CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2006-0020

SITE CLEANUP REQUIREMENTS FOR:

EXXONMOBIL AND THE PORT OF SAN FRANCISCO

FORMER MOBIL BULK TERMINAL 04-394

for the property located at

440 JEFFERSON STREET
CITY AND COUNTY OF SAN FRANCISCO

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ACRONYMS and DEFINITIONS

µg/L	Microgram Per Liter (also see acronym 'ppb')
ARCO	Atlantic Richfield Company
AST	Aboveground Storage Tank
Board	San Francisco Bay Regional Water Quality Control Board
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CD	Compact Disk
CEQA	California Environmental Quality Act
DEIR	Draft Environmental Impact Report
Discharger	ExxonMobil and Port of San Francisco
DTSC	Department of Toxic Substances Control
DWQ	Division of Water Quality
EQAC	Fisherman's Wharf Environmental Quality Advisory Committee
EPA	Environmental Protection Agency
ERA/FS	Environmental Risk Assessment and Feasibility Study
ESL	Environmental Screening Level
fbg	Feet Below Grade
Fig	Figure
GP Resources	General Petroleum Resources (not affiliated with ExxonMobil predecessors)
IRAP	Interim Remedial Action Plan
LPH	Liquid Phase Hydrocarbons
NPDES	National Pollutant Discharge Elimination System
ORC	Oxygen Release Compound
OES	Office of Emergency Services
PDF	Portable Data Format
Port	Port of San Francisco
ppb	Part Per Billion (also concentrations of µg/L in water or µg/kg in sediment)
ppm	Part Per Million (also concentrations of mg/L in water or mg/kg in sediment)
Q	Quarterly
QA/QC	Quality Assurance/Quality Control
RAP	Remedial Action Plan
SCR	Site Cleanup Requirements
Site	Former Mobil Bulk Terminal at 440 Jefferson Street, San Francisco
SMP	Self-Monitoring Program
SWPPP	Storm Water Pollution Prevention Plan and Best Management Practices
TPH	Total Petroleum Hydrocarbons
TPH-d	Total Petroleum Hydrocarbons as Diesel
TPH-g	Total Petroleum Hydrocarbons as Gasoline
UST	Underground Storage Tank
VES/ARS	Vapor Extraction System/Automatic Recovery System

FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (Board), finds that:

1) Site Location

The Former Mobil Bulk Terminal 04-394 is located at 440 Jefferson Street in San Francisco (Site). The Site encompasses an approximately 70 by 120 foot rectangular lot between Leavenworth and Hyde Streets in the Fisherman's Wharf area. This area is zoned for industrial and commercial use. Restaurants and retail shops are located to the south and west of the Site and fish processing plants and storage facilities are located to the north and east. The shoreline of San Francisco Bay is less than 100 feet north of the Site (Fig 1).

2) Site Ownership and Operation

The shoreline area of Fisherman's Wharf, including the Site, was owned by the State of California until it was transferred to the City of San Francisco under the Burton Act of 1969. The Port, an enterprise department of the City, holds the property in trust for the people of California. Per the Burton Act, the Port has legal jurisdiction and operational control of the property and can lease the property to various businesses and companies. Site ownership and operational history is summarized below in Table 1.

Table 1. Site Ownership and Lease History

Date	Owner/ Jurisdictional Authority	Lessee	Operation	Product Storage and Capacity
Mid-1930's to 1990	***prior to 1969*** State of California ***1969 to present*** Port of San Francisco	General Petroleum (predecessor of Mobil Oil) & Mobil Oil (predecessor of ExxonMobil)	Diesel and gasoline bulk storage and dispensing facility	1,000 gallon gasoline UST (removed in 1986) 20,000 gallon diesel AST (removed in early 1990s) 150,000 gallon diesel AST (removed in early 1990s)
1990 to 1992	Port of San Francisco	*GP Resources (not affiliated with ExxonMobil) **sublease** from Mobil Oil	Marine diesel bulk storage and dispensing facility (boat fueling dock)	20,000 gallon diesel AST (removed in early 1990s) 150,000 gallon diesel AST (removed in early 1990s)
1992 to Present	Port of San Francisco	*GP Resources	Marine diesel bulk storage and dispensing facility (boat fueling dock)	Two 20,000 gallon diesel ASTs (installed in 1995)

*Note: GP Resources is not affiliated with General Petroleum, Mobil Oil, or ExxonMobil

ExxonMobil, under the predecessor names of General Petroleum and Mobil Oil, leased the Site for approximately 55 years, from the mid-1930's until 1992. ExxonMobil's predecessor companies operated the Site as a diesel and gasoline bulk storage and dispensing facility. Gasoline was stored in a steel underground storage tank (UST) (1,000 gallons) and diesel was stored in two above ground storage tanks (AST) (20,000 and 150,000 gallons) (Fig 2). From 1990 to 1992, Mobil Oil subleased the property to GP Resources (no relation to ExxonMobil or predecessor companies). The lease with the Port was formally transferred to GP

Resources in 1992. GP Resources maintains their lease to date and operates the facility as a marine diesel fueling station. Marine diesel is stored in two 20,000 gallon ASTs which were installed in 1996. Marine diesel is dispensed via pipelines to an off-site boat fueling dock. In 2001, the Port installed new double-walled piping from the GP Resources tank yard to the fuel dock at Hyde Street Harbor. Most of the Site's pipelines are now aboveground, and all piping is double-walled. The Site currently has no underground petroleum storage tanks.

3) Purpose of Order

The purpose of this Order is to:

a) Provide a schedule for Site investigations and remedial actions;

b) Define the extent of vertical and horizontal petroleum hydrocarbon contamination in soil and groundwater;

c) Evaluate the potential for soil vapor intrusion into buildings in the Site vicinity;

d) Evaluate potential impacts to human health and the environment;

e) Identify other potential sources of petroleum hydrocarbon contamination;

f) Require the removal and/or remediation of hydrocarbon contamination from the subsurface, thereby remediating the soil and groundwater and mitigating contaminant discharge to San Francisco Bay; and

g) Establish a long-term risk management plan to prevent or minimize human exposure to contaminants managed in place.

4) Site History

a) Prior to the late 1890's, the Site vicinity was located in a shallow cove of San Francisco Bay and completely submerged with three to seven feet of water. In the early 1900s, a redwood retaining wall (erroneously referred to as a "seawall" in previous documents) was constructed. After construction of the retaining wall, the area south of the wall, including the Site location, was filled with a mixture of natural backfill likely originating from local excavations and assorted urban waste and debris from building demolition associated with the 1906 earthquake.

b) ExxonMobil's predecessor company constructed a bulk storage facility at the Site sometime prior to 1935. Both USTs and ASTs were maintained on-site. In December 1986, a 1,000 gallon gasoline UST was removed. Soil samples confirmed the presence of both gasoline and diesel hydrocarbons, indicating petroleum hydrocarbons had been released. In response, one groundwater monitoring well was installed downgradient from the former UST location.

c) On February 23, 1990, during Mobil Oil's operation of the Site, an estimated 336 to 692 gallons of diesel were released at the Site when a 20,000 gallon AST was overfilled by Olympian Oil Company. According to cleanup records, approximately 295 gallons of product were recovered from the tank containment area. The subsequent Site investigation concluded that about 75 cubic yards of soil (the top one-foot of soil within the bermed area) had been impacted. According to records, the impacted soil was removed during the 1995 soil excavation activities (see Finding No. 4i, *Site History*).

d) In 1990, the Dolphin Swimming and Boating Club (Dolphin Club) and the Friends and Concerned Citizens of Aquatic Park jointly collected and submitted to the Port 114 affidavits from members of the public noting the presence of "fuel slicks

or like fluids floating on the surface of Aquatic Park", located northwest of the Site (Fig1). Photographs of oil sheens on Bay water under overhanging pipelines were also submitted.

e) In 1990 GP Resources took over Site operations and opened a marine diesel fueling station (see Finding No. 2, *Site Ownership and Operation*).

f) ExxonMobil installed twelve additional groundwater monitoring wells in 1991 and quarterly groundwater monitoring was initiated.

g) In 1992, the San Francisco Department of Public Health, through the State Water Board's Local Oversight Program, began overseeing cleanup activities at the Site.

h) In 1994 and 1995, ExxonMobil installed a vapor extraction system/automatic recovery system (VES/ARS). The system included a product recovery trench (approximately 2-ft wide and 8-ft deep) along the northern boundary of the Site, nine recovery wells, and underground piping (Fig 2). Due to the viscous nature of the subsurface hydrocarbons, the system became clogged and pumping was discontinued after a brief period of operation.

i) In 1995, ExxonMobil removed approximately 980 cubic yards (1,470 tons) of soil from the Site (Fig 2). Of this total, approximately 200 cubic yards (300 tons) was removed to install a concrete slurry wall (four to five feet wide by five to six feet deep) around the perimeter of the Site. The slurry wall was constructed to reinforce adjacent building foundations prior to excavation (not as contaminate containment wall). Approximately 780 cubic yards (1170 tons) was removed in an effort to address hydrocarbon-impacted soil. Soil was excavated to a depth of seven feet below grade (depth to groundwater). Lateral excavation north, east, and west was completed to the maximum extent allowed by the slurry wall and surrounding buildings. To the south, excavation extended until vapor and visual screening suggested soil hydrocarbon concentrations in the vadose zone were less than 100 ppm.

j) In 1995, Department of Toxic Substances Control (DTSC) approved ExxonMobil's request to reclassify a portion of the excavated Site soil from hazardous waste to nonhazardous waste. Elevated lead and arsenic concentrations were the constituents driving the original hazardous waste classification. Soil containing elevated arsenic concentrations was localized to distinct area of the Site, so ExxonMobil segregated soil from this area and disposed of it separately, as hazardous waste. DTSC evaluated the analytical data associated with soil containing elevated lead concentrations and determined that "soil waste located at the Mobil Bulk Terminal possesses mitigating physical and chemical characteristics which render it insignificant as a hazard to human health and safety, livestock, and wildlife. Therefore, the Department...grants its approval...to classify and manage the contaminated soil waste...as nonhazardous."

k) From 1992 to 2000, ExxonMobil conducted quarterly groundwater pumpouts from wells to remove liquid phase petroleum hydrocarbon. From 2000 to the present, absorbent socks have been used in groundwater wells to passively remove petroleum. Additional historic remediation efforts employed by ExxonMobil include groundwater pumpout during Site soil excavation activities described above, and, in 1997, soil vapor extraction.

