



# KELLEHER & ASSOCIATES

Environmental Mgmt LLC

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May 30, 2008

Steven Plunkett  
Alameda County Health Care Services ("County")  
1131 Harbor Bay Parkway, Suite 250  
Alameda County, CA 94502-6577

**RECEIVED**

1:36 pm, Jun 05, 2008

Alameda County  
Environmental Health

**LUFT Site:** 900 Central Ave. Alameda (Site)  
**Re:** Report Submittal

Dear Mr. Plunkett:

On behalf of the parties contributing to the 900 Central Avenue Corrective Action Account, please find enclosed herewith a copy of the following technical reports prepared by RRM, Inc., Santa Cruz, CA (RRM):

- *Fourth Quarter 2007 Groundwater-Monitoring Results*, February 6, 2008 (just received in my office);
- *First Quarter 2008 Groundwater-Monitoring Results*, May 12, 2008 (just received in my office).

On behalf of the parties participating in site-remediation efforts, I declare under penalty of perjury that the information contained in the enclosed documents is true and correct to the best of my knowledge.

The reports cover the groundwater-monitoring events RRM conducted on November 28, 2007 and February 28, 2008 during which they sounded, purged and sampled six monitoring wells and one recovery well. The groundwater-monitoring work was conducted pursuant to the directives set forth in County correspondence dated July 12, 2006 and January 9, 2007.

On the basis of the collective investigation findings, RRM has concluded that the extent of soil and groundwater contamination has been adequately defined. According to RRM, there is a 10 foot thick by 20 foot wide by 50 foot long zone of heavily impacted saturated soils (370 bank cubic yards) between 8 to 18 feet from grade extending southwest from the former tank area through the area of well MW-1. RRM has further concluded that the levels of gasoline contamination in this heavily impacted zone represent a secondary source area that will require active remediation by one of several approaches including remedial excavation or sparging-enhanced dual-phase extraction. Accordingly, RRM is recommending the conduct of appropriate feasibility studies to determine the optimal approach followed by the preparation of a formal corrective action plan. Specially, they are recommending the installation of an air-sparging well midway between wells RW-1 and MW-1 and the conduct of a one-day dual-extraction pilot test using a self-contained mobile unit. They are also recommending mapping all underground utilities that would potentially interfere with or complicate a remedial-excavation approach. If the County concurs with these recommendations, RRM will promptly prepare a concise feasibility study workplan. RRM is recommending that the dual extraction pilot test be conducted during low water table conditions either in the third quarter 2008.

We apologize for not submitting the fourth quarter report in a timely manner. RRM reportedly "misplaced" the report after preparing it in early February 2008. Since this is the *second time in a year*

Steven Plunkett, Alameda County Health Care Services  
October 29, 2007

RRM has declined to furnish a quarterly report in a timely manner, by copy of this letter we are advising RRM that we are considering terminating their contract and replacing them with another contractor.

We are in the process of making all the associated Geotracker uploads that are due in connection with these reports and previous reports.

Thank you for your ongoing courtesy and cooperation.

Sincerely:



Brian T. Kelleher

Court consultant/project coordinator

Cc with enclosure: William Nagle, Esq., Special Master Mediator; Robert Bucciare, Esq., and Kim O'Dinzel, Esq., Long & Levit counsel for Pearce Parties; Lisa Pan, Esq., counsel 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



February 6, 2008  
RRM Project # KCE514

900 Central Avenue Corrective Action Account  
c/o Brian Kelleher  
Kelleher & Associates  
812 S. Winchester Blvd., Suite 130, #109  
San Jose, California 95128

Re: ***Fourth Quarter 2007 Groundwater Monitoring Results***  
900 Central Avenue  
Alameda, California

Dear Mr. Kelleher:

This letter, prepared by RRM, Inc. (RRM), presents the results of the fourth quarter 2007 groundwater monitoring event conducted on November 28, 2007 at the referenced site (Figure 1). Well specifications are presented in Table 1. Groundwater elevation and analytical data are presented in Table 2. A site map is presented as Figure 2. A groundwater elevation contour map is presented as Figure 3. A groundwater concentration map for gasoline range total petroleum hydrocarbons (TPHg), benzene, and methyl tertiary butyl ether (MtBE) is presented as Figure 4. Field and analytical procedures are presented as Attachment A. Certified analytical reports, chain-of-custody, and field data sheets are presented as Attachment B.

## **SITE BACKGROUND**

**Site Description and History** – The site is located on the southeast corner of Central Avenue and Ninth Street in Alameda, California. 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 underground storage tanks (USTs) located beneath the sidewalk on Ninth Street, and a reported 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, California was appointed on behalf of the litigating parties to coordinate remedial response actions and associated cost recovery work.

The site is located three blocks east of downtown Alameda and approximately 3,000 feet northeast of Robert Crown Memorial State Beach and San Francisco Bay. The site is on gently sloping terrain approximately 25 feet above mean sea level. There is a man-made lagoon system approximately 1,000 feet south of the site.

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.

**Site Geology and Hydrogeology** - 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. Groundwater was encountered in the borings between 12 and 13 feet bgs. From the two years of quarterly groundwater monitoring, depth to water seasonally ranged from 6 to 13 feet bgs and flow was toward the southwest (*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*).

### **Historic Remedial Investigations and Groundwater Monitoring**

**April 1994 Subsurface Investigations** - Lowney Associates (Lowney) of Mountain View, California 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 20 feet bgs in and around the incorrectly presumed location of the former USTs and pump island; soil samples were collected at 5-foot intervals, geologic logs were prepared; 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. TPH<sub>g</sub> and benzene were detected in the soil sample collected from EB-1 at 95 parts per million (ppm) and 400 parts per billion (ppb) respectively. In the grab groundwater sample from EB-1, TPH<sub>g</sub> and benzene were detected at 76,000 ppb and 2,200 ppb respectively (*Lowney Associates, "Soil and Groundwater Quality Reconnaissance" July 20, 1994*).

**June 1997 Subsurface Investigations and RBCA Analyses** - Allwest Environmental Inc. (Allwest) of San Francisco, California conducted a file review to assess potential on-site and off-site sources of subsurface contamination. They also advanced eight geoprobe-type soil borings (P-1 through P-8) to 16 feet bgs in and around the presumed location of the former USTs and pump island; collected soil samples at 5-foot intervals and field-tested the samples for total volatile hydrocarbons with an organic vapor analyzer (OVA); prepared geologic logs; collected grab groundwater samples from each boring;

and analyzed 31 soil samples and eight groundwater samples for TPHg and BTEX. They reported discolored/odorous soils at 10 to 12 feet bgs in borings P-2 through P-4. TPHg was detected at 4,600 ppm in the soil sample collected at 14.5 feet bgs from Boring P-3. TPHg was detected in five of the eight grab groundwater samples with the highest concentration of 92,000 ppb at Boring P-3. Tier 1 and Tier 2 risk-based corrective-action evaluations were conducted using ASTM methodology. On the basis of the results Allwest concluded that 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 bore holes to 18 feet bgs at the northeast quadrant of the site; collected soil samples at 5-foot intervals and field tested the samples for TVH using a field OVA; prepared geologic logs; converted the borings to 2-inch diameter monitoring wells (MW-1 through MW-3) and developed, surveyed, sounded, purged and sampled the wells; and analyzed three groundwater samples for TPHg and BTEX. The depth to groundwater was approximately 12 feet bgs. TPHg and benzene was detected only in the sample from MW-1 at 360 ppb and 5.8 ppb respectively. The well installation report included a recommendation to monitor the wells quarterly for one year. This recommendation was approved by the County (*Allwest "Groundwater Monitoring Well Installation and Sampling" February 2, 1999*).

**1999-Quarterly Groundwater Monitoring** – From March through September 1999, Allwest conducted three quarterly groundwater monitoring events during which they sounded purged and sampled the three wells. The samples were analyzed for TPHmo, TPHd, and TPHg, and BTEX. Depth to groundwater ranged seasonally from approximately 6 to 12 feet bgs. TPHg was only detected in MW-1 at concentrations ranging from less than 50 ppb to 14,000 ppb. Based on the results, Allwest recommended conducting a risk assessment (*Allwest "Quarterly Groundwater Monitoring Reports" with the following dates: March 3, 1999; July 2, 1999; and October 14, 1999*).

**2002-Quarterly Groundwater Monitoring** – From March through December 2002, Allwest conducted four quarterly groundwater monitoring events during which they sounded, purged, and sampled the three wells. The samples were analyzed for TPHmo, TPHd, TPHg, and BTEX. Depth to groundwater ranged from approximately 8 to 13 feet bgs. TPHg was only detected in MW-1 at concentrations ranging from less than 50 ppb to 42,000 ppb; MTBE was not detected (*Allwest "Quarterly Groundwater Monitoring Reports" with the following dates: June 26, 2002; August 8, 2002; October 25, 2002; and "2002 Annual Groundwater Monitoring & Risk Assessment Report," January 31, 2003*).

**2003-Production Well Survey, Conceptual Model and Risk Assessment** – In December 2002, Allwest reviewed agency files to locate nearby water production wells and to prepare 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. Identified off site receptors include four irrigation wells and one monitoring well located within approximately 500 feet of the site (*Allwest: "2002 Annual Groundwater Monitoring & Risk Assessment Report," January 31, 2003*).

## RESULTS

### Fourth Quarter 2007 Groundwater Sampling Event

On November 28, 2007 RRM performed fourth quarter groundwater sampling activities at wells MW-1 through MW-6 and RW-1. TPHg was detected only in wells MW-1 and RW-1 at concentrations of 51,700 ppb and 24,400 ppb, respectively. Benzene was present in wells MW-1 and RW-1 at concentrations of 3,160 ppb and 4.75 ppb, respectively. Fuel oxygenates, including MtBE, were not detected in any of the samples. Depth to groundwater ranged from 14.94 feet to 15.64 feet bgs with a groundwater flow direction toward the west at an approximate gradient of 0.009 foot/foot.

A groundwater elevation contour map for the November 28, 2007 monitoring event is shown on Figure 3. Groundwater analytical data is summarized in Table 2 and shown on Figure 4. Certified analytical reports and chain-of-custody documentation are presented in Attachment B.

## CONCLUSIONS

- Groundwater sample analytical data show that dissolved petroleum hydrocarbons extend from the former UST area southwesterly beneath Ninth Street. Dissolved petroleum hydrocarbons have been defined to non-detection by well MW-2 in the easterly (upgradient) direction, by well MW-3 in the southerly (cross-gradient) direction, and wells MW -4, 5, 6 in the southwesterly (downgradient) direction.
- Due to heavily traveled Central Avenue, it is considered impractical to install a monitoring well in the roadway to define dissolved petroleum hydrocarbons in the northerly (cross-gradient) direction.
- Fuel oxygenates including MtBE were not detected in any of the groundwater samples analyzed and suggest that the subsurface release occurred prior to the 1980s.
- The current and historic shallow groundwater flow direction is westerly to southwesterly when using the most recent well elevation survey data in conjunction with historic groundwater depth readings.
- Petroleum hydrocarbons in soil and groundwater have been adequately defined and characterized.
- Dissolved TPHg and benzene concentrations at wells RW-1 and MW-1 indicate the presence of residual contamination in the vicinity of the former USTs that may continue to affect groundwater quality. In addition, the TPHg and benzene concentrations at these wells exceed the San Francisco Bay Region RWQCBs RBSLs for the vapor intrusion/indoor air pathway for commercial land use.

## RECOMMENDATIONS

Based on recent and historical groundwater monitoring data, RRM recommends the continuation of quarterly sampling and reporting for all site wells.

Should you have any questions regarding the contents of this report, please call RRM at (831) 475-8141.

Sincerely,

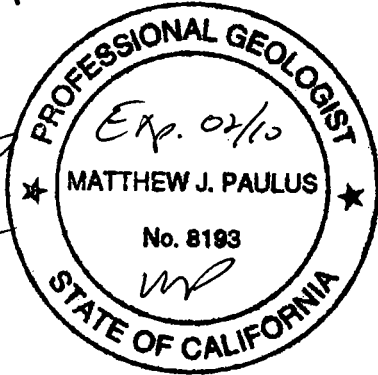
RRM, Inc.

*MR* for:

Matt Kaempf  
Project Manager

*MR*

Matthew J. Paulus  
Senior Geologist  
PG 8193



Attachments: Table 1 – Well Specifications  
Table 2 – Groundwater Elevation and Analytical Data  
Figure 1 – Site Location Map  
Figure 2 – Site Map  
Figure 3 – Groundwater Elevation Contour, November 28, 2007  
Figure 4 – TPHg/Benzene Groundwater Concentration, November 28, 2007  
Attachment A – Field and Analytical Procedures  
Attachment B – Certified Analytical Reports, Chain-of-Custody, and Field Data Sheets.

