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May 11, 2012

Mr. Jerry Wickham
Alameda County Health Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: Site Assessment Addendum Report for 800, 726, and 706 Harrison Street, Oakland, California 94607
Fuel Leak Case No.: RO0000231, RO0000321, and RO0000484
Comingled Plume claim #6678

Dear Mr. Wickham,

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please contact me at (925) 790-6270.

Sincerely,

Roya Kambin
Union Oil of California – Project Manager

Attachment
Site Assessment Addendum Report

ARCADIS U.S., Inc.
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Emeryville
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ENVIRONMENT

Mr. Jerry Wickham
Senior Hazardous Materials Specialist
Alameda County Department Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Subject:
Site Assessment Addendum Report
800, 726, and 706 Harrison Street
Oakland, California 94607
Fuel Leak Case No.: RO0000231, RO0000321, and RO0000484
Comingled Plume Claim #6678

Date:
May 11, 2012

Contact:
Katherine Brandt

Phone:
510.596.9675

Email:
Katherine.Brandt@arcadis-us.com

Our ref:
B0047339.2012.0004

Dear Mr. Wickham:

ARCADIS U.S. Inc. (ARCADIS), on behalf of Chevron Environmental Management Company, for itself and as Attorney-in-Fact for Union Oil Company of California (hereinafter "EMC"), has prepared this report to present the results of the additional site assessment activities associated with the former Unocal Service Station 0752, located at 800 Harrison Street, the former Shell Station located at 726 Harrison Street, and the former Atlantic Richfield Company (ARCO) Service Station located at 706 Harrison Street in Oakland, California (collectively referred to as the site – see Figures 1 and 2). Activities were performed in accordance with Stantec's *Commingled Plume Assessment Work Plan, 800, 726, and 706 Harrison Street, Oakland, California*, (Work Plan) dated March 31, 2011 (Stantec 2011) and ARCADIS's *Site Assessment Addendum Work Plan 800, 726, and 706 Harrison Street, Oakland, California,* (Work Plan Addendum) dated November 4, 2011 (ARCADIS 2011). Both Work Plans were approved by the Alameda County Department of Environmental Health (ACDEH) in their letter dated April 25, 2011 and their e-mail approval dated March 21, 2012.

This *Site Assessment Addendum Report* describes the additional groundwater and soil investigation completed to address data gaps presented by Stantec's Site Conceptual Model and Work Plan deviations that were presented in ARCADIS' Site Assessment Report dated August 30, 2011. A Commingled Plume Application was submitted for this site on August 12, 2011. The three Responsible Parties are

working together during the application review period pending receipt of the Letter of Commitment, which is anticipated in the second or third quarter 2012.

Site Description and Features

The site location is depicted in Figure 1. The portion of the site located at 800 Harrison Street is the former Unocal 76 Service Station 0752. Current site facilities consist of a single-story convenience store and smog shop, three product dispenser islands under two canopies, and two 12,000-gallon double-wall poly-steel gasoline underground storage tanks (USTs) (Stantec 2009). The portion of the site at 726 Harrison Street is a former Shell Station/Chan's Service Station, which consists of an asphalt parking lot and a building (Yee Property). The remaining portion of the adjacent property at 706 Harrison Street is the former ARCO Service Station/Oakland Auto Parts and is currently an asphalt parking lot (Gin Property). Refer to Figure 2 for property locations.

Previous Investigations

800 Harrison Street (Former Unocal)

In November 1990, two gasoline USTs and one waste oil UST were removed from the site. The tanks consisted of one 10,000 gallon regular unleaded gasoline storage tank, one 10,000 gallon super unleaded gasoline storage tank, and one 280 gallon waste oil tank. The waste oil tank was reported to contain one, 1/8 -inch square hole. Based on confirmation soil sampling during the UST removal, the majority of the source area was the soil beneath the former UST pit. In November 1996, one 1,100-gallon waste oil UST and associated product dispensers piping were removed from the site. No apparent holes or cracks were observed in the waste oil tank, or piping at this time.

Gettler-Ryan Inc., in their April 23, 2001 *Site Conceptual Model for 800 Harrison Street*, referenced the source area leak as a potential UST spill bucket containment failure stating that there were several historically documented maintenance reports in which residual rainwater was noted in the spill tank basin after overflow. The spill bucket containment was repaired in November 2001. Since the repair, hydrocarbon concentrations decreased in the short term, but there have been several additional elevated concentrations observed in 2004, which suggests that the spill bucket containment failure was not likely the single contributing source release.

726 Harrison Street (Former Shell)

In October 1995, four gasoline USTs and one waste UST were removed from the site. The tanks consisted of two 5,000-gallon single-walled bare-steel premium unleaded gasoline storage tanks, one 5,000-gallon single-walled bare-steel plus unleaded gasoline storage tank, one 8,000-gallon single-walled bare-steel regular unleaded gasoline storage tank, and one 1,000-gallon single-walled bare-steel waste oil tank. The State of California UST Permit Applications indicate that the USTs contain no spill or overfill preventative containment equipment for any of the former USTs.

Elevated hydrocarbon concentrations were detected in soil beneath each of the former gasoline USTs. Elevated concentrations of Total Oil and Grease (TOG) were detected in soil beneath the waste oil UST. Approximately 530 tons of impacted soil was removed from the excavations to a maximum depth of 20 feet below ground surface (bgs) in December 1995. Seven confirmation soil samples were collected from the bottom and side walls of the excavation to determine the removal of impacted soil. Two of the seven samples contained elevated concentrations of petroleum hydrocarbons at the northern and southern portion of the excavation (Aqua Science Engineers, Inc. [ASE] 2007). Over excavation was not possible due the building location to the southeast and the street to the northwest.

In July 1997, a groundwater monitoring well was installed at the southern edge of the former USTs. Groundwater samples from the well contained elevated concentrations of petroleum hydrocarbons.

In December 1998, three additional wells were installed along the southern property boundary between 706 and 726 Harrison Street. Newly installed wells (MW-3 and MW-4) contained much lower detections of hydrocarbons. MW-2 did not contain hydrocarbons detected above laboratory detection limits.

706 Harrison Street (Former ARCO)

In January 1991, four 1,000-gallon gasoline USTs, two 6,000-gallon gasoline USTs, and one unknown size waste oil tank were removed from the site. Confirmation soil samples were collected beneath the tanks, and elevated petroleum hydrocarbon concentrations were observed in confirmation samples. In December 1991, the UST pipes were removed and a limited subsurface investigation was performed to resample the former tank pit areas (Conestoga-Rovers and Associates [CRA] 2007).

In February 1993, an over excavation of unknown volume was performed from three excavations in the vicinity of the former UST locations. Limitations during the excavation related to shoring prevented removal of all impacted soil (CRA 2007). Soil samples collected at 16 feet bgs contained elevated concentrations of hydrocarbons.

In July 1993, monitoring wells (MW-1 through MW-3) and soil vapor extraction (SVE) wells (VW-1 and VW-2) were installed. Soil samples collected during the installation contained elevated total petroleum hydrocarbons as gasoline and benzene (6,000 parts per million [ppm] and 210 ppm, respectively). In December 1993, additional soil samples were collected from the former pump island locations containing concentrations of organic lead with a maximum of 17 ppm at 2 feet bgs.

In April 1994, a SVE pilot test was conducted and SVE was determined to be an effective remedial alternative. In November 1994, additional groundwater monitoring wells, SVE wells, and air sparge (AS) wells were installed for on-site remediation. Operation the AS/SVE began in May 1998 and continued into February 2001. The SVE portion was shut down but the AS system continued to inject air to increase oxygen concentrations to enhance aerobic biodegradation.

Groundwater samples collected from SVE wells determined that the system was effective and the AS system was shut down.

<u>The Commingled Plume Investigations (800, 726, and 706 Harrison Street):</u>

In June 2011, ARCADIS conducted site assessment activities to address data gaps presented in Stantec's Work Plan (Stantec 2011) for the site. ARCADIS oversaw the advancement of four soil borings associated with the 800 and 706 Harrison Street properties (Figure 2). ASE oversaw the installation of one monitoring well and one soil boring associated with 726 Harrison Street with observations by ARCADIS (Figure 2).

Soil concentrations for the site assessment were elevated in soil boring GP-2 located at 800 Harrison Street. Total purgeable petroleum hydrocarbons (TPPH) and methyl tertiary butyl ether (MTBE) were detected at 3,200 milligrams per kilograms (mg/kg) and 0.0060 mg/kg, respectively. Groundwater samples were collected from two locations (GP-3 and MW-6) located on the 726 Harrison Street property. Elevated groundwater concentrations for benzene (1,800 micrograms per liter (µg/L)), toluene (2,000 µg/L), ethylbenzene (1,500 µg/L), xylenes (5,000 µg/L) (collectively BTEX), and MTBE (4,600 µg/L) were from soil boring GP-3. The site assessment results

were incorporated into this report for an overall assessment and are presented in Tables 1 and 2 and Figures 3 and 4. The detailed information on the advancement and installation of the soil borings and monitoring well are presented in ARCADIS' Site Assessment Report dated August 30, 2011.

Several deviations which were encountered during the June 2011 site activities were addressed as part of the ARCADIS Work Plan Addendum. These deviations included

- Soil boring locations GP-1 located on 800 Harrison and soil boring locations GP-4 and GP-8 through GP-10 associated with 706 Harrison were unable to be advanced at the time of the 2011 field activities. GP-9 and GP-10 were not advanced during the 2011 field activities due to a lack of an encroachment permit for 640 Harrison (City of Oakland Park property).

Results from the March 2012 additional site assessment activities are presented in the following sections.

Regional Geology

As discussed in the Work Plan, the site is underlain by Holocene and Pleistocene-age eolian sand deposits referred to as the Merrit Sand. The Merrit Sand is described as typically consisting of fine grained, very well sorted, well-drained eolian sand, interfingering with Holocene Bay Mud. The sand deposits can extent to a depth of approximately 50 feet bgs in the Oakland area (U.S. Geological Survey 2000).

Site Geology/Hydrogeology

The subsurface geology at the site consists mainly of fine grained sand and silty sand extending to approximately 30 feet bgs. Deeper cone penetrometer tests (CPTs) were advanced in the area of 800 Harrison Street that indicate the presence of silt and clay between approximate depths of 30 to 42 feet bgs. Below the clay, fine grained sand and silty sand are present (Stantec 2009). It is assumed the Merritt Sand lies under the site, based on visual inspections of soil during the investigations (Stantec 2009).

The nearest surface waters are the Oakland Inner Harbor to the south and west and Lake Merritt to the east and northeast. Each body of water is approximately ½- mile from the site (Stantec 2009).

Groundwater is encountered approximately 15 to 22 feet bgs, within the sand and silty sand units at the site. Historically, depth to groundwater has been observed in monitoring wells between approximately 12 and 22 feet bgs, but typically fluctuates between 15 and 20 feet bgs. Groundwater in the unconfined shallow water-bearing zone (from surface to 30 feet bgs) flows predominately toward the south-southwest, at an approximate gradient of 0.01 feet per feet (Stantec 2009). A deeper water-bearing zone was encountered during the advancement of the CPTs at depths of 42 to 50 feet bgs. Prior to the June 2011 site assessment, no wells were installed in the deeper water bearing zone. ASE oversaw the installation of monitoring well MW-6 in the source area near EW-1 on the 726 Harrison Street property within the deeper water bearing zone.

Subsurface Investigation

On March 28, 2012, additional site assessment activities were conducted to address the deviations from the Stantec Work Plan. ARCADIS oversaw the advancement of three soil borings (GP-1, GP-9 and GP-10) on the 800 Harrison and 640 Harrison Street properties. All activities were conducted in accordance to the Work Plan and the Work Plan Addendum with the exception of the following deviations:

- Soil boring location GP-10 located on 640 Harrison was advanced to 20 feet bgs and logged in accordance with the Work Plan. A grab groundwater sample was unable to be collected due to the slow groundwater recharge.

Permitting

ARCADIS secured the necessary soil boring permits from ACDEH and a Revocable Permission Agreement from the City of Oakland prior to commencing field activities for the additional site assessment. The executed permits and agreements are included in Appendix A.

Site-Specific Health and Safety Plan

ARCADIS prepared a site-specific Health and Safety Plan for, direct push drilling, and soil and groundwater sampling activities for the sites, as required by the Occupational Health and Safety Administration Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). The document was reviewed and signed by ARCADIS personnel and subcontractors performing work at the site.

Underground Utility Locating

Underground Service Alert North (USA North) was contacted 48-hours prior to the start of any intrusive subsurface activities. Each boring location was cleared of utilities by a private utility locator (Cruz Brothers) prior to work.

Soil Boring Advancement and Sampling Methodology

On March 28, 2012, Gregg Drilling and Testing, Inc., under the supervision of ARCADIS, advanced three Geoprobe soil borings (GP-1, GP-9 and GP-10) at 800 and 640 Harrison Street (Figure 2). Proposed soil boring locations were adjusted in the field based on USA North and Cruz Brothers underground utility mark-outs.