l) In 1996, GP Resources installed two new 20,000 gallon ASTs. These tanks remain onsite to date.

m) In 1999, regulatory oversight of the Site was transferred from the San Francisco Department of Public Health's Local Oversight Program to the San Francisco Regional Water Quality Control Board's Above Ground Tank Program. The Water Board issued several formal (13267 Water Code Letters) and informal requirements to ExxonMobil and the Port requesting Site background information and investigation reports (see Table 3, *Water Board Required Submittals and Actions*).

n) In October 2005, the San Francisco Planning Department issued a Draft Environmental Impact Report (EIR) for Wharf J-10, located immediately north of the Site (location of "Building J-10" in Fig.1). The Wharf J-10 EIR analyzes environmental effects that could result from 1) demolition of the Wharf J-10 deck, substructure and building; 2) placement of rip rap to stabilize the shoreline; 3) constructing new fishing industry facilities by current tenants on the Wharf J-10 site; and 4) potential other future fishing industry-related facilities and buildings. The Draft EIR public comment period closed on November 29, 2005; the San Francisco Planning Department is overseeing the production of written responses to public comments prior to issuing a Final EIR. Pursuant to California Environmental Quality Act (CEQA) requirements, the Wharf J-10 EIR includes a study of alternatives to the project. One of the alternatives assumes preservation of the Wharf J-10 shed building, which would require independent bracing and stabilization of the shed structure while the deck and substructure are demolished and rebuilt. Once the Final EIR is certified as complete (targeted for Spring 2006), the Port Commission can consider the proposed demolition and rebuild options described above.

5) Named Dischargers

a) Herein, the term Discharger shall refer to ExxonMobil and the Port of San Francisco, as further described below.

b) ExxonMobil is named as a Primary Discharger because ExxonMobil is responsible for petroleum hydrocarbon releases to soil and groundwater. ExxonMobil (under the predecessor companies Mobil Oil and General Petroleum) operated a gasoline and diesel bulk storage and dispensing facility at the Site from approximately 1935 to 1990. Both gasoline and diesel releases were reported while ExxonMobil's predecessors operated the Site (see Finding Nos. 4b and 4c, *Site History*). Data demonstrate these releases have impacted soil and groundwater in the Site vicinity (Finding No. 13, *Current Extent of Hydrocarbon Contamination*).

c) The Port of San Francisco is named as a Secondary Discharger because the Port held title to and managed the Site property during the time of the releases and currently holds title to the Site. The Port will be responsible for compliance only if ExxonMobil fails to comply with the requirements of this Order. In the event ExxonMobil fails to comply with this Order, the Port shall be notified in writing of its obligation to meet the specified task(s). The Water Board will evaluate deadlines as necessary to determine whether the Port has sufficient time to comply.

d) In October 1994, the City and County of San Francisco (on behalf of the Port) and ExxonMobil signed an Access Agreement, which outlines the parties' private agreement on financial responsibility for remediation costs relating to contamination resulting from ExxonMobil's former operations at the Site.

e) If additional information is submitted indicating that other parties caused or permitted any waste to be discharged on the Site where it entered or could have entered waters of the state, the Board will consider adding those parties' names to this order (see Finding No. 10b for additional information regarding potential hydrocarbon sources).

6) Regulatory Status

No prior Waste Discharge Requirement or Site Cleanup Requirement orders have been issued for the Site. The Port maintains a Storm Water Pollution Prevention Plan and Best Management Practices (SWPPP) for the Hyde Street Commercial Fishing Harbor, San Francisco, California, which includes the Site. The SWPPP, which was updated in 2002, was prepared in response to the requirements of the State Water Resources Control Board's General Permit Number CAS000001 for storm water runoff from industrial sites.

7) Geology

The elevation of the Site is approximately ten feet above mean sea level. The topography is generally flat and regionally rises offsite to the south. The Site is constructed on approximately 17 feet of fill material consisting of a mixture of clays, silts, sands, and gravels, as well as debris, such as woodchips, bricks, and glass from building demolition associated with the 1906 earthquake and fire. Loose sands and silty clays underlie the fill, which are underlain by approximately 125 feet of undifferentiated Quaternary sediments (bay mud) consisting of interbedded sands, clays, and sandy clays. The bay mud lies nonconformably on the highly deformed Franciscan basement.

8) Surface Water

The Site is located within the San Francisco Bay Central Basin, approximately 100 feet south of San Francisco Bay. In the early 1900s, a redwood retaining wall (erroneously referred to as a "seawall" in previous documents) was constructed along the shoreline north of the Site. The retaining wall is considered to be permeable to water, and it is assumed groundwater from the Site discharges to the Bay. The shoreline is covered with rip-rap.

9) Groundwater

The Site is located within the San Francisco Sand Dune Area Basin, which is a part of the San Francisco Bay Basin. Groundwater is tidally influenced and fluctuates from approximately four to nine feet below grade (fbg). Groundwater flow direction is north, toward the Bay.

10) Petroleum Hydrocarbon Sources

a) Groundwater and soil data indicate that petroleum hydrocarbon contamination persists at the Site and a hydrocarbon plume emanates from the Site (see Finding No. 13, *Current Extent of Hydrocarbon Contamination*).

b) Groundwater data suggest there may be additional offsite sources of petroleum hydrocarbon that commingle with the Site plume. Based on a review of historic maps, the Discharger identified the following potential additional hydrocarbon sources in the Site vicinity:
   - Aboveground storage tanks (ASTs) that existed east of the Site;
   - Underground storage tanks (USTs) west of the Site at Hyde Street Pier;
   - Former AST farm and UST located east of Leavenworth Street;
   - Former AST farm located on the southeast corner of Jefferson and Leavenworth Streets;
   - Former tanks located on the southwest corner of Jefferson and Leavenworth Streets;
   - Former Coal Wharf that included a 41,000-gallon oil AST;
   - Former Equitable Gaslight Company (town gas site) that included two 180,000 cubic feet gas holder ASTs;
   - Former California Fruit Canners Association Cannery (Del Monte);
   - Former UST located across Jefferson Street south of the site; and
   - Underground petroleum pipelines (not related to the site) along the retaining wall and in Jefferson Street.

   There is limited Information regarding the identity of historic operators for many of potential sources named above. The Port was able to provide lease records for four (4) petroleum companies (ARCO, Shell Oil, Unocal, and ChevronTexaco) and Del Monte Foods Inc., all of which had historic operations in the vicinity of Mobil's former terminal. The Water Board required these companies to submit Site History Reports documenting their activities in the Site vicinity. Currently, there is insufficient evidence to name additional dischargers. The Board will request additional information from those parties who submitted incomplete reports (see Table 3). If additional information indicates other parties caused or permitted waste to be discharged on or near the Site where it entered or could have entered waters of the State, the Board will consider adding those parties' names to this order. However, such an action would in no way alleviate ExxonMobil's responsibility to remediate the petroleum hydrocarbon plume associated with its discharges or to meet the tasks outlined in this Order.

11) Site Investigations

The Discharger has submitted several reports detailing Site investigations and assessments (see Table 4 for a complete list). Most Site reports were submitted prior to Water Board oversight (November 1999). All report findings are based on the interpretations of the Discharger and/or the consultant or members of the public. The descriptions below provide a summary of key report findings and do not constitute Water Board approval or rejection of report findings.

a) Site Investigation Reports Following 1986 Tank Removal

   Soil and groundwater investigations at the Site began in 1986, following the removal of an underground storage tank. Soil samples collected from within the tank excavation cavity contained TPH concentrations of up to 230 ppm. Data indicated there had been both gasoline and diesel releases from the Site. Groundwater downgradient from the Site was found to contain TPH-d (25 ppb), TPH-g (620 ppb), benzene (300 ppb), toluene (440 ppb) and xylenes (4,200 ppb). No remedial actions were taken.

b) On-Site Investigation Following 1990 Surface Diesel Release
Following the 1990 release of 336 to 692 gallons of diesel fuel, the Discharger hired a consultant to conduct a site investigation study inside the bermed area. The consultant concluded that 75 cubic yards of soil in the top 12 inches was contaminated as a result of the diesel release. Records indicate the impacted soil was removed during the 1995 soil excavation efforts (see Finding No. 11h, *1995 Soil Excavation Status Report*).

c) June 1990 Off-Site Investigation Following Surface Diesel Release
Per the Discharger's request, the consultant completed a subsurface investigation of contamination outside the bermed area of the Site. The consultant submitted an Interim Report, stating that:
- Groundwater samples contained TPH-g (160 to 130,000 ppb), TPH-d (90 to 210,000 ppb), and the presence of all benzene, toluene, ethylbenzene, and xylene (BTEX) components;
- Well AW-3 (Fig 1) contained between two and 18 inches of floating hydrocarbons;
- The recovered product appeared to be weathered;
- All soil samples contained petroleum hydrocarbons, with concentrations ranging from 420 to 4100 ppm; and
- There were potential offsite TPH sources based on, but not limited to, the presence of hydrocarbons in wells cross gradient from the Site, differences in profile of hydrocarbons across Site, vertical pattern of contamination, and presence of fill material.

d) September 1990 Site Investigation and Characterization Report
According to this report, TPH-d, the primary constituent of concern, was concentrated in the northern half of the Site. TPH-g soil contamination in the tank area exceeded 550 ppm. The report also stated that offsite hydrocarbon contamination appeared to be concentrated northeast of the tank yard in the capillary fringe and saturated zone. Three liquid phase hydrocarbon (LPH) plumes appeared to be present: 1) inside the tank bermed area, 2) along the retaining wall (erroneously referred to as a "seawall" in previous documents) north of the tank area; and 3) along Leavenworth Street north of Jefferson Street. The plume along Leavenworth Street was hypothesized to come from an offsite source. The investigation was unable to fully define the dissolved hydrocarbon plume, but it appeared to be widespread and was assumed to be the result of past releases from several sources over years. The report stated that no further investigation for site characterization was warranted at the time.

e) Quarterly Monitoring Reports
In 1991, the Discharger began conducting quarterly groundwater monitoring. Recent quarterly monitoring reports include:
- Sampling Schedule;
- Summary of Groundwater Levels and Chemical Analysis Results;
- Site Maps, including Groundwater Elevations and Hydrocarbon Concentrations;
- Well Purging and Groundwater Sampling Protocol;
- Monitoring Well Sampling Forms and Sampled Time vs. Tide Cycle; and
- Analytical Laboratory Data Sheets (including Chain of Custody forms).

