

## DREDGING PROJECT PROFILE

Project No: 11

Name: San Francisco Bar (San Francisco Harbor)-Federally Authorized Project

Project Owner/Sponsor: United States Army Corps of Engineers

Project Description: The project includes the 2,000-foot wide, 20,400-foot long San Francisco Bar Channel, which has a project depth of -55.0 MLLW.

Project Location: The San Francisco Bar Channel is part of the main shipping lanes between San Francisco Bay and the Pacific Ocean. The Channel is situated approximately 7 miles west of the Golden Gate.

Max. Project Depth: -55.0 Feet MLLW Classification of Work: Maintenance

Material Quantity: Between 1975 and 1993, a total of 11,642,500 cy of material was removed, with an average annual volume of approximately 647,000 cy.

Sediment Grain Size Distribution: Classified as greater than 90% sand.

Contamination History : None.

Frequency of Dredging and Sedimentation: Records from 1975 to 1993 show an average dredging frequency of one event every year. Sedimentation rate is highly variable due to variations in the littoral drift currents, and global (Pacific Ocean) weather activity which effects wave action over the bar.

Method(s) of Dredging: Typically, maintenance dredging is done by hopper dredge.

Historical Disposal Method: Typically, material removed from the San Francisco Bar Channel is placed at the adjacent Bar Channel placement (SF-8).

Historical Dredging Season: The San Francisco Bar Channel is dredged when USACE or contracted equipment is available.

Potential for Reduction of Dredging: None.

Site References: LTMS, for Dredged Material Disposal in the San Francisco Bay Region, Phase I, Dec. 1990, USACE. Dredging and Disposal Road Map, SFB CDC & USACE, Aug. 1993. Calif. Quad Map, San Francisco West. NOAA Chart 18649.

Additional Notes: Material quantities taken from: USACE, San Francisco District, O & M Project Management Branch, dredging records, Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc. Feb. 1992, (Appendix D), LTMS, for Dredged Material Disposal in the San Francisco Bay Region, Phase I, and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District.



## DREDGING PROJECT PROFILE

Project No: 16.b

Name: S.F. Harbor, (Islais Creek and San Francisco Airport Channel)-Federally Authorized Project

Project Owner/Sponsor: Port of San Francisco (Airport Channel only)

## Project Description:

This project includes an approach channel from San Francisco Bay to the entrance of Islais Creek, with project depths of -35.0, -38.0, and -40.0 feet MLLW. The Airport Channel consists of an approximately 7,000-foot long, 750-foot wide channel and a 2,000-foot wide turning basin, with a project depth of -10.0 feet MLLW.

## Project Location:

Islais Creek: San Francisco Bay, City and County of San Francisco. Airport Channel: San Francisco Bay, City of Daly City, San Mateo County.

## Max. Project Depth:

-40.0 Feet MLLW

## Classification of Work:

Maintenance

## Material Quantity:

Between 1955 and 1986, a total of 2,171,000 cy of material was removed from Islais Creek, with an average annual volume of approximately 70,000 cy. \*Dredging volumes for the Airport Channel project were not itemized in the dredging records; they are most likely included in the 'Other Small Projects' category.

## Sediment Grain Size Distribution:

Various materials. Classified as clean sand, to silts and clays.

## Contamination History :

None.

## Frequency of Dredging and Sedimentation:

\*Unknown.

## Method(s) of Dredging:

Clamshell, hopper, and hydraulic pipeline.

## Historical Disposal Method:

From 1955 to 1957, and from 1973 through 1986, a total of 1,417,000 cy was disposed of at the Alcatraz site (SF-11). In 1956, and from 1959 to 1967, 753,500 cy was disposed at open water sites (Volumes for the Islais Creek Project). \*Disposal of material removed from the Airport project was not itemized in the dredging records, thus it is most likely included in the 'Other Small Projects' category.

## Historical Dredging Season:

Unknown.

## Potential for Reduction of Dredging:

None.

## Site References:

Project & Index Maps, USACE, San Francisco District, River and Harbors Projects; Revised to September 1988. Calif. Quad Maps; San Francisco North/South, Hunters Point & San Mateo. NOAA Chart 18649.

## Additional Notes:

Material quantities taken from: USACE, San Francisco District, O & M Project Management branch, dredging records, Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc. Feb. 1992, (Appendix D), LTMS, for Dredged Material Disposal in the San Francisco Bay Region, Phase I, and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District. \*Prior to 1991, the 'Other Small Projects' category was not itemized, however this project had no indicated maintenance in 1991-93.



