

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0027

FOR
RECLAMATION DISTRICT NUMBER 800
DISCOVERY BAY MAINTENANCE DREDGING
CONTRA COSTA, COUNTY

This monitoring program includes pre-dredge sediment and elutriate analysis, dredge site monitoring, effluent (return-water) monitoring and receiving water monitoring.

PRE-DREDGE SEDIMENT AND ELUTRIATE MONITORING

For evaluating the applicability of the dredge material for upland disposal, metal constituents and pH shall be measured after performing a Title 22 Waste Extraction Test (WET) procedure. The WET procedure will be modified to use deionized water. Another extraction procedure may be used with approval by the Executive Officer. A Modified Elutriate Test (MET)(USACOE Tech Note EEDP 04-2) shall be performed on representative sediment samples to evaluate the applicability of the effluent discharge and the potential dredge site impacts. The supernatant from the MET shall be analyzed for the constituents listed in Part 2 of Table A.3. Approved analytical methods are listed in Table 1 below.

Samples shall be collected at the following frequencies: one sample per 12,500 cubic yards or part thereof; one composite sample when proposing to dredge between 12,500 and 25,000 cubic yards (the composite shall consist of sample cores collected at two different sample locations); one composite sample when proposing to dredge between 25,000 and 50,000 cubic yards (the composite shall consist of sample cores collected at three different sample locations).

The sampling and analysis plan for pre-dredge sampling shall be approved by Regional Board staff before samples are taken.

Table 1: Analytical Methods for all samples (certain methods may be reduced if results indicate constituents are non-detect or below levels of concern).

	Sample preparation	Analysis method	
Acid Generating Potential/ Neutralizing Potential		Sobek, A.A. et al., 1978	
WET metals	Waste Extraction Test (deionized water)	Aluminum	6010A
		Arsenic	7062
		Barium	6010B

MET metals	Modified Elutriate Test (USACOE Tech Note EEDP 04-2)	Boron 6010A Chromium VI 7195, 7196, or 7191 Copper 6010B Lead 7421 Mercury 7471A (RL<25 ng/l) Manganese 6010A Nickel 7521 Zinc 6010B Selenium 7740 or 7741
MET OC Pesticides	Modified Elutriate Test	8081A
MET Toxicity Bioassay	Modified Elutriate Test	EPA 600/4-90/027F
MET pH	Modified Elutriate Test	150.1
MET Specific conductivity (EC)	Modified Elutriate Test	2510
Receiving Water Hardness		2340B
MET Tributyltin (filtered)	Modified Elutriate Test	Gas chrom. w/ FPD detect.
MET Oil and Grease	Modified Elutriate Test	5520C/8440

MET: Modified Elutriate Test, U.S. Army Corps of Engineers Tech Note EEDP-04-1,-2,-3,-4
OC: Organochlorine
WET: Waste Extraction Test

Equivalent analytical methods may be substituted with approval of Regional Board staff.

DREDGE SITE RECEIVING WATER MONITORING

Grab samples shall be taken at two depths: 1) five feet below the surface, 2) approximately 2/3 of the distance to the bottom. The two grab samples from each station shall be composited together in equal volumes resulting in one sample from each station for analysis. Water samples shall be taken from the following stations:

<u>Station</u>	<u>Description</u>
R-1	In an area of Discovery Bay undisturbed by the dredging operation, and not to exceed 3000 feet from the dredge.
R-2	within 300 feet of the dredge suction head or clamshell.

Discovery Bay is an environment without significant current, therefore R-1 should be located at a distance that is unaffected by dredging and R-2 shall be taken within 300 feet of the dredge.

Other monitoring points may be required at the dredge site if the predredge analysis shows contaminants of concern that have the potential to cause toxicity at the dredge site.

Samples shall be collected and analyzed from Stations R-1 and R-2 as follows:

<u>Constituent/ analysis</u>	<u>Units</u>	<u>Sampling Frequency</u>
Turbidity	NTUs	Daily
Dissolved Oxygen	mg/l	Daily
Temperature	°F	Daily
Suspended Solids	mg/l	Twice a week
Constituents of concern ¹		To be determined by staff

¹ Constituents of concern will be identified by Regional Board staff after reviewing the pre-dredge sediment and elutriate analysis. The Notice of Applicability will include a list of constituents of concern for monitoring.