f) 1992 Soil Assessment Report
An area of significant diesel contamination within the tank farm was delineated, however, no significant gasoline contamination was identified. Soil was found to have lead concentrations above hazardous waste limits. The lead source was assumed to be from the fill material on which the Fisherman's Wharf area is constructed.

g) 1994 Remedial Action Work Plan
The consultant proposed to excavate all soil within the tank farm to six feet below ground surface and to a maximum practical depth where soil was most extensively contaminated. Additionally, the report recommended installation of wells and a recovery trench.

h) 1995 Soil Excavation Status Report
In an effort to remediate hydrocarbon-impacted soil, the Discharger excavated approximately 980 cubic yards (1470 tons) of soil from within the tank yard (Fig 2). A VES/ARS groundwater extraction and treatment system was also installed (see Finding No. 4h). The report concluded that remedial excavation activities had effectively removed soil hydrocarbons onsite. However the report also stated that removing hydrocarbon-impacted soil below the groundwater table by excavation was not practical and further lateral excavation was not feasible due to the presence of building structures and a slurry wall.

i) 2003 Technical Information Report
The Technical Information Report included an evaluation of existing Site data and proposal for additional sampling. The intent of the report was to outline a means to identify other potential sources of contamination, characterize the vertical and lateral extent of the petroleum hydrocarbon plume(s) in soil and groundwater, and to identify potential conduits and/or barriers for contaminant migration. Additionally, the report identified potential receptors to contaminants.

j) 2004 Environmental Risk Assessment and Feasibility Study
In the Tier 1 Environmental Risk Assessment, the Discharger's consultant concluded that although soil at the Site is contaminated with respect to petroleum hydrocarbons, residual impacts that could potentially pose health or ecological risks at the Site are limited to those reported in groundwater. The potential for current or future vapor intrusion was reported to be unlikely given the predominantly heavier grade petroleum hydrocarbons identified in soil and groundwater (note that soil vapor analysis and an updated risk assessment are required per Task Nos. 2 and 6). Tier 1 Environmental Screening Levels (ESLs) were proposed as preliminary contaminant remediation goals. The referenced screening levels were developed for use at the San Francisco Airport under Regional Water Board Order No. 99-045 (SFBRWQCB 1999), as cited in the Water Board Document, *Water Board Interim Final, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volumes 1 and 2* (SFBRWQCB 2005)

(http://www.waterboards.ca.gov/rwqcb2/esl.htm).

In the Feasibility Study, the consultant evaluated several remedial technologies. The recommended remedial action included installation of a slurry wall to create an impermeable barrier between groundwater and the Bay. The proposed design included permeable reactive sidewalls to treat groundwater that bypassed the slurry wall. Simultaneous injection of oxygen release compound (ORC) was

proposed to enhance microbial degradation of upgradient residual petroleum hydrocarbons. At the time of this Order, potential remedial alternatives are still under consideration by the Water Board and involved parties.

12) Need for Additional Site Characterization

Despite past efforts to remove hydrocarbon impacted soil and groundwater, contamination persists to date. Additional site characterization is needed to accurately assess current onsite and offsite conditions to enable the Water Board and involved parties to evaluate proposed remediation strategies and to determine if additional hydrocarbon contaminant sources exist. Furthermore, the Site is located in a densely populated business district adjacent to San Francisco Bay. The local community includes business owners, employees, swimmers, tourists, and San Francisco residents involved with historical aspects of Fisherman's Wharf. Public concerns must be considered and addressed. This includes evaluating potential soil vapor intrusion into buildings by analyzing both subsurface vapor under buildings and ambient air conditions inside buildings. In addition, potential exposure of recreational users (e.g., swimmers) to contaminants in groundwater discharged to the Bay must be evaluated. This information shall be included in an Updated Environmental Risk Assessment (Task No. 6).

13) Current Extent of Hydrocarbon Contamination

Maximum reported concentrations for most hydrocarbon constituents at the Site occurred during the early to late 1990's. While contaminant concentrations have generally declined at the Site over time, recent petroleum hydrocarbon data from soil and groundwater confirm the need for additional cleanup efforts. Eighteen groundwater monitoring wells are sampled quarterly at the Site (Fig 1). There have been a total of 134 groundwater samples collected in the past eight quarters of sampling (December 2003 to September 2005). During this two-year time period, LPH was encountered 16 times in three wells (AW3, AW8, RW9), prohibiting groundwater analyses of dissolved phase hydrocarbons (Table 2A). Of the analyzed groundwater samples, TPH-d concentrations (the primary constituent of concern) ranged from 120 µg/L to 100,000 µg/L. Twelve samples contained TPH-d exceeding the 5,000 µg/L solubility limit of diesel, suggesting there may have been LPH entrained in the sample. Table 2B below summarizes the concentration range for various hydrocarbon petroleum constituents during the past eight quarters of monitoring. TPH-d concentrations are reported for all samples above the solubility limit of diesel to note areas with persistently elevated concentrations. A Site map is provided in Figure 1.

Table 2A. Wells Containing Liquid Phase Hydrocarbons (LPH): PAST EIGHT QUARTERS December 2003 to September 2005

Constituent	Well	Dates of Occurrence
LPH (groundwater not collected for laboratory analysis)	AW-3	09/20/04 (1) 12/06/04 (2) 03/21/05 (3) 06/06/05 (4) 09/09/05 (5)
LPH (groundwater not collected for laboratory analysis)	AW-8	03/05/04 (6) 06/18/04 (7) 09/20/04 (8) 12/06/04 (9) 03/20/05 (10)

		06/06/05 09/09/05	(11) (12)
LPH (groundwater not collected for laboratory analysis)	RW-9	12/31/03 03/05/04 03/20/05 06/06/05	(13) (14) (15) (16)

Table 2B. Groundwater Contaminant Concentration Ranges: PAST EIGHT QUARTERS December 2003 to September 2005

Constituent	Concentration (µg/L; ppb)	Date Sampled	Well(s) Containing Max Concentration
TPH-d	≥5,000 (5,400 to 100,000)	09/09/05 09/09/05 06/06/05 06/06/05 12/06/04 12/06/04 09/20/04 06/18/04 06/18/04 03/05/04 12/31/03 12/31/03	AW-7 RW-9 AW-7 AW-5 AW-7 RW-9 RW-9 RW-9 AW-5 RW-7 RW-6 RW-8
TPH-g	ND to 1200	09/09/05	RW-3
Benzene	ND to 47	09/09/05	RW-3
Toluene	ND to 8	09/09/05	RW-3
Ethylbenzene	ND to 2.3	06/18/04	RW-1
Total Xylenes	ND to 13	09/09/05	RW-3
MTBE	ND to 9.3	12/31/03	RW-6

TPH-d = Total Petroleum Hydrocarbons, Diesel (expected solubility in water <5,000 ppb)
TPH-g = Total Petroleum Hydrocarbons, Gasoline (expected solubility in water <150,000 ppb)
ND = Not Detected

14) Basin Plan and Resolutions

a) San Francisco Bay Basin Plan
The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) represents the Board's master water quality control planning document. Among other things, the Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

b) State Board Resolution No. 68-16
State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background shall be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives

c) State Board Resolution No. 92-49
State Water Resources Control Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under California Water Code Section 13304," establishes policies and procedures to be used by the Regional Board when:

i) Determining when a person is required to investigate, cleanup, or abate a discharge;
ii) Concurring with the Discharger's selection of cost-effective investigation and remedial measures;
iii) Overseeing implementation of investigation and remedial measures; and
iv) Determining schedules for investigation and remedial measures.

d) Board Resolution No. 89-39
The Basin Plan provides that all groundwaters are considered suitable, or potentially suitable, for municipal or domestic water supply (MUN) and that, in making any exceptions, the Board will consider the criteria referenced in Board Resolution No. 89-39, "Sources of Drinking Water", where:
i) The total dissolved solids exceed 3,000 mg/l (5,000 µS/cm, electrical conductivity), and it is not reasonably expected by the Board that the groundwater could supply a public water system, or
ii) There is contamination, either by natural processes or human activity (unrelated to the specific pollution incident), that cannot reasonably be treated for domestic use using best management practices or best economically achievable treatment practices, or
iii) The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

e) Basis for California Water Code Section 13304 Order
The Discharger has caused or permitted, causes or permits, or threatens to cause or permit waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of contamination or nuisance.

15) Beneficial Uses of Groundwater and Surface Water

a) Groundwater
The Site resides within the boundaries of the San Francisco Sand Dune Area Basin, as defined in the Basin Plan. The existing and potential beneficial uses identified for groundwater in this basin, according to the Basin Plan, include:
- Municipal and domestic water supply (MUN);
- Industrial process water supply (PROC);
- Industrial service water supply (IND); and
- Agricultural supply (AGR).

b) Surface Water
The Site resides within the boundaries of the San Francisco Bay Central surface water basin, as defined in the Basin Plan. The existing and potential beneficial uses identified for surface water in this basin, according to the Basin Plan, include:
- Ocean, commercial, and sport fishing (COMM);
- Esturine habitat (EST);
- Industrial service supply (IND);
- Fish migration (MIGR);
- Navigation (NAV);
- Industrial process supply (PROC);
- Preservation of rare and endangered species (RARE);

- Water contact recreation (REC-1);
- Noncontact water recreation (REC-2);
- Shellfish harvesting (SHELL);
- Fish spawning (SPWN); and
- Wildlife habitat (WILD).

16) California Environmental Quality Act (CEQA)

This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of CEQA pursuant to Section 15321 of the CEQA Guidelines.

17) Notification

The Board has notified the Discharger and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.

18) Public Hearing

The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the Discharger (or its agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

PROHIBITIONS

1) The discharge of wastes or hazardous substances in a manner that will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.

2) Further significant migration of wastes or hazardous substances through surface or subsurface transport to waters of the State is prohibited.

3) As required by State Water Resources Control Board Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 for the Discharge of Storm Water Associated with Industrial Activities, the discharge of contaminant-impacted stormwater from the Site, including sediment, is prohibited.

4) Activities associated with the subsurface investigation and cleanup that will cause significant adverse migration of wastes or hazardous substances are prohibited.

5) The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).