Prior to drilling, the soil borings were hand cleared using a 2-inch outer diameter (OD) hand auger to a minimum of depth of 8 feet 1-inch bgs. Soil borings (GP-1, GP-9 and GP-10) were advanced using direct push technology (DPT). The three soil borings were advanced using a Warthog M1.5T track-mounted rig equipped with a 2-inch Macro Core device to a total depth of approximately 20 feet bgs. Soil boring GP-1 was terminated above the assumed water table of 20 feet bgs as stated in the Work Plan (Stantec 2011). Soil borings GP-9 and GP-10 were installed within the water table to collect grab groundwater samples as stated in the Work Plan (Stantec 2011).

All soil boring locations and grab groundwater locations were grouted with neat cement from total depth to ground surface and then patched to match the surrounding surface.

Soil Sampling and Screening

Soil borings were logged continuously to total depth for lithologic classification. Soil samples were field screened with a photo ionization detector (PID). The PID results, in parts-per-million (ppm), from the field screening were recorded on the field boring logs, which are included in Appendix B. Soil samples were collected for laboratory analysis from GP-1 biased towards the highest probable degree of potential contamination, based on the highest PID readings greater than the background concentration. Soil samples were collected for laboratory analysis at a frequency of every five feet if PID readings were not detected above background concentrations, and if other indicators of potential hydrocarbon impacts (i.e., staining, odor) were absent.

Three soil samples were collected from soil boring location GP-1 and submitted to BC Laboratory, Inc. (BC Laboratory) of Bakersfield, California. Elevated (above background) PID measurements and evidence of potentially impacted soil (i.e., staining, odors) were noted during the advancement of GP-1. Three soil samples were collected at GP-1 at depths of 6, 10, and 14 feet bgs based on the elevated PID detections. Soil samples results from the site assessment activities are presented on Table 1.

Grab Groundwater Sampling

On March 28, 2012, one grab groundwater sample was collected from soil boring GP-9 located on the 640 Harrison Street property. The site assessment groundwater data is presented on Figure 4 and in Table 2. A grab groundwater sample was not collected from soil boring GP-10 due to no groundwater recharge.

Soil and Groundwater Sampling and Analysis

ARCADIS collected soil samples using Encore samplers provided by BC Laboratory. The Encore samplers were capped and sealed in zip-locked bags. Soil samples were labeled with the boring identification number and the depth of the sampling interval. A grab groundwater sample was collected from GP-9 using a disposable bailer and transferred into 40-milliliter vials with hydrochloric acid preservative.

Soil and groundwater samples were packed on ice, cooled to approximately 4 degrees centigrade, and were submitted, under appropriate chain-of-custody protocols, to BC Laboratory. Laboratory reports and chain-of-custody documentation are included in Appendix C.

The soil and groundwater samples were analyzed for the presence of the following constituents:

- TPPH by LUFT GC/MS Method
- BTEX, MTBE, 1,2-Dibromoethane (EDB), and 1,2-Dichloroethane, (1,2-DCA) by U.S. Environmental Protection Agency Method 8260B
- Soil samples collected from GP-1 were additionally analyzed for TOG by USEPA Method 1664 and Hydraulic Oil by USEPA Method 8015. If TOG or hydraulic fluids were detected, the samples would also be analyzed for Title 22 Metals by USEPA Method 6010B, and SVOCs by USEPA Method 8270C.

Site Assessment Results

Subsurface Conditions

Soils encountered during the site assessment activities generally consisted of fine sand and silty, fine sand for soil boring locations GP-1, GP-9 and GP-10. Groundwater was not encountered in soil boring GP-1. Groundwater was encountered at between approximately 20 to 25 feet bgs at GP-9. No groundwater recharge was observed in GP-10 between approximately 20 to 25 feet bgs.

Soil Analytical Results

Soil analytical results for the June 2011 and March 2012 site assessment activities are summarized in Table 1 and shown on Figure 3. Soil samples containing detections above the respective Environmental Screening Levels (ESLs) were limited to samples collected from GP-2 completed in the initial phase of work in June 2011. The BC Laboratory analytical report with chain-of-custody documentation is included in Appendix C. Maximum and minimum concentrations of petroleum hydrocarbon constituents detected in soil samples collected during the assessment activities are summarized in the table below.

Constituent	Frequency of Detection Above the MDL[1]	Range of Detected Concentrations in mg/kg[2]	ESL[3] in mg/kg[2]	Frequency of Exceedences	Range of Concentration Exceedences in mg/kg[2] (Well ID)
TPPH	5/23	0.12 J – 3,200	83	2/5	3,200 (GP-2@14.0') 1,000 (GP-2@17.0')
Benzene	0/23	-	0.044	-	-
Toluene	1/23	0.024	2.9	0/1	-
Ethylbenzene	3/23	0.0057 – 0.015	3.3	0/3	-
Total Xylenes	2/23	0.098 – 0.11	2.3	0/2	-
MTBE	6/23	0.00087 J – 0.060	0.023	2/6	0.028 (GP-2@14.0') 0.060 (GP-2@17.0')

Notes:
1. MDL = method detection limit.
2. mg/kg = milligram per kilogram.
3. ESL = Residential Environmental screening level for shallow and deep soils where groundwater is a current or potential source of drinking water.
4. Estimated concentration.
MTBE = methyl tertiary butyl ether.
TPPH = Total purgeable petroleum hydrocarbons.

Groundwater Analytical Results

Groundwater analytical results for June 2011 and March 2012 are summarized in Table 2 and shown on Figure 4. Groundwater samples containing detections above the Maximum Contaminant Levels (MCLs) were found in samples collected from GP-3 and MW-6. Groundwater collected from the soil boring GP-9 located downgradient of the comingled plume was non-detected for all chemicals of concern (COC). The BC Laboratory analytical report with chain-of-custody documentation is included in Appendix C. Maximum and minimum concentrations of petroleum hydrocarbon constituents detected in groundwater samples collected during the site assessment activities are summarized in the table below.

Constituent	Frequency of Detection Above the MDL[1]	Range of Detected Concentrations in µg/L[2]	California Primary MCL[3] in µg/L[2]	Frequency of Exceedences	Concentration Exceedences in µg/L[2] (Well ID)
TPPH	2/3	510 – 200,000	-	-	-
Benzene	2/3	0.81 – 1,800	1	1/2	1,800 (GP-3)
Toluene	1/3	2,000	150	1/1	2,000 (GP-3)
Ethylbenzene	1/3	1,500	300	1/1	1,500 (GP-3)
Total Xylenes	1/3	5,000	1,750	1/1	5,000 (GP-3)
MTBE	2/3	990 – 4,600	13	2/2	4,600 (GP-3), 990 (MW-6*),
EDB	0/16	-	-	-	-
1,2-DCA	1/3	1.0	-	-	-

Notes:
1. MDL = method detection limit.
2. µg/L = microgram per liter, equivalent to part per billion (ppb).
3. MCL = maximum contaminant level.
* = MW-6 associated with 726 Harrison Street, not with the well with the same identifier associated with 800 Harrison Street.
EDB = 1,2-Dibromoethane.
1,2-DCA = 1,2-Dichloroethane.
MTBE = methyl tertiary butyl ether.
TPPH = Total purgeable petroleum hydrocarbons.

Soil Cuttings and Rinsate Water

Two 55-gallon drum with soil cuttings was generated during the assessment activity and are currently being stored off site temporarily at 706 Harrison Street with a proper labeled pending characterization and disposal.

Summary and Conclusions

The site assessment activities completed in June 2011 and March 2012 have further delineated the petroleum hydrocarbon impacts located at the site. The results from the soil and groundwater investigations have addressed the data gaps presented by Stantec's Site Conceptual Model and the letter from ACDEH dated January 4, 2011. A completed summary based on the soil and groundwater assessment from the June 2011 and March 2012 activities is presented below.

Soil

800 Harrison Street Summary

Soil borings GP-1 and GP-2 were advanced to a depth of approximately 20 feet bgs to delineate the soil stratigraphy and extent of petroleum hydrocarbon impacts to vadose-zone soil. Soil samples collected from boring GP-2 indicate elevated concentrations for TPPH, toluene, ethylbenzene, xylenes, and MTBE at sample depths ranging from 10 feet to 17 feet bgs. Concentrations were detected above ESLs for two of the five analytes; TPPH and MTBE at sample depths of 14 feet and 17 feet bgs (Table 1). Soil collected from GP-1 had concentrations below the detection limit for all analyses. Because TOG and Hydraulic Oil were not detected above detection limits, no additional samples were analyzed for Title 22 Metals or SVOCs per the Work Plan (Stantec 2011) specifications. Soil boring GP-1 is located southeast of MW-2 within the smog shop, and soil boring GP-2 is located northeast of MW-1 and southeast of the former USTs (Figure 3).

726 Harrison Street Summary

Soil boring GP-3 was advanced to a depth of approximately 20 feet bgs to delineate the soil stratigraphy and extent of petroleum hydrocarbon impacts to vadose-zone soil. Soil collected from GP-3 had concentrations below the detection limit for all analytes except MTBE at 7 feet bgs which had a concentration above the method detection Limit (MDL) but below the ESL (Table1).

The soil samples were collected at depths of 6.5, 11, and 16 feet bgs from MW-6. The newly installed well was placed south of EW-1, which previously had the highest detected MTBE groundwater concentrations for the comingled plume. Soil samples were not detected at the 6.5 and 11 feet bgs intervals. Elevated concentrations of TPPH and MTBE were detected at 16 feet bgs but concentrations were below the ESLs.

706 Harrison Street Summary

Soil boring locations GP-5 through GP-7 were advanced and sampled to assess the effectiveness of past site remediation events including several over-excavations to remove impacted hydrocarbon soil and the installation of a SVE and AS well system to remediate the property. Data collected from the assessment work indicates that soil has limited impacts in the vadose-zone. Soil samples collected from soil borings GP-6 located southwest of MW-2 within the former UST basin and GP-7 located in the southwestern corner along the fence line of the property, indicated that all analytes were not detected at concentrations in excess of the MDL (Table 1). GP-5 located northeast of MW-4 and within the former UST basin, showed concentrations detected above MDLs for TPPH, ethylbenzene and MTBE at 20 feet bgs.

Groundwater

800 and 706 Harrison Street Summary

Groundwater was not encountered or collected in the borings advanced at GP-1 and GP-2.

726 Harrison Street Summary

Groundwater samples were collected from boring GP-3 and from monitoring well MW-6 (Figure 4). Concentrations of BTEX and MTBE were detected in excess of the MCL in GP-3 and MTBE was detected at a concentration of 990 micrograms per liter at MW-6. Groundwater was encountered at approximately 20 feet bgs at GP-3 and MW-6.

Downgradient Delineation

Groundwater samples were collected from boring GP-9 located from the 640 Harrison Street property (Figure 4). Groundwater samples collected from GP-9 had

concentrations below the detection limit for all analytes (Table 2). Groundwater was encountered at approximately 20 feet bgs.

Conclusions - Soil

As indicated in the Work Plan, soil samples were collected to address the data gaps associated with the site. Soil samples from GP-2 contained the highest concentrations of TPPH (3,200 mg/kg and 1,000 mg/kg). TPPH, TOG, and Hydraulic Fluid were not detected above the MDL in GP-1 indicating vertical and horizontal extent of TPPH at 800 Harrison Street is limited to the area around MW-1 and the former waste oil UST. Per the Work Plan, SVOCs and metals were not analyzed in GP-1 samples since TOG and Hydraulic Fluid were below laboratory reporting limits.

Soil boring GP-3 located near the southwestern corner of the building at 726 Harrison Street was advanced to assess the extent of TPPH in soil. TPPH was not detected above the MDL for soil samples collected from GP-3 indicating vertical and horizontal extent of TPPH is limited to the area near EW-1 and the former USTs.

Soil samples were collected from borings GP-5 through GP-7 to assess the effectiveness of past remediation. Based on the analytical results the past remediation at 706 Harrison was effective.

ARCADIS conducted a file review at ACEH on April 20, 2012 to further investigate the source of for EW-1. The information that was reviewed indicated that the USTs contained no spill or overfill preventative containment equipment for any of the former USTs. The contaminants detected near EW-1 could be attributed to the lack of spill or overfill containment equipment at the former USTs.

Conclusions - Groundwater

The downgradient extent of hydrocarbons in groundwater was addressed with a grab groundwater sample collected from GP-9 located at 640 Harrison Street (Figure 4). No detections of COC were found within the groundwater sample results (Table 2). The groundwater hydrocarbon extent for the comingled plume has been adequately delineated downgradient for the site.

Deep groundwater monitoring well MW-6 was installed at 726 Harrison Street to access the vertical delineation of hydrocarbons in groundwater. A groundwater sample was collected from this location during the third quarter 2011 monitoring

event. The results from the third quarter 2011 and the first quarter 2012 semi-annual reports indicate the presence of TPPH and MTBE. These concentrations range between 410 µg/L to 500 µg/L and 740 µg/L to 970 µg/L, respectively. These concentrations are above ESLs but less than the shallow well detections indicating vertical delineation for the site has been achieved.

