CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

TENTATIVE ORDER

ADOPTION OF FINAL SITE CLEANUP REQUIREMENTS AND RESCISSION OF ORDER NO. R2-2007-0082 FOR:

CHEVRON PRODUCTS COMPANY
EQUILON ENTERPRISES LLC
OAKLAND FUEL FACILITIES CORPORATION
PS TRADING, INC.
SHELL OIL COMPANY
SWISSPORT FUELING, INC.
SFPP, L.P., an operating partner of KINDER MORGAN ENERGY PARTNERS L.P.
PORT OF OAKLAND

for the property located at

1 EDWARD WHITE WAY
OAKLAND
ALAMEDA COUNTY

also known as

SOUTH FIELD TANK FARM
OAKLAND INTERNATIONAL AIRPORT

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

1. **Site Location:** The approximate seven-acre South Field Tank Farm is located along the southeastern edge of the Oakland International Airport ("Airport") next to the San Francisco Bay ("Bay") in the City of Oakland (Figure 1). The surrounding areas are commercial and industrial.

   The South Field Tank Farm consists of the following sites: 1) one active fuel storage and distribution terminal, referred to as Tank Farm S; 2) one decommissioned terminal referred to as Tank Farm C; 3) one decommissioned terminal referred to as the Humble/PS Trading Tank Farm; and 4) one active fuel transfer station referred to as the SFPP, L.P., Oakland Airport Transfer Station ("Fuel Transfer Station"). Each tank farm and the Fuel Transfer Station are bordered by dikes around stormwater retention basins on at least two sides. Parts of the stormwater retention basins at the South Field Tank Farm also qualify as jurisdictional, non-tidal wetlands under Section 404 of the Clean Water Act. Figure 2 shows

the approximate relationship between the three tank farms, the Fuel Transfer Station, the retention basins, and the Bay**.**

The Bay is adjacent to the main dike that runs along the southern edge of the South Field Tank Farm. Several companies operate petroleum pipelines between the southern edge of the South Field Tank Farm and the Bay. These pipelines are both below grade and above grade between the Fuel Transfer Station, located immediately south of Tank Farm C and the southwest corner of Tank Farm S at Neil Armstrong Way. Several of the pipelines turn north along Neil Armstrong Way and head into Tank Farm S below grade.

2. **Site History:** The Port of Oakland ("Port") owns the land at South Field Tank Farm, and has over time leased land to various oil companies for storage and distribution of fuel to the Airport. During the period of time that the Port has owned the land, several documented releases of fuel have occurred at Tank Farm S, Tank Farm C, Fuel Transfer Station and the Humble/PS Trading Tank Farm.

a. Tank Farm S

Tank Farm S is currently in operation and contains four jet A fuel aboveground storage tanks ("AST") with a combined storage capacity of 2.94 million gallons. Swissport Fueling, Inc. ("Swissport") currently operates Tank Farm S on behalf of Oakland Fuel Facilities Corporation ("OFFC"), which has operated at the South Field Tank Farm since 1989 pursuant to various agreements with the Port. The four jet fuel ASTs have the following capacities: Tank No. 250 – 420,000 gallons; Tank No. 251 – 420,000 gallons; Tank No. 252 – 1,050,000 gallons; and Tank No 253 – 1,050,000 gallons. Piping integral to the tanks is located within the boundaries of Tank Farm S and terminates at an outlet filter area.

Tank Farm S also includes a meter proving rack, a 1,000-gallon double walled AST which stores diesel for use in an emergency generator, an incoming filter bank, with 1,000-gallon and 4,000-gallon cathodically protected underground steel tanks, a 1,600-gallon concrete oil-water separator, and a former outbound pump and filter area. Shell Oil Company ("Shell") operated Tank Farm S when a release of 100,800 to 300,000 gallons of jet A fuel occurred on July 12, 1974. An estimated 84,000 gallons were recovered from behind the containment wall. An estimated 16,800 gallons were recovered from outside the wall. Fueling Maintenance Company ("FMC") was a general partnership that operated Tank Farm S on behalf of the Port between approximately 1983 and 1989 including a period between December 1983 and September 1984 when two spills of jet fuel totaling approximately 39,000 gallons occurred.

The main fuel supply line to Tank Farm S is an active 10-inch line that runs underground along Neil Armstrong Way from the Fuel Transfer Station. There are currently seven active and/or inactive underground fuel pipelines within or adjacent to Tank Farm S along Neil Armstrong Way, including the main supply line. In addition, there is one active aboveground pipeline departing Tank Farm S at its southern boundary which connects Tank Farm S to a main manifold just north of the dike road.

Equilon Enterprises LLC ("Equilon") has owned the Bay Crossing Line, an underground fuel pipeline, since 1998. Equilon deactivated the Bay Crossing Line in January 2003. A portion of the Equilon pipeline appears to be the source of a release of oxygenated gasoline to soil and groundwater within Tank Farm S.

Tank Farm S is scheduled for decommissioning of fuel storage facilities and redevelopment beginning in 2011; the redevelopment of Tank Farm S currently includes construction of administrative facilities, a parking lot, and a maintenance facility in the eastern portion of Tank Farm S ; in the western portion, space would be reserved for potential future fuel storage facilities, should a demand for such facilities occur during the term of the lease between the Port and OFFC which extends through 2027. The redevelopment and remediation of Tank Farm S is planned for completion by the end of 2013.

b. Tank Farm C

Tank Farm C previously contained three out-of-service welded field constructed steel ASTs that were constructed in 1969 by Standard Oil Company, the predecessor to Chevron Products Company ("Chevron"). This site was leased by the Port to Standard Oil Company from 1970 through late 1983, at which time the on-site improvements were sold to the Port.

Tank Farm C and the associated infrastructure were in operation until October 1989 when the tank farm ceased operation due to the Loma Prieta earthquake. All ASTs and associated equipment were removed during site demolition activities in September and October 2007. The three ASTs had the following capacities: Tank No. 1 – 630,000 gallons, Tank No. 2 – 126,000 gallons; and Tank No. 3 – 252,000 gallons. Tank Farm C also contained a 2,500-gallon concrete underground waste sump immediately south of the Tank Farm C secondary containment area and a 1,500-gallon underground storage tank ("UST"), supposedly used for the storage of waste jet A fuel and motor oil. Tank Farm C also contained a number of aboveground and underground fuel lines connecting to the ASTs, a filter system, and a pump pad. There were two underground pipelines on Tank Farm C; one pipeline entered the tank farm from the adjacent Fuel Transfer Station and one pipeline provided outgoing fuel. These pipelines were removed during site demolition activities in September and October 2007, and during supplemental remediation activities in February 2009. Other potential sources of historic contamination are the above-referenced sump, UST, and ASTs.

Tank Farm C is currently being reconstructed as a fuel storage facility with three new 36,000-barrel ASTs, and is expected to be operational in mid-2011.

c. Humble/PS Trading Tank Farm

Until November 2001, when the ASTs and associated appurtenances were removed, the Humble/PS Trading Tank Farm contained two out-of-service steel ASTs. The ASTs were constructed in 1969 and were operational until 1991.

The Port leased this site to the Humble Oil & Refinery Company in about 1970. Thereafter, Exxon Corporation ("Exxon") took over the lease, and in 1980 Exxon assigned the lease to

Pacific Southwest Airlines, a predecessor of PS Trading, Inc. Tank T-20 had a capacity of 300,000 gallons and Tank T-21 had a capacity of 600,000 gallons. The ASTs were inside a secondary containment area. In mid-1998, an internal and external inspection following API Standard 653 was conducted on these ASTs, which identified various deficiencies of the tank system including pitting and corrosion on the tank bottoms. The ASTs were removed from the Humble/PS Trading Tank Farm in 2001 by PS Trading, Inc. There are no known active pipelines on the Humble/PS Trading Tank Farm.

On March 30, 1981, during the operation of this tank farm by FMC, an unknown quantity of jet fuel was lost after a ruptured diaphragm switch allowed fuel to be released. Fuel soaked through the containment berm into a ditch and wetlands. An unknown quantity of spilled fuel and water was recovered by vacuum truck.

In June 2006, PS Trading, Inc. entered into bankruptcy proceedings and is no longer participating in the remediation of the Humble/PS Trading Tank Farm. There are no current plans by the Port for development of the Humble/PS Trading Tank Farm, except possibly as a parking lot.

d. SFPP, L.P., Oakland Airport Transfer Station

SFPP, L.P., an operating partner of Kinder Morgan Energy Partners L.P. ("KMEP") has operated the Fuel Transfer Station since the 1970s. It currently contains two active fuel pipelines: One 12-inch dedicated jet fuel line from Richmond to Brisbane, with a 10-inch active tie-in branch to Tank Farm S; and one 10-inch multi-product fuel line from Richmond to Brisbane. The latter 10-inch line has an unused inactive tie-in to an additional 10-inch line located on the Fuel Transfer Station. This additional line was formerly owned and operated by Equilon, an operational partner of Shell, until 2003, and was used to transfer fuel to Equilon's South San Francisco facility. The Fuel Transfer Station also contains a fuel filter area and a sump tank.

One known release of turbine oil was reported at the Fuel Transfer Station on May 9, 2003. The release occurred at an aboveground flange of a block valve, and involved an estimated one gallon of oil. Impacts associated with this and other presumed unknown releases to soil and groundwater are addressed in investigation reports by KMEP in 2003, 2004, and 2007, following discovery of groundwater impacts at the boundary between Tank Farm C and the Fuel Transfer Station by Chevron in 2002. In addition, in 2007, during the implementation of the interim remedial action on Tank Farm C, free product was observed emanating from the soil excavation sidewall adjacent to the Fuel Transfer Station, near the location of a removed fuel pipeline extending from the Fuel Transfer Station to a filter bank on Tank Farm C.

