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July 1, 2013

Karel Detterman, P.G.  
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1131 Harbor Bay Parkway, Suite 250  
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**LUFT Site:** 900 Central Ave, Alameda (Site)  
**Re:** Report Submittal – *Case Closure Summary and Low Threat Closure Evaluation*, June 28, 2013

Dear Ms. Detterman:

On behalf of the parties contributing to the 900 Central Avenue Corrective Action Account, please find enclosed herewith a copy of the above-referenced report prepared by RRM, Inc., Santa Cruz, CA (RRM). On behalf of the parties participating in site-remediation efforts, I declare under penalty of perjury that the information contained in the enclosed document is true and correct to the best of my knowledge. RRM is making all the associated Geotracker and FTP uploads that are due in connection with this report.

The report references State Water Resource Control Board Resolution 2012-0016, the low-threat closure policy adopted on May 1, 2012, and made effective on August 17, 2012.

In their July 2012, CAP-implementation report, RRM concluded that they successfully removed all petroleum-impacted soils above cleanup goals except in an area immediately north of the Site under Central Avenue which was considered to be inaccessible to excavation. They further concluded that leaving contaminated soils under the street is acceptable from a risk standpoint since the contamination is expected to attenuate to risk based cleanup goals during a reasonable period of time and lies deep enough to be out of reach of utility lines. The gas station and all the tanks were removed in 1975.

Based on the results of the first follow-up groundwater-monitoring event conducted in June 2012, RRM had further concluded that the remedial excavation program successfully reduced levels of dissolved phase TPHg and BTEX to well below risk-based cleanup goals. Based on the results of the second event conducted in December 2012, they have concluded that final cleanup goals/drinking water standards have also been attained. Neither TPHg nor BTEX was detected in any of the wells during the December 2012 monitoring event. Accordingly, in the enclosed comprehensive closure summary report, RRM has concluded that that no further investigation or remediation are needed to meet low-threat closure criteria and has recommended the County issue a no further action letter for the Site contingent on proper destruction of six monitoring wells and any additional site restoration.

Please advise if the County requires additional groundwater monitoring while the closure request is under review.

Thank you for your ongoing courtesy and cooperation.

Sincerely,

Brian T. Kelleher

Court consultant/project coordinator

Cc with enclosure: Kim Dincel and Julie Rogers, Esq., Silicon Valley Law-Group, counsel for Pearce Parties; Kristine Hey-Wilde, Senior Claims Specialist, Safeco, for Thompson Parties; Joe Ryan, Esq., Ryan & Lifter, counsel for Thompson Parties; Laurie Sherwood, Esq., Walsworth & Franklin et al counsel for Peterson Parties; Edward Martins, Esq., counsel for Ann Marie Holland and Estate of John Holland Sr.; Hal Reiland, counsel for Barbara Holland; Jack Holland Jr., c/o Mulholland Bros; cc cover letter only, Matt Kaempf, RRM



# **CASE CLOSURE SUMMARY AND LOW THREAT CLOSURE EVALUATION**

Holland Oil/Pearce Property  
900 Central Avenue  
Alameda California

Prepared for:  
900 Central Avenue Corrective Action Account  
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June 28, 2013

# TABLE OF CONTENTS

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<b>1.0</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>2.0</b>	<b>SITE BACKGROUND AND SUMMARY OF REMEDIAL ACTIVITIES</b>	<b>1</b>
2.1	Physical Site Conditions	1
2.2	Investigations	3
2.3	Remediation	5
<b>3.0</b>	<b>COMPOSITION, DISTRIBUTION AND MAGNITUDE OF SOIL AND GROUNDWATER CONTAMINATION</b>	<b>6</b>
<b>4.0</b>	<b>REMEDIAL EFFECTIVENESS</b>	<b>8</b>
4.1	Groundwater Cleanup Goals	8
4.2	Soil Cleanup Goals	8
<b>5.0</b>	<b>LOW THREAT CLOSURE EVALUATION</b>	<b>9</b>
5.1	General Criteria	9
5.2	Media-Specific Criteria: Groundwater, Vapor Intrusion to Indoor Air, and Direct Contact and Outdoor Air Exposure	10
<b>6.0</b>	<b>CONCLUSIONS AND RECOMENDATIONS</b>	<b>12</b>
6.1	Conclusions	12
6.2	Recommendations	13

# TABLE OF CONTENTS

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## **TABLES**

- Table 1 Well Specifications
- Table 2 Groundwater Elevation and Analytical Data
- Table 3 Soil Analytical Data
- Table 4 Soil Vapor Analytical Data

## **FIGURES**

- Figure 1 Site Location Map
- Figure 2 Extended Site Map
- Figure 3 Site Map with Sampling Locations
- Figure 4 Geologic Cross Section A-A'
- Figure 5 Groundwater Elevation Contour Map, December 19, 2012
- Figure 6 TPHg Groundwater Isoconcentration Map, May 7, 2009
- Figure 7 Benzene Groundwater Isoconcentration Map , May 7, 2009
- Figure 8 TPHg/Benzene/MtBE Groundwater Concentration Map, December 19, 2012
- Figure 9 Site Map with Soil Analytical Data

## **APPENDICES**

- Appendix A Boring Logs
- Appendix B Well Survey Information
- Appendix C Re-issued Soil Vapor Analytical Report

## 1.0 INTRODUCTION

This report, prepared by RRM, Inc. (RRM) on behalf of the various parties responsible for remediation of the subject Holland Oil/Pierce Property under Superior Court supervision, presents a Case Closure Summary and evaluation of the site conditions for low-threat underground storage tank (UST) case closure as outlined in the State Water Resources Control Board's (SWRCB) policy dated July 14, 2011 for the leaking UST case located at 900 Central Avenue in Alameda, CA (Figure 1). The low-threat policy was adopted on May 1, 2012 (see State Water Board Resolution 2012-0016) and became effective on August 17, 2012. .

A formal corrective action plan (CAP), *Corrective Action Plan (Final)*, dated August 27, 2010 was prepared for this leaking UST site which was approved by Alameda County Environmental Health Services (ACEHS) under correspondence dated September 15, 2010. The field work for the approved CAP was implemented in July and August 2011 and encompassed the remedial excavation, disposal and replacement of approximately 700 tons of residual saturated soil in the former UST area to the extent practicable. Since then, RRM has collected and analyzed ten soil samples representative of the excavation bottom and sidewalls and conducted two follow-up groundwater monitoring events. In addition, RRM has collected and analyzed shallow soil gas samples at five locations in the area between the south wall of the excavation and an existing residential structure to assess the vapor intrusion to indoor air risk. The collective results of the confirmation soil sampling follow up groundwater monitoring and soil gas sampling reveal that the site qualifies for closure under the SWRCB's May 2012 low threat closure policy.

Section 2 of this report includes discussions of site history and site specific subsurface conditions and summarizes all historic and recent investigations, remediation, and follow up monitoring. Section 3 summarizes the composition, distribution and magnitude of residual subsurface contamination before and after active remediation. Section 4 evaluates remedial effectiveness. Section 5 summarizes and explains the SWRCB's recently adopted low threat closure criteria and provides justification for closure of the site under these criteria. Section 6 provides conclusions and recommendations.

## 2.0 SITE BACKGROUND AND SUMMARY OF REMEDIAL ACTIVITIES

### 2.1 Physical Site Conditions

**Location.** The site is located on the southeast corner of Central Avenue and Ninth Street in Alameda, CA. In September 1975 the site operated as a Holland Oil Company retail gasoline station that consisted of a garage at the southwest corner, a pump island canopy in the northeast quadrant, three 550-gallon USTs located beneath the sidewalk along Ninth Street, and reportedly, a waste oil tank. According to Alameda Fire Department records, the original permit for the tanks was issued in 1931 to Mohawk Oil Company. A 1973 business directory lists the operator as EZ Pickings Gas and a 1975 directory as Holland Service Station No. 1. The tanks were removed by Holland Oil Company Inc., in September 1975.

In 1976 the property was sold to the Peterson family. In 1978, the Petersons sold the property to Gary Thompson dba Oak Construction. In October 1978 Oak Construction razed the gas station structures and constructed a residential duplex. The current owners, Karen and Gary Pearce, purchased the property in May 1985. The identification of subsurface contamination in 1994 instigated a lawsuit between the past and present owners. Due to the complexity of the lawsuit, William Nagle was appointed as Special Master in 1996 to help resolve the case. In 2003, Brian Kelleher of Kelleher & Associates in San Jose, CA was appointed on behalf of the litigating parties to coordinate remedial response actions and associated cost recovery work.

The property is located in a mixed residential/commercial area. To the west, at the southwest corner of Central Avenue and Ninth Street, was a former church that has since been converted to a movie theater. The property to the northwest (841 Central Avenue) is reportedly the location of a former gas station that operated from approximately 1947 to 1969. Both former gas station properties and the remainder of the surrounding properties are currently residential (Figure 2).

**Local Surface Water.** The nearest surface water is a man-made lagoon system approximately 1,000 feet south of the site; the San Francisco Bay is approximately 2,000 feet southwest, and the Brooklyn Basin is located approximately 1 mile northeast (Figure 1).

**Local Geology.** The site is on gently sloping terrain approximately 25 feet above mean sea level. Based on interpretation of historical boring logs, the site is underlain by sandy fill to a depth of approximately 3.5 feet. Fine sandy silt and poorly graded sand was encountered beneath the fill to approximately 26 feet below ground surface (bgs), the maximum depth explored. (Lowney, *Soil and Groundwater Quality Reconnaissance*, July 20, 1994; and Allwest, *Subsurface Investigation Report*, August 5, 1997, and quarterly monitoring reports for 1999 and 2002). Boring logs are presented in Appendix A, and a cross section is shown on Figures 3 and 4.

**Local Groundwater.** First encountered groundwater has been measured between approximately 10 and 14 feet bgs in soil borings advanced at the site; however, from the groundwater monitoring data set, depth to water has ranged from approximately 6 to 13 feet bgs, and appears to be seasonally influenced. Groundwater has generally been determined to flow to the southwest toward the San Francisco Bay. A groundwater elevation contour map prepared from data collected December 19, 2012 is shown on Figure 5 and groundwater monitoring well construction and groundwater elevation data are summarized in Tables 1 and 2, respectively.

**Utility Survey.** In February 2009, RRM conducted a utility survey for the site and vicinity. East Bay Municipal Utility District supplies water to the site, Pacific Gas & Electric (PG&E) supplies natural gas and electricity (electric lines are overhead), and the City of Alameda provides sanitary and storm sewer utilities. Given that the depth to groundwater at the site has been measured at depths as shallow as approximately 6 feet bgs, and the dissolved petroleum hydrocarbon plume appears to extend into Central Avenue; the utilities could serve as preferential pathways for migration. The approximate locations of identified utilities are shown on Figure 2.

**Well Survey.** In December 2002, Allwest Environmental, Inc. (Allwest) of San Francisco, CA reviewed data from the California Department of Water Resources, Alameda County Public Works, and the State Water Resources Control Board Geotracker database to locate drinking water wells located within 1,000

feet of the site. Five wells were identified within 1,000 feet of the site, but none were identified as drinking water wells. The three closest wells (ID#'s 18, 19, and 20) are located approximately 581 feet southwest, 264 feet west, and 264 feet north of the site, respectively; the use of Well #18 is unknown and the well could not be located in the field, Well #19 is listed as an irrigation well, and Well #20 is listed as a monitoring well. The remaining two wells (ID#'s 11 and 17) are located upgradient of the site approximately 950 feet southeast and 792 feet east, respectively; both are listed as irrigation wells. Since the dissolved plume does not extend beyond approximately 60 feet downgradient of the site, it is unlikely that any of the identified wells would be affected. The well survey information is included in Appendix C. (Allwest: 2002 Annual Groundwater Monitoring & Risk Assessment Report, January 31, 2003).

## 2.2 Investigations

The investigation locations are shown on Figures 2 and 3, groundwater analytical data are summarized in Table 2 and shown on Figures 6 through 8, soil analytical data are summarized in Table 3 and shown on Figures 4 and 9, and soil vapor analytical data are summarized in Table 4.

**April 1994 Subsurface Investigations.** Lowney Associates (Lowney) of Mountain View, CA conducted a site history review that included historic Sanborn maps and aerial photos and completed a subsurface investigation. During the investigation, three bore holes (EB-1 through EB-3) were completed to approximately 20 feet bgs in the area of the incorrectly presumed location of the former USTs and pump island. Soil samples were collected at 5-foot intervals and grab groundwater samples were collected from each boring; all groundwater and select soil samples (15 to 16-foot interval) were analyzed for motor oil range total petroleum hydrocarbons (TPH<sub>mo</sub>), diesel range TPH (TPH<sub>d</sub>), gasoline range TPH (TPH<sub>g</sub>), benzene, toluene, ethyl benzene, and xylenes (collectively BTEX); and a leachability test was conducted on the soil sample collected from Boring EB-1. Petroleum hydrocarbons were only detected in soil at Boring EB-1; TPH<sub>g</sub> and benzene were detected at 95 parts per million (ppm) and 0.4 ppm respectively. Petroleum hydrocarbons were detected in all the grab groundwater samples; the highest TPH<sub>g</sub> and benzene concentrations were detected in Boring EB-1 at 76,000 parts per billion (ppb) and 2,200 ppb respectively. The leachability testing resulted in TPH<sub>g</sub> and benzene concentrations of 4,300 ppb and 9 ppb, respectively. (Lowney Associates: *Soil and Groundwater Quality Reconnaissance*, July 20, 1994)

**June 1997 Subsurface Investigations and RBCA Analyses.** Allwest conducted a file review to assess potential on- and off-site sources of subsurface contamination. Eight direct push soil borings (P-1 through P-8) were also advanced to approximately 16 feet bgs in the area of the presumed location of the former USTs and pump island. Soil samples were collected at 5-foot intervals and field-tested for total volatile hydrocarbons with an organic vapor analyzer (OVA). Grab groundwater samples from each boring and 11 soil samples were analyzed for TPH<sub>g</sub> and BTEX. Discolored/odorous soils were reported at 10 to 12 feet bgs in borings P-2 through P-4. Petroleum hydrocarbons were detected in soil from borings P-3 and P-4; and the highest concentrations of 4,600 ppm TPH<sub>g</sub> and 15 ppm benzene were detected in the soil sample collected at 14.5 feet bgs from Boring P-3. Petroleum hydrocarbons were detected in groundwater at borings P-2 through P-4, P-7, and P-8; the highest concentration of 92,000 ppb was detected at Boring P-3 and the highest concentration of 610 ppb benzene was detected in Boring P-4.

Tier 1 and Tier 2 risk-based corrective-action evaluations were conducted using ASTM methodology, and based on the results; Allwest concluded there were no significant human health risks and no need for active remediation. (Allwest: *Subsurface Investigation Report*, August 5, 1997)

**November 1998 Well Installations and Sampling.** Allwest advanced three borings to 18 feet bgs at the northeast quadrant of the site; soil samples were collected at 5-foot intervals and field tested for TVH using an OVA. The borings were converted to 2-inch diameter monitoring wells (MW-1 through MW-3). Groundwater samples collected from each of the wells were analyzed for TPHg, BTEX, and methyl tertiary butanol (MtBE). TPHg and benzene were only detected in the sample from MW-1 at 360 ppb and 5.8 ppb, respectively. Allwest's recommendation to monitor the wells quarterly for one year was approved by ACEHS (Allwest: *Groundwater Monitoring Well Installation and Sampling*, February 2, 1999)

**2002- Conceptual Model and Risk Assessment.** In December 2002, Allwest prepared a site conceptual model consisting of a 3-dimensional drawing showing known areas of subsurface contamination and potential sensitive receptors. Also a cursory risk assessment using risk-based screening levels (RBSLs) in recently published Regional Water Quality Control Board (RWQCB) lookup tables was conducted. Based on the risk assessment, Allwest concluded that the RBSLs for groundwater were exceeded at MW-1 for the vapor migration to indoor-air-inhalation pathway, and pose a possible risk to off site receptors. (Allwest: *2002 Annual Groundwater Monitoring & Risk Assessment Report*, January 31, 2003)

**June and August 2007 Well Installations.** On June 20, 2007, RRM installed three 2-inch diameter groundwater monitoring wells (MW-4 through MW-6) to a depth of approximately 18 feet bgs, and on August 13, 2007 installed one 4-inch diameter recovery well (RW-1) to approximately 20 feet bgs. Soil samples were collected at approximate 5-foot intervals and field tested for TVH using an OVA; select soil samples were submitted for laboratory analyses of TPHg and BTEX. No compounds were detected in any of the soil samples analyzed. The wells were added to the quarterly groundwater monitoring program. (RRM: *Subsurface Investigation Results, Second and Third Quarter 2007 Groundwater Monitoring Result*, October 23, 2007)

**August 2007 Direct Push Soil Borings.** On August 9, 2007, RRM advanced six exploratory soil borings (SB-1 through SB-6) using direct-push drilling technology to depths ranging from 8 to 26 feet bgs. The soil borings were continuously sampled for logging purposes and to collect representative samples for laboratory analyses. Groundwater samples were not collected. Groundwater was encountered in borings SB-1 through SB-3 and SB-6 at depths ranging from 12.5 feet to 14.5 feet bgs. Petroleum hydrocarbons were detected in soil samples collected from Boring SB-1 at depths ranging from 7.5 feet to 16 feet bgs and from Boring SB-4 at 8 feet bgs. TPHg was detected in Boring SB-1 at concentrations ranging from 0.79 ppm at 7.5 feet bgs to 2,600 ppm at 12 feet bgs and in Boring SB-4 at a concentration of 5.1 ppm at 8 feet bgs. Fuel oxygenates including MtBE, other volatile organic compounds (VOCs), and other petroleum hydrocarbons were not detected in any of the soil samples submitted for laboratory analyses (RRM: *Subsurface Investigation Results, Second and Third Quarter 2007 Groundwater Monitoring Result*, October 23, 2007).

**1998-2009 Groundwater Monitoring.** Quarterly groundwater monitoring was conducted at the site for wells MW-1, 2 and 3 during 1998, 1999, and 2002. Quarterly monitoring of wells MW-1 through MW-6 and



RW-1 was conducted from mid-2007 through mid-2009. Groundwater monitoring was discontinued in 2010/2011 during corrective action implementation. Groundwater samples were analyzed for TPHg and BTEX. Historical analyses have included TPHmo, TPHd, MtBE, 1,2-dibromoethane (EDB) and 1,2-dichloroethane (EDC); however, these compounds were removed from the monitoring program since they were either not detected, or were not significant constituents of concern. The historic groundwater monitoring data including depth to water and analytical are compiled in Table 1.

### 2.3 Remediation

**September 1975 UST Removal.** As previously mentioned, the three 550-gallon USTs and reported waste oil tank were removed by Holland Oil Company Inc. in September 1975, and the gas station structures were removed in October 1978. No other information associated with the UST removal was available to RRM as of the date of this report.

**July-August 2011 Remedial Excavation.** Wells MW-1 and RW-1 were destroyed in July prior to the excavation work. Sections of city sidewalk and storm sewer were removed along with a lamp post and later replaced. In August 2011, approximately 700 tons of impacted soil was removed from the area of the suspect former UST and disposed at Newby Island Landfill; the excavation required the installation of sheet shoring along all but the east wall. The excavation measured approximately 23 feet by 28 feet and extended approximately 18 feet bgs. Six confirmation soil samples, three sidewall and two bottom, were collected and analyzed for TPHg and BTEX. TPHg was reported in the samples at concentrations ranging from 193 ppm to 1,550 ppm; benzene was not reported in any of the sidewall samples. In the two bottom samples collected from the east and west halves of the excavation at approximately 18 feet bgs, TPHg and benzene were only reported in the bottom sample from the west half (W-Bottom 18') at 0.657 ppm and 0.0015<sup>J</sup> ppm, respectively. Minimal groundwater was present within the excavation, and no groundwater removal or sampling was conducted. The excavation is shown on Figures 3 and 9.

### 2.4 Follow-Up Investigations and Groundwater Monitoring

**March 2012 Confirmation Soil Borings.** On March 1, 2012 four direct-push borings (CB-1 through CB-4) were advanced at the excavation boundaries to depths of 12 to 13 feet bgs to evaluate the extent of residual petroleum hydrocarbons in soil adjacent to the excavation area. Confirmation soil samples were collected from the bottom of each boring; the boring locations are shown on Figure 8. Soil samples were analyzed for TPHg and BTEX. TPHg were only reported in the confirmation borings to the north and south (CB-1 and CB-4) at concentrations of 16.6 ppm and 986 ppm, respectively. Benzene was not reported in any of the confirmation boring soil samples.

