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# California Regional Water Quality Control Board Central Valley Region

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Arnold  
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31 August 2009

To Whom it May Concern

## **ORDER NO. R5-2009-0085 GENERAL WASTE DISCHARGE REQUIREMENTS FOR MAINTENANCE DREDGING OPERATIONS, SACRAMENTO-SAN JOAQUIN DELTA**

On 13 August 2009, the Central Valley Regional Water Quality Control Board approved General Order No. R5-2009-0085 (General Order) for maintenance dredging in operations in the Sacramento-San Joaquin Delta.

This General Order addresses the need for regular maintenance dredging to provide channel capacity and marina operation, as well as the need for dredged sediment to be directly reused, where appropriate, as a resource to provide material for levee maintenance and other beneficial uses, in a manner which provides protection of water quality consistent with the mandate of the Central Valley Water Board.

The General Order is available for review or download on the Central Valley Regional Water Quality Control Board website at:

[http://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/index.shtml](http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.shtml).

Questions about this General Order should be directed to Dr. Philip Giovannini, available by phone at 916 464-4812, or by email at [pgiovannini@waterboards.ca.gov](mailto:pgiovannini@waterboards.ca.gov).

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2009-0085  
GENERAL WASTE DISCHARGE REQUIREMENTS  
FOR MAINTENANCE DREDGING OPERATIONS  
SACRAMENTO-SAN JOAQUIN DELTA  
(GENERAL ORDER)

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

1. This General Order specifies general waste discharge requirements (WDRs) regulating maintenance dredging and/or placement projects within the Central Valley Region Water Board that remove and/or place up to 100,000 cubic yards of material during the life of the Notice of Applicability (NOA) for coverage under this order, and meet other criteria as further described herein.
2. The removal, transport, and placement of dredge sediments are the primary components of the dredging process. These actions may be logically divided into two distinct components common to all dredging operations: 1) the excavation and removal of sediments from water bodies (i.e., dredging), and 2) the disposal and/or reuse of these dredged materials in another location (i.e., placement). These actions involve separate regulatory considerations and, where appropriate, are discussed separately in this order. Both actions have the potential to produce waste as defined in California Water Code (CWC) Section 13050(d). Dredging could cause sediment containing metals and other constituents to be discharged to waters of the state. The placement and/or reuse of dredged material on land may be a discharge of waste and has the potential to degrade both surface and ground water.
3. California Water Code (CWC) Section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, that could affect the quality of the waters of the State, file a Report of Waste Discharge (RWD).
4. This General Order specifies WDRs regulating maintenance dredging projects situated within the legal boundaries of the Sacramento-San Joaquin Delta (Delta) as defined by the California Water Code (CWC) Section 12220, and the area under the jurisdiction of the Regional Water Board as described in CWC section 13200.
5. For the purposes of this General Order, maintenance dredging is defined as dredging to a previously permitted or previously achieved design depth, that removes less than 100,000 cubic yards of material during any authorized dredging window, which, if discharge occurs, will have a return flow rate less

than one million gallons per day, and in which the dredged materials are deposited in areas authorized by applicable state and federal regulatory agencies, and/or beneficially reused in a manner approved by the Regional Water Board.

6. This General Order shall apply to dredging at channels, ports, and marinas for areas of existing operations and use, in order to restore depth to original or previous design or operational depth. Expansions of facilities, or dredging beyond previous design or operational depth, are not covered under this General Order.
7. This General Order shall apply to municipalities or companies and to individual property owners and/or operators (collectively Discharger) that have submitted a RWD for maintenance dredging operations, paid the appropriate fees for coverage under this General Order, and have been issued a Notice of Applicability by the Regional Water Board's Executive Officer.

#### **RATIONALE FOR THESE GENERAL WASTE DISCHARGE REQUIREMENTS**

8. Dredging is necessary to maintain channel capacity for navigation, flood control, water conveyance, public access and recreation, and to provide material for the maintenance of the Delta levees, which are essential for the protection of residents and land use. The levees also prevent tides from bringing saltwater into the east Delta and provide protection for drinking water and agriculture water from saltwater intrusion.
9. Presently, more than 1,100 miles of levees protect the Delta islands from flooding. The U.S. Army Corps of Engineers maintains approximately 385 miles of levees as part of the Sacramento Flood Control Project. Local reclamation districts maintain approximately 715 miles of levees.
10. Pursuant to California Water Code Section 13263(i) the Regional Water Board may prescribe general waste discharge requirements for categories of discharges if the Regional Water Board finds that the following criteria apply to the discharges:
  - a. The discharges are produced by the same or similar operations.
  - b. The discharges involve the same or similar types of waste.
  - c. The discharges require the same or similar treatment standards.
  - d. The discharges are more appropriately regulated under general requirements than individual discharge requirements.
11. Dredging of accumulated sediment in channels is necessary to maintain channel capacity, safe navigation for recreational boaters, and safe passage of ship traffic. Sediments deposited by the rivers and waterways must be periodically removed in order to keep ports, marinas, boat berths, and launch

ramps operational for navigational access. Without a General Order, each dredging project would be required to have individual WDRs, which take a minimum of 4 months between submittal of a RWD and Regional Water Board issuance. By authorizing a General Order, the permitting process is streamlined, so that project approval can occur within a few weeks. Because of the limited time frame when protected species such as Chinook salmon and Delta smelt are absent from the project area, dredging within the Delta is generally restricted to a dredging window between August and December each year. Therefore, streamlining the permitting process for maintenance dredging operations is necessary.

12. Most dredging operations of less than 100,000 cubic yards conducted in inland surface waters within the Central Valley Region are similar. The dredging materials are typically of similar character and are generally subject to similar discharge standards. In addition, the General Order would provide project applicants with a set of "known" requirements that are consistently and fairly applied to all projects. Given these similarities, regulation by means of a general order is appropriate.

#### **PROCEDURES FOR ENROLLMENT**

13. To obtain initial "first-time" coverage under the General Order, the following items and documentation must be submitted in the RWD:
  - a. A complete permit application, including:
    - (1) cover letter requesting coverage under this General Order
    - (2) justification of applicability to maintenance dredging criteria
    - (3) a complete description of the dredging operation and site
    - (4) a complete description of the placement operation and site
    - (5) description of proposed best management practices (BMPs) for dredging and placement and/or reuse
  - b. The permit fee;
  - c. The results and technical analysis of pre-dredge sediment analysis of including constituents shown in Table 1, demonstrating compliance with the terms of this General Order;

**Table 1- Constituents of Concern**

List of required constituents for leachate analysis in pre-dredge sampling<sup>1</sup>. Additional constituents may be specified for analysis, by Central Water Board staff.

<u>Constituent</u>	<u>Analytic Method<sup>2</sup></u>
Aluminum	6010B/7400
Arsenic	7062/6010B/7400
Barium	6010B/7400
Cadmium	6010B/7400
Chromium – total	6010B/7400
Chromium VI	7195,/7196,/7191
Copper	6010B/7400
Lead	7421/6010B/7400
Manganese	6010B/7400
Mercury	7470A/7471A (RL<25 ng)
Molybdenum	6010B/7400
Nickel	7521/6010B/7400
Selenium	7740/7741
Zinc	6010B/7400

<sup>1</sup> Sampling requirements – Generally, a minimum of two core samples should be taken, and one core sample for each additional 5,000 cubic yards of material to be dredged. Composite samples may be prepared for analysis from at least two core samples for each 10,000 cubic yards of material to be dredged. Actual sample numbers, frequency and compositing may change depending upon particular site and dredged material characteristics. Samples must be representative of the entire depth and volume to be dredged.

