--	--
North SL1	2000	--	42	68	7.2	--
North SL1 Mouth	2000	--	35	65	7.1	--
North SL2 A	2000	--	57	90	7.4	--
North SL2 B	2000	--	34	73	7.3	--
North SL2 C	2000	--	18	32	7.4	--
South Slough						
1S	1999	--	**71,700**	**88,300**	--	--
2S	1999	--	**18,400**	**19,300**	--	--
3S	1999	--	**950**	**3,180**	--	--
4S	1999	--	**53,900**	**25,100**	--	--
5S	1999	--	**705**	**1,310**	--	--
6S	1999	--	156	398	--	--
7S	1999	--	**3,200**	**3,810**	--	--
Embankment Samples						
S1E-0	2000	0	31	260	7.4	74
S1W-0	2000	0	**540**	450	5.9	<10
S2E-0	2000	0	**1,000**	520	7.3	130
S2W-0	2000	0	190	210	5.9	<10
S3E-0	2000	0	190	360	7.4	260
S3W-0	2000	0	**560**	510	6.9	<10
S4E-0	2000	0	160	290	7.3	<10
S4W-0	2000	0	110	240	6.3	<10

Table 6-13
Tier 2 NOAEL-Based E-SSTL Screening for Sediment
Slough Bottom and Embankment Samples
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Sulfide (mg/kg)
NOAEL-Based E-SSTLs						
Wetland Habitat						
Salt Marsh Harvest Mouse			**239**	**251**		
California Clapper Rail			**46**	**296**		
Aquatic Habitat						
Mallard Duck			**1,214**	**6,958**		
Great Blue Heron			**412**	**678**		
River Otter			**691**	**1,662**		
S5E-0	2000	0	200	120	7.0	110
S5W-0	2000	0	95	660	7.3	140
N1E-0	2000	0	**1,300**	**2,000**	6.6	<10
N1W-0	2000	0	75	240	5.9	<10 UJ
N2E-0	2000	0	78	98	6.7	38
N2W-0	2000	0	75	110	6.4	54 J
N3E-0	2000	0	75	140	6.6	38
N3W-0	2000	0	63	150	6.3	<10 UJ
N4E-0	2000	0	390	**1,400**	7.6	<10
N4W-0	2000	0	10	38	6.7	35 J
N5E-0	2000	0	34	92	6.7	<10 UJ
N5W-0	2000	0	82	330	6.8	19 J
SIW-2	2000	2	9	**3,200**	5.2	--
S2E-2	2000	2	29	79	7.3	--
S3W-3	2000	3	72	100	7.0	--
S5W-2	2000	2	73	43	7.0	--
N1E-2	2000	2	53	150	--	--
N4E-3	2000	3	110	**820**	7.6	--

Notes:

	Indicates that results or reporting limits exceed one or more wetland habitat E-SSTLs.
0.022	Boldface indicates that results or reporting limits exceed one or more aquatic habitat E-SSTLs.
NOAEL	No Observable Adverse Effects Level.
E-SSTL	Ecological Site-Specific Target Level.
TOC =	Total Organic Carbon.
--	Indicates that no data are available.
nd =	Not Detected.
J=	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ=	The analyte was not detected above the sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

TAble 6-14
Tier 2 LOAEL-Based E-SSTL Screening for Sediment
Slough Bottom and Embankment Samples
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Sulfide (mg/kg)
LOAEL-Based E-SSTLs						
Wetland Habitat						
Salt Marsh Harvest Mouse			**56,632**	**10,752**		
California Clapper Rail			**1,081**	**2,959**		
Aquatic Habitat						
Mallard Duck			**27,586**	**69,580**		
Great Blue Heron			**9,365**	**6,777**		
River Otter			**161,874**	**100,500**		
North Slough						
1N	1998	--	1,610	2,120	--	--
2N	1998	--	501	1,640	--	--
3N	1998	--	3,980	2,830	--	--
4N	1998	--	**10,300**	**7,260**	--	--
5N	1998	--	**61,100**	**21,700**	--	--
6N	1998	--	2,980	1,220	--	--
7N	1998	--	**121,000**	**7,680**	--	--
8N	1998	--	51	81	--	--
North SL1	2000	--	42	68	7.2	--
North SL1 Mouth	2000	--	35	65	7.1	--
North SL2 A	2000	--	57	90	7.4	--
North SL2 B	2000	--	34	73	7.3	--
North SL2 C	2000	--	18	32	7.4	--
South Slough						
1S	1999	--	**71,700**	**88,300**	--	--
2S	1999	--	**18,400**	**19,300**	--	--
3S	1999	--	950	3,180	--	--
4S	1999	--	**53,900**	**25,100**	--	--
5S	1999	--	705	1,310	--	--
6S	1999	--	156	398	--	--
7S	1999	--	3,200	3,810	--	--
Embankment Samples						
S1E-0	2000	0	31	260	7.4	74
S1W-0	2000	0	540	450	5.9	<10
S2E-0	2000	0	1,000	520	7.3	130
S2W-0	2000	0	190	210	5.9	<10
S3E-0	2000	0	190	360	7.4	260
S3W-0	2000	0	560	510	6.9	<10
S4E-0	2000	0	160	290	7.3	<10
S4W-0	2000	0	110	240	6.3	<10

TAble 6-14
Tier 2 LOAEL-Based E-SSTL Screening for Sediment
Slough Bottom and Embankment Samples
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Sulfide (mg/kg)
LOAEL-Based E-SSTLs						
Wetland Habitat						
Salt Marsh Harvest Mouse			**56,632**	**10,752**		
California Clapper Rail			**1,081**	**2,959**		
Aquatic Habitat						
Mallard Duck			**27,586**	**69,580**		
Great Blue Heron			**9,365**	**6,777**		
River Otter			**161,874**	**100,500**		
S5E-0	2000	0	200	120	7.0	110
S5W-0	2000	0	95	660	7.3	140
N1E-0	2000	0	1,300	2,000	6.6	<10
N1W-0	2000	0	75	240	5.9	<10 UJ
N2E-0	2000	0	78	98	6.7	38
N2W-0	2000	0	75	110	6.4	54 J
N3E-0	2000	0	75	140	6.6	38
N3W-0	2000	0	63	150	6.3	<10 UJ
N4E-0	2000	0	390	1,400	7.6	<10
N4W-0	2000	0	10	38	6.7	35 J
N5E-0	2000	0	34	92	6.7	<10 UJ
N5W-0	2000	0	82	330	6.8	19 J
SIW-2	2000	2	9	3,200	5.2	--
S2E-2	2000	2	29	79	7.3	--
S3W-3	2000	3	72	100	7.0	--
S5W-2	2000	2	73	43	7.0	--
N1E-2	2000	2	53	150	--	--
N4E-3	2000	3	110	820	7.6	--

Notes:

	Indicates that results or reporting limits exceed one or more wetland habitat E-SSTLs.
0.022	Boldface indicates that results or reporting limits exceed one or more aquatic habitat E-SSTLs.
LOAEL	Lowest Observable Adverse Effects Level.
E-SSTL	Ecological Site-Specific Target Level.
TOC =	Total Organic Carbon.
--	Indicates that no data are available.
nd =	Not Detected.
J=	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ=	The analyte was not detected above the sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Table 6-15
Tier 2 NOAEL-Based E-SSTL Screening for Soil/Sediment
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Moisture (%)	Sulfide (mg/kg)	Sulfate (mg/kg)
NOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**239**	**251**				
California Clapper Rail			**46**	**296**				
Aquatic Habitat								
Mallard Duck			**1,214**	**6,958**				
Great Blue Heron			**412**	**678**				
River Otter			**691**	**1,662**				
Dredge Spoil Piles								
S1-0	2000	0	270	360	6.2	--	<10 UJ	410
S2-0	2000	0	**820**	**1,100**	3.6	--	<10 UJ	730
S3-0	2000	0	280	360	3.8	--	<10 UJ	1,200
S4-0	2000	0	270	**3,800**	5.7	--	<10 UJ	6,400
S5-0	2000	0	170	**1,200**	4.2	--	<10 UJ	9,800
S6-0	2000	0	240	**1,000**	3.4	--	<10 UJ	6,500
S7-0	2000	0	**1,800**	530	3.4	--	<10 UJ	2,300
S8-0	2000	0	**1,700**	360	3.3	--	<10 UJ	1,300
S9-0	2000	0	**1,700**	290	3.8	--	<10 UJ	910
S10-0	2000	0	**1,700**	550	3.1	--	<10 UJ	4,600
S11-0	2000	0	230	330	3.7	--	<10 UJ	930
N1-0	2000	0	**480**	300	4.1	--	<10 UJ	670
N2-0	2000	0	75	**810**	3.3	--	<10 UJ	10,000
N3-0	2000	0	190	510	4.4	--	<10 UJ	1,100
N4-0	2000	0	180	300	3.4	--	<10 UJ	2,200
N5-0	2000	0	33	77	6.4	--	<10 UJ	390
N6-0	2000	0	52	86	7.0	--	<10 UJ	6
N7-0	2000	0	**510**	480	4.1	--	<10 UJ	8,300
N8-0	2000	0	**880**	650	4.0	--	<10 UJ	2,100
N9-0	2000	0	**5,900**	**910**	4.3	--	<10	na
RA1	10/18/01	0-0.5	64	150	6.6	64	<28	2,300
RA1	10/18/01	2-2.5	98	230	7.4	48	<19	510
RA2	10/18/01	0-0.5	390	**1,200**	4.8	7	84	1,900
RA2	10/18/01	2-2.5	120	310	4.3	40	<17	470
RA3	10/18/01	0-0.5	210	**760**	4.4	39	<16	210
RA3	10/18/01	2-2.5	150	**1,400**	7.2	40	<17	810
RA4	10/18/01	0-0.5	270	470	3.4	26	<14	12,000
RA4	10/18/01	2-2.5	73	580	4.4	39	<16	4,300
RA5	10/18/01	0-0.5	**5,500**	**770**	4.6	23	<13	4,600
RA5	10/18/01	2-2.5	**1,500**	**2,000**	7.1	42	<17	700
RA6	10/18/01	0-0.5	**640**	620	7.1	6	<11	4,200
RA6	10/18/01	2-2.5	**870**	470	6.5	30	<14	2,100

Table 6-15
Tier 2 NOAEL-Based E-SSTL Screening for Soil/Sediment
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Moisture (%)	Sulfide (mg/kg)	Sulfate (mg/kg)
NOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**239**	**251**				
California Clapper Rail			**46**	**296**				
Aquatic Habitat								
Mallard Duck			**1,214**	**6,958**				
Great Blue Heron			**412**	**678**				
River Otter			**691**	**1,662**				
RA7	10/18/01	0-0.5	330	310	4.0	9	<11	2,300
RA7	10/18/01	2-2.5	250	210	4.2	35	<15	360
RA8	10/18/01	0-1.5	**670**	610	4.4	12	<11	86
RA8	10/18/01	1.5-2.5	250	370	5.6	47	<19	440
RA9	10/18/01	0-0.5	**740**	380	4.2	27	<14	1,300
RA9	10/18/01	2-2.5	310	340	5.4	48	<19	640
RA10	10/18/01	0-0.5	**1,900**	**1,400**	4.4	46	<19	1,000
RA10	10/18/01	2-2.5	390	450	4.2	21	<13	1,800
RA11	10/18/01	0-0.5	300	**2,400**	5.4	13	<11	2,000
RA11	10/18/01	2-2.5	350	**700**	6.1	52	<21	620
RA12	10/22/01	0-0.5	**1,300**	330	5.1	33	<15	3,900
RA12	10/22/01	2-2.5	63	220	4.0	55	<22	7,800
Transects								
Trans 1	10/22/01	0-0.5	**2,500**	**1,500**	3.2	15	--	--
Trans 2	10/22/01	0-0.5	**3,100**	**710**	4.2	24	--	--
Trans 3	10/22/01	0-0.5	**3,300**	**690**	5.2	30	--	--
Trans 4	10/22/01	0-0.5	**1,900**	**770**	5.3	33	--	--
Trans 5	10/22/01	0-0.5	**1,300**	440	5.2	32	--	--
Trans 6	10/22/01	0-0.5	**1,800**	630	5.1	32	--	--
Sediment Samples Co-Located With Pickleweed Samples								
PWS-HL-1A	11/9/01	0-0.5	**880**	270	5.2	25	--	--
PWS-HL-1B	11/9/01	0-0.5	**850**	270	5.2	26	--	--
PWS-HL-3	11/14/01	0-0.5	140	250	6.6	60	--	--
PWS-LH-4	11/9/01	0-0.5	85	150	6.9	52	--	--
PWS-ML-2	11/14/01	0-0.5	**1,000**	350	5.6	52	--	--
PWS-XX-5	11/14/01	0-0.5	270	**2,200**	7.1	57	--	--
PWS-XY-6	11/14/01	0-0.5	**600**	**990**	7.2	63	--	--
Trench Samples								
T1-FILL	2000	--	**20,000**	**1,900**	4.9	--	--	--
T1-S-0.5	2000	0.5	**970**	420	5.7	--	<10	--
TI-S-1.5	2000	1.5	**20,000**	**5,600**	5.2	--	<10	--
T1-S-3	2000	3	**1,400**	380	3.8	--	<10	--
T2-SPOILS	2000	--	**1,100**	480	2.6	--	<10	--

Table 6-15
Tier 2 NOAEL-Based E-SSTL Screening for Soil/Sediment
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Moisture (%)	Sulfide (mg/kg)	Sulfate (mg/kg)
NOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**239**	**251**				
California Clapper Rail			**46**	**296**				
Aquatic Habitat								
Mallard Duck			**1,214**	**6,958**				
Great Blue Heron			**412**	**678**				
River Otter			**691**	**1,662**				
T3-S-1	2000	1	**14,000**	**2,800**	4.8	--	<10	--
T3-S-2	2000	2	**1,600**	500	3.8	--	<10	--
T3-S-4	2000	4	**690**	650	3.7	--	<10	--
T4-SPOILS	2000	--	**810**	640	3.0	--	<10	--
T4-FILL	2000	--	**1,500**	580	4.0	--	--	--
T5-S-0.5	2000	0.5	180	160	4.0	--	<10	--
T5-S-1	2000	1	**1,500**	**930**	3.3	--	<10	--
T5-S-2	2000	2	**540**	570	3.1	--	<10	--
T5-S-2.5	2000	2.5	330	580	3.0	--	<10	--
T5-S-4	2000	4	**610**	**840**	4.0	--	<10	--
T7-S-0.5	2000	0.5	22	90	6.6	--	<10	--
T7-S-1	2000	1	**2,100**	**2,000**	6.4	--	<10	--
T7-S-1.5	2000	1.5	**900**	**600**	5.5	--	<10	--
T9-S-2	2000	2	**6,700**	**2,000**	4.1	--	<10	--
T11-S-0.5	2000	0.5	**540**	**3,700**	7.0	--	<10	--
T12-S-0.5	2000	0.5	66	97	3.5	--	<10	--
T12-S-1	2000	1	110	120	3.1	--	<10	--
T12-S-2.5	2000	2.5	**1,300**	**1,000**	4.9	--	<10	--
T12-S-4	2000	4	**460**	**2,400**	5.7	--	62	--