**April 2012 Soil Vapor Sampling.** Following completion of remedial excavation activities, five soil vapor samples (SG-1 through SG-5) were collected from approximately 5 feet bgs at the perimeter of the residential building bordering the excavation. TPHg was reported in all the soil vapor samples at concentrations ranging from 2,200 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) to 15,000  $\mu\text{g}/\text{m}^3$ , benzene was reported in samples SG-2 through SG-4 at concentrations ranging from 4.0  $\mu\text{g}/\text{m}^3$  to 8.8  $\mu\text{g}/\text{m}^3$ , toluene was reported in all the samples at 120  $\mu\text{g}/\text{m}^3$  to 1,700  $\mu\text{g}/\text{m}^3$ , ethylbenzene was reported in all the

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<sup>J</sup> Estimated concentration

samples at 51  $\mu\text{g}/\text{m}^3$  to 460  $\mu\text{g}/\text{m}^3$ , and xylenes were reported in all the samples at 316  $\mu\text{g}/\text{m}^3$  to 3,600  $\mu\text{g}/\text{m}^3$ .

**June 2012 Well Replacement** – In June 2012, a 2-inch diameter replacement well (MW-1R) with a screened interval from 6 to 18 feet bgs was installed within the boundaries of the August 2011 remedial excavation at a point midway between former well MW-1 and RW-1.

**June and December 2012 Follow-up Groundwater Monitoring.** Two rounds of follow-up groundwater monitoring were conducted at the site during 2012 with no contaminants of concern detected during the final event in December 2012. The current monitoring well network consists of wells MW-1R and MW-2 through MW-6. Groundwater samples were analyzed for TPHg and BTEX. A groundwater elevation contour map is shown on Figure 5 and a concentration map from the December 19, 2012 monitoring event is presented as Figure 8.

### 3.0 COMPOSITION, DISTRIBUTION AND MAGNITUDE OF SOIL AND GROUNDWATER CONTAMINATION

**Constituents Detected in Soil and Groundwater.** Soil and groundwater samples collected from the site since 1994 have been analyzed for TPHd, TPHmo, TPhss, TPHg, BTEX, MtBE, EDB, EDC, and other VOCs. Groundwater samples have also been analyzed for naphthalene. However, primarily TPHg and BTEX have been detected in collected samples.

Tables 2 through 4 summarize analytical results and investigation locations are shown on Figures 2 and 3.

**Source of Petroleum Hydrocarbons.** Given the detection of petroleum hydrocarbons in soil in the area of the former USTs, it is probable that the USTs were the primary source (removed in 1975). The residual petroleum hydrocarbons trapped in saturated soils beneath and down-gradient of the former USTs served as an active secondary source area prior to removal in 2011 during remedial excavation.

**Free Product.** Free product has not been noted at the site.

**Distribution and Magnitude of Petroleum Hydrocarbons in Soil and Saturated Soil.** Figures 3 and 9 show the distribution of TPHg in soil prior to remedial excavation in 2011 and residual soil impact left in place. The analytical data suggest that petroleum hydrocarbons are not present in the vadose zone (unsaturated zone) within or outside the site boundaries; residual TPHg soil contamination is restricted to the saturated and capillary fringe zones in the northwest corner of the site.

Pre-2011 Remedial Excavation: As depicted in Figure 9, the impacted area was oriented laterally southwest and covered a footprint roughly 30 feet wide by 60 feet long that extended from the former UST area. Based on groundwater gradient and investigation results, the impacted area was presumed to extend just beyond the north site boundary into Central Avenue and approximately mid-way into Ninth Street. Vertically, the contaminated interval was approximately 10 feet thick and extended from approximately 7 feet to 17 feet from bgs.

Within the contaminated interval, the highest concentrations of petroleum hydrocarbons were generally detected in samples at depths ranging from 12 feet to 14.5 feet bgs from borings drilled within the former

UST area and immediately down-gradient of the UST area (borings EB-1, P-3, and SB-1). Residual TPHg concentrations over 100 ppm ranged from 2,600 ppm at approximately 12 feet bgs in Boring SB-1 to 4,600 ppm at approximately 14.5 feet bgs in Boring P-3. Benzene and MtBE were not detected above the laboratory reporting limits in any of the soil samples analyzed.

The lateral extent of impacted soil is generally delineated to non-detect, or relatively low concentrations to the north by borings SB-4 and SB-5; to the south by borings P-4, SB-6, EB-2, and P-5; to the east by borings SB-2, P-1, and P-2; and to the west by the borings for wells MW-4 through MW-6.

The vertical extent of contamination in the impacted area is defined by boring SB-1 where TPHg was detected at 0.79 ppm at 7.5 feet bgs, 2,600 ppm at 12 feet bgs, 11 ppm at 16 feet bgs and was not detected at 20 feet bgs. This data is adequate for vertical delineation given the central location of boring SB-1 within the contaminated interval, the soil types, and the absence of any indications of contamination (petroleum odors) below 17 feet in the logs of the several borings installed within the contaminated interval.

Post-2011 Remedial Excavation: The heavily-impacted capillary fringe and saturated soil within the site boundaries in the area of the former USTs and dispensers and the majority of impact under the adjacent section of sidewalk was successfully removed during the 2011 excavation.

Based on the analytical results from confirmation soil samples collected in August 2011 and soil borings completed adjacent to the excavation in March 2012, there is an area of saturated soil impact along the north side of the excavation that underlies the south side of Central Avenue; the impacted interval occurs between approximately 10 feet to 18 feet bgs with the highest concentrations of TPHg ranging from 500 ppm to 1,500 ppm at approximately 12 feet bgs. This is the only remaining area of saturated soil impact above the soil cleanup goals proposed in RRM's August 2010 CAP and is considered inaccessible to excavation (see Figure 9). Some of the residual ethylbenzene and xylenes concentrations in this area also exceeded proposed soil cleanup goals. However, as discussed in Section 5.0 below, the levels do not exceed SWRCB low-threat closure criteria.

**Distribution and Magnitude of Petroleum Hydrocarbons in Groundwater.** Figures 6 and 7 show the distribution of TPHg and benzene in groundwater prior to the remedial excavation, and the TPHg, benzene, and MtBE concentrations in groundwater from the December 19, 2012 monitoring event are shown on Figure 8.

Pre-2011 Remedial Excavation: Historic groundwater monitoring analytical data indicates elevated concentrations of petroleum hydrocarbons were present in wells MW-1 and RW-1, which were centrally located within the contaminated soil zone. TPHg concentrations in these two wells were reported as high as 40,000 ppb at Well RW-1 and 100,000 ppb at Well MW-1. Benzene concentrations were reported as high as 4,000 ppb at Well MW-1. The dissolved petroleum hydrocarbon plume is defined laterally to the south, east and west by wells MW-2 through MW-6. The up-gradient plume boundary was inferred to be just north into Central Avenue. TPHg and benzene iso-concentration maps from the May 7, 2009 monitoring event are presented as Figures 6 and 7, respectively

Post-2011 Remedial Excavation: The data from the first and second follow-up groundwater monitoring events conducted in June and December 2012, indicate the remedial excavation work succeeded in reducing TPHg and BTEX concentrations in groundwater below the risk-based and beneficial use

cleanup goals proposed in RRM's August 2010 CAP. During the December 19, 2012 groundwater monitoring event, TPHg and benzene were not detected in replacement Well MW-1R, located between former wells RW-1 and MW-1; naphthalene was also not detected in any of the wells sampled during the December 2012 event. It is presumed that there is a small area of impacted groundwater under the south side of Central Avenue just outside the north wall of the August 2011 excavation that is attenuating.

#### 4.0 REMEDIAL EFFECTIVENESS

In RRM's August 27, 2010 *Corrective Action Plan (Final)*, proposed cleanup goals were developed for the petroleum hydrocarbon constituents of concern using the San Francisco Bay Regional Water Quality Control Board (RWQCB) document *Screening for Environmental Concerns at Sites with Contaminated Soil and Water* (Interim Final-November 2007, Revised May 2008). The 2008 RWQCB document was updated in May 2013; updated values are presented in parentheses where applicable. The proposed goals are presented below.

#### 4.1 Groundwater Cleanup Goals

##### Beneficial Use Corrective Action Goals or Maximum Contaminant Levels

Compound	Concentration (ppb)	Basis
Benzene	1.0	Beneficial use (Drinking Water)
Toluene	40	Beneficial use (Drinking Water)
Ethylbenzene	30	Beneficial use (Drinking Water)
Xylenes	20	Beneficial use (Drinking Water)
TPHg	100	Beneficial use (Drinking Water)

##### Risk Based Groundwater Corrective Action Goals

Compound	Concentration (ppb)	Basis
Benzene	540 (27)	Vapor intrusion (Table E-1)
Toluene	38,000 (95,000)	Vapor intrusion (Table E-1)
Ethylbenzene	170,000 (310)	Vapor intrusion (Table E-1)
Xylenes	160,000 (37,000)	Vapor intrusion (Table E-1)
TPHg	5,000	Odors (Table I-2)

#### 4.2 Soil Cleanup Goals

Since the investigation data indicated that there was little or no petroleum hydrocarbon contamination in the vadose zone, risk-based cleanup goals for unsaturated soils were not proposed.

The RWQCB has not established ESLs for saturated soils. However, the residential land use values presented in Table D of the Revised May 2008 RWQCB document for deep soils (greater than 3 meters bgs) where groundwater is not a current or potential source of groundwater were proposed as cleanup goals for soil deeper than 8 feet bgs.

**Soil Excavation Cleanup Goals (mg/kg)**

Compound	Concentration (ppm)	Reference
Benzene	2.0 (0.74)	(Table D)
Toluene	9.3	(Table D)
Ethylbenzene	4.7	(Table D)
Xylenes	11	(Table D)
TPHg	180 (2,900)	(Table D)

Comparison of groundwater cleanup levels with the follow-up groundwater data collected during 2012 (Table 2) indicate that both the beneficial use and risk-based cleanup goals have been met. Soil analytical data show detectable levels of petroleum hydrocarbon impact are mostly absent in vadose zone soil from 0 to 7.5 feet bgs (Table 3). Confirmation soil analytical data from the 2011 remedial excavation indicate that the proposed soil cleanup goal of 180 ppm for TPHg was exceeded in samples collected at the north sidewall at approximately 12 feet bgs. This area of residual impact lies adjacent to or under a public street and is inaccessible to excavation. In the samples where 180 ppm was exceeded, the TPHg levels ranged from 193 ppm to 1,550 ppm; which is below the updated May 2013 value of 2,900 ppm. Regardless, the volume of residual saturated soil impact in this area is likely of limited volume given the westerly groundwater flow direction and will not contribute significantly to groundwater degradation, since the adjacent heavily-contaminated interval was removed and replaced with clean soil. This is demonstrated by the rapid decrease in the groundwater concentration of TPHg in the replacement well during follow-up monitoring.

## 5.0 LOW THREAT CLOSURE EVALUATION

The State Water Resources Control Board (SWRCB) has developed a policy (SWRCB Resolution 2012-0016) for low-threat closure of leaking UST cases; the policy was adopted on August 17, 2012. An evaluation of the site conditions against the SWRCB low-threat closure criteria is presented below.

### 5.1 General Criteria

Sites are eligible for low-threat UST closure if:

***The unauthorized release is located within the service area of a public water system.*** The site is located within the area serviced by the East Bay Municipal Utilities District (EBMUD). EBMUD is responsible for providing water, monitoring sources of water supply, determining the availability of supply, and planning.

***The unauthorized release consists only of petroleum.*** The plume consists only of petroleum hydrocarbons released from the former USTs located at the north boundary of the site.

***The unauthorized (“primary”) release from the UST system has been stopped.*** The release has been stopped; the sources (the former USTs) were removed in 1975.

***Free product has been removed to the maximum extent practicable.*** Free product has not been observed at the site.

**A conceptual site model has been developed.** A detailed conceptual site model (CSM) was developed for the site. The CSM was included in the August 27, 2010 *Corrective Action Plan*.

**Secondary source removal has been addressed.** The majority of the secondary source material was removed during the remedial excavation in 2011. The residual contaminated saturated soil left in-place is located beneath a public roadway and is considered inaccessible.

**Soil or groundwater has been tested for MTBE and results reported in accordance with Health and Safety Code section 25296.15.** Soil and groundwater have been tested for MtBE; the compound has not been reported in any samples collected from the site. Analytical results are summarized in Tables 2 and 3.

## 5.2 Media-Specific Criteria: Groundwater, Vapor Intrusion to Indoor Air, and Direct Contact and Outdoor Air Exposure

### Groundwater

To satisfy the SWRCB low-threat media-specific criteria for groundwater, a contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of five classes listed in the policy. At the site, none of the water quality objectives are exceeded (Table 2) and all of the characteristics of each of the five classes are satisfied; therefore, the low-threat groundwater criteria have been met.

### Petroleum Vapor Intrusion to Indoor Air

To satisfy the SWRCB media-specific criteria for petroleum vapor intrusion to indoor air, four potential exposure scenarios are considered. Sites are classified as low-threat for the vapor intrusion to indoor air pathway if:

- a. Site-specific conditions at the release site satisfy all of the characteristics and screening criteria of Scenarios 1 through 3 as applicable, or all of the characteristics and screening criteria of Scenario 4 as applicable; or
- b. A site-specific risk assessment for the vapor intrusion pathway is conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency.

Scenario 1 applies to sites with un-weathered SPH in groundwater and Scenario 2 applies to sites with un-weathered SPH in soil. At the site, SPH has not been observed in groundwater. As such, Scenarios 1 and 2 are not applicable.

Scenario 3 considers dissolved phase benzene concentrations in groundwater and the bioattenuation zone thickness. The most conservative concentration of benzene for comparison using Scenario 3 is 100 µg/L, with a bioattenuation zone of at least 5 feet. At the site, benzene groundwater concentrations are less than 100 µg/L and the only residual contamination reported in soil at the site is below 10 feet bgs; however, no soil data is available from ground surface to 5 feet bgs. Therefore, site conditions are also screened against the criteria for Scenario 4.

Scenario 4 concerns the direct measurement of soil vapor concentrations. At the site, five soil vapor samples were collected adjacent to the site building at 5 feet bgs on April 3, 2012. Soil vapor samples were initially analyzed for BTEX, TPHg, oxygen, nitrogen, methane, helium, and carbon dioxide. The analytical laboratory (Eurofins Air Toxics, Inc. of Folsom, CA) re-issued the report on June 7, 2013 with results for naphthalene (Attachment C). While the initial April 2012 report met the laboratory data quality requirements for the originally requested compounds, naphthalene was not evaluated for quality compliance at that time and as a result the percent recovery of 58% for naphthalene for the lab control sample (LCS) was outside the control limit of 60%. However, naphthalene was not reported in any of the samples and the percent recovery for naphthalene for the LCS duplicate was within the control limits. Soil vapor concentrations for the subject site were compared to the values presented in the tables for Scenario 4 for sites with no bioattenuation zone the policy document. The values in the table are reproduced below.

#### Soil Gas Criteria (Scenario 4)

Constituent	With Bioattenuation Zone		No Bioattenuation Zone	
	Residential ( $\mu\text{g}/\text{m}^3$ )	Commercial ( $\mu\text{g}/\text{m}^3$ )	Residential ( $\mu\text{g}/\text{m}^3$ )	Commercial ( $\mu\text{g}/\text{m}^3$ )
Benzene	<85,000	<280,000	<85	<280
Ethylbenzene	<1,100,000	<3,600,000	<1,100	<3,600
Naphthalene	<93,000	<310,000	<93	<310

The highest benzene soil vapor concentration was detected in the sample from SG-2 at  $8.8 \mu\text{g}/\text{m}^3$ , and the highest ethylbenzene concentration was detected from SG-5 at  $460 \mu\text{g}/\text{m}^3$ . Naphthalene was not reported above the laboratory reporting limit of  $38 \mu\text{g}/\text{m}^3$  in any of the soil vapor samples.

Comparison of the soil vapor analytical results (Table 4) to the commercial and residential values in the table above for no bioattenuation zone indicates that soil vapor concentrations for benzene, ethylbenzene, and naphthalene at the subject site are below the thresholds listed in the table above. Therefore, the low-threat soil vapor criteria have been met.

#### Direct Contact and Outdoor Air Exposure

To satisfy the SWRCB media-specific criteria for direct contact and outdoor exposure, the policy describes conditions where direct contact with contaminated soil or inhalation of contaminants volatilized to outdoor air poses an insignificant threat to human health. Sites where human exposure may occur satisfy the low-threat criteria for the direct contact and outdoor air exposure pathways when:

- a. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 from the policy document (residential values are reproduced in the table below) for the specified depth below ground surface. The poly aromatic hydrocarbon (PAH) screening level is only applicable where soil was affected by either waste oil and/or Bunker C fuel; or
- b. Maximum concentrations of petroleum constituents in soil are less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health; or

- c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health

**Table 1-Concentrations of Petroleum Constituents in Soil That Will Have No Significant Risk of Adversely Affecting Human Health**

Depth (feet)	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Naphthalene (mg/kg)	PAH (mg/kg)
0 to 5	1.9	21	9.7	0.063
5 to 10	2.8	32	9.7	NA

At the site, petroleum hydrocarbon impact in soil was identified in the area of the former USTs between 7.5 feet bgs and 17 feet bgs, but this impacted soil interval has been removed, except beneath Central Avenue. In the residual soil, benzene was only reported in two samples at 0.011 ppm in P-4-15.5' and 0.0041 ppm in W-Bottom 18'. A waste oil tank was reportedly present at the site, but the location has not been verified and no significant contamination related to the waste oil tank has been discovered in the subsurface.

Comparison of the residual soil analytical results (Table 3) to the screening values for direct contact indicates that soil concentrations for benzene and ethylbenzene at the subject site are below the thresholds listed in the policy document in Table 1 (reproduced above). While no soil samples were analyzed for naphthalene, this compound was not detected in groundwater occurring at approximately 9.5 feet bgs or soil vapor samples collected at approximately 5 feet bgs; this data is sufficient to satisfy the low-threat criteria for direct contact and outdoor exposure, given that any vadose zone impacted soil was removed during the remedial excavation in 2011.

## 6.0 CONCLUSIONS AND RECOMENDATIONS

### 6.1 Conclusions

Cases that meet the SWRCB general and media-specific criteria satisfy the case closure requirements of Health and Safety Code Section 25296.10, including the requirement in State Water Board Resolution 92-49 that requires that cleanup goals and objectives be met within a reasonable time frame. Based on the evaluation of site conditions against the SWRCB criteria, the site is eligible for low-threat closure. General criteria are met and specific criteria appear satisfied. Regarding groundwater criteria, petroleum hydrocarbons, including benzene and naphthalene, were not reported in any of the groundwater monitoring wells during the December 2012 monitoring event and the low-threat groundwater criteria have been met. Benzene, ethylbenzene, and naphthalene soil vapor concentrations are less than the low-threat soil vapor criteria (Scenario 4), oxygen concentrations in soil vapor are elevated, and the thickness of the bioattenuation zone is likely greater than 5 feet. Benzene has only been reported in two soil samples collected at the site with concentrations that are well below the low-threat soil criteria, and the high-TPHg concentration soil was removed during remedial excavation in 2011. The small area of residual soil and groundwater contamination beneath Central Avenue is expected to steadily decline by natural attenuation processes.



## **6.2 Recommendations**

On the basis of the conclusions set forth above, RRM recommends ACEHS close the leaking UST case, contingent on the proper destruction of the six existing monitoring wells and any necessary site work.

**PROFESSIONAL CERTIFICATION**  
**CLOSURE SUMMARY AND LOW THREAT CLOSURE EVALUATION**  
**900 CENTRAL AVENUE**  
**ALAMEDA, CALIFORNIA**

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I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, to the best of my knowledge and belief the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Evaluation of the geological conditions at the site for the purpose of this closure summary is inherently limited due to the number of observation points. There may be variations in subsurface conditions in areas away from the sample points. Data from this report reflect the sample conditions at specific locations at a specific point in time. No other interpretations, representations, warranties, guarantees, express or implied, are included.