## DREDGING PROJECT PROFILE

Project No:

Name: United States Coast Guard Station, Yerba Buena Island-U.S.C.G. Project

Project Owner/Sponsor: United States Department of Transportation; (United States Coast Guard).

## Project Description:

This project consisted of a one time dredging and removal of pilings at U.S. Coast Guard Station Yerba Buena Island.

## Project Location:

Eastern end of Yerba Buena Island, located in San Francisco Bay.

## Max. Project Depth:

Not Indicated

## Classification of Work:

Inactive

## Material Quantity:

Records indicate that approximately 40,000 cy of material was removed from the project.

## Sediment Grain Size Distribution:

Not classified.

## Contamination History :

None.

## Frequency of Dredging and Sedimentation:

Only one dredging project found, records indicate no maintenance activities.

## Method(s) of Dredging:

For the single dredging cycle identified, a clamshell dredge was used.

## Historical Disposal Method:

All material was disposed of at the Alcatraz site (SF-11).

## Historical Dredging Season:

Not applicable.

## Potential for Reduction of Dredging:

Not applicable.

## Site References:

Dredging and Disposal Road Map, SFBCDC &amp; USACE, August 1993. Dredging of various Naval Installations in the San Francisco Bay Area, Naval Facilities Engineering Command, Western Division, San Bruno, CA, (BlueLines). Calif. Qu. Oakland West. NOAA Charts 18649 and 18650.

## Additional Notes:

Material quantities taken from; USACE, San Francisco District, O &amp; M Project Management Branch, dredging records.



## DREDGING PROJECT PROFILE

Project No:

18

Name: Oakland Harbor/ Port of Oakland-Federal and Non-Federal Project Areas

Project Owner/Sponsor: United States Army Corps of Engineers/ Port of Oakland

**Project Description:** This project consists of a 9,000-foot long, 600 to 800-foot wide channel, with a project depth of -35.0 feet MLLW, extending from deep water in San Francisco Bay to the Oakland Outer Harbor berths. The project also includes an 8-mile long, 600-foot wide channel with a project depth of -38.0 feet MLLW, extending from deep water in San Francisco Bay to the Oakland Inner Harbor berths (located in the Alameda-Oakland Estuary). Project deepening to -42 feet MLLW is scheduled for 1995-98. \*The Port of Oakland project consists of 29 assorted berths with project depths of between -38.0 and -42.0 feet MLLW.

**Project Location:** San Francisco Bay/Alameda/Oakland Estuary, City of Oakland; Alameda County.**Max. Project Depth:** -42.0 Feet MLLW**Classification of Work:**

Maintenance

**Material Quantity:** Between 1931 and 1992, a total of 35,984,000 cy of material was removed, with an average annual volume of approximately 590,000 cy. \*The only records that specifically indicate dredging for the Port of Oakland project show that 45,000 cy of material was removed in 1992.

**Sediment Grain Size Distribution:** Classified as clay to silty clay, with areas of dense sands.

**Contamination History:** The future deepening project includes approximately 1 million cy of contaminated material. The entire Inner Harbor above the Howard Terminal is not currently dredged due to contamination and proximity to the Oakland-Alameda

**Frequency of Dredging and Sedimentation:** Records from 1931 to 1992 show an average dredging frequency of one event every year.

**Method(s) of Dredging:** Clamshell, hopper, and hydraulic pipeline.

**Historical Disposal Method:** Between 1955 and 1970, most material was disposed of at open water disposal sites. From 1972 through 1992, most material was disposed of at the Alcatraz site (SF-11). Some material has also been placed at various upland sites.

**Historical Dredging Season:** Predominantly December through April.

**Potential for Reduction of Dredging:** Base closure affecting adjacent facilities may affect future Port development and future dredging requirements.

**Site References:** Project & Index Maps, USACE, San Francisco District, River and Harbors Projects; Revised to September 1988. LTMS, Management Strategy for Dredged Material Disposal in the San Francisco Bay Region, Phase I, Dec, 1990, USACE. Dredging and Disposal Road Map, SFBCDC & USACE, August 1993. Calif. Quad Map, Oakland West. NOAA Chart 18649.