3. Named Dischargers: The following named parties are collectively referred to as the Dischargers:

- Chevron Products Company is named as a Discharger because of substantial evidence that it discharged pollutants to soil and groundwater at Tank Farm C, including its use of petroleum hydrocarbons in operation of Tank Farm C and the presence of the same pollutants in soil and groundwater beneath Tank Farm C.

- Equilon Enterprises, LLC ("Equilon") is named as a Discharger because of substantial evidence that it discharged pollutants to soil and groundwater, including its use and transfer of oxygenated gasoline in operation of the Bay Crossing Line and the presence of the same pollutants in soil and groundwater beneath Tank Farm S.

- Oakland Fuel Facilities Corporation ("OFFC") is named as a Discharger because of substantial evidence that it discharged pollutants to soil and groundwater, including its use of jet fuel in operation of jet fuel terminal facilities at Tank Farm S and the presence of the same pollutants in soil and groundwater beneath Tank Farm S.

- PS Trading, Inc. is named as a Discharger because of substantial evidence that it discharged pollutants to soil and groundwater, including its use of jet fuels in operation of the Humble/PS Trading Tank Farm and the presence of the same pollutants in soil and groundwater beneath the Humble/PS Trading Tank Farm.

- Shell Oil Company ("Shell") is named as a Discharger because of substantial evidence that it discharged pollutants to soil and groundwater, including its use of jet A fuel in its operation of Tank Farm S and the presence of the same pollutants in soil and groundwater beneath Tank Farm S and because of Shell's acquisition of full ownership of Equilon in 2002; substantial evidence indicates that facilities owned by Shell and Equilon discharged pollutants to soil and groundwater.

- Swissport Fueling, Inc. ("Swissport") is named as a Discharger because of substantial evidence that it (or its predecessor) discharged pollutants to soil and groundwater, including its use of jet A fuel in its operation of Tank Farm S and the presence of the same pollutants in soil and groundwater beneath Tank Farm S.

- SFPP, L.P., an operating partner of Kinder Morgan Energy Partners, L.P. ("KMEP") is named a Discharger because of substantial evidence that it discharged pollutants to soil and groundwater, including its use of jet fuel and gasoline in its operation of two active fuel pipelines across the Fuel Transfer Station and the presence of the same pollutants in soil and groundwater beneath the Fuel Transfer Station.

- The Port of Oakland ("Port") is named as a Discharger because it owned the South Field Tank Farm property during and after the time of the activities that resulted in the discharges, has knowledge of the discharges and the activities that caused the discharges, and has the legal ability to prevent the discharge.

If additional information is submitted indicating that other parties caused or permitted any waste to be discharged on the South Field Tank Farm where it entered or could have entered

waters of the state, the Regional Water Board will consider adding those parties' names to this order.

4. **Regulatory Status**: This site was subject to the following Regional Water Board orders:

   - Cleanup and Abatement Order No. 99-103 adopted in November 1999.
   - Site Cleanup Requirements (Order No. R2-2002-0013) adopted in January 2002.
   - Site Cleanup Requirements (Order No. R2-2007-0082) adopted in November 2007.

5. **Site Hydrogeology:** The South Field Tank Farm is located in an area that was part of the Bay until between 1957 and 1961 when a perimeter dike was constructed and the area behind the dike was filled. This perimeter dike surrounds the entire Airport and prevents the Bay from inundating the area during high tide. The initial hydraulic fill was placed using sand and silt pumped in from an offshore location approximately one-half mile north of the Airport. The fill material for major structure foundations, roadways, and the Airport runways was brought in and placed as dry aggregate base (i.e., engineered and compacted). The thickness of the fill material underlying the three tank farms and fuel transfer station varies from approximately five to slightly greater than ten feet. Native clay, also known as Young Bay Mud, with inter-bedded sand zones is present beneath the engineered fill and hydraulic fill. The Young Bay Mud beneath the fill forms a major aquitard between the shallow and deeper water-bearing zones in the South Field Tank Farm.

   Shallow groundwater present within the fill materials occurs as a perched water zone within the relatively permeable fill material above the lower permeability Young Bay Mud. Groundwater typically occurs within the fill at depths ranging from two to seven feet below ground surface. Groundwater flow direction in this shallow perched zone is difficult to determine due to the engineered fill and underground pipelines in the area and variations due to seasonal rainfall events. The groundwater appears to flow from the elevated fill towards the stormwater retention basins around the South Field Tank Farm (i.e., not toward the Bay). This flow pattern resembles the ground surface elevation following initial fill placement. During the summer and fall months, the stormwater retention basins are dry. During the winter months, rainfall inundates the surface water retention basins within the diked area adjacent to the South Field Tank Farm.

   A drainage channel that runs along the inside of the perimeter dike directs surface water within the diked area to Pump House #4, which is located approximately 200 yards to the west of the South Field Tank Farm and from which the surface water is periodically pumped over the dike and into the Bay. The groundwater elevation within the core of the perimeter dike is several feet higher than that observed at the South Field Tank Farm, demonstrating that groundwater in the South Field Tank Farm does not flow toward the Bay.

6. **Remedial Investigations:** The Port submitted a soil and groundwater investigation report for the South Field Tank Farm dated November 16, 1998, which summarized previous investigations. This report indicated that jet fuel releases had occurred at Tank Farm S, Tank Farm C, and the Humble/PS Trading Tank Farm. The Port submitted a data report dated July 23, 2001, summarizing all historical soil and groundwater analytical data

associated with jet fuel releases at Tank Farm S. Subsequent remedial investigations in the South Field Tank Farm area have been conducted by the Port and certain of the Dischargers, as described below.

a. Tank Farm S

Soil. More than one hundred soil samples have been collected from over one hundred soil borings and groundwater monitoring wells on and in the vicinity of Tank Farm S during remedial investigations since 1996. The soil samples were analyzed for Total Petroleum Hydrocarbons ("TPH") as jet A fuel and a smaller subset of samples were analyzed for gasoline, benzene, toluene, ethylbenzene, and xylenes ("BTEX"), methyl tert-butyl ether ("MTBE"), and polyaromatic hydrocarbons ("PAHs"). Elevated concentrations of jet A fuel have been present in soils beneath the secondary containment area for the ASTs with the highest concentration downgradient of the secondary containment area (9,840 mg/kg; above the Regional Water Board's 2008 Tier 1 commercial Environmental Screening Levels, where groundwater is not a source of drinking water ["ESLs"]). Oxygenated gasoline constituents were not detected in soils within the secondary containment area. Since the initiation of subsurface characterization activities, the highest concentrations of TPH as gasoline, BTEX, and MTBE have been identified and appears to be limited to the center of the site (maxima of 6,620 mg/kg TPH as gasoline, 54 mg/kg MTBE, 5.6 mg/kg benzene, 9.2 mg/kg toluene, 31 mg/kg ethylbenzene, and 110 mg/kg xylenes; all but the toluene concentrations were above the ESLs).

The past investigations and Interim Remedial Action Plan ("IRAP") implementation report have defined the extent of soil contamination on the site (please refer to Section 7 (a) for a discussion of the interim remedial measures). Future potential decommissioning of on-site facilities may identify further soil contamination.

Groundwater. On and adjacent to Tank Farm S, 31 groundwater monitoring wells have been installed since 1998. Three interim extraction sumps were installed in the backfill of the three excavations completed as part of the IRAP in January 2004. Twenty-eight monitoring wells have been monitored quarterly, semi-annually, or annually for water levels and/or water quality since 2001 and the extraction sumps have been monitored since installation in 2004. Water level measurements and analyses for jet A fuel and/or gasoline, BTEX, and MTBE have been conducted as part of the quarterly monitoring program. A limited number of groundwater samples have been analyzed for PAHs, total dissolved solids ("TDS") and geochemical parameters including nitrates, sulfates, dissolved iron, dissolved manganese, dissolved carbon dioxide, dissolved methane, and total alkalinity.

Dissolved phase petroleum hydrocarbons are currently present in the groundwater in areas beneath and downgradient of Tank Farm S, and free-phase hydrocarbons and/or sheen has periodically been observed in a limited number of wells. The maximum concentrations of dissolved petroleum hydrocarbons detected in wells on Tank Farm S since 1998 are as follows: TPH as jet A fuel (1,100,000 µg/L), TPH as gasoline (50,000 µg/L), MTBE (110,000 µg/L), benzene (2,300 µg/L), toluene (9,500 µg/L), ethylbenzene (2,000 µg/L), and xylenes (7,200 µg/L); all above ESLs. In September 2001, the maximum free product

thickness at Tank Farm S was 0.44 feet at MW-1. In October 2009, the maximum concentrations of dissolved petroleum hydrocarbons were as follows: TPH as jet A fuel 74,000 µg/L (in MW-18), TPH as gasoline was 9,400 µg/L (in MW-17), benzene 130 µg/L (in MW-18), ethylbenzene 30 µg/L (in WP-3), xylenes were 18 µg/L (in WP-3), and MTBE 53 µg/L (in WP-3); TPH as jet A fuel, TPH as gasoline, and benzene exceeded ESLs. In October 2009, toluene showed non-detect in all samples, typically less than 0.5 µg/L. Free product was measured in MW-1 in October 2009 at 0.15 foot and sheens of TPH were noticed in MW-17 and MW-18.

The horizontal and vertical extent of groundwater contamination has been defined at and around Tank Farm S during past groundwater investigations and IRAP implementation. Future potential decommissioning of facilities may identify further groundwater contamination.