Recommendations

Based on the site assessment activities for the co-mingled plume ARCADIS has completed the soil and groundwater delineation for the site. ARCADIS recommends a revised Site Conceptual Model. ARCADIS will discuss the remedial alternatives of the site with the Chevron Remediation System Review Team (RSRT). Once concurrence from RSRT is received, ARCADIS will prepare a Feasibility Study to be submitted to the agency. Anticipated schedule for completion of the FS is approximately 6 months.

If you have any questions or comments regarding the contents of this document, please contact Ms. Roya Kambin of Chevron at 925-790-6270 or by e-mail at RKambin@Chevron.com. Alternatively, you may contact Katherine Brandt of ARCADIS at 510.596.9675 or by e-mail at Katherine.Brandt@arcadis-us.com.

Sincerely,

ARCADIS

Katherine Brandt
Certified Project Manager

David Lay
Professional Geologist

Enclosures:

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Soil Concentration Map
Figure 4	Groundwater Concentration Map
Table 1	Soil Analytical Results
Table 2	Groundwater Analytical Results
Appendix A	Drilling Permits and Access Agreements
Appendix B	Boring Logs (GP-1, GP-9 and GP-10)
Appendix C	Soil and Groundwater Analytical Laboratory Reports and Chain-of-Custody Documentation

Copies:

Ms. Roya Kambin, Chevron Environmental Management Company
Mr. Eric Hetrick, ConocoPhillips Company
Ms. Cherie McCaulou, San Francisco Bay Region RWQCB
Mr. Muhammad Usman and Mr. Mahmood M. Ali, Property Owners – 800 Harrison Street
Mr. Peter Yee and Mr. Kin Chan, Property Owners – 726 Harrison Street
Mr. Bo Gin, Property Owner – 706 Harrison Street

References

Aqua Science Engineers, Inc. 2007. *Subsurface Utility Study, Area Well Study, and Work Plan for Additional Soil and Groundwater Assessment for 726 Harrison Street, Oakland, California*, December 6.

Conestoga-Rovers and Associates. 2007. *Onsite Characterization Work Plan for 706 Harrison Street, Oakland. California*, October 5.

Gettler-Ryan, Inc. 2001. *Site Conceptual Model for 800 Harrison Street, Oakland, California*, April 23.

Stantec Consulting Corporation (Stantec). 2009. *Site Conceptual Model 800, 726, and 706 Harrison Street Comingled Plume Oakland, California*, September 30, 2009.

Stantec. 2011. *Commingled Plume Assessment Work Plan*, *800, 726, and 706 Harrison Street, Oakland, California*.

U.S. Geological Survey. 2000. USGS, R.W, Graymer, Geologic Mand and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California.

ARCADIS

Figures

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., OAKLAND WEST, CALIFORNIA, 1993.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

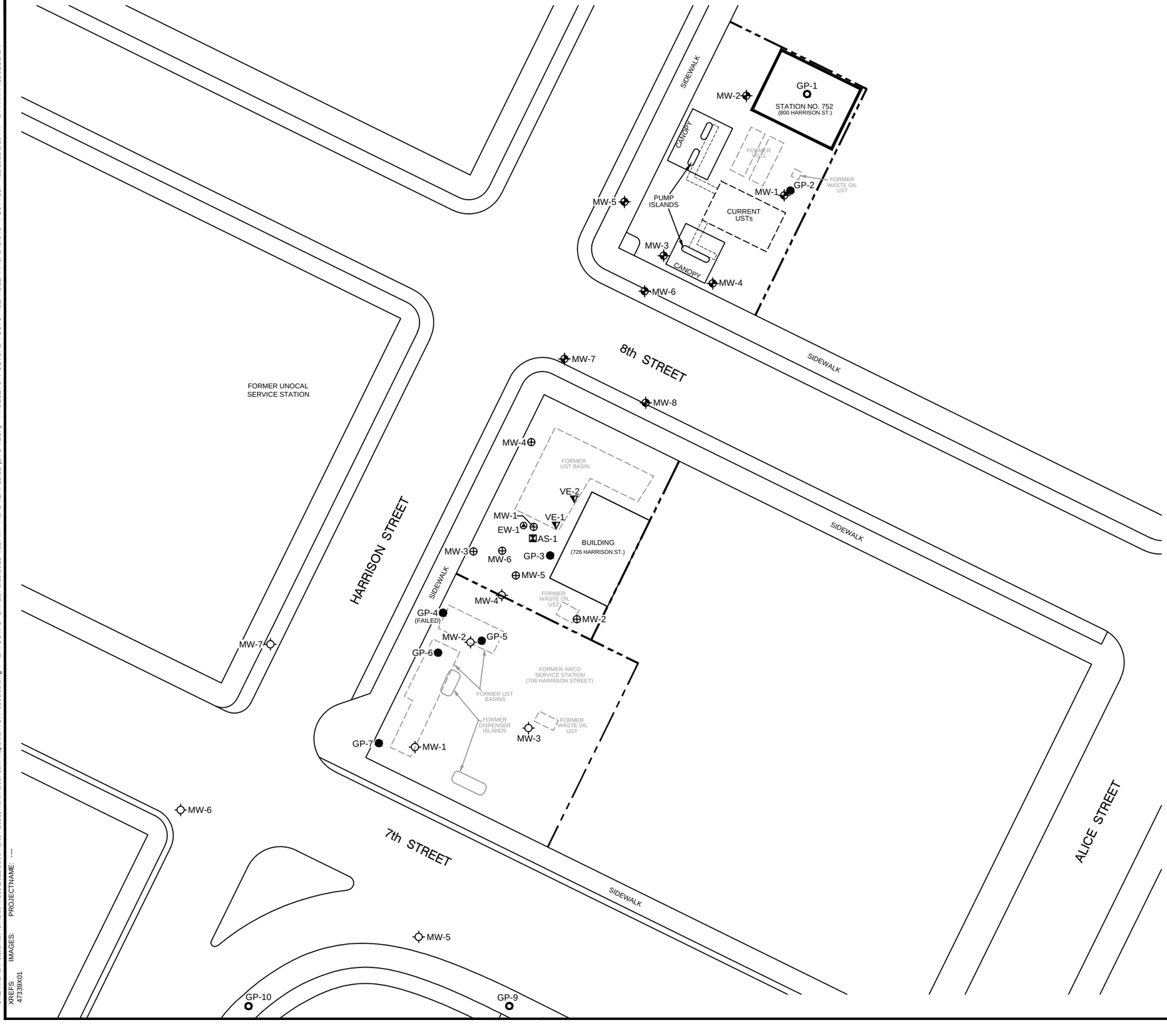
UNION OIL OF CALIFORNIA
STATION NO. 0752/YEE/GIN COMMINGLED
706/726/800 HARRISON STREET
OAKLAND, CALIFORNIA

SITE ASSESSMENT ADDENDUM REPORT

SITE LOCATION MAP

ARCADIS

FIGURE 1



LEGEND

- PROPERTY BOUNDARY
- PRODUCT PIPING
- MW-1 GROUNDWATER MONITORING WELL (UNOCAL)
- MW-1 GROUNDWATER MONITORING WELL (GIN)
- MW-1 GROUNDWATER MONITORING WELL (YEE)
- AS-1 AIR SPARGE WELL (YEE)
- EW-1 EXTRACTION WELL (YEE)
- VE-1 DESTROYED WELL (YEE)
- GP-2 GEOPROBE™ (JUNE 2011)
- GP-9 GEOPROBE™ (MARCH 2012)

NOTE:

1. BASE MAP PROVIDED BY MID COAST ENGINEERS, DATED 06/29/11, AT A SCALE OF 1"=50'. ADDITIONAL SITE FEATURES PROVIDED BY STANTEC, INC., DATED 03/05/10, AT A SCALE OF 1"=50'.
2. COORDINATES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE III, NAD 83.

0 50' 100'

GRAPHIC SCALE

UNION OIL OF CALIFORNIA
STATION NO. 0752/YEE/GIN COMMINGLED
706/726/800 HARRISON STREET
OAKLAND, CALIFORNIA

SITE ASSESSMENT ADDENDUM REPORT

SITE PLAN

ARCADIS

FIGURE 2

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS
G:\ENVCAD\Petaluma\ACTIB\00473392012000004\Site Assessment Addendum Report\DWG\47339B01.dwg LAYOUT: 2 SAVED: 8/18/2011 4:52 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 4/18/2012 5:10 PM BY: HARRIS, JESSICA
XREFS: IMAGES: PROJECTNAME: ---
47339X01

GP-1 (3/28/12)										
Depth	TPPH	TPH	TOG	B	T	E	X	MTBE	EDB	1,2-DCA
6.0	<0.16	NA	NA	<0.0040	<0.0040	<0.0040	<0.0079	<0.0040	<0.0040	<0.0040
10.0	<0.18	NA	NA	<0.0045	<0.0045	<0.0045	<0.0090	<0.0045	<0.0045	<0.0045
14.0	<0.16	<4.0	<50	<0.0040	<0.0040	<0.0040	<0.0079	<0.0040	<0.0040	<0.0040

GP-2 (6/24/11)								
Depth	TPPH	B	T	E	X	MTBE	EDB	1,2-DCA
5.0	<0.63	<0.016	<0.016	<0.016	<0.031	<0.016	<0.016	<0.016
10.0	21	<0.0044	<0.0044	<0.0044	<0.0088	0.013	<0.0044	<0.0044
14.0	3,200	<0.0044	<0.0044	0.013	0.11	0.028	<0.0044	<0.0044
17.0	1,000	<0.0044	0.024	0.015	0.098	0.060	<0.0044	<0.0044

MW-6 (6/20/11)								
Depth	TPPH	B	T	E	X	MTBE	EDB	1,2-DCA
6.5	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
11.0	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
16.0	0.12 J	<0.0050	<0.0050	<0.0050	<0.010	0.0092	<0.0050	<0.0050

GP-3 (6/20/11)								
Depth	TPPH	B	T	E	X	MTBE	EDB	1,2-DCA
7.0	<0.20	<0.0050	<0.0050	<0.0050	<0.010	0.00087 J	<0.0050	<0.0050
10.0	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
15.0	<0.20	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050

GP-5 (6/24/11)								
Depth	TPPH	B	T	E	X	MTBE	EDB	1,2-DCA
5.0	<0.30	<0.0074	<0.0074	<0.0074	<0.015	<0.0074	<0.0074	<0.0074
10.0	<0.18	<0.0044	<0.0044	<0.0044	<0.0089	<0.0044	<0.0044	<0.0044
15.0	<0.16	<0.0040	<0.0040	<0.0040	<0.0081	<0.0040	<0.0040	<0.0040
20.0	2.1	<0.0043	<0.0043	0.0057	<0.0085	0.0099	<0.0043	<0.0043

GP-6 (6/24/11)								
Depth	TPPH	B	T	E	X	MTBE	EDB	1,2-DCA
5.0	<0.19	<0.0047	<0.0047	<0.0047	<0.0094	<0.0047	<0.0047	<0.0047
10.0	<0.17	<0.0043	<0.0043	<0.0043	<0.0086	<0.0043	<0.0043	<0.0043
15.0	<0.18	<0.0045	<0.0045	<0.0045	<0.0089	<0.0045	<0.0045	<0.0045

GP-7 (6/24/11)								
Depth	TPPH	B	T	E	X	MTBE	EDB	1,2-DCA
5.0	<0.23	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
10.0	<0.19	<0.0048	<0.0048	<0.0048	<0.0096	<0.0048	<0.0048	<0.0048
15.0	<0.17	<0.0043	<0.0043	<0.0043	<0.0086	<0.0043	<0.0043	<0.0043

LEGEND

- PROPERTY BOUNDARY
- PRODUCT PIPING
- MW-1 GROUNDWATER MONITORING WELL (UNOCAL)
- MW-1 GROUNDWATER MONITORING WELL (GIN)
- MW-1 GROUNDWATER MONITORING WELL (YEE)
- AS-1 AIR SPARGE WELL (YEE)
- EW-1 EXTRACTION WELL (YEE)
- VE-1 DESTROYED WELL (YEE)
- GP-2 GEOPROBE™ (JUNE 2011)
- GP-9 GEOPROBE™ (MARCH 2012)

TPPH	TOTAL PURGEABLE PETROLEUM HYDROCARBONS
TPH	TOTAL PETROLEUM HYDROCARBONS
TOG	TOTAL OIL AND GREASE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENES
MTBE	METHYL TERTIARY BUTYL ETHER
EDB	1,2-DIBROMOETHANE
1,2-DCA	1,2-DICHLOROETHANE
J	ESTIMATED VALUE
NA	NOT ANALYZED
<	NOT DETECTED AT CONCENTRATION THRESHOLD AS SHOWN
(6/20/11)	SAMPLE DATE
BOLD	RESULTS EXCEED ENVIRONMENTAL SCREENING LEVELS (ESLs) FOR RESIDENTIAL SOIL: CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD-SAN FRANCISCO BAY REGION