Notes:

	Indicates that results or reporting limits exceed one or more wetland habitat E-SSTLs.
0.022	Boldface indicates that results or reporting limits exceed one or more aquatic habitat E-SSTLs.
NOAEL	No Observable Adverse Effects Level.
E-SSTL	Ecological Site-Specific Target Level.
TOC =	Total Organic Carbon.
--	Indicates that no data are available.
J=	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ=	The analyte was not detected above the sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Table 6-16
Tier 2 LOAEL-Based E-SSTL Screening for Soil/Sediment
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Moisture (%)	Sulfide (mg/kg)	Sulfate (mg/kg)
LOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**56,632**	**10,752**				
California Clapper Rail			**1,081**	**2,959**				
Aquatic Habitat								
Mallard Duck			**27,586**	**69,580**				
Great Blue Heron			**9,365**	**6,777**				
River Otter			**161,874**	**100,500**				
Dredge Spoil Piles								
S1-0	2000	0	270	360	6.2	--	<10 UJ	410
S2-0	2000	0	820	1,100	3.6	--	<10 UJ	730
S3-0	2000	0	280	360	3.8	--	<10 UJ	1,200
S4-0	2000	0	270	3,800	5.7	--	<10 UJ	6,400
S5-0	2000	0	170	1,200	4.2	--	<10 UJ	9,800
S6-0	2000	0	240	1,000	3.4	--	<10 UJ	6,500
S7-0	2000	0	1,800	530	3.4	--	<10 UJ	2,300
S8-0	2000	0	1,700	360	3.3	--	<10 UJ	1,300
S9-0	2000	0	1,700	290	3.8	--	<10 UJ	910
S10-0	2000	0	1,700	550	3.1	--	<10 UJ	4,600
S11-0	2000	0	230	330	3.7	--	<10 UJ	930
N1-0	2000	0	480	300	4.1	--	<10 UJ	670
N2-0	2000	0	75	810	3.3	--	<10 UJ	10,000
N3-0	2000	0	190	510	4.4	--	<10 UJ	1,100
N4-0	2000	0	180	300	3.4	--	<10 UJ	2,200
N5-0	2000	0	33	77	6.4	--	<10 UJ	390
N6-0	2000	0	52	86	7.0	--	<10 UJ	6
N7-0	2000	0	510	480	4.1	--	<10 UJ	8,300
N8-0	2000	0	880	650	4.0	--	<10 UJ	2,100
N9-0	2000	0	5,900	910	4.3	--	<10	na
RA1	10/18/01	0-0.5	64	150	6.6	64	<28	2,300
RA1	10/18/01	2-2.5	98	230	7.4	48	<19	510
RA2	10/18/01	0-0.5	390	1,200	4.8	7	84	1,900
RA2	10/18/01	2-2.5	120	310	4.3	40	<17	470
RA3	10/18/01	0-0.5	210	760	4.4	39	<16	210
RA3	10/18/01	2-2.5	150	1,400	7.2	40	<17	810
RA4	10/18/01	0-0.5	270	470	3.4	26	<14	12,000
RA4	10/18/01	2-2.5	73	580	4.4	39	<16	4,300
RA5	10/18/01	0-0.5	5,500	770	4.6	23	<13	4,600
RA5	10/18/01	2-2.5	1,500	2,000	7.1	42	<17	700
RA6	10/18/01	0-0.5	640	620	7.1	6	<11	4,200
RA6	10/18/01	2-2.5	870	470	6.5	30	<14	2,100

Table 6-16
Tier 2 LOAEL-Based E-SSTL Screening for Soil/Sediment
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Moisture (%)	Sulfide (mg/kg)	Sulfate (mg/kg)
LOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**56,632**	**10,752**				
California Clapper Rail			**1,081**	**2,959**				
Aquatic Habitat								
Mallard Duck			**27,586**	**69,580**				
Great Blue Heron			**9,365**	**6,777**				
River Otter			**161,874**	**100,500**				
RA7	10/18/01	0-0.5	330	310	4.0	9	<11	2,300
RA7	10/18/01	2-2.5	250	210	4.2	35	<15	360
RA8	10/18/01	0-1.5	670	610	4.4	12	<11	86
RA8	10/18/01	1.5-2.5	250	370	5.6	47	<19	440
RA9	10/18/01	0-0.5	740	380	4.2	27	<14	1,300
RA9	10/18/01	2-2.5	310	340	5.4	48	<19	640
RA10	10/18/01	0-0.5	1,900	1,400	4.4	46	<19	1,000
RA10	10/18/01	2-2.5	390	450	4.2	21	<13	1,800
RA11	10/18/01	0-0.5	300	2,400	5.4	13	<11	2,000
RA11	10/18/01	2-2.5	350	700	6.1	52	<21	620
RA12	10/22/01	0-0.5	1,300	330	5.1	33	<15	3,900
RA12	10/22/01	2-2.5	63	220	4.0	55	<22	7,800
Transects								
Trans 1	10/22/01	0-0.5	2,500	1,500	3.2	15	--	--
Trans 2	10/22/01	0-0.5	3,100	710	4.2	24	--	--
Trans 3	10/22/01	0-0.5	3,300	690	5.2	30	--	--
Trans 4	10/22/01	0-0.5	1,900	770	5.3	33	--	--
Trans 5	10/22/01	0-0.5	1,300	440	5.2	32	--	--
Trans 6	10/22/01	0-0.5	1,800	630	5.1	32	--	--
Sediment Samples Co-Located With Pickleweed Samples								
PWS-HL-1A	11/9/01	0-0.5	880	270	5.2	25	--	--
PWS-HL-1B	11/9/01	0-0.5	850	270	5.2	26	--	--
PWS-HL-3	11/14/01	0-0.5	140	250	6.6	60	--	--
PWS-LH-4	11/9/01	0-0.5	85	150	6.9	52	--	--
PWS-ML-2	11/14/01	0-0.5	1,000	350	5.6	52	--	--
PWS-XX-5	11/14/01	0-0.5	270	2,200	7.1	57	--	--
PWS-XY-6	11/14/01	0-0.5	600	990	7.2	63	--	--
Trench Samples								
T1-FILL	2000	--	**20,000**	1,900	4.9	--	--	--
T1-S-0.5	2000	0.5	970	420	5.7	--	<10	--
TI-S-1.5	2000	1.5	**20,000**	5,600	5.2	--	<10	--
T1-S-3	2000	3	1,400	380	3.8	--	<10	--
T2-SPOILS	2000	--	1,100	480	2.6	--	<10	--

