

CALIFORNIA COASTAL COMMISSION

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COASTAL DEVELOPMENT PERMIT APPLICATION

Application number3-01-049, Moss Landing Harbor Dredging Project 2002-2007

Applicant.....Moss Landing Harbor District (MLHD)
c/o Linda G. Horning, Interim General Manager

AgentChris Kemos, Harding ESE and Bridgette DeShields, Blasland, Bouck, and Lee, Inc. (BBL)

Project location.....Maintenance dredging in berthing and channel areas in both the north and south arm of Moss Landing Harbor, Moss Landing, Monterey County, with dredge disposal at up to four different sites as detailed below.

Project descriptionThe Moss Landing Harbor District (MLHD) proposes to dredge 100,000 cubic yards per year (cy/yr) for the next five years (2002 to 2007) to restore navigable depths in berths and channels in Moss Landing Harbor (MLH). Uncontaminated dredged materials to be disposed of at the offshore unconfined aquatic discharge sites SF-12 and SF-14 located in Monterey Bay and at three beach renourishment sites located north and south of the harbor entrance. Those materials found unsuitable for disposal at these locations will not be dredged under this permit since no upland rehandling or disposal plan has been developed.

Approvals ReceivedCentral Coast Regional Water Quality Control Board (RWQCB) Order 01-007 "Waste Discharge Requirements for United States Army Corps of Engineers, Moss Landing Harbor District and Duke Energy Moss Landing LLC for Moss Landing Harbor Dredging Operation" dated 9/14/01 and Monitoring and Reporting Requirements Order 01-007; Previous Coastal Commission coastal development permits (CDPs): 3-93-031 (to dredge and dispose of 6,000 cy of sand from entrance haul-out ramp); 3-96-020 (to dredge and dispose of 31,000 cy from South Harbor channel and dock areas); and Emergency Permit



California Coastal Commission
August 2002 Meeting in San Luis Obispo

Staff: K Cuffe Approved by *P.F.L. 7/18/02*

Number 3-98-032-G for one-time dredging and disposal of 22,000 cy from South Harbor, with discharge through existing pipeline to SF-12, and CDP 3-99-011 (to dredge and dispose of 150,000 cy in 1999 and 50,000 cy/yr during 2000 and 2001), 3-99-011-A1 (to include dredging up to 30,000 cy of material in front of Moss Landing Power Plant Intakes) and 3-99-011-A2 (for upland rehandling and decanting of dredge disposal material using existing tank on Moss Landing Power Plant property) and 3-99-011-A3 (extending time period to from 6/30/02 to 9/30/02).

File documents.....CCC Coastal Development Permit Application files 05-73-185, 06-74-421 (denied), P-11-75-1580, P-77-0737, 3-81-089, 3-83-186, 3-85-185 and 3-85-185-a1, 3-89-209, 3-93-031, 3-96-020, 3-98-032-G; Monterey County CDP 98-0137; USACOE Permit 22026S27; RWQCB WDR Order 90-21 and 401 Certification; RWQCB WDR Order No 01-007, RWQCB MRP Order 01-007. Harding Lawson Associate reports: *Results of Sediment Sampling and Analysis: -Area F (7/7/98); -Gravelle's Dock, Moss Landing Harbor (2/8/99); -Areas B/C1, C2/A, G, H, I, J and North Harbor Sand Bar, Moss Landing Harbor (4/7/99); -Area D (K-Dock and MLML Dock) (11/2/99); -Duke Energy Moss Landing Power Plant Intakes (9/26/01). Master Sampling and Analysis Plan for Maintenance Dredging, Moss Landing Harbor (4/2/99). Moss Landing Harbor Master Plan Final EIR (1987).*

Summary of Staff Recommendation:

The staff recommends that the Commission **approve, with conditions**, the proposed long-term dredging and disposal project for the Moss Landing Harbor, which would allow for dredging only material found suitable for unconfined aquatic disposal or beach renourishment. The project is necessary to restore previously dredged depths in existing navigational channels, turning basins, berthing areas and boat launch ramps as allowed under Coastal Act 30233. The project is essential for recreational boaters, commercial fisherman and research vessels, as well as other coastal dependant and coastal related operations that make use of the Moss Landing Harbor, as called for in Coastal Act Section 30234. The conditions included herein mirror conditions imposed on previous harbor projects and are needed in order to protect water quality and marine resources as required by Coastal Act Sections 30230 and 30231.



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Tables

- Table 1: History of US Army Corps of Engineers Dredging of Moss Landing Harbor Federal Channel
- Table 2: History of Moss Landing Harbor District Maintenance Dredging at Moss Landing Harbor
- Table 3: Dredging Volume Record for Moss Landing Harbor 1996-2000
- Table 4: Proposed Dredging Areas in North and South Harbor, Moss Landing Harbor

List of Exhibits

- Exhibit A: Regional Location Map, Moss Landing Harbor
- Exhibit B: Project Vicinity Map, Moss Landing Harbor
- Exhibit C: June 2001 Aerial Photo of Moss Landing Harbor
- Exhibit D: Map of Proposed Dredging Areas, Moss Landing Harbor
- Exhibit E: Pipeline Placement for South Harbor Beach Replenishment Site, Moss Landing Harbor
- Exhibit F: Summary of Sediment Testing Results for Moss Landing Harbor
- Exhibit G: Proposed Sediment Testing Methods for Moss Landing Harbor Dredge Areas
- Exhibit H: Excerpts from RWQCB Waste Discharge Requirements (WDR) Order No. 01-007.
- Exhibit I: RWQCB Monitoring and Reporting Program (MRP) Order No. 01-007



1. Staff Recommendation on Coastal Development Permit

The staff recommends that the Commission, after public hearing, **approve** the proposed project subject to the standard and special conditions below. Staff recommends a **YES** vote on the following motion:

Motion: *I move that the Commission approve Coastal Development Permit Amendment Number 3-01-049 subject to the conditions below and that the Commission adopt the following resolution:*

Approval with Conditions. *The Commission hereby grants a permit for the proposed development, as modified by the conditions below, on the grounds that the modified development is consistent with the requirements of Chapter 3 of the California Coastal Act of 1976 (Coastal Act), and will not prejudice the ability of the Monterey County to implement its certified local coastal program in conformance with Chapter 3 of the Coastal Act. The project is located between the sea and the first public road nearest the shoreline, is in conformance with the public access and recreation policies of the Coastal Act, and will not have any significant adverse effects on the environment within the meaning of the California Environmental Quality Act (CEQA).*

A yes vote would result in approval of the project as modified by the conditions below. The motion passes only by affirmative vote of a majority of the Commissioners present.

2. Conditions of Approval

A. Standard Conditions

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.



5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

B. Special Conditions

1. **Scope of Permit.** This permit allows dredging and disposal of harbor sediments at the rate of 100,000 cubic yards per year (cy/yr) from dredge areas shown in Exhibit D. Exhibit D has been modified from that originally proposed such that the portion of Area I shown cross hatched has been removed from the approved dredge areas because of potential impacts to benthic fauna (see Finding 3a). The cross-hatched portion of Area I shall not be dredged unless approved through a separate permit or future amendment of this permit. Dredge discharge is allowed only between September 1 and June 1. Only materials found suitable for unconfined aquatic disposal or beach renourishment shall be dredged under this permit.

Suitability of dredge material will be determined prior to each dredging event based on USACOE, US Environmental Protection Agency (USEPA) and Regional Water Quality Control Board (RWQCB) review of sediment sampling test results (which will determine sediment grain size distribution, organics and heavy metal concentrations, in accordance with USACOE and USEPA sediment sampling guidelines). Dredge materials found suitable for unconfined aquatic disposal and beach renourishment will be disposed of at the following locations: 1) when more than 20% of material consists of mud sized grains (grain size less than 0.074 mm), dredge disposal will use either the unconfined aquatic discharge site SF-12 (located in Monterey Bay near the end of Sandholdt Pier) or SF-14 (an area with a 500 foot radius in 100 fathoms of water, approximately 1.3 nautical miles from shore); 2) when 80% or more of the material is larger than fine-sand sized grains (grain size of 0.074 mm or greater), dredge disposal will occur at up to three beach renourishment sites, located north and south of the harbor entrance (as shown in Exhibit B). All dredging operations shall be carried out in accordance with approved dredge episode plans required by Condition 3 and based on the dredging episode protocol further defined in Finding 3B.

A separate permit will be required prior to dredging any material found unsuitable for unconfined aquatic disposal or beach nourishment. Such permit will not be granted until an approved upland rehandling and dredge disposal site has been approved by the relevant local, state and federal governing agencies.

At the completion of each years dredging, all dredging equipment and pipelines shall be removed from any beach or open water area and stored in a manner and location such that they avoid adverse impacts to environmentally sensitive habitats or public access.

2. **Term of Permit.** The term of this permit shall run for the period from September 1, 2002 through August 31, 2007. If an extension of this permit is requested, it may be submitted in the form of an amendment request. Such a request shall be subject to additional review, and shall consider any new material, correspondence and studies relevant to the project and available to date. It is anticipated



that this permit will synchronize with a concurrent USACOE permit for this work, and that subsequent extensions shall be for 5-year intervals, in coordination with similar future USACOE permits.

3. **Final Plans For Each Dredging Episode.** At least 60 days PRIOR TO COMMENCEMENT OF EACH DREDGING EPISODE, except where otherwise specified below, permittee shall submit final plans for each dredging episode to the Executive Director for review and approval. All dredge episode plans shall be accompanied with written evidence that the USACOE, Central Coast RWQCB, USEPA, CDF&G, and MBNMS have reviewed and approved the dredging operations or that no such approval is required. Any modifications proposed following Executive Director review and approval must also be submitted to the Executive Director for review and determination of materiality prior to implementation (See Special Condition #13 "Revisions and Amendments").

The final plans for each dredging episode shall include:

- a. **Dredge Episode Sediment Sampling and Analysis Plan.** A sediment Sampling and Analysis Plan (SAP) shall outline and label all areas to be dredged during a particular dredging episode, existing bathymetry, sediment sampling locations, testing protocols to be used, and the proposed core and dredge depth for each proposed dredge area.
 - b. **Dredge Episode Operation Plan.** Each dredge operation plan (DOP) shall outline and label all areas to be dredged during a particular dredging episode, clearly define the permitted dredge depth and over-dredge depth, note the approximate volume to be dredged in each area, and classify the sediments according to the appropriate type of the discharge site (i.e., unconfined aquatic disposal or beach replenishment) based on sediment sampling results and suitability determination, detail the dredge and discharge schedule and detail the discharge pipeline layout.
 - c. **Final Plans for All Other Project Components.** Plans shall detail the location and design of all other project components for each dredging episode, including any pipelines, pumps or other stationary equipment used for dredging, transport, processing, storage and discharge of dredged materials. All disposal sites shall be identified according to the category of materials to be deposited (i.e., sediments suitable for unconfined aquatic disposal, and sediments suitable for beach replenishment). In order to facilitate coordination with Monterey County and other governmental agencies, the submitted plans shall also encompass those portions of the project located in areas where coastal permit authority has been delegated to the local government (i.e., Monterey County); however, those portions of the plans concerning areas outside the Commission's original jurisdiction will not be subject to Executive Director review and approval under this permit. Such areas may include upland areas crossed by pipelines and District lands in the County's jurisdiction.
4. **Dredging Operations.** The procedure for dredge operations shall include:
- a. For each dredging episode proposed, all dredging activities shall be conducted in conformance



with the approved dredge episode Sampling and Analysis Plan and Dredge Operation Plan, and carried out in accordance with the Dredge Episode Protocol described in Finding 3B..

- b. The immediate area of dredging will be inspected daily by the dredge operator to ensure that southern sea otters and brown pelicans are not within 50 meters of the dredge equipment.
 - c. Dredging is to be conducted using a cutterhead dredge or clamshell dredge, and is not to exceed actual permitted dredge depth (which includes a one foot over-dredge depth) or actual sampling depth, whichever is less. If the clamshell dredging is shown to cause increased turbidity in Elkhorn Slough and adversely affect the slough as determined by the Executive Director, the clamshell dredging method in Moss Landing shall be prohibited.
 - d. Dredged materials shall be segregated according to suitability, as determined by the Executive Director of the California Coastal Commission, the U.S. Army Corps of Engineers (USACOE), and Regional Water Quality Control Board (RWQCB) in consultation with the U.S. Environmental Protection Agency (USEPA), Monterey Bay National Marine Sanctuary and California Department of Fish and Game, following the review of sediment sampling test results. Only uncontaminated dredged materials may be dredged under this permit. Based on site suitability determinations, dredge materials found suitable for dredging with more than 20% fine grained sediment shall be disposed of at the unconfined aquatic discharge site SF-12, located in Monterey Bay near the end of Sandholdt Pier or SF-14, located in 100 fathoms of water approximately 1.3 nautical miles from shore. Dredge materials found suitable for dredging that have 80% or more sand sized sediment shall be disposed of at any one of three approved beach renourishment sites located north and south of the harbor entrance as shown in Exhibit B.
 - e. Dredging equipment, including pipelines and booster pumps, shall be maintained and inspected by MLHD on a regular schedule to ensure proper operation and to eliminate any potential navigation or beach access conflicts. Burial of portions of pipeline under roadways, paths, or unconsolidated sandy areas outside of any sensitive habitat areas (dunes or wetlands) may be allowed, subject to review of potential environmental impacts and an amendment of this permit.
5. **Protection of Sensitive Habitats.** No dredge pipeline or storage areas may be located within or adjacent to environmentally sensitive dune or saltmarsh habitats unless and until the permittee has developed a mitigation and implementation plan for review and approval by the Executive Director. The mitigation and implementation plan shall require that **PRIOR TO COMMENCEMENT OF WORK WITHIN OR ADJACENT TO POTENTIALLY SENSITIVE NATIVE DUNE OR SALTMARSH HABITATS**, the permittee shall submit evidence to the Executive Director for review and approval that the following have occurred:
- a. A qualified biologist or botanist shall survey the project construction site including all required pipeline locations and associated staging areas for special status species prior to clearing the area for construction; and
 - b. A qualified biologist or revegetation specialist shall mark areas of native vegetation to be



protected prior to initiation of work. Temporary fencing and flagging shall be installed around sensitive habitat areas to protect native vegetation.

- c. Erosion control measures have been undertaken for all pipeline crossings, pumps, and additional pipeline storage sites to ensure that project-related runoff and sediment will not enter waters of the Harbor, Elkhorn Slough or Monterey Bay. Erosion control plans shall contain provisions for specifically identifying and protecting all environmentally sensitive areas, including any dunes, ditches, or natural drainage swales (with sandbag barriers, filter fabric, protective fencing, straw bale filters, etc.).
6. **Potential Future Upland Rehandling and Disposal Sites.** Permittee shall, during the term of this permit, pursue, and if feasible establish an upland materials handling site and interim and long-term disposal sites through purchase or lease of property or mutual agreement with existing landowners. Investigated sites shall include, but not be limited to, the Moss Landing Power Plant former tank farm and the National Refractories site. Additionally, rail car and barge transportation should be evaluated as alternatives to vehicular transportation to relieve the overburdened local roadway system. A letter report shall be submitted to the Executive Director annually by August 15th to describe progress made to date on this effort.
7. **Public Access.** Permittee shall ensure that dredge operations minimize interference with public access to and along the beach. In particular, permittee shall work with the dredge operator to manage those pipeline segments occupying the beach but not in active use, so as to provide unimpaired pedestrian movement at least every 1000 feet. Short-term measures to provide unimpaired access may include, but are not limited to uncoupling segments, building small-scale sand ramps over the pipeline, or partial burial as allowed for in Condition 4e. For longer periods of time, i.e., more than 60 days, unused pipe segments shall be removed from the beach and stored where they will not interfere with public access or impact natural resources, unless otherwise buried in a way that has no impact on any sensitive habitat areas or public access.
8. **Conformance with USACOE Requirements.** PRIOR TO COMMENCEMENT OF OPERATIONS UNDER THIS PERMIT, the permittee shall submit to the Executive Director for review a copy of the USACOE Permit issued for this project, letter of permission or evidence that no Corps permit is necessary and concurrence by the USEPA for disposal of dredge spoils. Dredging areas, volumes, and discharge are not to exceed or differ from those authorized by this permit.
9. **RWQCB and MBNMS Approval.** PRIOR TO COMMENCEMENT OF OPERATIONS UNDER THIS PERMIT, the permittee shall submit to the Executive Director for confirmation: evidence of the review and approval by the Monterey Bay National Marine Sanctuary (MBNMS) of discharges into Moss Landing Harbor and the Monterey Bay National Marine Sanctuary approved by the RWQCB Waste Discharge Requirements (WDR) Order 01-007. Monitoring shall be conducted in accordance with such programs and as required by the RWQCB WDR Order 01-007 and RWQCB Monitoring and Reporting Order 01-007. All RWQCB and MBNMS monitoring requirements and/or programs shall be submitted to the Executive Director at the same time they are submitted to



the RWQCB and MBNMS.

10. CDFG Review and Approval. PRIOR TO COMMENCEMENT OF OPERATIONS UNDER THIS PERMIT, the permittee shall submit to the Executive Director evidence that the California Department of Fish and Game (CDF&G) has reviewed the project for potential impacts to marine mammals, invertebrates, and seabirds in the area, or an indication that no review is required.

11. Other Jurisdictional Compliance. PRIOR TO COMMENCEMENT OF OPERATIONS UNDER THIS PERMIT, the permittee shall submit to the Executive Director for review and approval evidence of compliance with the requirements of other agencies having jurisdiction.

a. State Lands:

1. Evidence that no State Lands are involved in the development; or
2. State Lands are involved in the development and all permits, including dredging, required by the State Lands Commission have been obtained, or
3. State Lands are involved in the development, but pending a final determination an agreement has been made with the State Lands Commission for the project to proceed without prejudice to that determination.

b. Monterey County: Evidence that the dredge program has been reviewed and approved by the Monterey County Environmental Health Division, Hazardous Materials Branch.

c. Monterey Bay Unified Air Pollution Control District: Evidence of compliance with all conditions of the MBUAPCD. Such conditions shall be submitted for the Commission file. Any limitations on hours of the dredge program shall be indicated.