<sup>2</sup> Equivalent analytical methods may be substituted with the approval of Regional Board staff.

- d. A Monitoring Plan outlining steps for compliance with the Monitoring and Reporting Program of this Order;
- e. Documentation of compliance with the California Environmental Quality Act (CEQA). (CEQA documentation is not required for maintenance dredging, or for placement at existing authorized placement sites where the Discharger documents there will be negligible or no expansion of use);
- f. Copies of applications for dredging, or permits from other applicable state and federal agencies; and
- g. If required, as per the terms of this Order:

- (1) Mailing list of adjoining property owners
  - (2) An Operations Plan
  - (3) An Erosion Control Plan
  - (4) A Traffic Management Plan
14. For placement of dredged material in locations that have not previously been used for dredged material placement, the Discharger must submit a mailing list of adjoining property owners to the proposed placement area. After the Executive Officer determines that a proposed discharge is eligible for enrollment under this General Order, a notice of the Regional Water Board's intent to enroll the proposed discharge under the General Order will be mailed to all adjoining property owners. The property owners and other interested persons will be allowed a two-week comment period. After receipt of the comments, the Executive Officer may schedule a public hearing before the Regional Water Board to consider the applicant's enrollment under this General Order, or may issue the NOA.
15. To obtain continuing coverage under this General Order in subsequent years for projects which have already been initially authorized under this order, re-characterization of dredged material through pre-dredge sampling and analysis may be waived at the discretion of the Executive Officer, when existing sediment data are deemed to be representative of the sediments proposed to be dredged. In this case, projects will be evaluated based on the results of existing pre-dredge sampling. Project proponents may submit updated sampling results at their discretion.

#### APPLICABILITY

16. Unless otherwise specified, an NOA issued under this General Order is valid for a period of five (5) years, assuming there is no change in the character of the remaining material to be dredged affecting its potential threat to water quality. If the Regional Water Board determines that a change in the character of the material to be dredged has, or may have occurred during the five-year validity period, the NOA may be revoked by the Regional Water Board at its discretion, and dredged material may be subject to revaluation by the applicant.
17. This General Order does not apply to projects that:
- a. Are within the Sacramento and Stockton Deep Water Ship Channels;
  - b. Involve more than 100,000 cubic yards of dredging material;
  - c. Involve undisturbed sediments (i.e., areas where dredging to a previously permitted or operations depth has not previously occurred);
  - d. Involve more than 1 million gallons per day (MGD) return flow rates;
  - e. Discharge to lands listed as hazardous materials sites pursuant to Government Code Section 65962.5;

- f. Could significantly alter the existing drainage pattern of the discharge site; and
  - g. Negatively impact wetlands.
18. Due to the limited period available annually to dredge in the Delta, maintenance dredging projects may take several years to complete. Projects may receive coverage under this General Order for greater than one (1) but not to exceed five (5) years. The Discharger is required to notify the Regional Water Board after the dredging project is completed. If after review, the Executive Officer determines that the Discharger has satisfied the requirements of this General Order, coverage for the project may be terminated by the Executive Officer.

### **DESCRIPTION OF DREDGING OPERATIONS**

19. The two common methods of dredging in the Delta are hydraulic and clamshell. A clamshell dredge consists of a mechanically operated "bucket" that is used to dig sediments from the bottom. The dredge material is removed bucket-by-bucket and placed on the bank (such as the landward side of the levee) or may be placed in a barge, scow or truck for transport to another location. The lifting action created by the bucket being pulled up from the channel bottom may suspend sediment and increase turbidity throughout the water column. The actual turbidity that may occur depends on the physical characteristics of the sediment (grain size, compaction) and characteristics of the water body (depth, rate of flow, tidal influences).

Clamshell dredging may be preferred for levee maintenance, since the material can sometimes be directly placed and may not require extensive re-handling. The dredge material from clam shell dredging has less water content than that produced by hydraulic dredging.

20. Hydraulic dredging typically uses a cutter-head suction dredge that cuts into the sediment with a rotary cutting tool and suctions the dredge material out through a pipe. The dredge material is pumped as slurry that is typically 10 to 20% solids and the remainder water. This slurry is usually delivered to a settling pond(s) dewatering facility via pipeline. The maximum distance that slurry can be transported is restricted by the expense, logistics, and physics of the pipeline system, usually a maximum of a few miles.

### **DREDGED MATERIAL DISCHARGE AND PLACEMENT**

21. A dewatering site is required for settling of the hydraulic dredging slurry. Dewatering sites typically are diked on all sides, and may have several internal dikes to route the water. The size and depth of the site is based on the total amount of material and water to be retained, including water that may accumulate from rainfall.

22. At the dewatering or settling pond, the water may be either retained on site and disposed of through evaporation and percolation, or returned back into the receiving water body. The returned water is typically referred to as decant water, return water, or effluent.
23. Many areas of the Delta consist largely of peat soil formations that may become unstable when loads are placed on them. Settling ponds may be hydraulically overloaded potentially causing pond levees or berms to fail. Therefore, settling ponds with a capacity of greater than 10,000 cubic yards effective volume (less freeboard) shall be designed and constructed under the supervision of a California Registered Civil Engineer or Certified Engineering Geologist.
24. Berms can fail from a lack of maintenance, or overtopping due to flooding or wave action. This Order requires a minimum pond freeboard of two feet be maintained to minimize the potential for overtopping.
25. Dredged materials have a potential for erosion until the material has been significantly incorporated into the levee embankment. During the wet season, dredged materials can erode from the levee embankment and subsequently be discharged to surface waters via adjacent stormwater, agriculture, and reclamation ditches. To control erosion, the Discharger shall implement an **Erosion Control Plan**. If the contiguous levee area in which dewatered dredged material is applied is greater than one (1) acre in size, enrollment in the NPDES General Permit for Storm Water Discharges Associated with Construction Activities, NPDES No. CAS000002, is required. Compliance with the construction stormwater permit is sufficient to satisfy the conditions for an Erosion Control Plan.

### CHARACTERISTICS OF DREDGED MATERIALS

26. Historical data from the DREDGE database were used to assess the potential waste constituents in Delta sediments. The DREDGE database was developed by the Department of Fish and Game and contains physical, chemical, and biological (i.e. toxicity) data collected from approximately 50 studies conducted between 1986 and 2000 on Delta sediment samples. The data were grouped into three broad categories based on their locations: (1) deep water ship channels and ports (Ship Channel); (2) small marinas (Marinas); and (3) other river areas, channels, backwaters, and sloughs (Riverine).