TASKS

1) SITE-SPECIFIC SAMPLING AND ANALYSIS PLAN

COMPLIANCE DATE: APRIL 3, 2006

The Discharger shall submit a Site-Specific Sampling and Analysis Plan, acceptable to the Executive Officer, detailing standard procedures followed for sample collection and analysis. Procedures and methods for sample collection and analysis of groundwater, soil, and soil vapor shall be detailed, including procedures for coordinating sampling events with the Site property owner to ensure that groundwater monitoring wells are accessible at the time of sampling. The plan shall also document any applicable requirements specified in the Self-Monitoring Program associated with this Order. All subsequent reports presenting data and/or data interpretations relating to Site samples shall include a certification statement indicating that monitoring was conducted in accordance with the procedures and requirements established in this Order and associated the Site-Specific Sampling Plan.

2) ADDITIONAL SITE CHARACTERIZATION WORK PLAN

COMPLIANCE DATE: APRIL 3, 2006

The Discharger shall submit an Additional Site Characterization Work Plan, acceptable to the Executive Officer, to complete additional investigative work that is necessary to further characterize the Site contamination, identify other potential petroleum sources, evaluate potential human health and environmental impacts, and support selection and design of a remedial action (see Finding No. 12). The Additional Site Characterization Work Plan shall be comprehensive, including an update on work in-progress as well as a proposal for additional sample collection and analysis. While the report shall include descriptions of investigations that are in-progress but not yet submitted, this Order does not alter pre-established deadlines. At a minimum, the Additional Site Characterization Work Plan shall include the following sections:

a) **Soil, Groundwater, and Soil Vapor**:

i) **Delineation**: The Discharger shall propose additional sampling necessary to delineate the horizontal and vertical extent of both free-phase and dissolved-phase contamination in soil and groundwater associated with the Site plume. The plan shall identify the proposed sampling parameters.

ii) **Soil Vapor Sampling and Analysis**: Soil vapor shall, at a minimum, be analyzed for TPH-g, TPH-d, naphthalene, methane, and BTEX. Sample locations shall be identified to evaluate the potential for soil vapor intrusion into buildings in the Site vicinity. In addition to an analysis of soil gas in subsurface soil under buildings, ambient air shall be sampled from inside buildings. Data shall be incorporated into the Revised Environmental Risk Assessment (Task No. 6) and used to evaluate potential impacts to building occupants. Additionally, data shall be used to evaluate potential impacts to food processing activities.

iii) **Source Identification**: Groundwater analysis shall include forensic analysis of the composition of the petroleum mixture in free-phase and dissolved-phase hydrocarbons in groundwater near the Site where additional hydrocarbon contaminant sources are suspected. This evaluation shall include a determination of the relative composition of different hydrocarbon compounds within a specified range (i.e., TPH as gasoline or TPH as diesel) and include an evaluation of the nature of the original source petroleum, products released, the amount of biodegradation and/or weathering that the mixtures have experienced, and the similarities and/or dissimilarities between samples collected from different locations.

b) **Evaluation of Heath Risks Posed to Swimmers**: The Additional Site Characterization Work Plan shall include a proposal to complete a study to evaluate heath risks posed to swimmers exposed to petroleum that may discharge to surface water. The report shall include screening levels for TPH-d, TPH-g, BTEX, and naphthalene. At a minimum, persons and organizations who frequent the swimming area adjacent to the subject Site shall be contacted to ensure that appropriate exposure assumptions are used. The screening levels shall then be compared to Site groundwater data in consideration of reasonably anticipated dilution of groundwater upon discharge to the Bay and include a quantitative assessment of potential health threats to swimmers.

c) **Tidal Influence Study**: The Additional Site Characterization Work Plan shall include elements necessary to complete a Tidal Influence Study. The Tidal Influence Study shall, include a minimum of 72 consecutive hours of groundwater well elevation data. The Tidal Influence Study shall include actual measured groundwater elevations, rather than relative values. If this information is available from the Discharger's 2004 Tidal Influence Study, the Water Board will consider accepting a resubmittal of that data. The study shall also include a narrative evaluation of the data, including comparison to previous tidal influence studies.

d) **Detailed Work Schedule**
The Discharger shall propose a detailed work schedule to complete the tasks required in the Additional Site Characterization Report. At a minimum, the schedule shall be presented in chart format, preferably as a Gantt Chart, and shall include time estimates to obtain property access agreements, required permits, sample collection, sample analysis, data compilation, and report preparation.

3) **ADDITIONAL SITE CHARACTERIZATION REPORT**

COMPLIANCE DATE: MAY 15, 2006

The Discharger shall submit a Additional Site Characterization Report, acceptable to the Executive Officer, that provides the results of investigations proposed in the Additional Site Characterization Work Plan prepared in accordance with Task No. 2. In addition to the sections described in Task No. 2, the Additional Site Characterization Report shall include boring logs, laboratory analyses, updated cross-sections, isoconcentration maps showing laboratory analysis data, a Site conceptual model, and conclusions. If any of the collected data or studies are

inconclusive, recommendations for further site characterization work and a proposed timeline for submittal shall be included.

4) **INTERIM REMEDIAL ACTION PLAN**

COMPLIANCE DATE: MAY 15, 2006

The Discharger shall prepare an Interim Remedial Action Plan (IRAP) and schedule acceptable to the Executive Officer for the remediation of petroleum hydrocarbon-impacted soil and groundwater at the Site. The IRAP shall include a proposed remedial alternative, implementation plan, an evaluation of potential risks that may result from the proposed remedial action (e.g., risks to Port tenants and the public), and a detailed work schedule (preferably presented in Gantt chart format). The IRAP shall be an immediately executable plan, independent of existing and proposed future land use (e.g., demolition, rehabilitation, and/or construction activities) (see Finding No. 4n, *Site History*). The IRAP may be expanded pending findings from additional site characterization report (Task Nos. 2 and 3). Any fine-tuning of Site monitoring well locations or source area definition may be completed concurrently, but shall not delay the preparation of this plan.

If the proposed IRAP has the potential of altering surface water or groundwater flow, the discharger shall also complete an Interim Hydrologic Evaluation of Site Conditions, as outlined in Task No. 7j.

5) **IMPLEMENTATION OF INTERIM REMEDIAL ACTION PLAN**

COMPLIANCE DATE: 45 days following approval of the IRAP

Once the IRAP has been approved by the Executive Officer, the remedial alternative shall be constructed and implemented within 45 days. Any additional investigative work can be completed concurrently, but shall not delay the construction and implementation of the remediation system. An evaluation of the implemented interim remedial action shall be included in subsequent quarterly Groundwater Self-Monitoring Reports. Evidence of plume stability shall be documented and may consist of information such as reduction of aerial plume extent or decreasing contaminant concentrations in soil and groundwater.

6) **UPDATED ENVIRONMENTAL RISK ASSESSMENT**

COMPLIANCE DATE: JUNE 1, 2006

The Discharger shall submit an Updated Environmental Risk Assessment, acceptable to the Executive Officer, to incorporate new data collected during additional Site characterization (Task Nos. 2 and 3) and to evaluate exposure pathways not evaluated in the August 2004 Environmental Risk Assessment. The Updated Environmental Risk Assessment shall be based on applicable data collected per Task No. 2 (Additional Site Characterization Work Plan) and Task No. 3 (Additional Site Characterization Report) and shall include:

a) An evaluation of human health risks associated with potential vapor intrusion into buildings in the Site vicinity. This evaluation shall consider both subsurface soil vapor and ambient air conditions inside buildings. This section of the Updated

Environmental Risk Assessment shall incorporate data collected per Task No. 2a.ii (Additional Site Characterization Work Plan, Soil Vapor Sampling and Analysis);

b) An evaluation of human health and environmental risks associated with groundwater discharges to the Bay. This section of the Updated Environmental Risk Assessment shall incorporate data collected per Task No. 2b (Additional Site Characterization Work Plan, Evaluation of Heath Risks Posed to Swimmers). Potential impacts to aquatic life and the environment shall also be evaluated;

c) An evaluation of risks posed to food processing activities in buildings in the Site vicinity. This section of the Updated Environmental Risk Assessment shall take into account all Site data collected to date and describe potential implications related to Food and Drug Administration regulations.

d) An evaluation of human health and environmental risks associated with the proposed remedial action, including potential risks associated with:

   i) Material that may be placed or injected;

   ii) Contaminants associated with material that may be excavated (the August 2004 Environmental Risk Assessment focused only on hydrocarbon contaminants associated with the Discharger's release);

   iii) Any byproducts that may be produced as a result of remedial activities;

   iv) Groundwater discharge to the Bay (e.g., change in anticipated discharge and implications on contaminant release, including contaminants in addition to hydrocarbons); and

   v) Soil vapor intrusion into buildings (e.g., change in anticipated soil vapor pressure and/or change in soil vapor constituents).

7) **FINAL REMEDIAL ACTION PLAN**

COMPLIANCE DATE: JULY 3, 2006

The Discharger shall prepare a final Remedial Action Plan (RAP) and schedule acceptable to the Executive Officer for the remediation of hydrocarbon-impacted soil and groundwater at the Site. The final RAP shall, at a minimum, include:

a) A proposed remedial alternative that is compatible with the IRAP and with existing and future land use, including fishing industry uses (e.g., maintenance, demolition, rehabilitation, and/or construction activities) (see Finding No. 4n, *Site History*);

b) An evaluation of potential risks that may result from the proposed remedial action (e.g., risks to Port tenants and the public);

c) Proposed hydrocarbon cleanup levels, including target final concentrations and a method for evaluating success (e.g., point of compliance wells);

d) An evaluation of the longevity of the proposed remedial system based on an estimate of the volume of groundwater to be treated prior to meeting cleanup levels;

e) A long-term solution to eliminate the discharge of hydrocarbon-impacted groundwater to San Francisco Bay;

f) An evaluation of the potential for recontamination from offsite sources;

g) Design elements to meet applicable standards for seismic and structural stability;

h) An implementation plan. In addition to the technical aspects of implementation, this section shall address long-term maintenance, including a cost analysis for initial and annual maintenance;
i) A detailed work schedule, including a timeline, preferably presented in Gantt chart format;
j) A hydrologic investigation to evaluate potential changes in surface water and groundwater flow in response to the proposed final RAP. The hydrologic investigation shall model *various* potential Site conditions, including the 100-year storm event in conjunction with the highest high tide data. The hydrologic investigation shall also evaluate any of the following concerns that may be related to the proposed remediation technology:
   i) The degree to which the proposed RAP may cause groundwater mounding (include a Site vicinity map);
   ii) Potential effects on flooding due to groundwater mounding;
   iii) The potential of contaminated upgradient and side-gradient groundwater to bypass the remedial system;
   iv) The proposed remedial system's ability to capture and/or contain contaminated groundwater (if relevant, include physical dimensions of the system); and
   v) The proposed remedial system's ability to treat contaminated groundwater (e.g., ability to control hydraulic gradient; sufficient density of extraction wells and/or injection points; adequacy of treatment wall dimensions, etc.).