Table 1  
**Well Specifications**

900 Central Avenue  
Alameda, California

Well	Total Depth (feet, bgs)	Casing Diameter (inch)	Screened Interval (feet, bgs)	Screen Length (feet)
MW-1	18	2	6 - 18	12
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

Notes:

bgs = below ground surface



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-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 <sup>3</sup>	2,570	2,370	1,120	9,560	<11	NA	NA
	<b>11/28/07</b>		<b>12.94</b>	<b>15.33</b>	<b>51,700<sup>3</sup></b>	<b>3,160</b>	<b>3,270</b>	<b>1,050</b>	<b>9,250</b>	<b>&lt;11.0</b>	<b>NA</b>	<b>NA</b>	<b>1</b>
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
	<b>11/28/07</b>		<b>12.67</b>	<b>15.64</b>	<b>&lt;50</b>	<b>&lt;0.500</b>	<b>&lt;0.500</b>	<b>&lt;0.500</b>	<b>&lt;1.50</b>	<b>&lt;0.500</b>	<b>NA</b>	<b>NA</b>	<b>1</b>
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
	<b>11/28/07</b>		<b>12.31</b>	<b>15.38</b>	<b>&lt;50</b>	<b>&lt;0.500</b>	<b>&lt;0.500</b>	<b>&lt;0.500</b>	<b>&lt;1.50</b>	<b>&lt;0.500</b>	<b>NA</b>	<b>NA</b>	<b>1</b>
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
	<b>11/28/07</b>		<b>12.43</b>	<b>14.94</b>	<b>&lt;50</b>	<b>&lt;0.500</b>	<b>&lt;0.500</b>	<b>&lt;0.500</b>	<b>&lt;1.50</b>	<b>&lt;0.500</b>	<b>NA</b>	<b>NA</b>	<b>1</b>

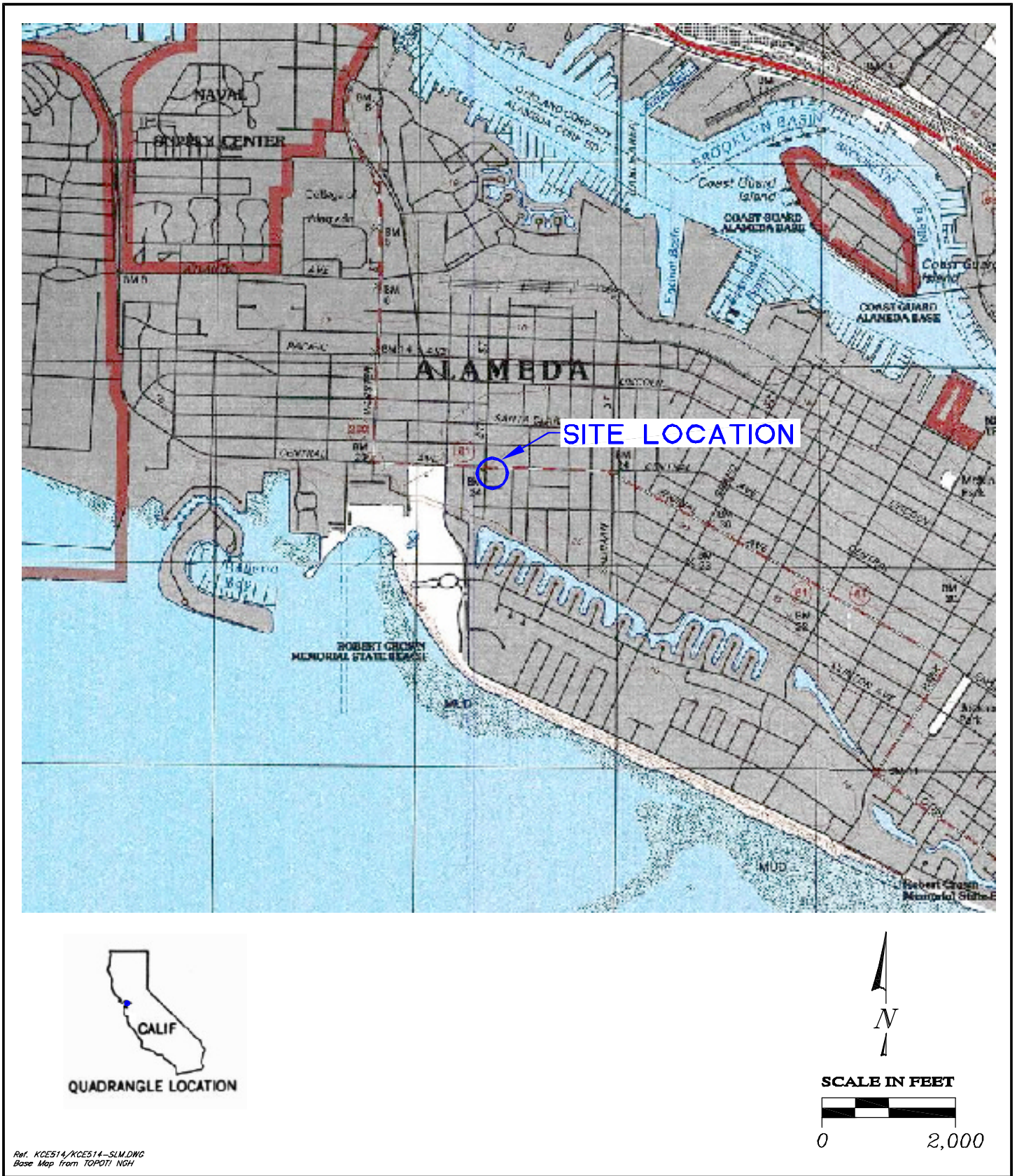
Table 2  
Groundwater Elevation and Analytical Data

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-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
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
RW-1	08/23/07	27.43	11.23	16.20	16,000 <sup>3</sup>	<4.40	38.9	571	2,660	<4.40	NA	NA	1
	11/28/07		11.97	15.46	24,400 <sup>3</sup>	4.75	110	915	3,980	<4.40	NA	NA	1

Notes:

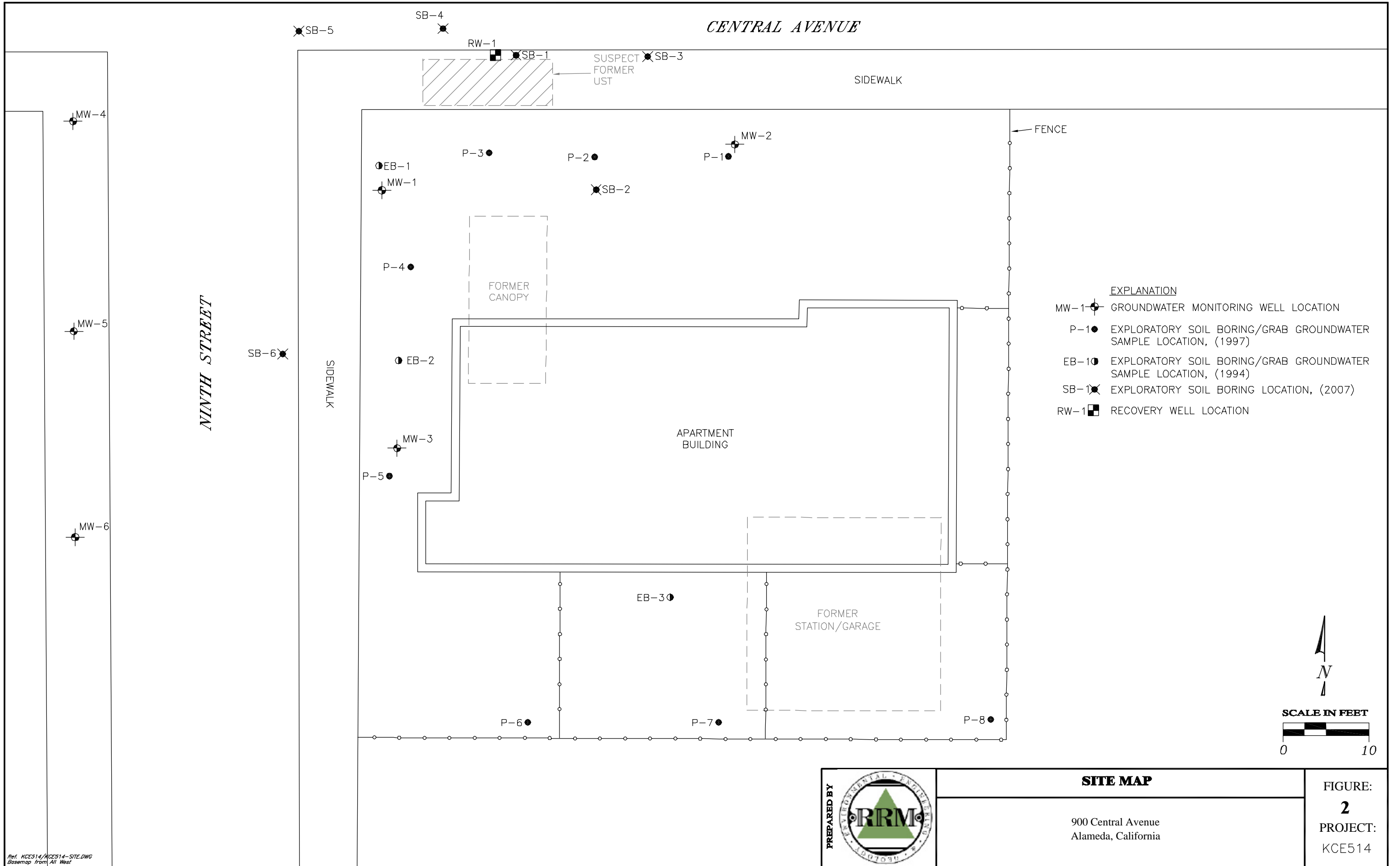
MSL = relative to mean sea level  
 TOC = top of casing  
 TPHg = gasoline range total petroleum hydrocarbons  
 TPHd = diesel range total petroleum hydrocarbons  
 TPHmo = motor oil range total petroleum hydrocarbons  
 TBA = tert-Butanol  
 MtBE = Methyl tert-Butyl Ether  
 ppb = parts per billion (micrograms per liter)  
 < = none detected at or above reported detection limit  
 NS = not sampled  
 NA = not analyzed  
 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

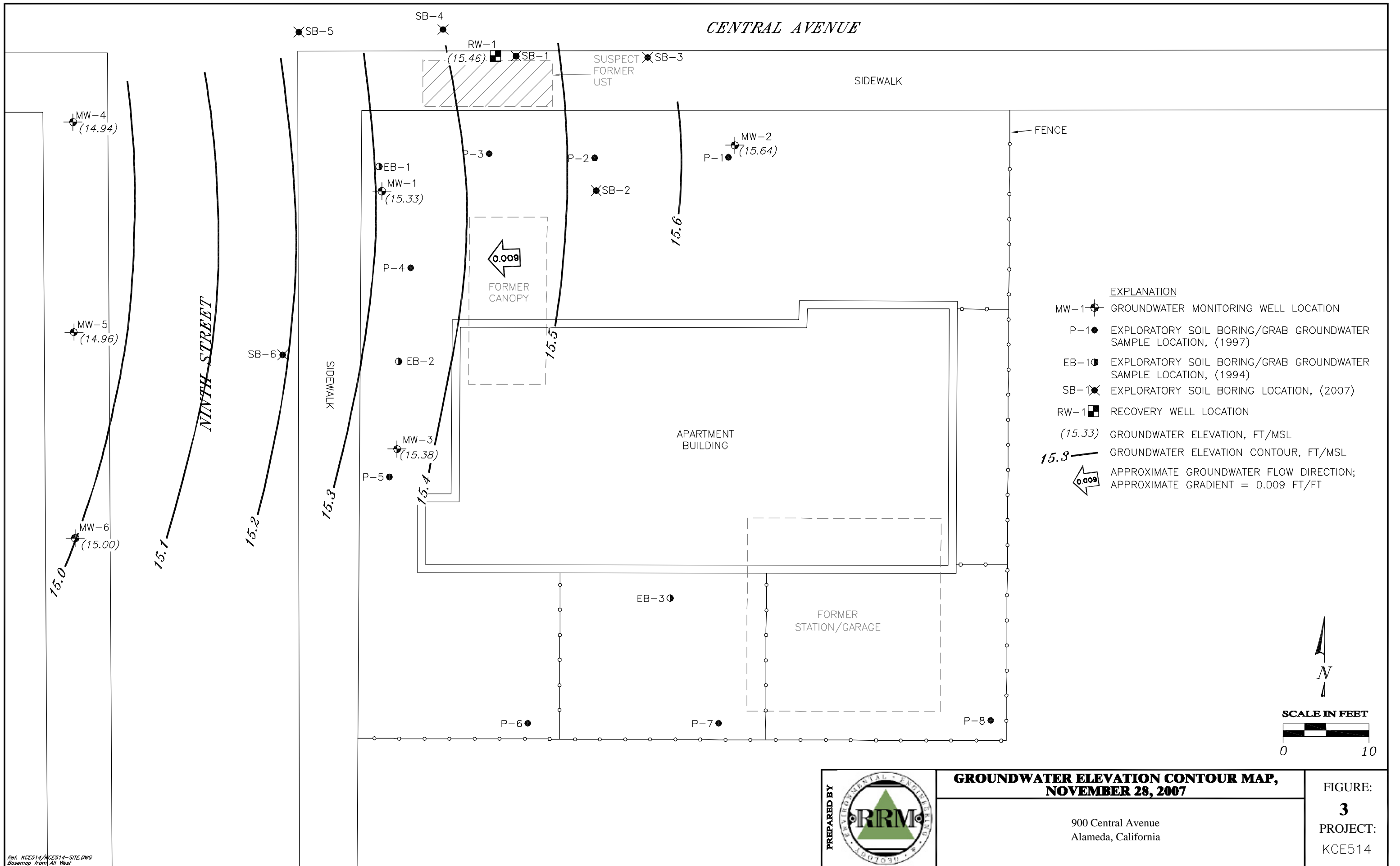


**SITE LOCATION MAP**

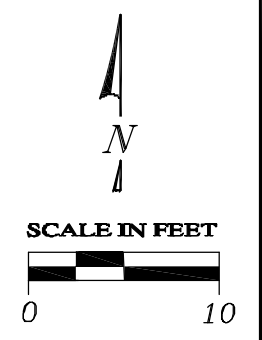
900 Central Avenue  
Alameda, California

FIGURE:  
**1**  
PROJECT:  
KCE514





- 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)
  - SB-1 ✕ EXPLORATORY SOIL BORING LOCATION, (2007)
  - RW-1 ■ RECOVERY WELL LOCATION
  - (15.33) GROUNDWATER ELEVATION, FT/MSL
  - 15.3 — GROUNDWATER ELEVATION CONTOUR, FT/MSL
  - ← 0.009 APPROXIMATE GROUNDWATER FLOW DIRECTION; APPROXIMATE GRADIENT = 0.009 FT/FT