ALL CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (mg/kg)

ALL DEPTHS SHOWN ARE IN FEET BELOW GROUND SURFACE (FT BGS)

0 50' 100'
GRAPHIC SCALE

NOTES:

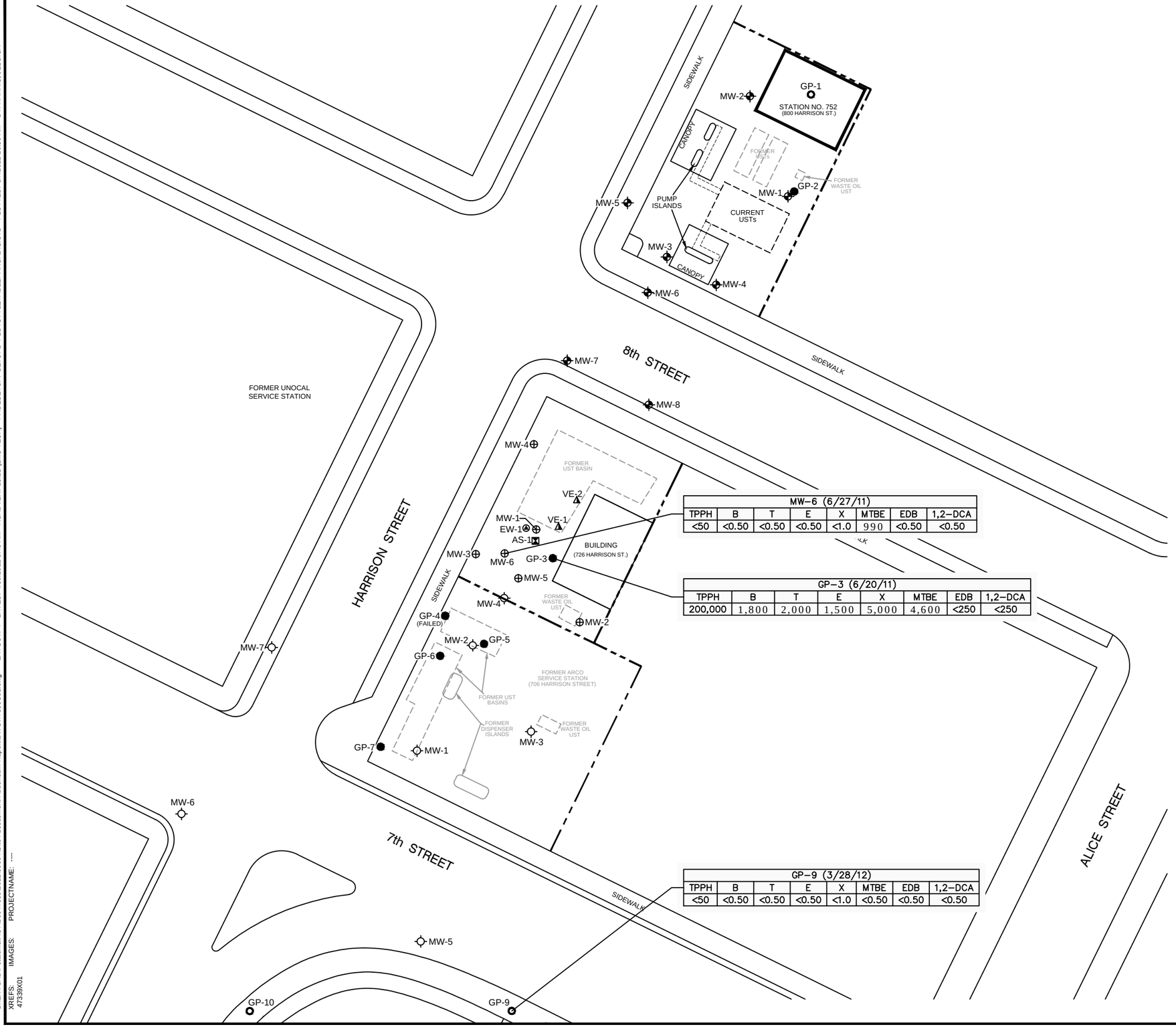
1. BASE MAP PROVIDED BY MID COAST ENGINEERS, DATED 06/29/11, AT A SCALE OF 1"=50'. ADDITIONAL SITE FEATURES PROVIDED BY STANTEC, INC., DATED 03/05/10, AT A SCALE OF 1"=50'.
2. COORDINATES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE III, NAD 83.

UNION OIL OF CALIFORNIA
STATION NO. 0752/YEE/GIN COMMINGLED
706/726/800 HARRISON STREET
OAKLAND, CALIFORNIA
SITE ASSESSMENT ADDENDUM REPORT

SOIL HYDROCARBON CONCENTRATION MAP JUNE 2011 AND MARCH 2012

ARCADIS

FIGURE 3



MW-6 (6/27/11)							
TPPH	B	T	E	X	MTBE	EDB	1,2-DCA
<50	<0.50	<0.50	<0.50	<1.0	990	<0.50	<0.50

GP-3 (6/20/11)							
TPPH	B	T	E	X	MTBE	EDB	1,2-DCA
200,000	1,800	2,000	1,500	5,000	4,600	<250	<250

GP-9 (3/28/12)							
TPPH	B	T	E	X	MTBE	EDB	1,2-DCA
<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50

LEGEND

- PROPERTY BOUNDARY
- PRODUCT PIPING
- MW-1 GROUNDWATER MONITORING WELL (UNOCAL)
- MW-1 GROUNDWATER MONITORING WELL (GIN)
- MW-1 GROUNDWATER MONITORING WELL (YEE)
- AS-1 AIR SPARGE WELL (YEE)
- EW-1 EXTRACTION WELL (YEE)
- VE-1 DESTROYED WELL (YEE)
- GP-2 GEOPROBE™ (JUNE 2011)
- GP-9 GEOPROBE™ (MARCH 2012)

TPPH	TOTAL PURGEABLE PETROLEUM HYDROCARBONS
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENES
MTBE	METHYL TERTIARY BUTYL ETHER
EDB	1,2-DIBROMOETHANE
1,2-DCA	1,2-DICHLOROETHANE
<	NOT DETECTED AT CONCENTRATION THRESHOLD AS SHOWN
(6/20/11)	SAMPLE DATE
BOLD	RESULT EXCEEDS MAXIMUM CONTAMINANT LEVELS (MCLs) FOR DRINKING WATER STANDARDS: DEPARTMENT OF CALIFORNIA HEALTH SERVICES

ALL CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)

NOTES:

1. BASE MAP PROVIDED BY MID COAST ENGINEERS, DATED 06/29/11, AT A SCALE OF 1"=50'. ADDITIONAL SITE FEATURES PROVIDED BY STANTEC, INC., DATED 03/05/10, AT A SCALE OF 1"=50'.
2. COORDINATES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE III, NAD 83.

0 50' 100'

GRAPHIC SCALE

UNION OIL OF CALIFORNIA
STATION NO. 0752/YEE/GIN COMMINGLED
706/726/800 HARRISON STREET
OAKLAND, CALIFORNIA

SITE ASSESSMENT ADDENDUM REPORT

GROUNDWATER HYDROCARBON CONCENTRATION MAP JUNE 2011 AND MARCH 2012

ARCADIS

FIGURE 4

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS
G:\ENVCAD\Petaluma\ACTIB\004739\2012\000004\Site Assessment Addendum Report\DWG\47339C02.dwg LAYOUT: 4 SAVED: 4/30/2012 9:45 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: SETUP1 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 5/7/2012 10:39 AM BY: HARRIS, JESSICA
XREFS: IMAGES: PROJECTNAME: ---
47339X01

ARCADIS

Tables

Table 1
Soil Analytical Data
Chevron Site ID 351646
800, 726, and 706 Harrison Street, Oakland, California

Sample Name	Sample Date	Sample Depth (feet bgs)	LUFT GC/MS			EPA 8260B						
			TPPH (mg/kg)	TPH-mo (mg/kg)	TOG (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	EDB (mg/kg)	1,2-DCA (mg/kg)
706 Harrison Street												
GP-5	06/24/11	5.0	<0.30	NA	NA	<0.0074	<0.0074	<0.0074	<0.015	<0.0074	<0.0074	<0.0074
	06/24/11	10.0	<0.18	NA	NA	<0.0044	<0.0044	<0.0044	<0.0089	<0.0044	<0.0044	<0.0044
	06/24/11	15.0	<0.16	NA	NA	<0.0040	<0.0040	<0.0040	<0.0081	<0.0040	<0.0040	<0.0040
	06/24/11	20.0	2.1	NA	NA	<0.0043	<0.0043	0.0057	<0.0085	0.0099	<0.0043	<0.0043
GP-6	06/24/11	5.0	<0.19	NA	NA	<0.0047	<0.0047	<0.0047	<0.0094	<0.0047	<0.0047	<0.0047
	06/24/11	10.0	<0.17	NA	NA	<0.0043	<0.0043	<0.0043	<0.0086	<0.0043	<0.0043	<0.0043
	06/24/11	15.0	<0.18	NA	NA	<0.0045	<0.0045	<0.0045	<0.0089	<0.0045	<0.0045	<0.0045
GP-7	06/24/11	5.0	<0.23	NA	NA	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
	06/24/11	10.0	<0.19	NA	NA	<0.0048	<0.0048	<0.0048	<0.0096	<0.0048	<0.0048	<0.0048
	06/24/11	15.0	<0.17	NA	NA	<0.0043	<0.0043	<0.0043	<0.0086	<0.0043	<0.0043	<0.0043
726 Harrison Street												
GP-3	06/20/11	7.0	<0.20	NA	NA	<0.0050	<0.0050	<0.0050	<0.010	0.00087 J	<0.0050	<0.0050
	06/20/11	10.0	<0.20	NA	NA	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
	06/20/11	15.0	<0.20	NA	NA	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
MW-6	06/20/11	6.5	<0.20	NA	NA	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
	06/20/11	11.0	<0.20	NA	NA	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
	06/20/11	16.0	0.12 J	NA	NA	<0.0050	<0.0050	<0.0050	<0.010	0.0092	<0.0050	<0.0050
800 Harrison Street												
GP-1	03/28/12	6.0	<0.16	NA	NA	<0.0040	<0.0040	<0.0040	<0.0079	<0.0040	<0.0040	<0.0040
	03/28/12	10.0	<0.18	NA	NA	<0.0045	<0.0045	<0.0045	<0.0090	<0.0045	<0.0045	<0.0045
	03/28/12	14.0	<0.16	<4.0	<50	<0.0040	<0.0040	<0.0040	<0.0079	<0.0040	<0.0040	<0.0040
GP-2	06/24/11	5.0	<0.63	NA	NA	<0.016	<0.016	<0.016	<0.031	<0.016	<0.016	<0.016
	06/24/11	10.0	21	NA	NA	<0.0044	<0.0044	<0.0044	<0.0088	0.013	<0.0044	<0.0044
	06/24/11	14.0	**3,200**	NA	NA	<0.0044	<0.0044	0.013	0.11	**0.028**	<0.0044	<0.0044
	06/24/11	17.0	**1,000**	NA	NA	<0.0044	0.024	0.015	0.098	**0.060**	<0.0044	<0.0044
ESLs for Residential Soils			**83**			**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**-**	**-**

Explanation

bgs	Below ground surface
TPPH	Total purgeable petroleum hydrocarbons
TOG	Total Oil and Grease by USEPA Method 1664
TPH-mo	Hydraulic Oil/ Motor Oil by USEPA Method 8015
MTBE	Methyl tertiary butyl ether
NA	Not analyzed
EDB	1,2-Dibromoethane
1,2-DCA	1,2-Dichloroethane
mg/kg	Milligrams per kilogram
<0.0005	Not detected at concentration threshold as shown
-	Unavailable
J	Estimated value
ESL	Table C. Environmental Screening Levels (ESLs), Deep Soils (>3meters below ground surface), Groundwater is a Current or Potential Source of Drinking Water, CRWQCB-SFBR, Table C, November 2007

Table 2
Groundwater Analytical Data
Chevron Site ID 351646
800, 726, and 706 Harrison Street, Oakland, California

Sample Name	Sample Date	LUFT GC/MS	EPA 8260B						
		TPPH (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	EDB (µg/L)	1,2-DCA (µg/L)
726 Harrison Street									
GP-3	06/20/11	200,000	**1,800**	**2,000**	**1,500**	**5,000**	**4,600**	<250	<250
MW-6	06/27/11	510	0.81	<0.0050	<0.0050	<0.010	**990**	<0.0050	1.0
640 Harrison Street									
GP-9	03/28/12	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50
MCLs for Groundwater		-	**1.0**	**150**	**300**	**1,750**	**13**	**-**	**-**

Explanation

bgs	Below ground surface
TPPH	Total purgeable petroleum hydrocarbons
MTBE	Methyl tertiary butyl ether
EDB	1,2-Dibromoethane
1,2-DCA	1,2-Dichloroethane
µg/L	Micrograms per liter
<0.0005	Not detected at concentration threshold as shown
NA	Not analyzed
-	Unavailable
MCL	Maximum Contaminant Levels for Drinking Water Standards: Department of California Health Services

ARCADIS

Appendix A

Drilling Permits and
Access Agreements

CITY OF OAKLAND

250 FRANK H. OGAWA PLAZA OAKLAND, CALIFORNIA 94612-2033

Community and Economic Development Agency
Real Estate Services

(510) 238-3541
FAX (510) 238-2240
TDD (510) 839-6451

March 19, 2012

Kelley C. Esters
Property Specialist
Chevron Environmental Management Company
6101 Bollinger Canyon Road
San Ramon, CA 94583

Re: Revocable Permission Agreement to Enter Real Property (640 Harrison Street, Oakland CA)

Dear Kelley:

Enclosed a fully executed Revocable Permission Agreement to Enter Real Property ("Agreement") affecting 640 Harrison Street, Oakland, CA.