Sincerely,  
**RRM, Inc.**



Matt Paulus  
Project Geologist



Julie Avanto  
Project Engineer  
RCE 77741



Table 1  
**Well Specifications**

900 Central Avenue  
 Alameda, California

Well	Total Depth (feet, bgs)	Casing Diameter (inch)	Screened Interval (feet, bgs)	Screen Length (feet)	Status
MW-1	18	2	6 - 18	12	Destroyed 7/13/11
MW-2	19.5	2	6 - 19.5	13.5	
MW-3	18	2	6 - 18	12	
MW-4	18	2	6 - 18	12	
MW-5	18	2	6 - 18	12	
MW-6	18	2	6 - 18	12	
RW-1	20	4	5 - 20	15	Destroyed 7/13/11
MW-1R	20	4	5 - 20	15	

Notes:

bgs = below ground surface
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Table 2  
Groundwater Elevation and Analytical Data

900 Central Avenue  
Alameda, California

Sample ID	Date Gauged & Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MtBE (ppb)	TPHd (ppb)	TPHmo (ppb)	Notes
<b>Monitoring Wells</b>													
MW-1	11/27/98	25.17	11.77	13.40	360	5.8	5.5	9.2	40	<5.0	<50	<500	
	03/12/99		6.59	18.58	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	06/01/99		8.71	16.46	930	<0.50	19	52	230	<5.0	540	<500	
	09/03/99		11.79	13.38	14,000	300	1,900	890	5,600	<5.0	2,100	<500	
	03/29/02		8.32	16.85	<50	<0.50	<0.50	<0.50	<0.50	<0.50	61	<610	
	07/15/02		11.39	13.78	39,000	1,700	2,900	1,800	7,800	<10	4,200	<5000	
	10/03/02		12.88	12.29	42,000	2,600	3,300	1,800	10,000	<500	8,400	<2500	
	02/05/07		10.40	14.77	26,000	2,550	2,010	1,140	4,870	<0.5	NA	NA	1
	05/04/07		9.77	15.40	28,000	2,080	1,820	739	5,500	NA	NA	NA	1
	08/23/07	28.27	12.23	16.04	56,700	2,570	2,370	1,120	9,560	<11	NA	NA	1,3
	11/28/07		12.94	15.33	51,700	3,160	3,270	1,050	9,250	<11.0	NA	NA	1,3
	02/28/08		8.10	20.17	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	4
	06/03/08		11.40	16.87	11,000	1,060	2,080	784	4,370	NA	NA	NA	1,5
	09/04/08		13.23	15.04	66,000	4,000	5,410	62.0	11,700	NA	NA	NA	1
	11/06/08		13.76	14.51	100,000	2,870	5,160	1,720	13,800	NA	NA	NA	
	02/09/09		13.76	14.51	73,000	3,190	4,250	2,410	16,800	NA	NA	NA	7
	05/07/09		10.40	17.87	62,000	2,900	6,300	2,700	16,000	NA	NA	NA	
<b>Well Destroyed 7/13/11</b>													
MW-1R	06/27/12	NM	9.85	NM	331	24.1	1.1	31.4	3.7	<0.20	NA	NA	
	12/19/12	NM	9.32	NM	<25	<0.20	<0.20	<0.20	<0.46	<0.20	NA	NA	8
MW-2	11/27/98	25.12	11.76	13.41	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	03/12/99		6.53	18.64	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	06/01/99		8.56	16.61	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	09/03/99		11.60	13.57	<50	<0.50	<0.50	<0.50	1.8	<5.0	<50	<500	
	03/29/02		8.10	17.07	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	07/15/02		10.92	14.25	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	10/03/02		DRY	--	NS	NS	NS	NS	NS	NS	NS	NS	
	02/05/07		10.15	15.02	89	<0.5	<0.5	<0.5	<1.50	<0.5	NA	NA	1,2
	05/04/07		9.43	15.74	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	08/23/07	28.31	11.94	16.37	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	11/28/07		12.67	15.64	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.89	20.42	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	4

Table 2  
Groundwater Elevation and Analytical Data

900 Central Avenue  
Alameda, California

Sample ID	Date Gauged & Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MtBE (ppb)	TPHd (ppb)	TPHmo (ppb)	Notes
MW-2 (cont.)	06/03/08		11.07	17.24	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	09/04/08		12.95	15.36	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	11/06/08		13.52	14.79	52	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	3
	02/09/09		13.50	14.81	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	7
	05/07/09		10.08	18.23	<50	<0.50	<0.50	<0.50	<1.5	NA	NA	NA	
	06/27/12		NM	NM									
	12/19/12		NM	NM									
								Unable to Locate Well Well Uncovered/Blocked					
MW-3	11/27/98	24.58	11.41	13.76	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	03/12/99		6.01	19.16	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	06/01/99		8.16	17.01	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	09/03/99		11.27	13.90	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	03/29/02		7.78	17.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<50	<500	
	07/15/02		10.82	14.35	<50	<0.50	<0.50	<0.50	<0.50	<0.50	110	<500	
	10/03/02		12.28	12.89	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	02/05/07		9.85	15.32	<50	<0.5	<0.5	<0.5	<1.50	<0.5	NA	NA	1
	05/04/07		9.19	15.98	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	08/23/07	27.69	11.63	16.06	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	11/28/07		12.31	15.38	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.46	20.23	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	4
	06/03/08		10.82	16.87	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	09/04/08		12.62	15.07	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	11/06/08		13.20	14.49	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	
	02/09/09		13.21	14.48	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	7
05/07/09		9.83	17.86	<50	<0.50	<0.50	<0.50	<1.5	NA	NA	NA		
06/27/12		9.90	17.79	<25	<0.20	<0.20	<0.20	<0.46	<0.20	NA	NA		
12/19/12		9.29	18.40	<25	<0.20	<0.20	<0.20	<0.46	<0.20	NA	NA	8	
MW-4	08/23/07	27.37	11.73	15.64	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	11/28/07		12.43	14.94	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.81	19.56	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	4
	06/03/08		10.99	16.38	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	09/04/08		12.68	14.69	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	11/06/08		13.25	14.12	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	
	02/09/09		13.30	14.07	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	7

Table 2  
Groundwater Elevation and Analytical Data

900 Central Avenue  
Alameda, California

Sample ID	Date Gauged & Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MtBE (ppb)	TPHd (ppb)	TPHmo (ppb)	Notes
MW-4 (cont.)	05/07/09		10.04	17.33	<50	<0.50	<0.50	<0.50	<1.5	NA	NA	NA	
	06/27/12		10.05	17.32	<25	<0.20	<0.20	<0.20	<0.46	<0.20	NA	NA	
	<b>12/19/12</b>		<b>9.52</b>	<b>17.85</b>	<b>&lt;25</b>	<b>&lt;0.20</b>	<b>&lt;0.20</b>	<b>&lt;0.20</b>	<b>&lt;0.46</b>	<b>&lt;0.20</b>	<b>NA</b>	<b>NA</b>	<b>8</b>
MW-5	08/23/07	27.25	11.56	15.69	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	11/28/07		12.29	14.96	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.55	19.70	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	4
	06/03/08		10.84	16.41	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	09/04/08		12.53	14.72	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	11/06/08		13.12	14.13	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	
	02/09/09		13.16	14.09	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	7
	05/07/09		9.89	17.36	<50	<0.50	<0.50	<0.50	<1.5	NA	NA	NA	
	06/27/12		9.92	17.33	<25	<0.20	<0.20	<0.20	<0.46	<0.20	NA	NA	
	<b>12/19/12</b>		<b>9.38</b>	<b>17.87</b>	<b>&lt;25</b>	<b>&lt;0.20</b>	<b>&lt;0.20</b>	<b>&lt;0.20</b>	<b>&lt;0.46</b>	<b>&lt;0.20</b>	<b>NA</b>	<b>NA</b>	<b>8</b>
MW-6	08/23/07	27.24	11.52	15.72	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	11/28/07		12.24	15.00	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.43	19.81	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	4
	06/03/08		10.81	16.43	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	09/04/08		12.51	14.73	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	11/06/08		13.10	14.14	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	
	02/09/09		13.14	14.10	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	7
	05/07/09		9.84	17.40	<50	<0.50	<0.50	<0.50	<1.5	NA	NA	NA	
	06/27/12		9.92	17.32	<25	<0.20	<0.20	<0.20	<0.46	<0.20	NA	NA	
	<b>12/19/12</b>		<b>9.35</b>	<b>17.89</b>	<b>&lt;25</b>	<b>&lt;0.20</b>	<b>&lt;0.20</b>	<b>&lt;0.20</b>	<b>&lt;0.46</b>	<b>&lt;0.20</b>	<b>NA</b>	<b>NA</b>	<b>8</b>
RW-1	08/23/07	27.43	11.23	16.20	16,000	<4.40	38.9	571	2,660	<4.40	NA	NA	1,3
	11/28/07		11.97	15.46	24,400	4.75	110	915	3,980	<4.40	NA	NA	1,3
	02/28/08		7.22	20.21	10,100	<4.40	40.3	256	1,430	NA	NA	NA	1,3
	06/03/08		10.41	17.02	40,000	<4.40	120	1,100	8,810	NA	NA	NA	1,5
	09/04/08		12.25	15.18	17,000	<4.40	41.1	640	3,290	NA	NA	NA	1,5
	11/06/08		12.75	14.68	19,000	<4.40	28.1	369	2,340	NA	NA	NA	6
	02/09/09		12.77	14.66	20,000	<4.40	51.9	738	4,410	NA	NA	NA	7
	05/07/09		9.34	18.09	43,000	<11	200	2,100	10,000	NA	NA	NA	6

Well Destroyed 7/13/11

Table 2  
**Groundwater Elevation and Analytical Data**

900 Central Avenue  
 Alameda, California

Sample ID	Date Gauged & Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MtBE (ppb)	TPHd (ppb)	TPHmo (ppb)	Notes
<b>Grab Groundwater Samples</b>													
EB-1	04/20/94	NA	NA	NA	76,000	2,200	8,800	2,500	1,600	NA	16,000*	<1,000	
EB-2	04/20/94	NA	NA	NA	<50	<0.5	<0.5	<0.5	<0.5	NA	<50	720	
EB-3	04/20/94	NA	NA	NA	<50	<0.5	<0.5	<0.5	<0.5	NA	<50	820	
P-1-W	06/30/97	NA	NA	NA	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
P-2-W	06/30/97	NA	NA	NA	290	2.4	2.1	1.4	3.1	NA	<100	<1,000	
P-3-W	06/30/97	NA	NA	NA	92,000	190	5,000	4,600	24,000	NA	<100	<1,000	
P-4-W	06/30/97	NA	NA	NA	17,000	610	720	940	3,800	NA	<100	<1,000	
P-5-W	06/30/97	NA	NA	NA	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
P-6-W	06/30/97	NA	NA	NA	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
P-7-W	06/30/97	NA	NA	NA	66	2.3	6.5	0.8	4.7	NA	NA	NA	
P-8-W	06/30/97	NA	NA	NA	51	1.7	5.1	0.55	2.4	NA	NA	NA	

Notes:

MSL = relative to mean sea level  
 TOC = top of casing  
 TPHg = gasoline range total petroleum hydrocarbons  
 TPHd = diesel range total petroleum hydrocarbons  
 TPHmo = motor oil range total petroleum hydrocarbons  
 TBA = tert-Butanol  
 1 = also sampled for the fuel oxygenates ethyl tert-butyl ether (ETBE), isopropyl ether (DIPE), t-butyl alcohol (t-butanol) (TBA), and tert-amyl methyl ether (TAME); none of these compounds detected above the laboratory limit.  
 2 = the laboratory reported value due to discrete peaks present within the TPH as gasoline quantitation range (heavy end); not typical gasoline.  
 3 = the laboratory reported results are elevated due to non-target compounds within the gasoline range  
 4 = also sampled for the fuel oxygenates ethyl tert-butyl ether (ETBE), t-butyl alcohol (t-butanol) (TBA), and tert-amyl methyl ether (TAME); none of these compounds detected above the laboratory limit.  
 5 = laboratory noted that although TPH as gasoline constituents are present, TPH value includes a significant portion of non-target hydrocarbons present within gasoline range.  
 6 = Although TPH as Gasoline compounds are present, result includes heavy end hydrocarbons within the C5 - C12 quantitation range (possibly aged gasoline).  
 7 = Sample also analyzed for 1,2-dibromoethane and 1,2-dichloroethane; neither was detected.  
 8 = Sample also analyzed for naphthalene; compound was not detected unless noted.

Table 3  
**Soil Analytical Data**  
 900 Central Avenue  
 Alameda, California

Sample ID	Date	Depth (feet, bgs)	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	TPHss (mg/kg)	TPHk (mg/kg)	VOCs (mg/kg)	Notes:
<b>Excavation Sidewall Confirmation Borings</b>														
CB-1-12'	03/01/12	12	16.6	<0.017	<0.017	0.0754J	0.244J	NA	NA	NA	NA	NA	NA	
CB-2-12'	03/01/12	12	<0.050	<0.00050	<0.00050	<0.00050	<0.0010	NA	NA	NA	NA	NA	NA	
CB-3-13'	03/01/12	13	<0.049	<0.00049	<0.00049	<0.00049	<0.00097	NA	NA	NA	NA	NA	NA	
CB-4-12'	03/01/12	12	<b>986</b>	<0.67	5.77	<b>17</b>	<b>114</b>	NA	NA	NA	NA	NA	NA	
<b>Excavation Confirmation Samples</b>														
NW-12'	08/16/11	12	<b>619</b>	<1.40	<1.40	4.33J	4.34J	NA	NA	NA	NA	NA	NA	
N-12'	08/16/11	12	<b>1,550</b>	<3.60	<3.60	<b>9.59J</b>	<b>19.2J</b>	NA	NA	NA	NA	NA	NA	
W-Bottom 18'	08/17/11	18	0.657	0.0015J	0.0041J	0.0133	0.0923	NA	NA	NA	NA	NA	NA	
N-16'	08/17/11	16	<b>193</b>	<0.370	<0.370	2.52	<b>13.9</b>	NA	NA	NA	NA	NA	NA	
E-Bottom 18'	08/17/11	18	<0.049	<0.0015	<0.0015	<0.0015	0.0066J	NA	NA	NA	NA	NA	NA	
<b>Soil Disposal Profile and Vertical Delineation Borings</b>														
PB-1-20	09/08/10	20	0.145	<0.0015	<0.0015	<0.0015	<0.0040	<0.00099	NA	NA	NA	NA	NA	
PB-1-25	09/08/10	25	<0.049	<0.0015	<0.0015	<0.0015	<0.0039	<0.00098	NA	NA	NA	NA	NA	
PB-2-20	09/08/10	20	0.304	<0.0015	<0.0015	0.0015J	0.0058J	<0.00099	NA	NA	NA	NA	NA	
PB-2-25	09/08/10	25	<0.050	<0.0015	<0.0015	0.0017J	0.0060J	<0.0010	NA	NA	NA	NA	NA	
PB-Comp-1	09/08/10	NA	36.9	<0.094	<0.094	0.427	3.36	<0.063	NA	NA	NA	NA	NA	c,d
PB-Comp-2	09/08/10	NA	<2.5	<0.075	<0.075	<0.075	<0.20	<0.050	NA	NA	NA	NA	NA	e,f
<b>Soil Borings- RRM</b>														
SB-1-7.5	08/09/07	7.5	0.79	<0.010	<0.010	<0.010	0.034	NA	NA	NA	NA	NA	NA	
SB-1-12	08/09/07	12	<b>2,600</b>	<3.3	<3.3	<b>31</b>	<b>200</b>	NA	NA	NA	NA	NA	NA	
SB-1-16	08/09/07	16	<b>11</b>	<0.010	<0.010	0.31	1.7	NA	NA	NA	NA	NA	NA	
SB-1-20	08/09/07	20	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-1-24	08/09/07	24	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-2-8	08/09/07	8	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-2-11.5	08/09/07	11.5	<0.50	<0.010	<0.010	<0.010	<0.010	NA	<5.0	<10	<5.0	<5.0	NA	
SB-2-16	08/09/07	16	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-2-20	08/09/07	20	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-2-24	08/09/07	24	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
<b>Soil Cleanup Goals (mg/kg)<sup>9</sup></b>			<b>180</b>	<b>2</b>	<b>9.3</b>	<b>4.7</b>	<b>11</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	



Table 3  
**Soil Analytical Data**  
 900 Central Avenue  
 Alameda, California

Sample ID	Date	Depth (feet, bgs)	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	TPHss (mg/kg)	TPHk (mg/kg)	VOCs (mg/kg)	Notes:
<b>Soil Borings- RRM (cont.)</b>														
SB-3-8	08/09/07	8	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-3-12	08/09/07	12	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-3-16	08/09/07	16	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-4-8	08/09/07	8	5.1	<0.050	<0.050	<0.050	<0.100	<0.050	<5.0	<10	<5.0	<5.0	ND	
SB-5-8	08/09/07	8	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA				
SB-5-10.5	08/09/07	10.5	<0.10	<0.005	<0.005	<0.005	<0.010	<0.0050	<5.0	<10	<5.0	<5.0	ND	
SB-6-8	08/09/07	8	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-6-12	08/09/07	12	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
SB-6-16	08/09/07	16	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
<b>Monitoring Wells - RRM</b>														
MW-4-6	06/22/07	6	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
MW-4-10.5	06/22/07	10.5	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
MW-4-16.5	06/22/07	16.5	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
MW-5-7.5	06/22/07	8	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
MW-5-10.5	06/22/07	10.5	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
MW-5-15	06/22/07	15.0	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
MW-6-5	06/22/07	5	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
MW-6-10.5	06/22/07	10.5	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
MW-6-17	06/22/07	17	<0.50	<0.010	<0.010	<0.010	<0.010	NA	NA	NA	NA	NA	NA	
<b>Soil Borings - Allwest</b>														
P-1-11 <sup>b</sup>	06/97	11	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	
P-2-10.5 <sup>b</sup>	06/97	10.5	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	
P-2-12.5 <sup>b</sup>	06/97	12.5	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	
P-3-11 <sup>b</sup>	06/97	11	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	
P-3-14.5 <sup>b</sup>	06/97	14.5	4,600	ND	15	110	590	NA	NA	NA	NA	NA	NA	
P-4-13 <sup>b</sup>	06/97	13	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	
P-4-15.5 <sup>b</sup>	06/97	15.5	1.1	0.011	0.0092	0.03	0.066	NA	NA	NA	NA	NA	NA	
P-5-11.5 <sup>b</sup>	06/97	11.5	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	
P-6-10.5 <sup>d</sup>	06/97	10.5	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	
<b>Soil Cleanup Goals (mg/kg)<sup>g</sup></b>			<b>180</b>	<b>2</b>	<b>9.3</b>	<b>4.7</b>	<b>11</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	

Table 3  
**Soil Analytical Data**  
 900 Central Avenue  
 Alameda, California

Sample ID	Date	Depth (feet, bgs)	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	TPHss (mg/kg)	TPHk (mg/kg)	VOCs (mg/kg)	Notes:
<b>Soil Borings - Allwest (cont.)</b>														
P-7-9.5 <sup>b</sup>	06/97	9.5	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	
P-8-9.5 <sup>b</sup>	06/97	9.5	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	
<b>Soil Borings - Lowney</b>														
EB-1 <sup>a</sup>	04/20/94	14.5	95	0.4	0.5	0.9	5.2	NA	39	<10	NA	NA	NA	
EB-2 <sup>a</sup>	04/20/94	16.5	<1.0	<0.005	<0.005	<0.005	<0.005	NA	<5	<10	NA	NA	NA	
EB-3 <sup>a</sup>	04/20/94	14.5	<1.0	<0.005	<0.005	<0.005	<0.005	NA	<5	<10	NA	NA	ND	
<b>Soil Cleanup Goals (mg/kg)<sup>g</sup></b>			<b>180</b>	<b>2</b>	<b>9.3</b>	<b>4.7</b>	<b>11</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	

Notes:

TPHg = gasoline range total petroleum hydrocarbons  
 TPHd = diesel range total petroleum hydrocarbons  
 TPHmo = motor oil range total petroleum hydrocarbons  
 TPHss = Stoddard range total petroleum hydrocarbons  
 TPHk = kerosene total petroleum hydrocarbons  
 MtBE = Methyl tert-Butyl Ether  
 mg/kg = milligrams per kilogram  
 bgs = below ground surface  
 < = none detected at or above reported detection limit  
 ND = not detected  
 NA = not analyzed or not applicable  
 J = Estimated concentration; compound detected below lab reporting limit but above method detection limit  
 = soil in area of sample removed during remedial excavation in August 2011  
**BOLD** = concentrations in **BOLD** indicate value exceeds proposed cleanup goal

a = Work performed by Lowney Associates on April 4, 1994.  
 b = Work performed by Allwest in 1997.  
 c = Lead reported at 10.1 mg/kg  
 d = 4 part composite of samples from PB-1 & PB-2 at 5- and 10-foot depths  
 e = Lead reported at 3.3 mg/kg  
 f = 4 part composite of samples from PB-1 & PB-2 at 15- and 20-foot depths  
 g = soil cleanup goals proposed in RRM's August 27, 2010 *Corrective Action Plan (FINAL)*

Table 4  
**Soil Vapor Analytical Data**  
 900 Central Avenue  
 Alameda, California

Sample ID	Date	Depth (feet, bgs)	TPHg ( $\mu\text{g}/\text{m}^3$ )	Benzene ( $\mu\text{g}/\text{m}^3$ )	Toluene ( $\mu\text{g}/\text{m}^3$ )	Ethyl-benzene ( $\mu\text{g}/\text{m}^3$ )	Xylenes ( $\mu\text{g}/\text{m}^3$ )	Naphthalene ( $\mu\text{g}/\text{m}^3$ )	Oxygen (%)	Nitrogen (%)	Carbon		
											Dioxide (%)	Methane (%)	Helium (%)
SG-1	04/03/12	5	<b>2,200</b>	<2.4	<b>120</b>	<b>51</b>	<b>316</b>	<16	<b>20</b>	<b>79</b>	<b>1.0</b>	<0.00025	<0.12
SG-2	04/03/12	5	<b>14,000</b>	<b>8.8</b>	<b>1,700</b>	<b>380</b>	<b>2,410</b>	<31	<b>19</b>	<b>80</b>	<b>1.4</b>	<0.00020	<0.098
SG-3	04/03/12	5	<b>3,300</b>	<b>4.9</b>	<b>230</b>	<b>74</b>	<b>570</b>	<16	<b>11</b>	<b>84</b>	<b>5.4</b>	<0.00021	<0.10
SG-4	04/03/12	5	<b>7,400</b>	<b>4.0</b>	<b>950</b>	<b>220</b>	<b>1,590</b>	<17	<b>13</b>	<b>82</b>	<b>4.9</b>	<0.00022	<0.11
SG-5	04/03/12	5	<b>15,000</b>	<5.8	<b>1,000</b>	<b>460</b>	<b>3,600</b>	<38	<b>17</b>	<b>80</b>	<b>2.8</b>	<0.00019	<0.096
<b>RWQCB ESLs (Residential)</b>			<b>150,000</b>	<b>42</b>	<b>160,000</b>	<b>490</b>	<b>52,000</b>	<b>36</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

Notes:

TPHg = gasoline range total petroleum hydrocarbons

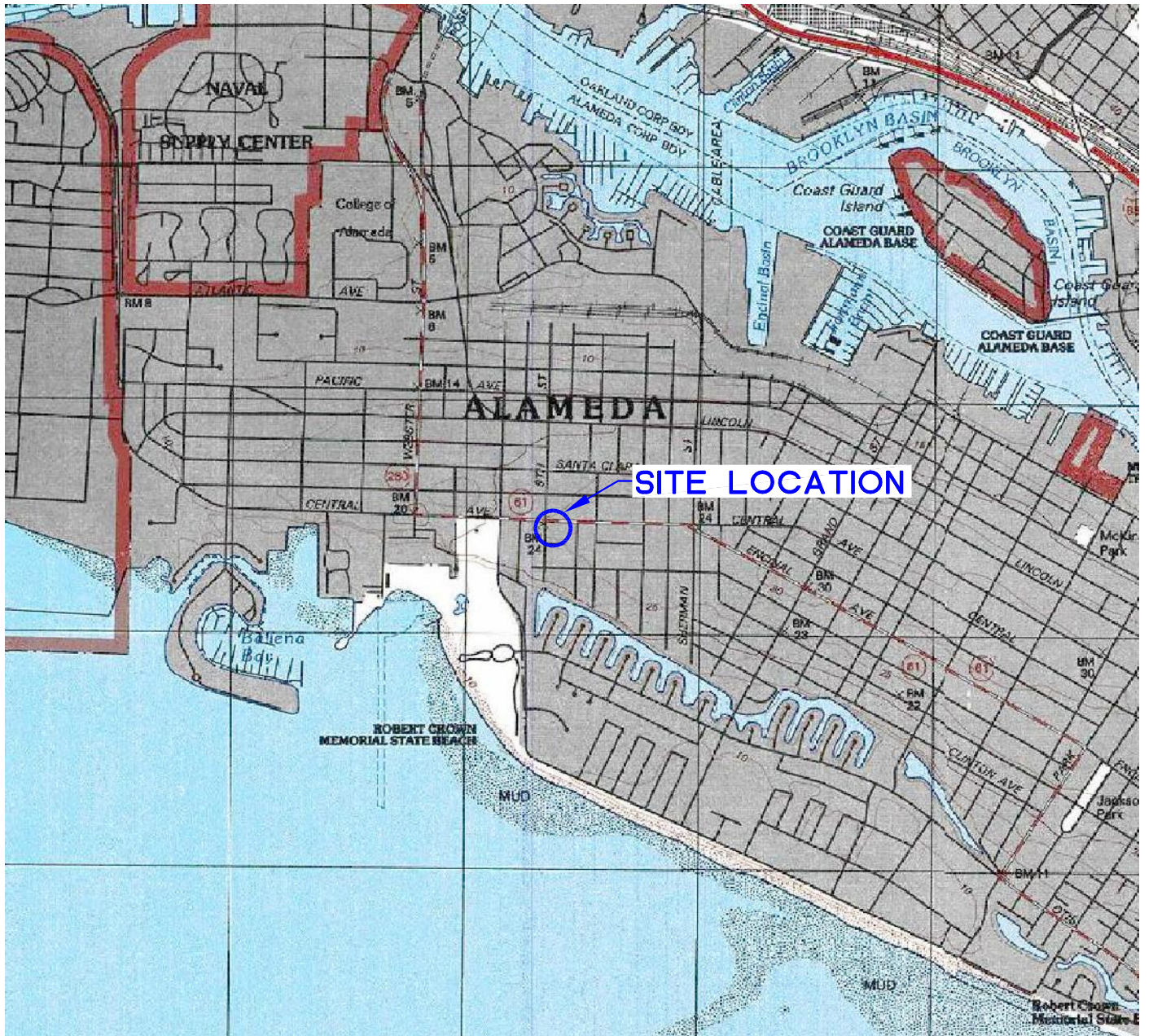
$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

bgs = below ground surface

< = none detected at or above reported detection limit

NA = not analyzed

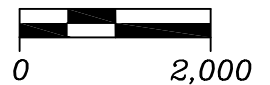
RWQCB ESLs = Table E-1 of RWQCB document *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final - May 2013*



QUADRANGLE LOCATION



SCALE IN FEET



Ref. KCE514/KCE514-SLM.DWG  
Base Map from TOPO1.NGH

**SITE LOCATION MAP**

900 Central Avenue  
Alameda, California

FIGURE:  
**1**  
PROJECT:  
KCE514



COMMERCIAL/RESIDENTIAL

COMMERCIAL/RESIDENTIAL

6"φ  
4"φ

8"φ PLASTIC  
3"φ PLASTIC

CENTRAL AVENUE

56'

4"φ PLASTIC

M.H.

2"φ PLASTIC (4"φ CAST ENCASED)

SUSPECT FORMER UST

RW-1

SIDEWALK

FENCE/PROPERTY BOUNDARY

- EXPLANATION**
- MW-1 GROUNDWATER MONITORING WELL LOCATION
  - P-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1997)
  - EB-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1994)
  - RW-1 RECOVERY WELL LOCATION
  - DESTROYED WELL
  - UTILITY - PG&E (GAS)
  - UTILITY - WATER
  - UTILITY - STORM DRAIN
  - UTILITY - SANITARY SEWER
  - M.H. MANHOLE

MOVIE THEATER (FORMER CHURCH)

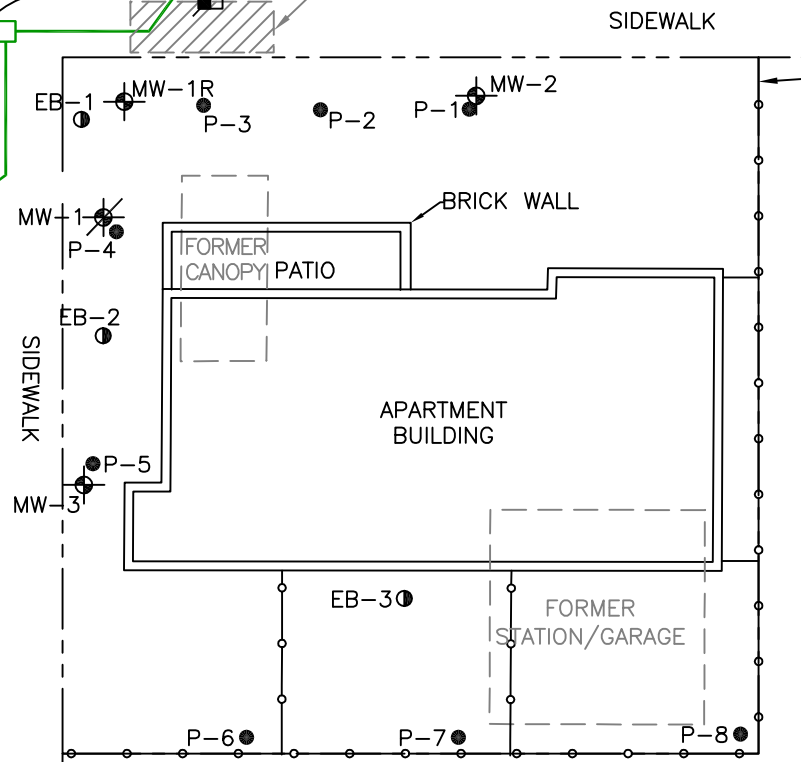
NINTH STREET

MW-4

MW-5

MW-6

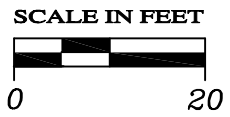
36'



RESIDENTIAL

RESIDENTIAL

1 1/4"φ PLASTIC

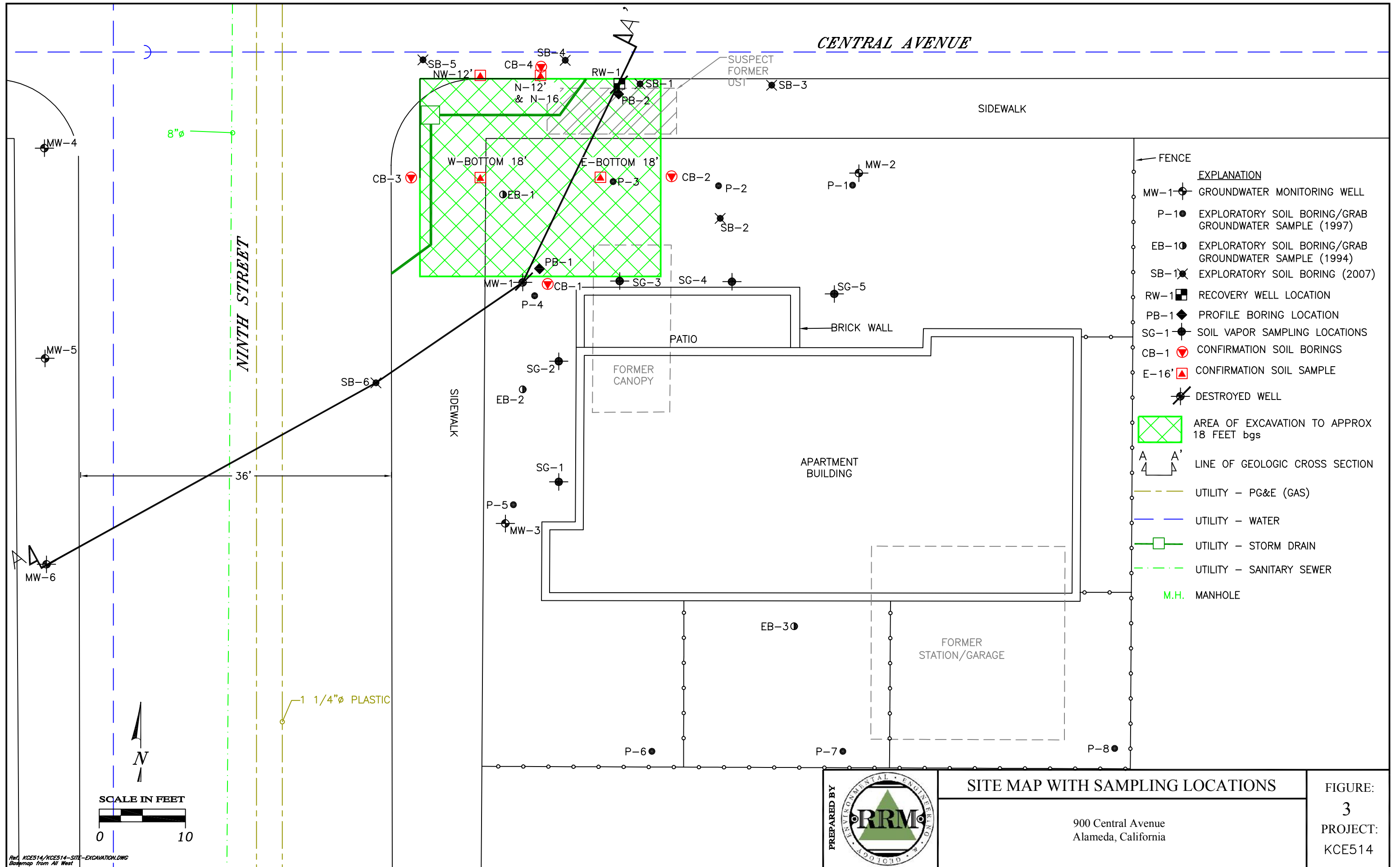


**EXTENDED SITE MAP**

900 Central Avenue  
Alameda, California

**FIGURE:**  
**2**  
**PROJECT:**  
KCE514

Ref. KCE514/KCE514-EXTENDED.DWG  
Basemap from All West





COMMERCIAL/RESIDENTIAL

COMMERCIAL/RESIDENTIAL

6"φ  
4"φ

8"φ PLASTIC  
3"φ PLASTIC

M.H.

CENTRAL AVENUE

56'

4"φ PLASTIC

2"φ PLASTIC (4"φ CAST ENCASED)

SUSPECT FORMER UST

RW-1

SIDEWALK

FENCE/PROPERTY BOUNDARY

- EXPLANATION**
- MW-1 GROUNDWATER MONITORING WELL LOCATION
  - P-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1997)
  - EB-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1994)
  - RW-1 RECOVERY WELL LOCATION
  - DESTROYED WELL
  - UTILITY - PG&E (GAS)
  - UTILITY - WATER
  - UTILITY - STORM DRAIN
  - UTILITY - SANITARY SEWER
  - M.H. MANHOLE
  - (17.89) GROUNDWATER ELEVATION, FT/MSL
  - 17.90 GROUNDWATER ELEVATION CONTOUR, FT/MSL
  - APPROXIMATE GROUNDWATER FLOW DIRECTION; APPROXIMATE GRADIENT = 0.009 FT/FT
  - NM NOT MEASURED

MOVIE THEATER (FORMER CHURCH)

NINTH STREET

MW-4 (17.85)

MW-5 (17.87)

MW-6 (17.89)

MW-1

MW-2

MW-3 (18.40)

EB-1

EB-2

EB-3

MW-3

MW-1R (NM)

P-4

P-5

MW-3

P-3

P-2

P-1

P-6

P-7

P-8

BRICK WALL

FORMER CANOPY PATIO

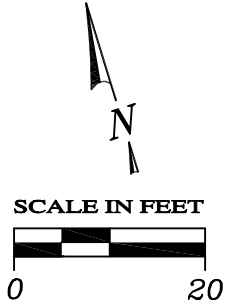
APARTMENT BUILDING

FORMER STATION/GARAGE

RESIDENTIAL

RESIDENTIAL

1 1/4"φ PLASTIC



GROUNDWATER ELEVATION CONTOUR MAP,  
DECEMBER 19, 2012

900 Central Avenue  
Alameda, California

FIGURE:  
**5**  
PROJECT:  
KCE514

Ref. KCE514/KCE514-EXTENDED.DWG  
Basemap from All West



COMMERCIAL/RESIDENTIAL

COMMERCIAL/RESIDENTIAL

6"φ  
4"φ

M.H.

8"φ PLASTIC  
3"φ PLASTIC

CENTRAL AVENUE

56'

4"φ PLASTIC

M.H.

2"φ PLASTIC (4"φ CAST ENCASED)

SUSPECT FORMER UST

RW-1 43,000

SIDEWALK

FENCE/PROPERTY BOUNDARY

- EXPLANATION**
- MW-1 GROUNDWATER MONITORING WELL LOCATION
  - P-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1997)
  - EB-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1994)
  - RW-1 RECOVERY WELL LOCATION
  - DESTROYED WELL
  - UTILITY - PG&E (GAS)
  - UTILITY - WATER
  - UTILITY - STORM DRAIN
  - UTILITY - SANITARY SEWER
  - M.H. MANHOLE
  - 43,000 TPHg CONCENTRATIONS IN GROUNDWATER IN MICROGRAMS PER LITER (ug/L)
  - 10,000 TPHg ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)
  - < NOT DETECTED AT OR ABOVE VALUE SHOWN
  - TPHg GASOLINE RANGE TOTAL PETROLEUM HYDROCARBONS

MOVIE THEATER (FORMER CHURCH)

NINTH STREET

MW-4 <50

MW-5 <50

MW-6 <50

EB-1

MW-1R

P-2

P-1 <50

MW-2

BRICK WALL

FORMER CANOPY PATIO

APARTMENT BUILDING

RESIDENTIAL

MW-1 62,000

P-4

EB-2

P-5

MW-3

FORMER STATION/GARAGE

RESIDENTIAL

MW-3 <50

EB-3

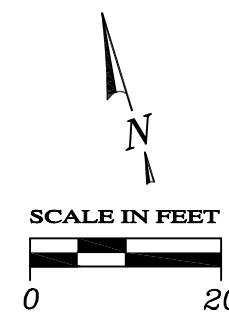
P-6

P-7

P-8

RESIDENTIAL

1 1/4"φ PLASTIC



TPHg GROUNDWATER ISOCONCENTRATION MAP,  
MAY 7, 2009

900 Central Avenue  
Alameda, California

FIGURE:  
**6**  
PROJECT:  
KCE514

COMMERCIAL/RESIDENTIAL

COMMERCIAL/RESIDENTIAL

6"φ  
4"φ

8"φ PLASTIC  
3"φ PLASTIC

CENTRAL AVENUE

56'

4"φ PLASTIC

M.H.