- 12. Environmental and Condition Monitor.** PRIOR TO COMMENCEMENT OF OPERATIONS UNDER THIS PERMIT, the permittee shall submit the name, address, telephone number, and qualifications of an environmental conditions monitor to the Executive Director for review and approval, along with a work program to guide the activities of the monitor. The monitor shall be an independent consultant/contractor shall be funded and provided by the permittee following approval by the Executive Director in consultation with the USACOE, RWQCB, USEPA, CDFG and MBNMS. The monitor shall make monthly site visits to conduct visual inspections of dredging activities/operations within or adjacent to environmentally sensitive habitat areas to ensure that 1) dredging and discharge activities are being performed in compliance with the conditions of this permit; 2) that project activities are not harming wildlife or vegetation; and 3) that mitigation measures remain in place during the life of the project. The environmental and condition monitor shall submit a twice annual report to the Executive Director describing the permittee's conformance with permit requirements, beginning six months after Commission action on this permit and continuing during construction and until completion of the dredge project. The environmental and condition monitor shall be empowered to halt construction, after consultation with the Executive Director, if it is necessary to ensure that the permittee is complying with all conditions of this permit. The Executive Director shall settle any disputes between the monitor and the permittee.
- 13. Revisions and Amendments.** The Permittee shall undertake development in accordance with the approved final plans and dredging episode plans. Any proposed changes to the approved final plans (including any changes in dredge area locations, boundaries or depths, or changes to the location, configuration or procedures for handling and disposal of dredged materials) shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that the change is immaterial or that no amendment is necessary. Any new upland rehandling or dredge disposal sites shall require a separate permit approval process.

3. Recommended Findings and Declarations

The Commission finds and declares as follows:

A. General Project Location & Background

Moss Landing is a coastal community within unincorporated northern Monterey County. It is located near the middle of Monterey Bay between the cities of Santa Cruz (approximately 26 miles north) and Monterey (approximately 18 miles south), and between two river systems, the Pajaro River (approximately 1.5 miles north) and the Salinas River (approximately 4 miles south). (See Exhibit A for regional location map and Exhibit B for site vicinity map, and Exhibit C for an aerial photo of the harbor area.) The harbor lies just west of Highway 1 between the mouth of Elkhorn Slough and the head of the Monterey Submarine Canyon.



The Moss Landing area is located adjacent to the Monterey Bay National Marine Sanctuary, which extends from the high tide seaward typically about 35 miles offshore between Marin and San Luis Obispo Counties. The Monterey Bay National Marine Sanctuary is the nation's eleventh and largest marine sanctuary, protecting marine resources that include the nation's most expansive kelp forests, one of North America's largest underwater canyons, and the closest deep ocean environment to the continental United States (NOAA, 1995).

Moss Landing Harbor was created in 1947 when the US Army Corps of Engineers (USACOE) first dredged the mouth of Elkhorn Slough near the northern extent of the Old Salinas River mouth. The Harbor occupies a portion of the Old Salinas River channel paralleling the coast and separated from the ocean by sand spits and dunes. Permanent jetties placed along the north and south sides of the entrance provide year-round access to the Pacific Ocean. Tide gates along the north and south ends of the Harbor allow for muted tidal activity within Bennett Slough to the north, as well as in the Moro Cojo Slough and the Old Salinas River channel to the south. The 4,000-acre Elkhorn Slough watershed lies east of Highway One and is hydrologically linked with the harbor through which daily tides flow.

The Harbor entrance and Elkhorn Slough channel basically divide the Moss Landing Harbor into two parts, referred to as the North and South Harbor areas, respectively (Exhibits B and C). The North Harbor area occupies a portion of the Old Salinas River near its confluence with Bennett Slough, and the South Harbor area occupies portions of both the Old Salinas River and the mouth of Moro Cojo Slough.

Lands to the west of the Harbor are made up of sand flats and sand dunes that have built atop the sand spits of the Old Salinas River. Most of the land along the southern spit and a portion of land along the northern spit were historically mapped as City Lands of Monterey (the northern extent representing the location of the Old Salinas River mouth; see Exhibit B). Today, there is no ownership or legal connection to the rather distant City of Monterey, and the primary mouth of the Salinas River is several miles to the south. Beach strand and dune fields located in the Moss Landing and Zmudowski State Beaches make up the coast north of the Harbor entrance, which extends to the mouth of the Pajaro River. East of the Harbor lie the mud flats and tidal marshes of the Elkhorn Slough watershed, which extends inland for nearly seven miles. Upland areas immediately surrounding the Harbor are made up of low rolling hills, which reach about 20 feet in elevation.

The North Harbor is currently home to approximately 155 recreational motor and sail boats, the Elkhorn Yacht Club, a commercial kayaking center, and Skipper's and Maloney's Harbor Inn restaurants. (The Commission previously approved CDP application 3-99-002 for the rebuild of Skipper's Restaurant, which burned down in 1999.) The South Harbor is home to approximately 455 commercial and recreational boats, including most of the commercial fishing and oceanographic research vessels. The South Harbor area also includes onshore commercial fishing, marine industrial and oceanographic research facilities built along Sandholdt Road. Additionally, a number of restaurants, antique shops and art galleries are located along Moss Landing Road, between Moro Cojo Slough and the Old Salinas River. Two industrial sites are located along the eastern side of the South Harbor: (1) the Moss Landing Power Plant, owned and operated by Duke Energy, North America, LLC. (purchased from PG&E in 1998); and (2) the National Refractories and Minerals Corporation site (currently inactive and up for



sale). Harbor District offices are located north of Sandholdt Road on a portion of land between the Old Salinas River channel and the Moro Cojo Slough channel.

As a result of the harbor's proximity to both deep-water marine environments immediately offshore and estuarine environments and tidal sloughs inland, the harbor is highly valued for the commercial fishing, recreational boating and educational opportunities this location provides. Moss Landing Harbor is one of only six harbors located along the Central Coast area, and is the largest fishing port between San Francisco and Los Angeles with fish landings in excess of 27.5 million pounds per year.

The Moss Landing community has a population of approximately 520 people (HLA, 1999). Upland areas adjacent to the Harbor include marine research facilities, commercial fishing and recreational boating operations, manufacturing and various visitor-serving uses. Nearby upland areas have historically been used for farming (including both dairy farms and crop farming), power generation and some industrial facilities. The area has also become a day-trip destination for small boating enthusiasts and kayakers, with put-ins both in Moss Landing Harbor and Elkhorn Slough.

Because of its location at the bottom of two major watersheds, Moss Landing Harbor is a depositional sink for fine-grained sediments, especially following major storms that carry large volumes of sediment from the Salinas Valley watershed via the Old Salinas River. Similarly, fine-grained sediments eroded from the Elkhorn Slough watershed ultimately ends up in the harbor. Sand sized material transported by longshore currents also get trapped in the entrance channel forming shoals, and onshore winds transport beach and dune sands into the North Harbor, forming sand bars that extend east into the North Harbor navigation channel. Excessive sediment deposition in the harbor can impede navigation in berthing areas, navigation channels, turning basins, and boat ramp areas, which in turn restricts movement of commercial fishing, recreational, and marine research vessels and the activities they support. Maintenance dredging is therefore necessary to maintain navigable depths in these areas.

However, because much of the sediment trapped in the Harbor is a result of non-point source runoff from the largely agricultural watersheds of the Salinas River and Elkhorn Slough, some Harbor sediments are contaminated with DDT and heavy metals (such as copper, mercury or chromium), in excess of environmentally safe limits, in addition to organotins resulting from harbor activities. Therefore it is necessary to prepare sampling plans, analyze sediment samples prior to dredging, and provide dredge plans that adequately deal with these materials. Following sampling, test results are evaluated by the California Coastal Commission (CCC), US Army Corps of Engineers (USACOE), and the Regional Water Quality Control Board (RWQCB) in consultation with the U.S. Environmental Protection Agency (USEPA), Monterey Bay National Marine Sanctuary (MBNMS) and California Department of Fish and Game (CDF&G) to determine suitable discharge sites. Suitability determinations are used to indicate whether sediments are (1) contaminated and therefore require confined upland disposal; (2) uncontaminated and suitable for beach replenishment; or (3) uncontaminated and suitable for unconfined aquatic disposal.

Over the past five years, the North Harbor Interim Re-handling Site was used for processing unsuitable dredge material under the previous permit (3-99-011). However, this site has been closed and restored



as required by the Monterey County CDP 98-0137, and no alternate upland rehandling and disposal facility has yet been identified or approved. Therefore, only materials found suitable for unconfined aquatic disposal or beach renourishment shall be dredged under this permit, and a separate permit will be required prior to dredging any material found unsuitable for disposal at these sites. Such a permit will not be granted until an upland rehandling site has been identified and approved by the relevant local, state and federal permitting agencies.

Past Dredging History. The USACOE and Moss Landing Harbor District have conducted maintenance dredging of Moss Landing Harbor since 1947, when the harbor was first dredged. The USACOE, in accordance with its mandate for maintaining navigable harbors and inland waterways, as defined in Section 10 of the Rivers and Harbors Act, has authority over and responsibility for maintaining the Federal Channel areas to navigable depths. According to the Moss Landing Harbor Master Plan Final EIR, dated 1987, the Corps is responsible for dredging the entrance channel, turning basin, and South Harbor Channel to a depth of 15 feet below mean lower low water (MLLW). Channel widths are 200 feet wide for the entrance channel and turning basin, and 100 feet wide for the South Harbor Channel. Table 1 shows the dredging volumes removed by the Corps between 1947 and 1999. Approximately 114,762 cy of dredge material has been removed from the Federal Channel over the past five years (Table 3), of which 51% (58,081 cy) required upland disposal .

The Moss Landing Harbor District (MLHD) is responsible for dredging all berthing areas within the Harbor and the North Harbor Channel. The MLHD may also dredge within the Federal channel on an as needed basis (to dredge areas left un-dredged or deferred by the USACOE). The North Harbor Channel is 75 feet wide and dredged to a depth of -10 feet MLLW.

The Moss Landing Harbor District has conducted both maintenance dredging and emergency dredging in the past, as approved by the USACOE and California Coastal Commission (CCC). Dredging activities authorized by the CCC in the last ten years include CDP 3-96-020 (approved 5/9/96) to dredge and dispose of 31,000 cubic yards (cy) of dredge material from South Harbor channel and dock areas, and CDP 3-98-032-G (approved 4/8/98) to conduct emergency dredging and disposal of approximately 22,000 cy from South Harbor locations, and CDP 3-99-011 to dredge between 150 and 50 cy per year from North and South Harbor locations (amended to include dredging up to 30,000 cy from in front of the Moss Landing Power Plant intakes). Table 2 shows the history of dredging conducted by the MLHD between 1973 and 2001. According to the Dredging Volume Record shown in Table 3, a total of 245,974 cy was dredged by the Harbor District in the past five years has been. Approximately 25% (62,870 cy) of this material required confined upland disposal.

B. Project Description

The Moss Landing Harbor District (MLHD) proposes to dredge up to 100,000 cubic yards per year (cy/yr) as part of maintenance dredging in berth, channel, turning basin and boat ramp areas in the Moss Landing Harbor over the period between September 1, 2002 and August 31, 2007. The project also requires permit approval from the US Army Corps of Engineers (USACOE), and it is expected that both permits would be designed to run concurrently. Additional dredging may be required periodically as a



result of heavy siltation caused by high runoff events. The Harbor District may request authorization for additional dredge volumes on a case-by-case basis. Where the amount to be dredged is less than a 20% increase, (i.e., less than 20,000 cy) and dredging would comply with all other requirements of this permit, dredging may be allowed following approval of an amendment to this permit. However, for additional dredge amounts greater than 20,000 cy, a separate permit application will be required.

Exhibit D shows the proposed areas to be dredged and their location relative to the Federal channel. Areas to be dredged within the South Harbor include Areas A (MBARI Dock area), B, C, D, E (Gravelle's Dock area), F, G, and H (which includes the north and south intake areas for the Moss Landing Power Plant). Areas to be dredged within the North Harbor include the North Harbor Sand Bar area, Area I (north harbor navigation channel and boat ramp areas) and Area J (the north harbor berthing area). Table 4 gives the proposed dredge depths and dredge volumes for each area, as well as the last discharge site used during previous dredging.

Materials found suitable for unconfined aquatic disposal or beach renourishment shall be dredged following the dredge episode protocol described below.

Dredging Episode Protocol. As described previously, the exact amount to be dredged and the appropriate disposal site for dredge spoils will be determined prior to each dredging episode. Additionally, the following list describes the steps required for each dredge episode:

- (a) A Sampling and Analysis Plan (SAP), describing the areas proposed for dredging, existing bathymetry, proposed sediment sampling locations and testing protocols must be submitted and approved by the USACOE, RWQCB and CCC in consultation with the USEPA, MBNMS, and CDFG prior to each dredging episode;
- (b) Sediment sampling must be performed in conformance with the approved SAP.
- (c) Following sediment testing (see "Sediment Testing and Analysis" below), a report including the results of sediment sampling and an analysis of test results, must be submitted for review by the agencies;
- (d) Based on a review of the sediment sampling test results, a determination of disposal site suitability must be made by USACOE, RWQCB, and CCC, in consultation with the USEPA, MBNMS and CDF&G. Dredge materials found suitable for unconfined aquatic disposal and beach renourishment will be disposed of at the following locations: 1) when more than 20% of material consists of mud sized grains (grain size less than 0.074 mm), dredge disposal will use either the unconfined aquatic discharge site SF-12 (located in Monterey Bay near the end of Sandholdt Pier) or SF-14 (an area with a 500 foot radius in 100 fathoms of water, approximately 1.3 nautical miles from shore); 2) when 80% or more of the material is larger than fine-sand sized grains (grain size of 0.074 mm or greater), dredge disposal will occur at up to three beach renourishment sites, located north and south of the harbor entrance (as shown in Exhibit B).



- (e) Following the site suitability determination, a Dredge Operations Plan (DOP) must be submitted to the Executive Director for review and approval which identifies the dredging and discharge schedule, the areas and volumes to be dredged and the dredge disposal site and pipeline layout to be used based on results of the suitability determination.
- (f) Once the DOP is authorized by the CCC, USACOE and RWQCB, dredging and dredge disposal may occur in conformance with the approved DOP. A professional hydrographic surveyor shall conduct a bathymetric survey following completion of each dredge episode. Additionally, leadline soundings may be taken during the process to ensure appropriate dredge depths. Any variation in depth should be reported, however dredging will not be allowed any deeper than that depth penetrated by previous sample cores.
- (g) Following dredging, a report summarizing the dredge operations and water quality monitoring data collected during each dredge episode must be submitted by the 15th of each month following any dredging activities. An annual report will also be submitted by March 31st of each following year. This requirement is similar to that required by the RWQCB WDR 01-007, and the report submitted to the RWQCB may also be submitted for this purpose.

Sediment Testing and Analysis. Dredge disposal depends on the biological, chemical and physical qualities of sediments as determined through sediment sample analysis. Previous test results have shown that some areas of the Harbor contain relatively high levels of DDT and heavy metals (copper, chromium and mercury) – see Exhibit F for a summary of the most recent disposal monitoring test results. Therefore, sediment testing is required prior to dredging to determine the nature and extent of contaminated sediments, and the disposal sites suitable for sediments from each dredging area.

Based on the established dredge episode protocol, a Sampling and Analysis Plan (SAP) will be prepared, describing proposed dredge areas, sediment sampling locations and testing protocols. For each dredge episode, sediment samples will be collected from all of the proposed dredging areas based on the approved SAP and sediment testing will be conducted in conformance with the Inland Testing Manual (USEPA/USACOE, 1998), as summarized in Exhibit G. Sediment samples will be analyzed for 1) metals; 2) pesticides and PCBs; 4) butylins; 5) organotins; 6) total and water soluble sulfides; 6) total solids/water content; 7) total volatile solids; 8) total organic carbon (TOC); and 9) grain size distribution.

Dredging Operations. Following review of sediment sampling test results, the CCC, USACOE and RWQCB will make a disposal site suitability determination in consultation with the USEPA, MBNMS, and CDFG. Following this determination, a Dredge Operations Plan (DOP) will be submitted. The DOP will include 1) site plans showing the specific area(s) and volume(s) to be dredged, including planned dredge depths, 2) the discharge site(s), and 3) a dredging and discharge schedule.

Dredging equipment, pipelines and staging areas are described in detail in the application project description. Sediments found suitable for dredging will be dredged using a cutterhead hydraulic dredge, which removes and transports dredged material in a liquid slurry through 10 to 12 inch high density



polyethelene (HDPE) pipelines, thereby minimizing disturbance and resuspension of sediments at the dredge site. The dredged slurry is then pumped to one of the approved discharge sites based on the suitability determination (either the offshore disposal sites SF-12 and SF-14, or to one of the beach replenishment sites). Dredged slurry suitable for disposal at SF-12 is sent through a section of HDPE pipeline that extends from the dredge barge underground between the southern end of "A" dock and the northern end of Sandholdt Pier. The pipeline is then submerged for a length of about 500 feet offshore to the disposal site. Dredge materials going to SF-14 require disposal using a barge to take the material out to the site. Dredged materials suitable for beach replenishment are discharged above mean tide level (MTL) from HDPE pipelines set along the beach (onshore pipeline placement is shown in Exhibit E). A clamshell dredge may also be used if approved as part of the DOP. A clamshell dredger uses marked cables and lead lines to continuously monitor the depth during dredging. Overflow from the barge, bin or dump scow used would be limited to a maximum of 15 minutes during dredging and no overflow would be allowed during transportation to the disposal site. Knockdown dredging using a horizontal beam or such tool may be used in the dredge areas shown on Exhibit D to even out dredge depths.

Closure of Rehandling and Upland Disposal Site. As previously described, over the past five years a total of 245,985 cy of sediment has been dredged from the harbor by the Harbor District (see Table 3). Of this total, approximately 62,870 cy (or 25.5%) of the dredged material was found to be unsuitable for unconfined aquatic disposal or beach nourishment. This material was dredged from locations in Area C near the south end of the harbor, and Area E near Gravelle's Dock. All material found unsuitable for unconfined aquatic disposal and beach nourishment was pumped to a rehandling site in the north harbor (previously called the North Harbor Rehandling Site), where via a series of decant ponds and weirs it was dewatered, then excavated and transported to the Marina Landfill using 20 cy capacity trucks.