The physical characteristics of Delta sediment were found to exhibit the following characteristics:

Sediment Physical Characteristics	Marinas	Riverine	Ship Channel
Percent Total Organic Carbon (TOC)	0.77	0.56	0.1

Percent Fines (% silt and clay)	64	38	22
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27. Sediments containing higher concentrations of silt/clays and TOC have a greater potential to cause turbidity to the receiving water and may require longer periods for settling in the dewatering facility. Sediment from marinas was found to contain the highest concentrations of silt and TOC. Marinas may be situated behind breakwaters and are less subject to water currents and therefore have the potential for fine sediment deposition and accumulation of organic carbon.
28. Many chemical constituents are lipophilic (typically hydrophobic) and will preferentially sorb or attach to organically enriched or fine particles of sediment. Therefore, sediment waste constituents may correlate with measured physical properties such as grain size and total organic carbon. Water column effects from dredging may occur when waste constituents on the sediment particles are either dissolved or resuspended in the water column. Dredging operations may cause some degradation temporarily to surface waters as concentrations of turbidity, total suspended solids, and other wastes may increase and dissolved oxygen decreases as bottom sediments are disturbed in the excavation process (i.e., by the cutter head or bucket).
29. The DREDGE database also contains chemical constituent data from dredged sediment leachate extracted using the deionized water waste extraction test (DIWET). The DIWET data were used to predict the potential characteristics of leachate from dredge materials. In general, dewatering facilities and dredged material placement sites are not equipped with liners, and therefore leachate from dredged sediments may migrate through the soil column via soil pore space to the underlying groundwater. Metal waste constituents typically detected in the DIWET leachate at concentrations that have the potential to impact groundwater are aluminum, arsenic, chromium VI, copper, lead, manganese, mercury, and zinc.
30. The DREDGE database contains information on constituents of concern that may be present in the return water discharges to surface waters from dewatering facilities, as determined using the modified elutriate test (MET). The MET simulates the dredging and settling process by mixing four parts river water and one part sediment, then mechanically mixing and aerating for one hour. The mixture is then allowed to settle for 24 hours, or the length of the estimated retention time of the dewatering facility. The supernatant is then decanted off and analyzed. Constituents identified in the MET in concentrations that have the potential to impact receiving waters are aluminum, arsenic, copper, lead, manganese, mercury, nickel, and zinc.
31. Dewatered dredged material may be directly placed or beneficially reused for levee improvement, as foundation material or other uses. However, during the

wet season, stormwater runoff and leachate from dredged materials may contain soluble constituents that could migrate to surface water adjacent to the placement site. Dredged sediment must be accurately characterized prior to placement or reuse, as specified in this order or in the Notice of Applicability.

32. The Regional Water Board has reviewed extensive long-term monitoring data from a network of 27 wells installed at Roberts Island dredged material placement site. These data indicate that the effect of continuous dredged material placement, at that site over several decades, has shown minor impacts in the groundwater associated with the peat soils and insignificant impacts in the underlying groundwater sand layer when compared to nearby agricultural operations.
33. The data from Roberts Island No. 1 long-term ground water monitoring indicate that procedures for evaluating and authorizing dredge material placement are at least adequate enough to prevent significant water quality impacts to ground water from long-term dredged material placement at this site.
34. Similar, long-term monitoring of other dredge material placement sites is currently being undertaken. Results from additional sites in the Delta will provide wider understanding of the degree of attenuation that may occur at various sites. The results of these long-term monitoring studies will guide decisions applicable to this General Order on the suitability of placement of dredged material.
35. Dredged material represents a potential resource for rehabilitation of levees, for use as foundation materials for construction projects, for subsidence mitigation, for ecosystem restoration, and other productive uses.

#### **BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS**

36. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board (State Board). These requirements implement the Basin Plan.
37. The beneficial uses of the Sacramento-San Joaquin Delta are municipal supply; domestic supply; agricultural irrigation; process; service supply; water contact recreation; non-contact water recreation; warm fresh water habitat; cold fresh water habitat; warm water migration; cold water migration; warm water spawning; wildlife habitat; and navigation.
38. Designated beneficial uses of ground water are municipal and domestic supply, industrial service and process supplies, and agricultural supply.

39. Section 13267(b) of the California Water Code provides that:

*"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."*

40. The technical reports required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements.
41. USEPA adopted the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan [SIP]), which contains guidance on implementation of the *National Toxics Rule* and the *California Toxics Rule*. The Basin Plan contains the "Policy for Application of Water Quality Objectives" that requires consideration of published standards of other agencies in implementing narrative water quality objectives. The CTR and NTR standards may be incorporated in waste discharge requirements where appropriate to implement the Basin Plans consistent with the Policy for Application of Water Quality Objectives.
42. Section 1.4.4 of the SIP provides that the Regional Water Board may consider **Intake Water Credits** when establishing water quality-based effluent limitations for discharges to surface water, if the following conditions are met:
- a. The maximum ambient background concentration and the intake water concentration of pollutant exceed the most stringent applicable criterion;
  - b. Intake Water Credits are consistent with any Total Maximum Daily Load (TMDL) limit;
  - c. The intake water is from the same water body as the receiving water body;
  - d. A direct hydrological connection between the intake and discharge points;

- e. The water quality characteristics are similar in the intake and receiving waters; and
  - f. The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses.
43. Delta waterways are impaired by a number of chemical constituents, and dredging operations utilize intake water directly from the Delta for slurry transport. The dewatering facility may not remove all the dissolved constituents that were originally present in the intake water and the effluent water from the dewatering facility may contain some of the same chemical constituents in concentrations that exceed promulgated water quality criteria. Therefore, although the SIP does not apply to these WDRs, the Regional Water Board finds that the use of Intake Water Credits is appropriate for non-point source discharges regulated by these WDRs. Therefore, Dischargers subject to this General Order may request Intake Water Credits for constituents that exceed water quality objectives. Intake Water Credits shall apply only as stated in the NOA.
44. The Basin Plan requires that total identifiable persistent **chlorinated** hydrocarbon (OC) pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by either the EPA or the Executive Officer. In addition, new sources of bioaccumulative wastes are not authorized. Therefore, the use of Intake Water Credits for OC pesticides or bioaccumulative waste such as mercury is not allowed or appropriate.
45. The Basin Plan numerical and narrative water quality objectives for surface and groundwater within the basin are implemented primarily through the adoption of WDRs. Narrative water quality objectives are implemented consistent with the Policy for Application of Water Quality Objectives contained in the Basin Plan by establishing numerical limitations based on, among other factors, published standards.
46. The Basin Plan contains a Chemical Constituents water quality objective that, among other objectives, identifies numerical water quality objectives for waters designated as municipal supply. At a minimum, water designated for domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the California maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations:
- a. Table 64431-A (Inorganic Chemicals) of Section 64431;
  - b. Table 64431-B (Fluoride) of Section 64431;
  - c. Table 64444-A (Organic Chemicals) of Section 64444; and
  - d. Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449.

The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Regional Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

47. The Basin Plan contains narrative water quality objectives for chemical constituents, taste and odor, and toxicity. The narrative toxicity objective requires that surface waters and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in plants or animals. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses.
48. State Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining High Quality Waters in California") requires that the Regional Water Board, in regulating the discharge of waste, must maintain high quality waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State; will not unreasonably affect beneficial uses; and will not result in water quality less than that described in the Regional Water Board's policies. Maintenance dredging allows continued access of commercial and private vessels along waterways, which supports economic and recreational activities that benefit the people of the State. The effluent limitations and management practices required by this General Order will result in the use of Best Practicable Treatment and Control technologies, which will minimize or eliminate any adverse change in the quality of surface and ground waters, and will prevent an unreasonable impact on beneficial uses.
49. The discharges authorized by this General Order are consistent with State Board Resolution 68-16 and 40 CFR 131.12 (the federal anti-degradation policy). This General Order establishes requirements that will result in best practicable treatment or control of the discharge to assure that pollution or nuisance will not occur and that the discharges will not unreasonably affect beneficial uses or result in water quality less than prescribed in the Basin Plans.
50. Projects eligible for enrollment in this General Order require a U.S. Army Corps of Engineers Section 10 permit (Rivers & Harbors Act) for dredging operations and may require a Clean Water Act (CWA) Section 404 permit for the discharge of the "effluent" to surface waters. Each project also requires a CWA Section 401 Water Quality Certification from the Regional Water Board. Such Certification will be issued as part of the approved "Notice of Applicability." Other applicable state and federal permits must be obtained prior to discharge. Projects may also be subject to regulation by the California Department of Fish

and Game, the National Marine Fisheries Service, the United States Fish and Wildlife Service, and the State Lands Commission.