Table 6-16
Tier 2 LOAEL-Based E-SSTL Screening for Soil/Sediment
Dredge Spoil Piles and Surrounding Areas
Existing Slough
Peyton Slough, Martinez, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	Moisture (%)	Sulfide (mg/kg)	Sulfate (mg/kg)
LOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**56,632**	**10,752**				
California Clapper Rail			**1,081**	**2,959**				
Aquatic Habitat								
Mallard Duck			**27,586**	**69,580**				
Great Blue Heron			**9,365**	**6,777**				
River Otter			**161,874**	**100,500**				
T3-S-1	2000	1	**14,000**	2,800	4.8	--	<10	--
T3-S-2	2000	2	1,600	500	3.8	--	<10	--
T3-S-4	2000	4	690	650	3.7	--	<10	--
T4-SPOILS	2000	--	810	640	3.0	--	<10	--
T4-FILL	2000	--	1,500	580	4.0	--	--	--
T5-S-0.5	2000	0.5	180	160	4.0	--	<10	--
T5-S-1	2000	1	1,500	930	3.3	--	<10	--
T5-S-2	2000	2	540	570	3.1	--	<10	--
T5-S-2.5	2000	2.5	330	580	3.0	--	<10	--
T5-S-4	2000	4	610	840	4.0	--	<10	--
T7-S-0.5	2000	0.5	22	90	6.6	--	<10	--
T7-S-1	2000	1	2,100	2,000	6.4	--	<10	--
T7-S-1.5	2000	1.5	900	600	5.5	--	<10	--
T9-S-2	2000	2	6,700	2,000	4.1	--	<10	--
T11-S-0.5	2000	0.5	540	3,700	7.0	--	<10	--
T12-S-0.5	2000	0.5	66	97	3.5	--	<10	--
T12-S-1	2000	1	110	120	3.1	--	<10	--
T12-S-2.5	2000	2.5	1,300	1,000	4.9	--	<10	--
T12-S-4	2000	4	460	2,400	5.7	--	62	--

Notes:

	Indicates that results or reporting limits exceed one or more wetland habitat LOAEL-based E-SSTLs.
0.022	Boldface indicates that results or reporting limits exceed one or more aquatic habitat LOAEL-based E-SSTLs.
LOAEL	Lowest Observable Adverse Effects Level.
E-SSTL	Ecological Site-Specific Target Level.
--	Indicates that no data are available.
J=	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ=	The analyte was not detected above the sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Table 7-1
Seepage Model Input Parameters

Parameters	Units	Value Used	Source/Rationale
Slough Bank Seepage			
Hydraulic conductivity	m/s	1.0×10^{-8} for South Slough (south of the dike); 1.0×10^{-4} for North Slough (north of the dike);	The upper soil layer and dredge spoils along the southern banks of the South Slough will be excavated down to Bay Mud; the upper soil layer in the Northern Slough includes a root mat zone with permeability assumed equivalent to sand.
Hydraulic gradient	unitless	0.25	Conservative estimate based on an assumed low tide water table configuration between POC wells and the water surface in the New Slough.
Seepage area	m^2	various	Calculated by multiplying segment length by segment height (see Appendix E).
Benthic Underflow Seepage			
Hydraulic conductivity	m/s	1.0×10^{-8}	Grain size distribution of samples from the area beneath the base of the future benthic layer along the New Slough alignment indicates "clayey" Bay Mud.
Hydraulic gradient	unitless	0.001	Estimated upward vertical gradient.
Seepage area	m^2	various	Calculated by multiplying segment width by segment length (see Appendix E).

Table 7-2
Groundwater/Surface Water/Benthic Interaction Model Parameters

Parameters	Units	Value Used	Source/Rationale
Segment height	m	0.6	Assumed design height of the New Slough alignment
Segment width	m	15.2	Assumed design width of the New Slough alignment
Segment length	m	various	Partitioned based on location of guard wells; see Appendix E
Sorption coefficient for copper	L/kg	4,700	Average ratio of copper concentration in marsh sediment samples to copper concentration in co-located groundwater samples taken at the New Slough alignment (the raw data and calculations are presented in Appendix E).
Sorption coefficient for zinc	L/kg	2,000	Average ratio of zinc concentration in marsh sediment samples to zinc concentration in co-located groundwater samples taken at the New Slough alignment (the raw data and calculations are presented in Appendix E).
Daily surface water flow through the slough channel	m^3/s	3.92	Based on the total volume of water in the tidal prism for the slough channel. Assume one-half tidal prism volume flows through per tide cycle (see report assumptions and calculation sheet in Appendix E).
Porewater flow across water/benthic interface	m^3/s	various	Approximately 240 days porewater residence time in benthic layer (see report assumptions and calculation sheet in Appendix E).
Groundwater concentration	mg/L	various	Values used simulate slough water column metal concentrations that are below water quality objectives.