However, following the end of the last harbor dredging episode, the North Harbor Rehandling site has since been closed and restored as required by the Monterey County CDP 98-0137. No other upland rehandling and disposal facility has been selected by the Harbor District, nor approved by any of the regulator agencies. Therefore, only materials found suitable for unconfined aquatic disposal or beach renourishment shall be dredged under this permit, and a separate permit will be required prior to dredging any material found unsuitable for disposal at these sites.

Future Disposal Sites. To plan for future maintenance dredging of material found unsuitable for unconfined aquatic disposal or beach nourishment, which as described above may be as much as 25% of MLHD's dredging needs, the Harbor District should pursue efforts to develop a long-term plan to seek out and evaluate the best feasible way to dispose of these materials with the least environmental impact. Alternative sites for future rehandling facilities should be sought out, which may require cooperative agreements with adjacent landowners (i.e., Duke Energy LLC or the National Refractories site landowner). Additionally, since transportation of these dredge materials required over 3,000 truckloads, with as many as 80 truckloads per day, alternative transportation methods (such as rail car or barge) should be evaluated in order to reduce the impacts that such truck traffic has on the already heavily burdened roadway system in the area. Accordingly, this permit has been conditioned to require the permittee to pursue the establishment of future rehandling and disposal sites and alternative



transportation methods. Any such site and transportation management plan would require a separate permit, including approvals from all relevant agencies.

C. Previously Approved Project & Related Commission Actions

Previous permit and amendment descriptions including CDP numbers and dates are listed in Table 2. The Commission has extensively conditioned the previous Harbor District dredging permits and amendments in order to protect marine resources, environmentally sensitive habitats, water quality and public access. These previous conditions have been, wherever applicable to this consolidated permit, incorporated and updated.

D. Standard of Review

As proposed, dredging and discharge would take place within the Commission's original permit jurisdiction in the Moss Landing Harbor and Monterey Bay. In general, original Commission jurisdiction is over existing and former (now filled) tidelands. Regulatory jurisdiction for lands above mean high tide were granted to Monterey County in 1988 following certification of their Local Coastal Program. As no current upland rehandling sites have been identified or approved, most proposed activities as currently described would be within the Commission's original jurisdiction; however the placement of discharge pipeline may be located in both the Commission's and Monterey County jurisdiction (Exhibit E).

The standard of review for new development in the Commission's original jurisdiction area is the Coastal Act. The standard of review for new development located within Monterey County's coastal permit jurisdiction is the certified Local Coastal Program (LCP), and with respect to public access and recreation, the applicable Chapter 3 policies of the Coastal Act. Monterey County's Certified LCP includes the North County Land Use Plan (LUP) with specific requirements for the Moss Landing Area. Because portions of the project, such as the discharge pipeline layout may span the jurisdictional boundary, and because in numerous respects coastal resource issues demand that the project be understood in their entirety, regardless of jurisdictional boundaries, the following findings, where necessary, discuss portions of the project located beyond the original jurisdiction area.

E. Issues Discussion

1. Coastal Permit Required

The dredging project is not excludable for coastal development permit under the regulatory exemption for routine maintenance dredging found in Section 13252 (a)(2)(A)(B)(C) of Title 14 of the California Code of Regulations, because it does not meet the specific criteria outlined in the regulation:

13252. Repair and Maintenance Activities Requiring a Permit.



(a) For purposes of Public Resources Code Section 30610(d), the following extraordinary methods of repair and maintenance shall require a coastal development permit because they involve a risk of substantial adverse environmental impact:

(1)....

(2) Any method of routine maintenance dredging that involves:

- (A) The dredging of 100,000 cubic yards or more within a twelve (12) month period;
- (B) The placement of dredged spoils of any quantity within an environmentally sensitive habitat area, on any sand area, within 50 feet of the edge of a coastal bluff or environmentally sensitive habitat area, or within 20 feet of coastal waters or streams; or
- (C) The removal, sale, or disposal of dredge spoils of any quantity that would be suitable for beach nourishment in an area the commission has declared by resolution to have a critically short sand supply that must be maintained for protection of structures, coastal access or public recreational use.

The project involves the dredging of up to 100,000 cubic yards per year, and deposition of dredge spoils in the ocean and on a sandy area within 20 feet of coastal waters (beach replenishment sites), and so requires a Coastal Development Permit.

2. Land Use Priorities

Coastal-dependent and coastal-related uses are among the highest priority Coastal Act uses.

The Coastal Act defines coastal-dependent and coastal-related as follows:

Section 30101. "Coastal-dependent development or use" means any development or use which requires a site on, or adjacent to, the sea to be able to function at all.

Section 30101.3. "Coastal-related development" means any use that is dependent on a coastal-dependent development or use.

Section 30001.5 states in part:

Section 30001.5. The Legislature further finds and declares that the basic goals of the state for the coastal zone are to:

(a) *Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources. ...*



- (c) *Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resource conservation principles and constitutionally protected rights of private property owners.*
- (d) *Assure priority for coastal-dependent and coastal-related development over other development on the coast ...*

Coastal Act Section 30234 and 30255 also provides:

Section 30234. Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

Section 30234.5. The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

Section 30255. Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.

The Moss Landing Harbor is one of only six harbors located along the Central Coast, and is the primary commercial fishing port in Monterey Bay area. The MLHD maintains a total of 488 berths within the Harbor that are used by commercial fishing, recreational and research vessels. Approximately 175 recreational boats and 200 commercial boats are berthed in the Harbor. The Harbor is also home to the largest number of research vessels berthed within the Central Coast area, supporting the Monterey Bay Aquarium Research Institute, the California State University Moss Landing Marine Lab, and the Elkhorn Slough National Estuarine Research Reserve.

Section 30234 of the Coastal Act provides that facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Section 30234.5 states that the economic, commercial, and recreational importance of fishing activities shall be recognized and protected. Commercial and recreational boating and fishing are coastal-dependant priority uses that cannot function without sufficient harbor depths. Hence, the maintenance of adequate berthing and navigational depths in the Harbor is essential, and must be considered a high priority under the Coastal Act.

The proposed dredging and discharge activities not only support coastal-dependant uses, but are integral to such uses and therefore have a priority under the Coastal Act. Accordingly, the Commission finds that



the proposed development is a high priority coastal use that is consistent with the land use priorities of Coastal Act Sections 30001.5, 30222, 30222.5 and 30255.

3. Marine Resources

Coastal Act Sections 30230 and 30231 require that:

Section 30230. Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Coastal Act Section 30233 provides in part that:

Section 30233.

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(1)...

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems. ...

(e) Erosion control and flood control facilities constructed on water courses can impede the movement of sediment and nutrients which would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone,



whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for such purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

With regards to water quality, Coastal Act Section 30412 (b) states that

Section 30412.

(b) The State Water Resources Control Board and the California regional water quality control boards are the state agencies with primary responsibility for the coordination and control of water quality. ... The commission shall assure that proposed development and local coastal programs shall not frustrate this section. The commission shall not ... modify, adopt conditions, or take any action in conflict with any determination by the State Water Resources Control Board or any California regional water quality control board in matters relating to water quality or the administration of water rights.

Except as provided in this section, nothing herein shall be interpreted in any way either as prohibiting or limiting the commission, local government, or port governing body from exercising the regulatory controls over development pursuant to this division in a manner necessary to carry out this division.

3a. Biological Resources

The Elkhorn Slough watershed and Monterey Bay National Marine Sanctuary contain many of the most valuable marine resources found within the Central Coast area. The Elkhorn Slough watershed is an incredibly rich biological area, with 4,000 acres of coastal estuary, over 270 species of resident and migratory birds, and freshwater ponds and riparian wetland areas that support three rare amphibians, the California red-legged frog, Santa Cruz long-toed salamander and the California tiger salamander. The watershed is surrounded by coastal dunes and upland ridges that both support numerous rare plant species. The Monterey Bay National Marine Sanctuary encompasses over 5,300 square miles of protected marine waters and includes a diverse complex of marine habitats including deep sea, open ocean, kelp forests, sandy beaches, rocky seashore, estuaries and sloughs. The Sanctuary supports a variety of marine life including more than 345 species of fish, 94 species of seabirds, 26 species of marine mammals, 450 species of algae and one of the world's most diverse invertebrate populations (NOAA Citizen's Guide to Clean Water).

Elkhorn Slough is one of the few relatively undisturbed coastal wetlands remaining in California. The main channel of the slough winds inland nearly seven miles and encompasses over 2,500 acres of marsh and tidal flats. Over 400 species of invertebrates, 80 species of fish, and 200 species of birds have been identified in Elkhorn Slough (Elkhorn Slough Foundation, 2001). The channels and tidal creeks of the slough are nurseries for many fish, including seven commercially important species. Harbor seals and



sea otters also make their way through the Harbor to established haulouts in Elkhorn Slough. Additionally, the slough is on the Pacific Flyway, and provides an important feeding and resting ground for many kinds of migrating waterfowl and shorebirds. At least six rare, threatened or endangered species utilize the slough and environs, including peregrine falcons, Santa Cruz long-toed salamander, clapper rails, brown pelicans, least terns and sea otters (NOAA, CDF&G). Additionally, snowy plovers may use beach areas associated with the Moss Landing and Salinas River State Beaches. The Elkhorn Slough National Estuarine Research Reserve (ESNERR), and the Moss Landing Wildlife area, both managed by the California Department of Fish and Game, serve to protect public lands within the watershed.

The Moss Landing Harbor provides the vital link between the tidal waters of Monterey Bay and Elkhorn Slough. Marine mammals, fish and seabirds make use of both the aquatic and terrestrial environments provided within the Harbor. Seals and sea otters have been observed hauling out on the North Harbor sand bar. Pelicans and other shorebirds have also been observed resting or foraging on the sand bar. The tidal marsh and mudflats that fringe the North Harbor also serve as resting and foraging grounds for various shorebirds. Some of the more consolidated mudflats in the North Harbor near the confluence with Elkhorn Slough support remnant eelgrass beds (ABA Consultants, 1998), and clams and other invertebrates are known to occur in the inter and subtidal portions of the North Harbor area.

Harbor water quality varies throughout the year becoming more turbid during winter months. Harding Lawson Associates (HLA 2/4/99) conducted an analysis of the effects of turbidity due to dredging activities in order to evaluate whether the existing eelgrass bed may be potentially impacted by proposed dredging activities in the North Harbor. According to the report, eelgrass populations "...have specific requirements and may be limited by environmental factors such as temperature, salinity, current velocity, sediment type, oxygen, and solar radiation." The report noted that suspended sediment grain size, dissolved oxygen, and solar radiation "...are likely to change in the vicinity of dredging processes."

Weekly turbidity samples were taken at numerous locations in the Harbor, including locations near the eelgrass beds, for comparison against background levels. The analysis, conducted before and during dredging activities, found that 1) turbidity increases from dredging tend to be localized to the immediate area unless other environmental factors (such as wind or rain) cause greater dispersion of suspended sediment; and 2) the local eelgrass bed appears to be subject to a range of turbidity levels under existing conditions that are comparable to turbidity levels measured during dredging. The report concludes that the eelgrass bed mapped in the North Harbor is not expected to be subject to substantial increases in turbidity during dredging.

Dredged materials disposed of at SF-12 or SF-14 may be redistributed by upwelling currents (from February through July), the California Current (from July to November) and Davidson currents (California countercurrent, from November to February), therefore, the resident times for sediments discharged at these locations may vary from 3 to 13 days. Additionally, the prevailing wave climate and seasonal winter storm waves can transport sediment cross shore and along shore, both building and eroding the beach and dune environment at various times of the year. By placing only clean dredge



material back on the beach and on the nearshore shelf during winter months, the natural process of sediment transport from the watershed to the littoral system is reconnected.

Benthic infauna may be impacted (dislodged and transported) during the dredging and disposal process, however, since natural disturbance of the harbor bottom is high and benthic infauna is generally considered to be sparse and transitory in nature due to the frequent flushing events that occur in the harbor and in the vicinity of the offshore disposal sites, these species would not be significantly adversely affected by these activities. Most benthic invertebrates are able to adapt to such changes due to their ability to migrate to suitable depths and bottom habitats.

As shown in the dredge area map, Area I includes the North Harbor navigation channel and an area that lies between the channel and the eastern harbor shoreline, between the old Skipper's restaurant site and the existing boat ramp (see Exhibit D). Dredging of the North Harbor navigation channel has been approved and conducted under past dredging permits. However, the portion of Area I that lies between the channel and the shoreline has been considered by some to have significant clam beds that have historically supported recreational clamming activities and that serve as a food source for sea otters (pers comm.. Deborah Johnston, CDFG). Dredging of this portion of Area I is not required at this time, but rather is intended to provide for the possibility of new boating facilities (a new boat ramp and transient docks) proposed under another Harbor District project that has not yet been approved. Since the extent and density of these clam beds has not previously been clearly defined, dredging in this area should not occur until adequate information is provided to ensure that these clam beds would not be adversely affected by dredging. Therefore, that portion of Area I that lies between the North Harbor navigation channel and the shoreline between the old Skipper's restaurant site and the existing boat ramp (see Exhibit D) shall not be dredged unless approved through a separate permit or future amendment of this permit.

Furthermore, prior to any potential dredging in this portion of Area I, a benthic survey of the inter- and sub-tidal portions of this area should be conducted to determine the presence, extent and diversity of the benthic invertebrate population within the substrate. If results of the benthic survey indicate that dredging would create significant adverse impacts to this area, a mitigation and implementation plan should be developed to ensure that such activities have no significant impact to the species found in this habitat.

With respect to marine mammals and birds throughout any of the remaining harbor dredging areas, the immediate area of dredging will be inspected daily by the dredge operator to ensure that southern sea otters and brown pelicans are not within 50 meters of the dredge equipment. With the inclusion of these mitigation measures and protections to the marine environment, the project does conform to biological resource protection requirements of Coastal Act Sections 30230 and 30231, with respect to these particular biologic resources described herein.

The USEPA (in correspondence to the USACOE dated 3/31/99) states that the Monterey Bay National Marine Sanctuary is a "special aquatic site" under the 404(b)(1) guidelines and has also "determined that the Monterey Bay National Marine Sanctuary, specifically including the Monterey Canyon and the area



in the vicinity of the designated dredged material disposal sites SF-12 and SF-14, is an Aquatic Resource of National Importance (ARNI)." These special status determinations require upland disposal for any "...unsuitable material currently present in the federal channel (as well as the adjacent berths)..." Unsuitable material was previously transported to a confined upland disposal site following decant and drying operations at the North Harbor Interim site. This site has been closed and restored, as described above, and so is no longer available to handle unsuitable materials. Therefore, only materials found suitable for unconfined aquatic disposal or beach renourishment may be allowed under this permit. Since the project has been conditioned to require sediment sampling and a site suitability determination prior to any dredging and allows dredging of suitable materials only, the project as conditioned will protect marine habitats in compliance with Coastal Act Sections 30230 through 30233.

3b. Dredging and Dredge Spoils Disposal

Section 30233 of the Coastal Act allows for the dredging of harbor waters in order to maintain depths necessary for navigation where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects. It also specifies that dredge spoils suitable for beach replenishment may be placed at appropriate points on the shoreline and back into suitable long shore current systems where suitable mitigation measure have been provided to minimize adverse environmental effects.

Proposed dredging areas in the Harbor include areas where maintenance dredging has commonly occurred over time. Sediment deposition in and around navigational channels and berthing areas can affect the ability to maneuver safely in and out of these areas. Continued sediment deposition can be anticipated due the geographic location of the harbor, its function as a sink for sediment that drains from the watershed, and the erosive nature of much of the sediment in the watershed. Even with a comprehensive management plan in place to minimize erosion in the watershed, continued dredging would be required and no feasible alternatives to the proposed dredging have been identified.

With the dredge episode protocol identified above, and sediment analyses conducted according to the Inland Testing Manual (ITM; USEPA 1998), only those materials found suitable for unconfined aquatic disposal or beach renourishment will be dredged. Because sampling and test results will be reviewed prior to each dredge episode, contaminated sediments will not be further disturbed or dredged until an approved upland rehandling site is obtained. As proposed, dredging will be conducted using a cutterhead hydraulic dredge, which removes and transports dredged material as liquid slurry, thereby minimizing disturbance and resuspension of sediments at the dredge site. A clamshell dredge will be allowed only where it is determined that it does not increase turbidity or adversely affect the slough, as determined by the Executive Director. These measures minimize adverse environmental impacts to marine and wildlife habitats and water circulation during dredging, consistent with Coastal Act requirements.

The proposed project represents a comprehensive program for operations and maintenance activities necessary to maintain and improve navigation channels and berthing areas for recreational boating and commercial fishing. Appropriate disposal sites have been established for offshore aquatic discharge and beach replenishment. The USACOE, RWQCB, MBNMS and USEPA have approved each of these



dredge disposal sites. Contaminated dredge discharge is not allowed under this permit. Because there are no feasible less environmentally damaging alternatives available to maintain adequate depths within the Harbor; because feasible mitigation measures will be provided to minimize adverse environmental effects; and because suitable sediments will be conveyed to appropriate beach replenishment sites, the Commission finds that the proposed dredging project (as described in Special Condition 1) is consistent with Coastal Act Sections 30230 through 30233 described above.

3c. Water Quality

DDT, toxaphene, dieldrin, endrin, aldrin, and endosulfan are major persistent pesticides that have historically been used for agricultural operations throughout the Salinas Valley. With the exception of endosulfan these chemicals have now been banned for use in California. Studies undertaken to examine water quality (AMBAG 1992) suggests that though previously banned, these persistent organochlorine pesticides are still present in agricultural fields and adhere to fine grained sediments leaving the fields, thereby finding their way as suspended sediments in surface water bodies. These contaminated sediments enter the Salinas Valley drainage system by runoff, percolation, and wind transport. Because they are insoluble in water but highly soluble in lipids or animal fatty tissue, they tend to concentrate and may be passed through the food chain via bioaccumulation. Sediment inputs to the harbor include non-point source runoff from the Salinas River, Old Salinas River Channel, Tembladero Slough, and Elkhorn Slough, sloughing of harbor banks, littoral sands entering the harbor mouth, and by-products of boating and industrial uses in and adjacent to the harbor.