If any of the required items above does not pertain to the proposed final RAP, the Discharger shall address the point by explaining why it does not apply.

8) **IMPLEMENTATION OF ADDITIONAL REMEDIAL ACTION PLAN**

COMPLIANCE DATE: 90 days following approval of the RAP

Once the RAP has been approved by the Executive Officer, the Discharger shall construct and implement the remedial alternative within 90 days. Any additional investigative work may be completed concurrently, but shall not delay the construction and implementation of the remediation system.

An evaluation of the implemented remedial action shall be included in subsequent quarterly Groundwater Self-Monitoring Reports. Evidence of plume stability shall be documented and may consist of information such as reduction of aerial plume extent or decreasing contaminant concentrations in soil and groundwater. Any fine-tuning of Site monitoring well locations or source area definition may be completed concurrently, but shall not delay the preparation of this plan.

9) **PROPERTY USE RESTRICTIONS**

COMPLIANCE DATE: SEPTEMBER 1, 2006

The Discharger shall submit a technical report acceptable to the Executive Officer documenting procedures to be used by the Discharger to prevent or minimize human exposure to soil and groundwater contamination associated with historic hydrocarbon releases from the Former Mobil Bulk Terminal 04-394. This report shall include:

a) Procedures to ensure that the current property owner records a deed restriction for the Site prohibiting the use of onsite shallow groundwater as a source of drinking water;
b) Procedures to ensure that the current property owner periodically notify any affected downgradient property owners and/or tenants regarding hydrocarbon contaminated groundwater originating from the Site; and
c) A Risk Management Plan that shall:
   i. Include the following information for each risk:
      1. A unique identifier for each risk;
      2. A description of each risk, including a description of what activities could result in a risk and how the risk will affect the project;
      3. An assessment of the likelihood each risk will occur and the possible seriousness/impact if it does occur (low, medium, high);
      4. A grading of each risk according to a risk assessment table;
      5. Include a description of proposed mitigation actions (preventative and contingency); and
      6. Include a cost estimate for each mitigation strategy.
   ii. Describe how the Discharger shall coordinate with the property owner, including a detailed description of responsibilities and protocols;
   iii. Establish long-term management measures adequate to protect human health and the environment, and prevent nuisance conditions;
   iv. Describe how the Discharger shall ensure compatibility with federal, state and local laws and guidelines;
   v. Describe how the Discharger shall coordinate with the property owner to ensure compatibility with current and future land use (i.e., risk management activities cannot interfere with future use or development);
   vi. Describe how the Discharger shall assume long-term responsibility, including financial responsibility, to manage any hydrocarbon contamination associated with the Site that is allowed to be left in place;
   vii. Establish deadlines for response actions that the Discharger shall take whenever contaminated soil or groundwater is or is anticipated to be encountered so that operation, maintenance or construction activities at affected property are not unreasonably impacted;
   viii. Describe how the Discharger shall notify persons at risk;
   ix. Include a description of oversight and enforcement responsibilities;
   x. Describe how the Discharger shall ensure the Risk Management Plan is available to the public (including all tenants, contractors, or others operating at or occupying the affected area);
   xi. Describe how the Discharger shall ensure implementation of and compliance with the Risk Management Plan.
   xii. Include written notice of acceptance of its terms by the Port or its successor in interest in the property. In the event that the Port or its successor does not accept the Risk Management Plan, the Discharger shall submit a technical report to the Executive Officer, on or before the task deadline, explaining why the Port's (or its successor's) withholding of its acceptance is unreasonable. The Executive Officer will ultimately determine whether the Risk Management Plan is acceptable.

In the event a construction or redevelopment project is proposed to occur in the area impacted by hydrocarbon associated with the Site, prior to adoption of the Risk

Management Plan described above, the Discharger shall complete a project-specific Risk Management Plan to identify management measures to prevent adverse impacts from the proposed project. This requirement for a project-specific Risk Management Plan does not apply to the Discharger's ongoing monitoring or additional site assessment activities.

10) **IMPLEMENTATION OF PROPERY USE RESTRICTIONS**

COMPLIANCE DATE: **60 days after Executive Officer approval of proposed Property Use Restrictions and Risk Management Plan**

The Discharger shall submit a technical report acceptable to the Executive Officer documenting that the proposed institutional constraints have been implemented.

PROVISIONS

1) **Modifications to Remedial Action Plan**
The Discharger shall notify the Executive Officer at least 60 days prior to any proposed modification to the approved Remedial Action Plan or remediation system. The notification shall include the rational for any proposed modification.

2) **Delayed Compliance**
If the Discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the Discharger shall promptly notify the Executive Officer of the delay and reason for the delay and the Board may consider revisions to this Order.

3) **Operation and Maintenance (O&M)**
The Discharger (as applicable) shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.

4) **Discharges**
If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited, or probably will be discharged in or on any waters of the state, the Discharger shall:
   a) Report such discharge to the Office of Emergency Services (OES); and
   b) File a written report with the Board within five working days that shall contain information relative to the following:
      i) The nature of waste or pollutant;
      ii) The quantity involved and the duration of incident;
      iii) The cause of the spill;
      iv) The estimated size of the affected area;
      v) The corrective measures that have been taken or planned, and a schedule of these measures;
      vi) The persons/agencies notified; and
      vii) A copy of the OES notification report.

5) Stormwater

The Discharger shall comply with the State's General Stormwater Permits for both industrial activities and construction activities (Order Numbers 97-03-DWQ and 99-08-DWQ, respectively).

6) Contractor/Consultant Qualifications

All technical documents shall be signed by and stamped with the seal of a California professional geologist, a California certified professional geologist or hydrogeologist, or a California registered civil engineer.

7) Lab Qualifications

All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed onsite (e.g. temperature).

8) Document Distribution

Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following entities:

a) San Francisco Bay Regional Water Quality Control Board;
b) City and County of San Francisco Department of Public Health;
c) Port of San Francisco; and
d) Fisherman's Wharf Environmental Quality Advisory Committee (EQAC) (documents stored and available for public review at the Port's office).

The Executive Officer may modify this distribution list as needed.

9) Electronic Reporting

a) Geotracker Requirements

The State Board recently adopted regulations requiring electronic report and data submittal to Geotracker. The text of the regulations can be found at the following website address:

http://www.waterboards.ca.gov/ust/cleanup/electronic_reporting/docs/final_electronic_regs_dec04.pdf

Starting July 1, 2005, parties responsible for cleanup of pollution at sites overseen by the Regional Water Board's Spills, Leaks, Investigations, and Cleanup Program (SLIC) are required to submit over the internet, the following information electronically:

i) Groundwater analytical data;
ii) Surveyed locations of monitoring wells;
iii) Boring logs describing monitoring well construction; and
iv) Portable data format (PDF) copies of all reports (the document, in its entirety [signature pages, text, figures, tables, etc.] shall be saved as <u>a single PDF file</u>).

Note that the Discharger is still responsible for submitting <u>one hard copy</u> of all reports pursuant to this Order. Individual Water Boards may require direct submittal of electronic reports and correspondence in addition to the State Board's Geotracker requirements.

10) Self-Monitoring Program

The Discharger shall comply with the Self-Monitoring Program (SMP) attached to this Order (Table A2) and as may be amended by the Executive Officer. Data tables shall include the following information:

a) Date of sampling
b) Date of analysis;
c) Current analytical results by constituent of concern (including detection limits for each constituent);
d) Historical analytical results (including the past five years unless otherwise requested);
e) Well designations;
f) Well location coordinates (latitude and longitude);
g) Well construction (including top of well casing elevation, total well depth, screen interval, depth below ground surface, and screen interval elevation);
h) Groundwater depths and elevations (water levels); and
i) Phase-separated product thicknesses and elevations.

11) Access to Site and Records

In accordance with California Water Code Section 13267(c), in conducting an investigation pursuant to subdivision 13267(a), the regional board may inspect the facilities of any person to ascertain whether the purposes of this division are being met and waste discharge requirements are being complied with. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is withheld, with a warrant duly issued pursuant to the procedure set forth in Title 13 (commencing with Section 1822.50) of Part 3 of the Code of Civil Procedure. However, in the event of an emergency affecting the public health or safety, an inspection may be performed without consent or the issuance of a warrant.

12) Cost Recovery

The Discharger (as applicable) shall be liable, pursuant to California Water Code Section 13304 and Health and Safety Code Section 25270.9 to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the Site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the Discharger (as applicable) over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

13) Reporting of Changed Owner or Operator

The Discharger (as applicable) shall file a report on any changes in Site occupancy or ownership associated with the property described in this Order.

14) San Francisco Regional Water Quality Control Board Resolution No. 88-160

Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither

reclamation nor discharge to the sanitary sewer is technically and economically feasible.

15) Periodic Site Cleanup Requirements (SCR) Order Review
The Board will review this SCR Order periodically and may revise it when necessary. The Discharger (as applicable) may request revisions and upon review the Executive Officer may recommend that the Board revise these requirements.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on March 8, 2006.