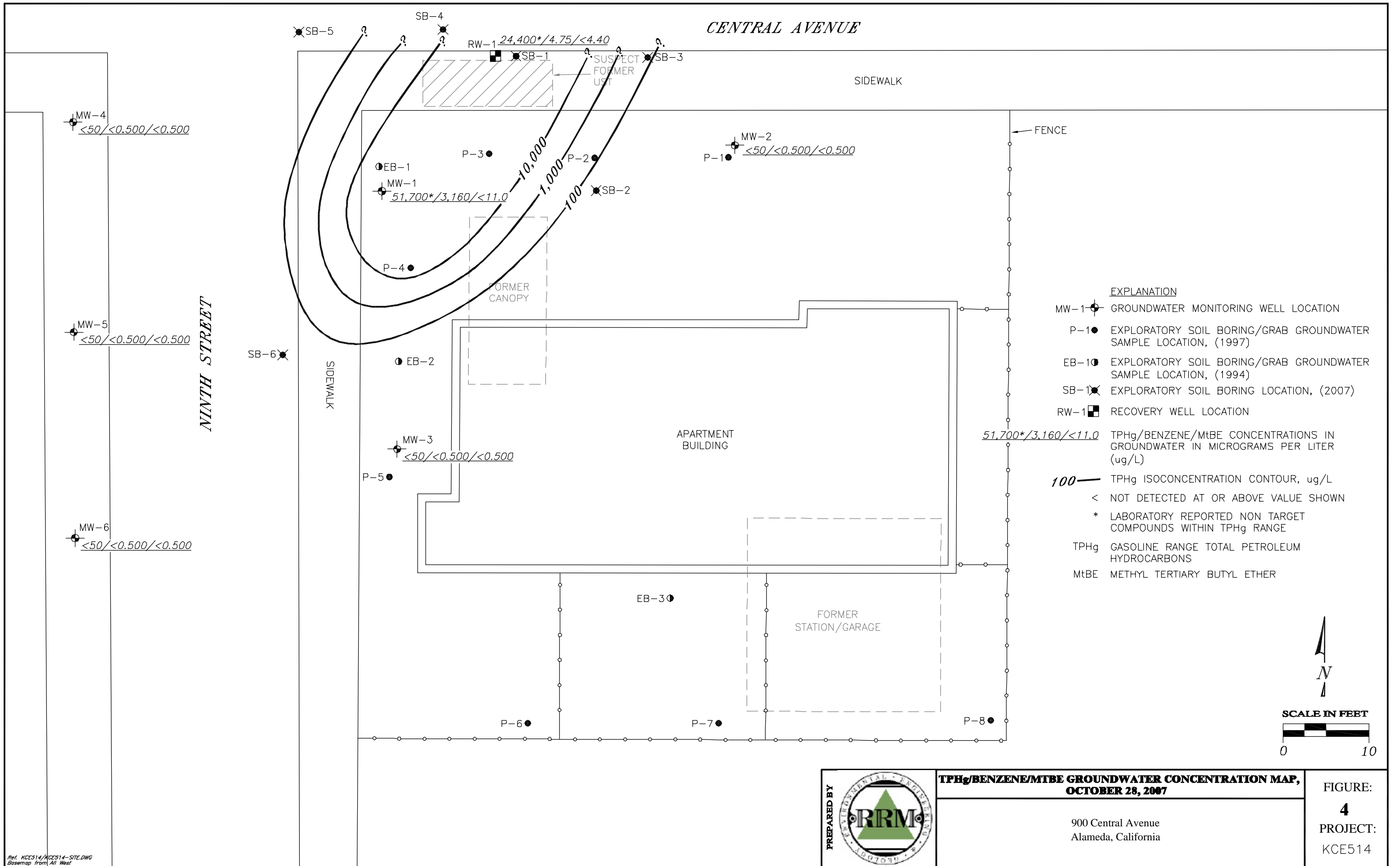
Ref. KCE514/KCE514-SITE.DWG  
Base map from All West



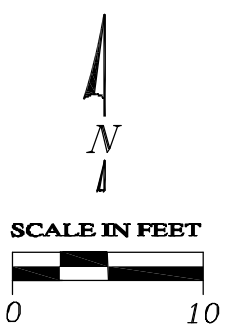
**GROUNDWATER ELEVATION CONTOUR MAP,  
NOVEMBER 28, 2007**

900 Central Avenue  
Alameda, California

FIGURE:  
**3**  
PROJECT:  
KCE514



- 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)
  - SB-1 ● EXPLORATORY SOIL BORING LOCATION, (2007)
  - RW-1 ■ RECOVERY WELL LOCATION
- 51,700\*/3,160/<11.0 TPHg/BENZENE/MTBE CONCENTRATIONS IN GROUNDWATER IN MICROGRAMS PER LITER (ug/L)
- 100 — TPHg ISOCONCENTRATION CONTOUR, ug/L
- < NOT DETECTED AT OR ABOVE VALUE SHOWN
- \* LABORATORY REPORTED NON TARGET COMPOUNDS WITHIN TPHg RANGE
- TPHg GASOLINE RANGE TOTAL PETROLEUM HYDROCARBONS
- MTBE METHYL TERTIARY BUTYL ETHER



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



**TPHg/BENZENE/MTBE GROUNDWATER CONCENTRATION MAP,  
OCTOBER 28, 2007**

900 Central Avenue  
Alameda, California

FIGURE:  
**4**  
PROJECT:  
KCE514

**A**

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**FIELD AND ANALYTICAL PROCEDURES**

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## **ATTACHMENT A**

### **FIELD AND ANALYTICAL PROCEDURES**

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#### **Groundwater Sampling**

Groundwater sampling procedures consisted of initially measuring and documenting the water level in the well and checking the well for the presence of separate-phase hydrocarbon (SPH) using an oil/water interface probe or a clear Teflon bailer. If the well did not contain SPH, it was purged a minimum of three casing volumes or until dry. During purging, well stabilization parameters (temperature, pH, and electrical conductivity) were monitored. After 80% recovery of the water levels, a groundwater sample was collected with a clean Teflon bailer and placed into the appropriate EPA-approved containers. Sampling equipment was cleaned with tri-sodium phosphate between uses. The samples were labeled and transported under iced storage to the laboratory using appropriate chain-of-custody documentation.

#### **Laboratory Analytical Procedures**

Select soil and all groundwater samples collected from new and existing wells were analyzed in the laboratory for the presence of gasoline range total petroleum hydrocarbons; benzene, toluene, ethylbenzene, and total xylenes using GC/MS and EPA Methods 8260B, 8015B, and 8021B. Select groundwater samples were analyzed for methyl tertiary butyl ether and other oxygenates including: ethyl tertiary butyl ether, tertiary butanol, diisopropyl ether, and tertiary amyl methyl ether using EPA Method 8260B.



**B**

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**CERTIFIED ANALYTICAL REPORTS, CHAIN-OF-CUSTODY, AND FIELD DATA SHEETS**

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December 05, 2007

Matt Kaempf  
Remediation Risk Management, Inc.  
2560 Soquel Ave, Suite 202  
Santa Cruz, CA 95062

TEL: (831) 475-8141

FAX (831)475-8249

RE: GWS

Order No.: 0711133

Dear Matt Kaempf:

Torrent Laboratory, Inc. received 7 samples on 11/28/2007 for the analyses presented in the following report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc, is certified by the State of California, ELAP #1991. If you have any questions regarding these tests results, please feel free to contact the Project Management Team at (408)263-5258;ext: 204.

Sincerely,



Laboratory Director

12/5/07  
Date

Patti Sandrock  
QA Officer



# TORRENT LABORATORY, INC.

483 Sinclair Frontage Road • Milpitas, CA • Phone: (408) 263-5258 • Fax: (408) 263-8293

Visit us at [www.torrentlab.com](http://www.torrentlab.com) email: [analysis@torrentlab.com](mailto:analysis@torrentlab.com)

**Report prepared for:** Matt Kaempf  
Remediation Risk Management, Inc.

**Date Received:** 11/28/2007  
**Date Reported:** 12/5/2007

**Client Sample ID:** MW-1  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/28/2007 9:25:00 AM

**Lab Sample ID:** 0711133-001  
**Date Prepared:** 12/3/2007-12/4/2007

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	12/4/2007	0.5	44	22.0	3160	µg/L	R14714
Ethyl tert-butyl ether (ETBE)	SW8260B	12/3/2007	0.5	22	11.0	ND	µg/L	R14714
Ethylbenzene	SW8260B	12/3/2007	0.5	22	11.0	1050	µg/L	R14714
Isopropyl ether (DIPE)	SW8260B	12/3/2007	0.5	22	11.0	ND	µg/L	R14714
Methyl tert-butyl ether (MTBE)	SW8260B	12/3/2007	0.5	22	11.0	ND	µg/L	R14714
t-Butyl alcohol (t-Butanol)	SW8260B	12/3/2007	10	22	220	ND	µg/L	R14714
tert-Amyl methyl ether (TAME)	SW8260B	12/3/2007	0.5	22	11.0	ND	µg/L	R14714
Toluene	SW8260B	12/4/2007	0.5	44	22.0	3270	µg/L	R14714
Xylenes, Total	SW8260B	12/4/2007	1.5	44	66.0	9250	µg/L	R14714
Surr: Dibromofluoromethane	SW8260B	12/4/2007	0	44	61.2-131	122	%REC	R14714
Surr: Dibromofluoromethane	SW8260B	12/3/2007	0	22	61.2-131	92.1	%REC	R14714
Surr: 4-Bromofluorobenzene	SW8260B	12/4/2007	0	44	64.1-120	95.2	%REC	R14714
Surr: 4-Bromofluorobenzene	SW8260B	12/3/2007	0	22	64.1-120	110	%REC	R14714
Surr: Toluene-d8	SW8260B	12/4/2007	0	44	75.1-127	110	%REC	R14714
Surr: Toluene-d8	SW8260B	12/3/2007	0	22	75.1-127	119	%REC	R14714
TPH (Gasoline)	SW8260B(TPH)	12/4/2007	50	44	2200	51700x	µg/L	G14714
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	12/4/2007	0	44	58.4-133	109	%REC	G14714

Note: x-Although TPH as Gasoline is present, result is elevated due to presence of non-target compounds (heavy end) within the TPH as Gasoline quantitative range.

**Client Sample ID:** MW-2  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/28/2007 8:50:00 AM

**Lab Sample ID:** 0711133-002  
**Date Prepared:** 12/3/2007

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethyl tert-butyl ether (ETBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethylbenzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Isopropyl ether (DIPE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Methyl tert-butyl ether (MTBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
t-Butyl alcohol (t-Butanol)	SW8260B	12/3/2007	10	1	10.0	ND	µg/L	R14714
tert-Amyl methyl ether (TAME)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Toluene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Xylenes, Total	SW8260B	12/3/2007	1.5	1	1.50	ND	µg/L	R14714
Surr: Dibromofluoromethane	SW8260B	12/3/2007	0	1	61.2-131	115	%REC	R14714
Surr: 4-Bromofluorobenzene	SW8260B	12/3/2007	0	1	64.1-120	95.1	%REC	R14714
Surr: Toluene-d8	SW8260B	12/3/2007	0	1	75.1-127	88.6	%REC	R14714
TPH (Gasoline)	SW8260B(TPH)	12/3/2007	50	1	50	ND	µg/L	G14714
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	12/3/2007	0	1	58.4-133	99.1	%REC	G14714

Client Sample ID: MW-3  
Sample Location: 900 Central Ave, Alameda  
Sample Matrix: GROUNDWATER  
Date/Time Sampled 11/28/2007 8:35:00 AM

Lab Sample ID: 0711133-003  
Date Prepared: 12/3/2007

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethyl tert-butyl ether (ETBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethylbenzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Isopropyl ether (DIPE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Methyl tert-butyl ether (MTBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
t-Butyl alcohol (t-Butanol)	SW8260B	12/3/2007	10	1	10.0	ND	µg/L	R14714
tert-Amyl methyl ether (TAME)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Toluene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Xylenes, Total	SW8260B	12/3/2007	1.5	1	1.50	ND	µg/L	R14714
Surr: Dibromofluoromethane	SW8260B	12/3/2007	0	1	61.2-131	118	%REC	R14714
Surr: 4-Bromofluorobenzene	SW8260B	12/3/2007	0	1	64.1-120	98.0	%REC	R14714
Surr: Toluene-d8	SW8260B	12/3/2007	0	1	75.1-127	104	%REC	R14714
TPH (Gasoline)	SW8260B(TPH)	12/3/2007	50	1	50	ND	µg/L	G14714
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	12/3/2007	0	1	58.4-133	82.8	%REC	G14714

**Client Sample ID:** MW-4  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/28/2007 9:40:00 AM

**Lab Sample ID:** 0711133-004  
**Date Prepared:** 12/3/2007

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethyl tert-butyl ether (ETBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethylbenzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Isopropyl ether (DIPE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Methyl tert-butyl ether (MTBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
t-Butyl alcohol (t-Butanol)	SW8260B	12/3/2007	10	1	10.0	ND	µg/L	R14714
tert-Amyl methyl ether (TAME)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Toluene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Xylenes, Total	SW8260B	12/3/2007	1.5	1	1.50	ND	µg/L	R14714
Surr: Dibromofluoromethane	SW8260B	12/3/2007	0	1	61.2-131	121	%REC	R14714
Surr: 4-Bromofluorobenzene	SW8260B	12/3/2007	0	1	64.1-120	100	%REC	R14714
Surr: Toluene-d8	SW8260B	12/3/2007	0	1	75.1-127	118	%REC	R14714
TPH (Gasoline)	SW8260B(TPH)	12/3/2007	50	1	50	ND	µg/L	G14714
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	12/3/2007	0	1	58.4-133	105	%REC	G14714

Client Sample ID: MW-5  
Sample Location: 900 Central Ave, Alameda  
Sample Matrix: GROUNDWATER  
Date/Time Sampled 11/28/2007 9:55:00 AM

Lab Sample ID: 0711133-005  
Date Prepared: 12/3/2007

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethyl tert-butyl ether (ETBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethylbenzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Isopropyl ether (DIPE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Methyl tert-butyl ether (MTBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
t-Butyl alcohol (t-Butanol)	SW8260B	12/3/2007	10	1	10.0	ND	µg/L	R14714
tert-Amyl methyl ether (TAME)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Toluene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Xylenes, Total	SW8260B	12/3/2007	1.5	1	1.50	ND	µg/L	R14714
Surr: Dibromofluoromethane	SW8260B	12/3/2007	0	1	61.2-131	127	%REC	R14714
Surr: 4-Bromofluorobenzene	SW8260B	12/3/2007	0	1	64.1-120	109	%REC	R14714
Surr: Toluene-d8	SW8260B	12/3/2007	0	1	75.1-127	117	%REC	R14714
TPH (Gasoline)	SW8260B(TPH)	12/3/2007	50	1	50	ND	µg/L	G14714
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	12/3/2007	0	1	58.4-133	90.5	%REC	G14714

Client Sample ID: MW-6  
Sample Location: 900 Central Ave, Alameda  
Sample Matrix: GROUNDWATER  
Date/Time Sampled 11/28/2007 10:15:00 AM

