



March 5, 2013

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Mr. Keith Nowell
Alameda County Health Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RECEIVED

By Alameda County Environmental Health at 3:02 pm, Mar 05, 2013

RE: Additional Site Investigation Work Plan
10151 International Blvd, Oakland, California
Fuel Leak Case No.: RO0002444

Dear Mr. Nowell,

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,

A handwritten signature in black ink, appearing to read "Roya Kambin".

Roya Kambin
Union Oil of California – Project Manager

Attachment:
Additional Site Investigation Work Plan

Union Oil Company of California

**Additional Site Investigation Work
Plan**

Union Oil Station No. 7124
10151 International Boulevard
Oakland, California

March, 2013

ARCADIS

**Additional Site Investigation
Work Plan**

Union Oil Station No. 7124
10151 International Boulevard
Oakland, California

Tonya Russi

Tonya Russi
Certified Project Manager

Prepared for:
Union Oil Company of California

DL

David Lay
Vice President, P.G.

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Our Ref.:
B0047297

Date:
March, 2013



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1. Introduction

On behalf of Chevron Environmental Management Company, for itself and as Attorney-in-Fact for Union Oil Company of California (hereinafter "EMC"), ARCADIS is pleased to submit the Additional Site Assessment Work Plan (Work Plan) for Union Oil Service Station No. 7124 located at 10151 International Boulevard in Oakland, California (the "site"; Figures 1 and 2). In an effort to further delineate and characterize impacted soil and groundwater downgradient of the site, the proposed scope of work consists of advancing two soil borings and completing both as temporary pre-packed wells. One soil boring will be advanced east of the Abe's Lotto Liquors building and the second soil boring will be advanced off-site to the north, on the southeast corner of the AutoZone building (Figure 3). Data collected from both soil borings will be used to assess the downgradient edge of the known groundwater impacts by site constituents of concern (COC). The specific scope of work is discussed below.

2. Site Background

The site is located at the western corner of the intersection of International Boulevard and 102nd Avenue in Oakland, California (Figures 1 and 2). The site is a former Royal-branded service station that is currently a fenced-off, non-operational service station.

The site is located in a mixed commercial and residential use area. Properties immediately adjacent to the site are primarily commercial, including Abe's Lotto Liquors to the north of the site, Commercial Auto Transmissions to the south of the site across 102nd Avenue, and a check cashing, hardware, and auto transmission stores to the east of the site across International Boulevard. A residential property is immediately adjacent to the west of the site.

A leaking underground storage tank (LUST) site is located at the eastern corner of 101st Avenue and International Boulevard: Quan's Automotive (Alameda County Environmental Health Services [ACEHS] #RO0000162).

The average groundwater depth at the site is approximately 16.7 feet below ground surface (bgs) and the flow direction is predominantly towards the north.

2.1 Previous Site Investigations

Site investigations and remedial actions have been conducted at the site during the last 15 years. Previous investigations conducted at the site have primarily been in response to elevated levels of petroleum hydrocarbons discovered during product line and dispenser removal and replacement. Investigation activities have occurred at the site in attempts to delineate the lateral and vertical extent of petroleum hydrocarbon impacts to soil and groundwater. Approximately 60 cubic yards of impacted soil were removed during over-excavation of product line and dispenser replacement activities in 2000. A detailed summary of

previous environmental investigations with site characterizations and sampling results is provided in Appendix A.

3. Proposed Scope of Work

Summarized below is the soil boring advancement, temporary pre-packed well installation and grab groundwater sampling activities proposed to further refine ARCADIS' understanding of the site and obtain additional data to further evaluate the vertical and lateral extent of impacted soil and groundwater. These activities include pre-implementation activities, soil and groundwater sampling, and procedures for waste characterization, handling, and disposal.

4. Health and Safety, Permitting, and Utility Clearance

Prior to initiating field work, a site-specific Health and Safety Plan (HASP) will be completed in compliance with applicable Occupational Safety and Health Administration (OSHA) regulations, particularly those in Title 8 California Code of Regulations (CCR) 5192, and other applicable federal, state, and local laws, regulations, and statutes. The HASP will be available for use by ARCADIS employees and contractors.

