CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 99-055

WASTE DISCHARGE REQUIREMENTS FOR:

PORT OF OAKLAND
BERTH 55-58 PROJECT,
OAKLAND, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter referred to as the Regional Board, finds that:

1. This order will serve as Waste Discharge Requirements for the Port of Oakland's Berth 55-58 Project. The order will provide groundwater target values, soil reuse values, receiving water limits and discharge specifications, as well as monitoring and reporting requirements for the project. The Berths 55-58 Project is the marine terminals component of the Vision 2000 Program. Other related projects include the Joint Intermodal Terminal (railyards), the Oakland Harbor Navigation Improvement [-50 Foot] Project (channel deepening), and the Middle Harbor Enhancement Area (eelgrass habitat creation). These related projects will be regulated by future Regional Board actions.

2. The Berth 55-58 Project (Project) is part of the Port of Oakland's Vision 2000 Program of port improvements (Figure 1). The Port of Oakland (hereinafter referred to as the Discharger) indicates that the purpose of the Vision 2000 program is to meet the anticipated demand for transportation services in the San Francisco Bay Area and Northern California, and to serve markets in the Midwest and beyond.

3. The specific purpose of the Berth 55-58 portion of Vision 2000 is to meet the needs of ocean carrier alliances, the requirements of larger ships and intermodal cargo operations, and the anticipated economic and population growth in the San Francisco Bay Area and Northern California. The configuration and size of the new Berths 55-58 marine terminals would allow large new generation container vessels to dock and be loaded and unloaded quickly by multiple cranes. The new terminal will also provide container storage space sufficiently large to accommodate the container volumes associated with large carrier vessels and carrier alliances.

4. The major construction features of the Berth 55-58 Project are :

   a. The realignment of the northern bank of the Inner Harbor Channel (the "Inner Harbor Bank") by excavation of the bank and dredging of adjacent sediments,

   b. Reuse of the native materials from the Inner Harbor Bank excavation to fill a portion of the berths at the former US Navy facility, the Fleet Industrial Supply Center Oakland (FISCO); and

   c. Reuse of the artificial fill from the Inner Harbor Bank excavation as fill on the former FISCO and Union Pacific Railroad properties to raise elevations and contour the surface for movement and storage of intermodal containers.

5. The construction of new marine terminals will require the excavation and dredging of approximately 5.1 million cubic yards of soils. The total volume of material moved includes approximately 1.3 million cubic yards of artificial fill soils; approximately 3.7 million cubic yards of native materials (i.e., Young Bay Mud and Merritt Sand); and approximately 0.1 million cubic yards of rock (i.e., the existing rock jetty or training wall). The native soils and rock will be utilized as fill in the berths of the former FISCO facility to create new land or **"fastland"** that will eventually be used as a container yard and public park. The Discharger intends to reuse the existing artificial fill soils, to the extent practicable, as upland fill material to raise elevations.

6. In order to create fastland for the new terminals, the Discharger proposes to create fill cells by building a rock structure (containment dike) that walls off the inner half of the former FISCO berths. Prior to creating the dike, the FISCO piers must be demolished and a **keyway** needs to be dredged, so that the containment dike has a solid foundation. As the cells are being filled, additional Young Bay Mud and (possibly) Merritt Sand (called the buttress) will be placed on the outside of the containment dike to provide seismic stability to the dike.

7. The Discharger distinguishes the different sources of material to be used in the Project as follows (they are described in order from the deeper, and older, native materials to the more recently deposited or placed materials):

   a. The deepest material that will be impacted by the Project is the **Merritt Sands (MS) formation**, which was deposited as sand dunes more than 10,000 years ago. The Port proposes to use the MS material from the Berth 55-58 Project as the uppermost layer of the fastland cells.

   b. On top of the Merritt Sands is the **Young Bay Mud (YBM) formation** that was deposited beginning 10,000 years ago and was covered by hydraulic fill beginning in the 1880s. The Discharger proposes to use the YBM material from the Berth 55-58 Project as the middle layer of the fastland cells and as the containment dike buttress material.

   c. Since the geologic term Young Bay Mud includes recently deposited material, as well as material that predates industrialization, this order distinguishes sediments recently deposited in the Bay as the **Recent Bay Mud (RBM)**. The Discharger proposes to dredge approximately 40,000 cy of RBM from Middle Harbor to form a keyway for a proposed containment dike. This sediment (called the **Keyway RBM**) will be dredged from the former FISCO berths, only in the footprint of the proposed containment dike. Additional RBM (called the Shoal RBM) will be dredged along the bank of the Inner Harbor.

      i) The Keyway RBM is uncontaminated and falls within the typical range of sediment chemistry found in the center of the Bay (based on the Ambient Concentrations of Toxic Chemicals in San Francisco Bay Sediment report, RWQCB, May 1998). The Discharger proposes to use this material in the fill for the fastland.

      ii) The Shoal RBM is moderately contaminated and some of the Shoal samples failed sediment toxicity tests. Leaching tests showed that the contaminants in the Shoal RBM are not released under aquatic conditions. The Discharger proposes to use this material as the bottom layer of fill in the fastland, where it will be isolated from waters of the state, by more than 15 feet of uncontaminated material.

d. On top of the YBM is **Artificial Fill (AF)** which is made up of marine-derived fill and terrestrial fill. The marine-derived fill was placed on-shore and in shallow water during hydraulic dredging of the Inner Harbor from the 1880s to the 1930s. The terrestrial fill was brought in during the 1930s to bring the land surface up to the desired elevation. There are few indications of contamination in the deeper fill (below the water table), but the uppermost fill (terrestrial fill) has been subjected to industrial activities and leaking underground storage tanks. The Discharger proposes to reuse the bulk of this Artificial Fill to bring the new Berth 55-58 project area to the desired elevations.

   Prior to full-scale excavation of the AF material, areas with the highest contamination will be selectively excavated and stockpiled for further testing and disposal at permitted facilities. The balance of the AF material will be placed so that it is separated from groundwater and will be capped with asphalt to minimize any chance of impact to waters of the state. Modeling was performed to identify maximum reuse values for soil (Table 2) that will be acceptable for upland reuse with no impact to groundwater. The plan for reuse of this material will be based on these maximum reuse values. Groundwater target values that are protective of surface water beneficial uses have also been identified (Table 1) and compliance with these values will be verified by monitoring wells.

8. The material to be placed as fill to create fastland at the piers of the former FISCO site includes recent sediments (Shoal and Keyway RBM) and older geologic materials (MS and YBM). This material has been evaluated by Regional Board staff and found to be suitable for the following reuses:

   a. The Shoal RBM was evaluated by the Dredged Material Management Office (**DMMO**), an interagency group, including Regional Board staff, that reviews proposals to dredge and reuse or dispose of dredged material. After approving the sampling and analysis plan, the DMMO participants review the results of the testing and make recommendations to their respective agencies regarding project approval. The Shoal RBM was sampled with 12 composite samples made up of four to five cores each.

      The DMMO recommended to their individual agencies that a portion of the Shoal RBM be found "suitable for unconfined aquatic disposal" (or **SUAD**), since it has chemical characteristics similar to the ambient sediments of San Francisco Bay and does not display significant toxicity. Nevertheless, the bulk of the Shoal RBM was recommended to be found to be "not suitable for unconfined aquatic disposal" (or **NUAD**), since it fails to meet either the chemical or toxicity criteria for SUAD material. This material was also tested for leachability and it was determined that the contaminants are not leachable.

      The Shoal RBM is found to be suitable for creation of new land as part of the Berth 55-58 Project, since it will be permanently covered by clean, low permeability material (such as the YBM), as is proposed by the Discharger.

   b. The Keyway RBM was tested in May 1999, with one composite sample made up of six cores and the chemistry was found to be within the ambient range of sediments in the Bay. Since the chemical analysis indicates that these sediments have not been impacted by industrial activities and the material is not proposed for unconfined aquatic disposal, no toxicity testing was required. Additional testing (toxicity testing) would be required if this material were proposed for long-term contact with waters of the state or aquatic organisms.

This Keyway RBM material is found to be suitable for creation of new land as part of the Berth 55-58 Project, since it will be permanently covered with at least 15 feet of clean, low permeability material (such as the YBM), as is proposed by the Discharger.

c. The YBM and MS materials have been tested in several studies during the ongoing improvements of the Port of Oakland. These previous studies, based on evidence of historical activities at the port facilities, have shown that these materials are usually not impacted by industrial activities where they were buried by artificial fill in the latter parts of the19th century. Recent testing for the Berth 55-58 and the -50 Foot Deepening Projects have confirmed these findings.

i) Testing of YBM for the 42-Foot Project showed that in circumstances similar to the Berth 55-58 Project (i.e. where YBM occurs beneath pre-industrial fill), that the YBM was SUAD. Chemical analysis of the YBM proposed for fill in the new land for Berth 55-58 showed no indications of contamination. The data also shows that this material is substantially similar to the YBM that was previously approved for unconfined aquatic disposal at the San Francisco Deep Ocean Disposal Site (**SF-DODS**).

The YBM material is found to be suitable for creation of new land as part of the Berth 55-58 Project and it can be exposed directly to waters of the state or covered with other material without detrimental impacts to water quality.

ii). Testing of the Merritt Sands (MS) for the 42-Foot Deepening Project also supported the decision that this material was suitable for unconfined aquatic disposal at SF-DODS. In addition to the Merritt Sands (MS) stratigraphic location (beneath YBM), chemical analysis of the MS proposed for fill in the new land for Berth 55-58 showed no indications of contamination. Groundwater monitoring has also shown that the MS material has not been impacted by industrial pollutants. Additionally, the coarse grain size of the MS material (more than 80% sand) indicates that this material has a low probability of having an adverse impact on water quality. In contrast to fine-grained material, sand-sized material typically does not retain bioavailable contaminants.

The MS material is found to be suitable for creation of new land as part of the Berth 55-58 Project and it can be exposed directly to waters of the state or covered with other material without detrimental impacts to water quality.

9. This finding addressees the excavation and reuse of about 1.3 million cubic yards of Artificial Fill material from the former Union Pacific Intermodal Railyard (Railyard) as part of the Berth 55-58 Project. The Artificial Fill material will be excavated from the Railyard and placed on the adjoining Fleet Industrial Center Oakland (FISCO) and will be used to raise overall grades within new terminal container yards and the Joint Intermodal Terminal (JIT) yard (Figure 4). Portions of the Artificial Fill material have elevated levels of heavier petroleum hydrocarbons, semi-volatile organic compounds, various metals, pesticides, and polychlorinated biphenyls to a depth of about 8 feet below ground surface.

a. **Railyard Site Characterization** - There are two existing groundwater pollution sites in the Railyard which are part of the Berth 55-58 Project. These sites are the Trailer-On-Flatcar Site and the Union Pacific Motor Freight Site, (See Figure 2). Both sites are the result of

releases of petroleum hydrocarbons and are subject to on-going oversight of the Alameda County Health Department.