Lab Sample ID: 0711133-006  
Date Prepared: 12/3/2007

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethyl tert-butyl ether (ETBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Ethylbenzene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Isopropyl ether (DIPE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Methyl tert-butyl ether (MTBE)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
t-Butyl alcohol (t-Butanol)	SW8260B	12/3/2007	10	1	10.0	ND	µg/L	R14714
tert-Amyl methyl ether (TAME)	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Toluene	SW8260B	12/3/2007	0.5	1	0.500	ND	µg/L	R14714
Xylenes, Total	SW8260B	12/3/2007	1.5	1	1.50	ND	µg/L	R14714
Surr: Dibromofluoromethane	SW8260B	12/3/2007	0	1	61.2-131	125	%REC	R14714
Surr: 4-Bromofluorobenzene	SW8260B	12/3/2007	0	1	64.1-120	81.0	%REC	R14714
Surr: Toluene-d8	SW8260B	12/3/2007	0	1	75.1-127	112	%REC	R14714
TPH (Gasoline)	SW8260B(TPH)	12/3/2007	50	1	50	ND	µg/L	G14714
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	12/3/2007	0	1	58.4-133	88.8	%REC	G14714



Client Sample ID: RW-1  
Sample Location: 900 Central Ave, Alameda  
Sample Matrix: GROUNDWATER  
Date/Time Sampled 11/28/2007 9:10:00 AM

Lab Sample ID: 0711133-007

Date Prepared: 12/4/2007

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	12/4/2007	0.5	8.8	4.40	4.75	µg/L	R14714
Ethyl tert-butyl ether (ETBE)	SW8260B	12/4/2007	0.5	8.8	4.40	ND	µg/L	R14714
Ethylbenzene	SW8260B	12/4/2007	0.5	22	11.0	915	µg/L	R14714
Isopropyl ether (DIPE)	SW8260B	12/4/2007	0.5	8.8	4.40	ND	µg/L	R14714
Methyl tert-butyl ether (MTBE)	SW8260B	12/4/2007	0.5	8.8	4.40	ND	µg/L	R14714
t-Butyl alcohol (t-Butanol)	SW8260B	12/4/2007	10	8.8	88.0	ND	µg/L	R14714
tert-Amyl methyl ether (TAME)	SW8260B	12/4/2007	0.5	8.8	4.40	ND	µg/L	R14714
Toluene	SW8260B	12/4/2007	0.5	8.8	4.40	110	µg/L	R14714
Xylenes, Total	SW8260B	12/4/2007	1.5	22	33.0	3980	µg/L	R14714
Surr: Dibromofluoromethane	SW8260B	12/4/2007	0	22	61.2-131	118	%REC	R14714
Surr: Dibromofluoromethane	SW8260B	12/4/2007	0	8.8	61.2-131	116	%REC	R14714
Surr: 4-Bromofluorobenzene	SW8260B	12/4/2007	0	22	64.1-120	102	%REC	R14714
Surr: 4-Bromofluorobenzene	SW8260B	12/4/2007	0	8.8	64.1-120	110	%REC	R14714
Surr: Toluene-d8	SW8260B	12/4/2007	0	22	75.1-127	115	%REC	R14714
Surr: Toluene-d8	SW8260B	12/4/2007	0	8.8	75.1-127	130 S	%REC	R14714
S - High surrogate recovery attributed to matrix interference.								
TPH (Gasoline)	SW8260B(TPH)	12/4/2007	50	22	1100	24400x	µg/L	G14714
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	12/4/2007	0	22	58.4-133	109	%REC	G14714

Note: x-Although TPH as Gasoline is present, result is elevated due to presence of non-target compounds (heavy end) within the TPH as Gasoline quantitative range.

**Definitions, legends and Notes**

<b>Note</b>	<b>Description</b>
ug/kg	Microgram per kilogram (ppb, part per billion).
ug/L	Microgram per liter (ppb, part per billion).
mg/kg	Milligram per kilogram (ppm, part per million).
mg/L	Milligram per liter (ppm, part per million).
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate.
MDL	Method detection limit.
MRL	Modified reporting limit. When sample is subject to dilution, reporting limit times dilution factor yields MRL.
MS/MSD	Matrix spike/matrix spike duplicate.
N/A	Not applicable.
ND	Not detected at or above detection limit.
NR	Not reported.
QC	Quality Control.
RL	Reporting limit.
% RPD	Percent relative difference.
a	pH was measured immediately upon the receipt of the sample, but it was still done outside the holding time.
sub	Analyzed by subcontracting laboratory, Lab Certificate #

**CLIENT:** Remediation Risk Management, Inc.  
**Work Order:** 0711133  
**Project:** GWS

**ANALYTICAL QC SUMMARY REPORT**

**BatchID: G14714**

Sample ID <b>BLK-G</b>	SampType: <b>MBLK</b>	TestCode: <b>TPH_GAS_W</b>	Units: <b>µg/L</b>	Prep Date: <b>12/4/2007</b>	RunNo: <b>14714</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>G14714</b>	TestNo: <b>SW8260B(TP)</b>	Analysis Date: <b>12/4/2007</b>	SeqNo: <b>211652</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	ND	50									
Surr: 4-Bromoflurobenzene	12.30	0	11.36	0	108	58.4	133				

Sample ID <b>LCS-G</b>	SampType: <b>LCS</b>	TestCode: <b>TPH_GAS_W</b>	Units: <b>µg/L</b>	Prep Date: <b>12/4/2007</b>	RunNo: <b>14714</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>G14714</b>	TestNo: <b>SW8260B(TP)</b>	Analysis Date: <b>12/4/2007</b>	SeqNo: <b>211653</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	266.0	50	227	32.6	103	52.4	127				
Surr: 4-Bromoflurobenzene	11.60	0	11.36	0	102	58.4	133				

Sample ID <b>LCSD-G</b>	SampType: <b>LCSD</b>	TestCode: <b>TPH_GAS_W</b>	Units: <b>µg/L</b>	Prep Date: <b>12/4/2007</b>	RunNo: <b>14714</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>G14714</b>	TestNo: <b>SW8260B(TP)</b>	Analysis Date: <b>12/4/2007</b>	SeqNo: <b>211654</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	244.0	50	227	32.6	93.1	52.4	127	266	8.63	20	
Surr: 4-Bromoflurobenzene	10.60	0	11.36	0	93.3	58.4	133	0	0	0	

**Qualifiers:** E Value above quantitation range      H Holding times for preparation or analysis exceeded      J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit      R RPD outside accepted recovery limits      S Spike Recovery outside accepted recovery limits

**CLIENT:** Remediation Risk Management, Inc.  
**Work Order:** 0711133  
**Project:** GWS

## ANALYTICAL QC SUMMARY REPORT

**BatchID: R14714**

Sample ID <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>8260B_W</b>	Units: <b>µg/L</b>	Prep Date: <b>12/3/2007</b>	RunNo: <b>14714</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R14714</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>12/3/2007</b>	SeqNo: <b>211536</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.500									
Ethyl tert-butyl ether (ETBE)	ND	0.500									
Ethylbenzene	ND	0.500									
Isopropyl ether (DIPE)	ND	0.500									
Methyl tert-butyl ether (MTBE)	ND	0.500									
t-Butyl alcohol (t-Butanol)	ND	5.00									
tert-Amyl methyl ether (TAME)	ND	0.500									
Toluene	ND	0.500									
Xylenes, Total	ND	1.50									
Surr: Dibromofluoromethane	11.97	0	11.36	0	105	61.2	131				
Surr: 4-Bromofluorobenzene	12.20	0	11.36	0	107	64.1	120				
Surr: Toluene-d8	13.48	0	11.36	0	119	75.1	127				

Sample ID <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260B_W</b>	Units: <b>µg/L</b>	Prep Date: <b>12/3/2007</b>	RunNo: <b>14714</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R14714</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>12/3/2007</b>	SeqNo: <b>211537</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.35	0.500	17.04	0	114	66.9	140				
Toluene	17.06	0.500	17.04	0	100	76.6	123				
Surr: Dibromofluoromethane	13.83	0	11.36	0	122	61.2	131				
Surr: 4-Bromofluorobenzene	11.88	0	11.36	0	105	64.1	120				
Surr: Toluene-d8	13.26	0	11.36	0	117	75.1	127				

Sample ID <b>LCS D</b>	SampType: <b>LCS D</b>	TestCode: <b>8260B_W</b>	Units: <b>µg/L</b>	Prep Date: <b>12/3/2007</b>	RunNo: <b>14714</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R14714</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>12/3/2007</b>	SeqNo: <b>211538</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	16.24	0.500	17.04	0	95.3	66.9	140	19.35	17.5	20	
Toluene	17.90	0.500	17.04	0	105	76.6	123	17.06	4.81	20	
Surr: Dibromofluoromethane	12.43	0	11.36	0	109	61.2	131	0	0	0	
Surr: 4-Bromofluorobenzene	12.12	0	11.36	0	107	64.1	120	0	0	0	

**Qualifiers:** E Value above quantitation range      H Holding times for preparation or analysis exceeded      J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit      R RPD outside accepted recovery limits      S Spike Recovery outside accepted recovery limits

**CLIENT:** Remediation Risk Management, Inc.  
**Work Order:** 0711133  
**Project:** GWS

## ANALYTICAL QC SUMMARY REPORT

**BatchID: R14714**

Sample ID	LCSD	SampType:	LCSD	TestCode:	8260B_W	Units:	µg/L	Prep Date:	12/3/2007	RunNo:	14714
Client ID:	ZZZZZ	Batch ID:	R14714	TestNo:	SW8260B	Analysis Date:	12/3/2007	SeqNo:	211538		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	13.20	0	11.36	0	116	75.1	127	0	0	0	

**Qualifiers:** E Value above quantitation range      H Holding times for preparation or analysis exceeded      J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit      R RPD outside accepted recovery limits      S Spike Recovery outside accepted recovery limits



483 Sinclair Frontage Road  
 Milpitas, CA 95035  
 Phone: 408.263.5258  
 FAX: 408.263.8293  
 www.torrentlab.com

# CHAIN OF CUSTODY

LAB WORK ORDER NO

071133

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

Company Name: <u>RIM, Inc.</u>			Location of Sampling: <u>900 Central Ave, Alameda</u>		
Address: <u>2560 Soquel Ave. #202</u>			Purpose: <u>GWS</u>		
City: <u>Santa Cruz</u>	State: <u>CA</u>	Zip Code: <u>95062</u>	Special Instructions / Comments: <u>No AA&amp;E, gas &amp; btx by 8260B. -</u>		
Telephone: <u>831 475 8141</u> FAX: <u>831 475 8249</u>			Oxys by <u>8270 -</u>		
REPORT TO: <u>Matt Karpoff</u>		SAMPLER: <u>Will B.</u>	P.O. #: <u>KCE514</u>	EMAIL: <u>matt@rrmsc.com</u> <u>&amp; labdata@rrmsc.com</u>	

TURNAROUND TIME:

- 10 Work Days    3 Work Days    Noon - Nxt Day  
 7 Work Days    2 Work Days    2 - 8 Hours  
 5 Work Days    1 Work Day    Other

SAMPLE TYPE:

- Storm Water    Air  
 Waste Water    Other  
 Ground Water  
 Soil

REPORT FORMAT:

- QC Level IV  
 EDF  
 Excel / EDD

- EPA 8260B - Full List    EPA 8260B - 8010 List  
 THP gas    BTEX    MTBE  
 Oxygenates    THP Diesel    Si-Gel  
 Motor Oil    Pesticide - 8081  
 PCB - 8082  
 Metals    CAM - 17  
 LUFT 5    7 Metals  
 8270 Full List    PAHs Only

ANALYSIS REQUESTED

LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	EPA 8260B - Full List	EPA 8260B - 8010 List	THP gas	BTEX	Oxygenates	MTBE	THP Diesel	Si-Gel	Motor Oil	Pesticide - 8081	PCB - 8082	Metals	CAM - 17	LUFT 5	7 Metals	8270 Full List	PAHs Only	REMARKS	
001	MW-1	0925 / 112807	L	3	HCL WD			see notes															all Oxys + BTEX per matt 11/28/07	
002	MW-2	0850																						
003	MW-3	0835																						
004	MW-4	0940																						
005	MW-5	0955																						
006	MW-6	1015																						
007	RW-1	0910																						

1	Relinquished By: <u>Will Bachan</u> Print: <u>Will Bachan</u>	Date: <u>112807</u>	Time: <u>1505</u>	Received By: <u>Raj Kaur</u> Print: <u>Raj Kaur</u>	Date: <u>11/28/07</u>	Time: <u>3:05pm</u>
2	Relinquished By: _____ Print: _____	Date: _____	Time: _____	Received By: _____ Print: _____	Date: _____	Time: _____

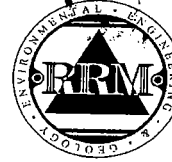
Were Samples Received in Good Condition?  Yes  NO   Samples on Ice?  Yes  NO   Method of Shipment D/P   Sample seals intact?  Yes  NO  N/A

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Page \_\_\_\_\_ of \_\_\_\_\_

Log In By: 8 Date: 11/28   Log In Reviewed By: \_\_\_\_\_ Date: \_\_\_\_\_

**Field Data Sheet**  
**Depth to Water Data Form**



2560 Soquel Ave. #202  
Santa Cruz, CA 95062  
(831) 475-8141

Site Information

900 Central Ave. 112807 KCE514  
 Project Address Date Project Number  
 Alameda Alameda California  
 City County State

Water Level Equipment

- Electronic Indicator
- Oil Water Interface Probe
- Other (specify) \_\_\_\_\_

Measured By: (initials)  
name

Notes: \_\_\_\_\_

DTW Order	Well ID	Time (24:00)	Total Depth	First DTW (top or tob)	Total Depth (toc or tob)	Depth to SPH (toc or tob)	SPH Thickness (toc or tob)	Notes (describe SPH):
#4	MW-1	0758	18.73'	12.94				
#2	MW-2	0752	18.40'	12.67				
#1	MW-3	0750	18.70'	12.31				
#5	MW-4	0801	17.95'	12.43				
#6	MW-5	0803	17.95'	12.29				
#7	MW-6	0805	17.10'	12.24				
#3	RW-1	0755	19.05'	11.97				4" Well

Signature: (Signature)