In accordance with the Agreement, this confirms the receipt of the following:

1. $1,178.32 check (administrative processing fee)
2. $3,000 cashier's check (security deposit)
3. Statement of Self-Insurance letter dated March 13, 2012.

Very truly yours,

Ed

Edwin H. Kawamoto
Real Estate Agent

Enclosures

Revocable Permission Agreement to Enter Real Property
(640 Harrison Street, Oakland, CA)

This Revocable Permission Agreement to Enter Real Property ("Agreement") is made _____, 2012 by and between the City of Oakland, a municipal corporation ("City") and Chevron Environmental Management Company, a California corporation, for itself and as Attorney-in-fact for Union Oil Company of California, a California corporation ("Union").

Recitals

This Agreement is made with respect to the following:

1. City owns that certain property with the street address of 640 Harrison Street, Oakland, CA ("Property") shown on the map attached as Exhibit A.

2. Union operated a retail service station at 800 Harrison Street, Oakland, CA ("Service Station"). Under the directions of the Alameda County Environmental Health Services, Union is required to conduct an environmental investigation with respect to any hydrocarbon release from this Service Station. Union has retained Arcadis U.S. Inc. ("Arcadis") to complete this work, as described in the email, dated January 23, 2011 from Katie Wynne of Arcadis ("Scope of Work") attached as Exhibit B and shown as the Work Areas ("Work Areas") on the Proposed Locations Map attached as part of Exhibit B.

3. Union has requested the City's permission for the following:

    a. Right of entry for egress and ingress over the Property for the sole purpose of two soil borings in each of the two Scope of Work Areas.

    b. Right to drill two soil borings in each of the Work Areas to collect and to remove soil and water samples in accordance with the Scope of Work. No wells will be installed on the Property.

4. City is willing to accommodate Union's request for permission to enter and to use the Work Areas of the Property to complete the Scope of Work subject to the terms and conditions set forth in this Agreement.

Agreement

For and in consideration of the mutual undertaking and promises set forth in this Agreement, City and Union agree as follows:

1. **Grant of Revocable Permission to Enter and use Property**. City grants to Union revocable permission to enter and use the Work Areas of the Property and to complete the Scope of Work on the following terms and conditions:

A. **Revocable Permission to Enter the Work Areas.** Except for this revocable permission to enter and to use the Work Areas to complete the Scope of Work, no other property interest or right shall be conveyed to Union, Union's employees, contractors, agents and related invitees. This permission to Union is revocable, limited, non-transferable, and nonexclusive.

B. **Term.** This agreement shall be effective for a two-day period, commencing March 28, 2012 and ending March 29, 2012,("Term") but the City's revocable permission shall be subject to the City's option at any time to terminate this Agreement at the City's sole discretion with 24 hours advance written notice (without stating any reason) to Union.

C. **Work Completion.** All work described in the Scope of Work shall be completed within two consecutive days after the commencement of such work. If the Scope of Work is not completed within the two-day period, Union agrees to pay rent of $50 per day for each additional day necessary to complete the Scope of Work.

D. **Administrative Processing Fee.** In consideration for the City's revocable permission granted by this Agreement, Union agrees to pay $1,178.32 (as an administrative processing fee) to the City when this Agreement is signed by Union and delivered to the City at the address set forth below:

City of Oakland
Real Estate Services Division
250 Frank H. Ogawa Plaza, Suite 4314
Oakland, CA 94612

E. **Permitted Uses and Activities.** City's grant of permission to Union to enter the Work Areas shall be subject to the following terms and conditions:

1. Time of Union's activity. Union's activity including the entry to the Work Areas and all Scope of Work (including the drilling and removal of soil and water samples) shall be limited from 8:00 AM to 5:00 PM every weekday (including weekends).

2. Entry to the Property: Union's entry to the Property shall be limited to and from the sidewalks on Harrison Street and 7th adjacent to the Work Areas.

3. Use of Work Areas. Union shall not use or occupy the Property for any other purpose, but for the sole purpose of drilling the two borings

for the removal of the soil and water samples from the Work Areas and the restoration of the Property areas affected.

F. **Security Deposit.** To secure Union's performance under this Agreement, Union shall deliver a cashier's check for $3,000 payable to City. If Union fails to comply with any provision of this Agreement after a three-day written notice is delivered to Union, City shall have the option to deposit the check and credit the amount of the cashier' check against any monetary obligation that is due to City. If Union complies with the Agreement, the cashier's check will not be deposited, but it shall be promptly returned to Union at termination of the Agreement, if Union has left Property in a condition satisfactory to City. When the cashier' check is returned to Union, Union shall have no claim against City or any permission to enter the Premises.

2. **Condition of the Property.** Union has inspected the Property (including the Work Areas), and Union agrees to accept the City's permission to enter the Property and to use the Work Areas of the Property in its "As Is" condition without any warranty, expressed or implied.

3. **Hazardous Materials**. Union shall not use, cause or allow the use, storage, deposit or disposal of any hazardous material or substance on the Property. Union shall comply with all federal, state and local laws and regulations applicable and relevant to the storage and use of such hazardous material or substance. If Union contaminates the Property as part of the activities performed as part of the Scope of Work, which requires mitigation, remediation, or removal under Federal or California State law, Union shall promptly undertake all necessary actions to remove the contaminating material or substance from the Property at no cost to City. If Union fails to comply after 24 hour written notice from City, City shall have the option to complete the work required to remove the hazardous material or substance at Union's cost.

4. **Restoration**. When this Agreement terminates, Union shall restore the Property (including the Work Areas) to its original condition. The restoration work shall include the removal of all debris, litter, equipment, and other related materials and the restoration of any area affected from Union's entry and use of the Property, which shall all be accomplished at Union's own cost. The restoration work shall also include the repairs to any damages to the irrigation systems (including the water lines and sprinkler heads), landscaping, driveways, curbs, walkways, utility boxes (including underground lines and utility boxes), and other parts of the Property. If Union fails to restore the Property to the City's satisfaction after 24 hour written notice from City, City shall have the option to complete the work required to restore the Property to its original condition at Union's cost.

5. **Indemnification**. Union agrees to protect, defend, indemnify and hold harmless City, and its respective Council members, officers, agents, contractors and employees against any and all third party claims, damages, causes of action, litigation, liability, losses and expenses, including but not limited to court costs and attorney's fees arising directly or

indirectly relating to City's revocable permission to Union. Union further agrees to defend the City, its Council members, officers, employees, contractors and agents with legal counsel selected by City from any claim or action relating to City's revocable permission to Union when a claim is tendered to Union by City and shall continue thereafter until such claim is resolved to City's satisfaction. Union's obligations under this paragraph shall not apply to any such claim of loss, damage, injury, or death caused solely by the negligence or the wrongful conduct of the City, but shall apply under all other circumstances. Union's obligations under this paragraph shall survive the expiration or sooner termination of this Agreement.

6. **Insurance**. For the term of this Agreement, Union shall purchase and pay for Workers' Compensation insurance as required by law. Union shall also purchase and pay for insurance in the amounts and types set forth in Exhibit C, attached hereto and made a part hereof. Union hereby releases City and waives any claims against the City for any and all liability resulting from any loss or damage caused by fire or any other perils, to the extent of the indemnity obligations contained in this Agreement. Union's insurance policies shall include a waiver of subrogation against the City, and any entity affiliated with the City to the extent of the indemnity obligations contained in this Agreement. All such insurance shall be in such form and shall be in such amounts as shown in Exhibit C. Policies of insurance and certificates of such insurance shall be in full force and effect at all times during the term of this Agreement and the certificates or a letter of self insurance shall be delivered to the City prior to the commencement of this Agreement.

In lieu of any insurance required in this Section 6 and as set forth in Exhibit C, attached hereto, Union may self assume the risks hereunder and use a Self Administered Claims Program for this purpose. Union will notify the City in writing 30 days prior to cancellation of the Self Administered Claims Program. The scope of coverage shall be as broad as described in this Section 6 and as set forth in Exhibit C, attached hereto. Evidence of such self-insurance shall be provided in a form acceptable to the City Risk Manager.

7. **Required Permits**. This Agreement shall not relieve Union from obtaining any applicable governmental permits and approvals, including the payment of any related fees and the posting of any bond or other performance guarantee that may be required in connection with Union's Scope of Work relating to this Agreement.

8. **Liens**. Union shall not permit the attachment of any liens against the Property in connection with the Scope of Work performed on the Property. Union agrees to indemnify and to hold City harmless against any loss, damage, and claims resulting from any such liens.

9. **Defaults**. After receipt of written notice from City, Union shall cure any default listed in such notice. If Union fails to cure any default within the period noted in such notice consistent with this Agreement, City shall have the option to promptly terminate this Agreement. Such defaults under this Agreement include but are not limited to the

following:

A. Failure to pay any monetary considerations when due and payable under this Agreement.

B. Failure to deliver a copy a copy of any report required under this Agreement.

C. Failure to use the Property (including the Work Areas) in accordance with this Agreement.

D. Failure to restore, maintain and keep the Property in good repair under this Agreement.

E. Failure to keep the Property free and clear of garbage and debris required under this Agreement.

F. Failure to reimburse City for any cost paid by City that Union is obligated to pay under this Agreement, which include but not limited to the cost of restoration, repair and maintenance, keeping the Property free and clear of garbage and debris, and any other related expense under the Agreement.

G. Failure to comply with any other provision of this Agreement.

In addition to the option to terminate this Agreement, City shall be entitled to exercise all other rights and remedies available to enforce the terms and conditions of this Agreement.

10. **Entire Understanding**. This Agreement contains the entire understanding of the parties relating to the subject matter of this Agreement and it shall not be modified except in writing signed by City and Union.

11. **Attorney's Fees.** In the event of any litigation to enforce the terms and conditions of this Agreement, the prevailing party in such litigation shall be entitled to recover its costs, including reasonable attorney's fees and related expenses against the non-prevailing party.

12. **Applicable Laws.** This Agreement shall be construed in accordance with the laws of the State of California. The parties agree to comply with all applicable federal, state and local laws in all matters relating to this Agreement.

13. **Survival of Obligations.** All obligations and covenants imposed on Union under this Agreement shall survive the expiration or earlier termination of this Agreement.

14. **Notice.** All notices ("Notices") given by either party to this Agreement shall be in writing and shall be sent by United State certified or registered mail, postage prepaid, return receipt required or by overnight carrier or personally delivered addressed to the City or Union.

Any Notice to City may be given at:

City of Oakland
Real Estate Services Division
250 Frank H. Ogawa Plaza, Suite 4314
Oakland, CA 94612

Any Notice to Union may be given at:

Chevron Environmental Management Company
Marketing Business Unit
6101 Bollinger Canyon Road
San Ramon, CA 94583
Attn.: Kelly Esters, Property Specialist, Facility #351404
Phone: (925) 790-6480
Email: KEsters@Chevron.com

Any Notice shall be deemed given two business days following the date of mailing or one business day following delivery of the Notice to an overnight carrier or when the personal delivery is effectuated. Either the party may change its address by providing Notice to the other party.

15. **Reports.** A the City's request, Union shall promptly provide City with a copy of all final reports, laboratory test results, and other communications submitted to any government agency concerning any environmental investigation preformed on the Property.

16. **Exhibits.** All exhibits referenced in this Agreement are attached hereto and made a part hereof. In the event of any conflict between the Agreement and any related exhibits, the provision of this Agreement shall supersede and shall prevail over any conflicting provisions in the exhibits.

17. **Time is of the Essence.** Time is of the essence with respect to each provision of this Agreement.

IN WITNESS THEREOF, the parties have executed this Agreement as of the date first above written.

Union:

Chevron Environmental Management Company, a California corporation, itself and as Attorney-in-fact for Union Oil Company of California, a California corporation

By: Michael W. Woody
Name: Michael W. Woody
Title: Assistant Secretary
Date: 3/13/12

The City:

City of Oakland
By:
Name: Hamid Ghaemmaghami
Title: Supervising Real Estate Agent, Real Estate Services
Date: 3-19-2012

Table of Exhibits	
Exhibit	**Description**
A	Property Map of 640 Harrison Street
B	Scope of Word (Email dated 1/23/12) and Proposed Locations Map
C	Insurance Requirements.