All necessary permits and access agreements will be obtained prior to the initiation of soil boring advancement and temporary pre-packed well installation.

The proposed drilling locations will be cleared of potential conflict with existing underground utilities by calling Underground Service Alert (USA) a minimum of one week prior to advancing the soil borings. A private utility locating service will be contracted to further identify any potential underground utilities. The proposed soil boring locations will be advanced using a combination direct-push technology (DPT)/hollow stem auger (HSA) drill rig. Prior to drilling, each location will be hand cleared using either an air knife or hand auger to a minimum depth of 8 feet 1 inch bgs.

5. Soil Borings

In order to further delineate impacted soil and groundwater, ARCADIS proposes to advance two soil borings (SB-8 and SB-9) approximately 60 feet northeast of SB-3 and approximately 100 feet north of SB-3, respectively (Figure 3). The soil boring locations may be modified in the field based on encountered obstructions (e.g.; overhead and/or underground utilities).

5.1 Soil Boring Advancement

It is anticipated that the soil borings will be advanced to a total depth of approximately 30 feet bgs. Soil will be collected continuously for lithological classification using the United Soil Classification System (USCS)

from near ground surface to the total depth of the borehole. All soil boring activities will be conducted under the supervision of a State of California licensed professional geologist.

5.2 Field Screening Activities

Soil samples will be collected for field screening and lithologic description at 2-foot intervals from ground surface to 8 feet 1 inch bgs. Below 8 feet 1 inch bgs, soil samples will be collected continuously using 2-inch, outer-diameter, MacroCore™ sampler. Select soil samples will be submitted for chemical analysis based on indications of impacts (i.e. staining). Soil samples will be analyzed in the field for volatile organic compounds (VOCs) using a photoionization detector (PID). The soil screening procedures will involve measuring approximately 30 grams from a relatively undisturbed soil sample, and placing this sample in a sealed container (e.g., zip-lock-type bag). The bag will be warmed in the sun for approximately 20 minutes, then the head space within the bag will be tested for total organic vapor, measured in parts per million (ppm). The PID results will be noted on the field boring logs. Soil samples will be collected at approximately 5-foot intervals and additional soil samples may be collected based on PID readings. The soil samples collected will be analyzed for the following:

- Total petroleum hydrocarbons in the gasoline range (TPH-g) by United States Environmental Protection Agency (USEPA) Method 8015B;
- Benzene, toluene, ethylbenzene and total xylenes (BTEX, collectively) by USEPA Method 8260B; and
- Methyl tertiary-butyl ether (MTBE), tertiary-butyl alcohol (TBA), di-isopropyl ether (DIPE), ter-amyl methyl ether (TAME), ethyl tert-butyl ether (ETBE), ethanol, 1,2-dibromoethane (EDB), and 1,2-dichloroethane (1,2-DCA) by USEPA Method 8260B.

5.3 Grab Groundwater Sampling

Groundwater grab samples will be collected from the boring locations (SB-8 and SB-9, Figure 3) using temporary wells constructed of 1 inch outer diameter (OD) Schedule 40 poly-vinyl chloride (PVC) and a 2-inch OD by 20 feet PrePacked screen. It is estimated that the temporary boring will be screened from 10 to 30 feet below ground surface. However, actual screen and depth interval will be determined based on observations in the field. Prior to sampling, a water level indicator will be used to determine the depth to water and depth to bottom at each of the temporary pre-packed well locations. Prior to sample collection, water will be purged (i.e. approximately ten casing volumes) from the temporary well to remove sediments accumulated during the drilling activities. Groundwater samples will be collected for analysis with a disposable Teflon® bailer decanted into the appropriate laboratory-supplied containers. The samples will be placed on ice, cooled to approximately 4 °C and transported to a State of California-certified laboratory

under chain-of-custody documentation. The grab groundwater samples collected will be analyzed for the following:

- TPH-g by USEPA Method 8015B;
- BTEX USEPA Method 8260B; and
- MTBE, TBA, DIPE, TAME, ETBE, ethanol, EDB, and 1,2-DCA by USEPA Method 8260B.