For the remaining portion of the site, the Discharger has characterized the fill soils by drilling a total of 88 borings and the construction of 6 groundwater monitoring wells. The field effort resulted in the collection of about 200 soil samples, 22 grab samples, and two rounds of water samples from the 6 groundwater-monitoring wells. Elevated levels of the heavier petroleum hydrocarbons, semi-volatile organic compounds, various metals, pesticides, and polychlorinated biphenyls to a depth of about 8 feet. The test results indicate that shallow groundwater contains elevated concentrations of heavier petroleum hydrocarbons and metals. The deeper fill soils and native soils do not appear to have been impacted.

The Discharger will excavate the most contaminated portions of the artificial fill from land before excavation begins from the water. Removal of these "hot spots" will greatly reduce the potential for contaminants to enter the Bay. Once this material has been removed, the excavation will be permitted to proceed.

There is a potential for the excavation to alter groundwater flow gradients and for utility line decommissioning and removal to alter flow directions. New groundwater monitoring wells will be installed to verify potential changes in groundwater flow gradients. These wells will also allow monitoring of changes in ambient water quality resulting from soil reuse at the project site (AF material).

b. **FISCO Site Characterization** - FISCO is a 530-acre former Navy base located adjacent to the Port of Oakland. The base was transferred to the Port of Oakland on June 15, 1999 to be used as an intermodal terminal and for shipping-container staging and storage. In addition, the Discharger has assumed responsibility for the Navy's environmental work through an Environmental Services Cooperative Agreement. No future residential use of the base is planned.

No major sources of organic or inorganic contamination have been identified during the Remedial Investigation at the site, except at the Building 740 Site. Minor areas of soil pollution that were identified during the RI have been addressed by excavating the soil. The soil has been remediated to the Preliminary Remediation Goals (PRGs) developed by the U. S. Environmental Protection Agency (Region IX) for protection of industrial sites, which is appropriate for the future use of this site. With the exception of Building 740, groundwater contamination is fairly low (e.g., maximum concentrations of 1,2-DCE (total) at 120 ppb, benzene at 4 ppb, TCE at 53 ppb, and vinyl chloride at 3 ppb).

The Building 740 Site appears to be the only site at FISCO with significant groundwater pollution. Building 740 is located about 1000 feet from the Oakland Inner Harbor. The building has been used for a variety of purposes including an auto hobby shop and a laundry works.

Volatile organic chemicals (VOCs) are detected at high concentrations in the upper water-bearing zone. However, only low or trace levels have been detected in the lower water-bearing zone. The maximum concentrations detected in shallow groundwater at Building 740 are as follows: 1,2-DCE (total) at 49,000 ppb, TCE at 1,800 ppb, and vinyl chloride at 5,300 ppb.

Soil pollution that was identified at Building 740 during the initial Remedial Investigation (RI) has been addressed by excavating the soil. The Navy reports that soil has been remediated to at least industrial PRG values.

The Navy revised the risk assessment for the Building 740 area using actual air monitoring data to evaluate risks to construction workers. The revised risk assessment (included in the Remedial Investigation report) is currently being reviewed by the Department of Toxic Substances Control, the lead agency for closure of the Building 740 site. During the feasibility study, a long-term groundwater monitoring plan for the Building 740 plume and the remainder of the former FISCO sites will be developed to monitor plume stability. The need for any remedial action will be determined after completion of the Remedial Investigation/Feasibility Study/Remedial Action Plan process.

c. **Ambient Groundwater Quality** - Shallow groundwater beneath the FISCO site is brackish due to saltwater intrusion. A previous evaluation by the U.S. Navy (Tetra Tech EMI, 1998) determined that groundwater, to a depth of about 100 feet below ground surface, contains elevated levels of total dissolved solids and is not a potential source of drinking water pursuant to State Water Resources Control Board Resolution No. 88-63 and Regional Water Quality Control Board Resolution No. 89-39. Furthermore, the artificial land surface on which FISCO was built lies entirely within what was the San Francisco Bay prior to the early 1900's. The Regional Water Quality Control Board staff agreed with the Navy's determination in a letter dated November 10, 1998.

Shallow groundwater in the Artificial Fill, Young Bay Mud and Merritt Formations generally exceeds the 3000 mg/l total dissolved solids (TDS) criteria in SWRCB Resolution 88-63. The Bay borders FISCO on two sides, and historical dredging has cut through the Young Bay Mud and exposed the Merritt Formations to saltwater intrusion from the Bay. The next aquifer beneath the Merritt Sands is the Alameda Formation, which is separated from the Merritt Sands by a clay formation (the Old Bay Mud). Groundwater in the Alameda Formation is of considerably higher quality (fresher) than that in the Merritt Sands, because the Old Bay Mud acts as a regional aquitard and greatly retards salt-water intrusion. The Discharger estimated that the vertical hydraulic conductivity of the Old Bay Mud in the FISCO area is on the order of 10^{-7} cm/sec (Subsurface Consultants Inc. and Todd Engineers, 1999).

10. **Applicable Water Quality Protection Target Values for Groundwater and Soil**

a. **Groundwater:** Due to the close proximity of FISCO to San Francisco Bay, and the potential of impacted groundwater discharging into the bay, protection of the beneficial uses of the adjacent surface water receptors is the primary water quality issues for this project. Shallow groundwater at FISCO is brackish and is not a potential source of drinking water as defined in the State Water Resource Control Board's Sources of Drinking Water Policy (SWRCB Resolution 88-63). Therefore, soil maximum reuse values are herein established that are protective of surface water receptors, rather than municipal or domestic water supply.

The soil maximum reuse values are established to protect surface water beneficial uses. To develop soil and groundwater values protective of saltwater aquatic species, the following applicable criteria documents were reviewed: US EPA National Ambient Water Quality Criteria, the former Enclosed Bays and Estuaries Plan, and the Regional Board Basin Plan's

Shallow Water Effluent Limitations for marine water. The values from each of the documents were compared and the lowest value was selected for each of the chemicals of concern. In those instances where no chronic criteria were available, 10% of the acute criteria were used for non-petroleum contaminates and 20% for petroleum contaminates. These values are considered to be protective of the aquatic species.

The Self-Monitoring Program requires the Discharger to monitor groundwater to demonstrate that these target values are not exceeded within a Shoreline Protection Zone. This Zone is defined in Section 9b below.

b. **Soils:** Three soil management zones have been designated: a Shoreline Protection Zone; a Buffer Zone; and an Upland Zone (Figure 3). These three zones are defined as follows:

The Shoreline Protection Zone is defined as the area along the shoreline (300 feet wide) that has greater potential to directly affect the surface water beneficial uses. Therefore, significantly more stringent levels of protection have been applied to this zone.

The Buffer Zone is defined as the band (700 feet wide) where conservative levels of protection are required. This zone is adjacent to the SPZ and acts as a transitional area between the SPZ and the Upland Zone. The Buffer Zone soil maximum reuse values were developed from existing aquatic disposal criteria. This is conservative in comparison to the actual reuse. Further, modeling has confirmed that these proposed reuse concentrations are protective of both groundwater and the estuary.

The Upland Zone is the band of land under the project footprint that is at least 1,000 feet from the estuary. Maximum reuse values appropriate for an industrial site have been proposed for this zone. Again, conservative groundwater modeling was used to validate that groundwater and the estuary will not be impacted by reuse of these soils.

The soil management zones have been designed such that groundwater concentrations will not exceed target values specified in Table 2. The selected soil maximum reuse values (Table 2) are existing criteria that were determined suitable for the Berths 55-58 Project. Modeling performed for the reuse of the soils did not generate these criteria. In fact, preliminary modeling efforts (CDM, 1999), accounting for attenuation of soil and groundwater contaminants along the path of migration to the harbors, indicate that soil maximum reuse values for most chemicals of potential concern could be higher (less stringent) than those proposed in Tables 1 and 2 and still allow for safe reuse of the fill soils. The soil maximum reuse values identified in Table 2 are significantly more conservative (up to several orders of magnitude) than the values that the model indicated would be acceptable for upland reuse with no impact to groundwater.

The Discharger performed a screening-level ecological risk assessment to assist in the development of soil relocation criteria. The purpose of the study was to develop risk-based soil and groundwater target levels that would be protective of the ecological environment. The soil and groundwater target levels were developed based upon United States Environmental Protection Agency ambient water quality criteria (AWQC) as measurement endpoints, with location-specific values calculated for 61 uniform cells that covered the proposed soil relocation area. The target levels correspond to chemical-specific

concentrations within each cell, which upon leaching through soil and transport in groundwater to the Bay would remain consistent with the measurement endpoints. The lowest soil and groundwater target levels correspond to cells closest to the shoreline, with higher target levels for each cell based upon increasing distance from the shoreline. Transport and attenuation of chemicals through the vadose zone and groundwater were simulated using conservative assumptions and using analytic models adopted by the American Society for Testing and Materials (ASTM) and the United States Environmental Protection Agency (USEPA) for risk-based corrective action analyses.

The Discharger referenced several different applicable sediment and soil suitability criteria in selecting maximum reuse values for soil within each zone. In addition, the Discharger conducted specific leachate and groundwater transport modeling to verify that the selected reuse maximum concentrations would not result in discharge to the San Francisco Bay of concentrations in excess of applicable Water Quality Standards. Several different criteria were used since there are not any single sets of standards that are applicable to each zone. Further, since none of the criteria cover all of the identified contaminants, several different criteria were used. However, all of the criteria (with the exception of the PRGs) used similar "endpoints" for aquatic reuse or disposal and will be conservative for addressing reuse in an industrial site. The values used to determine the maximum soil concentrations for reuse in this project include:

Effects Range Low and Effects Range Medium: (Long and Morgan, 1990, The Potential for Biological Effects of Soil-Sorbed Contaminants Tested in the National Status and Trends Program, NOAA Technical Memorandum NOS OMA 52, NOAA, Seattle, WA.

Wetland Cover/Non-Cover Criteria: (Wolfenden and Carlin, 1992) Interim Sediment Screening Criteria and Testing Requirements for Wetland Creation and Upland Beneficial Reuse. California Regional Water Quality Control Board, December, 1992

Maximum, and Bioaccumulation "PSDDA" Screening Levels, 1998 Dredged Material Evaluation and Disposal Procedures: A Users Manual for Puget Sound Dredged Disposal (PSDDA) Program. USACOE, EPA Region X, Washington State Department of Natural Resources, Washington Department of Ecology,

Industrial Preliminary Remedial Goals: USEPA Region IX, Preliminary Remediation Goals, 1998.

The Discharger also used the Marine Ambient Water Quality Criteria (USEPA, 1986; USEPA, 1992; USEPA, 1997) and the San Francisco International Airport, Total Petroleum Hydrocarbon (TPH) Criteria (RWQCB, 1999) to develop site-specific soil and groundwater target levels for the proposed soil relocation.

The Discharger has determined that several of the maximum reuse values are much higher than is necessary or prudent. These modeled levels were often 1 to 4 orders-of-magnitude greater than the maximum concentration measured at the Railyard. Therefore, rather than setting maximum reuse values unnecessarily high, the Discharger has proposed values based on methodology discussed above. While overly conservative from a modeling standpoint (i.e., for purposes of meeting the Shoreline Protection Zone Groundwater Criteria) the soil maximum reuse values strike a reasonable balance between the modeling results and previously established criteria (See Tables 1 and 2).