Stormwater. Between the late 1960s and March 1998, an unlined retention pond adjacent to the southwest side of Tank Farm S served as additional secondary containment for stormwater. This pond is separated from a stormwater retention basin by an earthen dike, which historically contained three open culverts that allowed the contents of the pond to flow into the stormwater retention basin. Stormwater or spilled product contained within the concrete containment walls of Tank Farm S was allowed to collect in four small underground sumps connected to the retention pond by a central underground pipeline. The pipeline between the sumps and retention pond was disconnected by the Port in 1998. Swissport has treated storm water since then and discharges it to the sanitary sewer under a permit with the East Bay Municipal Utility District.

In February 1998, Regional Water Board staff collected surface water samples from the retention pond noting a strong petroleum odor and a sheen on the surface of the retention pond as well as distinct globules of an oily substance in the sample. The Regional Water Board's contract lab reported 5,900 mg/L TPH as diesel and 72 mg/kg TPH as gasoline. Shallow soil samples collected in the retention pond bottom in July 1998 contained up to 6,200 mg/kg TPH as jet A fuel. OFFC has routinely sampled and analyzed water accumulated in the retention pond at monitoring point SW-3, when water is available. The maximum concentration of TPH as jet A of 1,400 ug/L occurred in 2003, but every sample since then (at least 13 consecutive results) has been non-detect, The extent of TPH as jet A fuel in the retention pond vicinity appears limited as evidenced by the concentrations of TPH as jet A fuel to the east (140 mg/kg) and west (7.3 mg/kg). As evidenced by the low concentrations in surface water samples, any remaining soil impacts have most likely attenuated, and the retention pond no longer acts as a source area.

Surface Water. Surface water has been collected from surface water monitoring locations since 2001 adjacent to Tank Farm S. Two locations are in the stormwater retention pond southeast of Tank Farm S and one location is in a stormwater retention basin west of Tank Farm S. Up to 1,400 µg/L of petroleum hydrocarbons have been detected in the surface water (in 2003 in the southeastern retention pond). From November 2007 through October 2009, no petroleum or related compounds have been detected above the laboratory reporting limits in any of the surface water monitoring locations.

b. Tank Farm C

Soil. During remedial investigations conducted by Chevron since 1996, more than 125 soil samples were collected from excavation sidewalls and bottom, bore holes and groundwater monitoring well locations. The samples were analyzed for TPH as jet A fuel, BTEX, MTBE, other TPHs and some samples were also selectively analyzed for PAHs and polychlorinated biphenyls ("PCBs"). The majority of the samples were collected from fill from depths less than ten feet below ground surface; about ten samples were collected from underlying Bay Mud. More than 20 samples contained TPH as jet A fuel above 500 mg/kg and up to 6,500 mg/kg; all these concentrations are above ESLs. Deeper soil samples did not contain TPH as jet A fuel above laboratory reporting limits, except for two samples (at 8.8 and 8 mg/kg). BTEX and MTBE concentrations did not exceed ESLs; neither did the limited samples analyzed for PAHs and PCBs.

The extent of soil contamination has been defined at and around Tank Farm C during the remedial investigations, decommissioning of ASTs, the UST, sump, and pipelines in 2007, and subsequent additional soil and groundwater investigations following IRAP implementation. Residual contamination in the shallow soil above ESLs north of and outside of the IRAP excavation area include up to 1,900 mg/kg of TPH as jet A fuel (C-13) and 2,700 mg/kg of TPH as gasoline (C-13).

Groundwater. The remedial investigations included the installation of nine groundwater monitoring wells installed in the fill, above the Bay Mud. Three deeper groundwater monitoring wells were installed in 1998. The nine shallow and three deeper monitoring wells were sampled and analyzed for TPH, TPH as jet A fuel, BTEX, and MTBE in 2002. In the deeper wells, only TPH as jet A fuel was identified above laboratory reporting limits at a concentration up to 120 µg/L. In the shallow wells, up to 3,900 µg/L of TPH as jet A fuel was identified in monitoring well C-2. Quarterly and semi-annual groundwater monitoring has continued since the remedial investigation. During the second quarterly monitoring event in 2007, the maximum TPH as jet A fuel concentration was 13,000 µg/L (monitoring well C-2). The groundwater concentration of TPH as jet A fuel was above the ESL.

Groundwater contamination has been defined on and around Tank Farm C during past investigations. Following the IRAP implementation in 2007 and prior to redevelopment activities of Tank Farm C, Chevron abandoned on-site monitoring wells and in 2009 replaced three monitoring wells along the Fuel Transfer Station and Tank Farm C boundary. Groundwater samples collected in October 2009 from the three replacement wells contained TPH as jet A fuel up to 97,000 µg/L (MW-13) and TPH as gasoline up to 6,600 µg/L (MW-13); these concentrations were above ESLs.

c. Humble/PS Trading Tank Farm

Soil. A remedial investigation was conducted in 2002 by PS Trading, Inc. As part of that investigation, about 62 soil samples were collected from depths up to 12 feet below ground surface; most of the samples were collected from fill, which varies in thickness, but has been found at up to ten feet. The samples were analyzed for TPH as jet A fuel, BTEX, and

selectively for PCBs. Eleven samples had TPH as jet A fuel concentration above 500 mg/kg (up to 16,000 mg/kg); these concentrations were above ESLs. About six samples had xylenes concentrations above the ESLs. At about five locations, PCB concentrations exceeded the ESLs. Soil contamination has been defined through past soil investigations and IRAP implementation activities.

Groundwater. During the remedial investigation, ten groundwater monitoring wells were installed at the Humble/PS Trading Tank Farm. The wells were sampled and the samples analyzed for TPH as jet A fuel and BTEX. Two wells contained TPH as jet A fuel concentrations above 500 µg/L (up to 2,700 µg/L). Subsequent to the remedial investigation, quarterly groundwater monitoring activities have been undertaken by PS Trading, Inc., until the second quarter of 2006 when PS Trading, Inc., entered into bankruptcy proceedings. The Port resumed quarterly groundwater monitoring in the third quarter of 2007. In the second quarter of 2006, jet A fuel was identified in two monitoring wells (HPMW-6 and 7) at a concentration of up to 190 µg/L. PCBs had previously been detected in monitoring well HPMW-6 (up to 3.5 µg/L of Aroclor1254 in 2005), but were not identified in 2006 after sampling techniques were changed to remove turbidity. Groundwater contaminants at the Humble/PS Trading Tank Farm do not exceed ESLs for groundwater which assumes discharges to estuarine or marine surface waters. Groundwater contamination has been defined through past investigations.

Surface Water. There are four surface water monitoring locations around the Humble/PS Trading Tank Farm. Three of the locations have been dry since initiation of sampling. The fourth surface water sampling location (SMP-1) was sampled in 2002 and 2005 for jet A fuel and once for BTEX. No compounds have been identified above laboratory reporting limits from the surface water sampling locations.

d. Fuel Transfer Station

Soil. In 2003 and 2004, KMEP conducted remedial investigations on the Fuel Transfer Station. Soil samples were collected from 17 borings and five monitoring wells from various depths, up to 33.5 feet below ground surface. The highest concentration of TPH as jet A fuel was identified in a saturated soil sample collected at a depth of nine feet below ground surface at a concentration of 3,000 mg/kg near the northwestern corner of the Fuel Transfer Station (MW-3). BTEX were not identified in any of the soil samples above laboratory reporting limits. MTBE was identified in a limited number of samples (up to 20 mg/kg) near the center of the Fuel Transfer Station. In 2006, soil samples were collected from two additional groundwater monitoring wells (MW-6 and MW-7) installed by KMEP. Only one of the soil samples collected from these well borings was reported to contain detectable levels of TPH as jet A fuel at a concentration of 270 mg/kg (MW-7) at a depth of five feet below ground surface. The TPH as jet A fuel and gasoline concentrations in soil exceeded the ESLs. Chevron and KMEP performed a joint soil gas survey in June 2007. The results of the joint soil gas survey identified soil contamination at the Fuel Transfer Station and the adjacent Tank Farm C.

In 2009, soil samples were collected by consultants for OFFC in the easement area north of the SFPP easement area (i.e., along the boundary between the KMEP fuel transfer station

and Tank Farm C); the sampling locations included an area near a pipeline formerly used to transfer fuel from the Fuel Transfer Station to Tank Farm C. Following removal of soil near the inactive pipeline and the removal of the pipeline segment, residual contamination was reported along the Fuel Transfer Station and Tank Farm C boundary in saturated soil samples at concentrations up to 7,600 mg/kg of TPH as jet A fuel and 6,100 mg/kg of TPH as diesel (TFC-11) at a depth of 9.5 feet below ground surface.

The extent of soil contamination has been sufficiently defined on the Fuel Transfer Station through the past remedial investigations and post-IRAP sampling activities.

Groundwater. TPH as jet A fuel, gasoline, MTBE, and BTEX were identified in groundwater samples from geoprobes and monitoring wells installed in 2003, 2004, 2006, and 2009. Site characterization activities in 2003 and 2004 by KMEP identified contamination in grab groundwater samples with TPH as jet A fuel (up to 3,600,000 µg/L); TPH as gasoline (up to 13,000 µg/L, SB-15); MTBE (up to 280 µg/L, SB-7); and BTEX (up to 93 µg/L of benzene, SB-18). The Fuel Transfer Station contains eight groundwater monitoring wells, plus three performance monitoring wells installed downgradient of a permeable reactive barrier ("PRB") installed in 2009 as part of an interim remedial action, and two monitoring wells within permeable portions of the PRB. The highest reported concentrations from the groundwater and performance monitoring well network in 2009 and 2010 were 32,000 µg/L jet A fuel (PMW-1), 4,600 µg/L gasoline (MW-4), 130 µg/L MTBE (PMW-1), 3.7 µg/L benzene (MW-4), 110 µg/L toluene (MW-4), ethylbenzene 47 µg/L, and 630 µg/L xylenes (MW-4). The TPH as jet A fuel and gasoline, ethylbenzene, and xylenes concentrations are above ESLs.

