

**APPENDIX A**

**REVISED TENTATIVE ORDER**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

REVISED TENTATIVE ORDER

ADOPTION OF REVISED FINAL SITE CLEANUP REQUIREMENTS SUPERSEDING ORDER NOS. 90-133, 93-025, 98-041, AND R2-2006-0084 FOR:

UNION OIL COMPANY OF CALIFORNIA  
ATLANTIC RICHFIELD COMPANY  
RICHARD KOCH 411 HIGH STREET ANNUITY TRUST  
NANCY KOCH 411 HIGH STREET ANNUITY TRUST  
OAKLAND HIGH STREET PARTNERS, L.P.

for the properties located at

401 and 411 HIGH STREET  
OAKLAND, ALAMEDA COUNTY

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

1. **Site Location:** The site consists of two adjoining properties, 401 and 411 High Street in Oakland (Figure 1). The site is located immediately adjacent to the Oakland Estuary Tidal Canal (Estuary) just north of the High Street Bridge. The 401 High Street property has an approximately 350-foot border along the Oakland Estuary and is connected to High Street by a narrow easement between 301 High Street and 411 High Street (see Figure 1). The 411 High Street property shares an approximately 500-foot border with 401 High Street and is approximately 160 feet along High Street. The 411 High Street property also shares two sides with the adjacent property at 441/445 High Street and includes a narrow easement extending northeast along its border with 3775 Alameda Avenue. The site is located in a predominantly industrial neighborhood. The City of Oakland currently provides a General Commercial (GC-1) land use classification for the site (June 1999, Estuary Policy Plan), and the site is currently zoned as heavy industrial (M-40). Land use in the vicinity is mainly industrial and commercial, although in recent years, some residential development has occurred along the shoreline to the northwest, in an area where this use is allowed by the 1999 Estuary Policy Plan (i.e., Signature's "The Estuary" and "Harbor Walk" developments). The 50- to 100-foot-wide Bay Trail runs along the shoreline at the southwest edge of 401 High Street.

In July 2010, the City of Oakland presented a preferred land use alternative for the Central Estuary Plan, which includes the site location. This alternative includes construction of a new street along the northwest and southwest edges of the 411 High Street property, with the remainder of 411 High Street and the adjacent property at 441/445 High Street being re-

classified from industrial to commercial/retail. To date, these plans have not yet been approved.

2. **Site History:**

a. **401 High Street**

Richfield Oil Company owned the 401 High Street property from 1946 to 1975 and operated a bulk petroleum distribution facility from 1946 to 1967. From 1955 to 1975, American Mineral Spirits Company, Western (AMSCO-W), a joint venture between Richfield Oil Company and Pure Oil Company, operated a bulk terminal for storing, shipping, and receiving chemical products on the property. Pure Oil Company was bought by Union Oil Company of California (Unocal) in 1965. In 1975, Union Oil bought Richfield Oil Company's share of AMSCO-W. The new entity, Union Chemical Division of Unocal, operated the bulk terminal until 1991. The bulk terminal included a tank farm containing 41 12,000-gallon underground storage tanks (USTs) and 8 aboveground storage tanks (ASTs) for fuels, fuel-related chemicals, and solvents. In 2005, Unocal Corporation merged with Chevron Corporation to become a wholly-owned subsidiary of Chevron.

A major spill occurred at the northwest edge of the 401 High Street property on July 5, 1983, when 23,300 gallons of toluene was spilled during rail car off-loading at the Unocal tank farm. Unocal estimated that there were between 3,600 and 4,000 gallons of toluene in an undissolved fraction (free phase) in the subsurface, an undetermined portion of which migrated northwest across the property line onto the parcel owned by NEU Investment Corp. and onto the 411 High Street property. In addition, investigations at the 401 High Street property have revealed that soil and groundwater have been impacted by various solvent chemicals and petroleum constituents associated with the former Unocal chemical distribution facility operations.

The 301 High Street property was formerly used by the Atlantic Richfield Company (ARCO) for equipment maintenance and storage. The 401 High Street property was subsequently redeveloped along with 301 High Street (located along High Street) as the existing self-storage facility by the Crist Property Company, and was sold in 2003 to the current owner, Las Vegas II Storage, LLC, now known as Oakland High Street Storage Partners, L.P.

b. **411 High Street**

Richfield Oil Company owned and operated a petroleum storage facility in the southern portion of the 411 High Street property from 1946 through 1967. The facility included two large buildings, three ASTs with capacities greater than 50,000 gallons each, six smaller ASTs with capacities less than 50,000 gallons each, a loading rack and numerous product pipelines and manifolds. Gasoline, diesel, and motor oil were stored in the ASTs. The former tanks and associated aboveground piping were removed from the property by ARCO by 1975. The property has been affected by migration of a toluene plume emanating from the 1983 spill on the 401 High Street property.

From 1967 through 1975, the northern parcel of the 411 property was subleased from AMSCO-W, first to Earl Foster, and then in 1972 to Frank Peckett, dba the Foster Chemical

Company. Foster Chemical mainly operated a fish fertilizer packaging facility on the northern parcel of the 411 property, where four 2,000-gallon USTs, four 6,000-gallon USTs, and a 500-gallon heating oil UST were located. The contents and usage of the eight larger USTs are unknown.

In 1975, ARCO sold the property to Mr. William Balfrey who immediately sold it to the current owners, the Richard Koch 411 High Street Annuity Trust and Nancy Koch 411 High Street Annuity Trust. The site was occupied by the Big B Lumberteria lumber yard until 1996 (the Big B retail store was located at 301 High Street). It was subsequently occupied by ITEL Terminals, Inc., to store and repair shipping containers from 1996 to 2000. From 2000 to the present, the site has been occupied by First Transit Company as a commercial passenger van storage and maintenance facility. During the tenancy of these occupants subsequent to ARCO, there were no USTs or ASTs installed or operated on the property. In 2000, ARCO merged with BP Amoco P.L.C. to become a wholly-owned subsidiary of BP.

Investigations at the property have revealed that soil and groundwater have been impacted by various solvent chemicals and petroleum constituents associated with the former ARCO and possibly Foster Chemical operations.

3. **Named Dischargers:** Union Oil Company of California, also known as Unocal (hereafter referred to as Unocal), is named as a primarily-responsible discharger because of substantial evidence that Unocal discharged pollutants to soil and groundwater at the site, and because Unocal owned/operated all or part of the site during or after the time of the activities that resulted in the discharge, had knowledge of the discharge or the activities that caused the discharge, and had the legal ability to prevent the discharge. In addition, Unocal (then Union Oil Company), through its partial ownership of AMSCO-W, leased portions of the 411 High Street Property where releases of pollutants are believed to have occurred.

Atlantic Richfield Company (hereafter referred to as ARCO) is named as a primarily-responsible discharger because of substantial evidence that ARCO discharged pollutants to soil and groundwater at the site, and because ARCO owned/operated all or part of the site during or after the time of the activities that resulted in the discharge, had knowledge of the discharge or the activities that caused the discharge, and had the legal ability to prevent the discharge. In addition, ARCO, through its partial ownership of AMSCO-W, leased portions of the 411 High Street Property where releases of pollutants are believed to have occurred, and thus ARCO may have had some operational responsibilities at the site<sup>1</sup>.

Oakland High Street Partners, L.P. (formerly known as Las Vegas II Storage, LLC), is named as discharger because it owned part of the site (401 High Street) after the time of the activities that resulted in the discharge. It will be responsible for compliance with this order only if the Regional Water Board or Executive Officer finds that primarily-responsible

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<sup>1</sup> On September 18, 2009, ARCO informed the Regional Water Board that it retained Arcadis US Inc. (Arcadis) to manage remediation at the 411 High Street Property and, in accordance with its contract, Arcadis has assumed primary accountability for meeting all applicable regulatory obligations. The Regional Water Board recognizes Arcadis as the primary contact for remediation management, but ARCO remains a discharger.

dischargers have failed to comply with the requirements of this order (secondarily responsible).

Richard Koch 411 High Street Annuity Trust, and Nancy Koch 411 High Street Annuity Trust (High Street Trusts) are named as dischargers because they owned part of the site (411 High Street) after the time of the activities that resulted in the discharge. They will be responsible for compliance with this order only if the Regional Water Board or Executive Officer finds that primarily-responsible dischargers have failed to comply with the requirements of this order (secondarily responsible).

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 Regional Water Board will consider adding those parties' names to this order.

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

- o Site Cleanup Requirements (Order No. 90-133) adopted September 19, 1990.

- o Amendment of Site Cleanup Requirements (Order No. 93-025) adopted March 17, 1993. The rationale of this amendment is to allow additional time for interim groundwater treatment and require the submittal of a five-year status report.

- o Amendment of Site Cleanup Requirements (Order No. 98-041) adopted May 20, 1998. The rationale of this amendment is to remove the 301 High Street property from the Site Cleanup Requirements.

- o Amendment of Site Cleanup Requirements (Order No. R2-2006-0084) adopted December 13, 2006. The rationale of this amendment is to update the named dischargers and require the submittal of an investigation report and feasibility study/remedial action plan.

5. **Site Hydrogeology:** The site is located on alluvial deposits characterized as sequences of silty clay sediments interbedded with sand and gravel lenses. Site investigations have identified three distinct water-bearing zones, referred to as Zone A (upper), Zone B (lower), and Zone C (deep), which are separated by relatively low permeability confining units. Additional subdivisions within the upper and lower zones were identified during investigations since 2006. These subdivisions add complexity to the hydrogeology and potential for contaminant migration between the upper and lower zones.

Zone A sediments consist of discontinuous clayey to sandy deposits and extend from the ground surface to approximately 6 to 8 feet below ground surface (bgs). Groundwater in Zone A appears to be influenced by surface infiltration of precipitation and not by tidal fluctuations in the Estuary. Prior to remedial activities, the seasonal groundwater flow in the Zone A unit was generally south-southwest towards the Estuary. Since the initiation of remedial activities, monitoring of groundwater in Zone A has shown variable flow directions, with occasional sinks and mounds in shifting locations across the site. In addition, some wells screened across Zone A are periodically dry. The A/B confining unit consists of a 5- to 10-foot thick silty clay and clay layer, with local fine to medium sand and gravel underlying Zone A.

The Zone B unit consists of silty sand and silty clay deposits from approximately 14 to 30 feet bgs. Groundwater levels in Zone B are influenced by tidal fluctuations in the Estuary. Prior to remedial activities, groundwater in Zone B flowed west across most of the site, and south-southeast in the southeastern portion (411 High Street property). Since the initiation of remedial activities, monitoring of groundwater in Zone B has shown variable flow directions, with occasional sinks and mounds in shifting locations across the site. The B/C confining unit consists of fine sand, silt and clay underlying Zone B.

The Zone C unit consists of thin beds of relatively permeable poorly-graded gravel and well-graded sand interbedded with thicker sandy clay beds below 40 feet bgs. Groundwater flow in Zone C is influenced by tidal fluctuations similar to the Zone B. During high tide, groundwater flow is to the northeast, away from the Estuary, in the northern portion of the site, and toward the southeast in the southern portion of the site. During low tide, groundwater flow is to the southwest, toward the Estuary.

6. **Remedial Investigations:** A number of remedial investigations have been conducted at the 401 and 411 High Street properties between 1983 and 2008. These investigations have identified the three water-bearing zones and the nature and extent of contaminants across the site. These investigations have identified total petroleum hydrocarbons (TPH) as diesel and gasoline, benzene, toluene, ethylbenzene, xylenes, and the chlorinated volatile organic compounds (VOCs) tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), 1,1-dichloroethane (DCA), and vinyl chloride as the primary pollutants at the site. In general, the vertical and lateral extent of contamination in soil vapor, soil, and groundwater has been adequately defined, although additional characterization is needed to address the vapor intrusion concern at the adjacent property at 441/445 High Street.
7. **Adjacent Sites:** Adjacent properties that have had environmental cases associated with them include 3775 Alameda Avenue, owned by NEU Investment Corporation. The property is located immediately northwest of the site. From the 1940s through the 1980s, the property was occupied by a automobile and scrap metal salvage yard. The property is currently occupied by Brinks Incorporated Armored Car, a fitness center, and an automotive parts wholesale distributor. The property has been affected by migration of a toluene plume emanating from the 1983 spill on the 401 High Street property. In a remedial action unrelated to the site, a 10,000-gallon diesel UST and 1,000-gallon gasoline UST located in the northern central portion of the property were removed in 1988.

8. **Previous Remedial Actions:**

**401 High Street**

As a result of the toluene spill on July 5, 1983, Unocal excavated a trench along the northwest property boundary (with 3775 Alameda Avenue), and installed four 12-inch diameter recovery wells just northwest of the property boundary to recover free toluene. (Impacted water largely due to fire-prevention following the spill was also recovered.) An unknown amount of toluene was removed from the recovery wells, trench, and existing depressions where the spilled toluene ponded on the surface. The recovery wells operated from July 1983 to at least October 1984.

In 1988, Unocal began operating a groundwater extraction and treatment system (GWET), including a trench between the tank farm/toluene spill area and the Estuary to control and remove toluene spill and tank farm-related contamination detected in the Zone A aquifer on the 401 High Street property. Due to groundwater extraction, combined with natural fluctuations in groundwater level, the Zone A aquifer was periodically dewatered.

In 1990, Unocal removed 8 ASTs from the site.

In 1992, Unocal began operating a soil vapor extraction (SVE) system, including 14 extraction wells, 5 vapor extraction trenches, and 3 air inlet trenches. Between 1992 and 1998, 385 pounds of VOCs were removed from the vadose zone.

In 1993, Unocal began operation of an expanded GWET system consisting of 6 onsite and 8 offsite extraction wells to control and remove contamination in the Zone B aquifer.

In 1996, Unocal removed 41 USTs from the site. Excavated soil was aerated and replaced in the excavation. An SVE system was also installed in the backfilled excavation and connected to the then existing SVE system.

In 1998, Unocal noted that the hydrocarbon removal rates from the SVE system significantly decreased and performed confirmation soil sampling. Unocal concluded that the SVE system had removed VOCs from the vadose zone to asymptotic levels and could be shut down. The SVE system was shut down following Regional Water Board approval of Unocal's Confirmation Soil Sampling and Health Risk Assessment. The SVE system shutdown was conditioned on (1) that soil around soil boring HA16 was removed and the area confirmed to below industrial PRGs, and (2) that the Zone A GWET system continued to operate. In February and March 1999, additional soil sampling delineated the extent of contamination around soil boring HA16, and Unocal excavated a 26-foot by 28-foot area to a depth of 3.5 feet.