Table 7-3
Modeling Results Summary for Copper

	GRD 8			GRD 7			GRD 6			GRD 5			GRD 4			GRD 3		GRD 2	GRD 1	GRD 0
Segment	**1,2**	**3,4**	**5,6**	**7,8**	**9,10**	**11,12**	**13,14**	**15,16**	**17,18**	**19,20**	**21,22**	**23,24**	**25,26**	**27,28**	**29,30**	**31,32**	**33,34**	**35,36**	**37,38**	**39,40**
Conc in Groundwater., mg/L	**17**	**17**	**17**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C_x, µg/L	**7.3E-04**	**1.5E-03**	**2.2E-03**	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03
Cy, µg/L	**5.5E+01**	**5.5E+01**	**5.5E+01**	1.2E+00	3.3E-02	3.1E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03	2.2E-03
C_{sorbed}, mg/kg	**2.6E+02**	**2.6E+02**	**2.6E+02**	5.8E+00	1.6E-01	1.4E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02	1.0E-02
Conc in Groundwater., mg/L	0	0	0	**17**	**17**	**17**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cx, µg/L	0	0	0	**3.1E-04**	**6.1E-04**	**9.2E-04**	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04
Cy, µg/L	0	0	0	**5.4E+01**	**5.5E+01**	**5.5E+01**	2.2E+00	9.6E-02	5.3E-03	1.1E-03	9.3E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04	9.2E-04
Csorbed, mg/kg	0	0	0	**2.5E+02**	**2.6E+02**	**2.6E+02**	1.0E+01	4.5E-01	2.5E-02	5.3E-03	4.4E-03	4.3E-03	4.3E-03	4.3E-03	4.3E-03	4.3E-03	4.3E-03	4.3E-03	4.3E-03	4.3E-03
Conc in Groundwater., mg/L	0	0	0	0	0	0	**17**	**17**	**17**	0	0	0	0	0	0	0	0	0	0	0
C_x, µg/L	0	0	0	0	0	0	**2.4E-04**	**4.8E-04**	**7.2E-04**	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04
Cy, ug/L	0	0	0	0	0	0	**5.3E+01**	**5.5E+01**	**5.5E+01**	2.7E+00	1.4E-01	8.4E-03	1.8E-03	8.9E-04	7.4E-04	7.4E-04	7.2E-04	7.2E-04	7.2E-04	7.1E-04
C_{sorbed}, mg/kg	0	0	0	0	0	0	**2.5E+02**	**2.6E+02**	**2.6E+02**	1.3E+01	6.6E-01	3.9E-02	8.7E-03	4.2E-03	3.5E-03	3.5E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03
Conc in Groundwater., mg/L	0	0	0	0	0	0	0	0	0	**17**	**17**	**17**	0	0	0	0	0	0	0	0
C_x, µg/L	0	0	0	0	0	0	0	0	0	**2.4E-04**	**4.8E-04**	**7.2E-04**	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04	7.2E-04
Cy, µg/L	0	0	0	0	0	0	0	0	0	**5.2E+01**	**5.5E+01**	**5.5E+01**	8.1E+00	1.2E+00	1.9E-01	5.5E-03	8.5E-04	7.2E-04	7.2E-04	7.2E-04
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	**2.5E+02**	**2.6E+02**	**2.6E+02**	3.8E+01	5.8E+00	8.8E-01	2.6E-02	4.0E-03	3.4E-03	3.4E-03	3.4E-03
Conc in Groundwater., mg/L	0	0	0	0	0	0	0	0	0	0	0	0	**17**	**17**	**17**	0	0	0	0	0
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	**8.3E-05**	**1.7E-04**	**2.5E-04**	2.5E-04	2.5E-04	2.5E-04	2.5E-04	2.5E-04
Cy, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	**4.7E+01**	**5.4E+01**	**5.5E+01**	1.4E+00	4.0E-02	9.7E-04	2.6E-04	2.5E-04
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	**2.2E+02**	**2.5E+02**	**2.6E+02**	6.6E+00	1.9E-01	4.6E-03	1.2E-03	1.2E-03
Conc in Groundwater., mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4.8**	**4.8**	0	0	0
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1.5E+00**	**3.0E+00**	3.0E+00	3.0E+00	3.0E+00
Cy, ug/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1.7E+01**	**1.8E+01**	3.3E+00	3.0E+00	3.0E+00
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**7.8E+01**	**8.7E+01**	1.6E+01	1.4E+01	1.4E+01
Conc in Groundwater., mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**5.4**	0	0
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3.0E+00**	3.0E+00	3.0E+00
Cy, ug/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2.0E+01**	3.3E+00	3.0E+00
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**9.5E+01**	1.5E+01	1.4E+01
Conc in Groundwater., mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3.9**	0
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3.0E+00**	3.0E+00
Cy, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1.5E+01**	3.1E+00
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**7.2E+01**	1.5E+01
Conc in Groundwater., mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2.2**
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3.0E+00**
Cy, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1.0E+01**
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4.7E+01**
Simulated Concentration in Groundwater (1) (mg/L)	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**4.8**	**4.8**	**5.4**	**3.9**	**2.2**
Predicted Concentration In Water Column (2) (µg/L)	7.3E-04	1.5E-03	2.2E-03	3.1E-04	6.1E-04	9.2E-04	2.4E-04	4.8E-04	7.2E-04	2.4E-04	4.8E-04	7.2E-04	8.3E-05	1.7E-04	2.5E-04	1.5	3.0	3.0	3.0	3.0
AWQC for Copper (µg/L)	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Predicted Concentration In Sediment (3) (mg/kg)	258	258	258	253	258	258	248	258	258	246	258	258	220	253	257	78	87	95	72	47
ERM for Copper (mg/kg)	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270

Notes:
(1) The "simulated concentration in groundwater" represents the back-calculated POC concentration that yields the "prediected concentration in water column" and "predicted concentration in sediment"
(2) The "predicted concentration in water column" has to be less than the AWQC value in order for the POC groundwater concentration limit to be protective of surface water quality
(3) The "predicted concentration in sediment" has to be less than the ERM value in order for the POC groundwater concentration limit to be protective of sediment quality

Table 7-4
Modeling Results Summary for Zinc

	GRD 8			GRD 7			GRD 6			GRD 5			GRD 4			GRD 3		GRD 2	GRD 1	GRD 0
Segment	**1,2**	**3,4**	**5,6**	**7,8**	**9,10**	**11,12**	**13,14**	**15,16**	**17,18**	**19,20**	**21,22**	**23,24**	**25,26**	**27,28**	**29,30**	**31,32**	**33,34**	**35,36**	**37,38**	**39,40**
Conc. In Groundwater, mg/L	**63**	**63**	**63**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C_x, µg/L	**2.7E-03**	**5.4E-03**	**8.1E-03**	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.1E-03	8.0E-03
Cy, ug/L	**2.0E+02**	**2.0E+02**	**2.0E+02**	4.6E+00	1.2E-01	1.1E-02	8.2E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03
C_{sorbed}, mg/kg	**4.1E+02**	**4.1E+02**	**4.1E+02**	9.1E+00	2.5E-01	2.3E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02	1.6E-02
Conc. In Groundwater, mg/L	0	0	0	**63**	**63**	**63**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cx, µg/L	0	0	0	**1.1E-03**	**2.3E-03**	**3.4E-03**	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03
Cy, µg/L	0	0	0	**2.0E+02**	**2.0E+02**	**2.0E+02**	8.2E+00	3.5E-01	2.0E-02	4.2E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03
Csorbed, mg/kg	0	0	0	**4.0E+02**	**4.1E+02**	**4.1E+02**	1.6E+01	7.1E-01	3.9E-02	8.4E-03	6.9E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03
Conc. In Groundwater, mg/L	0	0	0	0	0	0	**63**	**63**	**63**	0	0	0	0	0	0	0	0	0	0	0
C_x, µg/L	0	0	0	0	0	0	**8.9E-04**	**1.8E-03**	**2.7E-03**	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03
Cy, ug/L	0	0	0	0	0	0	**2.0E+02**	**2.0E+02**	**2.0E+02**	1.0E+01	5.2E-01	3.1E-02	6.9E-03	3.3E-03	2.8E-03	2.7E-03	2.7E-03	2.7E-03	2.7E-03	2.6E-03
C_{sorbed}, mg/kg	0	0	0	0	0	0	**3.9E+02**	**4.1E+02**	**4.1E+02**	2.0E+01	1.0E+00	6.2E-02	1.4E-02	6.6E-03	5.5E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03
Conc. In Groundwater, mg/L	0	0	0	0	0	0	0	0	0	**62**	**62**	**62**	0	0	0	0	0	0	0	0
C_x, µg/L	0	0	0	0	0	0	0	0	0	**8.7E-04**	**1.7E-03**	**2.6E-03**	2.6E-03	2.6E-03	2.6E-03	2.6E-03	2.6E-03	2.6E-03	2.6E-03	2.6E-03
Cy, µg/L	0	0	0	0	0	0	0	0	0	**1.9E+02**	**2.0E+02**	**2.0E+02**	3.0E+01	4.5E+00	6.9E-01	2.0E-02	3.1E-03	2.6E-03	2.6E-03	2.6E-03
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	**3.8E+02**	**4.0E+02**	**4.0E+02**	5.9E+01	8.9E+00	1.4E+00	4.0E-02	6.2E-03	5.2E-03	5.2E-03	5.2E-03
Conc. In Groundwater, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	**63**	**63**	**63**	0	0	0	0	0
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	**3.1E-04**	**6.2E-04**	**9.3E-04**	9.4E-04	9.4E-04	9.4E-04	9.4E-04	9.3E-04
Cy, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	**1.7E+02**	**2.0E+02**	**2.0E+02**	5.2E+00	1.5E-01	3.6E-03	9.7E-04	9.3E-04
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	**3.5E+02**	**4.0E+02**	**4.1E+02**	1.0E+01	3.0E-01	7.2E-03	1.9E-03	1.9E-03
Conc. In Groundwater, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**53**	**53**	0	0	0
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1.7E+01**	**3.4E+01**	3.4E+01	3.4E+01	3.3E+01
Cy, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1.8E+02**	**2.0E+02**	3.7E+01	3.3E+01	3.3E+01
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3.7E+02**	**4.1E+02**	7.3E+01	6.7E+01	6.7E+01
Conc. In Groundwater, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**54**	0	0
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3.0E+01**	3.0E+01	3.0E+01
Cy, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2.0E+02**	3.3E+01	3.0E+01
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4.0E+02**	6.6E+01	6.1E+01
Conc. In Groundwater, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**51.0**	0.0
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**39.6**	39.5
Cy, ug/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**201.2**	41.1
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**402.3**	82.2
Conc. In Groundwater, mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**45**
C_x, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**6.1E+01**
Cy, µg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2.0E+02**
C_{sorbed}, mg/kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4.1E+02**
Simulated Concentration in Groundwater (1) (mg/L)	**63**	**63**	**63**	**63**	**63**	**63**	**63**	**63**	**63**	**62**	**62**	**62**	**63**	**63**	**63**	**53**	**53**	**54**	**51**	**45**
Predicted Concentration In Water Column (2) (ug/L)	2.7E-03	5.4E-03	8.1E-03	1.1E-03	2.3E-03	3.4E-03	8.9E-04	1.8E-03	2.7E-03	8.7E-04	1.7E-03	2.6E-03	3.1E-04	6.2E-04	9.3E-04	16.7	33.6	30.4	39.6	61.0
AWQC for Zinc (ug/L)	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
Predicted Concentration In Sediment (3) (mg/kg)	407	407	407	398	407	407	391	407	407	381	400	401	347	398	406	366	408	402	402	408
ERM for Zinc (mg/kg)	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410	410