Bruce H. Wolfe
Executive Officer

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FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY
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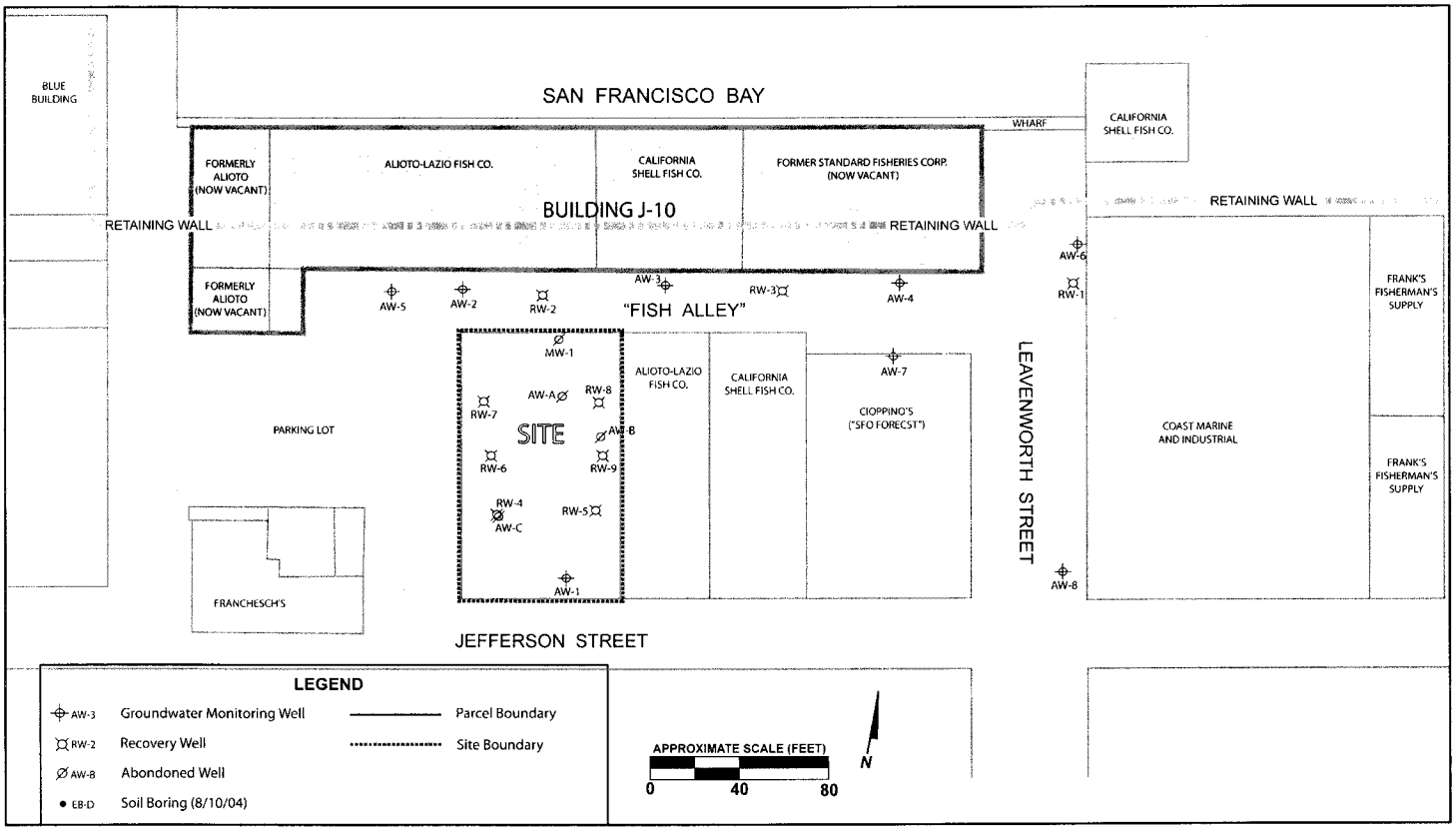
Attachments:
Figure 1. Site Plan and Vicinity Maps
Figure 2. 1995 Soil Remedial Excavation Area
Table 3. Water Board Required Submittals and Actions
Table 4. Site Reports and Investigations
Self-Monitoring and Reporting Program

Figure 1. Site Plan and Vicinity Maps

(Site Plan based on Site figures from TRC Quarterly Monitoring Reports)
(Site Vicinity Map based on Figure 1 from City and County of SF's October 2005 Draft EIR)



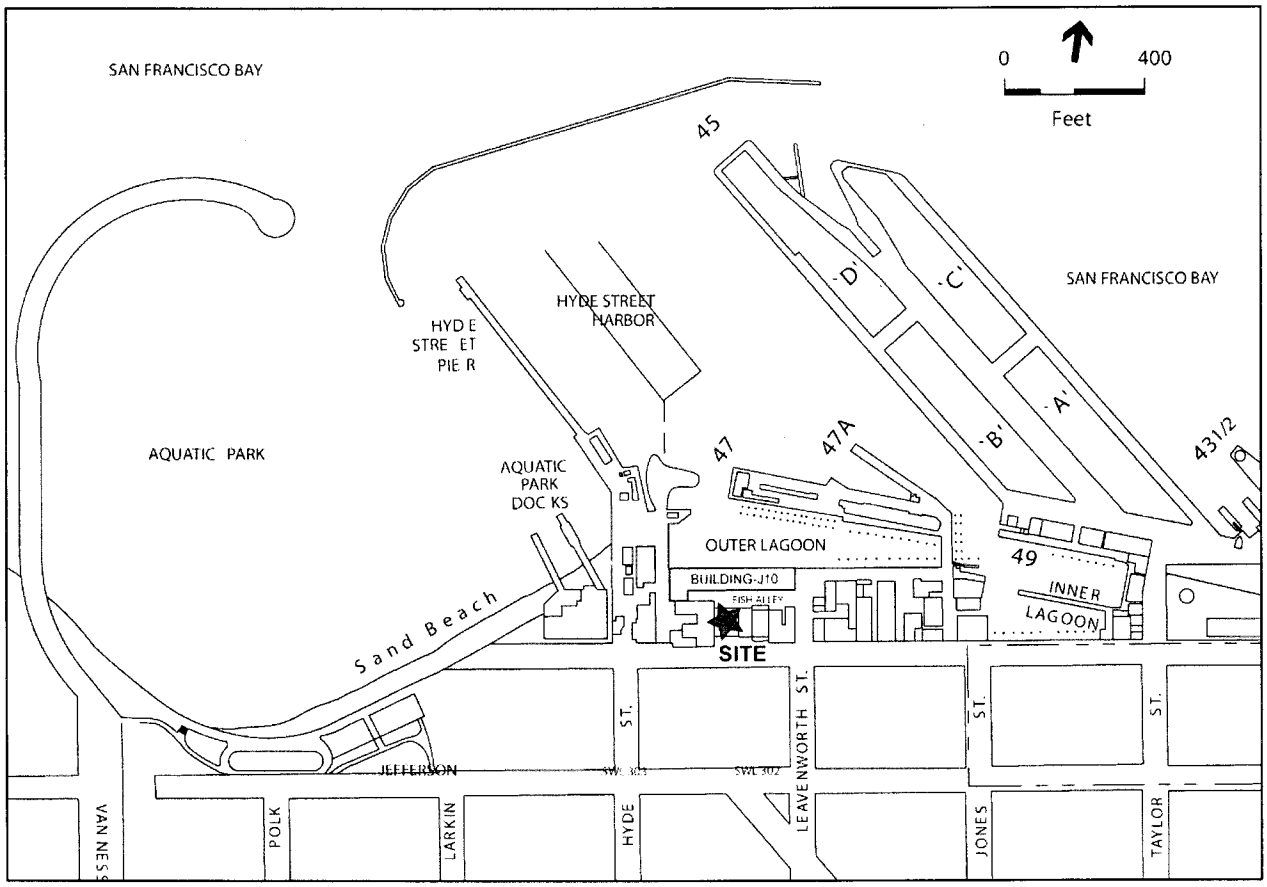
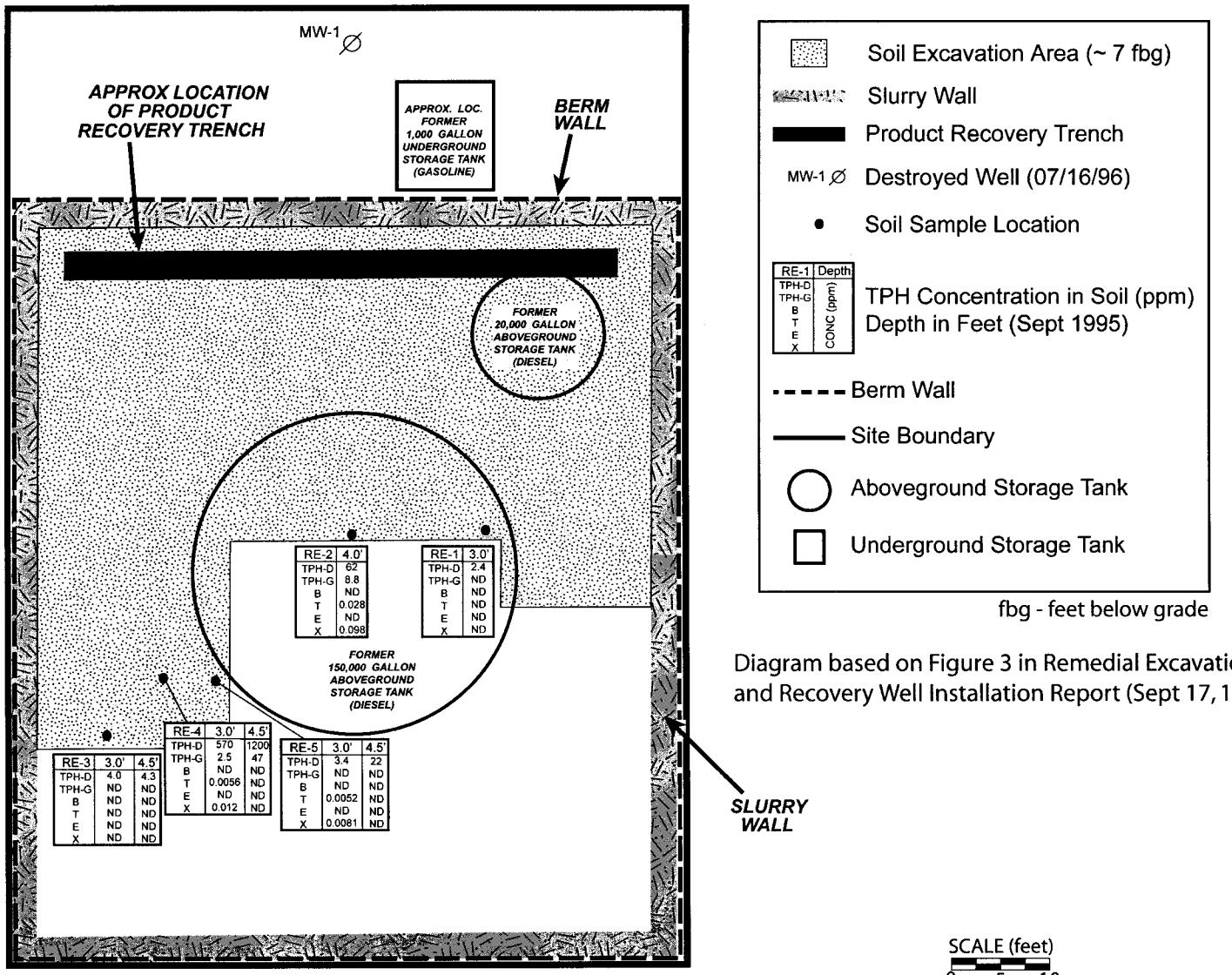