2"φ PLASTIC (4"φ CAST ENCASED)

SUSPECT FORMER UST

<11

RW-1

SIDEWALK

FENCE/PROPERTY BOUNDARY

- EXPLANATION**
- MW-1 GROUNDWATER MONITORING WELL LOCATION
  - P-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1997)
  - EB-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1994)
  - RW-1 RECOVERY WELL LOCATION
  - DESTROYED WELL
  - UTILITY - PG&E (GAS)
  - UTILITY - WATER
  - UTILITY - STORM DRAIN
  - UTILITY - SANITARY SEWER
  - M.H. MANHOLE
  - <11 BENZENE CONCENTRATIONS IN GROUNDWATER IN MICROGRAMS PER LITER (ug/L)
  - 100— BENZENE ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)
  - < NOT DETECTED AT OR ABOVE VALUE SHOWN

MOVIE THEATER (FORMER CHURCH)

NINTH STREET

MW-4 <0.50

MW-5 <0.50

MW-6 <0.50

100

1,000

2,900

MW-1

P-4

EB-2

MW-3

<0.50

P-5

SIDEWALK

MW-3

<0.50

MW-TR

P-3

P-2

P-1

<0.50

BRICK WALL

FORMER CANOPY PATIO

APARTMENT BUILDING

FORMER STATION/GARAGE

EB-3

P-6

P-7

P-8

RESIDENTIAL

1 1/4"φ PLASTIC



SCALE IN FEET  
0 20



BENZENE GROUNDWATER ISOCONCENTRATION MAP, MAY 7, 2009

900 Central Avenue  
Alameda, California

FIGURE:  
7  
PROJECT:  
KCE514

Ref. KCE514/KCE514-EXTENDED.DWG  
Basemap from All West

COMMERCIAL/RESIDENTIAL

COMMERCIAL/RESIDENTIAL

6"φ  
4"φ

8"φ PLASTIC  
3"φ PLASTIC

CENTRAL AVENUE

56'

4"φ PLASTIC

2"φ PLASTIC (4"φ CAST ENCASED)

SUSPECT FORMER UST

SIDEWALK

FENCE/PROPERTY BOUNDARY

RESIDENTIAL

APARTMENT BUILDING

FORMER STATION/GARAGE

RESIDENTIAL

MOVIE THEATER (FORMER CHURCH)

NINTH STREET

MW-4  
<25/<0.20/<0.20

MW-5  
<25/<0.20/<0.20

MW-6  
<25/<0.20/<0.20

MW-3  
<25/<0.20/<0.20

RW-1  
<25/<0.20/<0.20

EB-1

MW-1R

P-3

P-2

P-1

NS

MW-2

MW-1

P-4

EB-2

MW-3

P-5

EB-3

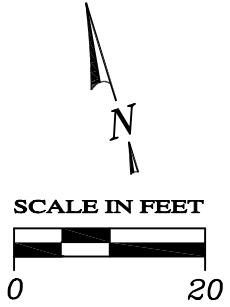
P-6

P-7

P-8

1 1/4"φ PLASTIC

- EXPLANATION**
- MW-1 GROUNDWATER MONITORING WELL LOCATION
  - P-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1997)
  - EB-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1994)
  - RW-1 RECOVERY WELL LOCATION
  - DESTROYED WELL
  - UTILITY - PG&E (GAS)
  - UTILITY - WATER
  - UTILITY - STORM DRAIN
  - UTILITY - SANITARY SEWER
  - M.H. MANHOLE
- TPHg/BENZENE/MtBE CONCENTRATIONS IN GROUNDWATER IN MICROGRAMS PER LITER (ug/L)**
- <25/<0.20/<0.20
  - < NOT DETECTED AT OR ABOVE VALUE SHOWN
  - NS NOT ANALYZED
  - TPHg GASOLINE RANGE TOTAL PETROLEUM HYDROCARBONS
  - MtBE METHYL TERTIARY BUTYL ETHER



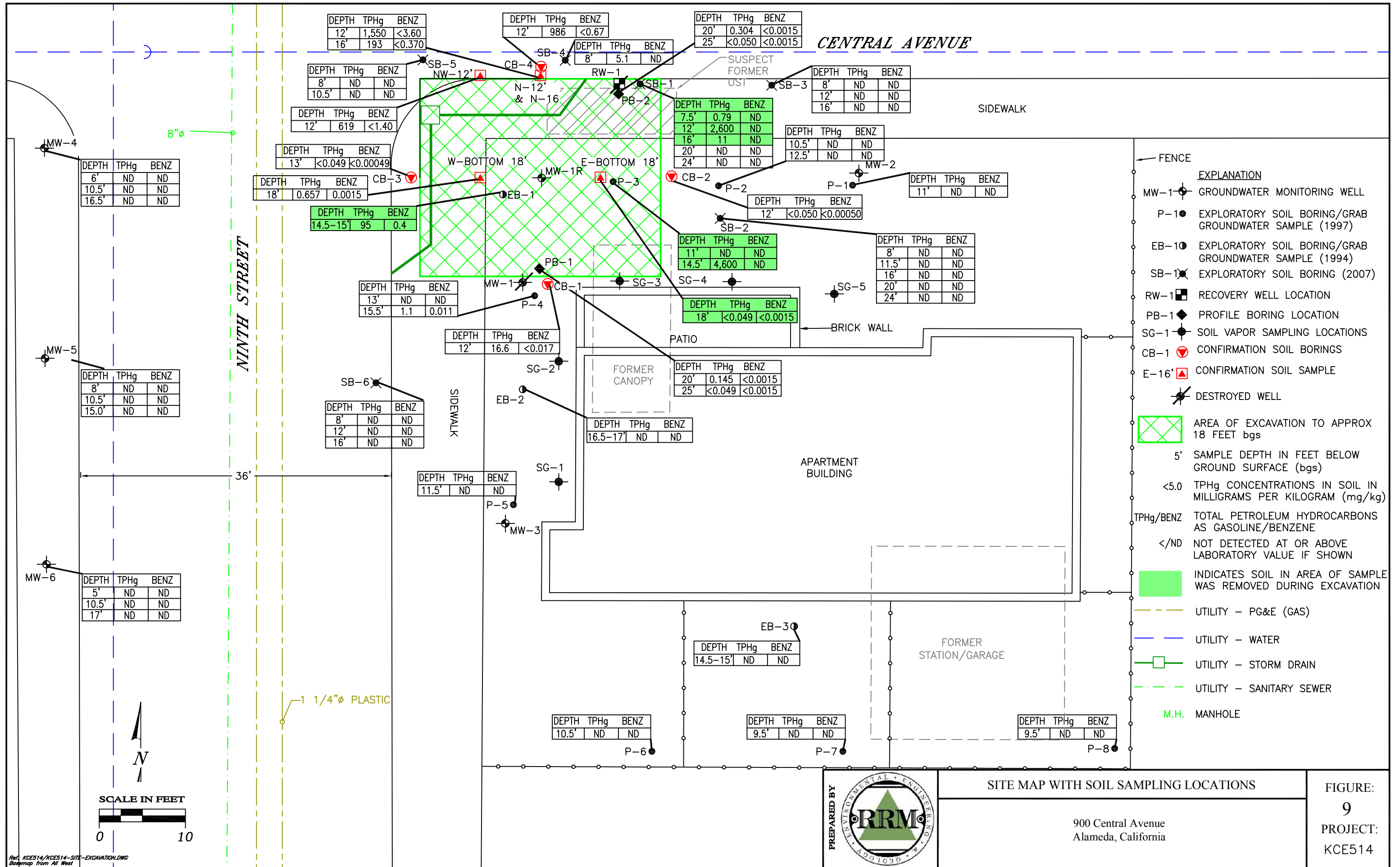
Ref. KCE514/KCE514-EXTENDED.DWG  
Basemap from All West



TPHg/BENZENE/MtBE GROUNDWATER CONCENTRATION MAP, DECEMBER 19, 2012

900 Central Avenue  
Alameda, California

FIGURE:  
**8**  
PROJECT:  
KCE514



Ref. KCE514/KCE514-SITE-EXCAVATION.DWG  
Base map from All West

**A**

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**BORING LOGS**

---

DRILL RIG: DA-1

SURFACE ELEVATION: --

LOGGED BY: BB

DEPTH TO GROUND WATER: 18.5 feet

BORING DIAMETER: 4 inches

DATE DRILLED: 4/20/94

DESCRIPTION AND REMARKS	SYMBOL	LEGEND	CONSISTENCY	SOIL TYPE	DEPTH (FEET)	SAMPLER	WATER CONTENT (%)	PENETRATION RESISTANCE (BLO WS/FT)	SHEAR STRENGTH BY TORVANE (KSF)	ORGANIC VAPOR METER (ppm)
SILTY SAND, Brown, moist, fine to medium sand (fill)	A <sub>f</sub>		Loose	SM						
↑ FILL					5					
SANDY SILT, yellow-brown, moist, fine to medium grained sand	B		Loose	SM						
Color change to green-gray, and petroleum odor between 10 and 20 feet					10					
Petroleum odor increases at 18 to 18.5 feet					15					
Saturated at approximately at 19 feet					18.5					
Bottom of Boring = 20.0 feet.					20					
NOTE: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.					25					
					30					

▽ Final

▽ Initial

1027-1, 5/12 BB\*EB

EXPLORATORY BORING LOG - EB-1

CENTRAL & 9TH STREET  
Alameda, California

**LOWNEY ASSOCIATES**  
Environmental/Geotechnical/Engineering Services

EB-1  
1027-1, June 1994

DRILL RIG: DA-1

SURFACE ELEVATION: -

LOGGED BY: BB

DEPTH TO GROUND WATER: 18 feet

BORING DIAMETER: 4 inches

DATE DRILLED: 4/20/94

DESCRIPTION AND REMARKS	SYMBOL	LEGEND	CONSISTENCY	SOIL TYPE	DEPTH (FEET)	SAMPLER	WATER CONTENT (%)	PENETRATION RESISTANCE (BLOWS/FT.)	SHEAR STRENGTH BY TORVANE (KSF)	ORGANIC VAPOR METER (ppm)
SILTY SAND, Brown, moist, fine to medium sand (fill)	A <sub>f</sub>		Loose	SM						
↑ FILL										
SANDY SILT, yellow-brown, moist, fine grained sand	B		Loose	SM	5					
					10					
					15					
					18					
Saturated at approximately 18 feet										
Bottom of Boring = 20.0 feet.					20					
					25					
					30					

▽ Final

▽ Initial

NOTE: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.

1027-1, 5/12 BB\*EB

EXPLORATORY BORING LOG - EB-2

CENTRAL & 9TH STREET  
Alameda, California

**LOVNEY ASSOCIATES**  
Environmental/Geotechnical/Engineering Services

EB-2  
1027-1, June 1994

DRILL RIG: DA-1

SURFACE ELEVATION: -

LOGGED BY: BB

DEPTH TO GROUND WATER: 16 feet

BORING DIAMETER: 4 inches

DATE DRILLED: 4/20/94

DESCRIPTION AND REMARKS	SYMBOL	LEGEND	CONSISTENCY	SOIL TYPE	DEPTH (FEET)	SAMPLER	WATER CONTENT (%)	PENETRATION RESISTANCE (BLOWS/FT)	SHEAR STRENGTH BY TORVANE (KSF)	ORGANIC VAPOR METER (ppm)
SILTY SAND, Brown, moist, fine to medium sand (fill)	A <sub>f</sub>		Loose	SM	0 - 5					
↑ FILL										
SANDY SILT, yellow-brown, moist, fine grained sand	B		Loose	SM	5 - 19.0					
Saturated at approximately 16 feet					15					
Bottom of Boring = 19.0 feet					19.0					
NOTE: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.					20 - 30					

1027-1, 5/12 BB\*EB

EXPLORATORY BORING LOG - EB-3

CENTRAL & 9TH STREET  
Alameda, California

**LOWNEY ASSOCIATES**  
Environmental/Geotechnical/Engineering Services

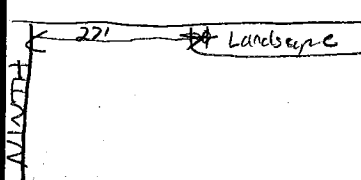
EB-3  
1027-1, June 1994



WELL/BORING LOCATION MAP



CENTRAL AVE



Remediation Risk Management, Inc.

WELL/BORING: SB-1

DATE: 8-9-07

DRILLING METHOD: Geoprobe

PROJECT: KCE511

SAMPLING METHOD: Hydraulic

CLIENT: Kellogg

BORING DIAMETER: 2"

LOCATION: 900 Central Ave

BORING DEPTH: 24'

CITY: Alameda

WELL CASING: N/A

CO./STATE: Alameda/CA

WELL SCREEN: N/A

DRILLER: Vironex

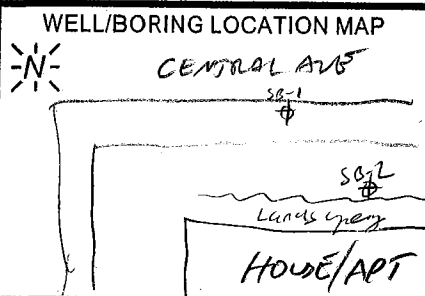
SAND PACK: N/A

WELL/BORING COMPLETION	FIRST STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	GRAPHIC	USCS SYMBOL	WATER LEVEL	TIME	DATE	DESCRIPTION/LOGGED BY:
						1							~6" top soil
						2			SM				Silty Sand; Dark Brn; 7.5 YR - 4/4; 15% silt; 85% fine sand; loose; dry; roots; NPO
						3							
						4							
						5			SM				Silty Sand; Dark Brn - 7.5 YR - 4/4 10-15% silt; 85-90% fine sand; color change @ 7.5' to Olive Gray 5Y-4/2 - NPO until ~ 7.5' - SPO - appears to be stained
					6.1 SB-1 7.5 0850	6							color change
						7							
						8							
						9							
						10			SM				Silty Sand; Dark Greenish Gray; 5G-4/1 15% silt; 85% fine sand; very moist; SPO
					52.8 SB-1-12 0900	11							
						12							
						13							
						14			SP				Poorly Graded Sand; varies (mottled) from Dark Greenish Gray 5G-4/1 to Dark Brn - 7.5 YR - 4/4; 5% fine sand/silt; 95% medium sand; wet; SPO
						15							
					0.9 SB-1-16 0924	16							
						17							
						18			SP				Same as above; color not varied; Dark Greenish Gray; 5G-4/1; wet
						19							
						20							
					0 SB-1-20 0931	20							
						21							
						22			SP				Poorly Graded Sand; Dark Brn 7.5 YR - 4/4 5% silt / fine sand; 95% medium to coarse sand; loose; wet; SPO - shoe of drill
						23							shaped NPO
						24							BOTTOM OF BORING 24'

CEMENT GROUT



11.0 SB-1 24' 0940



Remediation Risk Management, Inc.		WELL/BORING: SB-2
DATE: 8-9-07	DRILLING METHOD: Geoprobe	
PROJECT: KC0514	SAMPLING METHOD: Hydraulic	
CLIENT: Cellohes	BORING DIAMETER: 2"	
LOCATION: 900 Central Ave	BORING DEPTH: 26'	
CITY: Alameda	WELL CASING: N/A	
CO./STATE: Alameda / CA	WELL SCREEN: N/A	
DRILLER: Vironex	SAND PACK: N/A	

WELL/BORING COMPLETION	K FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	WATER LEVEL:					
												TIME:	DATE:				
												DESCRIPTION/LOGGED BY: Kate Townsend					
							1										
							2										
							3										
							4										
							5										
							6				SM	Silty Sand; Yellowish Red silt; 4/6 10% silt; 90% sand; damp; NPO					
							7										
							8										
							9										
							10				SM	Silty Sand; Olive Brn; 25% 4/3 = 15% silt/fine sand; 85% sand; color change @ 10.5-11' to Dark Green (gray) 59-4/1; damp; SPO @ 11'					
							11										
							12										
							13										
							14				SP	Poorly Graded Sand; Dark Green (gray); 56% 4/1 51% silt/fine sand; 95% medium sand; moist; SPO					
							15										
							16										
							17				SP	As above					
							18										
							19										
							20										
							21				SM	Silty Sand; Olive Brn 25% 4/3 10% fine; 90% medium sand damp; NPO					
							22										
							23										
							24										

CEMENT GRAV

SB-2  
24'  
1195



WELL/BORING LOCATION MAP



SEESITE MAP

Remediation Risk Management, Inc.

WELL/BORING: SB-3

DATE: 8-9-07

DRILLING METHOD: Trepanner

PROJECT: KCBS14

SAMPLING METHOD: Hydraulic

CLIENT: Ketcher

BORING DIAMETER: 2"

LOCATION: 900 Central Ave

BORING DEPTH: 16'

CITY: Alameda

WELL CASING: N/A

CO./STATE: Alameda / CA

WELL SCREEN: N/A

DRILLER: Vironex

SAND PACK: N/A

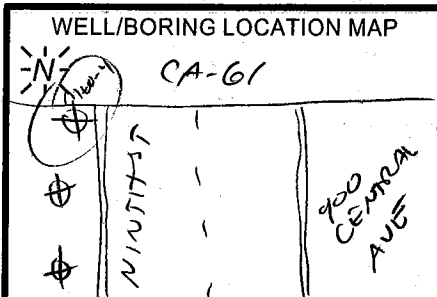
WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	GRAPHIC	USCS SYMBOL	WATER LEVEL:				
											TIME:	DATE:	DESCRIPTION/LOGGED BY:		
							1								Soil Top soil
							2								N/A
						SB-3 4.5' 1300	3			SC					Clayey Sand; Dark Brn 7.5 yr-44; 25% mpf; 75% fine sand; NPD
							4								
							5			SM					Silty Sand; Dark Brn 7.5 yr-44; 10% silt; 90% fine sand; loose; damp NPD
							6								
						SB-3 8' 1310	7								
							8								
							9								
						SB-3 12' 1315	10			SP					Poorly Graded Sand; Dark Yellowish Brn 10 yr-3/4; 5% fines; 95% fine to medium sand; damp; loose NPD
							11								
							12								
							13								
							14			SM					Silty Sand; Dark Yellowish Brn 10 yr-44 10-15% fines/silt; 85-90% sand; wet; loose NPD
							15								
						SB-3 16' 1330	16								Bottom of Bore 16'

DEPTH GAUGE









Remediation Risk Management, Inc. WELL/BORING: MW-4

DATE: 6-20-07 DRILLING METHOD: HSA

PROJECT: KUSS14 SAMPLING METHOD: SS

CLIENT: Kulebel BORING DIAMETER: 8"

LOCATION: 900 Central Ave BORING DEPTH: 18'

CITY: Alameda WELL CASING: 2" PVC

CO./STATE: Alameda / CA WELL SCREEN: 18-8' 0.020

DRILLER: Explor. Geoserv. SAND PACK: 18-6' #3

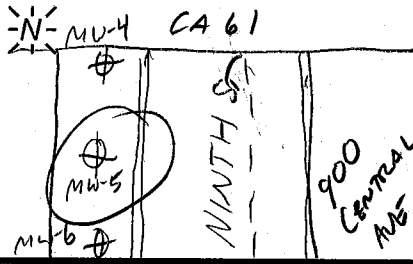
WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	GRAPHIC	USCS SYMBOL	DESCRIPTION
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					1				4" concrete
			D				2			ML	Silt w/ Sand, 7.5% - 4/4 - Dark Brown
							3				15% Very fine sand; 85% silt; occasional clast/pebble (sub-rounded) roots; dry look; NPO
			D	5.711	1.0	MW-4 4.5 1215	4			ML	Sandy Silt, 10% - 4/6 - Dark Yellowish Brn
							5				30-40% silt; 60-70% fine sand; Dry; loose; iron oxide staining; NPO
			D	10.814	0.0	MW-4 1226	6				Same as above - color - 10% 4/4 Dark Yellowish Brown
			DP	12.20.24	0.1	MW-4 75 1237	7			SM	Silty Sand, 10% - 4/4 Dark Yellowish Brn
			DP	8.12.15	0.0	MW-4 1248 925	8			SM	30% silt; 70% fine to medium sand; damp; NPO
			M	14.20.21	0.5	MW-4 1300 10.5	9			SM	Same as above
			W	20.21.23	0.0	MW-4 12 1315	10			SM	Same as above - moist
			W	18.21.22			11			SM	Same as above - 7.5% - 4/3 - Strong Brown
			W	8.13.20	0.0	MW-4 1027	12			SM	15% silt / fine sand; 85% medium sand; wet; NPO
			W	12.15.20	0.1	MW-4 16.5 1349	13				NO RECOVERY
							14				
							15			SM	Same as above (11.5 - 13')
							16				
							17			SP	Pebbly Gravel Sand, 10% - 4/4; Dark Yellowish Brn; 5% silt / sand; 95% medium sand; wet; NPO
							18				
							19				
							20				

4/12/07

→ BOTTOM OF BORING  
18'



WELL/BORING LOCATION MAP



Remediation Risk Management, Inc.