Notes:
(1) The "simulated concentration in groundwater" represents the back-calculated POC concentration that yields the "prediected concentration in water column" and "predicted concentration in sediment"
(2) The "predicted concentration in water column" has to be less than the AWQC value in order for the POC groundwater concentration limit to be protective of surface water quality
(3) The "predicted concentration in sediment" has to be less than the ERM value in order for the POC groundwater concentration limit to be protective of sediment quality

TABLE 7-5
Proposed Water Quality Protection Standards

Well ID	Dissolved Copper (mg/L)	Dissolved Zinc (mg/L)
GRD 0	2.2	45
GRD 1	3.9	51
GRD 2	5.4	54
GRD 3	4.8	53
GRD 4	17	62
GRD 5	17	62
GRD 6	17	63
GRD 7	17	63
GRD 8	17	63

Table 7-6
Evaluation of groundwater quality at guard wells

Guard Well ID	Date	Total Copper (mg/L)	Dissolved Copper (mg/L)	Proposed Numerical Limits for Copper (mg/L)	Is Proposed Copper Limit Exceeded?	Total Zinc (mg/L)	Dissolved Zinc (mg/L)	Proposed Numerical Limits for Zinc (mg/L)	Is Proposed Zinc Limit Exceeded?
GRD-0	11/14/2001	0.0062 J	0.012 J	2.2	no	<0.05	<0.05	45	no
GRD-1	11/14/2001	0.016 J	0.017 J	3.9	no	<0.05	0.088	51	no
GRD-2	11/14/2001	0.008 J	0.011 J	5.4	no	<0.05	<0.05	54	no
GRD-3	11/14/2001	<0.005 UJ	0.01 J	4.8	no	<0.05	<0.05	53	no
GRD-4	11/14/2001	0.0083 J	0.0086 J	17	no	<0.05	<0.05	62	no
GRD-5	11/14/2001	8.8 J	9.3 J	17	no	22	25	62	no
GRD-6	11/14/2001	6 J	5.4 J	17	no	21	18	63	no
GRD-7	11/14/2001	8.2 J	7.8 J	17	no	16	14	63	no
GRD-8	11/14/2001	9.1 J	8 J	17	no	35	42	63	no

Data Qualifiers

J The associated value is an estimated quantity.

UJ The material was analyzed for, but was not detected. The asociated value is an estimate and may be inaccurate or imprecise.

Table 9-1
Comparison of H-SSTLs With Maximum Concentration of COCs
in Sediments of the New Slough Alignment
Rhodia Martinez, Peyton Slough

UPLAND AREA[1] (no exceedances)

Minimum H-SSTLs [(2)]		Max Detected in Sediment Samples		
Copper (mg/kg)	Zinc (mg/kg)	Copper (mg/kg)	Zinc (mg/kg)	Sample ID
63,194	100,000	2,471	1,412	SSB14.0 (Cu) SSD1-1 (Zn)

VICINITY OF PROPOSED SLOUGH AREA[2] (no exceedances)

H-SSTLs for Anglers Consuming Their Catch		Max Detected in Sediment Samples		
Copper (mg/kg)	Zinc (mg/kg)	Copper (mg/kg)	Zinc (mg/kg)	Sample ID
24,945	13,047	1,200	1,145	SSB5-4 (Cu) SSB4-4 (Zn)

Notes:

1 Minimum H-SSTLs for commercial/industrial, construction, and recreator scenario compared to sediments collected in the New Slough vicinity from 0 to 4 feet bgs. These sediments are supposed to be excavated and placed in the Existing Slough.

2 Minimum H-SSTLs for commercial/industrial, construction, and recreator scenario.

3 H-SSTLs for the angler scenario compared to sediments collected in the proposed New Slough vicinity from 4 feet bgs and beyond. These sediments are supposed to stay in the New Slough.