Following completion of groundwater sampling, the boreholes will be tremie grouted to ground surface and a concrete path will be added to match surface conditions.

6. Equipment Decontamination

Down-hole drilling and sampling equipment will be steam cleaned following the completion of each soil boring. Decontamination of non-dedicated or non-disposable field equipment will be conducted using an Alconox[®] solution and deionized water rinse between each sample to prevent potential cross contamination.

7. Management of Investigation Derived Waste

Soil cuttings and purge and decontamination water generated during site investigation activities will be temporarily stored on-site in properly labeled Department of Transportation approved 55-gallon steel drums pending waste profiling results. Upon characterization, investigation derived waste will be transported by EMC's disposal contractor to an appropriate disposal or treatment facility following waste characterization.

8. Reporting

Following completion of investigation activities, a technical report will be prepared and submitted to the ACEHS. This report will document the results of the site assessment investigations and will include the following:

- Site conditions and background information
- A scaled site plan illustration replacement well location and other relevant site features
- Documentation of the collection of soil and groundwater samples
- Documentation of the installation and removal of the temporary pre-packed wells
- Results of the laboratory analyses performed on the soil and groundwater samples

- Comparison of site conditions to Low-Threat Closure Policy criteria

9. Schedule

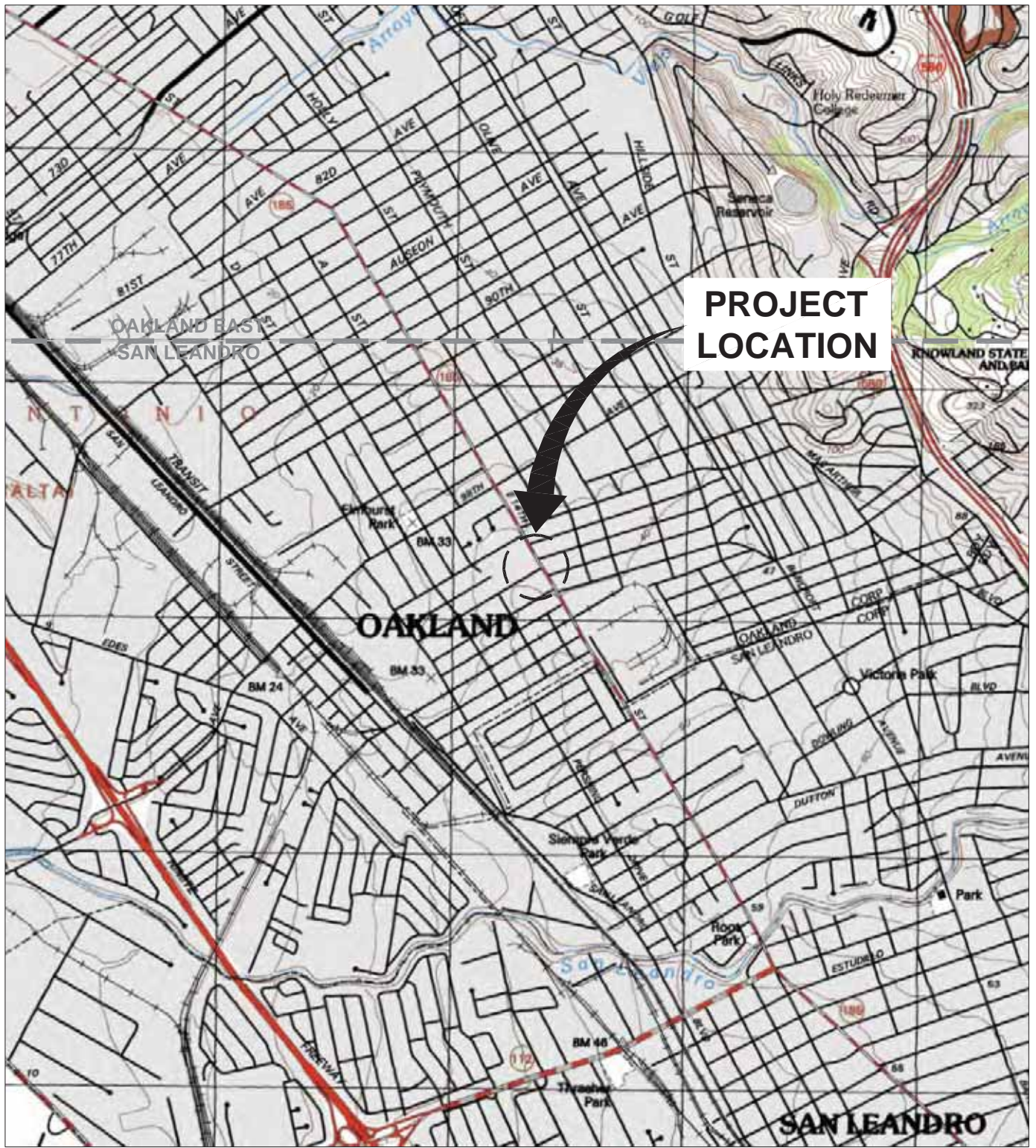
ARCADIS is prepared to initiate field work once access to the off-site property is obtained, and after receipt of all necessary approvals and permits. A summary report will be submitted to the ACEHS within 45 days of receiving the final sampling results.