**Additional Notes:** Material quantities taken from: USACE, San Francisco District, O & M Project Management Branch, dredging records, LTMS, for Dredged Material Disposal in the San Francisco Bay Region, Phase I, and Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc., Feb. 1992, (Appendix D), and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District. Only one event is shown in the records in 1991, under the itemized 'Other Small Projects' category. \*Prior to 1991, the 'Other Small Projects' category was not itemized. In 1992, the Port of Oakland is included in the itemized 'Other Small Projects' category, therefore, prior to 1991 this project is assumed to be included in the 'Other Small Projects' records.



## DREDGING PROJECT PROFILE

Project No:

Name:

Alameda Naval Air Station-U.S. Navy Project

Project Owner/Sponsor:

United States Navy

Project  
Description:

This project consists of an approximately 2-mile long, 1,000-foot wide (tapering to 2,500 feet at the eastern end), channel with a project depth of -42.0 feet MLLW. The project includes 3 mooring basins lying between 3 piers and a breakwater. These basins extend approximately 150 feet from wharf faces, and are dredged to a depth of -50.0 feet MLLW.

Project Location:

San Francisco Bay, City and County of Alameda.

Max. Project Depth:

-50.0 Feet MLLW

Classification of Work:

Deepening

Material Quantity:

Between 1959 and 1992, a total of 21,978,000 cy of material was removed, with an average annual volume of approximately 666,000 cy.

Sediment Grain  
Size Distribution:

Classified as silts, sands, and clays, including hard materials.

Contamination  
History:

None.

Frequency of  
Dredging and  
Sedimentation:

Records from 1959 to 1992 show an average dredging frequency of one event every 1.3 years.

Method(s) of  
Dredging:

Hopper, clamshell, and hydraulic pipeline.

Historical Disposal  
Method:

Between 1959 and 1968, all material was disposed of at open water sites (6,766,000 cy). In 1969, 312,500 cy was disposed of at upland sites. From 1974 through 1992, all material (12,850,000 cy), (with the exception of 26,300 cy in 1981, and 6,500 cy in 1983, which was placed at upland sites), was disposed of at the Alcatraz site (SF-11). In 1983, material went to the ocean site under a Section 103\*\*\* use.

Historical  
Dredging Season:

1st, 2nd, and 4th Qtrs.

Potential for  
Reduction of  
Dredging:

The proposed closure of this base and the future use of the existing facilities may affect future dredging requirements.

Site  
References:

Project & Index Maps, USACE, San Francisco District, River and Harbors Projects; Revised to September 1988. Dredging Disposal Road Map, SFBCDC & USACE, August 1993. Calif. Quad Map, Oakland West. NOAA Chart 18650.

Additional  
Notes:

Material quantities taken from: USACE, San Francisco District, O & M Project Management Branch, dredging records; Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc., Feb. 1992, and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District. \*\*\*The designation regulation for this site at 40 CFR 228.12(b)(22) does allow other dredged materials having smaller grain size to be disposed at this site only after appropriate case by case evaluation demonstrates that the action would result in no unacceptable impacts.



## DREDGING PROJECT PROFILE

Project No: 20

Name: Redwood City-Federally Authorized Project

Project Owner/Sponsor: Port of Redwood City

**Project Description:** This project includes a 500-foot wide channel across San Bruno Shoal in San Francisco Bay, a 300 to 400-foot wide channel from San Francisco Bay into Redwood Creek, with two turning basins. The project depth for these channels is -30.0 feet MLLW. The project also includes a 150-foot wide channel from the second turning basin to Steinberger Slough, with a project depth of -5.0 feet MLLW.

**Project Location:** South San Francisco Bay, Redwood City, San Mateo County.

**Max. Project Depth:** -30.0 Feet MLLW

**Classification of Work:**

Maintenance

**Material Quantity:** Between 1931 and 1993, a total of 18,132,000 cy of material was removed, with an average annual volume of approximately 292,500 cy. \*\*Records from other sources indicate that from 1931 to 1989 an average annual volume of 130,000 cy was removed.

**Sediment Grain Size Distribution:** Classified as silty clay.

**Contamination History :** None.

**Frequency of Dredging and Sedimentation:** Records from 1931 through 1993 show an average dredging frequency of one event every 1.6 years. \*\*Sedimentation: Upstream mile 1 to 2, 3 to 6 inches per year; mile 0 to 1, 10 to 20 inches per year; Across the Flats, mile -1.5 to 0, 4 to 7 inches per year.