TABLE 9-2
TIER 1 SCREENING FOR SEDIMENT
SUPPLEMENTAL SOIL BORING SAMPLES
VICINITY OF PROPOSED NEW SLOUGH
PEYTON SLOUGH, MARTINEZ, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH	ERMq Cu	ERMq Zn	Mean ERMq
ECOLOGICAL SCREENING VALUES								
ERM			270	410				
ERL			34	150				
SSL					6.5			
AMBIENT CONCENTRATIONS								
RWQCB:			68.1	158				
SSB1-0 pier	7/25/2001	0-0.5	**68**	157	7.6	0.3	0.4	0.3
SSB1-0	7/25/2001	0-0.5	50	**180**	6.7	0.2	0.4	0.3
SSB1-1	7/25/2001	1-1.5	**173**	**1,412**	7.0	**0.6**	**3.4**	**2.0**
SSB1-2	7/25/2001	2-2.5	**164**	**410**	7.3	**0.6**	**1.0**	**0.8**
SSB1-3	7/25/2001	3-3.5	**96**	96	7.3	0.4	0.2	0.3
SSB1-4	7/25/2001	4-4.5*	**98**	**228**	7.6	0.4	**0.6**	0.5
SSB2-0	7/25/2001	0-0.5	34	150	5.3	0.13	0.4	0.25
SSB2-1	7/25/2001	1-1.5	10	52	7.3	0.04	0.1	0.08
SSB2-2	7/25/2001	2-2.5	12	57	7.0	0.04	0.1	0.09
SSB2-3	7/25/2001	3-3.5	11	59	7.3	0.04	0.1	0.09
SSB2-4	7/25/2001	4-4.5*	11	55	7.1	0.04	0.1	0.09
SSB3-0	7/25/2001	0-0.5	**82**	**185**	7.3	0.3	0.5	0.4
SSB3-1	7/25/2001	1-1.5	**173**	**296**	6.9	**0.6**	**0.7**	**0.7**
SSB3-2	7/25/2001	2-2.5	**251**	**296**	6.9	**0.9**	**0.7**	**0.8**
SSB3-4	7/25/2001	4-4.5*	**296**	**478**	6.8	**1.1**	**1.2**	**1.1**
SSB4-0	7/25/2001	0-0.5	**445**	**313**	5.9	**1.6**	**0.8**	**1.2**
SSB4-0.5	7/25/2001	0.5-1	**350 J**	**560 J**	5.3 J	**1.3**	**1.4**	**1.3**
SSB4-1	7/19/2001	1-1.5	**115 J**	**181 J**	6.3	0.4	0.4	0.4
SSB4-4	7/19/2001	4-4.5*	19 J	**1,145 J**	7.3	0.07	**2.8**	**1.4**
SSB5-3	7/25/2001	3-3.5	**1,038**	**336**	4.6	**3.8**	**0.8**	**2.3**
SSB5-4	7/25/2001	4-4.5*	**1,200 J**	**680 J**	4.2 J	**4.4**	**1.7**	**3.1**
SSB6-0	7/25/2001	0-0.5	**511**	**198**	5.2	**1.9**	0.5	**1.2**
SSB6-0.5	7/25/2001	0.5-1	31 J	93 J	4.2 J	0.1	0.2	0.2
SSB6-1	7/19/2001	1-1.5	28 J	79 J	4.6	0.1	0.2	0.1
SSB6-4	7/19/2001	4-4.5*	36 J	**465 J**	5.2	0.13	**1.1**	**0.6**
SSB7-3	7/25/2001	3-3.5	**680**	**465**	4.0	**2.5**	**1.1**	**1.8**
SSB8-0	7/25/2001	0-0.5	**1,812**	**643**	5.5	**6.7**	**1.6**	**4.1**
SSB8-0.5	7/25/2001	0.5-1	**560 J**	**300 J**	4.5 J	**2.1**	**0.7**	**1.4**
SSB8-1	7/19/2001	1-1.5	25 J	**395 J**	3.6	0.1	**1.0**	0.5
SSB8-4	7/19/2001	4-4.5*	17 J	13 J	7.6	0.06	0.03	0.05
SSB9-0	7/25/2001	0-0.5	**2,471**	**610**	3.2	**9.2**	**1.5**	**5.3**
SSB10-0.5	7/19/2001	0.5-1	**72 J**	86 J	7.2	0.3	0.2	0.2
SSB10-4	7/19/2001	4-4.5*	**114 J**	**311 J**	6.9	0.4	**0.8**	**0.6**
SSB11-0.5	7/19/2001	0.5-1	**346 J**	**198 J**	5.0	**1.3**	0.5	**0.9**
SSB11-4	7/19/2001	4-4.5*	**572 J**	**429 J**	5.7	**2.1**	**1.0**	**1.6**
SSB12-1	7/19/2001	1-1.5	**395 J**	**577 J**	5.0	**1.5**	**1.4**	**1.4**
SSB12-4	7/19/2001	4-4.5*	**751 J**	**394 J**	7.0	**2.8**	**1.0**	**1.9**
SSB13-0	7/25/2001	0-0.5	**791**	**214**	4.8	**2.9**	0.5	**1.7**
SSB13-1	7/25/2001	1-1.5	31 J	140 J	5.0 J	0.1	0.3	0.2

TABLE 9-2
TIER 1 SCREENING FOR SEDIMENT
SUPPLEMENTAL SOIL BORING SAMPLES
VICINITY OF PROPOSED NEW SLOUGH
PEYTON SLOUGH, MARTINEZ, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)	Zinc (mg/kg)	pH
ECOLOGICAL SCREENING VALUES					
ERM			270	410	
ERL			34	150	
SSL					6.5
AMBIENT CONCENTRATIONS					
RWQCB:			68.1	158	
SSB14-0	7/25/2001	0-0.5	**2,471**	**643**	5.3

ERMq Cu	ERMq Zn	Mean ERMq
9.2	**1.6**	**5.4**

Notes:
- Indicates that results or reporting limits exceed ERM or SSL.
- **0.022** Boldface indicates that results or reporting limits exceed RWQCB ambient concentrations.
- SSL = Personal Communication with Dr. Scott Ogle of Pacific EcoRisk (laboratory used for toxicity and bioaccumulation testing).
- ERL/ERM = From Long et al. 1995.
- RWQCB = Regional Water Quality Control Board (1998). San Francisco Estuary Sediment Ambient Concentrations.
- -- Indicates that no data are available.
- * Sediment sampled at 4-4.5 foot depths will become the surface sediment of the slough bottom upon construction of the new slough.
- J = Value estimated by laboratory.
- Indicates that ERMq is greater than 1.5.
- **0.022** Boldface indicates that ERMq is greater than 0.5.
- ERMq = ERM Quotient (Analytical result divided by ERM v
- Mean = ERMq divided by number of analytes.

TABLE 9-3
TIER 2 NOAEL-BASED E-SSTL SCREENING FOR SEDIMENT
SUPPLEMENTAL SOIL BORING SAMPLES
VICINITY OF PROPOSED NEW SLOUGH
PEYTON SLOUGH, MARTINEZ, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)		Zinc (mg/kg)		pH	
NOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**239**		**251**			
California Clapper Rail			**46**		**296**			
Aquatic Habitat								
Mallard Duck			**1,214**		**6,958**			
Great Blue Heron			**412**		**678**			
River Otter			**691**		**1,662**			
SSB1-0 pier	7/25/01	0-0.5	68		157		7.6	
SSB1-0	7/25/01	0-0.5	50		180		6.7	
SSB1-1	7/25/01	1-1.5	173		**1,412**		7.0	
SSB1-2	7/25/01	2-2.5	164		410		7.3	
SSB1-3	7/25/01	3-3.5	96		96		7.3	
SSB1-4	7/25/01	4-4.5*	98		228		7.6	
SSB2-0	7/25/01	0-0.5	34		150		5.3	
SSB2-1	7/25/01	1-1.5	10		52		7.3	
SSB2-2	7/25/01	2-2.5	12		57		7.0	
SSB2-3	7/25/01	3-3.5	11		59		7.3	
SSB2-4	7/25/01	4-4.5*	11		55		7.1	
SSB3-0	7/25/01	0-0.5	82		185		7.3	
SSB3-1	7/25/01	1-1.5	173		296		6.9	
SSB3-2	7/25/01	2-2.5	251		296		6.9	
SSB3-4	7/25/01	4-4.5*	296		478		6.8	
SSB4-0	7/25/01	0-0.5	**445**		313		5.9	
SSB4-0.5	7/25/01	0.5-1	350	J	560	J	5.3	J
SSB4-1	7/19/01	1-1.5	115	J	181	J	6.3	
SSB4-4	7/19/01	4-4.5*	19	J	**1,145**	**J**	7.3	
SSB5-3	7/25/01	3-3.5	**1,038**		336		4.6	
SSB5-4	7/25/01	4-4.5*	**1,200**	**J**	**680**	**J**	4.2	J
SSB6-0	7/25/01	0-0.5	**511**		198		5.2	
SSB6-0.5	7/25/01	0.5-1	31	J	93	J	4.2	J
SSB6-1	7/19/01	1-1.5	28	J	79	J	4.6	
SSB6-4	7/19/01	4-4.5*	36	J	465	J	5.2	

