Appendix A

LTMS Participants — Past and Present

APPENDIX A

LTMS PARTICIPANTS — PAST AND PRESENT

EXECUTIVE COMMITTEE

*Indicates that members served on the committee in the past but are no longer active members

Marc Del Piero, State Dredging Coordinator
State Water Resources Control Board

*BG Milton Hunter
U.S. Army Corps of Engineers

COL Peter Madsen, Division Engineer
U.S. Army Corps of Engineers, South Pacific Division

*Felicia Marcus, Regional Administrator
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*Don Maughan
State Water Resources Control Board

*Daniel McGovern
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*Marion Otsea
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*BG Bruce Scott, Division Engineer
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*Harry Seraydarian, Associate Regional Administrator
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*BG John Sobke
U.S. Army Corps of Engineers

*James M. Strock
California Environmental Protection Agency

Robert Tufts, Chairman
S.F. Bay Conservation and Development Commission

*Jeptha Wade
S.F. Bay Regional Water Quality Control Board

*BG Roger Yankoupe
U.S. Army Corps of Engineers

MANAGEMENT COMMITTEE

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S.F. Bay Regional Water Quality Control Board

*LTC Leonard E. Cardoza
U.S. Army Corps of Engineers, S.F. District

George Domurat, LTMS Program Manager
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LTC Peter Grass, District Engineer
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*William McCoy, LTMS Program Manager
U.S Army Corps of Engineers, South Pacific Division

*Alan Pendleton
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Walter Pettit, Executive Director
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Ed Anton (Alternate for Walter Pettit)
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*Harry Seraydarian, Associate Regional Administrator
U.S. Environmental Protection Agency, Region 9

Alexis Strauss, Acting Director Water Division
U.S. Environmental Protection Agency, Region 9

*COL Richard Thompson, District Engineer
U.S. Army Corps of Engineers, S.F. District

William Travis, Executive Director
S.F. Bay Conservation and Development Commission

*LTC Michael Walsh, District Engineer
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*Ron Wills
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*Amy Zimpfer
U.S. Environmental Protection Agency
Watershed Protection Branch Chief

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(The listing of more than one name per agency or organization indicates that more than one person has held the position since 1990)

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Assistant to the Governor
Kathie Warner

Bay Dredging Action Coalition
Walter Abernathy

Bay Planning Coalition
Ellen Johnck

BayKeeper
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Benicia Industries Inc.
Philip Plant

Board of Pilot Commissioners for the Bays of San Francisco, San Pablo, and Suisun
Charles Adams

California Coastal Commission
Peter Douglas

California Department of Boating and Waterways
James Patterson

George Armstrong
William Ivers

California Department of Commerce
Wes Ervin

California Department of Fish and Game
Boyd Gibbons
Pete Philips

California Department of Water Resources
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California Environmental Protection Agency
Michael Kahoe

California Marine Parks and Harbor Association
James Haussener

California Resources Agency
Hal Warras
Douglas Wheeler
Carol Whiteside

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William Crooks

Central Labor Council of Alameda County
Owen Marron

Citizens for a Better Environment
Alan Ramo

Concept Marine Associates Inc.
Ken Johnson

Dutra Construction Company Inc.
Bill Dutra

EXXON Refining Company
Levia Stein

Golden Gate Ports Association
Michael Cheney

Great Lakes Dredges and Dock Company
John Karas

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Edward Ueber

Half Moon Bay Fisherman's Marketing Association
Pietro Paravano

Integrated Waste Management Board
Ralph Chandler

Marin Audubon Society
Barbara Salzman

Marine Safety Office, U.S. Coast Guard
CPT Thomas Robinson

Martinez Manufacturing Complex
Robert Andrews

National Marine Fisheries Service
James Bybee
Alec McCall

Natural Heritage Institute
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Commander RA E.F. Pedeschi

Naval Facility Command
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Lee Halterman
Donald Hopkins

Office of Congressman Vic Fazio
Richard Harris

Office of Congressman Tom Lantos
Evelyn Szelenyi

Office of Congressman George Miller
Lynelle Johnson

Office of Congresswoman Nancy Pelosi
Judy Lemons
Michael Yaki

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Dennie Lyons

Office of Senator Barbara Boxer
Kevin Wong

Office of Senator Milton Marks
Joy Skalbeck

Pacific Interclub Yacht Association
Robert M. Allen

Pacific Coast Federation of Fishermen's Associations, Inc.
Zeke Grader

Pacific Refinery Company
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Margaret Johnston

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Barry Nelson

Sierra Club, San Francisco Bay Chapter
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James Trout
Charles Warren

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Western States Petroleum Association
Scott Folwarkow

LTMS WORK GROUP CHAIRS

(The listing of more than one name per agency or organization indicates that more than one person has held the position since 1990)

Abbreviations for Designations Below
* Active Workgroup since March 1995
\+ Inactive Workgroup
• Work Completed

In-Bay Work Group*
Michael Carlin
Tom Gandesbery
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Upland/Reuse Work Group*
Steve Goldbeck
S.F. Bay Conservation and Development Commission

Ocean Work Group•
Shelley Clarke
Janet Hashimoto
Allan Ota
U.S. Environmental Protection Agency

Implementation Work Groups
Contaminated Material Sites•
Jim McGrath
Port of Oakland

Environmental Review+
Ron Bachman
State Water Resources Control Board

Janet Hashimoto
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Elizabeth Patterson
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Implementation*
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Bay Planning Coalition

Cynthia Koehler
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(The listing of more than one name per agency or organization indicates that more than one person has held the position since 1990)

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*Indicates that members served on the committee in the past but are no longer active members

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Appendix H

Federal and State Water Quality Criteria and Objectives

Appendix H.1

Federal Water Quality Criteria for Freshwater, Saltwater, and Human Health (40 CFR Part 131)

federal register

Tuesday
December 22, 1992

Part II

Environmental Protection Agency

40 CFR Part 131
Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance Final Rule

(#)	A COMPOUND	CAS Number	B FRESHWATER Criterion Maximum Conc. d (ug/L) B1	 Criterion Continuous Conc. d (ug/L) B2	C SALTWATER Criterion Maximum Conc. d (ug/L) C1	 Criterion Continuous Conc. d (ug/L) C2	D HUMAN HEALTH (10^{-6} risk for carcinogens) For Consumption of: Water & Organisms (ug/L) D1	 Organisms Only (ug/L) D2
1	Antimony	7440360					14 a	4300 a
2	Arsenic	7440382	360 m	190 m	69 m	36 m	0.018 a,b,c	0.14 a,b,c
3	Beryllium	7440417					n	n
4	Cadmium	7440439	3.9 e,m	1.1 e,m	43 m	9.3 m	n	n
5a	Chromium (III)	16065831	1700 e,m	210 e,m			n	n
b	Chromium (VI)	18540299	16 m	11 m	1100 m	50 m	n	n
6	Copper	7440508	18 e,m	12 e,m	2.9 m	2.9 m		
7	Lead	7439921	82 e,m	3.2 e,m	220 m	8.5 m	n	n
8	Mercury	7439976	2.4 m	0.012 i	2.1 m	0.025 i	0.14	0.15
9	Nickel	7440020	1400 e,m	160 e,m	75 m	8.3 m	610 a	4600 a
10	Selenium	7782492	20	5	300 m	71 m	n	n
11	Silver	7440224	4.1 e,m		2.3 m			
12	Thallium	7440280					1.7 a	6.3 a
13	Zinc	7440666	120 e,m	110 e,m	95 m	86 m		
14	Cyanide	57125	22	5.2	1	1	700 a	220000 a,j
15	Asbestos	1332214					7,000,000 fibers/L k	
16	2,3,7,8-TCDD (Dioxin)	1746016					0.000000013 c	0.000000014 c
17	Acrolein	107028					320	780
18	Acrylonitrile	107131					0.059 a,c	0.66 a,c
19	Benzene	71432					1.2 a,c	71 a,c
20	Bromoform	75252					4.3 a,c	360 a,c
21	Carbon Tetrachloride	56235					0.25 a,c	4.4 a,c
22	Chlorobenzene	108907					680 a	21000 a,j
23	Chlorodibromomethane	124481					0.41 a,c	34 a,c
24	Chloroethane	75003						
25	2-Chloroethylvinyl Ether	110758						
26	Chloroform	67663					5.7 a,c	470 a,c
27	Dichlorobromomethane	75274					0.27 a,c	22 a,c

(#)	A COMPOUND	CAS Number	B FRESHWATER Criterion Maximum Conc. d (ug/L) B1	 Criterion Continuous Conc. d (ug/L) B2	C SALTWATER Criterion Maximum Conc. d (ug/L) C1	 Criterion Continuous Conc. d (ug/L) C2	D HUMAN HEALTH (10^{-6} risk for carcinogens) For Consumption of: Water & Organisms (ug/L) D1	 Organisms Only (ug/L) D2
28	1,1-Dichloroethane	75343						
29	1,2-Dichloroethane	107062					0.38 a,c	99 a,c
30	1,1-Dichloroethylene	75354					0.057 a,c	3.2 a,c
31	1,2-Dichloropropane	78875						
32	1,3-Dichloropropylene	542756					10 a	1700 a
33	Ethylbenzene	100414					3100 a	29000 a
34	Methyl Bromide	74839					48 a	4000 a
35	Methyl Chloride	74873					n	n
36	Methylene Chloride	75092					4.7 a,c	1600 a,c
37	1,1,2,2-Tetrachloroethane	79345					0.17 a,c	11 a,c
38	Tetrachloroethylene	127184					0.8 c	8.85 c
39	Toluene	108883					6800 a	200000 a
40	1,2-Trans-Dichloroethylene	156605						
41	1,1,1-Trichloroethane	71556					n	n
42	1,1,2-Trichloroethane	79005					0.60 a,c	42 a,c
43	Trichloroethylene	79016					2.7 c	81 c
44	Vinyl Chloride	75014					2 c	525 c
45	2-Chlorophenol	95578						
46	2,4-Dichlorophenol	120832					93 a	790 a,j
47	2,4-Dimethylphenol	105679						
48	2-Methyl-4,6-Dinitrophenol	534521					13.4	765
49	2,4-Dinitrophenol	51285					70 a	14000 a
50	2-Nitrophenol	88755						
51	4-Nitrophenol	100027						
52	3-Methyl-4-Chlorophenol	59507						
53	Pentachlorophenol	87865	20 f	13 f	13	7.9	0.28 a,c	8.2 a,c,j
54	Phenol	108952					21000 a	4600000 a,j
55	2,4,6-Trichlorophenol	88062					2.1 a,c	6.5 a,c
56	Acenaphthene	83329						

(#)	A COMPOUND	CAS Number	B FRESHWATER Criterion Maximum Conc. d (ug/L) B1	 Criterion Continuous Conc. d (ug/L) B2	C SALTWATER Criterion Maximum Conc. d (ug/L) C1	 Criterion Continuous Conc. d (ug/L) C2	D HUMAN HEALTH (10^{-6} risk for carcinogens) For Consumption of: Water & Organisms (ug/L) D1	 Organisms Only (ug/L) D2
57	Acenaphthylene	208968						
58	Anthracene	120127					9600 a	110000 a
59	Benzidine	92875					0.00012 a,c	0.00054 a,c
60	Benzo(a)Anthracene	56553					0.0028 c	0.031 c
61	Benzo(a)Pyrene	50328					0.0028 c	0.031 c
62	Benzo(b)Fluoranthene	205992					0.0028 c	0.031 c
63	Benzo(ghi)Perylene	191242						
64	Benzo(k)Fluoranthene	207089					0.0028 c	0.031 c
65	Bis(2-Chloroethoxy)Methane	111911						
66	Bis(2-Chloroethyl)Ether	111444					0.031 a,c	1.4 a,c
67	Bis(2-Chloroisopropyl)Ether	108601					1400 a	170000 a
68	Bis(2-Ethylhexyl)Phthalate	117817					1.8 a,c	5.9 a,c
69	4-Bromophenyl Phenyl Ether	101553						
70	Butylbenzyl Phthalate	85687						
71	2-Chloronaphthalene	91587						
72	4-Chlorophenyl Phenyl Ether	7005723						
73	Chrysene	218019					0.0028 c	0.031 c
74	Dibenzo(a,h)Anthracene	53703					0.0028 c	0.031 c
75	1,2-Dichlorobenzene	95501					2700 a	17000 a
76	1,3-Dichlorobenzene	541731					400	2600
77	1,4-Dichlorobenzene	106467					400	2600
78	3,3'-Dichlorobenzidine	91941					0.04 a,c	0.077 a,c
79	Diethyl Phthalate	84662					23000 a	120000 a
80	Dimethyl Phthalate	131113					313000	2900000
81	Di-n-Butyl Phthalate	84742					2700 a	12000 a
82	2,4-Dinitrotoluene	121142					0.11 c	9.1 c
83	2,6-Dinitrotoluene	606202						
84	Di-n-Octyl Phthalate	117840						
85	1,2-Diphenylhydrazine	122667					0.040 a,c	0.54 a,c

(#)	A COMPOUND	CAS Number	B FRESHWATER Criterion Maximum Conc. d (ug/L) B1	B FRESHWATER Criterion Continuous Conc. d (ug/L) B2	C SALTWATER Criterion Maximum Conc. d (ug/L) C1	C SALTWATER Criterion Continuous Conc. d (ug/L) C2	D HUMAN HEALTH (10^{-6} risk for carcinogens) For Consumption of: Water & Organisms (ug/L) D1	D HUMAN HEALTH (10^{-6} risk for carcinogens) For Consumption of: Organisms Only (ug/L) D2
86	Fluoranthene	206440					300 a	370 a
87	Fluorene	86737					1300 a	14000 a
88	Hexachlorobenzene	118741					0.00075 a,c	0.00077 a,c
89	Hexachlorobutadiene	87683					0.44 a,c	50 a,c
90	Hexachlorocyclopentadiene	77474					240 a	17000 a,j
91	Hexachloroethane	67721					1.9 a,c	8.9 a,c
92	Indeno(1,2,3-cd)Pyrene	193395					0.0028 c	0.031 c
93	Isophorone	78591					8.4 a,c	600 a,c
94	Naphthalene	91203						
95	Nitrobenzene	98953					17 a	1900 a,j
96	N-Nitrosodimethylamine	62759					0.00069 a,c	8.1 a,c
97	N-Nitrosodi-n-Propylamine	621647						
98	N-Nitrosodiphenylamine	86306					5.0 a,c	16 a,c
99	Phenanthrene	85018						
100	Pyrene	129000					960 a	11000 a
101	1,2,4-Trichlorobenzene	120821						
102	Aldrin	309002	3 g		1.3 g		0.00013 a,c	0.00014 a,c
103	alpha-BHC	319846					0.0039 a,c	0.013 a,c
104	beta-BHC	319857					0.014 a,c	0.046 a,c
105	gamma-BHC	58899	2 g	0.08 g	0.16 g		0.019 c	0.063 c
106	delta-BHC	319868						
107	Chlordane	57749	2.4 g	0.0043 g	0.09 g	0.004 g	0.00057 a,c	0.00059 a,c
108	4-4'-DDT	50293	1.1 g	0.001 g	0.13 g	0.001 g	0.00059 a,c	0.00059 a,c
109	4,4'-DDE	72559					0.00059 a,c	0.00059 a,c
110	4,4'-DDD	72548					0.00083 a,c	0.00084 a,c
111	Dieldrin	60571	2.5 g	0.0019 g	0.71 g	0.0019 g	0.00014 a,c	0.00014 a,c
112	alpha-Endosulfan	959988	0.22 g	0.056 g	0.034 g	0.0087 g	0.93 a	2.0 a
113	beta-Endosulfan	33213659	0.22 g	0.056 g	0.034 g	0.0087 g	0.93 a	2.0 a

(#)	A COMPOUND	CAS Number	B FRESHWATER Criterion Maximum Conc. d (ug/L) B1	B FRESHWATER Criterion Continuous Conc. d (ug/L) B2	C SALTWATER Criterion Maximum Conc. d (ug/L) C1	C SALTWATER Criterion Continuous Conc. d (ug/L) C2	D HUMAN HEALTH (10^{-6} risk for carcinogens) For Consumption of: Water & Organisms (ug/L) D1	D HUMAN HEALTH (10^{-6} risk for carcinogens) For Consumption of: Organisms Only (ug/L) D2
114	Endosulfan Sulfate	1031078					0.93 a	2.0 a
115	Endrin	72208	0.18 g	0.0023 g	0.037 g	0.0023 g	0.76 a	0.81 a,j
116	Endrin Aldehyde	7421934					0.76 a	0.81 a,j
117	Heptachlor	76448	0.52 g	0.0038 g	0.053 g	0.0036 g	0.00021 a,c	0.00021 a,c
118	Heptachlor Epoxide	1024573	0.52 g	0.0038 g	0.053 g	0.0036 g	0.00010 a,c	0.00011 a,c
119	PCB-1242	53469219		0.014 g		0.03 g	0.000044 a,c	0.000045 a,c
120	PCB-1254	11097691		0.014 g		0.03 g	0.000044 a,c	0.000045 a,c
121	PCB-1221	11104282		0.014 g		0.03 g	0.000044 a,c	0.000045 a,c
122	PCB-1232	11141165		0.014 g		0.03 g	0.000044 a,c	0.000045 a,c
123	PCB-1248	12672296		0.014 g		0.03 g	0.000044 a,c	0.000045 a,c
124	PCB-1260	11096825		0.014 g		0.03 g	0.000044 a,c	0.000045 a,c
125	PCB-1016	12674112		0.014 g		0.03 g	0.000044 a,c	0.000045 a,c
126	Toxaphene	8001352	0.73	0.0002	0.21	0.0002	0.00073 a,c	0.00075 a,c
Total No. of Criteria (h) =			24	29	23	27	91	90

Footnotes:

a. Criteria revised to reflect current agency q_1^* or RfD, as contained in the Integrated Risk Information System (IRIS). The fish tissue bioconcentration factor (BCF) from the 1980 criteria documents was retained in all cases.

b. The criteria refers to the inorganic form only.

c. Criteria in the matrix based on carcinogenicity (10^{-6} risk). For a risk level of 10^{-5}, move the decimal point in the matrix value one place to the right.

d. Criteria Maximum Concentration (CMC) = the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (1-hour average) without deleterious effects. Criteria Continuous Concentration (CCC) = the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects, ug/L = micrograms per liter

e. Freshwater aquatic life criteria for these metals are expressed as a function of total hardness (mg/L), and as a function of the pollutant's water effect ratio, WER, as defined in §131.36(c). The equations are provided in matrix at §131.36(b)(2). Values displayed above in the matrix correspond to a total hardness of 100 mg/L and a water effect ratio of 1.0.

f. Freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH, and are calculated as follows. Values displayed above in the matrix correspond to a pH of 7.8.

CMC = exp(1.005(pH) - 4.830) CCC = exp(1.005(pH) - 5.290)

g. Aquatic life criteria for these compounds were issued in 1980 utilizing the 1980 Guidelines for criteria development. The acute values shown are final acute values (FAV) which by the 1980 Guidelines are instantaneous values as contrasted with a CMC which is a one-hour average.

h. These totals simply sum the criteria in each column. For aquatic life, there are 30 priority toxic pollutants with some type of freshwater or saltwater, acute or chronic criteria. For human health, there are 91 priority toxic pollutants with either "water + fish" or "fish only" criteria. Note that these totals count chromium as one pollutant even though EPA has developed criteria based on two valence states. In the matrix, EPA has assigned numbers 5a and 5b to the criteria for chromium to reflect the fact that the list of 126 priority toxic pollutants includes only a single listing for chromium.

i. If the CCC for total mercury exceeds 0.012 ug/L more than once in a 3-year period in the ambient water, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methyl mercury exceeds the FDA action level (1.0 mg/kg). If the FDA action level is exceeded, the State must notify the appropriate EPA Regional Administrator, initiate a revision of its mercury criterion in its water quality standards so as to protect designated uses, and take other appropriate action such as issuance of a fish consumption advisory for the affected area.

j. No criteria for protection of human health from consumption of aquatic organisms (excluding water) was presented in the 1980 criteria document or in the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow a calculation of a criterion, even though the results of such a calculation were not shown in the document.

k. The criterion for asbestos is the MCL (56 FR 3526, January 30, 1991).

l. This letter not used as a footnote.

m. Criteria for these metals are expressed as a function of the water effect ratio, WER, as defined in 40 CFR 131.36(c).

CMC = column B1 or C1 value × WER

CCC = column B2 or C2 value × WER

n. EPA is not promulgating human health criteria for this contaminant. However, permit authorities should address this contaminant in NPDES permit actions using the State's existing narrative criteria for toxics.

General Notes:

1. This chart lists all of EPA's priority toxic pollutants whether or not criteria recommendations are available. Blank spaces indicate the absence of criteria recommendations. Because of variations in chemical nomenclature systems, this listing of toxic pollutants does not duplicate the listing in Appendix A of 40 CFR Part 423. EPA has added the Chemical Abstracts Service (CAS) registry numbers, which provide a unique identification for each chemical.

2. The following chemicals have organoleptic based criteria recommendations that are not included on this chart (for reasons which are discussed in the preamble): copper, zinc, chlorobenzene, 2-chlorophenol, 2,4-dichlorophenol, acenaphthene, 2,4-dimethylphenol, 3-methyl-4-chlorophenol, hexachlorocyclopentadiene, pentachlorophenol, phenol

3. For purposes of this rulemaking, freshwater criteria and saltwater criteria apply as specified in 40 CFR 131.36(c).

(2) *Factors for Calculating Metals Criteria*

CMC=WER exp{m_A[ln(hardness)]+b_A} · CCC=WER exp{m_C[ln(hardness)]+b_C}

	m_A	b_A	m_C	b_C
Cadmium	1.128	-3.828	0.7852	-3.490
Copper	0.9422	-1.464	0.8545	-1.465
Chromium (III)	0.8190	3.688	0.8190	1.561
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	3.3612	0.8460	1.1645
Silver	1.72	-6.52		
Zinc	0.8473	0.8604	0.8473	0.7614

Note: The term "exp" represents the base e exponential function.

(c) *Applicability.*

(1) The criteria in paragraph (b) of this section apply to the States' designated uses cited in paragraph (d) of this section and supersede any criteria adopted by the State, except when State regulations contain criteria which are more stringent for a particular use in which case the State's criteria will continue to apply.

(2) The criteria established in this section are subject to the State's general rules of applicability in the same way and to the same extent as are the other numeric toxics criteria when applied to the same use classifications including mixing zones, and low flow values below which numeric standards can be exceeded in flowing fresh waters.

(i) For all waters with mixing zone regulations or implementation procedures, the criteria apply at the appropriate locations within or at the boundary of the mixing zones; otherwise the criteria apply throughout the waterbody including at the end of any discharge pipe, canal or other discharge point.

(ii) A State shall not use a low flow value below which numeric standards can be exceeded that is less stringent than the following for waters suitable for the establishment of low flow return frequencies (i.e., streams and rivers):

Aquatic Life	
Acute criteria (CMC)	1 Q 10 or 1 B 3
Chronic criteria (CCC)	7 Q 10 or 4 B 3
Human Health	
Non-carcinogens	30 Q 5
Carcinogens	Harmonic mean flow

Where:

CMC—criteria maximum concentration—the water quality criteria to protect against acute effects in aquatic life and is the highest instream concentration of a priority toxic pollutant consisting of a one-hour average not to be exceeded more than once every three years on the average;

CCC—criteria continuous concentration—the water quality criteria to protect against chronic effects in aquatic life is the highest instream concentration of a priority toxic pollutant consisting of a 4-day average not to be exceeded more than once every three years on the average;

1 Q 10 is the lowest one day flow with an average recurrence frequency of once in 10 years determined hydrologically;

1 B 3 is biologically based and indicates an allowable exceedence of once every 3 years. It is determined by EPA's computerized method (DFLOW model);

7 Q 10 is the lowest average 7 consecutive day low flow with an average recurrence frequency of once in 10 years determined hydrologically;

4 B 3 is biologically based and indicates an allowable exceedence for 4 consecutive days once every 3 years. It is determined by EPA's computerized method (DFLOW model);

30 Q 5 is the lowest average 30 consecutive day low flow with an average recurrence frequency of once in 5 years determined hydrologically; and the harmonic mean flow is a long term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows.

(iii) If a State does not have such a low flow value for numeric standards compliance, then none shall apply and the criteria included in paragraph (d) of this section herein apply at all flows.

(3) The aquatic life criteria in the matrix in paragraph (b) of this section apply as follows:

(i) For waters in which the salinity is equal to or less than 1 part per thousand 95% or more of the time, the applicable criteria are the freshwater criteria in Column B;

(ii) For waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time, the applicable criteria are the saltwater criteria in Column C; and

(iii) For waters in which the salinity is between 1 and 10 parts per thousand as defined in paragraphs (c)(3) (i) and (ii) of this section, the applicable criteria are the more stringent of the freshwater or saltwater criteria. However, the Regional Administrator may approve the use of the alternative freshwater or saltwater criteria if scientifically defensible information and data demonstrate that on a site-specific basis the biology of the waterbody is dominated by freshwater aquatic life and that freshwater criteria are more appropriate; or conversely, the biology of the waterbody is dominated by saltwater aquatic life and that saltwater criteria are more appropriate.

(4) *Application of metals criteria.*

(i) For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, the minimum hardness allowed for use in those equations shall not be less than 25 mg/l, as calcium carbonate, even if the actual ambient hardness is less than 25 mg/l as calcium carbonate. The maximum hardness value for use in those equations shall not exceed 400 mg/l as calcium carbonate, even if the actual ambient hardness is greater than 400 mg/l as calcium carbonate. The same provisions apply for calculating the metals criteria for the comparisons provided for in paragraph (c)(3)(iii) of this section.

(ii) The hardness values used shall be consistent with the design discharge conditions established in paragraph (c)(2) of this section for flows and mixing zones.

(iii) The criteria for metals (compounds #1-#13 in paragraph (b) of this section) are expressed as total recoverable. For purposes of calculating aquatic life criteria for metals from the equations in footnote M. in the criteria matrix in paragraph (b)(1) of this section and the equations in paragraph (b)(2) of this section, the water-effect ratio is computed as a

specific pollutant's acute or chronic toxicity values measured in water from the site covered by the standard, divided by the respective acute or chronic toxicity value in laboratory dilution water. The water-effect ratio shall be assigned a value of 1.0, except where the permitting authority assigns a different value that protects the designated uses of the water body from the toxic effects of the pollutant, and is derived from suitable tests on sampled water representative of conditions in the affected water body, consistent with the design discharge conditions established in paragraph (c)(2) of this section. For purposes of this paragraph, the term acute toxicity value is the toxicity test results, such as the concentration lethal to one-half of the test organisms (i.e., LC50) after 96 hours of exposure (e.g., fish toxicity tests) or the effect concentration to one-half of the test organisms, (i.e., EC50) after 48 hours of exposure (e.g., daphnia toxicity tests). For purposes of this paragraph, the term chronic value is the result from appropriate hypothesis testing or regression analysis of measurements of growth, reproduction, or survival from life cycle, partial life cycle, or early life stage tests. The determination of acute and chronic values shall be according to current standard protocols (e.g., those published by the American Society for Testing Materials (ASTM)) or other comparable methods. For calculation of criteria using site-specific values for both the hardness and the water effect ratio, the hardness used in the equations in paragraph (b)(2) of this section shall be as required in paragraph (c)(4)(ii) of this section. Water hardness shall be calculated from the measured calcium and magnesium ions present, and the ratio of calcium to magnesium shall be approximately the same in standard laboratory toxicity testing water as in the site water.

(d) *Criteria for Specific Jurisdictions—*

(1) *Rhode Island, EPA Region 1.*

(i) All waters assigned to the following use classifications in the Water Quality Regulations for Water Pollution Control adopted under Chapters 46-12, 42-17.1, and 42-35 of the General Laws of Rhode Island are subject to the criteria in paragraph (d)(1)(ii) of this section, without exception:

6.21 Freshwater	6.22 Saltwater:
Class A	Class SA
Class B	Class SB
Class C	Class SC

(ii) The following criteria from the matrix in paragraph (b)(1) of this section apply to the use classifications identified in paragraph (d)(1)(i) of this section:

Use classification	Applicable criteria
Class A Class B waters where water supply use is designated Class B waters where water supply use is not designated; Class C; Class SA; Class SB; Class SC	These classifications are assigned the criteria in: Column D1—all Each of these classifications is assigned the criteria in: Column D2—all

(iii) The human health criteria shall be applied at the 10^{-5} risk level, consistent with the State policy. To determine appropriate value for carcinogens, see footnote c in the criteria matrix in paragraph (b)(1) of this section.

(2) *Vermont, EPA Region 1.*

(i) All waters assigned to the following use classifications in the Vermont Water Quality Standards adopted under the authority of the Vermont Water Pollution Control Act (10 V.S.A., Chapter 47) are subject to the criteria in paragraph (d)(2)(ii) of this section, without exception:

Class A
Class B
Class C

(ii) The following criteria from the matrix in paragraph (b)(1) of this section apply to the use classifications identified in paragraph (d)(2)(i) of this section:

Use classification	Applicable criteria
Class A Class B waters where water supply use is designated Class B waters where water supply use is not designated Class C	This classification is assigned the criteria in: Column B1—all Column B2—all Column D1—all These classifications are assigned the criteria in: Column B1—all Column B2—all Column D2—all

(iii) The human health criteria shall be applied at the State-proposed 10^{-6} risk level.

(3) *New Jersey, EPA Region 2.*

(i) All waters assigned to the following use classifications in the New Jersey Administrative Code (N.J.A.C.) 7:9-4.1 et seq., Surface Water Quality Standards, are subject to the criteria in paragraph (d)(3)(ii) of this section, without exception.

N.J.A.C. 7:9-4.12(b): Class PL
N.J.A.C. 7:9-4.12(c): Class FW2
N.J.A.C. 7:9-4.12(d): Class SE1
N.J.A.C. 7:9-4.12(e): Class SE2
N.J.A.C. 7:9-4.12(f): Class SE3
N.J.A.C. 7:9-4.12(g): Class SC
N.J.A.C. 7:9-4.13(a): Delaware River Zones 1C, 1D, and 1E
N.J.A.C. 7:9-4.13(b): Delaware River Zone 2
N.J.A.C. 7:9-4.13(c): Delaware River Zone 3
N.J.A.C. 7:9-4.13(d): Delaware River Zone 4
N.J.A.C. 7:9-4.13(e): Delaware River Zone 5
N.J.A.C. 7:9-4.13(f): Delaware River Zone 6

(ii) The following criteria from the matrix in paragraph (b)(1) of this section apply to the use classifications identified in paragraph (d)(3)(i) of this section:

Use classification	Applicable criteria
PL (Freshwater Pinelands), FW2	These classifications are assigned the criteria in: Column B1—all except #102, 105, 107, 108, 111, 112, 113, 115, 117, 118. Column B2—all excep #105, 107, 108, 111, 112, 113, 115, 117, 118, 119, 120, 121, 122, 123, 124, and 125. Column D1—all at a 10^{-6} risk level except #23, 30, 37, 38, 42, 68, 89, 91, 93, 104, 105; #23, 30, 37, 38, 42, 68, 89, 91, 93, 104, 105, at a 10^{-5} risk level. Column D2—all at a 10^{-6} risk level except #23, 30, 37, 38, 42, 68, 89, 91, 93, 104, 105; 23, 30, 37, 38, 42, 68, 89, 91, 93, 104, 105, at a 10^{-5} risk level.
PL (Saline Water Pinelands), SE1, SE2, SE3, SC	These classifications are assigned the criteria in:

Thursday
May 4, 1995

Federal Register

Part IV

Environmental Protection Agency

40 CFR Part 131
Stay of Federal Water Quality Criteria for Metals; Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance—Revision of Metals Criteria; Final Rules

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 131

[FRL–5196–2]

Stay of Federal Water Quality Criteria for Metals

AGENCY: Environmental Protection Agency (EPA).

ACTION: Administrative stay.

SUMMARY: In December 1992, EPA promulgated water quality criteria for toxic pollutants in order to protect human health and aquatic life in fourteen states that had not adopted the necessary toxics criteria as required by the Clean Water Act. Some of the criteria are for protection of aquatic life from the effects of metals in the water. After EPA promulgated the rule, EPA issued a new policy for setting water quality criteria for metals. In order to allow permitting authorities in the states covered by the rule the flexibility to follow EPA's new policy, the Agency is staying the effectiveness of specific metals criteria promulgated in the rule. The stay will remain in effect until EPA promulgates new metals criteria for the states covered by the rule.

EFFECTIVE DATE: This stay is effective April 14, 1995.

FOR FURTHER INFORMATION CONTACT: Tim Kasten, Office of Science and Technology, Office of Water (4304), USEPA, 401 M Street SW., Washington, D.C. 20460, (202) 260–5994.

SUPPLEMENTARY INFORMATION:

Background

In the National Toxics Rule ("NTR"), EPA promulgated numeric water quality criteria for toxic pollutants for fourteen states and jurisdictions that had not adopted sufficient criteria ("NTR states"). 57 FR 60848 (December 22, 1992). That action brought those states into compliance with section 303(c)(2)(B) of the Clean Water Act ("CWA") which requires states to adopt criteria for all toxic pollutants the discharge or presence of which could interfere with state designated uses of waters, and for which EPA had published criteria.

Among the criteria that EPA promulgated for the NTR states were aquatic life water quality criteria for metals ("metals criteria"). Aquatic life water quality criteria are estimates of the highest concentration of a substance that may be present in water while maintaining the protection of aquatic life from acute or chronic effects. A central issue in establishing and implementing metals criteria is how to accurately determine the fraction of the total metal that is biologically available and toxic.

At the time that EPA promulgated the NTR, the Agency's policy was to express metals criteria using total recoverable metal concentrations ("total recoverable metal"). While metals criteria could be implemented by measuring either total recoverable metal or dissolved metal, total recoverable metal measurement, being more conservative, provided a greater level of protection than dissolved metal measurement. Because the NTR was to cover a substantial number of water bodies, EPA chose the simplest, most protective approach, and the one reflected in its criteria documents to implement the metals criteria, and promulgated metals criteria based on total recoverable metal.

After promulgation of the NTR, the Agency continued to address the issue of how best to express metals criteria. EPA held a meeting with invited experts in January 1993 in Annapolis, Maryland to further elicit comment on the use of total recoverable metal versus dissolved metal in developing national metals criteria. The Agency solicited comments on the recommendations made by presenters at the meeting in the **Federal Register** on July 9, 1993 (58 FR 32131). Subsequently, EPA determined that dissolved metal approximates the biologically available fraction of waterborne metals for aquatic organisms better than total recoverable metal. On October 1, 1993, the Agency issued guidance on the interpretation and implementation of metals criteria providing that "[i]t is now the policy of the Office of Water that the use of dissolved metal to set and measure compliance with water quality standards is the recommended approach * * *". *Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria.*

A number of parties brought lawsuits challenging the NTR metals criteria. The Plaintiffs in those lawsuits wanted the permitting authorities in the NTR states to use criteria based on dissolved metal. EPA has concluded that it is in the public interest to revise the metals criteria promulgated in the NTR to reflect the new metals policy. In settlement of the litigation, EPA has agreed to stay the numeric aquatic life water quality criteria (expressed as total recoverable metal) for: arsenic, cadmium, chromium (III), chromium (VI), copper, lead, mercury (acute only), nickel, selenium (saltwater only), silver, and zinc. This stay will be in effect until EPA takes action to amend the NTR by promulgating new metals criteria based on dissolved metal.

Effective Date of the Stay

Pursuant to section 705 of the Administrative Procedure Act (APA) (5 U.S.C. 705), "when an agency finds that justice so requires, it may postpone the effective date of actions taken by it, pending judicial review." EPA has determined that this stay is necessary pending resolution of the litigation. Consequently, EPA finds issuance of this stay is in the interests of justice.

In addition, under section 553 of the APA (5 U.S.C. 553), when an Agency finds good cause to exist, it may issue a rule without first providing notice and comment and make the rule immediately effective. EPA believes that it has good cause both to issue this stay without notice and comment and to make the stay immediately effective.

A stay of the metals criteria is central to the settlement of the pending litigation, and it is in the public interest to avoid costly and potentially protracted litigation by issuing a stay. Further, the stay relieves a burden on the regulated community. The stay will avoid potential harm to dischargers in the NTR states for which National Pollutant Discharge Elimination System permits are being issued pursuant to section 402 of the Clean Water Act by allowing permitting authorities to establish permit limits based on dissolved metal concentrations consistent with current Agency policy. It is not in the public interest to require permitting authorities in the NTR states to impose effluent limitations based on total recoverable metal ambient water quality criteria which EPA now considers to be more stringent than may be necessary to protect designated uses.

EPA considers staying the metals criteria to be in the public interest as noted above, and therefore good cause exists to issue the stay without notice and comment and to make the stay immediately effective.

Regulatory Assessment Requirements

A. Executive Order 12866

Under Executive Order 12866 (56 FR 51735, October 4, 1993), the Agency must determine whether the regulatory action is "significant" and therefore subject to all the requirements of the Executive Order (i.e., Regulatory Impact Analysis and review by the Office of Management and Budget). Under section 3(f), the order defines "significant" as those actions likely to lead to a rule: (1) Having an annual effect on the economy of $100 million or more, or adversely and materially

affecting a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities (also known as "economically significant"); (2) creating serious inconsistency or otherwise interfering with an action taken or planned by another agency; (3) materially altering the budgetary impacts of entitlements, grants, user fees, or loan programs; or (4) raising novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this order. Pursuant to the terms of this order, EPA has determined that this stay would not be "significant".

B. Regulatory Flexibility Act

Under the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, EPA is certifying that a stay of these criteria would not have a significant impact on a substantial number of small businesses.

C. Paperwork Reduction Act

There are no information collection requirements associated with this administrative stay covered under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*

List of Subjects in 40 CFR Part 131

Environmental protection, Water pollution control, Water quality standards, Toxic pollutants.

Dated: April 14, 1995.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, part 131 of title 40 of the Code of Federal Regulations is amended as follows:

PART 131—[AMENDED]

1. The authority citation for part 131 continues to read as follows:

Authority: 33 U.S.C. 1251 et seq.

2. Part 131 is amended by adding at the end of § 131.36(b)(1) the following "Note to paragraph (b)(1)":

§ 131.36 Toxics criteria for those States not complying with Clean Water Act Section 303(c)(2)(B).

* * * * *

(b)(1) * * *

Note to paragraph (b)(1): On April 14, 1995, the Environmental Protection Agency issued a stay of certain criteria in paragraph (b)(1) of this section as follows: the criteria in columns B and C for arsenic, cadmium, chromium (VI), copper, lead, nickel, silver, and zinc; the criteria in B1 and C1 for mercury; the criteria in column B for chromium (III); and the criteria in column C for selenium. The stay remains in effect until further notice.

[FR Doc. 95–10147 Filed 5–3–95; 8:45 am]

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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 131

[WH–FRL–5196–1]

Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance—Revision of Metals Criteria

AGENCY: Environmental Protection Agency (EPA).

ACTION: Interim final rule, notice of data availability and request for comments.

SUMMARY: EPA is promulgating new aquatic life metals criteria for nine States, Puerto Rico, and the District of Columbia, that are subject to EPA's 1992 National Toxics Rule ("NTR"). These new metals criteria reflect EPA's current policy for setting water quality criteria for metals. This interim final rule establishes metals criteria that are protective of aquatic life and approximate, better than the 1992 criteria, the biologically available fraction of water borne metals to aquatic organisms. Use of the new metals criteria will allow permitting authorities in the nine States, Puerto Rico and the District of Columbia, to establish effluent limitations based on the new metals criteria rather than the 1992 criteria which EPA now considers to be more stringent than may be necessary to protect designated uses for aquatic life. The interim final rule will be in effect while EPA considers public comments and develops a final rule. This rule terminates the Administrative Stay published elsewhere in this issue of the Federal Register.

DATES: This interim final rule is effective April 15, 1995. Comments on the interim final rule and other data noticed in this preamble will be accepted until July 3, 1995.

ADDRESSES: An original and 3 copies of all comments and references on the interim final rule and data should be addressed to: Revision of the National Toxics Rule-Dissolved Metals Criteria, Comment Clerk; Water Docket (MC–4101), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. The administrative record for this rulemaking is available for review and copying at the Environmental Protection Agency, Office of Water Docket, 401 M Street SW, Washington DC, 20460, Room L102, on weekdays during EPA's normal business hours of 8 a.m. until 4:30 p.m. For access to the Docket materials, call (202) 260–3027 between 9:00a.m.–3:30p.m., for an appointment. A reasonable fee will be charged for photocopies.

FOR FURTHER INFORMATION CONTACT: Timothy J. Kasten, telephone 202–260–5994.

SUPPLEMENTARY INFORMATION:

A. General Background

1. Regulatory Background

In the NTR, EPA promulgated numeric water quality criteria for 12 States, Puerto Rico, and the District of Columbia, that failed to comply fully with Section 303(c)(2)(B) of the Clean Water Act. (57 FR 60848, December 22, 1992 codified in the Code of Federal Regulations at 40 CFR 131.36).[1] Those criteria became the legally enforceable water quality standards in the named States, Puerto Rico, and the District of Columbia, for all purposes and programs under the Clean Water Act on February 5, 1993. Included among the water quality criteria promulgated in the NTR were numeric criteria for the protection of aquatic life for 11 metals: arsenic, cadmium, chromium (III), chromium (VI), copper, lead, mercury, nickel, selenium, silver, and zinc.

The Agency received extensive public comment during the development of the NTR regarding the most appropriate approach for expressing the metals criteria. The principal issue was the correlation between metals that are measured and metals that are bioavailable and toxic to aquatic life.

2. Policy on Aquatic Life Metals Criteria

At the time of the NTR promulgation, Agency policy was to express metals criteria, as recommended in its Section 304(a) criteria documents, as total recoverable metal measurements. Agency guidance prior to the NTR promulgation indicated that metals criteria may be expressed either as total recoverable metal or dissolved metal.[2]

[1] In the NTR, EPA determined compliance with Section 303(c)(2)(B) based on the status of State compliance as of 1991, the date of the proposed rulemaking, and then took into account EPA approval actions between the proposed and final rulemaking for those States included in the proposed rule. EPA acknowledges that, due to subsequent State actions to delete or otherwise modify toxics criteria (e.g., see Table 1, 57 FR 60856, December 22, 1992), all States and Territories currently may not be in full compliance with Section 303(c)(2)(B).

[2] Interim Guidance on Interpretation and Implementation of Aquatic Life Criteria for Metals,

Continued

Because the NTR was to cover a substantial number of water bodies of varying water quality, EPA selected what it considered the simplest, more conservative approach and the approach reflected in its criteria documents, to implement the metals criteria, namely the total recoverable method. Accordingly, the metals criteria promulgated in the NTR were expressed as total recoverable metals, although EPA also provided for site-specific criteria development.[3]

Thereafter, EPA continued to work with States and other interested parties on the issue of metals bioavailability and toxicity. EPA held a workshop of invited experts on this issue; the results of the consultations were published at 58 FR 32131, June 8, 1993. As a result of these consultations, the Agency issued a policy memorandum on October 1, 1993, entitled: *Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria* ("Metals Policy"). (The complete October 1, 1993 memorandum can be obtained from EPA's Office of Water Resource Center (202) 260–7786 or the Office of Water Docket.) The Metals Policy states:

> It is now the policy of the Office of Water that the use of dissolved metal to set and measure compliance with water quality standards is the recommended approach, because dissolved metal more closely approximates the bioavailable fraction of metal in the water column than does total recoverable metal.

It further states:

> Until the scientific uncertainties are better resolved, a range of different risk management decisions can be justified. EPA recommends that State water quality standards be based on dissolved metal. EPA will also approve a State risk management decision to adopt standards based on total recoverable metal, if those standards are otherwise approvable as a matter of law. (See Section 510, Federal Water Pollution Control Act, Public Law 100–4, 33 U.S.C. 466 et seq.)

The adoption of the Metals Policy did not change the Agency's position that the existing total recoverable criteria published under Section 304(a) of the Clean Water Act continue to be scientifically defensible. EPA developed the total recoverable criteria using high-quality analytical data and are still scientifically defensible criteria. When developing and adopting its own standards, a State, in making its risk management decision, may wish to consider sediment, food chain effects and other fate-related issues and decide to adopt total recoverable or dissolved metals criteria.

In general, EPA continues to conduct research on metals toxicity to further refine the criteria and their implementation. However, the aim of both the Clean Water Act and EPA policy is that a more effective way of incorporating new science into the water quality program is for the States to promulgate their own standards and implementation policies. The States can then make appropriate updates, rather than relying on Federal promulgations such as today's rule.

3. Litigation and Settlement of NTR Metals Issues

A number of parties brought lawsuits challenging the NTR metals criteria. See *American Forest and Paper Ass'n, Inc. et al.* v. *EPA*, Consolidated case No. 93–0694 RMU (D.D.C.) The Plaintiffs in those lawsuits wanted the permitting authorities in the NTR States to use criteria based on dissolved metal rather than total recoverable. After careful consideration of the issue, EPA concluded that it was in the public interest to revise the metals criteria promulgated in the NTR to reflect the Office of Water's new metals policy. On February 15, 1995, EPA and the Plaintiffs filed a partial settlement agreement with the court. Pursuant to the terms of the partial settlement agreement, EPA agreed to issue an administrative stay of the numeric aquatic life water quality criteria (expressed as total recoverable metal) for: arsenic, cadmium, chromium (III), chromium (VI), copper, lead, mercury (acute only), nickel, selenium (saltwater only), silver, and zinc. That stay is published in a separate notice in today's Federal Register. The stay is intended to be in effect only until EPA takes action to amend the NTR by promulgating new metals criteria based on dissolved metal. With today's interim final rule, EPA is promulgating new metals criteria for those metals listed in the stay based on dissolved metal and therefore this action will supersede the administrative stay.

B. Today's Interim Final Rule

EPA's action today revises the NTR that established numeric aquatic life metals criteria for 9 States, Puerto Rico and the District of Columbia (Table 1). (Of the 12 NTR States, aquatic life metals criteria were only promulgated for nine.) The numeric criteria in today's rule reflect the Office of Water's current policy with respect to metals. This action promulgates dissolved metals criteria for those total recoverable metals criteria subject to the Agency's administrative stay.

TABLE 1.—STATES SUBJECT TO THE REVISED METALS CRITERIA [1]

Alaska
Arkansas
California
Idaho
Kansas
Michigan
New Jersey
Vermont
Washington
District of Columbia
Puerto Rico

[1] Today's interim final rule may have differing applicability for each of the States in this table depending on the State's individual compliance with Section 303(c)(2)(B) of the Clean Water Act. See 40 CFR 131.36(d) for State applicability.

C. Conversion Factors: Total Recoverable to Dissolved Metal

Because EPA's Section 304(a) criteria are expressed as total recoverable metal, to express the criteria as dissolved, application of a conversion factor is necessary to account for the particulate metal present in the laboratory toxicity tests used to develop the total recoverable criteria. Initially, EPA included a set of recommended freshwater conversion factors with the Metals Policy. Based on additional laboratory evaluations that simulated the original toxicity tests, EPA has refined the procedures used to develop freshwater conversion factors for aquatic life criteria. EPA made new conversion factors available for public comment in the context of EPA's Proposed Guidance for the Great Lakes System on August 30, 1994, at 59 FR 44678.

EPA has also conducted saltwater laboratory simulation tests for the development of conversion factors for saltwater metals criteria. The saltwater simulation tests were conducted using the same methodology as the freshwater tests with minor modifications, necessary to account for saltwater. The saltwater test results are being made available with today's rule. The conversion factors in this rule and other technical reports referenced herein, supersede the conversion factors presented in Attachment #2 of the Metals Policy.

Total recoverable to dissolved metal conversion factors were attached to the partial settlement agreement in the form of a draft guidance entitled, *Guidance to States Subject to the National Toxics Rule For Setting NPDES Limits During the Stay of the Metals Criteria.* (The partial settlement agreement is available from the Water Docket.) The draft guidance used data that were available through December 21, 1994. The

U.S. EPA, May 1992. (Notice of availability published at 57 FR 24041, June 5, 1992.)

[3] See Interim Guidance on the Determination and Use of Water-Effect Ratios for Metals, February 1994, EPA 823–B–94–001.

conversion factors presented in today's rule reflect the best science available to EPA at the time of promulgation and contain minor modifications from those in the attachment to the February 15 partial settlement agreement. For each metal specific conversion factor, the changes between the draft guidance and today's rule are less than 10%. EPA has determined these changes to be minor.

1. Freshwater Criteria Conversion Factors

The final freshwater conversion factors used in today's rule are contained in: "Derivation of Conversion Factors for the Calculation of Dissolved Freshwater Aquatic Life Criteria for Metals" (U.S. EPA, 1995), available from the Water Docket and are presented in Table 2 below. This study did not include laboratory simulation tests for mercury or silver, therefore, the freshwater conversion factors for mercury and silver used today are from the Metals Policy.

The conversion factors for most freshwater metals were established as constant values. For cadmium and lead however, EPA found that water hardness mediated the conversion factor and should be taken into account when converting total recoverable cadmium and lead criteria to dissolved. Table 2 presents the hardness-dependent conversion factors for cadmium and lead. The hardness-dependent conversion factor for lead was included in the August 30, 1994 Notice of Availability (59 FR 44678). In today's action, EPA is specifically requesting comment on the use of hardness-dependent conversion factor for cadmium.

TABLE 2.—FRESHWATER CRITERIA CONVERSION FACTORS FOR DISSOLVED METALS

Metal	Conversion factors[a]	
	Acute	Chronic
Arsenic	1.000	1.000
Cadmium[b]	0.944	0.909
Chromium (III)	0.316	0.860
Chromium(VI)	0.982	0.962
Copper	0.960	0.960
Lead[b]	0.791	0.791
Mercury	[c]0.85	[d]N/A
Nickel	0.998	0.997
Silver	[c]0.85	[c]N/A
Zinc	0.978	0.986

[a] The conversion factors are given to three decimal places because they are intermediate values in the calculation of dissolved criteria.

[b] Conversion factors are hardness-dependent. The values shown are with a hardness of 100 mg/L as calcium carbonate ($CaCO_3$). Conversion factors (CF) for any hardness can be calculated using the following equations:

Cadmium
Acute: $CF=1.136672-[(\ln hardness)(0.041838)]$
Chronic: $CF=1.101672-[(\ln hardness)(0.041838)]$
Lead (Acute and Chronic): $CF=1.46203-[(\ln hardness)(0.145712)]$

[c] Conversion factor from: Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993. Factors were expressed to two decimal places.

[d] CCC for mercury cannot be converted to dissolved, because it is based on mercury residues in aquatic organisms rather than toxicity.

[e] Not applicable, EPA has not published final chronic criteria values for silver.

2. Saltwater Criteria Conversion Factors

Acute saltwater conversion factors are being made available through today's rule. The data and the acute criteria conversion factors for saltwater are contained in: "Derivation of Conversion Factors for the Calculation of Dissolved Saltwater Aquatic Life Criteria for Metals" (U.S. EPA 1995). This summary report and its supporting data are available from the Water Docket. Saltwater chronic conversion factors have not been developed separately and therefore are not available for today's rule. Based on close similarities between the freshwater acute and chronic conversion factors, EPA believes that, if calculated, the chronic saltwater conversion factors would be nearly the same as the acute saltwater factors. In the absence of these chronic conversion factors, the saltwater acute conversion factors will apply. The saltwater conversion factors are presented in Table 3 below. Saltwater simulation tests were not completed for mercury or silver, therefore the conversion factors from the Metals Policy will continue to apply.

TABLE 3.—SALTWATER CRITERIA CONVERSION FACTORS FOR DISSOLVED METALS

Metal	Conversion factors[a]
Arsenic	1.000
Cadmium	0.994
Chromium (III)	[d]
Chromium (VI)	0.993
Copper	0.83
Lead	0.951
Mercury	[b][c]0.85
Nickel	0.990
Selenium	0.998
Silver	[b]0.85
Zinc	0.946

[a] Conversion factors on this table were calculated for acute criteria only. Conversion factors for chronic criteria are not currently available. In the absence of chronic conversion factors saltwater acute conversion factors are used.

[b] Conversion factor from: Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993. Factors were expressed to two decimal places.

[c] CCC for mercury cannot be converted to dissolved, because it is based on mercury residues in aquatic organisms rather than toxicity.

[d] No saltwater criteria.

D. Applicability Requirements for Metals Criteria

Through today's action, EPA is also requesting comments on the applicability requirements in 40 CFR 131.36(c) as they apply to the metals criteria. In particular, EPA is requesting comments on § 131.36(c)(4)(i) regarding the calculation of hardness-dependent freshwater metals criteria. Section 131.36(c)(4)(i) describes the minimum and maximum hardness values (25 mg/L and 400 mg/L as $CaCO_3$, respectively) to be used when calculating hardness-dependent freshwater metals criteria. This requirement is not changed by today's interim final rule, however EPA is requesting comment on an alternative approach. Most of the data used to develop these hardness formulas were in the hardness range of 25 mg/L to 400 mg/L as $CaCO_3$. The formulas are therefore most accurate in this range. Using a hardness of 25 mg/L for calculating criteria, when the actual ambient hardness is less than 25 mg/L, could result in criteria that are under-protective of aquatic life. EPA is therefore requesting comments on the use of the actual ambient hardness for calculating criteria when the hardness is below 25 mg/L as $CaCO_3$.

Most freshwaters of the U.S. have an ambient hardness of less than 400 mg/L as $CaCO_3$. Using 400 mg/L to calculate criteria, for waters with an ambient hardness of greater than 400 mg/L, may result in over-protective criteria because at a hardness above 400 mg/L, other confounding factors, which may cause this hardness, can also affect the toxicity. EPA is requesting comment on an approach that would make two options available for calculating metals criteria for waters with a hardness of greater than 400 mg/L as $CaCO_3$: *Option 1*—use 400 mg/L as $CaCO_3$ for the criteria calculation or, *Option 2*—use the actual hardness and require the use of the water-effect ratio to modify the final criteria value to more accurately reflect ambient conditions. (EPA notes that in the NTR States, the use of the water-effect ratio is assigned a value of 1.0, unless otherwise specified by the permitting authority. See 40 CFR 131.36(c)(4)(iii).)

E. Calculation of Dissolved Metals Criteria

Metals criteria values in 40 CFR 131.36(b)(1), as amended today, are now shown as dissolved metal. These criteria have been calculated in one of two ways. For freshwater metals criteria that are hardness-dependent (denoted by footnote "e" in the matrix), the dissolved metal criteria value must be calculated separately for each hardness using the table at § 131.36(b)(2), as amended today. The hardness-dependent freshwater criteria values presented in the matrix at § 131.36(b)(1) have been calculated using a hardness of 100 mg/L $CaCO_3$ for comparative purposes only. Saltwater metals criteria and freshwater criteria that are not hardness-dependent (criteria denoted by footnote "m" in the matrix) are calculated by taking the total recoverable criteria values (from EPA National Ambient Water Quality Criteria Documents) before rounding, and multiplying them by the appropriate conversion factors from Table 2 or 3 of Section C of this preamble. (The total recoverable criteria values are shown to four figures, where available, because they are intermediate values in the calculation of dissolved metals criteria.) The final dissolved metals criteria values, as they appear in the matrix at § 131.36(b)(1), are rounded to two significant figures. Tables 4a and 4b below, summarize the conversions for saltwater criteria and freshwater criteria that are not hardness-dependent.

EPA notes that if a non-NTR State adopts standards, or an NTR State adopts its own standards (for subsequent withdrawal from the NTR), it may prefer a more conservative approach and adopt total recoverable metals criteria. In doing so, the State may use EPA's total recoverable criteria from Tables 4a and 4b (rounded to two significant figures) or, for hardness-dependent freshwater criteria, omit the conversion factor from the formula presented in § 131.36(b)(2).

Tables 4a and 4b use the following abbreviations and formulas for calculating dissolved metals criteria (CMC and CCC are defined in 40 CFR 131.36(b)(1), footnote d):

CMC—Criterion Maximum Concentration

CCC—Criterion Continuous Concentration

CF—Conversion Factor

Formulas for Calculating Dissolved Metals Criteria:

$CMC_{dissolved} = CMC_{total\ recoverable} \times$ Acute CF

$CCC_{dissolved} = CCC_{total\ recoverable} \times$ Chronic CF

TABLE 4a.—CALCULATION OF FRESHWATER DISSOLVED METALS CRITERIA THAT ARE NOT HARDNESS-DEPENDENT

METAL	Total Recoverable Metals Criteria[1] (µg/L)		Conversion factors[2]		Dissolved metals criteria[3]	
	CMC	CCC	Acute	Chronic	CMC	CCC
Arsenic	359.1	188.9	1.000	1.000	360	190
Chromium(VI)	15.74	10.80	0.982	0.962	15	10
Mercury	2.428	0.0122	0.85	N/A	2.1	N/A

[1] From EPA National Ambient Water Quality Criteria Documents.
[2] From Table 2.
[3] Final dissolved metals criteria have been rounded to two significant figures.

TABLE 4b.—CALCULATION OF SALTWATER DISSOLVED METALS CRITERIA

Metal	Total recoverable metals criteria[1] (µg/L)		Conversion factors[2]		Dissolved metals criteria[3]	
	CMC	CCC	Acute	Chronic	CMC	CCC
Arsenic	68.55	36.05	1.000	1.000	69	36
Cadmium	42.54	9.345	0.994	0.994	42	9.3
Chromium (III)	N/A[4]	N/A[4]	N/A[4]	N/A[4]	N/A[4]	N/A[4]
Chromium (VI)	1079	49.86	0.993	0.993	1100	50
Copper	2.916	2.916	0.83	0.83	2.4	2.4
Lead	217.16	8.468	0.951	0.951	210	8.1
Mercury	2.062	.0250	0.85	N/A[5]	1.8	N/A[5]
Nickel	74.60	8.293	0.990	0.990	74	8.2
Selenium	293.8	70.69	0.998	0.998	290	71
Silver	2.3	N/A[4]	0.85	N/A[4]	1.9	N/A[4]
Zinc	95.10	86.14	0.946	0.946	90	81

[1] From EPA National Ambient Water Quality Criteria Documents.
[2] From Table 3.
[3] Final dissolved metals criteria have been rounded to two significant figures.
[4] Not applicable, national criteria not available.
[5] The CCC for mercury is expressed as total recoverable.

F. Site-Specific Criteria Modifications

EPA has issued guidance (Water Quality Standards Handbook, Second Edition-1993, EPA–823–B–93–002 and update #1, EPA–823–B–94–006, August 1994, at page 3–38 and Appendix L), describing three site-specific criteria development methodologies: recalculation procedure, indicator species procedure (also known as the water-effect ratio (WER)) and resident species procedure. Only the first two of these have been widely used.

In the NTR, EPA identified the WER as the method for optional site-specific criteria development for certain metals. On February 22, 1994, EPA issued *Interim Guidance on the Determination and Use of Water-Effect Ratios for Metals*, EPA 823–B–94–001, now incorporated into the updated Second Edition of the Water Quality Standards Handbook, Appendix L. In accordance with the WER guidance and where application of the WER is deemed

appropriate, EPA strongly encourages the application of the WER on a watershed or waterbody basis as opposed to application on a discharger-by-discharger basis. This approach is technically sound, an efficient use of resources, and allowable for permitting authorities under the NTR.

EPA's endorsement of the use of the WER is not affected by today's rule. As noted in the NTR at 57 FR 60879, the WER is a more comprehensive mechanism for addressing bioavailability issues than simply expressing the criteria in terms of dissolved metal. Consequently, expressing the criteria in terms of dissolved metal, as done in today's rule, does not completely eliminate the utility of the WER. This is particularly true for copper, a metal that forms reduced-toxicity complexes with dissolved organic matter.

The *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals*, Appendix D, explains the relationship between WERs for dissolved criteria, and WERs for total recoverable criteria. Dissolved measurements are to be used in the site-specific toxicity testing underlying the WERs for dissolved criteria. Because WERs for dissolved criteria generally are little affected by elevated particulate concentrations, EPA expects those WERs to be somewhat less than WERs for total recoverable criteria in such situations. Nevertheless, after the site-specific ratio of dissolved to total metal has been taken into account, EPA expects a permit limit derived using a WER for a dissolved criterion to be similar to the permit limit that would be derived from the WER for the corresponding total recoverable criterion.

Because WERs for dissolved criteria generally are little affected by particulate concentrations, those WERS also may often exhibit less time variability than WERs for total recoverable criteria. Consequently, WER-adjusted dissolved criteria may have somewhat greater certainty than WER-adjusted total recoverable criteria.

EPA expects the use of WERs for dissolved criteria to provide the same level of protection as the use of WERs for total recoverable criteria in the NTR. However, the increased reliability of the dissolved criteria prior to WER adjustment (compared to the total recoverable criteria unadjusted) will reduce the need for site-specific WER determinations.

G. Technical Guidance

EPA continues to urge the States affected by this rule to adopt their own standards and negate the need for Federal action. Should a State choose to adopt dissolved criteria, EPA recommends use of the Metals Policy, its attachments (as updated herein) and other guidance referenced in this preamble for implementation of dissolved metals criteria. Attachments to the Metals Policy include: guidance on dynamic modeling and translators (Attachment #3), and clean analytical techniques and monitoring (Attachment #4). Additional guidance on clean and ultra-clean techniques is available and under development (see discussion below). EPA will continue to update implementation guidance as needed in the future.

1. Total Maximum Daily Loads (TMDLs) and National Pollutant Discharge Elimination System (NPDES) Permits

EPA's NPDES regulations require that limits for metals in permits be stated as total recoverable in most cases {see 40 CFR § 122.45(c)} except when an effluent guideline specifies the limitation in another form of the metal, the approved analytical methods measure only dissolved metal, or the permit writer expresses a metal's limit in another form (e.g., dissolved, specific valence, or total) when required to carry out provisions of the Clean Water Act. This is because the chemical conditions in ambient waters frequently differ substantially from those in the effluent and there is no assurance that effluent particulate metal would not dissolve after discharge. The NPDES permit regulations do not require that State water quality standards be expressed as total recoverable; rather, the regulations require permit writers to develop permit limits that are expressed in terms of metals concentrations and loadings that are measured using the total recoverable method. Expressing criteria as dissolved metal requires translation between different metal forms in the calculation of the permit limit so that a total recoverable permit limit can be established that will achieve water quality standards. Both the TMDL and NPDES permit use of water quality criteria in NTR States now require the ability to translate between dissolved metal in ambient waters and total recoverable metal in effluents. In addition to the guidance on dynamic modeling and translators attached to the Metals Policy, EPA's *Interim Guidance on the Determination and Use of Water-Effect Ratios for Metals*, February 1994, EPA 823–B–94–001 (pages 116 and 128–130), presents an effluent-specific approach for calculating a total recoverable metal permit limit from a dissolved metal criterion. EPA is expecting to complete additional guidance on translators in 1995.

2. Monitoring

a. Use of Clean Sampling and Analytical Techniques

In assessing waterbodies to determine the potential for toxicity problems due to metals, the quality of the data used is an important issue. Depending on the concentration of metal present, the use of "clean" and "ultra-clean" techniques for sampling and analysis may be critical to accurate data for implementation of aquatic life criteria for metals.

"Clean" techniques refer to those requirements (or practices for sample collection and handling) necessary to produce reliable analytical data in the microgram per liter (µg/L) or part per billion (ppb) range. "Ultra-clean" techniques refer to those requirements or practices necessary to produce reliable analytical data in the nanogram per liter (ng/L) or part per trillion (ppt) range. Because typical concentrations of metals in surface waters and effluents vary from one metal to another, the effect of contamination on the quality of metals monitoring data varies appreciably.

EPA has developed protocols on the use of clean techniques in coordination with the United States Geological Survey (USGS). The guidance, entitled *Method 1669: Sampling Ambient Water for Determination of Trace Metals at EPA Water Quality Criteria Levels* is available from the Office of Water Resource Center as part of the Trace Metals Package. Draft protocols for ultra-clean techniques will be available in late calendar year 1995.

H. Saltwater Copper Criteria

The saltwater copper criteria in today's interim final rule are 2.4 µg/L dissolved copper for both CMC and CCC based on conversion of 2.9 µg/L for both the CMC and CCC from total recoverable to dissolved metal. New data collected from a study for the New York/New Jersey Harbor indicate the potential need to revise the copper criteria document to reflect a change in the saltwater CMC and CCC aquatic life values. A comprehensive literature search was conducted and toxicity test data for seven new species were added to the database for the saltwater copper criteria. EPA believes these new data have national implications and indicate the national criteria may be more accurate at a CMC of 4.8 µg/L dissolved and a CCC of 3.1 µg/L dissolved. In today's rulemaking, EPA is noticing the availability of data to support these

potential changes in the national saltwater copper criteria and solicits comments. The data can be found in the draft document entitled, *Ambient Water Quality Criteria—Copper, Addendum 1995*. This document is available from the Office of Water Resource Center or Water Docket. Based on those comments, the saltwater copper criteria in this interim final rule may be revised in the final rule to reflect these new data.

I. Procedural Requirements

Section 553 of the Administrative Procedure Act provides that when an agency, for good cause, finds that notice and public procedure are impracticable, unnecessary or contrary to the public interest, it may first issue a rule without providing notice and an opportunity to comment. EPA has concluded that there is good cause to issue this interim final rule without notice and comment and to make the rule effective immediately.

In 1987, Congress amended the Clean Water Act to provide that States must adopt numeric criteria to control the discharge of toxic pollutants. Before this requirement was enacted, few States had adopted numeric criteria for toxic pollutants and had to rely on "narrative" criteria (*e.g.*, "free from toxics in toxic amounts") to set discharge limits for such pollutants. Congress, expressing concern over the calculation of discharge limitations for toxics without numeric criteria, required States to adopt numeric, pollutant-specific criteria for toxic pollutants (56 FR 58423–58424, Nov. 19, 1991).

Following promulgation of the NTR, EPA continued to evaluate available information on metals. EPA held a public meeting of experts in which a recommendation was made to express the ambient water criteria as dissolved metal. This recommendation and others, were noticed for public comment at 58 FR 32131, June 8, 1993. It is EPA's judgment that aquatic life criteria for metals, when expressed as dissolved metal provide a more accurate measurement of metals bioavailability to organisms in the water column than when expressed as total recoverable metal. Thus, in some situations, the total recoverable metals criteria in the NTR may result in permit limits that are more stringent than if the criteria were expressed in a dissolved form. As a result, in these situations, permitting authorities in the NTR States may be imposing more stringent (and potentially more costly) effluent limitations on their dischargers than will be required to meet the new dissolved metals aquatic life criteria put in place today.

EPA considered the impacts of a stay of the current metals criteria while it undertook a standard rulemaking (*i.e.*, proposed rule followed by a final) to revise the aquatic life metals criteria to express them in a dissolved form. However, during the effective period of the stay (the interim between proposal and final rule), permitting authorities for the NTR States would generally need to use the States' narrative criteria (*e.g.*, free from toxics in toxic amounts) to develop permit limits for the discharge of toxics. Because the Congressional directive is clear that States must have numeric criteria for toxic pollutants, EPA rejected this approach in favor of an interim final rule.

By today's action the Agency upholds the intent of § 303(c)(2)(B) of the Clean Water Act and avoids the need for permitting authorities to rely on narrative criteria to develop permit limits. Further, this interim final rule is a temporary measure. The Agency notes that considerable public comment has already been obtained on the Metals Policy and the specific criteria being issued in this interim final rule. EPA held a meeting with invited experts in January 1993 in Annapolis, Maryland to further elicit comment on the use of dissolved metals for developing national metals criteria. The Agency solicited comments on the recommendations made by presenters at that meeting in the Federal Register on July 9, 1993 (58 FR 32131). The Metals Policy issued in October 1993 has received wide-spread distribution and informal response from many interested parties. In August 1994, EPA issued a Federal Register notice indicating that the Agency was considering the use of the Metals Policy to develop metals criteria in the Great Lakes Initiative (59 FR 44678, August 30, 1994) and comments were received on this issue. Today's action has the additional benefit of the comments received from the August 1994 notice on the Great Lakes Initiative.

EPA therefore concludes that public comment on this interim measure is unnecessary because ample comment has already been received on the numeric dissolved metals criteria and additional comment is being solicited and will be considered before a final rule is issued. Further, a public comment process before adopting the new metals criteria is contrary to the public interest because: 1) the current metals criteria place a potentially unnecessary regulatory burden on dischargers in the States covered by this rule, without necessarily providing additional protection to aquatic life in the water column and 2) it is in the public interest for the States to have numeric criteria protective of aquatic life.

Because of the potential adverse effect on public interest noted above, the Agency has determined there is good cause for making this regulation effective immediately.

J. Regulatory Assessment Requirements

1. Unfunded Mandates Reform Act of 1995

Section 201 of the Unfunded Mandates Reform Act of 1995 ("Unfunded Mandates Act"), signed into law on March 22, 1995, requires each Agency, unless prohibited by law, to assess the effects of Federal regulation on State, local and tribal governments and the private sector under section 202 of the Act. EPA must prepare a written statement to accompany any rules where the estimated costs to State, local and tribal governments, in the aggregate, or to the private sector will be $100 million or more in any one year. Under section 205, for rules that require a written statement under section 202, EPA must select the most cost-effective and least burdensome alternative that achieves the objective of such a rule and that is consistent with statutory requirements. Also, for such rules, section 203 requires EPA to establish a plan for informing and advising any small governments that may be significantly and uniquely affected by the rule.

EPA estimates that the costs to State, local, and tribal governments, or to the private sector, from today's interim final rule will not be $100 million or more. EPA has determined that this rule should reduce current regulatory requirements imposed by the NTR. By promulgating the metals criteria in the NTR as dissolved metals, rather than total recoverable, EPA is reducing potential costs to discharge permittees and other parties subject to the water quality criteria. Therefore, an unfunded mandates statement pursuant to section 202 is not necessary.

While an unfunded mandates statement is not necessary for this rule, EPA notes that it has previously considered the costs and benefits of promulgating Federal water quality criteria when the Agency issued the NTR in 1992. See 57 FR 60903–60909 (December 22, 1992). That analysis would continue to be relevant with respect to this issue of costs and benefits arising from Federal promulgation of criteria for states. Of course, to the extent today's interim final rule is putting in place less burdensome

requirements than the 1992 rule, the Agency is reducing any potential costs. It is important to note that the Federal criteria in today's rule, as the Federal criteria in the 1992 rule, only impose requirements until the States adopt, and EPA approves, criteria meeting the requirements of section 303(c)(2)(B) of the Clean Water Act. EPA continues to work with the States to assist them in adopting their own criteria thereby enabling EPA to withdraw the Federal criteria.

While section 205 of the Unfunded Mandates Act is not applicable to today's rule because the rule does not require a written statement under section 202, the Agency does believe that today's rule is consistent with the intent of section 205. Section 205 directs agencies to consider regulatory alternatives and to select the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. EPA's decision to promulgate metals criteria expressed as dissolved rather than total recoverable represents the Agency's selection of the least costly, most cost-effective and least burdensome alternative for setting metals criteria. The Agency addressed this issue in detail in the development of the Great Lakes Water Quality Guidance, promulgated on March 13, 1995 (60 FR 15366, March 23, 1995). For today's rule the Agency was obligated pursuant to section 303 to promulgate water quality criteria for states not in compliance with section 303(c)(2)(B). Today's rule achieves that objective consistent with the intent of section 205.

Finally, because today's rule relieves a regulatory requirement, EPA does not believe that the rule will establish requirements that might significantly or uniquely affect small governments within the meaning of section 203. However, the Agency is committed to working with affected small governments by providing notice of requirements that might potentially affect them, enable them to provide meaningful and timely input, and to inform, educate and advise small governments on compliance with any requirements. With respect to today's interim final rule, representatives of State and local governments participated in the development of, and provided comments to the Office of Water's current metals policy. The Agency recognizes the importance of soliciting the input of small governments and will be available to work with them to address any issues related to compliance with today's rule.

2. Executive Order 12866

Under Executive Order 12866 (56 FR 51735, October 4, 1993), the Agency must determine whether the regulatory action is "significant" and therefore subject to all the requirements of the Executive Order (i.e., Regulatory Impact Analysis and review by the Office of Management and Budget). Under section 3(f), the order defines "significant" as those actions likely to lead to a rule: (1) Having an annual effect on the economy of $100 million or more, or adversely and materially affecting a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities (also known as "economically significant"); (2) creating serious inconsistency or otherwise interfering with an action taken or planned by another agency; (3) materially altering the budgetary impacts of entitlements, grants, user fees, or loan programs; or (4) raising novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this order. Pursuant to the terms of this order, EPA has determined that this interim final rule would not be "significant".

3. Presidential Review of the Code of Federal Regulations

On February 22, 1995, President Clinton announced a review of the Code of Federal Regulations by all Federal agencies. The objective of the review is to: eliminate obsolete regulations, withdraw outdated or superseded regulations, propose modifications to simplify or reduce burden, and to identify legislation for needed change. Today's rule, revising the NTR, is consistent with the review announced by the President. EPA has reviewed the NTR (40 CFR 131.36) and determined that the use of dissolved metals criteria in the NTR States, for the metals listed in this rule, should reduce potential regulatory burden.

4. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601, *et seq.*, Pub. L. 96–354) requires EPA to assess whether its regulations create a disproportionate effect on small entities. EPA discussed in the NTR rulemaking (December 22, 1992, 57 FR 60909), the potential effects of the rulemaking on small entities. The Agency concluded that the rulemaking would not result in a significant impact on small entities and a final regulatory flexibility analysis was not required.

Because the potential impact on small entities as a result of this interim final rule revision will be less burdensome on small entities than the original rule, EPA, based on the same factors discussed in the previous final rulemaking, continues to conclude this action will not result in a significant impact on small entities.

5. Paperwork Reduction Act

This interim final rule places no information collection activities on the affected States and therefore no information collection requirement will be submitted to the Office of Management and Budget for review in compliance with the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*

List of Subjects in 40 CFR Part 131

Environmental Protection, Water pollution control, Water quality standards, Toxic pollutants.

Dated: April 14, 1995.

Carol Browner,

Administrator.

For the reasons set out in the preamble, title 40, chapter I part 131 of the Code of Federal Regulations is amended as follows:

PART 131–WATER QUALITY STANDARDS

1. The authority citation for part 131 continues to read as follows:

Authority: 33 U.S.C. 1251 et seq.

2. Section 131.36 is amended by revising entries 2, 4, 5a,5b,6,7,8,9,10,11, and 13 of the table at paragraph (b)(1), revising footnotes "e" and "l" adding footnotes "o" and "p" to the table in paragraph (b)(1), removing the "Note to paragraph (b)(1)", revising paragraph (b)(2) and by revising the first two sentences of paragraph (c)(4)(iii) to read as follows:

§ 131.36 Toxics criteria for those States not complying with Clean Water Act Section 303(c)(2)(B).

* * * * *

(b)(1) *EPA's Section 304(a) Criteria for Priority Toxic Pollutants.*

A		B		C		D	
		Freshwater		Saltwater		Human health (10^{-6} risk for carcinogens)	
(#) Compound	CAS N.	Criteria Maximum Conc.[d] (ug/L) B1	Criteria Continuous Conc.[d] (ug/L) B2	Criteria Maximum Conc.[d] (ug/L) C1	Criteria Continuous Conc.[d] (ug/L) C2	For consumption of: Water & Organisms (ug/L) D1	For consumption of: Organisms only (ug/L) D2
2 Arsenic	7440382	[m]360	[m]190	[m]69	[m]36	[a,b,c]0.018 a,b,c	[a,b,c]0.14
4 Cadmium	7440439	[e]3.7	[e]1.0	[m]42	[m]9.3	[n]	[n]
5a Chromium (III)	16065831	[e]550	[e]180	.....	.....	[n]	[n]
b Chromium (VI)	18540299	[m]15	[m]10	[m]1100	[m]50	[n]	[n]
6 Copper	7440508	17[e]	11[e]	[m]2.4	[m]2.4	.....	.....
7 Lead	7439921	[e]65	[e]2.5	[m]210	[m]8.1	[n]	[n]
8 Mercury	7439976	[m]2.1	[i,p]0.012	[m]1.8	[i,p]0.025	0.14	0.15
9 Nickel	7440020	[e]1400	[e]160	[m]74	[m]8.2	[a]610	[a]4600
10 Selenium	7782492	[p]20	[p]5.0	[m]290	[m]71	[n]	[n]
11 Silver	7440224	[e]3.4	[m]1.9				
13 Zinc	7440666	[e]110	[e]100	[m]90	[m]81		

Footnotes:

a. Criteria revised to reflect current agency q_1^* or RfD, as contained in the Integrated Risk Information System (IRIS). The fish tissue bioconcentration factor (BCF) from the 1980 criteria documents was retained in all cases.

b. The criteria refers to the inorganic form only.

c. Criteria in the matrix based on carcinogenicity (10^{-6} risk). For a risk level of 10^{-5}, move the decimal point in the matrix value one place to the right.

d. Criteria Maximum Concentration (CMC) = the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (1-hour average) without deleterious effects. Criteria Continuous Concentration (CCC) = the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects. ug/L = micrograms per liter

e. Freshwater aquatic life criteria for these metals are expressed as a function of total hardness (mg/L as $CaCO_3$), the pollutant's water effect ratio (WER) as defined in § 131.36(c) and multiplied by an appropriate dissolved conversion factor as defined in § 131.36(b)(2). For comparative purposes, the values displayed in this matrix are shown as dissolved metal and correspond to a total hardness of 100 mg/L and a water effect ratio of 1.0.

i. If the CCC for total mercury exceeds 0.012 ug/l more than once in a 3-year period in the ambient water, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methyl mercury exceeds the FDA action level (1.0 mg/kg). If the FDA action level is exceeded, the State must notify the appropriate EPA Regional Administrator, initiate a revision of its mercury criterion in its water quality standards so as to protect designated uses, and take other appropriate action such as issuance of a fish consumption advisory for the affected area.

l. [Reserved: this letter not used as a footnote].

m. Criteria for these metals are expressed as a function of the water effect ratio, WER, as defined in 40 CFR 131.36 (c).

CMC=column B1 or C1 value x WER

CCC=column B2 or C2 value x WER

n. EPA is not promulgating human health criteria for this contaminant. However, permit authorities should address this contaminant in NPDES permit actions using the State's existing narrative criteria for toxics.

o. [Reserved: This letter not used as a footnote].

p. Criterion expressed as total recoverable.

(2) Factors for Calculating Hardness-Dependent, Freshwater Metals Criteria

CMC=WER exp $\{m_A[\ln(\text{hardness})]+b_A\}$ x Acute Conversion Factor

CCC=WER exp $\{m_C[\ln(\text{hardness})]+b_C\}$ x Chronic Conversion Factor

Final CMC and CCC values should be rounded to two significant figures.

Metal	m_A	b_A	m_C	b_C	Freshwater conversion factors	
					Acute	Chronic
Cadmium	1.128	−3.828	0.7852	−3.490	[a] 0.944	[a] 0.909
Chromium (III)	0.8190	3.688	0.8190	1.561	0.316	0.860
Copper	0.9422	−1.464	0.8545	−1.465	0.960	0.960
Lead	1.273	-1.460	1.273	−4.705	[a] 0.791	[a] 0.791
Nickel	0.8460	3.3612	0.8460	1.1645	0.998	0.997
Silver	1.72	−6.52	[b] N/A	[b] N/A	0.85	[b] N/A
Zinc	0.8473	0.8604	0.8473	0.7614	0.978	0.986

Note to table: The term "exp" represents the base e exponential function.

Footnotes to table:

[a] The freshwater conversion factors (CF) for cadmium and lead are hardness-dependent and can be calculated for any hardness [see limitations in § 131.36(c)(4)] using the following equations:

Cadmium

Acute: CF=1.136672—[(ln hardness)(0.041838)]

Chronic: CF=1.101672—[(ln hardness)(0.041838)]

Lead (Acute and Chronic): CF = 1.46203—[(ln hardness)(0.145712)]

[b] No chronic criteria are available for silver.

(c) * * *

(4) * * *

(iii) Except where otherwise noted, the criteria for metals (compounds #2, #4–# 11, and #13, in paragraph (b) of this section) are expressed as dissolved metal. For purposes of calculating aquatic life criteria for metals from the equations in footnote m. in the criteria matrix in paragraph (b)(1) of this section and the equations in paragraphs (b)(2) of this section, the water-effect ratio is computed as a specific pollutant's acute or chronic toxicity values measured in water from the site covered by the standard, divided by the respective acute or chronic toxicity value in laboratory dilution water. * * *

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Appendix H.2

San Francisco Bay Regional Water Quality Control Board Narrative Objectives for Surface Water and Groundwater and Numerical Objectives for Fresh Surface Water, Fresh Groundwater, and Saltwater (1995 SFBRWQCB Basin Plan)

SAN FRANCISCO BAY BASIN (REGION 2)

JUNE 21, 1995

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

2101 Webster Street, Suite 500
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Approved by

California State Water Resources Control Board on July 20, 1995.
California State Office of Administrative Law on November 13, 1995.

WATER QUALITY CONTROL PLAN

3 WATER QUALITY OBJECTIVES

INTRODUCTION

The overall goals of water quality regulation are to protect and maintain thriving aquatic ecosystems and the resources those systems provide to society and to accomplish these in an economically and socially sound manner. California's regulatory framework uses water quality objectives both to define appropriate levels of environmental quality and to control activities that can adversely affect aquatic systems.

WATER QUALITY OBJECTIVES

There are two types of objectives: narrative and numerical. Narrative objectives present general descriptions of water quality that must be attained through pollutant control measures and watershed management. They also serve as the basis for the development of detailed numerical objectives.

Historically, numerical objectives were developed primarily to limit the adverse effect of pollutants in the water column. Two decades of regulatory experience and extensive research in environmental science have demonstrated that beneficial uses are not fully protected unless pollutant levels in all parts of the aquatic system are also monitored and controlled. The Regional Board is actively working towards an integrated set of objectives, including numerical sediment objectives, that will ensure the protection of all current and potential beneficial uses.

Numerical objectives typically describe pollutant concentrations, physical/chemical conditions of the water itself, and the toxicity of the water to aquatic organisms. These objectives are designed to represent the maximum amount of pollutants that can remain in the water column without causing any adverse effect on organisms using the aquatic system as habitat, on people consuming those organisms or water, and on other current or potential beneficial uses (as described in Chapter 2).

The technical bases of the region's water quality objectives include extensive biological, chemical, and physical partitioning information reported in the scientific literature, national water quality criteria, studies conducted by other agencies, and information gained from local environmental and discharge monitoring (as described in Chapter 6). The Regional Board recognizes that limited information exists in some cases, making it difficult to establish definitive numerical objectives, but the Regional Board believes its conservative approach to setting objectives has been proper. In addition to the technical review, the overall feasibility of reaching objectives in terms of technological, institutional, economic, and administrative factors is considered at many different stages of objective derivation and implementation of the water quality control plan.

Together, the narrative and numerical objectives define the level of water quality that shall be maintained within the region. In instances where water quality is better than that prescribed by the objectives, the state Antidegradation Policy applies (State Board Resolution 68-16: Statement of Policy With Respect to Maintaining High Quality of Waters in California). This policy is aimed at protecting relatively uncontaminated aquatic systems where they exist and preventing further degradation.

When uncontrollable water quality factors result in the degradation of water quality beyond the levels or limits established herein as water quality objectives, the Regional Board will conduct a case-by-case analysis of the benefits and costs of preventing further degradation. In cases where this analysis indicates that beneficial uses will be adversely impacted by allowing further degradation, then the Regional Board will not allow controllable water quality factors to cause any further degradation of water quality. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the state and that may be reasonably controlled.

QUICK INDEX PAGE

The Regional Board establishes and enforces waste discharge requirements for point and nonpoint source of pollutants at levels necessary to meet numerical and narrative water quality objectives. In setting waste discharge requirements, the Regional Board will consider, among other things, the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives.

In general, the objectives are intended to govern the concentration of pollutant constituents in the main water mass. The same objectives cannot be applied at or immediately adjacent to submerged effluent discharge structures. Zones of initial dilution within which higher concentrations can be tolerated will be allowed for such discharges.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from submerged outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum-induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

Compliance with water quality objectives may be prohibitively expensive or technically impossible in some cases. The Regional Board will consider modification of specific water quality objectives as long as the discharger can demonstrate that the alternate objective will protect existing beneficial uses, is scientifically defensible, and is consistent with the state Antidegradation Policy. This exception clause properly indicates that the Regional Board will conservatively compare benefits and costs in these cases because of the difficulty in quantifying beneficial uses.

These water quality objectives are considered necessary to protect the present and potential beneficial uses described in Chapter 2 of this Plan and to protect existing high quality waters of the state. These objectives will be achieved primarily through establishing and enforcing waste discharge requirements and by implementing this water quality control plan.

OBJECTIVES FOR OCEAN WATERS

The provisions of the State Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan) and "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" (Thermal Plan) and any revision to them will apply to ocean waters. These plans describe objectives and effluent limitations for ocean waters.

OBJECTIVES FOR SURFACE WATERS

The following objectives apply to all surface waters within the region, except the Pacific Ocean.

BACTERIA

Table 3-l provides a summary of the bacterial water quality objectives and identifies the sources of those objectives. Table 3–2 summarizes U.S. EPA's water quality criteria for water contact recreation based on the frequency of use a particular area receives. These criteria will be used to differentiate between pollution sources or to supplement objectives for water contact recreation.