The impacted soils will be placed above the local water table and immediately under, and capped by, the asphaltic concrete pavement section. The suitability for reuse of the impacted fill soils will be based upon the maximum reuse values (Table 2).

Following excavation, the soils will be stockpiled, further sampled and targeted either for reuse as fill, for treatment or for off site disposal. Once the soils have been placed as engineered fill on FISCO, confirmation testing is required to demonstrate that soils meet the applicable reuse criteria.

11. **Beneficial Uses**

a. Groundwater: The existing and potential beneficial uses for groundwater in the vicinity of the Berth 55-58 Project include municipal and domestic water supply, industrial process water supply, industrial service water supply and agricultural water supply. The Project overlies the East Bay Plain Groundwater Basin. As discussed in Finding 9.c., shallow groundwater to a depth of about 100 feet below ground surface is brackish. Furthermore there is no historical, current or planned use of the shallow brackish groundwater as source of drinking water. However, the deeper aquifers beneath the site are a potential source of drinking water. The East Bay Plain Groundwater Basin is being evaluated for the storage of imported surface waters by East Bay Municipal Utilities District.

b. Surface Water: The beneficial uses of the waters of the Central San Francisco Bay as set forth in the Basin Plan are as follows:

a. Water Contact Recreation
b. Non-Contact Water Recreation
c. Wildlife Habitat
d. Industrial Service Supply
e. Industrial Process Supply
f. Preservation of Rare and Endangered Species
g. Fish Migration and Spawning
h. Navigation
i. Ocean and Commercial Sport Fishing
j. Fish Spawning
k. Estuarine Habitat
l. Shellfish Harvesting

12. To comply with the provisions of the California Environmental Quality Act (CEQA), the Discharger prepared the Berths 55-58 Project Environmental Impact Report (EIR) dated April 8, 1999. On April 20, 1999, the Board of Port Commissioners certified the EIR.

13. The project, as described in the EIR, considered a number of potential impacts and mitigation actions. Some of the listed potential impacts were described in the EIR as "Less Than Significant" (LTS) after consideration of previous dredging studies and site specific conditions. In some cases, the Discharger has elected to follow actions that further minimize the likelihood that a particular action would have a significant impact. Pursuant to Section 15096(h), Title 14 of the California Code of Regulations, the Board concurs in this approach and finds that changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant effects as identified in the final EIR. The following table (Table 3) summarizes the potential impacts to water as indicated in the EIR (with the Section numbers from that document).

14. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20 and November 13, 1995, respectively. A summary of regulatory provisions is contained in Title 23 of the California Code of Regulations, section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

15. Effluent limitations in these requirements are based on the plans, policies, and water quality objectives of the Basin Plan, *Quality Criteria for Water* (EPA440/5-86-001, 1986; Gold Book and 63 Federal Register 68354, December 10, 1998), Applicable Federal Regulations (40 CFR Parts 122 and 131), the National Toxics Rule (57 FR 60848, 22 December, 1992; NTR), and Best Professional Judgment.

16. Pursuant to Title 23, California Code of Regulations Section 3857, the Board is issuing WDRs and will not act on the application for Water Quality Certification.

17. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge.

18. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. **Discharge Prohibitions:**

1. The direct discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. The discharge shall not cause degradation of any water supply.

3. The dredged material shall remain within all the designated disposal areas at all times.

4. The dredging, excavation, filling and disposal activities subject to these requirements shall not cause a nuisance as defined in Section 13050(m) of the California Water Code.

B. Discharge Specifications

1. The Discharger shall ensure to the extent practicable that the containment dike, buttress and fastland are designed and constructed to prevent collapse during ground shaking induced at the site by the maximum credible earthquake.

2. The Discharger shall ensure to the extent practicable that the suspended solids generated by construction activities (including dredging, excavation and placement in the Bay of solid materials permitted by this order) do not exceed 1500 mg/L more than 100 feet beyond the Project Boundary. The Project Boundary, as defined in this document, is shown on Figure 3. In the Inner Harbor, this line is defined to be 100 feet from the silt curtain. When the silt curtain is no longer in use, the line is defined to be 100 feet from the outer edge of the construction equipment. In the Middle Harbor, the line is defined as the outer limit (the "toe") of the containment dike buttress.

3. In accordance with Section13260 of the California Water Code, the Discharger shall file a report with this Regional Board of any material change or proposed change in the character, location, or volume of the discharge. Any proposed material change in the operation shall be reported to the Executive Officer at least 7 days in advance of implementation of any such proposal. This shall include, but not be limited to, all significant new soil disturbances, all proposed expansion of development, or any change in drainage characteristics at the project site.

4. The responsible representative of the Discharger, shall immediately notify the Regional Board staff by telephone whenever an adverse condition occurs as a result of this discharge. An adverse condition includes, but is not limited to, a violation or threatened violation of the conditions of this Order, significant spill of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance. Pursuant to Section 13267(b) of the California Water Code, a written notification of the adverse condition shall be submitted to the Regional Board within 30 days of occurrence. The written notification shall identify the adverse condition, describe the actions necessary to remedy the condition, and specify a timetable, subject to the modifications of the Regional Board, for the remedial actions.

C. Effluent Limitations

1. Wastewater (including any decant or return water from contaminated material being dried on shore) discharged from any point on the facility shall not exceed the following limits of quality at any time:

a)	pH:	6.5 - 8.5
b)	Settleable matter:	1.0 mL/L/hr
c)	Dissolved sulfide:	0.1 mg/L
d)	Suspended solids	100 mg/L

D. Receiving Water Limitations

1. The dredging and/or disposal of sediments and/or decant water shall not cause:

   a. Floating, suspended or deposited macroscopic particulate matter or foam in waters of the State at any place more than 100 feet from the Project Boundary or point of discharge of the return flow, except as authorized under Section B. Discharge Specifications, of this Order.

   b. Visible floating, suspended, or deposited oil or other products of petroleum origin in waters of the State at any place.

   c. Waters of the State to exceed the following quality limits at any point:

i) Dissolved Oxygen:	5.0 mg/l minimum. When natural factors cause lesser concentrations, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
ii) Dissolved Sulfide	0.1 mg/l maximum.
iii) pH:	A variation of natural ambient pH by more than 0.5 pH units.
iv) Toxic or other deleterious substances:	None shall be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

2. The groundwater shall not be degraded as a result of the fill or sediment disposal, reuse or handling.

3. The total suspended solids in the top 5 feet of the water column shall not exceed 1500 mg/L for more than 10% of the measurements or exceed 750 mg/L for more than 50% of the measurements during a 24-hour period (midnight to midnight).

4. The concentrations of chemicals of concern (listed in Table 4), as found in grab samples taken within 100 feet of the Project Boundary, shall not exceed the Receiving Water Limits in Table 4, unless it can be shown that site concentrations are not significantly different than ambient concentration of those chemicals (as measured in the approach channel to Oakland Harbor).

E. PROVISIONS

1. The Discharger shall comply with all the Prohibitions, Specifications and Provisions of this Order immediately upon adoption of this Order or as provided below.

2. Permit Tasks:

Task #1: Hot Spot Excavation and Remediation Work Plan

Submit a technical report acceptable to the Executive Officer that contains a Hot Spot excavation and remediation work plan for the railyard. Such a workplan shall be designed to excavate the most contaminated portions of the terrestrial fill from land before excavation begins from the water. Removal of these "hot spots" will greatly reduce the potential for contaminants to enter the estuary. Once this material has been removed, the excavation may proceed.

REPORT DUE DATE: August 16, 1999

Task #2: Proposed Groundwater Monitoring Program:

Submit a technical report acceptable to the Executive Officer that includes a workplan and schedule for installing groundwater monitoring wells. Either identify existing wells or propose new well locations to monitor for potential plume migration due to shoreline change for the following areas: FISCO Bldg. 740 VOC Plume, Trailer-On-Flatcar Site, and Union Pacific Motor Freight Site. The report shall also propose well locations and construction plans for the Shoreline Protection Zone Groundwater Monitoring Wells.

REPORT DUE DATE: August 16, 1999

Task #3: Quality Assurance Project Plan:

Submit a technical report acceptable to the Executive Officer that contains a site-specific Quality Assurance Project Plan (QAPP). The QAPP will outline the collection of soil and water samples, analysis of the samples for chemical constituents of concern, and reporting of the results. The plan will specifically address project organization, quality assurance objectives, sampling procedures, sample handling and custody, laboratory analyses and quality control procedures, audits, corrective action, data reduction, management, reporting and validation.

REPORT DUE DATE: August 16, 1999

Task #4: Railyard Excavation and Soil Reuse Operations Plan:

Submit a technical report acceptable to the Executive Officer that contains an excavation plan, stockpile management plan, stockpile sampling plan, health and safety plan, site security plan, dust control plan, erosion control plan, contingency plan, and emergency response plan.

REPORT DUE DATE: August 16, 1999

Task #5: Post Placement Confirmation Sampling Plan:

Submit a technical report acceptable to the Executive Officer that contains a Post Placement Confirmation Sampling Plan.

REPORT DUE DATE: August 16, 1999

Task #6: Results of Post Placement Confirmation Sampling:

Submit a technical report acceptable to the Executive Officer that contains the results of the Post Placement Confirmation Sampling. Such a report shall identify any areas that exceed the soil maximum reuse values and document removal of the soil from the site.

REPORT DUE DATE: 2 months after soil placement

Task #7 Receiving Water Monitoring and Contingency Plan:

The Discharger shall submit a Receiving Water Monitoring Plan, acceptable to the Executive Officer, that shall describe how the Discharger will comply with the requirements set forth in the Self Monitoring Plan (SMP) associated with this order. The plan shall include a description of how the Discharger will continuously monitor turbidity within 100 feet of the Project Boundary in Middle and Inner Harbor. The plan shall also describe how the turbidity meters will be calibrated to estimate total suspended solids and how ambient (pre-project) conditions will be evaluated. The plan shall describe how the grab samples required in the SMP will be taken and how the Discharger will keep Regional Board staff informed on a daily basis of the compliance with Receiving Water Limits. The Plan will also describe how the Discharger will take action if the Receiving Water Limits are exceeded (Contingency Plan).

REPORT DUE DATE: August 16, 1999.

Task #8 Dredging, Excavation and Filling Final Report:

The Discharger shall submit a Dredging, Excavation and Filling Final Report, acceptable to the Executive Officer, that shall summarize the compliance of this Project requirements in this order related to dredging and filling. This report shall include a comprehensive discussion of: the compliance record of the project and corrective actions taken; the effectiveness of the receiving water monitoring methods; the effectiveness of dredging, excavating and filling methods used (at minimizing water quality impacts); estimates of the volumes of material dredged, excavated and placed during the project and estimates of total volume of decant water (if any) generated by the project.

REPORT DUE DATE: 90 days after completion of the dredging and filling operations.

3. The Discharger must comply with the attached Self-Monitoring Plan, which is made a part of this permit.

4. Discharger shall notify the Regional Board immediately whenever violations of this order are detected.

5. The Project will not impact or will repair existing groundwater monitoring systems, with the following exceptions: All Navy-installed monitoring wells at FISCO will be destroyed prior to or during construction of the Vision 2000 Program. Some wells will be replaced according to a long-term monitoring plan required pursuant to Task #2 of this Order. The Discharger must retain or redrill the deep –50-foot monitoring wells.