51. The wastewater and sediment discharges authorized herein and the treatment and storage facilities associated with the discharge are exempt from the requirements of Title 27 CCR. The exemption, pursuant to Title 27 CCR Section 20090(b), is based on the following:
  - a. Issuance of WDRs;
  - b. The WDRs are consistent with the Basin Plan, and require all enrolled discharges to meet water quality objectives and comply with the anti-degradation policy;
  - c. No need to manage wastewater according to Title 22, CCR, Division 4.5, and Chapter 11, as a hazardous waste. In order to be eligible for coverage under this Order, the Discharger must demonstrate that the waste is not classified as a hazardous waste;
  - d. Any slurry water from hydraulic dredging receives treatment, if necessary, in the dewatering facility; and
  - e. Any effluent return flows must comply with the specified effluent and receiving water limitations that are protective of water quality.
52. Pursuant to CWC Section 13263(g), discharge is a privilege, not a right, and adoption of this General Order does not create a vested right to continue the discharge.
53. This General Order does not preempt or supersede the authority of municipalities, flood control agencies, and other local agencies to prohibit, restrict, or control discharges of waste subject to their jurisdiction, but such regulation by other entities may not be less stringent than this General Order.
54. These General WDRs are exempt from the California Environmental Quality Act (CEQA) because they are not a "project" within the meaning of CEQA, since a "project" results in a direct or indirect physical change to the environment (Title 14, CCR section 15378). These WDRs do not authorize any specific project, so consideration of project-level impacts would be speculative at this time. Some projects eligible for enrollment in these WDRs will be categorically exempt from CEQA pursuant to Cal. Code of Regs. Title 14, section 15301 (existing facilities with negligible or no expansion of use) or section 15304. Projects that are not exempt will be subject to CEQA review before receiving a Notice of Applicability and section 401 water quality certification.
55. Maintenance dredging and placement of the dredged material in areas authorized by applicable regulatory agencies is categorically exempt from the

provisions of CEQA in accordance with Title 14, California Code of regulations, Chapter 3, Section 15304 (g).

### **DELTA CONCERNS**

56. The Delta waterways are listed pursuant to Clean Water Act (CWA) section 303(d) as impaired for chlorpyrifos, DDT, diazinon, Group A pesticides, and mercury. A portion of the Delta is listed for electrical conductivity, and low dissolved oxygen causes impairment in the Stockton Deep Water Ship Channel.
57. Dischargers located within the watershed of a 303(d) impaired water body, for which a TMDL has been adopted, may be required to implement additional BMPs, conduct additional monitoring activities, and/or comply with additional requirements.
58. The Stockton Deep Water Ship Channel and Sacramento Deep Water Ship Channel are routinely dredged to maintain navigation access. However, the amount of sediment removed normally exceeds 100,000 cubic yards of material annually. Maintenance dredging operations in the Stockton or Sacramento Deep Water Ship Channels are not appropriate under this General Order and are regulated under separate Orders.
59. For Delta waters, the Basin Plan general objective for turbidity shall not exceed 50 Nephelometric Turbidity Units (NTU) in waters of the Central Delta and 150 NTU in other Delta waters. The objective states, "Exceptions to the Delta specific objective will be considered when dredging operations may cause a short-term localized increase in turbidity. In this case, an allowable zone of dilution within which turbidity in excess of the limits can be tolerated will be defined for the operation and prescribed in a discharge permit. Dredging operations can be modified to reduce the amount of turbidity." In addition, silt curtains or other measures may be employed to control any turbidity to within 300 feet from dredging operations. The point of compliance with the turbidity limitation shall be 300 feet downstream of the dredging operation. However, the dredging operation cannot cause or contribute to acute toxicity in the water body at any point of discharge. Therefore, the point of compliance with the toxicity limitation shall be at the point of discharge (i.e., the dredging operation).
60. The Delta is subject to tidal influence, seasonal water pumping, and agricultural return flows, which have significant impacts on water quality, flow hydrodynamics, and the amount of water available for dilution. Furthermore, flow exchange in backwater sloughs and marinas may be very limited or stagnant at times. Therefore, reliable dilution may not be available in the receiving stream for a mixing zone.

61. In addition to an accurate characterization of the material to be dredged, an evaluation of the potential groundwater impacts caused by the placement or reuse of dredged material is required. Because of the shallow depth to groundwater in some areas of the Delta, attenuation within the unsaturated soil column underlying placement sites is often limited. Therefore, without a specific technical analysis submitted by the project proponent justifying a higher attenuation factor for the proposed placement site(s), an attenuation factor of one (1) will be assigned.

#### EFFLUENT LIMITATIONS FOR RETURN FLOWS TO SURFACE WATER

62. As discussed in Finding 43, Delta waterways are impaired by a number of chemical constituents and intake water from the dredged material may exceed water quality criteria. Additionally, dredging operations may utilize surface water for sediment transport and therefore, the discharge may contain background concentrations of these chemicals that exceed the chemical constituent objective. When the following chemicals listed in the findings below, are detected in intake samples, Dischargers subject to this General Order may request Intake Water Credits for these constituents for return flows.
63. Based on data contained in the DREDGE database, the effluent concentration of aluminum in the Delta has been reported as high as 5,200  $\mu\text{g/l}$ . **Aluminum** can be toxic to aquatic organisms. The 4-day average Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, for waters with extremely low hardness and pH, for aluminum is 87  $\mu\text{g/l}$ . Effluent discharge has a potential to cause violation of the Basin Plan narrative toxicity objective if extremely low hardness and pH conditions exist in the receiving water. It is unlikely that the extremely low hardness and pH conditions will occur in the Delta at times when dredging is allowed. However, to assure that aquatic toxicity resulting from aluminum does not occur, an aluminum effluent limitation has been included in this General Order that will be in effect if the receiving water hardness is less than 50 mg/L hardness as  $\text{CaCO}_3$ .
64. Sediments contain organic material and **Ammonia**. Dredging operations may result in the discharge of ammonia to the receiving stream. Furthermore, retention time in the dewatering area may be insufficient to allow biological processes sufficient time to convert the ammonia to nitrate. Ammonia is known to cause toxicity to aquatic organisms in surface waters, for which the Basin Plan contains a narrative toxicity objective. U.S. EPA has developed Ambient Water Quality Criteria for ammonia, which is dependent on pH and the presence of salmonids. Because salmonids may be present in the Delta during dredging operations, an effluent limitation, based on the Ambient Water Quality Criteria for ammonia with salmonids present, has been included in this Order consistent with the Policy for Application of Water Quality Objectives.