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

Site Information

900 Central Ave. \_\_\_\_\_  
 Project Address

Alameda \_\_\_\_\_ Alameda \_\_\_\_\_  
 City County

MW-1 \_\_\_\_\_ KCE514 \_\_\_\_\_  
 Well/Sample Point ID Project Number

California \_\_\_\_\_  
 State

**Purge Information**

Water Level Equipment  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

Purge Equipment  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

Purge Calculation		casing diameter		gallons per linear foot
total depth =	18.73	0.75 in.	<input type="checkbox"/>	0.023
depth to water =	12.94	1 in.	<input type="checkbox"/>	0.04
linear feet of water =	5.79	2 in.	<input checked="" type="checkbox"/>	0.17
gallons per linear foot X	.12	4 in.	<input type="checkbox"/>	0.67
gallons per casing =	0.98	6 in.	<input type="checkbox"/>	1.5
number of casings X	3	other	<input type="checkbox"/>	calculate
calculated purge =	2.95	1 cubic foot = 7.48 gallons		

Purged By:           
 name

Purge Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0910	0						
volume 1	0912	1.00	7.01	630	16.6	gray	mod.	strong.
volume 2	0914	2.00	7.23	629	17.1	"	"	"
volume 3	0916	3.00	7.23	648	18.1	"	hvy.	"
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate slight, none

**Groundwater Sampling Information**

Sample Type  
 Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

Sampling Equipment  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID	Date	Time (24:00)
MW-1	112807	0925
Dupe # _____		12:00

Sampled By:           
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
3	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MtBE (8270) <input checked="" type="checkbox"/> Fuel Oxy, no MtBE (8270) <input type="checkbox"/> Other (specify) _____	40 ml VOA	HCl
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature:



**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

Site Information

900 Central Ave. \_\_\_\_\_  
 Project Address

Alameda \_\_\_\_\_ Alameda \_\_\_\_\_ Alameda \_\_\_\_\_  
 City County State

MW-2 \_\_\_\_\_ KCE514 \_\_\_\_\_  
 Well/Sample Point ID Project Number

**Purge Information**

Water Level Equipment  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

Purge Equipment  
 Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

Purge Calculation		casing diameter		gallons per linear foot
total depth =	18.40	0.75 in.	<input type="checkbox"/>	0.023
depth to water =	12.67	1 in.	<input type="checkbox"/>	0.04
linear feet of water =	5.73	2 in.	<input checked="" type="checkbox"/>	0.17
gallons per linear foot X	.17	4 in.	<input type="checkbox"/>	0.67
gallons per casing =	.97	6 in.	<input type="checkbox"/>	1.5
number of casings X	3	other	<input type="checkbox"/>	calculate
calculated purge =	2.92	1 cubic foot = 7.48 gallons		

Purged By: [Signature]  
 name

Purge Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle °C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0836	0						
volume 1	0838	1.00	7.04	320	15.6	brown	heavy	none
volume 2	0840	2.00	7.05	195	16.9	"	"	"
volume 3	0842	3.00	7.23	191	17.4	"	"	"
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate slight, none

**Groundwater Sampling Information**

Sample Type  
 Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

Sampling Equipment  
 Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID	Date	Time (24:00)
MW-2	112807	0850
Dupe #		12:00

Sampled By: [Signature]  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
3	<input checked="" type="checkbox"/> TPH gas (8260B)	40 ml VOA	HCl
	<input checked="" type="checkbox"/> BTEX (8260B)		
	<input type="checkbox"/> MtBE (8270)		
	<input checked="" type="checkbox"/> Fuel Oxy, no MtBE (8270)		
	<input type="checkbox"/> Other (specify) _____		
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B)	40 ml VOA	HCl
	<input type="checkbox"/> TPH diesel (8015M)	1 liter amber	none
	<input type="checkbox"/> Metals (8010)	500 ml plastic	HNO <sub>3</sub>
	<input type="checkbox"/> Other (specify) _____		

Sampling Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: [Signature]

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

Site Information

900 Central Ave. \_\_\_\_\_  
 Project Address

MW-3 \_\_\_\_\_ KCE514 \_\_\_\_\_  
 Well/Sample Point ID Project Number

Alameda \_\_\_\_\_ Alameda \_\_\_\_\_  
 City County

California \_\_\_\_\_  
 State

**Purge Information**

Water Level Equipment  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

Purge Equipment  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

Purge Calculation		casing diameter		gallons per linear foot
total depth =	18.70	0.75 in.	<input type="checkbox"/>	0.023
depth to water =	12.31	1 in.	<input type="checkbox"/>	0.04
linear feet of water =	6.39	2 in.	<input checked="" type="checkbox"/>	0.17
gallons per linear foot X	.17	4 in.	<input type="checkbox"/>	0.67
gallons per casing =	1.09	6 in.	<input type="checkbox"/>	1.5
number of casings X	3	other	<input type="checkbox"/>	calculate
calculated purge =	3.26	1 cubic foot = 7.48 gallons		

Purged By: [Signature]  
 name

Purge Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0815	0						
volume 1	0820	1.00	7.16	354	17.6	brown	hvy.	none
volume 2	0822	2.25	7.10	334	18.6	"	"	"
volume 3	0824	3.50	7.08	327	18.8	"	"	"
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate slight, none

**Groundwater Sampling Information**

Sample Type  
 Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

Sampling Equipment  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID: MW-3      Date: 112807      Time (24:00): 0835

Dupe # \_\_\_\_\_      12:00

Sampled By: [Signature]  
 name

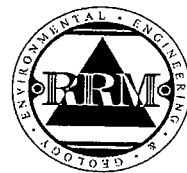
# of Cont.	Analyses (check and circle)	Container/Size	Preservative
3	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MtBE (8270) <input checked="" type="checkbox"/> Fuel Oxy. no MtBE (8270) <input type="checkbox"/> Other (specify) _____	40 ml VOA	HCl
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: [Signature]

002

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

Site Information

900 Central Ave. MW-4 KCE514  
 Project Address Well/Sample Point ID Project Number

Alameda Alameda California  
 City County State

Purge Information

Water Level Equipment  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

Purge Equipment  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

Purge Calculation

total depth = 17.95  
 depth to water = 12.43  
 linear feet of water = 5.52  
 gallons per linear foot X .17  
 gallons per casing = 0.94  
 number of casings X 3  
 calculated purge = 2.82

casing diameter		gallons per linear foot
0.75 in.	<input type="checkbox"/>	0.023
1 in.	<input type="checkbox"/>	0.04
2 in.	<input checked="" type="checkbox"/>	0.17
4 in.	<input type="checkbox"/>	0.67
6 in.	<input type="checkbox"/>	1.5
other	<input type="checkbox"/>	calculate

1 cubic foot = 7.48 gallons

Purged By: [Signature]  
 name

Purge Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle °C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0925	0						
volume 1	0927	1.00	7.03	340	15.7	brown	hvs.	slight
volume 2	0929	2.00	6.99	343	18.2	"	"	"
volume 3	0931	3.00	7.01	315	17.4	"	"	"
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate slight, none

Groundwater Sampling Information

Sample Type  
 Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

Sampling Equipment  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID MW-4      Date 112807      Time (24:00) 0940  
 Dupe # \_\_\_\_\_      12:00

Sampled By: [Signature]  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
<u>3</u>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MtBE (8270) <input checked="" type="checkbox"/> Fuel Oxys, no MtBE (8270) <input type="checkbox"/> Other (specify) _____	<u>40 ml</u> <u>VOA</u>	<u>HC</u>
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: [Signature]

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

**Site Information**

900 Central Ave. \_\_\_\_\_  
 Project Address

MW-5 \_\_\_\_\_ KCE514 \_\_\_\_\_  
 Well/Sample Point ID Project Number

Alameda \_\_\_\_\_ Alameda \_\_\_\_\_ California \_\_\_\_\_  
 City County State

**Purge Information**

**Water Level Equipment**  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

**Purge Equipment**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

Purge Calculation		casing diameter		gallons per linear foot
total depth =	17.95	0.75 in.	<input type="checkbox"/>	0.023
depth to water =	12.29	1 in.	<input type="checkbox"/>	0.04
linear feet of water =	5.66	2 in.	<input checked="" type="checkbox"/>	0.17
gallons per linear foot X	17	4 in.	<input type="checkbox"/>	0.67
gallons per casing =	0.96	6 in.	<input type="checkbox"/>	1.5
number of casings X	3	other	<input type="checkbox"/>	calculate
calculated purge =	2.89	1 cubic foot = 7.48 gallons		

Purged By: [Signature]  
 name

Purge Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0940	0						
volume 1	0942	1.00	7.00	219	17.3	brown	hvy.	none
volume 2	0944	2.00	7.00	233	18.7	"	"	"
volume 3	0946	3.00	7.00	231	18.0	"	"	"
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate slight, none

**Groundwater Sampling Information**

**Sample Type**  
 Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

**Sampling Equipment**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID	Date	Time (24:00)
MW-5	112807	0955
Dupe # _____		12:00

Sampled By: [Signature]  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
3	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MtBE (8270) <input checked="" type="checkbox"/> Fuel Oxys, no MtBE (8270) <input type="checkbox"/> Other (specify) _____	40 ml VOA	HCl
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: [Signature]

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

**Site Information**

900 Central Ave. MW-6 KCE514  
 Project Address Well/Sample Point ID Project Number

Alameda Alameda California  
 City County State

**Purge Information**

**Water Level Equipment**  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

**Purge Equipment**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

**Purge Calculation**

total depth = 17.10  
 depth to water = 12.24  
 linear feet of water = 4.86  
 gallons per linear foot X 0.17  
 gallons per casing = 0.83  
 number of casings X 3  
 calculated purge = 2.48

casing diameter		gallons per linear foot
0.75 in.	<input type="checkbox"/>	0.023
1 in.	<input type="checkbox"/>	0.04
2 in.	<input checked="" type="checkbox"/>	0.17
4 in.	<input type="checkbox"/>	0.67
6 in.	<input type="checkbox"/>	1.5
other	<input type="checkbox"/>	calculate

1 cubic foot = 7.48 gallons

Purged By: [Signature]  
 name

Purge Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0955	0						
volume 1	0957	0.75	6.97	324	20.0	brown	hvy.	none
volume 2	0959	1.50	6.97	307	19.5	"	"	"
volume 3	1003	2.50	6.95	291	18.8	"	"	"
volume 4								
complete								

brown, yellow      heavy, moderate      strong, moderate  
 cloudy, clear      light, trace      slight, none

**Groundwater Sampling Information**

**Sample Type**  
 Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

**Sampling Equipment**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID MW-6      Date 112807      Time (24:00) 1015  
 Dupe # \_\_\_\_\_      12:00

Sampled By: [Signature]  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
<u>3</u>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MIBE (8270) <input checked="" type="checkbox"/> Fuel Oxys, no MIBE (8270) <input type="checkbox"/> Other (specify) _____	<u>40 ml</u> <u>VOA</u>	<u>HCl</u>
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: [Signature]

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

Site Information

900 Central Ave. \_\_\_\_\_  
 Project Address

Alameda \_\_\_\_\_ Alameda \_\_\_\_\_  
 City County

RW-1 \_\_\_\_\_ KCE514 \_\_\_\_\_  
 Well/Sample Point ID Project Number

California \_\_\_\_\_  
 State

**Purge Information**

Water Level Equipment  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

Purge Equipment  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

Purge Calculation

total depth = 19.05  
 depth to water = 11.97  
 linear feet of water = 7.08  
 gallons per linear foot X 1.67  
 gallons per casing = 4.74  
 number of casings X 3  
 calculated purge = 14.23

casing diameter		gallons per linear foot
0.75 in.	<input type="checkbox"/>	0.023
1 in.	<input type="checkbox"/>	0.04
2 in.	<input type="checkbox"/>	0.17
4 in.	<input checked="" type="checkbox"/>	0.67
6 in.	<input type="checkbox"/>	1.5
other	<input type="checkbox"/>	calculate

1 cubic foot = 7.48 gallons

Purged By: [Signature]  
 name

Purge Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle °C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	<u>0850</u>	<u>0</u>						
volume 1	<u>0855</u>	<u>4.74</u>	<u>7.01</u>	<u>440</u>	<u>16.8</u>	<u>gray/green</u>	<u>hvy.</u>	<u>strong</u>
volume 2	<u>0859</u>	<u>9.50</u>	<u>6.98</u>	<u>439</u>	<u>18.5</u>	<u>"</u>	<u>"</u>	<u>"</u>
volume 3	<u>0902</u>	<u>14.25</u>	<u>6.98</u>	<u>430</u>	<u>18.8</u>	<u>"</u>	<u>"</u>	<u>"</u>
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate slight, none

**Groundwater Sampling Information**

Sample Type  
 Monitoring Well [Signature]  
 Extraction Well  
 Domestic Well  
 Other (specify) Recovery well

Sampling Equipment  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID RW-1      Date 112807      Time (24:00) 0910

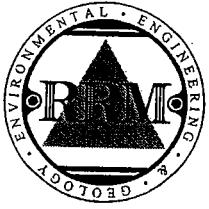
Dupe # \_\_\_\_\_      12:00

Sampled By: [Signature]  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
<u>3</u>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MtBE (8270) <input checked="" type="checkbox"/> Fuel Oxys, no MtBE (8270) <input type="checkbox"/> Other (specify) _____	<u>40 ml</u> <u>VOA</u>	<u>HCl</u>
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: [Signature]



2560 SOQUEL AVENUE, SUITE E  
SANTA CRUZ, CALIFORNIA 95062  
TEL: 831.475.8141  
FAX: 831.475.8249

**FIELD  
DATA SHEET**

Client: Former Holland oil	Project #: KCE514
Job Address: 900 Central Ave. Alameda	Date: 11/28/07
Weather Conditions: clear	Personnel: (UVB)
Equipment on site: truck, sampling equipment	
Arrival Time: 0730	
Departure Time: 1030	

**FIELD NOTES:**

Look over site and prepare for work upon arrival.  
Six soil drums still on site  
0745 Begin DTW measurements  
0803 Finish " " , begin purge calculations  
0815 Begin Sampling.  
1020 Finish " , begin clean up and water transfer

Signature: *[Handwritten Signature]*

# CHAIN OF CUSTODY

LAB WORK ORDER NO  
\_\_\_\_\_

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

Company Name: RIM, Inc. Location of Sampling: 900 Central Ave, Alameda  
 Address: 2560 Sequel Ave. #202 Purpose: GWS  
 City: Santa Cruz State: CA Zip Code: 95062 Special Instructions / Comments: No MTBE, gas & bTEX by 8260B. -  
 Telephone: 831 475 8141 FAX: 831 475 8249 Oxys by 8270 -  
 REPORT TO: Matt Karpoff SAMPLER: Will B. P.O. #: KCE514 EMAIL: matt@rrmsc.com  
& labdata@rrmsc.com