DMD SITE EFFLUENT MONITORING

The effluent from the sedimentation basin or Dredged Material Disposal (DMD) sites shall be monitored at the overflow weir or discharge pipe during discharge. The initial set of samples shall be collected within 24 hours of the initiation of discharge. Subsequent samples shall be collected from the effluent discharge and analyzed according to the following schedule:

<u>Constituent/ analysis</u>	<u>Units</u>	<u>Sampling Frequency</u>
Flow	MGD	Daily
pH		Daily
Suspended solids	mg/l	Daily
Turbidity	NTU	Daily
Dissolved Oxygen	mg/l	Daily
Temperature	°F	Daily
DDE	µg/l	Initial discharge/weekly ²
Mercury	µg/l	Initial discharge/weekly ²
Barium	µg/l	Initial discharge/weekly ²
Constituents of concern ³		To be determined by staff

² Should initial sampling and analysis results indicate levels below applicable screening values, the Discharger shall thereafter analyze the effluent for DDE, mercury and barium on a weekly basis.

³ Constituents of concern will be identified by Regional Board staff after reviewing the pre-dredge sediment and elutriate analysis. The Notice of Applicability will include a list of constituents of concern for monitoring.

RECEIVING WATER MONITORING FOR THE DMD SITE DISCHARGE

Grab samples shall be taken at two depths: 1) five feet below the surface of the water, 2) approximately 2/3 of the distance to the bottom. Two grab samples from each station shall be composited together in equal volumes resulting in one sample from each station for analysis. Water samples shall be taken from the following stations:

Dissolved Oxygen Temperature
Turbidity

The following are the "normal" expected turnaround times for laboratory analysis:

Total Suspended Solids	3 days after sample collection
Other analyses	14 days after sample collection

Sample holding times must be observed according to U.S. EPA recommendations. Regional Board staff may ask for shorter turnaround times in cases where there is potential for the effluent to exceed water quality objectives in the receiving water and to impair beneficial uses.

The Discharger shall immediately notify the Board by telephone whenever a violation or adverse condition occurs as a result of the dredging and disposal operation or the discharge of effluent. Written confirmation shall follow within 2 weeks.

If the project is in operation for more than one month, monthly Self Monitoring Reports shall be submitted to Regional Board Staff no more than 15 days after the end of the month. The Self Monitoring Reports shall include:

1. The date, exact place, time of sampling and the name of the person taking the sample.
2. The dates analyses were performed and the name of the person who performed the analyses.
3. Analytical techniques/methods used.
4. Results of the analyses.

The Discharger shall compile and summarize the data from the Self Monitoring Reports and submit an Annual Report to Board staff within 90 days of project completion.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

_____ 31 January 2003 _____
(Date)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0027

WASTE DISCHARGE REQUIREMENTS
GENERAL ORDER

FOR
RECLAMATION DISTRICT NUMBER 800
DISCOVERY BAY MAINTENANCE DREDGING
CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. The Reclamation District No. 800, hereafter referred to as Discharger, have requested General Order Waste Discharge Requirements (WDR) for maintenance dredging activities within Discovery Bay. Under this General Order WDR, the Discharger may remove an initial 153,000 cubic yards of sediment and subsequently up to 50,000 cubic yards of sediments annually from within Discovery Bay.
2. The maintenance dredging activities regulated in this Order include disposal or discharge of dredged sediments into Dredge Material Disposal (DMD) sites, discharges of effluent from the DMD sites into surface water, pre-dredge sampling, and water quality monitoring during dredging operations.
3. Under this Order, maintenance dredging is defined as maintenance of Discovery Bay to a depth of 10 feet for navigation of boat traffic. See attached map for the dredge site locations. This Order will allow for future maintenance dredging activities ensuring hazard free navigation within Discovery Bay. Initial maintenance dredging efforts will remove sediments from the following areas within Discovery Bay:
 - Cabrillo Bay - 14,500 cubic yards
 - Marina Bay - 15,000 cubic yards
 - Shell Bay - 34,000 cubic yards
 - Sand Bay - 71,000 cubic yards
 - Windward Bay - 16,000 cubic yards
 - Kellogg Creek/Indian Slough - 2,500 cubic yards
4. The Discharger must file a separate Notice of Intent and submit a filing fee to the Regional Board for each proposed maintenance dredging project to be eligible for coverage under this Order. The minimum contents of the Notice of Intent are detailed in Attachment "A", Application Requirements, incorporated herein and made part of this Order.

5. The dredging operations primarily involve the use of a pipeline hydraulic suction dredge or a sealed clamshell bucket dredge. Clamshell dredging may be used in limited cases where access is restricted or debris is too large for hydraulic dredging.
6. Following excavation, a pipeline, barge, or hopper dredge will transport the dredged material slurry for settling and disposal onto one of the DMD sites. In the DMD sites, solids settle out, and the “effluent” or “return water” is often discharged back into the adjacent surface water by a pump, weir or outfall pipe. The DMD sites are designed to remove a significant portion of suspended material from the effluent, with the maximum allowable Total Suspended Solids (TSS) to be defined in an approved Operation Plan for each disposal site. The disposal site will be designed and operated with guidance provided by the U.S. Army Corps of Engineers guidance document “Confined Disposal of Dredged Material”. The following DMD sites are covered under this permit.