65. The Basin Plan contains a chemical constituent objective for **Arsenic** of 10 µg/l for the Sacramento-San Joaquin Delta. Based on data contained in the DREDGE database, the effluent concentration of arsenic in the Delta has been reported as high as 37 µg/l. The Effluent discharge has a potential to cause violation of the Basin Plan chemical constituent objective for arsenic. Therefore, an arsenic effluent limitation, based on the Basin Plan chemical constituent objectives, has been included in this General Order.
66. The Basin Plan contains a chemical constituent objective for **Barium** of 100 µg/l for the Sacramento-San Joaquin Delta. The Delta waterways have been found to periodically contain barium concentrations that exceed the chemical constituent objective. Therefore, a barium effluent limitation, based on the Basin Plan chemical constituent objectives, has been included in this General Order.
67. The San Joaquin River is impaired for boron. **Boron** can be toxic to plants. The *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1, recommends that the boron concentrations in waters used for agricultural irrigation (Agricultural Water Quality Goal) not exceed 700µg/l. Effluent discharge to surface waters may contain concentrations of boron that exceed the chemical constituent objective. Therefore, a boron effluent limitation presented in total concentration has been included in this General Order.
68. **Chromium VI** is toxic to aquatic life. It is soluble and is not sorbed to any significant degree by clays or hydrous metal oxides, and therefore may not be adequately removed by settling in the dewatering facility. The USEPA's 4-day average Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for chromium VI is 11 µg/l. Applying the Policy for Application of Water Quality Objectives, a chromium VI effluent limitation, based on the Basin Plan narrative toxicity objective, has been included in this General Order.
69. The Basin Plan contains a chemical constituent objective for the Sacramento-San Joaquin Delta of 10 µg/l for **Copper**. The CTR also contains copper criteria that vary with hardness. At levels less than a hardness of 120 mg/l as CaCO<sub>3</sub>, the 4-day average CTR criterion is more stringent than the Basin Plan objective. Based on data contained in the DREDGE database, the effluent concentration of copper in the Delta has been reported as high as 441 µg/l. Applying the Policy for Application of Water Quality Objectives, a copper effluent limitation, based on the Basin Plan chemical constituent objectives and the CTR criteria, has been included in this General Order.
70. The **Electrical Conductivity (EC)** may increase when dredged minerals are suspended in the water column and dissolved from the dredged sediments. EC may also increase when water in a dredged slurry dewatering facility

evaporates. EC is a critical water quality parameter for determining the suitability of water for irrigation and other beneficial uses. The State Water Resources Control Board's *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) constituent objective for EC is 700  $\mu\text{mhos/cm}$  (calculated with a 30-day running average, from April through August each year). During the period from September through March of each year, the constituent objective for EC is 1,000  $\mu\text{mhos/cm}$  (calculated with a 30-day running average). The cited Bay-Delta Plan salinity objectives are applicable generally in the southern Delta. An effluent limitation, based on the Basin Plan EC constituent objective, has been included in this General Order.

71. Based on data contained in the DREDGE database, the effluent concentration of **Lead** has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for Lead. Lead toxicity to aquatic life and humans is hardness dependent. The 4-day chronic CTR limit for lead is 1.8  $\mu\text{g/l}$  at 65  $\text{mg/l}$  hardness. The Cal/EPA Office of Environmental Health Hazard Assessment has published a Public Health Goal of 2  $\mu\text{g/L}$  for lead in drinking water. Applying the Policy for Application of Water Quality Objectives, an effluent limit for lead, based on CTR criteria and the Public Health Goal, and presented in total concentration, has been included in this Order.
72. The Basin Plan contains a chemical constituent objective of 50  $\mu\text{g/l}$  for **Manganese** in the Sacramento-San Joaquin Delta. Based on data contained in the DREDGE database, the effluent concentration of manganese in the Delta has been reported as high as 597  $\mu\text{g/l}$ . The discharge has a reasonable potential to cause violation of the Basin Plan chemical constituent objective for manganese. Therefore, a manganese effluent limitation, based on the Basin Plan chemical constituent objectives, has been included in this General Order.
73. Based on data contained in the DREDGE database, effluent discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR Standard for **Mercury**. Mercury bioaccumulates in animal tissue and can be harmful to human health. The CTR limit for mercury is 0.05  $\mu\text{g/l}$  for drinking water and fish consumption. Applying the Policy for Application of Water Quality Objectives, an effluent limit for mercury based on the CTR has been included in this General Order.
74. Based on data contained in the DREDGE database, the effluent discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR Standard for **Nickel**. Nickel is a heavy metal whose toxicity is hardness dependent. The CTR 4-day average limit for nickel is 52  $\mu\text{g/l}$  at 100  $\text{mg/l}$  hardness. Applying the Policy for Application of Water Quality Objectives, an effluent limit for nickel, based on the CTR and presented in total concentration, has been included in this General Order.

75. Based on data contained in the DREDGE database, the effluent concentration of tributyltin in the Delta has been reported as high as 1,400 µg/l. **Tributyltin** can be toxic to aquatic organisms. The USEPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life 4-day average limit for tributyltin is 0.072 µg/l. Applying the Policy for Application of Water Quality Objectives, an effluent limitation for tributyltin, based on the Basin Plan narrative toxicity objective, has been included in this General Order.
76. Based on data contained in the DREDGE database, the effluent concentration of **Zinc** in the Delta has been reported as high as 31,390 µg/l. The Basin Plan for the Sacramento-San Joaquin Delta contains a chemical constituent objective for zinc of 100 µg/l. The CTR lists a 4-day average criterion for zinc of 81 µg/L for the protection of freshwater aquatic life. Applying the Policy for Application of Water Quality Objectives, a zinc effluent limitation, based on the Basin Plan chemical constituents objective and the CTR criteria has been included in this General Order.

#### **Pesticides**

77. Delta waters are CWA 303(d) listed for **Chlorpyrifos**, which can be toxic to aquatic organisms. The USEPA's 4-day average Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for chlorpyrifos is 0.014 µg/l. Applying the Policy for Application of Water Quality Objectives, a chlorpyrifos effluent limitation, based on the Basin Plan narrative toxicity objective, has been included in this General Order.
78. Delta waters are CWA 303(d) listed for **Diazinon**, which can be toxic to aquatic organisms. The CDFG 4-day average Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for diazinon is 0.05 µg/l. Applying the Policy for Application of Water Quality Objectives, a diazinon effluent limitation, based on the Basin Plan narrative toxicity objective, has been included in this General Order.
79. The Basin Plan contains a pesticide objective for **OC Pesticides**. The Basin Plan states, "*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 either the EPA or the Executive Officer.*" Based on data contained in the DREDGE database, effluent discharge in the Delta may contain OC pesticides. This General Order contains an effluent limitation prohibiting the discharge of OC pesticides at concentrations detectable within the accuracy of analytical methods.

## PUBLIC NOTICE

80. All of the above, as well as the supplemental information and details in the attached Information Sheet, incorporated by reference herein, were considered in establishing the following conditions of discharge.
81. Interested agencies and persons were notified of the intent to prescribe a General Order for this group of discharges and were provided an opportunity for a public hearing, and an opportunity to submit their written views and recommendations.
82. In a public meeting, all comments pertaining to the discharges were heard and considered.

**IT IS HEREBY ORDERED** that all Dischargers that file a complete Report of Waste Discharge and are issued a Notice of Applicability under provisions of this General Order, and all heirs, successors, or designees, in order to meet the provisions contained in Division 7 of California Water Code and regulations adopted thereunder, shall comply with the following:

### **A. Discharge Prohibitions:**

1. The discharge from dredging operations, including material disturbed by either the cutter head or bucket during dredging, shall not cause or contribute to acute toxicity in the receiving waters.
2. Except as designated in the NOA or as described in Finding No. 22, the discharge of dredged material (water or solid waste) from a dredged material dewatering facility to surface waters and surface water drainage courses is prohibited.
3. Except for activities permitted by the U.S Army Corps of Engineers under Section 10 of the Rivers and Harbors Act and Section 404 of the CWA, soil, silt, or other organic material shall not be placed where such material could pass into surface water or surface water drainage courses.
4. Maintenance dredging shall be confined to the area of operation described in the NOA.
5. Maintenance dredging shall not exceed the maximum depth or volume stated in the NOA.
6. The discharge of dredged material shall be confined to the designated area stated in the NOA unless authorized for removal or reuse.