TURNAROUND TIME:

10 Work Days  3 Work Days  Noon - Nxt Day  
 7 Work Days  2 Work Days  2 - 8 Hours  
 5 Work Days  1 Work Day  Other

SAMPLE TYPE:

Storm Water  Air  QC Level IV  
 Waste Water  Other  EDF  
 Ground Water  Excel / EDD  
 Soil

REPORT FORMAT:

EPA 8260B - Full List  
 EPA 8260B - 8010 List  
 THP gas  BTEX  
 Oxygenates  MTBE  
 THP Diesel  Si-Gel  
 Motor Oil  
 Pesticide - 8081  
 PCB - 8082  
 Metals  CAM - 17  
 LUFT 5  7 Metals  
 8270 Full List  
 PAHs Only



LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	REMARKS
	MW-1 0925	11/28/07	L	3	HCL VOL	
	MW-2	0850	↓	↓	↓	
	MW-3	0835	↓	↓	↓	
	MW-4	0940	↓	↓	↓	
	MW-5	0955	↓	↓	↓	
	MW-6	1015	↓	↓	↓	
	RW-1	0910	↓	↓	↓	

1 Relinquished By: Will Becken Print: Will Becken Date: 11/28/07 Time: 1:50 PM Received By: Raj Kaur Print: Raj Kaur Date: 11/28/07 Time: 3:05 PM

2 Relinquished By: \_\_\_\_\_ Print: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Print: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Were Samples Received in Good Condition?  Yes  NO Samples on Ice?  Yes  NO Method of Shipment: D/P Sample seals intact?  Yes  NO  N/A

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Log In By: \_\_\_\_\_ Date: \_\_\_\_\_ Log In Reviewed By: \_\_\_\_\_ Date: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_





May 12, 2008  
RRM Project # KCE514

900 Central Avenue Corrective Action Account  
c/o Brian Kelleher  
Kelleher & Associates  
812 S. Winchester Blvd., Suite 130, #109  
San Jose, CA 95128

Re: ***First Quarter 2008 Groundwater Monitoring Results***  
900 Central Avenue  
Alameda, CA

Dear Mr. Kelleher:

This report, prepared by RRM, Inc. (RRM), presents the results of the first quarter 2008 groundwater monitoring event conducted on February 28, 2008 at the referenced site (Figure 1). Well specifications are presented in Table 1. Groundwater elevation and analytical data are presented in Table 2. A site map is presented as Figure 2. A groundwater elevation contour map is presented as Figure 3. A gasoline range total petroleum hydrocarbon (TPHg) isoconcentration map is presented as Figure 4. Previous remedial investigation work is summarized in Attachment A. Field and analytical procedures are presented as Attachment B. Certified analytical reports, chain-of-custody, and field data sheets are presented as Attachment C.

## **SITE BACKGROUND**

**Site Description and History** – 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 underground storage tanks (USTs) located beneath the sidewalk on Ninth Street, and a reported 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 site is located three blocks east of downtown Alameda and approximately 3,000 feet northeast of Robert Crown Memorial State Beach and San Francisco Bay. The site is on gently sloping terrain approximately 25 feet above mean sea level. There is a man-made lagoon system approximately 1,000 feet south of the site.

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.

**Site Geology and Hydrogeology** - 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. Groundwater was encountered in the borings between 12 and 13 feet bgs. From the two years of quarterly groundwater monitoring, depth to water seasonally ranged from 6 to 13 feet bgs and flow was toward the southwest (*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*).

## **CURRENT GROUNDWATER MONITORING RESULTS**

### **Groundwater Elevation, Flow Direction and Gradient**

Groundwater elevations at monitoring wells MW-1 through MW-6, and RW-1 were calculated from depth to water data and are shown on Table 2 and Figure 3. Groundwater elevations ranged from 19.56 feet above mean sea level (MSL) at well MW-4 to 20.42 feet above MSL at well MW-2. The groundwater flow direction beneath the site is west at a gradient of approximately of 0.008 foot/foot. Groundwater elevations had increased approximately 4 feet since the last monitoring event RRM conducted in November 2007 presumably due to the effects of storm events. Such pronounced seasonal fluctuations in the shallow water table are typical for this site.

### **Groundwater Analytical Data**

Analytical data for groundwater samples collected from monitoring wells MW-1 through MW-6, and RW-1 are summarized in Table 2 and shown on Figure 4. TPHg was detected only in Well RW-1 at a concentration of 10,100 ppb. Benzene was not detected in any of the samples above a reporting limit of 0.50 ppb. Analysis for MtBE and other fuel oxygenates was discontinued because it has never been detected beneath the site. Certified analytical reports and chain-of-custody documentation are presented in Attachment C. TPHg and BTEX levels for MW-1 (all under detection limits) matched historic lows. TPHg levels in the past two events exceeded 50,000 ppb and benzene exceeded 2,500 ppb. Such pronounced seasonal fluctuations in MW-1 contaminant levels are typical for this site.

## CONCLUSIONS

- Groundwater sample analytical data show that dissolved petroleum hydrocarbons extend from the former UST area southwesterly beneath Ninth Street. Dissolved petroleum hydrocarbons have been defined to non-detection by well MW-2 in the easterly (upgradient) direction, by well MW-3 in the southerly (cross-gradient) direction, and wells MW-4, 5, 6 in the southwesterly (downgradient) direction.
- Due to heavily traveled Central Avenue, it is considered impractical to install a monitoring well in the roadway to define dissolved petroleum hydrocarbons in the northerly (cross-gradient) direction.
- Fuel oxygenates were not detected in any of the groundwater samples analyzed and suggest that the subsurface release occurred prior to the 1980s.
- The current and historic shallow groundwater flow direction is westerly to southwesterly when using the most recent well elevation survey data in conjunction with historic groundwater depth readings.
- Petroleum hydrocarbons in soil and groundwater have been adequately defined and characterized.
- Dissolved TPHg concentrations in Well RW-1 and MW-1 in most prior events indicate the presence of residual contamination in the vicinity of the former USTs; these concentrations may continue to affect groundwater quality. In addition, the TPHg and benzene concentrations at these wells exceed current San Francisco Bay Region RWQCBs Environmental Screening Levels for the vapor intrusion/indoor air pathway for residential land use.
- The pronounced seasonal fluctuations in contaminant levels at well MW-1 appear to correlate with pronounced seasonal fluctuations of the water table and suggest the well is located very close to the lateral edge of the petroleum hydrocarbon plume.

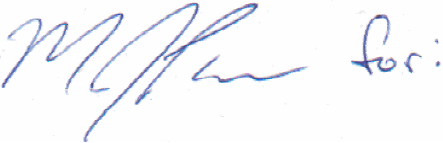
## RECOMMENDATIONS

RRM recommends the continuation of quarterly sampling and reporting for all site wells. RRM also recommends completing the feasibility study proposed in its October 23, 2007, *Subsurface Investigation Results, Second and Third Quarter 2007 Groundwater Monitoring Result*. To date, RRM has not yet received written or verbal approval from the Alameda County Health Care Services Agency to conduct the aforementioned feasibility study.

Should you have any questions regarding the contents of this report, please call RRM at (831) 475-8141.

Sincerely,

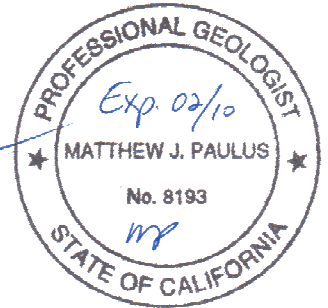
**RRM, Inc.**



Matt Kaempf  
Project Manager



Matthew J. Paulus  
Senior Geologist  
PG 8193



Attachments: Table 1 – Well Specifications  
Table 2 – Groundwater Elevation and Analytical Data  
Figure 1 – Site Location Map  
Figure 2 – Site Map  
Figure 3 – Groundwater Elevation Contour Map, February 28, 2008  
Figure 4 – TPHg/Benzene Groundwater Concentration Map, February 28, 2008  
Attachment A – Summary of Prior Investigation Work  
Attachment B – Field and Analytical Procedures  
Attachment C – Certified Analytical Reports, Chain-of-Custody Documentation, and  
Field Data Sheets

Table 1  
**Well Specifications**

900 Central Avenue  
Alameda, California

Well	Total Depth (feet, bgs)	Casing Diameter (inch)	Screened Interval (feet, bgs)	Screen Length (feet)
MW-1	18	2	6 - 18	12
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

Notes:

bgs = below ground surface

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-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
	11/28/07	12.94		15.33	51,700	3,160	3,270	1,050	9,250	<11.0	NA	NA	1,3
	<b>02/28/08</b>		<b>8.10</b>	<b>20.17</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1.5</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>4</b>
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
	11/28/07	12.67		15.64	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	<b>02/28/08</b>		<b>7.89</b>	<b>20.42</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1.5</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>4</b>
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
	11/28/07	12.31		15.38	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	<b>02/28/08</b>		<b>7.46</b>	<b>20.23</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1.5</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>4</b>

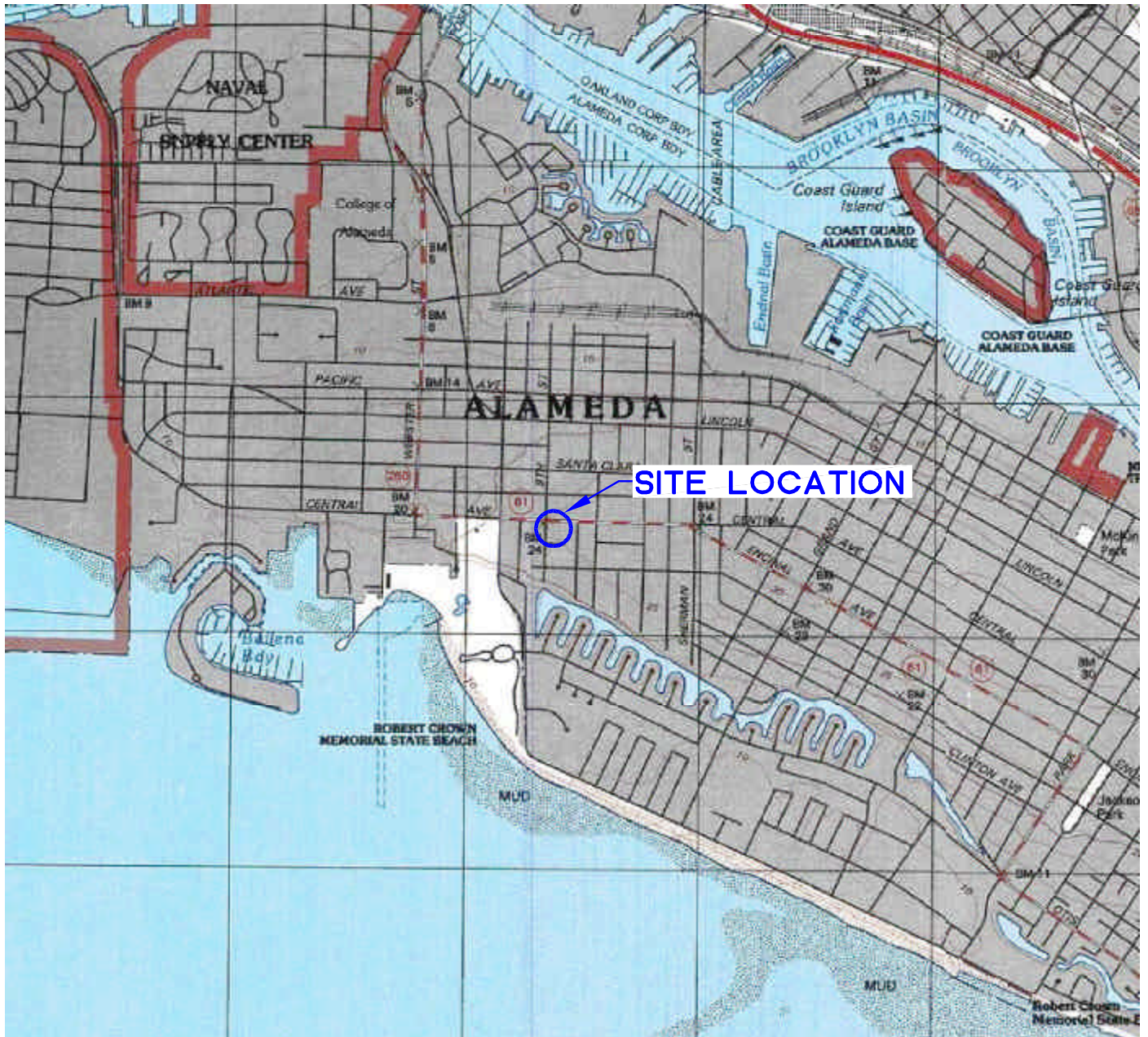
Table 2  
Groundwater Elevation and Analytical Data

900 Central Avenue  
Alameda, California

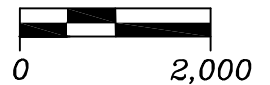
Sample ID	Date Gauged & Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MtBE (ppb)	TPHd (ppb)	TPHmo (ppb)	Notes
MW-4	08/23/07	27.37	11.73	15.64	<50	<0.500	<0.500	<0.500	<1.50	<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
	<b>02/28/08</b>		<b>7.81</b>	<b>19.56</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1.5</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>4</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
	<b>02/28/08</b>		<b>7.55</b>	<b>19.70</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1.5</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>4</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
	<b>02/28/08</b>		<b>7.43</b>	<b>19.81</b>	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;1.5</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>4</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
	<b>02/28/08</b>		<b>7.22</b>	<b>20.21</b>	<b>10,100</b>	<b>&lt;0.5</b>	<b>40.3</b>	<b>256</b>	<b>1,430</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>1,3</b>

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  
 MtBE = Methyl tert-Butyl Ether  
 ppb = parts per billion (micrograms per liter)  
 < = none detected at or above reported detection limit  
 NS = not sampled  
 NA = not analyzed  
 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.