Table 1: Approved Dredge Material Disposal (DMD) Sites

Site	Owner of Land	Assessor’s Parcel Number(s)	Discharge Location
S-2	Marlyn Baldwin	011-210-007-8 011-210-019-3	Latitude: 37° 53.470’ N (±) Longitude: 121° 36.886’ W (±)
S-3	Pauline Pantages Trust c/o Patrick Ryan, Trustee	011-230-006-6 011-230-007-4 011-220-010-0 011-220-017-5 011-220-018-3	<i>North Pond Discharge</i> Latitude: 37° 54.651’ N (±) Longitude: 121° 36.479’ W (±) <i>South Pond Discharge</i> Latitude: 37° 54.420’ N (±) Longitude: 121° 36.560’ W (±)

7. The DMD sites will be designed to allow for a five-day settling period prior to effluent discharge back to Discovery Bay. The estimated rate of effluent discharge during a typical dredging operation is as follows:
 Effluent Average Flow (into receiving water): 3 mgd
 Effluent Maximum Flow (into receiving water): 4 mgd
8. The DMD sites will fully contain dredged material and prevent any surface runoff or erosion into waters of the state, unless specifically allowed in the Notice of Applicability (NOA). This Order allows surface runoff from the DMD site if the approved site operation plan has provisions for erosion control and monitoring.
9. The Discharger has performed analyses of sediments to be dredged in order to determine the anticipated sediment quality during dredging operations. The sediment constituents and average concentrations found in the dredge material during the 2002 pre-dredge sampling are listed below. Additional pre-dredge

analysis will be required for further dredging operations, as described in the attached Monitoring and Reporting Program.

Table 2: Analytical results from Discovery Bay year 2002 sediment testing:

Constituent	Solid Analysis (mg/kg, dry)	DI Extraction (ppb)	Modified Elutriate (ppb)
Arsenic	7.4	2.3 ¹	1.4 ¹
Barium	156.0	68.5	111.6 ¹
Cadmium	0.3 ¹	ND (<1.0 ppb)	ND (<1.0 ppb)
Chromium	82.5	2.7	ND (<2.0 ppb)
Chromium VI	ND (<1.0 ppm)	-	ND (<10 ppb)
Copper	43.7	13.4	1.6 ¹
Lead	13.4	1.5 ¹	ND (< 1.0 ppb)
Mercury	0.03	0.08	0.03 ¹
Nickel	53.8	3.2	1.5 ¹
Selenium	0.7 ¹	ND (<1.0 ppb)	ND (<1.0 ppb)
Silver	1.1	-	-
Zinc	68.3	4.8	1.7 ¹
Tributyltin (µg/kg)	1.9 ¹	-	ND (<8 ng/L)
Polyaromatic Hydrocarbons	35.1 ¹	-	-
Polychlorinated biphenyls	-	-	ND (<1 ng/L)
Organochlorine pesticides	9.5	-	0.028 ¹

¹ Averages include non-detect values at half the reported detection limit.

10. Pre-dredge analysis indicate sediments from Discovery Bay are primarily silt and clay, with clay contents varying from 31 to 52%. Sand contents generally vary from 1 to 33%. Samples from Indian Slough were 80% sand and Kellogg Creek samples were approximately 19% sand. The soils were also tested for acid generation and neutralizing potentials. A ratio of neutralizing potential to acid generating potential of three or greater is needed to ensure that enough neutralizing potential will remain to neutralize pH levels as the sediments are oxidized. Samples from Shell Bay, Marina Bay and Cabrillo Bay were tested and found to have ratios of neutralizing potential to acid generating potential between 1.2 and 1.4. Dredge materials from those areas will be placed into disposal site S3. Disposal site S3 background soils are alkaline, with ratios of neutralizing potential to acid generating potential ranging from 4 to 6. To mitigate the potential for acid generation following disposal, S3 will be disk aerated to slightly over one foot in depth after the dredge material dries. Disposal site S3 will be monitored and soil management practices implemented should pH levels drop below 6.
11. Arsenic levels averaged 7.4 mg/kg and are below average Sacramento-San Joaquin Delta background concentrations. All other constituents were at concentrations significantly below Human Residential and Human Industrial screening values. Based on initial pre-dredge sampling and analysis results, future pre-dredge sediment characterization will not require total solids analysis.