**Method(s) of Dredging:** The -30-foot MLLW channel is normally maintained by hopper dredge or clamshell. The 5-foot channel is maintained by hydraulic pipeline or clamshell.

**Historical Disposal Method:** From 1955 to 1959, all material (1,134,500 cy) was disposed of in the South Bay. In 1960, 68,500 cy was disposed of at upland sites, and 1,124,000 cy was disposed of in the South Bay. In 1961, 432,000 cy was disposed of at upland sites. In 1962, 773,000 cy was disposed of in the South Bay. From 1964 through 1992, 8,209,000 cy was disposed of at the Alcatraz site (SF-11). In 1993, 400,000 cy was disposed of at the San Pablo Bay disposal site. Material infrequently removed from the 5-foot channel has been disposed of upland.

**Historical Dredging Season:** 1st and 2nd Qtr.

**Potential for Reduction of Dredging:** \*\*Construction of Training walls/levees, channel side slope flattening, and channel optimization (length or width reduction), all have potential for reducing dredging requirements.

**Site References:** Project & Index Maps, USACE, San Francisco District, River and Harbors Projects; Revised to September 1988. LTMS Management Strategy for Dredged Material Disposal in the San Francisco Bay Region, Phase I, Dec. 1990, USACE. Dredging and Disposal Road Map, SFB CDC & USACE, August 1993. Calif. Quad Map, Redwood Point. NOAA Chart 19651.

**Additional Notes:** Material quantities taken from: USACE, San Francisco District, O & M Project Management Branch, dredging records, LTMS, for Dredged Material Disposal in the San Francisco Bay Region, Phase I, Dec. 1990, USACE, and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District. \*\*Reduce Dredging Requirement Final Report, LTMS, Phase II, Task 3, Work Element C, by Moffat & Nichol Engineers for USACE, San Francisco District.



## DREDGING PROJECT PROFILE

Project No:

Name:

Hunters Point Naval ShipYard-U.S. Navy Project

Project Owner/Sponsor:

United States Navy

Project  
Description:

The project consists of 15 berths, 3 drydocks, and associated channels, however recent dredging has been limited to a triangular basin approximately 1,200 feet wide and 1,000 feet long, with a project depth of -42.0 feet MLLW. (This basin is bounded by berths 8, 9, 10, 11, and the gate to drydock 4).

Project Location:

Hunters Point, City and County of San Francisco.

Max. Project Depth:

-42.0 Feet MLLW

Classification of Work:

Inactive

Material Quantity:

Between 1972 and 1989, a total of 838,000 cy of material was removed, with an average annual volume of approximately 49,000 cy.

Sediment Grain  
Size Distribution:

Not classified.

Contamination  
History :

Some areas have been contaminated by historic ship building and maintenance activities.

Frequency of  
Dredging and  
Sedimentation:

Records from 1972 to 1989 show an average dredging frequency of one event every 3.5 years.

Method(s) of  
Dredging:

Clamshell.

Historical Disposal  
Method:

In 1972 and 1973, 300,500 cy of material was disposed of at open water sites. From 1973 through 1989, 538,000 cy of material was disposed of at the Alcatraz site (SF-11).

Historical  
Dredging Season:

Inactive.

Potential for  
Reduction of  
Dredging:

The limited use of this facility, together with the presence of contaminants, have resulted in limited dredging activities. Final closure of this facility will likely require dredging for clean-up purposes.

Site  
References:

Dredging of Various Naval Installations in the San Francisco Bay area, Naval Facilities Engineering Command, Western Division, San Bruno, CA, (Bluelines). Calif. Quad Map Hunters Point. NOAA Chart 18649.

Additional  
Notes:

Material quantities taken from; Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc., Feb. 1990 and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District.



## DREDGING PROJECT PROFILE

Project No: 22.a

Name: San Leandro Marina; Main Channel-Federally Authorized Project

Project Owner/Sponsor: City of San Leandro

**Project Description:** The project consists of a 2.1-mile long, 200-foot wide access channel from deep water in San Francisco Bay to mile 0.0 at the access to San Leandro Marina. The project has an authorized project depth of -8.0 feet MLLW, but is currently maintained at -6.0 to -7.0 feet MLLW.