7. Bypass or overflow of untreated or partially treated sediment or water from the dredged material dewatering facility is prohibited.
8. Discharge of waste classified as "hazardous," defined in Section 20164 of Title 27, CCR is prohibited.
9. The discharge of petroleum products to surface waters is prohibited.
10. The discharge of OC pesticides at concentrations detectable within the accuracy of analytical methods is prohibited.
11. Activities shall not cause visible oil, grease, or foam in the work area or downstream.
12. Activities shall not cause turbidity to exceed 50 NTU in waters of the Central Delta and 150 NTU in other Delta waters as measured in surface waters 300 feet down-current from the project.
13. The discharge of domestic wastewater is prohibited.
14. The discharge to wetlands is prohibited.

**B. Discharge Specifications:**

1. The average daily return flow discharge rate shall not exceed 1 MGD.
2. The total amount of dredged material shall not exceed 100,000 cubic yards for any one Notice of Applicability.
3. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
4. No constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitation.
5. Objectionable odors originating at this facility disposal site shall not be perceivable beyond the limits of the property owned or operated by the Discharger.
6. As a means of discerning compliance with Discharge Specification No. 5, the dissolved oxygen content in the upper zone (1 foot) of all standing water in the ponds shall not be less than 1.0 mg/l.

7. The Discharger shall maintain two feet of freeboard in the dewatering facility at all times.
8. All areas disturbed by the project activities shall be protected from washout and erosion. The Discharger shall develop and implement an Erosion Control Plan, which shall be submitted with the RWD.
9. The dewatering facility shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
10. Newly constructed or rehabilitated levees at dewatering facilities with a capacity greater than 10,000 cubic yards effective volume, less freeboard, shall be designed and constructed under the direct supervision of a California Registered Civil Engineer, or Certified Engineering Geologist.
11. The Discharger shall operate all systems and equipment to maximize treatment of return water and optimize the quality of the discharge.

**C. Groundwater Limitation:**

The discharge, in combination with other site-derived sources, shall not cause underlying groundwater to contain waste constituents statistically greater than background water quality.

**D. Effluent Limitations:**

The point of compliance for effluent limitations is the location where the effluent discharge to the receiving waters from the dewatering facility occurs. The actual point of compliance for each discharger will be specified in the NOA.

1. Effluent discharged to surface waters shall not exceed the following limits:

<u>Constituent</u>	<u>Units</u>	<u>Maximum Concentration</u> <sup>1, 2, 3</sup>
Aluminum	µg/L	87 <sup>4</sup>
Arsenic	µg/L	10
Barium	µg/L	100
Boron	µg/L	700
Chromium VI	µg/L	11
Copper	µg/L	Attachment C
Lead	µg/L	Attachment D
Manganese	µg/L	50

<u>Constituent</u>	<u>Units</u>	<u>Maximum Concentration</u> <sup>1, 2, 3</sup>
Mercury	µg/L	0.05
Nickel	µg/L	Attachment E
Zinc	µg/L	Attachment F
Chlorpyrifos	µg/L	0.014
Diazinon	µg/L	0.05
Oil and Grease	mg/L	5
Tributyltin	µg/L	0.072

<sup>1</sup> Concentrations shall be determined using methods specified in Table 1, or as specified in the NOA. Applicable effluent concentration limits shall be stated in the NOA. Metal concentrations are dissolved except for lead, mercury, nickel, and boron, which are total recoverable.

<sup>2</sup> Intake Water Credits as described in the SIP Section 1.4.4 may be used if approved in the NOA.

<sup>3</sup> Allowable maximum concentrations may be set lower by the Regional Board as deemed appropriate, and consistent with public health guidelines, environmental protection and water quality protection.

<sup>4</sup> Applicable where receiving water has a hardness of less than 50 mg/L as CaCO<sub>3</sub>.

2. The discharge shall not exceed the pH-Dependent Effluent Limits for ammonia shown on Attachment B.
3. The discharge shall not have a pH less than 6.5 nor greater than 8.5.
4. During the time period from 1 April through 31 August each year, the effluent discharge shall not have an EC value greater than 700 µmhos/cm, as calculated on a 30-day running average. From 1 September through March each year, the effluent discharge shall not have EC value greater than 1,000 µmhos/cm, as calculated on a 30-day running average.
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. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the discharge at concentrations detectable within the accuracy of analytical methods approved by either the EPA or the Executive Officer.

#### **E. Dredge Material Reuse Limitations**

1. Sediment placed or reused for levee improvement projects with the potential to discharge runoff to surface waters shall not exceed the following leachable concentrations:

<u>Constituent</u>	<u>Units</u>	<u>Maximum Concentration</u> <sup>1,2</sup>
Aluminum	µg/L	87 <sup>3</sup>
Arsenic	µg/L	10
Chromium VI	µg/L	11
Copper	µg/L	10
Lead	µg/L	2.5
Manganese	µg/L	50
Mercury	µg/L	0.05
Zinc	µg/L	100

<sup>1</sup> Concentrations shall be determined using methods specified in Table 1, or as specified in the NOA. Applicable effluent concentration limits shall be stated in the NOA. Metal concentrations are dissolved except for lead, mercury, nickel, and boron, which are total recoverable.

<sup>2</sup> To be determined using California Code of Regulations, Title 22, Waste Extraction Test modified to use deionized water.

<sup>3</sup> Applicable where receiving water has a hardness of less than 50 mg/L as CaCO<sub>3</sub>.

## F. Receiving Water Limitations

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this General Order.

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall 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.
2. Oils, greases, waxes, floating material (liquids, solids, foam, and scum) or suspended material to create a nuisance or adversely affect beneficial uses.
3. Activities shall not cause turbidity increases in surface waters to exceed:

- a. where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU;
- b. where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent;
- c. where natural turbidity is between 50 and 100 NTUs, increase shall not exceed 10 NTUs;
- d. where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

In determining compliance with the above turbidity limit for in-water construction and excavation work (i.e. the dredge operation) shall be 300 feet down current of the operation.

4. Water quality objectives of constituents of concern as established in the Basin Plan follow. Chemical constituents shall not exceed these concentrations.

<u>Constituent</u>	<u>Units</u>	<u>Maximum Concentration</u> <sup>1</sup>
Arsenic	µg/L	10
Barium	µg/L	100
Copper	µg/L	10
Cyanide	µg/L	10
Iron	µg/L	300
Manganese	µg/L	50
Silver	µg/L	10
Zinc	µg/L	100

<sup>1</sup>Metal objectives in this table are expressed in dissolved concentrations

5. Esthetically undesirable discoloration.
6. Fungi, slimes, or other objectionable growths.
7. The ambient pH to fall below 6.5, exceed 8.5, or the 30-day average to change by more than 0.5 units.
8. The ambient temperature to increase more than 5°F.
9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or 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.
11. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.
12. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.
13. Violation of any applicable water quality standard for receiving waters adopted by the Regional Water Board or the State Board pursuant to the CWA and regulations adopted thereunder.
14. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.
15. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of total samples to exceed 400 MPN/100 ml.