12. Analytical results from the Modified Elutriate Test (MET) when combined with the applicable mixing zone indicate that chemical concentrations for the elutriate from Discovery Bay sediments are below applicable surface water objectives. Samples indicate that barium averaged 111 ppb, slightly exceeding the surface water objective of 100 ppb. Kellogg Creek and Indian slough composites indicate average mercury concentrations at 0.06 ppb. This value slightly exceeds the mercury surface water objective of 0.05 ppb, although average Discovery Bay mercury samples were 0.03 ppb. The Discharger will be required to monitor for these metals in the effluent and Discovery Bay to ensure compliance with surface water objectives.
13. Elutriate extracts from Kellogg Creek and Windward Bay sediments indicate detectable levels of the organochlorine pesticide DDE. To mitigate the potential for return of decant waters containing DDE, the Discharger will retain all decant water from these areas within disposal site S-2. The disposal pond has been redesigned to contain all dredge materials preventing runoff to surface waters. Future disposal efforts at S-2 may incorporate return water discharges dependent on MET pre-dredge analysis results. The other areas sampled within Discovery Bay showed no detection of organochlorine pesticides above minimum levels for reporting and compliance as specified by the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*.
14. This Order requires the Discharger to conduct chemical and physical testing of sediments that are representative of the area to be dredged before each maintenance dredging project. The purpose of pre-dredge sediment analysis is to determine if the dredging operation will result in the disposal of dredged sediments that are characterized by constituent concentrations representative of inert waste. Table A.3 represents the screening values used to determine the inert waste classification.
15. The Board adopted a Water Quality Control Plan, Fourth Edition, for the Sacramento River Basin and the San Joaquin River Basin (hereafter Basin Plan), containing beneficial uses, water quality objectives, and implementation programs for waters of the Basin. These requirements implement the Basin Plan.
16. The beneficial uses of the Sacramento-San Joaquin Delta as identified in Table II-1 of the Basin Plan are: municipal and domestic supply, agricultural uses, industrial process supply, industrial service supply, body contact and other non-body contact recreation, warm and cold freshwater aquatic habitat, warm and cold water fish migration habitat, warm water spawning habitat, wildlife habitat, and navigation.
17. The beneficial uses of the ground water are: municipal and domestic supply, agricultural supply, industrial process supply, and industrial service supply.

18. The USEPA adopted the California Toxics Rule (CTR) on 18 May 2000, which together with the USEPA National Toxics Rule (NTR), provide enforceable numeric water quality criteria for priority toxic pollutants. The *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* was adopted in March 2000 by the State Water Resources Control Board (State Board). CTR and NTR standards may be incorporated in waste discharge requirements where appropriate to implement the Basin Plans.
19. The Discharger submitted information about the probable constituents of concern and their concentrations in the dredged material, effluent, and receiving water. The Board finds that the effluent discharges are not likely to cause or contribute to a violation of applicable water quality objectives, if the sediment analyses results are at or below concentrations listed in Table A.3 of this Order. When sediment analysis results exceed these concentrations, site-specific studies are needed to assure compliance with applicable water quality objectives.
20. Dredging operations may cause some short-term degradation to the waters of the State. Dredging operations cause only temporary impacts to surface waters, as dredging and effluent discharge occur only a few weeks out of the year. Since the effluent contains only water and sediment that originated in the water body, it does not constitute a new source of pollutants. However, dredging may cause temporary degradation of turbidity, total suspended solids, dissolved oxygen and elevated levels of some constituents. Dredging projects covered under this Order will not exceed the applicable water quality objectives.
21. The effluent discharges are consistent with the antidegradation provisions of 40 CFR 131.12 and SWRCB Resolution 68-16.
22. After reviewing the potential environmental impacts affiliated with dredging activities and disposal of dredge materials into the upland disposal sites, the Discharger adopted an Initial Study/Negative Declaration for the Discovery Bay Maintenance Dredging Project on 17 July 2002.
23. Pre-dredge testing and site-specific studies (when necessary) provide assurance that dredged sediments will not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives. The dredge sediments will be classified as Inert Waste. Inert Wastes are not required to be discharged at classified waste management units; therefore, Title 27 waste discharge requirements are not required for this project. Pursuant to Title 27, Section 20230 of the California Code of Regulations, the Board can prescribe individual or general waste discharge requirements.
24. The U.S. Army Corps of Engineers have issued a Clean Water Act (CWA) Section 404 Nationwide Permit for the Discovery Bay Maintenance Dredging Project. Issuance of a CWA Section 404 permit exempt these dredging operations

from NPDES regulations, but require a CWA Section 401 Water Quality Certification to be issued by the Regional Board. A Section 401 Water Quality Certification will be issued in conjunction with each approved “Notice of Applicability”.

25. The U.S. Army Corps of Engineers initiated and completed consultations with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to ensure compliance with the Federal Endangered Species Act.