In 2002, Unocal discontinued the first GWET systems (Zone A and Zone B), due to pending site redevelopment. Unocal calculated that a total of 193 pounds of VOCs had been removed from both the 401 and 411 High Street properties. At least a portion of 401 High Street was subsequently raised three feet during redevelopment. During excavation for redevelopment in 2003, three six-inch diameter pipelines, two containing a residue of what were noted by personnel in the field as petroleum fuel, were uncovered along the northwestern property boundary and removed.

In 2004, Unocal constructed a new remedial system, consisting of dual-phase (groundwater and soil gas) extraction (DPE), air sparging (AS), and vacuum-enhanced GWET with four new recovery wells along the east side of the property. The new GWET portion of the system was installed to remove contamination remaining in the Zone B aquifer on the east side of the property. The DPE/AS portion of the system, installed specifically to remediate toluene in the Zone B aquifer along the northern property border, consists of nine co-located Zone A/Zone B DPE well pairs, and nine Zone B AS wells. The GWET became operational

in September 2004. The DPE/AS system was placed online in February 2005. In April 2005, the GWET portion of the system was discontinued to prevent contamination from being pulled from the 411 High Street property to the 401 High Street property and to avoid the potential for drawing ozone (which might potentially alter the naturally-occurring reductive dechlorination of solvents) from the yet-to-be installed AS system on the 411 High Street property. The AS portion of the system was active until July 2006, and the DPE portion of the system was active until June 2007. The following removals were achieved as of June 2007:

<b>Contaminant</b>	<b>Pounds Removed by Groundwater Extraction</b>	<b>Pounds Removed by SVE</b>
TPH as Gasoline	33	240
BTEX	16	105
VOCs	1.4	10

#### **411 High Street**

Prior to May 1975, ARCO removed three large ASTs, six smaller ASTs, a loading rack and numerous product pipelines and manifolds associated with the former ARCO facility from the site.

The USTs and associated piping in the area occupied by Foster Chemical in the north side of the 411 High Street property were abandoned in place in 1975 and subsequently removed from the site in 1994.

From 1993 to 2002, Unocal operated a GWET system to control and remove contamination in the Zone B aquifer on the 401 High Street property (see 401 High Street above). This system also included 4 extraction wells located on the 411 High Street property.

In February-March 2006, ARCO installed an ozone sparging/SVE system on the 411 High Street property. The system consists of 15 vertical ozone sparging wells screened in the Zone B aquifer, and 15 horizontal SVE wells in Zone A, each 20 feet in length and 2.5 to 3 feet below the surface. The operation of the system commenced in April 2006. The ozone sparging system was converted to air sparging by May 2009 due to maintenance issues associated with ozone generation. In May 2010, the air sparging/SVE system was shut down for a six-month rebound test. As of May 2010, the total mass of volatile hydrocarbons removal was approximately 1,200 pounds. The system was restarted on November 30, 2010, for a five-week rebound study to evaluate if additional contaminant mass had entered the primary flow pathways during the shutdown period. During the study, an estimated 31 pounds of total volatile hydrocarbons were removed by the SVE system. The mass removal rate during the study decreased from 1.3 to 0.61 pounds per day, indicating that no significant rebound occurred during the six-month system shutdown, and asymptotic mass removal rates similar to pre-shutdown conditions. Therefore, Arcadis, on behalf of ARCO, requested permanent shutdown of the SVE system and focus on alternative remedial strategies.



9. **Environmental Risk Assessment:**

- a. **Screening Level Assessment:** A screening level environmental risk assessment was carried out to evaluate potential environmental concerns related to identified soil gas, soil, and groundwater impacts. Chemicals evaluated in the risk assessment include the primary chemicals of concern identified at the site: TPH as gasoline and diesel, benzene, toluene, ethylbenzene, xylenes (BTEX), and select chlorinated VOCs.

As part of the assessment, site data were compared to Environmental Screening Levels (ESLs) in *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* (Interim Final – November 2007, Revised May 2008) compiled by Regional Water Board staff. The presence of chemicals at concentrations above their ESLs indicates that additional evaluation of potential threats to human health and the environment is warranted.

Screening levels for soil gas address the potential for vapor intrusion concerns. Screening levels for soil address: 1) direct exposure, 2) leaching to groundwater, and 3) nuisance concerns. Screening levels for groundwater address: 1) beneficial uses (drinking water and surface water recharge), 2) vapor intrusion, and 3) nuisance concerns.

- b. **Soil Gas Assessment:** At 401 High Street, data collected in 2007 indicated that TPH as gasoline and benzene in soil gas exceeded ESLs for vapor intrusion along the northern portion of the property near the border with 411 High Street. These detections appear to be contiguous with the larger area of impacted soil gas at 411 High Street, described below.

At 411 High Street, data collected in 2007 indicated that TPH as gasoline and diesel, and benzene in soil gas across the central portion of the property exceeded ESLs for vapor intrusion concern. PCE also exceeded ESLs for vapor intrusion concern at SVP-29, to the east of the High Street entrance to the site.

Sub-slab soil gas samples were also collected beneath the adjacent property at 441/445 High Street. Health risks calculated by ARCO may not address the risk associated with benzene, TPH as gasoline and diesel, and may have used sub-slab to indoor air attenuation factors that are no longer consistent with regulatory guidance. Therefore, additional assessment and remedial action, and potentially, mitigation are warranted.

- c. **Soil Assessment:** At 401 High Street, data collected in 2007 indicated that TPH as gasoline exceeded ESLs at isolated borings along the west side of the site. Additional samples exceeded ESLs for TPH as gasoline and diesel, and benzene along the northern portion of the property near the border with 411 High Street. Because these samples (collected at 9 feet bgs) were collected from the saturated zone, these results are addressed in the groundwater assessment below.

At 411 High Street, data collected in 2007 indicated that TPH as gasoline and diesel, and benzene exceeded ESLs across portions of the site and apparently onto portions of the adjoining 441 High Street property.

- d. **Groundwater Assessment:** At 401 High Street, data collected in 2007 indicated that TPH as gasoline and diesel, and toluene exceeded ESLs at several locations within the area of the 1983 surface release of toluene. In particular, two locations in Zone B groundwater had co-located elevated concentrations of TPH as gasoline and toluene, which is consistent with historical groundwater monitoring results. Elsewhere on the 401 High Street property, benzene in Zone B exceeded ESLs in wells along the northern portion of the property near the border with the 411 High Street property. These detections appear to be contiguous with the larger area of impacted groundwater at 411 High Street.

At 411 High Street, data collected in 2007 indicated that TPH as gasoline and diesel, and benzene exceeded ESLs in southern and central portions of the site, predominantly in Zone B. PCE and vinyl chloride slightly exceeded ESLs in Zone B groundwater along the northern portion of the 401/411 High Street property line.

10. **Remedial Action Plan, 401 High Street:**

On October 28, 2010, Unocal submitted a revised final remedial action plan (RAP) which proposes enhanced bioremediation with sulfate addition to address toluene contamination in the vicinity of well DPE-2B.

11. **Remedial Action Plan, 411 High Street:**

On August 19, 2010, Arcadis (on behalf of ARCO) submitted a RAP that proposes a phased approach as remediation. This approach has these main elements: additional investigation, a remedial design, full-scale implementation, and further assessment to determine necessary remediation of the adjacent property at 441/445 High Street:

- a. A conceptual remedial design was proposed to collect additional data and document the results of a DPE pilot test in the Zone A and an injection test in Zone B. A cone penetrometer test (CPT)/laser induced fluorescence (LIF) investigation of the southern portion of the site was also proposed to better define remedial actions in Zone B. The remedial design would include the proposed full-scale remedial actions based upon the results of the pilot tests.
- b. Full-scale remediation will be implemented predicated upon approval of the remedial design.
- c. A sub-slab soil vapor investigation at the adjacent property at 441/445 High Street was proposed to assess whether additional remediation/mitigation is required. Quarterly soil gas monitoring is proposed for up to one year. Engineering controls and/or remedial activities will then be evaluated and implemented.

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. Investigations and plans submitted support the Regional Water Board's initial conclusion that background levels of water quality may not be restored. 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 (greater than 3,000 mg/L), low yield (less than 200 gallons per day), or naturally-high contaminant levels. Groundwater underlying the site qualifies as a potential source of drinking water because it does not meet any of these exception criteria. As documented in several sources [411 High Street site investigation, (JMM, 1991), groundwater data obtained during UST removal activities in the Foster Chemical portion of 411 High Street (Levine-Fricke-Recon, December 1994), and the discharge permit reports for the remediation system at 401 High Street (URS, 2005)], total dissolved solids ranged from 480 to 1,476 mg/L. In addition, URS performed an electrical conductivity study of the dual-phase extraction (DPE) wells at the site in August 2009. Regional Water Board staff's assessment of the data indicated that both the electrical conductivity and total dissolved solids were within the limits for potential sources of drinking water. Furthermore, URS performed a one-day vacuum extraction test at one of the DPE wells in April 2010. A result of this test was the extraction of groundwater at a rate of 1.75 gallons per minute for a total of 750 gallons. This demonstrated the capacity to produce groundwater at a rate in excess of 200 gallons per day. Although the proximity to the Estuary makes sustainable groundwater extraction for drinking

water purposes an unlikely scenario at the site, these concentrations and yield do not preclude the use of groundwater as a potential source of drinking water.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the site:

- Freshwater replenishment to surface waters
- Protection from leaching to deeper potable aquifers
- Municipal and domestic water supply
- Industrial process water supply
- Industrial service water supply
- Agricultural water supply

The existing and potential beneficial uses of the Estuary include:

- Estuarine habitat
- Fish migration and spawning
- Industrial process supply or service supply
- Navigation
- Ocean, commercial, and sport fishing
- Preservation of rare and endangered species
- Shellfish harvesting
- Water contact and non-contact recreation
- Wildlife habitat

- c. **Basis for Groundwater Cleanup Standards:** The groundwater cleanup standards for the site are based on applicable water quality objectives for drinking water and for the protection of ecological receptors, prevention of nuisance conditions, and protection of human health under a commercial/industrial indoor air exposure scenario.

Factors for protection of ecological receptors include the lowest marine aquatic habitat goal and surface water quality standards for bioaccumulation and human consumption of aquatic organisms. A 10:1 attenuation of surface water quality objectives (for ecological receptors only) applied for the area inland of the San Francisco Bay Conservation and Development Commission (BCDC) Shoreline Buffer Zone, was agreed upon during an April 15, 2003, meeting between the dischargers and Regional Water Board staff. However, subsequent investigations have demonstrated a lack of a uniform hydrogeologic flow gradient toward the Estuary, and a potential for preferential pathways. There is also insufficient evidence for adequate biodegradation, therefore negating the consideration of a buffer zone to be applied at a set distance from the shoreline.

The most restrictive of the above factors will apply on a chemical-by-chemical basis. Cleanup to this level will protect beneficial uses of groundwater and will result in

acceptable residual risk to human and ecological receptors in a commercial/industrial use scenario.

- d. **Basis for Soil Cleanup Standards:** The soil cleanup standards for the site are based on the protection of ecological receptors, prevention of nuisance conditions, prevention of leaching of contaminants to groundwater, and protection of human health under a commercial/industrial indoor air or direct exposure scenario. The most restrictive of the above factors will apply on a chemical-by-chemical basis. Cleanup to this level will protect beneficial uses of groundwater and will result in acceptable residual risk to human and ecological receptors in a commercial/industrial use scenario.
  - e. **Basis for Soil Gas Cleanup Standards:** The soil gas cleanup standards for the site are based on the protection of human health under a commercial/industrial indoor air exposure scenario.
13. **Future Changes to Cleanup Standards:** One of the goals of this remedial action is to restore the beneficial uses of groundwater underlying and adjacent to the site. Results from other sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation at this site may not be possible. If full restoration of beneficial uses is not technologically nor 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. Conversely, if new technical information indicates that cleanup standards can be surpassed, or if site conditions change (zoning, redevelopment) that warrant modifications to the cleanup standards, the Regional Water Board may decide that further cleanup actions should be taken.
  14. **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.
  15. **Basis for 13304 Order:** California Water Code Section 13304 authorizes the Regional Water Board to issue orders requiring dischargers to cleanup and abate waste where the dischargers have 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.
  16. **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.

17. **CEQA:** The project is adoption of an order (final site cleanup requirements) and actions to be taken by the dischargers to comply with this order, namely implementing the approved cleanup plan and conducting monitoring activities. All cleanup and monitoring activities will occur in the subsurface. Cleanup plan implementation involves mainly adding benign chemicals to the subsurface for in-situ remediation and, if needed, installing a ventilation system beneath an existing building. The project will have no potential for significant environmental effects and the activities are intended to support site cleanup. The project is therefore exempt from the provisions of the California Environmental Quality Act (CEQA) under the general rule that “CEQA applies only to projects that have the potential for causing a significant effect on the environment” (14 CCR section 15061(b)(3), also known as the “common sense” exemption).
18. **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 discharge, and has provided them with an opportunity to submit their written comments.
19. **Public Hearing:** The Regional Water 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 dischargers (or their agents, successors, or assigns) shall cleanup 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 Plan:** The dischargers shall continue to implement the remedial action plans as described and amended in findings 10 and 11.
2. **Groundwater Cleanup Standards:** The following groundwater cleanup standards shall be met in all wells identified in the Self-Monitoring Program:

Constituent	Groundwater Cleanup Standard (ug/l)	Basis
TPH-Gasoline	100	GCCV
TPH-Diesel	100	GCCV
Benzene	1	MCL
Toluene	40	GCCV
Ethylbenzene	30	GCCV
Xylene	20	GCCV
1,1-DCA	5	MCL
1,1-DCE	6	MCL
Cis-1,2-DCE	6	MCL
Tetrachloroethene	5	MCL
1,1,1-Trichloroethane	62	Ecological (MAHG)
Trichloroethene	5	MCL
Vinyl Chloride	0.5	MCL

Notes: Ecological (MAHG) = Marine Aquatic Habitat Goal  
MCL = Maximum Contaminant Level (Drinking Water)  
GCCV = Gross Contamination Ceiling Value  
(*Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater*,  
Regional Water Board, Interim Final November 2007, Revised May 2008)

3. **Soil Cleanup Standards:** The following soil cleanup standards shall be met in all vadose zone soils.