6. The Discharger will continuously estimate total suspended solids concentration using turbidity meters in Former FISCO berths and Inner Harbor, which will be calibrated with enough grab samples to reduce the error in any measurement to less than 100 mg/L.

7. The Discharger will use silt curtains (or an equivalent method) when dredging or excavating in water less than 20 feet deep.

8. During herring spawning season, a monitor, trained by California Department of Fish and Game staff, will observe the construction area and if spawning is observed, will redirect construction activities away from areas of active spawning.

9. In order to minimize resuspension, the Discharger will use a clamshell dredge (or equivalent method) for the Shoal-RBM, the Keyway-RBM material and the YBM material. The Discharger may be required to use alternative construction methods to move the Merritt Sand materials if the suspended solids generated by hydraulic dredging cannot meet the Receiving Water Limits.

10. For construction activities, the Discharger and its contractors will be held responsible for compliance with the General Construction Stormwater Permit. The contractors will be held responsible for implementing the Storm Water Pollution Prevention Plan (SWPPP) under the Permit. For operations at the project site, the Discharger's tenants will be held responsible for compliance with the General Industrial Stormwater Permit and implementation of the SWPPP.

11. The Discharger shall implement a regulation requiring ballast water exchange at sea by vessels calling at the Port of Oakland's facilities, until such regulation is superceded by federal, state, or regional regulation.

12. The Discharger shall excavate the most contaminated portions of the terrestrial fill (any soil with contaminant levels greater than the Upland Zone, Maximum Reuse Value, Table 2) and provide confirmation of that removal to the Regional Board staff before the bank excavation extends into the intertidal and subtidal zones.

13. The Discharger shall file with the Regional Board daily self-monitoring reports during the startup of any phase of the proposed work that may increase turbidity in the bay. The Discharger may request less frequent sampling (of the Executive Officer) if the Receiving Water Limits are being met.

14. All reports pursuant to these Provisions shall be prepared under the supervision of a registered civil engineer or certified engineering geologist.

15. The Discharger shall install any additional monitoring devices required to fulfill the terms of any Self-Monitoring Program issued to the Discharger in order that the Regional Board may evaluate compliance with the conditions of this order.

16. The discharge of any hazardous waste as defined in Title 27, Chapter 15 of the California Administrative Code, to the disposal site is prohibited. Only dredged material that has been demonstrated to be non-hazardous and meets the applicable soil criteria specified in this Order may be discharged.

17. The Discharger shall remove and properly dispose of any wastes, which are discharged at this site in violation of these Requirements.

18. The Discharger shall file with the Regional Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries of the disposal areas or the ownership of the site.

19. The Discharger shall maintain a copy of this Order at the site so as to be available at all times to site operating personnel.

20. The Discharger is considered to have full responsibility for correcting any and all problems, which arise in the event of a failure, which results in an unauthorized release of waste or wastewater.

21. The Discharger shall maintain all devices or designed features installed in accordance with this Order such that they function without interruption for the life of the operation.

22. The Discharger shall permit the Regional Board or its authorized representative, upon presentation of credentials:

    a. Entry on to the premises on which wastes are located or in which records are kept.
    b. Access to copy any records required to be kept under the terms and conditions of this Order.
    c. Inspection of any treatment equipment, monitoring equipment, or monitoring method Sampling of any discharge or surface water covered by this Order.

23. These Requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws, regulations or rules of other programs and agencies nor do these Requirements authorize the discharge of wastes without appropriate permits from other agencies or organizations.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, complete and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on July 21, 1999.

Loretta K. Barsamian
Executive Officer

Attachments:

Tables

Table 1 - Shoreline Protection Zone Groundwater Criteria
Table 2 - Soil Reuse Criteria
Table 3 - Summary of the Potential Impacts to the Beneficial Uses of Water and Mitigation Actions.
Table 4 - Receiving Water Limits

Figures

Figure 1 - Site Location Map
Figure 2 - Existing Site Conditions
Figure 3 - Proposed Soil Relocation Project
Figure 4 - Generalized Geologic Cross Section: Existing Conditions and Proposed Project

Table 1. Shoreline Protection Zone Groundwater Criteria			
	Maximum Values Measured	Target Value	Source of Target Value
Chemical	(µg/L)	(µg/L)	
acenaphthylene	ND	15	SFIA
acenaphthene	ND	15	SFIA
anthracene	0.63	15	SFIA
benzo(a)anthracene	3.6	15	SFIA
benzo(a)pyrene	7.5	0.031	SFIA
benzo(b)fluoranthene	5.3	15	SFIA
benzo(k)fluoranthene	2.2	15	SFIA
benzo(g,h,i)perylene	5	15	SFIA
bis(2-ethyhexyl)phthalate	ND	15	SFIA
chrysene	2.9	15	SFIA
dibenzo(a,h)anthracene	12	15	SFIA
fluoranthene	15	15	SFIA
fluorene	ND	15	SFIA
indeno(1,2,3 c,d)pyrene	6.2	15	SFIA
naphthalene	ND	470	SFIA
phenanthrene	22	15	SFIA
phenol	ND	500	SFIA
pyrene	17	15	SFIA
TPH-diesel	5,500	640	SFIA
TPH-motor oil	7,200	90	RWQCB 1997
TPH-hydraulic fluid	3,200	90	RWQCB 1997
arsenic	310	20	Basin Plan
lead	190	5.6	Basin Plan
zinc	810	58	Basin Plan
4,4'-DDD	ND	0.36	AWQC*
4,4'-DDE	ND	1.4	AWQC*
4,4'-DDT	ND	0.01	AWQC*
chlordane	ND	0.004	AWQC
dieldrin	ND	0.002	AWQC
endosulfan1	ND	0.009	AWQC
heptachlor epoxide B	ND	0.004	AWQC
aroclor-1016	ND	0.03	AWQC
aroclor-1260	ND	0.03	AWQC
vinyl chloride	ND	34	SFIA

Table 1. Shoreline Protection Zone Groundwater Criteria - Notes

RWQCB 1997: Draft rationale for modifying the Tier I Petroleum Hydrocarbon Saltwater Ecological Protection Zone Levels for the San Francisco International Airport Order 95-136, 12/10/97.

SFIA - RWQCB, 1999. Tentative Order-Adoption of Revised Site Cleanup Requirements and Recission of Order Nos. 95-136, 94-044, 95-152, 92-140 for the property at San Francisco International Airport, San Mateo County.

Basin Plan - Water Quality Control Plan, San Francisco Bay Basin Plan (Region 2), June 21, 1995.

AWQC -USEPA, 1986. Quality Criteria for Water, EPA 440/5-86-001; USEPA, 1992. Quality Criteria for Water, Office of Water, Washington, D.C.; USEPA 1997 40CFR Part 131-Water Quality Standards; Establishment of Numeric Criteria for Priority Pollutants for the State of California, Proposed Rule.

AWQC* - Marine Ambient Water Quality Criteria (reference above) derived from an acute to chronic ratio of 10

ND - Analytes were not detected

Table 2. Proposed Soil Reuse Criteria, Port of Oakland Berth 55-58 Project

		Shoreline Protection Zone (0 - 300 ft.)		Buffer Zone (300 - 1000 ft.)		Upland Zone (1000-3000 ft.)	
Chemical	*Railyard Maximum Soil Concentration (mg/kg)*	***Maximum Reuse Value (mg/kg)***	*Source of Reuse Value*	***Maximum Reuse Value(mg/kg)***	*Source of Reuse Value*	***Maximum Reuse Value(mg/kg)***	*Source of Reuse Value*
acenaph-thylene	0.429	**0.64**	ERM	**19**	SFIA	**190**	Industrial PRG (calculated)
acenaph-thene	1.4	**0.5**	ERM	**19**	SFIA	**200**	Port-defined
anthracene	3	**1.1**	ERM	**19**	SFIA	**200**	Port-defined
benzo(a)-anthracene	2.2	**1.6**	ERM	**19**	SFIA	**19**	SFIA
benzo(a)-pyrene	2.4	**0.064**	SFIA	**0.064**	SFIA	**6.80**	PSDDA (ML)
benzo(b)-fluoran-thene	5.4	**8**	PSDDA (ML)	**19**	SFIA	**19**	SFIA
benzo(k)-fluoran-thene	4	**8**	PSDDA (ML)	**19**	SFIA	**36**	Industrial PRG
benzo(g,h,i)perylene	1.1	**5.4**	PSDDA (ML)	**19**	SFIA	**190**	Industrial PRG (calculated)
Bis(2-ethylhexyl)-phthalate	2.1	**13.8**	PSDDA (Bio)	**19**	SFIA	**200**	Port-defined
chrysene	4.1	**2.8**	ERM	**19**	SFIA	**200**	Port-defined
dibenzo(a,h)anthracene	0.26	**0.26**	ERM	**19**	SFIA	**19**	SFIA
fluoran-thene	7.5	**5.1**	ERM	**19**	SFIA	**200**	Port-defined
fluorene	1.6	**0.54**	ERM	**19**	SFIA	**200**	Port-defined
indeno-(1,2,3 c,d)-pyrene	1.6	**5.2**	PSDDA (ML)	**19**	SFIA	**19**	SFIA
naphthalene	0.52	**2.1**	ERM	**100**	Port-defined	**200**	Port-defined
phenan-threne	8.6	**1.5**	ERM	**19**	SFIA	**190**	Industrial PRG (calculated)
phenol	0.1854	**1.2**	PSDDA (ML)	**5.8**	SFIA	**200**	Port-defined
pyrene	9.5	**2.6**	ERM	**19**	SFIA	**200**	Port-defined
Total PAHs	56	**44.8**	ERM	**150**	Port-defined	**200**	Port-defined
TPH-diesel	4,300	**518**	SFIA	**518**	SFIA	**1,000**	Port-defined
TPH-motor oil	9,659	**500**	Port-defined	**750**	Port-defined	**1,000**	Port-defined
TPH-hydraulic fluid	8,210	**500**	Port-defined	**750**	Port-defined	**1,000**	Port-defined
arsenic	1,602	**70**	ERM	**125**	Port-defined	**250**	1/2 RCRA Waste Value
lead	83,896	**218**	ERM	**250**	Port-defined	**500**	1/2 RCRA Waste Value
zinc	76,269	**410**	ERM	**1,250**	Port-defined	**2,500**	1/2 RCRA Waste Value
4,4'-DDD	0.54	**0.02**	ERM	**0.25**	Port-defined	**0.5**	1/2 RCRA Waste Value