**Project Location:** City of San Leandro; Alameda County**Max. Project Depth:** -8.0 Feet MLLW**Classification of Work:** Maintenance**Material Quantity:** Material quantities removed from this project are included in the San Leandro Marina; Interior Access Channel (mile 0.0 to 0.4) project. (See project No. 22.b)**Sediment Grain Size Distribution:** Classified as clay.**Contamination History :** None.**Frequency of Dredging and Sedimentation:** Records from 1978 to 1989 show an average dredging frequency of one event every 3.7 years, with a planned cycle of one event every 4 years.**Method(s) of Dredging:** Hydraulic pipeline and clamshell.**Historical Disposal Method:** An adjacent upland site for maintenance dredging. Original construction material was disposed of in open water.**Historical Dredging Season:** Infrequent.**Potential for Reduction of Dredging:** Future deepening of channel to the authorized depth of -8.0 feet MLLW could affect required maintenance dredging.**Site References:** Project & Index Maps, USACE, San Francisco District, River and Harbors Projects; Revised to September 1988. LTMS Management Strategy for Dredged Material Disposal in the San Francisco Bay Region, Phase I, Dec. 1990, USACE. Calif. Quad Map, San Leandro. NOAA Chart 18651.**Additional Notes:** Material quantities taken from; USACE, San Francisco District, O & M Project Management Branch, dredging records, Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc. Feb. 1992 and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District.



## DREDGING PROJECT PROFILE

Project No:

Name:

San Leandro Marina; Interior Access Channel-Federally Authorized Project

Project Owner/Sponsor:

City of San Leandro

Project  
Description:

The project consists of 0.2 and 0.4-mile long, 150 and 140-foot wide interior access channels extending into San Leandro Harbor from the mouth of the breakwater. The project has an authorized depth of -8.0 feet MLLW, but is currently maintained to a depth of -6.0 to -7.0 feet MLLW.

Project Location:

City of San Leandro; Alameda County.

Max. Project Depth:

-8.0 Feet MLLW

Classification of Work:

Maintenance

Material Quantity:

The total volume of material removed from the project in 1978, 1984, and 1989 was 717,500 cy, with an average annual volume, between 1978 and 1989, of approximately 48,000 cy.

Sediment Grain  
Size Distribution:

Classified as clay.

Contamination  
History :

None.

Frequency of  
Dredging and  
Sedimentation:

Records from 1978 to 1989 show an average dredging frequency of one event every 3.7 years, with a planned one event every 4 years.

Method(s) of  
Dredging:

Hydraulic pipeline for upland disposal.

Historical Disposal  
Method:

Original construction material was used for dike construction and adjacent landfill. Maintenance material has been used to create a dike to protect the harbor entrance. In 1966, material was disposed of in a shallow area just south of the Marina, creating a small mud island. Currently, all maintenance material is disposed of at upland sites.

Historical  
Dredging Season:

Infrequent.

Potential for  
Reduction of  
Dredging:

Future deepening of the Channel to the authorized depth of -8.0 feet MLLW could affect required maintenance dredging.

Site  
References:

Project & Index Maps, USACE, San Francisco District, River and Harbors Projects; Revised to September 1988. LTMS. Dredged Material Disposal in the San Francisco Bay Region, Phase I, Dec. 1990, USACE. Dredging and Disposal Record, SFBCDC & USACE, August 1993. Calif. Quad Map, San Leandro. NOAA Chart 18650.

Additional  
Notes:

Material quantities taken from: USACE, San Francisco District, O & M Project Management Branch, dredging records, Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc., Feb. 1992, and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District.



## DREDGING PROJECT PROFILE

Project No:

23

Name: Moffatt Field Naval Air Station-U.S. Navy Project

Project Owner/Sponsor: United States Navy

**Project Description:** The project consists of a 100-foot wide channel extending through Guadalupe Slough from San Francisco Bay to Fuel Pier Road on the eastern end of Moffett Field Naval Air Station, with a 200-foot wide turning basin adjacent to the fuel pier. Project depth is -9.0 feet MLLW.

**Project Location:** City of Sunnyvale; Santa Clara County.**Max. Project Depth:** -9.0 Feet MLLW**Classification of Work:**

Inactive

**Material Quantity:** The total volume of material removed for the three dredging episodes occurring in 1969, 1979, and 1992, was 760,500 cy, for an average annual volume of approximately 65,000 cy.

**Sediment Grain Size Distribution:** Not classified.

**Contamination History :** None.

**Frequency of Dredging and Sedimentation:** Records from 1969 to 1992 show an average dredging frequency of one event every 7.7 years.