SCALE IN FEET



Ref. KCE514/KCE514-SLM.DWG  
Base Map from TOPO71 NGH

**SITE LOCATION MAP**

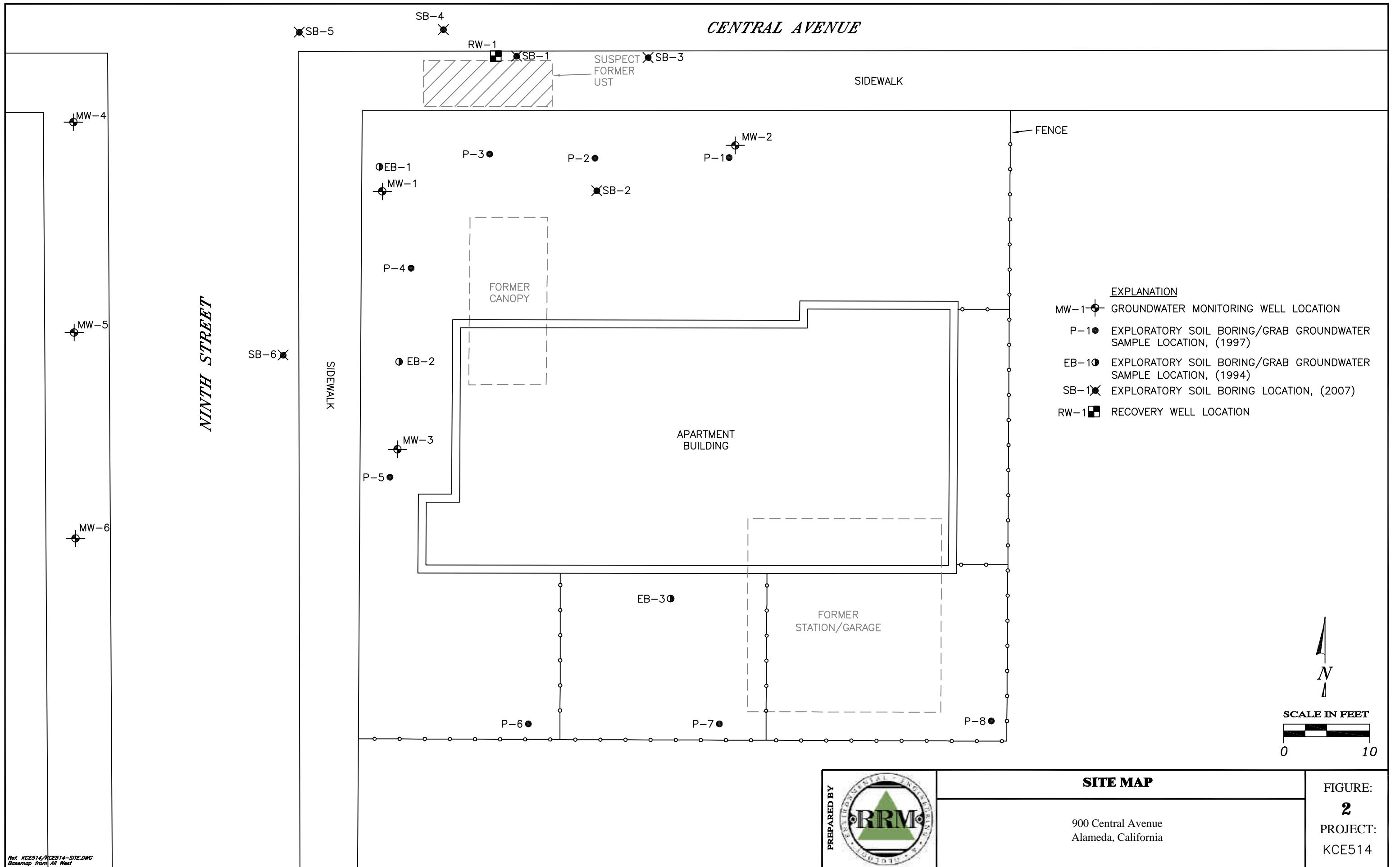
900 Central Avenue  
Alameda, California

FIGURE:  
**1**  
PROJECT:  
KCE514

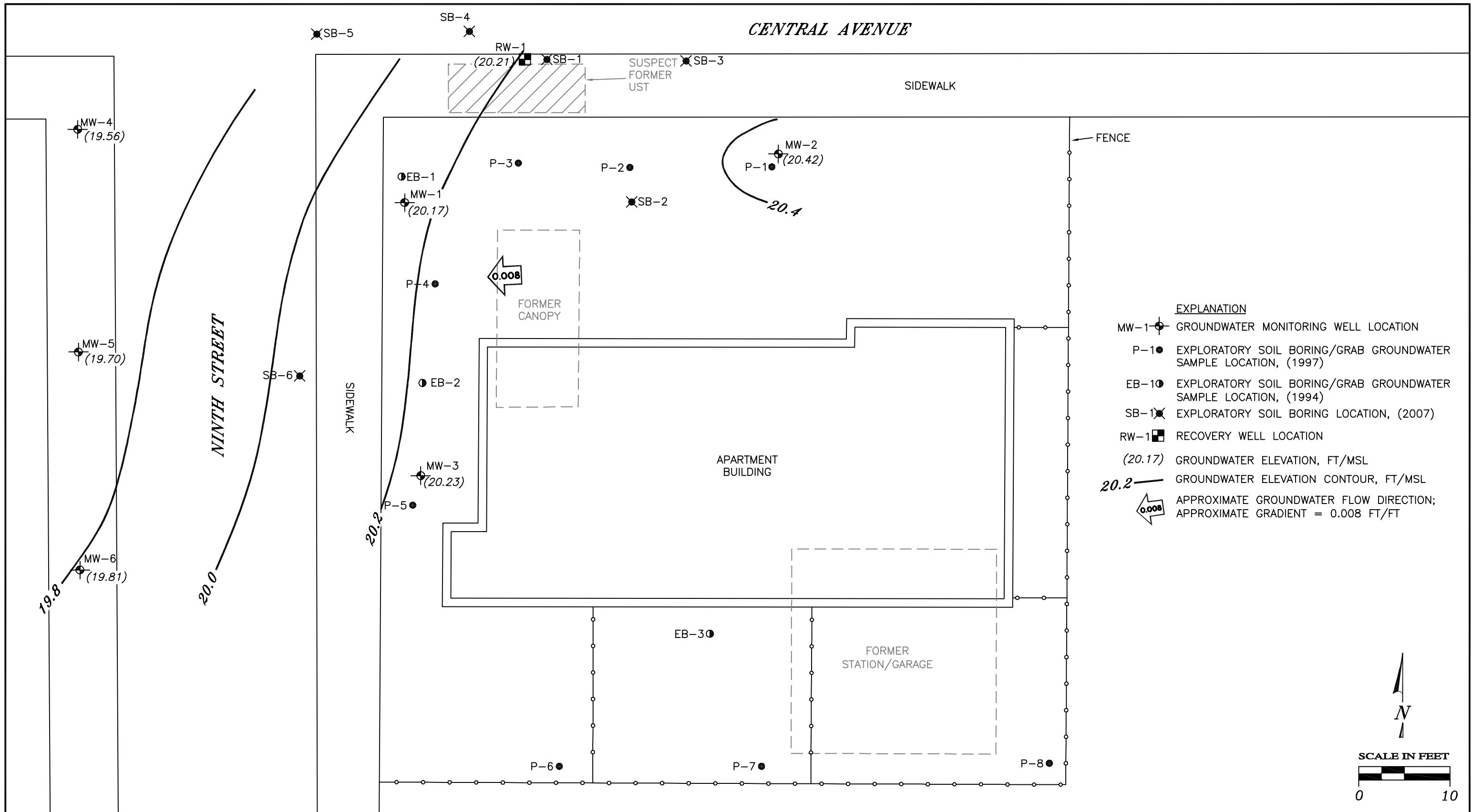
PREPARED BY



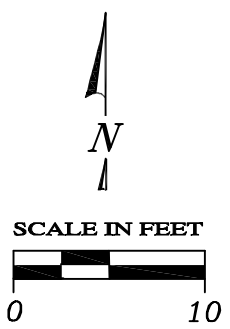




Ref. KCE514/KCE514-SITE.DWG  
Base map from All West

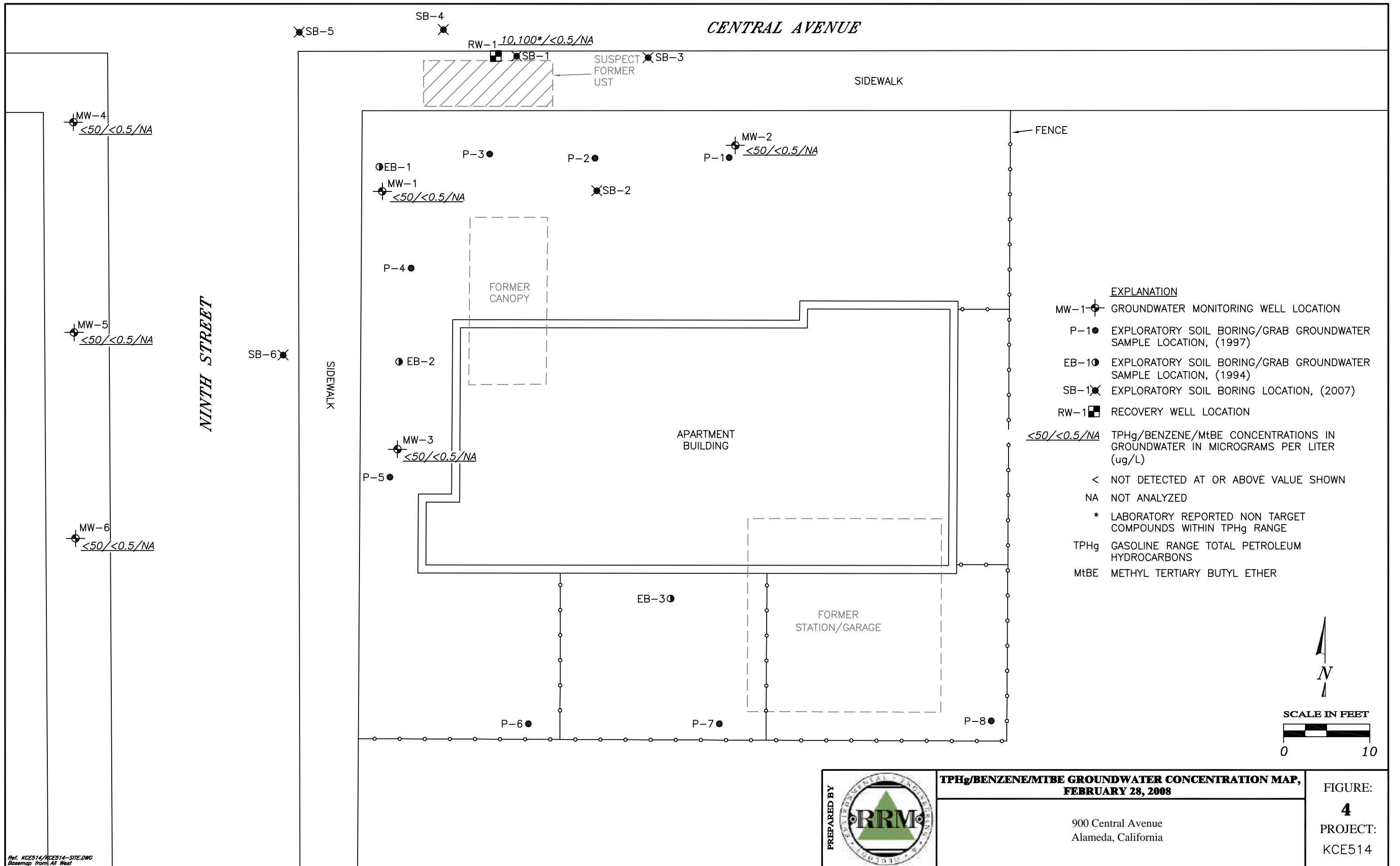


- EXPLANATION**
- MW-1 GROUNDWATER MONITORING WELL LOCATION
  - P-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1997)
  - EB-1 EXPLORATORY SOIL BORING/GRAB GROUNDWATER SAMPLE LOCATION, (1994)
  - SB-1 EXPLORATORY SOIL BORING LOCATION, (2007)
  - RW-1 RECOVERY WELL LOCATION
  - (20.17) GROUNDWATER ELEVATION, FT/MSL
  - 20.2 GROUNDWATER ELEVATION CONTOUR, FT/MSL
  - APPROXIMATE GROUNDWATER FLOW DIRECTION; APPROXIMATE GRADIENT = 0.008 FT/FT



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

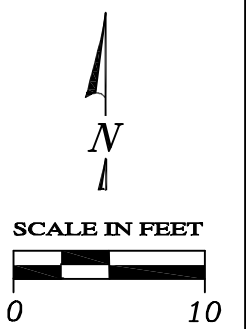
PREPARED BY 	<b>GROUNDWATER ELEVATION CONTOUR MAP, FEBRUARY 28, 2008</b>	FIGURE: <b>3</b> PROJECT: KCE514
	900 Central Avenue Alameda, California	



**CENTRAL AVENUE**

**NINTH STREET**

- 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)
  - SB-1 ✕ EXPLORATORY SOIL BORING LOCATION, (2007)
  - RW-1 ■ RECOVERY WELL LOCATION
  - <50/<0.5/NA TPHg/BENZENE/MtBE CONCENTRATIONS IN GROUNDWATER IN MICROGRAMS PER LITER (ug/L)
  - < NOT DETECTED AT OR ABOVE VALUE SHOWN
  - NA NOT ANALYZED
  - \* LABORATORY REPORTED NON TARGET COMPOUNDS WITHIN TPHg RANGE
  - TPHg GASOLINE RANGE TOTAL PETROLEUM HYDROCARBONS
  - MtBE METHYL TERTIARY BUTYL ETHER



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



**TPHg/BENZENE/MtBE GROUNDWATER CONCENTRATION MAP, FEBRUARY 28, 2008**

900 Central Avenue  
Alameda, California

FIGURE:  
**4**  
PROJECT:  
KCE514

**A**

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**SUMMARY OF PRIOR INVESTIGATION WORK**

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## ATTACHMENT A

### SUMMARY OF PRIOR INVESTIGATION WORK

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#### **Historic Remedial Investigations and Groundwater Monitoring**

**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 20 feet bgs in and around the incorrectly presumed location of the former USTs and pump island; soil samples were collected at 5-foot intervals, geologic logs were prepared; 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 (TPHmo), diesel range TPH (TPHd), gasoline range TPH (TPHg), benzene, toluene, ethyl benzene, and xylenes (collectively BTEX); and a leachability test was conducted on the soil sample collected from Boring EB-1. TPHg and benzene were detected in the soil sample collected from EB-1 at 95 parts per million (ppm) and 400 parts per billion (ppb) respectively. In the grab groundwater sample from EB-1, TPHg and benzene were detected at 76,000 ppb and 2,200 ppb respectively (*Lowney Associates, "Soil and Groundwater Quality Reconnaissance" July 20, 1994*).