If you have any questions or comments regarding the contents of this letter, please contact Tonya Russi at 916.985.2079 or by e-mail at Tonya.Russi@arcadis-us.com.

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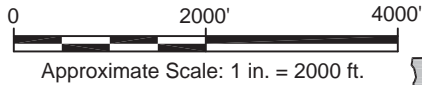
Figures

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**PROJECT
LOCATION**

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., SAN LEANDRO, CALIFORNIA, 1993, AND OAKLAND EAST, CALIFORNIA, 1997.



UNION OIL
 STATION NO. 7124
 10151 INTERNATIONAL BOULEVARD
 OAKLAND, CALIFORNIA

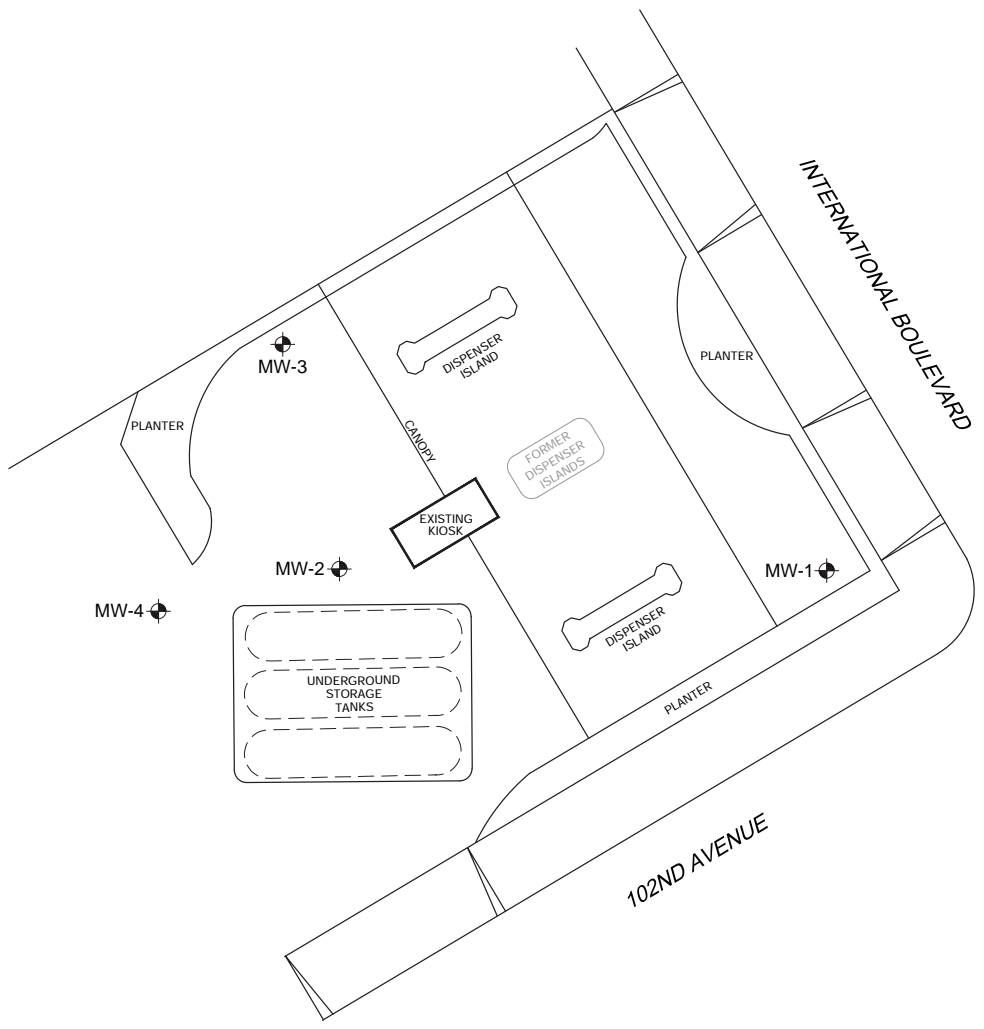
SITE LOCATION MAP




FIGURE
1

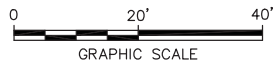
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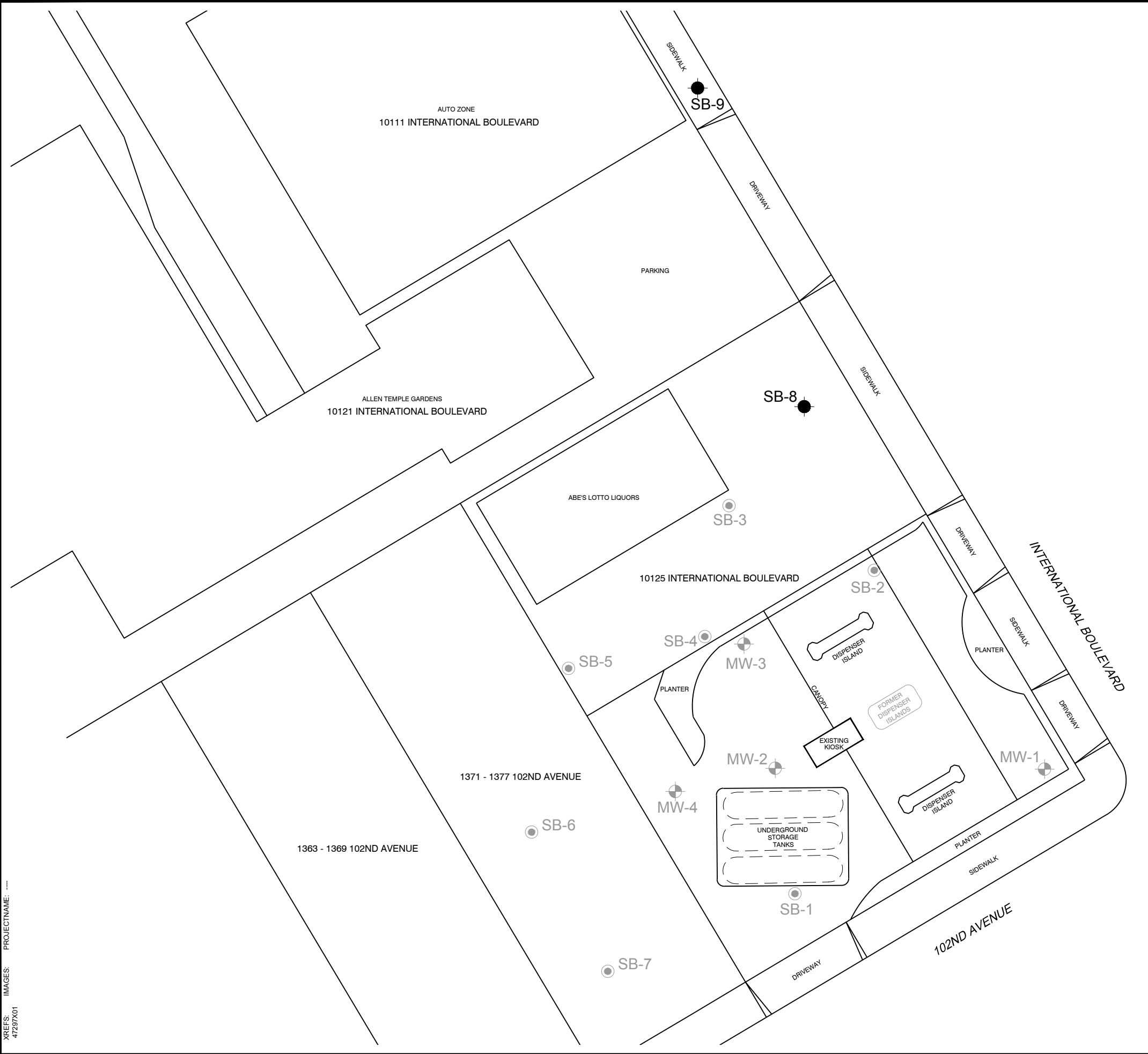
LEGEND
 MW-1  GROUNDWATER MONITORING WELL