#### G. Provisions

All of the following reports shall be submitted pursuant to California Water Code Section 13267 and shall be prepared by registered professionals as described by Provision G. 6:

1. If the project involves the upland placement of dredged material or dewatering of dredge slurry, the Discharger shall develop and implement an **Operation Plan** that describes site operations and procedures to be followed before, during, and after dredged sediment or dredge slurry placement. The Operation Plan must be submitted with the RWD and shall include emergency procedures for potential risks, including levee failures.
2. If the project will result in the construction of a new dredged material dewatering facility, then at least **60** days prior to construction of the facility, the Discharger must submit a Biological Assessment Report for the Executive Officer approval. The Biological Assessment Report shall, at a minimum, contain the following information:

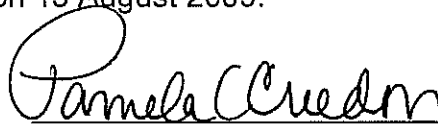
- a. A description of the project;
  - b. A map showing the site location for the project;
  - c. Review of the biological resources for the site and documentation that the project will not adversely affect endangered, threatened, or rare species and that the project will not adversely affect the habitat of such species;
  - d. A demonstration that the project will not interfere with the movement of native resident or migratory species; and
  - e. Documentation that the project will not conflict with policies or ordinances protecting biological resources or will conflict with an adopted Habitat Conservation Plan or other type of approved biological habitat management plan.
3. 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.
  4. The Discharger shall comply with the attached Monitoring and Reporting Program, which is part of this General Order, and any revision thereto as ordered by the Executive Officer.
  5. The Discharger shall submit an Erosion Control Plan as described in Finding 25 of this Order.
  6. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. Each technical report submitted by the Discharger shall contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal, as appropriate.
  7. The Discharger shall take all reasonable steps to prevent any discharge in violation of this General Order. Violations may result in enforcement action, including Regional Water 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 is, by reference, a part of this General Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

9. The Discharger shall notify the Regional Water Board when the dredging project is complete, so that the Notice of Applicability may be withdrawn and the Discharger removed from coverage by this General Order.
10. The Discharger shall immediately notify the Regional Water 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 General Order.
11. The Discharger shall not alternate any material or change the character, location, or volume of the discharge as described in the RWD.
12. The Discharger shall comply with all conditions of this General Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action, or imposing civil monetary liability, or in revision or rescission of the Notice of Applicability. The Regional Water Board considers the Discharger to have continuing responsibility for correcting any problems which may arise in the future as a result of the dredging activities and of the subsequent use of the dredge material disposal sites.
13. This General Order does not relieve the Discharger from the responsibility to obtain other necessary local, State, and Federal permits to construct facilities necessary for compliance with this Order, nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
14. A copy of this General Order and the Notice of Applicability shall be kept as a reference for dredging operation personnel. Key operating personnel shall be familiar with their contents.

15. If the Regional Water Board adopts a site-specific individual waste discharge requirement order for a project authorized under this general order, the individual order automatically supersedes and voids the NOA.

I, PAMELA CREEDON, 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 13 August 2009.

A handwritten signature in cursive script that reads "Pamela Creedon". The signature is written in black ink and is positioned above a horizontal line.

PAMELA C. CREEDON, Executive Officer



**pH-Dependent Effluent Limits for Ammonia**  
**Criterion Maximum Concentration, Maximum 1-hour Average**

pH	Ammonia Concentration Limit (mg N/l)
6.5	32.6
6.6	31.3
6.7	29.8
6.8	28.0
6.9	26.2
7.0	24.1
7.1	21.9
7.2	19.7
7.3	17.5
7.4	15.3
7.5	13.3
7.6	11.4
7.7	9.64
7.8	8.11
7.9	6.77
8.0	5.62
8.1	4.64
8.2	3.83
8.3	3.15
8.4	2.59
8.5	2.14
8.6	1.77
8.7	1.47
8.8	1.23
8.9	1.04
9.0	0.885

$$CMC_{salmonids\ present} = \left( \frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39.0}{1 + 10^{pH - 7.204}} \right)$$

Where: CMC = criteria maximum concentration

**Hardness-Dependent Effluent Limits for Copper  
Criterion Maximum Concentration**

Hardness (mg/l as CaCO <sub>3</sub> )	Copper Concentration Limitation <sup>1,2</sup>
<25	Must Calculate
25	2.7
30	3.2
35	3.7
40	4.1
45	4.5
50	5.0
55	5.4
60	5.8
65	6.2
70	6.6
75	7.0
80	7.4
85	7.8
90	8.2
95	8.6
100	9.0
110	9.7
120	10 <sup>2</sup>
130	10
140	10
150	10
160	10
170	10
180	10

<sup>1</sup> Criteria Maximum Concentration =  $(e^{0.8545[\ln(\text{hardness})]} - 1.702) \times (0.960)$

<sup>2</sup> The Basin Plan contains a chemical constituent objective for copper of 10 µg/l in the Sacramento-San Joaquin Delta. For surface water that contains a hardness greater 120 mg/l as CaCO<sub>3</sub> the Basin Plan chemical constituent objective for copper shall apply.

**Hardness-Dependent Effluent Limits for Lead  
Criterion Maximum Nickel Concentration**

<b>Hardness</b> (mg/L as CaCO <sub>3</sub> )	Lead Concentration Limitation <sup>1</sup> (u g / L)
< 25	use formula
25	0.54
30	0.69
35	0.84
40	0.99
45	1.2
50	1.3
55	1.5
60	1.7
65	1.8
70	2.0 <sup>2</sup>
75	2.0
80	2.0

$$CMC = (EXP(1.273 * LN(hardness) - 4.705))$$

Where: CMC = criteria maximum concentration

<sup>1</sup>Concentrations are expressed as total recoverable lead.

<sup>2</sup>For surface water that has hardness greater than 70 mg/l as CaCO<sub>3</sub>, the concentration of lead shall not exceed 2.0 µg/l .

**Hardness-Dependent Effluent Limits for Nickel  
Criterion Maximum Nickel Concentration**

<b>Hardness</b> (mg/L as CaCO <sub>3</sub> )	Nickel Concentration Limitation <sup>1</sup> ( u g / L )
< 25	use formula
25	16
30	19
35	21
40	24
45	27
50	29
55	31
60	34
65	36
70	39
75	41
80	43
85	45
90	48
95	50
100	52
110	57
120	61
130	65
140	69
150	74
160	78
170	82
>180	use formula

$$CMC = (EXP(0.846 * LN(hardness) + 0.0584))$$

Where: CMC = criteria maximum concentration

<sup>1</sup>Concentrations are expressed as total recoverable nickel.

**Hardness-Dependent Effluent Limits for Zinc  
Criterion Maximum Concentration**

Hardness (mg/l as CaCO <sub>3</sub> )	Dissolved Zinc Concentration Limitation <sup>1,2,3</sup>
< 25	use formula
25	36
30	43
35	49
40	54
45	60
50	66
55	71
60	77
65	82
70	87
75	93
80	98
85	100 <sup>2</sup>
90	100
95	100
100	100

<sup>1</sup> Criteria Maximum Concentration =  $(e\{0.8473[\ln(\text{hardness})] + 0.884\} \times (0.986))$

<sup>2</sup> The Basin Plan contains a chemical constituent objective for zinc of 100 µg/l in the Sacramento-San Joaquin Delta. For surface water that contains a hardness greater 85 mg/l as CaCO<sub>3</sub> the Basin Plan chemical constituent objective for zinc shall apply.

<sup>3</sup> Concentrations are expressed as dissolved zinc.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2009-0085  
FOR  
GENERAL WASTE DISCHARGE REQUIREMENTS  
FOR MAINTENANCE DREDGING OPERATIONS  
SACRAMENTO-SAN JOAQUIN DELTA  
(GENERAL ORDER)

This Monitoring and Reporting Program (MRP) describes requirements for monitoring dredging operations, dewatering facilities, dredged materials, effluent, and receiving waters in accordance with the requirements of the General Order. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. Regional Water Board staff shall approve specific sample station locations prior to implementation of sampling activities.