The extent of groundwater contamination has been sufficiently defined on the Fuel Transfer Station through the past remedial investigations and post-IRAP activities.

7. Interim Remedial Measures: Interim remedial measures were implemented at each of the three tank farms and the Fuel Transfer Station from 2003 to 2009, as described below.

a. Tank Farm S

Soil. In 2003, an approved IRAP was implemented at Tank Farm S by OFFC and Shell, as documented in an IRAP Implementation Plan by OFFC and Shell. As part of the interim remedial action, Shell removed about 144 cubic yards of contaminated soil from three small areas (EX-1, EX-2 and EX-3) in the northwestern portion of Tank Farm S where the highest concentrations of soil contamination had been previously identified. The excavations were backfilled with clean imported soil and in each excavation area and an extraction sump was installed in the backfill. The ranges of residual soil contamination detected within the excavations was reported as follows: 120 to 2,500 mg/kg of TPH as jet fuel, 0.7 to 560 mg/kg of TPH as gasoline, 0.38 to 1.6 mg/kg of benzene, 1.0 to11 mg/kg of ethylbenzene, 1.1 to 49 mg/kg of total xylenes, and 0.4 to 21 mg/kg of MTBE. In addition, visual observations indicated soil staining in excavation walls and free product on groundwater in the excavations. The residual concentrations of TPH as jet fuel and gasoline, MTBE, benzene, and xylenes exceeded the ESLs.

Groundwater. As part of the IRAP implementation, contaminated groundwater was removed by Shell and OFFC from the three backfill extraction sumps intermittently, and free product and contaminated groundwater from other on-site wells using vacuum truck and/or absorbent socks. Approximately 221,800 gallons of groundwater were extracted from the interim extraction sumps. The groundwater extraction from the sumps was discontinued in November 2006. Vacuum truck extraction is on-going.

Stormwater. The Port plugged three culvert outlets to the retention pond in March 1998. Since December 1999, Tank Farm S has been operating an on-site granulated active carbon treatment system to treat stormwater from the secondary containment area and process water (tank draw-off water, wash water, etc.) generated during routine fuel terminal operations. After on-site treatment, the effluent is discharged to the sanitary sewer under a permit from the East Bay Municipal Utility District ("EBMUD").

b. Tank Farm C

Soil. OFFC removed existing ASTs, associated piping, the filter bank, and pump pad in September and October 2007 in support of reconfiguration of Tank Farm C. After completion of the AST closure activities by OFFC in October 2007, Chevron implemented the approved IRAP and its addendum in November 2007.

In November 2007, Chevron excavated about 2,030 tons of soil from the southwestern portion of Tank Farm C. The purpose of the soil removal was to remove soil contaminated with jet A fuel above 500 mg/kg. Soil was removed until Young Bay Mud was encountered, generally at a depth of 8 feet below the ground surface. Following soil excavation, 28 sidewall conformation samples and 15 samples from the bottom of the excavation were collected. In the southern portion of the excavation near the Fuel Transfer Station, free product was emanating from the sidewalls near a jet A fuel pipeline which formerly conveyed fuel from the Fuel Transfer Station to Tank Farm C. Up to 1,400 mg/kg of TPH as jet A fuel, above the ESL, were identified in the southern portion of the excavation where further excavation could not occur due to encroachment on an adjacent pipeline easement. An additional excavation was conducted in 2009 by contractors for OFFC during which time additional impacted soil and the remaining segment of the jet A fuel pipeline were removed.

c. Humble/PS Trading Tank Farm

PS Trading, Inc. began demolition of the Humble/PS Trading Tank Farm in November 2001. PS Trading, Inc. implemented interim remediation at the Humble/PS Trading Tank Farm in 2004 in accordance with an approved IRAP, dated September 2003. The interim remediation resulted in the removal of about 3,685 tons of soil. The purpose of soil removal was to remove soil contaminated with jet A fuel above 500 mg/kg and PCBs above 0.74 mg/kg. Residual contaminant concentrations in the soil in the upper seven feet of the excavations met these cleanup goals. Below a depth of seven feet, confirmation sampling indicated residual PCB concentration up to 3.4 mg/kg and jet A fuel up to 4,600 mg/kg.

d. Fuel Transfer Station

KMEP removed approximately two cubic yards of turbine oil-impacted soil from the Fuel Transfer Station and transported it off-site for disposal in May 2003, and submitted a revised IRAP in October 2008. In 2009, KMEP implemented an approved IRAP. The interim remedial action consisted of the construction of an approximately 200-foot long PRB with two 20-foot long permeable sand gates along the boundary between the Fuel Transfer Station and Tank Farm C. The purpose of the PRB is to treat contaminated groundwater that may migrate through the boundary between the Fuel Transfer Station and the former Tank Farm C. The PRB consists of a mixture of soil, bentonite, and cement installed in overlapping vertical columns to a depth of about 12 feet below ground surface and keyed into Bay Mud, which serves as a vertical migration barrier to groundwater. Within each of the two sand gates, two biosparge points were installed and plumbed to an air sparge blower. The air sparging system has been operating continuously since July 2009. It is monitored and adjusted, as necessary, on a monthly basis. Three performance monitoring wells are located north of the PRB and two performance monitoring wells are located within the sand gates.

8. Risk Assessment: Screening level risk evaluations were carried out for each of the tank farms and the Fuel Transfer Station.

a. Screening Levels

Tank Farm S, Tank Farm C, Humble/PS Trading Tank Farm, and Fuel Transfer Station. A screening level risk evaluation was carried out to evaluate potential environmental concerns related to identified soil and groundwater impacts. Chemicals evaluated in the screening evaluation for all tank farms and the Fuel Transfer Station included TPH as jet A fuel, TPH as gasoline, BTEX, and/or MTBE; PCBs were included for Humble/PS Trading Tank Farm. These are the primary chemicals of concern identified at the South Field Tank Farm.

As part of the screening evaluation, South Field Tank Farm data were compared to environmental screening levels (ESLs) compiled by Regional Water Board staff. The presence of chemicals at concentrations above the ESLs indicates that additional evaluation of potential threats to human health and the environment is warranted. Screening levels for groundwater address the following environmental concerns: 1) drinking water impacts (toxicity and taste and odor); 2) impacts to indoor air; and 3) migration and impacts to aquatic habitats. Screening levels for soil address: 1) direct exposure; 2) leaching to groundwater; and 3) nuisance issues. Screening levels for soil gas address impacts to indoor air. Chemical-specific screening levels for other human health concerns (i.e., indoor-air and direct-exposure) are based on a target excess cancer risk of 1×10^{-6} for carcinogens and a target Hazard Quotient of 0.2 for noncarcinogens. Groundwater screening levels for the protection of aquatic habitats are based on promulgated surface water standards (or equivalent). Soil screening levels for potential leaching concerns are intended to prevent impacts to groundwater above target groundwater goals (e.g., effects to aquatic receptors). Soil screening levels for nuisance concerns are intended to address potential odor and other aesthetic issues.

b. Assessment Results

Tank Farm S, Tank Farm C, and Fuel Transfer Station. The Tier 1 screening levels for soil for commercial/industrial land uses and for groundwater that is not considered a source of drinking water were exceeded for contaminants of concern for each facility. The presence of chemicals at concentrations in soil and groundwater above the Tier 1 screening levels indicates that additional evaluation of potential threats to human health and the environment is warranted. The Remedial Action Plans ("RAPs") developed a conceptual site model for each of the facilities and presented site-specific Tier 2 cleanup levels.

Humble/PS Trading Tank Farm. The Tier 1 screening levels for TPH as jet A fuel and PCBs for soil for commercial land uses were exceeded. Groundwater Tier 1 ESLs, where groundwater is not a potential source of drinking water, were not exceeded. The presence of chemicals at concentrations in soil above the Tier 1 screening levels indicates that additional evaluation of potential threats to human health and the environment is warranted. The RAP developed a conceptual site model and presented site-specific Tier 2 cleanup levels.

c. Conclusions

The Dischargers have opted to forego a site-specific Tier 3 risk assessment in favor of the site-specific Tier 2 cleanup criteria presented in the RAPs, and a combination of remediation and risk management measures.

9. **Adjacent Sites**: There are no nearby pollution sites whose contamination or cleanup activities affect the South Field Tank Farm or are affected by pollution from the South Field Tank Farm.