Exhibit A: Property Map

640 Harrison Street

Legend

- Selected Features
- City Limits
- Parcels
- Freeways
- MajorSts
- Streets
- Water
- 2003 ORTHOPHOTOS

N
W E
S

It is imperative that you obtain BOTH the Zoning and General Plan designations for the property(s) you are searching for.

Questions? Contact a planner at (510)238-3911.

Printed: 1/25/2012 2:40:27 PM

City of Oakland

Exhibit B: Scope of Work

Kawamoto, Edwin

From: Wynne, Katie [Katie.Wynne@arcadis-us.com]

Sent: Monday, January 23, 2012 2:20 PM

To: Arceneaux, Nicole

Subject: FW: 76 PP -- 640 Harrison Street, Oakland -- Access to install 2 soil borings

Hi Nicole,
See answers below in red.
Let me know if anyone has any questions.

Field Work Scheduled for:
February 9 and 10, 2012

Map of Property showing any: (a) improvements including any building or structures, (b) sidewalks and curbs, and (c) plantings, (d) proposed access area for work, (e) proposed work area, and the location of the proposed two borings.
A revised Site Plan is still being completed and will be sent as soon as possible.

Diameter and dept of each boring.
ARCADIS will advance 2 borings per location (4 borings total) - using a Direct Push Rig approximately 2–inch diameter to 20 feet below ground surface (bgs) (depending on where groundwater is observed).

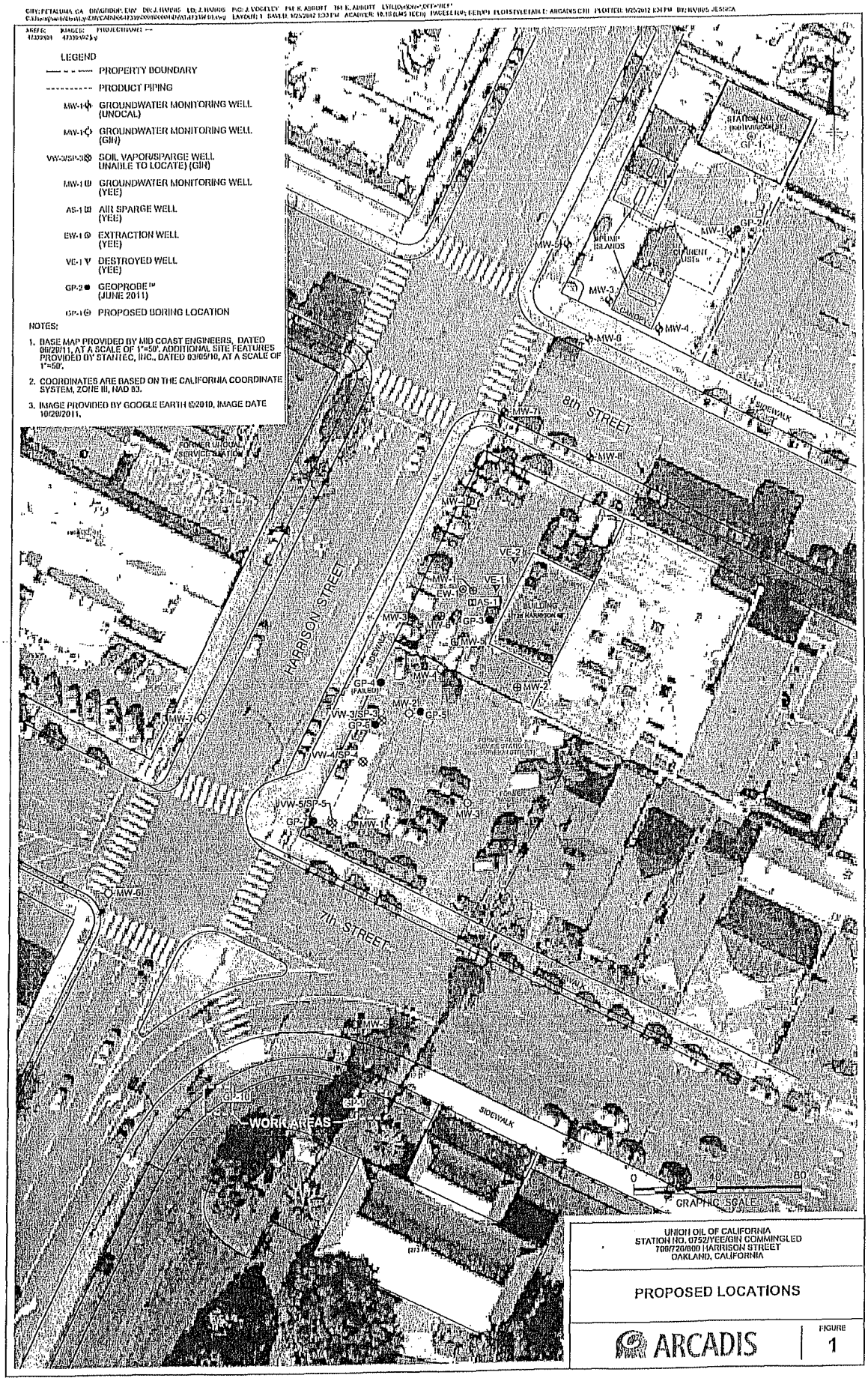
Scope of work (including the use of equipment) in the proposed work area to complete the boring and sample removal.
As described in the Co-mingled Work Plan beginning on Page 7 (attached) see below Scope of Work.

- Within the proposed work areas an equipment list is provided below: (**Please Note**: I am not sure how detailed you would like this list but here is the basics).
  - Direct Push Drill Rig – 1 Driller
  - Support Truck (for the drill rig) – 1 Helper
  - 55-gallon drum for soil disposal (this will be removed from the site prior to ARCADIS leaving the site)
  - ARCADIS Field Staff (2 people)
  - Hand Auger
  - Electronic Sounder
  - Hydropunch Equipment for 2 borings
  - Stainless steel bailer
  - Sampling equipment (cooler, 40-ml Vials)
- ARCADIS will hand clear each borehole to 8 feet 1-inch bgs and then use a direct push rig to advance the rods to a depth of approximately 20 feet bgs.
- The first boring at each location will be logged by ARCADIS field staff for stratigraphy and depth to water. Soils encountered will be described in accordance with the Unified Soil Classification System (USCS) by field staff under the direction of a California Professional Geologist.
- After groundwater is observed ARCADIS field staff will oversee the borehole abandonment with a neat cement grout mixture from the bottom of the borehole to the surface.
- An adjacent boring will be hand cleared to 8 feet 1-inch bgs. The direct push rods will then be advanced to a depth of two feet below the water table.
- Once the depth is reached, the rod will be pulled back allowing the retractable stainless steel screen to be exposed.
- An electronic sounder will be used to verify the presence of water in the drill rods.
- A stainless steel bailer will then be used to collect a grab groundwater sample within the drill rob.
- Once the sampling is completed the borehole will be grouted using neat cement from the bottom of the borehole to the surface.
- The drill rods will act as a tremie pipe and will be removed from the borehole location.
- Grab groundwater samples will be analyzed for TPH-g, BTEX; lead scavengers 1,2-DCA and EDB; and MTBE by EPA Method 8260B.

Thank you,
Katie

From: Arceneaux, Nicole

1/23/2012



UNION OIL OF CALIFORNIA
STATION NO. 0752/YEE/GIN COMMINGLED
7007/7200/600 HARRISON STREET
OAKLAND, CALIFORNIA

PROPOSED LOCATIONS

ARCADIS

FIGURE 1

EXHIBIT C

Union's Insurance

Union shall obtain all of the insurance required hereunder and shall maintain the same at all times during the term of the Agreement. Union shall, at the time of execution of the license agreement and before its execution by the City, file with the Manager, Real Estate Services for approval, sufficient evidence of insurance thereof. Such insurance shall cover the following:

(1) Comprehensive Bodily Injury or Commercial General Liability Occurrence Form insuring for Property Damage Liability and Bodily Injury Liability, including:

- Premises and Operations;
- Owned, Non-owned and Hired Automobiles;
- Completed Operations;
- Product Liability;
- Broad Form Property Damage (including Completed Operations);
- Personal Injury;

(2) Garage Keeper's Liability Insurance

For the full limits in said policies of Two Million Dollars ($2,000,000) for claims which may arise from any cause or causes resulting from the operations and/or use of the Property, or the sidewalks, adjacent thereto, by Union, his agents, customers, business invitees and/or any persons acting on Union's behalf.

All referenced policy or policies shall include as an additional insured to the extent of the indemnity obligations contained in this Agreement the City of Oakland (including its Council members, officers, agents, and employees) and shall contain the following endorsement:

> "Notwithstanding any other provision in this policy, the insurance afforded hereunder to the CITY OF OAKLAND shall be primary as to any other insurance or reinsurance shall not be required to contribute to any liability or loss until and unless the appropriate limit of liability afforded hereunder is exhausted."

Union shall also provide to the City evidence of:

- Statutory worker's compensation coverage under California law;
- Employer's liability coverage for no less than ($1,000,000)
- Subrogation waiver for workers compensation and employers liability coverage to the extent of the indemnity obligations contained in this Agreement.

Each of the said policies of insurance shall contain a clause substantially in the following

words:

> "It is hereby understood and agree that the policy may not be canceled nor the amount of the coverage therefore be reduced until 30 days after receipt by the Manager, Real Estate Services of the City of Oakland of a written notice of such cancellation or reduction in coverage, as evidenced by receipt of a registered letter."

Cross Liability - In the event one of the assureds incurring liability to any other of the assureds, this policy shall cover the assured against whom claim is or may be made in the same manner as if separate policies had been issued to each assured. Nothing contained herein shall operate to increase Underwriter's limit of liability.

If such coverage is cancelled or reduced, Union shall, within 15 days after receipt of written notice from the City of such cancellation or reduction of coverage, but in no event later than the date of such cancellation or reduction, file with the Manager, Real Estate Services a certificate of endorsement showing that the required insurance has been reinstated or provided through another insurance company or companies. Upon failure to so file such certificate or endorsement, the City may terminate this Agreement.

All such policies shall be endorsed with severability of interests or cross liability endorsement, reading generally as described.

Alameda County Public Works Agency - Water Resources Well Permit

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 11/22/2011 By jamesy

Permit Numbers: W2011-0706
Permits Valid from 02/14/2012 to 04/30/2012

Application Id:	1320878070115	**City of Project Site:**	Oakland
Site Location:	800 Harrison St, Oakland, CA		
Project Start Date:	11/23/2011	**Completion Date:**	11/30/2011
Assigned Inspector:	Contact Steve Miller at (510) 670-5517 or stevem@acpwa.org		
Extension Start Date:	02/14/2012	**Extension End Date:**	04/30/2012
Extension Count:	1	**Extended By:**	priest

Applicant:	Arcadis - Leah Ackerman 2033 N Main St, Ste 340, Walnut Creek, CA 94596	**Phone:** 925-274-1100
Property Owner:	Muhammed Usman 800 Harrison St, Oakland, CA 94607	**Phone:** 510-893-2356
Client:	Roya Kambin 6101 Bollinger Canyon Rd, San Ramon, CA 94583	**Phone:** 925-790-6270

	Total Due:	$265.00
Receipt Number: WR2011-0343	**Total Amount Paid:**	$265.00
Payer Name : Arcadis	Paid By: CHECK	**PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Geo Probes-Sampling 24 to 72 hours only - 3 Boreholes
Driller: Gregg - Lic #: 485165 - Method: other

Work Total: $265.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2011-0706	11/22/2011	02/21/2012	3	4.00 in.	20.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Applicant shall contact Steve Miller for an inspection time at (510) 670-5517 or email to stevem@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

5. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled,

properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

6. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

7. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

8. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

ARCADIS

Appendix B

Boring Logs (GP-1, GP-9 and GP-10)

Date Start/Finish: 03/28/2012
Drilling Company: Greg Drilling
Driller's Name:
Drilling Method: Direct Push
Rig Type: Direct Push Rig
Sampling Method:
Acetate Sleeves

Northing: --
Easting: --
Casing Elevation: NA

Borehole Depth: 20 ft bgs
Surface Elevation:

Description By: Loretta Kwong
Reviewed By:

Well/Boring ID: GP-1

Client: Union Oil of California
Location:
800 Harrison Street, Oakland, CA

DEPTH	Elevation	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							Hand auger to 8' bgs	
5	-5		GP-1 @6'			0.1		@6': Dark yellowish brown (10YR4/6) SILTY SAND (SM) Fine to medium grain, medium dense, moist, no odor	
						0.1		Continious coring from 8' to 20'	
10	-10	1	GP-1 @10'	3'				8' to 11': Dark yellowish brown (10YR4/6) SILTY SAND (SM) Fine to medium grain, medium dense, moist, no odor	Neat Cement Grout (Surface to 20 ft bgs)
						0.1		11' to 14': SAA but yellowish brown (10YR5/6)	
		2		3'		0.1			
			GP-1 @14'			1.4		14' to 15': Dark yellowish brown (10YR4/6), SILTY SAND (SM) Little greenish gray (GLEY 5/10 GY), mottling, moist, fine to medium grain, no odor	
15	-15	3		3'		0.2		15' - 16': Yellowish brown (10YR5/6) SILTY SAND (SM) Little greenish gray (GLEY7/10Y), mottling, fine to medium grain, moist, no odor	
						0.4		16' to 17': Yellowish brown (10YR5/6) SILTY SAND (SM), little very dark grayish brown (10YR3/2), mottling, fine to medium grain, moist, no odor	
		4		3'		0.2		17' to 18.5': Yellowish brown (10YR5/6) SILTY SAND (SM), little clay, slight plasticity, fine to medium grain, wet, no odor, little greenish gray (GLEY6/10Y), mottling	
20	-20					0.2		18.5' to 20': Yellowish brown (10YR5/6) SILTY SAND (SM) Fine grain	
						0.2		End of boring at 20 ft bgs	

ARCADIS
Infrastructure, environment, buildings

Remarks: ft bgs - feet below ground surface
N/A Not Available
' - feet
ppm - parts per million

Date Start/Finish: 03/28/2012
Drilling Company: Greg Drilling
Driller's Name:
Drilling Method: Direct Push
Rig Type: Direct Push Rig
Sampling Method:
Acetate Sleeves

Northing: --
Easting: --
Casing Elevation: NA

Borehole Depth: 20 ft bgs
Surface Elevation:

Description By: Loretta Kwong
Reviewed By:

Well/Boring ID: GP-9

Client: Union Oil of California
Location:
800 Harrison Street, Oakland, CA

DEPTH	Elevation	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							Hand auger to 8' bgs	
						0.1		8' to 11': Yellowish brown (10YR5/6), SILTY SAND (SM) Fine to medium grain, medium dense, moist, no odor	
5	-5					0.3			
10	-10	1		3'		0.1			
						0.2		11' to 14': SAA but little greenish gray mottling (GLEY6/10 Y)	
		2		3'		0.2			
						0.7			
						3.4		14' to 18': Yellowish brown (10YR5/8) and gray (5Y7/2) SILTY SAND (SM) Medium dense, moist, no odor	
15	-15					0.1			
		3		3'		0.2		Wet at 16 ft bgs	
						0.3			
						0.9			
		4		3'		0.2		Dark yellowish brown (10YR4/4) SILTY SAND (SM)\ Fine to medium grain, medium dense, wet, no odor	
20	-20					0.3		@19' Olive brown (2.5Y5/4)	
								End of boring at 20 ft bgs	

Neat Cement Grout (Surface to 20 ft bgs)

ARCADIS
Infrastructure, environment, buildings

Remarks: ft bgs - feet below ground surface
N/A Not Available
' - feet
ppm - parts per million

Date Start/Finish: 03/28/2012
Drilling Company: Greg Drilling
Driller's Name:
Drilling Method: Direct Push
Rig Type: Direct Push Rig
Sampling Method:
Acetate Sleeves

Northing: --
Easting: --
Casing Elevation: NA

Borehole Depth: 20 ft bgs
Surface Elevation:

Description By: Loretta Kwong
Reviewed By:

Well/Boring ID: GP-10

Client: Union Oil of California
Location:
800 Harrison Street, Oakland, CA

DEPTH	Elevation	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							Hand auger to 8' bgs	
						0.1			
						0.1		8' to 12': Yellowish brown (10YR5/4), SILTY SAND (SM) Fine to medium grain, medium dense, moist, no odor	
5	-5					0.0			
10	-10	1		4		0.3			Neat Cement Grout (Surface to 20 ft bgs)
						0.5		12' to 16': Olive brown (2.5Y5/4) SILTY SAND (SM) Fine to medium, medium dense, moist, no odor	
		2		4		0.3			
						1.5		@14 ft bgs little greenish gray (GLEY6/10Y), mottling	
15	-15					0.1			
						0.6		@16 ft bgs little olive brown (2.5Y5/3), SILTY SAND (SM)	
						0.4		Fine to medium grain, medium dense, moist, no odor @17 ft bgs wet	
		3		4		0.3			
						0.3		19 ft bgs: Yellowish brown (10YR5/4), dense and high gray (5Y7/2)	
20	-20					0.2		End of boring @20 ft bgs	

ARCADIS
Infrastructure, environment, buildings

Remarks: ft bgs - feet below ground surface
N/A Not Available
' - feet
ppm - parts per million

ARCADIS

Appendix C

Soil and Groundwater analytical Laboratory Reports and Chain-of-Custody Documentation

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 04/06/2012

Kathy Brandt

Arcadis
1900 Powell Street 12th Floor
Emeryville, CA 94608

Project:	0752
BC Work Order:	1205577
Invoice ID:	B119624

Enclosed are the results of analyses for samples received by the laboratory on 3/29/2012. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Molly Meyers

Contact Person: Molly Meyers
Client Service Rep

Authorized Signature

Table of Contents

12-05577 ~~8~~

CHAIN OF CUSTODY FORM

Union Oil Company of California ■ 6101 Bollinger Canyon Road ■ San Ramon, CA 94583

COC 1 of 1

Union Oil Site ID: 351646	Union Oil Consultant: ARCADIS
Site Global ID:	Consultant Contact: Kathy Brandt
Site Address: 800 Harrison St., Oakland, CA	Consultant Phone No.: 925.202.7948
	Sampling Company: ARCADIS
Union Oil PM: Roya Kambin	Sampled By (PRINT): LKINA
Union Oil PM Phone No.: 925.790.6270	Sampler Signature:
Charge Code: NWRTB- 0 ________ -0- LAB	BC Laboratories, Inc. Project Manager: Molly Meyers 4100 Atlas Court, Bakersfield, CA

This is a LEGAL document. ALL fields must be filled out CORRECTLY and COMPLETELY.

Turnaround Time (TAT): Standard ☐ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐

Special Instructions: 5 day turnaround time

SAMPLE ID / ANALYSES REQUIRED

	Field Point Name	Matrix	DTW	Date (yymmdd)	Sample Time	# of Containers	TPHG	BTEX + MTBE	1,2-DCA, EDB	TOG by EPA 1664	hydraulic oil by 8015	Title 22 metals by 6010B	SVOCs by 8270C					Notes / Comments
1	GP-1-6'	W-S-A		20120328	1015	3	X	X	X									
2	GP-1-10'	W-S-A		20120328	1020	3	X	X	X									
3	GP-1-14'	W-S-A		20120328	1025	~~3~~ 4	X	X	X	X	X	HOLD	HOLD					
4	GP-9-W-20120328	W-S-A		20120328	1600	6	X	X	X									
5	TB-20120328	W-S-A		20120328	–	3	X	X	X									
		W-S-A																
		W-S-A																
		W-S-A																
		W-S-A																
		W-S-A																
		W-S-A																
		W-S-A																

CHK BY / DISTRIBUTION / SUB OUT ☐

Relinquished By	Company	Date / Time	Relinquished By	Company	Date / Time	Relinquished By	Company	Date / Time
[signature]	AUS	3/29 1310	Gary Bogon	BC Labs	3/29/12 1830	[signature]	BC Labs	3-29-12 2300
Received By	**Company**	**Date / Time**	**Received By**	**Company**	**Date / Time**	**Received By**	**Company**	**Date / Time**
Gary Bogon	BC Labs	3/29/12 1310	[signature]	BC Labs	3-29-12 18:30	[signature]	BCL	3-29-12 2300

Chain of Custody and Cooler Receipt Form for 1205577 Page 2 of 2

BC LABORATORIES INC. 7 SAMPLE RECEIPT FORM Rev. No. 12 06/24/08 Page 1 Of 1

Submission #: 12-05577 3/30/12

SHIPPING INFORMATION	SHIPPING CONTAINER
Federal Express ☐ UPS ☐ Hand Delivery ☐	Ice Chest ☒ None ☐
BC Lab Field Service ☒ Other ☐ (Specify)_____	Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ (Intact? Yes ☐ No ☐) Containers ☐ (Intact? Yes ☐ No ☐) None ☒ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: .98 Container: VOA Thermometer ID: 177

Temperature: A 4.2 °C / C 4.5 °C

Date/Time 3/29/12

Analyst Init KIQ 2310

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK					A(3)					
40ml VOA VIAL	( )	( )	( )	A ( )	( )	( )	( )	( )	( )	( )
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER										
8 OZ. JAR			D							
32 OZ. JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE	ABC	ABC	ABC							

Comments:

Sample Numbering Completed By: CMM Date/Time: 3/30/12 0840

A = Actual / C = Corrected

[H:\DOCS\WP10\LAB_DOCS\FORMS\SAMREC2.WPD]

Arcadis
1900 Powell Street 12th Floor
Emeryville, CA 94608

Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1205577-01	**COC Number:**	---	**Receive Date:**	03/29/2012 23:00
	Project Number:	0752	**Sampling Date:**	03/28/2012 10:15
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	GP-1-6-S-120328	**Lab Matrix:**	Solids
	Sampled By:	AREC	**Sample Type:**	Soil
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	GP-1
			Matrix:	SO
			Sample QC Type (SACode):	CS
			Cooler ID:	
1205577-02	**COC Number:**	---	**Receive Date:**	03/29/2012 23:00
	Project Number:	0752	**Sampling Date:**	03/28/2012 10:20
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	GP-1-10-S-120328	**Lab Matrix:**	Solids
	Sampled By:	AREC	**Sample Type:**	Soil
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	GP-1
			Matrix:	SO
			Sample QC Type (SACode):	CS
			Cooler ID:	
1205577-03	**COC Number:**	---	**Receive Date:**	03/29/2012 23:00
	Project Number:	0752	**Sampling Date:**	03/28/2012 10:25
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	GP-1-14-S-120328	**Lab Matrix:**	Solids
	Sampled By:	AREC	**Sample Type:**	Soil
			Delivery Work Order:	
			Global ID:	
			Location ID (FieldPoint):	GP-1
			Matrix:	SO
			Sample QC Type (SACode):	CS
			Cooler ID:	

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1205577-04	**COC Number:**	---	**Receive Date:**	03/29/2012 23:00
	Project Number:	0752	**Sampling Date:**	03/28/2012 16:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	GP-9-W-120328	**Lab Matrix:**	Water
	Sampled By:	AREC	**Sample Type:**	Water
	Delivery Work Order:			
	Global ID:			
	Location ID (FieldPoint): GP-9			
	Matrix: W			
	Sample QC Type (SACode): CS			
	Cooler ID:			
1205577-05	**COC Number:**	---	**Receive Date:**	03/29/2012 23:00
	Project Number:	0752	**Sampling Date:**	03/28/2012 00:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	TB-W-120328	**Lab Matrix:**	Water
	Sampled By:	AREC	**Sample Type:**	Trip Blank
	Delivery Work Order:			
	Global ID:			
	Location ID (FieldPoint): TB			
	Matrix: W			
	Sample QC Type (SACode): CS			
	Cooler ID:			

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Volatile Organic Analysis (EPA Method 8260/5035)

BCL Sample ID: 1205577-01 | **Client Sample Name:** 0752, GP-1-6-S-120328, 3/28/2012 10:15:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	mg/kg	0.0040	EPA-8260	ND		1
1,2-Dibromoethane	ND	mg/kg	0.0040	EPA-8260	ND		1
1,2-Dichloroethane	ND	mg/kg	0.0040	EPA-8260	ND		1
Ethylbenzene	ND	mg/kg	0.0040	EPA-8260	ND		1
Methyl t-butyl ether	ND	mg/kg	0.0040	EPA-8260	ND		1
Toluene	ND	mg/kg	0.0040	EPA-8260	ND		1
Total Xylenes	ND	mg/kg	0.0079	EPA-8260	ND		1
Total Purgeable Petroleum Hydrocarbons	ND	mg/kg	0.16	Luft-GC/MS	ND		1
1,2-Dichloroethane-d4 (Surrogate)	99.3	%	70 - 121 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	98.3	%	81 - 117 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	97.2	%	74 - 121 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	04/04/12	04/04/12 21:32	JCC	MS-V3	0.794	BVD0244

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Volatile Organic Analysis (EPA Method 8260/5035)

BCL Sample ID: 1205577-02 | **Client Sample Name:** 0752, GP-1-10-S-120328, 3/28/2012 10:20:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	mg/kg	0.0045	EPA-8260	ND		1
1,2-Dibromoethane	ND	mg/kg	0.0045	EPA-8260	ND		1
1,2-Dichloroethane	ND	mg/kg	0.0045	EPA-8260	ND		1
Ethylbenzene	ND	mg/kg	0.0045	EPA-8260	ND		1
Methyl t-butyl ether	ND	mg/kg	0.0045	EPA-8260	ND		1
Toluene	ND	mg/kg	0.0045	EPA-8260	ND		1
Total Xylenes	ND	mg/kg	0.0090	EPA-8260	ND		1
Total Purgeable Petroleum Hydrocarbons	ND	mg/kg	0.18	Luft-GC/MS	ND		1
1,2-Dichloroethane-d4 (Surrogate)	102	%	70 - 121 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	97.8	%	81 - 117 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	95.2	%	74 - 121 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	04/04/12	04/04/12 21:58	JCC	MS-V3	0.897	BVD0244