BIOACCUMULATION

Many pollutants can accumulate on particles, in sediment, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.

BIOSTIMULATORY SUBSTANCES

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. Changes in chlorophyll a and associated phytoplankton communities follow complex dynamics that are sometimes associated with a discharge of biostimulatory substances. Irregular and extreme levels of chlorophyll a

or phytoplankton blooms may indicate exceedance of this objective and require investigation.

COLOR

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

DISSOLVED OXYGEN

For all tidal waters, the following objectives shall apply:

In the Bay:

Downstream of
Carquinez Bridge.....5.0 mg/l minimum

Upstream of
Carquinez Bridge.....7.0 mg/l minimum

For nontidal waters, the following objectives shall apply:

Waters designated as:

Cold water habitat.....7.0 mg/l minimum

Warm water habitat.....5.0 mg/l minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.

Dissolved oxygen is a general index of the state of the health of receiving waters. Although minimum concentrations of 5 mg/l and 7 mg/l are frequently used as objectives to protect fish life, higher concentrations are generally desirable to protect sensitive aquatic forms. In areas unaffected by waste discharges, a level of about 85 percent of oxygen saturation exists. A three-month median objective of 80 percent of oxygen saturation allows for some degradation from this level, but still requires a consistently high oxygen content in the receiving water.

FLOATING MATERIAL

Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

OIL AND GREASE

Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

POPULATION AND COMMUNITY ECOLOGY

All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.

pH

The pH shall not be depressed below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels.

SALINITY

Controllable water quality factors shall not increase the total dissolved solids or salinity of waters of the state so as to adversely affect beneficial uses, particularly fish migration and estuarine habitat.

SEDIMENT

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Controllable water quality factors shall not cause a detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life.

SETTLEABLE MATERIAL

Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses.

SUSPENDED MATERIAL

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

SULFIDE

All water shall be free from dissolved sulfide concentrations above natural background levels. Sulfide occurs in Bay muds as a result of bacterial action on organic matter in an anaerobic environment.

Concentrations of only a few hundredths of a milligram per liter can cause a noticeable odor or be toxic to aquatic life. Violation of the sulfide objective will reflect violation of dissolved oxygen objectives as sulfides cannot exist to a significant degree in an oxygenated environment.

TASTES AND ODORS

Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.

TEMPERATURE

Temperature objectives for enclosed bays and estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California," including any revisions to the plan.

In addition, the following temperature objectives apply to surface waters:

- The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.
- The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature.

TOXICITY

All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species. There shall be no acute toxicity in ambient waters. Acute toxicity is defined as a median of less than 90 percent survival, or less than 70 percent survival, 10 percent of the time, of test organisms in a 96-hour static or continuous flow test.

There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community. Chronic toxicity generally results from exposures to pollutants exceeding 96 hours. However, chronic toxicity may also be detected through short-term exposure of critical life stages of organisms.

As a minimum, compliance will be evaluated using the bioassay requirements contained in Chapter 4.

The health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.

TURBIDITY

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU.

UN-IONIZED AMMONIA

The discharge of wastes shall not cause receiving waters to contain concentrations of un-ionized ammonia in excess of the following limits (in mg/l as N):

Annual Median 0.025

Maximum, Central Bay (as depicted in Figure 2-5) and upstream.....0.16

Maximum, Lower Bay (as depicted in Figures 2-6 and 2-7) 0.4

The intent of this objective is to protect against the chronic toxic effects of ammonia in the receiving waters. An ammonia objective is needed for the following reasons:

- Ammonia (specifically un-ionized ammonia) is a demonstrated toxicant. Ammonia is generally accepted as one of the principle toxicants in municipal waste discharges. Some industries also discharge significant quantities of ammonia.
- Exceptions to the effluent toxicity limitations in Chapter 4 of the Plan allow for the discharge of ammonia in toxic amounts. In most instances, ammonia will be diluted or degraded to a nontoxic state fairly rapidly. However, this does not occur in all cases, the South Bay being a notable example. The ammonia limit is recommended in order to preclude any build up of ammonia in the receiving water.

- A more stringent maximum objective is desirable for the northern reach of the Bay for the protection of the migratory corridor running through Central Bay, San Pablo Bay, and upstream reaches.

OBJECTIVES FOR SPECIFIC CHEMICAL CONSTITUENTS

Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use. Water quality objectives for selected toxic pollutants developed in 1986 for surface waters are given in Tables 3-3 and 3-4.

The Regional Board intends to work towards the derivation of site-specific objectives for the Bay-Delta estuarine system. Site-specific objectives to be considered by the Regional Board shall be developed in accordance with the provisions of the federal Clean Water Act, the State Water Code, State Board water quality control plans, and this Plan. These site-specific objectives will take into consideration factors such as all available scientific information and monitoring data and the latest U.S. EPA guidance, and local environmental conditions and impacts caused by bioaccumulation. Copper, mercury, PCBs, and selenium will be the highest priorities in this effort. Pending the adoption of site-specific objectives, the objectives in Tables 3-3 and 3-4 apply throughout the region.

Based on the concerns raised in the Regional Monitoring Program, pilot fish contamination study, cooperative striped bass study, and other studies, water quality objectives for aromatic hydrocarbons are also needed.

The South Bay below the Dumbarton Bridge is a unique, water-quality-limited, hydrodynamic and biological environment that merits continued special attention by the Regional Board. Site-specific water quality objectives are absolutely necessary in this area for two reasons. First, its unique hydrodynamic environment dramatically affects the environmental fate of pollutants. Second, potentially costly nonpoint source pollution control measures must be implemented to attain any objectives for this area. The costs of those measures must be factored into economic impact considerations by the Regional Board in adopting any objectives for this area. Nowhere else in the region will nonpoint source economic considerations have such an impact on the attainability of objectives. Therefore, for this area, the objectives contained in Tables 3-3 and 3-4 will be considered guidance only, and should be used as part of the basis for site-specific objectives. Programs described in Chapter 4 will be used to develop site-specific objectives. Ambient conditions shall be maintained until site-specific objectives are developed.

CONSTITUENTS OF CONCERN FOR MUNICIPAL AND AGRICULTURAL WATER SUPPLIES

At a minimum, surface waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of constituents in excess of the maximum (MCLs) or secondary maximum contaminant levels (SMCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (SMCLs-Consumer Acceptance Limits) and 64449-B (SMCLs-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. Table 3-5 contains water quality objectives for municipal supply, including the MCLs contained in various sections of Title 22 as of the adoption of this plan.

At a minimum, surface waters designated for use as agricultural supply (AGR) shall not contain concentrations of constituents in excess of the levels specified in Table 3-6.

RADIOACTIVITY

Radionuclides shall not be present in concentrations that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. Waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of Section 64443 (Radioactivity) of Title 22 of the California Code of Regulations, which is incorporated by reference into this Plan. This incorporation is prospective, including future changes to the incorporated provisions as the changes take effect (see Table 3-5).

OBJECTIVES FOR GROUNDWATERS

Groundwater objectives consist primarily of narrative objectives combined with a limited number of numerical objectives. Additionally, the Regional Board will establish basin-

and/or site-specific numerical groundwater objectives as necessary. For example, the Regional Board has groundwater basin-specific objectives for the Alameda Creek watershed above Niles to include the Livermore-Amador Valley as shown in Table 3-7.

The maintenance of existing high quality of groundwater (i.e., "background") is the primary groundwater objective.

In addition, at a minimum, groundwaters shall not contain concentrations of bacteria, chemical constituents, radioactivity, or substances producing taste and odor in excess of the objectives described below unless naturally occurring background concentrations are greater.

BACTERIA

In groundwaters with a beneficial use of municipal and domestic supply, the median of the most probable number of coliform organisms over any seven-day period shall be less than 1.1 MPN/100 mL (based on multiple tube fermentation technique; equivalent test results based on other analytical techniques as specified in the National Primary Drinking Water Regulation, 40 CFR, Part 141.21 (f), revised June 10, 1992, are acceptable).

ORGANIC AND INORGANIC CHEMICAL CONSTITUENTS

All groundwaters shall be maintained free of organic and inorganic chemical constituents in concentrations that adversely affect beneficial uses. To evaluate compliance with water quality objectives, the Regional Board will consider all relevant and scientifically valid evidence, including relevant and scientifically valid numerical criteria and guidelines developed and/or published by other agencies and organizations (e.g.,U.S. EPA, the State Water Resources Control Board, California Department of Health Services, U.S. Food and Drug Administration, National Academy of Sciences, Cal/EPA Office of Environmental Health Hazard Assessment, U.S. Agency for Toxic Substances and Disease Registry, Cal/EPA Department of Toxic Substances Control, and other appropriate organizations.)

At a minimum, groundwaters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of constituents in excess of the maximum (MCLs) or secondary maximum contaminant levels (SMCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, and Table 64444-A (Organic Chemicals) of Section 64444. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. (See Table 3-5.)

Groundwaters with a beneficial use of agricultural supply shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. In determining compliance with this objective, the Regional Board will consider as evidence relevant and scientifically valid water quality goals from sources such as the Food and Agricultural Organizations of the United Nations; University of California Cooperative Extension, Committee of Experts; and McKee and Wolf's "Water Quality Criteria," as well as other relevant and scientifically valid evidence. At a minimum, groundwaters designated for use as agricultural supply (AGR) shall not contain concentrations of constituents in excess of the levels specified in Table 3-6.

Groundwaters with a beneficial use of freshwater replenishment shall not contain concentrations of chemicals in amounts that will adversely affect the beneficial use of the receiving surface water.

Groundwaters with a beneficial use of industrial service supply or industrial process supply shall not contain pollutant levels that impair current or potential industrial uses.

To assist dischargers and other interested parties, the Central Valley Regional Board's staff has compiled many numerical water quality criteria from other appropriate agencies and organizations in its staff report, "A Compilation of Water Quality Goals." This staff report is updated regularly to reflect changes in these numerical criteria.

RADIOACTIVITY

At a minimum, groundwaters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations, which is incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. (See Table 3-5.)

TASTE AND ODOR

Groundwaters designated for use as domestic or municipal supply (MUN) shall not contain taste- or odor-producing substances in concentrations that cause a nuisance or adversely affect beneficial uses. At a minimum, groundwaters designated for use as domestic or municipal supply shall not contain concentrations in excess of the secondary maximum contaminant levels (Secondary MCLs) specified in Tables 64449-A (Secondary MCLs-Consumer Acceptance Limits) and 64449-B (Secondary MCLs-Ranges) of Section 64449 of Title 22 of the California Code of Regulations, which is incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. (See Table 3-5.)

OBJECTIVES FOR THE DELTA AND SUISUN MARSH

The objectives contained in the State Board's "Water Quality Control Plan for the Sacramento-San Joaquin Delta and Suisun Marsh" and any revisions thereto shall apply to the waters of the Sacramento-San Joaquin Delta and Suisun Marsh.

OBJECTIVES FOR ALAMEDA CREEK WATERSHED

The water quality objectives contained in Table 3-7 apply to the surface and groundwaters of the Alameda Creek watershed above Niles.

Wastewater discharges that cause the surface water limits in Table 3-7 to be exceeded may be allowed if they are part of an overall waterwastewater resource operational program developed by those agencies affected and approved by the Regional Board.

TABLE 3-1 WATER QUALITY OBJECTIVES FOR COLIFORM BACTERIA [a]

BENEFICIAL USE	FECAL COLIFORM (MPN /100ML)	TOTAL COLIFORM (MPN/100ML)
Water Contact Recreation	log mean < 200 90th percentile < 400	median < 240 no sample > 10,000
Shellfish Harvesting[b]	median < 14 90th percentile < 43	median < 70 90th percentile < 230[c]
Non-contact Water Recreation[d]	mean < 2000 90th percentile < 4000	
Municipal Supply: - Surface Water[e] - Groundwater	log mean < 20	log mean < 100 < 1.1[f]

NOTES:
a. Based on a minimum of five consecutive samples equally spaced over a 30-day period.
b. Source: National Shellfish Sanitation Program.
c. Based on a five-tube decimal dilution test or 300 MPN/100 ml when a three-tube decimal dilution test is used.
d. Source: Report of the Committee on Water Quality Criteria, National Technical Advisory Committee, 1968.
e. Source: DOHS recommendation.
f. Based on multiple tube fermentation technique; equivalent test results based on other analytical techniques, as specified in the National Primary Drinking Water Regulation, 40 CFR, Part 141.21(f), revised June 10, 1992, are acceptable.

TABLE 3-2 U.S. EPA BACTERIOLOGICAL CRITERIA FOR WATER CONTACT RECREATION[1,2] (IN COLONIES PER 100 ML)

	FRESH WATER		SALT WATER
	ENTEROCOCCI	E. COLI	ENTEROCOCCI
Steady State (all areas)	33	126	35
Maximum at:			
- designated beach	61	235	104
- moderately used area	89	298	124
- lightly used area	108	406	276
- infrequently used area	151	576	500

NOTES:
1. The criteria were published in the Federal Register, Vol. 51, No. 45 / Friday, March 7, 1986 / 8012 - 8016. The Criteria are based on:
(a) Cabelli, V.J. 1983. Health Effects Criteria for Marine Recreational Waters. U.S. EPA, EPA 600/1-80-031, Cincinnati, Ohio, and
(b) Dufour, A.P. 1984. Health Effects Criteria for Fresh Recreational Waters. U.S. EPA, EPA 600/1-84-004, Cincinnati, Ohio.
2. The U.S. EPA criteria apply to water contact recreation only. The criteria provide for a level of protection based on the frequency of usage of a given water contact recreation area. The criteria may be employed in special studies within this region to differentiate between pollution sources or to supplement the current coliform objectives for water contact recreation.

TABLE 3-3 WATER QUALITY OBJECTIVES FOR TOXIC POLLUTANTS FOR SURFACE WATERS WITH SALINITIES GREATER THAN 5 PPT [a,b]

(ALL VALUES IN UG/L)

COMPOUND	4-DAY AVERAGE [c]	1-HR AVERAGE [c]	24-HR AVERAGED	INSTANTANEOUS MAXIMUM [d]
Arsenic	36.0	69.0		
Cadmium	9.3	43.0		
Chromium (VI)[e]	50.0	1100.0		
Copper		[f]		
Cyanide		5.0		
Lead	5.6	140.0		
Mercury	0.025	2.1		
Nickel[g]			7.1	140.0
Selenium				
Silver				2.3
Tributyltin[h]				
Zinc			58.0	170.0
PAHs[i]			15.0	

NOTES:

a. These objectives shall apply to all estuarine waters within the region, according to the salinity threshold, except for the South Bay below Dumbarton Bridge.

b. The values reported in this table are derived from the 1980 and 1984 U.S. EPA Ambient Water Quality Criteria for salt water and fresh water (unless otherwise specified) and were adopted by the Board in 1986. In 1992, the Regional Board adopted a more inclusive set of objectives reflecting more recent technical information; this set of objectives had been developed and adopted as part of the statewide Inland Surface Waters and Enclosed Bays and Estuaries Plan and was ruled invalid by a court decision in 1993. The U.S. EPA is expected to promulgate final water quality standards for California in late 1995. The national standards will then apply to all planning, monitoring, NPDES permitting, enforcement, and compliance programs conducted under the Clean Water Act within the state.

c. Source: U.S. EPA 1984.

d. Source: U.S. EPA 1980.

e. This objective may be met as total chromium.

f. The current U.S. EPA criterion is 2.9 ug/l. However, copper toxicity varies with the complexing capacity of specific receiving waters, and background concentrations in the Bay typically vary from 1 to 4 ug/l. The Regional Board conducted scientific studies on Bay waters between 1986 and 1992 and determined that 4.9 ug/l was a more appropriate value for a site-specific objective, given U.S. EPA's derivation method. U.S. EPA is reviewing that method as part of its national rulemaking for California water quality standards. A site-specific criterion for copper is urgently needed.

g. The current U.S. EPA criterion is 8.3 ug/l (4-day average).

h. Tributyltin is a compound used as an antifouling ingredient in marine paints and toxic to aquatic life in low concentrations (<1 ppb). Based on technical information, a value of 0.005 ug/l (30-day average) would be protective of human health.

i. U.S. EPA water quality criteria indicate that 0.031 ug/l in both fresh water and salt water is protective of human health, based on setting the acceptable lifetime risk for cancer at the 10-6 risk level. PAHs are those compounds identified by EPA Method 610.

TABLE 3-4 WATER QUALITY OBJECTIVES FOR TOXIC POLLUTANTS FOR SURFACE WATERS WITH SALINITIES LESS THAN 5 PPT[a,b]

(ALL VALUES IN UG/L)

COMPOUND	4-DAY AVERAGE [c]	1-HR AVERAGE [c]	24-HR AVERAGE [d]	INSTANTANEOUS MAXIMUM [d]
Arsenic	190.0	360.0		
Cadmium	e	e		
Chromium (VI)[f]	11.0	16.0		
Copper[g]	6.5	9.2		
Cyanide	5.2	22.0		
Lead	h	h		
Mercury	0.025[i]	2.4		
Nickel	j	j	56.0	1100.0
Selenium				
Silver[k]				1.2
Tributyltin[l]				
Zinc	m	m	58.0	170.0
PAHs[n]				

NOTES:

a. These objectives shall apply to all estuarine and inland surface waters within the region where the salinity is less than 5 ppt, except for the South Bay below Dumbarton Bridge.

b. The values reported in this table are derived from the 1980 and 1984 U.S. EPA Ambient Water Quality Criteria for salt water and fresh water (unless otherwise specified) and were adopted by the Regional Board in 1986. In 1992, the Regional Board adopted a more inclusive set of objectives reflecting more recent technical information; this set of objectives had been developed and adopted as part of the statewide Inland Surface Waters and Enclosed Bays and Estuaries Plan and was ruled invalid by a court decision in 1993. The U.S. EPA is expected to promulgate final water quality standards for the California in late 1995. The national standards will then apply to all planning, monitoring, NPDES permitting, enforcement, and compliance programs conducted under the Clean Water Act within the state.

c. Source: U.S. EPA 1984.

d. Source: U.S. EPA 1980.

e. The objectives for cadmium and other noted metals are expressed by formulas where H = ln (hardness) as $CaCO_3$ in mg/l: The four-day average objective for cadimium is $e^{(0.7852\,H\,-\,3.490)}$. This is 1.1 µg/l at a hardness of 100 mg/l as $CaCO_3$. The one-hour average objective for cadimium is $e^{(1.128\,H\,-\,3.828)}$. This is 3.9 µg/l at a hardness of 100 mg/l as $CaCO_3$.

f. This limit may be met as total chromium.

g. The U.S. EPA water quality criteria for copper are hardness-dependent. The current objectives are equivalent to these criteria as calculated for 50 mg/l hardness as $CaCO_3$. The four-day average EPA criterion for copper is $e^{(0.8545H\,-1.465)}$; the one-hour average criterion is $e^{(0.9422H-1.464)}$.

h. The four-day average objective for lead is $e^{(1.273H-4.705)}$. This is 3.2 µg/l at at hardness of 100 mg/l as $CaCO_3$. The one-hour average objective for lead is $e^{(1.273H-1.460)}$. This is 81 µg/l at a hardness of 100 mg/l as $CaCO_3$.

i. The U.S. EPA Water Quality Criterion for mercury is 0.012 µg/l, which is below the level of detection of 0.025 µg/l. An objective of 0.012 µg/l is desirable, but attainment can only be determined at the level of detection.

j. The U.S. EPA criteria for nickel are hardness-dependent; the 4-day average criterion is $e^{(0.846\,H+1.1645)}$, which is 158 µg/l at a hardness of 100 mg/l as $CaCO_3$. The 1-hour average is $e^{(0.846H+3.3612)}$, which is 1,419 µg/l at a hardness of 100 mg/l as $CaCO_3$.

k. The U.S. EPA water quality criterion for silver is hardness-dependent. This objective is equivalent to these criteria as calculated for 50 mg/l hardness as $CaCO_3$. The instantaneous maximum EPA criterion is $e^{(1.72H-6.52)}$.

l. Tributyltin is a compound used as an antifouling ingredient in marine paints and toxic to aquatic life in low concentrations (<1 ppb). Based on technical information, values of 0.02 µg/l (4-day average), 0.04 µg/l (24-hour average), and 0.06 µg/l (instantaneous maximum) would be protective of aquatic life.

m. The U.S. EPA criteria for zinc are hardness-dependent: the 4-day average criterion is $e^{(0.8473H-0.7614)}$, which is 23 µg/l at a hardness of 100 mg/l as $CaCO_3$. The 1-hour average is $e^{(0.8473H-0.8604)}$, which is 21 µg/l at a hardness of 100 mg/l as $CaCO_3$.

n. U.S. EPA water quality criteria indicate that 0.031 µg/l in both fresh water and salt water is protective of human health, based on setting the acceptable lifetime risk for cancer at the 10^{-6} risk level. PAHs are those compounds identified by EPA Method 610.

TABLE 3-5 WATER QUALITY OBJECTIVES FOR MUNICIPAL SUPPLY

PARAMETER	OBJECTIVE (IN MG/L)
Physical:	
Color (units)[a]	15.0
Odor (number)[a]	3.0
Turbidity (NTU)[a]	5.0
pH[b]	6.5
TDS[c]	500.0
EC (mmhos/cm)[c]	0.9
Corrosivity	non-corrosive
Inorganic Parameters:	
Aluminum[d]	1.0[d] /0.2[a]
Antimony[d]	0.006
Arsenic[d]	0.05
Asbestos[d]	7 MFL[e]
Barium[d]	1.0
Beryllium[d]	0.004
Chloride[c]	250.0
Cadmium[d]	0.005
Chromium[d]	0.05
Copper[a]	1.0
Cyanide[d]	0.2
Fluoride[f]	0.8-1.7[g]
Iron[a]	0.3
Lead[b]	0.05
Manganese[a]	0.05
Mercury[d]	0.002
Nickel[d]	0.1
Nitrate (as NO_3)[d]	45.0
Nitrate + Nitrite (as N)[d]	10.0
Nitrite (as N)[d]	1.0
Selenium[d]	0.05
Silver[b]	0.05
Sulfate[c]	250.0
Thallium[d]	0.002
Zinc[a]	5.0
Organic Parameters:	
MBAS (Foaming agents)[a]	0.5
Oil and grease[b]	none
Phenols[b]	0.001
Trihalomethanes[b]	0.1
Chlorinated Hydrocarbons:	
Endrin[h]	0.002
Lindane[h]	0.0002
Methoxychlor[h]	0.04
Toxaphene[h]	0.003
2,3,7,8-TCDD (Dioxin)[h]	3×10^{-8}
2,4-D[h]	0.07
2,4,4-TP Silvex[h]	0.05
Synthetics:	
Alachlor[h]	0.002
Atrazine[h]	0.003
Bentazon[h]	0.018
Benzo(a)pyrene[h]	0.0002
Dalapon[h]	0.2
Dinoseb[h]	0.007
Diquat[h]	0.02
Endothall[h]	0.1

PARAMETER	OBJECTIVE (IN MG/L)
Benzene[h]	0.001
Carbon Tetrachloride[h]	0.0005
Carbofuran[h]	0.018
Chlordane[h]	0.0001
1,2-Dibromo-3 -chloropropane[h]	0.0002
1,2-Dichlorobenzene[h]	0.6
1,4-Dichlorobenzene[h]	0.005
1,1-Dichloroethane[h]	0.005
1,2-Dichloroethane[h]	0.0005
cis-1,2-Dichloroethlyene[h]	0.006
trans-1,2-Dichloroethylene[h]	0.01
1,1-Dichloroethylene[h]	0.006
Dichloromethane[h]	0.005
1,2-Dichloropropane[h]	0.005
1,3-Dichloropropene[h]	0.0005
Di (2-ethylhexyl) adipate[h]	0.4
Di(2-ethylhexyl) phthalate[h]	0.004
Ethylbenzene[h]	0.7
Ethylene dibromide[h]	0.00005
Glyphosate[h]	0.7
Heptachlor[h]	0.00001
Heptachlor epoxide[h]	0.00001
Hexachlorobenzene[h]	0.001
Hexachlorocyclopentadiene[h]	0.05
Molinate[h]	0.02
Monochlorobenzene[h]	0.07
Oxarnyl[h]	0.2
Pentachlorophenol[h]	0.001
Picloram[h]	0.5
Polychlorinated Biphenyls[h]	0.0005
Simazine[h]	0.004
Styrene[h]	0.1
1,1,2,2-Tetrachloroethane[h]	0.001
Tetrachloroethylene[h]	0.005
Thiobencarb[h]	0.001
1,2,4-Trichlorobenzene[h]	0.07
1,1,1-Trichloroethane[h]	0.2
1,1,2-Trichloroethane[h]	0.005
Trichloroethylene[h]	0.005
Trichlorofluoromethane[h]	0.15
1,1,2-Trichloro-1,2,2-trifluoroethane[h]	1.2
Toluene[h]	0.15
Vinyl chloride[h]	0.0005
Xylenes (single or sum of isomers)[h]	1.75

PARAMETER	OBJECTIVE (IN pCi/l)
Radioactivity:	
Combined Radium-226 and Radium-228[i]	5
Gross Alpha Particle Activity[i]	15[j]
Tritium[i]	20,000
Strontium-90[i]	8
Gross Beta Particle Activity[i]	50
Uranium[i]	20

NOTES:

a. Secondary Maximum Contaminant Levels as specified in Table 64449-A of Section 64449, Title 22 of the California Code of Regulations, as of June 19, 1995.
b. Table III-2, 1986 Basin Plan.
c. Secondary Maximum Contaminant Levels as specified in Table 64449-B of Section 64449, Title 22 of the California Code of Regulations, as of June 19, 1995. (Levels indicated are "recommended" levels. Table 64449-B contains a complete list of upper and short-term ranges.)
d. Maximum Contaminant Levels as specified in Table 64431-A (Inorganic Chemicals) of Section 64431, Title 22 of the California Code of Regulations, as of June 19, 1995.
e. MFL = million fibers per liter; MCL for fibers exceeding 10 µm in length.
f. Flouride objectives depend on temperature.
g. A complete list of optimum and limiting concentrations is specified in Table 64431-B of Section 64431, Title 22 of the California Code of Regulations, as of June 19, 1995.
h. Maximum Contaminant Levels as specified in Table 64444-A (Organic Chemicals) of Section 64444, Title 22 of the California Code of Regulations, as of June 19, 1995.
i. Maximum Contaminant Levels as specified in Table 4 (Radioactivity) of Section 64443, Title 22 of the California Code of Regulations, as of December 22, 1988.
j. Includes Radium-226 but excludes Radon and Uranium.

Appendix H.3

Central Valley Regional Water Quality Control Board Water Quality Objectives (CVRWQCB 1994)

THE WATER QUALITY CONTROL PLAN (BASIN PLAN)

FOR THE

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

THIRD EDITION - 1994

THE SACRAMENTO RIVER BASIN AND THE SAN JOAQUIN RIVER BASIN

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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Sunset Waterfowl: David Rosen/ Ducks Unlimited
Sugar Beets: Brenda Grewell/ Dept. of Water Resources

The Porter-Cologne Water Quality Control Act defines water quality objectives as "...the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area" [Water Code Section 13050(h)]. It also requires the Regional Water Board to establish water quality objectives, while acknowledging that it is possible for water quality to be changed to some degree without unreasonably affecting beneficial uses. In establishing water quality objectives, the Regional Water Board must consider, among other things, the following factors:

- Past, present, and probable future beneficial uses;
- Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto;
- Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
- Economic considerations;
- The need for developing housing within the region;
- The need to develop and use recycled water. (Water Code Section 13241)

The Federal Clean Water Act requires a state to submit for approval of the Administrator of the U.S. Environmental Protection Agency *(USEPA)* all new or revised water quality standards which are established for surface and ocean waters. As noted earlier, California water quality standards consist of both beneficial uses (identified in Chapter II) and the water quality objectives based on those uses.

There are **six important points** that apply to water quality objectives.

The first point is that water quality objectives can be revised through the basin plan amendment process. Objectives may apply region-wide or be specific to individual water bodies or parts of water bodies. Site-specific objectives may be developed whenever the Regional Water Board believes they are appropriate. As indicated previously, federal regulations call for each state to review its water quality standards at least every three years. These Triennial Reviews provide one opportunity to evaluate changing water quality objectives, because they begin with an identification of potential and actual water quality problems, i.e., beneficial use impairments. Since impairments may be associated with water quality objectives being exceeded, the Regional Water Board uses the results of the Triennial Review to implement actions to assess, remedy, monitor, or otherwise address the impairments, as appropriate, in order to achieve objectives and protect beneficial uses. If a problem is found to occur because, for example, a water quality objective is too weak to protect beneficial uses, the Basin Plan should be amended to make the objective more stringent. (Better enforcement of the water quality objectives or adoption of certain policies or redirection of staff and resources may also be proper responses to water quality problems. See the Implementation chapter for further discussion.)

Changes to the objectives can also occur because of new scientific information on the effects of water contaminants. A major source of information is the USEPA which develops data on the effects of chemical and other constituent concentrations on particular aquatic species and human health. Other information sources for data on protection of beneficial uses include the National Academy of Science which has published data on bioaccumulation and the Federal Food and Drug Administration which has issued criteria for unacceptable levels of chemicals in fish and shellfish used for human consumption. The Regional Water Board may make use of those and other state or federal agency information sources in assessing the need for new water quality objectives.

The second point is that achievement of the objectives depends on applying them to controllable water quality factors. *Controllable water quality factors* are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Water Board or the Regional Water Board, and that may be reasonably controlled. Controllable factors are not

allowed to cause further degradation of water quality in instances where uncontrollable factors have already resulted in water quality objectives being exceeded. The Regional Water Board recognizes that man made changes that alter flow regimes can affect water quality and impact beneficial uses.

The **third point** is that objectives are to be achieved primarily through the adoption of waste discharge requirements (including permits) and cleanup and abatement orders. When adopting requirements and ordering actions, the Regional Water Board considers the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives. It can then make a finding as to the beneficial uses to be protected within the area of influence of the discharge and establish waste discharge requirements to protect those uses and to meet water quality objectives. The objectives contained in this plan, and any State or Federally promulgated objectives applicable to the basins covered by the plan, are intended to govern the levels of constituents and characteristics in the main water mass unless otherwise designated. They may not apply at or in the immediate vicinity of effluent discharges, but at the edge of the *mixing zone* if areas of dilution or criteria for diffusion or dispersion are defined in the waste discharge specifications.

The **fourth point** is that in cases where water quality objectives are formulated to preserve historic conditions, there may be insufficient data to determine completely the temporal and hydrologic variability representative of historic water quality. When violations of such objectives occur, the Regional Water Board judges the reasonableness of achieving those objectives through regulation of the controllable factors in the areas of concern.

The **fifth point** is that the State Water Board adopts policies and plans for water quality control which can specify water quality objectives or affect their implementation. Chief among the State Water Board's policies for water quality control is State Water Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California). It requires that wherever the existing quality of surface or ground waters is better than the objectives established for those waters in a basin plan, the existing quality will be maintained unless as otherwise provided by Resolution No. 68-16 or any revisions thereto. This policy and others establish general objectives. The State Water Board's water quality control plans applicable to the Sacramento and San Joaquin River Basins are the Thermal Plan and Water Quality Control Plan for Salinity. The Thermal Plan and its water quality objectives are in the Appendix. The Water Quality Control Plan for Salinity water quality objectives are listed as Table III-5. The State Water Board's plans and policies that the Basin Plan must conform to are addressed in Chapter IV, Implementation.

The **sixth point** is that water quality objectives may be in numerical or narrative form. The enumerated milligram-per-liter (mg/l) limit for copper is an example of a numerical objective; the objective for color is an example of a narrative form.

Information on the application of water quality objectives is contained in the section, *Policy for Application of Water Quality Objectives*, in Chapter IV.

WATER QUALITY OBJECTIVES FOR INLAND SURFACE WATERS

The objectives below are presented by categories which, like the Beneficial Uses of Chapter II, were standardized for uniformity among the Regional Water Boards. The water quality objectives apply to all surface waters in the Sacramento and San Joaquin River Basins, including the Delta, or as noted. *(The legal boundary of the Delta is contained in Section 12220 of the Water Code and identified in Figure III-1.)* The numbers in parentheses following specific water bodies are keyed to Figure II-1.

Bacteria

In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.

For Folsom Lake (50), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 100/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 200/100 ml.

Biostimulatory Substances

Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

Chemical Constituents

Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The chemical constituent objectives in Table III-1 apply to the water bodies specified. Metal objectives in the table are dissolved concentrations. Selenium, molybdenum, and boron objectives are total concentrations. Water quality objectives are also contained in the Water Quality Control Plan for Salinity, adopted by the State Water Board in May 1991.

At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain lead in excess of 0.015 mg/l. The Regional Water Board acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. To protect all beneficial uses the Regional Water Board may apply limits more stringent than MCLs.

TABLE III-1
TRACE ELEMENT WATER QUALITY OBJECTIVES

CONSTITUENT	MAXIMUM CONCENTRATION[a] (mg/l)	APPLICABLE WATER BODIES
Arsenic	0.01	Sacramento River from Keswick Dam to the I Street Bridge at City of Sacramento (13, 30); American River from Folsom Dam to the Sacramento River (51); Folsom Lake (50); and the Sacramento-San Joaquin Delta.
Barium	0.1	As noted above for Arsenic.
Boron	2.0 (15 March through 15 September) 0.8 (monthly mean, 15 March through 15 September)	San Joaquin River, mouth of the Merced River to Vernalis
	2.6 (16 September through 14 March) 1.0 (monthly mean, 16 September through 14 March)	
	1.3 (monthly mean, critical year[b])	
	5.8[c] 2.0 (monthly mean, 15 March through 15 September)[c]	Salt Slough, Mud Slough (north), San Joaquin River from Sack Dam to the mouth of Merced River
Cadmium	0.00022[d]	Sacramento River and its tributaries above State Hwy 32 bridge at Hamilton City.
Copper	0.0056[d]	As noted above for Cadmium.
	0.01[e]	As noted above for Arsenic.[e]

TABLE III-1 TRACE ELEMENT
WATER QUALITY OBJECTIVES
(Continued)

CONSTITUENT	MAXIMUM CONCENTRATION[a] (mg/l)	APPLICABLE WATER BODIES
Cyanide	0.01	As noted above for Arsenic.
Iron	0.3	As noted above for Arsenic.
Manganese	0.05	As noted above for Arsenic.
Molybdenum	0.015 0.010 (monthly mean)	San Joaquin River, mouth of the Merced River to Vernalis
	0.050[c] 0.019 (monthly mean)[c]	Salt Slough, Mud Slough (north), San Joaquin River from Sack Dam to the mouth of Merced River
Selenium	0.012 0.005 (4-day average)[f]	San Joaquin River, mouth of the Merced River to Vernalis
	0.020[f] 0.005 (4-day average)[f]	Salt Slough, Mud Slough (north), San Joaquin River from Sack Dam to the mouth of Merced River
	0.002 (monthly mean)	Any water supplies used for waterfowl habitat in the Grassland Water District, San Luis National Wildlife Refuge, and Los Banos State Wildlife Area.
Silver	0.01	As noted above for Arsenic.
Zinc	0.1[e]	As noted above for Arsenic.[e]
	0.016[d]	As noted above for Cadmium.

a Metal objectives in this table are dissolved concentrations. Selenium, molybdenum, and boron objectives are total concentrations.

b See Table IV-3.

c An alternate set of objectives is proposed to go into effect if the plan to use the San Luis Drain is implemented. The alternate set of objectives provide for better water quality in Salt Slough and the San Joaquin River, Sack Dam to the mouth of Mud Slough (north) and a longer compliance period for Mud Slough (north) and the San Joaquin River, mouth of Mud Slough (north) to mouth of the Merced River.

d The effects of these concentrations were measured by exposing test organisms to dissolved aqueous solutions of 40 mg/l hardness that had been filtered through a 0.45 micron membrane filter. Where deviations from 40 mg/l of water hardness occur, the objectives, in mg/l, shall be determined using the following formulas:

$$Cu = e^{(0.905)(\ln \text{hardness}) - 1.612} \times 10^{-3}$$

$$Zn = e^{(0.830)(\ln \text{hardness}) - 0.289} \times 10^{-3}$$

$$Cd = e^{(1.160)(\ln \text{hardness}) - 5.777} \times 10^{-3}$$

e Does not apply to Sacramento River above State Hwy. 32 bridge at Hamilton City. See relevant objectives (*) above.

f The Regional Water Board has not adopted these selenium concentrations. These selenium concentrations were promulgated by USEPA on 22 December 1992 after USEPA disapproved the Regional Water Board's selenium concentrations. (See 57 Fed.Reg. 60848, 60920.) The selenium concentrations promulgated by USEPA are currently in effect, and are provided in this table solely for reference.

Color

Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.

Dissolved Oxygen

Within the legal boundaries of the Delta, the dissolved oxygen concentration shall not be reduced below:

7.0 mg/l in the Sacramento River (below the I Street Bridge) and in all Delta waters west of the Antioch Bridge; 6.0 mg/l in the San Joaquin River (between Turner Cut and Stockton, 1 September through 30 November); and 5.0 mg/l in all other Delta waters except for those bodies of water which are constructed for special purposes and from which fish have been excluded or where the fishery is not important as a beneficial use.

For surface water bodies outside the legal boundaries of the Delta, the monthly median of the mean daily dissolved oxygen *(DO)* concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation. The dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time:

Waters designated WARM 5.0 mg/l
Waters designated COLD 7.0 mg/l
Waters designated SPWN 7.0 mg/l

The more stringent objectives in Table III-2 apply to specific water bodies in the Sacramento and San Joaquin River Basins:

TABLE III-2
SPECIFIC DISSOLVED OXYGEN WATER QUALITY OBJECTIVES

AMOUNT	TIME	PLACE
9.0 mg/l*	1 June to 31 August	Sacramento River from Keswick Dam to Hamilton City (13)
8.0 mg/l	1 September to 31 May	Feather River from Fish Barrier Dam at Oroville to Honcut Creek (40)
8.0 mg/l	all year	Merced River from Cressy to New Exchequer Dam (78)
8.0 mg/l	15 October to 15 June	Tuolumne River from Waterford to La Grange (86)

* When natural conditions lower dissolved oxygen below this level, the concentrations shall be maintained at or above 95 percent of saturation.

Floating Material

Water shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.

Oil and Grease

Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

pH

The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses. In determining

compliance with the water quality objective for pH, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.

For Goose Lake (2), pH shall be less than 9.5 and greater than 7.5 at all times.

Pesticides

- No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses.

- Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses.

- Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer.

- Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 C.F.R. Section 131.12.).

- Pesticide concentrations shall not exceed the lowest levels technically and economically achievable.

- Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.

- Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of thiobencarb in excess of 1.0 μg/l.

Where more than one objective may be applicable, the most stringent objective applies.

For the purposes of this objective, the term pesticide shall include: (1) any substance, or mixture of substances which is intended to be used for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any pest, which may infest or be detrimental to vegetation, man, animals, or households, or be present in any agricultural or nonagricultural environment whatsoever, or (2) any spray adjuvant, or (3) any breakdown products of these materials that threaten beneficial uses. Note that discharges of "inert" ingredients included in pesticide formulations must comply with all applicable water quality objectives.

Radioactivity

Radionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.

At a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Salinity

Electrical Conductivity and Total Dissolved Solids--Special Cases in the Sacramento and San Joaquin River Basins Other Than the Delta

The objectives for electrical conductivity and total dissolved solids in Table III-3 apply to the water bodies specified. To the extent of any conflict with the general Chemical Constituents water quality objectives, the more stringent shall apply.

Electrical Conductivity, Total Dissolved Solids, and Chloride--Delta Waters

The objectives for salinity (electrical conductivity, total dissolved solids, and chloride) which apply to the Delta are listed in Table III-5 at the chapter's end. See Figure III-2 for an explanation of the hydrologic year type classification system. The objectives in Table III-5 were adopted by the State Water Board in May 1991 in the Water Quality Control Plan for Salinity.

Table III-3

ELECTRICAL CONDUCTIVITY AND TOTAL DISSOLVED SOLIDS

PARAMETER	WATER QUALITY OBJECTIVES	APPLICABLE WATER BODIES
Electrical Conductivity (at 25°C)	Shall not exceed 230 micromhos/cm (50 percentile) or 235 micromhos/cm (90 percentile) at Knights Landing above Colusa Basin Drain; or 240 micromhos/cm (50 percentile) or 340 micromhos/cm (90 percentile) at I Street Bridge, based upon previous 10 years of record.	Sacramento River (13, 30)
	Shall not exceed 150 micromhos/cm (90 percentile) in well-mixed waters of the Feather River.	North Fork of the Feather River (33); Middle Fork of the Feather River from Little Last Chance Creek to Lake Oroville (36); Feather River from the Fish Barrier Dam at Oroville to Sacramento River (40)
	Shall not exceed 150 micromhos/cm from Friant Dam to Gravelly Ford (90 percentile).	San Joaquin River, Friant Dam to Mendota Pool (69)
Total Dissolved Solids	Shall not exceed 125 mg/l (90 percentile)	North Fork of the American River from the source to Folsom Lake (44); Middle Fork of the American River from the source to Folsom Lake (45); South Fork of the American River from the source to Folsom Lake (48, 49); American River from Folsom Dam to Sacramento River (51)
	Shall not exceed 100 mg/l (90 percentile)	Folsom Lake (50)
	Shall not exceed 1,300,000 tons	Goose Lake (2)

Sediment

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Settleable Material

Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

Suspended Material

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

Tastes and Odors

Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

Temperature

The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.

Temperature objectives for COLD interstate waters, WARM interstate waters, and Enclosed Bays and Estuaries are as specified in the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California* including any revisions. There are also temperature objectives for the Delta in the State Water Board's May 1991 *Water Quality Control Plan for Salinity*.

At no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature. Temperature changes due to controllable factors shall be limited for the water bodies specified as described in Table III-4. To the extent of any conflict with the above, the more stringent objective applies.

In determining compliance with the water quality objectives for temperature, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.

TABLE III-4
SPECIFIC TEMPERATURE OBJECTIVES

DATES	APPLICABLE WATER BODY
From 1 December to 15 March, the maximum temperature shall be 55°F. From 16 March to 15 April, the maximum temperature shall be 60°F. From 16 April to 15 May, the maximum temperature shall be 65°F. From 16 May to 15 October, the maximum temperature shall be 70°F. From 16 October to 15 November, the maximum temperature shall be 65°F. From 16 November to 30 November, the maximum temperature shall be 60°F.	Sacramento River from its source to Box Canyon Reservoir (9); Sacramento River from Box Canyon Dam to Shasta Lake (11)
The temperature in the epilimnion shall be less than or equal to 75°F or mean daily ambient air temperature, whichever is greater.	Lake Siskiyou (10)
The temperature shall not be elevated above 56°F in the reach from Keswick Dam to Hamilton City nor above 68°F in the reach from Hamilton City to the I Street Bridge during periods when temperature increases will be detrimental to the fishery.	Sacramento River from Shasta Dam to I Street Bridge (13, 30)

Toxicity

All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances. Compliance with this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, and biotoxicity tests of appropriate duration or other methods as specified by the Regional Water Board.

The Regional Water Board will also consider all material and relevant information submitted by the discharger and other interested parties and numerical criteria and guidelines for toxic substances developed by the State Water Board, the California Office of Environmental Health Hazard Assessment, the California Department of Health Services, the U.S. Food and Drug Administration, the National Academy of Sciences, the U.S. Environmental Protection Agency, and other appropriate organizations to evaluate compliance with this objective.

The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors shall not be less than that for the same water body in areas unaffected by the waste discharge, or, when necessary, for other control water that is consistent with the requirements for "experimental water" as described in *Standard Methods for the Examination of Water and Wastewater*, latest edition. As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate; additional numerical receiving water quality objectives for specific toxicants will be established as sufficient data become available; and source control of toxic substances will be encouraged.

Turbidity

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:

- Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
- Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.
- Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.
- Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.

Exceptions to the above limits will be considered when a dredging operation can cause an increase in turbidity. In those cases, an allowable zone of dilution within which turbidity in excess of the limits may be tolerated will be defined for the operation and prescribed in a discharge permit.

For Folsom Lake (50) and American River (Folsom Dam to Sacramento River) (51), except for periods of storm runoff, the turbidity shall be less than or equal 10 NTUs. To the extent of any conflict with the general turbidity objective, the more stringent applies.

For Delta waters, the general objectives for turbidity apply subject to the following: except for periods of storm runoff, the turbidity of Delta waters shall not exceed 50 NTUs in the waters of the Central Delta and 150 NTUs in other Delta waters. Exceptions to the Delta specific objectives will be considered when a dredging operation can cause an increase in turbidity. In this case, an allowable zone of dilution within which turbidity in excess of limits can be tolerated will be defined for the operation and prescribed in a discharge permit.

WATER QUALITY OBJECTIVES FOR GROUND WATERS

The following objectives apply to all ground waters of the Sacramento and San Joaquin River Basins, as the objectives are relevant to the protection of designated beneficial uses. These objectives do not require improvement over naturally occurring background concentrations. The ground water objectives contained in this plan are not required by the federal Clean Water Act.

Bacteria

In ground waters used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 ml.

Chemical Constituents

Ground waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.

At a minimum, ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B

(Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain lead in excess of 0.015 mg/l. To protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

Radioactivity

At a minimum, ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Tastes and Odors

Ground waters shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

Toxicity

Ground waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial use(s). This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.

FIGURE III-1

BOUNDARY OF THE SACRAMENTO - SAN JOAQUIN DELTA

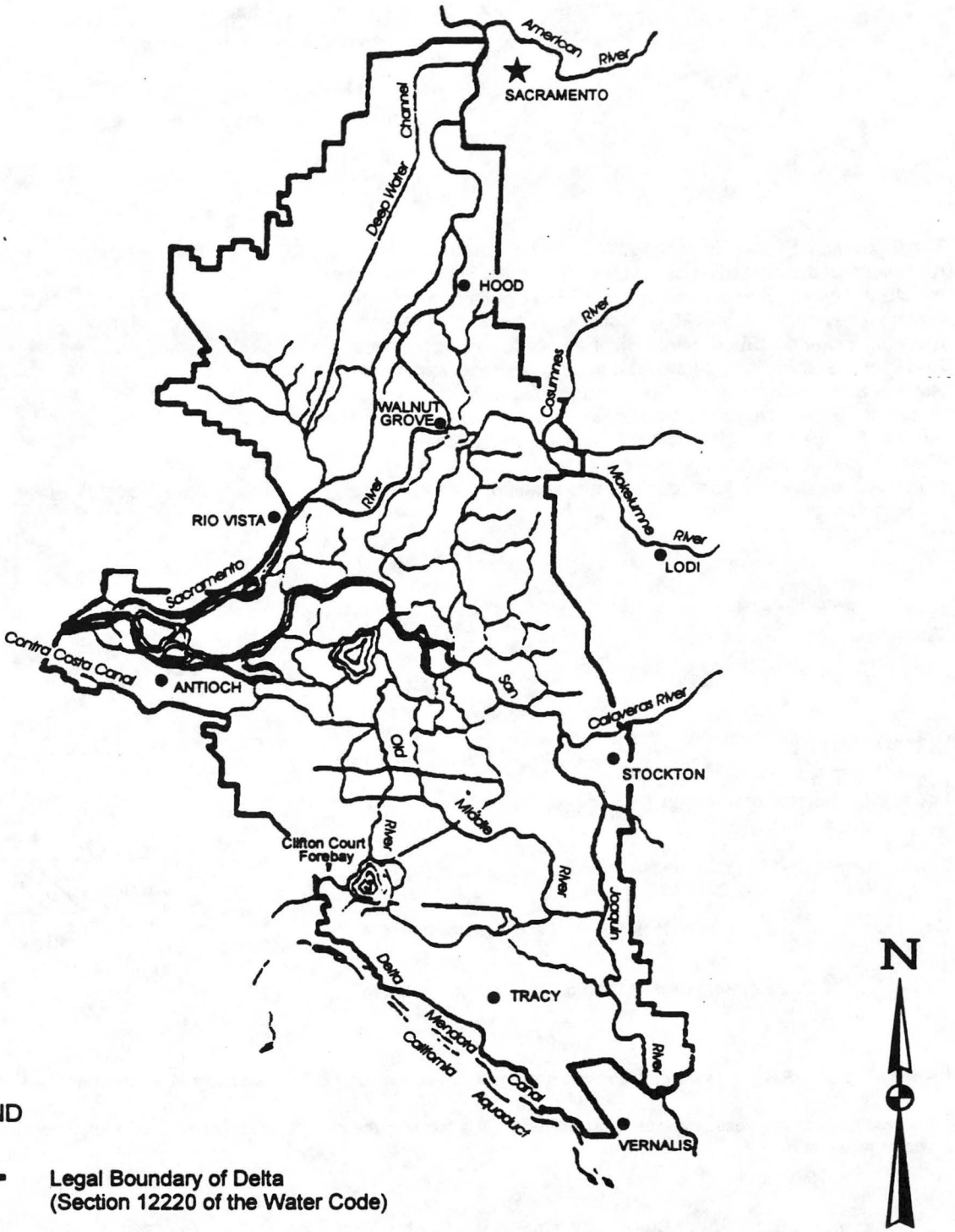


FIGURE III-2 *

Sacramento Valley

Water Year Hydrologic Classification

Year classification shall be determined by computation of the following equation:

INDEX = 0.4 * X + 0.3 * Y + 0.3 * Z

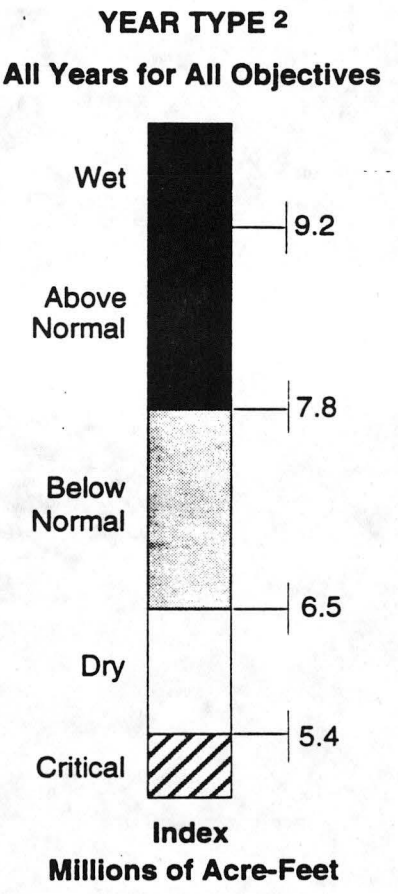
Where: X = Current years April - July Sacramento Valley unimpaired runoff

Y = Current October - March Sacramento Valley unimpaired runoff

Z = Previous year's index [1]

The Sacramento Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year) as published in California Department of Water Resources Bulletin 120 is a forecast of the sum of the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

Classification	**Index Millions of Acre-Feet**
Wet	Equal to or greater than 9.2
Above Normal	Greater than 7.8 and less than 9.2
Below Normal	Equal to or less than 7.8 and greater than 6.5
Dry	Equal to or less than 6.5 and greater than 5.4
Critical	Equal to or less than 5.4



[1] A cap of 10.0 MAF is put on the previous years index (X) to account for required flood control reservoir releases during wet years.

[2] The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

* Taken from the State Water Board's "Water Quality Control Plan For Salinity", May 1991, Figure 3-4

TABLE III-5 *: WATER QUALITY OBJECTIVES

A) MUNICIPAL AND INDUSTRIAL USES

LOCATION	SAMPLING SITE NOs. (I-A/RKI)	PARAMETER	DESCRIPTION	INDEX TYPE	YEAR TYPE	DATES	VALUES
Contra Costa Canal at Pumping Plant #1	*C-5 CHCCC06*	*Chloride (Cl-)*	*Maximum mean daily, in mg/l*	*Not Applicable*	*All*	*Oct-Sep*	*250*
Contra Costa Canal at Pumping Plant #1	*C-5 CHCCC06*	*Chloride (Cl-)*	*Maximum mean daily 150 mg/l chloride for at least the number of days shown during the Calendar Year. Must be provided in intervals of not less than two weeks duration. (Percentage of Calendar Year shown in parenthesis).*	*Sacramento River 40-30-30*		*No. of days each Cal. Year < 150 mg/l Cl-*	
- or -					*W*	*240 (66%)*	
San Joaquin River at Antioch Water Works Intake	*D-12(near) RSAN007*	*Chloride (Cl-)*		*Sacramento River 40-30-30*	*AN*	*190 (52%)*	
					BN	*175 (48%)*	
					D	*165 (45%)*	
					C	*155 (42%)*	
West Canal at mouth of Clifton Court Forebay	*C-9 CHWST0*	*Chloride (Cl-)*	*Maximum mean daily, in mg/l*	*Not Applicable*	*All*	*Oct-Sep*	*250*
Delta Mendota Canal at Tracy Pumping Plant	*DMC-1 CHDMC004*	*Chloride (Cl-)*	*Maximum mean daily, in mg/l*	*Not Applicable*	*All*	*Oct-Sep*	*250*
Cache Slough at City of Vallejo Intake [1]	*C-19 SLCCH16*	*Chloride (Cl-)*	*Maximum mean daily, in mg/l*	*Not Applicable*	*All*	*Oct-Sep*	*250*
-and/or-							
Barker Slough at North Bay Aqueduct Intake	*- SLBAR3*	*Chloride (Cl-)*	*Maximum mean daily, in mg/l*	*Not Applicable*	*All*	*Oct-Sep*	*250*

* Taken from the State Water Board's "Water Quality Control Plan For Salinity", May 1991

TABLE III-5* (cont.): WATER QUALITY OBJECTIVES

B) AGRICULTURAL USES BY AREA

LOCATION	SAMPLING SITE NOs. (I-A/RKI)	PARAMETER	DESCRIPTION	INDEX TYPE	YEAR TYPE	DATES	VALUES
			1) WESTERN DELTA				
Sacramento River at Emmaton	*D-22 RSAC092*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily, in mmhos/cm (mmhos)*	*Sacramento River 40-30-30*		*0.45 EC April 1 to Date Shown*	*EC from Date Shown to Aug. 15 [2]*
					W	*Aug. 15*	*--*
					AN	*July 1*	*0.63*
					BN	*June 20*	*1.14*
					D	*June 15*	*1.67*
					C	*--*	*2.78*
San Joaquin River at Jersey Point	*D-15 RSAN018*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily, in mmhos*	*Sacramento River 40-30-30*		*0.45 EC April 1 to Date Shown*	*EC from Date Shown to Aug. 15 [2]*
					W	*Aug. 15*	*--*
					AN	*Aug. 15*	*--*
					BN	*June 20*	*0.74*
					D	*June 15*	*1.35*
					C	*--*	*2.20*
			2) INTERIOR DELTA				
South Fork Mokelumne River at Terminous	*C-13 RSMKL08*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily, in mmhos*	*Sacramento River 40-30-30*		*0.45 EC April 1 to Date Shown*	*EC from Date Shown to Aug. 15 [2]*
					W	*Aug. 15*	*--*
					AN	*Aug. 15*	*--*
					BN	*Aug. 15*	*--*
					D	*Aug. 15*	*--*
					C	*--*	*0.54*
San Joaquin River at San Andreas Landing	*C-4 RSAN032*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily, in mmhos*	*Sacramento River 40-30-30*		*0.45 EC April 1 to Date Shown*	*EC from Date Shown to Aug. 15 [2]*
					W	*Aug. 15*	*--*
					AN	*Aug. 15*	*--*
					BN	*Aug. 15*	*--*
					D	*Jun. 25*	*0.58*
					C	*--*	*0.87*

* Taken from the State Water Board's "Water Quality Control Plan For Salinity", May 1991

TABLE III-5* (cont.): WATER QUALITY OBJECTIVES

B) AGRICULTURAL USES BY AREA

LOCATION	SAMPLING SITE NOs. (I-A/RKI)	PARAMETER	DESCRIPTION	INDEX TYPE	YEAR TYPE	DATES	VALUES
(To be implemented by 1996) [3]			**3) SOUTH DELTA**				
San Joaquin River at Airport Way Bridge, Vernalis	*C-10 RSAN112*	*Electrical Conductivity (EC)*	*Maximum 30-day running average of mean daily, in mmhos*	*Not Applicable*	*All*	*Apr 1-Aug 31*	*0.7*
						Sep 1-Mar 31	*1.0*
Old River near Middle River	*C-8 ROLD69*					*or*	
Old River at Tracy Road Bridge	*P-12 ROLD59*		*If a three-party contract has been implemented among DWR, USBR and the SDWA, that contract will be reviewed prior to implementation of the avove and , after also considering the needs of other beneficial uses, revisions will be made to the objectives and compliance/monitoring locations noted above, as appropriate.*				
San Joaquin River at Brandt Bridge [site]	*C-6 RSAN073*						
			4) EXPORT				
West Canal at mouth of Clifton Court Forebay -and- Delta Mendota Canal at Tracy Pumping Plant	*C-9 CHWST0 DMC-1 CHDMC004*	*Electrical Conductivity (EC)*	*Maximum monthly average of mean daily EC, in mmhos*	*Not Applicable*	*All*	*Oct-Sept*	*1.0*

* Taken from the State Water Board's "Water Quality Control Plan For Salinity", May 1991

TABLE III-5* (cont.): WATER QUALITY OBJECTIVES

C) FISH AND WILDLIFE BY HABITAT/SPECIES

LOCATION	SAMPLING SITE NOs. (I-A/RKI)	PARAMETER	DESCRIPTION	INDEX TYPE	YEAR TYPE	DATES	VALUES
			CHINOOK SALMON				
DISSOLVED OXYGEN							
San Joaquin River between Turner Cut & Stockton	*RSAN050-RSAN061*	*Dissolved Oxygen (DO)*	*Minimum dissolved oxygen, in mg/l*	*Not Applicable*	*All*	*Sep 1-Nov 30*	*6.0*
TEMPERATURE							
Sacramento River at Freeport and	*RSAC155*	*Temperature*	*Narrative Objective*	*Not Applicable*	*All*	*"The daily average water temperature shall not be elevated by controllable factors above 68 deg. F from the I Street Bridge to Freeport on the Sacramento River, and at Vernalis on the San Joaquin River between April 1 through June 30 and September 1 through November 30 in all water year types." [4]*	
San Joaquin River at Airport Way Bridge, Vernalis	*C-10 RSAN112*	*Temperature*	*Narrative Objective*	*Not Applicable*	*All*		
Sacramento River at Freeport	*RSAC155*	*Temperature*	*Narrative Objective*	*Not Applicable*	*All*	*"The daily average water temperature shall not be elevated by controllable factors above 66 deg. F from the I street Bridge to Freeport on the Sacramento River between January 1 through March 31." [4]*	

* Taken from the State Water Board's "Water Quality Control Plan For Salinity", May 1991

TABLE III-5* (cont.): WATER QUALITY OBJECTIVES

C) FISH AND WILDLIFE BY HABITAT/SPECIES

LOCATION	SAMPLING SITE NOs. (I-A/RKI)	PARAMETER	DESCRIPTION	INDEX TYPE	YEAR TYPE	DATES	VALUES
STRIPED BASS - SALINITY:1 ANTIOCH - SPAWNING							
Sacramento River at Chipps Island	*D-10 RSAC075*	*Delta outflow Index (DOI)*	*Average for the period not less than the value shown, in cfs.*	*Not Applicable*	*All*	*Apr 1-Apr 14*	*6,700*
San Joaquin River at Antioch Water Works Intake	*D-12 (near) RSAN007*	*Electrical Conductivity (EC)*	*14-day running average of mean daily for the period not more than value shown, in mmhos*	*Not Applicable*	*All*	*Apr 15-May 31 (or until spawning has ended)*	*1.5*
STRIPED BASS-SALINITY:2. ANTIOCH-SPAWNING-RELAXATION PROVISION							
San Joaquin River at Antioch Water Works Intake	*D-12 (near) RSAN007*	*Electrical Conductivity (EC)*	*14-day running average of mean daily EC in mmhos, not more than value shown corresponding to deficiencies in firm supplies declared by a set of water projects representative of the Sacramento River and San Joaquin River watersheds, for the period shown, or until spawning has ended. The specific representative projects and ammounts of deficiencies will be defined in subsequent phases of the proceedings.*	*Total Annual Imposed Deficiency (MAF)*		*Apr 1-May 31 EC in mmhos*	
						Dry	*Critical*
This relaxation provision replaces the above Antioch & Chipps Island standard whenever the projects impose deficiencies in firm supplies.				*0.0*		*1.5*	*1.5*
				0.5		*1.8*	*1.9*
				1.0		*1.8*	*2.5*
				1.5		*1.8*	*3.4*
				2.0 or more		*1.8*	*3.7*
				Linear interpolation is to be used to determine values between those shown.			
STRIPED BASS-SALINITY:3. PRISONERS POINT-SPAWNING							
San Joaquin River at: Prisoners Point	*D-29 RSAN038*	*Electrical Conductivity (EC)*	*14-day running average of mean daily for the period not more than value shown, in mmhos*	*Sacramento River 40-30-30*	*All*	*Apr 1-May 31 (or until spawning has ended)*	*0.44*

* Taken from the State Water Board's "Water Quality Control Plan For Salinity", May 1991

TABLE III-5* (cont.): WATER QUALITY OBJECTIVES

C) FISH AND WILDLIFE BY HABITAT/SPECIES

LOCATION	SAMPLING SITE NOs. (I-A/RKI)	PARAMETER	DESCRIPTION	INDEX TYPE	YEAR TYPE	DATES	VALUES
STRIPED BASS-SALINITY: 4. PRISONERS POINT-SPAWNING-RELAXATION PROVISION							
When the relaxation provision for Antioch spawning protection is in effect:							
San Joaquin River at: Prisoners Point	*D-29 RSAN038*	*Electrical Conductivity (EC)*	*14-day running average of mean daily for the period not more than value shown, in mmhos*	*Sacramento River 40-30-30*	*D&C*	*Apr 1-May 31 (or until spawning has ended)*	*0.55*

FOOTNOTES:

[1] The Cache Slough objective to be effective only when water is being diverted from this location.

[2] When no date is shown, EC limit continues from April 1.

[3] South Delta Agriculture objectives will be implemented in stages: two interim stages and one final stage. The first interim stage will be implemented with the adoption of the WQCP, trhe second interim stage by 1994, and the final stage by 1996. Interim Stage 1 – 500 mg/l mean monthly TDS all year at Vernalis. Interim Stage 2 – (to be implemented no later than 1994) 0.7 mmhos/cm EC April 1 to August 31, 1.0 mmhos/cm EC September 1 to March 31, 30-day running average, at Vernalis and Brandt Bridge; with water quality monitored at three current interior stations – Mossdale, Old River, near Middle River and Tracy Road Bridge, and an additional interior monitoring station on Middle River at Howard Road Bridge. Final Stage – (to be implemented no later than 1996) 0.7 mmhos/cm EC April 1 to August 31, 1.0 mmhos/cm EC September 1 to March 31, 30-day running average, at Vernalis and Brandt Bridge on the San Joaquin River; with two interior stations at Old River Near Middle River and Old River at Tracy Road Bridge. Monitoring stations will be at Mossdale at head of Old River and Middle River at Howard Road Bridge.

OR

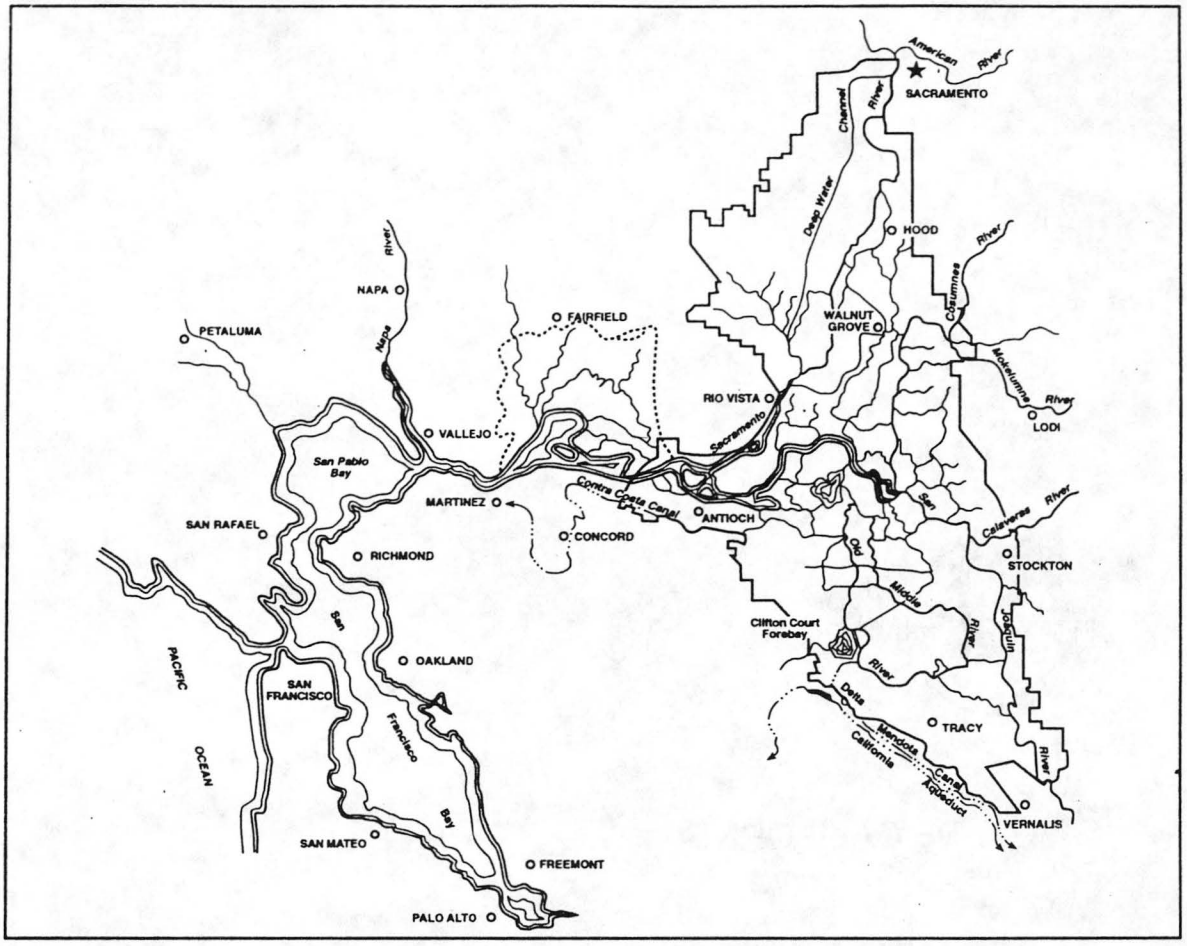
If a three-party contract has been implemented among DWR, USBR and the SDWA, that contract will be reviewed prior to implementation of the above and, after also considering the needs of other beneficial uses, revisions will be made to the objectives and compliance/monitoring locations noted above, as appropriate.

[4] Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Board, or the Regional Board, and that may be reasonably controlled. Based on the record in these proceedings, controlling temperature in the Delta utilizing reservoir releases does not appear to be reasonable, due to the distance of the Delta downstream of reservoirs and uncontrollable factors such as ambient air temperature, water temperatures in the reservoir releases, etc. For these reasons, the State Board considers reservoir releases to control water temperatures in the Delta a waste of water; therefore, the State Board will require a test of reasonableness before consideration of reservoir releases for such a purpose.

* Tal from the State Water Board's "Water Quality Control Plan For Salinity", M 1991

Appendix H.4

Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: Chapter II — Beneficial Uses



WATER QUALITY CONTROL PLAN

for the
San Francisco Bay/ Sacramento-San Joaquin Delta Estuary

95-1WR
MAY 1995

STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

STATE OF CALIFORNIA
Pete Wilson, Governor

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
James M. Strock, Secretary

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CHAPTER II. BENEFICIAL USES

The waters of the Bay-Delta Estuary serve a multitude of beneficial uses, both within the Estuary and throughout the State. Historically, these beneficial uses have been classified under three broad categories: municipal and industrial, agricultural, and fish and wildlife.

This chapter sets forth the beneficial uses established for the Bay-Delta Estuary which are to be protected by this plan. These uses, and a summary of each, are presented below. These uses are unchanged from the 1991 Bay-Delta Plan; however, nonsubstantive changes to the definitions of the uses have been made to ensure consistency with the SWRCB's current policy and uniform direction to the RWQCBs.

Municipal and Domestic Supply (MUN) - Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Industrial Service Supply (IND) - Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.

Industrial Process Supply (PROC) - Uses of water for industrial activities that depend primarily on water quality.

Agricultural Supply (AGR) - Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

Ground Water Recharge (GWR) - Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

Navigation (NAV) - Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

Water Contact Recreation (REC-1) - Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.

Non-Contact Water Recreation (REC-2) - Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

Shellfish Harvesting (SHELL) - Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sports purposes.

Commercial and Sport Fishing (COMM) - Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

Warm Freshwater Habitat (WARM) - Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Cold Freshwater Habitat (COLD) - Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Migration of Aquatic Organisms (MIGR) - Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

Spawning, Reproduction, and/or Early Development (SPWN) - Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

Estuarine Habitat (EST) - Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).

Wildlife Habitat (WILD) - Uses of water that support estuarine ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Rare, Threatened, or Endangered Species (RARE) - Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under State or federal law as being rare, threatened, or endangered.

CHAPTER III. WATER QUALITY OBJECTIVES

This chapter establishes water quality objectives which, in conjunction with the water quality objectives for the Bay-Delta Estuary that are included in other SWRCB-adopted water quality control plans and in the water quality control plans for the Central Valley and San Francisco Bay basins, when implemented, will: (1) provide reasonable protection of municipal, industrial, and agricultural beneficial uses; (2) provide reasonable protection of fish and wildlife beneficial uses at a level which stabilizes or enhances the conditions of aquatic resources; and (3) prevent nuisance. These water quality objectives are established to attain the highest water quality which is reasonable, considering all demands being made on the waters of the Estuary.

The water quality objectives in this plan apply to the waters of the San Francisco Bay system and the legal Sacramento-San Joaquin Delta, as specified by the objectives. Tables 1, 2, and 3 contain the water quality objectives for the protection of municipal and industrial, agricultural, and fish and wildlife beneficial uses, respectively.

A. Water Quality Objectives for Municipal and Industrial Beneficial Uses

The water quality objectives in Table 1 are included for the reasonable protection of the beneficial uses, MUN, IND, and PROC, from the effects of salinity intrusion. These municipal and industrial objectives also provide protection for the beneficial uses of REC-1, REC-2, and GWR. These objectives are unchanged from the 1991 Bay-Delta Plan.

B. Water Quality Objectives for Agricultural Beneficial Uses

The water quality objectives in Table 2 are included for the reasonable protection of the beneficial use, AGR, from the effects of salinity intrusion and agricultural drainage in the western, interior, and southern Delta. With the exception of the effective date of the salinity objectives for the southern Delta stations on Old River, these objectives are unchanged from the 1991 Bay-Delta Plan.

C. Water Quality Objectives for Fish and Wildlife Beneficial Uses

The objectives for the protection of fish and wildlife beneficial uses are established for the following parameters: dissolved oxygen, salinity (expressed as electrical conductivity), Delta outflow, river flows, export limits, and Delta Cross Channel gate operation. Unlike water quality objectives for parameters such as dissolved oxygen, temperature, and toxic chemicals, which have threshold levels beyond which adverse impacts to the beneficial uses occur, there are no defined threshold conditions that can be used to set objectives for flows and project operations. Instead, the available information indicates that a continuum of protection exists. Higher flows and lower exports provide greater protection for the bulk of estuarine resources up to the limit of unimpaired conditions. Therefore, these objectives must be set based on a subjective determination of the reasonable needs of all of the consumptive and

nonconsumptive demands on the waters of the Estuary. As the long-term planning process for the Estuary, cited in the Framework Agreement, is developed and implemented, these objectives will be evaluated and modified, as necessary, to provide a level of protection predicated on more optimal physical facilities and management actions.

The water quality objectives in Table 3 are included for the reasonable protection of the following beneficial uses: EST, COLD, WARM, MIGR, SPWN, WILD, and RARE. These fish and wildlife beneficial uses also provide protection for the beneficial uses of SHELL, COMM, and NAV. The objectives in Table 3, together with the program of implementation and the requirements of other water quality control plans and policies, provide comprehensive protection for the fish and wildlife beneficial uses in the Estuary. These objectives replace the objectives for fish and wildlife in the 1978 Delta Plan and the 1991 Bay-Delta Plan.

A dissolved oxygen objective is included to protect fall-run salmon migration in the lower San Joaquin River. This objective is unchanged, with the exception of including a provision for a compliance schedule, from the 1991 Bay-Delta Plan.

Salinity objectives for the lower San Joaquin River are included to protect striped bass spawning habitat. Salinity objectives for the managed portions of the Suisun Marsh are included for the protection of channel and soil water salinities which affect the vegetative composition of the marshlands. These objectives are based on standards in D-1485 and the Suisun Marsh Preservation Agreement (SMPA) among the DWR, USBR, DFG, and Suisun Resource Conservation District (SRCD). A narrative objective for the brackish tidal marshes of Suisun Bay is included to protect the remnant tidal marshes.

Delta outflow objectives are included for the protection of estuarine habitat for anadromous fishes and other estuarine-dependent species. Sacramento and San Joaquin river flow objectives are included to provide attraction and transport flows and suitable habitat for various life stages of aquatic organisms, including Delta smelt and chinook salmon. A narrative objective for salmon protection is included to ensure increased natural production of salmon.

Objectives for export limits are included to protect the habitat of estuarine-dependent species by reducing the entrainment of various life stages by the major export pumps in the southern Delta. An objective for closure of the Delta Cross Channel gates is included to reduce the diversion of aquatic organisms into the interior Delta where they are more vulnerable to entrainment by the major export pumps and local agricultural diversions.

TABLE 1 **WATER QUALITY OBJECTIVES FOR MUNICIPAL AND INDUSTRIAL BENEFICIAL USES**

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT)	WATER YEAR TYPE [2]	TIME PERIOD	VALUE
Contra Costa Canal at Pumping Plant #1 **-or-** *San Joaquin River at Antioch Water Works Intake*	*C-5 (CHCCC06)* **-or-** *D-12 (near) (RSAN007)*	*Chloride (Cl^-)*	*Maximum mean daily 150 mg/l Cl^- for at least the number of days shown during the Calendar Year. Must be provided in intervals of not less than two weeks duration. (Percentage of Calendar Year shown in parenthesis)*	*W* / *AN* / *BN* / *D* / *C*	*No. of days each Calendar Year ≤ 150 mg/l Cl^-*	*240 (66%)* / *190 (52%)* / *175 (48%)* / *165 (45%)* / *155 (42%)*
Contra Costa Canal at Pumping Plant #1 **-and-** *West Canal at mouth of Clifton Court Forebay* **-and-** *Delta-Mendota Canal at Tracy Pumping Plant* **-and-** *Barker Slough at North Bay Aqueduct Intake* **-and-** *Cache Slough at City of Vallejo Intake [3]*	*C-5 (CHCCC06)* **-and-** *C-9 (CHWST0)* **-and-** *DMC-1 (CHDMC004)* **-and-** *—— (SLBAR3)* **-and-** *C-19 (SLCCH16)*	*Chloride (Cl^-)*	*Maximum mean daily (mg/l)*	*All*	*Oct-Sep*	*250*

[1] River Kilometer Index station number.
[2] The Sacramento Valley 40-30-30 water year hydrologic classification index (see page 23) applies for determinations of water year type.
[3] The Cache Slough objective to be effective only when water is being diverted from this location.

TABLE 2 **WATER QUALITY OBJECTIVES FOR AGRICULTURAL BENEFICIAL USES**

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	& VALUE
WESTERN DELTA						
Sacramento River at Emmaton	*D-22 (RSAC092)*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily EC (mmhos/cm)*		*0.45 EC April 1 to date shown*	*EC from date shown to Aug 15 [4]*
				W	*Aug 15*	*—*
				AN	*Jul 1*	*0.63*
				BN	*Jun 20*	*1.14*
				D	*Jun 15*	*1.67*
				C	*—*	*2.78*
San Joaquin River at Jersey Point	*D-15 (RSAN018)*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily EC (mmhos/cm)*		*0.45 EC April 1 to date shown*	*EC from date shown to Aug 15 [4]*
				W	*Aug 15*	*—*
				AN	*Aug 15*	*—*
				BN	*Jun 20*	*0.74*
				D	*Jun 15*	*1.35*
				C	*—*	*2.20*
INTERIOR DELTA						
South Fork Mokelumne River at Terminous	*C-13 (RSMKL08)*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily EC (mmhos/cm)*		*0.45 EC April 1 to date shown*	*EC from date shown to Aug 15 [4]*
				W	*Aug 15*	*—*
				AN	*Aug 15*	*—*
				BN	*Aug 15*	*—*
				D	*Aug 15*	*—*
				C	*—*	*0.54*
San Joaquin River at San Andreas Landing	*C-4 (RSAN032)*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily EC (mmhos/cm)*		*0.45 EC April 1 to date shown*	*EC from date shown to Aug 15 [4]*
				W	*Aug 15*	*—*
				AN	*Aug 15*	*—*
				BN	*Aug 15*	*—*
				D	*Jun 25*	*0.58*
				C	*—*	*0.87*
SOUTHERN DELTA						
San Joaquin River at Airport Way Bridge, Vernalis **-and-** *San Joaquin River at Brandt Bridge site* **-and-** *Old River near Middle River [5]* **-and-** *Old River at Tracy Road Bridge [5]*	*C-10 (RSAN112)* **-and-** *C-6 (RSAN073)* **-and-** *C-8 (ROLD69)* **-and-** *P-12 (ROLD59)*	*Electrical Conductivity (EC)*	*Maximum 30-day running average of mean daily EC (mmhos/cm)*	*All*	*Apr-Aug* / *Sep-Mar* **-or-**	*0.7* / *1.0*
			If a three-party contract has been implemented among the DWR, USBR, and SDWA, that contract will be reviewed prior to implementation of the above and, after also considering the needs of other beneficial uses, revisions will be made to the objectives and compliance/monitoring locations noted, as appropriate.			
EXPORT AREA						
West Canal at mouth of Clifton Court Forebay **-and-** *Delta-Mendota Canal at Tracy Pumping Plant*	*C-9 (CHWST0)* **-and-** *DMC-1 (CHDMC004)*	*Electrical Conductivity (EC)*	*Maximum monthly average of mean daily EC (mmhos/cm)*	*All*	*Oct-Sep*	*1.0*

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 water year hydrologic classification index (see page 23) applies for determinations of water year type.

[4] When no date is shown, EC limit continues from April 1.

[5] The EC objectives shall be implemented at this location by December 31, 1997.

TABLE 3 WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DISSOLVED OXYGEN						
San Joaquin River between Turner Cut & Stockton	*(RSAN050-RSAN061)*	*Dissolved Oxygen (DO)*	*Minimum DO (mg/l)*	*All*	*Sep-Nov*	*6.0 [4]*
SALMON PROTECTION						
			narrative	*Water quality conditions shall be maintained, together with other measures in the watershed, sufficient to achieve a doubling of natural production of chinook salmon from the average production of 1967-1991, consistent with the provisions of State and federal law.*		
SAN JOAQUIN RIVER SALINITY						
San Joaquin River at and between Jersey Point and Prisoners Point [5]	*D-15 (RSAN018) -and- D-29 (RSAN038)*	*Electrical Conductivity (EC)*	*Maximum 14-day running average of mean daily EC (mmhos/cm)*	*W,AN,BN,D*	*Apr-May*	*0.44 [6]*
EASTERN SUISUN MARSH SALINITY						
Sacramento River at Collinsville	*C-2 (RSAC081)*	*Electrical Conductivity (EC)*	*Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location.*	*All*	*Oct*	*19.0*
					Nov-Dec	*15.5*
					Jan	*12.5*
-and- Montezuma Slough at National Steel	*S-64 (SLMZU25)*				*Feb-Mar*	*8.0*
					Apr-May	*11.0*
-and- Montezuma Slough near Beldon Landing	*S-49 (SLMZU11)*					
WESTERN SUISUN MARSH SALINITY						
Chadbourne Slough at Sunrise Duck Club	*S-21 [7] (SLCBN1)*	*Electrical Conductivity (EC)*	*Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location.*	*All but deficiency period*	*Oct*	*19.0*
					Nov	*16.5*
					Dec	*15.5*
-and- Suisun Slough, 300 feet south of Volanti Slough	*S-42 [8] (SLSUS12)*				*Jan*	*12.5*
					Feb-Mar	*8.0*
					Apr-May	*11.0*
-and- Cordelia Slough at Ibis Club	*S-97 [8] (SLCRD06)*			*Deficiency period [9]*	*Oct*	*19.0*
					Nov	*16.5*
-and- Goodyear Slough at Morrow Island Clubhouse	*S-35 [8] (SLGYR03)*				*Dec-Mar*	*15.6*
					Apr	*14.0.*
					May	*12.5*
-and- Water supply intakes for waterfowl management areas on Van Sickle and Chipps islands	*No locations specified*					
BRACKISH TIDAL MARSHES OF SUISUN BAY						
			narrative			*[10]*

TABLE 3 **WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES** (continued)

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DELTA OUTFLOW						
		Net Delta Outflow Index (NDOI) [11]	*Minimum monthly average [12] NDOI (cfs)*	*All*	*Jan*	*4,500 [13]*
				All	*Feb-Jun*	*[14]*
				W,AN	*Jul*	*8,000*
				BN		*6,500*
				D		*5,000*
				C		*4,000*
				W,AN,BN	*Aug*	*4,000*
				D		*3,500*
				C		*3,000*
				All	*Sep*	*3,000*
				W,AN,BN,D	*Oct*	*4,000*
				C		*3,000*
				W,AN,BN,D	*Nov-Dec*	*4,500*
				C		*3,500*
RIVER FLOWS						
Sacramento River at Rio Vista	*D-24 (RSAC101)*	*Flow rate*	*Minimum monthly average [15] flow rate (cfs)*	*All*	*Sep*	*3,000*
				W,AN,BN,D	*Oct*	*4,000*
				C		*3,000*
				W,AN,BN,D	*Nov-Dec*	*4,500*
				C		*3,500*
San Joaquin River at Airport Way Bridge, Vernalis	*C-10 (RSAN112)*	*Flow rate*	*Minimum monthly average [16] flow rate (cfs) [17]*	*W,AN*	*Feb-Apr 14*	*2,130 or 3,420*
				BN,D	*and*	*1,420 or 2,280*
				C	*May 16-Jun*	*710 or 1,140*
				W	*Apr 15-*	*7,330 or 8,620*
				AN	*May 15 [18]*	*5,730 or 7,020*
				BN		*4,620 or 5,480*
				D		*4,020 or 4,880*
				C		*3,110 or 3,540*
				All	*Oct*	*1,000 [19]*
EXPORT LIMITS						
		Combined export rate [20]	*Maximum 3-day running average (cfs)*	*All*	*Apr 15- May 15 [21]*	*[22]*
			Maximum percent of Delta inflow diverted [23] [24]	*All*	*Feb-Jun*	*35% Delta inflow [25]*
				All	*Jul-Jan*	*65% Delta inflow*
DELTA CROSS CHANNEL GATES CLOSURE						
Delta Cross Channel at Walnut Grove	----	*Closure of gates*	*Close gates*	*All*	*Nov-Jan*	*[26]*
					Feb-May 20	-----
					May 21- Jun 15	*[27]*

Table 3 Footnotes

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 Water Year Hydrologic Classification Index (see page 23) applies unless otherwise specified.

[4] If it is infeasible for a waste discharger to meet this objective immediately, a time extension or schedule of compliance may be granted, but this objective must be met no later than September 1, 2005.

[5] Compliance will be determined at Jersey Point (station D15) and Prisoners Point (station D29).

[6] This standard does not apply in May when the best available May estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedence level. [Note: The Sacramento River Index refers to the sum of the unimpaired runoff in the water year as published in the DWR Bulletin 120 for the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total unimpaired inflow to Oroville Reservoir; Yuba River at Smartville; and American River, total unimpaired inflow to Folsom Reservoir.]

[7] The effective date for objectives for this station is October 1, 1995.

[8] The effective date for objectives for this station is October 1, 1997.

[9] A deficiency period is: (1) the second consecutive dry water year following a critical year; (2) a dry water year following a year in which the Sacramento River Index (described in footnote 6) was less than 11.35; or (3) a critical water year following a dry or critical water year.

[10] Water quality conditions sufficient to support a natural gradient in species composition and wildlife habitat characteristic of a brackish marsh throughout all elevations of the tidal marshes bordering Suisun Bay shall be maintained. Water quality conditions shall be maintained so that none of the following occurs: (a) loss of diversity; (b) conversion of brackish marsh to salt marsh; (c) for animals, decreased population abundance of those species vulnerable to increased mortality and loss of habitat from increased water salinity; or (d) for plants, significant reduction in stature or percent cover from increased water or soil salinity or other water quality parameters.

[11] Net Delta Outflow Index (NDOI) is defined on page 25.

[12] For the May-January objectives, if the value is less than or equal to 5,000 cfs, the 7-day running average shall not be less than 1,000 cfs below the value; if the value is greater than 5,000 cfs, the 7-day running average shall not be less than 80% of the value.