PROCEDURAL REQUIREMENTS

26. The following agencies also have jurisdiction over this dredging and disposal project:
California Department of Fish and Game
National Marine Fisheries Service
United States Fish and Wildlife Service
United States Army Corps of Engineers
State Lands Commission
27. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
28. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Reclamation District No. 800, their agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. Applicability

1. All dredging discharges covered by this Order shall be limited to maintenance dredging activities associated with Discovery Bay.
2. Before the maintenance dredging project can be considered for coverage by this Order, a complete Notice of Intent (as detailed in Attachment “A”) and filing fee must be submitted to the Regional Board.
3. *Table A.3 Discharge Applicability Table* establishes sediment concentrations that will not cause exceedances of water quality objectives under general conditions. Sediments with values below the concentrations in Table A.3 may be discharged to DMD sites listed in this Order for maintenance dredging and disposal projects in Discovery Bay.

4. Part 1 of the Discharge Applicability Table applies to solids analysis and extractable constituents from the pre-dredge sediment analysis. The maximum soluble concentrations in Part 1 are chosen to protect groundwater and surface water beneficial uses from leachate and surface runoff. The values are based on applicable water quality objectives. Part 2 of the Discharge Applicability Table applies to pre-dredge analysis of the modified elutriate test, which simulates expected conditions of the effluent from the DMD site and expected conditions near the dredging location. The maximum concentrations in Part 2 are chosen to protect the receiving water beneficial uses and are based on applicable water quality objectives. Detailed information on the values used in this Order is available in the Information Sheet.
5. If analytical results are above the values listed in Table A.3, the Discharger may submit a technical report describing site-specific factors that could be taken into consideration by the Executive Officer in determining compliance with Section F, Provisions, of this Order. Section F describes the requirements of the technical report, with additional information also provided in Attachment "B". The discharge of sediments that exceed the concentrations in Table A.3 is considered a violation of this Order unless granted a site-specific exemption.
6. Before commencing pre-dredge sampling and analysis, the Discharger shall have the sampling and analysis plan reviewed and approved by Regional Board staff. If the Discharger does not receive comments or approval from Regional Board staff within 10 working days, the Discharger may proceed with sampling if the Sampling and Analysis Plan is equivalent to the latest approved Sampling and Analysis Plan.
7. If the Executive Officer finds that the proposed discharge qualifies for coverage under this Order, a Notice of Applicability shall be issued to the Discharger. Individual dredging projects are not covered under this Order until issued a Notice of Applicability by the Executive Officer.
8. The dredging operations shall use a pipeline hydraulic suction dredge. Clamshell dredging may be used in limited cases where access is restricted or debris is too large for hydraulic dredging. Recent advances in clamshell dredging buckets have produced 'sealed' or 'environmental' buckets, which greatly reduce the amount of turbidity in the water column and the amount of water produced during the dredging operation. This Order allows the use of a sealed bucket and barge for maintenance dredging. Other dredge methods may be approved by the Executive Officer upon a demonstration of their ability to meet water quality objectives.

Table A.3

Discharge Applicability Table Part 1: Applicability of sediments for upland disposal.

Constituent	Max. Concentration of soluble constituents¹
Aluminum	87 µg/l (filtered)
Arsenic	10.0 µg/l (filtered)
Barium	100 µg/l (filtered)
Chromium VI	11 µg/l (filtered)
Copper	10 µg/l (filtered)
Lead	2.5 µg/l ² (filtered)
Manganese	50 µg/l (filtered)
Mercury	0.05 µg/l
Zinc	100 µg/l (filtered)

Discharge Applicability Table Part 2: Applicability of sediment elutriate effluent discharges from the disposal site.

Constituent	Max. Concentration of soluble constituents¹
Acute or Chronic Toxicity Bioassay	80% survival
Aluminum	87 µg/l (filtered)
Arsenic	10 µg/l (filtered)
Barium	100 µg/l (filtered)
Boron	630 µg/l
Chromium VI	11 µg/l (filtered)
Copper	10 µg/l (filtered)
Lead	2.5 µg/l ² (filtered)
Manganese	50 µg/l (filtered)
Mercury	0.05 µg/l
Nickel	52 µg/l ² (filtered)
Zinc	100 µg/l (filtered)
pH	6.5-8.5
Specific conductivity (EC)	700 µmhos/cm
Total Dissolved Solids (TDS)	450 mg/l
Tributyltin	0.063 µg/l
Oil and Grease	5 mg/l

Organochlorine Pesticides:

Aldrin	ND (<0.005 µg/l)
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¹ Soluble concentrations shall be determined using methods specified in the Monitoring and Reporting Program. Soluble metal concentrations are for total recoverable concentrations unless otherwise noted.

² Maximum concentration depends on hardness of receiving water. The number shown is based on a receiving water hardness of 100 mg/l CaCO₃, but will be recalculated based on the CTR and on receiving water hardness determined during predredge analysis, or reasonable worst case value.

Table A.3 (Continued)

Discharge Applicability Table Part 2: Applicability of sediment elutriate for dredge site impacts and effluent discharges from the disposal site.