10. **Feasibility Study:** Remediation options were evaluated at each of the three tank farms and the Fuel Transfer Station in the RAPs for each of the facilities. The alternative remedial options were evaluated based on effectiveness, implementability, costs, and protection of human health and the environment.

a. Tank Farm S

Four alternative remedial options were evaluated in the Tank Farm S RAP for soil and groundwater remediation at this site:

- Alternative 1: No Action
- Alternative 2: Monitored Natural Attenuation ("MNA"), Pipeline Removals, Engineering Controls, and Institutional Controls
- Alternative 3: Excavation of Soil Exceeding Tier 2 Risk-Based Cleanup Standards, Free Product Removal, MNA, Pipeline Removals, Engineering Controls, and Institutional Controls
- Alternative 4: Excavation of Soil Exceeding Tier 1 Risk-Based Cleanup Standards

Based on evaluation of these four alternatives, Alternative 3 was selected as the preferred remedial action.

b. Tank Farm C

Because soil excavation had been completed as an interim remedial measure, only two alternative remediation options were further evaluated in the Tank Farm C RAP for soil and groundwater remediation at the site. Chevron considered soil excavation and groundwater extraction and treatment as alternatives, however, these did not pass the initial screening; the final alternatives considered consisted of:

- Alternative 1: MNA, Additional Monitoring Well Installation and Monitoring along the Western Site Boundary, and Institutional Controls
- Alternative 2: Groundwater Monitoring, Additional Monitoring Well Installation and Monitoring along the Western Site Boundary, Augmented Bioremediation, and Institutional Controls

Based on an evaluation of these two alternatives, Alternative 1 was selected as the preferred remedial action.

c. Humble/PS Trading Tank Farm

Four alternative remedial options were evaluated in the Humble/PS Trading Tank Farm RAP for soil remediation at the site:

- Alternative 1: No Action
- Alternative 2: Excavation of Contaminated Soil
- Alternative 3: Bioventing
- Alternative 4: Risk Management with Institutional Controls

Based on an evaluation of these four alternatives, Alternative 4 was selected as the preferred remedial action.

d. Fuel Transfer Station

Three alternative remediation options were evaluated in the Fuel Transfer Station RAP for soil and groundwater remediation at the site:

- Alternative 1: No Action
- Alternative 2: Source Removal ("Hot Spot" Soil Excavation), Engineering Controls, and Institutional Controls
- Alternative 3: PRB Operation and Performance Monitoring, MNA, Engineering Controls, and Institutional Controls

Based on an evaluation of these three alternatives, Alternative 3 was selected as the preferred remedial action.

11. Remedial Action Plans: The RAPs for each of the four facilities, dated June 2010, detail the preferred remedial actions for the four facilities, as summarized below. The preferred remedial actions would be protective of human health and the environment under the continued uses at the South Field Tank Farm.

a. Tank Farm S

The following remedial actions are selected for Tank Farm S: 1) Excavation of Soil Exceeding Tier 2 Risk-Based Cleanup Standards; 2) Free Product Removal; 3) MNA; 4) Pipeline Removals; 5) Engineering Controls; and 6) Institutional Controls.

These remedial actions will be implemented in phases in accordance with the schedule for decommissioning of Tank Farm S. Various components of the remedial actions are proposed to start in 2011 after approval of the RAP and continue through 2013. Prior to Tank Farm S decommissioning activities, free product removal is proposed from a new monitoring well by the southwestern retention pond (location OB-15). Additionally, one new monitoring well west of Tank Farm S (location OB-11) and several surface water monitoring points in the western surface water channel (locations GS-1, GS-2, and GS-3) are proposed to monitor groundwater quality near the adjacent, western surface water channel and to verify protection of the surface water channel. Following decommissioning of existing structures, existing pipelines are proposed for removal where possible and soils exceeding Tier 2 cleanup goals would be excavated. An asphalt surface or a 12-inch layer of clean soil will cover Tank Farm S where soil impacts exceed Tier 1 cleanup standards. New building(s) on-site that are occupied by Swissport personnel on a full-time basis will be constructed with vapor barriers and passive ventilation systems. Monitoring for MNA would be on-going from a monitoring well network. A contingency option such as biosparging or bioventing may be implemented to promote further degradation of contaminants of concern in soil and groundwater. Any construction work on the redeveloped Tank Farm S would be completed in accordance with a Risk Management Plan ("RMP") (also known as a Site Management Plan) to protect human health (including construction workers) and the environment. A deed restriction would be recorded for Tank Farm S prohibiting certain sensitive land uses (i.e., residential, daycare facilities, hospitals, and primary and secondary schools) after redevelopment of Tank Farm S has been completed.

b. Tank Farm C

The following remedial actions are selected for Tank Farm C: 1) MNA; 2) Additional Monitoring Well Installation and Monitoring along the Western Site Boundary; 3) and Institutional Controls.

These remedial actions include the installation of two monitoring wells to confirm plume delineation and monitor the effectiveness of MNA along the western site boundary for

protection of surface waters in the adjacent stormwater retention basin, and one monitoring well along the northern site boundary to confirm plume delineation. On-site monitoring wells would be monitored for MNA to assess the effectiveness of natural attenuation of contaminants of concern in groundwater. Following completion of redevelopment of Tank Farm C (estimated to be mid-2011), future construction on the tank farm would be governed by an RMP for the protection of human health (including construction workers) and the environment. A deed restriction would be recorded for Tank Farm C prohibiting certain sensitive land uses (i.e., residential, daycare facilities, hospitals, and primary and secondary schools) after the redevelopment of Tank Farm C has been completed. Contaminant concentrations in soils on Tank Farm C in the area where occupied buildings are being constructed are minimal and do not require vapor barrier controls.

c. Humble/PS Trading Tank Farm

The remedial action selected for Humble/PS Trading Tank Farm is Risk Management with Institutional Controls.

No further active remediation is proposed for the Humble/PS Trading Tank Farm. Any future construction activities would be in accordance with an RMP for the protection of human health (including construction workers) and a deed restriction would be recorded prohibiting certain sensitive land uses (i.e., residential, daycare facilities, hospitals, and primary and secondary schools).

d. Fuel Transfer Station

The following remedial actions are selected for Fuel Transfer Station: 1) PRB Operation and Performance Monitoring; 2) MNA; 3) Engineering Controls; and 4) Institutional Controls.

Remedial action at the Fuel Transfer Station would include performance monitoring at the PRB and MNA monitoring of the on-site monitoring network. Performance monitoring for the PRB consists of collection of groundwater samples from the three monitoring wells located north of and downgradient of the PRB (PMW-1, PMW-2, and PMW-3) and the two performance monitoring wells located within the sand gates (PMW-4 and PMW-5). In addition, a contingency plan has been prepared for augmenting existing biosparging in the PRB, if warranted, to reach north of the PRB, or to upgrade the treatment process in the sand gates if biosparging does not meet performance goals. This contingency is described in Task 3 of this order. Construction activities on the Fuel Transfer Station would be in accordance with an RMP for the protection of human health (including construction workers) and the environment. A deed restriction would be recorded prohibiting certain sensitive land uses (i.e., residential, daycare facilities, hospitals, and primary and secondary schools).

12. Basis for Cleanup Standards

a. General: State Water 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 must 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. The previously-cited remedial action plans confirm the Regional Water Board's initial conclusion that background levels of water quality cannot be restored cost-effectively. This order and its requirements are consistent with Resolution No. 68-16.

State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

b. Beneficial Uses: The Water Quality Control Plan for the San Francisco Bay Basin ("Basin Plan") is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Board, U.S. EPA, and the Office of Administrative Law where required.

Regional Water Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high total dissolved solids ("TDS"), low yield, or naturally-high contaminant levels. The shallow, affected groundwater underlying and adjacent to the South Field Tank Farm does not qualify as a potential source of drinking water due to high TDS levels (exceeding 3,000 mg/L) and therefore meets the exception criteria.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the South Field Tank Farm:

Industrial process water supply
Industrial service water supply
Agricultural water supply

At present, there is no known use of groundwater underlying the South Field Tank Farm for the above purposes. East Bay Municipal District supplies water to the Oakland International Airport.

The existing and potential beneficial uses of the San Francisco Bay Lower include:

- Water contact and non-contact recreation
- Wildlife habitat
- Fish migration and spawning
- Navigation
- Estuarine habitat
- Shellfish harvesting
- Preservation of rare and endangered species

c. Basis for Surface Water Cleanup Standards: The surface water cleanup standards for the South Field Tank Farm are intended to protect the beneficial uses of adjacent surface water and aquatic receptors. The cleanup standards are based on site cleanup requirements for San Francisco International Airport, Order No. 99-045. Both sites were created by landfilling along the margins of the Bay in the 20th century to support airport operations and at both sites the fill is underlain by Young Bay Mud. The cleanup levels for the San Francisco Airport were developed for the protection of: 1) salt water aquatic receptors such that there would be no acute or significant chronic toxicity affecting the species inhabiting the Bay and 2) humans who may come into contact with or eat the organisms exposed to contaminated water. Therefore, cleanup to this level at the South Field Tank Farm will protect beneficial uses of surface water and will result in acceptable residual risk to humans.

d. Basis for Groundwater Cleanup Standards: The groundwater cleanup standards (Tier 2 Cleanup Standard) for the South Field Tank Farm are based on site-specific conditions to achieve the surface water cleanup standards, which are protective of salt water aquatic habitat and human health. A dilution-attenuation factor (DAF) of 4 was calculated based on observed attenuation of jet fuel from groundwater to surface water at the South Field Tank Farm The groundwater cleanup standard was determined as the lower of: 1) the surface water cleanup standard multiplied by the DAF and 2) the ESL for gross contamination. Cleanup to this level will protect beneficial uses of groundwater and will result in acceptable residual risk to humans.

e. Basis for Soil Cleanup Standards: The soil cleanup standards (Tier 2 Soil Cleanup Standards) for the South Field Tank Farm are intended to prevent leaching of contaminants to groundwater at concentrations that will cause concentrations in groundwater to exceed surface water cleanup standards when discharging to adjacent surface waters. The soil cleanup standard will be protective of aquatic habitat and will, with engineering and institutional controls, result in acceptable residual risk to humans. The Tier 2 soil cleanup standards were calculated by multiplying the Tier 1 soil ESL for leaching to groundwater (ESL Table G) by the ratio of the Tier 2 groundwater cleanup standard to Tier 1 groundwater ESL (ESL Table F-1b). For example the Tier 2 Soil cleanup standard for benzene is calculated as follows:

Tier 2 soil cleanup standard = Tier 1 soil leaching ESL x Tier 2 Groundwater Cleanup Standard

(from Table G) Tier 1 Groundwater ESL (from Table F-1b)

$$= 2 \times \frac{284}{46}$$

$$= 12 \text{ mg/kg}$$

13. **Future Changes to Cleanup Standards**: The goal of this remedial action is to ensure maintenance of beneficial uses of surface waters adjacent to the South Field Tank Farm and to ultimately restore the beneficial uses of groundwater underlying the South Field Tank Farm. Results from other sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation may not be possible. If full restoration of beneficial uses is not technologically or economically achievable within a reasonable period of time, then the Dischargers may request modification to the cleanup standards or establishment of a containment zone, a limited groundwater pollution zone where water quality objectives are exceeded.