[13] The objective is increased to 6,000 cfs if the best available estimate of the Eight River Index for December is greater than 800 TAF. [Note: The Eight River Index refers to the sum of the unimpaired runoff as published in the DWR Bulletin 120 for the following locations: Sacramento River flow at Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River flow at Smartville; American River, total inflow to Folsom Reservoir; Stanislaus River, total inflow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total inflow to Exchequer Reservoir; and San Joaquin River, total inflow to Millerton Lake.]

[14] The minimum daily NDOI shall be 7,100 cfs for this period, calculated as a 3-day running average. This requirement is also met if either the daily average or 14-day running average EC at the confluence of the Sacramento and the San Joaquin rivers is less than or equal to 2.64 mmhos/cm (Collinsville station C2). If the best available estimate of the Eight River Index (described in footnote 13) for January is more than 900 TAF, the daily average or 14-day running average EC at station C2 shall be less than or equal to 2.64 mmhos/cm for at least one day between February 1 and February 14; however, if the best available estimate of the Eight River Index for January is between 650 TAF and 900 TAF, the operations group established under the Framework Agreement shall decide whether this requirement will apply, with any disputes resolved by the CALFED policy group. If the best available estimate of the Eight River Index for February is less than 500 TAF, the standard may be further relaxed in March upon the recommendation of the operations group established under the Framework Agreement, with any disputes resolved by the CALFED policy group. The standard does not apply in May and June if the best available May estimate of the Sacramento River Index (described in footnote 6) for the water year is less than 8.1 MAF at the 90% exceedence level. Under this circumstance, a minimum 14-day running average flow of 4,000 cfs is required in May and June. Additional Delta outflow objectives are contained in Table A on page 26.

[15] The 7-day running average shall not be less than 1,000 cfs below the monthly objective.

[16] Partial months are averaged for that period. For example, the flow rate for April 1-14 would be averaged over 14 days. The 7-day running average shall not be less than 20% below the flow rate objective, with the exception of the April 15-May 15 pulse flow period when this restriction does not apply.

[17] The water year classification will be established using the best available estimate of the 60-20-20 San Joaquin Valley Water Year Hydrologic Classification (see page 24) at the 75% exceedence level. The higher flow objective applies when the 2 ppt isohaline (measured as 2.64 mmhos/cm surface salinity) is required to be at or west of Chipps Island.

[18] This time period may be varied based on real-time monitoring. One pulse, or two separate pulses of combined duration equal to the single pulse, should be scheduled to coincide with fish migration in San Joaquin River tributaries and the Delta. The time period for this 31-day flow requirement will be determined by the operations group established under the Framework Agreement.

[19] Plus up to an additional 28 TAF pulse/attraction flow during all water year types. The amount of additional water will be limited to that amount necessary to provide a monthly average flow of 2,000 cfs. The additional 28 TAF is not required in a critical year following a critical year. The pulse flow will be scheduled by the operations group established under the Framework Agreement.

[20] Combined export rate for this objective is defined as the Clifton Court Forebay inflow rate (minus actual Byron-Bethany Irrigation District diversions from Clifton Court Forebay) and the export rate of the Tracy pumping plant.

[21] This time period may be varied based on real-time monitoring and will coincide with the San Joaquin River pulse flow described in footnote 18. The time period for this 31-day export limit will be determined by the operations group established under the Framework Agreement.

[22] Maximum export rate is 1,500 cfs or 100% of 3-day running average of San Joaquin River flow at Vernalis, whichever is greater. This export restriction does not supersede the export restriction of 35% of Delta inflow. The more restrictive of these two objectives applies from April 15 to May 15. Variations to this maximum export rate are authorized if agreed to by the operations group established under the Framework Agreement. This flexibility is intended to result in no net water supply cost annually within the limits of the water quality and operational requirements of this plan. Variations may result from recommendations of agencies for protection of fish resources, including actions taken pursuant to the State and federal Endangered Species Act. Disputes within the operations group will be resolved by the CALFED policy group. Any agreement on variations will be effective immediately and will be presented to the Executive Director of the SWRCB. If the Executive Director does not object to the variations within 10 days, the variations will remain in effect.

[23] Percent of Delta inflow diverted is defined on page 25. For the calculation of maximum percent Delta inflow diverted, the export rate is a 3-day running average and the Delta inflow is a 14-day running average, except when the CVP or the SWP is making storage withdrawals for export, in which case both the export rate and the Delta inflow are 3-day running averages.

[24] The percent Delta inflow diverted values can be varied either up or down. Variations are authorized subject to the process described in footnote 22.

[25] If the best available estimate of the Eight River Index (described in footnote 13) for January is less than or equal to 1.0 MAF, the export limit for February is 45% of Delta inflow. If the best available estimate of the Eight River Index for January is greater than 1.5 MAF, the February export limit is 35% of Delta inflow. If the best available estimate of the Eight River Index for January is between 1.0 MAF and 1.5 MAF, the export limit for February will be set by the operations group established under the Framework Agreement within the range of 35% to 45%. Disputes within the operations group will be resolved by the CALFED policy group.

[26] For the November-January period, close Delta Cross Channel gates for up to a total of 45 days, as needed for the protection of fish. The timing of the gate closure will be determined by the operations group established under the Framework Agreement.

[27] For the May 21-June 15 period, close Delta Cross Channel gates for a total of 14 days. The timing of the gate closure shall be based on the need for the protection of fish and will be determined by the operations group established under the Framework Agreement. Variations in the number of days of gate closure are authorized if agreed to by the operations group established under the Framework Agreement. Variations shall result from recommendations from agencies for the protection of fish resources, including actions taken pursuant to the State and federal Endangered Species Acts. The process for the approval of variations shall be similar to that described in footnote 22.

FOOTNOTE 2 FOR TABLE 1 AND FOOTNOTE 3 FOR TABLES 2 AND 3

Sacramento Valley
Water Year Hydrologic Classification

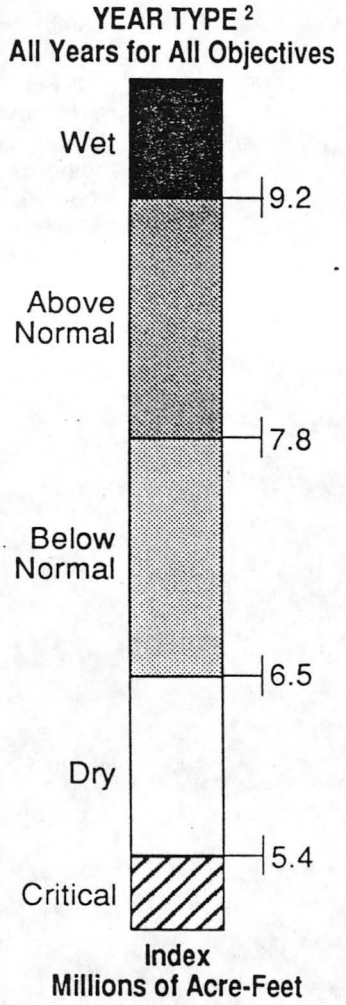
Year classification shall be determined by computation of the following equation:

INDEX = 0.4 * X + 0.3 * Y + 0.3 * Z

Where:
- X = Current year's April – July Sacramento Valley unimpaired runoff
- Y = Current October – March Sacramento Valley unimpaired runoff
- Z = Previous year's index [1]

The Sacramento Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

Classification	Index Millions of Acre-Feet (MAF)
Wet	Equal to or greater than 9.2
Above Normal	Greater than 7.8 and less than 9.2
Below Normal	Equal to or less than 7.8 and greater than 6.5
Dry	Equal to or less than 6.5 and greater than 5.4
Critical	Equal to or less than 5.4



[1] A cap of 10.0 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

[2] The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

FOOTNOTE 17 FOR TABLE 3

San Joaquin Valley
Water Year Hydrologic Classification

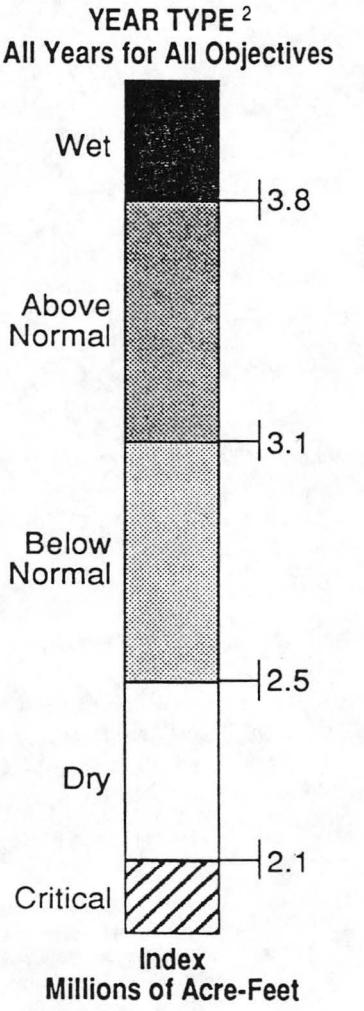
Year classification shall be determined by computation of the following equation:

INDEX = 0.6 * X + 0.2 * Y + 0.2 * Z

Where:
- X = Current year's April – July San Joaquin Valley unimpaired runoff
- Y = Current October – March San Joaquin Valley unimpaired runoff
- Z = Previous year's index [1]

The San Joaquin Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Stanislaus River, total flow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total flow to Exchequer Reservoir; San Joaquin River, total inflow to Millerton Lake. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

Classification	Index Millions of Acre-Feet (MAF)
Wet	Equal to or greater than 3.8
Above Normal	Greater than 3.1 and less than 3.8
Below Normal	Equal to or less than 3.1 and greater than 2.5
Dry	Equal to or less than 2.5 and greater than 2.1
Critical	Equal to or less than 2.1



[1] A cap of 4.5 MAF is placed on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

[2] The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

FOOTNOTES 11 AND 23 FOR TABLE 3

NDOI and PERCENT INFLOW DIVERTED [1]

The NDOI and the percent inflow diverted, as described in this footnote, shall be computed daily by the DWR and the USBR using the following formulas (all flows are in cfs):

NDOI = DELTA INFLOW - NET DELTA CONSUMPTIVE USE - DELTA EXPORTS

PERCENT INFLOW DIVERTED = (CCF + TPP) ÷ DELTA INFLOW

where *DELTA INFLOW = SAC + SRTP + YOLO + EAST + MISC + SJR*

SAC = Sacramento River at Freeport mean daily flow for the previous day; the 25-hour tidal cycle measurements from 12:00 midnight to 1:00 a.m. may be used instead.
SRTP = Sacramento Regional Treatment Plant average daily discharge for the previous week.
YOLO = Yolo Bypass mean daily flow for the previous day, which is equal to the flows from the Sacramento Weir, Fremont Weir, Cache Creek at Rumsey, and the South Fork of Putah Creek.
EAST = Eastside Streams mean daily flow for the previous day from the Mokelumne River at Woodbridge, Cosumnes River at Michigan Bar, and Calaveras River at Bellota.
MISC = Combined mean daily flow for the previous day of Bear Creek, Dry Creek, Stockton Diverting Canal, French Camp Slough, Marsh Creek, and Morrison Creek.
SJR = San Joaquin River flow at Vernalis, mean daily flow for the previous day.

where *NET DELTA CONSUMPTIVE USE = GDEPL - PREC*

GDEPL = Delta gross channel depletion for the previous day based on water year type using the DWR's latest Delta land use study.[2]
PREC = Real-time Delta precipitation runoff for the previous day estimated from stations within the Delta.

and where *DELTA EXPORTS* [3] *= CCF + TPP + CCC + NBA*

CCF = Clifton Court Forebay inflow for the current day.[4]
TPP = Tracy Pumping Plant pumping for the current day.
CCC = Contra Costa Canal pumping for the current day.
NBA = North Bay Aqueduct pumping for the current day.

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1 Not all of the Delta tributary streams are gaged and telemetered. When appropriate, other methods of estimating stream flows, such as correlations with precipitation or runoff from nearby streams, may be used instead.

2 The DWR is currently developing new channel depletion estimates. If these new estimates are not available, DAYFLOW channel depletion estimates shall be used.

3 The term "Delta Exports" is used only to calculate the NDOI. It is not intended to distinguish among the listed diversions with respect to eligibility for protection under the area of origin provisions of the California Water Code.

4 Actual Byron-Bethany Irrigation District withdrawals from Clifton Court Forebay shall be subtracted from Clifton Court Forebay inflow. (Byron-Bethany Irrigation District water use is incorporated into the GDEPL term.)

FOOTNOTE 14 FOR TABLE 3

TABLE A
Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location [a]

PMI [b] (TAF)	Chipps Island (Chipps Island Station D10)					PMI [b] (TAF)	Port Chicago (Port Chicago Station C14) [d]					PMI [b] (TAF)	Port Chicago (Port Chicago Station C14) [d]				
	FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN
≤ 500	0	0	0	0	0	0	0	0	0	0	0	5250	27	29	25	26	6
750	0	0	0	0	0	250	1	0	0	0	0	5500	27	29	26	28	9
1000	28 [c]	12	2	0	0	500	4	1	0	0	0	5750	27	29	27	28	13
1250	28	31	6	0	0	750	8	2	0	0	0	6000	27	29	27	29	16
1500	28	31	13	0	0	1000	12	4	0	0	0	6250	27	30	27	29	19
1750	28	31	20	0	0	1250	15	6	1	0	0	6500	27	30	28	30	22
2000	28	31	25	1	0	1500	18	9	1	0	0	6750	27	30	28	30	24
2250	28	31	27	3	0	1750	20	12	2	0	0	7000	27	30	28	30	26
2500	28	31	29	11	1	2000	21	15	4	0	0	7250	27	30	28	30	27
2750	28	31	29	20	2	2250	22	17	5	1	0	7500	27	30	29	30	28
3000	28	31	30	27	4	2500	23	19	8	1	0	7750	27	30	29	31	28
3250	28	31	30	29	8	2750	24	21	10	2	0	8000	27	30	29	31	29
3500	28	31	30	30	13	3000	25	23	12	4	0	8250	28	30	29	31	29
3750	28	31	30	31	18	3250	25	24	14	6	0	8500	28	30	29	31	29
4000	28	31	30	31	23	3500	25	25	16	9	0	8750	28	30	29	31	30
4250	28	31	30	31	25	3750	26	26	18	12	0	9000	28	30	29	31	30
4500	28	31	30	31	27	4000	26	27	20	15	0	9250	28	30	29	31	30
4750	28	31	30	31	28	4250	26	27	21	18	1	9500	28	31	29	31	30
5000	28	31	30	31	29	4500	26	28	23	21	2	9750	28	31	29	31	30
5250	28	31	30	31	29	4750	27	28	24	23	3	10000	28	31	30	31	30
≥ 5500	28	31	30	31	30	5000	27	28	25	25	4	>10000	28	31	30	31	30

[a] The requirement for number of days the maximum daily average electrical conductivity (EC) of 2.64 mmhos per centimeter (mmhos/cm) must be maintained at Chipps Island and Port Chicago can also be met with maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOIs of 11,400 cfs and 29,200 cfs, respectively. If salinity/flow objectives are met for a greater number of days than the requirements for any month, the excess days shall be applied to meeting the requirements for the following month. The number of days for values of the PMI between those specified in this table shall be determined by linear interpolation.

[b] PMI is the best available estimate of the previous month's Eight River Index. (Refer to Footnote 13 for Table 3 for a description of the Eight River Index.)

[c] When the PMI is between 800 TAF and 1000 TAF, the number of days the maximum daily average EC of 2.64 mmhos/cm (or maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOI of 11,400 cfs) must be maintained at Chipps Island in February is determined by linear interpolation between 0 and 28 days.

[d] This standard applies only in months when the average EC at Port Chicago during the 14 days immediately prior to the first day of the month is less than or equal to 2.64 mmhos/cm.

Appendix J

Biological Species of Concern

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APPENDIX J

Biological Species of Concern

J.1 INTRODUCTION

The federal Endangered Species Act requires federal agencies, in consultation with the Secretaries of the Interior and Commerce, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of the critical habitat of the species (50 CFR Part 402). For the purposes of this document, consultation procedures under section 7 of the Endangered Species Act may be consolidated with interagency cooperation procedures required by other statutes, such as the National Environmental Policy Act (NEPA) (50 CFR 402.6). Likewise, the California Endangered Species Act requires that each state lead agency consult with the California Department of Fish and Game to ensure that any action authorized, funded, or carried out by that state lead agency is not likely to jeopardize the continued existence of any endangered or threatened species (Fish and Game Code Section 2090).

This appendix presents information about a wide variety of special status species (i.e., listed, proposed or candidate threatened and endangered) and more common but important species of birds, fish, mammals, plants and reptiles. This information was obtained through informal consultation between federal and state resource agencies.

This appendix identifies the possible species of concern within the LTMS Planning Area. Section J.2 presents a list of listed, proposed, and candidate endangered and threatened species that may occur in the LTMS Planning Area or be affected by dredging or dredged material disposal. Section J.3 is the outcome of informal consultations among state and federal resource agencies to define potential effects of dredging and disposal activities on certain special status species and develop possible management strategies to avoid adverse impacts. If these tables are adopted through a formal programmatic consultation, any projects that meet the specified requirements would not be required to enter into project-specific formal consultation. Section J.4 discusses threatened and endangered and other special status species that could be impacted by upland/wetland reuse (UWR) projects. Any potential impacts associated with UWR projects would depend on the number and exact locations of such sites, which are not defined in this EIS/EIR. The effects on endangered species from the development of specific UWR sites are appropriately addressed in site-specific environmental reviews. However, some non-aquatic species that could be impacted by UWR projects are discussed in section J.4.

J.2 LISTING OF SPECIES (USFWS LETTER)

The U.S. Fish & Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) were asked to provide a list of special status species that could potentially occur in the LTMS Planning Area or that might be affected by dredging and disposal activities. A special status species is defined as any species that is listed, is a candidate for listing, or has been recommended by a federal agency for listing as threatened or endangered under the Endangered Species Act.

The resource agencies provided a list of special status species that have been found in the 12 counties surrounding the San Francisco Bay Estuary (see Table J-1). As discussed in Chapter 4, the Planning Area includes those areas where dredged material is likely to be used in upland areas, as well as San Francisco Bay west of Sherman Island and a corridor that stretches from the Golden Gate to the San Francisco Deep Ocean Disposal Site. While the Planning Area spans all of the 12 counties, there are many locations within each county where use of dredged material is not expected.

The LTMS agencies reviewed the list provided by USFWS to narrow the list of species to those that should be considered during site-specific environmental reviews of dredging-related facilities. This review was conducted using the CDFG's California Natural Diversity Database (CNDDB) and other reference material on the habitat and life history of species on the list. In many cases, species on the original list were found to be outside of the area where

Table J-1. Species of Concern

(page 1 of 8)

Common Name	Scientific Name	Status	Comments
Mammals			
Alameda Island mole	*Scapanus latimanus parvus*	FSC, SSC	No occurrences in CNDDB. *S. latimanus* habitat is soft soil in valleys and mountain meadows in several biotic communities from the Lower Sonoran to the Hudsonian life zones.
*Berkeley kangaroo rat	*Dipodomys heermanni berkeleyensis*	FSC	Habitat is >50'. Found in Briones Valley and east Oakland. (PE-LS1992).
*Fringed myotis bat	*Myotis thysanodes*	FSC	Upper Sonoran life zones in open woods. Range is all along Pacific coast.
*Greater western (California) mastiff bat	*Eumops perotis californicus*	FSC	Alameda (Tracy - cliffs), San Benito, and Mariposa counties south in arid/semiarid lowlands.
*Long-eared myotis bat	*Myotis evotis*	FSC	Mostly in woods in Upper Sonoran, Transition, and Canadian life zones. Pacific coast range and Sierra Nevada.
*Long-legged (hairy-winged) myotis bat	*Myotis volans*	FSC	Open forest in upper Sonoran and Transition life zones.
*Pacific western big-eared bat	*Plecotus townsendii townsendii*	FSC, SSC	Oak woodland, pasture, grassy hillsides. Petaluma River, Marin. (PE-LS1992)
*Point Reyes jumping mouse	*Zapus trinotatus orarius*	FSC, SSC	No occurrences in CNDDB. *Zapus trinotatus* found chiefly in meadows in the forests of redwood, fir, spruce, and hemlock. Range extends south from Washington to north of San Francisco Bay.
*Point Reyes mountain beaver	*Aplondontia rufa phaea*	FSC, SSC	Riparian stream habitat with dense vegetation - Drakes Bay & Double Point (Marin).
Riparian brush rabbit	*Sylvilagus bachmani riparius*	FPE, SSC	Habitat is valley floor riparian and floodplain - only in San Joaquin and Stanislaus counties (Ripon Quad).
Salt marsh harvest mouse	*Reithrodontomys raviventris*	FE, SE	Tidal salicornia (salt and brackish marsh) habitat; 129 occurrences.
Salt marsh vagrant shrew	*Sorex vagrans halicoetes*	FSC, SSC	Tidal salt marsh (Redwood Point, Mountain View, San Quentin, Richmond).
*San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	FSC, SSC	No occurrences in CNDDB. *N. fuscipes* range does not include San Francisco Bay area or Central Valley, according to Ingles.
*San Joaquin pocket mouse	*Perognathus inoratus*	FSC	Grassy or weedy fine-textured soil in the Lower and Upper Sonoran life zones of the San Joaquin and Salinas valleys.
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, SE	Grazed grassland, agricultural land, valley/coastal mountain interface zone. Primarily northwest San Joaquin valley.
San Joaquin Valley (riparian) woodrat	*Neotoma fuscipes riparia*	FPE, SSC	Valley floor, riparian floodplain in San Joaquin (Corral Hollow Creek).
*Small-footed myotis bat	*Myotis ciliolabrum* (formerly *M. subulatus*)	FSC	Arid uplands.
Suisun ornate shrew	*Sorex ornatus sinuosus*	FSC, SSC	Grizzly Island, Mare Island, Napa, Benicia (PE-LS1987). *S. ornatus* habitat is streams and brush-covered hillsides.
*Yuma myotis bat	*Myotis yumanensis*	FSC	Chiefly open woods, suboreal zones throughout state.

Table J-1. Species of Concern

(page 2 of 8)

Common Name	Scientific Name	Status	Comments
Birds			
Alameda (South Bay) song sparrow	*Melospiza melodia pusilla*	FSC	Salt marsh habitat.
Aleutian Canada goose	*Branta canadensis leucopareia*	FT	Wetlands, grasslands, cultivated fields.
American peregrine falcon	*Falco peregrinus anatum*	FE, SE	High cliffs, banks, dunes, near water (Oakland airport).
Bald eagle	*Haliaeetus leucocephalus*	FT, SE	Coast, rivers, large lakes in open areas.
*Bell's sage sparrow	*Amphispiza belli belli*	FSC, SSC	Coast of California.
Black rail	*Laterallus jamaicensis*	FSC, ST	Salt, brackish, and freshwater marsh habitat. Pickleweed habitat.
California clapper rail	*Rallus longirostris obsoletus*	FE, SE	Salt and brackish marshes; fresh water marshes in southwest.
California least tern	*Sterna antillarum* (= *ablifrons*) *browni*	FE, SE	Salt marshes and salt ponds, open flat beaches, river and lake margins, near shallow water.
California brown pelican	*Pelecanus occidentalis californicus*	FE, SE	Open coastal habitat.
*Ferruginous hawk	*Buteo regalis*	FSC, SSC	Open country, usually prairies, plains, badlands.
*Harlequin duck	*Histrionicus histrionicus*	FSC, SSC	Coastal islets, winters along North American coasts.
*Little willow flycatcher	*Empidonas traillii brewsteri*	FSC, SE	
*Marbled murrelet	*Brachyramphus marmoratus*	FT, SE	Conifer forests near coast, inland lakes, coastal waters, nests inland; feeds on crustaceans and fish.
*Mountain plover	*Charadrius montanus*	FSC, SSC	
*Northern spotted owl	*Strix occidentalis caurina*	FT	Old growth forest above 200 feet.
Salt marsh common yellowthroat	*Geothylpis trichas sinuosa*	FSC, SSC	Fresh, salt, and brackish water marshes.
San Pablo (Suisun) song sparrow	*Melospiza melodia samuelis*	FSC, SSC	Marsh habitat.
Swainson's hawk	*Buteo swainsoni*	FSC, ST	Migratory, wintering in Delta, rarely nesting.
Tricolored blackbird	*Agelaius tricolor*	FSC, SSC	Fresh water marshes, croplands, nest near/over water.
Western burrowing owl	*Athene cunicularia hypugea*	FSC, SSC	
Western snowy plover	*Charadrius alexandrinus nivosus*	FT, SSC	Sandy beaches on marine and estuarine shores.
White-faced ibis	*Plegadis chihi*	FSC, SSC	Marshes, swamps, ponds, rivers, mostly freshwater habitat.
Reptiles			
*Alameda whipsnake (striped racer)	*Masticophis lateralis euryxanthus*	FPE, ST	Oak woodlands, canyons, hillsides above 500 feet. East Oakland and Contra Costa County areas (Mt. Diablo/Las Trampas).
California horned lizard	*Phrynosoma coronatum frontale*	FSC, SSC	Grazed grassland in San Joaquin/Tracy area; 3 of 5 occurrences in San Joaquin delta area.
San Francisco garter snake	*Thamnophis sirtalis tetrataenia*	FE, SE	Mostly freshwater pond/reservoir habitat, treefrog diet, in hills of San Mateo County (CNDDB). Also at low elevation near San Francisco Airport.
*San Joaquin whipsnake	*Masticophis flagellum ruddocki*	FSC, SSC	Zero occurrences in CNDDB.
Giant garter snake	*Thamnophis gigas*	FT, ST	Ten of 94 occurrences in Delta area - Jersey and Liberty islands; occurs Fresno to Sacramento.
Green turtle	*Chelonia mydas*	FT	Rare visitor to Central California waters.
Leatherback turtle	*Dermochelys coriacea*	FE	Rare visitor to Central California waters.
Loggerhead turtle	*Caretta caretta*	FT	Rare visitor to Central California waters.
Northwestern pond turtle	*Clemmys marmorata marmorata*	FSC, SSC	Riparian creek-sides, floodplains, estuarine environments.

Table J-1. Species of Concern
(page 3 of 8)

Common Name	Scientific Name	Status	Comments
Reptiles (continued)			
Olive (Pacific) Ridley sea turtle	*Lepidochelys olivacea*	FT	Rare visitor to Central California waters.
*Silvery legless lizard	*Anniella pulchra pulchra*	FSC, SSC	Zero occurrences in CNDDB.
*Southwestern pond turtle	*Clemmys marmorata pallida*	FSC, SSC	Oak woodland, riparian habitat all outside area (Southern California).
Amphibians			
California red-legged frog	*Rana aurora draytoni*	FT, SSC	Grazed grasslands, ponds.
California tiger salamander	*Ambystoma californiense*	FC, SSC	Stock ponds in annual grasslands of valley-foothill hardwood habitats. Sonoma, Petaluma River area.
*Foothill yellow-legged frog	*Rana boylii*	FSC, SSC	Mostly in foothills (Austin Creek, Russian River, Rohnert Park - Sonoma; and Saint Helena - Napa County).
*Northern red-legged frog	*Rana aurora aurora*	FSC, SSC	Bog habitat in redwood forest; all 19 occurrences in Humboldt area.
*Western spadefoot toad	*Sacphiopus hammondi*	FSC, SSC	Pond habitat.
Fish			
Coho salmon	*Oncorhyncus kisutch*	FT	Historically known from San Pablo Bay tributaries.
Delta smelt	*Hypomesus transpacificus*	FT, ST	
Green sturgeon	*Acipenser medirostris*	FSC, SSC	
Kern Brook lamprey	*Lampetra hubbsi*	FSC, SSC	
Longfin smelt	*Spirinchus thaleichthys*	FSC, SSC	
Pacific lamprey	*Lampetra tridentata*	FSC	
River lamprey	*Lampetra ayresi*	FSC, SSC	
Sacramento splittail	*Pogonichthys macrolepidotus*	FPT, SSC	
Steelhead trout (coastal central California)	*Oncorhyncus mykiss*	FT	Includes all SF Bay steelhead except Central Valley (Sacramento, San Joaquin rivers) stocks.
Steelhead trout (Central Valley)	*Oncorhyncus mykiss*	FPE	Includes steelhead of Sacramento, San Joaquin rivers, still under review by NMFS.
Tidewater goby	*Eucyglogobius newberryi*	FE, SSC	
Spring-run chinook salmon	*Oncorhyncus tshawytscha*	FPE	
Fall/late fall-run chinook salmon	*Oncorhyncus tshawytscha*	FPT	
Winter-run chinook salmon	*Oncorhyncus tshawytscha*	FE, SSC	
Invertebrates			
*Antioch cophuran robberfly	*Cophura hurdi*	FSC	One specimen known - Antioch dunes (LS-1939).
*Antioch Dunes anthicid beetle	*Anthicus antiochensis*	FSC	Antioch dunes preserve area. PE (LS-1953). No appropriate sites for rehandling or disposal facilities.
*Antioch efferian robberfly	*Efferia antiochi*	FSC	One specimen known - Antioch dunes (LS-1959).
*Antioch mutillid wasp	*Myrmosula pacifica*	FSC	One specimen known - Antioch dunes (LS-1952).
*Antioch sphecid wasp	*Philanthus nasalis*	FSC	Antioch dunes, Sacramento/San Joaquin Delta area. No appropriate sites for rehandling or disposal facilities.
*Bay checkerspot butterfly	*Euphydryas editha bayensis*	FT	Found on native grasslands, outcrops of serpentine soil - hillsides of San Mateo county and inland, east of Mount Diablo.

Table J-1. Species of Concern

(page 4 of 8)

Common Name	Scientific Name	Status	Comments
Invertebrates (continued)			
*Bridges' coast range shoulderband snail	*Helminthoglpta nickliniana bridgesi*	FSC	Open hillsides with tall grass/weeds in Contra Costa and Alameda counties. Found at Marsh Creek Canyon near Mount Diablo
*Bumblebee scarab beetle	*Lichnanthe ursina*	FSC	Habitat is sand dunes along outer coast.
California freshwater shrimp	*Syncaris pacifica*	FE, SE	Fourteen occurrences - all in Napa, Sonoma, Marin counties.
*Callippe silverspot butterfly	*Speyeria callippe callippe*	FPE	Hillsides on San Bruno Mountain, >200 feet.
Ciervo aegialian scarab beetle	*Aegialia concinna*	FC1	Sandy substrates (one occurrence).
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	Zero occurrences in CNDDB.
Curved-foot hygrotus diving beetle	*Hygrotus curvipes*	FSC	One occurrence in aquatic, shallow muddy pool at Oakley (east of Antioch).
Delta green ground beetle	*Elaphrus viridus*	FT	Grassland and vernal pool habitat. Two occurrences in Solano County (Dozier and Elmira Quads).
*Globose dune beetle	*Coelus globsus*	FSC	Eight occurrences all in Southern California.
*Hurd's metapogon robberfly	*Metapogon hurdi*	FSC	Zero occurrences in CNDDB.
Lange's metalmark butterfly	*Apodemia mormo langei*	FE	Antioch sand dunes.
*Leech's skyline diving beetle	*Hydroporous leechi*	FSC	Zero occurrences in CNDDB.
*Longhorn fairy shrimp	*Branchinecta longiantenna*	FE	Freshwater pond habitat. Two of seven occurrences in Alameda & Contra Costa counties. Wind energy development threatens.
Marin elfin butterfly	*Incisalia mossii*	FSC	Not found in CNDDB.
Middlekauf's shieldback katydid	*Idiostatus middlekauf*	FSC	One occurrence in Antioch dunes.
*Mission blue butterfly	*Icaricia icariodes missionensis*	FE	Occur on slopes and hillsides in San Mateo and San Francisco counties.
*Molestan blister beetle	*Lytta molesta*	FSC	Two occurrences – one southwest of Modesto (Westley), other Sequoia National Park.
*Molestan blister beetle	*Lytta molesta*	FSC	Seasonally found in Central Valley from Contra Costa to Kern counties; one of 11 occurrences in Brentwood.
Myrtle's silverspot butterfly	*Speyeria zerene myrtleae*	FE	Zero occurrences in CNDDB.
Opler's longhorn moth	*Adella oplerella*	FSC	Zero occurrences in CNDDB.
Ricksecker's water scavenger beetle	*Hydrochara ricksecke*	FSC	One of 4 occurrences in Jepson Prairie Preserve (not much known).
Sacramento anthicid beetle	*Anthicus sacramento*	FSC	Found in sand among dredge spoil.
*San Bruno elfin butterfly	*Incisalia mossii bayensis*	FE	Found on hillsides and ridgetops; San Mateo County: San Bruno Mountains, Whiting ridge.
San Francisco lacewing	*Nothochrysa californica*	FSC	Zero occurrences in CNDDB.
San Joaquin dune beetle	*Coelus gracilis*	FSC	One of 5 occurrences in Antioch Dunes (1974) - rest in Fresno and Kings canyon.
Sonoma arctic skipper	*Carterocephalus palaemon* ssp.	FSC	Zero occurrences in CNDDB.
*Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Riparian habitat, mostly higher elevations. Of 124 occurrences, several in Yolo and San Joaquin counties.
*Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Vernal pool habitat - upland. Twelve occurrences - Madera to Sacramento counties.
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	One of 4 occurrences at Kesterson, confluence of Salt Slough and San Joaquin River.

Table J-1. Species of Concern

(page 5 of 8)

Common Name	Scientific Name	Status	Comments
	Plants		
Adobe lily	*Fritillaria pluriflora*	FSC	
*Adobe sanicle	*Sanicula maritima*	FSC	Last seen in Potrero Hills, San Francisco (>250 feet) before 1900. Other 10 occurrences found from Monterey south.
Alkali milk-vetch	*Astragalus tener* var. *tener*	FSC	Found at elevations 0 to 50 feet in Union City, San Francisco, Napa, and Montezuma Wetlands site.
Antioch Dunes evening-primrose	*Oenothera deltoides* ssp. *howellii*	FE, SE	Grassy dune habitat. Found at Antioch Dunes and Jersey Island (8 occurrences).
*Baker's manzanita	*Arctostaphylos bakeri* ssp. *bakeri*	SR	Serpentine, chaparral habitat (Camp Meeker, Sonoma) (8 occurrences).
Baker's stickyseed (Sonoma sunshine)	*Blennosperma bakeri*	FE, SE	Vernal pools and swales. Excellent site near Sears Point (others southwest of Santa Rosa, Sebastapol).
*Beach layia	*Layia carnosa*	FE, SE	Point Reyes area >30 feet (PE). Other 22 occurrences found in Humboldt, Monterey and Drakes Bay.
*Brewer's dwarf-flax (western-flax)	*Hesperolinon breweri*	FSC	Chaparral, foothill grasslands, often rocky serpentine soil (near Antioch).
Brittlescale	*Atriplex depressa*	FSC	Riparian salt marsh habitat. Two of 41 occurrences in area, Dozier (Solano) and Montezuma Slough.
Burke's goldfields	*Lasthenia burkei*	FE	Vernal pools, Sonoma County.
California sea blite	*Suaeda californica*	FE, SE	Salt flats and marsh habitat (upper littoral). Two of 10 occurrences: Yacht harbor-Palo Alto, west of Albany.
Caper-fruited tropidocarpum	*Tropidocarpum capparideum*	FSC	Two of 12 occurrences in delta (Clifton Court Forebay & Union Island).
Carquinez goldenbush	*Isocoma arguta*	FSC	Habitat is low benches adjacent to seasonal drainage (5 occurrences). Found in Montezuma Wetlands/Bird Island area.
*Coast lily	*Lilium maritimum*	FSC	All 48 occurrences on north coast (Mendocino, Sonoma counties).
Colusa grass	*Neostapfia colusana*	FT, SE	Alkaline saline playa, vernal pool habitat - several of 22 occurrences near Olcott Lake, Jepson Prairie Preserve & Davis area.
*Compact cobweb thistle	*Cirsium occidentale* var. *compactum*	FSC	Twelve occurrences all in San Luis Obispo area.
Contra Costa goldfields	*Lasthenia conjugens*	FE	Vernal pools in open grassy areas, seasonal wetlands habitat. Found at Grizzly Island, Solano County.
Contra Costa wallflower	*Erysimum capitatum* ssp. *angustatum*	FE, SE	Not in CNDDB.
*Crystal Springs lessingia	*Lessingia arachnoidea*	FSC	Zero occurrences in CNDDB.
*Delta coyote-thistle	*Eryngium racemosum*	FSC	Delta area south of Stockton.
Delta tule-pea	*Lathyrus jepsonii* var. *jepsonii*	FSC	Freshwater and brackish marshes, < 5 feet elevation. (Brannan Island, Fagan's Marsh, Edgerly Island, Coon Island, Napa [CW])
*Diablo rock-rose	*Helianthella castanea*	FSC	Upland forest, chaparral. Hillsides of Oakland, San Francisco, Mount Diablo (300-700 feet) (15 occurrences).
Diamond-petaled poppy	*Eschscholzia rhombipetala*	FSC	One occurrence of 6 in Antioch (rest San Luis Obispo area). Nothing of Antioch site known.
Ferris's milk-vetch	*Astragalus tener* var. *ferrisiae*	FSC	One of 10 occurrences in vernal meadow southeast of Dixon (rest Northern California).
*Fountain thistle	*Cirsium fontinale* var. *fontinale*	FE, SE	Crystal Springs Reservoir, San Mateo.

Table J-1. Species of Concern

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Common Name	Scientific Name	Status	Comments
Plants (continued)			
Fragrant fritillary	*Fritillaria liliacea*	FSC	Located >40 feet elevation in coastal prairie, open grassland, including Jepson Prairie Preserve. (Point Reyes, Pulgas Ridge, Potrero Hills [San Francisco], Mills College [Oakland]).
(?)Gairdner's yampah	*Perideridia gairdneri* ssp. *gairdneri*	FSC	Zero occurrences in CNDDB.
Heartscale	*Atriplex cordulata*	FSC	Alkaline meadow at edge of marsh. Approximately 5 of 40 occurrences in area (Dozier, Solano). Most in south.
*Hickman's cinquefoil	*Potentilla hickmanii*	FPE	Ocean bluff habitat (1 of 3 sites Half Moon Bay - rest Monterey).
Hispid bird's-beak	*Cordylanthus mollis* ssp. *hispidus*	FSC	Tidal zone of Suisun Marsh; also alkaline grassland and alkaline scrub from Central Valley to Southern California.
Hoover's button-celery	*Eryngium aristulatum* var. *hooveri*	FSC	Zero occurrences in CNDDB.
*Interior California larkspur	*Delphinium californicum* ssp. *interius*	FSC	Zero occurrences in CNDDB.
*Kellogg's (wedge-leaved) horkelia	*Horkelia cuneata* ssp. *sericea*	FSC	Coniferous forests, coastal scrub.
*Large-flowered fiddleneck	*Amsinckia grandiflora*	FE, SE	Annual upland grassland. LLL and Black Diamond Mine are sites.
Legenere	*Legenere limosa*	FSC	Vernal pool 2.4 miles south of Napa Hospital, and east side of Highway 29 (Suscol Ridge) at around 40 feet elevation.
*Little mousetail	*Myosurus minimus* ssp. *apus*	FSC	All 17 occurrences Southern California.
*Marin checkermallow	*Sidalcea hickmanii* ssp. *viridis*	FSC	Zero occurrences in CNDDB.
*Marin dwarf-flax (western-flax)	*Hesperolinon congestum*	FT	Grassy serpentine slopes of Marin, Petaluma River, Crystal Springs Road, San Mateo; Presidio, San Francisco; found at elevations >140 feet.
Marin knotweed	*Polygonum marinense*	FSC	Napa River, Cuttings Wharf.
Marsh sandwort	*Arenaria paludicola*	FE, SE	One occurrence at Presidio Swamp, Fort Point (San Francisco).
Mason's lilaeopsis	*Lilaeopsis masonii*	FSC, SR	Fresh, brackish, and salt water marsh vegetation in littoral zone with strong tidal influence. Mare Island is saltiest location, also found along Napa River (south of Rotto Landing).
*Mission Delores campion	*Silene verecunda* ssp. *verecunda*	FSC	Hillsides and dunes greater than 100 feet in elevation, San Francisco location.
*Montara manzanita	*Arctostaphylos montaraensis*	FSC	Coastal scrub (>100 feet), San Bruno Mountain and Montara Mountain.
*Most beautiful (uncommon) jewelflower	*Streptanthus albidus* ssp. *peramoenus*	FSC	Serpentine grasslands in Santa Rosa hills and Oakland hills (800 feet).
Mount Diablo bird's beak	*Cordylanthus nidularius*	FSC	Not in CNDDB.
*Mount Diablo jewelflower	*Streptanthus hispidus*	FSC	Hillsides on Mount Diablo.
*Mount Diablo phacelia	*Phacelia phacelioides*	FSC	Rocky, serpentine slopes on Mount Diablo.
*Mount Tamalpais thistle	*Cirsium hydrophilum* var. *vasevi*	FSC	Hillsides of Mount Tamalpais.
Northcoast (Point Reyes) bird's-beak	*Cordylanthus maritimus* ssp. *palustris*	FSC	38 occurrences mostly Drakes Bay & north, also Alameda Marsh, Tiburon, Palo Alto.
*Northcoast semaphore grass	*Pleuropogon hooverianus*	FSC	Grassy flats, under redwood trees, mostly north of area.
*Northern California black walnut	*Juglans californica* var. *hindsii*	FSC	Riparian forests, riparian woodlands.
*Pallid manzanita (Alameda manzanita)	*Arctostaphylos pallida*	FPT, SE	Oakland, Berkeley hills, >1,100 feet (LS-1991).
*Palmate-bracted bird's-beak	*Cordylanthus palmatus*	FE, SE	Alkali sink habitat from Fresno, south, to Woodland, north.

Table J-1. Species of Concern

(page 7 of 8)

Common Name	Scientific Name	Status	Comments
Plants (continued)			
Papoose spikeweed (Congdon's tarplant)	*Hemizonia parryi* ssp. *congdonii*	FSC	Grasslands (<100m) (LS-1986). 1 of 24 occurrences - Benicia along I-680, rest in Santa Clara and south.
*Point Reyes horkelia	*Horkelia marinensis*	FSC	Located on Point Reyes peninsula (>40 feet).
*Presidio clarkia	*Clarkia franciscana*	FE, SE	Coastal scrub/grasslands in Presidio, San Francisco and Oakland hills (>75 feet in elevation).
*Presidio manzanita	*Arctostaphylos hookeri* ssp. *ravenii*	FE, SE	Serpentine slopes of South San Francisco and Presidio (PE, LS-1989) (7 occurrences).
*Recurved larkspur	*Delphinium recurvatum*	FSC	Alkaline soils and swales. Two of 21 occurrences around Clifton Court Forebay, rest in Southern California.
Robust spineflower	*Chorizanthe robusta*	FE	Coastal dune/scrub (30-150 feet). Alameda, Colma (San Francisco).
*Rock sanicle	*Sanicula saxatilis*	FSC	Talus slopes below chaparral, Mount Diablo and Lick Observatory.
*Sacramento Orcutt grass	*Orcuttia viscida*	FPE	Vernal pool, grasslands. Eight occurrences mostly Buffalo Creek, Sacramento.
*San Bruno Mountain manzanita	*Arctosphylos imbricata*	FSC	Brushy slopes of San Bruno Mountain (>700 feet) (4 occurrences).
*San Francisco gumplant	*Grindelia hirsutula* var. *maritima*	FSC	Cliffy coastal scrub plant community, open slopes in San Francisco (>100 feet) (15 occurrences).
*San Francisco lessingia	*Lessingia germanorum*	FPE	Found at elevations >80 feet in Daly City and the Presidio area.
San Francisco Bay spineflower	*Chorizanthe cuspidata* var. *cuspidata*	FSC	Zero occurrences in CNDDB.
*San Francisco manzanita	*Arctostaphylos hookeri* ssp. *franciscana*	FSC	Serpentine slopes (>300 feet). Last seen 1942, Presidio Ave.
*San Francisco owl's clover	*Triphysaria floribunda*	FSC	Found at elevations >100 feet at Point Reyes National Seashore, San Bruno Mountain, Lake Merced, and the Presidio.
*San Francisco popcornflower	*Plagiobothrys diffusus*	FSC	Found at elevations >200 feet in Presidio. Last seen - 1933.
*San Mateo thornmint	*Acanthomintha duttonii*	FE, SE	Found at Crystal Springs Reservoir.
San Mateo tree lupine	*Lupinus arboreus* var. *eximius*	FSC	Not in CNDDB.
*San Mateo woolly sunflower	*Eriophyllum latilobum*	FE, SE	Grassy hillsides in San Mateo between I-280 and Merner Road (2 occurrences).
*Santa Cruz microseris	*Microseris (Stebbinoseris) decipiens*	FSC	All 16 occurrences in Santa Cruz County.
*Santa Cruz tarweed	*Holocarpha macradenia*	FC, SE	Uplands: coastal, prairie, foothill, grassland. Most 39 occurrences in Santa Cruz County.
Sebastopol meadow foam	*Limnanthes vinculaus*	FE	Vernal pools, Sonoma County.
Showy Indian clover	*Trifolium amoenum*	FPE	Found at elevations 20-65 feet, Napa Junction and Buchli Station Road (LS-1952).
*Slough thistle	*Cirsium crassicaule*	FSC	Two sites near San Joaquin River (rest of 17 occurrences in Kern County).
Soft bird's beak	*Cordylanthus mollis* ssp. *mollis*	FE	Coastal salt marsh habitat. Point Pinole Regional Shoreline (Contra Costa County), Jersey Island, Grizzly Island.
*Sonoma ceanothus	*Ceanothus sonomensis*	FSC	Southwest-facing slopes in Sonoma (15 occurrences).
*Sonoma spineflower	*Chorizanthe valida*	FE, SE	Present at Point Reyes National Seashore >40 feet.

Table J-1. Species of Concern

(page 8 of 8)

Common Name	Scientific Name	Status	Comments
Plants (continued)			
*South Bay clarkia	*Clarkia concinna* ssp. *automixa*	FSC	Zero occurrences in CNDDB.
Suisun Marsh aster	*Aster lentus*	FSC	Nearshore marsh vegetation, grows along bank or shore in tidally influenced coastal and valley freshwater marshes. Northeast of Fagan Slough, Jersey Island.
Suisun thistle	*Cirsium hydrophilum* var. *hydrophilum*	FE	Dense salt marsh vegetation, Grizzly Island.
*Tamalpais lessingia	*Lessingia micradenia* var. *micradenia*	FSC	Zero occurrences in CNDDB.
*Tamalpais manzanita	*Arctostaphylos hookeri* ssp. *montana*	FSC	Serpentine slopes of Mount Tamalpais.
*Tamalpais streptanthus	*Streptanthus batrachopus*	FSC	Hillsides, ridges of Mount Tamalpais.
*Tiburon jewelflower	*Streptanthus niger*	FE, SE	Serpentine outcrops, cliffs, grasslands along Tiburon ridge.
Tiburon mariposa lily	*Calochortus tiburonensis*	FT, ST	Serpentine grassland habitat - one occurrence.
Tiburon paintbrush	*Castilleja affinis* ssp. *neglecta*	FE	Serpentine grassland habitat. Six occurrences from Napa (American Canyon) to Tiburon.
Tiburon tarweed	*Hemizonia multicaulis* ssp. *vernalis*	FSC	Not in CNDDB.
*Two-carpeled dwarf-flax	*Hesperolinon bicarpellatum*	FSC	Zero occurrences in CNDDB.
*Valley sagittaria (Sanford's arrowhead)	*Sagittaria sanfordii*	FSC	Vernal marsh and muddy slough habitat (south and north of Central Valley - too far east of area).
Valley spearscale (San Joaquin saltbush)	*Atriplex joaquiniana*	FSC	Coastal prairie, alkaline-saline flat (Montezuma area). Also northeast of Slaughterhouse Point, Napa River.
*White-rayed pentachaeta	*Pentachaeta bellidiflora*	FE, SE	Grassy slopes in Marin, Greenbrae, and Larkspur and east edge of San Bruno Mountain.

Key:

*	Indicates species not in the LTMS Planning Area.
FE:	Federally listed Endangered
FT:	Federally listed Threatened
FC:	Federal Candidate
FPE:	Federally proposed for listing as Endangered
FPT:	Federally proposed for listing as Threatened
FSC:	Federal Species of Concern (former candidate)
SE:	State-listed Endangered
ST:	State-listed Threatened
SR:	State-listed Rare
SSC:	State-listed Species of Special Concern
PE:	Presumed Extinct
CNDDB:	California Natural Diversity Database
LS 1992:	Last seen 1992

dredged material is likely to be used and/or have not been observed in the region for several decades. The results of this review are noted on the list of species shown in Table J-1. Updated lists were provided by the USFWS in November 1997. These lists were reviewed for any new species that could be affected within the Planning Area, and appropriate additions made to Table J-1. The state and federal regulatory status as of December 1997 is also provided for each species in the table. Species that are not likely to be affected by the proposed policies are noted with an asterisk (*) in Table J-1.

J.3 FISH HABITAT AND ENDANGERED SPECIES — MATRICES OF CONCERNS RELATED TO DREDGING AND DISPOSAL

Since 1993, federal and state lead agencies involved in the development of the LTMS EIS/EIR have been informally consulting with the USFWS, the National Marine Fisheries Service (NMFS), and the CDFG to identify the species of concern located within the LTMS Planning Area. The purpose of these consultations was to provide the LTMS agencies, the resource agencies, and the dredging community a set of common guidelines to avoid adverse impacts on species of concern from dredging and disposal activities, and to establish a more predictable regulatory environment for dredging and aquatic disposal.

The participating agencies evaluated the dredging and aquatic disposal activities in the Bay and developed a list of sensitive species that could be adversely affected by such activities. (The LTMS agencies have not prepared a similar list for species of concern related to development of upland/wetland reuse [UWR] sites. Any potential impacts would depend on the number and exact locations of such sites, which are not defined in this EIS/EIR. The effects on endangered species from the development of specific UWR sites are appropriately addressed in site-specific environmental reviews. However, some non-aquatic species that could be impacted by UWR projects are discussed in section J.4.) This list currently includes the following species: Winter-run chinook salmon, Delta smelt, Sacramento splittail, longfin smelt, Pacific herring, Dungeness crab, steelhead trout, coho salmon, recreational marine fishes, California least tern, California clapper rail, western snowy plover, California brown pelican, and salt marsh harvest mouse.

The agencies identified the potential impacts to the sensitive species during dredging and aquatic disposal and the critical locations of the species within the Bay during different life stages. Dredging and disposal operations may affect water circulation patterns and degrade water quality by increasing concentrations of suspended particulates and contaminants, increasing sedimentation rates, and reducing dissolved oxygen. These physical and chemical changes can affect the respiration, feeding, spawning, and migration of sensitive fish and invertebrate (Dungeness crab) species, as well as the survival of their early (egg through juvenile) life stages. Larval and juvenile stages in particular are vulnerable to entrainment in dredging equipment. Dredging and disposal operations could eliminate or degrade adjacent marsh and mudflat habitats that sensitive bird and mammal species depend on. Finally, the disturbance associated with dredging and disposal activities may cause sensitive bird species to avoid or abandon important foraging or resting sites.

From this information, the agencies developed the following three tables (J-2, J-3, and J-4), which summarize the agencies' conclusions and describe proposed restrictions that affect the timing and design of dredging and disposal projects. The tables outline time periods during the year when dredging and aquatic disposal activities can occur without affecting sensitive species. The tables also indicate the appropriate times when the agencies must be consulted under the Endangered Species Act.

The three subjects covered by the tables are:

Table J-2: Areas and Times of Restricted DREDGING Activity

Table J-3: Areas and Times of Restricted DISPOSAL Activity

Table J-4: Legend for Tables J-2 and J-3, Consultation and Permit Requirements

The tables provide an administrative tool to make decisions about sensitive species. It is meant to be a flexible tool, subject to change as the state or federal governments list new species as endangered or threatened or remove species

from the current list, or as new information is gathered on species that will refine the requirements for protection. The tables will be revised as needed and will evolve with the LTMS for the Bay Area. While the intent of the LTMS EIS/EIR is to establish a strategy for sediment disposal, the matrix has been expanded to include dredging activities as well. As jointly agreed upon by the resource agencies, expansion of this framework will directly benefit the dredging community.

Table J-2 Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

Table J-2 presents the resource agencies' analysis of the concerns for special status species related to dredging activities.

At the critical locations and within the restricted periods defined in Table J-2, dredging is not allowed unless dredgers consult with the resource agencies and approval is obtained. In cases where species of concern are not present and not expected to be present, normal dredging during these restricted periods may be approved on a case-by-case, limited basis by the appropriate agencies. In cases where the species of concern are present, the use of special mitigation measures may also enable dredging during restricted periods without undue adverse effects. The mitigation measures are noted as consultation and permit requirements. These requirements are explained in Table J-4.

For each species of concern, Table J-2 presents:

- A ranking of the species' status;
- Critical locations where dredging may affect the species;
- Potential impacts of dredging on the species;
- Recommended restrictions and consultation/permit requirements (explained in Table J-4) to avoid adverse impacts; and
- Period during which recommended actions are necessary.

This information was developed through informal consultation among the resource agencies as follows.

Species Ranking

Species were ranked based on their status in the Estuary. Not all of the species listed in the table are federally or state listed as endangered or threatened, and therefore are not offered the same level of protection under the Endangered Species Act. Yet, resource agencies identified the need to address these specific species in the matrix due to potential impacts upon the species' recreational and commercial value and their ecological function. Definition of species' ranks is provided in Table J-4.

Critical Location

The agencies have identified the critical locations where dredging activities are likely to disrupt the species of concern. The critical areas identified in Table J-2 are drawn from the entire LTMS Planning Area. In addition, areas outside of the planning area in the Delta are included. Restrictions noted for these areas are suggested and could be superseded based on consultation between the resource agencies and other parties.

Table J-2. Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

(page 1 of 4)

Species	*Rank (1)*	*Critical Location*	*Potential Impacts*	*Dredging Restriction (2)*	*Period of Restriction*
Chinook Salmon (ADULTS)	1	Pinole Shoal (San Pablo Bay), Suisun Bay channel	Interference with migration; degradation of water quality	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	January 1 - May 31
		East of Sherman Island, along migratory corridors to and from the Sacramento River	Interference with migration; degradation of water quality	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	November 1 - May 15
Chinook Salmon (JUVENILES)	1	SF Bay Bridge upstream to Sherman Island, including sloughs	Direct habitat loss or degradation; water quality degradation; interference with foraging or food resources; entrainment by dredge	Restrict dredging in these areas when species is present. Otherwise, see Consultation and Permit requirements: A, B (re. entrainment); C, D (re. habitat loss); and E (re. habitat/water quality degradation).	January 1 - May 31
		East of Sherman Island, along migratory corridors to and from the Sacramento River	Direct habitat loss or degradation; water quality degradation; interference with foraging or food resources; entrainment by dredge	Restrict dredging in these areas when species is present. Otherwise, see Consultation and Permit requirements: A, B (re. entrainment); C, D (re. habitat loss); and E (re. habitat/water quality degradation).	October 1 - May 31
Steelhead Trout	1	SF Bay Bridge upstream to Sherman Island, including sloughs	Interference with migration; degradation of water quality; direct habitat loss or degradation; interference with foraging or food resources	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	January 1 - May 31
		Napa River, Petaluma River, Sonoma Creek	Habitat degradation; adverse effects on life stages	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	October 15 - June 15

Table J-2. Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

(page 2 of 4)

Species	*Rank (1)*	*Critical Location*	*Potential Impacts*	*Dredging Restriction (2)*	*Period of Restriction*
Steelhead Trout	1	East of Sherman Island, along migratory corridors to and from the Sacramento River	Interference with migration; degradation of water quality; direct habitat loss or degradation; interference with foraging or food resources	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	October 1 - May 31
Delta Smelt	1	Suisun Bay including marshes, from Carquinez Bridge east to Collinsville	Direct entrainment by dredge; spawning ground habitat degradation	NOTE: Formal ESA Consultation is REQUIRED for any dredging project in this area, at any time.	January 1 - December 31 (all year)
		Southern Delta (see Figure J-1)	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas when species is present. Otherwise, see Consultation and Permit requirements: A, B, (re. entrainment); E (re. habitat degradation).	February 1 - June 30
		Central Delta (see Figure J-1)	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with FWS and CDFG is REQUIRED.	December 1 - June 30
		Northern Delta (see Figure J-1)	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with FWS and CDFG is REQUIRED.	September 15 - July 31
Sacramento Splittail (JUVENILES)	2	North San Pablo Bay, Napa and Petaluma Rivers	Direct entrainment by dredge	Restrict dredging in these areas during period of restriction. Otherwise, individual conferencing (consultation if species is listed as endangered) with FWS and CDFG is REQUIRED.	February 1 - July 31
		Suisun Bay including marshes, from Carquinez Bridge east to Collinsville	Direct entrainment by dredge	NOTE: ESA conferencing (consultation if species is listed as endangered) is REQUIRED for any dredging project in this area, at any time.	January 1 - December 31 (all year)

Table J-2. Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

(page 3 of 4)

Species	*Rank (1)*	*Critical Location*	*Potential Impacts*	*Dredging Restriction (2)*	*Period of Restriction*
Sacramento Splittail (JUVENILES)	2	Delta	Direct entrainment by dredge	Restrict dredging in these areas during period of restriction. Otherwise, conferencing (consultation if species is listed as endangered) with FWS and CDFG is REQUIRED.	December 1 - July 31
Longfin Smelt	3	San Pablo Bay	Direct entrainment of juveniles by dredge	Restrict dredging in these areas as much as possible during period of restriction.	February 1 - July 31
		Suisun Bay including marshes, from Carquinez Bridge east to Collinsville	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas as much as possible during period of restriction.	December 1 - August 31
		Western (= Northern) Delta (see Figure J-1)	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas as much as possible during period of restriction.	December 1 - February 28
Pacific Herring	3	Historical spawning areas in Central San Francisco Bay and Richardson Bay (see Figure J-2)	Interference with spawning activity; reduced hatching success and larval survival	Restrict dredging in these areas when species is present; see Consultation and Permit requirement G.	December 1 - February 28
Recreational marine fishes	3	None for dredging	None for dredging	None for dredging	N/A
Dungeness Crab	4	Shallow berthing areas and channels, North San Francisco Bay and San Pablo Bay	Direct entrainment by dredge of early juvenile stages	Consultation and Permit requirements A and B apply when juveniles are present	May 1 - June 30
California Least Tern	1	All eelgrass beds from San Francisco Bay east through Suisun Marsh (Figure J-3)	Loss of eelgrass bed foraging habitat	Consultation with FWS and CDFG is REQUIRED for any direct or indirect impacts to this habitat	January 1 - December 31 (all year)
		Coastal waters and sloughs within 1 mile of the coastline from Berkeley Marina south through San Lorenzo Creek.	Turbidity effects on foraging success	Restrict dredging within 3 miles of active nesting areas during Tern foraging period, and when prey species are at critical life stages (see Consultation and Permit Requirement G).	April 1 - August 31

Table J-2. Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

(page 4 of 4)

Species	*Rank (1)*	*Critical Location*	*Potential Impacts*	*Dredging Restriction (2)*	*Period of Restriction*
California Least Tern	1	Coastal waters, sloughs, and salt ponds in South San Francisco Bay south of the Highway 92 bridge.	Turbidity effects on foraging success	Restrict dredging when foraging Tern are present (see Consultation and Permit Requirement G).	June 1 - September 7
California Clapper Rail	1	In and adjacent to tidal salt marshes throughout San Francisco Bay and Suisun Marsh	Destruction of breeding and nesting habitat, and/or loss of upland refugial cover	Consultation with FWS and CDFG is REQUIRED for projects that will result in direct habitat loss; see Consultation and Permit requirements D and F.	January 1 - December 31 (all year)
		In and adjacent to tidal salt marshes throughout San Francisco Bay and Suisun Marsh	Disturbance during breeding season (without direct habitat loss)	Restrict dredging in these areas when species is present; see Consultation and Permit requirements D and F.	February 1 - August 31
Snowy Plover	1	South San Francisco Bay, San Pablo Bay	Loss of mudflat foraging habitat (new-work projects)	NOTE: Consultation is REQUIRED with FWS and CDFG for any new-work projects that will cause a direct loss of mudflat habitat in these areas (LTMS working to conclude "programmatic consultation" for inclusion in a future LTMS Management Plan).	January 1 - December 31 (all year)
California Brown Pelican	1	Significant roost sites at: Alameda breakwater; Angel Island; Brooks Island; and Sisters Island	Disturbance of individuals at large communal roosts	No dredging within 300 feet of known roost sites when species is present.	April 1 - November 30
Salt Marsh Harvest Mouse	1	In and adjacent to diked and tidal salt marshes throughout San Francisco Bay and Suisun Marsh east to Collinsville	Loss of salt marsh habitat and adjacent upland refugial cover	NOTE: Consultation is REQUIRED with FWS and CDFG for any project that will cause a direct loss of salt marsh habitat in these areas.	January 1 - December 31 (all year)

Notes: 1. Refer to Table J-4 for definitions of species' ranks and for consultation and permit requirements identified under *Dredging Restriction*.

2. Dredging permits will not be issued during periods of restriction unless approved via a project-specific consultation conducted by the applicant, except as noted under the specified consultation and permit requirements (Table J-4).

Table J-3. Areas and Times of Restricted DISPOSAL Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

(page 1 of 3)

Species	*Rank (1)*	*Critical Location*	*Potential Impacts*	*DISPOSAL Restriction (2)*	*Period of Restriction (3)*
Chinook Salmon (ADULTS)	1	SF-8 (Suisun Bay disposal site), and SF-9 (Carquinez Strait disposal site)	Degradation of water quality; interference with migration	Minimize disposal at these sites during period of restriction	January 1 - May 31
		Aquatic disposal east of Sherman Island, along migratory corridors to and from the Sacramento River	Degradation of water quality; interference with foraging habitat and food resources	Restrict disposal to the extent feasible in these areas during period of restriction. Otherwise, Consultation and Permit Requirements A, B, C, D and E apply.	November 1 - May 15
Chinook Salmon (JUVENILES)	1	SF-8 (Suisun Bay disposal site), and SF-9 (Carquinez Strait disposal site)	Degradation of water quality; interference with foraging habitat and food resources	Minimize disposal at these sites during period of restriction.	January 1 - May 31
		East of Sherman Island, along migratory corridors to and from the Sacramento River	Degradation of water quality; interference with foraging habitat and food resources	Restrict disposal to the extent feasible in these areas during period of restriction. Otherwise, Consultation and Permit Requirements A, B, C, D and E apply.	October 1 - May 31
Steelhead Trout	1	SF-9, SF-10 (San Pablo Bay), & SF-11 (Alcatraz) disposal sites	Degradation of water quality; interference with foraging habitat and food resources	Minimize disposal at these sites during period of restriction.	January 1 - May 31
		East of Sherman Island, along migratory corridors to and from the Sacramento River	Degradation of water quality; interference with foraging habitat and food resources	Restrict disposal to the extent feasible in these areas during period of restriction. Otherwise, Consultation and Permit Requirements A, B, C, D and E apply.	October 1 - May 31
Delta Smelt	1	All Delta critical habitat (see Figure J-4)	Spawning ground habitat degradation	Formal Consultation with FWS and CDFG is REQUIRED for any aquatic disposal outside of levees in this area, at any time. No restrictions on upland disposal relative to this species.	January 1 - December 31 (all year)
Sacramento Splittail	2	SF-8, SF-9, SF-10, SF-11, and SF-12 (San Francisco Bar Channel) disposal sites	None	None	N/A

Table J-3. Areas and Times of Restricted DISPOSAL Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

(page 2 of 3)

Species	*Rank (1)*	*Critical Location*	*Potential Impacts*	*DISPOSAL Restriction (2)*	*Period of Restriction*
Sacramento Splittail	2	North San Pablo Bay, Napa and Petaluma Rivers, Suisun Bay including marshes, and Delta (all), other than SF-8, SF-9, SF-10, SF-11, SF-12	Habitat degradation	Formal conferencing (consultation if listed) with FWS and CDFG is REQUIRED for any aquatic disposal outboard of levees in this area, at any time. No restrictions on upland disposal relative to this species.	January 1 - December 31 (all year)
Longfin Smelt	3	San Pablo Bay (other than SF-10) and Suisun Bay (other than SF-8) including marshes from Benicia Bridge east to Collinsville, and Western (= Northern) Delta (see Figure J-1)	Spawning ground habitat degradation	Minimize disposal in these areas as much as possible.	January 1 - December 31 (all year)
Pacific Herring	3	None	None	None	N/A
Recreational marine fishes	3	SF-10 and SF-11 disposal sites	Habitat degradation	Minimize disposal at these sites during peak sportfishing season.	May 1 - October 31
Dungeness Crab	4	None	None	None	N/A
California Least Tern	1	All eelgrass beds from San Francisco Bay east through Suisun Bay (see Figure J-3)	Potential direct habitat loss of eelgrass habitat associated with in-Bay disposal	None at SF-8, SF-9, SF-10, SF-11, SF-12. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect eelgrass habitat.	January 1 - December 31 (all year)
Delta Smelt	1	Suisun Bay including marshes, from Carquinez Bridge east to Collinsville (other than SF-8)	Rearing and limited spawning habitat degradation	Formal Consultation with FWS and CDFG is REQUIRED for any aquatic disposal in this area, at any time.	January 1 - December 31 (all year)
	1	Coastal waters, sloughs, and salt ponds within 3 miles of nesting area at NAS Alameda (see Consultation and Permit Requirement I for other possible restriction areas)	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-12. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)

Table J-3. Areas and Times of Restricted DISPOSAL Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

(page 3 of 3)

Species	*Rank (1)*	*Critical Location*	*Potential Impacts*	*DISPOSAL Restriction (2)*	*Period of Restriction*
Delta Smelt (continued)	1	Coastal waters, sloughs, and salt ponds in South San Francisco Bay	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-12. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)
California Clapper Rail	1	In and adjacent to tidal salt marshes throughout San Francisco Bay and Suisun Marsh	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-12. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)
Western Snowy Plover	1	South San Francisco Bay, San Pablo Bay	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-12. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)
California Brown Pelican	1	Significant roost sites at: Alameda breakwater; Angel Island; Brooks Island; and Sisters Island	Disturbance of individuals at large communal roosts	No disposal within 300 feet of known roost sites when species is present	April 1 - November 30
Salt Marsh Harvest Mouse	1	In and adjacent to tidal salt marshes throughout San Francisco Bay and Suisun Marsh east to Collinsville	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-12. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)

Notes: 1. Refer to Table J-4 for definitions of species' ranks and for consultation and permit requirements identified under *Disposal Restriction*.

2. Disposal permits will not be issued during periods of restriction unless approved via a project-specific consultation conducted by the applicant, except as noted under the specified consultation and permit requirements (Table J-4). At sites where disposal is to be minimized, the LTMS agencies will establish lower disposal volume limits as appropriate and will encourage disposal during times of the year outside of the restricted period.

Table J-4. Legend for Tables J-2 and J-3

Species Ranking	*Consultation and Permit Requirements (Dredging and Disposal Restrictions)*	
1. Federal or state-listed endangered or threatened species. Consultation is required with USFWS, and possibly CDFG, if dredging or disposal is proposed during the period of restricted activity in critical locations.	A. Clamshell dredging shall be required whenever practicable in areas within 250 feet of a shoreline OR in depths less than 20 feet.	E. Best Management Practices to reduce turbidity (including silt curtains or other physical or operational measures) shall be required for these projects.
2. Species proposed for listing under the federal ESA, candidate for listing under the California ESA, or CDFG Species of Special Concern for which impacts from dredging or disposal could pose significant problems to existing or future population levels.	B. If hydraulic dredging in depths less than 20 feet, dredge head must be maintained at or below substrate surface. Head may not be raised more than 3 feet off bottom for flushing; shut off pump when raising head more than 3 feet off bottom (e.g., at end of dredging).	F. Restriction applies within the identified critical period, and within 250 feet of emergent vegetation. USFWS and CDFG must be contacted in these circumstances.
3. Status reviews are being conducted. Species with established recreational or commercial value or ecological function for which impacts from dredging or disposal may pose significant problems to existing or future population levels.	C. For new-work projects where eelgrass will be unavoidably affected, a compensatory mitigation plan must be submitted and approved by USFWS, NMFS, CDFG, USACE, and EPA prior to permitting.	G. If dredging must be conducted during this period, CDFG must be contacted and the permittee must provide an observer to identify herring spawning activity. Dredging must stop immediately if herring are within 200 m of the work site, and may not until hatch-out is complete (approximately 10-14 days).
4. Species with established recreational or commercial value or ecological function for which impacts from dredging or disposal should pose only minor problems to existing or future population levels.	D. If project will cause unavoidable direct or indirect effects to submerged or emergent aquatic vegetation, compensatory mitigation at 3:1 ratio is required for lost functions and values. Other proposed ratios require consultation with USFWS and CDFG.	H. Other historically used nesting areas include Bair Island, Oakland Airport, Alvarado salt ponds, PG&E Pittsburg, and Port Chicago. Contact USFWS to determine whether species may be present; if present, dredging restriction in Table applies.

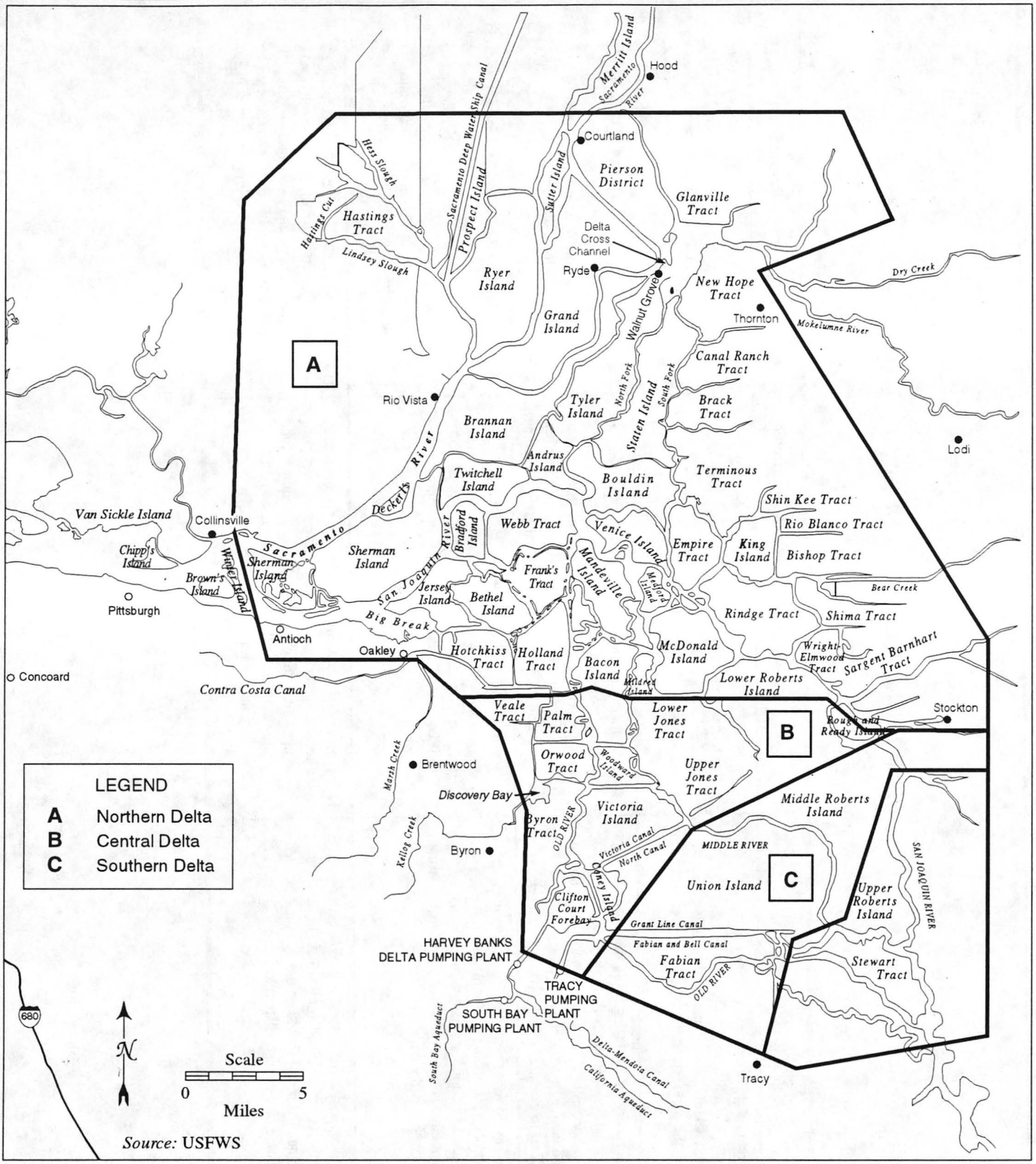


Figure J-1. Delta Subareas Where Dredging Restrictions to Protect Delta Smelt Apply (see Table J-2)

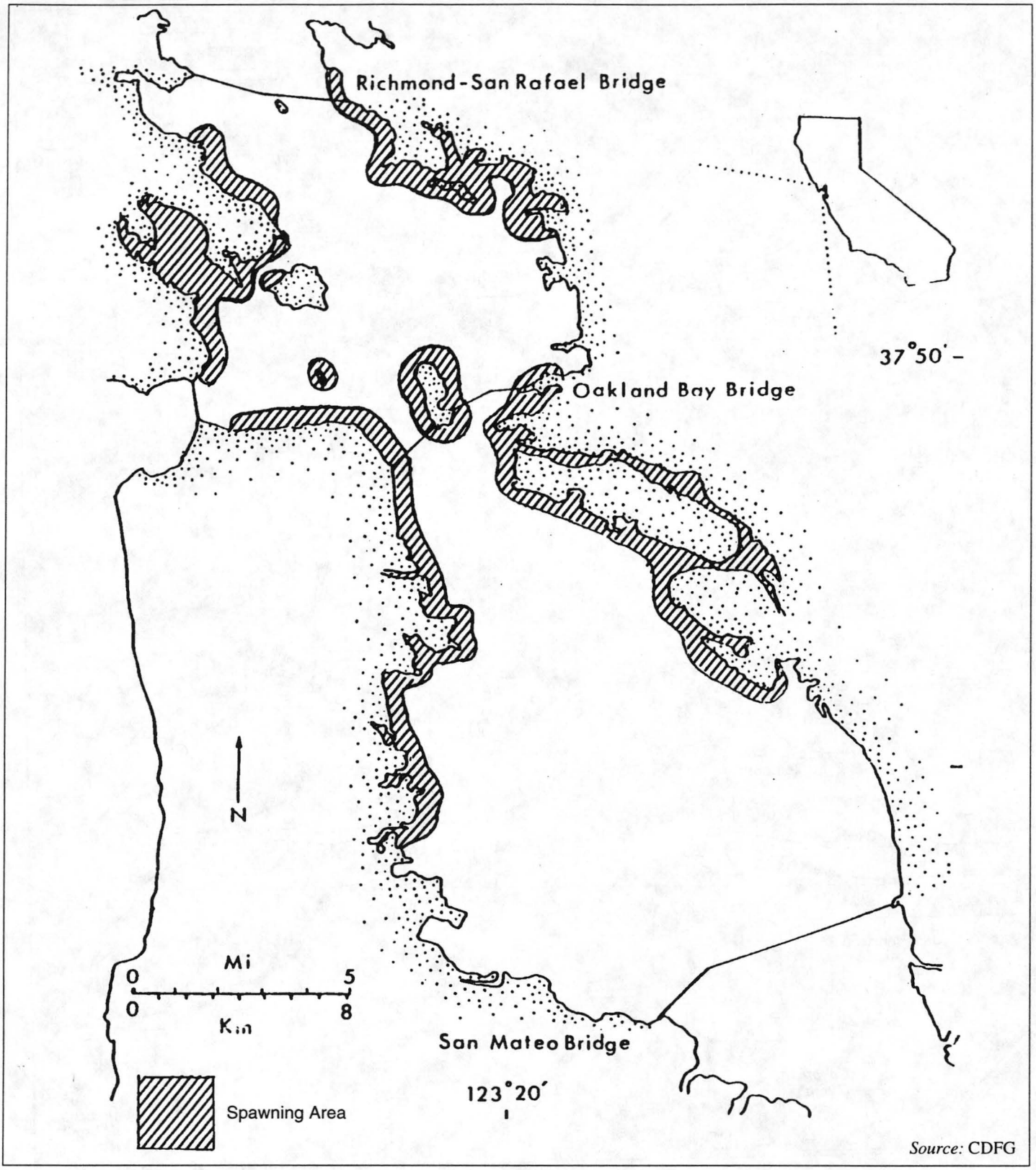


Figure J-2. Traditional Pacific Herring Spawning Areas in Central San Francisco Bay

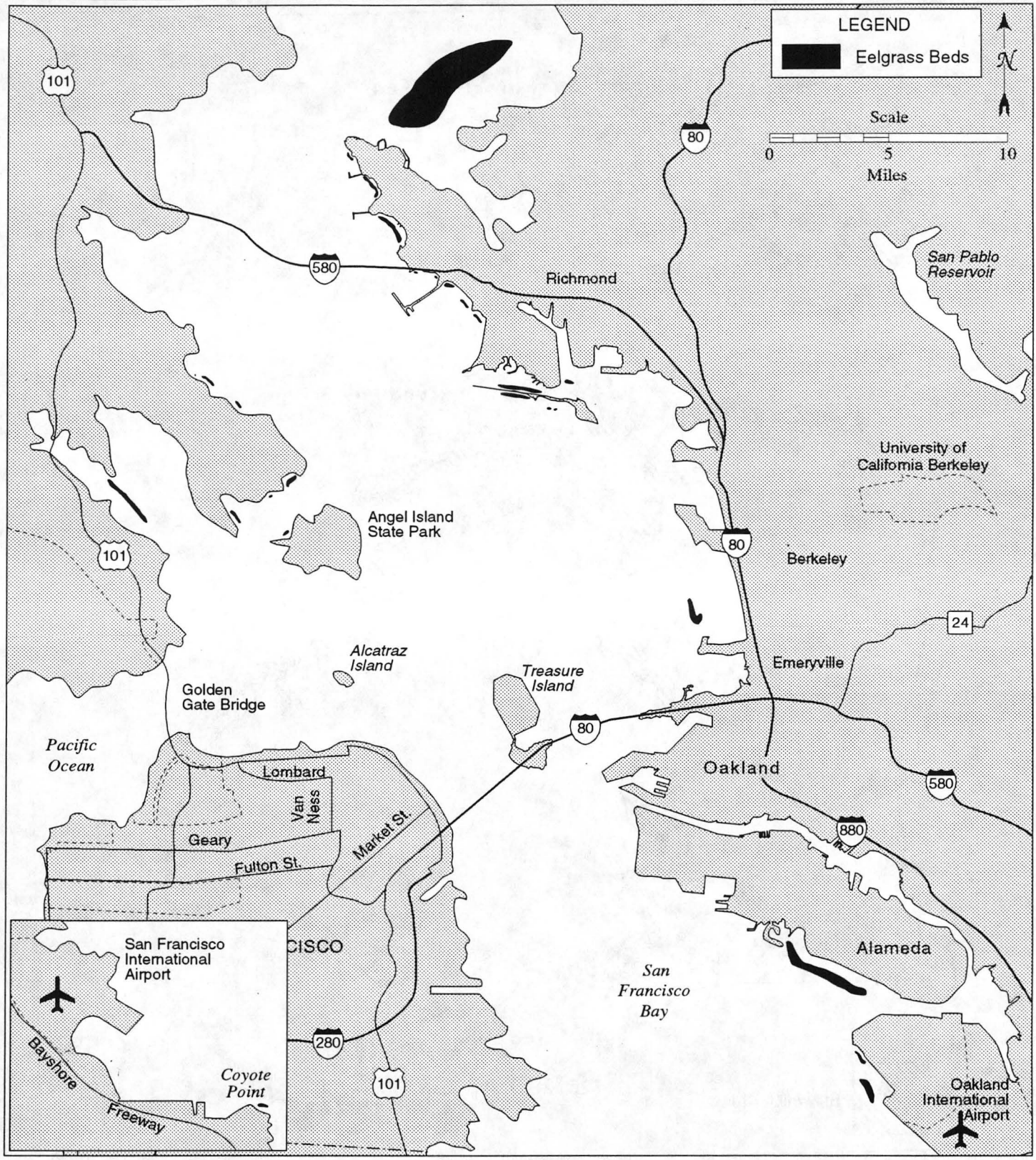


Figure J-3. Eelgrass Beds in San Francisco Bay

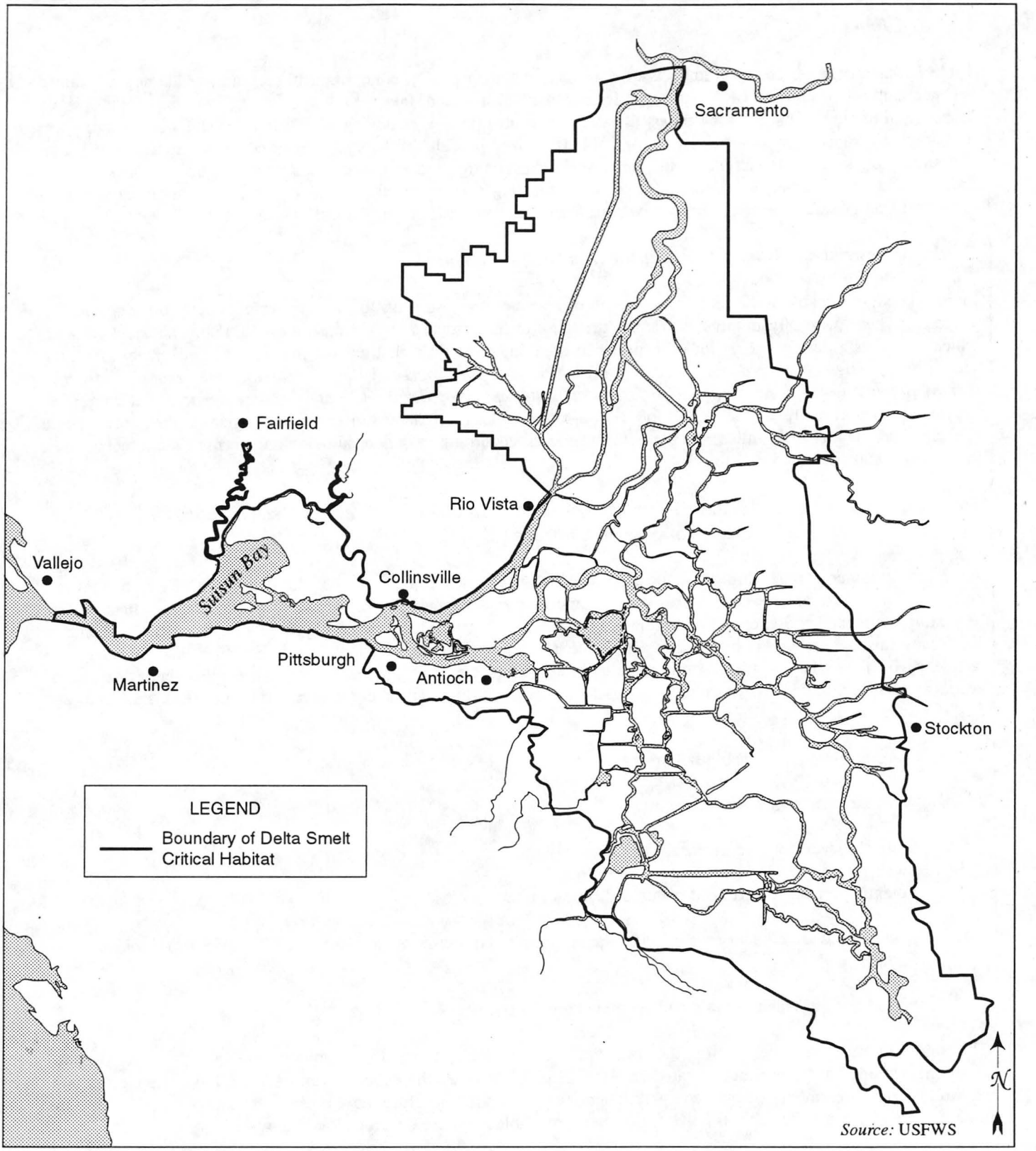


Figure J-4. Delta Smelt Critical Habitat

Potential Impact

Table J-2 identifies the potential impacts of dredging on the species of concern. Impacts include the degradation of water quality; entrainment of larval/juvenile stages of fishes and invertebrates in dredging equipment; loss or degradation of aquatic habitat for various life stages (larval, juvenile, spawning adult); interference with foraging and loss of food resources or important foraging habitats utilized by fish and bird species of concern; reduced survival of egg and larval stages; interference with the respiration, feeding, and migration of sensitive fishes; disturbance that results in the abandonment of nesting, foraging, or roosting sites by sensitive bird species; and the potential loss of salt marsh habitat and adjacent refugial cover for the endangered salt marsh harvest mouse.