- NOTES:
1. BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'.
 2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

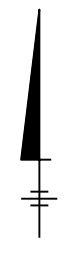


UNION OIL STATION NO. 7124 10151 INTERNATIONAL BOULEVARD OAKLAND, CALIFORNIA	
SITE PLAN	
	FIGURE 2

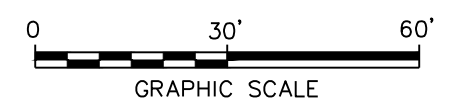
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- LEGEND**
- MW-1 GROUNDWATER MONITORING WELL
 - SB-1 SOIL BORING LOCATION
 - SB-8 LOCATION OF PROPOSED SOIL BORING



- NOTES:**
- BASE MAP PROVIDED BY TRC, DATED JANUARY 2010, AT A SCALE OF 1"=20'. ADDITIONAL SITE INFORMATION PROVIDED BY STANTEC, DATED SEPTEMBER 23, 2008, AT A SCALE OF 1"=40'.
 - ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



UNION OIL STATION NO. 7124 10151 INTERNATIONAL BOULEVARD OAKLAND, CALIFORNIA	
SITE PLAN WITH SAMPLING LOCATIONS	
	FIGURE 3

ARCADIS

Appendix A

Detailed Site History



The Site is a former Royal-branded service station that is currently a fenced-off, non-operational service station located at 10151 International Boulevard in Oakland, California. Four groundwater monitoring wells (MW-1 through MW-4) have been sampled semi-annually since their installation in 2002. Access issues, including the construction of a chain link fence surrounding the site, have prohibited sampling during part of 2011. Existing site features include two dispenser islands under a common canopy, a station kiosk, and three 10,000-gallon gasoline underground storage tanks (USTs). Based on available information, the site has been a gasoline service station since at least 1997.

In 1997, a soil gas survey was conducted in order to determine baseline concentrations of petroleum hydrocarbons in soil vapor at the site. Five soil gas probes were installed in the vicinity of the USTs, product islands, and product piping. Two of the samples were collected from the UST area at depths ranging from 3 to 15 feet below ground surface (bgs). The remaining three samples were collected near the product dispenser islands at depths of approximately 3 feet bgs. Grab soil vapor samples were collected. Soil vapor samples were analyzed for total petroleum hydrocarbons (TPH) in the gasoline range (TPH-g), benzene, toluene, ethylbenzene, and total xylenes (BTEX, collectively), and methyl tertiary butyl ether (MTBE). Laboratory analytical results were not available in the referenced material reviewed (Pacific Environmental Group 1997).