Constituent	Soil Cleanup Standard (mg/kg)	Basis
TPH-Gasoline	83	GP
TPH-Diesel	83	GP
Benzene	0.044	GP
Toluene	2.9	GP
Ethylbenzene	3.3	GP
Xylene	2.3	GP
1,1-DCA	0.2	GP
1,1-DCE	1.0	GP
Cis-1,2-DCE	0.19	GP
Tetrachloroethene	0.7	GP
1,1,1-Trichloroethane	7.8	GP
Trichloroethene	0.46	GP
Vinyl Chloride	0.047	DE

Notes: DE = Direct Exposure

GP = Groundwater Protection (Leaching)

*(Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater, Regional Water Board, Interim Final November 2007, Revised May 2008).*



4. **Soil Gas Cleanup Standards:** The following soil cleanup standards shall be met in all soil gas as noted.

Constituent	Soil Gas Cleanup Standard (ug/m <sup>3</sup> )	Basis
TPH-Gasoline	29,000	VI
TPH-Diesel	29,000	VI
Benzene	280	VI
Toluene	180,000	VI
Ethylbenzene	3,300	VI
Xylene	58,000	VI
1,1-DCA	5,100	VI
1,1-DCE	120,000	VI
Cis-1,2-DCE	20,000	VI
Tetrachloroethene	1,400	VI
1,1,1-Trichloroethane	1,300,000	VI
Trichloroethene	4,100	VI
Vinyl Chloride	100	VI

Notes: VI = Vapor Intrusion into Buildings, commercial/industrial land use scenario (*Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater*, Regional Water Board, Interim Final November 2007, Revised May 2008).

### C. TASKS

#### 1. **IMPLEMENT REMEDIAL ACTION PLAN (401/411 HIGH STREET)**

COMPLIANCE DATE: August 1, 2012

Submit a report acceptable to the Executive Officer documenting the implementation of the remedial action plan (RAP) in Finding 10. Additional remediation should be considered in the vicinity of DPE-7B due to the very erratic trends at this well, as well as the response to the vacuum extraction performed at DPE-2B in April 2010. The report shall include the following:

- a. Summary of baseline monitoring results along with detailed sulfate injection data (may be included in applicable sampling reports; additional monitoring

requirements are presented in the attached self-monitoring program).

- b. Documentation of additional remediation, as needed in the vicinity of DPE-7B or other wells, should target remediation goals be exceeded in this or other wells.

**2. PREPARE REMEDIAL DESIGN (411 HIGH STREET)**

COMPLIANCE DATE: February 1, 2012

Submit a report acceptable to the Executive Officer documenting the implementation of the remedial design portion of the RAP in Finding 11.a. The report shall include the following:

- a. Results of the helium tracer air distribution test, CPT/LIF, DPE and injection testing.
- b. Final remedial design based on the results above.
- c. Schedule for all remedial activities.

**3. IMPLEMENT FULL-SCALE SYSTEM (411 HIGH STREET)**

COMPLIANCE DATE: April 1, 2012

Submit a report acceptable to the Executive Officer documenting the implementation of the full-scale system portion of the RAP in Finding 11.b. The report shall include the following:

- a. Documentation of NPDES permit, if required by final design.
- b. As-built design of full-scale system, as applicable to the final design.
- c. Results of initial monitoring and system effectiveness.

**4. IMPLEMENT OFFSITE ASSESSMENT (441/445 HIGH STREET)**

COMPLIANCE DATE: July 1, 2012

Submit a report acceptable to the Executive Officer documenting the implementation of the adjacent property at 441/445 High Street assessment portion of the RAP in Finding 11.c. The report shall include the following:

- a. Results of the sub-slab soil vapor investigation
- b. Recommendations for additional remediation/mitigation (if necessary) based on those results.
- c. Schedule for all remedial activities, as necessary.

5. **IMPLEMENT OFFSITE REMEDIAL ACTION/MITIGATION (441/445 HIGH STREET)**

COMPLIANCE DATE: 90 days after Executive Officer approval of Task 4

Submit a report acceptable to the Executive Officer documenting the implementation of the approved recommendations in Task 4. The report shall include the following:

- a. Documentation of access agreement process.
- b. As-built design of approved additional remediation/mitigation measures.
- c. Results of initial monitoring and system effectiveness.

6. **PROPOSED RISK MANAGEMENT (401/411 HIGH STREET)**

COMPLIANCE DATE: February 1, 2012

Submit a report acceptable to the Executive Officer proposing risk management. The report shall include a draft risk management plan that is compatible with local land use plans and regulations, does not unduly interfere with any proposed development or use by the property owner(s), and does not significantly impact normal usage of the site. The draft risk management plan shall clearly demonstrate how pollution related to the site will be managed prior to the attainment of cleanup goals, and must clearly set forth responsibilities, detailed protocols for coordinating with any affected parties, and deadlines for response actions whenever site contamination is, or is anticipated to be, encountered such that any construction or maintenance type work is not significantly delayed or unduly burdened. The draft risk management plan shall include, at a minimum, health and safety protocols (site health and safety plan, personal protective equipment, personnel monitoring and other measures as needed) and site management of contaminated media (excavation, sampling, handling, disposal). The Executive Officer will provide an opportunity for the secondarily-responsible dischargers to comment on the report and will consider any comments they submit before determining the report's acceptability.

7. **FINAL RISK MANAGEMENT (401/411 HIGH STREET)**

COMPLIANCE DATE: 30 days after Executive Officer approval of Task 6

Submit a report acceptable to the Executive Officer for risk management. The report shall include a final risk management plan that adequately addresses any conditions of approval of the Task 6 report.

8. **COMPLIANCE WITH RISK MANAGEMENT (401/411 HIGH STREET)**

COMPLIANCE DATE: One year after the compliance date for Task 7, and annually thereafter

Submit a technical report acceptable to the Executive Officer documenting how the Risk Management Plan has been implemented. The report shall be in the form of an annual Risk Management Plan compliance report.

9. **FIVE-YEAR STATUS REPORT (401/411 HIGH STREET)**

COMPLIANCE DATE: May 1, 2016, and every five years thereafter, except as noted below

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved remedial action plans. The report shall 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. Performance data (e.g., vapor/groundwater volume extracted, chemical mass removed, mass removed per million cubic feet of vapor/gallons of groundwater extracted).
- d. Significant modifications to remediation systems.

Compliance with this task is not required for the status of tasks 1, 3, or 5, if the Executive Officer has approved the proposal and implementation of system curtailment (tasks 10 and 11) under a final closure scenario for those corresponding tasks.

10. **PROPOSED CURTAILMENT (401/411 HIGH STREET)**

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 extraction but wells retained), and significant system modification (e.g., major reduction in extraction rates, and/or closure of individual extraction wells within extraction 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. Proposals for curtailment based on the separate completion of Task 1 or of tasks 3 and 5, may be considered by the Regional Water Board. However, this consideration shall be subject to demonstration that curtailment will not adversely affect the implementation of remaining tasks.

11. **IMPLEMENTATION OF CURTAILMENT (401/411 HIGH STREET)**

COMPLIANCE DATE: 60 days after Executive Officer approval of Task 10

Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in Task 10. Curtailment shall also include removal of investigative and remedial infrastructure.

12. **EVALUATION OF NEW HEALTH CRITERIA (401/411 HIGH STREET)**

COMPLIANCE DATE: 90 days after requested by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating the effect on the approved remedial action plan of revising one or more cleanup standards in response to any revision of the criteria used to establish the cleanup standards.

13. **EVALUATION OF NEW TECHNICAL INFORMATION (401/411 HIGH STREET)**

COMPLIANCE DATE: 90 days after requested by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating any new technical information which bears on the approved remedial action plan and cleanup standards for this site. 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 requested 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.

14. **EVALUATION OF NEW LAND USE INFORMATION (401/411 HIGH STREET)**

COMPLIANCE DATE: 90 days after requested by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating any change in the City of Oakland's land use classification (general plan or zoning) for the site that would allow residential or other sensitive uses at the site, or on any off-site properties that are impacted by pollution emanating from the site. The report shall propose revised cleanup standards that are protective of all uses allowed under the new land use classification. The report should evaluate the effect of the change on the approved remedial actions and any implemented institutional constraints. The report should document procedures to be used by the dischargers to prevent or minimize human exposure to soil and groundwater contamination protective of the anticipated use. Such procedures may include additional remedial action and/or

institutional constraints. To the extent these procedures involve actions to be taken by the property owners, this report shall be submitted jointly with the property owners.

15. **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 O&M:** 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 site addressed by this order is 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 professional geologist, a California certified engineering geologist, or a California registered civil 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 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 agencies:
  - a. Oakland City Fire Department, Fire Prevention Bureau, Hazardous Materials Unit
  - b. Alameda County Environmental Health, Hazardous Materials Section (electronic submittals only)
9. **Reporting of Changed Owner or Operator:** The property owners shall file a technical report on any changes in site occupancy or ownership associated with the site 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 required pursuant to the Health and Safety Code.

11. **Secondarily-Responsible Dischargers:** Within 90 days after being notified by the Executive Officer that primarily-responsible dischargers (Unocal and ARCO), have failed to comply with this order, Oakland High Street Storage Partners, L.P. (for 401 High Street part of the site) and the High Street Trusts (for the 411 High Street part of the site) shall then be responsible for complying with this order for the portion of

the property they own. Task deadlines above will be automatically adjusted to add 90 days.

- 12. **Status of Existing Orders:** Except for enforcement purposes, Order Nos. 90-133, 93-025, 98-041, and R2-2006-0084 are superseded and replaced with this order. The adoption of this order shall not constitute a waiver of the Regional Water Board's right to bring an enforcement action for violations of the terms and/or conditions set forth in Order Nos. 90-133, 93-025, 98-041, and R2-2006-0084 from the date of violation to the adoption of this order. The Regional Water Board reserves the right to take any enforcement action authorized by law for violations of the terms and conditions required by Order Nos. 90-133, 93-025, 98-041, and R2-2006-0084 and/or this order.
- 13. **Periodic SCR Review:** The Regional Water Board will review this order periodically and may revise it when necessary.

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 **FILL IN DATE**.

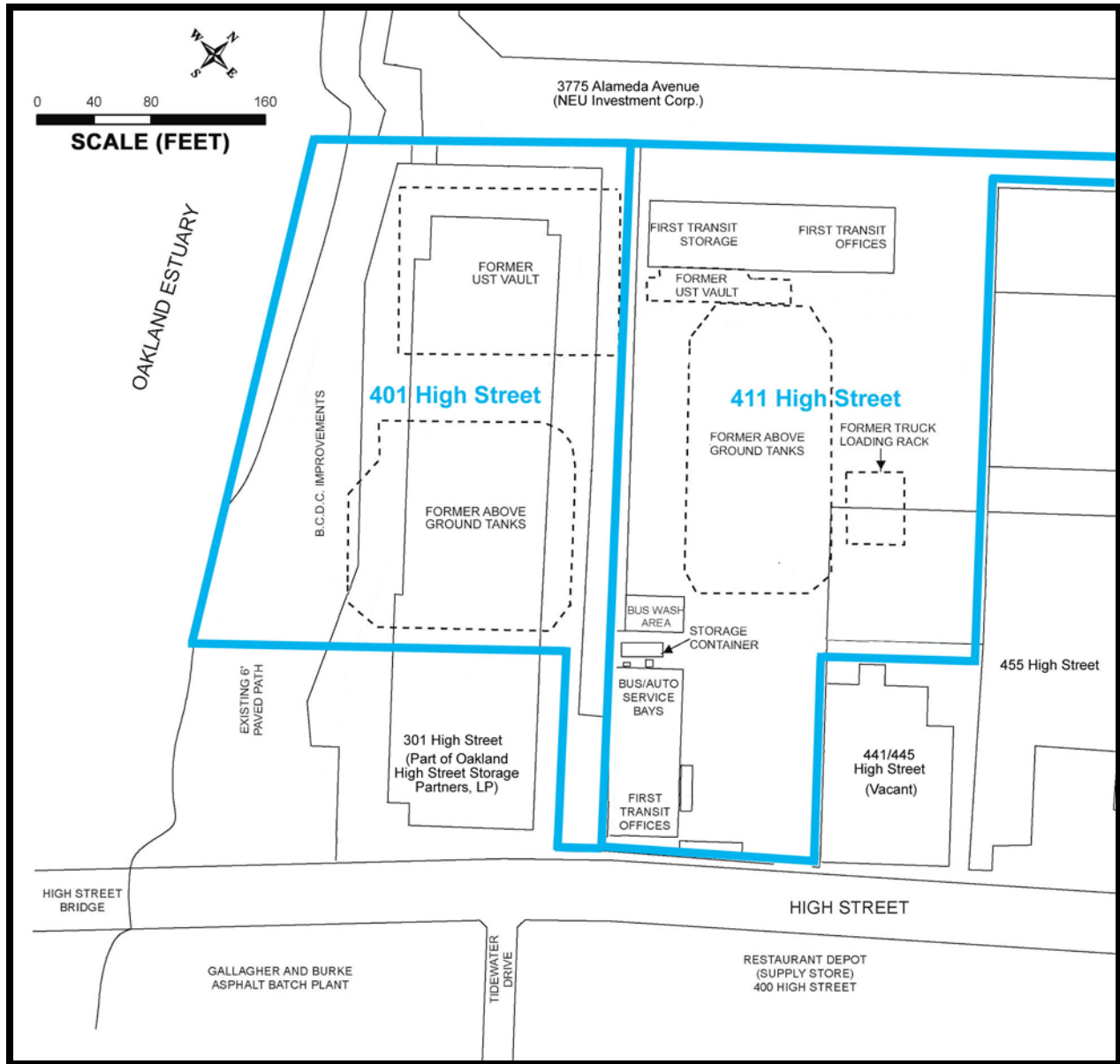
\_\_\_\_\_  
Bruce H. Wolfe  
Executive Officer

=====  
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  
=====

Attachments: Figure 1. Site Map  
Self-Monitoring Program



**FIGURE 1 – SITE MAP**  
**401 & 411 High Street, Oakland, Alameda County**



[Property boundaries are approximate. Easement along northwest edge of 411 High Street extends approximately 250 feet further to the northeast. Refer to Assessors Parcel No. 33-2250-16 for 401 High Street and Assessors Parcel No. 33-2250-15 for 411 High Street.]