14. **Risk Management**: The Regional Water Board considers the following human health risks to be acceptable at remediation sites: a cumulative hazard index of 1.0 or less for non-carcinogens and a cumulative excess cancer risk of 10^{-6} to 10^{-4} or less for carcinogens. The screening level evaluation for the three tank farms and the Fuel Transfer Station found contamination-related risks in excess of these acceptable levels, assuming potential future human exposure to soil and groundwater at the South Field Tank Farm. Active remediation and/or risk management measures will reduce these risks over time. Risk management measures are needed at the South Field Tank Farm to assure protection of human health should future land uses change from the current fuel storage and transfer operations. Risk management measures include engineering controls and institutional controls (such as deed restrictions that prohibit certain sensitive land uses).

The following risk management measures are needed at each of the three tank farms and the Fuel Transfer Station:

a. **Deed Restriction:** A deed restriction that notifies future owners or lessees of subsurface contamination and prohibits certain sensitive uses of the South Field Tank Farm such as residences, hospitals, daycare centers, and primary and secondary schools should be recorded as specified below.

Tank Farm S: Following completion of redevelopment (estimated in 2013).
Tank Farm C: Following completion of redevelopment (estimated in mid-2011).
Humble/PS Trading Tank Farm: Following completion of use of the tank farm as a staging area for Tank Farm C and Tank Farm S redevelopment activities (estimated in 2013).
Fuel Transfer Station: Immediately.

b. **Risk Management Plan:** Implementation of risk management measures in accordance with the RMPs, contained in each of the RAPs.

Tank Farm S: Placement of asphalt or one foot of clean soil on Tank Farm S where soil exceeds Tier 1 cleanup standards and installation of a vapor barrier and passive ventilation system beneath any building designed for full-time human occupancy; soil and groundwater management; dust management; and health and safety provisions for construction workers. To be implemented after redevelopment (estimated in 2013).

Tank Farm C: Soil and groundwater management; installation of a vapor barrier or other vapor controls or vapor sampling for buildings designed for full-time human occupancy located in areas with soils exceeding Tier 1 ESLs cleanup standards; dust management; and health and safety provisions for construction workers. To be implemented after redevelopment (estimated in mid-2011).

Humble/PS Trading Tank Farm: Soil and groundwater management; dust management; and health and safety provisions for construction workers. To be implemented after use of the site as a staging area for Tank Farm C and Tank Farm S redevelopment (estimated in 2013).

Fuel Transfer Station: Soil and groundwater management; dust management; active pipeline monitoring; and health and safety provisions for construction workers. To be implemented immediately.

15. **Reuse or Disposal of Extracted Groundwater**: Regional Water 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.

16. **Basis for 13304 Order**: California Water Code Section 13304 authorizes the Regional Water Board to issue orders requiring a discharger to clean up and abate waste where the discharger has caused or permitted 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 pollution or nuisance.

17. **Cost Recovery**: Pursuant to California Water Code Section 13304, the Dischargers are hereby notified that the Regional Water Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Regional Water 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.

18. **CEQA**: The Regional Water Board, as the lead agency for this project, prepared an Initial Study and Mitigated Negative Declaration that was circulated for public review in compliance with CEQA and applicable regulations. The Regional Water Board finds,

based on substantial evidence in the record, that the project, with appropriate mitigation measures, will have no significant environmental impacts. The Mitigated Negative Declaration was adopted by the Regional Water Board on March 9, 2011.

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

20. **Public Hearing**: The Regional Water Board, at a public meeting, heard and considered all comments pertaining to the discharges.

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

A. **PROHIBITIONS**

1. The discharge of wastes or hazardous substances in a manner which 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 subsurface transport to waters of the State is prohibited.

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

B. **REMEDIAL ACTION PLAN AND CLEANUP STANDARDS**

1. **Implement Remedial Action Plans and Risk Management Plans**: The Dischargers shall implement the RAPs and RMPs described in findings 11 and 14.

2. **Surface Water Cleanup Standards:** The following surface water cleanup standards shall be met in all surface water monitoring points identified in the Self-Monitoring Program:

Constituent	Standard (µg/L)	Basis
TPH as jet A fuel	640	Protection of saltwater aquatic species and humans in contact with or eating aquatic species
TPH as gasoline	3,700	Protection of saltwater aquatic species and humans in contact with or eating aquatic species
Benzene	71	Protection of saltwater aquatic species and humans in contact with or eating aquatic species
Toluene	5,000	Protection of saltwater aquatic species and humans in contact with or eating aquatic species
Ethylbenzene	86	Protection of saltwater aquatic species and humans in contact with or eating aquatic species
Xylenes	2,200	Protection of saltwater aquatic species and humans in contact with or eating aquatic species
MTBE	8,000	Protection of saltwater aquatic species and humans in contact with or eating aquatic species

3. **Groundwater Cleanup Standards**: The following groundwater cleanup standards shall be met in all wells identified in the Self-Monitoring Programs for Tank Farm S, Tank Farm C, and the Fuel Transfer Station:

Constituent	Standard (µg/L)	Basis
TPH as jet A fuel	2,500	Gross contamination
TPH as gasoline	5,000	Gross contamination
Benzene	284	Protection of surface water beneficial uses
Toluene	400	Gross contamination
Ethylbenzene	300	Gross contamination
Xylenes	5,300	Gross contamination
MTBE	1,800	Gross contamination

4. **Soil Cleanup Standards**: The following soil cleanup standards shall be met in all on-site vadose-zone soils at Tank Farm S, Tank Farm C, Humble/PS Trading Tank Farm and the Fuel Transfer Station.

Constituent	Standard (mg/kg)	Basis
TPH as jet A fuel	2,143	Protection of groundwater beneficial uses
TPH as gasoline	4,286	Protection of groundwater beneficial uses
Benzene	12	Protection of groundwater beneficial uses
Toluene	29	Protection of groundwater beneficial uses
Ethylbenzene	33	Protection of groundwater beneficial uses
Xylenes	583	Protection of groundwater beneficial uses
MTBE	8.4	Protection of groundwater beneficial uses

C. **TASKS**

Tank Farm S

Applicability: Equilon, Shell, OFFC, Swissport, and the Port

1. RAP IMPLEMENTATION

COMPLIANCE DATE: December 31, 2013

Submit a technical report acceptable to the Executive Officer documenting completion of soil removal, pipeline removals, free product removal, ground cover installation, construction details of vapor barrier(s) below structures for occupied commercial uses, and abandonment and replacement of groundwater monitoring wells. The technical report shall also document any new contamination that may have been encountered during remediation and the extent of such contamination.

Tank Farm C

Applicability: Chevron and the Port

2. RAP IMPLEMENTATION

COMPLIANCE DATE: October 1, 2013

Submit a technical report acceptable to the Executive Officer documenting completion of monitoring wells installations along the western portion of Tank Farm C and provide recommendation for implementation of additional actions to delineate groundwater contaminant plume, if necessary.

Fuel Transfer Station

Applicability: KMEP and the Port

3. PLAN FOR EXPANDED REMEDIATION SYSTEM EVALUATION

COMPLIANCE DATE: 60 days after exceedance of cleanup standards in two out of four consecutive monitoring events in performance monitoring wells

Submit a plan acceptable to the Executive Officer evaluating the need for installation of an expanded air sparging system associated with the PRB or replacing the treatment technology, as appropriate, if performance monitoring wells show exceedance of cleanup standards during two out of four consecutive monitoring events. If expansion of the air sparging network is deemed appropriate, the plan should describe all significant implementation steps and should include an implementation schedule. Pursuant to the RAPs for the Fuel Transfer Station and for Tank Farm C, KMEP and Chevron will work jointly to expand the air sparging system into the easement area north of the Fuel Transfer Station.

4. IMPLEMENTATION OF EXPANDED REMEDIATION SYSTEM

COMPLIANCE DATE: 90 days after system installation

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 3 workplan. For ongoing

actions, such as air sparging, the report should document system start-up (as opposed to completion) and should present initial results on system effectiveness (e.g., capture zone or area of influence). Proposals for further system expansion or modification may be included in annual reports (see Self-Monitoring Program).

Tasks for All Dischargers

Applicability: Chevron, Shell, KMEP, Swissport, OFFC, Equilon, Humble/PS Trading and the Port.

5. RISK MANAGEMENT PLAN IMPLEMENTATION REPORT

COMPLIANCE DATE: February 28, 2012, and every year thereafter

Submit a technical report acceptable to the Executive Officer documenting implementation of the RMP over the previous 12-month period (or, as applicable, after completion of Tank Farm C and Tank Farm S redevelopment). The report should include a detailed comparison of RMP elements and implementation actions taken. The report should provide a detailed discussion of any instances of implementation actions falling short of RMP requirements, including an assessment of any potential human health or environmental effects resulting from these shortfalls. The report may propose changes to the RMP, although those changes shall not take effect until approved by the Regional Water Board or the Executive Officer.