Constituent	Max. Concentration of soluble constituents¹
Alpha BHC	ND (<0.01 µg/l)
Beta BHC	ND (<0.005 µg/l)
Gamma BHC (Lindane)	ND (<0.02 µg/l)
Chlordane	ND (<0.1 µg/l)
4,4-DDD	ND (<0.05 µg/l)
4,4-DDE	ND (<0.05 µg/l)
4,4-DDT	ND (<0.01 µg/l)
Dieldrin	ND (<0.01 µg/l)
Endosulfan I	ND (<0.02 µg/l)
Endosulfan II	ND (<0.01 µg/l)
Endosulfan sulfate	ND (<0.05 µg/l)
Endrin	ND (<0.01 µg/l)
Endrin aldehyde	ND (<0.01 µg/l)
Heptachlor	ND (<0.01 µg/l)
Heptachlor epoxide	ND (<0.01 µg/l)
Hexachlorocyclopentadiene	ND (<0.01 µg/l)
Methoxychlor	ND (<0.1 µg/l)
Toxaphene	ND (<0.5 µg/l)
Organophosphorous Pesticides:	
Chlorpyrifos	0.014 µg/l
Diazinon	0.05 µg/l
Dimethioate	1.0 µg/l
Malathion	0.43 µg/l
Parathion	0.013 µg/l
Phorate	0.7 µg/l

¹ Soluble concentrations shall be determined using methods specified in the Monitoring and Reporting Program. Soluble metal concentrations are for total recoverable concentrations unless otherwise noted.

B. PROHIBITIONS

1. The discharge of ‘hazardous waste’ or ‘designated waste’ is prohibited. For the purposes of this Order, the term ‘hazardous waste’ is as defined in Title 23, California Code of Regulations, Section 2510 et seq., and ‘designated waste’ is as defined in California Water Code Section 13173.
2. The discharge of dredged materials to a site other than a Dredged Material Disposal site specifically designed for their containment is prohibited.

3. The discharge shall not cause the release of pollutants, or waste constituents in a manner that could cause a condition of nuisance, contamination, or pollution of groundwater to occur.
4. The discharge of solid waste, liquid waste, leachate, or waste constituents shall neither cause nor contribute to any contamination, pollution, or nuisance to surface waters, ponded water, or surface water drainage courses, including, but not limited to:
 - a. floating, suspended, or deposited macroscopic particulate matter or foam;
 - b. increases in bottom deposits or aquatic growth;
 - c. exceedances of water quality objectives for temperature, turbidity, or color that causes nuisance or adversely affects beneficial uses;
 - d. the creation or contribution of visible, floating, suspended, or deposited oil or other products of petroleum origin; and
 - e. the introduction or increase in concentration of toxic or other contaminants/pollutants resulting in impairment of beneficial uses of waters of the State.
5. The direct discharge of wastes to surface waters or surface water drainage courses other than effluent from the DMD site is prohibited. Surface runoff from the DMD site may be permitted if the approved site operation plan has provisions for erosion control and monitoring.
6. The discharge of dredge return water from hopper dredges to surface waters is prohibited.
7. The discharge of sanitary waste to the DMD sites is prohibited.

C. DISCHARGE SPECIFICATIONS

(For discharge of dredged materials into Dredged Material Disposal Site)

1. The discharge of dredged materials shall only be to the sites identified in Finding No. 6 of this Order.
2. The discharge to the DMD site shall consist solely of inert waste as defined by Title 27, Chapter 3, Section 20230 of the California Code of Regulations.

3. The discharge of any materials generated during dredging operations shall not cause a nuisance or condition of pollution as defined by the California Water Code.
4. The discharge shall not cause concentrations of any materials that are deleterious to animals, aquatic, human or plant life in adjacent water bodies.
5. The discharge shall not cause the pollution or contamination of any water supply.
6. The discharge shall not alter the apparent color of adjacent water bodies such that it causes nuisance or adversely affects beneficial uses.
7. The discharge to the DMD site shall consist solely of sediment and water produced from dredging operations.
8. Appropriate soil erosion control measures shall be made and maintained to prevent discharge of sediment to surface waters or surface water drainage courses from disturbed areas at the DMD sites.
9. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the activity area.
10. Newly constructed or rehabilitated levees at the DMD sites shall be designed and constructed under the direct supervision of a California Registered Civil Engineer.
11. All retention dikes or levees shall be so constructed and maintained to prevent sloughing that causes turbidity in excess of Receiving Water Limitations No. 10.
12. The discharge shall remain within the designated disposal area at all times, except for effluent discharges specified in Section D Effluent Limitations. After drying, the solid material may be removed for beneficial reuse at other locations subject to restrictions specified in the Notice of Applicability. Surface runoff from the DMD site may be permitted if the approved site operation plan has provisions for erosion control and monitoring.
13. To mitigate the potential for acid generation following disposal of dredge material, the discharger shall disk aerate the materials in S3 to a minimum depth of 1 foot. The discharger shall monitor soil pH levels starting 1 month after disk aeration. If the pH level drops below 6.0, the discharger shall implement soil management practices and continue monitoring monthly to determine if the mitigation was sufficient. Monitoring shall continue until the dredge materials shows pH levels above 6.0 for 6 consecutive months. The

results should be calculated as an average from the results of a minimum of 4 representative soil samples at the placement site.