In March 2000, the product lines and dispensers were removed and replaced. Eight soil samples were collected from beneath the product dispensers and three soil samples were collected from beneath the product lines. Soil samples were analyzed for TPH-g, BTEX, and MTBE. TPH-g and benzene were detected in 6 of the 11 samples collected, and MTBE was detected in 7 of the 11 samples collected. The maximum concentrations of TPH-g, benzene, and MTBE were 6,200, 7.4, and 120 milligrams per kilogram (mg/kg), respectively, all collected beneath the product dispensers. Approximately 60 cubic yards of soil was excavated from areas that exhibited high concentrations of petroleum hydrocarbons. Three confirmation samples were collected from the base of the excavation area and analyzed for TPH-g, benzene, and MTBE. TPH-g was detected in two of the samples collected at a maximum concentration of 108 mg/kg. Benzene was detected in one of the samples collected at a concentration of 0.162 mg/kg. MTBE was detected in all of the soil samples collected at a maximum concentration of 43.8 mg/kg. Other stockpiled soil generated during these site activities was analyzed for TPH-g and BTEX. This soil did not reveal significant concentrations of petroleum hydrocarbons. Approximate 133 cubic yards of non-hazardous waste soil was ultimately removed from the site (Secor International Incorporated [SECOR] 2000).

In February 2002, groundwater monitoring wells MW-1 through MW-4 were installed at the site. The wells were advanced to 25 feet bgs, with a screened interval from 10 to 25 feet bgs. Soil samples were collected during the well installation activities and analyzed for TPH-g, BTEX, MTBE, and other fuel oxygenates. Groundwater samples were also collected and analyzed for TPH-g, BTEX, and MTBE. TPH-g and MTBE were detected in the soil samples collected from monitoring wells MW-2, MW-3, and MW-4. The maximum concentrations of TPH-g and MTBE were 42 and 1.2 mg/kg, respectively, both collected in MW-3 at a depth of 16 feet bgs. The maximum concentration of TPH-g (13,000 micrograms per liter [$\mu\text{g/L}$]) was detected in the groundwater sample collected from MW-4. The maximum concentrations of benzene (65 $\mu\text{g/L}$), ethylbenzene (400 $\mu\text{g/L}$), and MTBE (8,300 $\mu\text{g/L}$) were detected in the groundwater sample collected from MW-3 (SECOR 2002).



In September 2008, seven soil borings (SB-1 through SB-7) were advanced (two on-site and five off-site). The soil borings were advanced to depths ranging from 30 to 40 feet bgs and a grab groundwater sample was collected from each boring. Soil and groundwater samples were analyzed for TPH-g, BTEX, MTBE and other fuel oxygenates. MTBE (0.062 mg/kg) and tert-butyl alcohol (TBA; 0.15 mg/kg) were the only analytes detected above environmental screening levels in the soil sample collected from SB-1 at 15 feet bgs. The following summary of groundwater data indicate concentrations of constituents detected above environmental screening levels. TPH-g was detected in the groundwater samples collected from SB-2 through SB-4 at concentrations ranging from 480 to 45,000 µg/L. MTBE was detected in the groundwater samples collected from SB-4 and SB-5 at concentrations of 62 µg/L and 25 µg/L, respectively. TBA was detected in the groundwater sample collected from SB-5 at a concentration of 120 µg/L (Stantec Consulting Corporation 2008).

References:

Pacific Environmental Group, Inc. 1997. Soil Gas Survey Results, UNOCAL Service Station 7124, 10151 E 14th St, Oakland, California. October 29.

Secor International Incorporated (SECOR) 2000. Removal and Replacement of Product Lines and Dispensers, Tosco (Unocal) Service Station #77124, 10151 East 4th Street, Oakland, California. April 14.

SECOR 2002. Groundwater Monitoring Well Installation, Tosco Service Station No. 7124, 10151 East 14th Street, Oakland, California. May 14.

Stantec Consulting Corporation 2008. Additional Assessment Report, Former 76 Service Station No. 7124, 10151 International Blvd., Oakland, California. October 15.