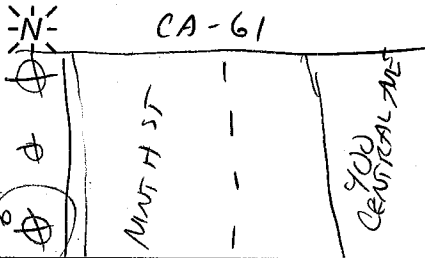
WELL/BORING: MW-5

DATE: 6-20-07 DRILLING METHOD: HSA  
 PROJECT: KCE514 SAMPLING METHOD: SS  
 CLIENT: Kelleher BORING DIAMETER: 8" II  
 LOCATION: 900 Central Ave BORING DEPTH: 18'  
 CITY: Alameda WELL CASING: 2" PVC  
 CO./STATE: Alameda / CA WELL SCREEN: 18-8 10.020  
 DRILLER: Expl. Geonv SAND PACK: 18-6 #3

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	WATER LEVEL	TIME	DATE	DESCRIPTION/LOGGED BY:
												10.5	11.1		Cate Townsend
													1030	1100	4" Concrete
							1				ML				Sandy Silt; 10YR 3/4 Dark Yellowish Brn
							2								30% fine sand; 70% silt; roots; loose; dry; NPO
							3				SM				Silty Sand; 10YR 5/4 Yellowish Brn; 15% silt / fine sand; 85% sand; dry; loose; NPO
							4								
							5				SP				Poorly Graded Silty 10YR 5/4 Yellowish Brown; 5% silt; 10% fine sand; 85% med sand; loose; dry; NPO
							6				SP				Poorly Graded Sand; Same color as above; 5% silt; 10% med; 85% sand; damp; no odor; some iron oxide staining; NPO
							7				SM				Silty Sand; 10YR - 4/4 Dark Yellowish Brown; 30% silt / fine sand; 70% sand; damp; roots; loose; NPO
							8				SM				Same as above; numerous roots
							9								
							10				SM				Same as above - 10YR - 4/3 Dark Brown; Wet; roots; NPO
							11				SP				Poorly Graded Silty 10YR - 4/4 Dark Yellowish Brown; 5% fine sand / silt; 95% medium sand; wet; NPO
							12								
							13				SP				Same as above
							14								
							15				SP				Same as above
							16								
							17								NO RECOVERY
							18								
							19								
							20								

BOTTOM OF BORING 18'

WELL/BORING LOCATION MAP



Remediation Risk Management, Inc.

WELL/BORING: MW-6

DATE: 6-20-07	DRILLING METHOD: HSA
PROJECT: KLE514	SAMPLING METHOD: SS
CLIENT: Kelleher	BORING DIAMETER: 8" I
LOCATION: 900 Central Ave	BORING DEPTH: 18'
CITY: Alameda	WELL CASING: 2" PVC
CO./STATE: Alameda / CA	WELL SCREEN: 18-8", 0.020
DRILLER: Expl. Geovv.	SAND PACK: 18-6' #3

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	GRAPHIC	USCS SYMBOL	WATER LEVEL	TIME	DATE	DESCRIPTION/LOGGED BY:
	<input checked="" type="checkbox"/>	<input type="checkbox"/>					1				10.5	9:36	6-20-07	4" concrete
							2					10:25	6-20-07	ML Silt w/ Sand; 15-20' very fine sand; 85-90% silt; dry; loose; roots; NPD
							3							
							4							
							5							SM Silty Sand 10 yr - 1/4 Dark Yellowish Brn 20-30' silt; 80% fine to med sand; wet; NPD
							6							
							7							
							8							
							9							
							10							SM Silty Sand; 10 yr - 3/4 Dark Yellowish Brn 20' silt; 80% fine to med sand; wet; NPD
							11							
							12							
							13							
							14							
							15							SM Same as above
							16							SM Same as above
							17							
							18							
							19							
							20							

BOTTOM OF BORING 18'

DP 5710 0.0 MW-6  
5'  
1070

W 10,1826 0.0 MW-6  
10.5'  
1072

W 18,2625 0.0 MW-6  
5.5'  
1030

W 17,2828 0.0 MW-6  
17'  
1050

SEND DNR TO

AC  
PW  
A144  
N11

<p>WELL/BORING LOCATION MAP</p> <p>CENTRAL AVE</p>	Remediation Risk Management, Inc.		WELL/BORING: RW-1
	DATE: 8-13-07	DRILLING METHOD: HSA	
	PROJECT: KCS514	SAMPLING METHOD: SS	
	CLIENT: Ketcher	BORING DIAMETER: 12"	
	LOCATION: 900 Central Ave	BORING DEPTH: 20'	
	CITY: Alameda	WELL CASING: 4"	
	CO./STATE: Alameda / CA	WELL SCREEN: 0.020	
DRILLER: Expl Geo	SAND PACK: # 3 Sand		

WELL/BORING COMPLETION	<input checked="" type="checkbox"/> FIRST	WATER LEVEL: 1128
	<input checked="" type="checkbox"/> STABILIZED	TIME: 1033
	MOISTURE	DATE: 8-13-07
	DENSITY BLOWS / FT	DESCRIPTION/LOGGED BY: C Townsend
FIELD TEST PID (ppm)		
SAMPLE NUMBER		
DEPTH (FEET)		
RECOVERY		
SAMPLE INTERVAL		
GRAPHIC		
USCS SYMBOL		

DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	DESCRIPTION/LOGGED BY
1					
2					
3					See log for SB1
4					Note ~ 10' change within change color from dark Bm to yellowish gray; sand; silty sand
5		20-15'			
6					
7					
8					
9					
10		748 20-10'			
11					
12					
13					
14					
15		200 20-15'			
16					
17					
18					
19					
20		938 20-20'			
					BOTTOM OF 20' 20'

Cont-1 0930



**AllWest**

AllWest Environmental, Inc.

Log of Boring: MW-1

Sheet 1 of 1

Project Address: 900 Central Avenue, Alameda, CA

Project Number: 98115.23

Drilling Date: 11/16/98

Drilling Contractor: Bay Area Exploration

Sampler: SPT sampler

Drill Rig: CME 75

Hammer: 140 lbs, 30" drop

Auger: 8" Diameter Hollow-Stem

Logged By: L. Ching

Blow Count	OVM Reading	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1	Traffic-Rated Well Vault	SM	Grassy ground surface, landscaped area; Brown, silty fine to very fine SAND, loose, moist, non-plastic;
			2	Locking Upper End Cap		
			3	Concrete Seal		
			4	Blank Schedule 40 PVC Casing		
			5	Cement/Bentonite Grout Backfill	SM	
2		*	6	Bentonite Seal		
3			7			
			8		SM	Brown to dark brown, silty fine SAND, medium dense, non-plastic, moist to very moist;
3			9			
			10			
7		*	11		SM	Olive brown to green brown, silty fine SAND, medium dense, non-plastic, very moist to wet, hydrocarbon odor;
9			12			
12			13	#3 Sand Filter Pack		
			14	0.02 Inch Slotted Schedule 40 PVC Screen	SM	groundwater first encountered at 14';
11		*	15			
13			16			
16			17			
			18			boring terminated at 18';
			19	Bottom End Cap		
			20			
			21			

Notes: \* Sample not preserved

Reviewed By:  
R. Horwath

Drawn By:  
S. Poon



**AllWest**

AllWest Environmental, Inc.

Log of Boring: MW-2

Sheet 1 of 1

Project Address: 900 Central Avenue, Alameda, CA

Project Number: 98115.23

Drilling Date: 11/16/98

Drilling Contractor: Bay Area Exploration  
Drill Rig: CME 75  
Auger: 8" Diameter Hollow-Stem

Sampler: SPT sampler  
Hammer: 140 lbs, 30" drop  
Logged By: L. Ching

Blow Count	OVM Reading	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1	Traffic-Rated Well Vault	SM	Grassy ground surface, landscaped area; Brown, silty fine to very fine SAND, loose, moist, non-plastic;
			2	Locking Upper End Cap		
			3	Concrete Seal		
			4	Blank Schedule 40 PVC Casing		
			5	Cement/Bentonite Grout Backfill		
2		*	6	Bentonite Seal		
3			7			
4			8			
			9			
			10		SM	Brown to dark brown, silty fine SAND, medium dense, non-plastic, moist to wet;
7		*	11			
9			12			
10			13	#3 Sand Filter Pack		
			14			groundwater first encountered at 14';
			15			
11			16		SM	Brown to yellow brown, silty fine SAND, medium dense to dense, non-plastic, wet;
14		*	17			
17			18	0.02 Inch Slotted Schedule 40 PVC Screen		
			19	Bottom End Cap		
13			20			boring terminated at 21';
15		*	21			
18						

Notes: \* Sample not preserved

Reviewed By:  
R. Horwath

Drawn By:  
S. Poon



**AllWest**  
AllWest Environmental, Inc.

Log of Boring: MW-3  
 Project Address: 900 Central Avenue, Alameda, CA  
 Project Number: 98115.23  
 Drilling Date: 11/16/98

Sheet 1 of 1

Drilling Contractor: Bay Area Exploration  
 Drill Rig: CME 75  
 Auger: 8" Diameter Hollow-Stem  
 Sampler: SPT sampler  
 Hammer: 140 lbs, 30" drop  
 Logged By: L. Ching

Blow Count	OVM Reading	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1	Traffic-Rated Well Vault	SM	Grassy ground surface, landscaped area; Brown, silty fine to very fine SAND, loose, moist, non-plastic;
			2	Locking Upper End Cap		
			3	Concrete Seal		
			4	Blank Schedule 40 PVC Casing		
			4	Cement/Bentonite Grout Backfill		
			5	Bentonite Seal		
3		*	5			
3			6			
4			6			
			7		SM	Brown to dark brown, silty fine SAND, medium dense, non-plastic, moist to very moist;
			8			
			9			
			10			
6		*	10			
9			11			
10			11			
			12			
			13	#3 Sand Filter Pack	SM	Brown to yellow brown, silty fine SAND, medium dense to dense non-plastic, very moist to wet; groundwater first encountered at 14';
			14	0.02 Inch Slotted Schedule 40 PVC Screen		
			15			
			16			
12		*	15			
15			16			
17			16			
			17			
			18			
			18			boring terminated at 18';
			19	Bottom End Cap		
			20			
			21			

Notes: \* Sample not preserved

Reviewed By:  
R. Horwath

Drawn By:  
S. Poon



**AllWest**

AllWest Environmental, Inc.

Log of Boring: P - 1  
 Project Address: 900 Central Avenue, Alameda, CA  
 Project Number: 97217.23  
 Drilling Date: 6/30/97

Drilling Contractor: ECA  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 2" x 4' macro core  
 Hammer: pneumatic hammer  
 Logged By: Long Ching

OVM Reading	Sample Number	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1 -		SM/SP	Grassy ground surface (lawn); Brown, silty sand, fine grain, poorly graded, slightly moist, loose, non-plastic;
			2 -			
ND	P-1-3		3 -			
			4 -		SM	Brown, silty sand, fine to medium grain, moist, loose to medium dense, non-plastic;  Grades very moist to wet below 10';  Groundwater encountered at 12';
			5 -			
ND	P-1-7		6 -			
			7 -			
			8 -			
			9 -			
ND	P-1-11		10 -			
			11 -			
			12 -			
ND	P-1-14		13 -			
			14 -		Borehole terminated at 14'; Groundwater first encountered at 12'; Temporary 1" I.D. PVC casing installed to 14'; 2 x 40-ml and 1 x 1-liter groundwater samples collected.	
			15 -			
			16 -			
			17 -			
			18 -			
			19 -			
			20 -			
			21 -			

Notes:

Reviewed By:  
L. Ching

Drawn By:  
S. Poon



**AllWest**

AllWest Environmental, Inc.

Log of Boring: P - 2  
 Project Address: 900 Central Avenue, Alameda, CA  
 Project Number: 97217.23  
 Drilling Date: 6/30/97

Drilling Contractor: ECA  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 2" x 4' macro core  
 Hammer: pneumatic hammer  
 Logged By: Long Ching

OVM Reading	Sample Number	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1 -		SM/SP	Grassy ground surface (lawn); Brown, silty sand, fine grain, poorly graded, slightly moist, loose, non-plastic;
			2 -			
			3 -			
ND	P-2-3.5		4 -		SM	Brown, silty sand, fine to medium grain, moist, loose to medium dense, non-plastic;  Grades very moist below 10';  Grades greenish brown, slight hydrocarbon odor at 12'; Groundwater encountered at 12.5';
			5 -			
			6 -			
ND	P-2-7.5		7 -			
			8 -			
			9 -			
			10 -			
ND	P-2-10.5		11 -			
			12 -			
10	P-2-12.5		13 -			
			14 -			
			15 -			Borehole terminated at 14'; Groundwater first encountered at 12.5'; Temporary 1" I.D. PVC casing installed to 14'; 2 x 40-ml and 1 x 1-liter groundwater samples collected.
			16 -			
			17 -			
			18 -			
			19 -			
			20 -			
			21 -			

Notes:

Reviewed By:  
L. Ching

Drawn By:  
S. Poon





**AllWest**  
AllWest Environmental, Inc.

Log of Boring: P - 3  
 Project Address: 900 Central Avenue, Alameda, CA  
 Project Number: 97217.23  
 Drilling Date: 6/30/97

Drilling Contractor: ECA  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 2" x 4' macro core  
 Hammer: pneumatic hammer  
 Logged By: Long Ching

OVM Reading	Sample Number	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			0 -			Grassy ground surface (lawn);
			1 -		SM/SP	Brown, silty sand, fine grain, poorly graded, slightly moist, loose, non-plastic;
			2 -			
			3 -			
ND	P-3-3.5		4 -			
			5 -		SM/SP	Brown, silty sand, fine with some medium grain, moist, loose to medium dense, non-plastic;
			6 -			
ND	P-3-7.5		7 -			
			8 -			
			9 -			
			10 -			
			11 -			
10	P-3-11		12 -			
			13 -			
			14 -			
15	P-3-14.5		15 -			
			16 -			Borehole terminated at 15';
			17 -			
			18 -			
			19 -			
			20 -			
			21 -			

Reviewed By: L. Ching  
 Drawn By: S. Poon

Notes:

Grades very moist to wet below 11' with hydrocarbon odor;

Groundwater encountered at 12.5';

Groundwater first encountered at 12';  
 Temporary 1" I.D. PVC casing installed to 15';  
 2 x 40-ml and 1 x 1-liter groundwater samples collected.



**AllWest**  
AllWest Environmental, Inc.

Log of Boring: P - 4  
 Project Address: 900 Central Avenue, Alameda, CA  
 Project Number: 97217.23  
 Drilling Date: 6/30/97

Drilling Contractor: ECA  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 2" x 4' macro core  
 Hammer: pneumatic hammer  
 Logged By: Long Ching

OVM Reading	Sample Number	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1 -		SM/SP	Grassy ground surface (lawn); Brown, silty sand, fine grain, poorly graded, slightly moist, loose, non-plastic;
			2 -			
			3 -			
ND	P-4-3.5		4 -			
			5 -		SM	Brown, silty sand, fine with some medium grain, moist, loose to medium dense, non-plastic;  Grades olive brown to greenish brown below 12' Groundwater encountered at 12'.5 to 13' with hydrocarbon odor;
			6 -			
ND	P-4-7.5		7 -			
			8 -			
			9 -			
			10 -			
ND	P-4-10.5		11 -			
			12 -			
10	P-4-13		13 -			
			14 -			
20	P-4-15.5		15 -			
			16 -			
			17 -		Borehole terminated at 16'; Groundwater first encountered at 13'; Temporary 1" I.D. PVC casing installed to 16'; 2 x 40-ml and 1 x 1-liter groundwater samples collected.	
			18 -			
			19 -			
			20 -			
			21 -			

Notes:

Reviewed By: L. Ching  
 Drawn By: S. Poon



**AllWest**

AllWest Environmental, Inc.

Log of Boring: P - 5  
 Project Address: 900 Central Avenue, Alameda, CA  
 Project Number: 97217.23  
 Drilling Date: 6/30/97

Drilling Contractor: ECA  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 2" x 4' macro core  
 Hammer: pneumatic hammer  
 Logged By: Long Ching

OVM Reading	Sample Number	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1 -		SM/SP	Grassy ground surface (lawn); Brown, silty sand, fine grain, poorly graded, slightly moist, loose, non-plastic;
			2 -			
			3 -			
ND	P-5-3.5	█	4 -			
			5 -		SM	Brown, silty sand, fine with some medium grain, moist, loose to medium dense, non-plastic;
			6 -			
			7 -			
ND	P-5-7.5	█	8 -			
			9 -			
			10 -			
			11 -			
ND	P-5-11.5	█	12 -			Groundwater encountered at 11'.5;
			13 -			
			14 -			
			15 -			
ND	P-5-15.5	█	16 -			
			17 -			
			18 -			
			19 -			
			20 -			
			21 -			

Borehole terminated at 16';  
 Groundwater first encountered at 11.5';  
 Temporary 1" I.D. PVC casing installed to 16';  
 2 x 40-ml and 1 x 1-liter groundwater samples collected.

Notes: \_\_\_\_\_ Reviewed By: L. Ching Drawn By: S. Poon



**AllWest**  
AllWest Environmental, Inc.

Log of Boring: P - 6  
 Project Address: 900 Central Avenue, Alameda, CA  
 Project Number: 97217.23  
 Drilling Date: 6/30/97

Drilling Contractor: ECA  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 2" x 4' macro core  
 Hammer: pneumatic hammer  
 Logged By: Long Ching

OVM Reading	Sample Number	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1		SW	Concrete ground surface (driveway); Dark brown, gravelly sand, medium to coarse grain, slightly moist, medium dense, non-plastic;
			2		SM/SP	Brown, silty sand, fine grain, slightly moist, loose, non-plastic;
			3			
ND	P-6-3.5		4			
			5		SM	Brown, silty sand, fine with some medium grain, moist, loose to medium dense, non-plastic;
			6			
ND	P-6-7.5		7			
			8			
			9			
			10			
ND	P-6-10.5		11			
			12			Groundwater encountered at 11'.5;
			13			
ND	P-6-13.5		14			
			15			Borehole terminated at 14'; Groundwater first encountered at 11.5'; Temporary 1" I.D. PVC casing installed to 14'; 2 x 40-ml and 1 x 1-liter groundwater samples collected.
			16			
			17			
			18			
			19			
			20			
			21			

Notes:

Reviewed By:  
L. Ching

Drawn By:  
S. Poon



**AllWest**  
AllWest Environmental, Inc.

Log of Boring: P - 7  
 Project Address: 900 Central Avenue, Alameda, CA  
 Project Number: 97217.23  
 Drilling Date: 6/30/97

Drilling Contractor: ECA  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 1" x 2' geoprobe  
 Hammer: pneumatic hammer  
 Logged By: Long Ching

OVM Reading	Sample Number	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
ND	P-7-4.5		1 - 2 - 3 - 4 - 5 - 6 - 7 -		SM/SP	Grassy ground surface (lawn); Brown, silty sand, fine grain, poorly graded, slightly moist, loose, non-plastic;
ND	P-7-9.5		8 - 9 - 10 - 11 -			Grades moist below 8';
ND	P-7-13.5		12 - 13 - 14 -			Groundwater encountered at 12;
			15 - 16 - 17 - 18 - 19 - 20 - 21 -			Borehole terminated at 14'; Groundwater first encountered at 12'; Temporary 1" I.D. steel casing installed to 14', very slow recharge; 2 x 40-ml groundwater samples collected.

Notes:

Reviewed By:  
L. Ching

Drawn By:  
S. Poon



**AllWest**  
AllWest Environmental, Inc.

Log of Boring: P - 8  
 Project Address: 900 Central Avenue, Alameda, CA  
 Project Number: 97217.23  
 Drilling Date: 6/30/97

Drilling Contractor: ECA  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 1" x 2' geoprobe  
 Hammer: pneumatic hammer  
 Logged By: Long Ching

OMV Reading	Sample Number	Sample Interval	Depth in Feet	Well Profile	USCS Code	Soil Description
			1		SM/SP	Grassy ground surface (lawn); Brown, silty sand, fine grain, poorly graded, slightly moist, loose, non-plastic;
			2			
			3			
ND	P-8-4		4		SM	Brown, silty sand, fine to medium grain, moist, medium dense, non-plastic;
			5			
			6			
			7			
			8			
ND	P-8-9.5		9			
			10		SM	Grades moist below 8';
			11			
			12			
			13			
ND	P-8-14		14		SM	Groundwater encountered at 12';
			15			
			16			
			17			
			18			
			19			
			20			
			21			

Borehole terminated at 15';  
 Groundwater first encountered at 12';  
 Temporary 1" I.D. steel casing installed to 15', slow recharge;  
 2 x 40-ml and 1 x 1-liter groundwater samples collected.

Notes: \_\_\_\_\_  
 Reviewed By: L. Ching  
 Drawn By: S. Poon



Remediation Risk Management, Inc.