D. EFFLUENT LIMITATIONS

(Return flows from the Dredged Material Disposal Site to the specified receiving water)

1. The effluent discharge from the Dredge Material Disposal sites are subject to the following flow limitations:
 - The average daily flow shall not exceed 3 mgd.
 - The maximum daily flow shall not exceed 4 mgd.
2. The discharge shall not have a pH less than 6.5 nor greater than 8.5.
3. The effluent shall not exceed water quality objectives for any constituent that is on the 303(d) list for the receiving water where the effluent is discharged, unless a mixing zone is granted in the NOA. If the water entrained during dredging (receiving water) contains constituents that exceed water quality objectives, the effluent shall not exceed ambient levels in the receiving water.
4. The following constituents are on the current 303(d) list for impaired water bodies in the area of the Delta:
 - Mercury
 - DDT
 - Chlorpyrifos
 - Diazinon
 - Group A Pesticides (Aldrin, Dieldrin, chlordane, Endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including Lindane), Endosulfan, and Toxaphene)
 - Unknown toxicity
5. The effluent shall not contain any constituent at concentrations that could cause acutely toxic conditions to aquatic life nor adversely impact biologically sensitive or critical habitats.
6. Survival of aquatic organisms in 96-hour bioassays of undiluted effluent shall be no less than:
 - Minimum for any one bioassay..... 70%
 - Median for any three or more consecutive bioassays 90%
7. The point of compliance for effluent limitations is the point just before the effluent enters the receiving water.
8. For the initial phase of dredging which includes the removal of 153,000 cubic yards, there shall be no effluent discharge from DMD Site S2.

E. RECEIVING WATER LIMITATIONS:

Receiving water limitations (RWL) implement Water Quality Objectives in applicable water quality control plans. As such, they are a required part of this Order.

A mixing zone is defined as a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality objectives may be exceeded without causing adverse effects to the overall water body. A mixing zone may be allowed if there is assimilative capacity in the receiving water. If the Discharger proposes a mixing zone for any constituent, they shall show justification that the receiving water has assimilative capacity and that dilution is likely to occur within the mixing zone. The mixing zone has a maximum length of 300 feet and shall not exceed 50% of the cross-section of the receiving water. Acutely toxic conditions are not permitted at any place inside the mixing zone. Chronic aquatic criteria and all other water quality objectives must be met at the edge of the mixing zone in the receiving water. In addition the mixing zone shall not:

- adversely impact beneficial uses
- compromise the integrity of the entire water body
- cause acutely toxic conditions to aquatic life passing through the mixing zone
- restrict the passage of aquatic life
- adversely impact biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or State endangered species laws
- produce undesirable or nuisance aquatic life
- result in floating debris, oil, or scum
- produce objectionable color, odor, taste or turbidity
- cause objectionable bottom deposits
- cause nuisance
- dominate the receiving water body or overlap a mixing zone from different outfalls
- be allowed at or near any drinking water intake
- be allowed for any constituents in agricultural drainage ditches due to the lack of assimilative capacity, unless the Discharger can demonstrate that the discharge improves water quality in the agricultural drainage ditch

If the Discharger proposes a mixing zone that meets the requirements of this Order, the Executive Officer may approve the mixing zone in the Notice of Applicability.

In the following limitations, the discharge is defined as the effluent from the DMD sites and/or sediment released to the receiving waters from the dredge cutting head. The Discharger shall not cause the following Receiving Water Limits to be exceeded in the receiving water or at the edge of the allowed mixing zone, if applicable:

1. Concentrations of dissolved oxygen to fall below 5.0 mg/l in Delta waters east of the Antioch Bridge.
2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.
3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.
4. Toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal or aquatic life.
5. Aesthetically undesirable discoloration.
6. Fungi, slimes, or other objectionable growths.
7. The normal ambient pH to fall below 6.5, exceed 8.5 or change by more than 0.5.
8. Deposition of material that causes nuisance or adversely affects beneficial uses.
9. The normal ambient temperature to increase more than 5° F.
10. The discharge shall not cause an increase in turbidity exceeding the following limits in the receiving water:
 - a. 1.0 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs;
 - b. 20 percent where natural turbidity is between 5 and 50 NTUs;
 - c. 10 NTUs where natural turbidity is between 50 and 100 NTUs;
 - d. 10 percent where natural turbidity is greater than 100 NTUs.
11. Taste or odor-producing substances to impart undesirable tastes or odors to domestic or municipal water supplies, or to fish flesh or other edible products of aquatic origin, or to cause nuisance or otherwise adversely affect beneficial uses.
12. Violation of any applicable water quality objective for receiving waters adopted by the Board or the SWRCB, or to CTR/NTR criteria promulgated by the USEPA, pursuant to the Clean Water Act and regulations adopted thereunder.