Table 2. Proposed Soil Reuse Criteria, Port of Oakland Berth 55-58 Project							
		Shoreline Protection Zone (0 - 300 ft.)		Buffer Zone (300 - 1000 ft.)		Upland Zone (1000-3000 ft.)	
Chemical	*Railyard Maximum Soil Concentration (mg/kg)*	***Maximum Reuse Value (mg/kg)***	*Source of Reuse Value*	***Maximum Reuse Value(mg/kg)***	*Source of Reuse Value*	***Maximum Reuse Value(mg/kg)***	*Source of Reuse Value*
4,4'-DDE	0.11	**0.027**	ERM	**0.25**	Port-defined	**0.5**	1/2 RCRA Waste Value
4,4'-DDT	0.519	**0.007**	ERM	**0.25**	Port-defined	**0.5**	1/2 RCRA Waste Value
chlordane	0.082	**0.006**	ERM	**0.5**	Port-defined	**1.25**	1/2 RCRA Waste Value
dieldrin	0.02	**0.008**	ERM	**1**	Port-defined	**4**	1/2 RCRA Waste Value
endosulfan1	0.0057	**0.477**	AWQC/ partitioning	**10.8**	AWQC/ partitioning	**100**	Port-defined
heptachlor epoxide B	0.0037	**0.037**	PSDDA (Bio)	**17**	Port-defined	**33**	Industrial PRG
aroclor-1016	0.875	**0.05**	Wetlands Cover	**0.40**	Wetlands Noncover	**25**	1/2 RCRA Waste Value
aroclor-1260	0.3	**0.05**	Wetlands Cover	**0.40**	Wetlands Noncover	**25**	1/2 RCRA Waste Value

Table 2. Proposed Soil Reuse Criteria, Port of Oakland Berth 55-58 Project Notes	
Port-defined	Port-defined threshold values (Always less than Industrial PRG, ½ RCRA Waste, and AWQC concentration)
SFIA	San Francisco International Airport SPZ criteria
ERM	Effects range median value (NOAA sediment criteria, Long et al., 1990)
PRG	EPA Region 9 Preliminary Remediation Goal Industrial value (EPA 1999)
TPH-diesel	Total petroleum hydrocarbons as diesel
TPH-motor oil	Total petroleum hydrocarbons as motor oil
TPH-hydraulic fluid	total petroleum hydrocarbons as hydraulic fluid
PSDDA	Puget Sound Dredge Disposal Agency, February 1995
ML	Maximum Level: Maximum Concentration that the PSDDA Agencies find suitable for unconfined disposal
Bio	Bioaccumulation Threshold: Concentration at which PSDDA Agencies require bioaccumulation tests for dredged material proposed for unconfined aquatic disposal
1/2 RCRA Waste Value	One-half of the Resource Conservation and Recovery Act upper limit for municipal waste
Wetlands Cover/ Wetlands Noncover	SFRWQCB sediment screening criteria (Wolfenden and Carlin, 1992)
AWQC/partition	Soil target level back calculated from marine Ambient Water Quality Concentrations using ASTM leaching model

Table 3. Summary of the Potential Impacts to the Beneficial Uses of Water and Mitigation Actions as indicated in the Port of Oakland's Berths 55-58 Project Environmental Impact Report (EIR)
[LTS = Less than significant; PS = Potentially significant; S = Significant;]

Potential Impacts	Before Mitigation	Mitigation Measures for Significant Impacts or Explanation of Less than Significant determination	After Mitigation
3.5 Hazardous Materials and Waste			
3.5-1 Project construction could affect groundwater-monitoring systems.	LTS	The Project will not impact existing groundwater monitoring systems that must be maintained after construction of the Project.	LTS
3.6 Biological Resources			
3.6-1a Increased turbidity from shallow-water dredging and bank excavation could reduce visibility and otherwise impact water quality.	LTS	The Discharger will monitor the suspended solids during all phases of dredging excavation and placement of material in the Bay and will modify construction methods, if needed, to ensure that suspended solids in the water column do not exceed 1500 mg/L beyond 100 feet from the project boundaries. Dredging studies indicate that only a small portion of the water column would be impacted by high turbidity and low dissolved oxygen concentrations, and that the impacts are transient. The Discharger will use silt curtains when dredging or excavating in water less than 20 feet deep. The Discharger will monitor suspended solids whenever activities may significantly increase suspended solids and will modify construction methods if suspended solids exceed a level known to impact sensitive species (1500 mg/L).	LTS
3.6-1b Increased turbidity from shallow-water dredging and bank excavation could impair oxygen exchange.	LTS	In a dredge disposal study conducted by the USACE for the –38-Foot Channel Deepening Project, dissolved oxygen (DO) concentrations declined in the dredging vicinity, but only to 5.5 mg/L, which does not exceed the RWQCB standard of 5.0 mg/L. Within 10 minutes after dredging ceased, DO concentrations returned to background levels	LTS
3.6-1c Increased turbidity from placement of rocks, bay mud and Merritt Sands in Middle Harbor could reduce visibility and otherwise impact water quality.	LTS	The Discharger will use silt curtains as necessary to meet the Receiving Water Limitation of 1500 mg/L. Bottom-dumping from barges and clamshell dredging will be used as much as possible for moving bay mud, since hydraulic dredging would produce more turbidity. Hydraulic dredging will only be used for coarse-grained material (Merritt Sand) that is not expected to generate large amounts of suspended material. The keyway will be dredged with a clamshell bucket that will remain submerged to minimize surface turbidity. Since the YBM material has been consolidated under 10 or more feet of artificial fill for the last 60 years, it is expected to be cohesive, so that the generation of suspended solids will be minimal.	LTS

Table 3. Summary of the Potential Impacts to the Beneficial Uses of Water and Mitigation Actions as indicated in the Port of Oakland's Berths 55-58 Project Environmental Impact Report (EIR)
[LTS = Less than significant; PS = Potentially significant; S = Significant;]

Potential Impacts	Before Mitigation	Mitigation Measures for Significant Impacts or Explanation of Less than Significant determination	After Mitigation
3.6-2a Placement of 33.4 acres of solid fill (dredged and excavated material) in Former FISCO berths would result in a loss of habitat for aquatic species and loss of foraging habitat for aquatic bird species	LTS	Biological studies indicate that the existing biological community of the deeper dredged areas of Former FISCO berths has a somewhat lower abundance and diversity of benthic organisms, fish and crustaceans. This may be due to poor circulation, disturbance by dredging and ship movements, creosote pilings and residual contamination from past industrial activities. The creation of the fastland in the FISCO berths will help to increase water circulation by producing a gradually shoaling bottom and removing the long narrow berths. The filling of the berths will help to isolate minor amounts of impacted sediments that were left in place by the Navy. The 33.4 acres of fill in Former FISCO berths will be offset by excavation of 43.7 acres of the Inner Harbor Bank and removal of 1.2 acres of pilings.	LTS
3.6-2b Removal of 18.2 acres of pile-supported fill and associated pilings in Former FISCO berths would result in a loss of habitat for aquatic species and loss of foraging habitat for aquatic bird species	LTS	Biological studies indicate that the existing biological community of the pilings in Former FISCO berths is sparsely represented and of low species richness (diversity), perhaps due to the restricted water circulation, abundance of creosote and general industrial nature of the activities in this area. The loss of this piling community would be offset by communities that would become established on the new pilings and riprap in the Inner Harbor. These new structures will be better habitat due to the absence of creosote and the increased water circulation. The reduction of the area of piling supported piers (from 18.2 to 12.7) will increase the light available in the intertidal and shallow subtidal zones which is expected to increase the diversity of the algal and benthic community. In addition, the construction of the containment dike and associated buttress will create an additional 13 acres of shallow (less than 12 feet deep) subtidal rock and sand substrate. The loss of 18.2 acres of piling community will be offset by the construction of 12.7 acres of new piling community with cement pilings replacing a mixture of creosote and cement pilings and creation of 13 acres of shallow subtidal substrate that will develop into habitat	LTS
3.6-3 Shallow water dredging and in-water construction might impair oxygen and water transfer to herring eggs attached to spawning substrates (pilings, algae and eelgrass) within the vicinity of dredging operations.	LTS	Use of control measures and construction techniques (i.e. silt curtains and booms) when dredging in shallow water, will minimize this impact. During spawning season, a trained-monitor will observe the construction area and if spawning is observed, will redirect construction activities.	LTS

Table 3. Summary of the Potential Impacts to the Beneficial Uses of Water and Mitigation Actions as indicated in the Port of Oakland's Berths 55-58 Project Environmental Impact Report (EIR)
[LTS = Less than significant; PS = Potentially significant; S = Significant;]

Potential Impacts	Before Mitigation	Mitigation Measures for Significant Impacts or Explanation of Less than Significant determination	After Mitigation
3.6-4 Excavation and dredging of the north bank of Inner Harbor would remove existing intertidal and shallow subtidal rock and sediment substrate habitat	LTS	Riprap removed from the face of the existing bank will be replaced by new riprap placed along the new shoreline. In areas where the current shoreline (bank) is nearly vertical, the gradual slope of the new shoreline will provide an increase in intertidal and shallow subtidal area. Piles placed in the Inner Harbor will also provide new intertidal and subtidal habitat.	LTS
3.6-5 Dredging activities and in-water construction could increase organic chemical and metal resuspension in Inner Harbor and might adversely affect aquatic organisms	LTS	Leachability tests (modified Waste Extraction Test) and modeling of the resuspension of sediments during dredging (STFATE and DREDGE models) indicate that dredging and in-water construction activities will not cause exceedance of water quality objectives beyond the construction zone. In order to minimize resuspension, the Discharger will use a clamshell dredge for the RBM-shoal material. Placement of the Shoal RBM material in the fill cells will be as far away from the opening in the containment dike as possible, to minimize suspended solids leaving the construction site. This order will require monitoring to confirm that water quality objectives are not exceeded.	LTS
3.6-9 Increased contaminant exposure from additional stormwater drains and nonpoint source input from terminal operation and the new park could impact water quality and aquatic organisms.	LTS	For *construction* activities, the Discharger and its contractors will be held responsible for compliance with the General Construction Stormwater Permit. The contractors will be held responsible for implementing the Storm Water Pollution Prevention Plan (SWPPP) under the Permit. The SWPPP includes various Best Management Practices (BMPs). For *operations* at the project site, the Discharger's tenants will be held responsible for compliance with the General Industrial Stormwater Permit and implementation of the SWPPP. Discharger	LTS
3.6-12 Excavation and dredging of the north bank of the Inner Harbor channel would disturb and possibly remove 0.4 acres of sandy area, which has approximately 10% coverage of eelgrass.	S	The Discharger will attempt to avoid disturbance of the 0.4 acres patch of eelgrass and if disturbance of the eelgrass is found to be unavoidable, then the Discharger will provide 0.8 acres of eelgrass replacement and shallow sand flats in the Middle Harbor Enhancement Area or 1.2 acres of eelgrass in an alternate location	LTS
3.6-13 Potential increase in invasive species entering San Francisco Bay due to increased volume of shipping and consequent increase in release of ballast water.	PS	Implement a regulation requiring ballast water exchange at sea by vessels calling at Discharger Facilities. Support MARPOL guidelines and national ballast water regulations Support Sea Grant and on-shore treatment task force.	LTS

Table 3. Summary of the Potential Impacts to the Beneficial Uses of Water and Mitigation Actions as indicated in the Port of Oakland's Berths 55-58 Project Environmental Impact Report (EIR)
[LTS = Less than significant; PS = Potentially significant; S = Significant;]