WELL/BORING: - PB-1

DATE: - 9-8-10

DRILLING METHOD: - HSA

PROJECT: - KLES14

SAMPLING METHOD: - SD

CLIENT: -

BORING DIAMETER: - 8"

LOCATION: - 400 Central Ave

BORING DEPTH: - 30'

CITY: - Alameda

WELL CASING: - N/A

CO./STATE: - Alameda / CA

WELL SCREEN: - N/A

DRILLER: - EGI

SAND PACK: - N/A

WELL/BORING COMPLETION	K1 FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	DESCRIPTION/LOGGED BY: -
							2					~ 1' grass/sod / topsoil
			4, 6, 8			PB-1 5 0909	4				SP	Sand, light to med brown; 85-90% medium sand; 10-15% very fine sand; clay; trace; NPO
			8, 13			PB-1 10 0915	6				SP	As above; color: med. reddish brown.
			6, 13, 18			PB-1 15 0920	10				SP	As above - med. grayish green; 90% med sand; 5-10% fine sand; wet; MPO
			10, 16, 19			PB-1 20 0930	14				SP	As above - medium grayish green wet MPO
			7, 14, 20			PB-1 25 0935	18				SP	As above - med brown; saturated, FPO
			12, 13, 16				22				SP	As above - light med brown; moist; NPO
							24					
							26					
							28					
							30					



Remediation Risk Management, Inc.

WELL/BORING: - PB-2

DATE: - 9-8-10

DRILLING METHOD: - HSA

PROJECT: - KCE514

SAMPLING METHOD: - SS

CLIENT: -

BORING DIAMETER: - 8"

LOCATION: - 900 Central Ave.

BORING DEPTH: - 30'

CITY: -

WELL CASING: - N/A

CO./STATE: - SAME

WELL SCREEN: - N/A

DRILLER: -

SAND PACK: - N/A

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	USCS SYMBOL	WATER LEVEL	TIME	DATE
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									--	--	--
											DESCRIPTION/LOGGED BY: - CT		

							2						
							4						
			6, 1, 1			PB-2-5	6			SP			
						1030	8						
							10						
			5, 20, 22			PB-2-10	12			SP			
						1035	14						
							16						
			1, 17, 17			PB-2-15	18			SP			
						1040	20						
							22						
			13, 14, 16			PB-2-20	24			SP			
						1045	26						
							28						
			6, 16, 31			PB-2-25	30			SP			
						1050							
			9, 11, 13										

Sand; med brown; 90-95% med sand; 5-10% fine sand; loose, reduced matting; NPO

Soil; med grayish green; 85-90% med sand; 10-15% silt; moist; SPD; roots

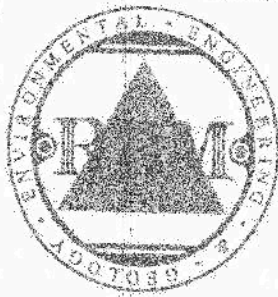
As above; Same color; 85-90% med sand; 10-15% fine sand; moist; SPD

As above

As above - med. reddish tan.

Same as in the 25' sample from PB-1





Remediation Risk Management, Inc.

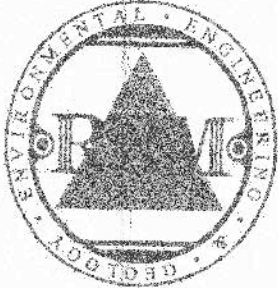
WELLBORING: RB-1

DATE: - 7-1-12  
 PROJECT: - KCESM  
 CLIENT: -  
 LOCATION: - 900 Central Ave  
 CITY: - Alameda  
 CO/STATE: - Alameda, CA  
 DRILLER: - Viro  
 DRILLING METHOD: - Geopipe  
 SAMPLING METHOD: - 5" Miller  
 BORING DIAMETER: - 1.5"  
 BORING DEPTH: - 15'  
 WELL CASING: -  
 WELL SCREEN: -  
 SAND PACK: -

WELLBORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	LOGS SYMBOL	WATER LEVEL:	TIME:	DATE:
											--	--	--
DESCRIPTION/LOGGED BY: -													
<p>Drill + Top soil            Max's Age 40 5'</p> <p>5.14y SAND. Collection the            2000-10-17-75 WAD UP. E. Sun            50.2 48'</p> <p>PRV 5' from the            also. Beginning West</p> <p>Oliver Green; AFD, west</p>													
							1						
							2						
							3						
							4						
							5						
							6						
							7						
							8						
							9						
							10						
							11						
							12						
							13						
							14						
							15						
							16						
							17						
							18						
							19						
							20						

1. Backfill w/ soil removed

12  
OTAS



Remediation Risk Management, Inc.

WELL/BORING **CB-2**

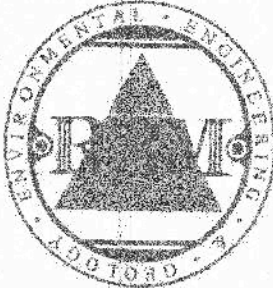
DATE: - 3-1-12  
 PROJECT: - KCE514  
 CLIENT: -  
 LOCATION: - 900 Central Ave  
 CITY: - Alameda  
 CO./STATE: - Alameda Cal  
 DRILLER: - Virovec

DRILLING METHOD: - Geoprobe  
 SAMPLING METHOD: - 5' macro  
 BORING DIAMETER: - 1.5"  
 BORING DEPTH: - 15'  
 WELL CASING: -  
 WELL SCREEN: -  
 SAND PACK: -

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	USGS SYMBOL	WATER LEVEL:	TIME:	DATE:
											DESCRIPTION/LOGGED BY:		
Well #1 at West Coast	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					1	1/2					
							2	1/2					
							3	1/2					
							4	1/2					
							5	1/2					
							6	1/2					
							7	1/2					
							8	1/2					
							9	1/2					
							10	1/2					
							11	1/2					
							12	1/2					
							13	1/2					
							14	1/2					
							15	1/2					

Grout - top soil  
 Hand log to 5'  
 silty SAND - As CB-1  
 wet @ 8' silty - nothing  
 @ 12' water change to olive green  
 @ 14' water change to same as 8'

-12  
 05-15



Remediation Risk Management, Inc.

WELL/BORING: CB-2

DATE: 3.1.12

DRILLING METHOD: Casagrande

PROJECT: LCES14

SAMPLING METHOD: 5' MCAD

CLIENT: -

BORING DIAMETER: 1.5"

LOCATION: 900 Central Ave

BORING DEPTH: 15'

CITY: Manassas

WELL CASING: -

CO./STATE: Manassas, VA

WELL SCREEN: -

DRILLER: Viviana

SAND PACK: -

WELL/BORING COMPLETION	FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	USGS SYMBOL	WATER LEVEL:	TIME:	DATE:	DESCRIPTION/LOGGED BY:
											--	--	--	
							1							0-1' Asphalt & Bitumens Main Layer to 5'
							2							Site SAND - Same as CB-1
							3							
							4							
							5							
							6							
							7							
							8							water @ 2'
							9							
							10							
							11							increasing brown sand
							12							
							13							color change to olive green, NPO
							14							
							15							

Backfill of sand cement

17

13  
10%

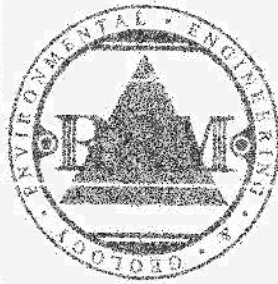


Remediation Risk Management, Inc.

WELL/BORING: *CB-4*

DATE - *8-7-12*  
 PROJECT - *KCCST4*  
 CLIENT -  
 LOCATION - *900 Central Ave*  
 CITY - *Alameda*  
 CO./STATE - *Alameda*  
 DRILLER - *Kim*  
 DRILLING METHOD - *Open pit*  
 SAMPLING METHOD - *Hand dig*  
 BORING DIAMETER - *12"*  
 BORING DEPTH - *15'*  
 WELL CASING -  
 WELL SCREEN -  
 SAND PACK -

WELL/BORING COMPLETION	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST FID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USGS SYMBOL	WATER LEVEL	TIME	DATE	DESCRIPTION/LOGGED BY:
<i>Pick &amp; fill at end cement</i>	<input checked="" type="checkbox"/>					1	<i>✓</i>							<i>Sand at CB-3 - Hand digged in?</i>  <i>@ 6' color change to Olive Green, SPO</i>  <i>2" increasing with sand</i>
						2	<i>✓</i>							
						3	<i>✓</i>							
						4	<i>✓</i>							
						5	<i>✓</i>							
						6	<i>✓</i>							
						7	<i>✓</i>							
						8	<i>✓</i>							
						9	<i>✓</i>							
						10	<i>✓</i>							
						11	<i>✓</i>							
						12	<i>✓</i>							
						13	<i>✓</i>							
						14	<i>✓</i>							
						15	<i>✓</i>							



Remediation Risk Management, Inc.

WELL/BORING: MW-1R

DATE: - 6-14-12

DRILLING METHOD: - HSA

PROJECT: - KCE514

SAMPLING METHOD: - NA

CLIENT: - BIC / Hollister D.I.

BORING DIAMETER: - 12"

LOCATION: - 900 Central Ave

BORING DEPTH: - 20'

CITY: - Alameda

WELL CASING: - 0.5' 4" Ø PVC

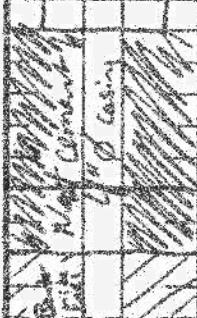
CO./STATE: - Alameda / CA

WELL SCREEN: - 5'-20' 4" Ø 0.020 slot PVC

DRILLER: - EGT, Inc.

SAND PACK: - 4'-20' #3 Monterey Sand

WELL/BORING COMPLETION	K1 FIRST	STABILIZED	MOISTURE	DENSITY BLOWS / FT	FIELD TEST PID (ppm)	SAMPLE NUMBER	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	USGS SYMBOL	WATER LEVEL	TIME	DATE	DESCRIPTION/LOGGED BY: -
							1				FL				<p>Replacement well. No samples collected.</p> <p>Fill material observed from drill cuttings. Well located within former excavation boundaries.</p> <p>Silty sand observed from drill cuttings. Wet, dk. olive green, faint hydrocarbon odor.</p>
							2								
							3								
							4								
							5								
							6								
							7								
							8								
							9								
							10								
							11								
							12								
							13								
							14								
							15								
							16				Sm				
							17								
							18								
							19								
							20								

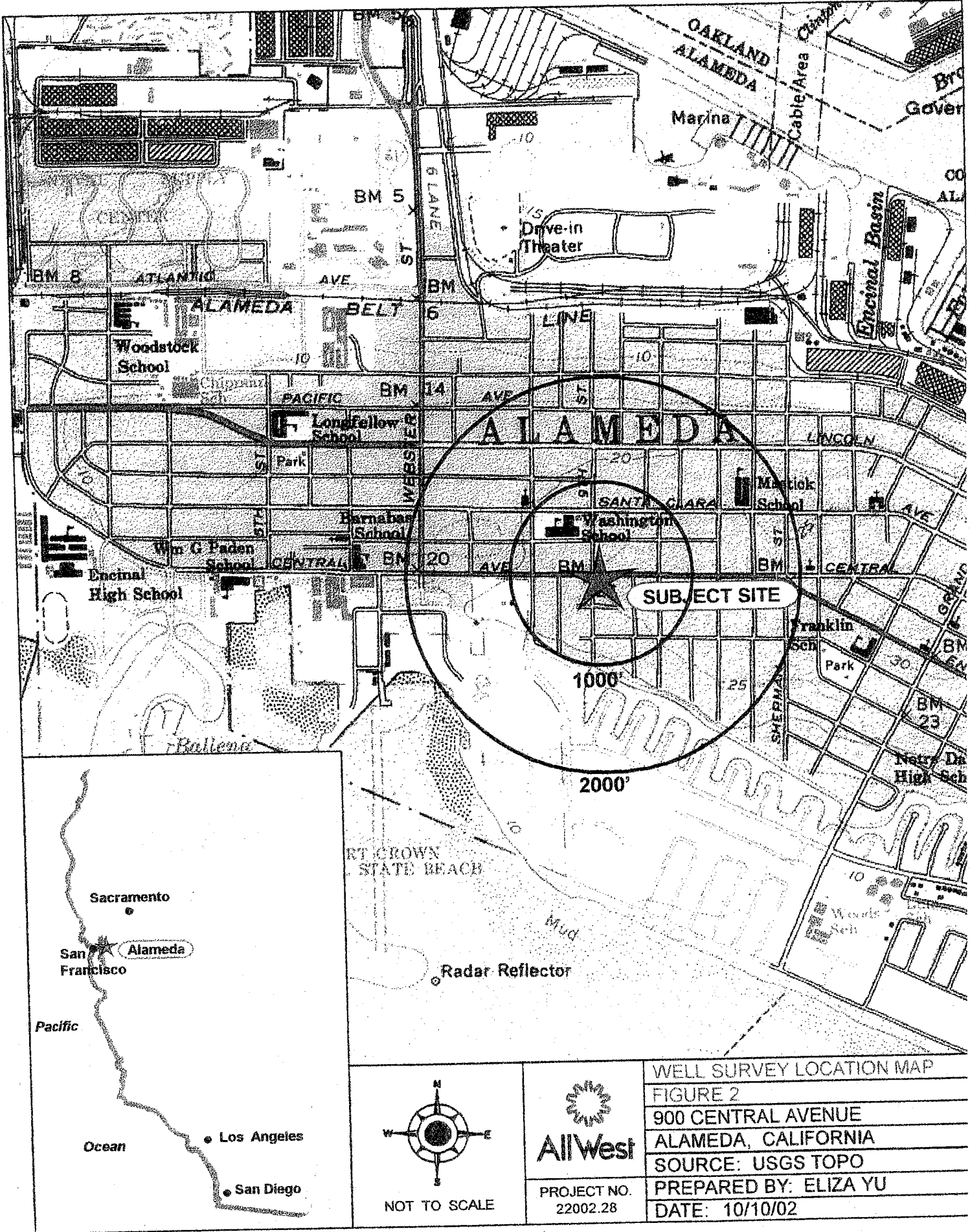


**B**

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**WELL SURVEY INFORMATION**

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WELL SURVEY LOCATION MAP

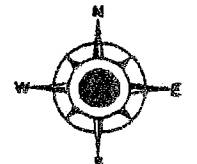
FIGURE 2

900 CENTRAL AVENUE  
ALAMEDA, CALIFORNIA

SOURCE: USGS TOPO  
PREPARED BY: ELIZA YU  
DATE: 10/10/02

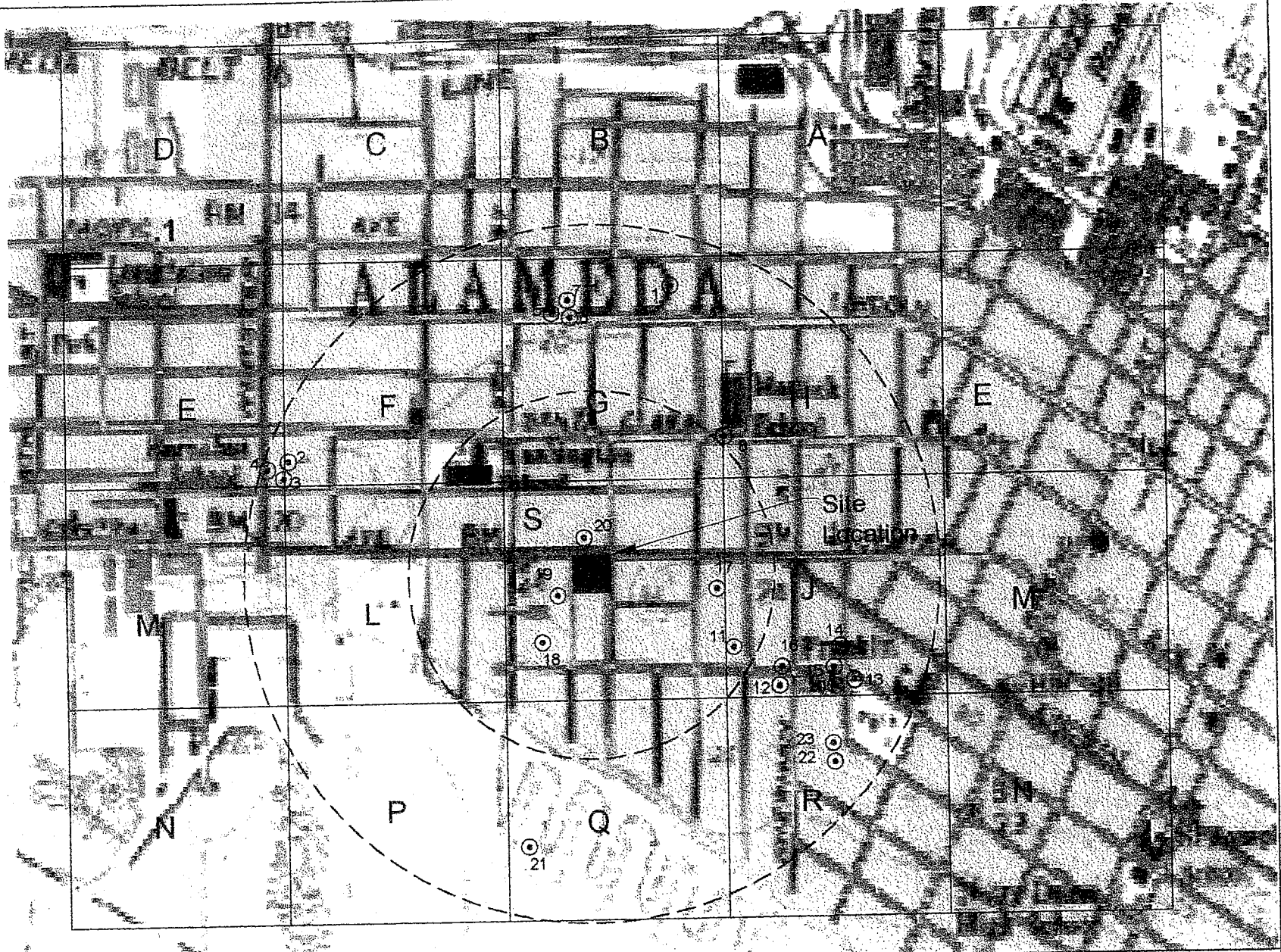


PROJECT NO.  
22002.28



NOT TO SCALE

APPROXIMATE  
SCALE: 1" = 800'