Dredging Restrictions/Consultation and Permit Requirements

In the "Dredging Restriction" column, the resource agencies propose ways to avoid adverseimpacts on the species of concern. These primarily involve restricting dredging in the critical area for the time outlined in the next column, which identifies a designated period of time when dredging activity in that critical location may adversely affect the species. *Activities conducted outside the restricted period can proceed without contacting the resource agencies, thereby precluding the need to conduct a formal consultation with federal and state resource agencies.* If an activity is proposed within the restricted period for federal- or state-listed threatened or endangered species, then the resource agencies must be contacted unless the project can proceed according to the consultation and permit requirements noted in Table J-2 and explained in Table J-4.

Table J-3 Areas and Times of Restricted DISPOSAL Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

A significant concern regarding the disposal of dredged material at aquatic sites is the disruption of fish habitat and fish avoidance of the areas near disposal sites. Some species are much more sensitive to habitat changes than others. Migrating threatened and endangered species, for example, are accorded a much higher level of protection. Some of the issues raised here are partly addressed in the alternatives analysis in the LTMS EIS/EIR that considers the frequency of disposal in relation to the potential risk for changing fish habitat beyond the disposal site. Additional concerns surround the effects of aquatic disposal on species that inhabit or use adjacent tidal marshes, mudflats, and shallow water areas.

For each species of concern, Table J-3 presents:

- A ranking of the species' status;
- Critical location where disposal may affect the species;
- Potential impacts of dredged material disposal on the species;
- Recommended restrictions and consultation/permit requirements (explained in Table J-4) to avoid adverse impacts; and
- Period during which recommended actions are necessary.

The table presents the results of the informal consultation among the resource agencies. Many of the recommendations have been incorporated into the EIS/EIR through the development of the LTMS alternatives, the environmental assessment, or the companion policies, and are therefore no longer outstanding issues. Species rankings are as defined in Table J-4. Other elements of Table J-3 were developed as follows:

Critical Location

The agencies have identified the critical locations where disposal activities are likely to disrupt the species of concern. The critical areas identified in Table J-3 are drawn from the entire LTMS Planning Area, but some areas are not

suitable for aquatic disposal (e.g., within the Delta east of Sherman Island), so the recommended actions are not necessarily appropriate in those areas. In addition, areas in the Delta that are outside the Planning Area are included. Restrictions noted for these areas are suggested and could be superseded based on consultation between the resource agencies and other parties.

Potential Impact

Table J-3 identifies the potential impacts of dredged material disposal on the species of concern. Impacts in many respects are similar to those associated with dredging and include the degradation of water quality; loss or degradation of aquatic habitat for various life stages (larval, juvenile, spawning adult); interference with foraging and loss of food resources or important foraging habitats utilized by fish and bird species of concern; interference with the respiration, feeding, and migration of sensitive fishes; disturbance that results in the abandonment of nesting, foraging, or roosting sites by sensitive bird species; and the potential loss of salt marsh habitat and adjacent refugial cover for the endangered salt marsh harvest mouse.

Disposal Restrictions/Consultation and Permit Requirements

In the "Disposal Restriction" column, the resource agencies propose restricting disposal in the critical area for the time outlined in the next column. Permit and Construction Requirements are also identified (see Table J-4 for explanations). The final column identifies a designated period of time when aquatic disposal activity in that critical location may adversely affect the species. *Activities conducted outside the restricted period can proceed without contacting the resource agencies, thereby precluding the need to conduct a formal consultation with federal and state resource agencies.* If an activity is proposed within the restricted period for federal or state-listed threatened or endangered species, then the appropriate agencies must be contacted, unless the project can proceed according to the specified consultation and permit requirements.

J.4 THREATENED AND ENDANGERED AND OTHER SPECIAL STATUS SPECIES THAT COULD BE AFFECTED AT UPLAND/WETLAND REUSE SITES

Introduction

The preceding section focused on special status species that could be affected by dredging and disposal projects in the aquatic environment. This section describes some of the special-status species that could potentially be affected by implementation of the proposed policy as it relates to upland/wetland reuse (UWR) projects. The LTMS agencies have not prepared a comprehensive list of special status species related to the development of UWR sites. Any potential impacts would depend on the number and exact locations of such sites, which are not defined in this EIS/EIR. The effects on endangered species from the development of specific UWR sites are appropriately addressed in site-specific environmental reviews. However, some non-aquatic species that could be impacted by UWR projects are discussed below.

Evaluation of the proposed action alternatives and regional biological resources indicates that changes to the landscape will affect the following types of species: (1) species associated with the Baylands of the Planning Area; (2) species associated with the levees of the Delta; and (3) species associated with the following habitats of the Planning Area: intertidal mudflats, rocky shores, seasonal wetlands, tidal marshes, and riparian habitat.

Previous studies have identified 44 species of animals and 32 species of plants that meet the criteria of special status (including federally listed species, federally listed candidate species, California Species of Special Concern, and species designated by the state of California as Fully Protected) and that occur within the Planning Area (San Francisco Estuary Project [SFEP] 1992c; CNDDB 1995; SFEP 1991b). Of these special status species, the following state and/or federally listed threatened and endangered animal species were determined to occur within the upland habitat restoration areas that could be affected by implementation of the proposed action alternatives in this EIS/EIR: Aleutian Canada goose, American peregrine falcon, California black rail, California brown pelican, California

clapper rail, California least tern, giant garter snake, salt marsh harvest mouse, Swainson's hawk, valley elderberry longhorn beetle, and western snowy plover.

Threatened and Endangered Animals

The following discussion focuses on the regional populations of these species, including biology, abundance and seasonal occurrence in the Planning Area, and relevant planning efforts for the recovery of these species.

Aleutian Canada Goose. The Aleutian Canada goose nests on the Aleutian Islands and winters primarily in the Central Valley. Key wintering and staging areas have been identified in California, including Castle Rock in Del Norte County, Butte Sink Wildlife Refuge in the Sacramento Valley, the Faith and Maples ranches in Stanislaus County, and the Los Banos area of Merced County. These birds have been sighted at several locations within the Planning Area, including the Delta and South Bay (SFEP 1992c; Wetlands Research Associates, Inc. 1995). With the exception of a few birds that winter on Grizzly Island in Suisun Marsh and a few local reservoirs in the East Bay, most observations in the Planning Area are usually flocks moving through the area.

American Peregrine Falcon. The peregrine falcon is a wide ranging bird that can occur throughout western North America. Peregrine falcons are not known to nest within the Planning Area, but this area is considered a major wintering area for raptors including the peregrine falcon. The wetland habitats of the Planning Area support large flocks of waterfowl and shorebirds in the region that provide an abundant prey base.

California Black Rail. The California black rail is a year-long resident of the tidal marshes of the San Francisco Bay and Sacramento-San Joaquin Delta. These rails are highly secretive and generally located only by call. Recent surveys have located populations in Suisun Marsh, on instream islands within the Delta, and at various sites surrounding San Pablo Bay (Napa River, Petaluma River, and Novato Creek) (CNDDB 1995). Within these marshes, the high marsh habitat is critical for nesting habitat and high tide refugia. Without such refugia, black rails are taken during high tides by several predatory species, including northern harriers, black-shouldered kites, egrets, herons, red fox, and feral cats (SFEP 1992c). Within the south and central portions of the Bay, black rail breeding and nesting has not been confirmed, however, black rails have been located in these areas during the winter when this species is more widely distributed. The population trend for California black rail is one of decline, due to losses of habitat (SFEP 1992c).

California Brown Pelican. The California brown pelican nests on the Channel Islands and disperses to coastal locations throughout the Pacific Coast during the non-breeding season. These post-breeding season roost sites generally occur in association with breakwaters, jetties, and/or estuarine environments. The San Francisco Bay has generally been recognized as an important post-breeding roosting area for brown pelicans, however no specific sites have been identified of critical importance in the California brown pelican recovery plan. The trend for populations nesting in California is one of decline (USFWS 1983).

California Clapper Rail. The California clapper rail is a year-round resident of tidal salt marshes surrounding the San Francisco Bay. Within the Planning Area, clapper rails have been observed in the South Bay, Suisun Marsh, and from San Pablo Bay along the Petaluma and Napa rivers. These populations are generally limited by reductions in habitat and predation due to the introduced red fox (USFWS 1984). The population trend for California clapper rails was declining until 1992. Based on the results of less than 2 years of red fox control, the trend can presently be descried as stable/declining (Wetlands Research Associates, Inc. 1995).

California Least Tern. The California least tern is a migratory shorebird that nests in a widely discontinuous range extending from San Francisco Bay southward through San Diego to Baja California. The least tern usually nests in opens expanses of light colored substrate, including sand, dirt, pavement, and/or dried mud in close proximity to foraging areas with an abundance of small fish. Within the Planning Area, birds arrive in April and May to begin courtship and defend nest sites. Nesting colonies are known from Alameda Island, Bay Farm Island, Coyote Hills, Bair Island, Alameda Naval Air Station, Oakland Airport, Alvarado Salt Ponds, Redwood City Salt Ponds, Leslie salt ponds and the PG&E Plant in Pittsburg (USFWS 1980; CNDDB 1995; Wetlands Research Associates, Inc. 1995). Some of these nest sites are historical sites that are not currently used. In addition, important post breeding sites have

been identified for the California least tern in the Planning Area. These sites including Charleston Slough, Moffet Field, Braumberg salt ponds, and Leslie salt ponds in Santa Clara County (CNDDB 1995). The recovery plan for this species focuses on protection of existing nesting sites and foraging habitat, restoration of former nesting habitat and degraded coastal wetlands, creation of nesting islands, and protection of nesting colonies from excessive human disturbance and predation (USFWS 1980).

Giant Garter Snake. The giant garter snake is a permanent resident of freshwater marsh and aquatic habitats. Within the Planning Area, populations are known from the western and eastern portions of the Delta and the northern portions of Suisun Marsh. These snakes are active from March to October and forage for small fish, tadpoles, frogs, and other prey in marshes and open water habitat. From October to March, giant garter snakes hibernate in abandoned rodent burrows above the high-water line. While no recovery plan has been prepared for this species, interim guidelines for impact assessment and mitigation focus on maintenance of existing populations and habitat creation with concerns for habitat disturbance, buffers, hibernaculas, and water quality (CDFG 1994 [ref missing].

Salt Marsh Harvest Mouse. The salt marsh harvest mouse is endemic to the salt and brackish marsh habitat of the San Francisco Bay Area. This species occurs in the middle and upper parts of tidal marshes and in dense stands of pickleweed in diked wetlands. Within the Planning Area, the salt marsh harvest mouse frequently occurs in areas of suitable habitat. Trapping programs have located populations in all regions of the San Francisco Bay Area (CNDDB 1995). Stable populations are generally associated with high-tide refugia, including upland areas with adequate escape cover. The recovery plan for this species includes protection of existing habitat and expansion of habitat by tidal marsh creation (USFWS 1984).

Swainson's Hawk. The Swainson's hawk is a migratory species that nests in the Central Valley in association with riparian habitats and cropland areas that provide foraging habitat during the nesting season. Currently the population is declining within the state (CDFG 1993b). These birds are not expected to be affected by the use of dredged material in Delta levee rehabilitation projects.

Valley Elderberry Longhorn Beetle. The Valley elderberry longhorn beetle occurs throughout the Central Valley endemic to valley oak woodlands and riparian habitats. Valley elderberry longhorn beetles are dependent on their foodplant, the elderberry. Within the range of the beetle, two species of elderberry are used by female beetles for egg laying and subsequently by developing larva. Within the Planning Area, the valley elderberry longhorn beetle are known to occur on elderberry shrubs on the levees of the Delta.

Western Snowy Plover. Breeding populations of the western snowy plover have been designated as "threatened" under the federal Endangered Species Act. These coastal populations are distinct from the inland populations that may also winter along the Pacific Coast. Coastal populations of snowy plovers nest in loose colonies from March through September in flat open expanses with sandy or saline substrates. Nesting has also been observed on salt pans, coastal dredged material disposal sites, dry salt ponds, and salt pond levees (USFWS 1993). The western snowy plover has nested sporadically at scattered locations throughout the Planning Area. Nest sites have been reported from the north and south portions of the bay (Wetlands Research Associates, Inc. 1995; CNDDB 1995). No recovery plan has been prepared for this species.

Additional Special Status Animal Species

The following section describes the species that occur within the Planning Area that are not considered threatened or endangered species, but are listed as federal species of concern, California Species of Special Concern, or California Fully Protected. These species may be "locally designated" in several of the local jurisdictions within the Planning Area. With the exception of some wide-ranging species, these species are discussed in the context of local habitats to illustrate the ecological relationship between habitat and species. This discussion is based on the habitats described in the vegetation and wildlife discussions in Chapter 4 of this EIS/EIR. Given the number of special status species, complexity of habitat relations, and relatively low level of sensitivity, this approach is most appropriate to evaluate the effects of policy implementation on species considered "locally designated."

Within the Planning Area, several special status species are very wide ranging and occur in many habitat types. These species include the golden eagle, ferruginous hawk, northern harrier, black-shouldered kite, osprey, merlin, Cooper's hawk, prairie falcon, burrowing owl, loggerhead shrike, Townsend's western big-eared bat, California mastiff bat, and San Joaquin pocket mouse (Williams 1986; Remsen 1978). Alternatively, other species occur in specific habitats, including intertidal, mudflat, and rocky shore; tidal marshes; seasonal wetlands; salt ponds; and riverine and riparian habitats. Each of these habitats and unique species are discussed, in turn, in the following.

Intertidal Mudflat and Rocky Shore. Intertidal mudflats occur throughout the Bay and provide valuable foraging habitat for several special status species, including the long-billed curlew, California gull, and elegant tern. Rocky shores also occur throughout the Bay Area and provide important resting and roosting habitat for the following special status bird species: the California gull, elegant tern, American white pelican, and double-crested cormorant.

Tidal Marshes. Several types of tidal marshes have been identified in the Planning Area, including tidal salt marsh, tidal brackish marsh, and tidal freshwater marsh. These habitats are described in detail in the vegetation and wildlife section of the Policy EIS/EIR.

Within the Planning Area tidal salt and brackish marshes provide habitat for a diverse array of special status species, including the salt marsh common yellowthroat, Suisun song sparrow, Alameda song sparrow, San Pablo song sparrow, yellow rail, short-eared owl, salt marsh-vagrant shrew, Suisun ornate shrew, and San Pablo vole (CNDDB 1995; SFEP 1991b; Williams 1986).

Within the Delta portion of the Planning Area, freshwater tidal wetlands may provide suitable nesting and foraging habitat for the tricolored blackbird, double-crested cormorant, western least bittern, and white-faced ibis. These species may also occur in freshwater habitats at other locations within the Planning Area, in conjunction with the yellow rail, short-eared owl, salt marsh common yellowthroat, and western pond turtle (SFEP 1991b, 1992c).

Seasonal Wetlands. As described above, within the Planning Area several types of seasonal wetlands have been identified, including freshwater non-tidal marsh, diked wetlands, seasonal ponds, and farmed wetlands. The following is a brief description of the special status species associated with these habitats.

Freshwater non-tidal marshes are known to provide foraging habitat and nesting sites for the following birds: the tricolored blackbird, double-crested cormorant, western least bittern, white-faced ibis, and yellow rail. In addition, western pond turtles are common residents of these habitats. Seasonal ponds may also support the western pond turtle and California tiger salamander (SFEP 1992c).

Diked wetlands and seasonal ponds provide nesting and/or foraging habitat for several special status bird species, including the California gull, American white pelican, elegant tern, and double-crested cormorants that use these habitats for roosting and foraging during the fall (SFEP 1992c).

Farmed wetlands provide foraging habitat for several special status species that nest and roost in adjacent habitats. These species include the tricolored blackbird, California gull, long-billed curlew, and short-eared owl (SFEP 1991b, 1992c).

Salt Ponds. Salt ponds support a variety of special status wildlife, including resident and migratory species. Species observed at salt ponds in the Planning Area include the California brackish water snail, Barrow's goldeneye, western least bittern, long-billed curlew, salt marsh common yellowthroat, tricolored blackbird, and Alameda song sparrow (Wetlands Research Associates, Inc. 1995). Other species known to occur at these sites include the California gull, American white pelican, elegant tern, and the double-crested cormorant (SFEP 1992c).

Riverine and Riparian Habitats. Riparian habitats within the Planning Area are known to support rookery sites for several heron species and double-crested cormorants, nesting cover for colonies of tricolored blackbirds, basking sites for western pond turtles, and den habitat for ringtails. These species all forage in or adjacent to riverine habitat. Other special status species may use this habitat for migration corridors and/or perch sites, but are not generally dependent on riparian habitat.

Threatened and Endangered Plants

Evaluation of the proposed policy and regional biological resources indicate that five threatened and endangered plant species may potentially be affected by policy implementation. These include the following species: soft-bird's beak, Mason's lilaeopsis, delta button celery, swamp sandwort, and California seablite. Each of these species is discussed below.

Soft Bird's-beak. Soft bird's-beak is a semi-parasitic annual plant that occurs in salt and brackish marshes in the North Bay and Suisun Bay areas. The plant is named after the soft hairs that cover the stems. Several historical populations are known from the Planning Area, but only four surviving populations are known (Skinner and Pavlik 1994).

Mason's Lilaeopsis. Mason's lilaeopsis is a small mat-forming perennial that is limited to the intertidal zone of brackish and freshwater marshes of the North Bay, Suisun Bay, Suisun Marsh and Delta. Mason's lilaeopsis generally occurs on eroding substrates, but may also colonize pilings and riprapped levees. While the trend for this species has been designated as one of decline due to several factors, recent survey efforts have increased the number of the known populations from 39 in 1991 to over 100 in 1995 (Golden and Fiedler 1991; CNDDB 1995).

Delta Button Celery. Delta button celery is a slender perennial species that occurs on clay substrates in riparian floodplains. The historic distribution of this species included Calaveras, Merced, Stanislaus, and San Joaquin counties. All known populations from the Delta have been removed by agricultural development and levee reinforcement projects (CNDDB 1995). For these reasons, it is likely that policy implementation will have no effect on Delta button celery.

Swamp Sandwort. Swamp sandwort is a perennial species that was historically known from freshwater marshes in coastal regions. There is discrepant information on the current distribution of this species within the Planning Area as various sources conflict as to whether the only known population from the Presidio is extant or extirpated (CNDDB 1995).

California Seablite. California seablite is an evergreen shrub species that occurs in coastal salt marshes. Within the Planning Area, historical populations were known from Sonoma, Solano, and Alameda counties (Skinner and Pavlik 1994). Because California seablite is generally believed to be extirpated from the Planning Area, it is unlikely that policy implementation will affect this species.

Other Special Status Plants

The following describes those species within the Planning Area that are not designated as rare, threatened, or endangered, but are considered federal candidates for listing or are listed in the *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994). Within the Planning Area, these species may be locally designated by local jurisdictions.

The varied geology, topography and climate of the 11-county Planning Area provides optimal conditions for a variety of special status plant species. The habitats of the Planning Area that will be affected by policy implementation support a unique subset of these species. Those special status plant species that are known from or are expected to occur in the habitats that would be affected by policy implementation are discussed below.

Tidal Marshes. The various tidal marshes of the Planning Area include salt, brackish, and freshwater types. These habitats support several special status species, including Marin knotweed, Suisun Marsh aster, Point Reyes bird's-beak, hispid bird's-beak, San Francisco gumplant, rose-mallow, delta tule-pea, marsh gumplant, delta mudwort, mad-dog skullcap, small spikerush, hairless popcorn flower, Petaluma popcorn flower, Sanford's arrowhead, slough thistle, slender-leaved pondweed, and eel-grass pondweed.

Seasonal Wetlands. Within the Planning Area, farmed wetlands and diked wetlands are not associated with special status plant species, because of the high levels of disturbance associated with these areas. Naturally occurring

seasonal wetlands in the area, however, may support a variety of species, including Contra Costa goldfields, heart-leaf saltbush, San Joaquin spearscale, alkali milk-vetch, brittlescale, dwarf downingia, fragrant fritillary, and Carquinez goldenbush.

Salt Ponds. Because of the high salinity and disturbed nature of salt pond habitats, no special status plant species are associated with these environments. Although, some special status species may occur in less disturbed adjacent habitats.

Riverine and Riparian Habitats. Riparian habitats within the Planning Area may support populations of rose-mallow and delta tule pea.

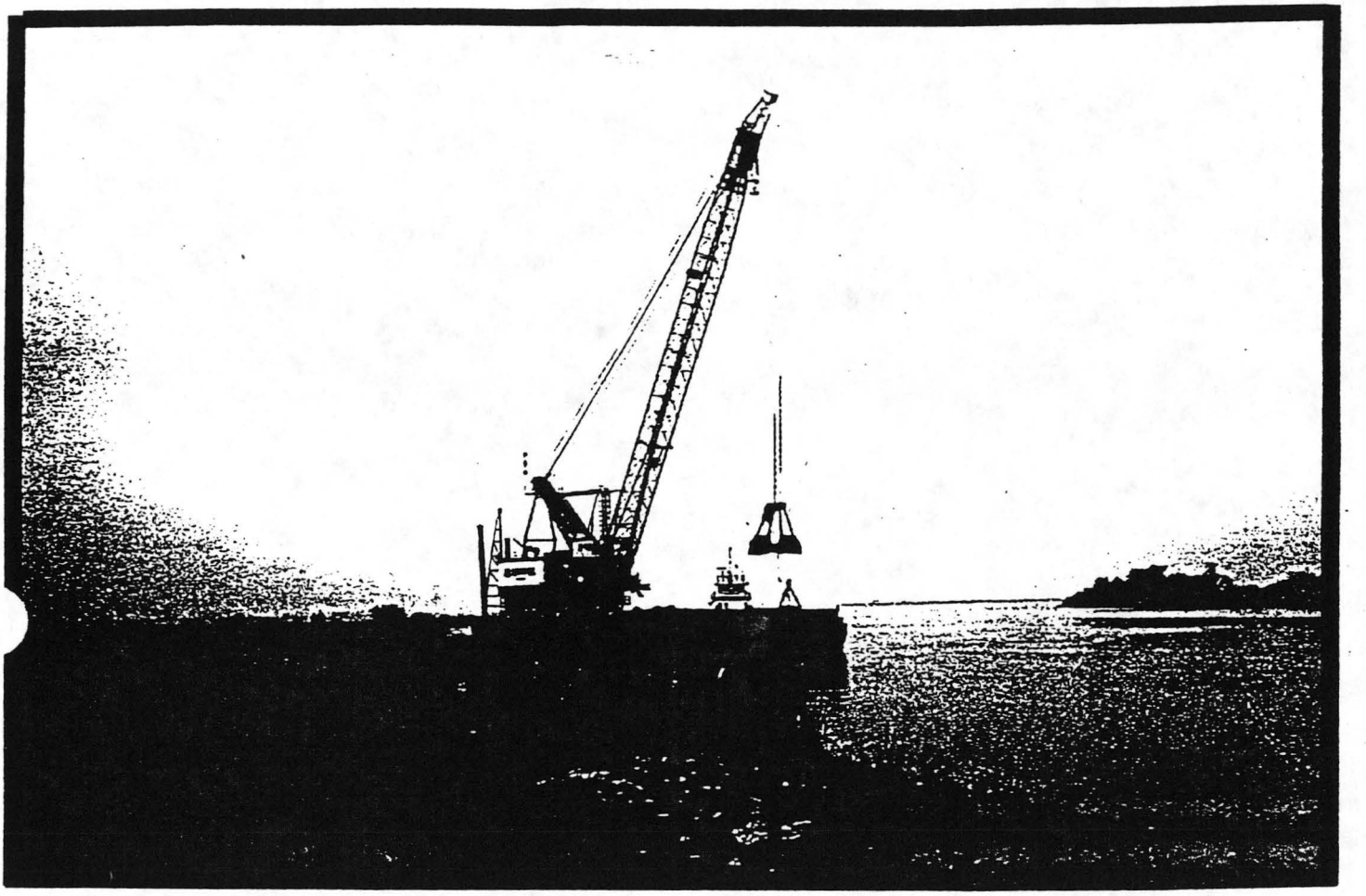
Appendix K

Information on the Jersey Island Levee Maintenance Demonstration Project and the Sonoma Baylands Wetland Demonstration Project

Appendix K.1

Lessons Learned from the Jersey Island Levee Maintenance Demonstration Project

FINAL
LESSONS LEARNED
FROM THE JERSEY ISLAND
DEMONSTRATION PROJECT



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Prepared For:

The San Francisco Bay Regional Water Quality Control Board

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FINAL
LESSONS LEARNED
FROM THE JERSEY ISLAND
DEMONSTRATION PROJECT

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FINAL
LESSONS LEARNED
FROM THE JERSEY ISLAND
DEMONSTRATION PROJECT

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ABSTRACT

This "Lessons Learned" report has been prepared by the United States Army Corps of Engineers, San Francisco District (COE), pursuant to the Special Studies and Monitoring condition outlined within the San Francisco Bay Regional Water Quality Control Board's Waste Discharge Order Number 95-040 for the Corps' 1995-96 Maintenance Dredging Program. This report outlines the challenges of implementing a levee rehabilitation project with sandy dredged material from the Federal navigation channel at the Suisun Bay Channel and New York Slough. One of the COE's missions is to routinely maintain these channels for safe navigation of deep draft vessels.

The demonstration (or pilot) project discussed in this paper examines in detail a wide array of issues: the environmental impacts to sensitive habitats and water quality; an analysis of the costs related to the dredging, transport and the final placement of the dredged material upon Jersey Island levees and what entity would bear those costs; and the regulatory requirements which must be achieved in order to successfully implement such a project.

Another purpose of this report is to identify the feasibility of long-term beneficial reuse of dredged material from future Operations and Maintenance dredging projects specifically located within the Suisun Bay portion of the San Francisco Bay/Delta Estuary. Since some of the regulatory agencies have typically viewed this sandy dredged material as a valuable resource for levee rehabilitation/commercial sand mining, their desire is to have the material reused for one of these beneficial purposes rather than continuing to dispose of the dredged material back into the aquatic environment at the Suisun Bay. Furthering of this ideal envisions a "turn key" operation that would be cooperatively implemented by the various agencies having regulatory oversight. Perhaps within the context of a Memorandum of Understanding, the responsible agencies could act within a reasonable time frame (less than one year) to achieve this goal.

However, as outlined within this report, the time constraint is not the only obstacle to be overcome. Significant issues arise with the source(s) of future project funding, environmental concerns and regulatory demands. The findings and conclusions presented are intended to be useful for formulating policies designed to facilitate/expedite future beneficial reuse of dredged material for the purpose of levee rehabilitation.

1.O INTRODUCTION

The Jersey Island Demonstration Project incorporated the use of sandy dredged material obtained from the Federal navigation channels in Suisun Bay, Solono County, and New York Slough, Contra Costa County. Disposal of the dredged material occurred at the northern portion of Jersey Island, Contra Costa County (See Figure 1). The dredged material was used to reinforce the landward side of Jersey Island levees weakened from subsidence.

The Federal navigation project (which includes the Suisun Bay and New York Slough Channels) extends from the Benicia Bridge to the Port of Stockton and is authorized at a depth of minus 35 feet Mean Lower Low Water (MLLW).

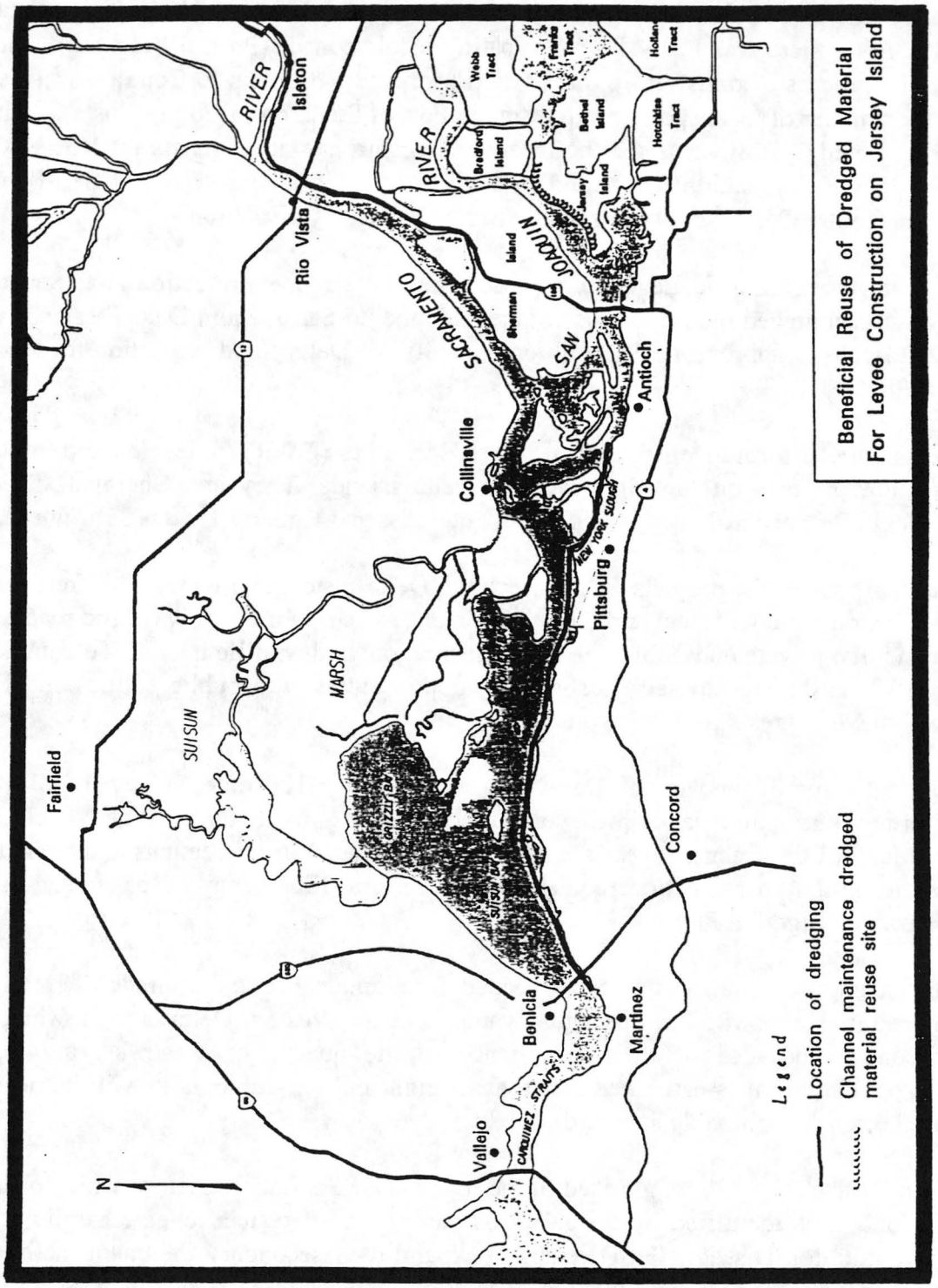
Historically, the Suisun Bay Channel is maintenance dredged once every year and New York Slough every fourth year. Both channels contain medium to fine sand transported to Suisun Bay by the Sacramento and San Joaquin Rivers. In past practice this sandy material is dredged and disposed of aquatically at the COE's Suisun Bay Channel Disposal Site adjacent to the Suisun Bay Channel. However, the COE and other agencies are interested in identifying and studying the feasibility of beneficial uses for this sandy material, rather than to continue disposing the material into the aquatic environment.

Specifically; the COE, the San Francisco Bay Conservation and Development Commission (BCDC), the United States Environmental Protection Agency (EPA), and the California Regional Water Quality Control Board (RWQCB) have joined efforts to address and reduce dredging impacts within the San Francisco Estuary from a regional perspective for the next 50 years via the Long Term Management Strategy (LTMS).

One phase of the 5-year LTMS study was to outline the Beneficial Reuse/Non-Aquatic Disposal of dredged material. This study considered a full range of measures to reduce dredging requirements, manage existing disposal sites to extend their life; and various combinations of new disposal sites involving different disposal methods, locations and periods of use.

The Suisun Bay Channel and New York Slough were both identified as potentially feasible for beneficial reuse of dredged material by the above study. As such, the COE agreed to investigate alternative disposal methods for the Suisun Bay Channel material and to take the New York Slough material to an upland site, pursuant to the FY 1993-94 two-year water certification granted by the RWQCB and the two-year consistency determination as concurred by the BCDC. Subsequently, as required under the current FY 1995-96 two-year water certification, the COE agreed to analyze and report on the "Lessons Learned" resulting from implementation of the project.

FIGURE 1



PROJECT LOCATION

The COE was challenged by the following: the federal navigation channels needed to be maintained for safe and efficient navigation yet there was no alternative upland dredged material disposal site. Also, there was lack of a participating local sponsor (Port of Stockton), since the Port was in the process of transferring that portion of their sponsorship to Contra Costa County. Currently, the transfer of local sponsorship from the Port of Stockton to Contra Costa County has yet to be completed. However, once the local sponsorship has been transferred, there will no longer be oversight duplication performed by both the COE's Sacramento and San Francisco Districts since Contra Costa County lies within San Francisco's jurisdiction.

In March 1988, the California Legislature passed the Delta Flood Protection Act (Senate Bill (SB) 34) which recognized the importance of the Sacramento-San Joaquin Delta Region. The bill legislated the intent to appropriate $12 million annually for Delta flood protection for ten years, ending in 1998.

SB 34 directs the California Department of Water Resources (DWR) to develop and implement flood protection projects on the eight western Delta islands. They are: Sherman, Twitchell, Bradford, Webb, Bethel and Jersey Islands; and Hotchkiss and Holland Tracts (See Figure 2).

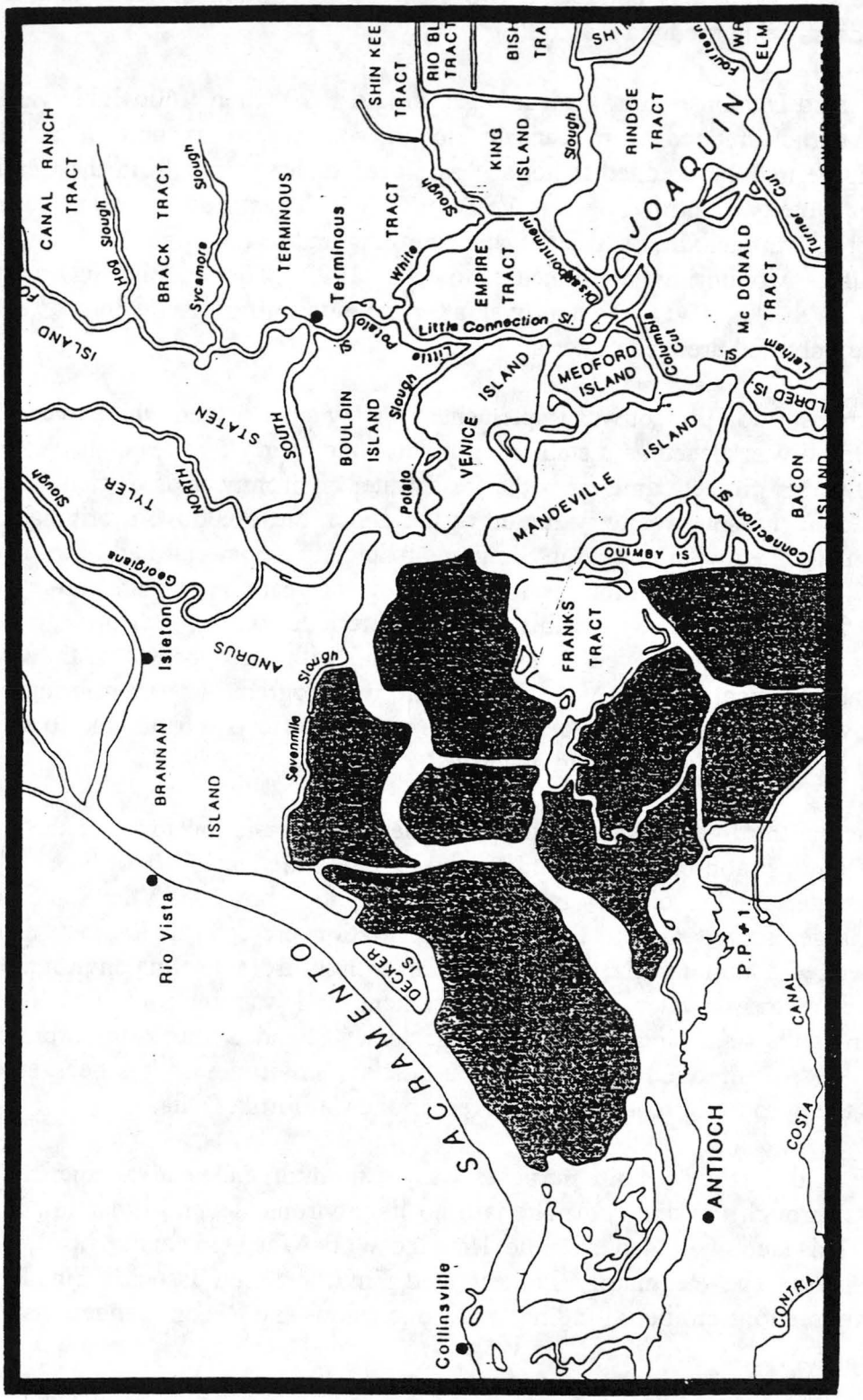
The primary purpose of the projects is to protect: the Delta system and its flow of fresh water to the Federal Central Valley Project and the State Water Project; public highways and roads; utility lines and conduits; private and public land uses; recreation; and wildlife habitat. To complete the work, the DWR is directed to seek cost-sharing opportunities with public entities and Federal agencies who have interests in flood protection.

Nearly 700,000 acres of land in the Delta are protected by 1,100 miles of levee. All of these levees require regular maintenance if they are to continue to provide the designed level of flood protection. Many of these same levees are in need of substantial improvements and upgrades just to provide the minimum protection required by the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Plan.

Preliminary quantity estimates of material needed for maintenance and upgrade of Delta levees indicate a need in excess of 50 million cubic yards. For the Western Delta Islands, which are of particular concern because of their importance to the quality of water serving Southern California's population, it is estimated that at least eight million cubic yards will be needed to return these levees to reasonable standards.

Reclamation District No. 830, comprised of the Iron House Sanitation District which owns most of Jersey Island, was identified by the DWR as having an interest in levee rehabilitation. The Iron House Sanitation District (IHSD) plans to expand their secondary treatment facilities onto Jersey Island in order to accommodate the population increase in eastern Contra Costa County. The Island is presently used primarily for cattle grazing and wildlife habitat. In the future, IHSD plans to grow truck crops and graze cattle on Jersey Island. Reclamation District No. 830 (RD 830) has the responsibility for maintenance and improvement of the levees on Jersey Island.

FIGURE 2



WESTERN DELTA ISLANDS

As of this date, the DWR has conducted two other demonstration projects on Sherman and Twitchell Islands utilizing dredged material.

The Sherman Island Demonstration Project began in late 1990 when 1,600 cubic yards (CY) of fine-grained material dredged from Suisun Slough was placed as part of a 2,500 CY levee-stabilizing berm. The dredged material was placed under permit from the Central Valley Regional Water Quality Control Board (CVRWQCB) which required an extensive monitoring and reporting program, including soil and water sampling and testing, and quarterly reporting of analytical results. Monitoring continued into late 1992. The monitoring program was discontinued, with the CVRWQCB's approval, after the monitoring results indicated little to no impact from the imported dredged material.

The second demonstration project was implemented on Twitchell Island where over 500,000 CY of dredged material was placed as a stabilizing berm along nearly 5 miles of levee. Most of the material used for this project came from the fresh water environment of Clifton Court Forebay which is located in the southwesterly region of the Delta, but 50,000 CY originated from the COE dredged material stockpile area on Simmons Island. This material had been dredged from Suisun Channel and stored on Simmons Island for several years. However, unlike the material used at Jersey Island, the salts within this material were able to leach out prior to placing it at Twitchell. This material was moved to Twitchell Island with the approval of the CVRWQCB, who required an electrical conductivity (EC) monitoring program. The monitoring of this site continues. However, to date and as expected, no specific effects attributable to the Simmons Island material have been identified and quantified.

Jersey Island is the third demonstration project undertaken and is the focus of this report. The Jersey Island Demonstration Project was designed to assess the feasibility of levee rehabilitation using dredged material taken directly from Federal navigation projects in the San Francisco Bay Estuary on a larger scale. Unlike the two demonstration projects at Sherman and Twitchell Islands, the dredged material utilized at Jersey came entirely from a saline environment; was not allowed to leach with rainwater prior to its placement; and was not combined (or "cut") with clean non-saline soils. Keeping this in mind, the Jersey Island Demonstration project is really the first time "in-situ" dredged material from a brackish environment has been studied at this magnitude for the purpose of rehabilitating levees in the California Delta.

Although one of this study's main purposes was to monitor and analyze the movement and impact of salts through the dredged material into its environs, several other important lessons were learned. This study will also examine: How the Work Was Done and Who Did It; The Cost of Doing Business; The Regulatory Process; and Environmental Issues. Finally, this study concludes with sections entitled: Findings and Conclusions and Recommendations.

2.0 HOW THE WORK WAS DONE AND WHO DID IT

The first step in proceeding with a project of this scope involved identification of the necessary tasks and who would perform each function. In this case, the involved agencies and the local sponsor were proactive and wanted the project to succeed. If this were not the case, this project would have never been possible. The second, and probably most important, step is to identify the source(s) of funding. Had the agencies and local sponsor been unwilling to finance such an ambitious project, the plan would have remained on the "shelf." At their first meeting, held in March 1994, the agencies decided what would be done and who would do it. The following is a chronological compendium of what occurred:

Initially, the San Francisco District Engineer promised to deliver approximately 65,000 CYS of sandy dredged material from both the Suisun Bay Channel and New York Slough navigation projects based on the pre-condition hydrographic survey of 40,000 CYS and 25,000 CU, respectively. However, by the time the dredging actually took place in December 1994, the quantity had increased and the COE dredged approximately 40,000 cubic yards from Suisun Bay Channel and 32,719 cubic yards from New York Slough.

Prior to the actual dredging, sediment testing was necessary to determine the suitability of the material for upland disposal. Grain size analysis, chemical characterization and Waste Extraction Tests were conducted by the COE.

The sediment samples were analyzed for constituent concentrations to determine whether the proposed sediments could be classified as "inert waste" as defined in Section 2524 of Chapter 15, Title 23 of the California Code of Regulations.

The sediments were analyzed for the following constituents: Trace Metals, Pesticides, PCBs, Semi-Volatile Organic Constituents, Tributyl Tin, and Total Recoverable Petroleum Hydrocarbons.

Predredge sediment sampling and analyses demonstrated that the sediments would meet the classification of "inert waste" in all aspects except for salinity. The COE's sediment testing indicated that the salinity of the dredged materials was between 10,000 to 17,000 mg/l in Suisun Bay Channel and between 3,000 and 4,000 mg/l in New York Slough.

The next step in the process entailed preparation of the project description. DWR and BCDC assisted RD 830 in preparation of a project description and monitoring plans for the project. Both plans were submitted to the CVRWQCB with the request to approve and grant a Waste Discharge Order.

Concurrently, the COE prepared the Environmental Assessment pursuant to the National Environmental Policy Act and DWR prepared the Negative Declaration required under the

California Environmental Quality Act. With the environmental permits and the Waste Discharge Order completed by mid-September 1994, the cost sharing arrangement was left to be negotiated prior to letting the construction contract. Funding came from the COE's Operations and Maintenance funds, DWR Subvention Funds and RD 830. The cost sharing agreement between DWR and RD 830 was 75% and 25%, respectively.

The COE, Port of Stockton, and the DWR entered into a cost sharing arrangement under the 1982 Local Cooperative Agreement (LCA) between the Government and the Port of Stockton (technically the local sponsor). The financial arrangement was based on the amount of yardage shown on the pre-condition survey initially conducted in March 1994, which at that time was 40,000 cubic yards in the Suisun Bay Channel and 25,000 cubic yards in the New York Slough Channel.

Under the LCA, the Government was completely responsible for dredging, transporting, and off-loading the material for the New York Slough portion of the project; and only responsible for dredging the material for the Suisun Bay Channel portion of the project. Historical in-bay disposal is the responsibility of the Government, while the transportation and off-loading of the Suisun Bay Channel material onto Jersey Island was the responsibility of the Port of Stockton. DWR agreed to provide the monitoring and assessment of the project during the pre-project, dredging, material placement, and post-project periods; they also agreed to take lead responsibility for initiating and completing corrective actions to mitigate unreasonable impacts to waters of the State pursuant to the Waste Discharge Order, if required. Prior to the delivery of the dredged material to the Island, DWR sampled the baseline background water quality levels (See Environmental Issues Section for results). Once this task was finished a qualified contractor was sought to perform the work.

Nine firms were issued solicitations for bid, however, only one responded with a proposal. On September 30, 1994 a contract between the United States of America and Manson Construction Company was awarded in the amount of $1.153 million (See The Cost for Doing Business Section for further discussion). The Notice to Proceed was received and acknowledged on October 20, 1994 by Manson Construction.

For the Suisun Bay Channel material the Contractor worked 7 days a week, with 1 barge load per day in up to 12 hours of operation. At New York Slough they worked up to 24 hours in two shifts. The contract specifications required clamshell dredging with the material to be transported by barge. Two each, 2,100-2,500 ton flat barges (approximate draft for theses barges fully loaded is about 10 feet) were used with a 5 cubic yard bucket attached to a 190 foot long floating boom (the draft for this boom was approximately 6.5 feet deep).

Dredged material was barged to Jersey Island on flat barges with open sides where it was unloaded by clamshell to the land side of the levee. Excess water generated during dredging was discharged back into the Bay at the dredge sites prior to transportation; however, a staff member from the CVRWQCB reported that the material at the delivery site appeared to be wetter than the

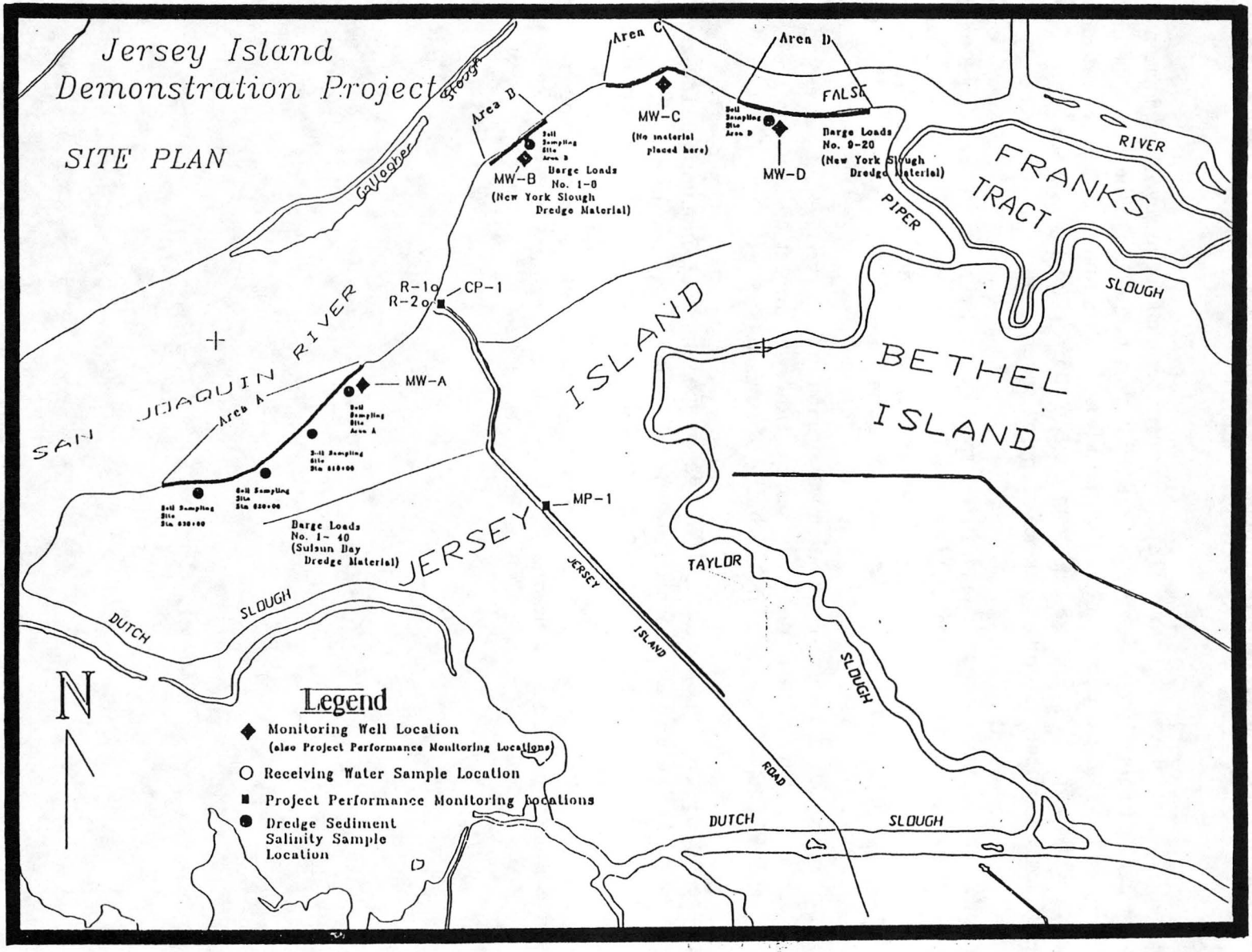
water content specifications outlined within the Waste Discharge Order.

The dredged material was "windrowed" at the northern perimeter of Jersey Island adjacent to the San Joaquin and False Rivers (See Figure 3). RD 830 provided access to the levee. The material from Suisun Bay was placed west of Jersey Island Road and continued to the east, a distance of approximately 2 ½ miles. The material from the New York Slough was placed east of Jersey Island Road in segments covering a distance of approximately 1 mile.

Once the material was placed on land, it was spread by a bulldozer in accordance with the recommendations of a geotechnical engineer (See Figure 4). The plan was to bring the landside of the levees to a minimum slope of 3:1 and construct a 40 foot-wide by 3-foot high berm along the landslide of the levee to stabilize the levee foundation.

The dredging construction contract duration was originally for sixty days but was extended due to inclement weather and a record rainy season. However, project construction started mid-December 1994 and was completed by the middle of January 1995.

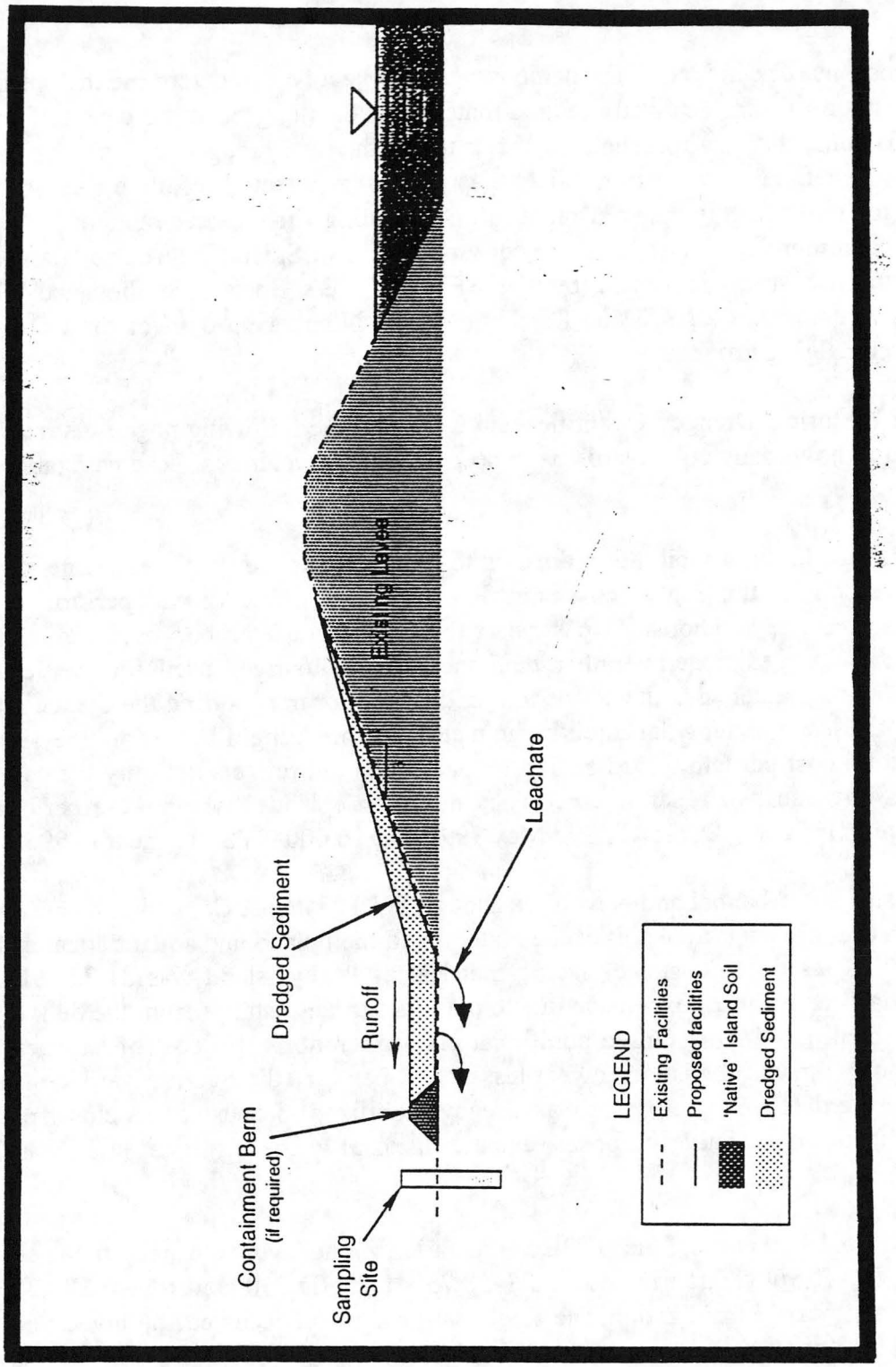
Once the material was in place, the DWR began their monthly monitoring. The areas for placement of the Suisun Bay Channel and New York Slough dredged materials are served by separate field drains bisected by the Island's main drain which has a pump to discharge the Island's interior water back into the San Joaquin River. Thus, it was possible to independently monitor the rate of salt loss from each fill as well as the rate of movement through the drain system as a function of the concentration of salinity in the dredged material.



SITE PLAN

FIGURE 3

FIGURE 4



LEVEE CROSS SECTION

3.0 THE COST OF DOING BUSINESS

One of the reasons for conducting the demonstration project was to determine the present cost of levee rehabilitation using localized dredged material. It has long been the desire of the BCDC, SFBRWQCB, and other environmental agencies to use the sand dredged from the Suisun Bay for some type of beneficial purpose rather than disposing of a potential resource back into the Bay. Other ideas for reuse of this material range from providing fill for development projects and/or for the local commercial sand miners presently operating in Suisun Bay. The latter idea is the subject of another study requested by the SFBRWQCB's Special Studies and Monitoring condition outlined within their Waste Discharge Order Number 95-040 for the COE's 1995-96 Maintenance Dredging Program.

Table A, the Historical Dredged Quantities and Costs on the following page illustrates what has been spent, and how many cubic yards have been dredged to maintain these navigation channels for the last eighteen years.

The 1994 cost for levee rehabilitation appears to be more than seven times greater than in past years. The reason for this higher cost is attributed to how the work was performed given the change in disposal site locations. In past years the COE has used a hopper dredge with aquatic disposal of the dredged material rather than the clamshell/barge used for the Jersey Island project. There is a greater cost due to the longer distance for transporting the dredge material for disposal and the less efficient clamshell/barge method of dredging. In addition, the 1994 amount indicates a total cost per cubic yard of $14.80. This amount reflects not only the cost for levee rehabilitation but also two separate emergency dredging episodes which were performed via a hopper dredge removing 42,515 CYS in May 1994 and 16,000 CYS in January 1995.

Table B, Suisun Bay Channel and New York Slough FY 1994 Cost Comparison, summarizes the costs for both dredging and transport of the materials to the upland and aquatic locations. Referencing this table, the cost for placing material at Jersey Island was $1,259,618.80. The Suisun material was the most expensive due to both its further distance from the delivery site and its irregular shoaling which required additional plant operation at a cost of $17 per CY. The New York Slough material cost somewhat less at $12 per CY (the overrun yardage was slightly cheaper since the dredging equipment was already mobilized) because of its closer proximity to Jersey Island. For comparative purposes, aquatic disposal at the historical site costs $3.50 per CY.

Of the $1,259,618.80 total, the COE's Operations and Maintenance funds contributed $719,618.80, DWR Subvention Funds paid $458,750 and RD 830 contributed $81,250. Due to both Federal and State subsidization, the Reclamation District received the levee reinforcement material for $1.12 per CY.

The above construction cost does not include other external costs such as sediment testing ($55,497), mitigation monitoring (estimated at $450,000), and the additional staff time required

for plan coordination at the COE, CVRWQCB, and the RD 830.

Table A, Historical Dredged Quantities and Costs for Suisun Bay Channel and New York Slough

FISCAL YEAR	DREDGING DATES	AMOUNT DREDGED (CYS)	TOTAL COST ($)	COST PER CUBIC YARD	CONTRACT COMPANY
1977	30 NOV - 04 DEC 76	85,000	60,257	0.71	GOV
1978	26 APR - 04 MAY 78	130,000	97,307	0.75	GOV
1979	02 JAN - 12 JAN 79	233,000	153,522	0.66	GOV
1980	15 FEB - 03 MAR 80	285,000	244,525	0.86	GOV
1981	17 FEB - 03 MAR 81	166,000	220,495	1.33	GOV
1983	29 SEP - 04 NOV 82	177,000	667,905	3.77	GOV
1984	10 SEP - 09 NOV 84	119,545	281,272	2.33	MANSON
1985	01 APR - 02 APR 85 25 APR - 27 APR 85	4,100 34,500	16,242 97,408	3.96 2.86	GOV
1987	24 MAR - 26 MAR 87	28,300	112,309	3.97	GOV
1988	03 OCT - 05 DEC 87	46,846	56,707	1.21	NORTH AMERICAN TRAILING
1990	17 AUG - 22 SEP 90	91,395	178,557	1.95	DUTRA
1991	18 SEP - 12 OCT 91	13,370	33,059	2.47	NATCO
1992	01 AUG - 28 AUG 92	54,418	291,336	5.35	MANSON
1993	19 JUL - 25 SEP 93	22,711	41,442	1..82	MANSON
1994	07 MAY - 08 MAY 94 20 OCT - 20 JAN 95	42,515 89,000	70,542 1,316,777	1.66 1.48	GOV MANSON

Table B, Suisun Bay Channel and New York Slough FY 1994 Cost Comparison

DESCRIPTION	QUANTITY	AMOUNT	UNIT PRICE
MOB/DEMOB	1 JOB	$173,000.00	LUMPSUM
SUISUN/JERSEY	40,000 CYS	$680,000.00	$17 PER CY
NY/JERSEY	25,000 CYS	$300,000.00	$12 PER CY
SUISUN/IN-BAY	16,331 CYS	$57,158.50	$3.50 PER CY
NY/JERSEY OVERRUN	7,519 CYS	$86,618.88	$11.52 PER CY
OVERRUN MOB/DEMOB	1 JOB	$20,000.00	LUMPSUM
TOTAL*	72,719 CYS	$1,259,618.80	

* This denotes the amount of dredged material placed only at Jersey Island and the cost.

4.0 THE REGULATORY PROCESS

One of the lessons learned is the complexity of Federal-State-Local inter-agency coordination. Coordination with multiple agencies can be complex and can discourage private interests who might otherwise consider participating in such projects.

Planning complexities were compounded since dredging and disposal of the material occurred in two separate jurisdictions of the COE and RWQCB. Both Suisun Bay Channel and New York Slough dredging is the responsibility of the San Francisco District COE while the disposal of the dredged material at Jersey Island is within the Sacramento District COE's jurisdiction. The same is true for the SFBRWQCB and the Central Valley RWQCB, respectively.

The BCDC's jurisdictional boundary lies within the dredging and aquatic disposal areas pursuant to the Coastal Zone Management Act. The Consistency Determination (CD) concurrence between the SFCOE and the BCDC stipulated upland disposal for the New York Slough material, and strongly recommended the same for the Suisun Bay Channel material, supporting the requirements of the two year Waste Discharge Order between the SFCOE and the SFBRWQCB. However, as agreed upon within the CD and Waste Discharge Order, if no such upland site existed by the time dredging took place then disposal would need to continue at the historically used Suisun Bay Disposal Site. Thus, the BCDC had the incentive to locate an upland site, becoming a major force in identifying a local interest for both channel's dredged material, in this case a State water development agency, the Department of Water Resources.

The 1986 Water Resources Development Act requires the local sponsor to provide all necessary lands, easements, right of ways, and disposal sites. The Port of Stockton is technically the responsible local sponsor, however at the time of the Jersey Island Demonstration Project negotiations were underway to transfer this responsibility to Contra Costa County. Although the Suisun Bay Channel is bisected lengthwise and part lies within Solono County, the primary industrial benefactors of this ship channel are located within Contra Costa County, making it the logical county to accept local sponsorship. Currently, COE headquarters in Washington D.C. is working on a new Project Cooperative Agreement which will transfer local sponsorship from the Port of Stockton to Contra Costa County. This will eliminate the COE Sacramento District's jurisdiction for this federal navigation channel which lies within the San Francisco District boundaries. However, should Contra Costa County chose an upland site in adjacent counties to the east, then the COE Sacramento District would need to be consulted.

Since transfer of local sponsorship is not yet completed, the DWR accepted full liability in order to proceed with the project. The DWR then cost shared its financial responsibility (75%) with the Reclamation District 830 (25%), who had to receive permission from the local land owners, who own approximately 20 % of the Island, and the Iron House Sanitation District, who owns and manages the remaining 80%, to go ahead with the project.

Perhaps the most difficult obstacle confronting planners is the "race against the clock". The Federal government operates on a Fiscal Year which extends from October 1st to September 30th. This time constraint has ramifications for both establishing the dredged material quantities to be delivered and the negotiations for construction financing.

The first survey, the pre-condition survey, which reveals the initial quantity estimate, took place in December 1993. At that time there was approximately 40,000 CYS at Suisun Bay Channel and 25,000 CYS at New York Slough. These were the quantities used for planning the design and cost estimates to finance the project. The first meeting of the various agencies to discuss project implementation occurred in March 1994, at which time the COE offered to conduct the sediment testing. Testing is necessary in order to screen the sediment as to its suitability for upland disposal. This was done by a contractor in April 1994. However, the sediment test results were not known until June 1994. The material proved to be acceptable. At that time the DWR/RD 830 prepared a project description and applied for a Waste Discharge Order from the CVRWQCB. The CVRWQCB worked closely with the applicants to expedite the project and were able to place the permit request on their August 1994 agenda. Formal approval was received by mid-September 1994. The environmental assessment was completed by the end of funding, September 1994; the DWR/RD 830 provided their portion of the funding and the COE advertised and let the bid by September 30th 1994.

Planning for the Jersey Island Demonstration Project was under an extremely tight time frame of approximately six months. However, since there was a great desire and willingness for the project to succeed, there was a concerted effort by the involved agencies to expedite the planning process.

Prior to the onset of dredging, the COE performs a condition hydrosurvey to establish any changes in quantity and shoal locations. This was done in December 1994, one year after the pre-condition, and the quantities were determined to have increased in both channels due to shoaling: Suisun Bay Channel had an estimated 56,331 cubic yards, for an additional 16,331 cubic yards, and New York Slough Channel, 32,519 cubic yards, representing an additional 7,519 cubic yards.

A Request for Proposal (RFP) was sent to the Contractor on December 8, 1994. The RFP asked the Contractor to provide price proposals to dredge the additional yardage and to place the additional New York Slough material on Jersey Island and the additional Suisun Bay material in-bay and, alternatively, on Jersey Island. This would have required an additional $216,000 of funding from the State if the Suisun material were to be placed onto Jersey Island. This amount was based on the bid amount of $17 per CYS for Jersey Island placement and $3.50 CYS for open water disposal at Suisun Bay. The difference of $13.50 per CYS applied to the 16,000 additional CYS of material then became the responsibility of the State.

The State declined to pay for the extra yardage and so the COE disposed of the material aquatically at the Suisun Bay Disposal Site. The COE is required by law to conduct its operations in the most cost effective manner. In addition, the COE budgets two years in advance of the

current fiscal year. Therefore, additional funding is not appropriated and available for projects that cost more than originally budgeted. Lastly, due to the additional time required for planning and developing the project, and because project implementation occurred at a later date than usual, the COE was contacted twice by the San Francisco Bar Pilots Association regarding the formation of dangerous shoals within the Suisun Bay Channel (both in May and August 1994). Normally, this channel is dredged annually by June of the FY. For each emergency dredging event equipment had to be mobilized and the dredged material disposed of aquatically. This resulted in a greater inefficiency and additional cost to the public and the local sponsor who depends on a safe, navigable waterway to conduct commerce.

5.0 ENVIRONMENTAL ISSUES

Conspicuously excluded from the Regulatory Process Section is a discussion on environmental regulations. Compliance with environmental statutes protecting endangered/threatened species and water quality is mandatory and the explanation of each warrants a separate section in this report.

The primary reason for implementing the demonstration project is to maintain the levees at full function. If any of the levees on these eight islands fail, the brackish tidal prism would expand and return to its former extension further east, endangering both State and local water supplies given the intake location to the State Water Project.

A secondary reason for the pilot project is to investigate whether water quality impacts would result from the placement of saline dredged material onto Island levees. The concern with placement of these sediments at a location such as Jersey Island is the introduction of salts into the freshwater portions of the Delta. This residual salinity could have the potential for causing or contributing to an exceedance of State water quality objectives at the compliance point and in the receiving waters, thereby degrading fresh water quality. The Jersey Island Demonstration Project is a part of the continuing DWR effort to demonstrate the feasibility of using material dredged from the Bay-Delta Estuary for levee improvement and maintenance. Also, there was a joint interest as the COE was investigating beneficial reuse of dredged material.

Another component of the regulatory process was the need to interact with the United States Fish and Wildlife Service, National Marine Fisheries Service and the California Department of Fish and Game pursuant to Federal and State laws.

In order for the project to qualify for State SB 34 subvention and Federal O & M program funds, the above agencies needed to determine that the proposed action would not "result in a net long-term loss of riparian, fisheries, or wildlife habitat." There could also be no adverse impact to any listed or proposed listed endangered and threatened species.

For these reasons, the northern portion of Jersey Island, an approximate 300 foot-wide swath, adjacent to the San Joaquin and False Rivers, was surveyed on June 24 and 28, 1994 by the COE's staff ecologist, botanist and biologist. The purpose of these site visits was to map the existing emergent wetland vegetative communities and to verify the existence of any protected species. In order for the CDFG to find that there would be "no net loss" to these resources, the COE prepared two reports entitled Jersey Island Dredge Material Reuse Project, Project Impacts on Wetlands; Endangered and Rare Plant Species; and Riparian Habitats and Jersey Island Beneficial Reuse Demonstration Project, General Habitat Assessment. These reports were submitted to the CDFG in August 1994 and approved, with conditions (i.e., requirement to "flag" dredged material placement sites prior to construction), by September 1994.

Wetland habitat is recognized as having intrinsic value to wildlife and its identification is

important in order to protect this resource from filling with dredged material. Once identified, the dredged material was placed in those areas that were completely devoid of emergent wetland vegetation. In order to ensure that sensitive areas were completely and adequately avoided, staff from both the COE and the CDFG defined the areas for dredged material placement prior to construction. In addition, construction personnel were instructed where to place the dredged material.

As it turned out, the regions that were "flagged" for dredged material placement (devoid of wetland vegetation) were areas that had been recently, probably within the last five years, reinforced with sandy material . If a wetland were found it would have been under the jurisdiction of the Sacramento District COE and a wetland delineation inspection and permit would have been necessary pursuant to the Clean Water Act. This permit process would take, at a minimum, four months and mitigation measures (i.e., replacement in kind) would have been required. Since the "tight" project schedule was unable to accommodate this process, a unilateral decision to avoid any wetlands was made by the San Francisco COE. This is the reason for the project's segmented configuration.

Endangered/Threatened Species

The United States Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are Federal agencies (part of the Departments of the Interior and Commerce, respectively) that have the responsibility for implementing the provisions of the Endangered Species Act; influencing decisions on proposals which have the potential to impact fish and wildlife habitat.

Coordination with the FWS and the NMFS was necessary in order to research the possible existence of endangered, threatened, candidate species that are protected under both the Endangered Species and Marine Mammal Protection Acts and which may have been impacted by the project.

Consultation with the FWS, the NMFS and the California Department of Fish and Game (CDFG) was conducted either in writing and/or via telephone regarding the presence of endangered, threatened, or candidate species.

The FWS and NMFS indicated the possible existence of the following species in the project area: the endangered winter-run Chinook salmon (*Oncorhynchus tshawytscha*), the threatened delta smelt (*Hypomesus transpacificus*), the proposed for listing Sacramento splittail (*Pogonichthys macrolepidotus*); and the threatened giant garter snake (*Thamnophis gigas*).

The California Natural Diversity Data Base (CNDDB) provides listings of observed sightings of special status species (i.e., endangered or threatened plants and animals) by location. A CNDDB search was conducted by the California Department of Fish and Game with the result that no special status species (i.e., the giant garter snake and rare plants) were reported on the project

site.

The FWS indicated that the threatened Delta smelt and the proposed listed Sacramento splittail existed within the proposed project dredge area. These species generally spawn from mid-December to July for the smelt and March to July for the splittail. The NMFS indicated that the endangered winter-run Chinook salmon were also present. Both agencies agreed with the COE's determination that these species would not be adversely affected. In fact, these three species would be exposed to less impacts since dredged material disposal would be upland rather than in an aquatic environment.

Water Quality

The surface water from the project area flows to the island's lateral drains and then to the main drain (See Figure 3, Jersey Island Demonstration Project Site Plan). This water is then pumped into the San Joaquin River. The sections for dredged material placement are served by separate field drains. This permitted independent monitoring of the rate of salt loss from each different source of dredged material, and the rate of movement through the drain system as a function of the concentration of salinity in those dredged materials.

The dredged material criteria and receiving water criteria were developed to protect the domestic water supply and to prevent violations of water quality objectives. The criteria was developed based on testing done by the COE which indicated the sediment's quality. The DWR estimated and calculated saline discharge concentrations and analyzed the receiving water's ability for diluting these concentrations to acceptable drinking water standards.

The COE contracted with ToxScan Incorporated to conduct the necessary field studies of the material to be dredged. The sediment chemistry results are published within the final report entitled, Chemical Analysis of Sediments at Suisun Bay Channel and New York Slough for 1994 Maintenance Dredging, June 1994.

The grain size analysis classified the material as moderate to fine sand. The sediment chemistry indicated that the salinity of dredged material is 10,000 to 17,000 milligrams per liter (mg/l) from Suisun Bay and 3,000 to 4,000 mg/l from New York Slough. In addition, the sediment testing included extensive chemical analyses, gas chromatography studies, and waste extraction tests (WET) using both deionized water (modified or DI) and a weak acid (non-modified or citrate).

The results from the modified WET were used for the comparison since water would be the dissolvant affecting the placed dredged material.

The Monitoring and Reporting Program (MRP) required post project compliance monitoring

until constituent concentrations returned to background levels (See Appendix for the Waste Discharge Requirements and complete monitoring results). Past short term monitoring efforts at other demonstration sites did not specifically analyze the impact of saline dredged material on receiving waters.

The MRP addressed the monitoring of constituents from island drainage water; receiving water at the San Joaquin River; Island soils; and the dredged material at the project site. A monitoring program was implemented to ensure compliance with the appropriate water and soil quality criteria. The DWR Water Quality Assessment staff conducted the ongoing sampling and monitoring of the soil and water at the site.

The predredge assessment results from the three sediment sample composites collected from the Suisun Bay Channel were: the total metals were less than the Waste Discharge Requirement (WDR) limits; the soluble metals (citrate WET test) were greater than WDR limits, however the soluble metals from the DI WET test were below WDR limits; pesticides, PCBs, TPHs, and TBTs were below detection limits; oil and grease were 20 mg/kg; total phthalates were between 70-92 mg/kg; 3 PAHs were greater than the Low Effect Levels (LEL) but were below Severe Effect Levels (SEL) (Canada); the grain size analysis showed 98-98.2% sand; and this material had 10-17 parts per thousand interstitial salinity.

The predredge assessment results from the two sediment sample composites taken from New York Slough were: the total metals were less than the WDR limits; the soluble metals (citrate WET test) were greater than WDR limits, however the soluble metals from the DI water WET test were below WDR limits; pesticides, PCBs, PAHs, TPHs, and TBTs were below detection limits; oil and grease were also below detection limits; total phthalates were between 150-270 mg/kg; the grain size analysis indicated 92.8-97.5% sand; and this material had 3-4 parts per thousand interstitial salinity.

Figure 3, illustrates the dredged material placement locations; the monitoring well locations (used for both background field monitoring and project performance monitoring); the main drain performance monitoring locations; and the receiving water sample locations.

For the receiving water monitoring locations, Site R-1 was placed 200 feet upstream of the discharge site and Site R-2 was placed 250 feet downstream. Background monitoring levels indicated that dissolved metals were below detection levels except for arsenic which was 0.002 mg/l at both monitoring sites.

As for the monitoring of the Island's main drain, CP-1 indicates the compliance point at the pump station and MP-1 was placed 100 feet upstream from the lateral drains intersection with the main drain. Background results showed that dissolved metals were less than detection limits except for arsenic and zinc. CP-1's arsenic level was measured at 0.002 mg/l and MP-1's was 0.005 mg/l (the same for zinc). Total dissolved solids (TDS) exceeded WDRs at both locations. Electroconductivity (EC) at CP-1 ranged from 1,400-2,600 between April through August 1994.

The DWR installed four shallow wells ranging from 1/2 foot to 2 feet deep: MW-A for the Suisun material, MW-B and MW-D for the New York Slough material, and MW-C was a control where no dredged material was placed. The pre-project soil assessments at these areas indicated that total metals were below WDR limits and that soluble metals (DI WET) were below detection limits, wherefore, the deposited dredged material was within the limits defined in the WDR.

6.0 FINDINGS AND CONCLUSIONS

The findings and conclusions of this study are listed by their appropriate report topics:

How the Work Was Done and Who Did It

1. Contractor competition was non-existent since only one company submitted a construction proposal. The quick turn-around for project implementation may have been a factor.

2. There needs to be very close construction inspection to ensure compliance with contract specifications. On this project the contractor made a unilateral decision to switch the placement areas for Suisun Bay Channel and New York Slough materials. Another contract specification required the dredged material to be decanted at the dredge sites. Excess water generated during dredging was leached and discharged back into the Bay at the dredge sites; however, a staff member from the CVRWQCB reported that the material appeared to be wetter than the water content specifications outlined within the Waste Discharge Order for the delivery site.

3. The draft of the crane and barge was about 6.5 feet. Levees located adjacent to water areas less than this depth may not be able to receive dredged material, using the same type of equipment. A longer crane arm or other mechanical modifications may resolve accessibility constraints. These modifications may result in increased costs for future dredge disposal projects.

The Cost of Doing Business

4. Overall, the Jersey Island Demonstration Project resulted in beneficial results that improved the environmental and economic well being at the local, regional and statewide levels. At the local level, the design standard of the Jersey Island levees were increased and the risk of flooding reduced. There was a direct benefit to the 3,470 acres of agricultural land and wildlife habitat on Jersey Island. The project also demonstrated the economic and environmental feasibility of the reuse of dredged material from a brackish water environment for Delta levee improvement.

5. Contra Costa, Alameda, and Santa Clara Counties benefited from improved security of the Delta water delivered for use in these counties. This same water quality security accrued to the

large areas of the State that are served from the Delta by the Central Valley Project and the State Water Project.

6. The costs are $17 CY for Suisun Bay Channel, $12 CY for New York Slough, and $3.50 CY for Suisun Bay Channel Aquatic Disposal Site.

7. There is a need to identify the closest levees from the dredge site needing rehabilitation in order to minimize costs associated with transporting dredged material long distances.

8. Projects of this nature will continue to be feasible only as long as political and financial support continues.

9. The higher cost of dredging for this project is mainly attributed to: a) the decision to use a clamshell dredge versus a hopper dredge due to the undesirability of brackish water being introduced onto the Island. The clamshell method is less efficient than the hopper. Since the shoals were both scattered over long distances and thinly deposited, the clamshell had to move and set up more often than a hopper would have, thus slowing the dredging process and increasing the cost b) only one contractor (Manson) submitted a bid. According to the other probable contractor (Dutra), a bid package was never received. Having only one bid may have resulted in a higher cost, and c) the transportation distance of the material from the Suisun Bay Channel to the Island is much further than the historically used aquatic disposal site. The COE believes that the costs could have been significantly reduced, if there was more and continuous (rather than intermittent) shoaling and if there had been competitive bidding.

The Regulatory Process

10. There is a desire among certain agencies to implement a larger pilot project and to ultimately dispose of this O & M dredged material upland on a regular basis. However this may be difficult to achieve since the quantities (See Table A) are variable and available funding is uncertain.

11. Jersey Island required nine months to plan and coordinate, from December 1993-September 1994. A minimum of one full year would be necessary for a similar project. A more ambitious project should have a two year planning period.

12. It has become increasingly difficult to provide upland dredged material disposal sites due to the lack of local funding.

13. The COE is constrained in how it does its contractual business. Federal law states that dredging and disposal of the material must be performed in the most cost effective manner. As long as aquatic disposal is permitted it will remain the most cost effective disposal method.

14. The Sacramento District COE conducted a General Investigation reconnaissance study entitled The Sacramento-San Joaquin Delta, Western Delta Islands, California, May 1995 which

focused on Section 1135 environmental restoration at Webb Tract, Jersey, and Twitchell Islands. Webb Tract was not feasible due to the owner's desire to impound fresh water for later resale. Jersey Island was also not feasible since its landowners have plans to expand its sewage treatment facilities at this location. However, they still are interested in future levee rehabilitation. Twitchell Island, which is owned by the DWR (80%) and Chevron (20%) did pass the reconnaissance level study phase and has entered into the feasibility level study phase. This feasibility report is expected to be completed in 1998.

Environmental Issues

15. At Jersey Island, dredged material was placed on areas that had been recently improved and thus were devoid of any wetland vegetation. This is the reason for the segmented configuration.

Endangered/Threatened Species

16. Consultation with both the FWS and NMFS must be started as early in the process as possible since it is becoming increasingly difficult to arrive at project consensus regarding impacts and mitigation plans.

17. Any type of dredging and disposal plan will necessitate informal/formal consultation with the FWS regarding the Delta Smelt since the whole of Suisun Bay is designated critical habitat pursuant to the Draft Delta Native Fishes Recovery Plan. The final report is due by end of 1995. Since real time monitoring (the species actual location within the Delta at a given time of year) indicates this species current distribution, sampling would be necessary (Bob Pine, FWS). Use of "windows" to avoid impacts no longer apply. Distribution for real time monitoring can be found by calling the Fish and Game Delta Office at (209) 948-7800.

Water Quality

18. Dissolved arsenic was found in all monitoring wells at low levels except for MW-B which had 0.010 mg/l. MW-B zinc level was also above the WDR limit at 0.018 mg/l.

19. MW-A and MW-B were in mineral type soils. MW-C and MW-D were placed in organic type soils. No material was placed in MW-C. MW-A and MW-B had higher EC, TDS, chlorine and bromide. MW-B had the highest EC, TDS, and bromine. The chlorine was highest in MW-A. Dissolved arsenic exceeded the drinking water standard or Maximum Contaminant Level (MCL) at MW-B.

20. The groundwater was at its highest in January-February 1995 and declined steadily over time.

There was no apparent direct relationship between groundwater and the river's flow and/or tidal surge. However, the direction of groundwater flow remains unknown.

21. Post project receiving water results indicated: pH, dissolved oxygen (DO), and temperatures were all within WDR limits; very little change in EC, TDS, chloride and bromide between R-1 and R-2, however they were greatly affected by flow and tidal changes; dissolved metals remained below detection limits except for arsenic and zinc; and EC/TDS correlation equaled 1.0.

22. Post project well monitoring indicated that the pH was within WDR limits; the salt loading from the main drain into the river did not appear to be significant; dissolved metals were below detection limits except for arsenic, copper, nickel, and zinc; the EC/TDS correlation were .70 at MP-1 and .94 at CP-1. The TDS at CP-1 exceeded WDR limits seven times and MP-1 exceeded CP-1 seven times; average TDS increased 3.8% from MP-1 to CP-1; and there were no past or present main drain pumping records.

23. Receiving water salt loading at R-1 and R-2 did not appear to be significant.

24. The DWR estimated the salt load from the Suisun Bay Channel material to Area A on Figure 3 at 137,065 pounds or 68.5 metric tons. The salt load to Areas B & D from the New York Slough was calculated to be 43,904 pounds or 22 metric tons (however this used the 25,000 CY estimate, not the 32,719 actually placed). Therefore, the total salt introduction is estimated to be 194,491 pounds.

25. Due to an extremely wet rainy season and because of the low porosity and high permeability of sandy material, the salt impacts were relatively short term (only about one month, refer to Appendix A for detailed results).

26. As of the date of this report the DWR has concluded the water quality is at background levels, however, they are continuing long-term monitoring.

27. There are issues regarding the placement of the receiving water detection locations (upstream versus downstream). Since tidal flow influences the direction of the San Joaquin River in both directions, background levels differ depending on a flood or ebb cycle.

28. Additional EC monitoring is needed at several lateral drains and upstream of MP-1.

29. The DWR, BCDC, COE, and the RWQCB believe the small sized demonstration project identifies a successful use of a resource (dredged material), previously underutilized.

7.0 SUGGESTIONS FOR FUTURE DREDGING PROJECTS

The following suggestion may facilitate the implementation of future dredged material disposal projects:

* In March 1988, the California Legislature passed the Delta Flood Protection Act (Senate Bill 34) which recognized the importance of the Sacramento-San Joaquin Delta Region. The bill legislated the intent to appropriate $12 million annually for Delta flood protection for ten years, ending in 1998. SB 34 directs the California Department of Water Resources (DWR) to develop and implement flood protection projects on the eight western Delta islands. This funding source should be used before it expires and planning for the next project should start immediately.

* There should be an attempt to locate dredged material upland disposal sites closer to the Suisun Bay Channel and within the same Federal and State jurisdictions, if possible. Contra Costa County should share this leadership with the DWR.

* Federal General Investigation studies could be performed for the Islands closest to the dredged material locations per request of the local sponsor. Congressional authority for future study could also come from Section 1135 Environmental Restoration and/or Section 204 Beneficial Use of Dredged Material. Islands to be considered for projects could include Sherman, Seal, Roe, Ryer, Chipps, Browns, Van Sickle, Winter, Kimball and West. See Figure 1 (Project Location) and Figure 2 (Western Delta Islands) for further information. These are all located near the dredge sites and dredged material stockpiling facilities, levee rehabilitation, and wetland restoration could be the focus for future studies.

* Additional pilot projects could be performed for the Islands closest to the dredged material locations.

* A channel of communication between responsible agencies would improve coordination for: a more thorough pre-project analysis of previous salinity monitoring programs, refine contract specifications to meet WDR and/or other background monitoring plans; and the development of a comprehensive plan for the implementation of future dredge disposal projects.

* Complete the unreinforced segments on Jersey Island's northern perimeter.

* Ground water standards and the RWQCB's application of those requirements need to be redefined for areas that do not draw groundwater for drinking. Also, direction of groundwater flows should be studied.

* Prepare an environmental master plan on islands needing levee repair, wetland restoration and mitigation banking sites for future long-term projects. This master plan would identify environmentally sensitive areas and potential mitigation sites. A programmatic EIS/EIR for such

projects might be the most efficient approach. The implementation of the planning document should be coordinated between agencies to identify all available information and relevant data.

* Contra Costa County could investigate the possibility of establishing an assessment district to raise funds from the users of the navigation channels. A separate account could be set aside to provide upland disposal sites and to promote other beneficial uses within the County. This would require coordination with the local planning and public works departments to identify possible funding mechanisms.

* In order to create a "turn key" operation for the Corps' yearly O & M activities, it may be advisable to prepare an interagency Memorandum of Understanding (MOU). The purpose of the MOU would be to incorporate the findings and recommendations of this demonstration project into a procedural document which may streamline the implementation process of future O & M dredge disposal activities.

APPENDIX A

SUMMARY OF
WASTE DISCHARGE REQUIREMENTS
AND
MONITORING RESULTS FROM
THE DEPARTMENT OF WATER RESOURCES[1]

1 DWR should be contacted for a complete listing of waste discharge requirements.

WASTE DISCHARGE REQUIREMENTS

RECEIVING WATER

Turbidity not to increase more than 10 percent over background levels.

Dissolved oxygen concentrations not to fall below 7.0 mg/L (October 1 - June 30) and 5.0 mg/L (July 1 - September 30).

Temperature not to increase above 56 degrees Fahrenheit (13.3 degrees Celcius) or river background temperatures (October 1 - June 30), whichever is greater; and not to increase more than 5 degrees Fahrenheit (2.8 degrees Celcius) over river background temperatures (July 1 - September 30).

pH not to fall below 6.5 or exceed 8.5.