Sediment sampling and testing conducted in Moss Landing Harbor over the last five years (summarized in Exhibit F), indicates that bottom sediments in the harbor include heavy metals (including arsenic, copper, nickel, cadmium, chromium and mercury), pesticides (including DDT, chlordane, dieldrin, endrin) and PCBs (aroclor) and tributiltin at levels that exceed environmentally safe limits. Additionally, recent solid phase bioassay tests with dredged sediments have generally shown significantly reduced survival rates for test species. The areas that were found unsuitable for unconfined aquatic disposal or beach nourishment most recently include the southern most portion of the south harbor (portions of Areas C and B), near Sandholdt Bridge, the Gravelle's Boatyard area (portions of Area E), and portions of the Federal Channel (pers. comm. from Bridgette DeShields).

As discussed above, the Commission has jurisdiction over the disposal of dredge spoils in the marine environment. In addition, the State Water Resources Control Board (SWRCB) and the California Regional Water Quality Control Boards (RWQCBs) are the state agencies with primary responsibility for the coordination and control of water quality as described in Coastal Act Section 30412, above. The Monterey Bay National Marine Sanctuary also has review authority over discharges to the Sanctuary.

In the past, the USACOE, MLHD and Duke Energy Moss Landing Power Plant (Duke Energy) have conducted dredging operations under the Regional Water Quality Control Board (RWQCB) Waste Discharge Requirement (WDR) Order No. 90-21 (dated 3/9/90). WDR 90-21 was superceded most recently by WDR Order No. 01-007 (dated 9/14/01), which was revised to include all current guidance and criteria applicable to the dredging activities in the Moss Landing Harbor, and to include the two



intake areas for the Moss Landing Power Plant, owned and operated by Duke Energy. Excerpts from the WDR 01-007 are included in Exhibit H.

WDR Order No. 01-007 details the waste discharge requirements for USACOE, Duke Energy, and MLHD dredging operations in Moss Landing Harbor. Order No. 01-007 includes disposal criteria for dredged materials that allows "...dredge materials composed of essentially of clean coarse sand (less than 80% passing No. 200 sieve)" to be discharged at up to three beach replenishment sites. (The No. 200 sieve is designed to pass grain sizes smaller than 0.074 mm). WDR 01-007 also states that "...disposal of suitable harbor dredged material spoils with more than 20% passing through a No. 200 sieve" may be discharged to SF-12, located near the end of Sandholdt Pier or at SF-14, a site in 100 fathoms of water, approximately 1.3 nautical miles from shore. However, in order to use SF-12 and SF-14 for disposal, WDR Order No. 01-007 requires that "...test results must show that the dredged material will not adversely affect marine communities in the disposal area or in Elkhorn Slough" through compliance with Decant Water Discharge specifications listed in WDR Order No. 01-007 Table 2 (see Exhibit H). WDR Order 01-007 also limits dredging and disposal activities using SF-12 and SF-14 to the period September 1 to June 1 to ensure that currents would allow dispersal of discharged sediment. This coastal development permit also limits dredging and disposal activities to this same time period to minimize impacts to beach use during summer months and to use the high wave energies over this time period to help in dispersing the dredge materials disposed of at any of the beach nourishment areas.

Monitoring and sampling requirements for the dredge material are detailed in the Monitoring and Reporting Program (MRP) Order No. 01-007 (Exhibit I), which includes pre-discharge monitoring, bulk sediment analysis, decant water monitoring requirements, disposal area assessment bioassay requirements, dredge material transportation assessment requirements and reporting requirements. Accordingly, this permit has been conditioned to require submittal of the results of all testing, monitoring, and subsequent reports generated for this project to the Executive Director of the Coastal Commission for review. Additionally, this permit has been conditioned to require a site suitability determination to be made by the Coastal Commission, USACOE and RWQCB, in consultation with the USEPA, MBNMS and CDFG on the basis of sediment test results conducted prior to any dredging episode.

This permit has also been conditioned to require that the submission of specific plans for each dredging episode be accompanied with written evidence from the USACOE, Central Coast RWQCB, USEPA, CDF&G, and MBNMS that dredge sediment sampling and analyses and dredge operation plans have been reviewed and approved by each of these agencies, or conversely that no such approval is required by these agencies. In addition, with the waste discharge requirements described above, and more fully outlined in WDR Order No. 01-007, the project will include measures and monitoring protocols to ensure protection of water quality and marine resources in Moss Landing Harbor and so will be in conformance with Sections 30230 through 30233 of the Coastal Act.

4. Upland and Environmentally Sensitive Habitats

Coastal Act Section 30240 and 30255 require that:



Section 30240(a). Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

Section 30240(b). Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Section 30255. Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland

Environmentally sensitive habitats are areas in which plant or animal life or their habitats are rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments (Coastal Act Section 30107.5; and Monterey County LCP, 1982). Environmentally sensitive habitats existing within the project area include the waters of the Monterey Bay and Elkhorn Slough, and the tidal flats, tidal wetlands, seasonal wetlands, eelgrass beds, and beach and dune areas in and adjacent to the Harbor. As proposed, the project includes dredging within the North and South Harbor areas, using a floating barge, cutterhead suction dredge and a series of floating and submerged pipelines that take dredge slurry either out to SF-12, or to up to three beach renourishment areas. These pipelines may lie atop the Harbor bottom, tidal mud flats, fringing tidal marsh, and dune and beach habitats during dredging and beach renourishment operations. Therefore, pursuant to Coastal Act Section 30240(a) and 30240(b), the location of these pipelines shall be designed to avoid and minimize impacts to these environments (while minimizing their potential obstruction to navigation within the Harbor).

The south harbor area has been heavily used by commercial and recreational boaters since the opening of the harbor in the mid 1940's and as such has very little fringing salt marsh or environmentally sensitive habitat other than the degraded benthic invertebrate communities that may exist and beach and dune environments along the Monterey Bay shoreline (which are described below).

North Harbor Habitats. The North Harbor area has had relatively less development than the South Harbor and has thereby retained at least some of the natural habitats that presumably existed prior to opening of the Harbor. The most significant habitat values of the North Harbor involve large areas of tidal mud and sand flats (Onuf et al, 1978, Oliver 1997), which are remnants of tide flats that were present before the Harbor opened. Historically, these flats extended from the old mouth of the Salinas River (near west Bennett Slough) to the present mouth of Elkhorn Slough (Oliver, 1997; see Exhibit B). These tide flats, formed by sand, muddy sand or sandy mud, house a dense and diverse community of benthic invertebrates and are important feeding and roosting habitats for shorebirds, seabirds, and marine mammals. Ramer (1989) conducted bird surveys in the North Harbor as part of the EIR for the North Harbor Expansion, and found three species nesting in the North Harbor: Snowy Plovers, Killdeer and Western Gulls. She also noted that the North Harbor is used by several endangered or sensitive species



including the snowy plover (*Charadrius alexandrinus nivosus*), California brown pelican (*Pelecanus occidentalis californicus*), California clapper rail (*Rallus longirostris obsoletus*) and California least tern (*Sterna antillarum browni*). Oliver (1997) notes that while the salt ponds in the nearby Moss Landing Wildlife Area are the major resting habitat for Brown Pelicans in central California, the sand flats on the southwest side of the North Harbor serve as a secondary resting area when human activities disturb bird use in the salt ponds. Ramer (1989) surveyed about 50 individual Brown Pelicans resting on the sand flats of the North Harbor on one day during a survey in April 1989. Hundreds of individuals rest on the sand flats during the late summer and fall, when they are most abundant in the area (Jaques and Anderson, 1988, Oliver 1997).

Marine mammals that have been found in the Harbor include the California sea lion (*Zalophus californianus*), Pacific harbor seals (*Phoco vitulina*) and the threatened California sea otter (*Enhydra lutris*). Oliver, 1997, states that Harbor seals are common throughout the mouth of Elkhorn Slough, and reports seeing as many as 10 harbor seals swimming in the North Harbor area. Sea otters have also been found in the Elkhorn Slough area since the mid 1970's (Kvitek and Oliver 1987), and feed on clams, fat innkeeper worms and other larger invertebrates throughout the mouth of Elkhorn Slough (Kvitek et al, 1988). As described previously, sea otters have been seen hauled out on the North Harbor sand bar.

The North Harbor sand bar is located on the western shoreline of the North Harbor, formed by the tidal reworking of sandy sediment and deposition of dune sands that blow over the dune crest along Moss Landing State Beach. The sand bar shifts its position due to these processes and overtime may decrease depths along the outer portions of the boat docks and navigation channel in the North Harbor. The MLHD berths vessels along the inner and outer portions of the docks and so needs to maintain navigable depths around these docks. However, since the North Harbor sand bar serves as an important haul out and roosting site for seals, sea otters and California pelicans, the amount of dredging in this area must be kept to the minimum needed for safe clearance and navigation in this area, and dredging will not be allowed in this area while these animals are present.

In general, development activities that are not resource dependent or that would result in significant disruption of habitat values would not be allowed in environmentally sensitive habitat areas (Coastal Act Section 30240). The applicable exception is found in Coastal Act Section 30233, which specifies the particular types of uses and circumstances where diking, filling or dredging of coastal waters and wetlands can be permitted. As elaborated in Finding 3b above, the proposed dredging qualifies as an allowable use consistent with Section 30233. As designed to avoid impacts to the fringing saltmarsh, wetlands, eelgrass beds and clambeds, and to minimize disturbance of resident wildlife no significant disruption of environmentally sensitive habitat will result. Therefore, with respect to the dredging activities in Harbor waters, the project is in compliance with Coastal Act Section 30240.

Dune and Beach Habitats. Dune and beach habitats exist along the Monterey Bay shoreline north and south of the Moss Landing Harbor entrance. South of the Harbor entrance, private parcels of land extend out to mean high tide (MHT) between the south jetty and Sandholdt Pier. The Salinas River State Beach lies south of Sandholdt Pier, outside of the project area. Moss Landing State Beach and Zmudowski State Beach are located north of the Harbor entrance. Three beach replenishment sites (Exhibit B) are



proposed for this permit application: 1) between Sandholdt Pier and the south entrance jetty; 2) an area directly north of the north entrance jetty; and 3) an area between the Jetty Road tide gate and Zmudowski State Beach. Use of these sites has been previously approved for disposal of uncontaminated dredge material that contains at least 80% sand sized material (see previous CCC and USACOE permits and RWQCB WDR permits).

Past Harbor dredging projects (e.g., CDP P-77-0737 and 3-83-186) have included beach restoration near the north and south jetties to reduce the impacts of shoreline erosion in those areas. Shoreline erosion has also occurred between the south jetty and Sandholdt Pier due to the blocking of littoral sediments by the harbor entrance jetties, and the high wave energies that attack the shore. Beach renourishment in this area has been accomplished over the past five years under CDP 3-99-011. Renourishment of these areas is a beneficial and appropriate reuse of suitable dredge material, because it allows the continued delivery of these sediments into the littoral zone, consistent with Coastal Act Section 30233(b). Beach renourishment also provides additional material to the beach, and greater protection for dune habitats (and other possible structures) in the back beach area.

Currently, a narrow, discontinuous zone of sand dune habitat exists in front of buildings south of the harbor entrance. In contrast, north of the Harbor entrance, a well established dune field is located along Moss Landing State Beach seaward of Jetty Road (Exhibit C). Dredging pipelines within the project area may lie across these sensitive dune and beach areas during dredging and beach renourishment operations (Exhibit D). The Monterey County North County Land Use Plan/ Certified LCP (1982) has established specific policies for environmentally sensitive dune habitats. Section 2.3.3A-6 of the Land Use Plan (LUP) notes that coastal dune habitats within the Moss Landing area should be limited to "essential utility pipelines where no feasible alternative exists." Pipelines are a very efficient way to discharge sand sized material to beach renourishment sites, and as such can be considered essential utility pipelines. These pipelines are expected to be a temporary feature on the beach, to be used only during dredging and beach renourishment operations, and can be arranged so that they minimize damage to the dunes and sensitive plant species. As required in Section LUP 2.3.3A-7, "... disturbance or destruction of dune vegetation shall be prohibited, unless no feasible alternative exists, and then only if re-vegetation with similar species is made a condition of project approval. Any resulting dune disturbance shall be restored to the natural condition." While the LUP policies must be viewed as recommendations rather than the standard of review for those portions of the project within the Commission's original jurisdiction (i.e., within the scope of this permit), they nonetheless represent an appropriate response to the requirements of Coastal Act Section 30240.

The proposed pipeline routes may or may not cross areas of sensitive dune vegetation within the commission's original jurisdiction, depending on the historic position of tidelands and daily operational needs, during beach replenishment operations. Accordingly, because it is possible that some of the pipeline routes will be subject to the Commission's permit jurisdiction, this permit is conditioned to protect natural dune vegetation habitat areas by locating pipelines, to the extent possible, away from dune habitats and by restoring pipeline alignment routes. Therefore, as conditioned, the project is



consistent with Section 30240 of the Coastal Act (as well as the LUP policies) and would ensure protection of these environmentally sensitive habitats.

Conclusion. Dredging and discharge pipelines are an essential part of the dredging project required to maintain navigation in the Harbor. As conditioned to require protection of sensitive habitat and species, the Commission finds that: (1) the proposed project is a type of development that is permissible in wetland and open coastal waters, consistent with Coastal Act Section 30233; (2) there is no feasible less environmentally damaging alternative; (3) feasible mitigation measures have been provided to minimize adverse environmental effects; and (4) no significant disruption of environmentally sensitive habitats will result. As such, the project is consistent with Coastal Act Sections 30240 and 30233 with respect to environmentally sensitive habitat areas.

5. Geologic Resources/ Hazards and Air Resources

Section 30253. New development shall:

- (1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
- (2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*
- (3) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Control Board as to each particular development. ...*

The geologic setting of the Moss Landing Harbor is described in the final EIR for the Moss Landing Harbor Master Plan (1987), as well as reports by LSA Associates (1995), and Fisher (1990). Surficial geology in the Moss Landing Harbor area consists of sands, silts, and clays with interbedded gravels deposited in marine/estuarine, fluvial, and dune environments. Sediment accumulations in the Harbor are from four sources: littoral transport, watershed runoff, aeolian (wind-transported) sands, and erosion of the shoreline inside the Harbor. Past dredging in the Harbor has found that bottom sediments are generally composed of sands in the entrance channel and areas closest to the channel, and grade to silts and clays in both the north and south ends of the Harbor.

As detailed in the LSA report, a summary of the geologic and seismic hazards that may affect the proposed project include the following:

1. The risk of surface rupture due to fault displacement is low because no known active faults cross the site.



2. A large potential for strong ground shaking since the site is located within 20 miles of several active fault zones, including the San Andreas. Strong shaking could cause instability of overly steep ground slopes at the site, such as steep shoreline banks.
3. Ground shaking during a large earthquake could cause liquefaction of saturated sandy soils and erratic ground settlement.

The only disposal sites on shore are the three beach nourishment areas (Exhibit B). Based on the liquefied slurry of material provided by the dredging process through the portable pipeline system, and the redistribution of sediments due to wave run-up and dispersal, potential impacts due to geologic and seismic hazards would be expected to be less than significant.

The Monterey Bay Unified Air Pollution Control District generally conditions activities that have the potential for affecting air quality based on fuel usage and emissions. The permittee will be required to obtain a permit from the MBUAPCD for continued dredge operations, or evidence that no permit is required prior to dredging. The permit may require the Harbor District to limit the hours of dredge operation and conform to noise and exhaust requirements. Therefore, as conditioned to require conformance with MBUAPCD requirements, the proposed development is consistent with Coastal Act Section 30253(3) as it pertains to air pollution.

6. Visual Resources

Coastal Act Section 30251 requires that:

Section 30251. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Moss Landing Harbor is located on the scenic shoreline of Monterey Bay, behind sandy peninsulas (sand spits) on both sides of the harbor entrance. The northern spit includes the low-lying dunes within Moss Landing State Beach. The southern spit is densely developed with commercial fishing facilities, boatyards, marine research support facilities, a fish market and restaurant, tavern, warehouses, and a few residential structures. On the east side of Highway 1 are the massive industrial buildings of the Duke Energy power plant and other industrial structures. The visual resource that appears to attract the most public attention in the Moss Landing Harbor area is the developed "harborscape" itself, with its great variety of pilings, piers, docks, weathered wooden buildings, and its many different vessels of all descriptions.



The entire project area lies seaward of Highway 1. From the point where it bridges the entrance to Elkhorn Slough, Highway 1 provides an excellent vantage point into both the north and south arms of the harbor—as well as a quick view of the open waters of Monterey Bay through the harbor entrance channel. In addition to public views from the highway, scenic harbor vistas are enjoyed from water level by a substantial number of recreational visitors. This user group would include visitors at the State beaches, those onboard Elkhorn Slough and Monterey Bay tour boats, sailboats, power boats, kayaks and other recreational boaters using the harbor waterway.

The project will affect public views in two ways: 1) the floating dredge itself, along with any floating sections of pipe; and 2) sections of large-diameter pipe placed on the beach and other land areas to transport sediment for beach replenishment. However, neither of these would result in a significant impairment of public visual resources within the scope of this permit. The presence of the dredge is most likely to add to the colorful variety of vessels already visible in the “harborscape” and should not be counted as an adverse impact. The surface-lain flexible piping for beach replenishment will be similarly temporary and vary in locale, depending on which of several replenishment sites is currently being utilized. Additionally, Condition 4e provides for the potential burial of portions of pipeline under roadways, paths, or unconsolidated sandy areas outside of any sensitive habitat areas (dunes or wetlands), subject to review of potential environmental impacts and an amendment of this permit.

Therefore, given its temporary and transient nature, and the fact that the proposed dredging and disposal activity will not significantly alter scenic public views at Moss Landing Harbor, the Commission finds that this project is consistent with Section 30251 of the Coastal Act.

7. Public Access and Recreation

Coastal Act Section 30604(c) requires that every coastal development permit issued for any development between the nearest public road and the sea includes a specific finding that the development is in conformance with the public access and recreation policies of Chapter 3 of the Coastal Act.

Coastal Act Sections 30210 through 30213, 30220 and 30224 specifically protect public access and recreation. In particular:

30210: In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30213: Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. ...