**Method(s) of Dredging:** It is assumed that clamshell dredges were used.

**Historical Disposal Method:** All material (760,500 cy) removed from the site was disposed of at the Alcatraz site (SF-11).

**Historical Dredging Season:** Infrequent.

**Potential for Reduction of Dredging:** With this facility scheduled for closure in the near future, the maintenance requirements will depend on future site uses.

**Site References:** Dredging of Various Naval Installations in the San Francisco Bay Area, Naval Facilities Engineering Command, Western Division, San Bruno CA, (Bluelines). Dredging and Disposal Road Map, SFBCDC & USACE, August 1993. Calif. Quad Map, Mountain View. NOAA Chart 18651.

**Additional Notes:** Material quantities taken from: Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc. Feb. 1992, and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District. Moffatt Field is scheduled for closure in the near future.



## DREDGING PROJECT PROFILE

Project No:

Name:

Oakland Naval Supply Center-U.S. Navy Project

Project Owner/Sponsor:

United States Navy

Project  
Description:

The project consists of a 1/2-mile long, 400-foot wide access channel, two triangular basins; one basin approximately 600 feet by 2,100 feet, and the other approximately 600 feet by 2,100 feet. Three 1,200 foot berths, 470, 370, and 280 feet wide respectively. Project depth is -41.0 feet MLLW for the access channel, the 900-foot basin, and the 470-foot berth, and -41.0 feet MLLW otherwise.

Project Location:

City of Oakland, Alameda County.

Max. Project Depth:

-41.0 Feet MLLW

Classification of Work:

Maintenance

Material Quantity:

Between 1956 and 1991, a total of 4,413,000 cy of material was removed, with an average annual volume of approximately 126,000 cy.

Sediment Grain  
Size Distribution:

Classified as silts and clays.

Contamination  
History:

Yes, historically some contamination in the berths has limited the dredging of the project.

Frequency of  
Dredging and  
Sedimentation:

Records from 1956 to 1991 show an average dredging frequency of one event every 4.4 years.

Method(s) of  
Dredging:

Normally clamshell dredges are used.

Historical Disposal  
Method:

Between 1956 and 1968, all material was disposed of at open water sites (1,997,000 cy). In 1969, 790,500 cy was disposed of in Carquinez Straits. In 1970, 77,000 cy of material was again disposed of at an open water site. In 1971 and 1991, a total of 534,442 cy was disposed of at the Alcatraz site (SF-11).

Historical  
Dredging Season:

2nd or 3rd Qtr.

Potential for  
Reduction of  
Dredging:

Changes in the mission of this facility, due to base closures and realignment, may affect the future need for maintenance dredging.

Site  
References:

Dredging of various Naval Installations in the San Francisco Bay Area, Naval Facilities Engineering Command, Western Division, San Bruno CA, (BlueLines). Dredging and Disposal Road Map, SFBCDC & USACE, August 1993. Calif. Quaternary Map, Oakland West. NOAA Chart 18649.

Additional  
Notes:

Material quantities taken from: USACE, San Francisco District, O & M Project Management Branch, dredging records, Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc. Feb. 1992, and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District.



## DREDGING PROJECT PROFILE

Project No: 25

Name: Larkspur Ferry Channel-Non-Federal Project (Proposed Federal Project)

Project Owner/Sponsor: Golden Gate Transit District

**Project Description:** The project consists of a 2.3-mile long, 232-foot wide access channel from San Francisco Bay to the Larkspur Ferry Terminal in Corte Madera Creek. The authorized project depth is -15.0 feet MLLW, however the channel is currently maintained to -13.0 feet MLLW.