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

UNION OIL COMPANY OF CALIFORNIA

ATLANTIC RICHFIELD COMPANY

RICHARD KOCH 411 HIGH STREET ANNUITY TRUST

NANCY KOCH 411 HIGH STREET ANNUITY TRUST

OAKLAND HIGH STREET PARTNERS, L.P.

for the properties located at

401 and 411 HIGH STREET

OAKLAND, ALAMEDA COUNTY

1. **Authority and Purpose:** The Regional Water Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Regional Water Board Order No. R2-2011-XXXX (site cleanup requirements).
2. **Monitoring:** The dischargers shall measure groundwater elevations semi-annually in all monitoring wells (except for new wells, which shall be measured in accordance with the sampling frequency), and shall collect and analyze representative samples of groundwater according to the following tables:

<b>Zone A Monitoring Wells</b>					
Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
AMW-1A	SA	8015/8260	DPE-7A	SA	8015/8260
AMW-2A	SA	8015/8260	DPE-8A	SA	8015/8260
AMW-3A	SA	8015/8260	DPE-9A	SA	8015/8260
AMW-4A	SA	8015/8260	FMW-1A	SA	8015/8260
AMW-5A	SA	8015/8260	FMW-2A	SA	8015/8260
AMW-13A	SA	8015/8260	FMW-3A	SA	8015/8260
DPE-1A	SA	8015/8260	MW-17A	SA	8015/8260
DPE-2A	SA	8015/8260	MW-31A	SA	8015/8260
DPE-3A	SA	8015/8260	MW-32A	SA	8015/8260
DPE-4A	SA	8015/8260	W-3A	SA	8015/8260
DPE-5A	SA	8015/8260	MW-35A	SA	8015/8260
DPE-6A	SA	8015/8260	MW-36A	SA	8015/8260

Zone B Monitoring Wells					
Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
AMW-1B	SA	8015/8260	DPE-7B	SA	8015/8260
AMW-2B	SA	8015/8260	DPE-8B	SA	8015/8260
AMW-3B	SA	8015/8260	DPE-9B	SA	8015/8260
AMW-4B	SA	8015/8260	FMW-1B	SA	8015/8260
AMW-5B	SA	8015/8260	FMW-2B	SA	8015/8260
AMW-7B	SA	8015/8260	FMW-3B	SA	8015/8260
AMW-9B	SA	8015/8260	MW-17B	SA	8015/8260
AMW-10B	SA	8015/8260	MW-31B	SA	8015/8260
AMW-11B	SA	8015/8260	MW-32B	SA	8015/8260
AMW-12B	SA	8015/8260	MW-33B	SA	8015/8260
AMW-13B	SA	8015/8260	MW-34B	SA	8015/8260
AMW-14B	SA	8015/8260	MW-36B	Q	8015/8260
APZ-1B	SA	8015/8260	MW-37B	Q	8015/8260
DPE-1B	SA	8015/8260	MW-38B	Q	8015/8260
DPE-2B	SA	8015/8260	MW-39B	Q	8015/8260
DPE-3B	SA	8015/8260	MW-40B	Q	8015/8260
DPE-4B	SA	8015/8260	RW-1	Q	8015/8260
DPE-5B	SA	8015/8260	RW-9	SA	8015/8260
DPE-6B	SA	8015/8260	RW-10	SA	8015/8260

Notes:

Q = Quarterly

SA = Semi-Annually

8015 = EPA Method 8015 or equivalent

8260 = EPA Method 8260 or equivalent

(Use these methods to sample for all analytes historically detected at the site)

Wells RW-5, RW-6, RW-7, and RW-8 have been removed from the monitoring program since these wells were replaced by other wells in the program. All wells removed from the program shall be properly destroyed by appropriate permit. These monitoring requirements **are in addition** to the sampling requirements proposed in the remedial action plans (Section 10) or future remedial actions as warranted by the tasks in Section C. The dischargers shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the same constituents as shown in the above table.

3. **Semi-Annual Monitoring Reports:** The dischargers shall submit semi-annual monitoring reports to the Regional Water Board no later than 30 days following the end of the semi-annual period (e.g., report for first semi-annual period of the year is due July 30). The first semi-annual monitoring report following the adoption of this order shall be due on **July 30, 2011**. The reports shall include:
- a. **Transmittal Letter:** The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. 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.
  - b. **Groundwater Elevations:** Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map should be prepared for water-bearing zones A and B. Historical groundwater elevations shall be included in the second semi-annual report each year. Due to known tidal fluctuations at the site, water level measurements shall be obtained from all wells within a span not to exceed four hours or only when minimal tidal range occurs. The measurements shall be obtained synchronously at the 401 and 411 High Street sites, and the data from both sites shall be used to prepare groundwater elevation maps. In addition, one of the closest Zone B wells to the Estuary shall be measured at the beginning and end of water level measurements to assess the amount of tidal fluctuation during the measurement period. The presence of floating free product shall also be determined at each well and noted in the monitoring reports.
  - c. **Groundwater Analyses:** Groundwater data shall be presented in tabular form, and isoconcentration maps should be prepared for each of the key contaminants for water-bearing zones A and B, as appropriate. The groundwater data shall be sampled as synchronously as practicable at the 401 and 411 High Street sites, and the data from both sites shall be used to prepare the isoconcentration maps. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. A complete set of historical groundwater sampling results shall be included in the second semi-annual report each year. The report shall describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases.
  - d. **Groundwater/Soil Vapor Extraction:** The report shall include, if applicable, groundwater and soil vapor extraction results in tabular form, for each extraction well and for the site as a whole, expressed in gallons per minute and total groundwater volume for the reporting period. The report shall also include contaminant removal results, from groundwater extraction wells and from other remediation systems (e.g., soil vapor extraction), expressed in units of chemical mass per day and mass for the reporting period. Historical mass removal results shall be included in the second semi-annual report each year.

- e. **Status Report:** The semi-annual report shall describe relevant work completed during the reporting period (e.g., site investigation, interim remedial measures) and work planned for the following reporting period. In addition, the second semi-annual report of each year shall summarize the results of the monitoring for that year, and include any significant modifications to remediation systems.
  
- 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 underground tank 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 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.

**APPENDIX B**  
**CORRESPONDENCE**



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BY ELECTRONIC MAIL AND U.S. MAIL

File No. 63110

May 20, 2011

Cleet Carlton  
California Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

Re: Comments On The Draft Tentative Order for 401 and 411 High Street, Oakland,  
Alameda County

Dear Mr. Carlton:

This firm was recently engaged by Messrs. Richard and Brad Koch to work with them and their family trusts, in connection with the Regional Board's April 13<sup>th</sup> proposed Tentative Order for the referenced properties. On their behalf, we want to begin by expressing our appreciation for the Board's recent efforts to solicit and address the Koch's comments. We believe that important changes have been made in the proposed Tentative through staff's consultation with the Koch's representatives, and we generally support the changes reflected in the April 13<sup>th</sup> version of the document. We look forward to working with you on the additional revisions discussed below and toward an Order that will (finally) bring about a prompt, technically appropriate conclusion to this more than 25-year saga of insufficient site remedial efforts by the primary dischargers.

Our comments below address three primary topics: (1) the segregation of certain tasks as between the two primary dischargers, Unocal and Arco; (2) the contamination at the 441/445 High Street property; and (3) revisions to the April 13<sup>th</sup> version of Tasks 7-9 that were presented via email earlier this month. The discussion below also includes a fourth, catchall category consisting of a handful of relatively minor clarifications or corrections. To the extent our comments regard specific text within the Draft Tentative Order, edits consistent with our comments are reflected in the enclosed redlined version of April 13<sup>th</sup> draft.

## **I. Allocating Tasks Among The Primary Dischargers Is Not Appropriate**

Section C of the Tentative Order proposes an allocation of "tasks" that is not consistent with the long regulatory history of the site; is not consistent with technical data about the site; is not practical, and last but not least is not supported by any coherent, much less

compelling, rationale. Rather than allocating tasks between Arco and Unocal (a path fraught with difficult precedential implications for other sites under the Board's jurisdiction), the Tentative Order should follow long-established Board practice and hold both primary dischargers jointly responsible for implementing the tasks needed to abate their intermingled discharges. Tasks 1 through 15 should accordingly be revised to apply equally to the primary dischargers.

**A. Allocation Is Not Consistent With Prior Orders For The Site**

The commingled nature of the contamination at the Site, and the primary dischargers' corresponding joint obligation to address the contamination, was originally recognized in Tasks C.3.e and C.3.f in Order 90-133. Those tasks required the primary dischargers, jointly not separately, to assess the contamination at and emanating from the 411 High Street Property. While certain interim-oriented tasks within Order 90-133 allocated responsibility among the primary dischargers, Tasks C.3.e and C.3.f did not.

The primary dischargers joint, not separate, obligation to prepare and implement a comprehensive cleanup plan was reconfirmed in Order 93-133. The portion of that Order relevant for present purposes is Task C.3.g. That task applies equally and without qualification or allocation to Unocal and Arco. Task C.3.g requires them to submit a technical document with "[a]dditional measures to achieve final cleanup goals for soils and groundwater as defined in Specifications A.3 and A.4" (emphasis supplied). The goals noted in Specifications A.3 and A.4 are site-wide goals; they are not differentiated based on "Unocal" or "Arco" sub-units or "operable units" within the site as a whole.

Arco and Unocal's joint obligations are reconfirmed by Order R2-2006-084. That Order added three new tasks to the prior orders: C.3.h, C.3.i, and C.3.j. Task C.3.h calls for "a work plan" encompassing both 401 and 411 High Street (emphasis supplied). Tasks C.3.i and C.3.j similarly call for submittal of "a technical report" (emphasis supplied). (The report responsive to Task C.3.i was to document completion of the site investigation; the report responsive to Task C.3.j was to present a draft remedial action plan). Task C.3.j requires that the draft remedial action plan to be generally consistent with the federal cleanup guidelines (40 C.F.R. Part 300) and DTSC's guidelines (Health and Safety Code Section 25356.1(c)). Both sets of regulations are indisputably based on joint responsibility where polluters' have caused intermingled contamination.

In sum, prior orders have acknowledged the intermixed nature of the contamination and have not allocated the overall assessment and remediation effort. Such allocation should not occur in the proposed Tentative Order.



**B. The Technical Data Clearly Supports Joint Responsibility For 411 High Street**

The intertwined regulatory posture of the properties, and hence the appropriateness of joint responsibility for ongoing remediation work, flows from and fits appropriately with the technical data about this site. The technical realities were summarized as follows by staff in a December 15, 2008, letter to Arco and Unocal: “Contamination in groundwater, soil and soil vapor *is effectively commingled* between [the] 401 and 411 High Street properties.” (December 15, 2008 Regional Board Letter to Arco and Unocal at 4, emphasis supplied.)

The fundamental, 10,000-foot-level truth of the Board’s “effectively commingled” assessment is well supported by numerous ground-level details. Unocal’s early-1980s toluene spill impacted both sites, and Unocal’s investigation/remediation efforts have occurred on both sites since the 1980s. Unocal’s site conceptual model has long acknowledged “contamination following a high permeability soil in the Zone B groundwater from the northwest to the southeast end of the property. This area includes the edge of the former Unocal and Foster Chemical UST vaults/excavations, across the former ARCO AST tank and truck loading areas, as far southeast as High Street.” (August 30, 2007 Regional Board Letter to Unocal, Staff Review of June 15, 2007 Technical Report by URS at 3.) Indeed, Unocal’s advanced hydrostratigraphy analysis necessitated a refinement to its earlier site conceptual model, because the advanced analysis showed how “intervening water-bearing layers” within the generally low-permeability soils between Zone A water and Zone B water “may provide vertical and lateral conduits for contaminant migration” by which releases associated with Unocal’s historic operations could impact groundwater beneath the 411 High Street property. (March 7, 2008 Regional Board Letter to Unocal at 2.)

**C. Historic Operations At 411 High Street Support Joint, Not Allocated, Responsibility**

In addition to being consistent with the long regulatory history of this site, and the technical data for the site, joint responsibility for the tasks in the Tentative Order is consistent with the Board’s findings concerning the operational history of the site. Unocal’s toluene spill is addressed above, and its involvement in solvent-handling operations conducted at 411 High Street by AMSCO-W is well documented in Finding No. 2 in Order 90-133. That Finding notes in relevant part that “Union Oil Company, through its subsidiary American Mineral Spirits Company, Western (AMSCO-W), leased portions of the 411 High Street property where releases of pollutants are believed to have occurred.” That Finding was not challenged; indeed, it is carried forward in the Tentative Order.

**D. There Is No Stated Rationale, Much Less Any Compelling Rationale, For The Allocated Responsibility Approach Presented In The Tentative Order**

The Board's requirements for the environmental mess at and emanating from the bulk terminals formerly located at 401 and 411 High Street have been revised on three previous occasions: 1993 (Order 93-025), 1998 (Order 98-041), and 2006 (Order R2-2006-0084). On each occasion, the rationale for the revisions was clearly stated in writing. (Order 93-025 at 5; Order 98-041 at 1; Order R2-2006-0084 at 1-2.)

In contrast, the Tentative Order provides *no* rationale for altering course, allocating responsibility after 20 years, and giving Unocal a pass on 411 High Street. The absence of any concrete rationale for this course reversal is particularly surprising inasmuch as the Board's letter of June 16, 2009 specifically rejected the oil companies' request to "split[ ] this case into two separate cases or operable units." (June 16, 2009 Regional Board letter to Arco and Unocal at 5.) The omission of a formal rationale is all the more surprising—and more importantly the allocation of tasks is completely unwarranted and without basis—in light of the reasons recited in the Board's June 16, 2009 letter. The Board refused to split the site into discharger-specific operable units on account of (1) the potential for cleanup work on one site to impact contaminant migration on the other site; (2) the fact that soil and groundwater contamination straddles the boundary between the properties, and (3) the need for coordination and integration of cleanup efforts for "an effective and efficient cleanup strategy and its implementation." (Id.)