F. PROVISIONS

1. If the concentration(s) of the predredge samples exceed those specified in Applicability Section A.3, then the Discharger may submit a technical report

with the NOI to the Executive Officer demonstrating the Discharger's ability to comply with this Order while exceeding the applicability numbers in the A.3 Discharge Applicability Table. The dredging project may not proceed until the technical report is reviewed by the Executive Officer and a Notice of Applicability has been granted. If the Executive Officer finds that the technical report is consistent with the conditions of this Order, new values will be substituted for the numbers listed in Table A.3, but only for the discharge covered by the NOA. Attachment "B" gives additional information on the content of the Technical Report.

2. If maximum concentration listed in Applicability Table A.3 Part 1 are exceeded, the Discharger may propose site-specific calculations, based on a site-specific attenuation factor, to demonstrate that the dredged material will not produce leachate that will exceed water quality objectives for the groundwater.
3. During the predredge analysis, if the modified elutriate test results exceed the maximum concentrations listed in Part 2 of the Discharge Applicability Table (A.3), the Discharger may submit a technical report that provides justification for a mixing zone in the receiving water. The mixing zone can be used if the Executive Officer finds that it meets the conditions of this Order. Mixing zone calculations shall use the maximum effluent flow listed in the WDR and the average receiving water flow expected for the time of the discharge.
4. Calculations need be submitted only for the constituent exceeding concentrations in the Discharge Applicability Table (A.3). Within 7 days after the Discharger submits copies of the technical report prepared for compliance with Provision F, Board staff shall mail copies of the technical report to interested parties or agencies that request a copy. Interested parties will have two weeks to review the report and provide comments to the Executive Officer for consideration prior to issuance of a Notice of Applicability.
5. The Discharger shall submit an Operation Plan for each DMD Site. This Operation Plan shall describe site operations and procedures to be followed before, during, and after maintenance dredging sediment disposal. The DMD Site's Operation Plan must be submitted with the Notice of Intent. The Site Operation Plan shall include emergency procedures for potential risks, including levee failures.
6. Pursuant to Section 13267 of the California Water Code, the Discharger may be required to submit other technical reports as directed by the Executive Officer.
7. The Discharger shall comply with the attached Monitoring and Reporting Program No. R5-2003-0027, which is part of this Order, and any revision

thereto as ordered by the Executive Officer. Violations may result in enforcement action, including Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of the Notice of Applicability.

8. The Discharger shall comply with the “Standard Provisions and Reporting Requirements for Waste Discharge Requirements”, dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as “Standard Provision(s).”
9. In the event of any change in control or ownership of land or control of dredging and disposal operations described herein, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.
10. The Discharger shall notify the Board when each dredging project that is covered by these requirements is complete, so that the Notice of Applicability may be withdrawn and the Discharger will no longer be covered by this Order, although long-term maintenance of sediments in the DMD sites will continue to be covered.
11. The Discharger shall immediately notify the Board by telephone whenever a violation or an adverse condition occurs as a result of the dredging and disposal operation or the discharge of effluent. Written confirmation shall follow within two (2) weeks. An “adverse condition” is defined as any action or incident that may result in a risk to public health and safety, condition of nuisance, violation of water quality standards or violation of other conditions of this Order.
12. The Discharger shall report promptly to the Board any material change or proposed change in the character, location, or volume of the discharge.
13. The Board considers the Discharger to have continuing responsibility for correcting any problems which may arise in the future as a result of maintenance dredging activities and of the subsequent use of the dredge material disposal sites.
14. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action, or imposing civil monetary liability, or in revision or rescission of the Notice of Applicability.

15. A copy of this Order and the Notice of Applicability shall be kept as a reference for dredging operation personnel. Key operating personnel shall be familiar with its contents.
16. After pre-dredge sampling is completed, sampling results will be reviewed in conjunction with anticipated attenuation and dilution factors. If the review shows that discharge of solids to land or effluent to surface waters would be prohibited, then the Board will reopen this Order to evaluate any additional factors which may affect the terms of compliance, to determine if alternative or less stringent standards can be adopted which are protective of the environment without hampering dredging activities.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region on 31 January 2003.

THOMAS R. PINKOS, Executive Officer