**Project Location:** San Francisco Bay, Corte Madera Creek, City of San Rafael; Marin County.**Max. Project Depth:** -15.0 Feet MLLW **Classification of Work:** Maintenance**Material Quantity:** Records indicate that 167,500 cy of material was dredged in 1993.**Sediment Grain Size Distribution:** Classified as silt, clay, and bay mud; all very soft material.**Contamination History :** Unknown.**Frequency of Dredging and Sedimentation:** Maintenance dredging has been sporadic in the recent past due to permitting constraints.**Method(s) of Dredging:** Clamshell dredging is the method currently used.**Historical Disposal Method:** All dredged material disposed of at the Alcatraz site (SF-11).**Historical Dredging Season:** 2nd Qtr.**Potential for Reduction of Dredging:** Dredging optimization techniques may reduce dredging requirements of this project.**Site References:** Dredging and Disposal Road Map, SFB CDC & USACE, August 1993. Information provided by the Golden Gate Bridge, Highway and Transportation District staff. Calif. Quad Map, San Rafael/San Quentin. NOAA Chart 18649.**Additional Notes:** This project was authorized as a federal project under WRDA 1986. The Corps will assume maintenance dredging responsibility for the channel when the Golden Gate Bridge, Highway and Transportation District completes the current maintenance dredging program in 1994 to return the channel to authorized width and depth.



## DREDGING PROJECT PROFILE

Project No:

Name:

ARCO-Non-Federal Project

Project Owner/Sponsor:

Atlantic Richfield Oil Company

Project  
Description:

The ARCO facility consists of petroleum loading docks located on the west side of the Richmond Inner Harbor Channel.

Project Location:

Port of Richmond, Inner Harbor, City of Richmond, Contra Costa County.

Max. Project Depth:

-35.0 Feet MLLW

Classification of Work:

Maintenance

Material Quantity:

\*Records from 1991, indicate that 35,000 cy of material was removed. Records indicate a projected volume of 50,000 cy of material for 1993.

Sediment Grain  
Size Distribution:

Classified as clay to silty clay.

Contamination  
History :

None.

Frequency of  
Dredging and  
Sedimentation:

Not applicable.

Method(s) of  
Dredging:

Hopper or clamshell dredge.

Historical Disposal  
Method:

In 1991, material was disposed of at the Alcatraz site (SF-11).

Historical  
Dredging Season:

\*Unknown.

Potential for  
Reduction of  
Dredging:

\*Unknown.

Site  
References:

Calif. Quad Maps, Richmond and San Quentin. NOAA Chart 18649.

Additional  
Notes:

Material quantities taken from: San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District. One event is shown in the records in 1991, under the itemized 'Other Small Projects' category. \*Prior to 1991, the 'Other Small Projects' category was not itemized. Therefore, prior to 1991 this project is assumed to be included in the Other Small Projects category. Castrol, Texaco, Time Oil, and California Oil also have petroleum loading facilities in the Richmond Inner Harbor.



## DREDGING PROJECT PROFILE

Project No: 27

Name: Unocal-Non Federal Project

Project Owner/Sponsor: Union Oil Company

**Project Description:** This facility, known as the Oleum Dock, is a 1,200-foot long dock located in San Pablo Bay and Carquinez Straits, approximately 1,800 feet off-shore of Point Davis. The facility is used for petroleum loading.

**Project Location:** San Pablo Bay, Carquinez Strait, City of Rodeo, Contra Costa County.

**Max. Project Depth:** -35.0 Feet MLLW

**Classification of Work:** Maintenance

**Material Quantity:** \*Unknown historical dredging volumes. In 1991, 55,500 cy was dredged.

**Sediment Grain Size Distribution:** Not classified. Assumed to be silt, sand, and mud.

**Contamination History :** None.

**Frequency of Dredging and Sedimentation:** \*Unknown.

**Method(s) of Dredging:** Clamshell or hopper dredge.

**Historical Disposal Method:** \*In 1991, all material was disposed of at the Carquinez disposal site (SF-9).

**Historical Dredging Season:** \*Unknown.

**Potential for Reduction of Dredging:** \*Unknown. However, the deepening of the adjacent Pinole Shoal Channel under the John F. Baldwin Phase III project in 1997 may affect the maintenance dredging requirements.

**Site References:** Calif. Quad Map, Mare Island. NOAA Chart 18654.

**Additional Notes:** Material quantities taken from: San Francisco Bay Dredging Records for 1985 to 1993. USACE, San Francisco District. Only one event is shown in the records in 1991, under the itemized 'Other Small Projects' category. \*Prior to 1991, the 'Other Small Projects' category was not itemized. Therefore, prior to 1991, this project is most likely included in the Other Small Projects records. The Pacific Refinery Sequoia Dock is located southwest of the Unocal facility, and the Wickland Oil Dock is located to the east.



## DREDGING PROJECT PROFILE

Project No:

Name:

Shell Oil-Non-Federal Project

Project Owner/Sponsor:

Shell Oil Company

Project  
Description:

This facility, known as the Shell Oil-Martinez Dock, is a petroleum loading dock located off the south shore of Carquinez Strait, west of the Benicia-Martinez Bridge.