Potential Impacts	Before Mitigation	Mitigation Measures for Significant Impacts or Explanation of Less than Significant determination	After Mitigation
3.8 Geology, Soils and Seismicity			
3.8-1 Project facilities (including contaminated soil containment structures) could be damaged by liquefaction during an earthquake and by ongoing settlement.	LTS	The facilities have been designed to prevent collapse during ground shaking induced at the site by the maximum credible earthquake. The maximum credible earthquake has a 10% probability of occurring within the next 50 years. Structural support systems will be designed to allow operation of cranes, with minimal interruption to operations, following this maximum credible earthquake. It is very unlikely that the contaminated soil would be exposed by an earthquake, since it will be covered by more than 15 feet clean material. The Discharger points out that properly engineered fills around the Bay have performed well in earthquakes over the last century.	LTS
3.9 Water Resources			
3.9-1 Water quality in the Inner Harbor might be degraded by construction site runoff, as the excavation of the bank is extends into the intertidal and subtidal zones.	LTS	The Discharger proposes to excavate the most contaminated portions of the terrestrial fill before the bank excavation extends into the intertidal and subtidal zones. Removal of these "hot spots" would greatly reduce the potential for contaminants to enter the estuary. Construction techniques will need to be used to minimize the generation of suspended solids from the excavation, since more than four violations of the Receiving Water Limits will bring the construction activities to a halt.	LTS
3.9-2 Water quality in the Inner Harbor might be degraded by increased turbidity from dredging for new berths	LTS	See Explanation to 3.6-1(a and b) and 3.6-3	LTS
3.9-3 Water quality in Former FISCO berths might be degraded by reuse of contaminated dredged material in construction of the fastland.	LTS	See Explanation to 3.6-5	LTS
3.9-4 Pollutants in runoff discharged to adjacent waters might increase as a result of the use of the area for marine terminal operations	LTS	Discharger will require tenants to use BMPs including covered vehicle maintenance facilities. See also Explanation 3.6-9.	LTS
3.9-5 Constituents of wetland "noncover" quality material (from Sediment Screening Criteria and Testing Requirements for Wetland Creation and Upland Beneficial Reuse, RWQCB 1992) used to create fastland could be released into Former FISCO berths.	LTS	Leachability tests have shown that contaminants associated with the "noncover" quality material are not released in amounts that exceed water quality criteria, when they are covered with three feet or more of "cover" quality material (essentially the quality of sediment found in the deeper portions of San Francisco Bay). The noncover quality material in this project will be covered by more than 15 feet of cover quality material, so that there is negligible chance that it will impact water quality.	LTS

Table 4. Receiving Water Limits

Chemicals of Concern	Receiving Water Limits (ppb)	Measurement Period	Basis for Limits
Arsenic	36 69	4-day average 24-hour average	WQOs Basin Plan (1995)
Lead	5.6 140	4-day average 1-hour average	WQOs Basin Plan (1995)
Zinc	58 170	24 hour average Instantaneous Max.	WQOs Basin Plan (1995)
Mercury	0.025 2.1	4-day average 1-hour average	WQOs Basin Plan (1995)
Total PAHs	15	24 hour average	WQOs Basin Plan (1995)
Benzene	71	Instantaneous Maximum	USEPA AWQC (1997)

Table 4. Receiving Water Limits - Notes

WQOs-Basin Plan (1995) - Water Quality Objectives from the San Francisco Bay Basin (Region 2) Water Quality Control Plan, June 21, 1995

USEPA AWQC (1997) - USEPA 1997 40CFR Part 131-Water Quality Standards; Establishment of Numeric Criteria for Priority Pollutants for the State of California, Proposed Rule

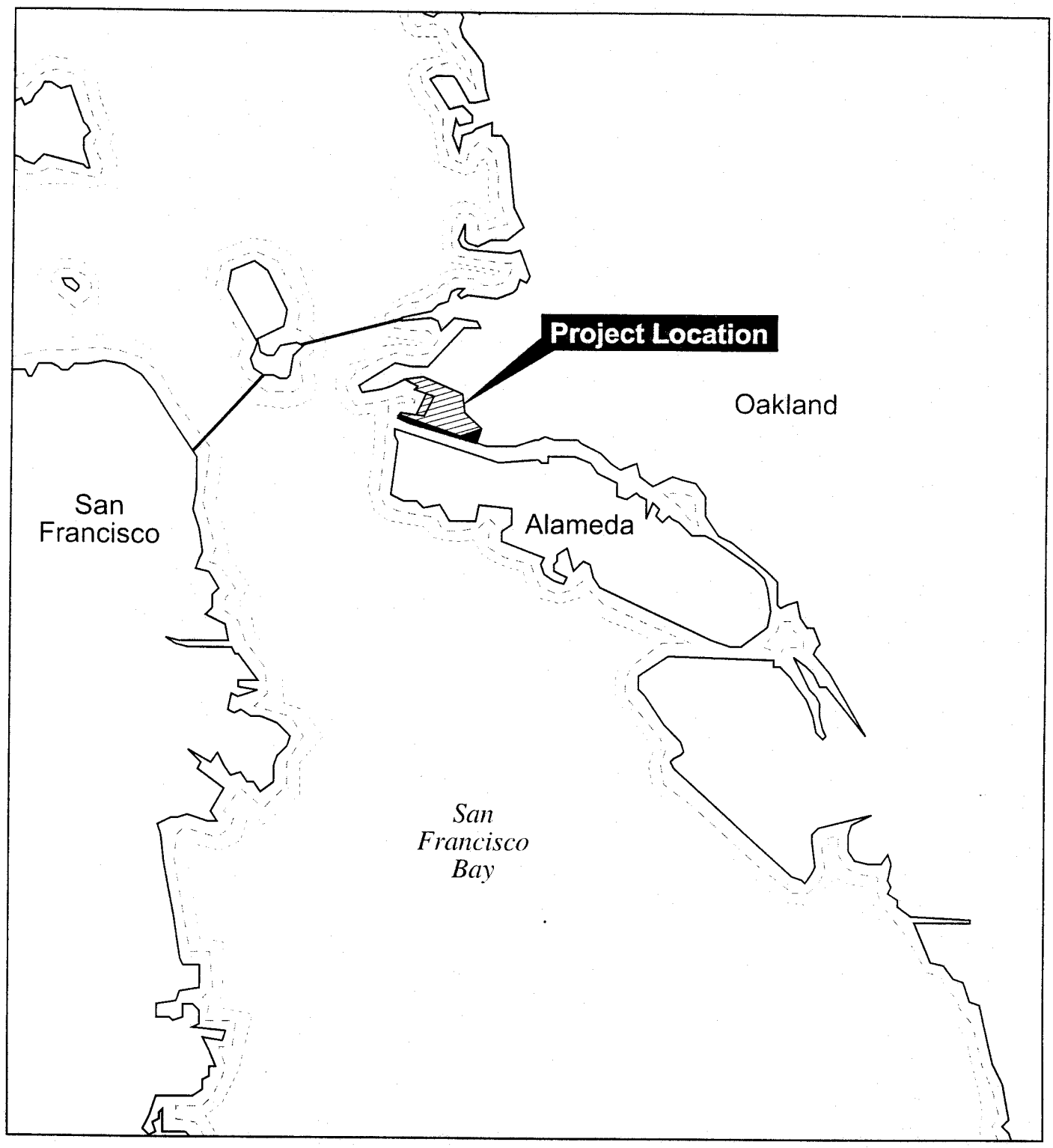
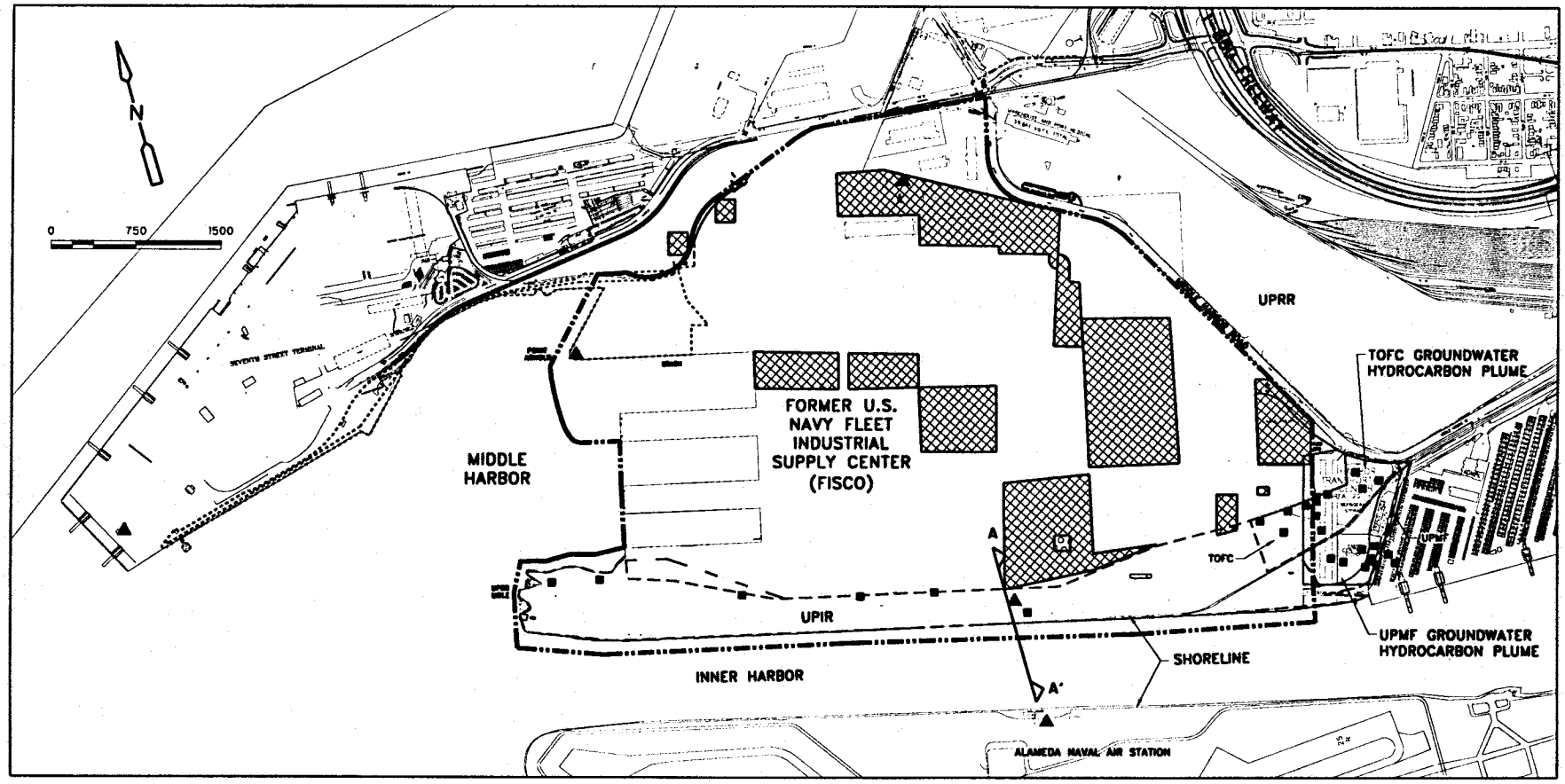