Section 30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.



Section 30224. Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

Additional Coastal Act policies that provide for maximizing public access and recreational opportunities include Section 30251 regarding the protection of scenic views (see Visual Resources finding above) and those policies which address recreational boating access. Specifically, Section 30234 of the Coastal Act provides that facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Section 30234.5 states that the economic, commercial, and recreational importance of fishing activities shall be recognized and protected. Thus, commercial and recreational boating and fishing are Coastal Act priority uses.

Moss Landing Harbor provides public access and recreational opportunities of regional and statewide significance. Boat launching and berthing facilities, two kayak rental companies, Elkhorn Slough and Monterey Bay tours are all available here. Fishing, harbor-side dining, nature observation and similar pursuits are available at the harbor, while beachcombing, shopping and camping are available at adjacent areas. Entry to the south spit beach is free, and many other opportunities such as boat launching and dining are definitely in the affordable end of the range. The proposed dredging project will strongly benefit public access and recreation, in two ways: 1) by restoring and maintaining adequate water depths in the harbor's navigation channels and berthing areas, and, 2) by directing suitable sandy dredge spoils onto nearby beach areas for beach replenishment.

Impacts to public access are possible as well, but will be of limited duration. Because the flexible pipelines used to transport suitable dredge spoils to designated beach replenishment sites may be placed on the beach surface and moved about from time to time, the pipelines themselves may create a minor impediment to pedestrian travel along or to the beach. These pipelines are generally 10 to 12 inches in diameter, and may need to be traversed by persons walking across the beach. Placement of these pipelines can be managed so that they do not form an unintentional continuous barrier, particularly with respect to the less-nimble beach visitors. Additionally, burial of a portion of the pipeline, if allowed through amendment of this permit, may reduce the public access impacts that these pipelines would otherwise have to pedestrian use of the beach.

Although the pipelines and dredge equipment used for beach renourishment may potentially impact public access on the beaches in the vicinity of the beach renourishment areas, the initiation of the dredge program is essential to allow for commercial and recreational boating access. The permit has therefore been conditioned to minimize any possible continuous barrier effects due to pipelines at beach replenishment sites and to allow burial of pipeline segments, through amendment of this permit, to further minimize public access impacts. Furthermore, the dredge program is necessary to protect Coastal Act priority coastal dependent uses, which include recreational and commercial boating, fishing, and beach opportunities consistent with Coastal Act Sections 30210, 30213, 30220, 30224, 30234 and



30234.5. Therefore, as conditioned to mitigate for minor beach access impacts, the proposed project would preserve public access and recreational opportunities and, as such, is consistent with the above-cited public access and recreation policies of the Coastal Act.

8. LCP Planning Process

The Moss Landing Harbor lies within the North County segment of the Monterey County Local Coastal Program (LCP). The LCP includes the North County Land Use Plan (LUP), which incorporates the Moss Landing Community Plan, and the Coastal Implementation Plan sections that apply to this area. This permit covers only those portions of the project within the Commission's original jurisdiction, i.e., the dredging, the beach and marine disposal sites, and limited sections of the pipeline layout. Within the Commission's original jurisdiction, the policies of the Coastal Act, rather than the LCP, are the standard of review for development projects. Nonetheless, the LCP remains useful in an advisory capacity, to provide appropriate context for land use decisions, and to provide consistency between original and delegated areas of coastal zone jurisdiction.

The existing LCP was certified following completion of the Coastal Implementation Plan on January 12, 1988. The North County LUP has not been updated since it was originally certified on June 3, 1982. Since that time, a number of changes have occurred in the vicinity of the Moss Landing Harbor, including development of the Monterey Bay Aquarium Research Institute facilities, relocation of Moss Landing Marine Lab facilities, approval of a 2-lane replacement bridge at the south end of the harbor, and other development and redevelopment projects. The Moss Landing Harbor District has also developed or is in the process of developing district lands in the area, including the new RV Park on Sandholdt Road, the new Cannery Building and K-Dock upgrade, Skipper's Rebuild, North Harbor Rehandling facility restoration, and proposed expanded boating facilities for the area north of Elkhorn Slough. Currently Monterey County is conducting an update of the County's General Plan and LCP, which will also hopefully include an update of the Moss Landing Community section, to account for all of the land use changes that have occurred to date.

A review of the existing applicable policies does not reveal any conflicts between the proposed project and the LCP. The LCP policies reflect Coastal Act protection of coastal dependent commercial and recreational boating and allow for dredging to maintain navigational channels. The LCP recognizes the problem of erosion and sedimentation and the need for best management practices at upland sites.

Therefore, the proposed project, as conditioned, does conform to Chapter 3 of the California Coastal Act and will not prejudice the ability of the local government to implement a Local Coastal Program that conforms to Chapter 3 of the Coastal Act.

Given that the channel will continue to receive sediment inflow from the slough systems and the Salinas River and Old Salinas River Channel, maintenance dredging will continue to be required. The Moss Landing Harbor District has acknowledged the need for processing contaminated dredge materials found unsuitable for unconfined aquatic disposal or beach renourishment, but so far has been unable to find an alternative upland rehandling site. As shown in Table 3, at least 25 to 50% of the material in the Harbor



requires upland disposal. This permit therefore requires the Harbor District to pursue efforts to find and plan for additional upland rehandling and disposal sites. Additionally, the Harbor District would be well served in exploring long-term management strategies designed to reduce the amount of agricultural runoff and associated pesticides, pollution and sedimentation which ultimately makes its way into the harbor. Annual maintenance dredging needs would likely be reduced if agricultural runoff could be reduced in the Elkhorn Slough and Salinas River watersheds. The Harbor District should therefore work collaboratively with the County, local agricultural community, local Resource Conservation Districts, Farm Bureau, NRCS, and RWQCB to develop and implement a watershed management plan for these watersheds that include erosion control measures and actions that would reduce the amount of agricultural runoff in these watersheds.

9. California Environmental Quality Act (CEQA)

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of CEQA. Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effects which the activity may have on the environment. Beyond this, the Secretary of Resources has certified the Coastal Commission's review and analysis of land use proposals as being the functional equivalent of environmental review under CEQA.

Maintenance dredging activities are categorically exempt under CEQA guidelines, pursuant to 14 CCR Section 15304(g) which states: "Maintenance dredging where the spoil is deposited in a spoil area authorized by all applicable state and federal regulatory agencies." The offshore disposal sites SF-12 and SF-14, and the beach renourishment sites have all been approved by the applicable state and federal regulatory agencies.

In the course of application review, several potential environmental impacts were identified and are discussed in this staff report, which is incorporated in this finding. These include, but are not limited to, potential water quality impacts and possible impairment of beach access by above ground pipelines. The dredge episode protocols, which include sediment testing and suitability determinations prior to dredging, and the requirements of the RWQCB for waste discharge to these disposal sites serve to substantially lessen any adverse effects the dredging activities may have on the environment. Therefore, appropriate measures have been identified to avoid or mitigate such impacts, and are incorporated in the conditions attached to this permit. Accordingly, the Commission finds that only as modified and conditioned by this permit will the proposed project not have any significant adverse effects on the environment within the meaning of CEQA.



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Tables

3-01-049

Moss Landing Harbor District Dredging
2002-2007



Table 1. History of U.S. Army Corps of Engineers Dredging of Moss Landing Harbor Federal Channel, Monterey County, California.

Year	Dredge Volume^a (cubic yards)
1947	124,381
1949	170,802
1953-54	132,864
1957	113,500
1960-62	155,156
1964	85,160
1967-68	48,469
1971	81,412
1974	56,000
1978	35,188
1981	68,891
1984	114,936*
1996	26,158
1998	30,523
1999	58,081
2000	0
2001	0

a = Dredge Volumes from 1947 to 1984 from Moss Landing Harbor Master Plan Final EIR, 1987; Dredge Volumes for 1996 to 1998 from Draft Scope of Work for a Comparative Risk Assessment of Dredged Material Management Alternatives, May 2002.; Dredge Volumes from 1999 to 2001 from USACOE Sampling and Analysis Plan for Moss Landing Federal Channel, FY 2002 O&M Dredging, April 2002. * 1984 dredge volume includes 30,689 cubic yards dredged from non-federal North Harbor Channel.

Table 2. History of MLHD Maintenance Dredging at Moss Landing Harbor, Monterey County, California.

Date	Permitting Authority	Permit Number	Purpose and Location of Dredging	Approximate Volume (cy)	Discharge Location
File date 6/18/73	CCC – appeal	05-73-185	Maintenance dredging and deposit of spoils	NA	NA
3/8/76	CCC	P-11-75-1580	8-10,000 cy of dredge spoils	8-10,000 cy	NA
8/22/77	CCC	P-77-737	Maintenance dredging of north channel and deposition of spoils onto eroding embankment	NA	Eroding embankment extending approx 200 yards south of north jetty sand spit
11/3/81	CCC	3-81-089	Maintenance dredging west side of main channel	NA	NA
10/12/83	CCC	3-83-186	Maintenance dredging from north channel	40,000 cy	SF-12, local beach restoration area sited immediately north of Sandholdt Pier
10/22/85 2/23/87	CCC CCC	3-85-185 3-85-185-A1	Maintenance dredging	4,000 cy, amended to 20,000 cy	NA
11/15/89	CCC	3-89-209	North Harbor	NA	NA
1993	USACOE	NA	NA	3,992 cy silts and 16,788 cy sand	SF-12, Beach renourishment at south sandspit
5/12/93	CCC	3-93-031 5-year permit expired 5/98	Gravelle's Boat yard	NA	Beach renourishment about 500 feet south of south jetty
5/9/95	CCC	3-96-020	South Harbor channel and dock areas (Gravelle's dock, MBARI dock, "A" dock, Sea Products dock, Areas D and F)	31,000 cy	Offshore, beach renourishment and upland disposal sites (Marina Landfill)
1996	USACOE	NA	Entrance channel	26,000 cy	Beach renourishment at south spit
7/96	USACOE	22026S27	Five year dredging permit for North and South Harbor	For year 1999 = 150,000 cy; For years 2000 and 2001 = 50,000 cy	SF-12, beach renourishment and upland disposal sites (Marina Landfill) via North Harbor Interim Drying and Rehandling Site

Date	Permitting Authority	Permit Number	Purpose and Location of Dredging	Approximate Volume (cy)	Discharge Location
4/8/98	CCC	3-98-032G Emergency Permit	One-time Emergency dredging from South Harbor (including Areas A, B, D1, F, and Gravelle's dock)	22,000 cy	SF-12
10/13/99	CCC	3-99-011	Three year dredging permit for North and South Harbor (to synchronize with USACOE 5-year permit 22026S27)	For year 1999 = 150,000 cy; For years 2000 and 2001 = 50,000 cy	SF-12, beach renourishment and upland disposal sites (Marina Landfill) via North Harbor Interim Drying and Rehandling Site
10/10/01 5/10/02	CCC	3-99-011-A1 3-99-011-A2 3-99-011-A3	Amendment to allow dredging of up to 30,000 cy from Moss Landing Power Plant Intake areas	30,000 cy	Temporary use of on-site tank decanting facility and transport to Marina Landfill

**Table 3. Dredging Volume Record
Moss Landing Harbor
Moss Landing, California**

Area	Site Description	Volume of Material Dredged (cubic yards; yd ³)					Total Volume of Material Dredged (yd ³)	
		1996	1997	1998	1999	2000		
<u>DREDGED AREA : FEDERAL CHANNELS</u>								
Entrance Channel		26,158	--	22,387	--	--	48,545	
Inner Lagoon		--	--	8,136	58,081	--	66,217	
TOTAL VOLUME							114,762	
Disposal Areas								
SF-12		--	--	30,523	--	--	30,523	26% aquatic disposal
South Sandspit Beach		26,158	--	--	--	--	26,158	23% beach disposal
North Harbor		--	--	--	58,081	--	58,081	51% upland disposal
	<i>upland Rehandling/Disposal</i>							

DREDGED AREAS: NON-FEDERAL AREAS

A	Emergency Dredging	--	--	3,825	--	--	3,825
	Standard Dredging	--	--	--	1,733	--	1,733
F	Emergency Dredging	--	--	5,697	--	--	5,697
	FA	--	--	10,386	3,142	--	13,528
	FB	--	--	14,983	2,808	--	17,791
	FC	--	--	--	13,745	--	13,745
	FD	--	--	--	4,117	--	4,117
B	Emergency Dredging	--	--	1,125	--	--	1,125
	Standard Dredging	--	--	15,982	5,255	3,958	25,195
E	Gravelle's Dock/Boatyard	--	--	14,768	--	--	14,768
	G1/G2E/W	--	--	--	10,425	--	10,425
C	Standard Dredging	--	--	--	3,725	--	3,725
	C1/A	--	--	--	8,690	--	8,690
	C2/A	--	--	--	8,518	--	8,518
D	Standard Dredging	--	--	--	--	6,826	6,826
G	Standard Dredging	--	--	--	22,364	--	22,364
H	Standard Dredging	--	--	--	16,956	--	16,956
I	North Harbor Channel	--	--	--	2,065	31,237	33,302

Adapted From Table 2 in project Application materials.

**Table 3. Dredging Volume Record
Moss Landing Harbor
Moss Landing, California**

Area	Site Description	Volume of Material Dredged (cubic yards, yd ³)					Total Volume of Material Dredged (yd ³)
		1996	1997	1998	1999	2000	
J	North Harbor Marina	--	--	--	--	33,644	33,644
TOTAL VOLUME		--	--	66,766	103,543	75,665	<u>245,974</u> <i>Total Volume</i>
Disposal Areas							
	SF-12	--	--	36,016	61,009	42,021	139,046 <i>(56.5% aquatic)</i>
	South Sandspit Beach	--	--	--	10,425	33,644	44,069 <i>(18% beach)</i>
	North Harbor	--	--	30,750	32,120	--	62,870 <i>(25.5% upland)</i>
	<i>Upland Rehandling/Disposal</i>						

Table 4. Proposed Dredging Areas in North and South Harbor, Moss Landing Harbor

Dredge Area ^a	Geographic Areas included	Proposed Dredge Depth ^b (ft MLLW)	Maximum Dredge Depth ^c (ft MLLW)	Approximate Dredge Volume (cy)	Previous Discharge Site Used ^d
South Harbor Area					
A	MBARI dock	-12	-13		AQUATIC
B	South A-Dock	-10	-11		AQUATIC
C	Area South of Federal Channel, F-Dock, Bay Fresh Dock, E-Dock and area south of MBARI dock	-12	-13		UPLAND
D	K-Dock and MLML Dock	-12	-13		UPLAND
E	Gravelle's Dock	-12	-13		UPLAND
F	North A-Dock and south B-Dock	-10	-11		AQUATIC
G	Moro Cojo arm: G-, H-, I-, J- and C-docks	-10	-11		AQUATIC
H1	North B-Dock	-10	-11		AQUATIC
H2	MLPP Intake areas	-21 to -22	-23 to -24		UPLAND
North Harbor Area					
I	North Harbor Channel and ramp areas	-10	-11		AQUATIC
J	North Harbor Marina	-10	-11		AQUATIC
North Harbor Sand Bar	-	-10	-11		BEACH
Federal Channel and Turning Basin Areas					
Entrance channel		-15	-17		BEACH
FC-1		-15	-17		AQUATIC
FC-2		-15	-17		UPLAND

a = as shown in Dredge Area Map, see Exhibit D

b = MLHD may dredge to shallower depths in some areas on a case-by-case basis, to be determined following test result review.

c = Maximum dredge depth includes a 1 foot overdredge amount, except that Federal Channel may have 2 foot overdredge. No dredging will be allowed deeper than the maximum dredge depth allowed.

d = Previous Discharge Site Used is based on previous dredging history for each area over the last 5 years of record.

Ft² = square feet, MLLW = mean lower low water, cy = cubic yards

Disposal Sites: AQUATIC = Unconfined Aquatic Discharge Site (SF-12); BEACH = Beach Replenishment Site; UPLAND = previously used confined upland discharge sites (i.e., Marina Sanitary Landfill by way of the North Harbor Interim Drying and Rehandling Site); TBD = To Be Determined following sediment sampling and analysis.