None of those considerations has changed at all since June 2009. Nor was the Board's 2009 letter the first time the Board provided such feedback to the primary dischargers. The propriety of a joint obligation approach is noted in the Board's December 15, 2008 letter to Arco and Unocal (see page 2 – noting that "technical and logistical" interconnections between remedial options then under review warranted a single review and comment from the Board notwithstanding the primary dischargers' decision to submit two separate RAP documents.)

Moreover, the Board should be wary of adopting language that potentially delinks a primary discharger (Unocal) from a discharge to which it contributed. If the Board accommodates this request from two global oil companies with distinguished records of violating the Board's prior orders for this site, query how the Board can possibly deny similar accommodations from the next discharger to make such a request. The precedent cannot possibly be helpful to future Board actions.

If Unocal and Arco want to allocate tasks among themselves and their consultants, or if they want to allocate costs as opposed to tasks, they can do so however they choose, privately and without any expenditure of the Board's time or resources. They do not need the Board's involvement to reach a private allocation. And there is absolutely no indication

whatsoever that the public interest, as opposed to the dischargers' private financial interest, is being served by this allocation.<sup>1</sup>

## II. The Status Of And Requirements For The 441/445 High Street Property Should Be Clarified

Finding 7 of the Tentative Order duly notes that contamination from the site has impacted property adjacent to the northern border of the site, i.e., the NEU Investment Corporation's property at 3775 Alameda Avenue. The Koch property at 441/445 High Street is conceptually in the same posture as the 3775 Alameda Avenue property, because soil gas impacts from 411 High Street extend onto the 441/445 location. The assessment and remediation of the impacts at 441/445 are addressed in Tasks 4 and 5, so a brief textual discussion of the 441/445 property should be added to Finding 7.

In addition, Tasks 4 and 5 should be revised, to reflect cleanup to an unrestricted use standard. That standard was noted in the Board's December 15, 2008 letter (at page 4), and it was reiterated in the Board's June 16, 2009 letter (at page 2).

## III. The Alternative Version of Tasks 7-9 Is Based On A Dubious Premise

Subsequent to distributing the April 13<sup>th</sup> version of the draft Tentative Order, a modified version of Tasks 7-9 was distributed by email on May 9<sup>th</sup>. As we understand it, the modified version was created at the behest of Arco/Arcadis and in response to a complaint by them that the April 13<sup>th</sup> draft enables the property owners "to force terms on" the primary dischargers. (May 9<sup>th</sup> Board email to Arco/Arcadis, et al.) We oppose these modifications.

In considering this issue, we encourage staff (and the Board) to carefully consider Arco's premise—the property owners "forcing" terms on the oil companies. If the premise seems rather dubious, there is good reason. It is! ***For more than 25 years now***, the primary dischargers have forced their terms—unremediated pollution and a continuing nuisance/trespass—on the property owners. ***For more than 1000 days*** the primary dischargers forced their terms—lack of acceptable RAP documents—on the Board—. (Board letter to Arco dated September 21, 2010; Board letter to Unocal dated December 8, 2010.) From the beginning Unocal and Arco have violated California law, e.g., Fish & Game Code § 5650, so they have

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<sup>1</sup> The opposite seems to be the case, i.e., the proposed bifurcation of tasks seems to be proposed for purely private gain. Chevron, Unocal's parent, evidently has grown weary of Arco's remarkable ability to avoid and prolong the cleanup process. It likely has concerns about negative repercussions from Arco's approach. How the cleanup process will be expedited if that counterweight to Arco's intransigence is removed is hard to imagine.

dictated terms to all other stakeholders that are contrary to public policy established by the State of California.

In sum, were it not patently disingenuous, the Arco/Arcadis “concern” with being “forced” into an appropriate cleanup would surely qualify as unfounded. Staff should not dignify this argument by making the requested changes in the April 13<sup>th</sup> version of Tasks 7-9.

Furthermore, the proposed revisions are unnecessary and unworkable. First, no change from the April 13<sup>th</sup> draft is needed to “put[ ] enforcement discretion” in the Board’s hands consistent with the Board’s May 9<sup>th</sup> email message. The Board always has “enforcement discretion” (as demonstrated by its willingness to allow 1000 days of non-compliance on the RAP submissions with NOV letters but no penalties for enforcement). If any unreasonable delay were to occur as a result of the secondarily liable parties, the Board could always elevate a secondarily responsible party to primary status.

Second, the Arco/Arcadis revisions are not workable. The fundamental problem at this site (the reason it is not been remediated more than 20 years after the Board’s initial order) is the primary dischargers’ willingness simply to ignore other stakeholders and their interests (i.e., the Board’s orders and the landowners’ interest in having the cleanup finished). Tasks 7-9 in the April 13<sup>th</sup> version of the Tentative Order address that problem head-on. They direct the primary dischargers to prepare the technical documents, which is certainly appropriate since they caused the pollution. Then, and for the first time ever in this saga, they require the primary dischargers to give real, focused, and timely consideration to the landowners’ concerns (by requiring the primary dischargers to obtain the landowners’ approvals for the RMP/deed restriction package).

By freeing the primary dischargers from any obligation to obtain the landowners’ agreement to the RMP/deed restriction package, much less to obtain such approval by a date certain, the modified version of Tasks 7-9 eviscerates the beneficial incentive structure reflected in the April 13<sup>th</sup> Tentative Order. Worse still, it replaces that salutary incentive structure with a counterproductive incentive structure.

RMP protocols obviously can impose significant costs on a landowner (see Bureau Veritas Letter dated December 2, 2008 estimating potentially seven-figure RMP-related costs). Under the revised version of Tasks 7-9, the primary dischargers get 15 months to draft a document that shifts costs from them to the property owners. Then, under a shorter deadline and with vastly lesser resources, the landowners must attempt to roll back the primary dischargers’ proposal. The Board then becomes a mediator. The primary dischargers, counting on the “split the baby” dynamic common to mediation, have every incentive to low-ball their initial offer, the RMP/deed restriction package submitted in August 2012. In other words, their incentive will be to draft the August 2012 package so that it accomplishes as much shifting of costs from them to the landowners as possible, so that a “split the baby” resolution preserves significant cost-shifting.

This dynamic, and thus the changes requested by Arco/Arcadis, also put the Board in a tenuous legal position. To the extent the primary dischargers are successful in obtaining administrative approval for RMP protocols that shift costs onto the landowners, that result gets memorialized as a deed restriction, i.e. a property interest obtained by the Board. But inasmuch as the cost shifting will have been solely between private entities, the property interest will have been taken for the private gain of the primary dischargers and not for "public use." It would, accordingly, be constitutionally suspect as public entities cannot take private property except for public use.

The Board avoids this risk entirely, however, under the April 13<sup>th</sup> version of the Tentative Order. Under the April 13<sup>th</sup> version, the primary dischargers and the landowners reach a mutually agreeable, private resolution. That consensual arrangement is presented by agreement to the Board, and there is no coercive acquisition of a property interest by the Board.

#### **IV. Other Issues**

##### **A. Minor Clarification and Corrections**

The following items were also noted during our review. As they are of lesser import, they are addressed in the sequence in which they appear in the Tentative Order.

1. The Site History discussion should be clarified to acknowledge that the mid-1980s toluene spill extended onto the 411 High Street property.

2. Inasmuch as the Tentative Order would rescind, not amend, Order 90-133, all of the essential findings from Order 90-133 concerning the primary dischargers, their historic operations, and their relationship to AMSCO-W should be retained so as to avoid any implication that the prior findings were rescinded as inaccurate. Edits to accomplish this, by addressing each of the primary discharger's relationship with AMSCO consistent with the text in Finding No. 2 in Order 90-133, are reflected in the enclosed redline document.

3. In Section B of the Order (Remedial Action And Cleanup Standards), the end of item 1 should read "described and amended in findings 10 and 11."

4. Also in Section B of the Order, the tables that follow item 2 should make reference to "on-site" as is currently the case with the "Soil Gas Cleanup Standards" table. This clarification is needed inasmuch as certain tasks address the off-site property at 441/445 High street.

5. In Task 11, there is a reference to completion of curtailment-related tasks, but then a cross-reference to Task 9 (which concerns compliance with long-term risk management protocols). It seems that the cross-reference in Task 11 should be to Task 10.

6. In Task 15 the words “here and elsewhere” appear in brackets, and it is not clear what is intended, by either the words or the brackets.

**B. The Koch Trusts Do Not Consent To A Nuisance/Trespass Being Imposed On Them**

Given all that has occurred, the very substantial stakes involved for the beneficiaries and trustees of the Koch trusts, and our concern that a jury verdict and/or injunction against the primary dischargers may be necessary in order to get the site cleaned up, the Koch parties are compelled to state unequivocally that their efforts to work with the Board and staff on revisions to the draft Tentative Order do not, in any manner, constitute consent to the ongoing tortious conduct of the primary dischargers. Nor do the Koch parties, by submitting this comment letter, waive or relinquish any rights to pursue compensatory and punitive damages, declaratory and injunctive relief, recovery of attorneys’ fee, or any other relief provided for by federal or state law.

We appreciate your consideration of the comments above. If you have questions about our comments or would like to discuss them, we would be happy to meet with you prior to the Board’s meeting to consider the Tentative Order.

Very truly yours,



Robert P. Doty



Michael P. Mailloux  
Project Manager

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May 20, 2011

Cleet Carlton  
California Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Suite 1400  
Oakland, California 94612

**Re: Response to Draft Tentative Order  
Revised Final Site Cleanup Requirements and Rescission of Order Nos. 90-133,  
93-025, 98-041, and R2-2006-0084  
Former Unocal Chemical Facility #0905  
401 and 411 High Street  
Oakland, California**

Dear Mr. Carlton:

Chevron Environmental Management Company (CEMC), on behalf of Union Oil Company of California (Unocal), has prepared the following comments on the above-referenced Draft Tentative Order. Where appropriate and necessary, we offer red-lined changes to the Tentative Order, and reference in the red-line to numbered comments below. We sometimes use the terms "Findings" and "Order" to distinguish between the two portions of the Tentative Order.

- 1) Name Change and Named Dischargers (Finding 3): In accordance with prior comments from Union Oil Company of California and Chevron Corporation, and as acknowledged in an email correspondence from the RWQCB to CEMC dated April 15, 2011, Chevron Corporation is not a discharger and no reference to Chevron Corporation should be included in the Findings or Order. We believe that agreement has been reached that the named discharger should be changed as follows:

From

UNION OIL COMPANY OF CALIFORNIA, AKA UNOCAL, A SUBSIDIARY OF  
CHEVRON CORPORATION

and CHEVRON CORPORATION

To

UNION OIL COMPANY OF CALIFORNIA (Unocal).

We have redlined this change in various portions of the Findings and Order.

2) HHERA (Finding 9): The Tentative Order should acknowledge and summarize the results of the site-specific risk assessment which Unocal performed following the screening-level risk assessment which, alone, is discussed in the Findings. (We have offered red-lined changes to the Findings.) The site-specific risk assessment evaluated current and reasonably likely future exposures for human and ecological receptors and demonstrated the following:

- Chemicals in soils at the site do not pose unacceptable risks to occupationally exposed human receptors (outdoor commercial/industrial workers, construction workers) if they were exposed to soils by direct contact. This conclusion was based on the evaluation of chemical concentrations in soils from the 0-5 ft bgs [below ground surface] interval for the outdoor commercial/industrial worker and 0-10 ft bgs interval for the construction/trench worker.
- Volatile organic compounds (VOCs) in soil gas and groundwater do not pose unacceptable risks for indoor office workers in the existing on-site buildings by the vapor intrusion pathway. This conclusion was based on evaluation of VOC concentrations in soil gas, and in Zone A and Zone B groundwater.
- Chemicals in groundwater do not pose unacceptable risks to recreationally exposed humans in the Estuary (swimmers, anglers), by the pathway of groundwater discharge to the Estuary and subsequent direct contact and fish consumption pathways. This conclusion was based on evaluation of chemical concentrations in the shoreline wells adjacent to the Estuary.
- Chemicals in groundwater do not pose unacceptable risks to ecological receptors (wildlife, fish, and aquatic biota) in the Estuary by the pathway of groundwater discharge to the Estuary and subsequent direct contact and food-web-based exposures. This conclusion was based on evaluation of chemical concentrations in groundwater from the entire site as well as interpretation of shoreline well concentrations and spatial distribution patterns.

3) Beneficial Uses (Finding 12b): The Findings include the statement that “groundwater underlying the site qualifies as a potential source of drinking water because it does not meet any of these exception criteria [referencing criteria in SWRCB Resolution 89-39],” while acknowledging that “the proximity to the Estuary makes sustainable groundwater extraction for drinking water purposes an unlikely scenario at the site . . . .” We disagree that groundwater on the 401 and 411 High Street properties should be considered a potential source of drinking water for, among other the following reasons:



- If groundwater were pumped at the site at the minimum production rate specified in the Basin Plan, surface water from the Estuary or from nearby contaminated sites would intrude into the Zone B groundwater increasing TDS or other contaminant concentrations above drinking water standards. Historically, between the 1860s and 1930s, groundwater underlying the East Bay Plain was used for domestic and municipal water supplies as described in the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* (RWQCB, 1999). However, as the 1999 report notes, the East Bay Plain groundwater became contaminated by “seepage and saltwater intrusion” which resulted in the East Bay Civic leaders having to develop a Sierran water supply, the Pardee Reservoir. Based on this historical evidence, if groundwater were to be extracted underlying the site, it would quickly become contaminated by salt water intrusion or other nearby contaminated sites and fail standards in the Resolution and Basin Plan for drinking water.
- The RWQCB issued a Tentative Order No. R2-2006-XXXX on August 10, 2006 for the 401 and 411 High Street properties that does not identify groundwater as a potential drinking water source. Specifically, in Section 11. Basis for Cleanup Standards, a. General, the 2006 Tentative Order states “the previously-cited cleanup plans confirms the Water Board’s initial conclusion that background levels of water quality cannot be restored.” The 2006 Tentative Order also states under Basis for Cleanup Standards, b. Beneficial Uses that “while these [TDS] concentrations do not preclude the groundwater as a potential source of drinking water, the proximity to the Estuary, low expected yield (Zone A), and connectivity to the Estuary (established by tidal influence in Zone B), make sustainable groundwater extraction for drinking water purposes impractical at the site.” Also under b. Beneficial Uses, the 2006 Tentative Order only lists potential beneficial uses of groundwater underlying and adjacent to the site as “Freshwater replenishment to surface waters.” We are in agreement with these three statements in the 2006 Tentative Order and do not concur with the 2011 Tentative Order that considers groundwater as a potential drinking water source.
- Identifying on-site water as a potential drinking water source is inconsistent with an existing Board Order: R2-2004-0046 for the Signature at the Estuary property, located approximately 0.5 miles to the northeast of the site, and also adjacent to the Oakland Estuary. The Signature at the Estuary Order provides that, under the Basin Plan, the only beneficial uses of groundwater underlying and adjacent to the site is “Freshwater replenishment to surface waters,” and that groundwater does not qualify as a “potential source of drinking water due to high TDS and due to contamination.”