AGRICULTURAL DRAIN

pH not to fall below 6.5 or exceed 8.5.

Total Dissolved Solids concentrations at the main drain not to exceed 10 percent or a maximum of 150 mg/L, whichever is less, over the TDS concentrations 100 feet upgradient of the point where dredged sediment drainage enters the main drain.

GROUND WATER

Electrical conductivity not to exceed an annual average incremental increase of 400 umhos/cm, or a maximum of 2,600 umhos/cm, whichever is less.

Not to contain chemicals, heavy metals, or trace elements in concentrations that adversely effect beneficial uses or exceed drinking water maximum contaminant levels (MCLs).

DREDGED SEDIMENT

Not to exceed specified concentrations for the following constituents: arsenic, cadmium, chromium, copper, lead. Mercury, nickel, thallium, and zinc.

Not to contain waste classified as "hazardous" or "designated".

RECEIVING WATER (R-1 and R-2)
Background Data (in mg/L except as noted)
Sampling Date: 11/3/94

Constituent	R-1	R-2
Turbidity (NTUs)	-	-
Dissolved Oxygen	-	-
Temperature (degrees Celcius)	-	-
pH (pH units)	7.8	7.8
Electrical Conductivity (umhos/cm)	1890	2200
Total Dissolved Solids	968	1140
Suspended Solids	14	12
Hardness (as CaCO3)	237	253
Total Organic Carbon	2.3	2.2
Total Alkalinity	65	66
Chlorides	499	591
Bromides	1.85	2.24
Total Sulfides	-	-
Dissolved Sulfides	<0.5	<0.5
Sulfate	76	86
Fluoride	0.1	0.1
Sodium	270	336
Magnesium	43	48
Potassium	-	-
Calcium	24	22
Boron	0.2	0.2

Dissolved Metals: All concentrations below detection limits except for arsenic, which was 0.002 mg/L at R-1 and R-2.

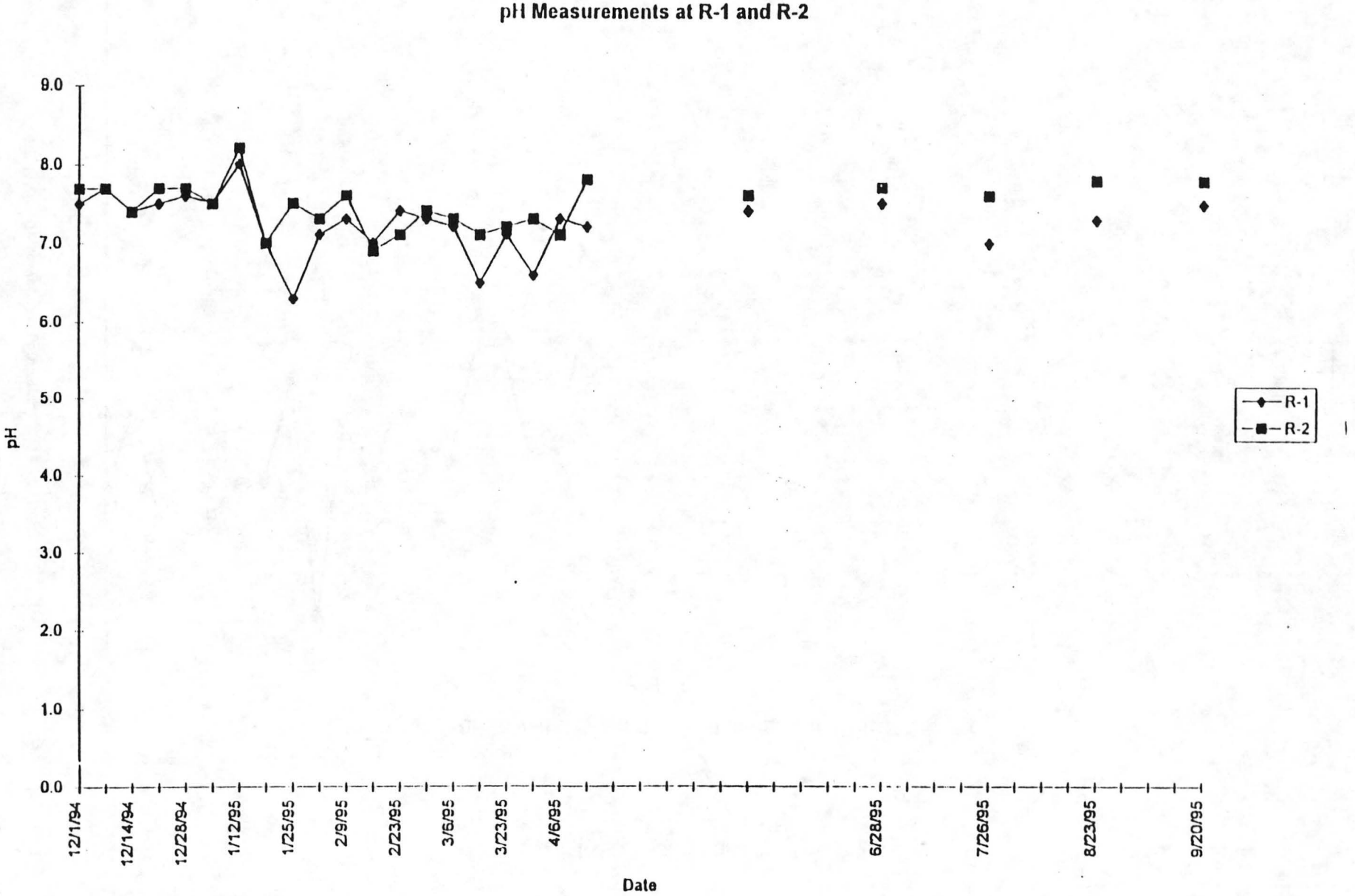
RECEIVING WATER (R-1 and R-2)
Monitoring (in mg/L except as noted)
Minerals and General Water Parameters

Constituent	Monitoring Period	R-1	R-2
Turbidity (NTUs)	12/1/94 - 9/20/95	6.4 - 90	5.0 - 90
Dissolved Oxygen	12/1/94 - 9/20/95	7.2 - 13.1	7.5 - 13.0
Temperature (degrees Celcius)	12/1/94 - 9/20/95	9.1 - 24.5	9.2 - 23.7
pH (pH units)	12/1/94 - 9/20/95	6.3 - 8.0	6.9 - 8.2
Electrical Conductivity (umhos/cm)	12/1/94 - 9/20/95	121 - 2,910	77 - 2,950
Total Dissolved Solids	12/1/94 - 7/26/95	82 - 1,550	78 - 1,540
Suspended Solids	12/1/94 - 8/23/95	2 - 50	3 - 54
Hardness (as CaCO3)	12/1/94 - 7/26/95	36 - 368	36 - 377
Total Organic Carbon	12/1/94 - 8/23/95	2.0 - 7.6	1.8 - 8.0
Total Alkalinity	12/1/94 - 7/26/95	34 - 76	32 - 78
Color	3/16/95 - 8/23/95	7 - 150	25 - 200
Chlorides	12/1/94 - 7/26/95	8 - 790	8 - 797
Bromides	12/1/94 - 8/23/95	0.03 - 2.68	0.02 - 2.65
Total Sulfides	12/1/94 - 8/23/95	<1 - 7.2	<1 - 7.7
Dissolved Sulfides	12/1/94 - 8/23/95	<0.5 - 7.0	<0.5 - 9.0
Sulfate	12/1/94 - 7/26/95	9 - 112	9 - 116
Fluoride	12/1/94 - 7/26/95	<0.1 - 0.1	<0.1 - 0.1
Sodium	12/1/94 - 7/26/95	8 - 455	9 - 447
Magnesium	12/1/94 - 7/26/95	4 - 68	4 - 69
Potassium	12/1/94 - 7/26/95	1.0 - 4.4	1.0 - 4.0
Calcium	12/1/94 - 7/26/95	8 - 35	8 - 37
Boron	12/1/94 - 7/26/95	<0.1 - 0.3	<0.1 - 0.3

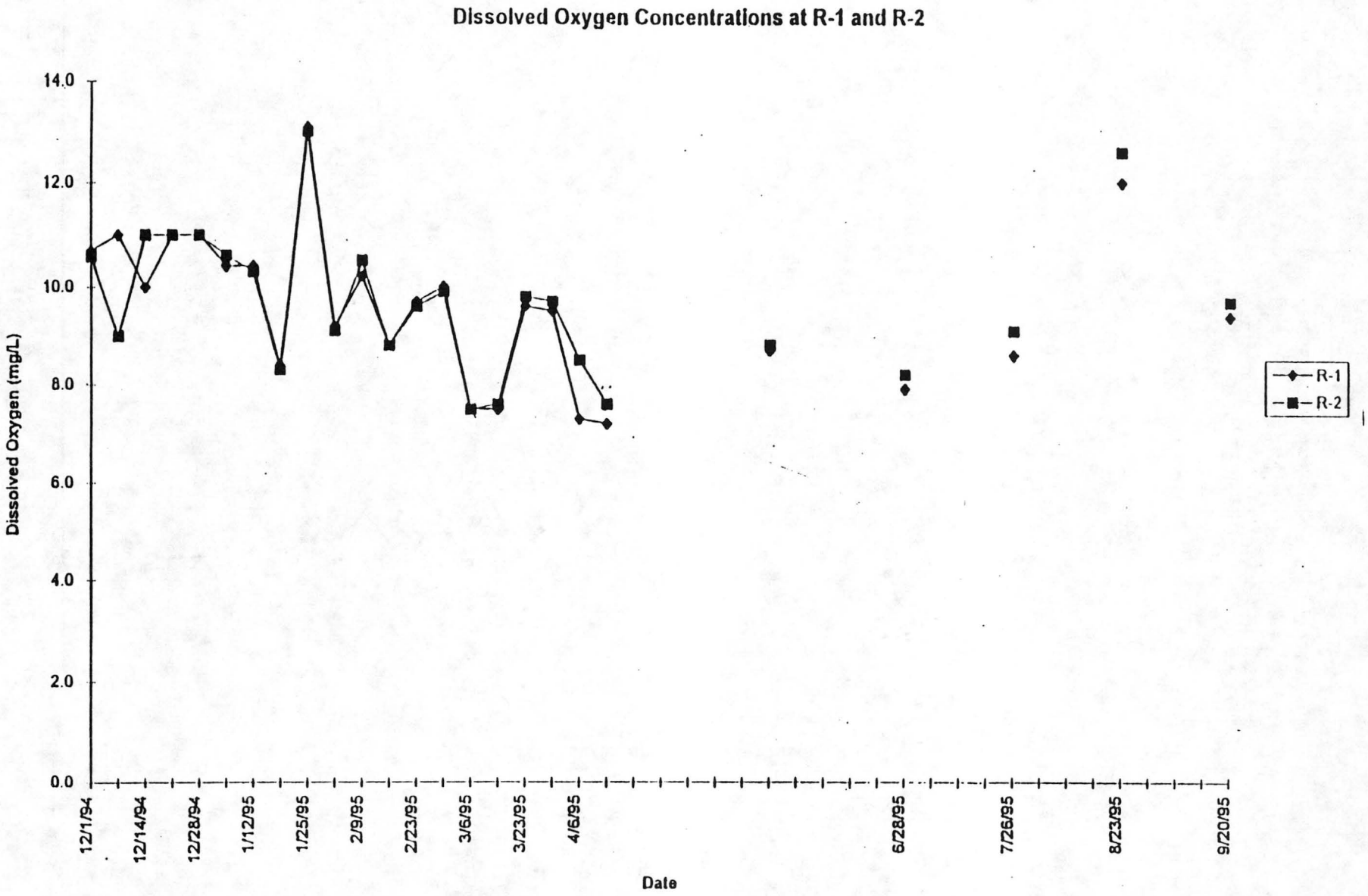
RECEIVING WATER (R-1 and R-2)
Monitoring (in mg/L)
Dissolved Trace Metals

Trace Metal	Monitoring Period	R-1	R-2
Arsenic	12/1/94 - 8/23/95	0.001 - 0.002	0.001 - 0.002
Cadmium	12/1/94 - 8/23/95	<0.005	<0.005
Chromium	12/1/94 - 8/23/95	<0.005	<0.005
Copper	12/1/94 - 8/23/95	<0.005	<0.005 - 0.005
Lead	12/1/94 - 8/23/95	<0.002	<0.002
Mercury	12/1/94 - 8/23/95	<0.001	<0.001
Nickel	12/1/94 - 8/23/95	<0.005	<0.005
Selenium	12/1/94 - 8/23/95	<0.001	<0.001
Silver	12/1/94 - 8/23/95	<0.005	<0.005
Thallium	12/1/94 - 8/23/95	<0.002	<0.002
Zinc	12/1/94 - 8/23/95	<0.005 - 0.046	<0.005 - 0.030

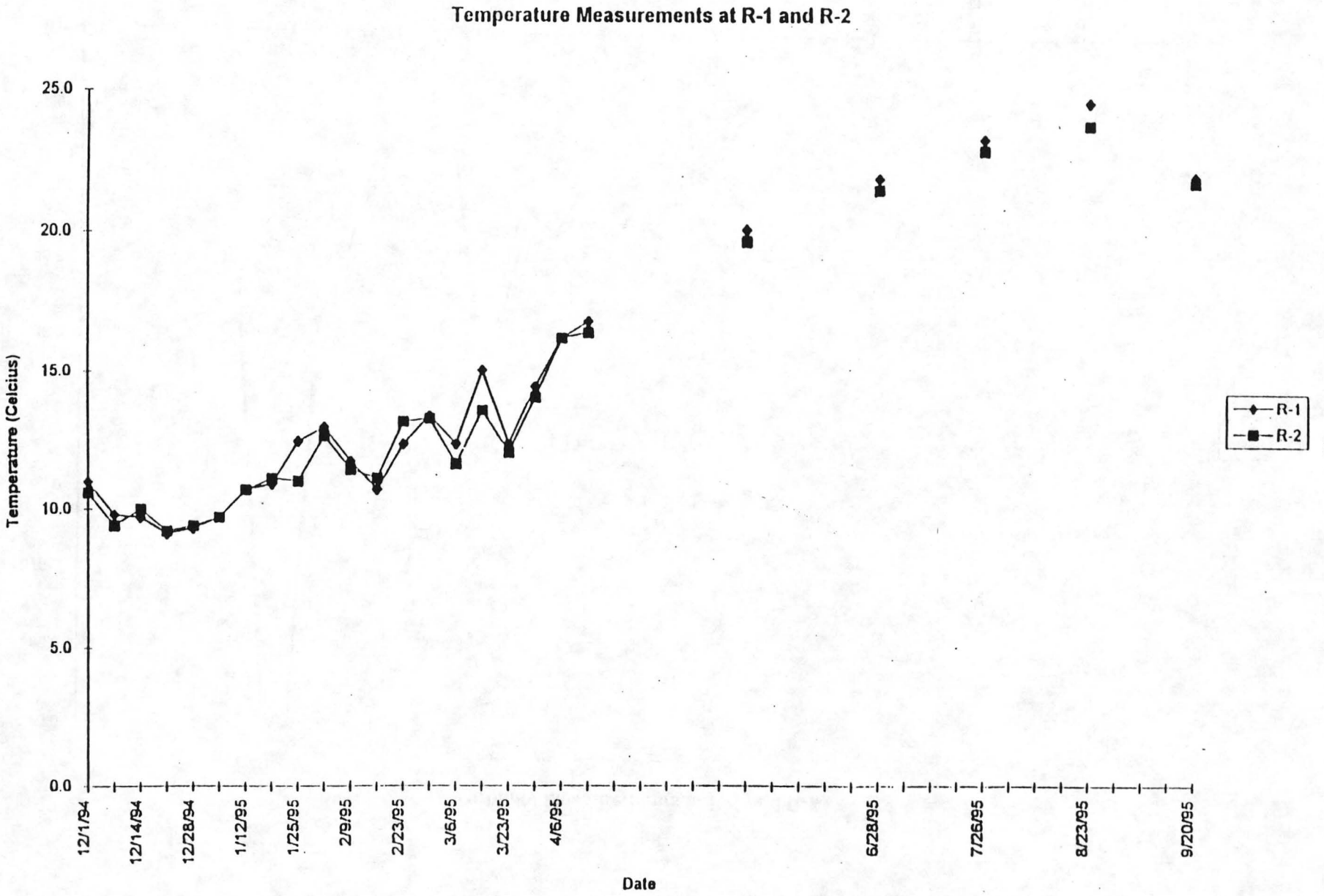
RWPHMON Chart 1



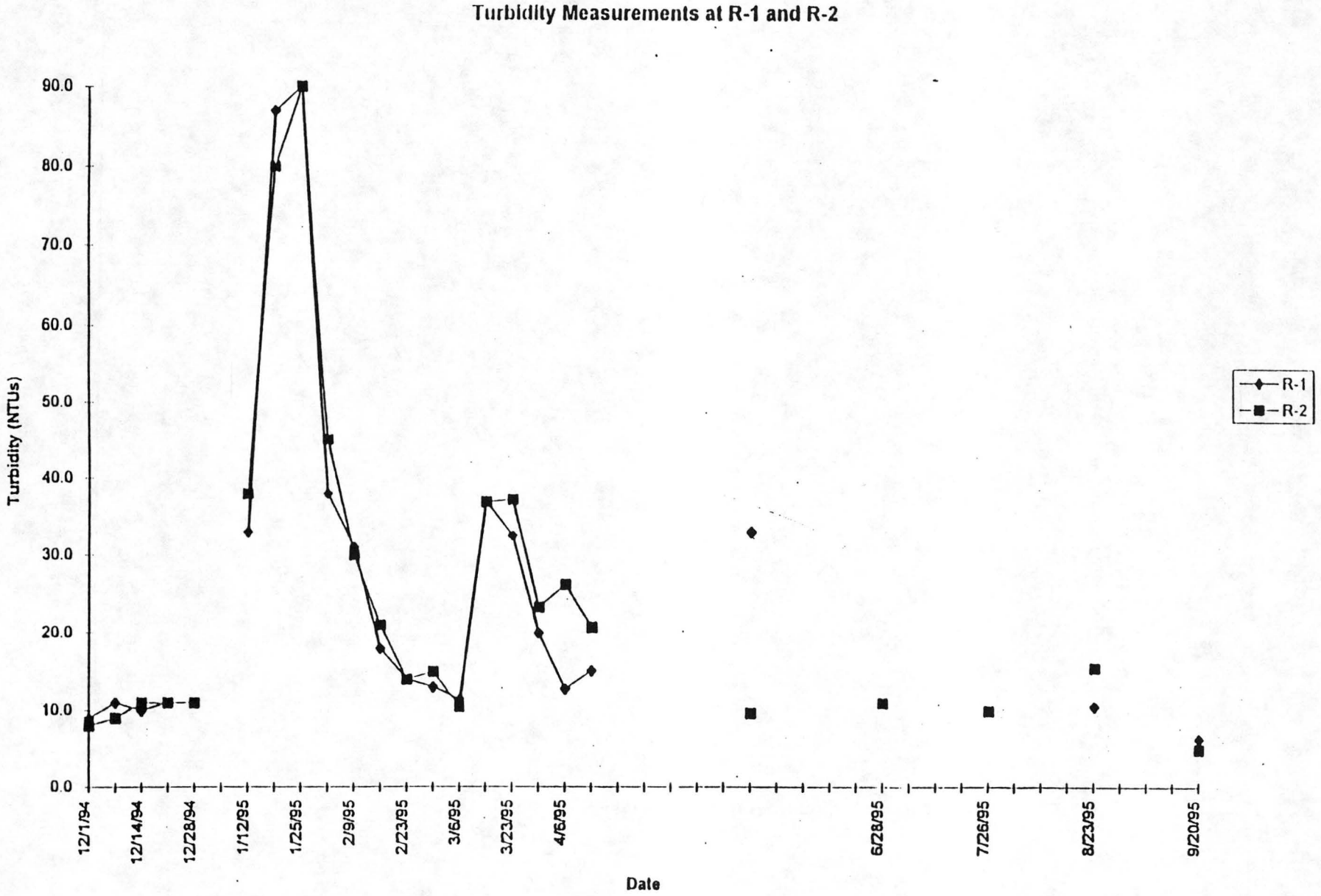
RWOXYGEN Chart 1



RWTEMPER Chart 1

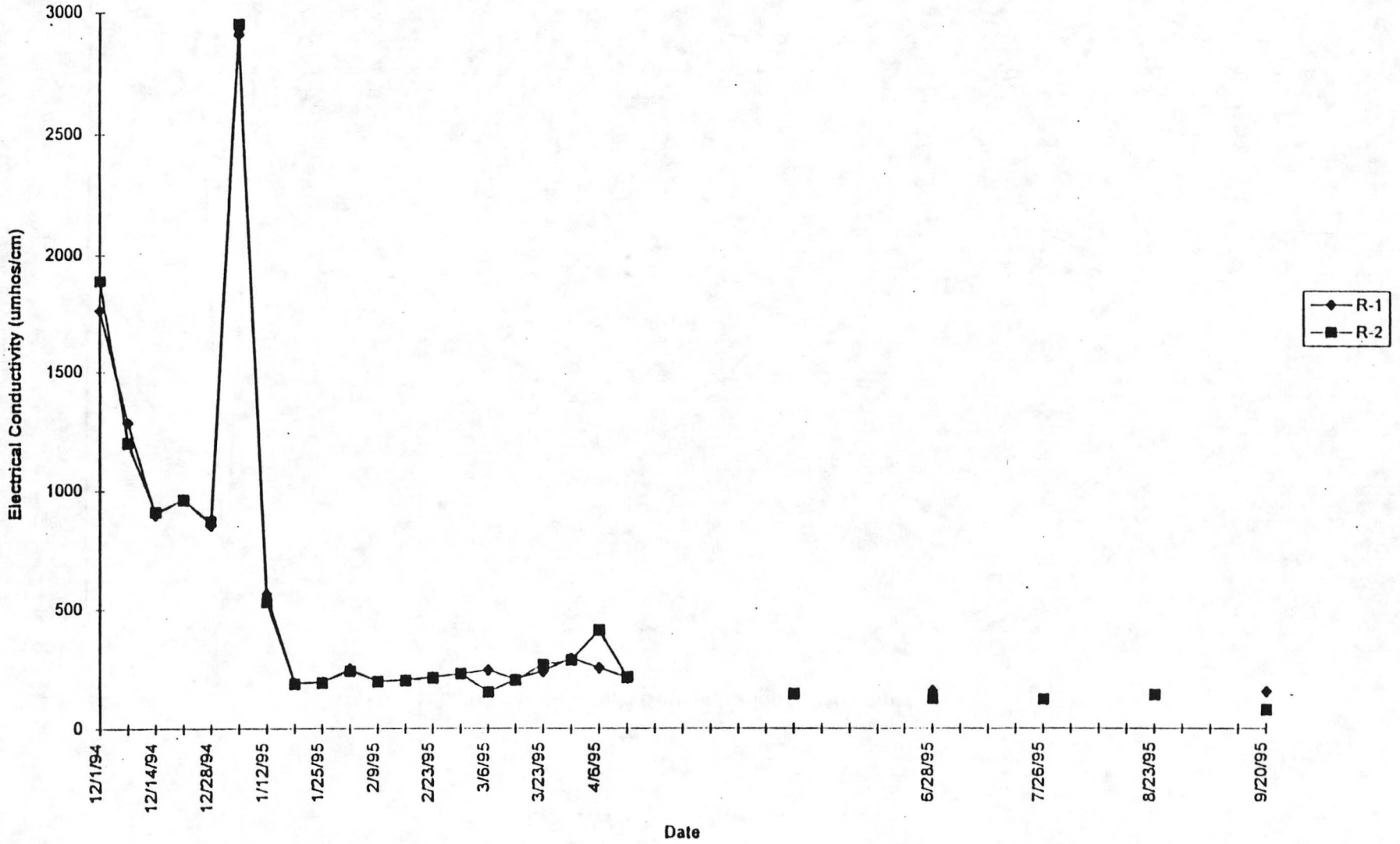


RWTURBID Chart 1



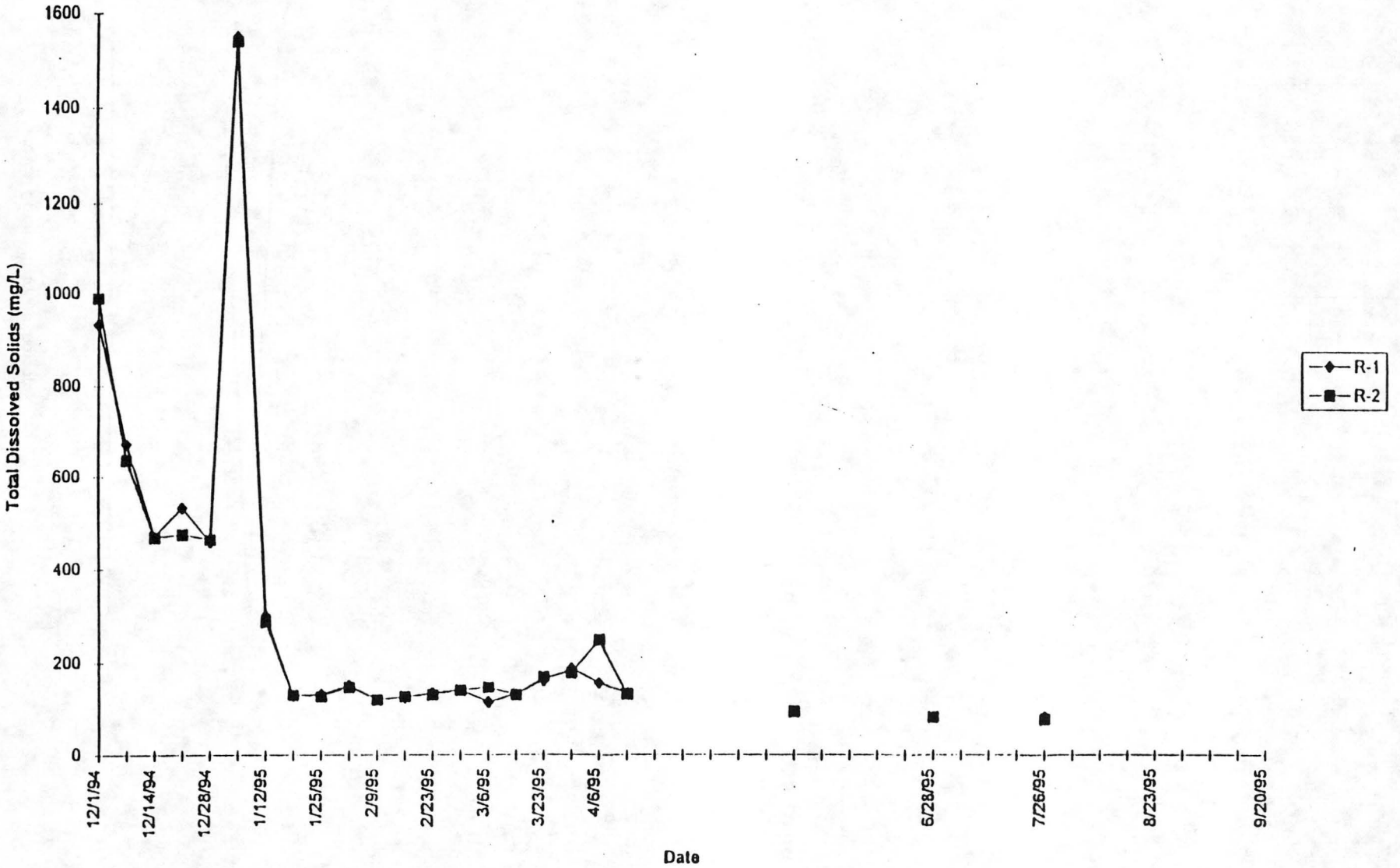
RWECMON Chart 1

Electrical Conductivity Measurements at R-1 and R-2



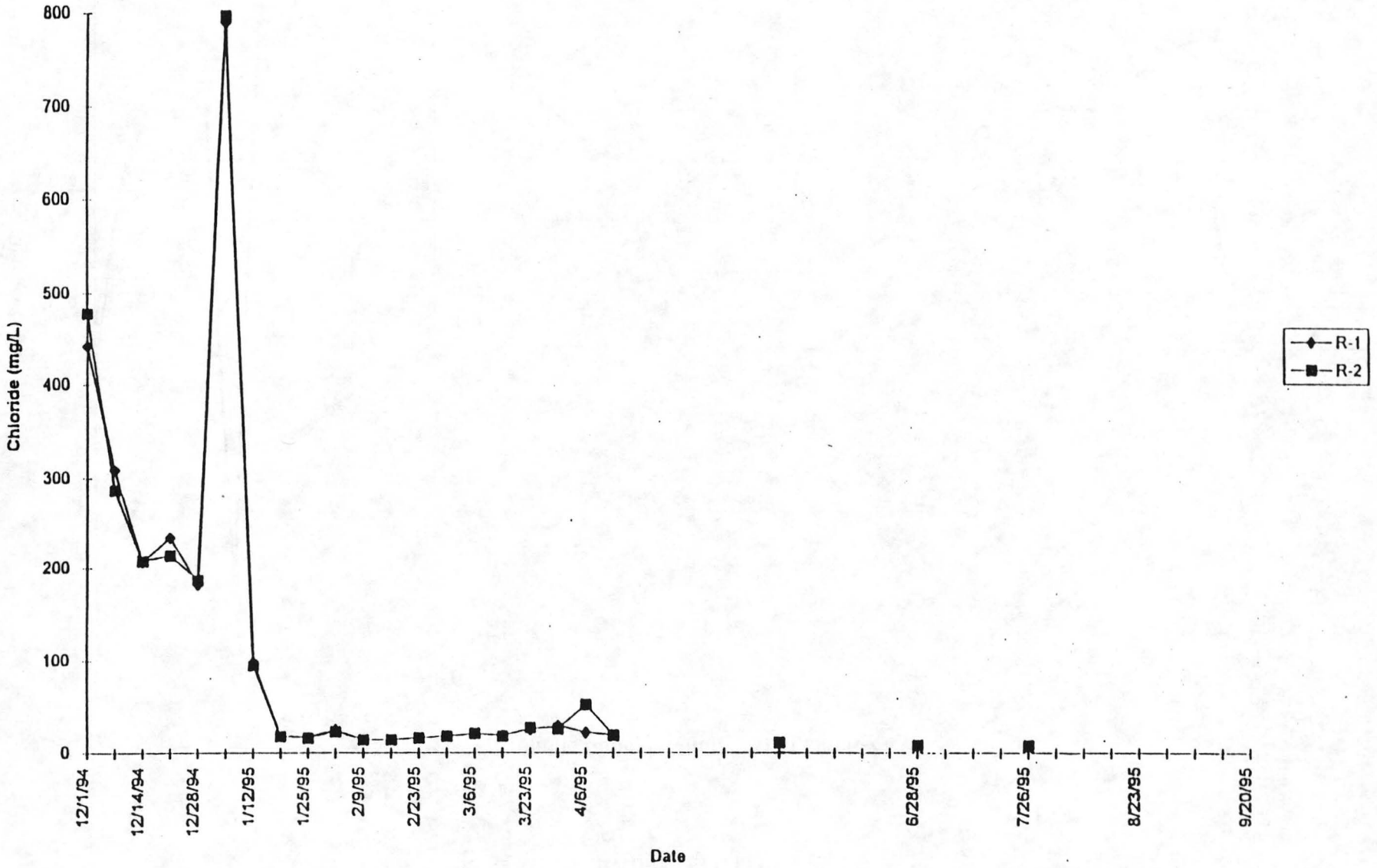
RWTDSMON Chart 1

Total Dissolved Solids Concentrations at R-1 and R-2



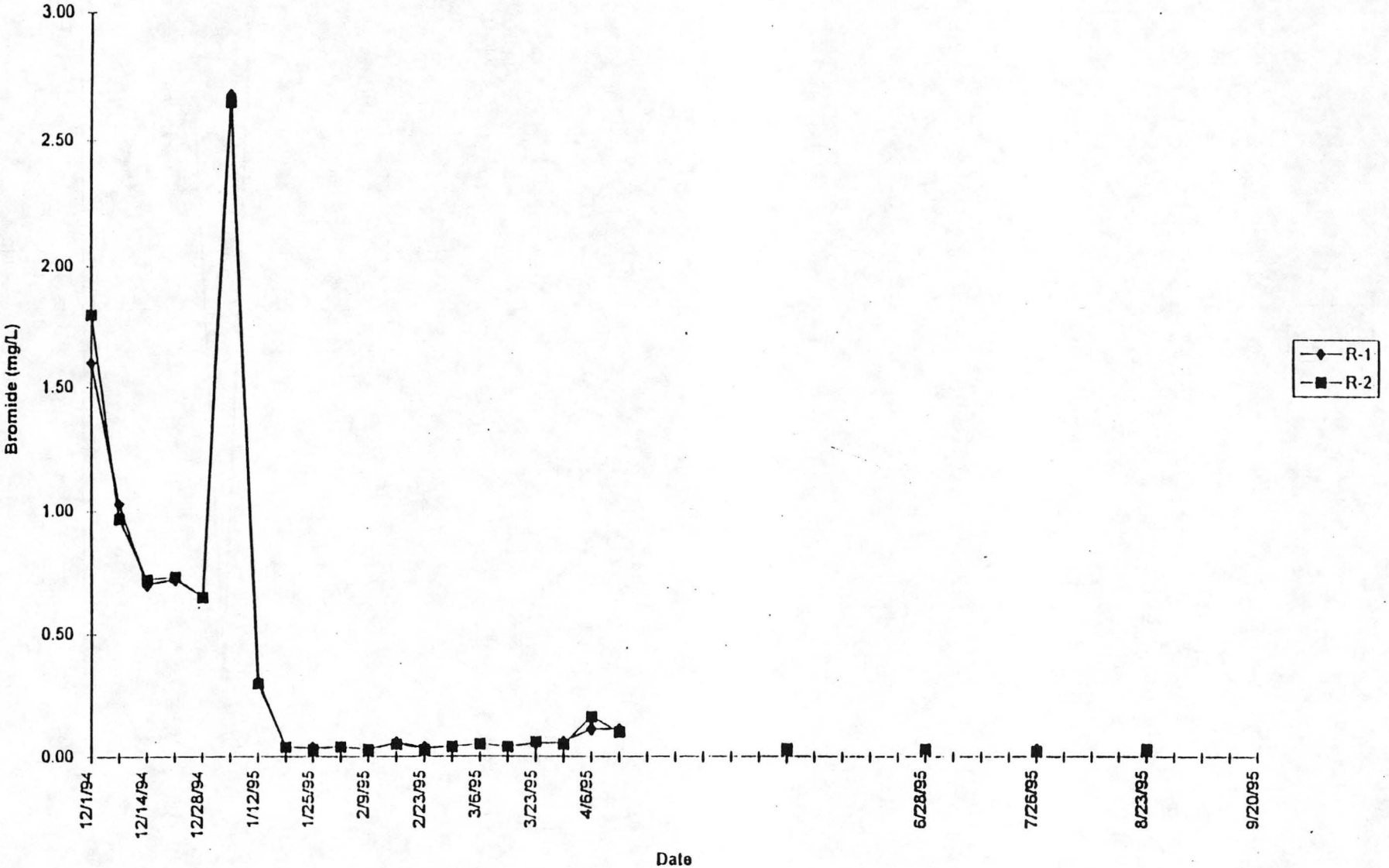
RWCLMON Chart 1

Chloride Concentrations at R-1 and R-2



RWBRMON Chart 1

Bromide Concentrations at R-1 and R-2



COMPLIANCE POINTS (Ag Drain at MP-1 and CP-1)
:ground Data (in mg/L except as noted)
)ling Date: 11/3/94

Constituent	MP-1	CP-1
Turbidity (NTUs)	7.3	26.5
Dissolved Oxygen	12.8	14.5
Temperature (degrees Celcius)	10.9	10.6
pH (pH units)	7.4	7.9
Electrical Conductivity (umhos/cm)	1508	2330
Total Dissolved Solids	776	1250
Chlorides	311	589
Bromides	1.07	2.16

(Historical Electrical Conductivity data at CP-1: 1400 - 2600 umhos/cm from April 1994 to August 1994 (5 sampling events)).

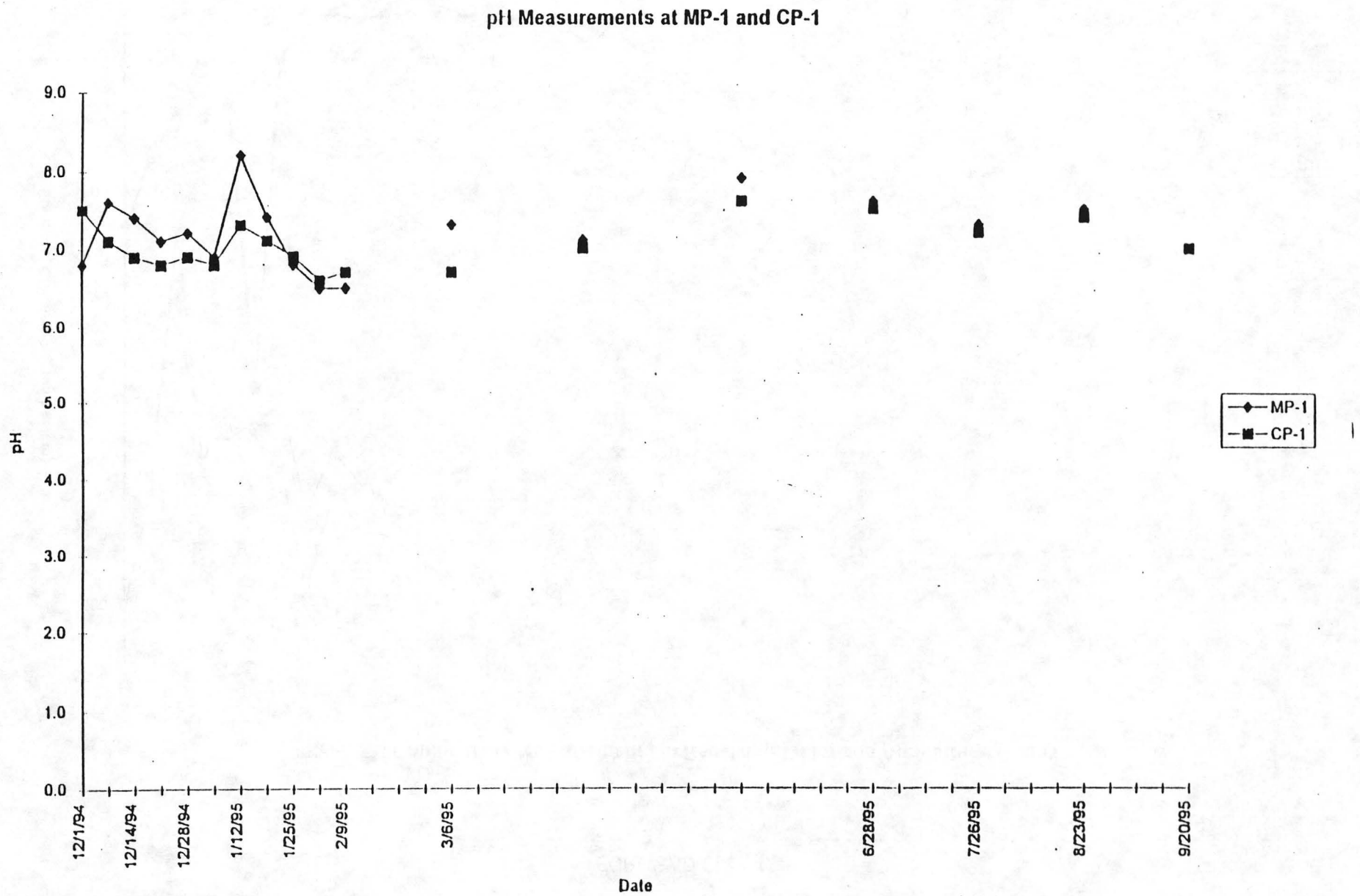
Dissolved Metals: All concentrations below detection limits except for arsenic, which was 0.005 mg/L at MP-1 and 0.002 mg/L at CP-1; and for zinc, which was 0.005 mg/L at MP-1.

COMPLIANCE POINTS (Ag Drain at MP-1 and CP-1)
Monitoring (in mg/L except as noted)

Minerals and General Water Parameters	Monitoring Period	MP-1	CP-1
Turbidity (NTUs)	12/1/94 - 9/20/95	8.9 - 46.1	11.1 - 55.0
Dissolved Oxygen	12/1/94 - 9/20/95	3.0 - 11.3	4.1 - 10.5
Temperature (degrees Celcius)	12/1/94 - 9/20/95	8.0 - 24.0	8.8 - 23.0
pH (pH units)	12/1/94 - 9/20/95	6.5 - 8.2	6.6 - 7.6
Electrical Conductivity (umhos/cm)	12/1/94 - 9/20/95	268 - 4,550	163 - 3,850
Total Dissolved Solids	12/1/94 - 8/23/95	58 - 2,680	84 - 2,440
Chlorides	12/1/94 - 8/23/95	36 - 1,160	43 - 839
Bromides	12/1/94 - 9/20/95	0.11 - 4.22	0.14 - 2.26

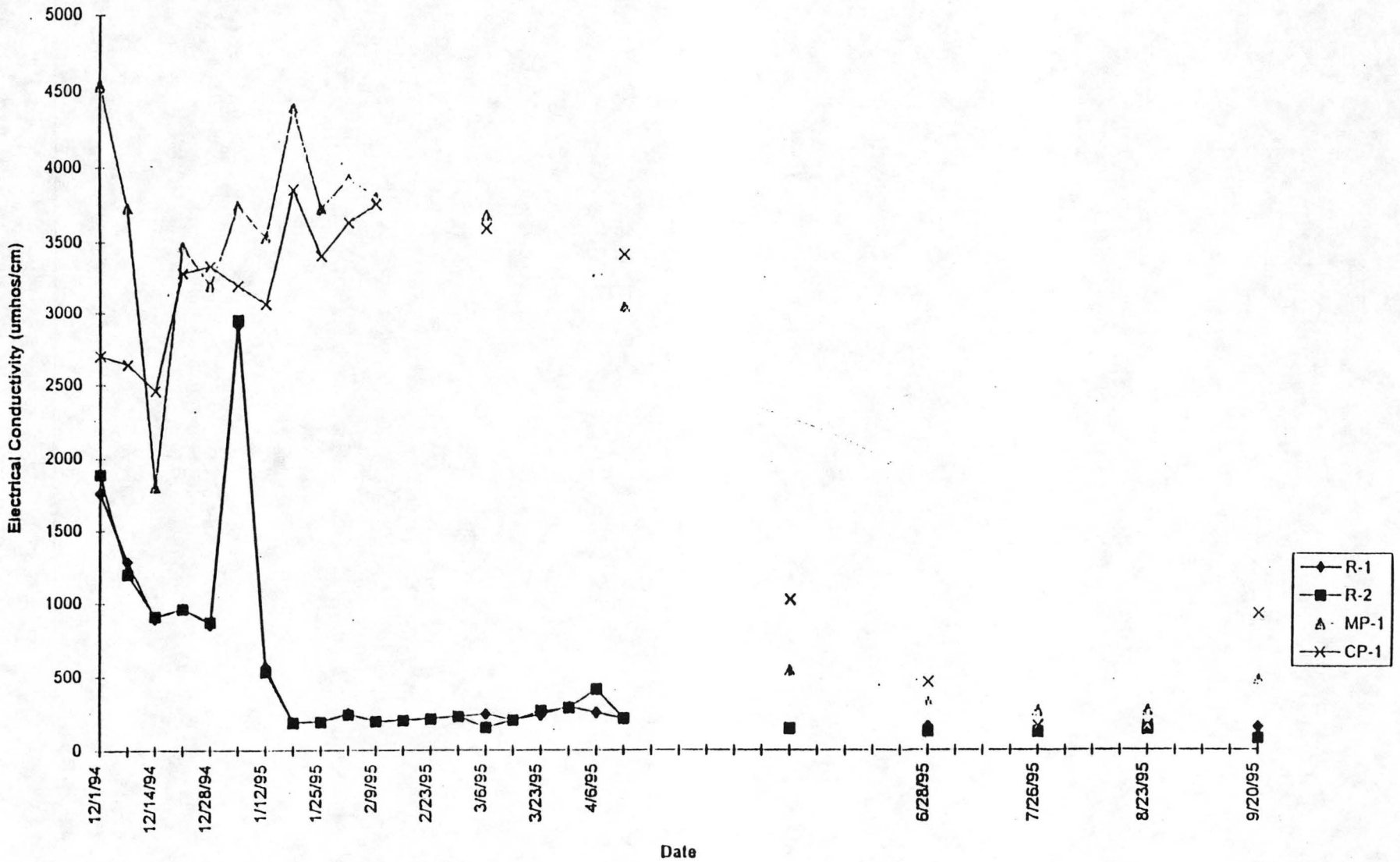
Dissolved Trace Metals	Monitoring Period	MP-1	CP-1
Arsenic	12/1/94 - 8/23/95	<0.001 - 0.006	0.002 - 0.006
Cadmium	12/1/94 - 8/23/95	<0.005	<0.005
Chromium	12/1/94 - 8/23/95	<0.005	<0.005
Copper	12/1/94 - 8/23/95	<0.005 - 0.011	<0.005 - 0.007
Lead	12/1/94 - 8/23/95	<0.002	<0.002
Mercury	12/1/94 - 8/23/95	<0.001	<0.001
Nickel	12/1/94 - 8/23/95	<0.005 - 0.025	<0.005 - 0.021
Selenium	12/1/94 - 8/23/95	<0.001	<0.001
Silver	12/1/94 - 8/23/95	<0.005	<0.005
Thallium	12/1/94 - 8/23/95	<0.002	<0.002
Zinc	12/1/94 - 8/23/95	<0.005 - 0.047	<0.005 - 0.025

CPADPH Chart 1

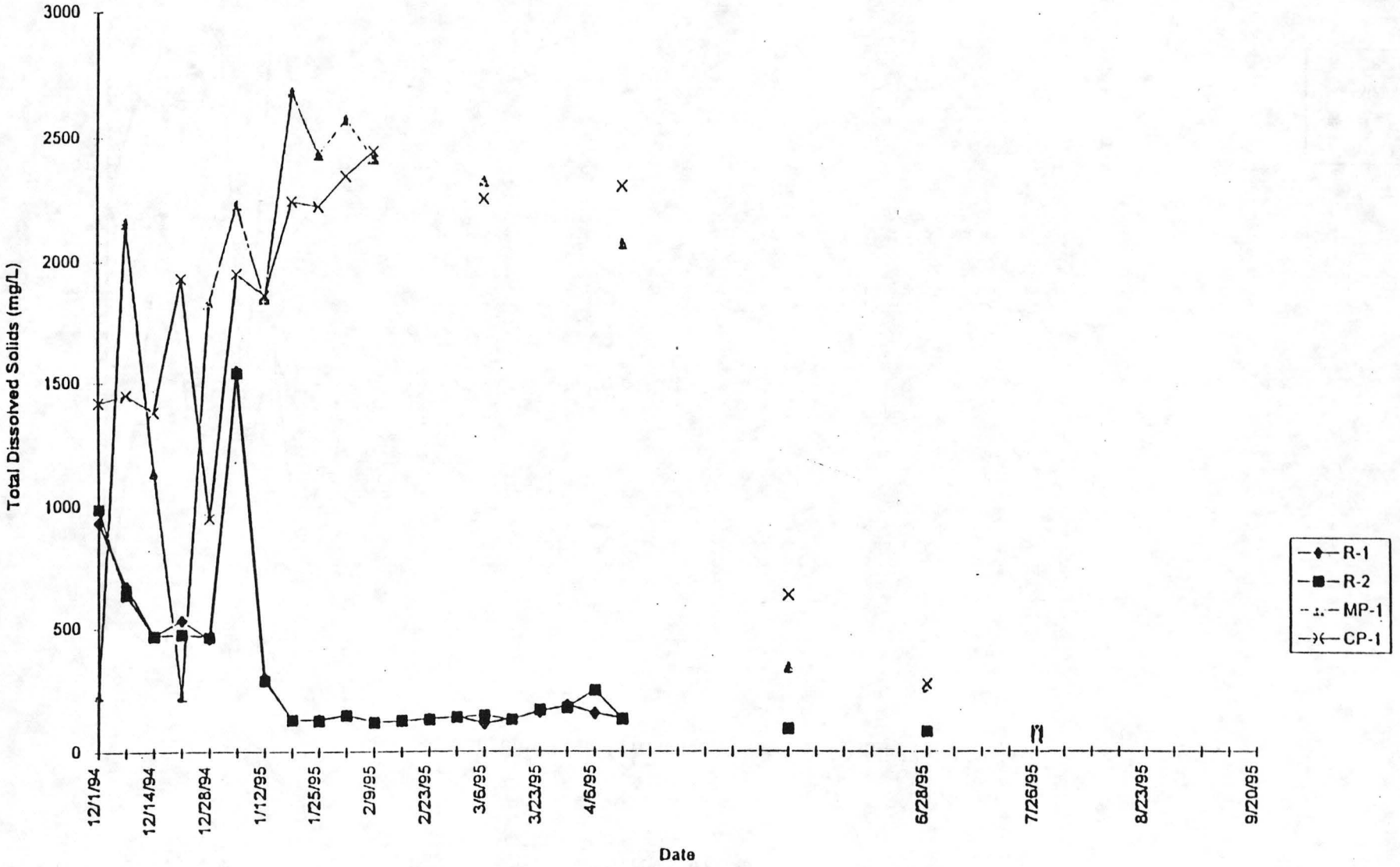


ECRW&AD Chart 1

Electrical Conductivity Measurements in Receiving Water and Agricultural Drains

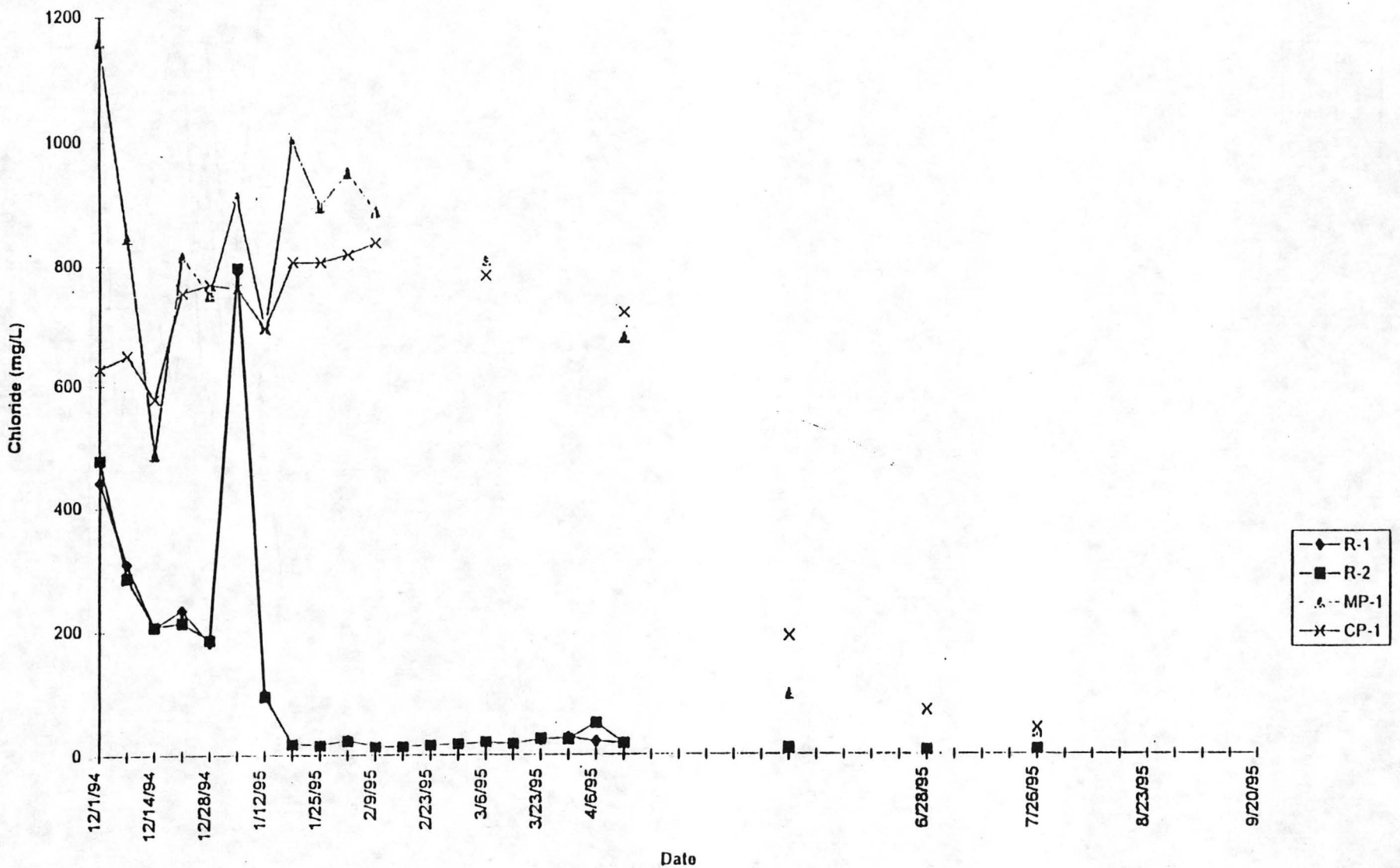


Total Dissolved Solids Concentrations In Receiving Water and Agricultural Drains



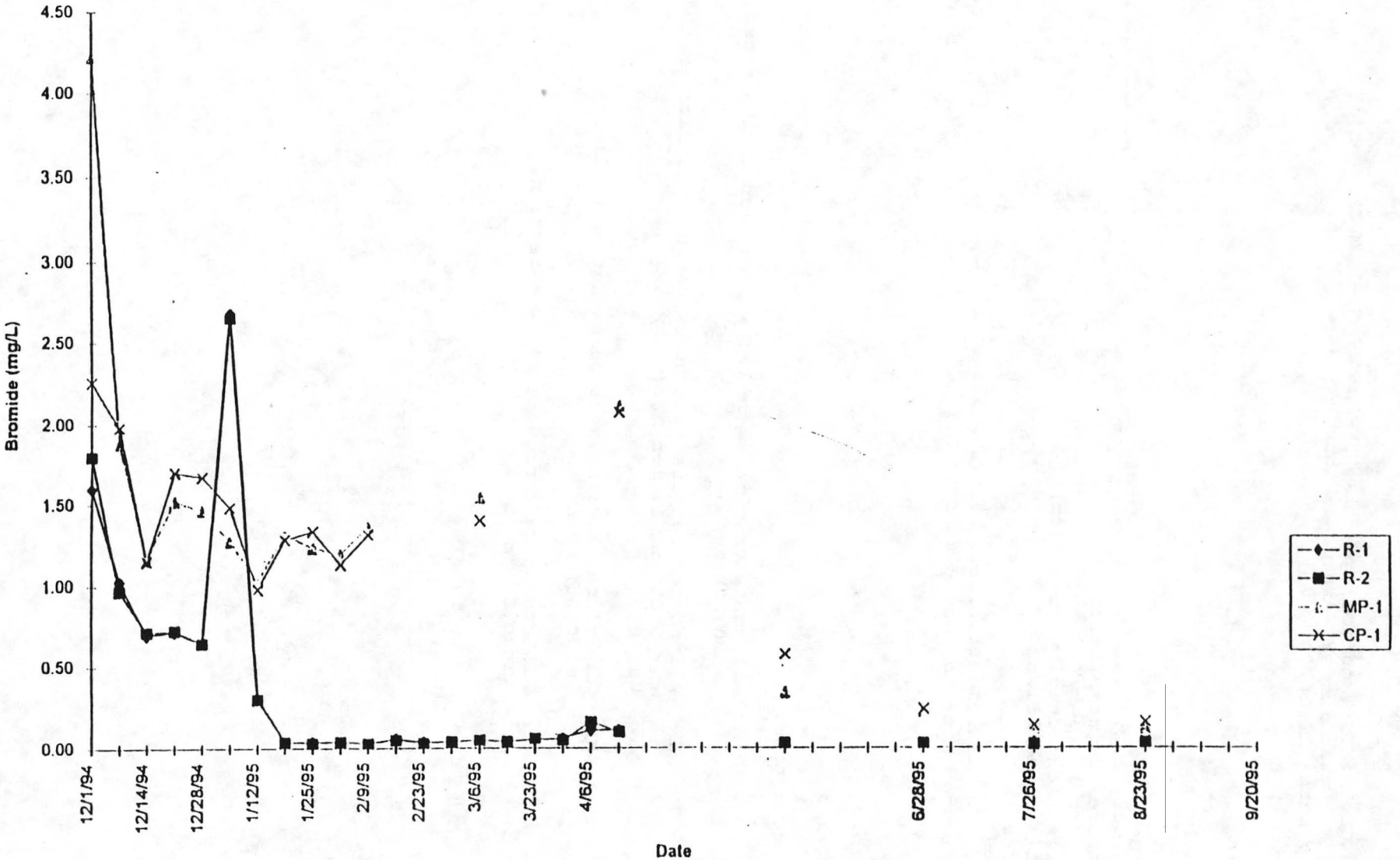
CLRW&AD Chart 1

Chloride Concentrations in Receiving Water and Agricultural Drains



BRRW&AD Chart 1

Bromide Concentrations in Receiving Water and Agricultural Drains



COMPLIANCE POINTS (Monitoring Wells: MWA, MWB, MWC, MWD)
'-ground Data (in mg/L except as noted)
ling Date: 12/20/94

Constituent	MWA	MWB	MWC*	MWD
Temperature (degrees Celcius)	16.1	16.6	16.1	15.4
pH (pH units)	6.7	6.5	5.9	6.5
Electrical Conductivity (umhos/cm)	1500	2590	1000	690
Total Dissolved Solids	829	1390	508	376
Chlorides	396	276	259	157
Bromides	1.30	2.28	1.00	0.51

* No dredged material was placed in Area C

Dissolved Metals:

MWA: All concentrations were below detection limits except for arsenic, which was 0.002 mg/L.

MWB: All concentrations were below detection limits except for arsenic, which was 0.010 mg/L; for nickel, which was 0.023 mg/L; and for zinc, which was 0.018 mg/L.

MWC: All concentrations were below detection limits except for arsenic, which was 0.001 mg/L.

MWD: All concentrations were below detection limits except for arsenic, which was 0.001 mg/L.

COMPLIANCE POINTS (Monitoring Wells: MWA, MWB, MWC, MWD)
Monitoring (in mg/L except as noted)

Minerals and General Water Parameters	Monitoring Period	MWA	MWB	MWC*	MWD
Temperature (degrees Celcius)	12/29/94 - 9/21/95	15.8 - 18.1	14.2 - 21.2	15.5 - 17.5	15.5 - 17.2
pH (pH units)	12/29/94 - 9/21/95	6.2 - 6.7	5.8 - 7.1	5.8 - 6.6	6.0 - 6.8
Electrical Conductivity (umhos/cm)	12/29/94 - 9/21/95	1,280 - 1,470	1,156 - 2,530	720 - 900	628 - 934
Total Dissolved Solids	12/29/94 - 8/24/95	742 - 825	679 - 1,500	414 - 484	348 - 636
Chlorides	12/29/94 - 8/24/95	337 - 378	114 - 268	170 - 215	129 - 208
Bromides	12/29/94 - 9/21/95	0.98 - 1.35	0.97 - 2.30	0.52 - 0.80	0.21 - 0.78

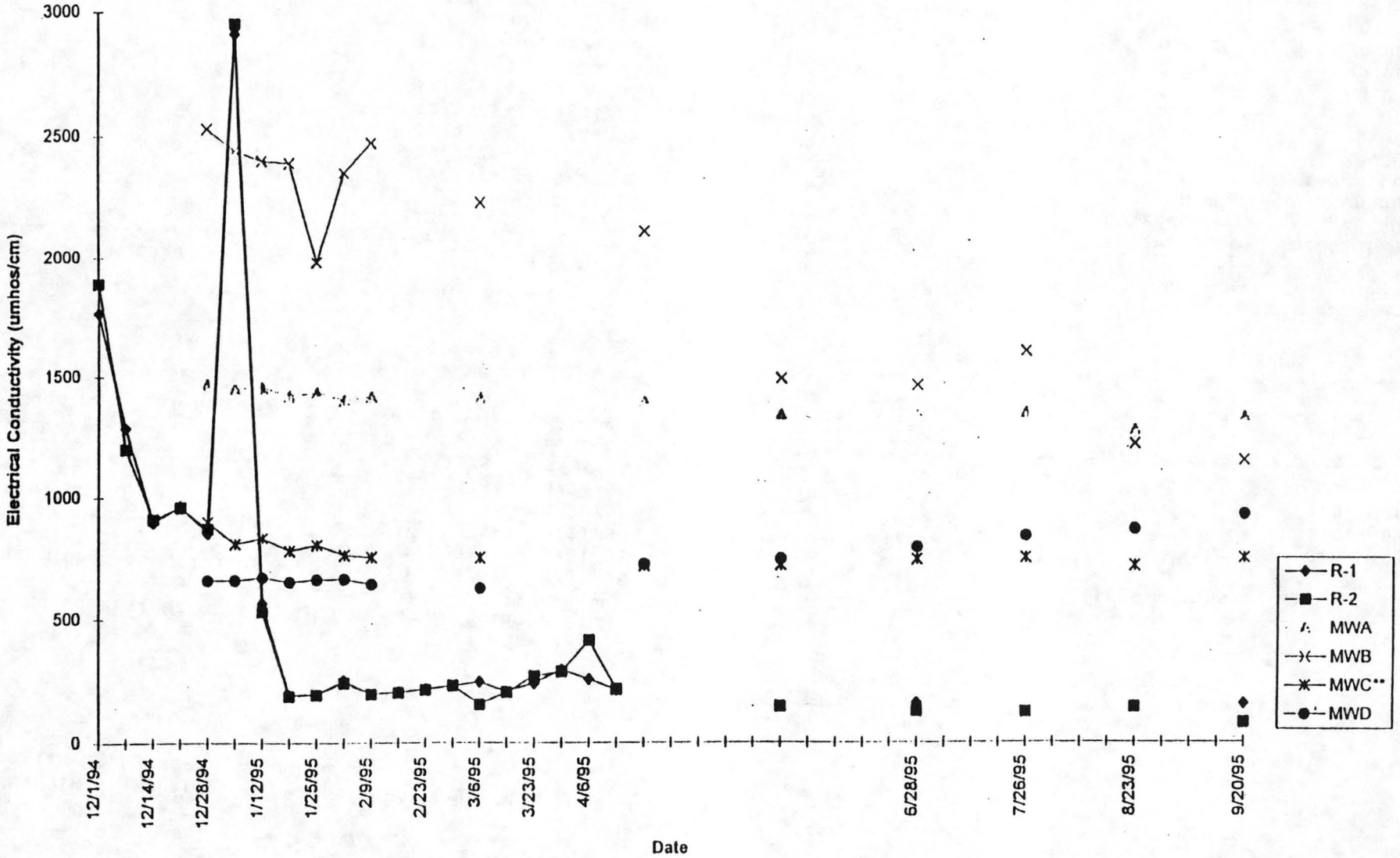
* No dredged material was placed in Area C

Dissolved Trace Metals	Monitoring Period	MWA	MWB	MWC*	MWD
Arsenic	12/29/94 - 8/24/95	<0.001	0.014 - 0.076	0.002 - 0.004	0.002 - 0.003
Cadmium	12/29/94 - 8/24/95	<0.005	<0.005	<0.005	<0.005
Chromium	12/29/94 - 8/24/95	<0.005	<0.005	<0.005	<0.005
Copper	12/29/94 - 8/24/95	<0.005	<0.005	<0.005	<0.005
Lead	12/29/94 - 8/24/95	<0.002	<0.002	<0.002	<0.002
Mercury	12/29/94 - 8/24/95	<0.001	<0.001	<0.001	<0.001
Nickel	12/29/94 - 8/24/95	<0.005	<0.005 - 0.018	<0.005	<0.005
Selenium	12/29/94 - 8/24/95	<0.001	<0.001	<0.001	<0.001
Silver	12/29/94 - 8/24/95	<0.005	<0.005	<0.005	<0.005
Thallium	12/29/94 - 8/24/95	<0.002	<0.002	<0.002	<0.002
Zinc	12/29/94 - 8/24/95	<0.005 - 0.013	<0.005 - 0.014	<0.005	<0.005

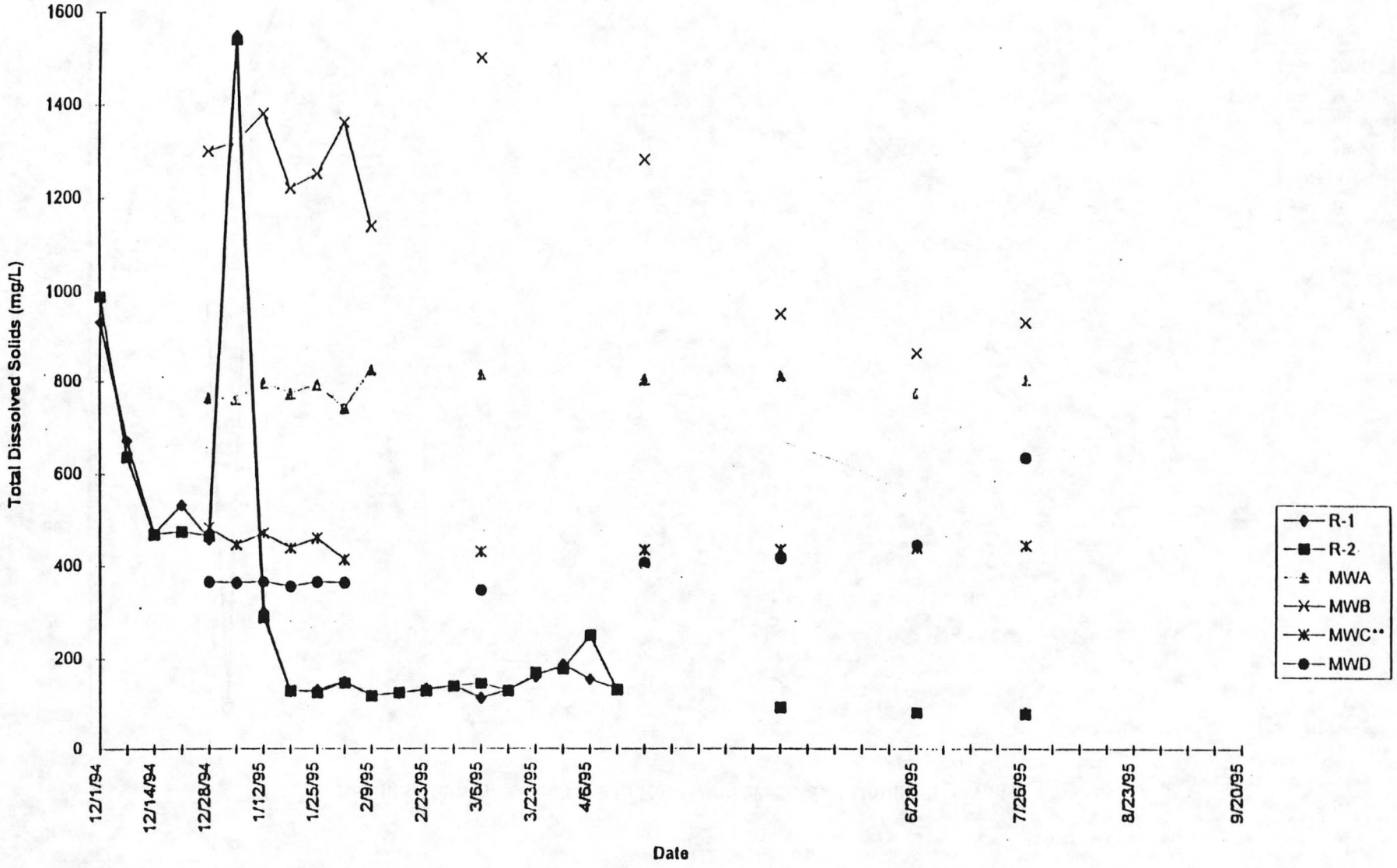
* No dredged material was placed in Area C

ECRW&MW Chart 1

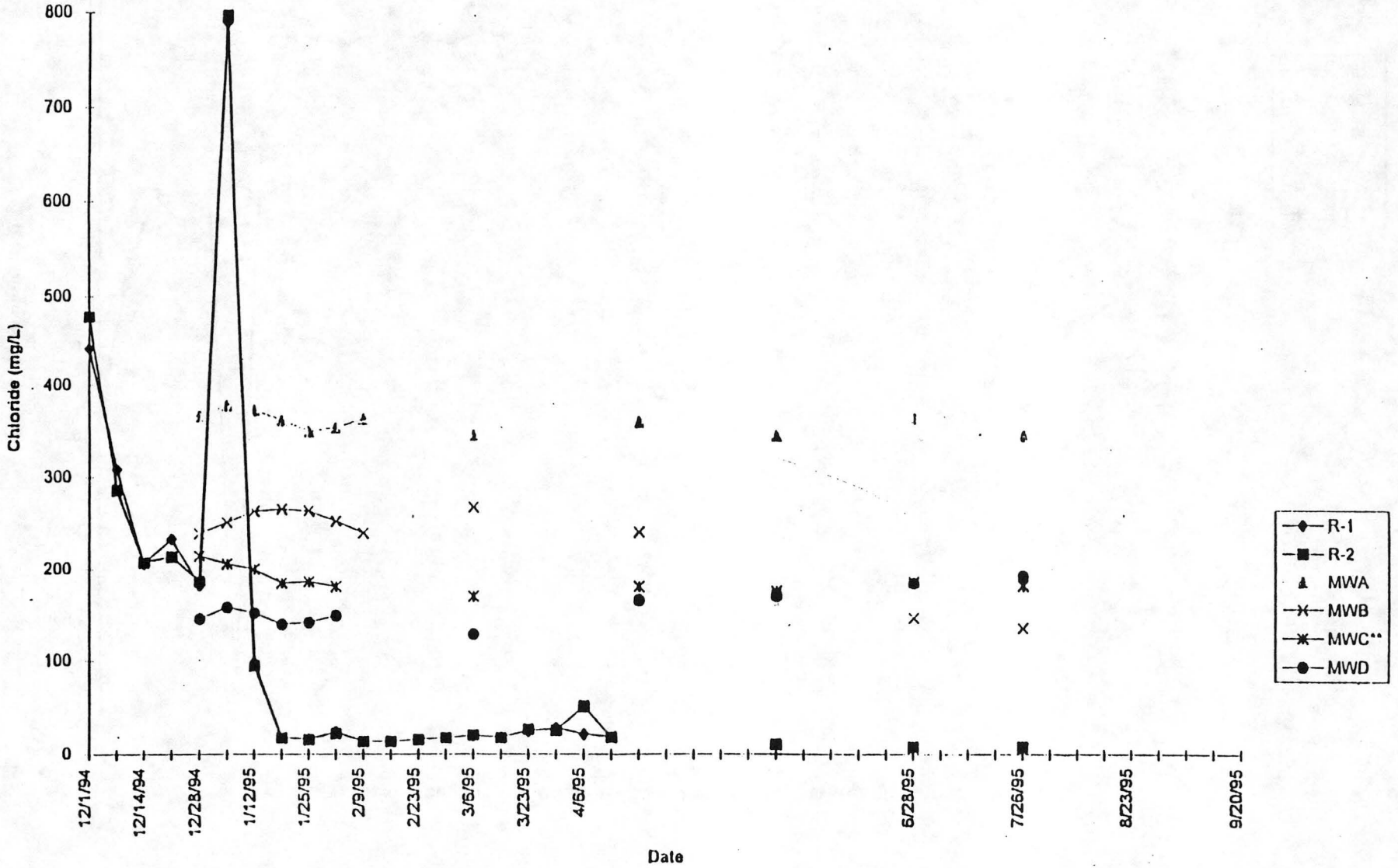
Electrical Conductivity Measurements in Receiving Water and Monitoring Wells