**LEGEND**

<sup>18</sup> Ⓞ - Well Location



AllWest

WELL SURVEY MAP

900 CENTRAL AVENUE

ALAMEDA, CALIFORNIA

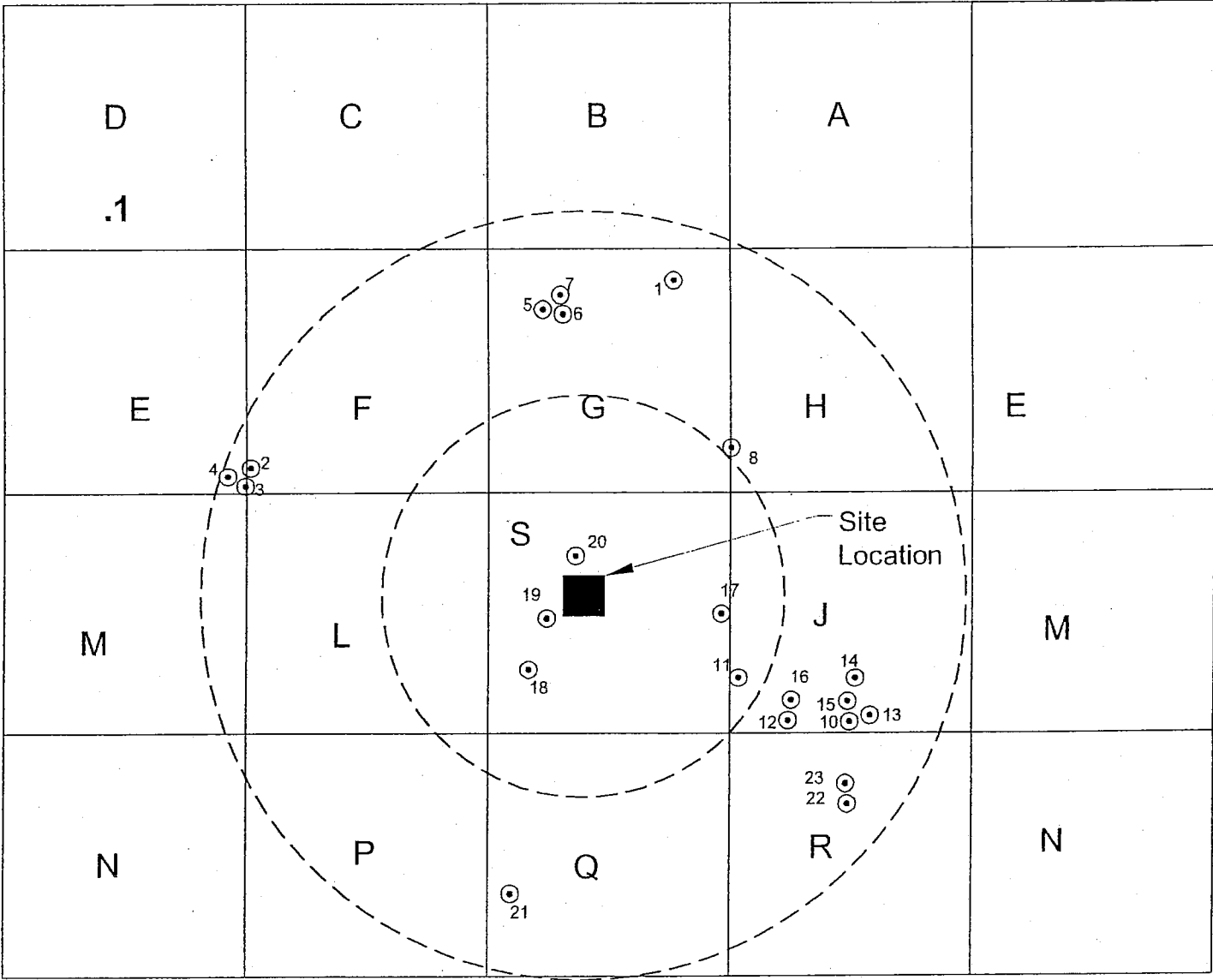
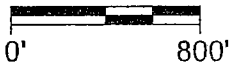
PROJECT NO.  
22002.28

SOURCE: ALLWEST

PREPARED BY: I.R.R. (10/02/02)




APPROXIMATE  
SCALE: 1" = 800'



**LEGEND**

<sup>18</sup> ⊙ - Well Location

 <b>AllWest</b>	WELL SURVEY MAP OVERLAY
	900 CENTRAL AVENUE
	ALAMEDA, CALIFORNIA
	SOURCE: ALLWEST
	PROJECT NO. 22002.28
	PREPARED BY: I.R.R. (10/02/02)

APPENDIX C  
WELL SURVEY RESULTS

900 Central Avenue, Alameda, California

ID	Well #	Township/ Range	Section	Total Depth	Screen Interval	Casing Diameter	Water Level	Use	Location	Dist (mile)	Dist (feet)
#1	3-1797	2S/4W	11A80	120	unknown	unknown	unknown	Cath Prot	Pacific Av S/O Chapin	0.35	1848
#2	MW-1	2S/4W	11F4	24	6-24	2	unknown	Mon	1435 Webster St/Taylor	0.38	2006
#3	MW-2	2S/4W	11F5	24	6-24	2	unknown	Mon	1435 Webster St/Taylor	0.38	2006
#4	MW-3	2S/4W	11F6	24	6-24	2	unknown	Mon	1435 Webster St/Taylor	0.38	2006
#5	MW-1	2S/4W	11G1	16.5	5-15	2	10	Mon	901 Lincoln Av	0.30	1584
#6	MW-2	2S/4W	11G2	18	8-18	2	10	Mon	901 Lincoln Av	0.30	1584
#7	MW-3	2S/4W	11G3	18	8-18	2	10	Mon	901 Lincoln Av	0.30	1584
#8	1-1837	2S/4W	11H	120	unknown	unknown	unknown	Cath Prot	Santa Clara E/O Verdi St	0.22	1162
#9	MW-3	2S/4W	11H4	20	5-20	4	7	Mon	1127 Lincoln Av E/O Bay S	0.40	2112
#10	unknown	2S/4W	11J1	70	55-70	4	14	Irrig	1205 Bay St	0.32	1690
#11	32175	2S/4W	11J2	68	unknown	4	15	Irrig	1036 San Antonio Av	0.18	950
#12	unknown	2S/4W	11J3	80	65-80	4	20	Irrig	1236 St Charles	0.25	1320
#13	unknown	2S/4W	11J4	75	53-73	4	14	Irrig	1224 Bay St	0.33	1742
#14	unknown	2S/4W	11J5	unknown	unknown	unknown	14	Irrig	1200 San Antonio Av	0.30	1584
#15	unknown	2S/4W	11J6	60	40-60	5	10	Irrig	1251 Bay St	0.25	1320
#16	unknown	2S/4W	11J7	60	40-60	5	10	Irrig	1261 St Charles	0.25	1320
#17	unknown	2S/4W	11J8	60	40-60	5	10	Irrig	1040 Fair Oaks Dr	0.15	792
#18	unknown	2S/4W	11K1	unknown	unknown	3	9		801 San Antonio Av	0.11	581
#19	unknown	2S/4W	11K2	70	24-70	6	18	Irrig	920 Centennial	0.05	264
#20	unknown	2S/4W	11K3	75	30-70	unknown	15	Mon	905 Central E/O 9th	0.05	264
#21	MW-1	2S/4W	11Q1	20	2-20	4	3	Dewater	900 Otis Dr	0.33	1742
#22	unknown	2S/4W	11R1	70	unknown	4	unknown	Irrig	1204 Bay	0.35	1848
#23	unknown	2S/4W	11R2	70	unknown	4	unknown	Irrig	1209 Bay	0.35	1848

**Regulatory History**

**GRAY & KAREN PEARCE**  
**(ALAMEDA)**  
900 CENTRAL AVE  
ALAMEDA , CA 94501  
**CASE STATUS: OPEN**  
(Show this Site on Map)

**Regional Board - Case #: 01-2273**  
**SAN FRANCISCO BAY RWQCB (REGION 2) -**  
**(BG)**  
**Local Agency (lead agency) - Case #: 6897**  
**ALAMEDA COUNTY LOP - (UNK)**

<b>Begin Date</b>	<b>Status</b>
1/1/1975	Leak Stopped
4/20/1994	Leak Discovery
9/19/1997	Leak Reported
1/23/1998	3B - Preliminary Site Assessment Underway
1/23/1998	System Entry
4/5/2001	Regulatory Review

[Geotracker Home](#) | [Site/Facility Finder](#) | [Case Finder](#) | [MTBE/Case Reports](#)

Detailed Release Information		
<b>GRAY &amp; KAREN PEARCE</b> (ALAMEDA) 900 CENTRAL AVE ALAMEDA, CA 94501 CASE STATUS: OPEN (Show this Site on Map)		Regional Board - Case #: 01-2273 SAN FRANCISCO BAY RWQCB (REGION 2) - (BG) Local Agency (lead agency) - Case #: 6897 ALAMEDA COUNTY LOP - (UNK)
<b>Case Type:</b> Soil Only		
<b>Enforcement Type:</b>	<b>Funding:</b> F	
<b>How leak was discovered:</b> Tank Closure	<b>Method used to stop discharge:</b> Close Tank	
<b>Interim:</b>		
<b>Cause of leak:</b> UNK	<b>Source of leak:</b> UNK	
<b>SUBSTANCES RELEASED:</b>		
<b>Begin Date</b> UNKNOWN	<b>Substance</b> GASOLINE	<b>Quantity</b>

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 [Site/Facility Finder](#) | 
 [Case Finder](#) | 
 [MTBE/Case Reports](#)

<b>Regulatory History</b>	
<b>CHEVRON (ALAMEDA)</b> 900 OTIS DR ALAMEDA , CA 94501 <b>CASE STATUS: CLOSED</b> (Show this Site on Map)	
<b>Regional Board - Case #: 01-0388</b> SAN FRANCISCO BAY RWQCB (REGION 2) - (BG) <b>Local Agency (lead agency) - Case #: 598</b> ALAMEDA COUNTY LOP - (UNK)	
<b>Begin Date</b>	<b>Status</b>
8/1/1989	Leak Discovery
8/1/1989	Leak Reported
8/1/1989	Leak Stopped
9/28/1990	System Entry
11/13/1997	8 - Verification Monitoring Underway
2/2/1999	9 - Case Closed
3/18/1999	Regulatory Review

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Detailed Release Information		
<b>CHEVRON (ALAMEDA)</b> 900 OTIS DR ALAMEDA , CA 94501 <b>CASE STATUS: CLOSED</b> (Show this Site on Map)		<b>Regional Board - Case #: 01-0388</b> SAN FRANCISCO BAY RWQCB (REGION 2) - (BG) <b>Local Agency (lead agency) - Case #: 598</b> ALAMEDA COUNTY LOP - (UNK)
<b>Case Type:</b> Other Groundwater		
<b>Enforcement Type:</b>		<b>Funding:</b> F
<b>How leak was discovered:</b> Tank Closure		<b>Method used to stop discharge:</b> Close Tank
<b>Interim:</b> Y = Interim Action Taken		
<b>Cause of leak:</b> Structural Failure		<b>Source of leak:</b> Tank
SUBSTANCES RELEASED:		
Begin Date	Substance	Quantity
UNKNOWN	GASOLINE	

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**C**

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**RE-ISSUED SOIL VAPOR ANALYTICAL REPORT**

---

6/7/2013

Mr. Matt Paulus

RRM

2560 Soquel Avenue

Suite 202

Santa Cruz CA 95062

Project Name: Kelleher

Project #: KCE514

Workorder #: 1204164AR1

Dear Mr. Matt Paulus

The following report includes the data for the above referenced project for sample(s) received on 4/9/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Maria Barajas at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Maria Barajas

Project Manager



**WORK ORDER #: 1204164AR1**

Work Order Summary

**CLIENT:** Mr. Matt Paulus  
RRM  
2560 Soquel Avenue  
Suite 202  
Santa Cruz, CA 95062

**BILL TO:** Mr. Matt Paulus  
RRM  
2560 Soquel Avenue  
Suite 202  
Santa Cruz, CA 95062

**PHONE:** 831-227-4148

**P.O. #** KCE514

**FAX:** 831-475-8249

**PROJECT #** KCE514 Kelleher

**DATE RECEIVED:** 04/09/2012

**CONTACT:** Maria Barajas

**DATE COMPLETED:** 04/16/2012

**DATE REISSUED:** 06/07/2013

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SG-1	Modified TO-15	3.5 "Hg	5 psi
02A	SG-2	Modified TO-15	2.5 "Hg	5 psi
03A	SG-3	Modified TO-15	4.0 "Hg	5 psi
04A	SG-4	Modified TO-15	5.0 "Hg	5 psi
05A	SG-5	Modified TO-15	2.0 "Hg	5 psi
06A	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:   
Technical Director

DATE: 06/07/13

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,  
TX NELAP - T104704434-12-4, UT NELAP CA009332012-3, WA NELAP - C935

Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005, Effective date: 10/18/2012, Expiration date: 10/17/2013.

Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9562  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020



**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**RRM**  
**Workorder# 1204164AR1**

Five 1 Liter Summa Canister samples were received on April 09, 2012. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

Dilution was performed on samples SG-2 and SG-5 due to the presence of high level target species.

THE WORKORDER WAS REISSUED ON 6/7/13 TO REPORT THE ADDITIONAL COMPOUND NAPHTHALENE PER CLIENT'S REQUEST.

WHILE THE INITIAL REPORT MET THE LABORATORY DATA QUALITY REQUIREMENTS FOR THE ORIGINALLY REQUESTED COMPOUNDS, NAPHTHALENE WAS NOT EVALUATED FOR QUALITY COMPLIANCE AT THE TIME OF SAMPLE ANALYSIS. AS A RESULT, THE RE-ISSUED REPORT CONTAINS QUALIFIED DATA FOR NAPHTHALENE IN THE LCS.

**Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds  
EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: SG-1**

**Lab ID#: 1204164AR1-01A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Ethyl Benzene	0.76	12	3.3	51
Toluene	0.76	33	2.9	120
m,p-Xylene	0.76	53	3.3	230
o-Xylene	0.76	20	3.3	86
TPH ref. to Gasoline (MW=100)	38	550	160	2200

**Client Sample ID: SG-2**

**Lab ID#: 1204164AR1-02A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	1.5	2.8	4.7	8.8
Ethyl Benzene	1.5	88	6.3	380
Toluene	1.5	460	5.5	1700
m,p-Xylene	1.5	410	6.3	1800
o-Xylene	1.5	140	6.3	610
TPH ref. to Gasoline (MW=100)	73	3500	300	14000

**Client Sample ID: SG-3**

**Lab ID#: 1204164AR1-03A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.78	1.5	2.5	4.9
Ethyl Benzene	0.78	17	3.4	74
Toluene	0.78	61	2.9	230
m,p-Xylene	0.78	90	3.4	390
o-Xylene	0.78	40	3.4	180
TPH ref. to Gasoline (MW=100)	39	800	160	3300

**Client Sample ID: SG-4**

**Lab ID#: 1204164AR1-04A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
-----------------	--------------------------	----------------------	---------------------------	-----------------------

**Summary of Detected Compounds  
EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: SG-4**

**Lab ID#: 1204164AR1-04A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.80	1.2	2.6	4.0
Ethyl Benzene	0.80	52	3.5	220
Toluene	0.80	250	3.0	950
m,p-Xylene	0.80	250	3.5	1100
o-Xylene	0.80	110	3.5	490
TPH ref. to Gasoline (MW=100)	40	1800	160	7400

**Client Sample ID: SG-5**

**Lab ID#: 1204164AR1-05A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Ethyl Benzene	1.8	110	7.8	460
Toluene	1.8	280	6.8	1000
m,p-Xylene	1.8	570	7.8	2500
o-Xylene	1.8	250	7.8	1100
TPH ref. to Gasoline (MW=100)	90	3700	370	15000

Client Sample ID: SG-1

Lab ID#: 1204164AR1-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p041009r1	Date of Collection:	4/3/12 11:30:00 AM
Dil. Factor:	1.52	Date of Analysis:	4/10/12 01:10 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.76	Not Detected	2.4	Not Detected
Ethyl Benzene	0.76	12	3.3	51
Toluene	0.76	33	2.9	120
m,p-Xylene	0.76	53	3.3	230
o-Xylene	0.76	20	3.3	86
Naphthalene	3.0	Not Detected	16	Not Detected
TPH ref. to Gasoline (MW=100)	38	550	160	2200

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	92	70-130

Client Sample ID: SG-2

Lab ID#: 1204164AR1-02A

EPA METHOD TO-15 GC/MS FULL SCAN

<b>File Name:</b>	p041011r1	<b>Date of Collection:</b> 4/3/12 11:06:00 AM
<b>Dil. Factor:</b>	2.92	<b>Date of Analysis:</b> 4/10/12 01:45 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.5	2.8	4.7	8.8
Ethyl Benzene	1.5	88	6.3	380
Toluene	1.5	460	5.5	1700
m,p-Xylene	1.5	410	6.3	1800
o-Xylene	1.5	140	6.3	610
Naphthalene	5.8	Not Detected	31	Not Detected
TPH ref. to Gasoline (MW=100)	73	3500	300	14000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	93	70-130

Client Sample ID: SG-3

Lab ID#: 1204164AR1-03A

EPA METHOD TO-15 GC/MS FULL SCAN

<b>File Name:</b>	<b>p041012r1</b>	<b>Date of Collection:</b> 4/3/12 10:41:00 AM
<b>Dil. Factor:</b>	<b>1.55</b>	<b>Date of Analysis:</b> 4/10/12 02:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.78	1.5	2.5	4.9
Ethyl Benzene	0.78	17	3.4	74
Toluene	0.78	61	2.9	230
m,p-Xylene	0.78	90	3.4	390
o-Xylene	0.78	40	3.4	180
Naphthalene	3.1	Not Detected	16	Not Detected
TPH ref. to Gasoline (MW=100)	39	800	160	3300

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	94	70-130



Client Sample ID: SG-4

Lab ID#: 1204164AR1-04A

EPA METHOD TO-15 GC/MS FULL SCAN

<b>File Name:</b>	p041013r1	<b>Date of Collection:</b> 4/3/12 10:11:00 AM
<b>Dil. Factor:</b>	1.61	<b>Date of Analysis:</b> 4/10/12 02:39 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.80	1.2	2.6	4.0
Ethyl Benzene	0.80	52	3.5	220
Toluene	0.80	250	3.0	950
m,p-Xylene	0.80	250	3.5	1100
o-Xylene	0.80	110	3.5	490
Naphthalene	3.2	Not Detected	17	Not Detected
TPH ref. to Gasoline (MW=100)	40	1800	160	7400

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130

Client Sample ID: SG-5

Lab ID#: 1204164AR1-05A

EPA METHOD TO-15 GC/MS FULL SCAN

<b>File Name:</b>	<b>p041014r1</b>	<b>Date of Collection:</b> 4/3/12 9:43:00 AM
<b>Dil. Factor:</b>	<b>3.60</b>	<b>Date of Analysis:</b> 4/10/12 03:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.8	Not Detected	5.8	Not Detected
Ethyl Benzene	1.8	110	7.8	460
Toluene	1.8	280	6.8	1000
m,p-Xylene	1.8	570	7.8	2500
o-Xylene	1.8	250	7.8	1100
Naphthalene	7.2	Not Detected	38	Not Detected
TPH ref. to Gasoline (MW=100)	90	3700	370	15000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	95	70-130

Client Sample ID: Lab Blank

Lab ID#: 1204164AR1-06A

EPA METHOD TO-15 GC/MS FULL SCAN

<b>File Name:</b>	<b>p041008</b>	<b>Date of Collection:</b> NA
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis:</b> 4/10/12 11:29 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.50	Not Detected	1.6	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
TPH ref. to Gasoline (MW=100)	25	Not Detected	100	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	92	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1204164AR1-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p041002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/10/12 08:05 AM

Compound	%Recovery
Benzene	95
Ethyl Benzene	94
Toluene	91
m,p-Xylene	93
o-Xylene	91
Naphthalene	80
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	94	70-130

Client Sample ID: LCS

Lab ID#: 1204164AR1-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p041003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/10/12 08:35 AM

Compound	%Recovery
Benzene	99
Ethyl Benzene	97
Toluene	94
m,p-Xylene	98
o-Xylene	95
Naphthalene	58 Q
TPH ref. to Gasoline (MW=100)	Not Spiked

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	95	70-130

Client Sample ID: LCSD

Lab ID#: 1204164AR1-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p041004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 4/10/12 08:52 AM

Compound	%Recovery
Benzene	100
Ethyl Benzene	100
Toluene	95
m,p-Xylene	100
o-Xylene	98
Naphthalene	62
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	98	70-130



**CHAIN-OF-CUSTODY RECORD**

**Sample Transportation Notice**

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Page 0 of 1

Project Manager David Parker  
 Collected by: (Print and Sign) David Parker 12/1/12  
 Company RAM Email mparker@ram.com  
 Address 5800 Sunset Ave City Inglewood State CA Zip 90302  
 Phone 310-475-3141 Fax 310-475-3249

Project Info: P.O. # <u>KCE574</u> Project # <u>KCE574</u> Project Name <u>RH666</u>	Turn Around Time: <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush <small>specify</small>	Lab Use Only: Pressurized by: Date: Pressurization Spn: N <sub>2</sub> H <sub>2</sub>
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Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure (Vacuum)			
						Initial	Final	Receipt	Final
01A	SG-1	35676	4.3.12	1130	TPH <sub>5</sub> /3702/10, Col., Benzene, HA	27.5	4.5		
02A	SG-2	34114		1106		27.5	4.0		
03A	SG-3	2110		1041		28.5	4.0		
04A	SG-4	13900		1011		27.0	6.0		
05A	SG-5	34081		0943		26.0	3.0		

Relinquished by: (signature) <u>[Signature]</u> Date/Time <u>4.5.12/1000</u>	Received by: (signature) <u>[Signature]</u> Date/Time <u>0855</u>	Notes:
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____	
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____	

Lab Use Only	Stripper Name: <u>[Signature]</u>	Air Bill # _____	Temp (°C) <u>NA</u>	Condition <u>Good</u>	Custody Seals Intact? Yes No <u>NO</u>	Work Order # <u>1204164</u>
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