Exhibits

3-01-049

Moss Landing Harbor District Dredging
2002-2007



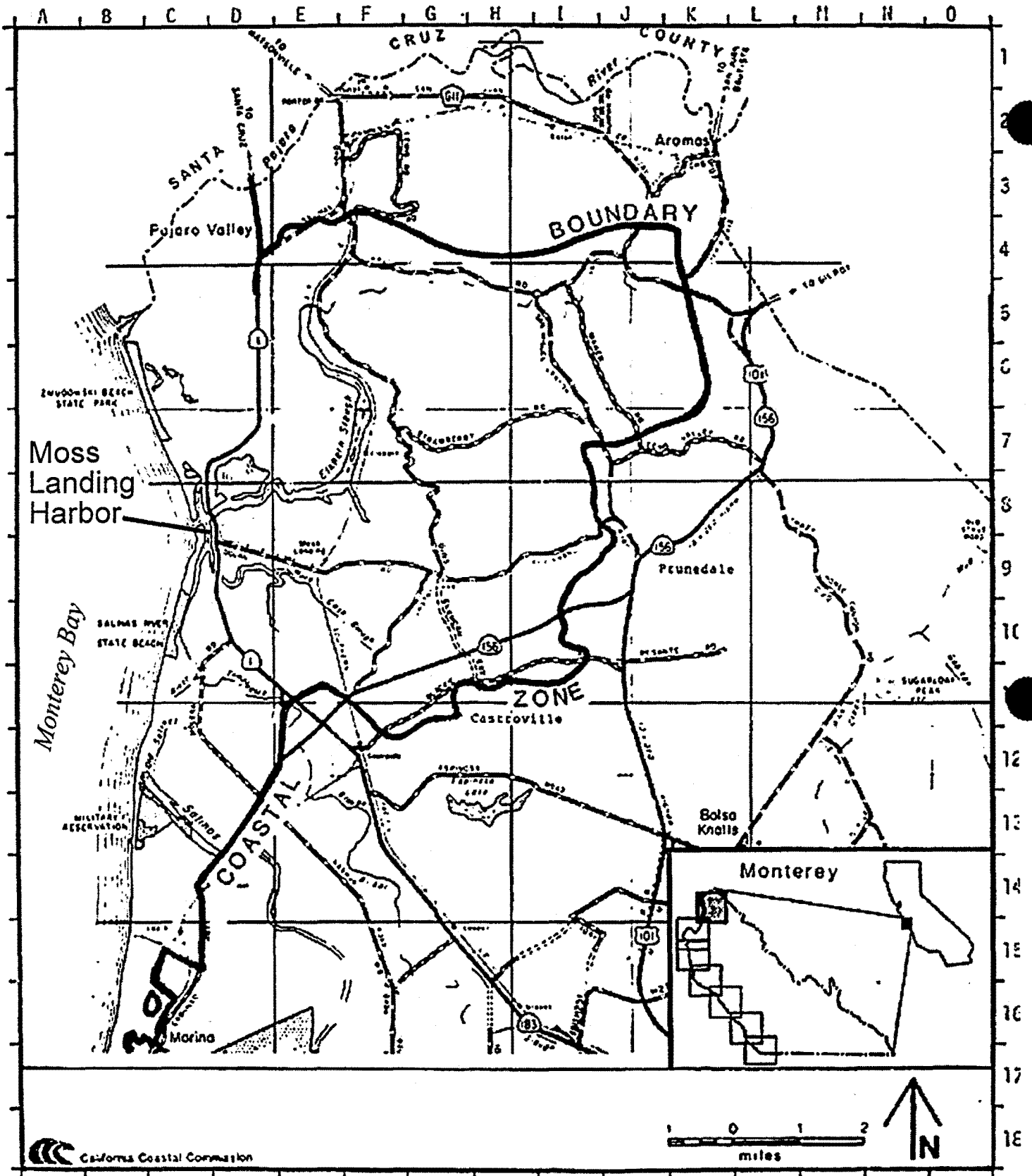


Exhibit A
 Regional Location Map - Moss Landing Harbor
 Moss Landing Harbor Dredging 2002-2007
 3-01-049

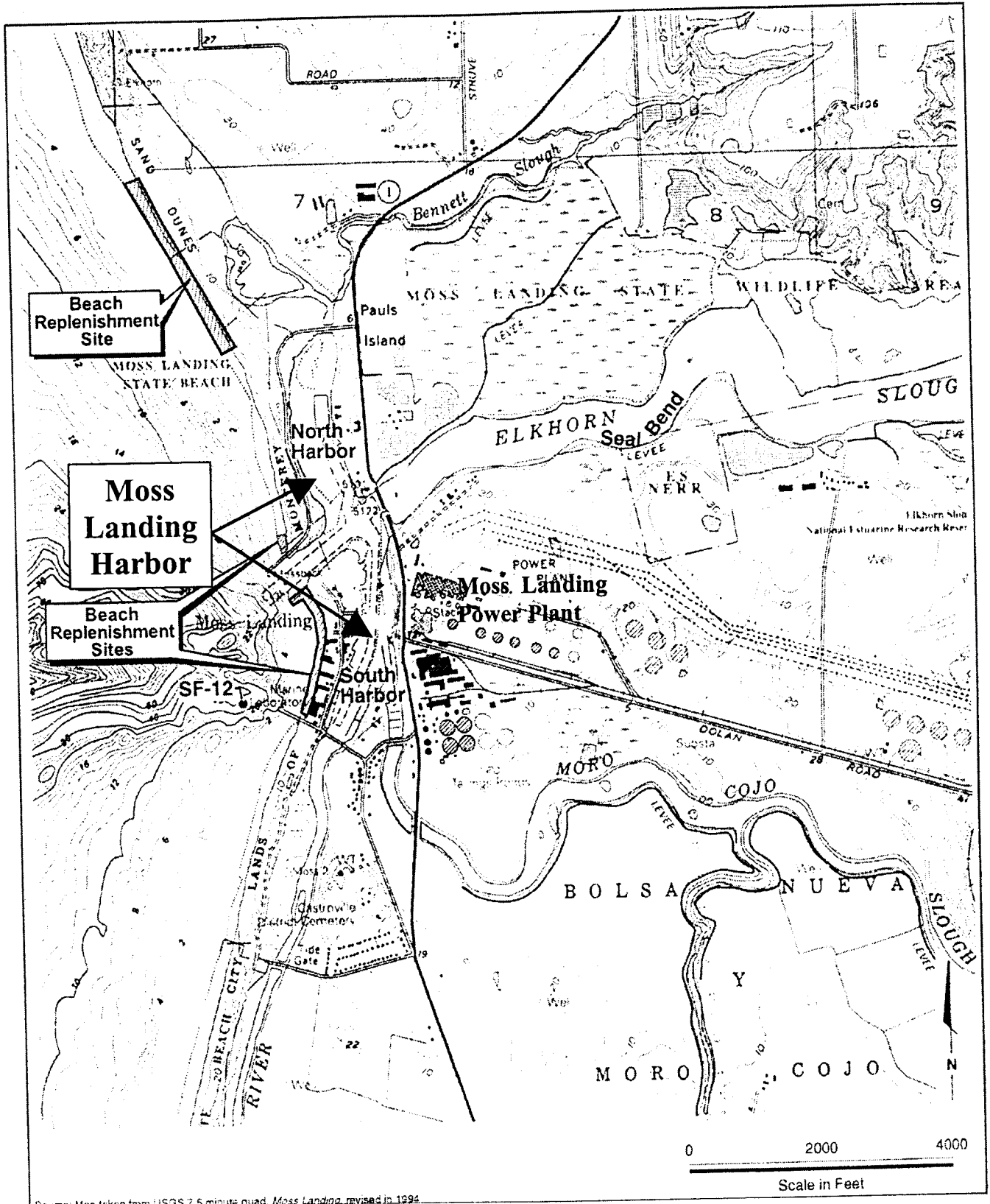
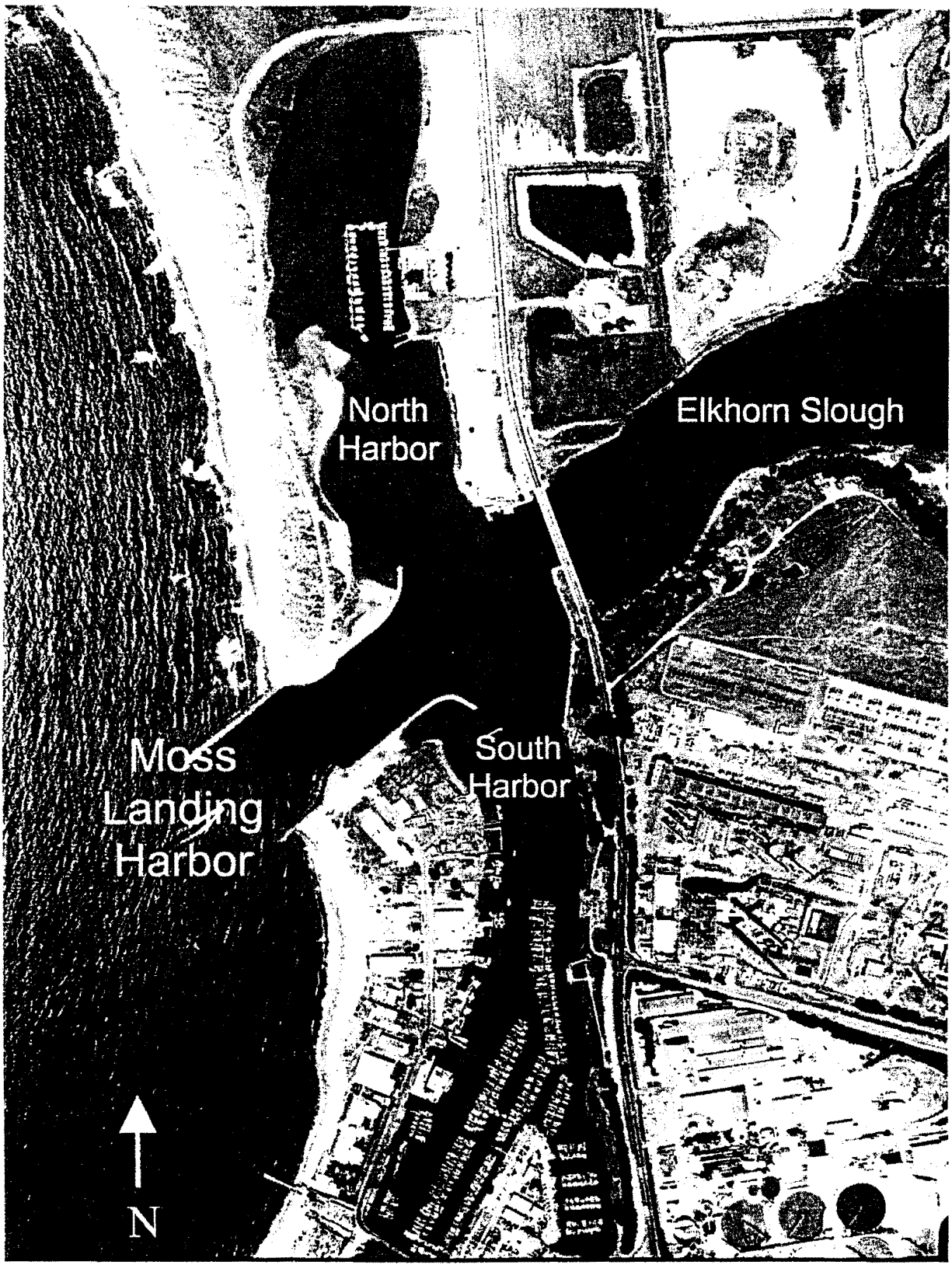


Exhibit B
 Project Vicinity Map- Moss Landing Harbor
 Moss Landing Harbor District Dredging 2002-2007
 3-01-049



North Harbor

North Harbor

Elkhorn Slough

Moss Landing Harbor

South Harbor

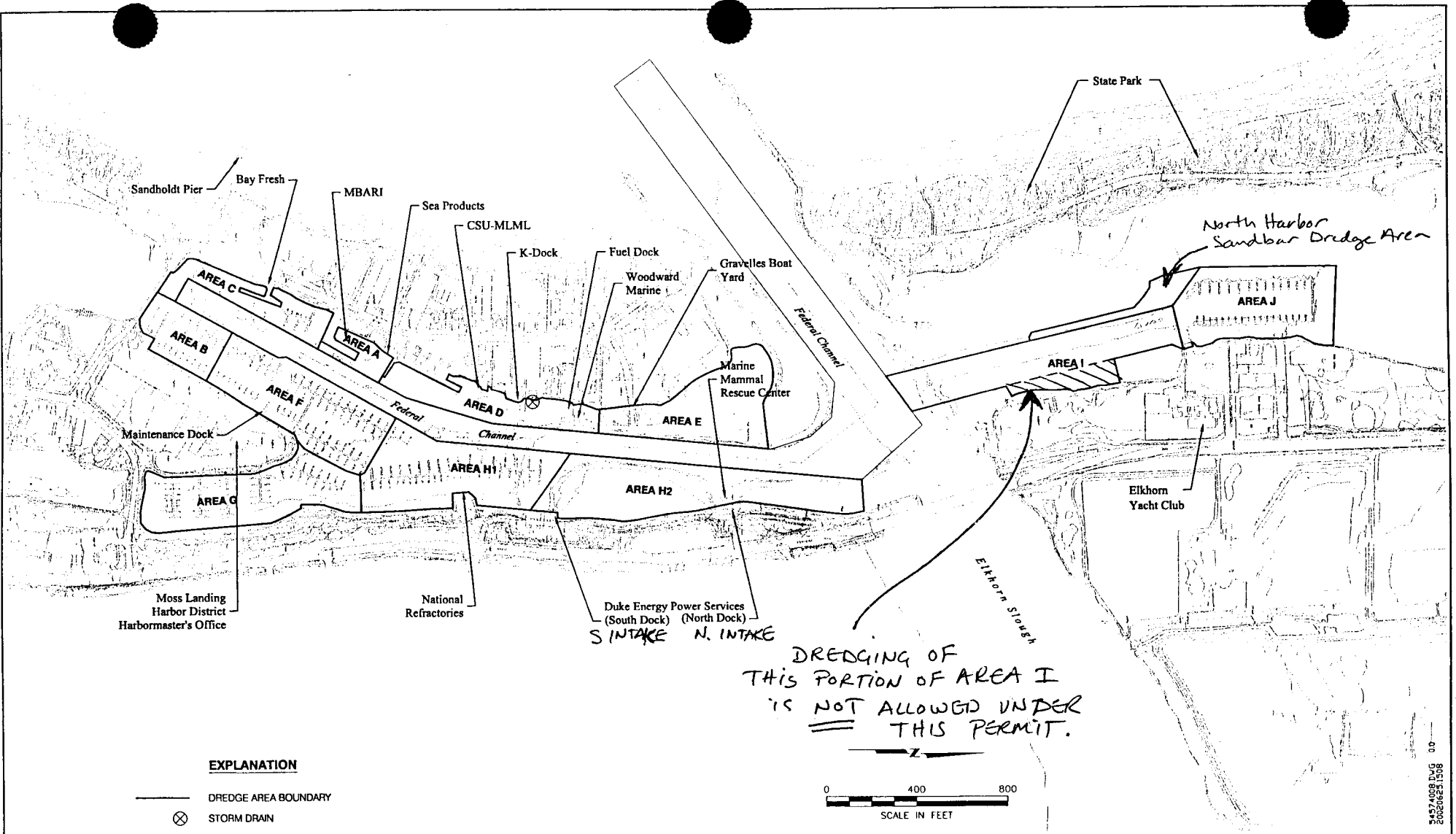


CALIFORNIA COASTAL COMMISSION

JUNE 2001 AERIAL PHOTO
OF MOSS LANDING
HARBOR

EXHIBIT
C

Moss Landing Harbor District
Dredging 2002-2007
3-01-049



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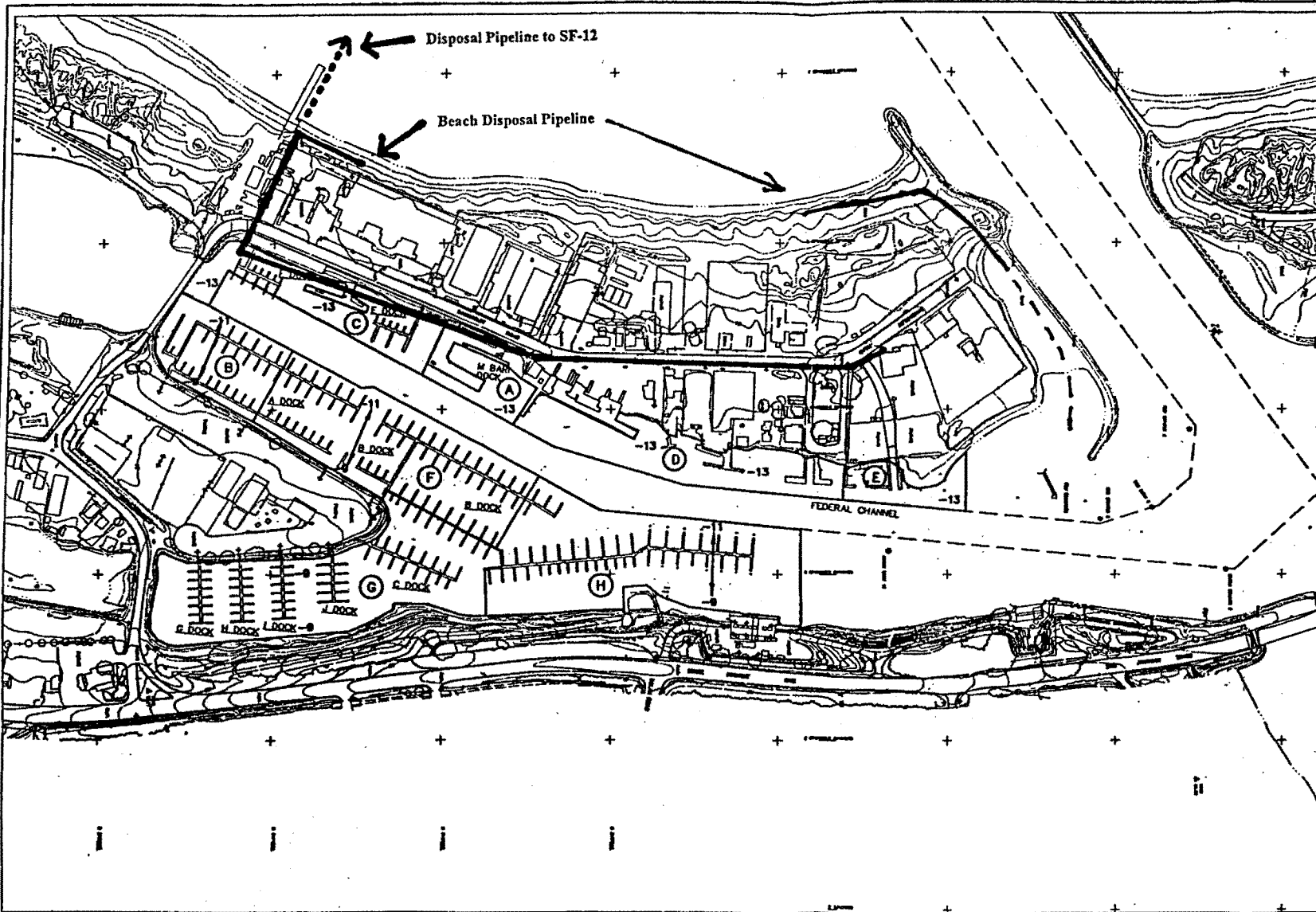
Potential Sources of Contaminants
Master Sampling and Analysis Plan
Moss Landing Harbor District
Moss Landing, California

DRAWN PH	JOB NUMBER 54574 003	APPROVED	DATE 3/02	REVISD DATE
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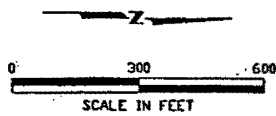
PLATE

3



EXPLANATION

- (A) Deposition Area Boundary
- - - Federal Channel Boundary
- 9 Permitted Dredge Depth (feet MLLW) Including One Foot Overdredge (e.g. For A Permitted Depth Of -12 Feet, The Labeled Depth Is -13 Feet)



Harding Lawson Associates
Engineering and Environmental Services

Pipeline to Beach Replenishment Site
Moss Landing
Monterey County, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
BWH	40830 006	<i>[Signature]</i>	2/98	3/99

40830007.DWG
19990320.1615
3000

Sediment Testing - Results

detailed data for each dredging episode/sample

Attachment 6 presents the summarized data from the most recent sediment tests of the Moss Landing Harbor dredged material. The following summarizes the results of this monitoring:

Southern A-Dock, MBARI Dock, and Emergency Dredging Areas (March 1998)

- Testing of sediment from these areas were within the South Harbor.
- Three metals (arsenic, copper, and nickel) exceeded the sediment screening criteria in the sediments, however these metals are known to occur at elevated levels in the Monterey area.
- One Emergency Dredge Area (Gravelle Dock) produced a PCB (Aroclor 1254) concentration (28 µg/kg) that just exceeded the sediment screening criteria for sediments (22.7 micrograms per kilogram [µg/kg]).
- One Emergency Dredge Area (Gravelle Dock) produced a tributyltin concentration (351 µg/kg) that exceeded both the ER-L and ER-M for sediments.
- Solid phase bioassay survival results using *Ampelisca abdita* were significantly reduced for the MBARI section as compared to the SF-12 disposal site.