Total Dissolved Solids Concentrations in Receiving Water and Monitoring Wells

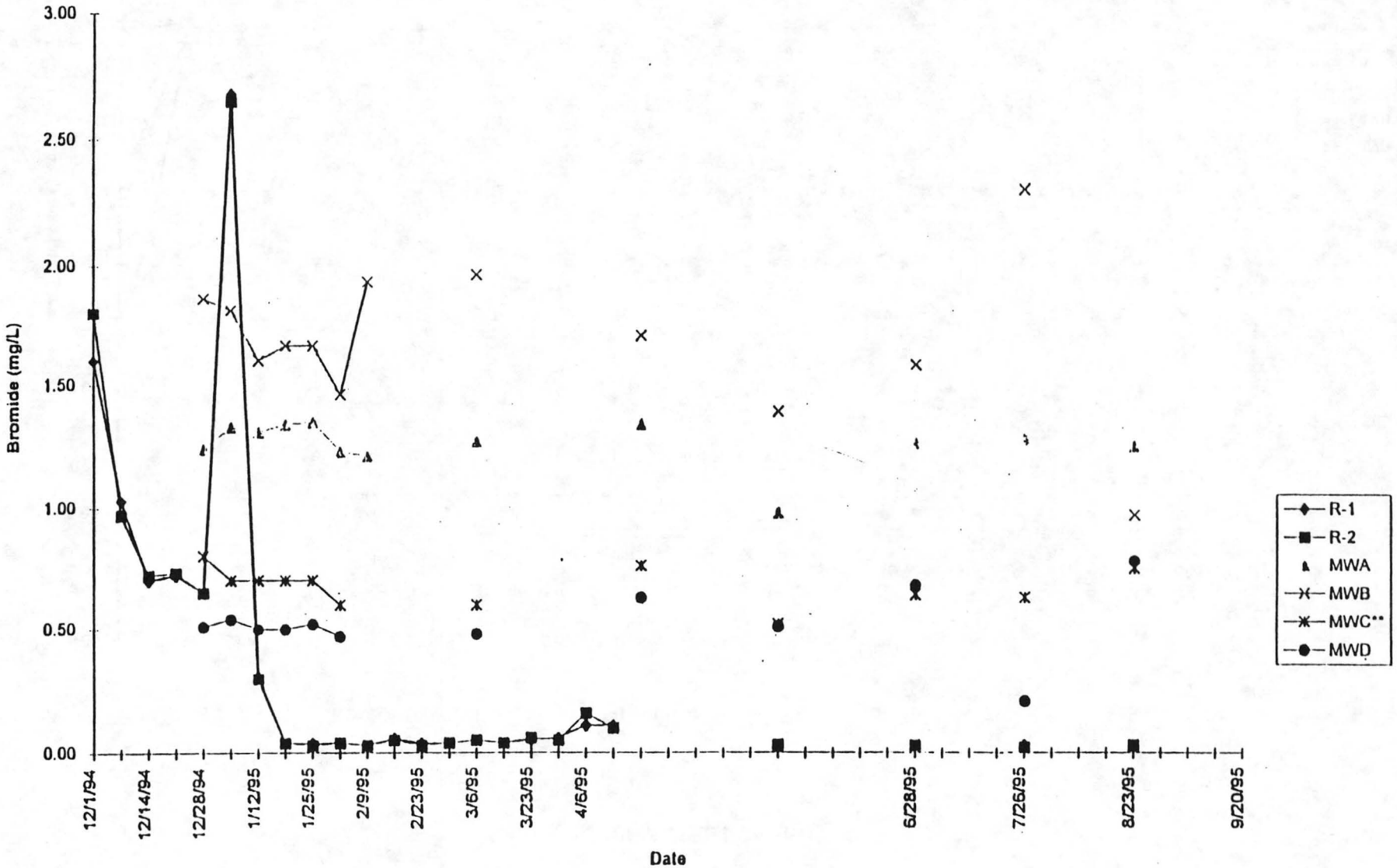


Chloride Concentrations in Receiving Water and Monitoring Wells



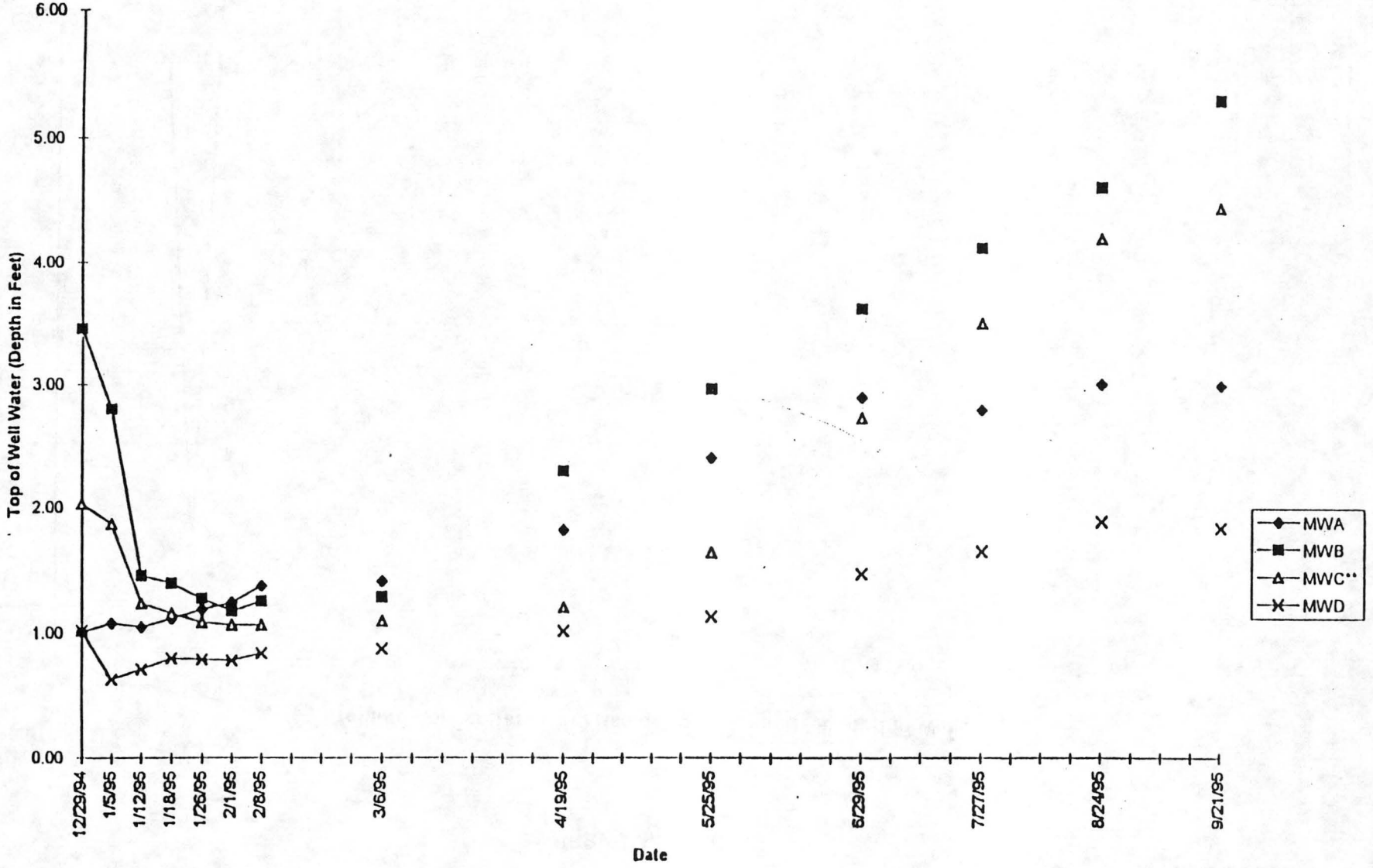
BRRW&MW Chart 1

Bromide Concentrations in Receiving Water and Monitoring Wells



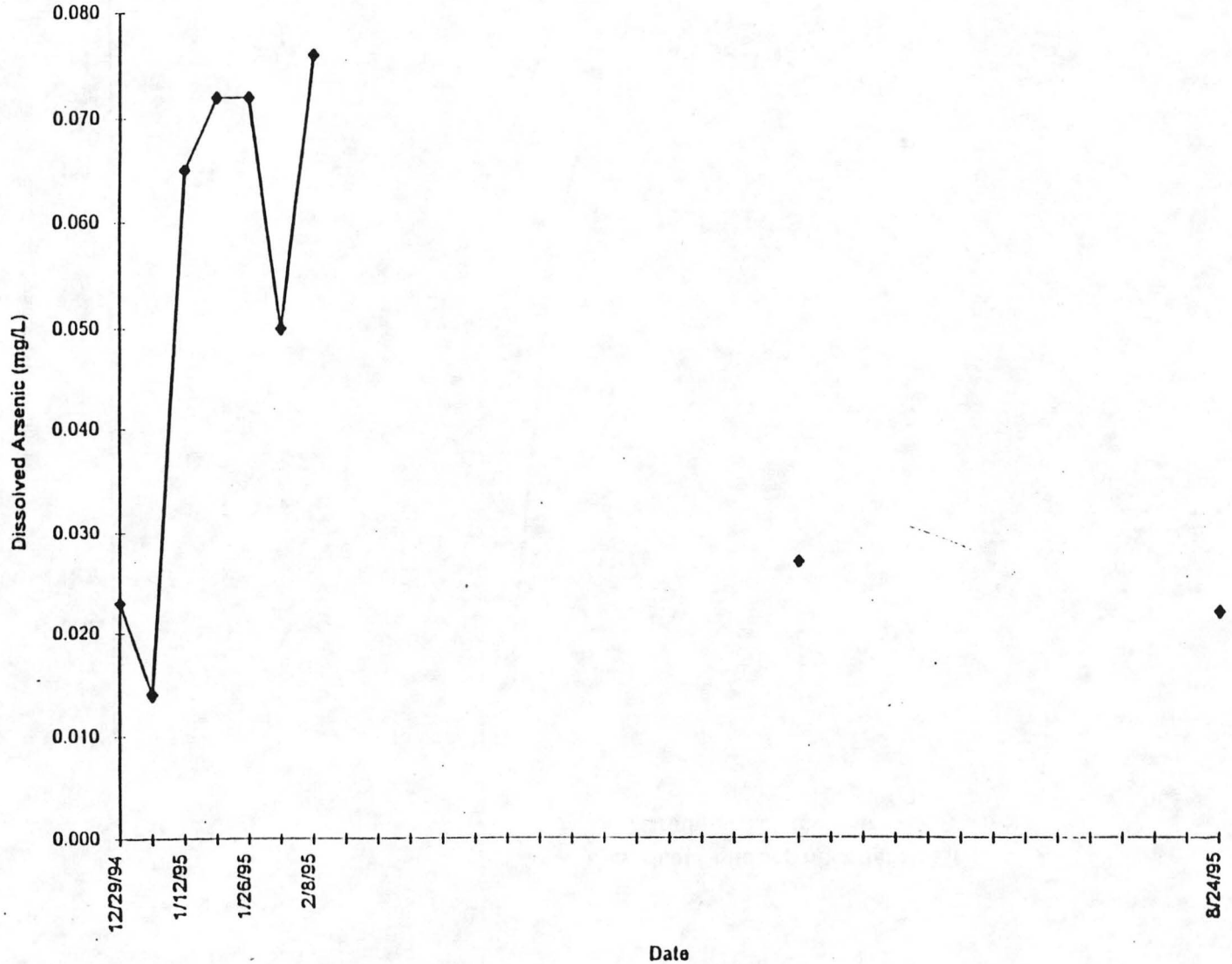
CPMWFEET Chart 1

Ground Water Levels



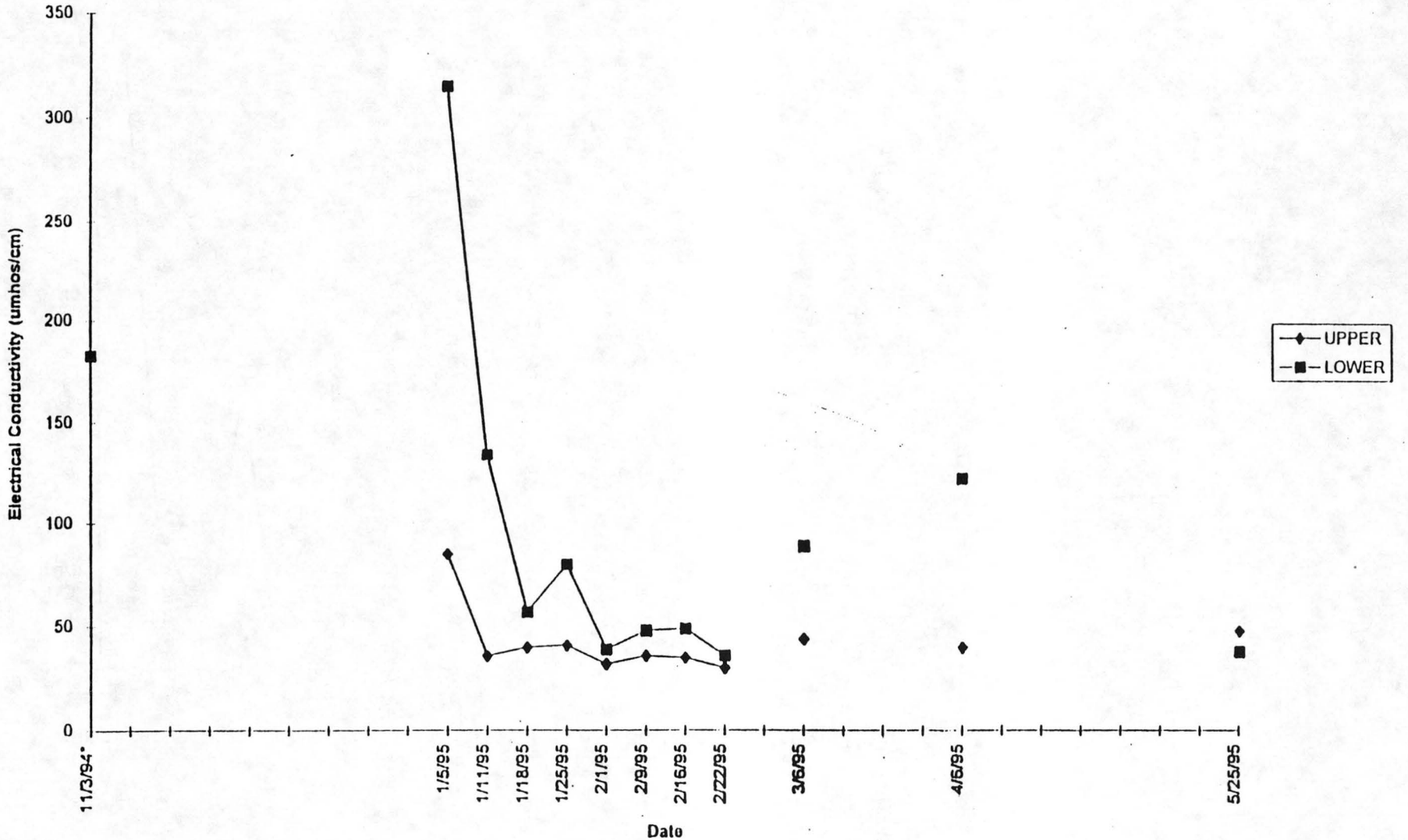
CPMWA[illegible] Chart 1

Dissolved Arsenic Concentrations at MWB



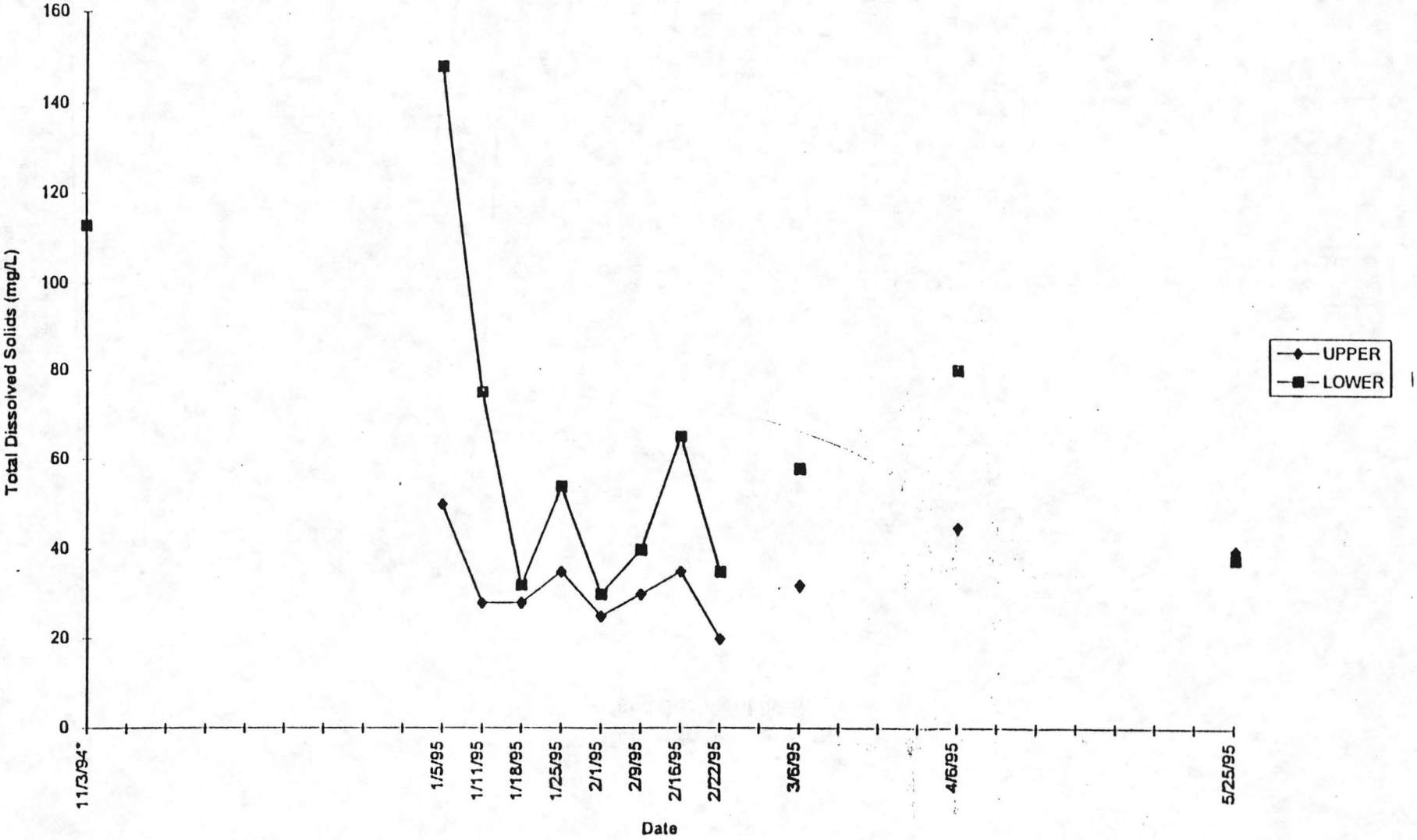
AREA-A Chart 1

Electrical Conductivity after DI WET of Dredged Sediment in Area A



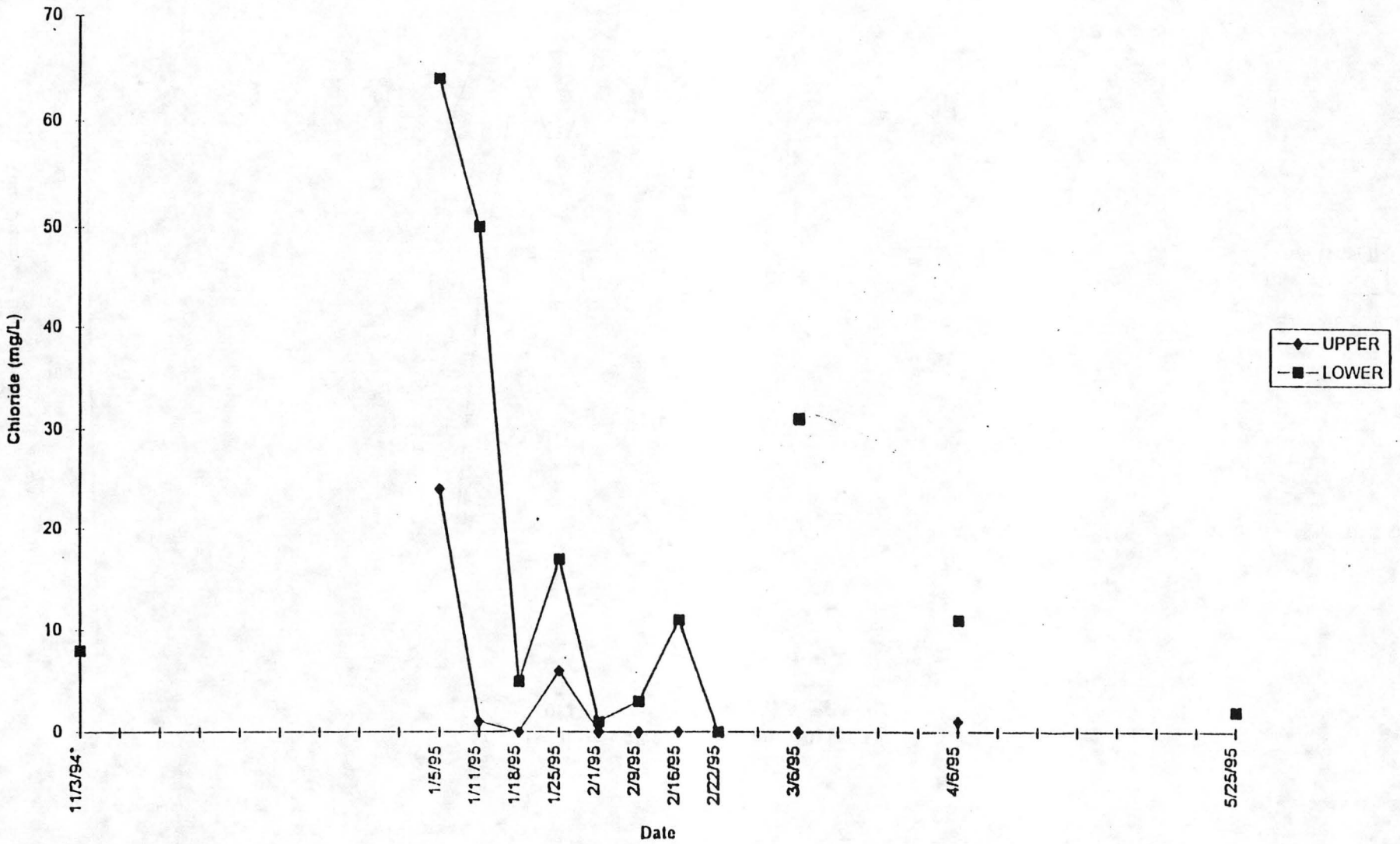
AREA-A Chart 1

Total Dissolved Solids after DI WET of Dredged Sediment in Area A

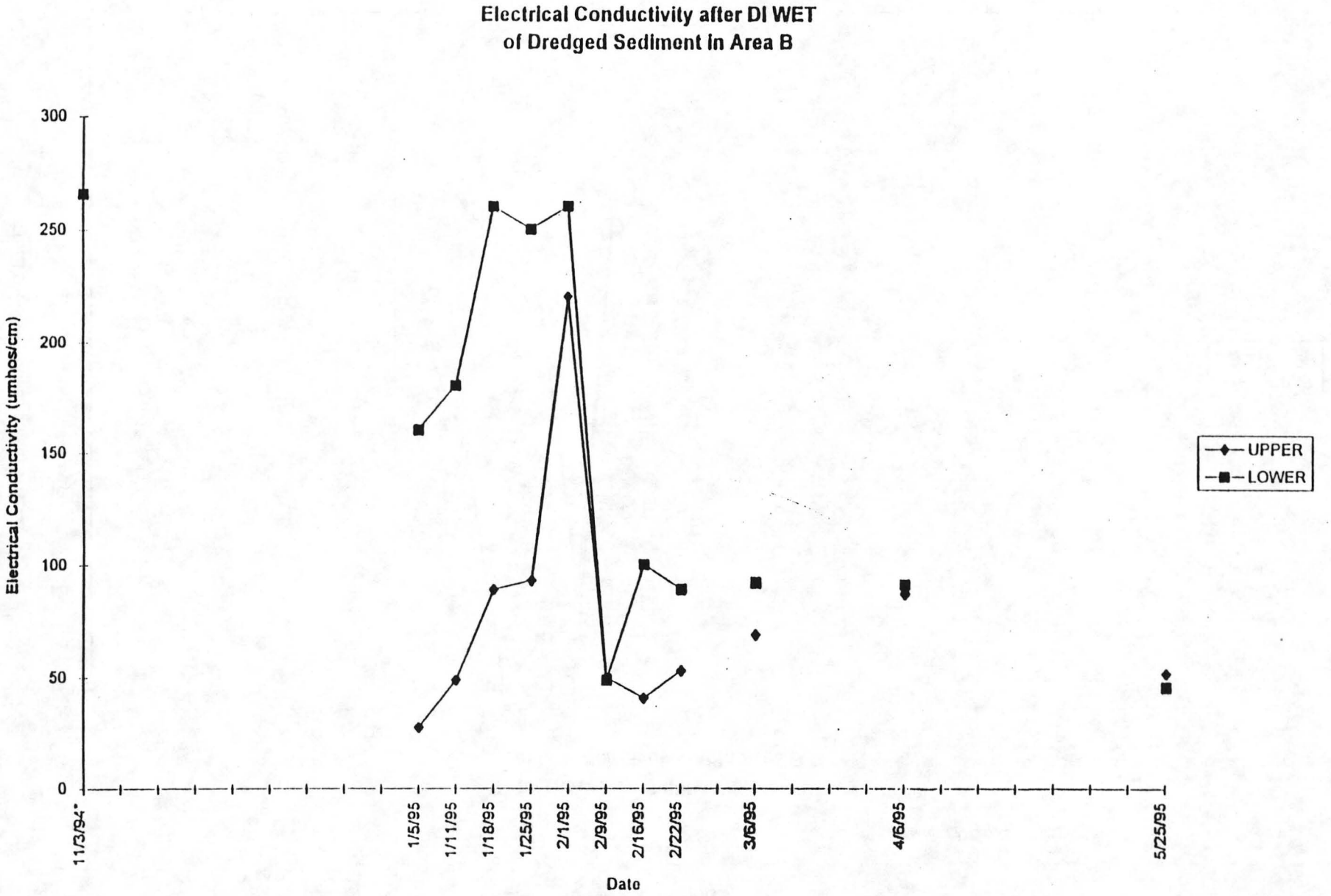


AREA-A Chart 1

Chloride Concentrations after DI WET of Dredged Sediment in Area A

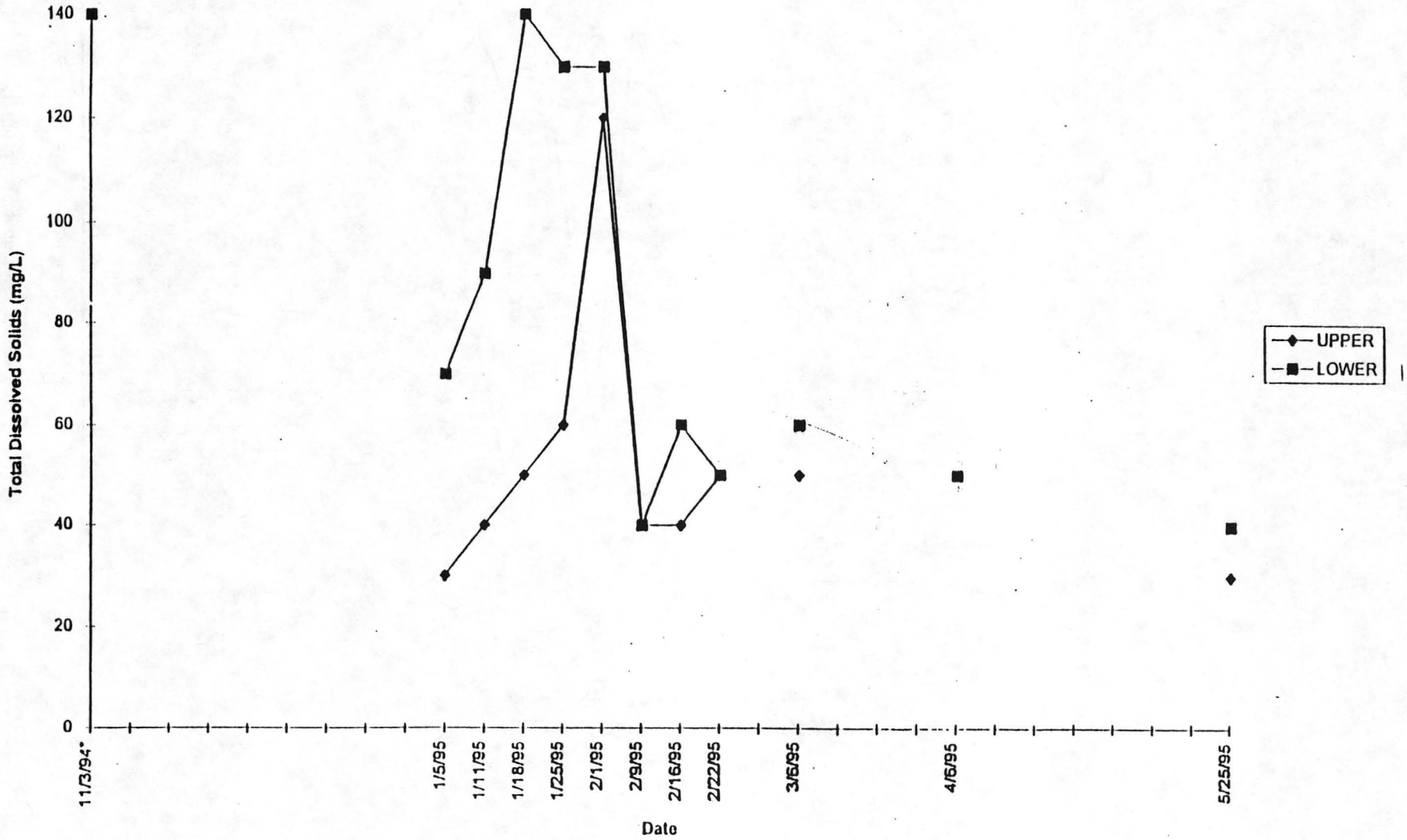


AREA-B Chart 1



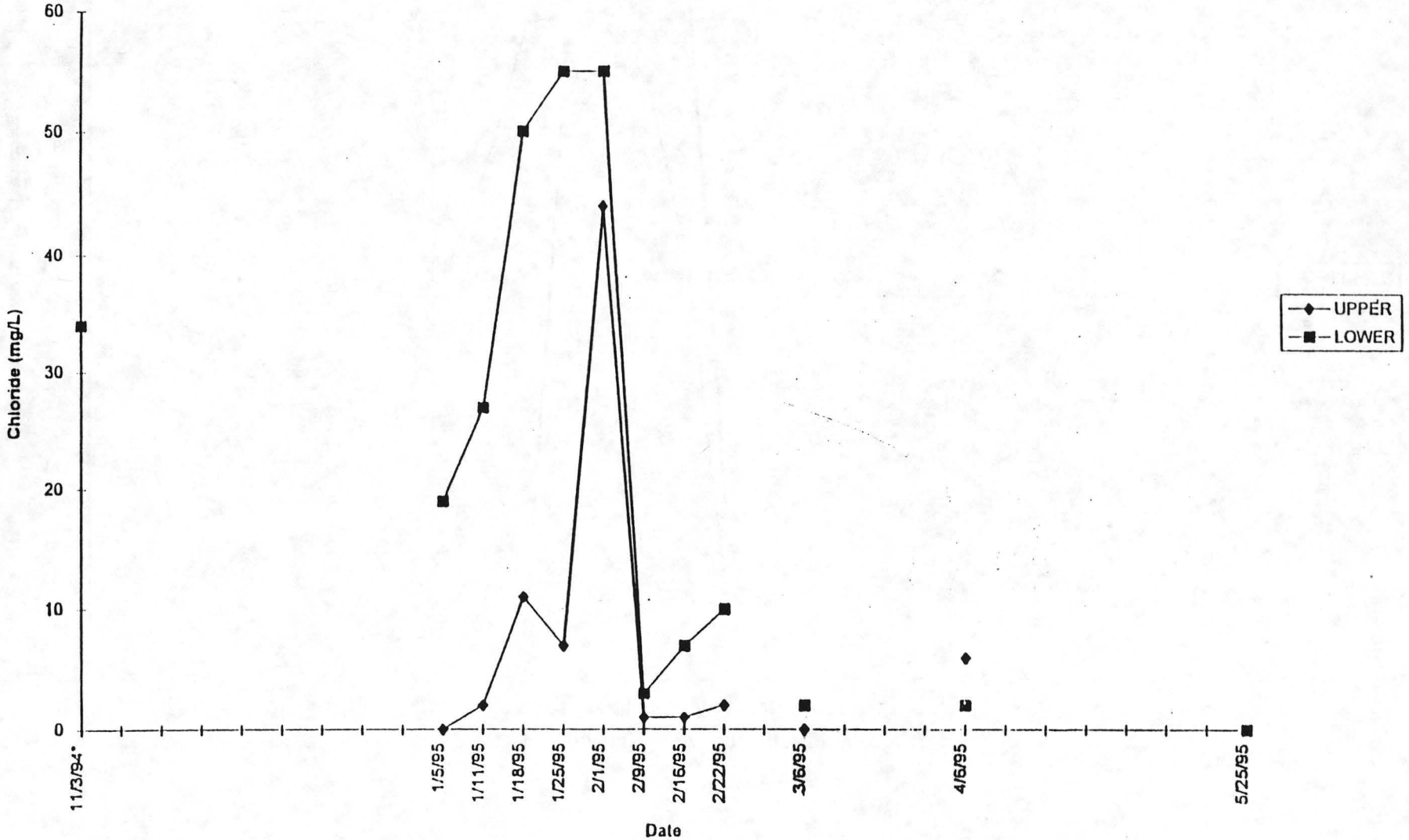
AREA-B Chart 1

Total Dissolved Solids after DI WET of Dredged Sediment In Area B

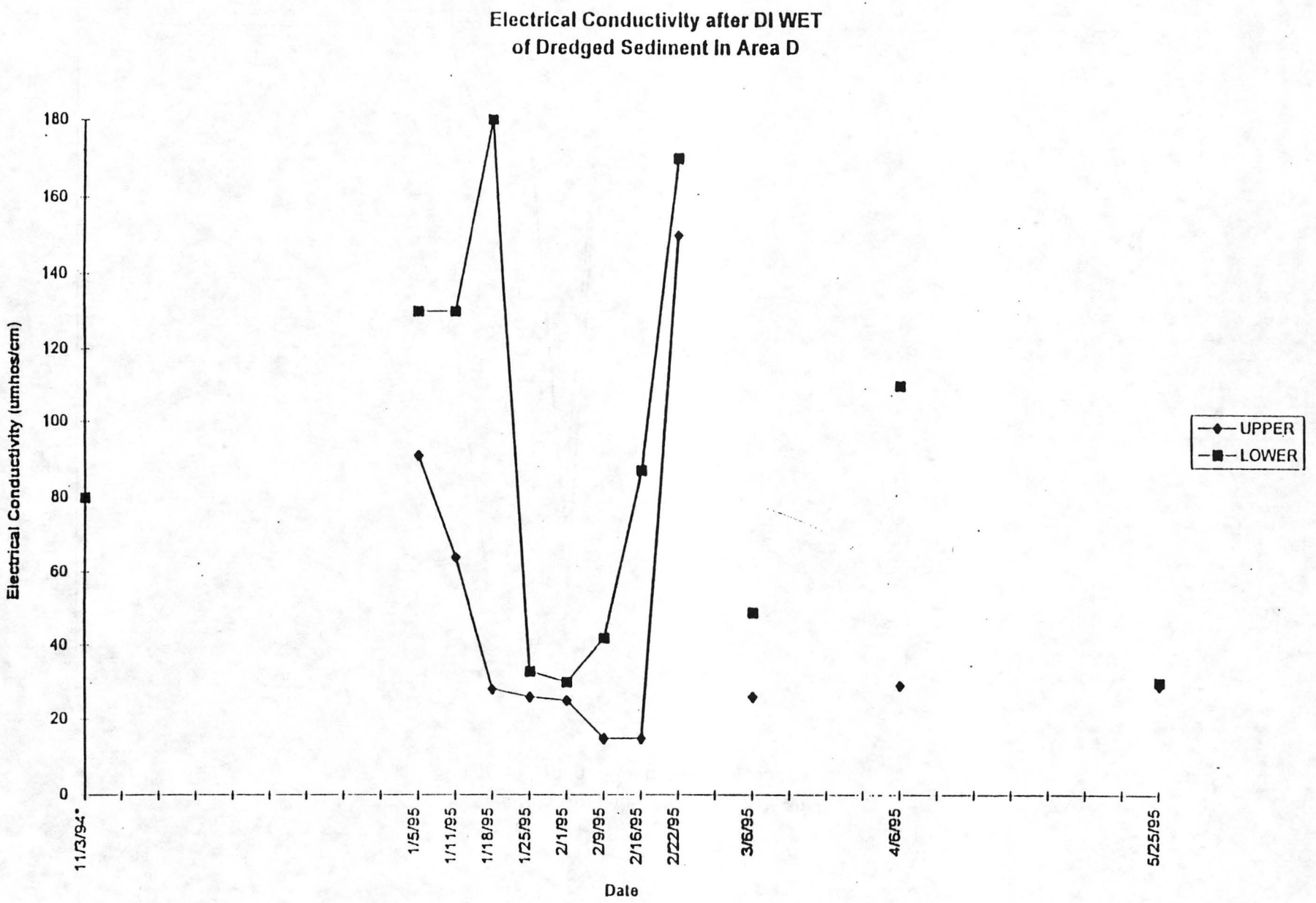


AREA-B Chart 1

Chloride Concentrations after DI WET of Dredged Sediment in Area B

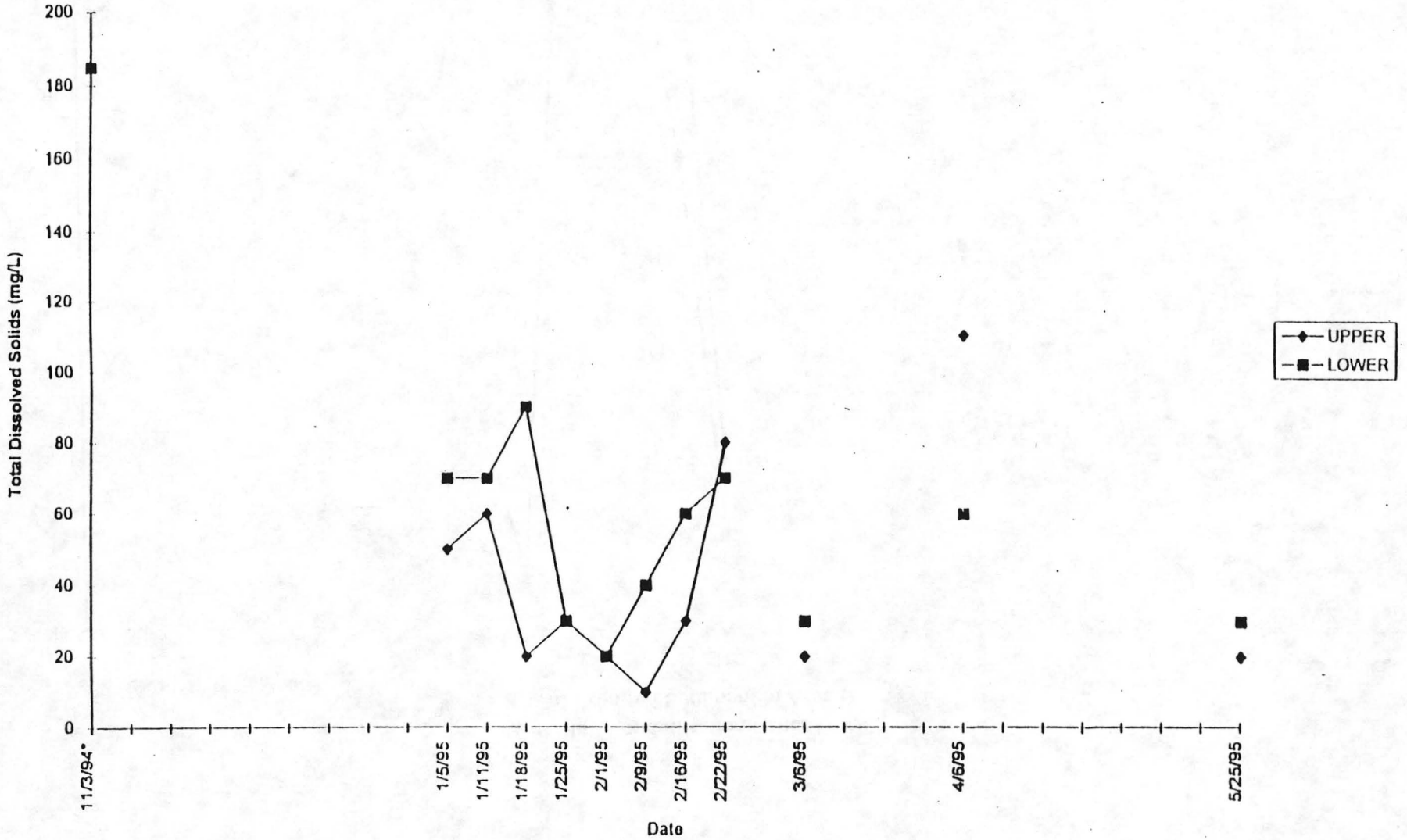


AREA-D Chart 1

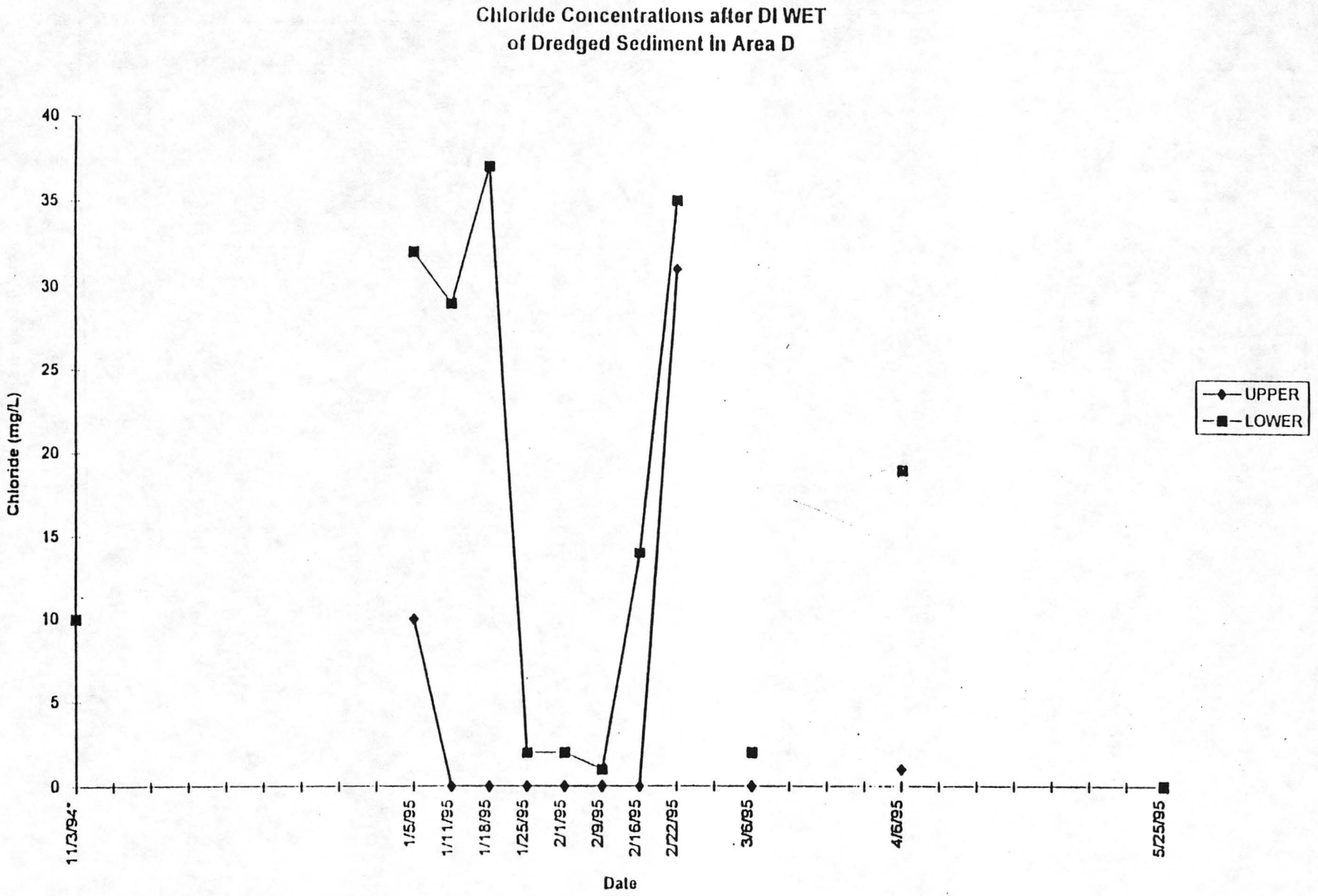


AREA-D Chart 1

Total Dissolved Solids after DI WET of Dredged Sediment in Area D



AREA-D Chart 1



APPENDIX B

COMMENTS SUBMITTED FOR THE JERSEY ISLAND DEMONSTRATION PROJECT

SUBMITTED BY:
California Regional Water Quality Control Board, San Francisco Bay Region, Michael Carlin, Chief Planning Division, Dated March 26, 1996.

STATE OF CALIFORNIA PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
2101 WEBSTER STREET, SUITE 500
OAKLAND, CA 94612

Phone: (510) 286-1255
FAX: (510) 286-1380

Rodrick A. Chishom, II
Chief, Planning Branch
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

March 26, 1996
File No. 1250.11

RE: Draft Lessons Learned Report for Jersey Island Demonstration Project, February 1996.

Dear Mr. Chisholm:

This letter is to inform you that the Regional Board staff has completed a review of the above document and are furnishing the following comments on the report. The report was submitted by the Corps to the Regional Board, pursuant to Regional Water Board Order Number 90-040, Waste Discharge Requirements (WDR) for discharge of dredged material to the San Francisco Bay. Specifically, provision 6. of the Order, and section III of the self-monitoring program require the Corps to prepare a lessons learned report for the Suisun Bay reuse project.

In general, we found the draft lessons learned report to be well written and feel that it will be a valuable document in dredge material disposal planning and regulation. The draft report is a good faith effort to respond to provision 6. of Order Number 90-040 and that the requirement will be fulfilled after the attached comments are satisfactorily addressed in a final report. Please furnish copies of the final report to staff of the San Francisco Bay and Central Valley Regional Water Quality Control Boards, the State Water Resources Control Board, the Bay Conservation and Development Commission and the US Environmental Protection Agency. Please contact Tom Gandesbery of my staff at (510) 286-0841, if you require more information.

Sincerely,

Michael Carlin, Chief
Planning Division

cc: Thompson Keesling, USACOE Construction Branch
Barney Opton, USACOE Project Management
Steve Goldbeck, BCDC
Erika Hoffman, USEPA
William Croyle, Central Valley RWQCB
James Sutton, SWRCB

COMMENTS

page/paragraph	Comment
1/ 2nd	References to organizations such as "regulatory agencies" should be specific. Describe who or what are constitute the "plethora of responsible agencies...". From the body of the report it would seem that the Corps' budgetary process is as much of a constraint on getting these projects completed as are other agencies (e.g. DWR). An MOU will only help a process if it is already achievable under existing processes and policies.
5/ Figure 2	Label figure.
8/ 4th	Why if nine firms were issued "solicitations for bid" did only one firm actually bid on the job? Is there a lack of competition for dredging activities in the region?
13 / Table A.	A fifth column should be inserted which provides a per-cubic yard figure for each year (column 4/column 3).
15/ 1st	2nd sentence suggest: replace "...is often enough to..." with **can.**
16/3rd	1st sentence: word missing after "time frame"
19/ 2nd	Suggest defining "flagged" and then dropping quotes. Also, 4th line down: is "determination" the same as delineation"?
21/ bottom	A concluding statement seems to be missing from this section. In general, how was the water quality? Were the results inconclusive? Were they what people expected? Chapter 5 ends with a statement about detection limits.
22/ 1item	Is this a major problem (lack of competition)? Is this a common phenomenon in the Bay Area?
22/ 3rd item	How should future projects handle the shallowness of certain access points? How many other "DWR islands" have this problem? Can the material be off-hauled at one point and moved by truck down the levee to areas that are not accessible by barge? How many more miles of levee remain to be bolstered on Jersey Island?

25/ item 24	missing data on 4th line.
25/ item 29	What is this statement based upon? Were there inter-agency meetings with FWS, NMFS? We know that BCDC, DWR the RWQCB's and the COE were in approval of the project as planned, but how did those agencies and the resource agencies as well, come to the conclusion that this project was a "success"? (This report should be one major way to convey that message).
26/ 3rd	fifth line down: "DWR will soon own 90%" :....of what? the island, the levees?.
26/ 3rd	We gather that DWR does not have funding authority to assist on the islands listed here? Are these islands in the "delta" or more in Suisun Bay?
26/ 5th	This overlaps with our comment regarding the executive summary. How can agencies give the Corps any more "lead time" if the project is dredged annually?
26/ 7th	Replace "revisited" with a more specific term. Revised, reassessed, re-issued, etc.
26/ 8th	Is the "environmental master plan" a CEQA document? Isn't the Delta Protection Commission or Cal-Fed putting together a "programmatic EIS/EIR" for delta projects?
27/ 1st	Isn't there already an assessment district in Contra Costa county, especially as it relates to the JF Baldwin deepening project?
27/2nd	Provide some more discussion and detail on the content of the proposed MOU.
Appendix A	The Waste Discharge Requirements (WDR) are <u>not</u> included in this appendix, despite the title of the appendix. Please correct this. The first page appears to be a summary of the WDR's prepared by DWR. A-1, under <u>Dredged Sediment</u> , define what is meant by "specified concentrations" and "designated". There are no references here to the actual WDR's or the regulations.

/coe/wrdprv6

APPENDIX C
RESPONSE TO COMMENTS
THE JERSEY ISLAND DEMONSTRATION PROJECT

California Regional Water Quality Control Board, San Francisco Bay Region, Michael Carlin, Chief Planning Division, Dated March 26, 1996.

Page 1.para. 2	The sentence was revised. Refer to Table A and Section 4.0 for additional information on budgetary process.
Page 5.Figure 2	The figure has been labeled.
Page 8.para. 4	The firms solicited for bids did not proved information concerning lack of response. A possible reason was that the project implementation process required a quick turn around. Also, dredging firms are busy throughout the Western United States which may impact local competition.
Page 13.Table A	A cost per unit column was added.
Page 15.para. 1	Revised as suggested.
Page 16.para. 3	Sentence revised.
Page 19.para. 2	"Flagged" was the process used to delineate the areas in which dredged material was deposited.
Page 21.para.6	A clarifying sentence was added. Conclusions are given in Section 6.
Page 22.item 1	See third response, above, regarding lack of competition.
Page 22.item 3	Additional information was added, regarding accessibility constraints. An inventory of potential repair sites is beyond the scope of this report. Levee repair sites will be identified by a per project basis or as part of a comprehensive plan for dredge disposal, i.e.: Long Term Management Strategy (LTMS).
Page 25.item 24	Information provided.
Page 25.item 29	Statement was revised to reflect available information. The coordination of these agencies is beyond the scope of this report.

Page 26.para. 3	The reference to "DWR will soon own 90%" was deleted.
Page 26.para. 3	DWR may be a future player in dredged material disposal. The island are identified on Figure 1 and Figure 2.
Page 25.para. 5	Statement was rewritten to define possible coordination option to help expedite the implementation process.
Page 26.para. 7	Sentence was revised as suggested.
Page 26.para. 8	It is anticipated that the Long Term Management Strategy (LTMS) will fulfill this need. The LTMS has been developed and reviewed by the different regulatory agencies in the Bay Area.
Page 27.para. 1	The financial return from existing assessment districts is allocated to other purposes.
Page 27.para. 2	Information provided
Appendix A	The word "Summary" was added to the title and a footnote was added, directing users to DWR for additional information.

Appendix K.2

The Sonoma Baylands Wetland Demonstration Project Description and Annual Monitoring Reports

Sonoma Baylands Wetland Demonstration Project

May 1997

Project History

The Sonoma Baylands project was conceived and planned by the California State Coastal Conservancy, a government agency, and the Sonoma Land Trust, a non-government organization. Using funds provided by the Coastal Conservancy, the Land Trust acquired the project site and completed a restoration plan in 1991. The restoration plan identified the use of dredged material as the best means of restoring tidal salt marsh habitat on the project site.

After the restoration plan was completed, the Coastal Conservancy, Port of Oakland, and local environmental groups began a cooperative effort to encourage the use of dredged material from the deepening of Oakland Harbor to construct the Sonoma Baylands project. The project proponents actively organized political support for the Sonoma Baylands project among maritime industries, fishermen, and civic and labor interests. As a result of those efforts, Congress directed the Corps of Engineers to construct the Sonoma Baylands Wetland Demonstration Project in Section 106 of the Water Resources Development Act of 1992. The Corps of Engineers began detailed design of the project in June 1993. Construction of the project began in June 1994 and is approaching completion.

The Coastal Conservancy is contributing 25 percent of the estimated $7.6 million construction cost, which includes the additional costs of transporting Oakland Harbor dredged material to the Sonoma Baylands site in lieu of ocean disposal.

Project Description

Location. The project is located on 348 acres of diked lands in southwestern Sonoma County, California. The project site is on the northern shoreline of San Pablo Bay (the northern arm of the San Francisco Bay system), east of the mouth of the Petaluma River. Prior to the start of project construction, the site was used to grow oat hay.

Design Concept. The design of the Sonoma Baylands project incorporates experience gained from past tidal marsh restoration projects in San Francisco Bay. Rather than attempting to construct an "instant marsh," the project is designed to allow a tidal marsh system to naturally develop over a relatively short period of time while minimizing construction costs. Dredged material is being used to accelerate the re-establishment of intertidal marsh elevations on diked lands that had subsided about six feet. The final surface of the restored marsh, including the tidal channel system, will be created by the natural deposition of suspended sediment after the site is restored to tidal action.

Site Preparation. The most prominent physical feature of the project is a new 11,600-foot levee along the landward periphery of the restoration area. The existing bayfront levee will be breached to restore the site to tidal action. A new peripheral levee was therefore required to replace the tidal flood protection provided by the existing bayfront levee to the contiguous low-lying lands. The new levee confines the dredged material that has been placed in the 289-acre interior of the restoration area. The lower portion of the bayward levee was constructed at a slope of 1 vertical on 5 horizontal. A slope flatter than that required for levee stability was used to provide a wider wetland-to-upland transition zone and to reduce erosion of the levee by wind-waves.

The project also includes an interior levee on the western portion of the project site. The main purpose of the interior levee is to provide maintenance access to two high voltage electrical transmission line towers. Additional bracing and concrete footings were added to a total of three towers to allow the placement of fills around the bases of the towers. The interior levee also divides the restoration site into two functionally independent areas: the 39-acre pilot unit on the west side of the interior levee, and the 309-acre main unit on the east side of the interior levee.

The project includes a series of low interior berms ("peninsulas") extending throughout most of the marsh restoration area. The main purpose of the peninsulas is to limit the length of wind-wave fetches across the site to 1,000 feet or less. The peninsulas are also intended to direct the formation of major tidal channels away from the toe of the peripheral levee. The peninsulas were designed with a sinuous, branched pattern to mimic tidal marsh channels primarily for aesthetics. Due to concerns regarding potential use of the peninsulas by mammalian

predators, the peninsulas are designed to subside and erode as the marsh develops. It is expected that the peninsulas will remain slightly elevated above the surrounding marsh plain, providing substrate for more diverse vegetation. To further reduce use of the peninsulas as pathways into the restored wetland by mammalian predators, a gap will be created between the levees and each of the longer peninsulas prior to the restoration of tidal action.

The levees and peninsulas were constructed using only material excavated from within the restoration area. About three feet of surface material were excavated throughout most of the restoration area to provide the construction material. As a result, portions of the restoration area were more than seven feet below sea level prior to the placement of dredged material.

Dredged Material. The design elevation for the dredged material fill, after initial consolidation, is two feet above the National Geodetic Vertical Datum of 1929 (NGVD, which is approximately mean sea level). Previous local marsh restoration projects using dredged material have demonstrated that tidal channel development is greatly enhanced if dredged material is placed to an elevation below the ultimate marsh elevation. A complex, sinuous channel system will then evolve as additional sediment is gradually deposited over the dredged material by natural processes. In the case of the Sonoma Baylands project, the restoration area is expected to reach an equilibrium elevation of about +3.4 feet NGVD, based on the elevation of the adjacent natural marsh.

The pilot unit was filled with 207,000 cubic yards of maintenance-dredged material from the Petaluma River navigation channel during October-November 1994. The material was pumped into the site by a small hopper dredge. The pilot unit was opened to tidal action by excavating a breach in the bayfront levee in late January 1996.

The main unit was filled with 1.7 million cubic yards of dredged material from the deepening of Oakland Harbor during May-November 1995. Dredged material was transported to the mouth of the Petaluma River in 994 barge loads and then pumped into the site by a specially-constructed hydraulic unloader. The main unit was restored to tidal action by breaching the bayfront levee on October 25, 1996.

The elevation of the dredged material fill is critical to the success of the project. As dredged material was placed in the site, the elevation and density of the material was monitored using 21 electrical resistivity staffs. Even distribution of the dredged material throughout the site was achieved by moving the pipeline discharge point as necessary. Minor grading was required to remove small mounds of coarse-grain material at some of the discharge points.

Completion of Project. No planting of marsh vegetation is proposed as part of the Sonoma Baylands project. Surveys of previously restored San Francisco Bay tidal salt marshes found that the vegetation structures of the marshes were similar regardless of whether the sites were planted or allowed to revegetate naturally. The adjacent existing marsh will provide abundant propagules for the establishment of vegetation within the Sonoma Baylands site. It was therefore concluded that planting of marsh vegetation would not significantly accelerate the restoration of vegetated marsh and would not be cost-effective. The dominant plant species are expected to be pickleweed (Salicornia spp.) and Pacific cordgrass (Spartina foliosa).

The authorized project includes monitoring of the development of the restored marsh. Current monitoring activities include tidal hydrology, sediment deposition, fish and bird use, vegetation and benthic colonization, water quality, and tidal channel morphology. The first annual monitoring report was distributed in August 1996. The project authorization also includes provisions for remediation if the monitoring results indicate a need for corrective action.

Project Benefits

Approximately 82 percent of the original tidal wetlands of San Francisco Bay have been diked or filled. The Sonoma Baylands project will restore 289 acres of high value tidal salt marsh habitat. An additional 48 acres of active agricultural land on the periphery of the project will be converted to grassland and transitional wetland habitat.

The project is designed to provide habitat for two endangered species: the salt marsh harvest mouse, which exists only in San Francisco Bay, and the California clapper rail, a marsh bird that breeds primarily in the Bay. A large number of other wildlife species, including migratory waterbirds and anadromous fish, will also benefit from the project.

For additional information, contact:

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Appendix M

Information on the Dredged Material Management Office (DMMO):
(1) LTMS General Operating Principles for a Pilot DMMO
(2) DMMO 6-Month Pilot Phase Review Report (3/28/97)
(3) DMMO Second 6-Month Pilot Phase Review Report (1/98)

Long Term Management Strategy

September 12, 1995

General Operating Principles
Pilot Dredged Material Management Office (DMMO)

Goals

To establish a cooperative permitting framework as part of LTMS implementation that reduces redundancy and unnecessary delays in permit processing and increases consensus decision-making among agency staffs, while assuring that: (1) the laws and policies of the member agencies will be fully implemented; (2) full public review and input to the decision making process will be maintained; and (3) projects will be managed in an environmentally and economically sound manner.

Objectives

- Combined application form for maintenance dredging applications.
- Coordinated staff processing of all dredging permit applications.
- Preparation of joint staff recommendations on: (1) sediment quality sampling and analysis plans; (2) suitability calls for disposal; and (3) approval or denial of permits (including disposal location, timing, and other permit conditions).
- Increased beneficial use of dredged material.
- Creation of a shared database for dredging project and disposal site monitoring information.

General Operating Principles

1. The DMMO is a cooperative activity of the participating agencies.
2. Agency staffs will coordinate processing of pilot permit applications by the agencies, subject to the applicable laws and requirements of each agency.
3. Agency staffs will make a combined decision regarding sediment quality sampling and analysis plans, and suitability for disposal of pilot applications.
4. Agency staffs will work towards a single staff recommendation on substantive aspects of pilot permit applications, including disposal locations and proposed special conditions.
5. Agency staffs will support the consensus recommendation made through the DMMO that affect projects within their permit jurisdictions, subject to final approval by agencies.
6. Agency staffs will improve and refine the joint-agency application form for maintenance dredging permits.
7. The program will accommodate the policies and laws of the participating agencies.
8. The pilot program policies will be based on agreements and policies reached as part of the LTMS whenever possible.
9. The administrative process for processing permits as part of the pilot project will be defined by mutual agreement of agency staffs and documented in a Memorandum of Understanding.
10. Full public input to the permit process as part of the pilot project will be ensured, and the pilot project itself will be subject to full public review and comment.

11. Agencies will implement the DMMO formulated through the pilot program, subject to review and approval by the decision makers at each agency after public review and comment.

12. One of the agencies will act as the "host" agency in order to provide a single point of contact for applicants and to provide necessary logistical support. That agency is presently the U.S. Army Corps of Engineers. Logistical support will include providing meeting space; preparing agendas; preparing meeting minutes; distributing information among participants, applicants, and interested parties; and maintaining files.

13. A combined database will be created to share information among the agencies, applicants, and interested parties.

14. The project will be expanded over time, as appropriate, to coordinate agency processing of all dredging and disposal permit applications, disposal site monitoring, and other important regulatory aspects of LTMS implementation.

15. This document will stay in effect until it is superseded through adoption of Memoranda of Understanding or other appropriate instruments by the member agencies.

WILL TRAVIS
San Francisco Bay Conservation & Development Commission

AMY ZIMPFER
U.S. Environmental Protection Agency

LT. COL. MICHAEL J. WALSH
U. S. Army Corps of Engineers

LARRY KOLB
Regional Water Quality Control Board
San Francisco Bay Basin

for WALT PETTIT
State Water Resources Control Board

ROBERT C. HIGHT
State Lands Commission

DREDGED MATERIAL MANAGEMENT OFFICE (DMMO)

SIX MONTH PILOT PHASE REVIEW REPORT

March 28, 1997

Long-Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region

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San Francisco Bay Conservation and Development Commission	California State Lands Commission	California State Water Resources Control Board	US Army Corps of Engineers	US Environmental Protection Agency	San Francisco Bay Regional Water Quality Control Board

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LONG TERM MANAGEMENT STRATEGY

One-Stop Shop Cuts Red Tape to Move Mud out of Bay Channels

A new "one-stop shop" to cut red tape for dredging projects in San Francisco Bay is demonstrating good results while ensuring environmental protection. A review by the participating agencies of the "Dredged Material Management Office" or "DMMO" found that the program has processed over 60 applications for dredging more than 4.3 million cubic yards of material (roughly equivalent to 430,000 dump truck loads) in the last year and a half. Applicants using the DMMO fill out one application instead of four, as was the case in the past. The five agencies participating in the DMMO then jointly review the applications and supporting information at bi-weekly meetings before issuing their respective permits.

A noteworthy finding of the report is that only three percent of the dredged material failed standardized testing for open-water disposal. It had been widely assumed that up to twenty percent of Bay dredged material would fail such testing.

The DMMO is a joint program of the San Francisco Bay Conservation and Development Commission (BCDC), the San Francisco Bay Regional Water Quality Control Board, the State Lands Commission (SLC), the U.S. Army Corps of Engineers (USACE), and the U.S. Environmental Protection Agency (USEPA). A pilot program was initiated to determine whether and how a permanent DMMO should be established. The report prepared by the participating agencies evaluated the status of the approximately 18 month-old pilot project.

Quotes from each agency:

"This project has created a virtual one-stop permit application for Bay dredging," said Will Travis, Executive Director of BCDC. "I don't know of any place else where you can apply for all your state and federal permits by filling out one application."

"The DMMO is a good example of what can be achieved through cooperation. It shows why the Bay Area is in the forefront of moving from traditional regulatory approaches to more cooperative approaches to problem solving."- Loretta Barsamian, Executive Officer, SFRWQCB.

"We're committed to an efficient, environmentally sound review of all dredging applications, and in the long run helping applicants find beneficial reuse options for their dredged material," said Alexis Strauss, head of the Water Division of Region IX of the USEPA.

"The Dredged Material Management Office in the San Francisco Bay Area can serve as a model for how federal and local agencies can synchronize the administration of their regulatory responsibilities to protect the environment while minimizing the administrative burdens on permit applicants," stated Lieutenant Colonel Richard Thompson, Commander of the San Francisco District of the USACE.

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DREDGED MATERIAL MANAGEMENT OFFICE (DMMO)

SIX MONTH PILOT PHASE REVIEW REPORT

PILOT PROGRAM OF THE DREDGED MATERIAL MANAGEMENT OFFICE (DMMO)

SIX MONTH PILOT PHASE REVIEW REPORT
March 28, 1997

I. INTRODUCTION AND PURPOSE OF THE DMMO

The multi-agency Pilot Program of the Dredged Material Management Office (DMMO) was established to foster a comprehensive, and consolidated approach to handling dredged material management issues in order to reduce redundancy and delays in the processing of dredging permit applications. The DMMO, in part, grew out of the Long Term Management Strategy Program (LTMS) as an effort to better coordinate and shorten the permit application process for dredging and disposal projects occurring in the San Francisco Bay region. The San Francisco Bay Regional Water Quality Control Board (RWQCB), State Water Resources Control Board, San Francisco Bay Conservation and Development Commission (BCDC), United States Environmental Protection Agency (EPA) and the United States Army Corps of Engineers, South Pacific Division and San Francisco District (COE) are signatories to the LTMS program.

This DMMO coordination effort has been several years in the making, first through the development stage under the LTMS, and then following the findings of the LTMS Implementation Committee which examined the issue of permit streamlining. The Committee formed a task group to draw up a process for a "one stop" permit approach for dredging permits. In 1992, the task group drafted a permit streamlining initiative with general goals and objectives. In 1995, the LTMS agencies decided to form a pilot DMMO, under existing authorities and budgets. The DMMO member agencies are the EPA, COE (San Francisco District), RWQCB, BCDC and the California State Lands Commission (SLC). The COE agreed to initially act as the "host" of the DMMO and take on responsibilities associated with the lead role. The DMMO is intended to implement, the fourth goal of the LTMS which is to provide "recommendations for federal, state and local agencies to implement a cooperative permitting process for authorizing dredging activities."

The sole intent of the DMMO is to improve the dredging permit process within existing law, regulation and policy. No new regulatory statutes were initiated in the formation of the DMMO. All applicable regulatory authority and processes of the member agencies remain in full force and effect. The DMMO process was specifically designed to avoid imposing any limitations or interference with existing opportunities and requirements for public input and involvement in the various dredging permit review and granting processes.

The geographic area of the DMMO includes all of the San Francisco Bay Estuary up to Shennan Island, its major tributaries up to points where navigation is no longer feasible, upland areas surrounding the estuary, and the ocean disposal sites for Bay material designated by the EPA. The member agencies have also agreed to coordinate with the Central Valley Regional Water Quality Control Board regarding use of Bay dredged material in the Sacramento/San Joaquin Valley region.

A Memorandum of Understanding (MOU) for the Pilot DMMO was signed by all member agencies on July 9, 1996 (see attachment). In accordance with the terms of the MOU, at the end of each of two six-month pilot phases, the member agency staff are required to prepare a report to the Dredging Management Committee (consisting of management representatives of the DMMO member agencies) on the progress and success of the DMMO. This report contains an analysis of the successes, problems, relevant issues, and recommendations for further actions. The report generally describes the overall history and activities of the DMMO and specifically discusses the initial six-month pilot phase of July, 1996 to January, 1997. Following a review of this report, the Dredging Management Committee shall decide whether to continue with the DMMO, and revise, as necessary, the conditions under which the office will operate.

II. DMMO DEVELOPMENT PERIOD (January 1995 - July 1996)

January 11, 1995 - May 3, 1995 - Three organizational meetings for the DMMO were held between January 11, 1995 and May 3, 1995. During this period the member agencies were identified and the basic role of the DMMO was discussed and formulated.

May 3, 1995 - September 12, 1995 - Between the period May 3, 1995 and September 12, 1995 the newly formed DMMO held six scheduled meetings and undertook several concurrent activities. These activities included the preparation of a set of General Operating Principles and the design of a consolidated dredge permit application. The General Operating Principles were formally adopted by all participating agencies on September 12, 1995, (see attachment). The Consolidated Dredging-Dredged Material Reuse/Disposal Permit Application and associated instructions were initially prepared in June, 1995. The consolidated application has been used by many projects and updated based on feedback from applicants with the latest revision occurring in November, 1996 (see attachment). During this period the DMMO also selected and designated a DMMO pilot project for initial testing of the consolidated application form and joint processing by the DMMO agencies . The first pilot project was for maintenance dredging of the San Francisco Yacht Harbor (COE Public Notice No. 21724N47 dated September 18, 1995, COE permit issued April 2, 1996).

Investigation into an appropriate data management system for permitting information and testing data was initiated in May 1995. An analysis of the existing data management systems of the DMMO member agencies and the potential for development of a common system was prepared for the DMMO by a COE contractor (Ogden Environmental and Energy Services), in June 1995. Availability of funding for the operation and maintenance was identified as the most important factor limiting the establishment and scope of a common data base.

September 12, 1995 - July 9, 1996 - During the period September 12, 1995 to July 9, 1996 the DMMO held 18 scheduled meetings and prepared and executed the MOU , undertook the selection, designation and processing of two additional designated DMMO pilot projects, expanded the DMMO process to include participation by other agencies, and jointly reviewed other dredging projects.

The two additional pilot projects selected were the Emery Cove Marina maintenance dredging project (COE Public Notice No. 21662S49 dated February 2, 1996, COE permit issued May 8, 1996), and the Paradise Cay Yacht Harbor project (COE Public Notice No. 21821N dated October 11, 1996, COE permit pending). During the same period, nine additional projects were evaluated by the DMMO although these projects did not use the consolidated application form.

A letter was prepared by the DMMO staff to request other resource agencies to participate in DMMO meetings and activities. The letter, issued under COE signature, on behalf of all the DMMO agencies was sent in April 1996 to the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and the California Department of Fish and Game. The California Department of Fish and Game has been a regular participant, with the other agencies expressing support, but only occasionally participating in DMMO meetings due to staffing and budgetary limitations.

III. INITIAL SIX-MONTH PILOT PHASE ACTIVITIES/ACHIEVEMENTS (July 9, 1996 - January 9, 1997)

Coordination of the dredging permitting process to decrease redundancy and increase efficiency is a principal purpose of the DMMO. The de-facto permitting system for dredging and disposal can be lengthy and complex and consists of six federal and state agencies that issue a permit, or other legal approval. In addition, federal and state law require that resource agencies comment on many of the permit actions and consider endangered species impacts under their own jurisdiction (Section 7 Consultation). The actual number of permits and type of approvals depend upon the location of the dredging and disposal sites, ownership of the project area, and whether the project requires new permits or is considered an episode under existing permits.

In addition to the review and issuance of permits, the suitability determination for the disposal of dredged material often requires agency interpretation of an extensive battery of tests which characterize the physical, chemical, and biological nature of the sediment proposed for dredging. During the first six-month pilot phase of the DMMO, joint staff of the DMMO member agencies have made recommendations on the approval, modification or denial of:

a. Sampling and Analysis Plans (SAP);
b. Results of testing pursuant to an approved SAP;
c. Consolidated Permit Application completeness; and
d. Material suitability for disposal at existing in-bay disposal sites, or the ocean disposal site (DMMO staff members will sign a DMMO recommendation for a given disposal site only if they have regulatory authority for that site).

The DMMO agency staff have supported the consensus recommendations made through this project review process. Actions and recommendations made by the DMMO have been documented in the minutes of the meetings and through member agency correspondence.

Project Review - In addition to processing the three formally designated "DMMO pilot projects" used to test the consolidated application form, a total of 22 other projects were fully evaluated by the DMMO during the initial six-month pilot phase. Full processing refers to DMMO review of an applicants Sampling and Analysis Plan or Tier I sediment quality analysis testing exemption, review of the Sediment Quality Analysis Results, and review of a submitted DMMO application. A listing of all projects reviewed is provided as an attachment to this report.

Although not formally part of the Pilot Program, as described by the MOU, the DMMO agencies have utilized the opportunity of the bi-monthly DMMO meetings to review and approve the U.S. Army Corps of Engineers maintenance dredging projects which have occurred since the DMMO was initiated. Corps projects which have been reviewed, or are under review by the DMMO include: Port of Oakland Inner Harbor maintenance dredging (1995 and 1996); Port of Richmond maintenance dredging; Suisun Channel maintenance dredging (Tier I review); and San Rafael Across the Flats channel maintenance dredging. Additionally, the DMMO reviewed and approved the Alameda U.S. Navy Air Station's 1996 Maintenance Dredging Project.

DMMO Timelines - The DMMO jointly developed a draft DMMO Flowchart and Timeline Goals for Maintenance Dredging Projects (see attachment). These timelines were developed to present the DMMO process and to reflect the joint effort to reduce permit processing time and streamline and expedite the review process.

Public Notice 96-3 - A joint Public Notice was prepared by the DMMO staff to announce the initiation of the DMMO pilot phase . The Public Notice contains a description of the DMMO, the Consolidated Permit Application form and instructions, the DMMO MOU, the DMMO General Operating Principles, and the DMMO Draft Timelines. PN 96-3 was dated October 1, 1996 and was distributed via the COE permit review mailing list and to other interested parties.

Standard Language for Public Notices and DMMO Correspondence - Standard language for representing the consensus recommendations of the staff was developed to be used by the host agency in official DMMO correspondence and in Public Notices, The use of standard language is particularly important in this context to insure that suitability determinations are consistently and clearly communicated to applicants and the public in a form that is acceptable to all the participating agencies.

Development of a Data Base for Permit Information - In accordance with the MOU, the DMMO "host" agency is to maintain an electronic database of permit information fro DMMO projects. The COE is currently in the process of developing a means to incorporate permit information into its existing "RAMS" data base. This information will be made available to the public through a DMMO web site. The information at this web site will be project specific (e.g., location, dimensions and volume of project; proposed disposal site; permit numbers, approval/review status; and

updated on a regular basis by the COE. There are currently no plans to incorporate results of chemical, physical and biological testing into this data base.

Sampling and Analysis Plan (SAP) Template - Under the direction of the EPA representative to the DMMO, the development of a template to guide applicants and consultants in the preparation of a SAP was initiated. The SAP template is currently in a preliminary draft form and undergoing review and revision by the DMMO.

IV. DMMO PILOT PHASE PROBLEMS AND RECOMMENDED ACTIONS

The MOU directs that each pilot phase report contain an analysis of issues that arose during the pilot and recommendations for further actions to be reviewed and approved by the Dredging Management Committee. Each member agency was responsible for preparing an issue paper which outlined their agency's concerns with the DMMO process, and suggesting changes to the process that would address those concerns. These issue papers were distributed among the DMMO agencies for review and serve as the basis for the summarized issues and recommended actions that appear below.

1. Issue: Internal DMMO communications, minutes and agendas. Agendas and meeting minutes often have been distributed late, making it difficult for member agencies to provide comments and/or adequately prepare for the next scheduled meeting.

Recommended Action: As outlined under item six in Section 11(f) of the MOU, draft meeting minutes will be distributed within five (5) days of the meeting date. Establishment of a full time DMMO project manager by the host agency during the last months of the pilot phase provided significant improvement in meeting this goal. With the continued availability of the project manager and further experience in the role, improvements should continue.

2. Issue: Applicant coordination. The written transmittal of DMMO actions (decisions, questions or requirements for additional action) to applicants has often been slow relative to the three week timeline laid out in Section 11(f) of the MOU. The time frame for preparation and transmittal of responses to applicants is often delayed by incomplete applicant submittals and/or the DMMO bi-monthly meeting schedule.

Recommended Action: Revise the appropriate sections of the MOU to direct that, when complete, applicant submittals will be placed on the next available regularly scheduled DMMO meeting agenda and that a response will be provided within two (2) weeks of the DMMO consideration of the item.

3. Issue: Meeting MOU time objectives. DMMO objectives were frequently not met because of delays occurring between completion of the DMMO suitability determinations and the release of the COE Public Notice and issuance of the final permits for the DMMO pilot projects.

Recommended Action: Host agency management and monitoring of the dredging data base will greatly aid in tracking the course of projects beyond the suitability determination phase. Furthermore, it appears that the recent hiring of a full-time DMMO coordinator by the COE, combined with greater experience by all the member

agencies, will help to improve the ability of the DMMO to meet the time goals contained in the MOU.

4. Issue: DMMO project tracking. The need to monitor performance and improve the DMMO procedures clearly indicates the need for the implementation of a functional DMMO project tracking system. The DMMO has discussed the content and structure of an electronic data tracking system for DMMO projects as well as a DMMO WEB site for the presentation of project data. Progress on the design and establishment of a WEB site is proceeding. The DMMO is investigating the capabilities of the COE "RAMS" data management system for DMMO purposes. No tracking system is yet functioning.

Recommended Action: EPA and BCDC have jointly initiated the creation of an interim, spreadsheet-based, DMMO tracking system pending the establishment of a fully automated system. The host agency should complete and maintain the interim system while continuing to proceed with RAMS to see what can be accomplished within that system. The development of the WEB page should be completed during the second six-month pilot phase.

5. Issue: Applicant/special interest/public access to the DMMO process. The perception exists that DMMO meetings and activities are conducted in private and are not open to public input. As noted in the introductory portions of this report, the DMMO process does not alter any opportunities or requirements for input to agency regulatory decision-making. Interested parties are welcome to attend and comment during the initial portion of scheduled DMMO meetings.

Recommended Action: The DMMO needs to better publicize the fact that in accordance with guidance contained in the MOU, the member agencies have agreed that the first 15 minutes of scheduled DMMO meetings are available for attendance and presentation of comments by applicants, special interests and/or the general public. Attendance at DMMO meetings needs to be scheduled with the host agency five days in advance so that all member agencies can be notified. When available, the DMMO WEB site is expected to be an important vehicle for the public presentation of DMMO schedules, agendas and activities.

6. Issue: Host agency conflict of interest. Although not formally part of the first six-month pilot program, as described by the MOU, the DMMO agencies have utilized the opportunity of the bi-monthly DMMO meetings to review and approve COE maintenance dredging projects. Problems arose because the Corps often didn't present information to the group in a fashion consistent with the guidelines and procedures outlined in the MOU and General Operating Principles. This raised agency concern that there could be a conflict of interest on the part of the host agency with regard to processing its own projects through the DMMO.

Recommended Action: The COE submit technical information and data on Corps dredging projects to DMMO for review in a manner consistent with the general procedures outlined in the MOU and the General Operating Principals. The COE will not make formal DMMO application for Federal navigation channels and the COE will not receive DMMO approval letters. The review by the agencies will be documented in the DMMO meeting minutes.

7. Issue: Non-consensus situations. There is no agreed-upon procedure to document non-consensus DMMO decisions.

Recommended Action: Recognizing that each DMMO agency retains its authority to make unilateral decisions within its specific authorities, and that the Management Committee (rather than the DMMO), is the decision making body, revise the MOU to reflect the following: When an individual agency unilaterally invokes its own authority (without formal elevation to the Management Committee), this position should be made in writing with the signature of the Management Committee member of that agency, and the DMMO should be notified.

8. Issue: The project information submittal time, contained in the MOU allows for DMMO review of a SAP submitted in advance of the complete project application. For projects which propose a change in a previously permitted material disposal environment, review and approval of the SAP before consideration of the revised project application raises numerous issues, most notably the potential for the needless expenditure of funds for a testing program that is unsuitable for the approved disposal site.

Recommended Action: Revise the MOU to indicate that any dredging project proposing a change in the previously permitted material disposal environment, must submit a complete DMMO application prior to SAP approval. Such projects may need to be reviewed by the Dredging Management Committee which will provide management direction to the DMMO.

9. Issue: Delays in DMMO processing due to agency absence at meetings. Constraints on the staffing resources of the individual agencies can mean that an agencies' representative or alternate is unavailable to attend a regularly scheduled meeting or is unable to review all the projects on the agenda for that meeting. Because DMMO consensus determinations rely on coordination and decision-making at the bi-monthly meetings, the absence of any agency from that review process will prolong the review time frame and can result in delays in permit processing.

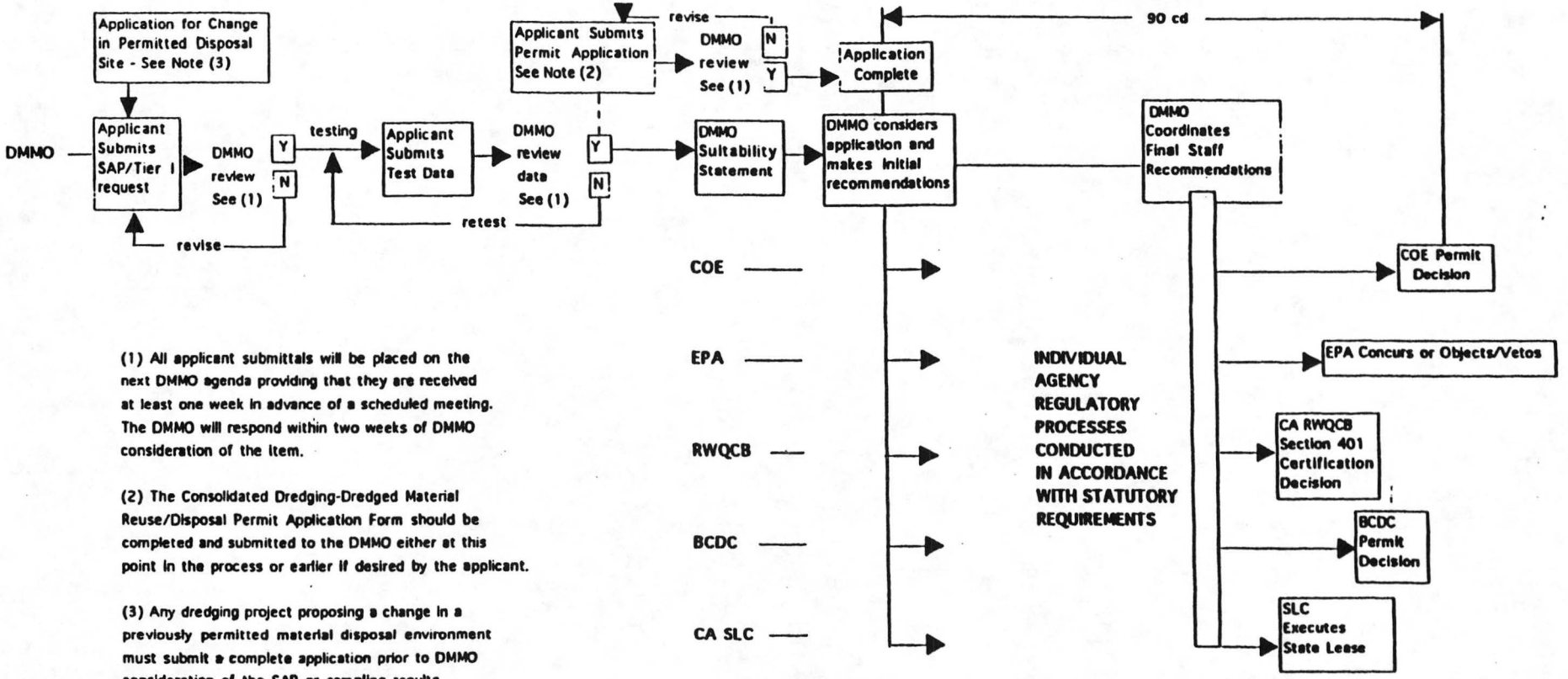
Recommended Action: Recognizing the resource constraints that exist for the member agencies, revise the MOU to clarify the following procedure for documenting the position of an agency if it is unable to attend a scheduled DMMO meeting: The DMMO representative shall submit a written summary of positions and/or questions regarding all projects within their jurisdiction or regulatory authority which appear on the final agenda for a particular meeting. Should an agency representative choose to defer on a particular project to the consensus reached by the other agencies, this should also be indicated in written form. This summary should be submitted to the host agency on or before the scheduled meeting date and shared with the other members at the DMMO meeting.

V. CONCLUSIONS

During the first six-month phase of the Pilot Program, coordination efforts of the DMMO have successfully increased member agencies' permit processing efficiency and decreased the redundancies associated with multi-agency review. In addition to the normal review and issuance of permits, dredged material disposal applications require agency staff members to interpret the results of an extensive battery of test characterizing the physical, chemical, and biological nature of the sediment proposed for dredging. The pilot program of the DMMO has initiated coordination of all these tasks with encouraging results. Although some operational and procedural problems were noted during this first phase, there is consensus on the part of the agency staff to continue the pilot DMMO by commencing a second six-month pilot phase following an expression of concurrence by the Dredging Management Committee.

VI. ATTACHMENTS

Draft DMMO Flowchart and Timeline Goals for Maintenance Dredging Projects (revised 3/28/97)



(1) All applicant submittals will be placed on the next DMMO agenda providing that they are received at least one week in advance of a scheduled meeting. The DMMO will respond within two weeks of DMMO consideration of the item.

(2) The Consolidated Dredging-Dredged Material Reuse/Disposal Permit Application Form should be completed and submitted to the DMMO either at this point in the process or earlier if desired by the applicant.

(3) Any dredging project proposing a change in a previously permitted material disposal environment must submit a complete application prior to DMMO consideration of the SAP or sampling results.

cd = calendar days

DMMO - Dredge Materials Management Office
COE - Corps of Engineers
EPA - U.S. Environmental Protection Agency
RWQCB - CA Regional Water Quality Control Board
BCDC - San Francisco Bay Conservation and Development Commission
CA SLC - CA State Lands Commission
SAP - Sampling and Analysis Plan

Table 1
DMMO Dredging Projects
Non-Federal Projects
Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN
Aeolian Yacht Club	Aeolian Yacht Club-	Nov-96	Nov-96	Pending	-	-	-	-	-
Ballena Isle Marina	Ballena Isle Marina	Dec-95	Dec-95	Pending	-	-	-	-	-
Bel Marin Keys Community Services District	Laguna Bel Marin and Novato Creek	-	-	Aug-96	N/A	-	-	-	-
Benicia, City of, Dept. of Public Works	Benicia Marinia	-	Mar-96	May-96	Jun-96	Jul-96	Apr-96	May-95	-
Benicia Port Terminal	Pier 92, 1st '96 episode	pre-DMMO	Nov-95	Dec-95	Jan-96	-	-	Apr-94	-
Benicia Port Terminal	Pier 92, 2nd '96 episode	Oct-96	Nov-96 Tier I	-	Nov-96 Tier I	-	Jan-96	Apr-94	-
Brisbane, City of	Brisbane Marina	Jul-95	Sep-95	Mar-96	Apr-96	-	-	N/A	-
CALTRANS	Benicia-Martinez Bridge	Jul-96	Aug-96	Dec-96	Jan-97	-	-	May-05	-
CALTRANS	Carquinez Bridge Retrofit	Aug-96	Aug-96	Dec-96	Jan-97	-	-	May-05	-
CALTRANS	Richmond San Rafael Bridge Retrofit Project	Aug-96	Aug-96	Pending	-	-	-	May-05	-
CALTRANS	San Mateo-Hayward Bridge Retrofit Project	Aug-96	Aug-96	Dec-96	Jan-97	-	-	May-05	-
CALTRANS	SF-Oakland Bay Bridge Retrofit Project	Jul-96	Aug-96	Dec-96	Dec-96	-	-	N/A	-
Castrol North American Automotive	Castrol Berth (Richmond Inner Harbor)	Aug-96	Aug-96	Oct-96	N/A	-	-	N/A	-
Chevron U.S.A.	Richmond Long Wharf	-	Apr-95	Jul-95	Oct-95	-	Aug-95	Nov-94	-
Chevron U.S.A. Inc.	Richmond Long Wharf	Jul-96	July-96 Tier I	-	July-96 Tier I	Sep-96	Oct-96	Nov-94	-
Desert Aggregates	Sonoma-Marin, Port of	Oct-96	Dec-96	-	-	-	-	Feb-96	-
Emery Cove Marina	Emery Cove Marina,	Sep-95	Jun-95	Oct-95	Oct-95	Dec-95	Feb-96	-	-
Exxon	Benicia Refinery Dock,1st '96 episode	Jan-96	Jan-96 Tier I	-	Jan-96 Tier I	Jun-95	Nov-95	May-95	-
Exxon	Benicia Refinery Dock, 2nd 96' episode	Jun-96	June-96 Tier I	-	June-96 Tier I	Oct-96	Oct-96	May-95	-

Table 1
DMMO Dredging Projects
Non-Federal Projects
Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN
Exxon	Benicia Refinery Dock, 3rd. 96' episode	Aug-96	Aug-96 Tier I	-	Aug-96 Tier I	-	-	May-95	-
Foster City	Foster City Lagoon	Apr-96	Jul-96	Pending	-	-	-	N/A	-
Golden Gate Bridge and Transportation District	Larkspur Ferry Terminal-Berths 1 & 2	Apr-96	Apr-96	Sep-96	Oct-96	-	-	-	Dec-96
Loch Lomond Marina	Loch Lomond Marina, San Rafael, Marin County	Jul-95	Jul-95	Oct-95	Nov-95	Dec-95	May-95	N/A	-
Loch Lomond Marina	Loch Lomond Marina, San Rafael, Marin County	Dec-96	Pending	-	-	-	-	N/A	-
Marin Co. Pub. Svcs. Agent. (29); Paradise Cay HOA	Paradise Cay (north entrance chan. & chans. C & D)	May-96	Jun-96 Tier I	-	Jul-96	-	-	Feb-97	-
Marin Yacht Club	Marin Yacht Club, Tier I request	Aug-96	Aug-96 Tier I	-	Aug-96	-	-	Mar-95	-
Oakland, Port of	Berths 20, 21, 30, 32, 33- Maintenance Dredging under existing	Aug-96	Aug-96	Oct-96	Oct-96	Oct-96	Oct-95	N/A	-
Oakland, Port of	Berths 22, 23, 24, 25, 26 (Deepening Project)	Sep-95	Oct-95	Feb-96	Mar-96	-	Oct-96	N/A	-
Oakland, Port of	Berths 25 and 26 (high spots) Maintenance Dredging under existing	-	-	-	April-96 Prior Approval	-	-	N/A	-
Oakland, Port of	Berths 22, 23, 24, 35, 67, 68- Maintenance Dredging under existing	Aug-95	Aug-95	Dec-95	Feb-96	Aug-95	Oct-95	N/A	-
Oakland, Port of	Berths 25, 26, 30, 37-Maintenance Dredging under existing BCDC and	-	May-95	-	Aug-95	-	-	-	-
Pullman Building Company	Paradise Cay Yacht	Jul-95	Sep-95	Nov-95	May-96	Apr-96	-	Mar-94	Oct-96
Redwood City, City of	Port of Redwood City,	Mar-96	Apr-96	Pending	-	-	-	-	-

Table 1
DMMO Dredging Projects
Non-Federal Projects
Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN
Richmond, Port of	Levin Terminal (Berths: IMTT, Natl Gypsum, GATX, ARCO, Terminals 2	Pre-DMMO	-	Aug-96	Aug-96	-	Jul-96	N/A	-
Richmond, Port of	Terminal No. 4 (Emergency)	Oct-96	Oct-96 Tier I	-	Oct-96	-	Oct-95	Mar-94	-
San Francisco, City &	Gashouse Cove, SF Marina	Jan-00	May-95	Sep-95	Pending	-	-	-	-
San Francisco, City & County	Marina Small Craft Harbor (Areas 2 and 3) - West	Jun-95	-	Sep-95	Nov-95	Dec-95	Aug-94	Nov-94	Jul-94
San Francisco, City & County	Marina Small Craft Harbor (Berth and Fairways)	Apr-96	May-96	Sep-96	Pending	-	Aug-94	Nov-94	Jul-94
San Francisco, City & County	S.F. Marina and Small Craft Harbor Entrance Channel - Sand	Jun-95	-	Sep-95	Nov-95	Aug-95	Dec-95	N/A	-
San Francisco Drydock, Inc.	San Francisco Drydock, Berths 3 and 4-Pre Oil	-	May-96	Jul-96	Jul-96	Sep-96	-	Oct-96	-
San Francisco Drydock, Inc.	San Francisco Drydock, Berths 3 and 4 -POST	Jan-97	-	Mar-97	Apr-97	-	-	-	-
San Francisco, Port of	Pier 35 East	Aug-96	Sep-96	Sep-96	Oct-96	Oct-96	Oct-96	Mar-95	-
San Francisco, Port of	Pier Pier 27	Aug-96	Sep-96	Sep-96	Oct-96	Oct-96	Oct-96	Mar-95	-
San Francisco, Port of	Pier 35 West	Nov-95	Mar-96	Apr-96	Apr-96	Apr-96	Apr-96	Mar-95	-
San Francisco Public Utilities Commission - Department of Public	Port of SF, Piers 33 and 35	May-96	Jul-96	Oct-96	Oct-96	-	-	Feb-96	-
San Francisco Yacht Club	San Francisco Yacht Club, Belvedere, Marin Co.	Jan-95	pre DMMO	Mar-95	Jul-95	Oct-95	Aug-95	N/A	Sep-95
San Leandro, City of	San Leandro Marina	May-96	Jul-96	Dec-96	Dec-96	-	-	N/A	-
Sausalito Yacht Harbor Inc.	Sausalito Yacht Club	May-95	May-95	Jul-95	Nov-95	Nov-95	May-96	N/A	Apr-96
Schnitzer Steel	Schnitzer Steel, Port of Oakland	-	pre DMMO	-	Aug-95	-	-	N/A	-
Schnitzer Steel	Schnitzer Steel, Port of	Jan-97	Feb-97	-	-	-	-	N/A	-

Table 1
DMMO Dredging Projects
Non-Federal Projects
Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN
Unocal Corp	Unocal Marine Terminal,	-	Sep-96	Oct-96	Oct-96	-	Aug-96	Oct-95	-
Vallejo, City of	Vallejo Ferry Terminal, east shore of Mare Island	Aug-96	Sep-96	Dec-96	Jan-97	-	-	Oct-96	-
Vallejo Yacht Club	Vallejo Yacht Club - harbor entrance	Sep-96	Dec-96 Tier I	-	Dec-96	-	Jan-97	N/A	May-95
Western Waterways, Inc.	Glen Cove Marina, Vallejo, Solano County	-	pre DMMO	Dec-95	Jan-96	Mar-96	May-96	N/A	-
Wickland Oil Martinez	Wickland Oil Martinez, Proposed Point Orient Terminal	Mar-96	May-96	Pending	-	-	-	Pending Rect. of Appl.	-

Table 2
DMMO Material Suitability Determinations
All Projects

Non-Federal Projects							
Applicant	Project Site	Proposed Dredging Volume	Volume Approved (SUAD)	Volume Failed (NUAD)	Percent Approved (SUAD)	Aquatic Disposal Site	Upland Disposal Site
Aeolian Yacht Club	Aeolian Yacht Club-Harbor Entrance	12,000	Pending	Pending	0	Carquinez (SF-9)	-
Ballena Isle Marina	Ballena Isle Marina	44,000	Pending	Pending	0	-	-
Bel Marin Keys Community Services District	Laguna Bel Marin and Novato Creek	10,000	N/A	N/A	0	-	Calif. Quartet Owned Land
Benicia, City of, Dept. of Public Works	Benicia Marinia	20,000	20,000	0	100	Carquinez (SF-9)	-
Benicia Port Terminal	Pier 92, 1st '96 episode	33,900	33,900	0	100	Carquinez (SF-9)	-
Benicia Port Terminal	Pier 92, 2nd '96 episode	45,000	45,000	0	100	Carquinez (SF-9)	-
Brisbane, City of	Brisbane Marina	76,000	76,000	0	100	Alcatraz (SF-11)	-
CALTRANS	Benicia-Martinez Bridge Retrofit	6,200	6,200	0	100	Carquinez (SF-9)	-
CALTRANS	Carquinez Bridge Retrofit Project	5,700	5,700	0	100	Carquinez (SF-9)	-
CALTRANS	Richmond San Rafael Bridge Retrofit Project	13,670	Pending	Pending	0	San Pablo Bay (SF-10)	-
CALTRANS	San Mateo-Hayward Bridge Retrofit Project	98,900	98,900	18,000	100	Alcatraz (SF-11)	unknown upland location
CALTRANS	SF-Oakland Bay Bridge Retrofit Project	260,000	248,200	11,800	95	Alcatraz (SF-11)	unknown upland location
Castrol North American Automotive	Castrol Berth (Richmond Inner Harbor)	41,000	N/A	N/A	0	-	Port Land (Parking Lot)
Chevron U.S.A.	Richmond Long Wharf	60,000	60,000	0	100	Alcatraz (SF-11)	-
Chevron U.S.A. Inc.	Richmond Long Wharf	200,000	200,000	0	100	Alcatraz (SF-11)	-
Desert Aggregates	Sonoma-Marin, Port of	220,000	Pending	Pending	0	0	on-site ponds

Table 2
DMMO Material Suitability Determinations
All Projects

Applicant	Project Site	Proposed Dredging Volume	Volume Approved (SUAD)	Volume Failed (NUAD)	Percent Approved (SUAD)	Aquatic Disposal Site	Upland Disposal Site
Emery Cove Marina	Emery Cove Marina, Emeryvile	49,500	49,500	0	100	Alcatraz (SF-11)	-
Exxon	Benicia Refinery Dock,1st '96 episode	20,000	20,000	0	100	Carquinez (SF-9)	-
Exxon	Benicia Refinery Dock, 2nd 96' episode	20,000	20,000	0	100	Carquinez (SF-9)	-
Exxon	Benicia Refinery Dock, 3rd. 96' episode	20,000	20,000	0	100	Carquinez (SF-9)	-
Foster City	Foster City Lagoon	92,900	Pending	Pending	0	Alcatraz (SF-11)	City property
Golden Gate Bridge and Transportation District	Larkspur Ferry Terminal-Berths 1 & 2	25,000	25,000	0	100	Alcatraz (SF-11)	-
Loch Lomond Marina	Loch Lomond Marina, San Rafael, Marin County	94,400	94,400	0	100	San Pablo Bay (SF-10)	-
Loch Lomond Marina	Loch Lomond Marina, San Rafael, Marin County	72,300	Pending	Pending	0	San Pablo Bay (SF-10)	-
Marin Co. Pub. Svcs. Agent. (29); Paradise Cay HOA	Paradise Cay (north entrance chan. & chans. C & D)	10,000	10,000	0	100	Alcatraz (SF-11)	-
Marin Yacht Club	Marin Yacht Club, Tier I request	3,500	3,500	0	100	San Pablo Bay (SF-10)	-
Oakland, Port of	Berths 20, 21, 30, 32, 33-Maintenance Dredging under existing BCDC and COE permits for all berths	64,000	64,000	0	100	Alcatraz (SF-11)	landfill via Berth 10
Oakland, Port of	Berths 22, 23, 24, 25, 26 (Deepening Project)	62,000	61,500	500	99	Alcatraz (SF-11); Deep Ocean	Landfill (via Berth 10)
Oakland, Port of	Berths 25 and 26 (high spots) Maintenance Dredging under existing BCDC and COE permits for all berths	1,200	1,200	0	100	Alcatraz (SF-11)	-

Table 2
DMMO Material Suitability Determinations
All Projects

Applicant	Project Site	Proposed Dredging Volume	Volume Approved (SUAD)	Volume Failed (NUAD)	Percent Approved (SUAD)	Aquatic Disposal Site	Upland Disposal Site
Oakland, Port of	Berths 22, 23, 24, 35, 67, 68- Maintenance Dredging under existing BCDC and COE permits for all berths	58,000	48,300	9,700	83	Alcatraz (SF-11)	landfill via Berth 10
Oakland, Port of	Berths 25, 26, 30, 37- Maintenance Dredging under existing BCDC and COE permits for all berths	34,300	34,300	0	100	Alcatraz (SF-11)	-
Pullman Building Company	Paradise Cay Yacht Harbor	64,000	64,000	0	100	Alcatraz (SF-11)	-
Redwood City, City of	Port of Redwood City, Berths 1 and 2	22,630	Pending	Pending	0	0	-
Richmond, Port of	Levin Terminal (Berths: IMTT, Natl Gypsum, GATX, ARCO, Terminals 2 & 3, Berths 6 & 7- all pre-DMMO)	8,500	8,500	0	100	SF-11	-
Richmond, Port of	Terminal No. 4 (Emergency)	9,100	9,100	0	100	Alcatraz (SF-11)	-
San Francisco, City & County	Gashouse Cove, SF Marina	30,000	Pending	Pending	0	0	-
San Francisco, City & County	Marina Small Craft Harbor (Areas 2 and 3) - West Basin	15,000	15,000	0	100	Alcatraz (SF-11)	-
San Francisco, City & County	Marina Small Craft Harbor (Berth and Fairways)	50,000	Pending	0	0	Alcatraz (SF-11)	-
San Francisco, City & County	S.F. Marina and Small Craft Harbor Entrance Channel - Sand Trap/Mining Pilot Project	30,000	30,000	0	100	-	Tidewater facility
San Francisco Drydock, Inc.	San Francisco Drydock, Berths 3 and 4-Pre Oil Spill	98,000	Held	Held	0	-	-
San Francisco Drydock, Inc.	San Francisco Drydock, Berths 3 and 4 -POST SPILL	98,000	98,000	0	100	Alcatraz (SF-11)	-

Table 2
DMMO Material Suitability Determinations
All Projects

Applicant	Project Site	Proposed Dredging Volume	Volume Approved (SUAD)	Volume Failed (NUAD)	Percent Approved (SUAD)	Aquatic Disposal Site	Upland Disposal Site
San Francisco, Port of	Pier 35 East	55,000	55,000	0	100	Alcatraz (SF-11)	-
San Francisco, Port of	Pier Pier 27	80,000	80,000	0	100	Alcatraz (SF-11)	-
San Francisco, Port of	Pier 35 West	37,000	33,200	3,800	90	Alcatraz (SF-11) NUAD left in place	-
San Francisco Public Utilities Commission - Department of Public Works	Port of SF, Piers 33 and 35	1,200	0	1,200	0	-	Port of SF Pier 94- Upland Site
San Francisco Yacht Club	San Francisco Yacht Club, Belvedere, Marin Co.	125,000	125,000	0	100	Alcatraz (SF-11)	-
San Leandro, City of	San Leandro Marina	75,000	75,000	0	100	Alcatraz (SF-11)	-
Sausalito Yacht Harbor Inc.	Sausalito Yacht Club	700	700	0	100	Alcatraz (SF-11)	-
Schnitzer Steel	Schnitzer Steel, Port of Oakland	13,000	13,000	0	100	Alcatraz (SF-11)	unknown upland location
Schnitzer Steel	Schnitzer Steel, Port of Oakland	210	210	0	100	Alcatraz (SF-11)	0
Unocal Corp	Unocal Marine Terminal, Rodeo	55,240	55,240	0	100	Carquinez (SF-9)	0
Vallejo, City of	Vallejo Ferry Terminal, east shore of Mare Island Strait	8,000	6700	1,300	84	Carquinez (SF-9)	unknown upland location
Vallejo Yacht Club	Vallejo Yacht Club - harbor entrance	1,500	1,500	0	100	San Pablo Bay (SF-10)	-
Western Waterways, Inc.	Glen Cove Marina, Vallejo, Solano County	50,000	50,000	0	100	Carquinez (SF-9)	-
Wickland Oil Martinez	Wickland Oil Martinez, Proposed Point Orient Terminal	26,100	Pending	Pending	0	Alcatraz (SF-11)	-
Non-Federal Projects							

Table 2
DMMO Material Suitability Determinations
All Projects

Applicant	Project Site	Proposed Dredging Volume	Volume Approved (SUAD)	Volume Failed (NUAD)	Percent Approved (SUAD)	Aquatic Disposal Site	Upland Disposal Site
U.S. Army Corps of Engineers	Oakland Army Base	20,000	20,000	0	100	Alcatraz SF-11	-
U.S. Army Corps of Engineers	Corps O&M-Redwood City	1,080,000	1,030,000	47,500	95	Alcatraz SF-11	-
U.S. Army Corps of Engineers	Corps Spring O&M-Richmond	520,000	520,000	0	100	Alcatraz (SF-11); San Pablo (SF-10)	-
U.S. Army Corps of Engineers	Corps Fall O&M-Richmond	105,000	105,000	0	100	Alcatraz (SF-11)	-
U.S. Army Corps of Engineers	Corps Suisun Bay O&M	186,200	186,200	0	100	Suisun Bay (SF-8)	-
U.S. Army Corps of Engineers	Corps Port of Oakland O&M	200,000	180,000	20,000	90	Alcatraz (SF-11)	Landfill via Berth 10
U.S. Army Corps of Engineers	Corps San Leandro O&M	110,600	110,600	0	100	Alcatraz (SF-11)	-
U.S. Army Corps of Engineers	Corps San Rafael Across the Flats O&M	173,200	Pending	0	0	San Pablo (SF-10)	-
U.S. Navy	NAS Alameda	100,000	100,000	0	100	Alcatraz (SF-11)	-

Summary Information							
Total Proposed Dredging Volume	**Actual Dredged Volume, (minus projects pending)**	**Volume Approved (SUAD)**	**Volume Failed (NUAD)**				
5,221,650	4,331,350	4,217,550	113,800				
	% Approved	97					
	% Failed	3					

MEMORANDUM OF UNDERSTANDING FOR THE PILOT DREDGED MATERIAL MANAGEMENT OFFICE

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
AND
SAN FRANCISCO REGIONAL WATER QUALITY CONTROL BOARD
AND
CALIFORNIA STATE LANDS COMMISSION
AND
U.S. ENVIRONMENTAL PROTECTION AGENCY
AND
SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

Original : July 3, 1996
Revised : March 28, 1997

SUBJECT: **Memorandum of Understanding for the Pilot Dredged Material Management Office**

1. **Purpose.** This Memorandum of Understanding (MOU) provides for the creation of a Pilot Dredged Material Management Office (DMMO) for the San Francisco Bay Region. This office is established to foster a comprehensive, and consolidated approach to handling dredged material management issues in order to reduce redundancy and delays in the processing of dredging permit applications. This MOU addresses the implementation of a "pilot" DMMO; it does not propose a permanent physical office. The DMMO is a phased program (See Section 12). The first two phases constitute the "pilot" program and each of these phases will last six (6) months. The pilot phases will implement the basic approach as outlined in this document and include the processing of dredging and disposal permit applications in order to judge the effectiveness of the approach and the need for subsequent modifications. It is envisioned by the member agencies that more tasks will be added to the DMMO over time as the effectiveness of the DMMO is demonstrated.