6. FIVE-YEAR STATUS REPORT

COMPLIANCE DATE: February 28, 2016, and every five years thereafter

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved RAP. The report should include:

a. Summary of effectiveness in controlling contaminant migration and protecting human health and the environment
b. Comparison of contaminant concentration trends with cleanup standards
c. Comparison of anticipated versus actual costs of cleanup activities
d. Performance data (e.g., groundwater volume extracted, chemical mass removed, mass removed per million gallons extracted)
e. Cost effectiveness data (e.g., cost per pound of contaminant removed)
f. Summary of additional investigations (including results) and significant modifications to remediation systems
g. Additional remedial actions proposed to meet cleanup standards (if applicable) including time schedule

If cleanup standards have not been met and are not projected to be met within a reasonable time, the report should assess the technical practicability of meeting cleanup standards and may propose an alternative cleanup strategy.

7. PROPOSED CURTAILMENT

COMPLIANCE DATE: 60 days prior to proposed curtailment

Submit a technical report acceptable to the Executive Officer containing a proposal to curtail remediation. Curtailment includes system closure (e.g., well abandonment), system suspension (e.g., cease treatment system operation), and significant system modification (e.g., closure of individual treatment wells within treatment system network). The report should include the rationale for curtailment. Proposals for final closure should demonstrate that cleanup standards have been met, contaminant concentrations are stable, and contaminant migration potential is minimal.

8. IMPLEMENTATION OF CURTAILMENT

COMPLIANCE DATE: 60 days after Executive Officer approval of Task 7

Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in Task 7.

9. PROPOSED DEED RESTRICTION

COMPLIANCE DATE: 60 days after approval of RAP
or 60 days after Port notifies Executive Officer of completion of Tank Farms C and S redevelopment

Submit a proposed deed restriction acceptable to the Executive Officer whose goal is to limit on-site occupants' exposure to site contaminants. To that end, the deed restriction shall prohibit certain sensitive uses of the site such as residences, hospitals, daycare centers, and primary and secondary schools. The deed restriction shall name the Regional Water Board as a beneficiary and shall anticipate that the Regional Water Board will be a signatory.

10. RECORDATION OF DEED RESTRICTION

COMPLIANCE DATE: 60 days after Executive Officer approval of Task 9

Submit a technical report acceptable to the Executive Officer documenting that the deed restriction has been duly signed by all parties and has been recorded with the appropriate County Recorder. The report shall include a copy of the recorded deed restriction.

11. EVALUATION OF NEW HEALTH CRITERIA

COMPLIANCE DATE: 90 days after required by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating the effect on the approved RAPs of revising one or more cleanup standards in response to revision of drinking water standards, maximum contaminant levels, or other health-based criteria.

12. EVALUATION OF NEW TECHNICAL INFORMATION

COMPLIANCE DATE: 90 days after required by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating new technical information which bears on the approved remedial action plan and cleanup standards for the South Field Tank Farm. In the case of a new cleanup technology, the report should evaluate the technology using the same criteria used in the feasibility study. Such technical reports shall not be required unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved remedial action plan or cleanup standards.

13. DELAYED COMPLIANCE

If the Dischargers are delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the Dischargers shall promptly notify the Executive Officer and the Regional Water Board may consider revision to this Order.

D. **PROVISIONS**

1. **No Nuisance**: 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).

2. **Good Operations and Maintenance**: The Dischargers 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.

3. **Cost Recovery**: The Dischargers shall be liable, pursuant to California Water Code Section 13304, to the Regional Water Board for all reasonable costs actually incurred by the Regional Water 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 sites addressed by this Order are enrolled in a State Water 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 Dischargers over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

4. **Access to Site and Records**: In accordance with California Water Code Section 13267(c), the Dischargers shall permit the Regional Water Board or its authorized representative:

    a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.

    b. Access to copy any records required to be kept under the requirements of this Order.

    c. Inspection of any monitoring or remediation facilities installed in response to this Order.

    d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Dischargers.

5. **Self-Monitoring Program**: The Dischargers shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.

6. **Contractor / Consultant Qualifications**: All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered engineer.

7. **Lab Qualifications**: All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Regional Water 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 Regional Water Board review. This provision does not apply to analyses that can only reasonably be performed on-site (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 agencies:

   a. Port of Oakland

   The Executive Officer may modify this distribution list as needed.

9. **Reporting of Changed Owner or Operator**: The Dischargers shall file a technical report on any changes in site occupancy or ownership associated with the property described in this Order.

10. **Reporting of Hazardous Substance Release**: If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the Dischargers shall report such discharge to the Regional Water Board by calling (510) 622-2369.

    A written report shall be filed with the Regional Water Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

    This reporting is in addition to reporting to the California Emergency Management Agency ("Cal EMA") required pursuant to the Health and Safety Code.

11. **Rescission of Existing Order**: This Order supersedes and rescinds Regional Water Board Order No. R2-2007-0082.

12. **Periodic SCR Review**: The Regional Water Board will review this Order periodically and may revise it when necessary. The property owner may also request that the Regional Water Board review or revise this Order if the South

Field Tank Farm or portions thereof would no longer be used for fuel storage or fuel transfer.

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 _____.

_____
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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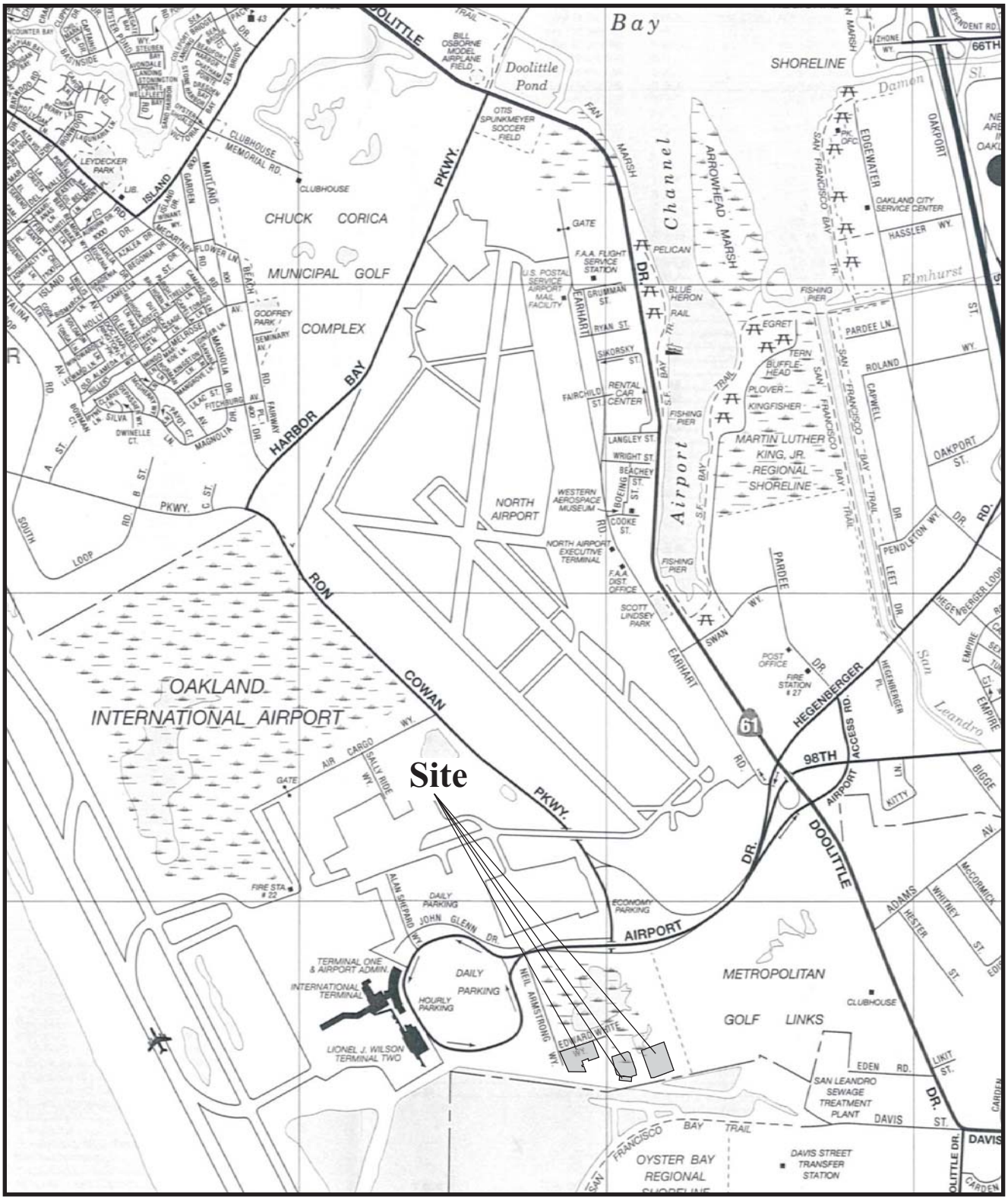
Attachments:
Site Map
Self-Monitoring Program

SITE LOCATION MAP

Figure 1



South Field Tank Farm
Oakland International Airport
Oakland, California

0 2000 Feet

BASELINE

Y5315-01.Fig1.cdr 8/10/07

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

CHEVRON PRODUCTS COMPANY
EQUILON ENTERPRISES LLC
OAKLAND FUEL FACILITIES CORPORATION
PS TRADING, INC.
SHELL OIL COMPANY
SWISSPORT FUELING, INC.
SFPP, L.P., an operating partner of KINDER MORGAN ENERGY PARTNERS L.P.
PORT OF OAKLAND

for the property located at

1 EDWARD WHITE WAY
OAKLAND
ALAMEDA COUNTY

also known as

SOUTH FIELD TANK FARM
OAKLAND INTERNATIONAL AIRPORT

1. **Authority and Purpose**: The Regional Water Board requires the technical reports identified in this Self-Monitoring Program pursuant to California Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Regional Water Board Order No. R2-2011-*XX-XXX* ("Site Cleanup Requirements").