All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test pH, turbidity, and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated daily or according to manufacturer specifications;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

In the event that any turbidity measurements exceed the limits specified in Section F(3) of this General Order, dredging operations and/or discharge shall cease immediately, and an additional water sample shall be taken immediately at the point of exceedance. This sample shall be analyzed for toxicity with an acute toxicity bioassay and the results reported to the Regional Water Board. The report of turbidity exceedance and steps taken to comply with the provisions of this Order shall be reported immediately by phone, fax or email to the Regional Water Board. Dredging and/or discharge shall be suspended until turbidity levels return to levels in compliance with Section F(3) of this General Order, or as otherwise instructed by the Regional Water Board.

### **DREDGE OPERATION MONITORING**

Sampling, described in the Dredge Operation Monitoring Table of this MRP, shall be conducted anytime dredging operations are performed including site preparation and debris removal. Grab samples shall be taken at approximately 2/3 of the total depth of the water body and shall be taken from the following stations:

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

Other monitoring points may be required at the dredge site if the pre-dredge analysis shows contaminants of concern may 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:

#### **DREDGE OPERATION MONITORING TABLE**

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency<sup>1</sup></u>
Dissolved Oxygen	mg/l	Grab/field Meter	Twice Daily
Temperature	°F or °C	Field Meter	Twice Daily
pH	Standard units	Grab/field Meter	Twice Daily
Turbidity	NTU	Field Meter	Twice Daily

<sup>1</sup> Samples shall be collected 2x per day, no less than 8 hours apart. A final sample shall be collected immediately before or after dredging operations have ceased each day.

### **DEWATERING FACILITY MONITORING**

For hydraulic dredging operations that include placement of dredged slurry in settling ponds, monitoring shall commence immediately after dredged material and/or slurry water is initially discharged into the dewatering facility. Monitoring shall continue until the settling ponds are free of water<sup>2</sup>. Also, sampling shall occur in settling ponds whenever standing water is present for more than one week. Any ponded water shall be sampled for the parameters specified below:

#### **DEWATERING FACILITY MONITORING TABLE**

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Freeboard	0.1 feet	Measurement	Daily <sup>1</sup>
Odors	--	Observation	Daily <sup>1</sup>
Dissolved Oxygen <sup>2,3</sup>	mg/l	Grab/Field Meter	Weekly
pH <sup>2</sup>	Standard units	Grab/Field Meter	Weekly

Levee condition <sup>4</sup>	--	Observation	Weekly
Electrical Conductivity <sup>2</sup>	umhos/cm	Grab/Field Meter	Weekly

- <sup>1</sup> Inspections for freeboard measurements and odors shall be performed daily during the normal business week (i.e. Monday through Friday).
- <sup>2</sup> Samples shall be collected at a depth of one foot (or at mid-depth when water level is less than one foot) from each pond in use, opposite the inlet. DO samples shall be collected between 7:00 and 9:00 am. Monitoring for dissolved oxygen, pH and EC may cease when ponded water depth is less than 0.5 feet.
- <sup>3</sup> If odors are detected during the daily site inspection, then the Discharger shall conduct daily monitoring for dissolved oxygen until the odors are abated, and immediate notification shall be provided to the Regional Water Board.
- <sup>4</sup> Containment levees shall be observed for signs of seepage or surfacing water along the exterior toe of the levees. If surfacing water is found, then a sample shall be collected and tested for pH and total dissolved solids.

### INTAKE WATER MONITORING

If effluent water from a dredged material dewatering facility is discharged back to surface waters, and Intake Water Credits are authorized in the Notice of Applicability (NOA), then intake water monitoring is required. In order to determine ambient background concentrations, monitoring shall conform to specifications contained in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP), Section 1.43.

### EFFLUENT MONITORING

If effluent discharge to receiving waters occurs from the dewatering/settling ponds, the effluent from the dewatering/settling ponds shall be monitored at the overflow weir or discharge pipe during discharge to the receiving waters. Samples shall be representative of the volume and nature of the discharge. Initial sampling shall be conducted within 1 hour of the initiation of discharge. Effluent monitoring shall include the following:

#### EFFLUENT MONITORING TABLE

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency<sup>1</sup></u>
Flow	mgd	Meter	Continuous
Turbidity	NTU	Meter	Daily
pH	Standard units	Grab/meter	Daily
Temperature	°F or °C	Grab/meter	Daily
Dissolved Oxygen	mg/l	Grab/meter	Daily
Electrical Conductivity <sup>2</sup>	umhos/cm	Grab/meter	Daily

<sup>1</sup> Except for pH and temperature, grab samples shall not be collected at the same time each day.  
<sup>2</sup> Electrical conductivity measurements shall be reported at 25 degrees Celsius.

In addition to the monitoring described in the Effluent Monitoring Table, additional constituents of concern may be identified by the Regional Water Board staff after reviewing the pre-dredge sediment and elutriate analysis. The Notice of Applicability will include a list of any further constituents of concern to be monitored, and the required sampling protocol.

**RECEIVING WATER MONITORING**

The Discharger shall conduct receiving water monitoring when discharging effluent to surface waters. If no effluent is discharged, then receiving water monitor does not need to be performed. Receiving water monitoring stations are located as follows:

<u>Station</u>	<u>Description</u>
R-3	Up current of the discharge location and undisturbed by the effluent discharge. Not to exceed 300 feet upstream from the point of discharge.
R-4	Within 100 feet down current of the point of discharge.

Receiving water monitoring shall include at least the following:

**RECEIVING WATER MONITORING TABLE**

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Dissolved Oxygen	mg/l	Grab/field meter	Daily
Temperature	°F or °C	Measurement	Daily
pH	Standard units	Grab/field meter	Daily
Turbidity	NTU	Meter	Daily

In addition to the monitoring described in the Receiving Water Monitoring Table, additional constituents of concern may be identified by the Regional Water Board staff after reviewing the pre-dredge analysis and project application. The Notice of Applicability will include a list of any further constituents of concern to be monitored, and the required sampling protocol.

When conducting the receiving water sampling, a log shall be kept of the receiving water conditions. Notes on receiving water conditions shall be summarized in the monitoring report.

Attention shall be given to the presence or absence of:

- a. Floating or suspended matter
- b. Discoloration
- c. Bottom deposits
- d. Aquatic life
- e. Visible films, sheens, or coatings
- f. Fungi, slimes, or objectionable growths
- g. Potential nuisance conditions
- h. Flow Direction
- i. Upstream Conditions

## DREDGE MATERIAL REUSE MONITORING

The discharger shall be required to implement a monitoring program for reuse applications that have a significant potential for impacting water quality either through surface erosion and/or leaching to groundwater. As required, monitoring for erosion shall continue until the Discharger has demonstrated that erosion control measures have adequately stabilized the placed dredged material.

### REPORTING

The specified parameters shall be monitored as previously described, and reported at a minimum of once per month, with violations reported to the Regional Water Board Staff within 2 hours of the discovery of the violation. This violation notification to Regional Water Board can be done by either telephone or e-mail. Written confirmation and description of the violation shall follow within 2 weeks.

If the project is in operation and/or monitoring is required for more than one month, Monthly Monitoring Reports shall be submitted to the Regional Water Board Staff no later than 15 days from the end of the month in which monitoring is conducted.

Monthly Monitoring Reports shall include:

- 1 The date, time, manner, and exact place of sampling;
- 2 The name of person(s) taking samples;
- 3 The dates of sample analyses (if any) and the person(s) performing the analyses;
- 4 The analytical methods used;
- 5 The results of the analyses;
- 6 A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements;
- 7 Copies of any laboratory analytical report(s); and
- 8 Calibration logs verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.

In reporting monitoring data, the Discharger shall arrange the data such that the date, sample type (e.g., effluent, equalization basin, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the MRP shall be reported to the Regional Board.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty

of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by:



PAMELA C. CREEDON, Executive Officer

13 August 2009

(Date)