Area F (April 1998)

- Testing of sediment around Area F (comprised of northern A-Dock and all but the northern-most portion of B-Dock) was split into four sections for evaluation.
- Three metals (arsenic, copper, and nickel) exceeded the sediment screening criteria in the sediments, however these metals are known to occur at elevated levels in the Monterey area.
- Total DDT exceeded the USEPA "bioaccumulation trigger" (150 µg/kg) in two of the four Area F sections. By TOC normalizing the total DDT concentrations, however, the concentrations were below both the MLHD proposed bioaccumulation trigger (13 µg per gram organic carbon [g OC]) and the organic carbon normalized value of the USEPA bioaccumulation trigger (7.5µg/g OC).
- Solid phase bioassay survival results using *Ampelisca abdita* were significantly reduced for one Area F section as compared to the SF-12 disposal site.

MOSS LANDING WDR 2000
04/13/01

Federal Channel (August 1998)

- Testing of sediment from the Moss Landing Federal Channel was split into six sections for evaluation.
- Six metals (cadmium, chromium, copper, mercury, nickel and zinc) exceeded the sediment screening criteria in the sediments. The copper and nickel values for the Monterey Area are also known to occur at elevated levels. The other four metals were above the ER-L screening values but not the ER-M screening values. In fact, the maximum cadmium concentration (1.3 mg/kg) was just above the ER-L screening level (1.2 mg/kg) and the maximum mercury concentration (0.16 mg/kg) was just above the ER-L screening level (0.15 mg/kg).
- Total DDT exceeded the USEPA bioaccumulation trigger (150 µg/kg) in three of the Federal Channel sections. TOC normalizing the total DDT concentrations were also above the MLHD proposed bioaccumulation trigger (13 µg/g OC) for two of the sections and the organic carbon normalized value of the USEPA bioaccumulation trigger (7.5 µg/g OC) was still exceeded by all three of the sections.
- Three other pesticides (chlordane, dieldrin, and endrin) exceeded the sediment screening criteria in the sediments. Dieldrin concentrations exceeded both the ER-L and ER-M values.
- Solid phase flow through bioassay survival results using *Neptys caecoides* were significantly reduced for two Federal Channel area sections as compared to the SF-12 n disposal site. Although there were no significant reductions in a concurrent *Ampelisca abdita* solid phase static bioassay test.

Areas B/C1, C2/A, G, H, I, J, and North Harbor Sand Bar (March 1999)

- Testing of sediment from these seven areas included four within South Harbor and three within the North Harbor.
- Three metals (arsenic, copper, and nickel) exceeded the sediment screening criteria in the sediments, however these metals are known to occur at elevated levels in the Monterey area.
- Total DDT exceeded the USEPA bioaccumulation trigger (150 µg/kg) in only one (Area C2/A) section. The TOC normalized total DDT concentration for this area was also above the USEPA bioaccumulation trigger (7.5µg/g OC).
- Liquid/Suspended phase bioassay results using *Ampelisca abdita* were significantly reduced for five of the tested areas as compared to the SF-12 ocean disposal site. However, a concurrent ammonia reference toxicant test indicates that the observed ammonia levels in the test site elutriates are the most likely cause of the toxicity. Also, given a minimum dilution rate of 10 to 1 (harbor water to sediment) expected with the hydraulic dredging process utilized by MLHD, it is unlikely that any significant water column acute toxicity would be observed due to disposal of these sediments at SF-12.

Area D – K-Dock and MLML Dock (September 1999)

- Testing of sediment from this area was within the South Harbor.
- Three metals (arsenic, copper, and nickel) exceeded the sediment screening criteria in the sediment, however these metals are known to occur at elevated levels in the Monterey area.

Gravelle's Dock (May 2000)

- Testing of sediment from the Gravelle's Dock was split into two sections for evaluation.
- Two metals (copper and nickel) exceeded the sediment screening criteria in the sediments, however these metals are known to occur at elevated levels in the Monterey area.
- One of the Gravelle's Dock sections produced tributyltin concentrations that exceeded the lower EPA Screening value (12.6 µg/kg).

Sediment Testing - Methods

The above recent monitoring tests of Moss Landing Harbor dredged material followed the testing methodology appropriate to the issuance of their last permit. Since that time, the USACE public notice (PN 99-3) has detailed the implementation of the Inland Testing Manual (ITM; USEPA, 1998) within the San Francisco District for new permits. Therefore, previous testing requirements are no longer applicable. PN 99-3 identifies appropriate biological, chemical, and physical tests for the evaluation of dredged material to be discharged within the waters of the United States. MLHD plans to discharge their dredged material within the waters of the U.S. (disposal site SF-12 or SF-14 or beach replenishment) and will be required to follow PN 99-3 testing guidelines under the new permit. The following summarizes the required testing for dredged material evaluation under PN 99-3 and the ITM:

Exemptions From Testing, "Tier I"

In certain specific circumstances, the regulatory agencies may provide an exemption from the need to conduct testing on proposed dredged material.

Sediment Sampling Guidelines

The following table presents the minimum numbers of sediment samples and composites (from contiguous portions of the project area) per site, broken out by dredge volume:

Dredge Volume (cubic yards)	Total Number of Samples	Number of Samples per Composite	Total Number of Tests/Composites
5,000 – 20,000	4	4	1
20,000 – 100,000	8	4	2
100,000 – 200,000	12	4	3
200,000 – 300,000	16	4	4
300,000 – 400,000	20	4	5
400,000 – 500,000	24	4	6

Note: For volumes less than 5,000 or greater than 500,000 cubic yards, the number of samples and composites is determined on a case-by-case basis. Reference, control and other QC samples are not included in the above.

- Composite samples may need to be subdivided to determine variability in contamination.
- In addition to collecting the appropriate number of samples, the locations of the samples and the depths to which they are taken must be appropriate. Core samples should be taken to the full project depth, plus the permitted overdepth allowance. The full permitted overdepth allowance must be sampled, even if it differs from the "pay depth" identified in a dredging contract.

Sediment Physical and Chemical Evaluations, "Tier II"

- Physical and chemical analyses will be conducted on each composite sediment sample as detailed in Table 2 of PN 99-3. On a case-by-case basis, the regulatory agencies may approve the deletion of or require that additional samples be taken for individual projects.

- Method detection limits (MDL) will be set as detailed in Table 2 of PN 99-3. Values that are less than the MDL will be reported as not detected. Values greater than the MDL but lower than the laboratory reporting limit (RL) will be qualified with the "J" character as estimates. Values greater than the RL will be reported without qualification unless required because of quality control problems.

Biological Evaluations, "Tier III"

- Three types of biological evaluations (water column toxicity tests, benthic toxicity tests, and benthic bioaccumulation tests) may be required on the composite sediment samples. The need to conduct any of the biological tests will vary from project to project based on factors such as the degree or type of known or suspected contamination.
- A single water column bioassay is conducted (using a minimum of four elutriate concentrations) with one of the national "benchmark" species listed in Table 11-1 of the ITM. The proposed test species is bivalve larvae (either *Mytilus edulis* or *Crassostrea gigas*). Results of the water column toxicity test will be used to determine whether elutriate concentration outside the mixing zone would exceed 1% of the LC50 based on SWRCB mixing zone guidance.
- Benthic toxicity testing is conducted on a minimum of two species (representing the three life history stages; filter feeder, deposit feeder, and burrower) listed in Table 11-2 of the ITM. The proposed test species are the marine amphipod, *Ampelisca abdita*, and the marine polychaete *Neptys caecoides*.
- Benthic bioaccumulation testing (on a minimum of two species listed in Table 12-1 of the ITM) is required only when concentrations of potentially bioaccumulative or biomagnifying compounds are known or suspected to be present in the sediments at concentrations of concern.

Case-Specific Evaluations, "Tier IV"

- In unusual cases where routine testing does not generate sufficient information, more comprehensive case-specific, state-of-the-art evaluations may be required by the agencies. The ERA being conducted by MLHD is a Tier IV evaluation.

Excerpts from:

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, California 93401-5427

WASTE DISCHARGE REQUIREMENTS ORDER NO. 01-007
Waste Discharger Identification No. 327073001
Amended on September 14, 2001

For

UNITED STATES ARMY CORPS OF ENGINEERS,
MOSS LANDING HARBOR DISTRICT,
AND DUKE ENERGY MOSS LANDING, LLC
MOSS LANDING HARBOR DREDGING OPERATION
Monterey County

The California Regional Water Quality Control Board, Central Coast Region (Regional Board), finds:

SITE OWNER AND LOCATION

1. Moss Landing Harbor District is located approximately 80 miles south of San Francisco along of Monterey Bay, halfway between the cities of Santa Cruz and Monterey (Attachment A). The Pajaro River mouth is three miles north of Moss Landing Harbor and the Salinas River mouth is four miles to the south. Moss Landing Harbor is located in the old Salinas River channel. Directly behind the sandpits is Elkhorn Slough, which extends 11 miles inland and has over 3,000 acres of open waterways, mudflats, and salt marshes.
2. United States Army Corps of Engineers, Planning Branch, San Francisco District (Corps), Moss Landing Harbor District (District) and Duke Energy Moss Landing Power Plant (Duke Energy), formerly Pacific Gas and Electric Company, have conducted dredging operations under this Board's Order No. 90-21, "Waste Discharge Requirements for United States Corps of Engineers, Pacific Gas and Electric, and Moss Landing Harbor District, Moss Landing Harbor Dredging Operations, Monterey County."
3. The Corps is responsible for maintenance of the Federal Channel and turning basins; The District is responsible for maintaining the berth areas; and Duke Energy is responsible for the areas in front of its two cooling water intake

stations (Attachment A). The Corps, District, and Duke Energy are referred herein as Dischargers.

PURPOSE OF ORDER

4. The Corps submitted a Report of Waste Discharge dated April 6, 1999, seeking authorization to dispose dredging material from the Federal Channel and turning basins. The District submitted a Report of Waste Discharge on December 15, 2000, seeking authorization to continue the disposal dredging material from the berths and non-federal channels within the Harbor. Duke Energy submitted a Report of Waste Discharge on December 6, 2000, seeking authorization to dispose of dredging material in front of the cooling water intake stations.
5. The Waste Discharge Requirements, Order No. 01-007, was revised to include all current guidance and criteria applicable to the dredging activities in the Moss Landing Harbor. The Regional Board adopted Order No. 01-007 on May 18, 2001. Following adoption, Duke Energy requested dredging depth be revised in front of its two intake stations. This amendment addresses Duke Energy's request.

FACILITY DESCRIPTION

6. The District and the Corps conduct maintenance dredging in the Moss Landing

Complete WDR is in project files
Moss Landing Harbor District Dredging
2002-2007

3-01-049

Exhibit H
Pg 1 of 8

Harbor in order to facilitate boat traffic to and from the harbor and accommodation of vessels.

- 7. Most dredging in the Harbor has been performed by using hydraulic suction. Other dredging methods such as clamshell dredging and knockdown dredging may also be used.
- 8. The District has its own dredging equipment for its dredging operations. The Corps contracts dredging of the federal channel and turning basins, and disposal of dredged material to qualified contractors. The District agrees to dredge the area in front of Duke Energy's two cooling water intake stations.

Dredging Areas

- 9. The harbor has four dredging sections and each section is further divided into several dredging areas. There are approximately twenty-five (25) dredging areas. Dredging area locations are shown on Attachments B and C.
- 10. The four dredging sections are: 1) South Harbor Western Berths; 2) South Harbor Eastern Berths; 3) North Harbor Channels and Berths; and 4) Federal Channels and Turning Basin.
- 11. The following table indicates various dredging depths in each section:

Dredging Sections	Dredging Depth*
Southern Harbor Western Berths	-12 feet
Southern Harbor Eastern Berths	-10 feet
Duke Energy Intake Station Unit 1 & 2	-23 feet
Duke Energy Intake Station Unit 6 & 7	-21 feet
North Harbor Channels and Berths	-10 feet
Federal Channels and Turning Basins	-15 feet

* All depths are in feet in mean lower low water (MLLW); a foot over-dredge is allowed in addition to the depth shown above.

- 12. Sediments are sampled and analyzed for

metals, organochlorine pesticides, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), organotins, grain size, solids, sulfides and total organic carbons (TOC). Screening levels used to evaluate dredged materials include Effects-Range Low and Effects Range-Median values.¹ These levels are not regulatory limits, rather they are used by regulatory agencies to predict the likelihood of toxicity of chemical constituents in sediments to aquatic life.

Southern A-Dock, MBARI Dock, and Emergency Dredging Areas

Three metals: arsenic, copper and nickel exceeded the sediment screening level. However, these metals are known to occur at elevated levels throughout California inland waters, bays and estuaries including in the whole Monterey Bay. The Emergency Dredging Area (Gravelle Dock) has an Aroclor 1254 (PCB) concentration of 28 ug/kg barely exceeding the sediment screening level, and a tributyltin concentration of 351 ug/kg exceeding the screening level. DDT concentrations exceeded USEPA bioaccumulation trigger level in some samples. Bioassay samples indicate that dredged material from the Monterey Bay Aquarium Research Institute and A-dock may have potential impacts to the SF-12 disposal site.

Area F

Three metals, arsenic, copper and nickel exceeded the sediment screening level. However, these metals are known to occur at elevated levels in the whole Monterey Bay. Concentrations of these metals in the Moss Landing harbor are not significantly higher than Monterey Bay ambient levels. Bioassay samples indicate that dredged material from the Monterey Bay Aquarium Research Institute may have potential impacts to the SF-12

¹Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. *Inviron. Manage.* 19(1):81-97; Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995

disposal site.

Federal Channels

Six metals, cadmium, chromium, copper, mercury, nickel and zinc, exceeded the screening level. The copper and nickel levels are known to occur at elevated levels in the Monterey Bay. Total DDT and three pesticides, chlordane, dieldrin and endrin exceeded the screening level in the southern portion of the channel. Bioassay study results were nonconclusive in determining any potential impact to the SF-12 site by disposing dredged material from the federal channels.

Areas B/C1, C2/A, G, H, I J, and North Harbor Sand Bar

Three metals, arsenic, copper, and nickel exceeded the sediment screening level. However, these metals are known to occur at elevated levels in the Monterey Bay. Total DDT exceeded USEPA bioaccumulation trigger level in a portion of Area C2/A. Pesticide concentrations were much lower in the North Harbor areas. Bioassay study results indicate no potential impact from disposing dredged material from these sections to the SF-12 site.

Area D

Three metals, arsenic, copper, and nickel exceeded the sediment screening level. However, these metals are known to occur at elevated levels in the Monterey Bay.

13. An Ecological Risk Assessment is currently underway to further study the potential impacts of dredging and disposal activities as part of a joint District/Corps Dredged Material Management Plan. Upon the completion of the Management Plan, the Order may need to be revised to incorporate the findings in the report.

Disposal Locations

14. There are two federally designated dredged material disposal sites, SF-12 and SF-14, in this Order. The locations are shown in Attachment A and described as follows:

SF-12, Moss Landing, 36°48'05" N, 121°47'22" W, offshore of Sandholdt Pier, at a depth of 48 feet, near the head of the underwater Monterey Canyon.

SF-14, Moss Landing, 36°47'53" N, 121°49'04" W, 1.3 nautical miles from the shore, at a depth of 100 fathoms and bounded by a 500 yard radius.

15. There are three beach replenishment areas for this Order. Their locations are shown in Attachment A and described as follows:
- Between Sandholdt Pier and the south entrance jetty;
 - Area near north entrance jetty;
 - Area between the Jetty Road tide gate and Zmudowski State Beach.
16. Up to 100,000 cubic yards of dredged material may be removed from Moss Landing Harbor each year. The dredged material is sampled prior to dredging. Dredge material may be disposed of the designed aquatic sites SF-12 and SF-14, if it is found to be suitable for unconfined aquatic disposal.
17. For dredged material unsuitable for either unconfined aquatic disposal or for beach replenishment, the Dischargers may use an approved upland dredge material handling and disposal sites. A former North Harbor upland disposal site used by the District has been closed. The District is currently looking for another upland handling site for future dredged material handling. In the mean time, the Dischargers can either avoid dredging in areas requiring upland handling or dredge in small quantities such that the dredged material can be handled in small contained areas onsite.

Adjacent Properties and Land Use

18. California Highway 1 runs north south to the east of the harbor. Duke Energy Power Plant is located to the east of Hwy 1. National Refractories lies to the east of the harbor and south of Duke Energy Power Plant. Pacific Gas & Electric operates a power switchyard

page 4-6 intentionally left out in project files. Complete WDR September 14, 2001

- 42. Discharge of Waste is a privilege, not a right, and authorization to discharge is conditional upon the discharge complying with provisions of Division 7 of the California Water Code and any more stringent effluent limitations necessary to implement water quality control plans, to protect beneficial uses, and to prevent nuisance.
- 43. On July 16, 2001, the Regional Board notified the Discharger and interested parties of its intent to amend waste discharge requirements for the discharge and has provided them with a copy of the proposed Order and an opportunity to submit written views and comments.
- 44. After considering all comments pertaining to this discharge during a public hearing on September 14, 2001, this Order was found consistent with the above findings.