2. **Disclaimer.** Nothing written in this MOU shall be construed as an agreement, expressed or implied, which amends, negates or otherwise changes the legal statutory and regulatory authority of any member signatory agency or any interested party. The sole intent of the DMMO is to improve the dredging permit process within existing law, regulation and policy.

3. **References.**

   a. *General Operating Principles, Pilot Dredged Material Management Office (DMMO)*, signed by the Dredging Management Committee members and dated 12 September 1995.

   b. *Draft DMMO Flowchart and Timeline Goals for Maintenance Dredging and Disposal Projects*, dated July 3, 1996.

4. **History.** The competing needs of various San Francisco Bay user groups, the ports and related industries, sport fisherman, and the environment reached a crisis point in 1989 when considerable controversy arose over dredged material disposal in San Francisco Bay. A consensus-based approach, entitled the "Long Term Management Strategy (LTMS) for dredged material management," was initiated in 1990, to address and resolve the "dredging problem".

The goal of the LTMS is to a create a fifty year plan manage dredged material dredging and disposal activities. The San Francisco Bay Regional Water Quality Control Board (Regional Board), State Water Resources Control Board, San Francisco Bay Conservation and Development Commission (BCDC), United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers, South Pacific Division and San Francisco District (COE) are signatories to the LTMS program.

This DMMO results, in part, from the findings of the LTMS Implementation Committee which examined the issue of permit streamlining. The Committee formed a task group to draw up a process for a "one stop" permit approach for dredging permits. In 1992, the task group drafted a permit streamlining initiative with general goals and objectives. The resultant DMMO proposal was modeled after the Puget Sound Dredge Disposal Analysis (PSDDA) approach, which relies on a partnership of federal and state agencies.

In 1995, the LTMS agencies decided to form a pilot DMMO, under existing authorities and budgets. The COE agreed to initially act as the "host" of the DMMO and take on responsibilities associated with the lead role. The roles and responsibilities of the host agency, as well as the other participants, are addressed in this MOU. The MOU is consistent with, and is intended to implement, the fourth goal of the LTMS which is to provide "recommendations for federal, state and local agencies to implement a cooperative permitting process for authorizing dredging activities."

5. **Geographic Area.** The DMMO geographic area includes: all of the San Francisco Bay Estuary up to Sherman Island, its major tributaries up to points where navigation is no longer feasible, upland areas surrounding the estuary, and ocean disposal sites for Bay material designated by the COE and/or USEPA. (See Figure 1.) However, the member agencies will strive to coordinate with the Central Valley Regional Water Quality Control Board regarding use of Bay dredged material in the Sacramento/San Joaquin Valley region.

6. **Definitions.** For the purpose of this memorandum of understanding the following definitions apply:

   a. "Host" Agency. COE, San Francisco District will be the host agency: (1) providing logistical support for the meetings to include providing meeting rooms, preparing agendas, preparing meeting minutes, distributing information among participants, applicants, and interested parties; and maintaining project files; and (2) acting as the main clearinghouse and initial point of contact on DMMO matters.

   b. "Member Agencies." The signatories to this MOU.

   c. "Interested Party." Any person or agency that has an interest or involvement in the issuance of dredging permits and management of dredged material in the SF Bay Area.

   d. "Dredging Management Committee." A committee made up of each signatory agency's executive-level staff person or commander.

   e. "Uplands." Locations within the Bay Area that are outside "navigable waters", i.e. above the high tide line. Note that "Uplands" may possess wetland characteristics and be regulated as wetlands.

f. "Complete Permit Application." An application that contains information judged adequate by the member agencies to process the application, including results of testing that have been approved by the member agencies.

7. **Problem.** The de facto permitting system for dredging and disposal can be lengthy and complex and consists of six federal and state agencies that issue a permit or other legal approval. In addition, federal and state laws require that resource agencies comment on many of the permit actions and consider endangered species impacts under their own jurisdiction (Section 7 Consultation). The actual number of permits and types of approvals depend upon the location of the dredging and disposal sites, ownership of project area, and whether the project requires new permits or is considered an episode under existing permits. Coordination of the dredging permitting process to decrease redundancy and increase efficiency is a main purpose of the DMMO.

   Secondly, the suitability determination for the disposal of dredged material often requires agency interpretation of an extensive battery of tests which characterize the physical, chemical, and biological nature of the sediment proposed for dredging. The contributions of member agencies to the suitability determination process reflect the staff's differing areas of technical expertise. Thus, the coordinated exchange of technical information among staff creates a common knowledge base to insure that permit actions are taken in a consistent and timely manner.

8. **Goals, Objectives, and General Operating Principles.** These items are contained in the *General Operating Principles,* which is incorporated by reference.

9. **Scope.** This MOU will provide the operating guidance necessary to implement the Pilot DMMO under the previously agreed upon *General Operating Principles*.

10. **Required Actions.** The Pilot Dredged Material Management Office will make joint staff recommendations on the approval, modification or denial of:

    a. Sampling and testing plans;
    b. Results of testing pursuant to the approved plans;
    c. Consolidated Permit Application completeness; and
    d. Material suitability for disposal at existing in-bay disposal sites, ocean disposal site or upland disposal sites (DMMO staff members will sign a DMMO recommendation for a given disposal site only if they have regulatory authority for that site).

    Agency staffs will also recommend general permit conditions (i.e. length of permit, bathymetric surveys) and special permit conditions (i.e. timing of dredging operations, turbidity controls), as appropriate, to be included in permit approvals.

    Agency staffs shall support the consensus recommendations made through this process subject to final approval by the respective agencies. Recommendations will be documented in the minutes of the meetings and through member agency correspondence.

11. **DMMO Agreements, Responsibilities And Roles**

For at least the first phase, DMMO responsibilities and roles will be as follows:

a. **Host Agency Role.**

1. Provide logistical support (meeting rooms, etc.).

2. Provide for agenda preparation and distribution, a mutually agreeable schedule of meetings, and preparation of meeting minutes and their distribution.

3. Provide staff who are knowledgeable regarding DMMO projects and actions to act as the initial point of contact to and field questions from applicants and the public regarding the DMMO, and to refer inquiries to appropriate member-agency staff.

4. Maintain current files on the projects under the Pilot DMMO Program.

5. Coordinate processing of emergency dredging requests.

6. Prepare and mail joint Public Notices on DMMO matters.

7. Maintain (1) an electronic database for DMMO data containing status of dredging and disposal applications, and (2) electronic records of disposal site monitoring data that are accessible to the member agencies, applicants and the public.

b. **Member Agency Roles.**

Each agency will provide adequate staff to participate in the DMMO. Knowledgeable staff will attend each scheduled meeting and at least one meeting will be held each month. At least one primary and one backup staff member will be designated to ensure that there will be representation from all DMMO member agencies. DMMO staff will work together in a cooperative approach as outlined in the General Operating Principles. Each representative will strive to reach consensus with the other DMMO members while representing the laws and policies of his or her agency. DMMO staff representatives will sign a DMMO recommendation for a given disposal site only if they have regulatory authority for that site. Member agencies may be required to provide electronic updates to the database mentioned above.

If a member agency is unable to provide staff to attend a scheduled DMMO meeting, the agency's DMMO representative shall submit a written summary of the agency's position(s) and/or questions regarding all projects listed on the final agenda for that meeting and that are within their jurisdiction or regulatory authority. Should an agency representative choose to defer on a particular project to the consensus reached by the other agencies, than this should also be indicated in the summary. This summary should be submitted to the host agency on or before the scheduled meeting date and be provided to the other members at the DMMO meeting.

c. **Role of Non-member Resource Agencies**

The non-member resource agencies, United States Fish and Wildlife Service, National Marine Fisheries Service and California Department of Fish and Game, will be requested to attend the DMMO meetings to provide their expertise and participate in discussions of the suitability of material for disposal, and any special permit considerations. While the non-member resource agencies will be invited to provide their recommendations, the member agencies will make the final DMMO recommendations on permit/lease related matters.

d. **Public Review and Input.**

1. **Project Notification.**

The member agencies will continue to follow their existing notification and comment procedures on pending applications, including circulation of staff reports, public notices, response letters, etc. The host agency will also provide information on the status of permit applications and other activities pending before the DMMO through an electronic database that can be accessed by applicants and the public through the internet.

A listing of all pending and recently approved 401 Water Quality Certification actions and 404 Nationwide Permits issued in the San Francisco Bay Area, pursuant to the federal Clean Water Act, will also be available from the Regional Board via a voice mail system and an internet connection (WWW Site).

2. **Comments.**

In addition to comments received through the existing public comment process of the member agencies, written comments on the DMMO or pending applications will be distributed by the host agency for consideration by member agencies at regularly scheduled meetings. The first fifteen minutes of each DMMO meeting will be reserved for public and applicant comments. An applicant or interested party may make a presentation to the DMMO staff at a regularly scheduled meeting, provided that the presentation is scheduled and any written materials are submitted at least five days in advance to the DMMO host .

If any additional tasks are added to the DMMO as a result of the final implementation plan, public involvement will be revisited to determine whether additional special public involvement is necessary.

3. **Annual Review.**

At least once per year, the DMMO will prepare an annual report and conduct a public meeting on the report. The report will contain information regarding dredging projects, permit issues, disposal site monitoring and other matters considered during the year. Presentations will be made, as needed, on technical issues and any studies and research that may have a direct or significant bearing on management of Bay Area dredging and disposal activities. The proceedings of the annual meeting will be compiled and made available to the public.

e. **Conflict Resolution.**

If consensus on substantive issues cannot be reached by the staff assigned to the DMMO, then a meeting or conference call will be arranged as soon as possible with the Dredging Management Committee (DMC). The DMC will attempt to resolve the conflict to the mutual satisfaction of the members. If resolution is not accomplished within two (2) DMC meetings, then the subject project will no longer be managed under the auspices of the DMMO and existing agency policies and procedures will be applied to the project. The Host agency will prepare a written report to be signed by all members, which will document in detail for the DMC, the nature and magnitude of the disagreement.

If a member agency determines that a pilot application will not be processed in an acceptably expeditious time period, then, after informing the other DMC members by phone or in writing, it may withdraw processing of the pilot application from the DMMO.

If an individual agency decides, for any reason, to process an application outside of the DMMO (without formal elevation to the Management Committee) that normally would be considered as a DMMO project, then this position should immediately be transmitted in writing, with the signature of the Management Committee member of that agency, to the DMC members.

f. **Timelines and Process.**

The following time frames will be considered goals:

1. The member agencies will respond to inquires from applicants, the public or each other, within two (2) days for telephone responses, and within one (1) week for written response.

2. All applicant submittals will be placed on the next DMMO agenda providing that they are received at least one week in advance of a scheduled meeting.

3. The DMMO will respond to an applicants submittal of sampling plans, sampling results and/or other agendized items within two weeks of DMMO consideration of the item. However, any dredging project proposing a change in a previously permitted material disposal environment, must submit a complete DMMO application prior to DMMO consideration of the SAP or sampling results.

4. The Host agency will distribute to the member agencies any submittals by applicants within five (5) days of receipt.

5. The member agencies will respond to applicants regarding the completeness of a submitted application within thirty (30) days after the application is submitted.

6. The Host agency will prepare and distribute draft meeting minutes to member agencies within five (5) days of the meeting date.

7. The DMMO agencies will issue any necessary public notices, or other staff reports regarding pending applications within thirty (30) days after the application is deemed complete.

8. The DMMO agencies will process applications in an expeditious manner so that the member agencies can issue or deny permits for those applications within ninety (90) days after the application is deemed complete.

9. Applicants will have an opportunity to appeal a DMMO recommendation, but only if DMMO staff agrees that there are sufficient grounds to warrant reconsideration, based on the written request and documentation submitted by the applicant. If a recommendation is modified by the member agencies, the host agency will make a written finding for the record. The applicant will be notified by letter or through a supplemental public notice.

12. **Amendment, Duration and Termination.** The DMMO is a phased program. The first two phases constitute the "pilot" program and each of these phases will last six (6) months. The pilot phases will implement the basic approach as outlined in this document and include the processing of dredging and disposal permit applications in order to judge the effectiveness of the approach and the need for subsequent modifications. The first six-month phase will begin upon signature by the member agencies, and the member agencies will use the results of the first phase to reevaluate DMMO tasks as well as agency responsibilities, consistent with management plan alternatives selected in the EIS/EIR for the LTMS program. It is envisioned by the member agencies that more tasks will be added to the DMMO over time as the effectiveness of the DMMO is demonstrated. These tasks could include joint agency sediment-suitability decisions, processing of all dredging and disposal permit applications and Corps civil work dredging and disposal projects, and establishing a database of sediment test results.

During the first six-month phase, the following conditions will apply:

a. The COE will undertake the role of host agency.

b. The DMMO will process all maintenance dredging and disposal permit applications.

c. COE civil works projects, navigation improvements, etc., shall not be processed through the DMMO.

d. Large new-work dredging and disposal projects and projects where dredging and disposal is a minor part of the project (as determined on a case-by-case basis) will not be processed through the DMMO.

e. Each member agency will issue sediment suitability recommendation letters.

During the second six-months phase, the above conditions will apply with the following changes:

COE civil works projects, navigation improvements, etc., shall be processed through the DMMO consistent with the procedures contained in this MOU, however the Corps will not submit a formal DMMO application form and DMMO approval letters will not be written for COE projects. Results of DMMO deliberations will be documented in the meeting minutes.

The development and implementation of the web page and associated database will occur during this period.

After the completion of each pilot phase, the member-agency staffs will prepare a report to the Dredging Management Committee on the progress and success of the DMMO. The reports will contain an analysis of problems and issues and recommendations for further actions. Within one month of receipt, the DMC shall review the progress reports, decide whether to continue with the DMMO, and revise, as necessary, the conditions under which the office will operate.

The second phase will implement the DMMO subject to the revisions, if any, approved by the DMC.

At the end of the Pilot program the DMC will initiate whatever changes are needed to implement a permanent DMMO, based on the findings and recommendations of the two reports prepared by member agency staff.

This MOU is intended to remain in effect for as long as it continues to serve the purpose and objectives defined herein, subject to the following conditions:

a. This MOU may be modified or amended by mutual consent of the signatories to this agreement or their designees. All such changes shall be documented by written agreement.

b. Any of the agencies may terminate this MOU thirty (30) days after giving formal written notice of intent to terminate.

13. **Effective Date.** This revised MOU is effective immediately after execution by all the signatories.

WILL TRAVIS
San Francisco Bay Conservation & Development Commission

28 MARCH 1997
(date)

ALEXIS STRAUSS
U.S. Environmental Protection Agency

28 March 1997
(date)

LT. COL. RICHARD G. THOMPSON
U.S. Army Corps of Engineers

28 March 1997
(date)

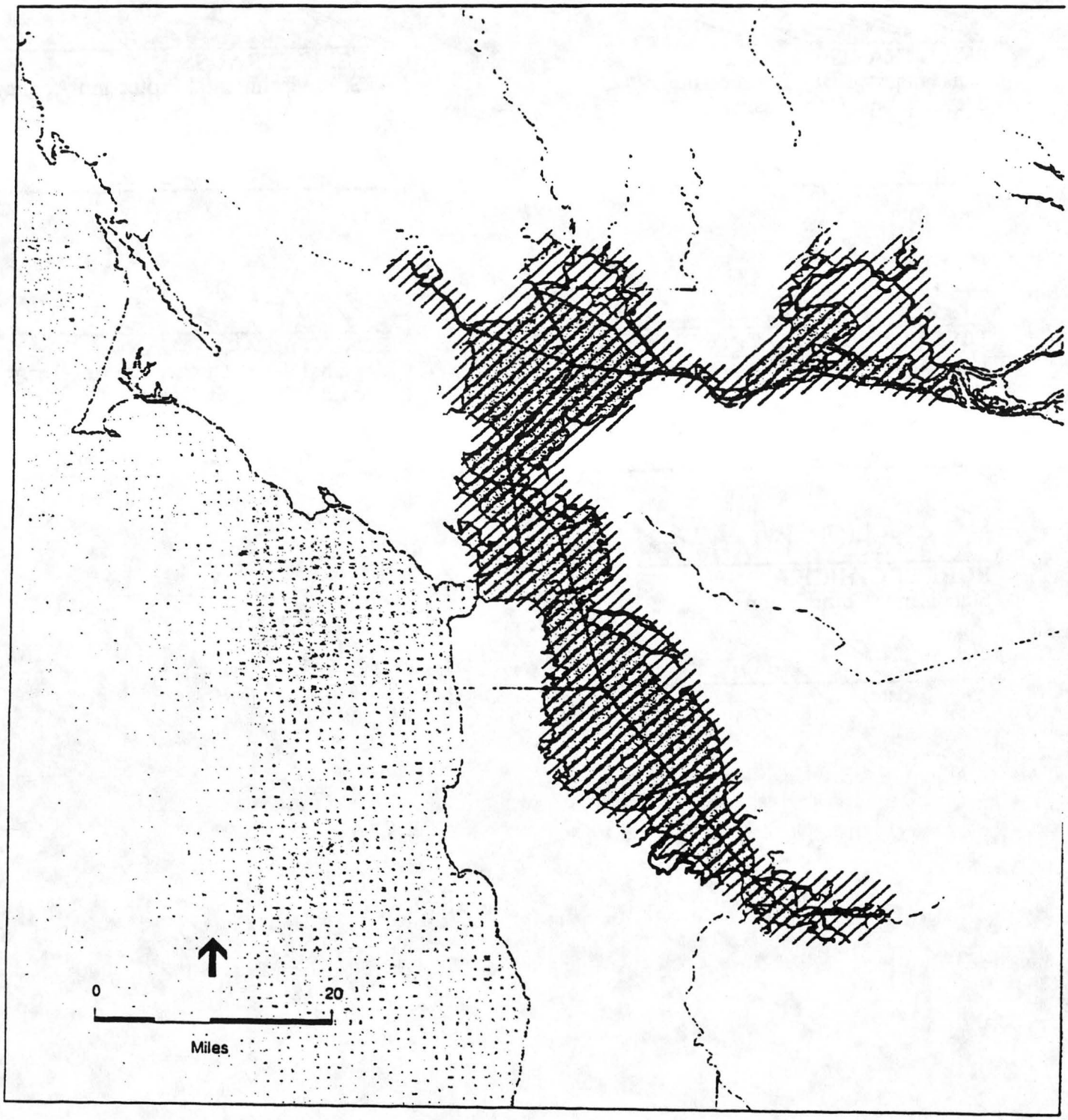
LORETTA BARSAMIAN
Regional Water Quality Control Board
San Francisco Bay Basin

March 28, 1997
(date)

ROBERT C. HIGHT
State Lands Commission

4-2-97
(date)

Pilot Dredged Material Management Office (DMMO) Geographic Area



CONSOLIDATED DREDGING-DREDGED MATERIAL REUSE/DISPOSAL PERMIT APPLICATION FORM

CONSOLIDATED DREDGING-DREDGED MATERIAL REUSE/DISPOSAL PERMIT APPLICATION

(Please completely follow instructions provided with application) [rev 3/97]

SECTION I - GENERAL INFORMATION

1. APPLICANT INFORMATION

☐ Individual ☐ Legal Entity ☐ Government ☐ Non-profit

Applicant Name: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Phone: a. Residence ( ) _____ - _____

b. Business ( ) _____ - _____

Applicant Business Type - Check One If Applicable (See Instructions) ☐ Sole Proprietorship

☐ Partnership ☐ Corporation ☐ Government Agency ☐ Other Association

Description _____

_____

_____

2. REPRESENTATIVE INFORMATION

Applicant's authorized agent, point of contact and/or representative ☐ None

Name, Title: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Phone: ( ) _____ - _____

I hereby authorize _____
to act as my representative and bind me in all matters concerning this application.

_____ _____

Signature of Applicant Date

Who should receive correspondence relevant to this application?

☐ Applicant ☐ Representative ☐ Both

FOR DMMO OFFICE USE ONLY: Data Base Entry ☐ Yes ☐ No

Date Received: _____ COE No. _____

Date Complete: _____ BCDC No. _____

SAP Approved: _____ RWQCB No. _____

Data Submitted: _____, Approved: _____ SLC No. _____

"This application shall serve as, and be functionally equivelant to, a Report of Waste Discharge, pursuant to Sections 13260, 13374 and 13377 of Article 4, Chapter 4 of the Porter-cologne Water Quality Control Act."

SECTION II - PROJECT INFORMATION

3. DREDGING PROJECT

Project Name or Title: _____

Type of Dredging Project: ☐ Maintenance ☐ New Work (see instructions)

☐ Single Episode ☐ Multi-Epsidoe

Project Description: _____

_____

_____

_____

Project Need and/or Purpose: _____

_____

_____

_____

Month and year work is proposed to begin: _____, complete: _____

Estimated total project cost: _____

Project Location:

County: _____ Nearest City: _____
Latitude(s): _____ Longitude(s): _____
Waterway: _____

Proposed type of equipment to be used: _____

_____

Will the project result in the construction of temporary or permanent structures or other than normal dredging equipment ? ☐ Yes ☐ No If Yes, describe _____

_____

Depth of dredging based on
Mean Lower Low Water datum (MLLW):
(Existing depth _____)

Proposed design depth _____
Over/depth tolerance _____
Proposed total depth _____

Volume of material to be dredged: _____ cy, area of dredging _____ acres

Type(s) of substrate being dredged: ☐ Sub-tidal Bottom ☐ Mudflat ☐ Wetlands

☐ Other (explain): _____

Does the project involve activities within
the Suisun Marsh Protection Zone ? ☐ Yes ☐ No If Yes, complete Box 7

Please list agency and identification numbers of any previous permits for this activity:

_____

_____

_____

SECTION III - DISPOSAL SITE INFORMATION

4. DIRECTIONS (Please answer all questions)

Does the project involve unconfined aquatic disposal ? ☐ Yes ☐ No
If Yes complete box 5

Does the project involve upland, wetland or reuse disposal ? ☐ Yes ☐ No
If Yes complete box 6

Does the project involve disposal within the Suisun Marsh Protection Zone ? ☐ Yes ☐ No
If Yes complete box 7

5. AQUATIC DISPOSAL

Site: ☐ SF-9 ☐ SF-10 ☐ SF-11 ☐ SF-DODS

☐ Other (Explain): _____

Note: Disposal at other aquatic sites without prior authorization is prohibited, separate authorization will be required to use such sites (see instructions)

6. PROPOSED UPLAND, WETLAND OR REUSE DISPOSAL SITE INFORMATION

Site Name: _____

Site Description (see instructions): _____

_____

_____

_____

Site Address: _____

City: _____ State: _____ Zip: _____

Latitude(s): _____ Longitude(s): _____ Zoning: _____

Owner's Name: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Phone: ( ) _____ - _____

Does project affect jurisdictional wetlands ? ☐ Yes ☐ No If Yes, give name and permit number of approved wetland project where material will be placed: _____

_____

_____

SECTION III - DISPOSAL SITE INFORMATION (CONTINUED)

6. CONTINUED

Is the site an existing site that regularly receives dredged material: ☐ Yes ☐ No

Year site was last used for dredged material disposal: _____

Will the dredged material be sold or used for private purposes? ☐ Yes ☐ No

If Yes, annual income received or projected: _____

If projected please show basis of projection (see instructions): _____

_____

_____

Anticipated volume (in-place) of dredged material to be disposed: _____ cu. yds.

Will the disposal result in the construction of temporary or permanent structures or the use of other than normal dredged material disposal equipment ?

☐ Yes ☐ No

If Yes, describe: _____

_____

Will the proposed disposal affect existing public access or public recreational facilities ?

☐ Yes ☐ No

If Yes, describe how impacts would be mitigated: _____

_____

_____

7. SUISUN MARSH DEVELOPMENT INFORMATION

ID number(s) of any previous local marsh development permit(s) issued for work at this site:

_____ ☐ None

Duck Club number(s) _____ ☐ None

If Yes, is the project consistent with the individual management plan for the property certified by the San Francisco Bay Conservation and Development Commission ? ☐ Yes ☐ No

If No, submit an explanation of how the project can be approved despite the inconsistency.

SECTION IV - OTHER REQUIRED INFORMATION

8. ENVIRONMENTAL APPROVALS

a. Has an EIR or an EIS been prepared for the project? ☐ Yes ☐ No

b. Is the project categorically exempt from the need for any environmental documentation? ☐ Yes ☐ No
If "Yes" attach a statement from the lead agency supporting this categorical exemption

c. Was an EA prepared for previous dredging at this site? ☐ Yes ☐ No

d. If (a) is No, will an EIR or be prepared ? ☐ Yes ☐ No

e. If (d) is No, has a negative declaration been prepared (or is one being prepared)? ☐ Yes ☐ No

f. If (d or e) is Yes, please answer the following:

(1) Who will prepare the EIR or negative declaration ? _____

_____

(2) Approximate date of completion: _____

g. Provide a copy of the project environmental documentation with your application

9. OTHER APPROVALS (see instructions)

CA DEPARTMENT OF FISH AND GAME - 1601 & 1603 Approval ☐ None Required

Number	Date of Application	Date of Issuance

LOCAL GOVERNMENT APPROVALS ☐ None Required

Approving Agency	Type of Approval	Date of Approval	Local Contact and Phone

10. DISCLOSURE OF CAMPAIGN CONTRIBUTIONS

Disclose any campaign contributions in excess of $250 to officials of the agencies using this application form: ☐ No such campaign contributions have been made

Contribution Made To:	Contribution Made By:	Date of Contribution:

11. ADJOINING PROPERTY OWNERS

Provide addresses of property owners, lessees, etc., whose property adjoins the project and disposal site (disposal site information not required for the designated aquatic sites). If more than can be entered here, please attach a supplemental list:

12. CHECKLIST OF ADDITIONAL INFORMATION TO BE SUBMITTED

	Complete and attached	or	Expected Submission Date
Sampling & Analysis Plan (SAP):	☐	☐	_____
Testing Data:	☐	☐	_____
Calculations:	☐	☐	_____
Organizational Document	☐	☐	_____
Environmental Document	☐	☐	_____
Drawings and Maps:	☐	☐	_____
Proof of Legal Interest	☐	☐	_____
Statement of Consistency	☐	☐	_____
Fees	☐	☐	_____
BCDC Posting Certification	☐	☐	_____

13. CERTIFICATION OF ACCURACY OF INFORMATION

I hereby certify under penalty of perjury that to the best of my knowledge the information in this application and all attached exhibits is full, complete, and correct, and I understand that any misstatement or omission of the requested information or of any information subsequently requested shall be grounds for denying the permit, for suspending or revoking a permit issued on the basis of these or subsequent representation, or for the seeking of such other and further relief as may seem proper to the permitting agencies.

_____ _____

Signature of Applicant or Applicant's Representative Date

CONSOLIDATED PERMIT APPLICATION FORM

INSTRUCTIONS

Instructions for Preparing the Consolidated Dredging-Dredged Material Reuse/Disposal Permit Application

[rev 3/97]

A pilot inter-agency Dredge Material Management Office (DMMO) has been established to simplify the dredging permit process in the San Francisco Bay region. The Consolidated Dredging-Dredge Material Reuse/Disposal Permit Application is part of this process and is the only permit application that you need to complete for most proposed dredging projects in the San Francisco Bay area. The application is accepted for Section 404 and/or Section 10 dredging permits by the San Francisco District of the Corps of Engineers, for an administrative San Francisco Bay Conservation and Development Commission dredging permit, the application shall serve as, and be functionally equivelant to, a CA Regional Water Quality Control Board, Report of Waste Discharge, pursuant to Sections 13260, 13374 and 13377 of Article 4, Chapter 4 of the Porter-Cologne Water Quality Control Act and for dredging project leases from the California State Lands Commission.

These instructions are intended to assist you in the preparation of the Consolidated Dredging Permit Application. The application form is divided into four sections. Section I covers the general information that is needed for all applications, Section II covers the specific details of the proposed dredging project, Section III covers the proposed dredge disposal site, and Section IV covers other required information.

These instructions also provide guidance on the types and format of drawings and other information that must accompany the completed application.

SECTION I

Box 1. Applicant Information: Enter the name of the responsible party or parties. If more than one party is associated with the application, please attach a sheet providing the same information for co-applicants (marked Box 1).

If the applicant is a partnership, corporation, government agency or other association, evidence must be provided to ensure that the person who signs the application is empowered to represent and make commitments on behalf of the organization submitting the application. To accomplish this, such applications must include either a resolution authorizing the person who signs the application to represent and bind the applicant or bylaws that establish that the person who signs the application holds a position that is empowered to act on behalf of the legal entity. Corporate resolutions must be from the corporation's board of directors. Public agency resolutions must be from the city council, board of supervisors or similar highest policy body which governs the organization. Space is provided to describe the nature of the empowerment if necessary.

Box 2. Representative Information: Sometimes an applicant, owner or co-applicant is represented by another person who handles the details of securing the required approvals for the project. If this is the case, indicate the name of the individual or agency, designated to be the representative for the project. An agent can be an attorney, builder, contractor, consultant or any other person or organization. Note: An agent is not required. If the applicant, owner or co-applicant is represented by someone else, the applicant must complete and sign the authorization portion of Box 2. If a representative is authorized, please indicate who should receive correspondence regarding the application.

SECTION II

Box 3. Dredging Project: This section must be completed by all applicants.

Project Name and Title - Please provide name identifying the proposed project.

Type of Dredging Project - Please place a check in the box indicating whether the project is maintenance dredging or a new work dredging project and also indicate in the appropriate box whether the project is a single episode or multi-episode (year) project.. [Note: new work projects involving over 100,000 cubic yards in 30 months, or any disposal project requesting authorization for more than 30 months time period, cannot be processed as administrative permits by the San Francisco Bay Conservation and Development Commission (BCDC) and should not applied for using this consolidated form. A standard BCDC application is required.]

Project Description - Briefly describe the overall activity or project. If additional space is needed use a continuation sheet marked Box 4.

Project Need and/or Purpose - Provide a brief description of the major purposes that the project will serve or the needs that will be met through accomplishment of the project (e.g. deepening a navigational channel, extracting sand, constructing a marina, etc.). Use continuation sheet marked Box 4, if necessary.

Date work is proposed to begin and be completed - Based on an estimate of how long it will take to get all the necessary approvals, financing, and other preliminary work, indicate the month and year when the work to be authorized is proposed to begin. In addition, based on a realistic construction schedule indicate the month and year when the work is proposed to be completed.

Estimated total project cost - Provide an estimate of the cost of the complete dredging and disposal project being proposed.

Project Location - Please provide the name of the county where the dredging project is located and the city nearest the project. Provide the latitude(s) and longitude(s) of the dredging site and identify the waterway in which it is located (e.g. San Pablo Bay, Petaluma River, etc.).

Type of dredging equipment - Describe the type of equipment to be used to accomplish the dredging (e.g. clamshell, hydraulic, barge size, etc.). If the project will involve the construction of temporary or permanent structures or utilize other than normal dredging equipment please indicate and describe.

Depth of dredging - Provide the existing and proposed design depths, over/depth tolerance and total depth of dredging for the project in terms of Mean Lower Low Water (MLLW) datum.

Total volume - Please provide an estimate of the total volume of material to be dredged in cubic yards.

Area of dredging site - Provide an estimate of the total acreage of the dredging site.

Type of substrate - Please check the appropriate box if sub-tidal bottom (normal S.F. Bay bottom), mudflats or wetlands are involved and provide a brief description of any other types of substrate (bottom) areas being dredged.

Suisun Marsh - If the dredging site is located within the Suisun Marsh protection zone please indicate and be sure to complete Box 7 of the application. If you are unsure, contact the San Francisco Bay Conservation and Development Commission.

Previous permits - Please provide the identification number of any previous permits for this dredging activity and the issuing agency. It is often possible to amend an existing permit rather than process a new permit and it is helpful to permit analysts to refer to previous approvals.

SECTION III

Box 4. Directions: The purpose of this box, all questions of which must be completed by all applicants, is to serve as a guide that determines what disposal site elements of the application form must be completed for your project. Each of the three questions needs a "Yes" of "No" answer. There may be "Yes" answers to more than one of the questions and the question directs the box to be completed for a "Yes" answer. If a question is answered "No" the box shown as related to that question may be skipped.

Box 5. Aquatic Disposal: Only four sites are currently authorized for unconfined aquatic disposal in the San Francisco Bay region: S.F.- 9 (Carquinez Strait); S.F. -10 (San Pablo Bay); S. F. -11 (Alcatraz) and; S.F. - DODS (Deep Ocean Disposal Site). If one of these disposal sites is proposed to be used for the project mark that box. [Note: any dredging project that proposes a change in a previously permitted material disposal environment, must submit a complete DMMO application prior to SAP approval. Such projects may need to be reviewed by the Dredging Management Committee which will provide management direction to the DMMO]. If you are uncertain about the location or limitations on the use of any of these sites contact the Dredge Material Management Office, or the Corps of Engineers. If the project proposes any form of aquatic disposal other than the use of these designated sites please provide a complete description of the proposed site and method of disposal, use a continuation sheet marked Box 6 if necessary. [Note: it is likely that separate authorization will be necessary to use such sites and that individual applications to the regulatory agencies for such authorization will be required.]

Box 6. Proposed Upland, Wetland or Reuse Disposal Site Information: This box is to be completed if the disposal of dredged material is proposed for other than aquatic disposal.

Site Name - Please provide the name of the proposed disposal site.

Site Description - Provide a brief description of the existing condition of the proposed disposal site, including the present elevations, current vegetation, existing structures and use of the site. Use a continuation sheet marked Box 6, if more space is needed.

Site Address - Provide the most accurate address possible for the disposal site including a street address if one exists. Please provide latitude(s) and longitude(s) for the site and the current zoning designation. If the zoning is not known, it can usually be obtained from the county or city planning office.

Owners Name and Address - Please provide the name and address of the owner of the property on which the proposed disposal site is located.

Jurisdictional Wetlands - Please indicate by marking the appropriate box, whether the disposal will affect any delineated jurisdictional wetlands. If the disposal is a proposed at an approved wetlands project site, give the name and permit number of the site. [Note: separate authorization involving individual applications to the regulatory agencies will be required for the dredging project if the wetlands disposal site is not already permitted.]

Existing disposal site: - Indicate if the proposed disposal site is an existing, established disposal site that regularly (or periodically) receives dredged material.

Site last used - If the proposed disposal site has been used previously for the disposal of dredged material, please give the year of the most recent disposal episode.

Disposal site income - If income is produced from the disposal or sale of dredged material at the proposed site, please indicate and provide an estimate of actual or projected annual income. If the annual income is projected show the basis of that projection (e.g. per cubic yard, etc.) _

Anticipated volume - Provide an estimate of the total in place volume of the dredged material to be placed at the disposal site by the proposed project.

Type of disposal equipment - Describe the type of equipment to be used to accomplish the disposal. If the project will involve the construction temporary or permanent structures (eg: levees) or utilize other than normal disposal equipment please indicate and briefly describe.

Public access/recreational facilities - Please check if the disposal project will affect existing public access or public recreational facilities. If yes, describe how the project proposes to mitigate those impacts.

Box 7. Suisun Marsh Development Information: Several items are unique to dredging activities that occur with the Suisun Marsh Protection Zone. In this box provide the requested information on local marsh development permits and duck club numbers. Be sure to check "None" if it applies. If your project occurs in the Suisun Marsh area and you are unsure whether it is consistent with the individual management plan for the property, you are advised to consult with the San Francisco Bay Conservation and Development Commission.

SECTION IV

Box 8. Environmental Approvals: The California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) require that the environmental impacts of a proposed project be addressed before any permit is granted. The purpose of this box is to learn the status of the required environmental approvals. [Note: (1) a copy of the project's environmental documentation should be included with the permit application submittal; (2) an application may not be filed as complete until environmental compliance is assured.]

(a) EIR and/or EIS - If an Environmental Impact Report (EIR - CEQA) and/or an Environmental Impact Statement (EIS - NEPA) related to dredging in this location has ever been prepared please indicate on the form.

(b) Categorically Exempt - Normally maintenance dredging is found to be categorically exempt from CEQA requirements. If the project is for maintenance dredging and is known to be covered by the exemption please check "Yes" in the appropriate location on the form and attach documentation from the lead agency.

(c) Environmental Assessment (EA) - If the site has been dredged previously and a NEPA EA prepared, please indicate on the form and provide a copy.

(d) EIR Preparation - If no environmental document has been completed, but it is known that an EIR will be prepared to respond to CEQA please note by checking "Yes" and providing the information requested in question (f) of Box 8.

(e) Negative Declaration - In some instances a Negative Declaration or a finding of no significant impacts is sufficient to respond to CEQA. If a Negative Declaration has been prepared for the proposed project check "Yes" and include a copy. If one is under preparation please complete question (f) in Box 8.

(f) Preparer - Generally, a local government is the "lead agency" under CEQA and completes the environmental requirements for projects under its jurisdiction. If

CEQA environmental documents are under preparation, please indicate the entity that is preparing them and provide an estimated date of completion.

(g) Copies - As noted above, please provide copies of the project's environmental documentation.

Box 9. Other Approvals: Other state and local approvals may be required for a dredging project. Please provide verification of contacts with other agencies to determine if permits are (are not) required.

CA Department of Fish and Game - The California Department of Fish and Game (DFG), under the Fish and Game Code, Sections 1601 and 1603, regulates changes made to the bed, channel or banks of streams or rivers. Dredging proposals within the greater San Francisco Bay area that occur on the periphery of the tidally-influenced Bay, but which also are within well defined rivers and streams are subject to these mutual agreements (commonly called Streambed Alteration Agreements) between DFG and the project applicant. The jurisdictional boundaries for areas needing such agreements are defined by DFG. If you are unsure if your project is subject to the need for a 1601 or 1603 agreement you are advised to consult with DFG to determine if the project and/or disposal site falls within their jurisdiction.

Local Government Approvals - If local approvals are required they should be listed on the form. Indicate the name of the approving agency and the type of discretionary approval that is required. Also provide the date of approval and a local contact person and phone number. Note that some state agencies require the issuance of all required local approvals prior to initiating action on permit applications. Early consultation with agencies is recommended.

Box 10. Disclosure of Campaign Contributions: Any campaign contributions in excess of $250 to officials (including commission members) of the regulatory agencies using this consolidated form must be disclosed. If no contributions have been made please indicate by checking the box.

Box 11. Adjoining Property Owners: List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the dredging and disposal sites so that they may be notified of the proposed activity (usually by public notice). Adjoining owner information is not required for use of the designated disposal sites. Use a continuation sheet if necessary.

Box 12. Checklist of Additional Information to be Submitted: This box identifies other information that is required before your dredging application can be accepted as complete and processing of the application initiated. Please indicate by checking in the appropriate box if the material indicated is complete and attached to the application package. If the material is not complete please indicate the expected submission date on the application form. [Note: See directions for Drawings, Submittals, Application and Processing Fees at the end of these instructions.]

Sampling & Analysis Plan (SAP) - You are required to develop a biological and/or chemical testing plan in accordance with the Corps, San Francisco District Public Notice 93-2 (1 February 1993) or appropriate ocean or inland testing protocol. You should initiate consultation with the DMMO as early as possible in the planning of your dredging project to develop an acceptable

sampling and analysis plan. A hydrographic survey of the dredging site, conducted within the preceding 90 days is necessary to initiate the development of the SAP. The area to be dredged must be clearly delineated on the survey.

Testing Data - When the sampling conducted in accordance with the SAP is complete, preparation and submission of the testing data is required for your consolidated dredging permit application package to be accepted as complete. To be considered valid, the testing of a proposed dredge site must have occurred within one year of the date of submittal of the permit application.

Calculations - Provide one copy of the computations used for the determination of the quantities to be dredged.

Organizational Documentation - See instructions for Box 1.

Environmental Documentation - See instructions for Box 8.

Drawings and Maps - See special instructions.

Proof of Legal Interest - It is necessary for the applicant or the land owner to have adequate legal interest in the underlying property to carry out the project and comply with any conditions that may be part of approval. This legal interest must be either through fee interest, an easement, a leasehold, an option or eminent domain. Proof of legal interest is needed for the dredging site and disposal sites, if disposal is proposed at other than the designated aquatic sites. To demonstrate legal interest, it is necessary to submit a property map and a recently issued title report or grant deed, including a metes and bounds description, or other information of similar accuracy and reliability to show that the applicant holds legal interest in the project site.

Statement of Consistency - Please provide a brief explanation of your projects consistency with the policies regarding dredging and disposal in the San Francisco Bay Area. To do this, describe if upland disposal alternatives were considered and if aquatic disposal is proposed, explain how the project relates to limiting disposal site quantities and timing for aquatic resource protection. Also, use this opportunity to explain how your project complies with the BCDC Bay Plan.

Box 13. Certification of Accuracy of Information: This box which certifies the accuracy of the information provided in the application form, must be signed by every applicant or their representatives who have been legally authorized to act on behalf of the applicant. The signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

DIRECTIONS FOR DRAWINGS, SUBMITTALS, APPLICATION AND PROCESSING FEES

Drawings and Maps - General instructions are provided for the drawings and maps to support a dredging permit application. Additional detail regarding this subject can be found in the Application Information Booklet (EP 1145-2-1) available from the Corps of Engineers and the General Application Instructions available from the San Francisco Bay Planning and Development Commission.

Three types of illustration are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a **Vicinity Map**, a **Plan View** and a **Typical Cross-Section**. Identify each illustration with a figure number.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view or cross-section). Each illustration should also have at least a one-half inch margin on each side, a north arrow, vertical and horizontal scales shown, datum given and be dated.

Both the area to be dredged and the disposal area should be identified and shown on the illustrations. The illustrations should also show testing locations, depths of dredging, and the locations of any adjacent structures (piers, wharfs, etc.).

All illustrations should be legible and on good quality 8 1/2 x 11 inch plain white paper (tracing paper or film may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations. **[Note: While illustrations need not be professional, they should be clear, accurate and contain all necessary information.]**

Submittal - If desired, one copy of the completed application form, drawings and testing data may be submitted directly to each of the DMMO participating agencies whose contact names and addresses are provided in these instructions (all other checklist documents are only required to be submitted to BCDC and the Corps) or alternately, six copies of the completed application form, drawings and testing data (and two copies of the supplemental documents) may be submitted to the attention of Mr. David Dwinell, Construction-Operations Division, San Francisco District, Corps of Engineers, 333 Market Street, San Francisco, CA 94105-2197.

Application and Processing Fees - Each of the regulatory agencies participating in the DMMO and accepting the Consolidated Dredge Permit Application has their own unique fee structure and should be provided directly to that agency.

> The Corps of Engineers does not require the submittal of a fee with the application. At the time of issuance the Corps requires a fee of $10 for a private party, $100 for a commercial project and no fee for a public agency project.
>
> The fee schedule for the San Francisco Bay Conservation and Development Commission is attached.
>
> The fee schedule for the CA Regional Water Quality Control Board is attached. The Regional Board's upland disposal annual fee is decided on a case by case basis according to a fee schedule based on the "threat to water quality and complexity". Currently these fees range from $500 to $10,000 per year.
>
> The California State Lands Commission requires submittal of an $825 reimbursable agreement for staff time involved in processing dredging project leases.

BCDC Notice of Application Form - The applicant must complete the attached BCDC Notice of Application and place it in a prominent location at or near the project site so that it will be visible to members of the public. The applicant must then complete and sign the attached Certification of Posting form and return it directly to BCDC at the address shown.

DMMO Participating Agencies and Staff Contacts:

David Dwinell, DMMO Coordinator
Construction-Operations Division
San Francisco District
Corps of Engineers
333 Market Street
San Francisco, CA 94105-2197
Phone (415) 977-8471
FAX (415) 977-8483

Rob Lawrence, Regulatory Dredging Manager
Corps of Engineers
Regulatory Branch
San Francisco District
333 Market Street, Suite 812
San Francisco, CA 94105-2197
Phone (415) 977-8447
FAX (415) 977-8483

Tom Gandesbery
CA Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612
Phone (510) 286-0841
FAX (510) 286-0928

Erika Hoffman
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105
Phone (415) 744-1986
FAX (415) 744-1078

Eric Larson
S. F. Bay Conservation and Development Commission
Thirty Van Ness Ave., Suite 2011
San Francisco, CA 94102-6080
Phone (415) 557-3686
FAX (415) 557-3767

Mary Howe
State Lands Commission
Division of Land Management
100 Howe Ave., Suite 100-South
Sacramento, CA 95835-8202
Phone (916) 574-1839
FAX (916) 574-1925

OF CALIFORNIA

PETE WILSON, Governor

IFORNIA REGIONAL WATER QUALITY CONTROL BOARD
FRANCISCO BAY REGION
VEBSTER STREET, SUITE 500
ND, CA 94612
86-1255

FEE SCHEDULE FOR CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION

Pursuant to a memorandum from the State Water Resources Control Board dated 2/23/94, the following are the fees for Regional Board water quality certification and waivers. The authority for issuance of water quality certification is found in the Clean Water Act Section 401(a)(1). Water quality certification may be waived for projects involving less than two acres of fill or less than 50,000 cubic yards of dredging. The fees for waiver or certification are listed below.

1. Waiver of Water Quality Certification for fill (up to 2 acres):

   - Processing cost of $50/hr (staff costs) up to a maximum of $1000/acre
   - Minimum waiver fee is $500

2. Water Quality Certification for fill:

   - One acre or less, flat fee of $1000
   - More than one acre, $1000 per acre or part thereof, up to a maximum of $10,000

3. Fees for Dredging (waiver or certification)

   - Less than 10,000 cubic yards, flat fee of $500
   - 10,000 to 20,000 cubic yards, flat fee of $1000
   - More than 20,000 cubic yards, $2000 plus $250 for each additional 5,000 cubic yards or part thereof (up to maximum of $10,000)

The authority to collect fees is found in the California Code of Regulations, Section 3833(b). The fee schedule for discharges of dredged and fill material is found in California Code of Regulations, Title 23, Section 2200. Section 2200(h) provides authority to charge for issuing waivers of certification at the rate of $50.00 per hour of staff time invested.

SPECIAL INSTRUCTIONS: Processing Fees

Fees are charged to cover a small portion of the cost of processing an application. The amount of the fee is based on the project's location and the *total project cost*. The accompanying table indicates the most common categories of fees. Fees for projects that fall into two or more categories are based on the fee for the highest category, not the total of all categories. Fees for emergency permits are the same as fees for ordinary projects. Fees for material amendments are the same as the fees for new projects. Fees for applications arising from enforcement investigations are double the cost of normal fees. [California Code of Regulations, section 10337]

None of the fees can be waived for any reason. Refunds of a portion of a permit fee can be made if an application is withdrawn. The amount of the refund depends on the type of authorization applied for and when the application is withdrawn. [California Code of Regulations, section 10335]

If the Commission serves as the "lead agency" under the provisions of the California Environmental Quality Act, an additional fee of $300 is charged for analyzing, processing and distributing environmental documents. In addition, another $500 fee is charged if an environmental assessment must be prepared. The applicant may be required to pay the cost of retaining consultants if the Commission's staff determines that specialized information is needed to complete the required environmental analysis of a project. If an EIR must be prepared for the Commission either by its staff or a consultant, the cost of this work must be paid by the applicant. [California Code of Regulations, section 11540 et seq]

If there is any question about the amount of the fee that must be paid to process an application, this matter should be discussed with the Commission's staff before submitting the application. An application cannot be officially filed until the proper processing fee is received by the Commission.

FEE SCHEDULE

☐ The first time extension to a permit	$50
☐ A nonmaterial amendment to a permit other than a first time extension	$100
☐ An activity authorized by a regionwide permit	$100
☐ A minor repair or improvement with a total project cost (TPC) of:	
• Less than $300,000	$150
• $300,000 to $10,000,000	.05% of TPC
• More than $10,000,000	$5,000
☐ Any other project that does not qualify as a minor repair or improvement with a total project cost (TPC) of:	
• Less than $250,000	$250
• $250,000 to $10,000,000	.1% of TPC
• More than $10,000,000	$10,000
☐ Federal consistency submittal	none

All fees are doubled for "after-the-fact" applications to correct violations.

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
Thirty Van Ness Avenue • Suite 2011 • San Francisco, California 94102 • (415) 557-3686

NOTICE

DATE POSTED: _____ 19 ____

NOTICE IS HEREBY GIVEN THAT

_____

HAS SUBMITTED AN APPLICATION TO THE SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION REQUESTING A PERMIT TO (brief description of work and uses)

AT A PROPERTY KNOWN AS (address or other property description)

Persons interested in the project proposed in the application may request further information and notice of any hearings by writing to the Commission at Thirty Van Ness Avenue, Suite 2011, San Francisco, California 94102, or by telephoning (415) 557-3686. The application and any supplementary materials may be reviewed at the Commission's offices immediately.

BCDC PERMIT APPLICATION NO.
( )

CERTIFICATION OF POSTING OF NOTICE

San Francisco Bay Conservation
and Development Commission
Thirty Van Ness Avenue, Suite 2011
San Francisco, California 94102

RE: _____

(brief description of project)

I, _____

(name of applicant or agent)

hereby certify that on _____.
(date)

I or my agent or employee posted in a prominent location at or near the project site the Notice of Application provided by the San Francisco Bay Conservation and Development Commission.

Date: _____ By: _____
(Signature)

Title: _____
(Title)

DREDGE MATERIAL MANAGEMENT OFFICE (DMMO)
SECOND SIX-MONTH PILOT PHASE REVIEW REPORT

January 1998

Long-Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region

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San Francisco Bay Conservation and Development Commission	California State Lands Commission	California State Water Resources Control Board	US Army Corps of Engineers	US Environmental Protection Agency	San Francisco Bay Regional Water Quality Control Board

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LONG TERM MANAGEMENT STRATEGY

Dredge Material Management Office (DMMO) Completes Second Six-Month Pilot Phase

The San Francisco Bay Area's Dredge Material Management Office (DMMO) has completed it's review of the second six-month pilot phase of the program. The DMMO is a joint program of the San Francisco Bay Conservation and Development Commission (BCDC); the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB); the State Lands Commission (SLC); the U.S. Army Corps of Engineers, San Francisco District (USACE); and the U.S. Environmental Protection Agency (USEPA). In late 1995, a pilot DMMO program was initiated to determine whether and how a permanent program such as this should be established and operated. The attached report prepared by the staff of the participating DMMO agencies evaluates the program's status which , to date has reviewed and made recommendations regarding over 100 dredging and dredged material disposal projects in San Francisco Bay.

The projects reviewed by the DMMO have accounted for nearly 29 million cubic yards of material proposed for dredging and disposal of over the last two years. The findings of a DMMO data review at the close of the second six-month pilot phase continues to support the earlier DMMO finding (March, 1997) that approximately three percent of the material dredged from the Bay is unsuitable for open-water disposal. Prior to the initiation of the DMMO the participating agencies had estimated that up to ten percent of dredged material would not be found suitable for open-water disposal.

At this juncture, the DMMO agencies have recommended to the Dredge Material Management Committee, which oversees the DMMO, that the DMMO Pilot-Phase Program be continued for an additional year, as well as be expanded to include dredging projects which involve the placement/reuse of dredged material in upland settings, and where the inclusion of such project will reduce the bureaucracy and processing time required for the acquisition of dredging permit.

Contacts:

USACE - David Dwinell (415) 977- 8471; [ddwinell@smtp.spd.usace.army.mil]
BCDC - Eric Larson (415) 557-8765; [elarson@bcdc.ca.gov]
SFBRWQCB - Jack Gregg (510) 286- 1199; [jhg@rb2.swrcb.ca.gov]
SLC - Mary Howe (916) 574-1839; [howem@slc.ca.gov]
USEPA - Erika Hoffman (415) 744-1976; [hoffman.erika@epamail.epa.gov]

DREDGE MATERIAL MANAGEMENT OFFICE (DMMO) SECOND SIX-MONTH PILOT PHASE REVIEW REPORT

PILOT PROGRAM OF THE DREDGED MATERIAL MANAGEMENT OFFICE (DMMO)

SECOND SIX MONTH PILOT PHASE REVIEW REPORT
January 8, 1998

I. INTRODUCTION AND PURPOSE OF THE DMMO

The multi-agency Pilot Program of the Dredged Material Management Office (DMMO) was established to foster a comprehensive and consolidated approach to handling dredged material management issues in order to reduce redundancy and delays in the processing of dredging permit applications. The DMMO, in part, grew out of the Long Term Management Strategy Program (LTMS) as an effort to better coordinate and shorten the permit application process for dredging and disposal projects occurring in the San Francisco Bay region. The San Francisco Bay Regional Water Quality Control Board (RWQCB), State Water Resources Control Board, San Francisco Bay Conservation and Development Commission (BCDC), United States Environmental Protection Agency (EPA) and the United States Army Corps of Engineers, South Pacific Division and San Francisco District (COE) are signatories to the LTMS program.

In 1995, the LTMS agencies decided to form a pilot DMMO, under existing authorities and budgets. The DMMO member agencies are the EPA, COE (San Francisco District), RWQCB, BCDC, and the California State Lands Commission (SLC). The COE agreed to initially act as the "host" of the DMMO and take on responsibilities associated with the lead role. The California Department of Fish and Game actively participates in the DMMO as a commenting resource agency, and the participation of the U. S. Fish and Wildlife Service and National Marine Fisheries Service is also encouraged.

The DMMO was established to facilitate the processing of dredging permit applications within existing law, regulation and policy. It was specifically designed to provide a mechanism for consistent review of permit applications through coordinated efforts from DMMO member agencies. It also provides a mechanism to allow the involvement and participation of permit applicants during the application process. No new regulatory statutes were initiated in the formation of the DMMO. All applicable regulatory authority and processes of the member agencies remain in full force and effect. The DMMO meetings are typically scheduled and held twice monthly at the COE offices in San Francisco.

The geographic area of the DMMO includes all of the San Francisco Bay Estuary up to Sherman Island, its major tributaries up to points where navigation is no longer feasible, upland areas surrounding the estuary, and the ocean disposal sites for Bay material designated by the EPA. The member agencies have also agreed to coordinate with the Central Valley Regional Water Quality Control Board regarding use of Bay dredged material in the Sacramento/San Joaquin Valley region.

II. MEMORANDUM OF UNDERSTANDING

The initial Memorandum of Understanding (MOU) for the Pilot DMMO was signed by all member agencies on July 9, 1996. In accordance with the terms of that MOU, at the end of each of two six-month pilot phases, the member agency staff are required to prepare a report to the Dredging Management Committee (consisting of management representatives of the DMMO member agencies) on the progress and success of the DMMO. The first six month pilot phase of the DMMO as well as the initial development period was reported on by the Dredged Material Management Office (DMMO) Six Month Pilot Phase Review Report dated March 28, 1997. The initial pilot phase report was approved and accompanied by a revised MOU (see attachment) also dated March 28, 1997 and signed by the Dredging Management Committee representatives.

With approval of the revised MOU, the second six month phase of the DMMO was initiated on April 1, 1997 and completed on September 30, 1997. The revised MOU established the reporting requirements and parameters for the second six month phase of the DMMO. This report constitutes the second phase report to the Dredging Management Committee and contains an analysis of the successes, problems, relevant issues, and recommendations for further actions.

III. SECOND SIX-MONTH PILOT PHASE ACTIVITIES/ACHIEVEMENTS

Project Review - DMMO project review includes: applicant's requests for Tier I exemption for sediment quality testing; Sampling and Analysis Plans (SAP's); and results of the sampling and analysis. Since its inception, the DMMO has reviewed a grand total of 95 dredging projects. This total includes both Federal and non-Federal dredging projects. A listing and summary of action dates for all non-Federal projects reviewed by the DMMO is presented in Table 1 attached to this report. Table 2 presents the DMMO material suitability determinations for the same listing of projects. Both tables distinguish between those projects reviewed during the second six month pilot phase of the DMMO and those projects reviewed during the earlier phase.

Initially DMMO project review was limited to non-Federal projects. As shown in Tables 1 and 2, 55 non-Federal dredging projects were evaluated by the DMMO prior to the initiation of the second six month pilot phase. Of these initial DMMO evaluations, 49 have been completed and 6 remain pending due to either the non-receipt of test results or issues related to the suitability of the dredged material for aquatic disposal.

During the second six month pilot phase of the DMMO, 28 additional non-Federal dredging projects were reviewed. These projects are also listed in Tables 1 and 2. DMMO activities have been completed for 21 of these projects and 7 remain under review. Generally for those projects in process, either the final design of the SAP is underway or the testing and analysis is being conducted by the applicant.

The revised MOU directed that during the second six month pilot phase, the DMMO process Federal projects including COE civil works maintenance dredging projects consistent with the directives contained in the MOU. During the second phase, 12 Federal projects (10 COE civil works projects and 2 U.S. Navy dredging proposals) have been reviewed by the DMMO. The DMMO completed the review on all the Federal

projects. Disposal was approved for 10 of the projects, one Navy project was withdrawn, and one COE civil works project was not approved by the DMMO. A listing and summary of the Federal projects which have been the subject of DMMO review is attached to this report as Table 3.

Development of a Web Page and Data Base for Permit Information -

In accordance with the MOU, the DMMO "host" agency is to develop and maintain an electronic tracking data base (Web Page) of permit information for DMMO projects.

The COE has been unable to complete the Web Page during the second six month DMMO pilot period. Progress was made on completing the Web Page. However, due to staff shortages, workloads, previous commitments and changing priorities the Corps has not been able to commit a person or persons, full-time, to the development of the Web site during the second six month period. The result is that the Web Page is incomplete.

The COE plans to obtain assistance of technical experts from other Corps installations to complete the Web Page. A target date of March 1, 1998 has been set for having the Web Page operational.

Sampling and Analysis Plan (SAP) Template - During the second six month phase, the draft SAP template was completed by EPA and submitted to the DMMO for review. After incorporating comments from the DMMO agency members, the draft SAP template was distributed to several consulting laboratories for technical review. DMMO expects to incorporate comments and distribute the final template to the public by January 1998.

Previously Identified Issues and Recommended Actions

The initial six month pilot phase review report identified and discussed nine issues related to operation of the DMMO and provided recommendations for responding to those issues. The nine issues and recommendations are listed and briefly described below followed by a discussion of the results achieved with respect to each during the second six month pilot phase.

1. Issue: Internal DMMO communications, minutes and agendas.

Results: Timely distribution of agendas and draft meeting minutes has been substantially improved. The COE, DMMO host agency, has promptly distributed meeting agendas and draft meeting minutes to allow input from member agencies. The distribution of final meeting minutes has not been as prompt due to delay in the review by member agencies. The intitial six month report is attached for reference.

Recommendation: Draft meeting minutes will be distributed within five (5) days of the meeting date and comments from the member agencies are due within five (5) days after the minutes are distributed. Final minutes shall be approved at the next scheduled meeting.

2. Issue: Applicant coordination.

Results:

The applicant coordination guidance contained in the MOU was revised in accordance with the first six month report recommendations. The host agency followed the revised MOU guidance during the second six month pilot phase and the issue was resolved.

3. Issue: Meeting MOU time objectives.

Results: The issue of meeting MOU time objectives cannot be evaluated because the electronic database intended to be used for project tracking is not yet complete and operational.

Recommendation: The host agency, COE should complete the development of the tracking database by March 1, 1998.

4. Issue: DMMO project tracking.

Results: The status of the permit tracking data base was described in an earlier section of this report. EPA and BCDC created an interim, spreadsheet-based, DMMO tracking system pending the establishment of a fully automated system. The DMMO agencies have jointly worked to maintain and periodically update the interim tacking system.

Recommendation: The host agency, COE, should complete the development of the electronic permit tracking data base with access to the WEB page by March 1, 1998.

5. Issue: Applicant/special interest/public access to the DMMO process.

Results: Significant progress was made on the issue, however there were occasions when applicants spent well beyond the 15 minutes limit and in one instance an applicant came in to discuss a different project than was scheduled with the DMMO.

Recommendation: Extend the time to a maximum thirty (30) minute presentation for each applicant who schedules participation in a DMMO meeting. If an applicant requires more time it should be the subject of a special time agreement or meeting. The actual time allotted at the meeting may be extended by the DMMO agency representatives if necessary. Applicants should be informed that they are not allowed to change the subject of their discussion without prior notice and/or agreement of DMMO agencies.

6. Issue: Host agency conflict of interest.

Results:

During the second six month pilot project, twelve Federal dredging projects including COE civil works maintenance projects were presented to the DMMO for evaluation. The scheduling and presentation of Federal dredging project information to the DMMO in a manner consistent with the MOU guidelines and procedures resolved the issue.

7. Issue: The lack of an established process to deal with non-consensus DMMO decisions.

Results: The MOU was revised to include a section on Conflict Resolution which contains the procedures to be followed in non-consensus situations. During the second six month phase one non-consensus situation developed during the period when Federal maintenance projects were being transitioned into the DMMO. The dispute regarding a COE Civil Works project arose before those projects were fully included in the DMMO as part of the revised MOU. As a result, the non-consensus issue was not handled in accordance with the revised MOU Conflict Resolution procedures and a satisfactory result was not achieved. The revised MOU conflict management procedures are adequate if correctly followed and allowed to work.

8. Issue: The project information submittal time, contained in the MOU, allows for DMMO review of a SAP submitted in advance of the complete project application. Where an applicant is proposing a change in a previously permitted disposal environment, it is critical to have a complete project description prior to reviewing a SAP or sampling results.

Results: The MOU was revised to require a complete DMMO application prior to DMMO consideration of SAP or testing results in instances where a change in disposal options is proposed. The issue was resolved.

9. Issue: Delays in DMMO processing due to agency absence at meetings.

Results: The MOU was revised to require the designation of primary and backup agency representatives, submittal of a written summary if an agency is unable to participate in a meeting and to encourage cooperative coordination among the participating agencies. During the second six month phase agency representatives have also successfully utilized teleconferencing to participate in meetings which they were physically unable to attend.

V. DMMO SECOND SIX MONTH PILOT PHASE PROBLEMS AND RECOMMENDED ACTIONS

The MOU directs that each pilot phase report contain an analysis of issues that arose during the pilot and recommendations for further actions to be reviewed and approved by the Dredging Management Committee. DMMO agency members worked collectively to identify issues, concerns and possible recommendations.

1. Issue: Upland disposal projects. The MOU directs that DMMO make joint staff recommendations on the suitability of dredged material for disposal at in-Bay disposal sites, ocean disposal sites or upland disposal sites. During the first year pilot project the DMMO has concentrated its efforts on in-Bay and ocean disposal and excluded reviewing data from projects that proposed upland disposal. In some cases, the exclusion of upland disposal projects from the DMMO review process created confusion and frustration for both agencies and applicants.

Recommended Action: DMMO actively review only those dredging projects where upland/reuse is among the range of disposal alternatives under consideration. For projects where upland is already the selected disposal method, the individual existing administrative agency processes, such as COE Nationwide Permit authorization, are the most efficient means of review and authorization and would only be delayed by DMMO intervention. An applicant proposing upland disposal may still use the DMMO application form and DMMO agencies should be notified by the host agency of each dredging project involving upland disposal and the authorization process to be followed.

2. Issue: In order to function better, the DMMO would benefit from greater interagency cooperation and improved personal communication between agency representatives.

Recommended Action: Training to develop a greater understanding among DMMO representatives of the individual agency policies and requirements. Utilize an outside professional group facilitator to provide training to DMMO member agency representatives to develop protocols on how the group interacts and on how to perform as an effective team.

3. Issue: During the second six month pilot project, some communications with applicants occurred outside the MOU established point of contact regarding project associated DMMO deliberations.

Recommended Action: Once DMMO reaches consensus, then: (1) communication with applicants on the decision is made by the official DMMO point of contact staff person only; (2) all DMMO should honor the consensus determination; (3) in outside discussion with applicants, DMMO staff should not question or otherwise express doubts on the consensus decision; and (4) disagreements are to be brought up within DMMO. If consensus is not reached, the issues should be elevated as per Section 11e. of the MOU. During the next phase, the DMMO should evaluate conducting open meetings which would allow applicants and the public to be present during DMMO deliberations.

4. Issue: Lack of a data base for tracking chemistry and bioassy results. Chemistry and bioassy data are critical in DMMO's suitability determinations. Project past history in terms of results of chemical and biological testing could be critical in the approval or denial of the future SAP. Currently, some SAP's either do not present past data or present incomplete historical information and the evaluation quite often relies on agency members institutional memory potentially resulting in inconsistent recommendations.

Recommended Action: In the next six months, the DMMO should evaluate the need for, and the process of, establishing a data base for tracking chemistry and bioassay results.

5. Issue: Guidance regarding when DMMO detailed review of aquatic disposal projects is warranted. Non-navigational projects that do not require DMMO detailed review may include projects such as the side casting or replacement of excavated bottom material for pipeline or utility line installation.

Recommended Action: DMMO member agencies identify and develop guidance or policy for projects that do not require testing or do not require DMMO detailed review. Individual agency policies and procedures must be considered during this process.

6. Issue: Need to encourage the other resource agencies to become more involved in the DMMO. With the exception of the California Department of Fish and Game, the other resource agencies have not actively participated in the DMMO process. The goal of resource agency involvement is to accomplish coordinated review and resolve issues prior to the COE public notice and thereby facilitate the processing of dredging projects.

Recommended Action: Develop procedure to encourage other resource agency participation. Include resource agencies on DMMO distribution list and provide agendas and minutes to other agencies.

7. Issue: More thorough review of applications at the DMMO level and consensus determination of the completeness of the project

Recommended Action:

Initiate the scheduling and review of DMMO applications at the regularly scheduled DMMO meetings.

8. Issue: Need for a Quality Assurance Project Plan

Recommended Action:

The COE take the lead over the next year in developing a Quality Assurance Project Plan (QAPP) to be issued as guidance for data quality for all maintenance dredging projects in San Francisco Bay.

V. SUMMARY

The pilot program of the DMMO has initiated the coordinated review and approval of dredging proposals and test data with encouraging results. To date the DMMO has been successful in agencies coming to agreement on the appropriate and non-appropriate projects and contaminant levels for in-Bay disposal. Operational and procedural problems have either been resolved or are actively being worked on. There is consensus on the part of the agency staff to continue the DMMO as a pilot project for an additional year following an expression of concurrence by the Dredging Management Committee.

VI. ATTACHMENTS

(1) Tables 1, 2, and 3 - DMMO one year pilot phase listing of projects

(2) DMMO MOU

(3) DMMO Six Month Pilot Phase Review Report, March 28, 1997

(4) Consolidated Dredging-Dredged Material Reuse/Disposal Application & Instructions

VII. SIGNATORIES

By signature below, the members of the LTMS Dredging Management Committee attest that they have reviewed this DMMO Six Month Pilot Phase Report and are in concurrence with the recommendations. Approval is granted for the establishment of a permanent DMMO effective the date of the last approval signature and in accordance with the attached MOU as revised.