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Volatile Organic Analysis (EPA Method 8260/5035)

BCL Sample ID: 1205577-03 | **Client Sample Name:** 0752, GP-1-14-S-120328, 3/28/2012 10:25:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	mg/kg	0.0040	EPA-8260	ND		1
1,2-Dibromoethane	ND	mg/kg	0.0040	EPA-8260	ND		1
1,2-Dichloroethane	ND	mg/kg	0.0040	EPA-8260	ND		1
Ethylbenzene	ND	mg/kg	0.0040	EPA-8260	ND		1
Methyl t-butyl ether	ND	mg/kg	0.0040	EPA-8260	ND		1
Toluene	ND	mg/kg	0.0040	EPA-8260	ND		1
Total Xylenes	ND	mg/kg	0.0079	EPA-8260	ND		1
Total Purgeable Petroleum Hydrocarbons	ND	mg/kg	0.16	Luft-GC/MS	ND		1
1,2-Dichloroethane-d4 (Surrogate)	102	%	70 - 121 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	97.5	%	81 - 117 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	93.3	%	74 - 121 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	04/04/12	04/04/12 22:24	JCC	MS-V3	0.794	BVD0244

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1205577-03 | **Client Sample Name:** 0752, GP-1-14-S-120328, 3/28/2012 10:25:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
TPH - Hydraulic Oil / Motor Oil	ND	mg/kg	4.0	EPA-8015B/FFP	ND	A57	1
Tetracosane (Surrogate)	68.2	%	20 - 145 (LCL - UCL)	EPA-8015B/FFP			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B/FFP	04/02/12	04/04/12 13:59	MWB	GC-2	0.990	BVD0101

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

EPA Method 1664

BCL Sample ID: 1205577-03 | **Client Sample Name:** 0752, GP-1-14-S-120328, 3/28/2012 10:25:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Oil and Grease	ND	mg/kg	50	EPA-1664HEM	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-1664HEM	04/03/12	04/03/12 09:00	JAK	MAN-SV	1	BVD0187

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1205577-04 | **Client Sample Name:** 0752, GP-9-W-120328, 3/28/2012 4:00:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	ND		1
Ethylbenzene	ND	ug/L	0.50	EPA-8260	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Toluene	ND	ug/L	0.50	EPA-8260	ND		1
Total Xylenes	ND	ug/L	1.0	EPA-8260	ND		1
1,2-Dichloroethane-d4 (Surrogate)	111	%	76 - 114 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	94.3	%	88 - 110 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	89.1	%	86 - 115 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	03/30/12	03/30/12 11:06	JMC	MS-V12	1	BVC2255

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1205577-04 | **Client Sample Name:** 0752, GP-9-W-120328, 3/28/2012 4:00:00PM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Gasoline Range Organics (C6 - C12)	ND	ug/L	50	EPA-8015B	ND		1
a,a,a-Trifluorotoluene (FID Surrogate)	82.4	%	70 - 130 (LCL - UCL)	EPA-8015B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B	03/30/12	04/02/12 19:19	jjh	GC-V4	1	BVC2266

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 1205577-05 | **Client Sample Name:** 0752, TB-W-120328, 3/28/2012 12:00:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	ND		1
Ethylbenzene	ND	ug/L	0.50	EPA-8260	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	EPA-8260	ND		1
Toluene	ND	ug/L	0.50	EPA-8260	ND		1
Total Xylenes	ND	ug/L	1.0	EPA-8260	ND		1
1,2-Dichloroethane-d4 (Surrogate)	108	%	76 - 114 (LCL - UCL)	EPA-8260			1
Toluene-d8 (Surrogate)	95.7	%	88 - 110 (LCL - UCL)	EPA-8260			1
4-Bromofluorobenzene (Surrogate)	91.6	%	86 - 115 (LCL - UCL)	EPA-8260			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260	03/30/12	03/30/12 10:49	JMC	MS-V12	1	BVC2255

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1205577-05 | **Client Sample Name:** 0752, TB-W-120328, 3/28/2012 12:00:00AM

Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Gasoline Range Organics (C6 - C12)	ND	ug/L	50	EPA-8015B	ND		1
a,a,a-Trifluorotoluene (FID Surrogate)	87.6	%	70 - 130 (LCL - UCL)	EPA-8015B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B	03/30/12	04/02/12 18:57	jjh	GC-V4	1	BVC2266

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Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVC2255						
Benzene	BVC2255-BLK1	ND	ug/L	0.50		
1,2-Dibromoethane	BVC2255-BLK1	ND	ug/L	0.50		
1,2-Dichloroethane	BVC2255-BLK1	ND	ug/L	0.50		
Ethylbenzene	BVC2255-BLK1	ND	ug/L	0.50		
Methyl t-butyl ether	BVC2255-BLK1	ND	ug/L	0.50		
Toluene	BVC2255-BLK1	ND	ug/L	0.50		
Total Xylenes	BVC2255-BLK1	ND	ug/L	1.0		
1,2-Dichloroethane-d4 (Surrogate)	BVC2255-BLK1	112	%	76 - 114 (LCL - UCL)		
Toluene-d8 (Surrogate)	BVC2255-BLK1	98.4	%	88 - 110 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BVC2255-BLK1	95.7	%	86 - 115 (LCL - UCL)		

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Project: 0752
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Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVC2255										
Benzene	BVC2255-BS1	LCS	21.410	25.000	ug/L	85.6		70 - 130		
Toluene	BVC2255-BS1	LCS	20.350	25.000	ug/L	81.4		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BVC2255-BS1	LCS	9.5300	10.000	ug/L	95.3		76 - 114		
Toluene-d8 (Surrogate)	BVC2255-BS1	LCS	9.8700	10.000	ug/L	98.7		88 - 110		
4-Bromofluorobenzene (Surrogate)	BVC2255-BS1	LCS	10.330	10.000	ug/L	103		86 - 115		

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Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVC2255	Used client sample: N										
Benzene	MS	1205402-08	ND	25.630	25.000	ug/L		103		70 - 130	
	MSD	1205402-08	ND	26.850	25.000	ug/L	4.6	107	20	70 - 130	
Toluene	MS	1205402-08	ND	24.440	25.000	ug/L		97.8		70 - 130	
	MSD	1205402-08	ND	25.660	25.000	ug/L	4.9	103	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	1205402-08	ND	10.370	10.000	ug/L		104		76 - 114	
	MSD	1205402-08	ND	9.8400	10.000	ug/L	5.2	98.4		76 - 114	
Toluene-d8 (Surrogate)	MS	1205402-08	ND	10.100	10.000	ug/L		101		88 - 110	
	MSD	1205402-08	ND	10.110	10.000	ug/L	0.1	101		88 - 110	
4-Bromofluorobenzene (Surrogate)	MS	1205402-08	ND	10.240	10.000	ug/L		102		86 - 115	
	MSD	1205402-08	ND	10.300	10.000	ug/L	0.6	103		86 - 115	

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Project: 0752
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Project Manager: Kathy Brandt

Volatile Organic Analysis (EPA Method 8260/5035)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVD0244						
Benzene	BVD0244-BLK1	ND	mg/kg	0.0050		
1,2-Dibromoethane	BVD0244-BLK1	ND	mg/kg	0.0050		
1,2-Dichloroethane	BVD0244-BLK1	ND	mg/kg	0.0050		
Ethylbenzene	BVD0244-BLK1	ND	mg/kg	0.0050		
Methyl t-butyl ether	BVD0244-BLK1	ND	mg/kg	0.0050		
Toluene	BVD0244-BLK1	ND	mg/kg	0.0050		
Total Xylenes	BVD0244-BLK1	ND	mg/kg	0.010		
Total Purgeable Petroleum Hydrocarbons	BVD0244-BLK1	ND	mg/kg	0.20		
1,2-Dichloroethane-d4 (Surrogate)	BVD0244-BLK1	95.5	%	70 - 121 (LCL - UCL)		
Toluene-d8 (Surrogate)	BVD0244-BLK1	97.5	%	81 - 117 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BVD0244-BLK1	93.4	%	74 - 121 (LCL - UCL)		

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Volatile Organic Analysis (EPA Method 8260/5035)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVD0244										
Benzene	BVD0244-BS1	LCS	0.12345	0.12500	mg/kg	98.8		70 - 130		
Toluene	BVD0244-BS1	LCS	0.12456	0.12500	mg/kg	99.6		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BVD0244-BS1	LCS	0.049565	0.050000	mg/kg	99.1		70 - 121		
Toluene-d8 (Surrogate)	BVD0244-BS1	LCS	0.050335	0.050000	mg/kg	101		81 - 117		
4-Bromofluorobenzene (Surrogate)	BVD0244-BS1	LCS	0.050218	0.050000	mg/kg	100		74 - 121		

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Volatile Organic Analysis (EPA Method 8260/5035)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVD0244	Used client sample: N										
Benzene	MS	1204254-55	ND	0.12964	0.12500	mg/kg		104		70 - 130	
	MSD	1204254-55	ND	0.12477	0.12500	mg/kg	3.8	99.8	20	70 - 130	
Toluene	MS	1204254-55	ND	0.12693	0.12500	mg/kg		102		70 - 130	
	MSD	1204254-55	ND	0.12261	0.12500	mg/kg	3.5	98.1	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	1204254-55	ND	0.049250	0.050000	mg/kg		98.5		70 - 121	
	MSD	1204254-55	ND	0.048832	0.050000	mg/kg	0.9	97.7		70 - 121	
Toluene-d8 (Surrogate)	MS	1204254-55	ND	0.049259	0.050000	mg/kg		98.5		81 - 117	
	MSD	1204254-55	ND	0.049531	0.050000	mg/kg	0.6	99.1		81 - 117	
4-Bromofluorobenzene (Surrogate)	MS	1204254-55	ND	0.051155	0.050000	mg/kg		102		74 - 121	
	MSD	1204254-55	ND	0.049243	0.050000	mg/kg	3.8	98.5		74 - 121	

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Reported: 04/06/2012 13:25
Project: 0752
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Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVC2266						
Gasoline Range Organics (C6 - C12)	BVC2266-BLK1	ND	ug/L	50		
a,a,a-Trifluorotoluene (FID Surrogate)	BVC2266-BLK1	84.8	%	70 - 130 (LCL - UCL)		
QC Batch ID: BVD0101						
TPH - Hydraulic Oil / Motor Oil	BVD0101-BLK1	ND	mg/kg	4.0		
Tetracosane (Surrogate)	BVD0101-BLK1	63.2	%	20 - 145 (LCL - UCL)		

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVC2266										
Gasoline Range Organics (C6 - C12)	BVC2266-BS1	LCS	1116.9		ug/L			85 - 115		
a,a,a-Trifluorotoluene (FID Surrogate)	BVC2266-BS1	LCS	39.889	40.000	ug/L	99.7		70 - 130		
QC Batch ID: BVD0101										
Tetracosane (Surrogate)	BVD0101-BS1	LCS	0.46303	0.65574	mg/kg	70.6		20 - 145		

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Reported: 04/06/2012 13:25
Project: 0752
Project Number: 351646
Project Manager: Kathy Brandt

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVC2266	Used client sample: N										
Gasoline Range Organics (C6 - C12)	MS	1204254-41	ND	1074.9		ug/L				70 - 130	
	MSD	1204254-41	ND	1144.9		ug/L	6.3		20	70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	MS	1204254-41	ND	38.624	40.000	ug/L		96.6		70 - 130	
	MSD	1204254-41	ND	38.490	40.000	ug/L	0.3	96.2		70 - 130	
QC Batch ID: BVD0101	Used client sample: Y - Description: WC-S-120328, 03/28/2012 15:00										
Tetracosane (Surrogate)	MS	1205576-01	ND	0.54044	0.66445	mg/kg		81.3		20 - 145	
	MSD	1205576-01	ND	0.49274	0.66225	mg/kg	9.2	74.4		20 - 145	

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EPA Method 1664

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BVD0187						
Oil and Grease	BVD0187-BLK1	ND	mg/kg	50		

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Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BVD0187										
Oil and Grease	BVD0187-BS1	LCS	659.00	776.00	mg/kg	84.9		59 - 117		

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EPA Method 1664

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BVD0187	Used client sample: Y - Description: GP-1-14-S-120328, 03/28/2012 10:25										
Oil and Grease	DUP	1205577-03	ND	ND		mg/kg			30		
	MS	1204254-61	ND	672.00	776.00	mg/kg		86.6		56 - 111	
	MSD	1204254-61	ND	637.00	776.00	mg/kg	5.3	82.1	30	56 - 111	

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Notes And Definitions

MDL	Method Detection Limit
ND	Analyte Not Detected at or above the reporting limit
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
A57	Chromatogram not typical of motor oil.