Project Location:

Carquinez Strait, City of Crocket; Contra Costa County.

Max. Project Depth:

-35.0 Feet MLLW

Classification of Work:

Maintenance

Material Quantity:

\*Unknown historical dredging volumes.

Sediment Grain  
Size Distribution:

\*Not classified. Assumed to be silt, sandy silt or mud.

Contamination  
History :

None.

Frequency of  
Dredging and  
Sedimentation:

\*Unknown.

Method(s) of  
Dredging:

Hopper or clamshell dredge.

Historical Disposal  
Method:

\*Unknown.

Historical  
Dredging Season:

\*Unknown.

Potential for  
Reduction of  
Dredging:

\*Unknown. However the deepening of the adjacent Pinole Shoal Channel under the John F. Baldwin Phase III project in 1997 may affect the maintenance dredging requirements.

Site  
References:

Calif. Quad Map, Benicia. NOAA Chart 18656

Additional  
Notes:

Material quantities taken from: San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District. To 1991, the 'Other Small Projects' category was not itemized. Therefore, prior to 1991, this project is most likely included in the other smaller projects records.



## DREDGING PROJECT PROFILE

Project No:

29

Name:

Exxon-Non-Federal Project

Project Owner/Sponsor:

Exxon Oil Company

Project  
Description:

This facility is located on the north side of Carquinez Straits, just west of the Benicia-Martinez Bridge. The facility is used for off-loading crude oil.

Project Location:

Carquinez Strait, City of Benicia, Solano County.

Max. Project Depth:

-35.0 Feet MLLW

Classification of Work:

Maintenance

Material Quantity:

\*Unknown historical dredging volumes. Records indicate 19,500 cy was dredged in 1991, and 40,000 cy was dredged in 1992.

Sediment Grain  
Size Distribution:

\*Not classified. Assumed to be silt, sandy silt or mud.

Contamination  
History :

None.

Frequency of  
Dredging and  
Sedimentation:

\*Unknown.

Method(s) of  
Dredging:

Hopper or clamshell dredge.

Historical Disposal  
Method:

\*Unknown.

Historical  
Dredging Season:

\*Unknown.

Potential for  
Reduction of  
Dredging:

\*Unknown.

Site  
References:

Calif. Quad Map, Benicia. NOAA Chart 18656.

Additional  
Notes:

Material quantities taken from: San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District. Only two events are shown in the records, occurring in 1991 and 1992, under the itemized 'Other Small Projects' category. \*Prior to 1991, the 'Other Small Projects' category was not itemized. Therefore, prior to 1991 this project is most likely included in the Other Small Projects records.



## DREDGING PROJECT PROFILE

Project No:

Name:

Other Small Projects

Project Owner/Sponsor:

Various public and private interests.

Project  
Description:

All small dredging projects not itemized in records prior to 1991. These projects include public and private marinas, piers, and other small dredging projects not itemized in the dredging records\* prior to 1991.

Project Location:

Throughout the San Francisco Bay Estuary.

Max. Project Depth:

Various

Classification of Work:

Various

Material Quantity:

Between 1955 and 1993, a total of 26,658,500 cy of material was removed, with an average annual combined volume of approximately 701,500 cy.

Sediment Grain  
Size Distribution:

Classification varies with site.

Contamination  
History :

Depends on site history and proximity.

Frequency of  
Dredging and  
Sedimentation:

Records from 1955 to 1993 show an average dredging frequency of one event every 1.5 years.

Method(s) of  
Dredging:

Varies with site.

Historical Disposal  
Method:

Varies with site location and contamination status.

Historical  
Dredging Season:

Varies with site.

Potential for  
Reduction of  
Dredging:

Varies with site.

Site  
References:

Dredging and Disposal Road Map, SFB CDC &amp; USACE, August 1993. NOAA Charts 18649, 18651, 18654 and 18655.

Additional  
Notes:

Material quantities taken from: Sediment Budget Study for San Francisco Bay, Ogden Beeman and Associates, Inc., Feb. 1994 and San Francisco Bay Dredging Records for 1985 to 1993, USACE, San Francisco District. \*Prior to 1991, the 'Other Small Projects' category was not itemized.



## ***PLACEMENT SITE PROFILES***