WILL TRAVIS
San Francisco Bay Conservation & Development Commission

(date)

ALEXIS STRAUSS
U. S. Environmental Protection Agency

(date)

LT. COL. RICHARD G. THOMPSON
U.S. Army Corps of Engineers

(date)

LORETTA K. BARSAMIAN
Regional Water Quality Control Board, San Francisco Bay Region

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(date)

ROBERT C. HIGHT
State Lands Commission

(date)

Table 1
DMMO Material Suitability Determinations
All Projects

Applicant	Project Site	Proposed Dredging Volume (cy)	Volume Approved - SUAD (cy)	Volume Failed - NUAD (cy)	Percent Approved (SUAD)	Aquatic Disposal Site	Upland Disposal Site
		0	0	0	0	0	0
Non-Federal Projects		0	0	0	0	0	0
Projects Initiated During First Six-Month Pilot Phase							
Aeolian Yacht Club	Aeolian Yacht Club-Harbor Entrance	12,000	12,000	0	100	Alcatraz (SF-11)	-
Ballena Isle Marina	Ballena Isle Marina	44,000	Pending	Pending	0	-	-
Bel Marin Keys Community Services District	Laguna Bel Marin and Novato Creek	10,000	N/A	N/A	0	-	Calif. Quartet Owned Land
Benicia, City of, Dept. of Public Works	Benicia Marinia	20,000	20,000	0	100	Carquinez (SF-9)	-
Benicia Port Terminal	Pier 92, 1st '96 episode	33,900	33,900	0	100	Carquinez (SF-9)	-
Benicia Port Terminal	Pier 92, 2nd '96 episode	45,000	45,000	0	100	Carquinez (SF-9)	-
Brisbane, City of	Brisbane Marina	76,000	76,000	0	100	Alcatraz (SF-11)	-
CALTRANS	Benicia-Martinez Bridge Retrofit	6,200	6,200	0	100	Carquinez (SF-9)	-
CALTRANS	Carquinez Bridge Retrofit Project	5,700	5,700	0	100	Carquinez (SF-9)	-
CALTRANS	Richmond San Rafael Bridge Retrofit Project	219,000	215,680	3,320	98	San Pablo Bay (SF-10)	Landfill
CALTRANS	San Mateo-Hayward Bridge Retrofit Project	98,900	80,900	18,000	82	Alcatraz (SF-11)	unknown upland location
CALTRANS	SF-Oakland Bay Bridge Retrofit Project	260,000	248,200	11,800	95	Alcatraz (SF-11)	unknown upland location

Table 1
DMMO Material Suitability Determinations
All Projects

		0	0	0	0	0	0
Castrol North American Automotive	Castrol Berth (Richmond Inner Harbor)	(41,000)	reviewed by DMMO but withdrawn by applicant	reviewed by DMMO but withdrawn by applicant	N/A	N/A	N/A
Chevron U.S.A.	Richmond Long Wharf	60,000	60,000	0	100	Alcatraz (SF-11)	-
Chevron U.S.A. Inc.	Richmond Long Wharf	200,000	200,000	0	100	Alcatraz (SF-11)	-
Desert Aggregates	Sonoma-Marin, Port of	(220,000)	initially reviewed by DMMO but withdrawn by applicant	initially reviewed by DMMO but withdrawn by applicant	N/A	N/A	N/A
Emery Cove Marina	Emery Cove Marina, Emeryvile	49,500	49,500	0	100	Alcatraz (SF-11)	-
Exxon	Benicia Refinery Dock,1st '96 episode	20,000	20,000	0	100	Carquinez (SF-9)	-
Exxon	Benicia Refinery Dock, 2nd 96' episode	20,000	20,000	0	100	Carquinez (SF-9)	-
Exxon	Benicia Refinery Dock, 3rd. 96' episode	20,000	20,000	0	100	Carquinez (SF-9)	-
Foster City	Foster City Lagoon	92,900	Pending	Pending	0	Alcatraz (SF-11)	City property
Golden Gate Bridge and Transportation District	Larkspur Ferry Terminal-Berths 1 & 2	25,000	25,000	0	100	Alcatraz (SF-11)	-
Loch Lomond Marina	Loch Lomond Marina, San Rafael, Marin County	94,400	94,400	0	100	San Pablo Bay (SF-10)	-
Loch Lomond Marina	Loch Lomond Marina, San Rafael, Marin County (Material Not Dredged)	49,413	50,000	0	100	San Pablo Bay (SF-10)	-

Table 1
DMMO Material Suitability Determinations
All Projects

		0	0	0	0	0	0
Marin Co. Pub. Svcs. Agency (29); Paradise Cay HOA	Paradise Cay (north entrance chan. & chans. C & D)	10,000	10,000	0	100	Alcatraz (SF-11)	-
Marin Yacht Club	Marin Yacht Club, Tier I request	3;500	3,500	0	100	San Pablo Bay (SF-10)	-
Oakland, Port of	Berths 20, 21, 30, 32, 33- Maintenance Dredging under existing BCDC and COE permits for all berths	64,000	64,000	0	100	Alcatraz (SF-11)	landfill via Berth 10
Oakland, Port of	Berths 22, 23, 24, 25, 26 (Deepening Project)	62,000	61,500	500	99	Alcatraz (SF-11)	Landfill (via Berth 10)
Oakland, Port of	Berths 25 and 26 (high spots) Maintenance Dredging under existing BCDC and COE permits for all berths	1,200	1,200	0	100	Alcatraz (SF-11)	-
Oakland, Port of	Berths 22, 23, 24, 35, 67, 68- Maintenance Dredging under existing BCDC and COE permits for all berths	58,000	48,300	9,700	83	Alcatraz (SF-11)	landfill via Berth 10
Oakland, Port of	Berths 25, 26, 30, 37- Maintenance Dredging under existing BCDC and COE permits for all berths	34,300	34,300	0	100	Alcatraz (SF-11)	-
Pullman Building Company	Paradise Cay Yacht Harbor	64,000	64,000	0	100	Alcatraz (SF-11)	-
Redwood City, City of	Port of Redwood City, Berths 1 and 2	22,630	Pending	Pending	0	0	-
Richmond, Port of	Levin Terminal (Berths: IMTT, Natl Gypsum, GATX, ARCO, Terminals 2 & 3, Berths 6 & 7- all pre-DMMO)	8,500	8,500	0	100	Alcatraz (SF-11)	-

Table 1
DMMO Material Suitability Determinations
All Projects

		0	0	0	0	0	0
Richmond, Port of	Terminal No. 4 (Emergency)	9,100	9,100	0	100	Alcatraz (SF-11)	-
San Francisco, City & County	Gashouse Cove, SF Marina	30,000	Pending	Pending	0	0	-
San Francisco, City & County	Marina Small Craft Harbor (Areas 2 and 3) - West Basin	15,000	15,000	0	100	Alcatraz (SF-11)	-
San Francisco, City & County	Marina Small Craft Harbor (Berth and Fairways)	50,000	Pending	0	0	Alcatraz (SF-11)	-
San Francisco, City & County	S.F. Marina and Small Craft Harbor Entrance Channel - Sand Trap/Mining Pilot Project	30,000	30,000	0	100	-	Tidewater facility
San Francisco Drydock, Inc.	San Francisco Drydock, Berths 3 and 4-Pre Oil Spill	(98,000)	Held due to oil spill	Held due to oil spill	0	-	-
San Francisco Drydock, Inc.	San Francisco Drydock, Berths 3 and 4 -POST SPILL	98,000	98,000	0	100	Alcatraz (SF-11)	-
San Francisco, Port of	Pier 35 East	55,000	55,000	0	100	Alcatraz (SF-11)	-
San Francisco, Port of	Pier Pier 27	80,000	80,000	0	100	Alcatraz (SF-11)	-
San Francisco, Port of	Pier 35 West	37,000	33,200	3,800	90	Alcatraz (SF-11) NUAD left in place	-
San Francisco Public Utilities Commission - Department of Public Works	Port of SF, Piers 33 and 35	1,200	0	1,200	0	-	Port of SF Pier 94- Upland Site
San Francisco Yacht Club	San Francisco Yacht Club, Belvedere, Marin Co.	125,000	125,000	0	100	Alcatraz (SF-11)	-
San Leandro, City of	San Leandro Marina	75,000	75,000	0	100	Alcatraz (SF-11)	-
Sausalito Yacht Harbor Inc.	Sausalito Yacht Club	700	700	0	100	Alcatraz (SF-11)	-

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All Projects

		0	0	0	0	0	0
Schnitzer Steel	Schnitzer Steel, Port of Oakland	13,000	13,000	0	100	Alcatraz (SF-11)	unknown upland location
Schnitzer Steel	Schnitzer Steel, Port of Oakland (Tier I request)	210	210	0	100	Alcatraz (SF-11)	0
Unocal Corp	Unocal Marine Terminal, Rodeo	55,240	55,240	0	100	Carquinez (SF-9)	0
Vallejo, City of	Vallejo Ferry Terminal, east shore of Mare Island Strait	8,000	6,700	1,300	84	Carquinez (SF-9)	unknown upland location
Vallejo Yacht Club	Vallejo Yacht Club - harbor entrance	1,500	1,500	0	100	Carquinez (SF-9)	-
Western Waterways, Inc.	Glen Cove Marina, Vallejo, Solano County	50,000	50,000	0	100	Carquinez (SF-9)	-
Wickland Oil Martinez	Wickland Oil Martinez, Proposed Point Orient Terminal	26,100	Pending	Pending	0	Alcatraz (SF-11)	-
Projects Initiated During Second Six-Month Pilot Phase							
Benicia Port Terminal	Pier 92, 2nd '97 episode	29,803	29,803	0	100	Carquinez (SF-9)	0
Benicia, City of, Dept. of Public Works	Benicia Marinia	40,000	40,000	0	100	Carquinez (SF-9)	0
Bernheim	Belvedere Cove	300	300	0	100	Alcatraz (SF-11)	-
Brisbane, City of - Tier I Request	Sierra Point Marina	94,000	Pending	Pending	Pending	Alcartaz (SF-11)	0
Chevron U.S.A. Inc.	Richmond Long Wharf	265,000	265,000	0	100	Alcatraz (SF-11)	0
Clipper Yacht Harbor	Clipper Yacht Harbor Tier I Request	600	600	0	100	Alcatraz (SF-11)	0
Corinthian Yacht Club	Corinthian Yacht Club	37,400	37,400	0	100	Alcatraz (SF-11)	0
Desert Aggregates	Port Sonoma Marina	240,000	N/A	N/A	N/A	N/A	Upland Disposal Site

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All Projects

		0	0	0	0	0	0
Exxon	Benicia Refinery Dock, 1st 97 episode	18,000	18,000	0	100	Carquinez (SF-9)	0
Exxon	Benicia Refinery Dock, Application for New Permit	(400,000)	N/A	N/A	N/A	Carquinez (SF-9)	0
Exxon	Benicia Refinery Dock, 2nd 97 episode	20,000	20,000	0	100	Carquinez (SF-9)	-
Kappas Marina	Kappas Marina Sausalito	17,000	Pending	Pending	Pending	Alcatraz (SF-11)	0
Marin Yacht Club	Marin Yacht Club, Tier I request	4,000	4,000	0	100	San Pablo Bay (SF-10)	0
Marin, County of	Black Point Launch Ramp Tier I Request	200	200	0	100	San Pablo (SF-10)	0
Oakland, Port of	Berth 82 Knock-Down	1,300	1,300	0	100	Sidecast - Berth 82	0
Oakland, Port of	Berths 35 and 37	40,000	40,000	0	100	Alcartaz (SF-11)	0
Oakland, Port of	50 Foot Project	20,000,000	Pending	Pending	Pending	Ocean and/or Middle Harbor	To Be Determined
Oakland, Port of	Berth 30 Tier 1 Request	16,000	16,000	0	100	Alcatraz (SF-11)	0
Oakland, Port of	Jack London Square Marina	52,319	Pending	Pending	Pending	Alcartaz (SF-11)	Pending
Oakland, Port of	Resumption of maintenance dredging (Additional Material because of Herring Season)	26,000	26,000	0	100	Alcartaz (SF-11)	0
Pacific Gas and Electric Company	Contra Costa Power Plant - Antioch	2,182	Pending	Pending	Pending	Carquinez (SF-9)	0
Pacific Gas and Electric Company	Pittsburg Power Plant	43,054	Pending	Pending	Pending	Carquinez (SF-9)	0

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		0	0	0	0	0	0
Redwood City, City of	Berths 1 and 2	22,630	Pending	Pending	Pending	Alcatraz (SF-11)	Pending
Redwood City, City of	Port of Redwood City, Berth 3	19,000	19,000	0	100	Alcartaz (SF-11)	0
Richmond, Port of - Tier I Request	Terminal No. 4 (Tier I Request)	50,000	N/A	N/A	N/A	Alcartaz (SF-11)	0
San Francisco Drydock, Inc.	Dry Dock 1 & 2	270,000	235,000	35,000	87	Alcatraz (SF-11)	0
San Francisco, Port of	Central Basin	(422,000)	initially reviewed by DMMO but withdrawn by applicant	initially reviewed by DMMO but withdrawn by applicant	N/A	N/A	N/A
San Francisco, Port of	North Ferry Terminal Deepening (Tier I)	7,900	7,900	0	100	Alcatraz (SF-11)	0
San Francisco, Port of	South Ferry Terminal Deepening	9,650	8,650	1,000	90	Alcatraz (SF-11)	unknown upland disposal site
San Francisco, Port of	Hyde Street Project	38,000	Pending Review	N/A	N/A	not yet determ.	not yet determ.
San Francisco, Port of	Central Basin	275,000	Pending	Pending	Pending	Alcatraz (SF-11)	0
San Francisco, Port of	Pier 35W	26,080	Pending (Port postponed 1997 dredging at this site)	Pending (Port postponed 1997 dredging at this site)	-	Alcatraz (SF-11)	0
San Francisco, Port of	Piers 80B & 80C	255,400	Pending	Pending	Pending	Alcatraz (SF-11)	0
San Francisco, Port of	Piers 94 & 96	26,450	Pending	Pending	Pending	Alcatraz (SF-11)	0

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All Projects

		0	0	0	0	0	0
San Mateo, County Harbor District	Oyster Point Marina	110,178	Pending	Pending	Pending	Alcartaz (SF-11)	0
San Rafael, City of	San Rafael Canal (small additonal work, Tier I request)	2,000	2,000	0	100	Alcatraz (SF-11) or San Pablo (SF-10)	-
Schnitzer Steel	Schnitzer Steel, Port of Oakland - 6th Pier	6,000	6,000	0	100	Alcatraz (SF-11)	0
Timmer Cove Homeowners Tier I Reqest	Paradise Cay	9,000	9,000	0	100	Alcartaz (SF-11)	0
					0		
Federal Projects					0		
Federal Projects Initiated During First Six-Month Pilot Phase							
U.S. Army Corps of Engineers	Oakland Army Base	20,000	20,000	0	100	Alcatraz SF-11	-
U.S. Army Corps of Engineers	Corps O&M-Redwood City	1,080,000	1,030,000	47,500	95	Alcatraz SF-11	-
U.S. Army Corps of Engineers	Corps Spring O&M-Richmond	520,000	520,000	0	100	Alcatraz (SF-11); San Pablo (SF-10)	-
U.S. Army Corps of Engineers	Corps Fall O&M-Richmond	105,000	105,000	0	100	Alcatraz (SF-11)	-
U.S. Army Corps of Engineers	Corps Suisun Bay O&M	186,200	186,200	0	100	Suisun Bay (SF-8)	-
U.S. Army Corps of Engineers	Corps Port of Oakland O&M	200,000	180,000	20,000	90	Alcatraz (SF-11)	Landfill via Berth 10

Table 1
DMMO Material Suitability Determinations
All Projects

		0	0	0	0	0	0
U.S. Navy	NAS Alameda	100,000	100,000	0	100	Alcatraz (SF-11)	-
Federal Projects Initiated During Second Six-Month Pilot Phase							
U.S. Army Corps of Engineers	Corps San Leandro O&M	110,600	110,600	0	100	Alcatraz (SF-11)	-
U.S. Army Corps of Engineers	Corps San Rafael Across the Flats O&M	173,200	156,200	17,000	90	Alcatraz (SF-11)	-
U.S. Navy	Fuel Supply Point Moffett Field	14,8710	Withdrawn	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Pinole Shoals	229,000	229,000	0	100	San Pablo Bay (SF-10)	0
U.S. Army Corps of Engineers	Oakland Outer Harbor (Tier I)	2,000	2,000	0	100	Alcatraz (SF-11)	-
U.S. Army Corps of Engineers	Oakland Outer Harbor Channel Emergency Dredging Tier I	18,000	18,000	0	100	Alcatraz (SF-11)	-
U.S. Army Corps of Engineers	Suisun Bay Channel Emergency Dredging	7,135	N/A	N/A	N/A	SF-16	-
U.S. Army Corps of Engineers	Port of Redwood City - Turning Basin	142,100	Pending	Pending	Pending	Alcatraz (SF-11)	0
U.S. Army Corps of Engineers	Richmond Long Wharf - Tier I	256,864	256,864	0	100	Alcatraz (SF-11)	0

Table 2
DMMO Sed. Qual. Review
Summary Data

Total Proposed Dredging Volume	Actual Dredged Volume (cy) [minus projects pending]	Volume Approved - SUAD (cy)	Volume Failed - NUAD (cy)
28,050,238	6,371,167	6,201,047	170,120
	% Approved	97.3	
	% Failed	2.7	

Table 3
DMMO Dredging Projects
Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN	Corps Permit Issued	DMMO Appl. Recd.
Projects Initiated During First Six-Month Pilot Phase											
Aeolian Yacht Club	Aeolian Yacht Club-Harbor Entrance	Nov-96	Nov-96	Pending	Feb-97	Sep-97	Dec-97	N/A	Jul-97	-	Sep-98
Ballena Isle Marina	Ballena Isle Marina	Dec-95	Dec-95	Pending	-	pending	N/A	N/A	N/A	N/A	N/A
Bel Marin Keys Community Services District	Laguna Bel Marin and Novato Creek	-	-	Aug-96	N/A (upland project)	N/A	N/A	N/A	N/A	N/A	N/A
Benicia, City of, Dept. of Public Works	Benicia Marinia	-	Mar-96	May-96	Jun-96	Jul-96	Apr-96	May-95	Jun-97	Dec-97	Mar-97
Benicia Port Terminal	Pier 92, 1st '96 episode	pre-DMMO	Nov-95	Dec-95	Jan-96	Jan-96	Dec-95	Apr-94	Jun-92	-	Mar-92
Benicia Port Terminal	Pier 92, 2nd '96 episode	Oct-96	Nov-96 Tier I	Tier I	Nov-96 Tier I	Dec-96	Jan-97	Apr-94	Jun-92	-	Mar-92
Brisbane, City of	Brisbane Marina	Jul-95	Sep-95	Mar-96	Apr-96	May-96	existing permit	N/A	N/A	N/A	Jan-98
CALTRANS	Benicia-Martinez Bridge Retrofit	Jul-96	Aug-96	Dec-96	Jan-97	Feb-97	Mar-97	existing lease	N/A	Mar-97	Dec-96
CALTRANS	Carquinez Bridge Retrofit Project	Aug-96	Aug-96	Dec-96	Jan-97	May-97	Jul-97	existing lease	-	-	Dec-96
CALTRANS	Richmond San Rafael Bridge Retrofit Project	Aug-96	Aug-96	Mar-97	Apr-97	Apr-97	Aug-97	existing lease	May-97	Apr-98	Mar-98
CALTRANS	San Mateo-Hayward Bridge Retrofit Project	Aug-96	Aug-96	Dec-96	Jan-97	Apr-97	May-97	existing lease	Mar-97	May-97	Nov-96
CALTRANS	SF-Oakland Bay Bridge Retrofit Project	Jul-96	Aug-96	Dec-96	Dec-96	Oct-97	Nov-97	existing lease	N/A	N/A	-

N/A - no application received
(may not be required)

Table 3
DMMO Dredging Projects
Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN	Corps Permit Issued	DMMO Appl. Recd.
Castrol North American Automotive	Castrol Berth (Richmond Inner Harbor)	Aug-96	Aug-96	Oct-96	reviewed by DMMO but withdrawn by applicant	N/A	N/A	withdrawn	N/A	-	N/A
Chevron U.S.A.	Richmond Long Wharf	pre-DMMO	Apr-95	Jul-95	Oct-95	Aug-95	Aug-95	Nov-94	-	-	Mar-96
Chevron U.S.A. Inc.	Richmond Long Wharf	Jul-96	July-96 Tier I	-	July-96 Tier I	Sep-96	Oct-96	Nov-94	-	-	Mar-96
Desert Aggregates	Sonoma-Marin, Port of	Oct-96	N/A	N/A	N/A	Pending	Pending	Feb-96	N/A	N/A	N/A
Emery Cove Marina	Emery Cove Marina, Emeryvile	Sep-95	Jun-95	Oct-95	Oct-95	Dec-95	Feb-96	N/A	Feb-96	May-96	Jun-95
Exxon	Benicia Refinery Dock,1st '96 episode	Jan-96	Jan-96 Tier I	Tier I	Jan-96 Tier I	Jun-95	Nov-95	May-95	Sep-92	Dec-92	May-95
Exxon	Benicia Refinery Dock, 2nd 96' episode	Jun-96	June-96 Tier I	Tier I	June-96 Tier I	Oct-96	Oct-96	May-95	Sep-92	Dec-92	May-95
Exxon	Benicia Refinery Dock, 3rd. 96' episode	Aug-96	Aug-96 Tier I	Tier I	Aug-96 Tier I	existing permit	existing permit	N/A	Sep-92	Dec-92	May-95
Foster City	Foster City Lagoon	Apr-96	Jul-96	Pending	Pending	pending	N/A	N/A	N/A	N/A	N/A
Golden Gate Bridge and Transportation District	Larkspur Ferry Terminal Berths 1 & 2	Apr-96	Apr-96	Sep-96	Oct-96	Jan-97	Mar-97	N/A	Dec-96	Apr-97	Mar-96
Loch Lomond Marina	Loch Lomond Marina, San Rafael, Marin County	Jul-95	Jul-95	Oct-95	Nov-95	Dec-95	May-95	N/A	Nov-94	Apr-97	Jul-94
Loch Lomond Marina	Loch Lomond Marina, San Rafael, Marin County (Material Not Dredged)	Dec-96	Apr-97 Tier I	Tier I	Apr-97	N/A	N/A	N/A	Nov-94	May-95	Jul-94

N/A - no application received
(may not be required)

Table 3
DMMO Dredging Projects
Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN	Corps Permit Issued	DMMO Appl. Recd.
Marin Co. Pub. Svcs. Agency (29); Paradise Cay HOA	Paradise Cay (north entrance chan. & chans. C & D)	May-96	Jun-96 Tier I	Tier I	Jul-96	Mar-97	Mar-97	Feb-97	Feb-92	Oct-95	Oct-91
Marin Yacht Club	Marin Yacht Club, Tier I request	Aug-96	Aug-96 Tier I	Tier I	Aug-96	existing permit (May 95)	pending	Mar-95	Nov-91	Dec-92	Mar-91
Oakland, Port of	Berths 20, 21, 30, 32, 33- Maintenance Dredging under existing BCDC and COE permits for all berths	Aug-96	Aug-96	Oct-96	Oct-96	Oct-96	existing permit (Oct 95)	N/A	existing permit	Oct-92	Aug-90
Oakland, Port of	Berths 22, 23, 24, 25, 26 (Deepening Project)	Sep-95	Oct-95	Feb-96	Mar-96	Sep-96	Oct-96	N/A	-	Oct-92	Aug-90
Oakland, Port of	Berths 25 and 26 (high spots) Maintenance Dredging under existing BCDC and COE permits for all berths	-	-	-	April-96 Prior Approval	existing permit (Sept 95)	existing permit (Oct 95)	N/A	existing permit	Oct-92	Aug-90
Oakland, Port of	Berths 22, 23, 24, 35, 67, 68- Maintenance Dredging under existing BCDC and COE permits for all berths	Aug-95	Aug-95	Dec-95	Feb-96	existing permit (Feb 95)	existing permit (Oct 95)	N/A	existing permit	Oct-92	Aug-90
Oakland, Port of	Berths 25, 26, 30, 37- Maintenance Dredging under existing BCDC and COE permits for all berths	-	May-95	-	Aug-95	existing permit (Sept 95)	existing permit (Oct 95)	N/A	existing permit	Oct-92	Aug-90

N/A - no application received
(may not be required)

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Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN	Corps Permit Issued	DMMO Appl. Recd.
Pullman Building Company	Paradise Cay Yacht Harbor	Jul-95	Sep-95	Nov-95	May-96	Apr-96	May-97	Mar-94	Oct-96	Jun-97	Sep-95
Redwood City, City of	Port of Redwood City, Berths 1 and 2	Mar-96	Apr-96	New SAP Submitted	Pending	Pending	Pending	Pending	letter of mod-ification	Mar-98	Jan-98
Richmond, Port of	Levin Terminal (Berths: IMTT, Natl Gypsum, GATX, ARCO, Terminals 2 & 3, Berths 6 & 7- all pre-DMMO)	Pre-DMMO	-	-	Aug-96	Jun-96	Jul-96	N/A	May-96	Aug-96	Feb-96
Richmond, Port of	Terminal No. 4 (Emergency)	Oct-96	Oct-96 Tier I	-	Oct-96	Oct-96	Oct-95	Mar-94	Dec-93	Mar-94	Jan-93
San Francisco, City & County	Gashouse Cove, SF Marina	Jan-00	May-95	Sep-95	Pending	pending	N/A	N/A	Jul-94	Sep-94	May-94
San Francisco, City & County	Marina Small Craft Harbor (Areas 2 and 3) - West Basin	Jun-95	-	Sep-95	Nov-95	Dec-95	Aug-94	Nov-94	Jul-94	Sep-94	May-94
San Francisco, City & County	Marina Small Craft Harbor (Berth and Fairways)	Apr-96	May-96	Sep-96	Pending	Dec-95	Aug-94	Nov-94	Jul-94	Sep-94	May-94
San Francisco, City & County	S.F. Marina and Small Craft Harbor Entrance Channel - Sand Trap/Mining Pilot Project	Jun-95	-	Sep-95	Nov-95	Aug-95	Dec-95	N/A	Jul-94	Sep-94	May-94
San Francisco Drydock, Inc.	San Francisco Drydock, Berths 3 and 4-Pre Oil Spill	-	May-96	Jul-96	Jul-96	Sep-96	held due to oil spill	Oct-96	May-97	Aug-97	Apr-96
San Francisco Drydock, Inc.	San Francisco Drydock, Berths 3 and 4 -POST SPILL	Jan-97	Jan-97	Mar-97	Apr-97	May-97	Jul-97	N/A	May-97	Aug-97	Apr-96
San Francisco, Port of	Pier 35 East	Aug-96	Sep-96	Sep-96	Oct-96	Oct-96	Oct-96	Mar-95	Apr-94	Nov-96	Mar-94

N/A - no application received
(may not be required)

Table 3
DMMO Dredging Projects
Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN	Corps Permit Issued	DMMO Appl. Recd.
San Francisco, Port of	Pier Pier 27	Aug-96	Sep-96	Sep-96	Oct-96	Oct-96	Oct-96	Mar-95	Apr-94	Nov-96	Mar-94
San Francisco, Port of	Pier 35 West	Nov-95	Mar-96	Apr-96	Apr-96	Apr-96	Apr-96	Mar-95	N/A	N/A	Jun-97
San Francisco Public Utilities Commission - Department of Public Works	Port of SF, Piers 33 and 35	May-96	Jul-96	Oct-96	Oct-96	Feb-97	Mar-97	Feb-96	Jan-97	Mar-97	Apr-97
San Francisco Yacht Club	San Francisco Yacht Club, Belvedere, Marin Co.	Jan-95	pre DMMO	Mar-95	Jul-95	Oct-95	Aug-95	N/A	Sep-95	Jan-95	Jul-95
San Leandro, City of	San Leandro Marina	May-96	Jul-96	Dec-96	Dec-96	Feb-97	Mar-97	N/A	Jan-97	Apr-97	Sep-96
Sausalito Yacht Harbor Inc.	Sausalito Yacht Club	May-95	May-95	Jul-95	Nov-95	Nov-95	May-96	N/A	Mar-96	Sep-96	Jan-96
Schnitzer Steel	Schnitzer Steel, Port of Oakland	-	pre DMMO	-	Aug-95	Jul-95	existing permit (Nov. 92)	N/A	Jul-92	Dec-92	Jul-92
Schnitzer Steel	Schnitzer Steel, Port of Oakland (Tier I request)	Jan-97	Feb-97	-	Feb-97 Tier I	existing permit	May-97	N/A	Jul-92	Dec-92	Jul-92
Unocal Corp	Unocal Marine Terminal, Rodeo	-	Sep-96	Oct-96	Oct-96	Oct-96	Aug-96	Oct-95	Feb-92	Aug-93	Jul-90
Vallejo, City of	Vallejo Ferry Terminal, east shore of Mare Island Strait	Aug-96	Sep-96	Dec-96	Jan-97	Apr-97	Aug-97	Oct-96	May-97	Jul-97	Aug-96
Vallejo Yacht Club	Vallejo Yacht Club - harbor entrance	Sep-96	Dec-96 Tier I	-	Dec-96	Jan-97	Jan-97	N/A	Dec-96	Mar-97	Feb-95
Western Waterways, Inc.	Glen Cove Marina, Vallejo, Solano County	-	pre DMMO	Dec-95	Jan-96	Mar-96	May-96	N/A	Feb-96	Jul-96	Jun-95
Wickland Oil Martinez	Wickland Oil Martinez, Proposed Point Orient Terminal	Mar-96	May-96	Pending	-	pending	N/A	Pending Rect. of Appl.	N/A	N/A	N/A

N/A - no application received
(may not be required)

Table 3
DMMO Dredging Projects
Summary of Action Dates

Applicant	Project Site	SAP Recd.	SAP Appvd.	Sed. Qual. Reults Recd.	DMMO Determ.	RWQCB Appvd.	BCDC Appvd.	State Lands Appvd.	Corps PN	Corps Permit Issued	DMMO Appl. Recd.
Projects Initiated During Second Six-Month Pilot Phase											
Benicia Port Terminal	Pier 92, 2nd '97 episode	Sep-97	Oct-97 Teir 1	-	Sep-97 Tier I	existing permit	existing permit	Nov-97	Jun-92	Dec-92	Jan-92
Benicia, City of, Dept. of Public Works	Benicia Marinia	Jul-97	Aug-97	Sep-97	Sep-97	Oct-97	Oct-97	Mar-97	Episode	-	-
Bernheim	Belvedere Cove	-	-	-	-	existing permit	Jan-97	-	-	-	-
Brisbane, City of - Tier I Request	Sierra Point Marina	Dec-97	Pending	-	Pending	pending	pending	Feb-98	N/A	N/A	Sep-97
Chevron U.S.A. Inc.	Richmond Long Wharf	Mar-97	Apr-97 Tier I	-	Apr-97 Tier I	May-97	May-97	existing permit	Episode	-	-
Clipper Yacht Harbor	Clipper Yacht Harbor Tier I Request	Oct-97	Sep-97	-	Oct-97	Dec-97	Apr-98	N/A	Sep-92	May-94	Jul-92
Corinthian Yacht Club	Corinthian Yacht Club	Mar-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	N/A	Jul-97	Oct-97	Mar-97
Desert Aggregates	Port Sonoma Marina	N/A	N/A	N/A	N/A	Pending	Mar-98	N/A	-	-	-
Exxon	Benicia Refinery Dock, 1st 97 episode	May-97	May-97 Tier I	-	May-97 Tier I	existing permit	existing permit	-	Episode	-	-
Exxon	Benicia Refinery Dock, Application for New Permit	N/A	N/A	N/A	N/A	N/A	Jan-97	Nov-97	Jul-97	Mar-98	Jun-97
Exxon	Benicia Refinery Dock, 2nd 97 episode	Sep-97	Sep-97	Nov-97	Dec-97	Dec-97	existing permit	Nov-97	Episode	-	-
Kappas Marina	Kappas Marina Sausalito	Mar-97	Jul-97	Pending	Pending	pending	pending	Jun-98	N/A	N/A	Apr-98
Marin Yacht Club	Marin Yacht Club, Tier I request	Apr-97	Apr-97 Tier I	Tier I	Apr-97 Tier I	Apr-97	Pending	Feb-97	Episode	-	-
Marin, County of	Black Point Launch Ramp Tier I Request	Jun-97	Jul-97 (Tier I)	Tier I	Jul-97 (Tier I)	existing permit	N/A	N/A	Mar-95	May-96	Aug-94
Oakland, Port of	Berth 82 Knock-Down	Apr-97	Apr-97 Tierl	Tier I	Apr-97 Tier I	existing permit	existing permit	N/A	Episode	-	-

N/A - no application received
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DMMO Dredging Projects
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Oakland, Port of	Berths 35 and 37	Jul-97	Jul-97 (Tier I)	-	Jul-97 (Tier I)	existing permit	existing permit	existing permit	May-91	Oct-92	Aug-90
Oakland, Port of	50 Foot Project	Jun-97	-	Pending	Pending	pending	Pending	pending	N/A	N/A	N/A
Oakland, Port of	Berth 30 Tier 1 Request	Jun-97	Jun-97 Tier I	-	June-97 Tier I	existing permit	existing permit	N/A	Episode	-	-
Oakland, Port of	Jack London Square Marina	Jul-97	Dec-98	Pending	Pending	pending	Pending	N/A	Jan-98	N/A	Nov-97
Oakland, Port of	Resumption of maintenance dredging (Additional Material because of Herring Season)	-	-	May-97	Sep-97	existing permit	existing permit	existing permit	Episode	-	-
Pacific. Gas and Electric Company	Contra Costa Power Plant - Antioch	May-97	May-97	Pending	Pending	Pending	Pending	existing permit	N/A	N/A	N/A
Pacific Gas and Electric Company	Pittsburg Power Plant	May-97	May-97	withdrawn	withdrawn	withdrawn	withdrawn	N/A	N/A	withdrawn	N/A
Redwood City, City of	Berths 1 and 2	Apr-97	Jun-97	Sep-97	Pending	Pending	Pending	N/A	Nov-97	Feb-98	Mar-96
Redwood City, City of	Port of Redwood City, Berth 3	Jul-97	Aug-97	Oct-97	Oct-97	Dec-97	Jul-97	N/A	Nov-97	Feb-98	Mar-96
Richmond, Port of - Tier I Request	Terminal No. 4 (Tier I Request)	Dec-97	Dec-97 Tier I, with confirmatory testing	Jul-98	Dec-97 Denied	Apr-98	Apr-98	Feb-98	Feb-98	N/A	Dec-97
San Francisco Drydock, Inc.	Dry Dock 1 & 2	Mar-97	May-97	Jul-97	Pending	pending	Jul-98	existing permit	N/A	N/A	Feb-98

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San Francisco, Port of	Central Basin	May-97	initially reviewed by DMMO but withdrawn by applicant	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
San Francisco, Port of	North Ferry Terminal Deepening (Tier I)	Mar-97	Apr-97 Teir I	-	Apr-97 Tier I	Oct-97	Pending	Nov-97	Aug-97	Nov-97	Mar-97
San Francisco, Port of	South Ferry Terminal Deepening	May-97	May-97	Sep-97	Sep-97	Oct-97	Pending	pending	Aug-97	Nov-97	Mar-97
San Francisco, Port of	Hyde Street Project	Sep-97	N/A	pending	pending	N/A	pending	pending	-	pending	N/A
San Francisco, Port of	Central Basin	Jan-98	Pending	pending	pending	pending	pending	pending	Aug-97	Nov-97	Mar-97
San Francisco, Port of	Pier 35W	May-97	May-97	Jun-97	not dredged	N/A	existing permit	N/A	Aug-97	Nov-97	Mar-97
San Francisco, Port of	Piers 80B & 80C	May-97	May-97	withdrawn	withdrawn	withdrawn	existing permit	Nov-97	Aug-97	Nov-97	Mar-97
San Francisco, Port of	Piers 94 & 96	May-97	May-97	withdrawn	withdrawn	withdrawn	existing permit	Nov-97	Aug-97	Nov-97	Mar-97
San Mateo, County Harbor District	Oyster Point Marina	Nov-97	Pending	Pending	Pending	pending	N/A	N/A	N/A	N/A	N/A
San Rafael, City of	San Rafael Canal (small additonal work, Tier I request)	-	-	N/A	N/A	Oct-97	Nov-97	N/A	N/A	Oct-97 letter of mod-ification	Oct-97
Schnitzer Steel	Schnitzer Steel, Port of Oakland - 6th Pier	Apr-97	May-97	Jul-97	Aug-97	existing permit	existing permit	pending	Episode	-	-
Timmer Cove Homeowners Tier I Reqest	Paradise Cay	Dec-97	Jan-98 Tier I	Tier I	Jan-98 Tier I	Feb-98	Jun-98	Dec-97	Apr-98	N/A	Jan-98

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Federal Projects Initiated During First Six-Month Pilot Phase											
U.S. Army Corps of Engineers	Oakland Army Base	-	Dec-95	-	Jan-96	Feb-96	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Corps O&M-Redwood City	-	Nov-95	-	Feb-96	May-95	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Corps Spring O&M-Richmond	-	Feb-96	-	-	May-95	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Corps Fall O&M-Richmond	-	Oct-96	-	-	May-95	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Corps Suisun Bay O&M	-	Aug-96	-	-	May-95	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Corps Port of Oakland O&M	-	May-96	-	-	May-95	existing CN	N/A	N/A	N/A	N/A
U.S. Navy	NAS Alameda	-	not approved through normal DMMO process	-	Oct-96	Mar-95	Nov-96	N/A	N/A	N/A	N/A
Federal Projects Initiated During Second Six-Month Pilot Phase											
U.S. Army Corps of Engineers	Corps San Leandro O&M	-	Nov-96	Feb-97	Feb-97	Mar-97	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Corps San Rafael Across the Flats O&M	-	-	Feb-97	Apr-97	Mar-97	Apr-97	N/A	N/A	N/A	N/A
U.S. Navy	Fuel Supply Point Moffett Field	Apr-97	N/A	N/A	Withdrawn	N/A	existing CN	N/A	N/A	N/A	N/A

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U.S. Army Corps of Engineers	Pinole Shoals	-	-	Apr-97	May-97	-	Apr-97	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Oakland Outer Harbor (Tier I)	Aug-97	-	Dec-97	Dec-97	-	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Oakland Outer Harbor Channel Emergency Dredging Tier I	May-97 Tier I	-	-	May-97	N/A	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Suisun Bay Channel Emergency Dredging	N/A	N/A	N/A	N/A	N/A	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Port of Redwood City - Turning Basin	Sep-97	Nov-97	Pending	Pending	pending	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Richmond Long Wharf - Tier I	-	-	-	-	-	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Richmond Harbor Maintence Dredging - Ocean Disposal	-	-	-	-	-	existing CN	N/A	N/A	N/A	N/A
U.S. Army Corps of Engineers	Oakland Inner Harbor	-	-	Apr-97 Tier I	-	-	Apr-97	N/A	N/A	N/A	N/A

N/A - no application received
(may not be required)

MEMORANDUM OF UNDERSTANDING FOR THE PILOT DREDGED MATERIAL MANAGEMENT OFFICE

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
AND
SAN FRANCISCO REGIONAL WATER QUALITY CONTROL BOARD
AND
CALIFORNIA STATE LANDS COMMISSION
AND
U.S. ENVIRONMENTAL PROTECTION AGENCY
AND
SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

Original : July 3, 1996
Revised : March 6, 1998

SUBJECT: **Memorandum of Understanding for the Pilot Dredged Material Management Office**

1. **Purpose.** This Memorandum of Understanding (MOU) provides for the creation of a Pilot Dredged Material Management Office (DMMO) for the San Francisco Bay Region. This office is established to foster a comprehensive, and consolidated approach to handling dredged material management issues in order to reduce redundancy and delays in the processing of dredging permit applications. This MOU addresses the implementation of a "pilot" DMMO; it does not propose a permanent physical office. The DMMO is a phased program (See Section 12). The first two phases constitute the "pilot" program and each of these phases will last six (6) months. The pilot phases will implement the basic approach as outlined in this document and include the processing of dredging and disposal permit applications in order to judge the effectiveness of the approach and the need for subsequent modifications. It is envisioned by the member agencies that more tasks will be added to the DMMO over time as the effectiveness of the DMMO is demonstrated.

2. **Disclaimer.** Nothing written in this MOU shall be construed as an agreement, expressed or implied, which amends, negates or otherwise changes the legal statutory and regulatory authority of any member signatory agency or any interested party. The sole intent of the DMMO is to improve the dredging permit process within existing law, regulation and policy.

3. **References.**

   a. *General Operating Principles, Pilot Dredged Material Management Office (DMMO)*, signed by the Dredging Management Committee members and dated 12 September 1995.

   b. *Draft DMMO Flowchart and Timeline Goals for Maintenance Dredging and Disposal Projects*, dated July 3, 1996.

4. **History.** The competing needs of various San Francisco Bay user groups, the ports and related industries, sport fisherman, and the environment reached a crisis point in 1989 when considerable controversy arose over dredged material disposal in San Francisco Bay. A consensus-based approach, entitled the "Long Term Management Strategy (LTMS) for dredged material management," was initiated in 1990, to address and resolve the "dredging problem".

The goal of the LTMS is to a create a fifty year plan to manage dredged material dredging and disposal activities. The San Francisco Bay Regional Water Quality Control Board (Regional Board), State Water Resources Control Board, San Francisco Bay Conservation and Development Commission (BCDC), United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers, South Pacific Division and San Francisco District (COE) are signatories to the LTMS program.

This DMMO results, in part, from the findings of the LTMS Implementation Committee which examined the issue of permit streamlining. The Committee formed a task group to draw up a process for a "one stop" permit approach for dredging permits. In 1992, the task group drafted a permit streamlining initiative with general goals and objectives. The resultant DMMO proposal was modeled after the Puget Sound Dredge Disposal Analysis (PSDDA) approach, which relies on a partnership of federal and state agencies.

In 1995, the LTMS agencies decided to form a pilot DMMO, under existing authorities and budgets. The COE agreed to initially act as the "host" of the DMMO and take on responsibilities associated with the lead role. The roles and responsibilities of the host agency, as well as the other participants, are addressed in this MOU. The MOU is consistent with, and is intended to implement, the fourth goal of the LTMS which is to provide "recommendations for federal, state and local agencies to implement a cooperative permitting process for authorizing dredging activities."

5. **Geographic Area.** The DMMO geographic area includes: all of the San Francisco Bay Estuary up to Sherman Island, its major tributaries up to points where navigation is no longer feasible, upland areas surrounding the estuary, and ocean disposal sites for Bay material designated by the COE and/or USEPA. (See Figure 1.) However, the member agencies will strive to coordinate with the Central Valley Regional Water Quality Control Board regarding use of Bay dredged material in the Sacramento/San Joaquin Valley region.

6. **Definitions.** For the purpose of this memorandum of understanding the following definitions apply:

   a. "Host" Agency. COE, San Francisco District will be the host agency: (1) providing logistical support for the meetings to include providing meeting rooms, preparing agendas, preparing meeting minutes, distributing information among participants, applicants, and interested parties; and maintaining project files; and (2) acting as the main clearinghouse and initial point of contact on DMMO matters.

   b. "Member Agencies." The signatories to this MOU.

   c. "Interested Party." Any person or agency that has an interest or involvement in the issuance of dredging permits and management of dredged material in the SF Bay Area.

   d. "Dredging Management Committee." A committee made up of each signatory agency's executive-level staff person or commander.

   e. "Uplands." Locations within the Bay Area that are outside "navigable waters", i.e. above the high tide line. Note that "Uplands" may possess wetland characteristics and be regulated as wetlands.

f. "Complete Permit Application." An application that contains information judged adequate by the member agencies to process the application, including results of testing that have been approved by the member agencies.

7. **Problem.** The de facto permitting system for dredging and disposal can be lengthy and complex and consists of six federal and state agencies that issue a permit or other legal approval. In addition, federal and state laws require that resource agencies comment on many of the permit actions and consider endangered species impacts under their own jurisdiction (Section 7 Consultation). The actual number of permits and types of approvals depend upon the location of the dredging and disposal sites, ownership of project area, and whether the project requires new permits or is considered an episode under existing permits. Coordination of the dredging permitting process to decrease redundancy and increase efficiency is a main purpose of the DMMO.

   Secondly, the suitability determination for the disposal of dredged material often requires agency interpretation of an extensive battery of tests which characterize the physical, chemical, and biological nature of the sediment proposed for dredging. The contributions of member agencies to the suitability determination process reflect the staff's differing areas of technical expertise. Thus, the coordinated exchange of technical information among staff creates a common knowledge base to insure that permit actions are taken in a consistent and timely manner.

8. **Goals, Objectives, and General Operating Principles.** These items are contained in the *General Operating Principles,* which is incorporated by reference.

9. **Scope.** This MOU will provide the operating guidance necessary to implement the Pilot DMMO under the previously agreed upon *General Operating Principles.*

10. **Required Actions.** The Pilot Dredged Material Management Office will make joint staff recommendations on the approval, modification or denial of:

    a. Sampling and testing plans;
    b. Results of testing pursuant to the approved plans;
    c. Consolidated Permit Application completeness; and
    d. Material suitability for disposal at existing in-bay disposal sites, ocean disposal site or upland disposal sites (DMMO staff members will sign a DMMO recommendation for a given disposal site only if they have regulatory authority for that site).

    Agency staffs will also recommend general permit conditions (i.e. length of permit, bathymetric surveys) and special permit conditions (i.e. timing of dredging operations, turbidity controls), as appropriate, to be included in permit approvals.

    Agency staffs shall support the consensus recommendations made through this process subject to final approval by the respective agencies. Recommendations will be documented in the minutes of the meetings and through member agency correspondence.

11. DMMO Agreements, Responsibilities And Roles

For at least the first phase, DMMO responsibilities and roles will be as follows:

a. Host Agency Role.

1. Provide logistical support (meeting rooms, etc.).

2. Provide for agenda preparation and distribution, a mutually agreeable schedule of meetings, and preparation of meeting minutes and their distribution.

3. Provide staff who are knowledgeable regarding DMMO projects and actions to act as the initial point of contact to and field questions from applicants and the public regarding the DMMO, and to refer inquiries to appropriate member-agency staff.

4. Maintain current files on the projects under the Pilot DMMO Program.

5. Coordinate processing of emergency dredging requests.

6. Prepare and mail joint Public Notices on DMMO matters.

7. Maintain (1) an electronic database for DMMO data containing status of dredging and disposal applications, and (2) electronic records of disposal site monitoring data that are accessible to the member agencies, applicants and the public.

b. Member Agency Roles.

Each agency will provide adequate staff to participate in the DMMO. Knowledgeable staff will attend each scheduled meeting and at least one meeting will be held each month. At least one primary and one backup staff member will be designated to ensure that there will be representation from all DMMO member agencies. DMMO staff will work together in a cooperative approach as outlined in the General Operating Principles. Each representative will strive to reach consensus with the other DMMO members while representing the laws and policies of his or her agency. DMMO staff representatives will sign a DMMO recommendation for a given disposal site only if they have regulatory authority for that site. Member agencies may be required to provide electronic updates to the database mentioned above.

If a member agency is unable to provide staff to attend a scheduled DMMO meeting, the agency's DMMO representative shall submit a written summary of the agency's position(s) and/or questions regarding all projects listed on the final agenda for that meeting and that are within their jurisdiction or regulatory authority. Should an agency representative choose to defer on a particular project to the consensus reached by the other agencies, than this should also be indicated in the summary. This summary should be submitted to the host agency on or before the scheduled meeting date and be provided to the other members at the DMMO meeting.

c. **Role of Non-member Resource Agencies**

The non-member resource agencies, United States Fish and Wildlife Service, National Marine Fisheries Service and California Department of Fish and Game, will be requested to attend the DMMO meetings to provide their expertise and participate in discussions of the suitability of material for disposal, and any special permit considerations. While the non-member resource agencies will be invited to provide their recommendations, the member agencies will make the final DMMO recommendations on permit/lease related matters.

d. **Public Review and Input.**

1. **Project Notification.**

The member agencies will continue to follow their existing notification and comment procedures on pending applications, including circulation of staff reports, public notices, response letters, etc. The host agency will also provide information on the status of permit applications and other activities pending before the DMMO through an electronic database that can be accessed by applicants and the public through the internet.

A listing of all pending and recently approved 401 Water Quality Certification actions and 404 Nationwide Permits issued in the San Francisco Bay Area, pursuant to the federal Clean Water Act, will also be available from the Regional Board via a voice mail system and an internet connection (WWW Site).

2. **Comments.**

In addition to comments received through the existing public comment process of the member agencies, written comments on the DMMO or pending applications will be distributed by the host agency for consideration by member agencies at regularly scheduled meetings. The beginning portion of each DMMO meeting will be reserved for public and applicant comments. Each applicant or interested party may make a presentation of up to 30 minute in length to the DMMO staff, provided that the presentation is scheduled at least five days in advance and any written materials are submitted to the DMMO host at the time of scheduling.

If any additional tasks are added to the DMMO as a result of the final implementation plan, public involvement will be revisited to determine whether additional special public involvement is necessary.

3. **Annual Review.**

At least once per year, the DMMO will prepare an annual report and conduct a public meeting on the report. The report will contain information regarding dredging projects, permit issues, disposal site monitoring and other matters considered during the year. Presentations will be made, as needed, on technical issues and any studies and research that may have a direct or significant bearing on management of Bay Area dredging and disposal activities. The proceedings of the annual meeting will be compiled and made available to the public.

e. **Conflict Resolution.**

If consensus on substantive issues cannot be reached by the staff assigned to the DMMO, then a meeting or conference call will be arranged as soon as possible with the Dredging Management Committee (DMC). The DMC will attempt to resolve the conflict to the mutual satisfaction of the members. If resolution is not accomplished within two (2) DMC meetings, then the subject project will no longer be managed under the auspices of the DMMO and existing agency policies and procedures will be applied to the project. The Host agency will prepare a written report to be signed by all members, which will document in detail for the DMC, the nature and magnitude of the disagreement.

If a member agency determines that a pilot application will not be processed in an acceptably expeditious time period, then, after informing the other DMC members by phone or in writing, it may withdraw processing of the pilot application from the DMMO.

If an individual agency decides, for any reason, to process an application *outside of the DMMO (without formal elevation to the Management Committee) that normally would be considered as a DMMO project, then this position should immediately be transmitted in writing, with the signature of the Management Committee member of that agency, to the DMC members.

f. **Timelines and Process.**

The following time frames will be considered goals:

1. The member agencies will respond to inquires from applicants, the public or each other, within two (2) days for telephone responses, and within one (1) week for written response.

2. All applicant submittals will be placed on the next DMMO agenda providing that they are received at least one week in advance of a scheduled meeting.

3. The DMMO will respond to an applicants submittal of sampling plans, sampling results and/or other agendized items within two weeks of DMMO consideration of the item. However, any dredging project proposing a change in a previously permitted material disposal environment, must submit a complete DMMO application prior to DMMO consideration of the SAP or sampling results.

4. The Host agency will distribute to the member agencies any submittals by applicants within five (5) days of receipt.

5. The member agencies will respond to applicants regarding the completeness of a submitted application within thirty (30) days after the application is submitted.

6. The Host agency will prepare and distribute draft meeting minutes to member agencies within five (5) days of the meeting date.

7. The DMMO agencies will issue any necessary public notices, or other staff reports regarding pending applications within thirty (30) days after the application is deemed complete.

8. The DMMO agencies will process applications in an expeditious manner so that the member agencies can issue or deny permits for those applications within ninety (90) days after the application is deemed complete.

9. Applicants will have an opportunity to appeal a DMMO recommendation, but only if DMMO staff agrees that there are sufficient grounds to warrant reconsideration, based on the written request and documentation submitted by the applicant. If a recommendation is modified by the member agencies, the host agency will make a written finding for the record. The applicant will be notified by letter or through a supplemental public notice.

12. **Amendment, Duration and Termination.** The DMMO is a phased program. The first two phases constitute the first year of the "pilot" program and each of these first two phases will last six (6) months. The pilot phases will implement the basic approach as outlined in this document and include the processing of dredging and disposal permit applications in order to judge the effectiveness of the approach and the need for subsequent modifications. The first six-month phase will begin upon signature by the member agencies, and the member agencies will use the results of the first phase to reevaluate DMMO tasks as well as agency responsibilities, consistent with management plan alternatives selected in the EIS/EIR for the LTMS program. It is envisioned by the member agencies that more tasks will be added to the DMMO over time as the effectiveness of the DMMO is demonstrated. These tasks could include joint agency sediment-suitability decisions, processing of all dredging and disposal permit applications and Corps civil work dredging and disposal projects, and establishing a database of sediment test results.

a. During the first six-month phase, the following conditions will apply:

   1. The COE will undertake the role of host agency.

   2. The DMMO will process all maintenance dredging and disposal permit applications.

   3. COE civil works projects, navigation improvements, etc., shall not be processed through the DMMO.

   4. Large new-work dredging and disposal projects and projects where dredging and disposal is a minor part of the project (as determined on a case-by-case basis) will not be processed through the DMMO.

   5. Each member agency will issue sediment suitability recommendation letters.

b. During the second six-months phase, the above conditions will apply with the following changes:

   1. COE civil works projects, navigation improvements, etc., shall be processed through the DMMO consistent with the procedures contained in this MOU, however the Corps will not submit a formal DMMO application form and DMMO approval letters will not be written for COE projects. Results of DMMO deliberations will be documented in the meeting minutes.

   2. The Development and implementation of the web page and associated database will

occur during this period.

c. A third phase of the pilot program, will be initiated following the completion of the first two phases. This third phase will begin with the signing of the revised MOU at the end of the second phase and will last for a one year period. During the one-year third phase, the above conditions will apply with the following changes:

   1. The DMMO will consider the review of dredging projects where upland/reuse of dredged material is among the range of disposal alternatives. Where the DMMO determines that such a project may proceed more rapidly through the permitting process under existing administrative agency processes, such as the COE Nationwide Permit authorization, the proposed project would not be processed through the DMMO. However, applicants proposing dredging projects that include upland disposal/reuse of dredged material may still use the DMMO application form. The DMMO agencies will be notified by the host agency of any dredging project involving upland disposal/reuse and the process proposed to be use to process the application.

After the completion of each pilot phase, the member-agency staffs will prepare a report to the Dredging Management Committee on the progress and success of the DMMO. The reports will contain an analysis of problems and issues and recommendations for further actions. Within one month of receipt, the DMC shall review the progress reports, decide whether to continue with the DMMO, and revise, as necessary, the conditions under which the office will operate.

The next phase of the pilot program will implement the DMMO subject to the revisions, if any, approved by the DMC.

At the end of the Pilot program the DMC will initiate whatever changes are needed to implement a permanent DMMO, based on the findings and recommendations of the three reports prepared by member agency staff.

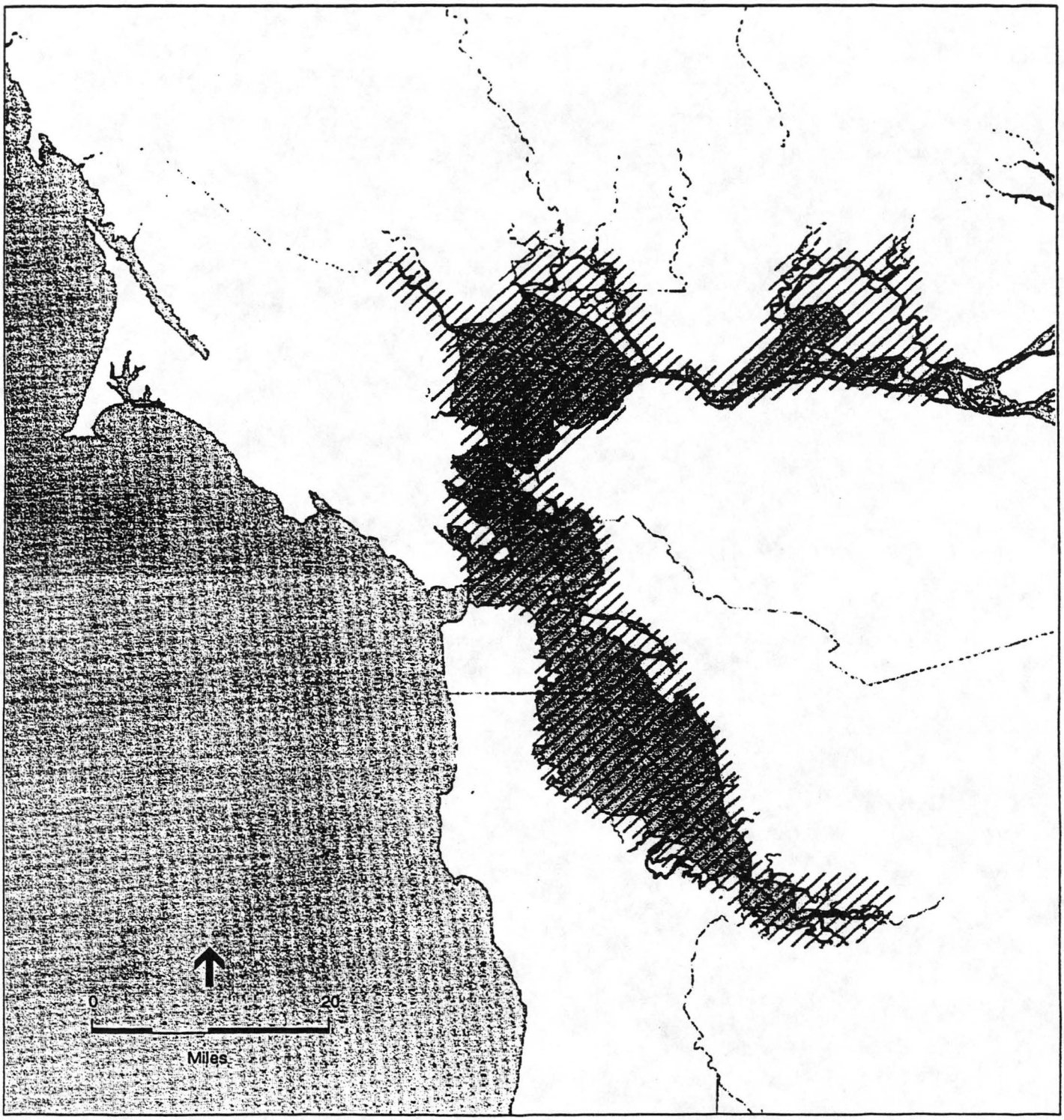
This MOU is intended to remain in effect for as long as it continues to serve the purpose and objectives defined herein, subject to the following conditions:

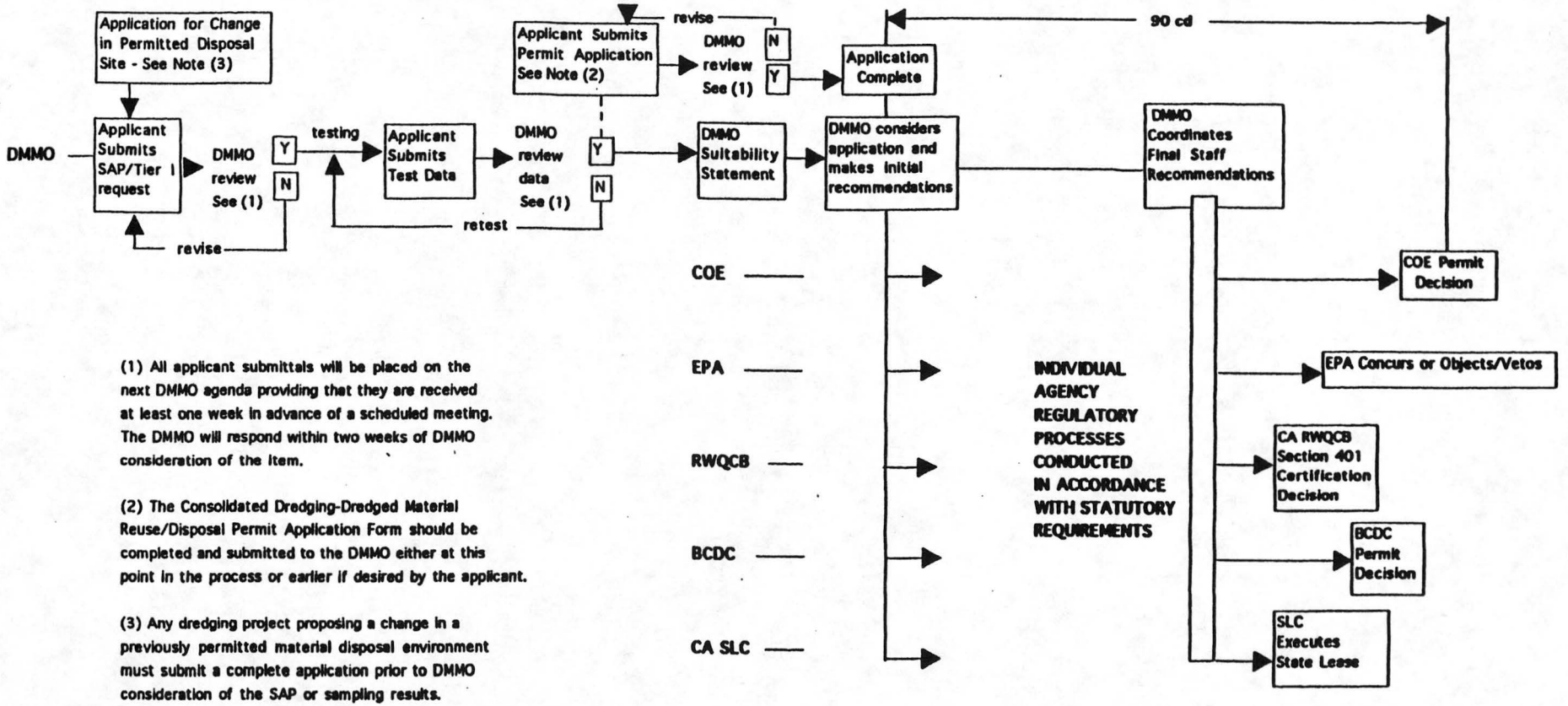
a. This MOU may be modified or amended by mutual consent of the signatories to this agreement or their designees. All such changes shall be documented by written agreement.

b. Any of the agencies may terminate this MOU thirty (30) days after giving formal written notice of intent to terminate.

SOURCE: BCDC, 1997

Pilot Dredged Material Management Office (DMMO) Geographic Area





(1) All applicant submittals will be placed on the next DMMO agenda providing that they are received at least one week in advance of a scheduled meeting. The DMMO will respond within two weeks of DMMO consideration of the item.

(2) The Consolidated Dredging-Dredged Material Reuse/Disposal Permit Application Form should be completed and submitted to the DMMO either at this point in the process or earlier if desired by the applicant.

(3) Any dredging project proposing a change in a previously permitted material disposal environment must submit a complete application prior to DMMO consideration of the SAP or sampling results.

cd = calendar days

DMMO -	Dredge Materials Management Office
COE -	Corps of Engineers
EPA -	U.S. Environmental Protection Agency
RWQCB -	CA Regional Water Quality Control Board
BCDC -	San Francisco Bay Conservation and Development Commission
CA SLC -	CA State Lands Commission
SAP -	Sampling and Analysis Plan

13. **Effective Date**. This revised MOU is effective immediately after execution by all the signatories.

WILL TRAVIS
San Francisco Bay Conservation & Development Commission

MARCH 6, 1998
(date)

ALEXIS STRAUSS
U.S. Environmental Protection Agency

6 March 1998
(date)

LT. COL. RICHARD G. THOMPSON
U.S. Army Corps of Engineers

6 MARCH 1998
(date)

LORETTA BARSAMIAN
Regional Water Quality Control Board
San Francisco Bay Region

March 6, 1998
(date)

for ROBERT C. HIGHT
State Lands Commission

7 March 9, 1998
(date)

CONSOLIDATED DREDGING-DREDGED MATERIAL REUSE/DISPOSAL PERMIT APPLICATION FORM

(Revised December 1997)

CONSOLIDATED DREDGING-DREDGED MATERIAL REUSE/DISPOSAL APPLICATION

(Please completely follow instructions provided with application) [rev 12/97]

SECTION I - GENERAL INFORMATION

1. APPLICANT INFORMATION

☐ Individual ☐ Legal Entity ☐ Government ☐ Non-profit

Applicant Name: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Phone: a. Residence ( ) _____ - _____

b. Business ( ) _____ - _____

Applicant Business Type - Check One If Applicable (See Instructions) ☐ Sole Proprietorship

☐ Partnership ☐ Corporation ☐ Government Agency ☐ Other Association

Description _____

_____

_____

2. REPRESENTATIVE INFORMATION

Applicant's authorized agent, point of contact and/or representative ☐ None

Name, Title: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Phone: ( ) _____ - _____

I hereby authorize _____
to act as my representative and bind me in all matters concerning this application.

_____ _____

Signature of Applicant Date

Who should receive correspondence relevant to this application?

☐ Applicant ☐ Representative ☐ Both

FOR DMMO OFFICE USE ONLY: Data Base Entry ☐ Yes ☐ No

Date Received: _____ COE No. _____

Date Complete: _____ BCDC No. _____

SAP Approved: _____ RWQCB No. _____

Data Submitted: _____, Approved: _____ SLC No. _____

"This application shall serve as, and be functionally equivalent to, a Report of Waste Discharge, pursuant to Sections 13260, 13374 and 13377 of Article 4, Chapter 4 of the Porter-Cologne Water Quality Control Act."

SECTION II - PROJECT INFORMATION

3. DREDGING PROJECT

Project Name or Title: _____

Type of Dredging Project: ☐ Maintenance ☐ New Work (see instructions)

☐ Single Episode ☐ Multi-Epsidoe

Project Description: _____

_____

_____

_____

Project Need and/or Purpose: _____

_____

_____

_____

Month and year work is proposed to begin: _____, complete: _____

Estimated total project cost: _____

Project Location:

County: _____ Nearest City: _____
Latitude(s): _____ Longitude(s): _____
Waterway: _____

Proposed type of equipment to be used: _____

_____

Will the project result in the construction of temporary or permanent structures or other than normal dredging equipment ? ☐ Yes ☐ No If Yes, describe _____

_____

Depth of dredging based on Mean Lower Low Water datum (MLLW): (Existing depth _____)

Proposed design depth _____
Over/depth tolerance _____
Proposed total depth _____

Volume of material to be dredged: _____ cy, area of dredging _____ acres

Type(s) of substrate being dredged: ☐ Sub-tidal Bottom ☐ Mudflat ☐ Wetlands

☐ Other (explain): _____

Does the project involve activities within the Suisun Marsh Protection Zone ? ☐ Yes ☐ No If Yes, complete Box 7

Please list agency and identification numbers of any previous permits for this activity:

_____

_____

_____

SECTION III - DISPOSAL SITE INFORMATION

4. DIRECTIONS (Please answer all questions)

Does the project involve unconfined aquatic disposal ? ☐ Yes ☐ No
If Yes complete box 5

Does the project involve upland, wetland or reuse disposal ? ☐ Yes ☐ No
If Yes complete box 6

Does the project involve disposal within the Suisun Marsh Protection Zone ? ☐ Yes ☐ No
If Yes complete box 7

5. AQUATIC DISPOSAL

Site: ☐ SF-9 (Carquinez Strait) ☐ SF-10 (San Pablo Bay)

☐ SF-11 (Alcatraz) ☐ SF-DODS (Deep Ocean Disposal Site)

☐ Other (Explain): _____

Note: Disposal at other aquatic sites without prior authorization is prohibited, separate authorization will be required to use such sites (see instructions)

6. PROPOSED UPLAND, WETLAND OR REUSE DISPOSAL SITE INFORMATION

Site Name: _____

Site Description (see instructions): _____
_____
_____
_____

Site Address: _____
City: _____ State: _____ Zip: _____
Latitude(s): _____ Longitude(s): _____ Zoning: _____

Owner's Name: _____
Mailing Address: _____
City: _____ State: _____ Zip: _____
Phone: ( ) _____ - _____

Does project affect jurisdictional wetlands ? ☐ Yes ☐ No If Yes, give name and permit number of approved wetland project where material will be placed: _____
_____
_____

USACE0006786

SECTION III - DISPOSAL SITE INFORMATION (CONTINUED)

6. CONTINUED

Is the site an existing site that regularly receives dredged material: ☐ Yes ☐ No

Year site was last used for dredged material disposal: _____

Will the dredged material be sold or used for private purposes? ☐ Yes ☐ No

If Yes, annual income received or projected: _____

If projected please show basis of projection (see instructions): _____

_____

_____

Anticipated volume (in-place) of dredged material to be disposed: _____ cu. yds.

Will the disposal result in the construction of temporary or permanent structures or the use of other than normal dredged material disposal equipment ?

☐ Yes ☐ No

If Yes, describe: _____

_____

Will the proposed disposal affect existing public access or public recreational facilities ?

☐ Yes ☐ No

If Yes, describe how impacts would be mitigated: _____

_____

_____

7. SUISUN MARSH DEVELOPMENT INFORMATION

ID number(s) of any previous local marsh development permit(s) issued for work at this site:

_____ ☐ None

Duck Club number(s) _____ ☐ None

If Yes, is the project consistent with the individual management plan for the property certified by the San Francisco Bay Conservation and Development Commission ? ☐ Yes ☐ No

If No, submit an explanation of how the project can be approved despite the inconsistency.

SECTION IV - OTHER REQUIRED INFORMATION

8. ENVIRONMENTAL APPROVALS

a. Has an EIR or an EIS been prepared for the project? ☐ Yes ☐ No

b. Is the project categorically exempt from the need for any environmental documentation? ☐ Yes ☐ No
If "Yes" attach a statement from the lead agency supporting this categorical exemption

c. Was an EA prepared for previous dredging at this site? ☐ Yes ☐ No

d. If (a) is No, will an EIR or be prepared ? ☐ Yes ☐ No

e. If (d) is No, has a negative declaration been prepared (or is one being prepared)? ☐ Yes ☐ No

f. If (d or e) is Yes, please answer the following:

(1) Who will prepare the EIR or negative declaration ? _____

_____

(2) Approximate date of completion: _____

g. Provide a copy of the project environmental documentation with your application

9. OTHER APPROVALS (see instructions)

CA DEPARTMENT OF FISH AND GAME - 1601 & 1603 Approval ☐ None Required

Number	Date of Application	Date of Issuance

LOCAL GOVERNMENT APPROVALS ☐ None Required

Approving Agency	Type of Approval	Date of Approval	Local Contact and Phone

10. DISCLOSURE OF CAMPAIGN CONTRIBUTIONS

Disclose any campaign contributions in excess of $250 to officials of the agencies using this application form: ☐ No such campaign contributions have been made

Contribution Made To:	Contribution Made By:	Date of Contribution:

11. ADJOINING PROPERTY OWNERS

Provide addresses of property owners, lessees, etc., whose property adjoins the project and disposal site (disposal site information not required for the designated aquatic sites). If more than can be entered here, please attach a supplemental list:

12. CHECKLIST OF ADDITIONAL INFORMATION TO BE SUBMITTED

	Complete and attached	or	Expected Submission Date
Sampling & Analysis Plan (SAP):	☐	☐	_____
Testing Data:	☐	☐	_____
Calculations:	☐	☐	_____
Organizational Document	☐	☐	_____
Environmental Document	☐	☐	_____
Drawings and Maps:	☐	☐	_____
Proof of Legal Interest	☐	☐	_____
Statement of Consistency	☐	☐	_____
Fees	☐	☐	_____
BCDC Posting Certification	☐	☐	_____

13. CERTIFICATION OF ACCURACY OF INFORMATION

I hereby certify under penalty of perjury that to the best of my knowledge the information in this application and all attached exhibits is full, complete, and correct, and I understand that any misstatement or omission of the requested information or of any information subsequently requested shall be grounds for denying the permit, for suspending or revoking a permit issued on the basis of these or subsequent representation, or for the seeking of such other and further relief as may seem proper to the permitting agencies.

_____ _____

Signature of Applicant or Applicant's Representative Date

CONSOLIDATED DREDGING-DREDGED MATERIAL REUSE/DISPOSAL PERMIT APPLICATION FORM INSTRUCTIONS

(Revised December 1997)

Instructions for Preparing the Consolidated Dredging-Dredged Material Reuse/Disposal Application

[rev 12/97]

A pilot inter-agency Dredge Material Management Office (DMMO) has been established to simplify the dredging approval process in the San Francisco Bay region. The Consolidated Dredging-Dredge Material Reuse/Disposal Application is part of this process and is the only application that you need to complete for most proposed dredging projects in the San Francisco Bay area. The application is accepted for Section 404 and/or Section 10 dredging authorization by the San Francisco District of the Corps of Engineers, for an administrative San Francisco Bay Conservation and Development Commission dredging authorization, the application shall serve as, and be functionally equivalent to, a California Regional Water Quality Control Board, Report of Waste Discharge, pursuant to Sections 13260, 13374 and 13377 of Article 4, Chapter 4 of the Porter-Cologne Water Quality Control Act and for dredging project leases from the California State Lands Commission.

These instructions are intended to assist you in the preparation of the Consolidated Dredging Application. The application form is divided into four sections. Section I covers the general information that is needed for all applications, Section II covers the specific details of the proposed dredging project, Section III covers the proposed dredge disposal site, and Section IV covers other required information.

These instructions also provide guidance on the types and format of drawings and other information that must accompany the completed application.

SECTION I

Box 1. Applicant Information: Enter the name of the responsible party or parties. If more than one party is associated with the application, please attach a sheet providing the same information for co-applicants (marked Box 1).

If the applicant is a partnership, corporation, government agency or other association, evidence must be provided to ensure that the person who signs the application is empowered to represent and make commitments on behalf of the organization submitting the application. To accomplish this, such applications must include either a resolution authorizing the person who signs the application to represent and bind the applicant or bylaws that establish that the person who signs the application holds a position that is empowered to act on behalf of the legal entity. Corporate resolutions must be from the corporation's board of directors. Public agency resolutions must be from the city council, board of supervisors or similar highest policy body which governs the organization. Space is provided to describe the nature of the empowerment if necessary.

Box 2. Representative Information: Sometimes an applicant, owner or co-applicant is represented by another person who handles the details of securing the required approvals for the project. If this is the case, indicate the name of the individual or agency, designated to be the representative for the project. An agent can be an attorney, builder, contractor, consultant or any other person or organization. Note: An agent is not required. If the applicant, owner or co-applicant is represented by someone else, the applicant must complete and sign the authorization portion of Box 2. If a representative is authorized, please indicate who should receive correspondence regarding the application.

SECTION II

Box 3. Dredging Project: This section must be completed by all applicants.

Project Name and Title - Please provide name identifying the proposed project.

Type of Dredging Project - Please place a check in the box indicating whether the project is maintenance dredging or a new work dredging project and also indicate in the appropriate box whether the project is a single episode or multi-episode (year) project.. [Note: new work projects involving over 100,000 cubic yards in 30 months, or any disposal project requesting authorization for more than 30 months time period, cannot be processed as administratively by the San Francisco Bay Conservation and Development Commission (BCDC) and should not applied for using this consolidated form. A standard BCDC application is required.]

Project Description - Briefly describe the overall activity or project. If additional space is needed use a continuation sheet marked Box 4.

Project Need and/or Purpose - Provide a brief description of the major purposes that the project will serve or the needs that will be met through accomplishment of the project (e.g. deepening a navigational channel, extracting sand, constructing a marina, etc.). Use continuation sheet marked Box 4, if necessary.

Date work is proposed to begin and be completed - Based on an estimate of how long it will take to get all the necessary approvals, financing, and other preliminary work, indicate the month and year when the work to be authorized is proposed to begin. In addition, based on a realistic construction schedule indicate the month and year when the work is proposed to be completed.

Estimated total project cost - Provide an estimate of the cost of the complete dredging and disposal project being proposed.

Project Location - Please provide the name of the county where the dredging project is located and the city nearest the project. Provide the latitude(s) and longitude(s) of the dredging site and identify the waterway in which it is located (e.g. San Pablo Bay, Petaluma River, etc.).

Type of dredging equipment - Describe the type of equipment to be used to accomplish the dredging (e.g. clamshell, hydraulic, barge size, etc.). If the project will involve the construction of temporary or permanent structures or utilize other than normal dredging equipment please indicate and describe.

Depth of dredging - Provide the existing and proposed design depths, over/depth tolerance and total depth of dredging for the project in terms of Mean Lower Low Water (MLLW) datum.

Total volume - Please provide an estimate of the total volume of material to be dredged in cubic yards.

Area of dredging site - Provide an estimate of the total acreage of the dredging site.

Type of substrate - Please check the appropriate box if sub-tidal bottom (normal S.F. Bay bottom), mudflats or wetlands are involved and provide a brief description of any other types of substrate (bottom) areas being dredged.

Suisun Marsh - If the dredging site is located within the Suisun Marsh protection zone please indicate and be sure to complete Box 7 of the application. If you are unsure, contact the San Francisco Bay Conservation and Development Commission.

Previous authorizations - Please provide the identification number of any previous authorizations for this dredging activity and the issuing agency. It is often possible to amend an existing approval rather than process a new application and it is helpful to agency analysts to refer to previous approvals.

SECTION III

Box 4. Directions: The purpose of this box, all questions of which must be completed by all applicants, is to serve as a guide that determines what disposal site elements of the application form must be completed for your project. Each of the three questions needs a "Yes" of "No" answer. There may be "Yes" answers to more than one of the questions and the question directs the box to be completed for a "Yes" answer. If a question is answered "No" the box shown as related to that question may be skipped.

Box 5. Aquatic Disposal: Only four sites are currently authorized for unconfined aquatic disposal in the San Francisco Bay region: S.F.- 9 (Carquinez Strait); S.F. -10 (San Pablo Bay); S. F. -11 (Alcatraz) and; S.F. - DODS (Deep Ocean Disposal Site). If one of these disposal sites is proposed to be used for the project mark that box. [Note: any dredging project that proposes a change in a previously authorized material disposal environment, must submit a complete DMMO application prior to SAP approval. Such projects may need to be reviewed by the Dredging Management Committee which will provide management direction to the DMMO]. If you are uncertain about the location or limitations on the use of any of these sites contact the Dredge Material Management Office, or the Corps of Engineers.. If the project proposes any form of aquatic disposal other than the use of these designated sites please provide a complete description of the proposed site and method of disposal, use a continuation sheet marked Box 6 if necessary. [Note: it is likely that separate authorization will be necessary to use such sites and that individual applications to the regulatory agencies for such authorization will be required.]

Box 6. Proposed Upland, Wetland or Reuse Disposal Site Information: This box is to be completed if the disposal of dredged material is proposed for other than aquatic disposal.

Site Name - Please provide the name of the proposed disposal site.

Site Description - Provide a brief description of the existing condition of the proposed disposal site, including the present elevations, current vegetation, existing structures and use of the site. Use a continuation sheet marked Box 6, if more space is needed.

Site Address - Provide the most accurate address possible for the disposal site including a street address if one exists. Please provide latitude(s) and longitude(s) for the site and the current zoning designation. If the zoning is not known, it can usually be obtained from the county or city planning office.

Owners Name and Address - Please provide the name and address of the owner of the property on which the proposed disposal site is located.

Jurisdictional Wetlands - Please indicate by marking the appropriate box, whether the disposal will affect any delineated jurisdictional wetlands. If the disposal is a proposed at an approved wetlands project site, give the name and authorization number of the site. [Note: separate authorization involving individual applications to the regulatory agencies will be required for the dredging project if the wetlands disposal site is not already authorized.]

Existing disposal site: - Indicate if the proposed disposal site is an existing, established disposal site that regularly (or periodically) receives dredged material.

Site last used - If the proposed disposal site has been used previously for the disposal of dredged material, please give the year of the most recent disposal episode.

Disposal site income - If income is produced from the disposal or sale of dredged material at the proposed site, please indicate and provide an estimate of actual or projected annual income. If the annual income is projected show the basis of that projection (e.g. per cubic yard, etc.)

Anticipated volume - Provide an estimate of the total in place volume of the dredged material to be placed at the disposal site by the proposed project.

Type of disposal equipment - Describe the type of equipment to be used to accomplish the disposal. If the project will involve the construction temporary or permanent structures (eg: levees) or utilize other than normal disposal equipment please indicate and briefly describe.

Public access/recreational facilities - Please check if the disposal project will affect existing public access or public recreational facilities. If yes, describe how the project proposes to mitigate those impacts.

Box 7. Suisun Marsh Development Information: Several items are unique to dredging activities that occur with the Suisun Marsh Protection Zone. In this box provide the requested information on local marsh development permits and duck club numbers. Be sure to check "None" if it applies. If your project occurs in the Suisun Marsh area and you are unsure whether it is consistent with the individual management plan for the property, you are advised to consult with the San Francisco Bay Conservation and Development Commission.

SECTION IV

Box 8. Environmental Approvals: The California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) require that the environmental impacts of a proposed project be addressed before any authorization. The purpose of this box is to learn the status of the required environmental approvals. [Note: (1) a copy of the project's environmental documentation should be included with the application submittal; (2) an application may not be filed as complete until environmental compliance is assured.]

(a) EIR and/or EIS - If an Environmental Impact Report (EIR - CEQA) and/or an Environmental Impact Statement (EIS - NEPA) related to dredging in this location has ever been prepared please indicate on the form.

(b) Categorically Exempt - Normally maintenance dredging is found to be categorically exempt from CEQA requirements. If the project is for maintenance dredging and is known to be covered by the exemption please check "Yes" in the appropriate location on the form and attach documentation from the lead agency.

(c) Environmental Assessment (EA) - If the site has been dredged previously and a NEPA EA prepared, please indicate on the form and provide a copy.

(d) EIR Preparation - If no environmental document has been completed, but it is known that an EIR will be prepared to respond to CEQA please note by checking "Yes" and providing the information requested in question (f) of Box 8.

(e) Negative Declaration - In some instances a Negative Declaration or a finding of no significant impacts is sufficient to respond to CEQA. If a Negative Declaration has been prepared for the proposed project check "Yes" and include a copy. If one is under preparation please complete question (f) in Box 8.

(f) Preparer - Generally, a local government is the "lead agency" under CEQA and completes the environmental requirements for projects under its jurisdiction. If

CEQA environmental documents are under preparation, please indicate the entity that is preparing them and provide an estimated date of completion.

(g) Copies - As noted above, please provide copies of the project's environmental documentation.

Box 9. Other Approvals: Other state and local approvals may be required for a dredging project. Please provide verification of contacts with other agencies to determine if other approvals are (are not) required.

CA Department of Fish and Game - The California Department of Fish and Game (DFG), under the Fish and Game Code, Sections 1601 and 1603, regulates changes made to the bed, channel or banks of streams or rivers. Dredging proposals within the greater San Francisco Bay area that occur on the periphery of the tidally-influenced Bay, but which also are within well defined rivers and streams are subject to these mutual agreements (commonly called Streambed Alteration Agreements) between DFG and the project applicant. The jurisdictional boundaries for areas needing such agreements are defined by DFG. If you are unsure if your project is subject to the need for a 1601 or 1603 agreement you are advised to consult with DFG to determine if the project and/or disposal site falls within their jurisdiction.

Local Government Approvals - If local approvals are required they should be listed on the form. Indicate the name of the approving agency and the type of discretionary approval that is required. Also provide the date of approval and a local contact person and phone number. Note that some state agencies require the issuance of all required local approvals prior to initiating action on permit applications. Early consultation with agencies is recommended.

Box 10. Disclosure of Campaign Contributions: Any campaign contributions in excess of $250 to officials (including commission members) of the regulatory agencies using this consolidated form must be disclosed. If no contributions have been made please indicate by checking the box.

Box 11. Adjoining Property Owners: List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the dredging and disposal sites so that they may be notified of the proposed activity (usually by public notice). Adjoining owner information is not required for use of the designated disposal sites. Use a continuation sheet if necessary.

Box 12. Checklist of Additional Information to be Submitted: This box identifies other information that is required before your dredging application can be accepted as complete and processing of the application initiated. Please indicate by checking in the appropriate box if the material indicated is complete and attached to the application package. If the material is not complete please indicate the expected submission date on the application form. [Note: See directions for Drawings, Submittals, Application and Processing Fees at the end of these instructions.]

Sampling & Analysis Plan (SAP) - You are required to develop a biological and/or chemical testing plan in accordance with the Corps, San Francisco District Public Notice 93-2 (1 February 1993) or appropriate ocean or inland testing protocol. You should initiate consultation with the DMMO as early as possible in the planning of your dredging project to develop an acceptable

sampling and analysis plan. A hydrographic survey of the dredging site, conducted within the preceding 90 days is necessary to initiate the development of the SAP. The area to be dredged must be clearly delineated on the survey.

Testing Data - When the sampling conducted in accordance with the SAP is complete, preparation and submission of the testing data is required for your consolidated dredging permit application package to be accepted as complete. To be considered valid, the testing of a proposed dredge site must have occurred within one year of the date of submittal of the application.

Calculations - Provide one copy of the computations used for the determination of the quantities to be dredged.

Organizational Documentation - See instructions for Box 1.

Environmental Documentation - See instructions for Box 8.

Drawings and Maps - See special instructions.

Proof of Legal Interest - It is necessary for the applicant or the land owner to have adequate legal interest in the underlying property to carry out the project and comply with any conditions that may be part of approval. This legal interest must be either through fee interest, an easement, a leasehold, an option or eminent domain. Proof of legal interest is needed for the dredging site and disposal sites, if disposal is proposed at other than the designated aquatic sites. To demonstrate legal interest, it is necessary to submit a property map and a recently issued title report or grant deed, including a metes and bounds description, or other information of similar accuracy and reliability to show that the applicant holds legal interest in the project site.

Statement of Consistency - Please provide a brief explanation of your projects consistency with the policies regarding dredging and disposal in the San Francisco Bay Area. To do this, describe if upland disposal alternatives were considered and if aquatic disposal is proposed, explain how the project relates to limiting disposal site quantities and timing for aquatic resource protection. Also, use this opportunity to explain how your project complies with the BCDC Bay Plan.

Box 13. Certification of Accuracy of Information: This box which certifies the accuracy of the information provided in the application form, must be signed by every applicant or their representatives who have been legally authorized to act on behalf of the applicant. The signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

DIRECTIONS FOR DRAWINGS, SUBMITTALS, APPLICATION AND PROCESSING FEES

Drawings and Maps - General instructions are provided for the drawings and maps to support a dredging permit application. Additional detail regarding this subject can be found in the Application Information Booklet (EP 1145-2-1) available from the Corps of Engineers and the General Application Instructions available from the San Francisco Bay Planning and Development Commission.

Three types of illustration are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View and a Typical Cross-Section. Identify each illustration with a figure number.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view or cross-section). Each illustration should also have at least a one-half inch margin on each side, a north arrow, vertical and horizontal scales shown, datum given and be dated.

Both the area to be dredged and the disposal area should be identified and shown on the illustrations. The illustrations should also show testing locations, depths of dredging, and the locations of any adjacent structures (piers, wharfs, etc.).

All illustrations should be legible and on good quality 8 1/2 x 11 inch plain white paper (tracing paper or film may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations. [Note: While illustrations need not be professional, they should be clear, accurate and contain all necessary information.]

Submittal - If desired, one copy of the completed application form, drawings and testing data may be submitted directly to each of the DMMO participating agencies whose contact names and addresses are provided in these instructions (all other checklist documents are only required to be submitted to BCDC and the Corps) or alternately, six copies of the completed application form, drawings and testing data (and two copies of the supplemental documents) may be submitted to the attention of Mr. David Dwinell, Construction-Operations Division, San Francisco District, Corps of Engineers, 333 Market Street, San Francisco, CA 94105-2197.

Application and Processing Fees - Each of the regulatory agencies participating in the DMMO and accepting the Consolidated Dredge Application has their own unique fee structure and should be provided directly to that agency.

> The Corps of Engineers does not require the submittal of a fee with the application. At the time of issuance the Corps requires a fee of $10 for a private party, $100 for a commercial project and no fee for a public agency project.
>
> The fee schedule for the San Francisco Bay Conservation and Development Commission is attached.
>
> The fee schedule for the CA Regional Water Quality Control Board is attached. The Regional Board's upland disposal annual fee is decided on a case by case basis according to a fee schedule based on the "threat to water quality and complexity". Currently these fees range from $500 to $10,000 per year.
>
> The California State Lands Commission requires submittal of an $825 reimbursable agreement for staff time involved in processing dredging project leases.

BCDC Notice of Application Form - The applicant must complete the attached BCDC Notice of Application and place it in a prominent location at or near the project site so that it will be visible to members of the public. The applicant must then complete and sign the attached Certification of Posting form and return it directly to BCDC at the address shown.

DMMO Participating Agencies and Staff Contacts:

David Dwinell, DMMO Coordinator
Construction-Operations Division
San Francisco District
Corps of Engineers
333 Market Street — Phone (415) 977-8471
San Francisco, CA 94105-2197 — FAX (415) 977-8483

Rob Lawrence, Regulatory Dredging Manager
Corps of Engineers
Regulatory Branch
San Francisco District — Phone (415) 977-8447
333 Market Street, Suite 812 — FAX (415) 977-8483
San Francisco, CA 94105-2197

Jack Gregg
CA Regional Water Quality Control Board
San Francisco Bay Region — Phone (510) 286-1199
2101 Webster Street, Suite 500 — FAX (510) 286-0928
Oakland, CA 94612

Erika Hoffman
U.S. Environmental Protection Agency
Region IX — Phone (415) 744-1986
75 Hawthorne Street — FAX (415) 744-1078
San Francisco, CA 94105

Eric Larson
S. F. Bay Conservation and Development Commission
Thirty Van Ness Ave., Suite 2011 — Phone (415) 557-3686
San Francisco, CA 94102-6080 — FAX (415) 557-3767

Mary Howe
State Lands Commission
Division of Land Management — Phone (916) 574-1839
100 Howe Ave., Suite 100-South — FAX (916) 574-1925
Sacramento, CA 95835-8202

CALIFORNIA
PETE WILSON, Governor

ORNIA REGIONAL WATER QUALITY CONTROL BOARD
NCISCO BAY REGION
STER STREET, SUITE 500
CA 94612
1255

FEE SCHEDULE FOR CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION

Pursuant to a memorandum from the State Water Resources Control Board dated 2/23/94, the following are the fees for Regional Board water quality certification and waivers. The authority for issuance of water quality certification is found in the Clean Water Act Section 401(a)(1). Water quality certification may be waived for projects involving less than two acres of fill or less than 50,000 cubic yards of dredging. The fees for waiver or certification are listed below.

1. Waiver of Water Quality Certification for fill (up to 2 acres):

   - Processing cost of $50/hr (staff costs) up to a maximum of $1000/acre
   - Minimum waiver fee is $500

2. Water Quality Certification for fill:

   - One acre or less, flat fee of $1000
   - More than one acre, $1000 per acre or part thereof, up to a maximum of $10,000

3. Fees for Dredging (waiver or certification)

   - Less than 10,000 cubic yards, flat fee of $500
   - 10,000 to 20,000 cubic yards, flat fee of $1000
   - More than 20,000 cubic yards, $2000 plus $250 for each additional 5,000 cubic yards or part thereof (up to maximum of $10,000)

The authority to collect fees is found in the California Code of Regulations, Section 3833(b). The fee schedule for discharges of dredged and fill material is found in California Code of Regulations, Title 23, Section 2200. Section 2200(h) provides authority to charge for issuing waivers of certification at the rate of $50.00 per hour of staff time invested.

SPECIAL INSTRUCTIONS: Processing Fees

Fees are charged to cover a small portion of the cost of processing an application. The amount of the fee is based on the project's location and the *total project cost*. The accompanying table indicates the most common categories of fees. Fees for projects that fall into two or more categories are based on the fee for the highest category, not the total of all categories. Fees for emergency permits are the same as fees for ordinary projects. Fees for material amendments are the same as the fees for new projects. Fees for applications arising from enforcement investigations are double the cost of normal fees. [California Code of Regulations, section 10337]

None of the fees can be waived for any reason. Refunds of a portion of a permit fee can be made if an application is withdrawn. The amount of the refund depends on the type of authorization applied for and when the application is withdrawn. [California Code of Regulations, section 10335]

If the Commission serves as the "lead agency" under the provisions of the California Environmental Quality Act, an additional fee of $300 is charged for analyzing, processing and distributing environmental documents. In addition, another $500 fee is charged if an environmental assessment must be prepared. The applicant may be required to pay the cost of retaining consultants if the Commission's staff determines that specialized information is needed to complete the required environmental analysis of a project. If an EIR must be prepared for the Commission either by its staff or a consultant, the cost of this work must be paid by the applicant. [California Code of Regulations, section 11540 et seq]

If there is any question about the amount of the fee that must be paid to process an application, this matter should be discussed with the Commission's staff before submitting the application. An application cannot be officially filed until the proper processing fee is received by the Commission.

FEE SCHEDULE*

☐ The first time extension to a permit:	$50
☐ A nonmaterial amendment to a permit other than a first time extension:	$100
☐ An activity authorized by a regionwide permit:	$100
☐ A minor repair or improvement with a total project cost (TPC) of:	
• Less than $300,000	$150
• $300,000 to $10,000,000	.05% of TPC
• More than $10,000,000	$5,000
☐ Any other project that does not qualify as a minor repair or improvement with a total project cost (TPC) of:	
• Less than $250,000	$250
• $250,000 to $10,000,000	.1% of TPC
• More than $10,000,000	$10,000
☐ Federal consistency submittal:	none

*All fees are doubled for "after-the-fact" applications to correct violations.

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
Thirty Van Ness Avenue • Suite 2011 • San Francisco, California 94102 • (415) 557-3686

NOTICE

DATE POSTED: _____ 19 ____

NOTICE IS HEREBY GIVEN THAT

_____

HAS SUBMITTED AN APPLICATION TO THE
SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
REQUESTING A PERMIT TO (brief description of work and uses)

AT A PROPERTY KNOWN AS (address or other property description)

Persons interested in the project proposed in the application may request further information and notice of any hearings by writing to the Commission at Thirty Van Ness Avenue, Suite 2011, San Francisco, California 94102, or by telephoning (415) 557-3686. The application and any supplementary materials may be reviewed at the Commission's offices immediately.

BCDC PERMIT APPLICATION NO.
( )

CERTIFICATION OF POSTING OF NOTICE

San Francisco Bay Conservation
and Development Commission
Thirty Van Ness Avenue, Suite 2011
San Francisco, California 94102

RE: _____

(brief description of project)

I, _____

(name of applicant or agent)

hereby certify that on _____.
(date)

I or my agent or employee posted in a prominent location at or near the project site the Notice of Application provided by the San Francisco Bay Conservation and Development Commission.

Date: _____ By: _____
(Signature)

Title: _____
(Title)