TABLE 9-3
TIER 2 NOAEL-BASED E-SSTL SCREENING FOR SEDIMENT
SUPPLEMENTAL SOIL BORING SAMPLES
VICINITY OF PROPOSED NEW SLOUGH
PEYTON SLOUGH, MARTINEZ, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)		Zinc (mg/kg)		pH	
NOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**239**		**251**			
California Clapper Rail			**46**		**296**			
Aquatic Habitat								
Mallard Duck			**1,214**		**6,958**			
Great Blue Heron			**412**		**678**			
River Otter			**691**		**1,662**			
SSB7-3	7/25/01	3-3.5	**680**		465		4.0	
SSB8-0	7/25/01	0-0.5	**1,812**		643		5.5	
SSB8-0.5	7/25/01	0.5-1	**560**	**J**	300	J	4.5	J
SSB8-1	7/19/01	1-1.5	25	J	395	J	3.6	
SSB8-4	7/19/01	4-4.5*	17	J	13	J	7.6	
SSB9-0	7/25/01	0-0.5	**2,471**		610		3.2	
SSB10-0.5	7/19/01	0.5-1	72	J	86	J	7.2	
SSB10-4	7/19/01	4-4.5*	114	J	311	J	6.9	
SSB11-0.5	7/19/01	0.5-1	346	J	198	J	5.0	
SSB11-4	7/19/01	4-4.5*	**572**	**J**	429	J	5.7	
SSB12-1	7/19/01	1-1.5	395	J	577	J	5.0	
SSB12-4	7/19/01	4-4.5*	**751**	**J**	394	J	7.0	
SSB13-0	7/25/01	0-0.5	**791**		214		4.8	
SSB13-1	7/25/01	1-1.5	31	J	140	J	5.0	J
SSB14-0	7/25/01	0-0.5	**2,471**		643		5.3	

Notes:
- Shaded cell: Indicates that results or reporting limits exceed one or more wetland habitat E-SSTLs.
- **0.022**: Boldface indicates that results or reporting limits exceed one or more aquatic habitat E-SSTLs.
- NOAEL: No Observable Effects Level.
- E-SSTL: Ecological Site-Specific Target Levels.
- --: Indicates that no data are available.
- *: Sediment sampled at 4-4.5 foot depths will become the surface sediment of the slough bottom upon construction of the new slough.
- J =: Value estimated by laboratory.

TABLE 9-4
TIER 2 LOAEL-BASED E-SSTL SCREENING FOR SEDIMENT
SUPPLEMENTAL SOIL BORING SAMPLES
VICINITY OF PROPOSED NEW SLOUGH
PEYTON SLOUGH, MARTINEZ, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)		Zinc (mg/kg)		pH	
LOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**56,632**		**10,752**			
California Clapper Rail			**1,081**		**2,959**			
Aquatic Habitat								
Mallard Duck			**27,586**		**69,580**			
Great Blue Heron			**9,365**		**6,777**			
River Otter			**161,874**		**100,500**			
SSB1-0 pier	7/25/01	0-0.5	68.3		157		7.6	
SSB1-0	7/25/01	0-0.5	50		180		6.7	
SSB1-1	7/25/01	1-1.5	173		1,412		7.0	
SSB1-2	7/25/01	2-2.5	164		410		7.3	
SSB1-3	7/25/01	3-3.5	96		96		7.3	
SSB1-4	7/25/01	4-4.5*	98		228		7.6	
SSB2-0	7/25/01	0-0.5	34		150		5.3	
SSB2-1	7/25/01	1-1.5	10		52		7.3	
SSB2-2	7/25/01	2-2.5	12		57		7.0	
SSB2-3	7/25/01	3-3.5	11		59		7.3	
SSB2-4	7/25/01	4-4.5*	11		55		7.1	
SSB3-0	7/25/01	0-0.5	82		185		7.3	
SSB3-1	7/25/01	1-1.5	173		296		6.9	
SSB3-2	7/25/01	2-2.5	251		296		6.9	
SSB3-4	7/25/01	4-4.5*	296		478		6.8	
SSB4-0	7/25/01	0-0.5	445		313		5.9	
SSB4-0.5	7/25/01	0.5-1	350	J	560	J	5.3	J
SSB4-1	7/19/01	1-1.5	115	J	181	J	6.3	
SSB4-4	7/19/01	4-4.5*	19	J	1,145	J	7.3	
SSB5-3	7/25/01	3-3.5	1,038		336		4.6	
SSB5-4	7/25/01	4-4.5*	1,200	J	680	J	4.2	J
SSB6-0	7/25/01	0-0.5	511		198		5.2	
SSB6-0.5	7/25/01	0.5-1	31	J	93	J	4.2	J
SSB6-1	7/19/01	1-1.5	28	J	79	J	4.6	
SSB6-4	7/19/01	4-4.5*	36	J	465	J	5.2	

TABLE 9-4
TIER 2 LOAEL-BASED E-SSTL SCREENING FOR SEDIMENT
SUPPLEMENTAL SOIL BORING SAMPLES
VICINITY OF PROPOSED NEW SLOUGH
PEYTON SLOUGH, MARTINEZ, CA
(Dry Weight)

Sample Location	Date	Depth (feet)	Copper (mg/kg)		Zinc (mg/kg)		pH	
LOAEL-Based E-SSTLs								
Wetland Habitat								
Salt Marsh Harvest Mouse			**56,632**		**10,752**			
California Clapper Rail			**1,081**		**2,959**			
Aquatic Habitat								
Mallard Duck			**27,586**		**69,580**			
Great Blue Heron			**9,365**		**6,777**			
River Otter			**161,874**		**100,500**			
SSB7-3	7/25/01	3-3.5	680		465		4.0	
SSB8-0	7/25/01	0-0.5	1,812		643		5.5	
SSB8-0.5	7/25/01	0.5-1	560	J	300	J	4.5	J
SSB8-1	7/19/01	1-1.5	25	J	395	J	3.6	
SSB8-4	7/19/01	4-4.5*	17	J	13	J	7.6	
SSB9-0	7/25/01	0-0.5	2,471		610		3.2	
SSB10-0.5	7/19/01	0.5-1	72	J	86	J	7.2	
SSB10-4	7/19/01	4-4.5*	114	J	311	J	6.9	
SSB11-0.5	7/19/01	0.5-1	346	J	198	J	5.0	
SSB11-4	7/19/01	4-4.5*	572	J	429	J	5.7	
SSB12-1	7/19/01	1-1.5	395	J	577	J	5.0	
SSB12-4	7/19/01	4-4.5*	751	J	394	J	7.0	
SSB13-0	7/25/01	0-0.5	791		214		4.8	
SSB13-1	7/25/01	1-1.5	31	J	140	J	5.0	J
SSB14-0	7/25/01	0-0.5	2,471		643		5.3	

Notes:
Indicates that results or reporting limits exceed one or more wetland habitat E-SSTLs.
0.022 Boldface indicates that results or reporting limits exceed one or more aquatic habitat E-SSTLs.
LOAEL Lowest Observable Effects Level.
E-SSTL Ecological Site-Specific Target Levels.
-- Indicates that no data are available.
* Sediment sampled at 4-4.5 foot depths will become the surface sediment of the slough bottom upon construction of the new slough.
J = Value estimated by laboratory.