2. **Monitoring**: The dischargers (as applicable) shall measure groundwater elevations in monitoring wells, and shall collect and analyze representative samples of groundwater and surface water bodies according to the schedules below.

   The Dischargers (as applicable) shall sample any new monitoring wells or extraction wells and analyze groundwater samples for the same constituents as shown in the monitoring schedules. The Dischargers (as applicable) may propose changes in the monitoring schedules; any proposed schedules are subject to the Executive Officer approval.

Tank Farm S Monitoring Schedule.
Applicability: Equilon, Shell, OFFC, Swissport, and the Port

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
MW-1	Semi-Annually Annually	TPHj TPHg, BTEX, MTBE, PAHs	E-1	Semi-Annually	TPHj, TPHg, BTEX, MTBE
MW-2	Annually	TPHj, TPHg, BTEX, MTBE	E-2	Semi-Annually Annually	TPHj, TPHg, BTEX, MTBE MNA Suite *
MW-3	Annually	TPHj, MNA Suite*	E-3	Annually	TPHg, BTEX, MTBE, MNA Suite*
MW-5	Annually	TPHj	E-7	Semi-Annually	TPHj, TPHg, BTEX, MTBE
MW-15	Semi-Annually Annually	TPHj PAHs	OGP-1	Semi-Annually	TPHj
MW-16	Semi-Annually Annually	TPHj TPHg, BTEX, MTBE	OGP-2	Semi-Annually Annually	TPHj TPHg, BTEX, MTBE
MW-17	Semi-Annually Annually	TPHj TPHg, BTEX, MTBE	EX-1	Semi-Annually	TPHj, TPHg, BTEX, MTBE, MNA Suite*
MW-18	Semi-Annually Annually	TPHj TPHg, BTEX, MTBE	EX-2	Semi-Annually	TPHj, TPHg, BTEX, MTBE
MW-19	Annually	TPHj	EX-3	Semi-Annually	TPHj, TPHg, BTEX, MTBE

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
SW-1 [+]	Semi-Annually	TPHj, TPHg, BTEX, MTBE	WP-2R	Annually	TPHg, BTEX, MTBE, MNA Suite[*]
SW-2 [+]	Semi-Annually	TPHj	WP-3	Semi-Annually	TPHj, TPHg, BTEX, MTBE, MNA Suite[*]
SW-3 [+]	Semi-Annually	TPHj			

Tank Farm S Monitoring Schedule Notes:

* MNA suite includes Nitrates, Sulfates, Dissolved Iron (or Iron [II]), Dissolved Manganese (or Manganese [II]), Dissolved Carbon Dioxide, Dissolved Methane, and Total Alkalinity

1. Measure groundwater elevation semi-annually in all wells and surface water monitoring locations.
2. Measure thickness of free product in wells that contain free product or sheen. These wells will not be sampled; analytical data from such wells do not represent dissolved concentrations.
3. Measure Dissolved Oxygen, Oxidation-Reduction Potential, pH, Temperature, Turbidity, and Conductivity at wells when collecting a laboratory sample.
4. Ten monitoring wells (EX-1, EX-2, EX-3, MW-1, MW-2, MW-17, MW-18, OGP-1, OGP-2 and WP-3) would be abandoned during soil remediation and underground pipeline removal. Approximately eight new temporary monitoring wells and three new surface water monitoring points would be installed to evaluate the appropriate coverage for the MNA well network and to verify that the west retention basin is sufficiently protected. After evaluation of the new temporary and permanent wells, the SMP for Tank Farm S will be updated to reflect the fixed array of monitoring well locations.

[+] SW-1, SW-2 and SW-3 are surface water sampling points.

Tank Farm C Monitoring Schedule.
Applicability: Chevron and the Port

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
C-11	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*	C-14	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*
C-12	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*	C-15	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*
C-13	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*	C-16	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*

Tank Farm C Monitoring Schedule Notes:

*MNA suite includes: Nitrates, Sulfates, Dissolved Iron (or Iron [II]), Dissolved Manganese (or Manganese [II]), Dissolved Carbon Dioxide, Dissolved Methane, and Total Alkalinity

1. Measure groundwater elevation semi-annually in all wells and surface water monitoring locations.
2. Measure thickness of free product in wells that contain free product or sheen. These wells will not be sampled; analytical data from such wells do not represent dissolved concentrations.
3. Measure Dissolved Oxygen, Oxidation-Reduction Potential, pH, Temperature, Turbidity, and Conductivity at wells when collecting a laboratory sample.
4. Groundwater samples are to be collected using a low flow purge and sample method in which wells are pumped at a constant flow rate that is slow enough to prevent drawdown in the well, if possible. During implementation of the low flow purge and sampling, the above indicated field parameters will be measured every three to five minutes until, at a minimum, temperature stabilizes within 10% and pH stabilizes within 0.1 units for three consecutive readings. The laboratory sample is then to be collected using the same flow rate established for purging.

Fuel Transfer Station Monitoring Schedule.
Applicability: KMEP and the Port

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
MW-1	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE	MW-8	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*
MW-2	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*	MW-9	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*
MW-3	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*	PMW-1 (C-13)	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*
MW-4	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*	PMW-2 (C-12)	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*
MW-5	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*	PMW-3 (C-11)	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*
MW-7	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*	PMW-4	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*
			PMW-5	Semi-Annually	TPH jet, TPH gasoline, BTEX, MTBE, MNA suite*

Fuel Transfer Station Monitoring Schedule Notes:

*MNA suite includes Nitrates, Sulfates, Dissolved Iron (or Iron [II]), Dissolved Manganese (or Manganese [II]), Dissolved Carbon Dioxide, Dissolved Methane, and Total Alkalinity

1. Measure groundwater elevation semi-annually in all wells and surface water monitoring locations.
2. Measure thickness of free product in wells that contain free product or sheen. These wells will not be sampled; analytical data from such wells do not represent dissolved concentrations.
3. Measure Dissolved Oxygen, Oxidation-Reduction Potential, pH, Temperature, Turbidity, and Conductivity at wells when collecting a laboratory sample.
4. Groundwater samples are to be collected using a low flow purge and sample method in which wells are pumped at a constant flow rate that is slow enough to prevent drawdown in the well, if possible. During implementation of the low flow purge and sampling, the above indicated field parameters will be measured every three to five minutes until, at a minimum, temperature stabilizes within 10% and pH stabilizes within 0.1 units for three consecutive readings. The laboratory sample is then to be collected using the same flow rate established for purging.

3. **Annual Monitoring Reports**: The Dischargers (as applicable) shall submit annual monitoring reports to the Regional Water Board no later than 45 days following the end of the second semi-annual groundwater monitoring period. The first annual report shall be due on February 15, 2011, and yearly thereafter. The reports shall include:

   a. Transmittal Letter: The transmittal letter for each annual report shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letters in each report shall be signed by the Dischargers' principal executive officer or their duly authorized representative, and shall include a statement by the officials, under penalty of perjury, that the reports are true and correct to the best of the officials' knowledge.

   b. Groundwater Elevations: Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map should be prepared for each monitored water-bearing zone. Historical groundwater elevations shall be included in the annual reports.

   c. Groundwater Analyses: Groundwater sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. The reports shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater sampling results shall be included in the annual reports. The reports shall describe any significant increases in contaminant concentrations since the last reports, and any measures proposed to address the increases. Supporting data,

such as lab data sheets, need not be included (however, see record keeping - below).

d. Groundwater Extraction: If applicable, the reports shall include groundwater extraction results in tabular form, for each extraction well, expressed in gallons per minute and total groundwater volume for the year. The reports shall also include contaminant removal results, from groundwater extraction wells and from other remediation systems (e.g., soil vapor extraction), as applicable, expressed in units of chemical mass per day and mass for the year. Historical mass removal results shall be included in the annual reports.

e. Remedial System Operations: Along the border between Tank Farm C and the Fuel Transfer Station, the annual reports shall include descriptions of the maintenance and operation activities associated with the PRB and evaluation of the effectiveness of the PRB, including groundwater quality and groundwater levels in performance monitoring wells; recommendations shall be made, as applicable, for system enhancement if any performance monitoring well exceeds the cleanup standards for specific constituents for two out of four consecutive monitoring events. If optional soil and/or groundwater treatment systems are installed to promote contaminant reductions in soil and groundwater at any location on the SFTF, the annual reports, as applicable, shall provide evaluation of the system maintenance and operations activities and assessment of system effectiveness.

f. Status Report: The annual reports shall describe relevant work completed during the reporting period (e.g., additional investigations, enhanced remediation systems, and status of risk management measures) and work planned for the following year.

5. **Violation Reports**: If the Dischargers violate requirements in the Site Cleanup Requirements, then the Dischargers shall notify the Regional Water Board office by telephone as soon as practicable once the dischargers have knowledge of the violation. Regional Water Board staff may, depending on violation severity, require the Dischargers to submit a separate technical report on the violation within five working days of telephone notification.

6. **Other Reports**: The Dischargers shall notify the Regional Water Board in writing prior to any site activities, such as construction or UST removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for site investigation.

7. **Record Keeping**: The Dischargers or their agents shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Regional Water Board upon request.

8. **SMP Revisions**: Revisions to the Self-Monitoring Program ("SMP") may be ordered by the Executive Officer, either on his/her own initiative or at the request of the Dischargers. 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.