We believe that the 2006 Tentative Order and Signature at the Estuary Order correctly applied SWRCB guidance and the Basin Plan.

4) Basin Plan Groundwater Designation (Finding 12c): Table 2-2 of the Basin Plan (December 31, 2010) identifies the following existing and potential beneficial uses of groundwater for the Santa Clara Valley, East Bay Plain sub-basin:

- Municipal and domestic water supply

- Industrial process water supply
- Industrial service water supply
- Agricultural water supply
- Fresh water replenishment to surface water (this designation will be determined at a later date; in the interim, a site-by-site determination will be made).

Although the Basin Plan identifies the groundwater within the Santa Clara Valley, East Bay Plain as an existing and potential beneficial use for municipal and domestic water supply, we view that this is an overly broad interpretation and not valid for the site for reasons presented in comment number 3.

5) Basis for Groundwater Cleanup Standards (Finding 12c): We disagree with the Tentative Order that there is insufficient evidence of biodegradation and have offered red-lined changes. Our reasons for disagreement include:

- There is a direct correlation that when toluene is present in the groundwater, the sulfate concentrations are generally depleted. That is, the sulfate concentration in DPE-4B was depleted (3.2 mg/L) in October 2006 when the corresponding toluene concentration was 1,800 ug/L. During the October 2010 sampling event, the sulfate concentration in DPE-4B rebounded to 22 mg/L and toluene was reported at <0.5 ug/L. Thus, based on the sulfate versus toluene concentration trends for DPE-4B, the "process has not stalled" but rather that once toluene concentrations have decreased, sulfate concentrations rebounded back to ambient conditions. Likewise, toluene concentrations in DPE-7B were historically above 100,000 ug/L but when the concentrations of toluene dropped below 3.5 ug/L in October 2010, the sulfate concentration was reported at 31 mg/L. Conversely, sulfate concentrations in DPE-2B have routinely been depleted and toluene concentrations have been elevated, yet decreasing over time. This is strong evidence that bioremediation is occurring in the groundwater in the presence of sulfate.
- Furthermore, we are in agreement that the source of sulfate in Zone B is not solely its interconnection with the saline water of the Estuary but also that the source of sulfate could be from Zone A (sulfate concentrations typically range from 30 to 60 mg/L) or from sources to the northeast (sulfate concentrations from FMW-3B located on the eastern side of 411 High Street was reported to contain sulfate at 66 mg/L in October 2010). However, based on concentrations of sulfate in the waters of the Estuary (measured at 2,400 mg/L in August 2009), the likely main source of the sulfate is the Estuary. Furthermore, based on the lack of elevated concentrations of toluene in Zone B groundwater wells closest to the Estuary (DPE-1B, MW-35B, MW-38B and MW-39B) and elevated concentration of sulfate in well MW-37B (the other three wells have depleted sulfate concentrations indicating that the sulfate is being used to reduce toluene concentrations), strongly suggests that sulfate from the Estuary is creating a barrier for toluene migration to the Estuary by bioremediation through the sulfate reduction process.

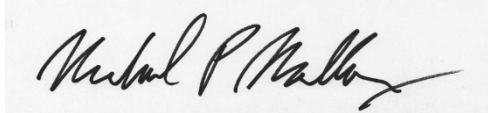
Mr. Cleet Carlton  
May 20, 2011  
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- 6) Cleanup Standards: As noted above, we disagree with the drinking water-based cleanup standards in the 2011 Tentative Order and strongly urge the RWQCB to base the cleanup standards on non-drinking water use.
- 7) Risk Management Plans and Deed Restrictions (Task 7, 8 and 9): As per the May 9, 2011 email from the RWQCB to CEMC, former Tasks 7 and 8 are now expanded into 3 tasks (7, 8, and 9) and inserted in the attached redline strike-out version of the 2011 Tentative Order.

We strongly urge the RWQCB to amend the 2011 Tentative Order with respect to these comments.

Sincerely,

**Chevron Environmental Management Company**

A handwritten signature in black ink, appearing to read "Michael P. Mailloux", is centered within a light gray rectangular box.

Michael Mailloux  
Project Manager

Enclosure: Redline Strike-Out Edits on Revised Final Site Cleanup requirements and Rescission of Order Nos. 90-133, 93-025, 98-041 and R2-2006-0084



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May 20, 2011

**VIA EMAIL AND U.S. MAIL**

Bruce H. Wolfe  
Executive Officer  
Attn: Cleet Carlton, P.G.  
Engineering Geologist  
California Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

Re: Comments On Draft Tentative Order: Adoption Of Revised Final Site Cleanup Requirements And Rescission Of Order Nos. 90-133, 93-025, 98-041, And R2-2006-0084 For: Union Oil Company Of California, *et al.*, for the properties located at 401 and 411 High Street, Oakland, Alameda County  
File No. B0314-124

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Dear Messrs. Wolfe and Carlton:

This letter provides comments on behalf of the Atlantic Richfield Company (a BP-affiliated Company) and ARCADIS USA, Inc. (“Arcadis”)<sup>1</sup> to the draft tentative order titled “Adoption Of Revised Final Site Cleanup Requirements And Rescission Of Order Nos. 90-133, 93-025, 98-041, And R2-2006-0084 For: Union Oil Company Of California, *et al.*, for the properties located at 401 and 411 High Street, Oakland, Alameda County.” We appreciate the opportunity to submit comments on the draft tentative order and hope that the following comments will assist an orderly remediation and closure of this site.

In summary, we request that the order be revised to provide as follows:

- To recognize that the Koch Trust may be named as a primarily responsible party in light of their industrial usage of the property and any information that may be found as a result of future investigation or remedial work.

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<sup>1</sup> Pursuant to an agreement between Atlantic Richfield and Arcadis, Arcadis has taken responsibility for meeting applicable regulatory obligations of Atlantic Richfield at this site.

**VIA EMAIL AND U.S. MAIL**

Bruce H. Wolfe  
Cleet Carlton  
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- To recognize the current commercial and industrial character of the site and its remediation based on its future continuance as such.
- To require separate risk management and curtailment plans for Chevron/Unocal and Atlantic Richfield areas of concern as set forth in their respective remedial action plans.
- To revise the provisions concerning a risk management plan and deed restrictions.
- To require a risk management compliance report every five years, not annually.

**A. The Parties Named In The Draft Tentative Order**

The draft tentative order is directed at four groups of parties: Union Oil Company of California and its parent Chevron Corporation (collectively, “Chevron/Unocal”); Atlantic Richfield Company and its affiliate BP Amoco P.L.C. (collectively, “Atlantic Richfield”)<sup>2</sup>; the Richard Koch 411 High Street Annuity Trust, the Nancy Koch 411 High Street Annuity Trust (collectively, the “Koch Trust”); and the Oakland High Street Storage Partners LP (“High Street LP”).

The draft tentative order names Chevron/Unocal and Atlantic Richfield as “primarily-responsible dischargers.” Tentative Order at 3, ¶ 3. In contrast, the draft tentative order names the Koch Trust, which is the current owner of 411 High Street, as “discharger,” but states that the Koch Trust is “secondarily responsible” and that the Koch Trust “will be responsible for compliance with this order only if the Regional Water Board or Executive Officer finds that primarily-responsible dischargers have failed to comply with the requirements of this order.” Tentative Order at 4, ¶ 3. The draft tentative order also names High Street LP, which is the current owner of 401 High Street, as being “secondarily responsible.”

As the draft tentative order recognizes, Atlantic Richfield owned and operated the properties at 401 and 411 High Street many decades ago. Atlantic Richfield acquired the properties in 1946 and sold the properties in 1975. Its tenure of twenty-nine years therefore ended some thirty-six years ago. Atlantic Richfield has had no industrial operations on the property since 1975.

Since 1975, Chevron/Unocal owned and operated a chemical facility at 401 High Street. Further, Foster Chemical used a strip of land at the 411 High Street address, and Chevron/Unocal

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<sup>2</sup> BP Amoco P.L.C. is not a corporate entity and should not be named in the proposed order. The successor BP company to the Atlantic Richfield Company that owned and operated the premises at-issue is BP West Coast Products LLC.

**VIA EMAIL AND U.S. MAIL**

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has taken responsibility for this strip in its remedial action plan. High Street LP acquired the 401 High Street property in 2003.

With respect to 411 High Street, Atlantic Richfield sold the property to William Balfrey in 1975, who flipped it the same day to the Koch Trust. The Koch Trust has therefore owned the 411 High Street property for thirty-six years. Since acquiring the property, the Koch Trust has leased the property to various industrial tenants, which have used the property as a commercial van storage, washing and repair facility, among other uses. During the ownership of Koch Trust, the property has not been entirely paved, but is substantially a hard gravel surface.

**B. Atlantic Richfield Reserves The Right To Request That The Koch Trust Be Named As A Primarily Responsible Party**

Due to its usage of the property many decades ago, Atlantic Richfield has assumed a share of responsibility for the investigation and remediation of 411 High Street. However, Atlantic Richfield believes that it may not be the sole primarily responsible party for the contamination. As the purchaser, owner, user, controller, lessor and beneficiary of the property at 411 High Street for many decades, the Koch Trust has leased the property for continuing industrial uses that are a possible source of contamination. Atlantic Richfield thus reserves the right to request in the future that the Regional Water Board name the Koch Trust as a primarily-responsible party for 411 High Street based on evidence that may be collected in the future that indicates that activities during the Koch Trust's ownership contributed to the contamination.

For the same reason, the order should contain the following paragraph that had been in the administrative draft:

If additional information is submitted indicating secondarily responsible parties caused or permitted any waste to be discharged on the site where it entered or could have entered waters of the state, the Regional Water Board will consider revising the status of those parties from secondarily responsible dischargers to primarily responsible dischargers.

Exhibit D at 4, ¶ 3.

**C. Atlantic Richfield Proposes Additional Modifications To The Proposed Order To Recognize The Commercial/Industrial Nature Of The Site**

The site is located in a heavy industrial zone and has itself been used for heavy industries for many decades. As such, the draft tentative order appropriately includes numerous provisions

**VIA EMAIL AND U.S. MAIL**

Bruce H. Wolfe  
Cleet Carlton  
May 20, 2011  
Page 4

recognizing that the cleanup and post-closure obligations should reflect the heavy industrial nature of the site.

For example, the draft tentative order includes in numerous paragraphs in the section titled “Basis for Cleanup Standards” the recognition that protection is based on “commercial/industrial” uses. For example, the groundwater cleanup standards provision states in the draft tentative order: “The groundwater cleanup standards for the site are based on applicable water quality objectives for drinking water and for the protection of ecological receptors, prevention of nuisance conditions, and protection of human health *under a commercial/industrial* indoor air exposure scenario.” Draft Tentative Order at 12, ¶ 12(c) (emphasis added).

The draft tentative order, should be clarified to recognize the heavy and continuous industrial/commercial nature of the property in the provisions concerning the deed restriction and risk management plan as was included in the administrative draft of the order. For example, the Risk Management Plan provision (May 9, 2011 version) requires a “draft Site Risk Management Plan that is compatible with local land use plans and regulations, that does not unduly interfere with any proposed development or use by the property owner(s), and that does not significantly impact normal usage of the site.” While the proposed draft tentative order includes the phrase “compatible with local land use plans and regulations,” it also references “any proposed development.” To clarify and reflect the intent initially set forth in the prior drafts, Atlantic Richfield has inserted appropriate language in its proposed draft attached as Exhibit D.

For example, Atlantic Richfield has redrafted the Draft Long Term Site Risk Management paragraphs (now ¶¶ 8 & 9 of tasks) to include the following modified language reflecting the commercial/industrial nature of the site:

A draft Site Risk Management Plan that is compatible with local land use plans and regulations, that does not unduly interfere with any proposed development or use by the property owner(s) based on current zoning requirements and under a commercial/industrial land use scenario, and that does not significantly impact normal usage of the site under a commercial/industrial land use scenario.

\* \* \*

The goal of the draft deed restrictions is to limit on-site occupants’ exposure to site contaminants to acceptable levels under a commercial/industrial use scenario.

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In keeping with the recognition that this site has long been the location of commercial and industrial usage, and that the Koch Trust purchased the property knowing that fact, Atlantic Richfield objects to the requirement that it be required to develop a cleanup plan for residential usage in the event the City of Oakland rezones the property. Atlantic Richfield has therefore deleted Task 14, appearing on page 22 of the draft Tentative Order.

**D. The Provisions Concerning the Risk Management Plan and Deed Restriction Should Be Modified**

The draft tentative order includes certain requirements for long-term risk management at both 401 and 411 High Street. Three versions of the risk management provisions have been proposed with different proposed language for deed restrictions.

The staff of the Regional Water Board circulated an administrative draft of the proposed order on March 22, 2011. This administrative draft is attached hereto as Exhibit A. The administrative draft contained risk management provisions that placed the burden of the deed restriction on the landowners: “Each property owner shall submit a proposed deed restriction, acceptable to the Executive Officer, whose goal is to limit on-site occupants’ exposure to site contaminants to acceptable levels under an commercial/industrial use scenario. To that end, the draft deed restriction shall prohibit sensitive uses of the site such as residences and daycare centers . . .” until cleanup standards are met. Administrative Draft at 20, ¶ 7.