IT IS HEREBY ORDERED, pursuant to authority in Section 13263 of the California Water Code, Moss Landing Harbor District, the U.S. Army Corps of Engineers and Duke Energy Moss Landing Power Plant, their agents, successors, and assigns, may discharge dredged materials at the designated disposal sites described in this Order, providing compliance is maintained with the following:

(Note: Other prohibitions and conditions, definitions, and the method of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated January 1984.)

- 1. Throughout these requirements footnotes are listed to indicate the source of requirements specified. Requirement footnotes are as follows:

- BP = Basin Plan
- APM = Administrative Procedures Manual
- BPJ = Best Professional Judgement
- ROWD = Requirement of Waste Discharge

A. PROHIBITIONS

- 1. Discharge of dredging material to areas other than the disposal areas described in this Order and as shown in Attachment A is prohibited.^{ROWD}
- 2. Discharge of any wastes, not described in this Order, including overflow, bypass or leakage from the dredging, transport, or disposal system to Moss Landing Harbor, its adjacent drainageways, or adjacent properties is prohibited.^{ROWD}
- 3. Discharge of dredged material inconsistent with the disposal criteria for the appropriate disposal method is prohibited.^{BPJ}
- 4. Discharge of dredged material which causes odors or undesirable coloration at the beach sites or at the beach adjacent to the offshore site is prohibited.^{BPJ}

B. DISCHARGE SPECIFICATIONS

Maximum Dredging

- 1. The maximum annual maintenance dredging for unconfined aquatic disposal at SF-12 or SF-14 shall not exceed 100,000 cubic yards. Additional dredging over the 100,000 can be approved on a case-by-case basis by the regulatory agencies.^{ROWD}

Dredging Projects

- 2. Prior to each dredging event, the Dischargers shall submit a report containing the following information:^{ROWD}
 - a. Area of dredging (map)
 - b. Depths of dredging
 - c. Amount of dredge material
 - d. Date when the area is last dredged
 - e. Proposed dates of dredging
 - f. Proposed disposal area
 - g. Dredging methods and controls
 - h. Sampling and monitoring of the dredge material
 - i. Current bathymetry of dredge area; and
 - j. Reporting.

3. The depth of each dredging project shall follow the table below. Any variance from the following table shall be approved by the Executive Officer prior to the commencement of the dredging project. ROWD

Dredging Sections	Dredging Depth*
Southern Harbor Western Berths	-12 feet
Southern Harbor Eastern Berths	-10 feet
Duke Energy Intake Station Unit 1 & 2	-23 feet
Duke Energy Intake Station Unit 6 & 7	-21 feet
North Harbor Channels and Berths	-10 feet
Federal Channels and Turning Basins	-15 feet

* all depths are in feet from mean lower low water (MLLW); a one foot over-dredge is allowed in addition to depths shown above.

- 4. Dredging depths shall be confirmed by measuring during and immediately after the dredging. BPJ
- 5. The immediate dredging area shall be inspected by the dredge operator to ensure that southern sea otters and brown pelicans are not within 50 meters of the dredging equipment. ROWD
- 6. Any wetland impacts by a dredging project shall be reported to the Executive Officer and Corps within 48 hours. ROWD
- 7. If solid debris is encountered during dredging, the operation shall be halted immediately. The solid debris shall be removed and disposed of properly before recommencing the dredging. ROWD
- 8. The Dischargers shall notify local mariculture operations in the Harbor (currently there are none) 24 hours prior to each dredging project. ROWD
- 9. Sampling requirements for the dredge material are detailed in MRP No. 01-007. Testing methods shall follow the Inland

Testing Manual (USEPA/USACE, 1998). BPJ

Disposal Criteria for Dredged Materials

10. Prior to disposal of dredged material, written approval for the specific project written

approval of the project must be obtained from the Executive Officer. The disposal site will be chosen based on the monitoring data submitted for the material to be dredged according to the criteria below: ROWD

- a. Dredged material composed of essentially clean coarse sand (less than 80% passing No. 200 sieve) can be discharged at one of the beach replenishment sites.
 - b. Use of SF-12 and SF-14 for disposal of dredged material is dependent upon results of testing specified in the attached MRP No. 01-007. To use SF-12 or SF-14, test results must show that the dredged material will not adversely affect marine communities in the disposal area or in Elkhorn Slough, as determined through compliance with Table 2, below.
 - c. Disposal of suitable harbor dredged material, with more than 20% passing through a No. 200 sieve, may be discharged to SF-12 or SF-14 only between September 1 and June 1, unless authorization is obtained from the Executive Officer.
11. Disposal of dredged material to the beach replenishment sites shall be conducted in a manner which will not cause a nuisance to beach users. The Dischargers shall provide information on beach replenishment timing to Monterey County Environmental Health Department, enabling the County to post project times on its beach advisory web site. BPJ
12. The Dischargers shall notify mariculture operations and the research institutions in Moss Landing Harbor and Elkhorn Slough at least 15 days in advance of discharge of dredged material at SF-12 or the beach

replenishment sites. Should the mariculture operators experience excessive culture mortality or difficulties in removing increased turbidity as a result of the discharge, the Executive Officer may modify or suspend use of SF-12 and/or the beach replenishment sites. Additionally, the Executive Officer may require the Dischargers to use the offshore disposal site, SF-14. ^{BPJ}

13. If Monitoring Program results indicate that re-suspended harbor sediment discharged at SF-12 is adversely affecting Elkhorn Slough, the Executive Officer may restrict the use of SF-12. USEPA and the Corps may choose to move the approved disposal site, with consultation of other agencies.
14. If clamshell dredging is shown to cause increased turbidity in the Elkhorn Slough and adversely affect the slough as determined by the Executive Officer, the clamshell dredging method in Moss Landing will be prohibited. ^{BPJ}

Decant Water Discharge

15. If dredged material is found to be unsuitable for unconfined aquatic disposal at SF-12 or the beach replenishment projects, the dredged material shall be handled at an approved upland handling site and disposed of at an approved disposal site. Dredged material decant water, if generated, shall be disposed of only after analyzing in accordance with MRP No. 01-007 and complying with the following limits (Tables 1 & 2): The discharge of decant water to any aquatic disposal sites shall comply with the limits:

Table 1. Turbidity Effluent Limit for Decant Water Discharge

Analyte	Units	30 Day Average	7 Day Average	Instantaneous Maximum
Turbidity	NTU	75	100	225

If turbidity exceeds the levels specified in Table 1 above, discharge to the Pacific Ocean is prohibited in accordance with Discharge Specification B.10.b., until the decant water turbidity is brought back into compliance with the levels specified in the Table 1.

Table 2. Decant Water Discharge Specification B.10.b. Enforcement Limits

Analyte	Units	6-Month Median	30 day Average	Daily Maximum	Instantaneous Maximum
Metals					
Antimony	mg/l		1.2		
Arsenic	ug/l	8		32	80
Beryllium	ng/l		33		
Cadmium	ug/l	1		4	10
Chromium III	mg/l		190		
Chromium VI	ug/l	2		8	20
Copper	ug/l	3		12	30
Lead	ug/l	2		8	20
Mercury	ug/l	0.04		0.16	0.4
Nickel	ug/l	5		20	50
Selenium	ug/l	15		60	150
Silver	ug/l	0.7		2.8	7
Thallium	ug/l		14		
Zinc	ug/l	20		80	200
Pesticides					
Aldrin	ug/l		0.04 ²		
HCH	ug/l		0.04 ²		
Chlordane (total)	ug/l		0.04 ²		
DDT (total)	ug/l		0.04 ²		
Dieldrin	ug/l		0.04 ²		
Endosulfan	ug/l		0.04 ²		
Endrin	ug/l		0.04 ²		
Heptachlor	ug/l		0.04 ²		
Toxaphene	ug/l		1.0 ²		
Others					
Tributyltin	ug/l		0.02 ²		
PAHs (total)	ug/l		0.02 ²		

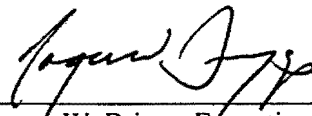
¹ The discharge specification enforcement limits are based on the Water Quality Control Plan for Ocean Waters of California, also been referred to as the Ocean Plan Limits.

² The discharge specification enforcement limits are based on method detection limits.

C. PROVISIONS

1. Order No. 90-21, "Waste Discharge Requirements for United States Corps of Engineers, Moss Landing Harbor District and Duke Energy Moss Landing Power Plant Dredging Operation in Monterey County", adopted by the Regional Board on March 9, 1999, is hereby rescinded.
2. The Discharger shall comply with the attached Monitoring and Reporting Program No. 01-007, as specified by the Executive Officer.
3. The Discharger shall comply with all items of the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated January 1984 except A1, A5, A6, A8, A13- A15, A17, B2, C8, C9, C16 and D2.
4. Pursuant to Title 23, Chapter 3, Subchapter 9, of the California Administrative Code, the Dischargers must submit a written report to the Executive Officer not later than March 14, 2001, addressing:
 - a. Whether there will be changes in the continuity, character, location, or volume of the discharge; and,
 - b. Whether, in their opinion, there is any portion of the Order that is incorrect, obsolete, or otherwise in need of revision.
 - c. A summary of all violations of Waste Discharge Requirements, Order No. 00-007, which occurred since adoption of the order along with a description of the cause(s) and corrective action taken.
5. The Moss Landing Dredging Program shall be operated and maintained according to an operation and maintenance plan acceptable to the Executive Officer. In the event of conflict with this Order, this Order shall govern.
6. Whenever significant changes in operation of the discharge area are initiated, they shall be incorporated into the plan and reported within seven days to the Executive Officer.
7. Adherence to this Order does not relieve the Dischargers of the responsibility of obtaining applicable permits from other Federal, State, or Local agencies.

I, Roger W. Briggs, 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 Coast Region, on September 14, 2001.



Roger W. Briggs, Executive Officer

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STATE OF CALIFORNIA
 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
 CENTRAL COAST REGION
 81 Higuera Street, Suite 200
 San Luis Obispo, California 93401-5427

MONITORING AND REPORTING PROGRAM ORDER NO. 01-007
 Waste Discharger Identification No. 327073001

For
 UNITED STATES ARMY CORPS OF ENGINEERS,
 MOSS LANDING HARBOR DISTRICT,
 AND DUKE ENERGY MOSS LANDING
 MOSS LANDING HARBOR DREDGING OPERATION
 Monterey County

I. Pre-Discharge Monitoring

For each dredge project, other than routine channel maintenance, a report must be submitted to the Regional Board at least three weeks before the project is undertaken. The report shall contain the information described in Order No. 01-007, Discharge Specification B.2.

Upon receipt of the report, the Executive Officer will determine whether, and how many, core samples should be taken and analyzed. If core samples are needed, they shall be collected of the undisturbed material which will be dredged. Core samples shall be taken in the area to be dredged within 120 days of the dredging. Sampling locations shall be located in known or suspected areas of high contamination and generally representative areas. The number of sampling locations shall be determined by the Executive Officer. Monitoring in the following three sections shall be conducted during the pre-discharge phase. Some additional pre-discharge physical measurements may be required as part of the Dredge Material Transportation Assessment, described in Section II.

A. Bulk Sediment Analysis

The following table represents the minimum numbers of sediment samples and composites (from contiguous portions of the project areas) at each dredging site:

Dredge Volume (Cubic Yards)	Total Number of Samples	Number of Samples per Composite	Total Number of Tests/Composites
5,000 - 20,000	4	4	1
20,000 - 100,000	8	4	2
100,000 - 200,000	12	4	3

Notes:

1. the Regional Board and other involved regulatory agencies may exempt the need to conduct testing in certain circumstances.
2. For volume under 5,000 cys or greater than 500,000 cys, sampling will be determined on a case-by-case basis.

Sediment samples shall be taken with a core sampler in a manner that ensures sample characteristics are representative of the proposed dredge area. Cores shall extend to the proposed dredge depth plus over-dredge depth. The samples shall be placed in airtight containers. Care shall be taken to ensure that the containers are completely filled by the samples and that air bubbles are not trapped in the containers. The samples shall be stored immediately at 2 °C to 4°C

and not frozen or dried. Total sample storage time shall not exceed two weeks for chemical analyses.

The Discharger(s) shall notify the Executive Officer at least two weeks in advance to discuss the proposed sampling plan and collection date. Regional Board staff may be present to observe the samples being collected or after collection to determine which cores to be analyzed. The cores shall be analyzed for the following:

Constituents	Units (dry weight)
PAH	mg/kg
TOC	mg/kg
Free Sulfides (porewater)	mg/kg
Zinc	mg/kg
Copper	mg/kg
Lead	mg/kg
Cadmium	mg/kg
Mercury	µg/kg
Arsenic	mg/kg
Chromium	mg/kg
Tri-butyltin	µg/kg
Toxaphene	mg/kg
Endosulfan (incl. Endosulfan sulfate)	mg/kg
DDD	µg/kg
DDT/DDE	µg/kg
Particle size (incl. Total % retained on #200 sieve)	%
Organic matter	mg/kg
Sulfide	mg/kg

* To be analyzed only for beach replenishment.

B. Decant Water Monitoring

If dredged material is found to be unsuitable for either unconfined ocean disposal or beach replenishment, and the dredged material will be decanted, decant water is analyzed for the following constituents prior to disposal at SF-12 or other approved discharge points:

Constituents	Units
Metals	
Arsenic	µg/l
Cadmium	µg/l
Chromium (III & IV)	µg/l
Copper	µg/l
Lead	µg/l
Mercury	µg/l
Nickel	µg/l
Selenium	µg/l
Silver	µg/l
Zinc	µg/l
Pesticides	
HCH	µg/l
Chlordane (total)	µg/l
DDT (total)	µg/l
Dieldrin	ng/l
Endosulfan	µg/l
Endrin	µg/l
Heptachlor	µg/l
Toxaphene	µg/l
Others	
PAH	µg/l
Tributyltin	ng/l
Total Suspended Solids (TSS)	mg/l
Turbidity	NTU

Turbidity of decant water should be monitored during discharge from the final settling pond or discharge location. The monitoring frequency and locations shall be determined by the Executive Officer.

C. Disposal Area Assessment

The impact of dredged material on the marine environment at site SF-12 and SF-14 shall be determined by a solid phase bioassay meeting criteria in the *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual* (USEPA/Corps, 1998; EPA-823-B-98-004).

An exception to that published procedure is that only one species must be tested. Species may be bivalve, polychaete worm, or crustacean (mysid, amphipod, crangon sp.) meeting the referenced criteria. Test results shall be conducted on samples described in Section A and submitted with results of the Bulk Sediment Analysis in Section A above.

D. Elkhorn Slough Impact Assessment

Potential for impact of dredged material on Elkhorn Slough shall be evaluated during pre-discharge testing. A suspended particulate phase bioassay shall be conducted on sediments to be dredged from each major project area sampled as described in Section A. The test shall be conducted on representative composite samples from at least three locations within the major project area. Tests shall be conducted in accordance with procedures in the *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual*. (USEPA/Corps, 1998; EPA-823-B-98-004). The test may be conducted on only one species. Test results shall be submitted with the results of Bulk Sediment Analysis in Section A and Disposal Area Assessment in Section B above.

II. Dredged Material Transportation Assessment

The potential for transport of dredged material into Elkhorn Slough shall be evaluated during the dredging project and pre-discharge measurements are also required to establish background conditions. Material Transport Assessment shall consist if the following monitoring requirements:

Constituent	Units	Location	Frequency
Turbidity	NTU	Sta. A, B, C, and D (See Attachment A)	Weekly prior to and during dredging

Units depend on monitoring method chosen.

Turbidity shall be monitored weekly during disposal to SF-12 at the following four locations (attachment A):

- a. Station A – At the mouth of the federal channel
- b. Station B – In Elkhorn Slough, immediately east of the Hwy 1 Bridge
- c. Station C – In Elkhorn Slough, approximately one mile upstream from Station B
- d. Station D – Within Moss Landing Harbor

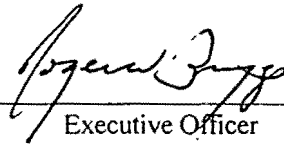
III. Reporting

- A. Results of the pre-discharge sampling program (Section I) shall be submitted to the Regional Board at least three weeks prior to commencing the dredging project.
- B. Material Transport Assessment data (Section II) and operational data (Section III) shall be supplied to the Regional Board monthly by the 15th of the following month during dredging operations.
- C. For decant operations:
 - 1. Prior to discharge, Moss Landing Harbor District shall submit to the Regional Board a contingency plan demonstrating to the satisfaction of the Executive Officer that if discharge to SF-12 fails to meet Discharge Specification B.15, compliance will be achieved in another manner. The plan may include provision of standby treatment, additional storage capacity, alternative discharge points or other method proposed by Discharger to achieve compliance.
 - 2. The Dischargers shall submit to the Regional Board decant water monitoring reports monthly by the 30th day of the following month. The report shall include all turbidity measurements of the month, the weekly decant water sampling results, the total volume and the average rate of the decant water discharged during the reporting month.

3-01-049

- 3. The Dischargers shall immediately inform the Regional Board by telephone, followed by written notice, if a sample indicates decant water discharged does not comply with any of the enforcement limitations specified in Order No. 01-007, Discharge Specifications B.16. Such incidents and any remedial actions implemented shall also be summarized in the monthly monitoring report.
- D. Records of hours of daily operation, quantity of dredge material, and locations of disposal shall be submitted to the Regional Board monthly by the 15th of the following month.
- E. An annual report is due on March 31 of each following year. The report shall summarize the following:
 - 1) the dredging operations for the year;
 - 2) the total dredge volume;
 - 3) the total dredge volume disposed at each disposal sites;
 - 4) summaries of monitoring results of the dredging operations;
 - 5) the compliance record with Order No. 01-007 for the year; and
 - 6) non-compliance incidents, explanations and any corrective action implemented.

ORDERED BY



Executive Officer

9-18-01

Date

S:\Central Watershed\WDRs\Moss Landing Dredging\Order No. 01-007\Order No. 01-007, MRP Final