FIGURE 1

SITE LOCATION MAP

Vision 2000 Program Area
(Union Pacific Intermodal Railyard and FISCO Sites)
Port of Oakland
Oakland, California



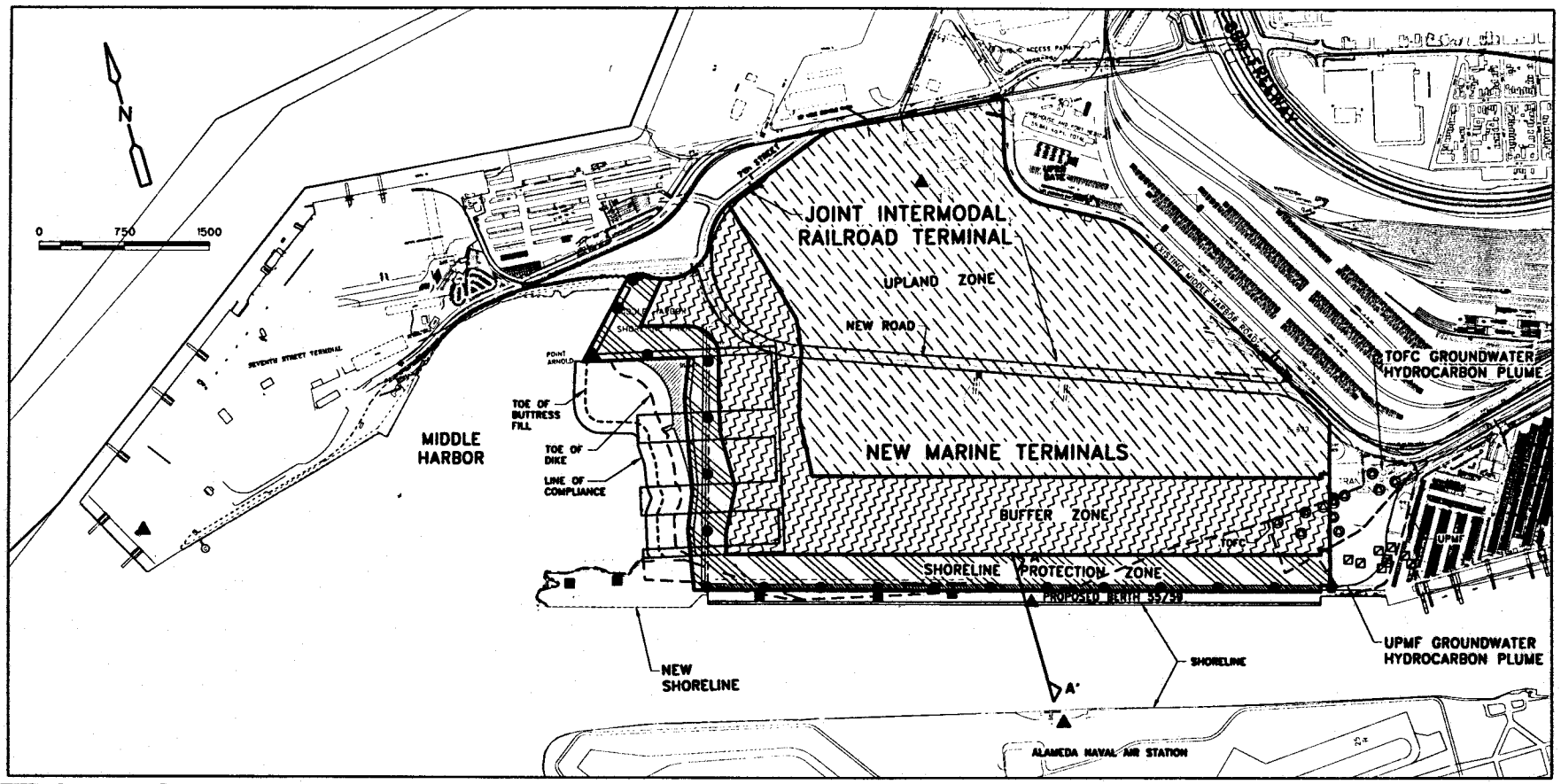
- Approximate Area of Identified Impacted–Soil and/or Groundwater on Former FISCO Property
- Approximate Area of VOC Impacted Groundwater on Former FISCO Property
- Location of Geologic Cross Section
- Union Pacific Intermodal Railyard (UPIR) Boundary
- Project Boundary
- ▲ Deep – Groundwater Monitoring Well Cluster
- ■ Shallow – Groundwater Monitoring Well

TOFC	Trailer on Flat Car
UPMF	Union Pacific Motor Freight
UPRR	Union Pacific Railroad
UPIR	Union Pacific Intermodal Railyard

FIGURE 2

EXISTING SITE CONDITIONS

Vision 2000 Program Area
(Union Pacific Intermodal Railyard and FISCO Sites)
Port of Oakland
Oakland, California



Shoreline Protection Zone, 0–300 Feet from New Shoreline

Buffer Zone, 300–1,000 Feet from New Shoreline

Upland Zone, Greater than 1,000 Feet from New Shoreline

Location of Geologic Cross Section

Union Pacific Intermodal Railyard (UPIR) Boundary

PORT – Proposed Compliance Groundwater Monitoring Well

PORT – Groundwater Monitoring Well Cluster Location, B and C Series

PORT – Groundwater Monitoring Well Location

Union Pacific Trailer on Flat Car (TOFC) Groundwater Monitoring Well Location

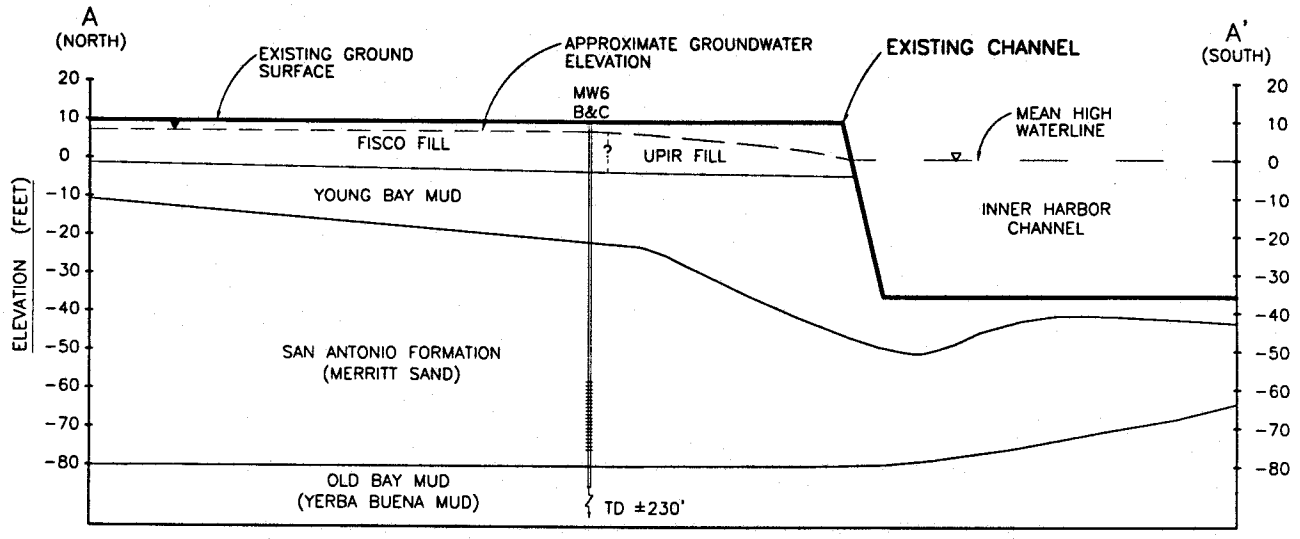
Union Pacific Motor Freight (UPMF) Groundwater Monitoring Well Location

TOFC	Trailer on Flat Car
UPMF	Union Pacific Motor Freight
UPRR	Union Pacific Railroad
UPIR	Union Pacific Intermodal Railyard

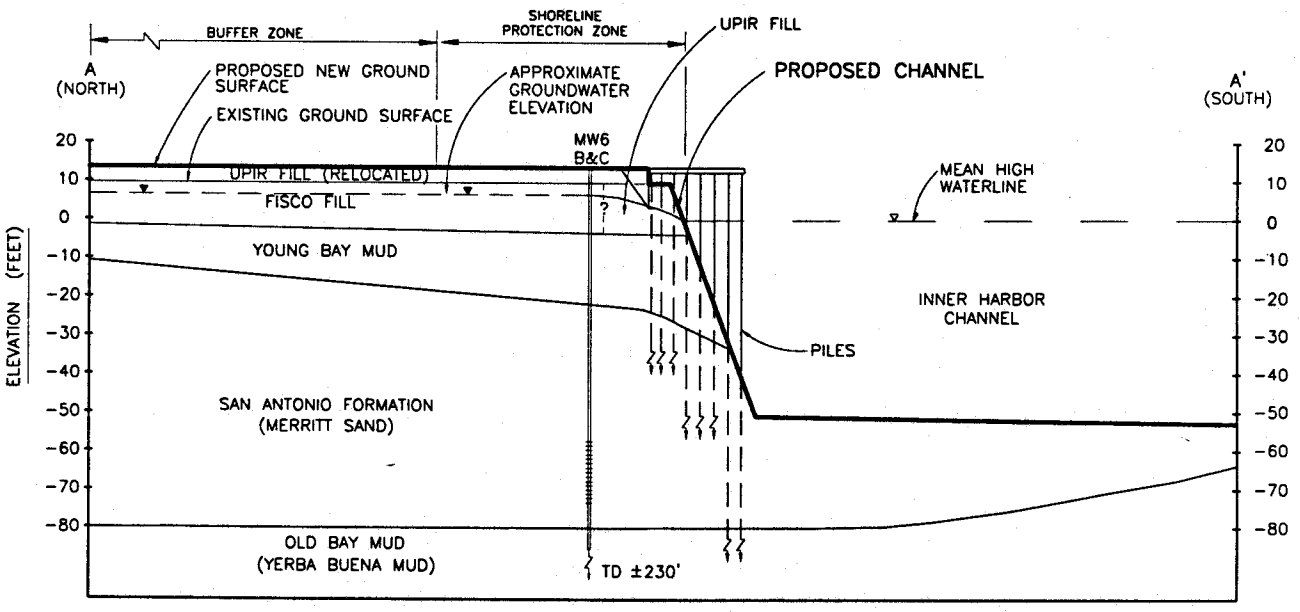
FIGURE 3

PROPOSED SOIL RELOCATION PROJECT

Vision 2000 Program Area
(Union Pacific Intermodal Railyard and FISCO Sites)
Port of Oakland
Oakland, California



EXISTING SITE CONDITIONS



PROPOSED SITE CONDITIONS

SCALE IN FEET

20

100

VERTICAL EXAGGERATION = 5X
ELEVATION BASED ON PORT DATUM

FIGURE 4

GENERALIZED GEOLOGIC CROSS SECTION
EXISTING CONDITIONS AND PROPOSED PROJECT

Vision 2000 Program Area
(Union Pacific Intermodal Railyard and FISCO Sites)
Port of Oakland
Oakland, California

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PLAN
FOR

PORT OF OAKLAND
BERTH 55-58 PROJECT

OAKLAND, ALAMEDA COUNTY

ORDER NO. 99-055

CONSISTS OF

PART A

AND

PART B

PART A

A. GENERAL

1. Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16. This Self-Monitoring Program is issued in accordance with Provision 3 of Regional Board Order No. 99-055.