On April 13, 2011, the staff of the Regional Water Board circulated the draft tentative order for comment. A copy of this draft is attached hereto as Exhibit B. In response to preliminary comments by the Koch Trust on the administrative draft, the draft tentative order revised the deed restriction language to place all risk management responsibilities on the “primarily responsible” dischargers, and no responsibility on the Koch Trust: “The primarily-responsible dischargers shall submit (separately for each property) a report acceptable to the Executive Officer proposing a long-term risk management plan. The report shall include: . . . Proposed deed restrictions for the 401 and 411 High Street properties that incorporate the long-term management measures contained in the Site Risk Management Plan.” Draft Tentative Order at 20-21, ¶ 7. Additionally, the draft tentative order included the new requirement that the “proposed deed restrictions shall also include the written approval of the respective site owner(s).” *Id.* As it reads, this last provision unreasonably places the burden on Atlantic Richfield to obtain the consent of the Koch Trust to any deed restriction.

To the extent the proposed language of Version 2 may still be under consideration, Atlantic Richfield objects to the requirement that it, as a past but not present owner, is solely responsible for obtaining the consent for the deed restriction from the current owner. The deed restriction is something that burdens the current landowner, the Koch Trust, not Atlantic Richfield. In 1975, the Koch Trust bought a well-used industrial facility with obviously no plans



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to develop it as a school, a day care center or a hospital. As landowner and named discharger, the Koch Trust is directly subject to the regulation by the Regional Water Board. If the Regional Water Board believes a deed restriction to be an appropriate risk management tool, such a deed restriction should be achieved through regulatory interaction between the board and the Koch Trust, without inserting Atlantic Richfield into the equation. Regulations concerning deed restrictions certainly appear to give ample regulatory authority to require a discharger to accept a deed restriction.

Further, if the Regional Water Board is inclined to hold more parties than the landowner responsible for a deed restriction, Atlantic Richfield requests that it hold all “dischargers” equally responsible, and not just the parties it has deemed “primarily responsible.” Having purchased property in an era when industrial contamination was of less concern than it is today, and having profited from its rental for nearly four decades, the Koch Trust is just as responsible for the property’s future use as any prior owner. In fact, the present landowner, having control of the property, is more responsible for its future use than a party who owned the property decades ago. For this reason, the Task 7 should be directed at all dischargers equally.

In response to preliminary comment by the parties, the staff of the Regional Water Board proposed modified language on May 9, 2011 for the deed restriction and risk management plan. A copy of the Staff’s proposed language is attached hereto as Exhibit C. While this language is not formally part of the draft tentative order, it is an appreciated effort to forge compromise language. This proposed language includes the beneficial change that has the effect that if the landowner and the primarily responsible parties cannot agree on a reasonable deed restriction and risk management plan, the Regional Water Board will intervene and decide the issue. While this language is a significant improvement, we continue to be concerned about the ability to obtain closure if the land owner refuses to execute a reasonable deed restriction, we will address that issue with the Board if and when that situation arises. Without changing the framework (except as discussed below), we have made some additional suggestions to the Staff’s proposed language in our redline of the draft tentative order that is attached hereto as Exhibit D. These suggestions add procedural review and comment rights.

Lastly, Atlantic Richfield requests that the issuance of this order be temporarily delayed until Atlantic Richfield and the Koch Trust meet and attempt to resolve any issues on the deed of trust and Risk Management Plan. The parties are planning an initial meeting in early June. Atlantic Richfield had asked for earlier meetings with the Koch Trust to negotiate these matters but we have been unable to schedule such an earlier meeting. Atlantic Richfield believes a short postponement of 90 days would be sufficient.

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**E. There Should Be Separate Risk Management And Curtailment Plans**

For a number of years, the investigation and remediation of these sites have proceeded separately, with Chevron/Unocal taking responsibility for 401 High Street and a small strip of 411 High Street that was operated by Foster Chemical, a tenant of a predecessor of Chevron/Unocal at the time of a release. Atlantic Richfield has taken primary responsibility for 411 High Street (except for the small strip). This division of responsibilities has been effective and is reflected in the scope of work set forth in the two remedial action plans. This division is also confirmed in the present proposed order requiring separate remedial activities at the two addresses. Even though there is some slight historic overlap on a small portion of 411,<sup>3</sup> an agreement between Chevron/ Unocal and Atlantic Richfield has effectively allocated responsibility solely to Chevron/Unocal.

The draft tentative order, however, recombines and merges the responsibility for the risk management plan and ultimately curtailment plans going forward. In effect, it makes Chevron/Unocal a primarily responsible party for all of 411 High Street and, conversely, Atlantic Richfield a primarily responsible party for 401 High Street for risk management and curtailment plan purposes. This merging of responsibility is inconsistent with the rest of the draft tentative order, which separates out responsibility for the two addresses for purposes of investigation and remediation. The 11th hour merging of responsibilities is inappropriate because it places burden for risk management on parties that have not engineered the cleanup for that address and, further, requires a party that has not been active in the cleanup of the address to be suddenly engaged at the last hour.

Atlantic Richfield requests that, for purposes of the risk management plans, that the site be divided into individual operable units ("OU"). One OU would consist of 401 High Street and the northern portion of 411 High Street. The second OU would consist of the central and southern portions of 411 High Street. According to the Tentative Order which directs each RP to implement RAPs submitted on their behalf, Chevron is responsible for remediating groundwater at 401 High Street where the dominant COC is toluene and for remediating groundwater in the northern portion of the 411 High Street property. Atlantic Richfield is responsible for remediating groundwater and soil gas in the central and southern portions of 411 High Street. Atlantic Richfield has every intention of aggressively addressing its responsibilities to remediate 411 High Street and bring the site towards closure and is concerned that regulatory closure of the 411 High Street property may be delayed by parties outside of our influence or control. We have expressed this preference to the Board on several occasions, however, the Board has indicated a reluctance to separate 401 and 411 High Street into individual OUs for the following reasons:

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<sup>3</sup> The historic overlap relates to a strip of land formerly used by Foster Chemical. The accompanying redline of the draft tentative order includes a description of the parcel at 3, ¶ 3.

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- Common contaminants of concern (COC) on both properties make it difficult to assign responsibility for cleanup based on property boundaries or media

The dominant COC at 401 High Street and in the northern portion of 411 High Street is toluene. COCs in the central and southern portions of 411 High Street are benzene, total petroleum hydrocarbons as gasoline (TPHg), and total petroleum hydrocarbons as diesel (TPHd). Based on the different dominant COCs, the OUs could be separated based on physical boundaries.

- Separate OUs could have “dueling remedies” (i.e., one injecting and one extracting) that could negatively impact the adjacent OU

Based on the Tentative Order there is no proposal for “dueling remedies”. Groundwater beneath 401 High Street will be remediated using a dual phase extraction (DPE) system in Zone B along the northern perimeter of the property. Groundwater in the central area of 411 High Street will likely be remediated using a DPE system in the Zone A and the southern portion of the property will be remediated using sulfate injections in the Zone B. There is little likelihood of the two Zone B remediation efforts influencing each other.

- Separating the properties into two OUs would require twice the amount of work for the Board (two Orders, two RAPs, two RIs, etc.).

Chevron and Atlantic Richfield already submit separate documents that have to be reviewed separately. Meetings are held separately with each RP and directives from the Board are separated into two sections for the 411 High Street Property. Atlantic Richfield believes that any additional work load on the Board would be minimal if the properties were split into separate OUs. The work load may in fact be reduced because obtaining closure with different RPs with different agendas only hinders the remediation effort.

In sum, Atlantic Richfield requests that the order require that Atlantic Richfield submit risk management and curtailment plans for its area of concern as set forth in its remedial action plan and that, separately, Chevron/Unocal submit risk management and curtailment plans for its area of concern as set forth in its remedial action plan.

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**F. A Site Risk Management Plan Should Be Due Only Every Five Years**

The draft tentative order requires a Site Risk Management compliance report to be provided to the Regional Water Board on an *annual* basis. Draft Tentative Order at 21, ¶ 9. This frequency is unduly burdensome and probably will not produce reports of significant difference from year to year. Atlantic Richfield requests the reporting provision be changed to every five years.

**G. Additional Comments**

The draft tentative order states that: “Cleanup plan implementation involves mainly adding benign chemicals to the subsurface for in-situ remediation and installing a ventilation system beneath an existing building.” Page 13, ¶ 17. The proposed remedial action plan, however, requires a ventilation system if there is a risk to human health. At this point, that risk has not yet been determined. The language in the order should be reworded to state that a ventilation system *may* be installed.

The draft tentative order, in the self-monitoring program, states that the “dischargers shall measure groundwater elevations quarterly in all monitoring wells ... ” Draft Tentative Order at 27, ¶ 2. Because the monitoring program was decreased from quarterly to semiannually, the water level measurements should therefore be semiannually as well.

**H. Conclusion**

Atlantic Richfield has stepped up to the plate on this site and has put into effect an appropriate program for the site’s remediation. Arcadis has assumed primary and direct accountability for meeting all applicable regulatory obligations and to manage the site to closure. Atlantic Richfield submits these comments not to avoid responsibility but, rather, to ensure the regulatory process is even-handed and does not inadvertently require Atlantic Richfield to perform tasks out of its direct control that will put it unnecessarily at a disadvantage vis-à-vis the other named dischargers.

We are willing to discuss our proposed changes with you at your convenience. Thank you.

Very truly yours,  
ARCHER NORRIS

/s/

Jeffrey M. Hamerling

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Attachments:

Exhibit A (Tentative Order –Administrative Draft 3/22/2011)  
Exhibit B (Tentative Order – Draft For Comment 4/13/2011)  
Exhibit C (Tentative Order – Excerpt of Revised RMP Provisions 5/9/2011)  
Exhibit D (Tentative Order – Atlantic Richfield’s Proposed Changes in Redline)

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**APPENDIX C**  
**RESPONSE TO COMMENTS**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**STAFF'S RESPONSE TO COMMENTS FOR ITEM 7  
July 13, 2011, Board Meeting**

**Revised Final Site Cleanup Requirements – for the properties located at 401 and 411 High Street, Oakland, Alameda County**

On April 13, 2011, Regional Water Board staff distributed a tentative order (Revised Final Site Cleanup Requirements for the former Unocal/ARCO facilities) for public comment. The original tentative order required that the draft risk management plan (RMP) and deed restriction be accompanied by the written approval of the respective landowners. During the public comment period, staff made a change in the tasks associated with the RMP and deed restriction in response to discussions with the dischargers. Staff circulated revised text that removed the landowner-approval requirement and replaced it with specific criteria to be used by the Board in determining draft RMP or deed restriction acceptability. We received the following comments on the tentative order, including the proposed change:

- Cox, Castle & Nicholson, LLP, on behalf of Richard and Brad Koch (Kochs) on May 20, 2011
- Chevron Environmental Management Company on behalf of Union Oil Company of California (Unocal) on May 20, 2011
- Archer Norris on behalf of Atlantic Richfield Company (ARCO) and Arcadis USA, Inc., (Arcadis) on May 20, 2011

Below we have provided a summary of each party's comments, followed by Staff's response to each comment. Interested persons should refer to the original comment letters to ascertain the full substance and context of each comment.

**Kochs Comments and Responses**

**1) Comment:** The allocation of tasks among primarily-responsible dischargers in Section C is not appropriate. It is not consistent with prior orders for the site, and it is not supported by the site data (intermingling of contamination, as noted in the Board's letter of December 15, 2008) and the site history (historic operations). The primarily-responsible dischargers should be jointly responsible for cleanup tasks on the two parcels.

**Response:** We agree and have revised the tentative order accordingly. Making the primarily-responsible dischargers jointly responsible for cleanup on the two parcels is supported by the site data and to some extent by prior orders for the site as described below.

**Site Data**

There is substantial evidence that pollutants released on each of the parcels has inter-mingled with pollution originating on the adjacent parcel. This intermingling provides a basis for joint responsibility for remedial action plan (RAP) implementation. In addition to the reference in the comment to the Board's December 15, 2008, letter (Notice of Violation: Rejection of Draft RAPs),

site data indicate that petroleum-related contamination associated with the bulk fuel operations crosses the 401 and 411 High Street property boundary. There is no clear indication of the origin of the contamination, at least in part, with respect to bulk fuel operations on either 401 or 411 High Street. The *Technical Report – Remedial Investigation Addendum, 401/411 High Street, Oakland, California* (URS, on behalf of Chevron, January 15, 2008) states:

*“Based on the most recent data from 401 and 411 High Street and 3675 Alameda Avenue properties, URS [Chevron’s environmental consultant] is in general agreement with the Water Board’s August 30, 2007 letter that the extent of contamination, particularly in Zone A/B soil and Zone B groundwater, is generally consistent with the model in the Montgomery (1991) report. This model shows contamination within high permeability soils in the Zone B groundwater from northwest to the southwest end of the properties. This area includes the edge of the former Unocal UST cavity (northern portion of 411 High Street), across the former ARCO AST tank farm and truck loading rack (central portion of 411 High Street), and as far southeast as High Street. Based on available data, it appears that the former UST cavities, the ASTs and fueling operations may have contributed to this plume.”*

#### Consistency with Prior Orders

Prior orders for the site generally provided for joint cleanup responsibility, although some specific tasks leading up to cleanup were apportioned. Board Order No. 90-133 clearly allocated tasks between dischargers. Provision C.1. tasks were allocated to Unocal, Provision C.2 tasks were allocated to ARCO, and Provision C.3 tasks were allocated to ARCO, Unocal, and Foster Chemical. Some tasks in Provision C.3. specifically limit Unocal’s responsibility to pollutants at or emanating from the northern portion of the 411 High Street property where Foster Chemical operated. Therefore, allocation of tasks, in general, is consistent with prior orders. However, the tasks in Board Order No. R2-2006-0048, including the requirement for a RAP, were an amendment to Provision C.3. of the 1990 Order, and did not include this limitation in Unocal’s responsibility. The implementation of the remedial action plans in the tentative order follows in the progression of tasks in the 2006 Order.

The tentative order has been revised to remove specific allocations to a primarily-responsible discharger for Tasks 1-5. The primarily-responsible dischargers have chosen to allocate work geographically, with Unocal’s draft RAP addressing the 401 High Street property and ARCO’s draft RAP addressing the 411 High Street property. In light of that arrangement, the primarily-responsible dischargers expect that Unocal will complete the work required under Task 1 of the tentative order and ARCO will complete work required under Tasks 2-5. Similarly, the work required under other tasks in the order will be done in accordance with this geographical allocation. Board staff will honor that arrangement (made outside of the order by the primarily-responsible dischargers) so long as the primarily-responsible dischargers remain in compliance with the order.