Figure 2. 1995 Soil Remedial Excavation Area



TPH-D = total petroleum hydrocarbons as diesel; TPH-G = total petroleum hydrocarbons as gasoline
B = benzene; T = toluene; E= ethylbenzene; X = total xylenes; ppm = parts per million **(mg/kg)**

Table 3. Water Board Required Submittals and Actions

Date Requested	Recipient	Document/Action Requested & Submittal Date
Nov 11, 2001 E-mail	ExxonMobil	Copies of Historic Reports and Site Summary Report ▪ Jan 22, 2002 Submitted & Approved
March 11, 2003 Water Code Letter	ExxonMobil	Technical Information Report: identify other potential responsible parties, characterize extent of contamination, identify potential conduits and/or barriers to contaminant migration. ▪ Apr 28, 2003 Submitted & Approved
Feb 11, 2003 Mtg & E-mail	Port of SF	Provide ExxonMobil with lease/occupancy history ▪ Feb 27, 2003 Submitted & Approved
April 10, 2003 Verbal & E-mail	ExxonMobil	Addendum to Site Summary Report ▪ Apr 11, 2003 Submitted & Approved
April 29, 2003 Verbal & E-mail	Port of SF	Use of Port's office - Site File Repository for public access in addition to Water Board's Oakland Office ▪ Apr 30, 2003 Approved
Jan 13, 2004 E-mail	Port of SF	List of Historic Land Use and Lease Information ▪ July 2, 2004 Submitted & Approved
Feb 2004 Verbal & E-mail	ExxonMobil	Coordinate Public Outreach Mtgs to Address Public Comments and Questions ▪ Mtgs held Mar 11, Oct 27, & Dec 8, 2004 (Mtg descriptions below)
Feb 19, 2004 Water Code Letter	ExxonMobil	Environmental Risk Ass'mt & Feasibility Study, and Remedial Action Plan ▪ Aug 31, 2004 Environmental Risk Ass'mt & Feasibility Study Submitted ▪ Dec 31, 2004 Deadline for Submittal of Public Comment Letters ▪ Incorporated into SCR Remedial Action Plan
Mar 11, 2004 Public Mtg	ExxonMobil	Stakeholders Meeting per Feb 2004 requirement (high attendance)
March 30, 2004 Mtg	ExxonMobil	Need for a more extensive tidal study and need to analyze samples using "silica-gel cleanup" ▪ May 14, 2004 Agreed to include silica-gel methods in next groundwater sampling event ▪ May 2004 Tidal Study included in Aug. 2004 Environmental Risk Ass'mt & Feasibility Study
Oct 27, 2004 Public Mtg	ExxonMobil	Technical Workgroup Meeting per Feb 2004 requirement (full attendance)
Dec 8, 2004 Public Mtg	ExxonMobil	Stakeholders Meeting per Feb 2004 requirement (low attendance)
Jan 4, 2005 Water Code Letter	Other PRPs	Technical Report on Site History ▪ May 2005 Submitted (some incomplete) **Complete Submittals**: - ARCO (Atlantic Richfield Co., formerly Richfield Oil Co.) - Del Monte Foods, Inc. **Incomplete Submittals** (Request for Additional Information Pending): - Shell Oil Company - Unocal - ChevronTexaco
May 6, 2005 Comment Letter	ExxonMobil	Comments and Request for Additional Information on Environmental Risk Ass'mt & Feasibility Study (Water Board Staff Response to Public Comment Letters included as attachment) ▪ June 15, 2005 Submitted & Partially Approved
Oct 26, 2005 Public Mtg	ExxonMobil	Site update meeting with Fisherman's Wharf Environmental Quality Advisory Committee (EQAC), ExxonMobil, Port, and Water Board ▪ Water Board preparation of SCR and opportunities for public involvement ▪ Port's Draft EIR for building demolition or rehabilitation
Nov 9, 2005 Public Mtg	ExxonMobil	Meeting to address public concerns regarding need for additional Site characterization and coordination between ExxonMobil's remediation efforts and Port's land use plans
Jan 5 & 11, 2006 Public Mtgs	Water Board	Public meetings to explain content and organization of Tentative Site Cleanup Requirements Order, and review comment period deadlines
Feb 16, 2006 Public Mtg	Water Board	Public meeting to review Water Board staff responses to public comment letters

Table 4. Site Reports and Investigations

- Water Board correspondence is recorded in Table 3 and is not listed below.
- Documents are available for public review at the Water Board's office and at the Port's office.
- Quarterly Monitoring began in 1991. Quarterly Monitoring Reports are not listed below.

	Author	Report Title	Date
1	Kaprealian Engineering	Site soil investigation	DEC 14, 1987
2	Mobil Oil	Letter to DPH proposing addition investigation	JAN 19, 1988
3	Olympian Oil Co.	[1*] Accutite's Proposal	APR 23, 1990
4	Alton Geoscience	[1] Interim Report	JUN 22, 1990
5	Alton Geoscience	Site Investigation	SEP 20, 1990
6	Alton Geoscience	Feasibility Study and Remedial Work Plan	OCT 18, 1990
7	Alton Geoscience	Additional Soil Sampling	JUN 14, 1991
8	Alton Geoscience	Workplan for Soil Remediation and Aquifer Testing	JAN 23, 1992
9	Alton Geoscience	Preliminary Soil Assessment Report	JUL 31, 1992
10	Alton Geoscience	Proposed Excavation and Source Removal	JUL 27, 1993
11	Alton Geoscience	Letter Defining Proposed Source Removal	AUG 03, 1993
12	Alton Geoscience	Remedial Excavation Workplan	APR 21, 1994
13	Alton Geoscience	Remedial Action Workplan	SEP 08, 1994
14	Port of San Francisco	Mobil/Port Access Agreement	OCT 26, 1994
15	Alton Geoscience	Well Abandonment Report	JAN 02, 1995
16	DTSC	Reclassification of Contaminated Soils	JUL 07, 1995
17	Alton Geoscience	Soil Excavation Status Report	OCT 06, 1995
18	Alton Geoscience	Wastewater Discharge Permit Application	JUL 31, 1996
19	Alton Geoscience	Remedial Excavation and Recovery Installation Report	SEP 23, 1996
20	Alton Geoscience	Workplan to Perform Risk Assessment and Revised Feasibility Study/Corrective Action Plan	MAR 26, 1997
21	TRC	[2] Site Summary Report	JAN 21, 2002
22	Port of San Francisco	Notification of Discovery of Contaminated Soil and Groundwater	NOV 18, 2002
23	Trans Pacific Geotechnical Consultants, Inc.	Progress Report- Geotechnical Investigation for Proposed Wharf J-10 Replacement Structure	DEC 31, 2002
24	TRC	[1*] Addendum to Jan 21, 2002 Site Summary Report	APR14, 2003
25	TRC	Technical Information Report	APR 28, 2003
26	Port of San Francisco	Additional Info on Historic Use and Occupancy	JUL 02, 2004
27	TRC	Environmental Risk Assessment and Feasibility Study	AUG 31, 2004
28	Port of San Francisco	Comment Letter Re: Envir Risk As. & Feasibility Study	OCT 26, 2004
29	Other Potentially Responsible Parties	Technical Reports on Site History (some submittals incomplete – see Table 3)	MAY 2005
30	TRC	Response to Comments and Additional Site Assessment Workplan	JUN 16, 2005
31	Port of San Francisco	Comments on Response to Comments and Additional Site Assessment Workplan (TRC, June 15, 2005)	AUG 09, 2005
32	Port of San Francisco	Dec 1999 Mechanical Layout of New Fuel Lines at Wharf J10	SEP 23, 2005
33	City and County of SF	Draft Environmental Impact Rpt for Wharf J-10	OCT 15, 2005
34	ExxonMobil	Ltr from ExxonMobil to Port committing to complete environmental assessment under Wharf J-10 bld	NOV 14, 2005
35	ExxonMobil	Ltr from ExxonMobil to Port committing to initiate site investigations on accelerated schedule, clarify source of offsite petroleum contaminates and facilitate future development of Wharf J-10 site	NOV 28, 2005

1* Reference specifically cites 336 to 692 gallons diesel released while filling a 20,000 gallon above ground tank
1 Reference cites diesel release during product delivery to a 20,000 gallon above ground tank
2 Reference contains error citing 20,000 gallon release

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SITE CLEANUP REQUIREMENTS
SELF-MONITORING PROGRAM

FOR

EXXONMOBIL AND THE PORT OF SAN FRANCISCO

FORMER MOBIL BULK TERMINAL 04-394

440 JEFFERSON STREET,
CITY AND COUNTY OF SAN FRANCISCO

ORDER NO. R2-2006-0020

A. AUTHORITY AND PURPOSE

The Board requests the technical reports required in this Self-Monitoring Program (SMP) pursuant to Water Code Sections 13267 and 13304. This SMP is intended to document compliance with Board Order No. R2-2006-0020 (Site Cleanup Requirements).

B. MONITORING REQUIREMENTS

The Discharger shall conduct monitoring of groundwater, surface water, and any other environmental media, structures, devices, or facilities as specified in Table A2. Table A2 specifies monitoring locations, frequency, parameters, and methods. Figure 1 illustrates monitoring well locations.

1. All groundwater sample collection and surface water observations shall be completed during low tide conditions.
2. Groundwater elevation measurements and surface water observations shall be completed within one hour.
3. Groundwater elevation data shall include actual groundwater elevation referenced to feet above mean sea level.
4. Water samples shall be processed using silica-gel cleanup methods performed prior to extractable petroleum hydrocarbon analysis only.
5. The Discharger shall follow established protocols, as described in the Site-Specific Sampling and Analysis Plan, to coordinate with the Site property owner to ensure that groundwater monitoring wells are accessible at the time of sampling.

Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods or in accordance with an approved sampling and analysis plan. Water and waste analyses shall be performed by a California State approved laboratory for the required analyses. 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 Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the Discharger. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

C. REPORTING REQUIREMENTS

Each monitoring report shall include the following information:

1. **Transmittal Letter**: A letter transmitting essential points shall be included in each monitoring report. The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall also certify the completion of all monitoring requirements. The letter shall be signed by the Discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

2. **Compliance Evaluation Summary**: A compliance evaluation summary containing the following information:
   a. A summary and certification of completion of all monitoring as specified in this SMP;
   b. A graphic presentation of the gradient and direction of groundwater flow, based upon the past and present water level elevations (referenced to feet above mean sea level) and other factors that may influence groundwater movement;
   c. Map(s) or aerial photograph(s) showing all monitoring locations;
   d. A tide cycle chart clearly identifying tide elevations for the start and end of the sampling event, including the time period required to record groundwater elevation (reflected in the first hour) and collect groundwater samples; and
   e. The signature of the laboratory director whose name appears on the laboratory certification, indicating that he/she has supervised all analytical work in his/her laboratory.
3. **Appendices:** Include the following information in appendices:
   a. New boring and well logs;
   b. Method and time of water level measurements;
   c. Purging methods and results including the type of pump used, pump placement in the well, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity, calibration of the field equipment, pH, temperature, conductivity, and turbidity measurements, well recovery time, and method of disposing of the purge water;
   d. Sampling procedures, field and travel blanks, number and description of duplicate samples, type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other relevant observations; and
   e. Documentation of laboratory results, analytical methods, detection limits, and Quality Assurance/Quality Control (QA/QC) procedures for the required sampling, including:
      (i) Laboratory statements of results of analyses;
      (ii) Descriptions of analytical methods used (note, if methods other than EPA approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use);
      (iii) Actual detection limits for each sample results (note, ***detection limits shall be appropriate for the expected concentrations***);
      (iv) Laboratory quality assurance/quality control (QA/QC) information and results including analytical methods, detection limits, recovery rates, explanations for low recovery rates (less than 80%), equipment and method blanks, spikes and surrogates, and QA/QC sample frequency; and
      (v) Monitoring results shall be provided in table format, and upon request, provided in electronic format, preferably in Excel® format. Tables shall include the following information:
         (1) Groundwater analytical data;
         (2) Well designations;

(3) Well location coordinates (latitude and longitude);
(4) Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, and screen interval elevation);
(5) Groundwater depths and elevations (water levels);
(6) Phase-separated product thicknesses and elevations;
(7) Current analytical results by constituent of concern (including detection limits for each constituent);
(8) Historical analytical results (including the past five years unless otherwise requested); and
(9) Measurement dates.

D. ANNUAL REPORTING

The Discharger shall submit an annual self-monitoring report to the Board covering the previous calendar year. The annual report shall summarize all monitoring, investigation, and remedial activities that have occurred in the previous year. The annual report shall include the following information, in addition to the transmittal letter and appendices described in Sections C.1 and C.3:

1. **Graphic Presentation**: Include Site maps (plot plans) for <u>each</u> aquifer or water-bearing zone monitored that are drawn to a scale that remains constant from reporting period to reporting period. These maps shall include the following information:
   a. Known or probable contaminant sources;
   b. Well locations;
   c. Groundwater elevation contours;
   d. Inferred groundwater flow direction(s);
   e. Extent of non-aqueous phase liquid (NAPL);
   f. Extent of dissolved chemical constituents (e.g., isoconcentration maps);
   g. Appropriate analytical results (line or bar graphs are helpful to illustrate variations in groundwater elevations, phase-separated product thickness, and dissolved chemical concentrations with time); and
   h. Geologic cross sections are required if new data is available and/or the previous interpretation of subsurface conditions has changed. When required, geologic cross sections shall include the following:
      (i) Vertical and lateral extent of contamination;
      (ii) Contaminant sources;
      (iii) Geologic structures;
      (iv) Soil lithology;
      (v) Water table/piezometric surfaces;
      (vi) Sample locations;
      (vii) Sample analytical results; and
      (viii) Subsurface utilities and any other potential natural or manmade conduits for contaminant migration.

2. **Tabular Presentation**: Present all of the following data in one or more tables to show a chronological history and allow quick and easy reference:
   a. Well designations;

b. Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, and screen interval elevation);
c. Groundwater depths (depth below ground surface);
d. Groundwater elevations (height relative to mean sea level);
e. Horizontal groundwater gradients;
f. Phase-separated product elevations;
g. Phase-separated product thickness;
h. Analytical results (including analytical method and detection limits for each constituent);
i. Clearly distinguish between water samples that were processed using silica-gel cleanup and those that were not;
j. Measurement dates;
k. Groundwater extraction, if applicable, including:
   (i) Average daily extraction rate;
   (ii) Total volume extracted for monitoring period; and
   (iii) Cumulative total volume extracted since system inception.
l. Contaminant mass removal, if applicable, including:
   (i) Average daily removal rate;
   (ii) Total mass removed for monitoring period; and
   (iii) Cumulative total mass removed since system inception.

3. **Discussion**: Provide a discussion of the field and laboratory results that includes the following information:
   a. Data Interpretations;
   b. Conclusions;
   c. Recommendations;
   d. Newly implemented or planned investigations and remedial measures;
   e. Data anomalies;
   f. Variations from protocols; and
   g. Conditions of wells.
4. **Public Outreach**: Provide a summary of public outreach activities including attendance at community meetings. This summary shall also include a description of correspondence received from the public and the Discharger's response.

E. ELECTRONIC REPORTING

1. Geotracker Requirements
   The State Board adopted regulations requiring electronic report and data submittal to Geotracker. The text of the regulations can be found at the following URL:
   http://www.waterboards.ca.gov/ust/cleanup/electronic_reporting/docs/final_electronic_regs_dec04.pdf
   Starting July 1, 2005, parties responsible for cleanup of pollution at sites overseen by the Water Board's Spills, Leaks, Investigation, and Cleanups Program are required to submit over the internet, the following information electronically:
   a. Groundwater analytical data;
   b. Surveyed locations of monitoring wells;
   c. Boring logs describing monitoring well construction; and

d. Portable data format (PDF) copies of all reports (the document, in its entirety [signature pages, text, figures, tables, etc.] shall be saved as a single PDF file).

Note that the Discharger is still responsible for submitting one hard copy of all reports pursuant to this Order. Individual Water Boards may require direct submittal of electronic reports and correspondence in addition to the State Board's Geotracker requirements.

F. CONTINGENCY REPORTING

1. **Violation Reports**: The Discharger shall notify the Board by telephone as soon as practicable whenever requirements in this Order are violated. Board staff may, depending on violation severity, require the Discharger to submit a separate technical report on the violation within five working days of the telephone notification.
2. **Other Reports**: The Discharger shall notify the Board in writing prior to any Site activities, such as construction or removal work, that have the potential to cause further migration of contaminants or provide new opportunities for site investigation.

G. MAINTENANCE OF WRITTEN RECORDS

Information required pursuant to this Self Monitoring Program shall be maintained by the Discharger for a minimum of five years. The five-year period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board.

H. REPORTING SCHEDULE

The Discharger shall submit self-monitoring reports per the schedule indicated in Table A1. Reports due at the same time may be combined into one report for convenience, as long as monitoring activities and results pertaining to each monitoring period are clearly distinguishable. All monitoring reports shall be submitted to the Board no more than 30 days after the end of the monitoring period as indicated in Table A1.

Table A1 Monitoring Periods and Reporting Due Dates

Monitoring Periods	Reporting Due Dates
First Quarter (Winter) (Jan 1 – Mar 31)	May 1
Second Quarter (Spring) (Apr 1 – Jun 30)	August 1
Third Quarter (Summer) (Jul 1 – Sep 30)	November 1
Fourth Quarter (Fall) (Oct 1 – Dec 31)	February 1
Annual (Jan 1 – Dec 31)	February 1

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring and Reporting Program was adopted by the Board on March 8, 2006.

Bruce H. Wolfe
Executive Officer

Attachments: Table A2 – Groundwater Self-Monitoring Program

TABLE A2
GROUNDWATER SELF-MONITORING PROGRAM SAMPLING PARAMETERS
EXXONMOBIL FORMER BULK TERMINAL, SAN FRANCISCO

			1	2	3	4	5	6	7	8	9	10	11	12	13
		Parameter Method	TOC Elevation	Depth to Water	LPH Thickness	GW Elevation	Change in Elevation	TPH-D 8015M / DHS LUFT	TPH-G 8015M / DHS LUFT	Benzene 8260B	Toluene 8260B	Ethyl-benzene 8260B	Total Xylenes 8260B	MTBE 8260B	TBA 8260B
	Well No.	Area Monitored													
1	AW-1	Tank Block - S	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
2	AW-2	NW of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
3	AW-3	NE of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
4	AW-4	far NE of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
5	AW-5	NW of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
6	AW-6	far NE of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
7	AW-7	E of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
8	AW-8	far SE of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
9	AW-9	N of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
10	RW-1	far NE of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
11	RW-2	N of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
12	RW-3	NE of Tank Block	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
13	RW-4	Tank Block – SW	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
14	RW-5	Tank Block – SE	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
15	RW-6	Tank Block – W Ctrl	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
16	RW-7	Tank Block – NW	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
17	RW-8	Tank Block – NE	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
18	RW-9	Tank Block – E Ctrl	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
19	SURFACE WATER	N of Tank Block	QUARTERLY - OBSERVE SURFACE WATER CONDITIONS ADJACENT TO RIPRAP ALONG WHARF J-10 DURING LOW TIDE CONDITIONS. NOTE PRESENCE OR ABSENCE OF SHEEN. IF SHEEN IS PRESENT, ESTIMATE SIZE AND SUBMIT PHOTO DOCUMENTATION.												

Q = Quarterly

1. All groundwater elevation measurements, surface water observations, and groundwater sample collection shall be completed during low tide conditions.
2. All groundwater elevation measurements and surface water observations shall be completed within one hour.
3. Groundwater elevation data shall include actual groundwater elevation referenced to feet above mean sea level.
4. Tide elevation data shall be provided for each monitoring event (beginning and ending tide elevations as well as lowest elevation for the tidal cycle in which sampling occurred).
5. Water samples shall be processed using silica-gel cleanup methods, performed prior to extractable petroleum hydrocarbon analysis only.
6. Submitted data tables shall clearly distinguish between water samples that were processed using silica-gel cleanup and those that were not (e.g., superscript notation next to value).