2. The principal purposes of a discharge monitoring program are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste dischargers in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of standards of performance, and toxicity standards, (4) to assist the dischargers in complying with the requirements of Article 5, Chapter 15 as revised July 1, 1991.

B. SAMPLING AND ANALYTICAL METHODS

1. Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods and in accordance with an approved Quality Assurance Project Plan (Provision 2, Task 3 of Order No. 99-055).

2. Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

3. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A **grab sample** is a discrete sample collected at any time.

2. **Receiving waters** refers to any surface or groundwater which actually or potentially receives surface or groundwater, which pass over, through, or under waste materials or contaminated soils. For these requirements, the samples to evaluate the condition of the receiving water in Inner and Former FISCO berths should be taken within 100 feet of the Project Boundary.

3. **Project boundary** refers to boundary of the construction considered in Board Order No. 99-055 and shown in Figure 3 of that order.

4. **Standard observations** refer to:

   a. Receiving Waters

      i) Evidence of floating and suspended materials generated by the construction activities, as recorded by visual observations, video or photographic records, continuous, fixed-turbidity meters that have been calibrated to total suspended solids and grab samples.
      ii) Discoloration and turbidity: description of color, source, and size of affected area.
      iii) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.

   b. Project Boundary - On-shore

      i) Evidence of liquids leaving or entering the Project Boundary, estimated size of affected area and flow rate. (Show affected area on map)
      ii) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
      iii) Evidence of erosion of stockpiled materials or generation of dust from the stockpiles.

4. **Operations Monitoring** refers to the following information:

   a. A description of and a map showing the area(s) dredged during the previous month.
   b. Estimates of the daily volume in cubic yards and the disposal location(s) of dredged materials removed during each day of the previous month.
   c. Estimates of the daily volume in gallons and the disposal location(s) of return water generated from the dewatering of the dredged material.

5. **Construction activities** refers to dredging, excavation, and filling.

D. SAMPLING, ANALYSIS, AND OBSERVATIONS

The dischargers is required to perform sampling, analyses, and observations in the following media:

1. The total suspended solids in the top 5 feet of the water column will be continuously estimated with turbidity meters (that have been calibrated with grab samples) in Former FISCO berths and Inner Harbor while construction activities are occurring.

2. The Discharger will collect and analyze at least three grab samples per day in the top 5 feet of the water column at no more than 100 feet from the Project boundary for total suspended solids, dissolved oxygen, sulfides, and contaminants of concern (arsenic, lead, mercury, zinc, PAHs, benzene) during the startup of excavation into the intertidal and subtidal zones of the Inner Harbor Bank. Analysis of grab samples will continue while construction activities are occurring at a frequency to be determined by the Executive Officer of the Regional Board.

3. The Discharger will collect and analyze at least three grab samples per day in the top 5 feet of the water column at no more than 100 feet from the Project boundary for total suspended solids, dissolved oxygen, sulfides, and contaminants of concern (arsenic, lead, mercury) during the startup of placement of RBM -Shoal Material in the fastland cells. Analysis of grab samples will continue while construction activities are occurring at a frequency to be determined by the Executive Officer of the Regional Board.

E. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the dischargers or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and sample stations number.
2. Date and time of sampling.
3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
5. Calculation of results.
6. Results of analyses, and detection limits for each analysis.

F. REPORTS TO BE FILED WITH THE BOARD

1. Written monitoring reports shall be filed according to the schedule set forth in A-2. The reports shall contain the following:

   a. Letter of Transmittal

   A letter transmitting the essential points in each report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations. If the Discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in

the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of Deputy Port Director or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. Each monitoring report shall include a compliance evaluation summary. The summary shall contain:

i) An estimation of the volume of the facility discharge on a daily, weekly and monthly basis.

ii) The method and time of measurement, equipment and methods used to monitor field pH, temperature, Turbidity, Total Suspended Solids (TSS) and conductivity, results of the pH, temperature, conductivity and TSS testing.

c. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.

d. Laboratory statements of results of analyses specified in Part B must be included in each report, if appropriate. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board.

i) The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer prior to use.

ii) In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is less than 80%; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

f. A summary and certification of completion of all Standard Observations for the facility including the receiving waters, the perimeter of the containment facility, sediment-filled, perimeter containment bags and facility foundation.

g. A summary and certification of completion of all Operations Monitoring information.

2. CONTINGENCY REPORTING

a. A report to the Executive Officer shall be made by telephone of any accidental discharge of whatever origin from the dewatering facility immediately after it is discovered. A written report shall be filed with the Board within five days thereafter. This report shall contain the following information:

   i. A map showing the location(s) of discharge(s);
   ii. Approximate flow rate;
   iii. Nature of effects; i.e. all pertinent observations and analyses; and
   iv. Corrective measures underway or proposed.

b. If any instantaneous maximum effluent limit is exceeded, within 24 hours of receiving the analytical results indicating the violation, a confirmation sample shall be taken and analyzed with 24-hour turn-around time. If the instantaneous maximum is violated in the second sample, the Discharger shall notify Regional Board staff immediately. The Executive Officer may order the discharge to be terminated, on a case-by-case basis.

3. FINAL REPORTING

The Discharger shall notify the Regional Board by letter upon completion of the project. Project completion is considered to be the date on which all dredged material has been deposited at its final disposal location(s). The Discharger shall also submit a final report containing the following information:

a. A comprehensive discussion of the compliance record, and the corrective actions taken or planned, which were, needed for compliance with the waste discharge requirements.
b. A comprehensive discussion of the effectiveness of receiving water monitoring methods
c. An evaluation of the effectiveness of dredging and filling methods used (at minimizing water quality impacts)
d. An estimate of the total volume of material dredged or excavated from each discrete site during the project and the total volume of material placed at each disposal or reuse location.
e. An estimate of the total volume of decant water generated from dewatering of the dredged material.

PART B: MONITORING AND OBSERVATION SCHEDULE

PORT OF OAKLAND
BERTH 55-58 PROJECT
OAKLAND, ALAMEDA COUNTY

ORDER NO. 99-055

I. DESCRIPTION OF MONITORING STATIONS

A. EFFLUENT

E-1, E-2	Location to be determined if there is a need to discharge dredged material return water, subject to approval of the Executive Officer.

B. RECEIVING WATERS

R-1, R-2	Turbidity meters no more than 100 feet beyond the Project Boundary in Middle Harbor
R-3, R-4	Turbidity meters no more than 100 feet beyond the Project Boundary in Inner Harbor
R-5, 6, 7	Grab samples taken in areas of visible suspended solids plume and no more than 100 feet beyond the Project Boundary in Middle Harbor
R-8, 9, 10	Grab samples taken in areas of visible suspended solids plume and no more than 100 feet beyond the Project Boundary in Inner Harbor
R-AMB	Ambient conditions as measured by turbidity meter and grab samples at the Port of Oakland entrance channel

C. GROUNDWATER - As defined in Table A-3

II. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis is provided in the attached Tables A-1 and A-3.

Samples of effluent and receiving waters shall be collected at times coincident with influent sampling unless otherwise stipulated. The Regional Board or Executive Officer may approve an alternative sampling plan if it is demonstrated that expected operating conditions warrant a deviation from the standard sampling plan.

III. REPORTING SCHEDULE

Reports submitted in compliance with this Self-Monitoring Program shall be submitted on the following basis:

Daily Reporting - Daily reports of the turbidity and Total Suspended Solids measurements shall be submitted within 24 hours of data collection during all dredging, fill placement and decanting operations that may impact surface waters.

Monthly Reporting - Monthly reports shall be submitted during all dredging, fill placement and decanting operations. Monthly reports shall be submitted by the 15th day of the month following the reporting period, beginning with the first month of dredging. Monthly reports shall include the measurements, observations and monitoring as enumerated in Table A-1, A-2 and A-3.

Final Reporting - The Discharger shall notify the Regional Board by letter upon completion of the project. Project completion is considered to be the date on which all dredged material has been deposited at its final disposal location(s). The Discharger shall also submit a final report within 60 days of the project completion date.

All reports shall be submitted to:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: Jack H. Gregg

I, Loretta K. Barsamian, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 99-055;
2. Was adopted by the Board on July 21, 1999; and
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions will be ordered by the Executive Officer or the Board.

Loretta K. Barsamian
Executive Officer

Attachments: Tables A-1, A-2 and A-3

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

PORT OF OAKLAND
BERTH 55-58 PROJECT
OAKLAND, ALAMEDA COUNTY

ORDER NO. 99-055

Table A-1: Surface Water Sampling Schedule.

Sampling Station ->	**R-1,2,3,4**	**R -5 through -10**	**Reporting Period**
Sample Type	Continuous	Grab	N/A
Total Suspended Solids	--	Daily	Daily
Turbidity	Continuous	Daily	Daily
pH (units) field	--	Daily	Monthly
Dissolved Oxygen	--	Daily	Monthly
Dissolved Sulfide	--	Daily	Monthly
Arsenic	--	Daily	Monthly
Lead	--	Daily	Monthly
Mercury	--	Daily	Monthly
Zinc	--	Daily	Monthly
Benzene	--	Daily	Monthly
Total PAHs	--	Daily	Monthly

Table A-2: Report Submission schedule:

	Frequency	Reporting Period	Report Due Date
Standard Observations	Daily	Monthly	15th of Month Following Reporting Period
Operations Monitoring	Daily	Monthly	15th of Month Following Reporting Period
Table A-1 Parameters	See Table A-1	Monthly	15th of Month Following Reporting Period
Project Completion Notice	One Time	N/A	Upon Completion of Project
Final Report	One Time	Project Duration	60 Days After Completion of Project

Table A-3: Groundwater Sampling Schedule

	Proposed Vision 2000 Project Monitoring Wells	**Existing Minus 50 Foot Project**	
Sampling Station	MW-1-20	MW-4B to 6B (San Antonio Fm.)	MW-4C to 6C (Alameda Fm.)
Type of Sample	G	G	G
Groundwater Elevations	M/Q[1]	M/Q[1]	M/Q[1]
Total Petroleum Hydrocarbons (EPA Method 8015M as gasoline, diesel, motor oil, and hydraulic fluid)	Q	Y	Y
Volatile Organic Compounds (EPA Method 8260)	Q	Y	Y
Semi-volatile Organic Compounds (EPA Method 8270)	Q	Y	Y
CAM 17 Metals (EPA Method 6010)	Q	Y	Y
Pesticides (EPA Method 8080)	Q	Y	Y
General Water Analyses (Various Methods)	Q/Y[2]	Y	Y

Notes:
M = Monthly
Q = Quarterly
Y = Yearly
G = Grab Sample
M/Q[1] = Monthly for the First Year, Quarterly Thereafter
Q/Y[2] = Quarterly for the First Year, Yearly Thereafter