**2) Comment:** The 441/445 High Street property should be included in Finding 7 (Adjacent Sites). Also, Tasks 4 and 5 should be changed to reflect cleanup to unrestricted use standards as noted in the Board’s December 15, 2008, letter.

**Response:** We disagree. The 441/445 High Street property is not included in Finding 7 because this finding is only intended to include adjacent *cases*, not adjacent impacted properties. Because the current wording is vague on this point, the first sentence in Finding 7 has been revised as follows:



*“Adjacent properties that have had environmental cases associated with them include 3775 Alameda Avenue, owned by NEU Investment Corporation.”*

Unrestricted use standards are not appropriate for the off-site properties because these properties are currently in commercial/industrial use, and these properties are zoned for this use. Furthermore, the Central Estuary Plan by the City of Oakland (July 2010) proposes retail/commercial land use in this area (there is no expectation of future residential land use at the site or impacted off-site properties). In light of the Central Estuary Plan, we conclude that our December 15, 2008, letter over-reached when it said unrestricted use standards would be needed at off-site properties. The tentative order contains a task prompting the Board to revisit this issue in the future if land use or zoning changes are proposed to allow more sensitive land uses on the site (see Task 14, evaluation of new land use information). This task has been revised to clarify that this also applies to off-site properties affected by pollution emanating from the site.

**3) Comment:** The RMP and deed restriction submittals should include the written approval of the respective site owner(s). In the tentative order, the RMP and deed restriction tasks include obtaining the written approval of the respective site owner(s), as suggested by the Kochs. The revised text proposed by Staff [during the public comment period] removed the landowner-approval requirement and replaced it with specific criteria to be used by the Board in determining draft RMP or deed restriction acceptability. This revised text is based on a dubious premise. The modification was created at the behest of ARCO in response to its complaint on a draft of the tentative order that the language enables the property owners “to force terms on” the primarily-responsible dischargers. The primarily-responsible dischargers have been forcing terms on the property owners as well as the Board. The proposed revision is not necessary because the Board always has “enforcement discretion,” is not workable because it frees the primarily-responsible dischargers from any obligation to obtain the landowners’ agreement to the RMP or deed restriction provisions, and replaces the salutary incentive structure with a counterproductive incentive structure that significantly shifts the costs of mediation to the landowners. It also puts the Board in a tenuous legal position. To the extent that primarily-responsible dischargers are successful in obtaining approval for RMP protocols that shift costs to the landowners, that gets memorialized as a deed restriction, i.e, a property interest obtained by the Board. As the cost shifting will have been between private entities, the property interest will have been taken for private gain by the primarily-responsible dischargers and not for “public use”, and it would be constitutionally suspect as public entities cannot take private property except for public use.

**Response:** We ultimately disagree, although we have made some changes to the tentative order to address the underlying issue. Risk management measures, including deed restrictions, have the effect of constraining future uses of the affected property. The underlying issue is how to reasonably balance the interests of the current landowner (whose use of the property may be constrained) with the interests of the past owner/operator (who bears the burden of additional up-front cleanup to avoid or minimize risk management activities). The revised text initially proposed by Staff attempted to address this issue.

We disagree with the Kochs’ proposed solution, which would make the draft RMP or deed restriction unacceptable if it does not include the landowner’s endorsement. This proposed solution would give the secondarily-responsible dischargers veto power over work products to be prepared by the primarily-responsible dischargers. This would unfairly burden one discharger for the benefit of another. We also find no basis in law to conclude that the deed restriction, as proposed in the

draft tentative order, will be a property interest taken for the private gain of the primary dischargers and not for public use, and thereby be constitutionally suspect in that public entities may not take private property except for public use. In any case, the issue is moot since the deed restriction requirement has been removed as explained below.

Instead of the revised text initially proposed by Staff, we have addressed this comment by revising the tentative order to remove the deed restriction tasks and to modify RMP tasks to focus on the period prior to case closure. We conclude that the deed restriction is not essential during the active cleanup period; the Board has ample ability to detect exposure problems and take appropriate actions pursuant to its cleanup order. The main value of a deed restriction will come after cleanup curtailment or case closure, especially if there is residual pollution that needs ongoing management. In addition, the RMP tasks have been modified to address site conditions *prior to the attainment of cleanup goals* and provide an opportunity for the secondarily-responsible dischargers to comment on the draft before the Executive Officer determines the report's acceptability.

**4) Comment:** The Site History should acknowledge that the toluene spill extended onto the 411 High Street property.

**Response:** We agree. Sections 2.a. and 2.b. of the tentative order have been changed to include references to 411 High Street as affected by the toluene spill.

**5) Comment:** Since the tentative order would rescind, not amend, Order No. 90-133, the essential findings in Order No. 90-133 concerning primarily-responsible dischargers should be retained to avoid any implication that those findings were rescinded as inaccurate.

**Response:** We agree. The tentative order has been revised to include elements of the findings in Order No. 90-133 related to primarily-responsible dischargers.

**6) Comment:** Section B.1. of the tentative order should refer to findings 10 and 11.

**Response:** We agree. The tentative order has been revised to address this change.

**7) Comment:** In Task 11, the reference to Task 9 should be to Task 10.

**Response:** We agree. The tentative order has been revised to address this change (also taking into consideration the modifications/additions of tasks).

**8) Comment:** In Task 15, Delayed Compliance, the intention of the text “[here and elsewhere]” is unclear.

**Response:** We agree. This text has been removed from the tentative order.

**9) Comment:** The Koch Trusts do not consent to a nuisance/trespass being imposed on them.

**Response:** Comment noted. No change has been made to the tentative order to address this comment.

## Unocal Comments and Responses

**10) Comment:** The named discharger should be Union Oil Company of California, not Chevron Corporation.

**Response:** We agree. The tentative order has been revised to remove references to Chevron Corporation [and BP Amoco P.L.C.] as a named discharger.

**11) Comment:** The tentative order should acknowledge and summarize results of the human health and ecological risk assessment (HHERA).

**Response:** We disagree. The HHERA was submitted as part of the May 15, 2008, RAP. The Board rejected this RAP and issued a Notice of Violation (NOV), citing elements in the HHERA that contributed to its unacceptability. In a follow-up letter, dated June 16, 2009, the Board provided a review of responses to the NOV, which not only explained that the responses do not diminish the technical rationale of the NOV, but noted that re-submittal of the risk assessment would not address this technical rationale. Since the RAP was deemed unacceptable and a subsequent RAP (without the HHERA) was accepted by the Board, the results of the HHERA are not an essential finding with respect to the RAP or the tasks in the order. No change has been made to the tentative order in response to this comment.

**12) Comment:** Groundwater on the 401 and 411 High Street properties should not be considered a potential source of drinking water (Beneficial Uses, Finding 12.b.) due to expectation of saltwater intrusion, inconsistency with prior orders on the site, and inconsistency with the Board's order (R2-2004-0046) at another site (Signature at the Estuary, Oakland).

**Response:** We disagree. First, this issue has been raised before, and responded to, in Board letters dated December 15, 2008 (rejection of RAP), and June 16, 2009 (Review of Responses to NOV). Second, site data do not support the assertion. A subsequent RAP submittal, dated May 28, 2010, included an electrical conductivity (EC) study as part of the justification for proposed cleanup goals. In an e-mail to the discharger on September 30, 2010, Staff provided the following review:

*“The electrical conductivity (EC) study includes inconsistently evaluated data, resulting in a perception that Basin Plan qualifications for drinking water beneficial use are exceeded (for EC and TDS) in one portion of one well (which was used to dismiss this beneficial use). EC and TDS values were observed to show qualitatively similar trends as tidal fluctuations (which are greatest near the Estuary and minimal away from it). This appears to imply that seawater influx is evident in the site groundwater. When I graphed the EC/TDS data by well distance to the Estuary, there is no such pattern. This supports Brown & Caldwell's conclusion (March 1983) that there is a lack of mixing of groundwater and Estuary water, which implies that the groundwater gradient is predominantly toward the Estuary, precluding the Estuary water from entering the groundwater zone. In conclusion, we have evaluated the new data in the revised RAP regarding beneficial use and discharge to the Estuary issues, and the data do not support a change in our previous conclusions or requirements.”*

This evaluation supersedes any determination from previous site Board orders. In addition, this evaluation, along with site-specific data, was used to justify including groundwater cleanup goals for the drinking water beneficial use in Order No. R2-2011-0038 for the Signature at the Estuary

site, which was adopted by the Board on June 8, 2011. No change has been made to the tentative order in response to this comment.

**13) Comment:** Existing and potential beneficial use for municipal and domestic water supply in Finding 12.c. is an overly broad interpretation and not valid for the site for reasons presented in the previous comment.

**Response:** We disagree for the same reasons presented in Response 12. No change has been made to the tentative order in response to this comment.

**14) Comment:** We conclude that there is sufficient evidence of biodegradation (contrary to statements in Finding 12.c.). There is a direct correlation that when toluene is present in the groundwater, the sulfate concentrations are generally depleted. Based on concentrations of sulfate in the waters of the Estuary, it's likely the main source of the sulfate. The lack of elevated concentrations of toluene in Zone B groundwater wells closest to the Estuary and elevated concentration of sulfate in well MW-37B (the other three wells have depleted sulfate concentrations indicating that the sulfate is being used to reduce toluene concentrations), strongly suggests that sulfate from the Estuary is creating a barrier for toluene migration to the Estuary by bioremediation through the sulfate reduction process.

**Response:** We disagree. There is little evidence to distinguish low sulfate concentrations as being depleted versus their ambient concentration for that well location since there are no pre-toluene spill data for comparison. Also see Response 12, which argues against the mixing of Estuary water with groundwater. Furthermore, the approved RAP by this discharger includes the addition of sulfate (enhanced bioremediation), which renders this comment inconsequential. No change has been made to the tentative order in response to this comment.

**15) Comment:** Cleanup standards should be based on non-drinking water use.

**Response:** We disagree for the same reasons presented in Response 12. No change has been made to the tentative order in response to this comment.

**16) Comment:** Tasks associated with RMP/deed restrictions should be amended per the May 9, 2011, proposed change.

**Response:** See Response 3.

### **ARCO/Arcadis Comments and Responses**

**17) Comment:** The Koch Trusts should be named as a primarily-responsible discharger since they leased the property to various industrial tenants that have used the property as a commercial van storage, washing and repair facility, among other uses.

**Response:** We disagree. There is no clear evidence that site activities during the ownership of the Kochs contributed substantially to the known environmental conditions that were already present at the site. These "speculative and erroneous assertions" were already addressed and dismissed by the Board in its letter, *Notice of Violation: Rejection of Remedial Investigation Report, 411 High Street,*

Oakland, Alameda County, dated August 30, 2007, and no subsequent evidence has since been presented to Board staff. No change has been made to the tentative order in response to this comment.

**18) Comment:** ARCO reserves the right to request that the Koch Trust be named as a primarily responsible discharger in the future.

**Response:** Comment noted. The tentative order already allows the Board to name additional parties based on additional information submitted (see finding 3). Therefore, no change has been made to the tentative order in response to this comment.

**19) Comment:** The tentative order should be clarified to recognize the heavy and continuous industrial/commercial nature of the property in the provisions concerning the deed restriction and RMP as was included in the administrative draft of the order and delete the task for evaluation of new land use information.

**Response:** We disagree. While the site and area has largely been heavy industrial in the past (including during the site's use as a bulk petroleum terminal and storage facility), land use has gradually evolved to lighter industry and commercial. The most recent available Central Estuary Plan by the City of Oakland (July 2010) includes increased retail/commercial in its preferred land use alternative for the High Street corridor. Tasks involving the RMP/deed restriction have been replaced with RMP tasks (proposed, final, and implementation) to address site conditions *prior to the attainment of cleanup goals* (see Response 3), and therefore circumvent the issue raised in the comment. The task for evaluation of new land use information would only be requested in the event of a land use/zoning change that would allow residential or other more sensitive uses. No change has been made to the tentative order in response to this comment.

**20) Comment:** Modify the draft RMP/deed restriction task (Task 7) to include proposed text that adds time and format limitations on comments on the draft RMP/deed restriction, as well as elaborates on allowances for comment on comments and limits the EO determination of acceptability to 120 days after receipt of the report.

**Response:** We disagree. These modifications are not necessary and are overly burdensome on other parties, including the Board. However, see Response 3 for changes to the tentative order that address this issue.

**21) Comment:** The site should be separated into operable units for risk management and curtailment plan purposes.

**Response:** We disagree. There is no need for separate operable units for this purpose. Task 6 of the tentative order (propose risk management, as revised in Response 3) specifies that the report shall include an RMP, and the dischargers may choose to submit separate RMPs. Tasks in Board Order No. R2-2006-0084 also required submittal of "a technical report" or "a work plan." The Board has accepted separate work plans and reports, as long as the overall goals of the task requirements are met through the combined effects of the work plans/reports. In addition, tasks related to curtailment in the tentative order also include options for curtailment based on completion of particular tasks. There is no obligation or incentive for the Board to allocate these tasks by discharger, particularly

when there are issues related to allocation of responsibility (see Response 1). No change has been made to the tentative order in response to this comment.

**22) Comment:** An RMP compliance report should be due only every five years.

**Response:** We disagree. The requirement for an RMP compliance report on an annual basis is consistent with other nearby regulated sites (e.g., IMO Delaval, Oakland; Eastshore Park). Experience with these other sites has demonstrated the usefulness of annual site inspection and reporting. The length or complexity of the required report would depend on the information to be conveyed. No change has been made to the tentative order in response to this comment.

**23) Comment:** Finding 17 (CEQA) states that the cleanup plan implementation involves mainly adding benign chemicals to the subsurface for in-situ remediation and installing a ventilation system beneath an existing building. To be consistent with the proposed RAP, this should be reworded to state that a ventilation system may be needed.

**Response:** We agree. The tentative order has been revised to address this comment.

**24) Comment:** The self-monitoring program states that groundwater elevations shall be measured quarterly in all monitoring wells. Because the monitoring program was decreased from quarterly to semiannually, the water level measurements should therefore be semiannually as well.

**Response:** We agree in part. The tentative order has been revised to address this comment, noting the exception for new wells, which shall be measured in accordance with the sampling frequency.

**APPENDIX D**  
**LOCATION MAP**

# LOCATION MAP

401/411 High Street, Oakland, Alameda County