**June 1997 Subsurface Investigations and RBCA Analyses** - Allwest Environmental Inc. (Allwest) of San Francisco, CA conducted a file review to assess potential on-site and off-site sources of subsurface contamination. They also advanced eight geoprobe-type soil borings (P-1 through P-8) to 16 feet bgs in and around the presumed location of the former USTs and pump island; collected soil samples at 5-foot intervals and field-tested the samples for total volatile hydrocarbons with an organic vapor analyzer (OVA); prepared geologic logs; collected grab groundwater samples from each boring; and analyzed 31 soil samples and eight groundwater samples for TPHg and BTEX. They reported discolored/odorous soils at 10 to 12 feet bgs in borings P-2 through P-4. TPHg was detected at 4,600 ppm in the soil sample collected at 14.5 feet bgs from Boring P-3. TPHg was detected in five of the eight grab groundwater samples with the highest concentration of 92,000 ppb at Boring P-3. Tier 1 and Tier 2 risk-based corrective-action evaluations were conducted using ASTM methodology. On the basis of the results Allwest concluded that 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 bore holes to 18 feet bgs at the northeast quadrant of the site; collected soil samples at 5-foot intervals and field tested the samples for TVH using a field OVA; prepared geologic logs; converted the borings to 2-inch diameter monitoring wells (MW-1 through MW-3) and developed, surveyed, sounded, purged and sampled the wells; and analyzed three groundwater samples for TPHg and BTEX. The depth to groundwater was approximately 12 feet bgs. TPHg and benzene was detected only in the sample from MW-1 at 360 ppb and 5.8 ppb

respectively. The well installation report included a recommendation to monitor the wells quarterly for one year. This recommendation was approved by the County (*Allwest "Groundwater Monitoring Well Installation and Sampling" February 2, 1999*).

**1999-Quarterly Groundwater Monitoring** – From March through September 1999, Allwest conducted three quarterly groundwater monitoring events during which they sounded, purged and sampled the three wells. The samples were analyzed for TPHmo, TPHd, and TPHg, and BTEX. Depth to groundwater ranged seasonally from approximately 6 to 12 feet bgs. TPHg was only detected in MW-1 at concentrations ranging from less than 50 ppb to 14,000 ppb. Based on the results, Allwest recommended conducting a risk assessment (*Allwest "Quarterly Groundwater Monitoring Reports" with the following dates: March 3, 1999; July 2, 1999; and October 14, 1999*).

**2002-Quarterly Groundwater Monitoring**– From March through December 2002, Allwest conducted four quarterly groundwater monitoring events during which they sounded, purged, and sampled the three wells. The samples were analyzed for TPHmo, TPHd, TPHg, and BTEX. Depth to groundwater ranged from approximately 8 to 13 feet bgs. TPHg was only detected in MW-1 at concentrations ranging from less than 50 ppb to 42,000 ppb; Methyl tert-Butyl Ether (MtBE) was not detected (*Allwest "Quarterly Groundwater Monitoring Reports" with the following dates: June 26, 2002; August 8, 2002; October 25, 2002; and "2002 Annual Groundwater Monitoring & Risk Assessment Report," January 31, 2003*).

**2003-Production Well Survey, Conceptual Model and Risk Assessment** – In December 2002, Allwest reviewed agency files to locate nearby water production wells and identified four irrigation wells and one monitoring well within approximately 500 feet of the site. They prepared a site conceptual model consisting of a 3-dimensional drawing showing known areas of subsurface contamination and potential sensitive receptors. They performed a cursory risk assessment using risk-based screening levels (RBSLs) set forth in published Regional Water Quality Control Board (RWQCB) lookup tables. Based on the risk assessment, Allwest concluded that the levels of TPHg and benzene in groundwater at MW- posed a possible risk to nearby residences via the vapor intrusion pathway. (*Allwest: "2002 Annual Groundwater Monitoring & Risk Assessment Report," January 31, 2003*).

**B**

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**FIELD AND ANALYTICAL PROCEDURES**

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## **ATTACHMENT B**

### **FIELD AND ANALYTICAL PROCEDURES**

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#### **Groundwater Sampling**

Groundwater sampling procedures consisted of initially measuring and documenting the water level in the well and checking the well for the presence of separate-phase hydrocarbon (SPH) using an oil/water interface probe or a clear Teflon bailer. If the well did not contain SPH, it was purged a minimum of three casing volumes or until dry. During purging, well stabilization parameters (temperature, pH, and electrical conductivity) were monitored. After 80% recovery of the water levels, a groundwater sample was collected with a clean Teflon bailer and placed into the appropriate EPA-approved containers. Sampling equipment was cleaned with tri-sodium phosphate between uses. The samples were labeled and transported under iced storage to the laboratory using appropriate chain-of-custody documentation.

#### **Laboratory Analytical Procedures**

Select soil and all groundwater samples collected from new and existing wells were analyzed in the laboratory for the presence of gasoline range total petroleum hydrocarbons; benzene, toluene, ethylbenzene, and total xylenes using GC/MS and EPA Methods 8260B, 8015B, and 8021B. Select groundwater samples were analyzed for methyl tertiary butyl ether and other oxygenates including: ethyl tertiary butyl ether, tertiary butanol, diisopropyl ether, and tertiary amyl methyl ether using EPA Method 8260B.



**C**

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**CERTIFIED ANALYTICAL REPORTS,  
CHAIN-OF-CUSTODY DOCUMENTATION, AND  
FIELD DATA SHEETS**

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March 06, 2008

Matt Kaempf  
Remediation Risk Management, Inc.  
2560 Soquel Ave, Suite 202  
Santa Cruz, CA 95062

TEL: (831) 475-8141  
FAX (831)475-8249

RE: 900 Central Ave, Alameda

Order No.: 0802158

Dear Matt Kaempf:


Torrent Laboratory, Inc. received 7 samples on 2/28/2008 for the analyses presented in the following report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Reported data is applicable for only the samples received as part of the order number referenced above.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these tests results, please feel free to contact the Project Management Team at (408)263-5258;ext: 204.

Sincerely,

  
Laboratory Director

3/6/08  
Date

Patti Sandrock  
QA Officer 



# TORRENT LABORATORY, INC.

483 Sinclair Frontage Road • Milpitas, CA • Phone: (408) 263-5258 • Fax: (408) 263-8293

Visit us at [www.torrentlab.com](http://www.torrentlab.com) email: [analysis@torrentlab.com](mailto:analysis@torrentlab.com)

**Report prepared for:** Matt Kaempf  
Remediation Risk Management, Inc.

**Date Received:** 2/28/2008  
**Date Reported:**

**Client Sample ID:** MW-1  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 2/28/2008 10:05:00 AM

**Lab Sample ID:** 0802158-001  
**Date Prepared:** 3/4/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethyl tert-butyl ether (ETBE)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethylbenzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
t-Butyl alcohol (t-Butanol)	SW8260B	3/4/2008	10	1	10.0	ND	µg/L	R15575
tert-Amyl methyl ether (TAME)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Toluene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Xylenes, Total	SW8260B	3/4/2008	1.5	1	1.50	ND	µg/L	R15575
Surr: Dibromofluoromethane	SW8260B	3/4/2008	0	1	61.2-131	81.4	%REC	R15575
Surr: 4-Bromofluorobenzene	SW8260B	3/4/2008	0	1	64.1-120	112	%REC	R15575
Surr: Toluene-d8	SW8260B	3/4/2008	0	1	75.1-127	87.8	%REC	R15575
TPH (Gasoline)	SW8260B(TPH)	3/4/2008	50	1	50	ND	µg/L	G15575
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	3/4/2008	0	1	58.4-133	86.2	%REC	G15575

**Client Sample ID:** MW-2  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 2/28/2008 9:45:00 AM

**Lab Sample ID:** 0802158-002  
**Date Prepared:** 3/4/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethyl tert-butyl ether (ETBE)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethylbenzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
t-Butyl alcohol (t-Butanol)	SW8260B	3/4/2008	10	1	10.0	ND	µg/L	R15575
tert-Amyl methyl ether (TAME)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Toluene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Xylenes, Total	SW8260B	3/4/2008	1.5	1	1.50	ND	µg/L	R15575
Surr: Dibromofluoromethane	SW8260B	3/4/2008	0	1	61.2-131	75.4	%REC	R15575
Surr: 4-Bromofluorobenzene	SW8260B	3/4/2008	0	1	64.1-120	101	%REC	R15575
Surr: Toluene-d8	SW8260B	3/4/2008	0	1	75.1-127	82.2	%REC	R15575
TPH (Gasoline)	SW8260B(TPH)	3/4/2008	50	1	50	ND	µg/L	G15575
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	3/4/2008	0	1	58.4-133	86.2	%REC	G15575

**Client Sample ID:** MW-3  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 2/28/2008 9:30:00 AM

**Lab Sample ID:** 0802158-003

**Date Prepared:** 3/4/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethyl tert-butyl ether (ETBE)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethylbenzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
t-Butyl alcohol (t-Butanol)	SW8260B	3/4/2008	10	1	10.0	ND	µg/L	R15575
tert-Amyl methyl ether (TAME)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Toluene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Xylenes, Total	SW8260B	3/4/2008	1.5	1	1.50	ND	µg/L	R15575
Surr: Dibromofluoromethane	SW8260B	3/4/2008	0	1	61.2-131	77.8	%REC	R15575
Surr: 4-Bromofluorobenzene	SW8260B	3/4/2008	0	1	64.1-120	110	%REC	R15575
Surr: Toluene-d8	SW8260B	3/4/2008	0	1	75.1-127	90.2	%REC	R15575
TPH (Gasoline)	SW8260B(TPH)	3/4/2008	50	1	50	ND	µg/L	G15575
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	3/4/2008	0	1	58.4-133	94.8	%REC	G15575

**Client Sample ID:** MW-4  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 2/28/2008 9:05:00 AM

**Lab Sample ID:** 0802158-004  
**Date Prepared:** 3/4/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethyl tert-butyl ether (ETBE)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethylbenzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
t-Butyl alcohol (t-Butanol)	SW8260B	3/4/2008	10	1	10.0	ND	µg/L	R15575
tert-Amyl methyl ether (TAME)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Toluene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Xylenes, Total	SW8260B	3/4/2008	1.5	1	1.50	ND	µg/L	R15575
Surr: Dibromofluoromethane	SW8260B	3/4/2008	0	1	61.2-131	85.6	%REC	R15575
Surr: 4-Bromofluorobenzene	SW8260B	3/4/2008	0	1	64.1-120	109	%REC	R15575
Surr: Toluene-d8	SW8260B	3/4/2008	0	1	75.1-127	84.3	%REC	R15575
TPH (Gasoline)	SW8260B(TPH)	3/4/2008	50	1	50	ND	µg/L	G15575
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	3/4/2008	0	1	58.4-133	69.0	%REC	G15575

**Client Sample ID:** MW-5  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 2/28/2008 8:50:00 AM

**Lab Sample ID:** 0802158-005

**Date Prepared:** 3/4/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethyl tert-butyl ether (ETBE)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethylbenzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
t-Butyl alcohol (t-Butanol)	SW8260B	3/4/2008	10	1	10.0	ND	µg/L	R15575
tert-Amyl methyl ether (TAME)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Toluene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Xylenes, Total	SW8260B	3/4/2008	1.5	1	1.50	ND	µg/L	R15575
Surr: Dibromofluoromethane	SW8260B	3/4/2008	0	1	61.2-131	81.2	%REC	R15575
Surr: 4-Bromofluorobenzene	SW8260B	3/4/2008	0	1	64.1-120	118	%REC	R15575
Surr: Toluene-d8	SW8260B	3/4/2008	0	1	75.1-127	86.4	%REC	R15575
TPH (Gasoline)	SW8260B(TPH)	3/4/2008	50	1	50	ND	µg/L	G15575
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	3/4/2008	0	1	58.4-133	77.6	%REC	G15575

**Client Sample ID:** MW-6  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 2/28/2008 8:35:00 AM

**Lab Sample ID:** 0802158-006

**Date Prepared:** 3/4/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethyl tert-butyl ether (ETBE)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Ethylbenzene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
t-Butyl alcohol (t-Butanol)	SW8260B	3/4/2008	10	1	10.0	ND	µg/L	R15575
tert-Amyl methyl ether (TAME)	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Toluene	SW8260B	3/4/2008	0.5	1	0.500	ND	µg/L	R15575
Xylenes, Total	SW8260B	3/4/2008	1.5	1	1.50	ND	µg/L	R15575
Surr: Dibromofluoromethane	SW8260B	3/4/2008	0	1	61.2-131	92.6	%REC	R15575
Surr: 4-Bromofluorobenzene	SW8260B	3/4/2008	0	1	64.1-120	104	%REC	R15575
Surr: Toluene-d8	SW8260B	3/4/2008	0	1	75.1-127	92.2	%REC	R15575
TPH (Gasoline)	SW8260B(TPH)	3/4/2008	50	1	50	ND	µg/L	G15575
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	3/4/2008	0	1	58.4-133	94.8	%REC	G15575



**Client Sample ID:** RW-1  
**Sample Location:** 900 Central Ave, Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 2/28/2008 10:30:00 AM

**Lab Sample ID:** 0802158-007  
**Date Prepared:** 3/4/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	3/4/2008	0.5	8.8	4.40	ND	µg/L	R15575
Ethyl tert-butyl ether (ETBE)	SW8260B	3/4/2008	0.5	8.8	4.40	ND	µg/L	R15575
Ethylbenzene	SW8260B	3/4/2008	0.5	8.8	4.40	256	µg/L	R15575
t-Butyl alcohol (t-Butanol)	SW8260B	3/4/2008	10	8.8	88.0	ND	µg/L	R15575
tert-Amyl methyl ether (TAME)	SW8260B	3/4/2008	0.5	8.8	4.40	ND	µg/L	R15575
Toluene	SW8260B	3/4/2008	0.5	8.8	4.40	40.3	µg/L	R15575
Xylenes, Total	SW8260B	3/4/2008	1.5	8.8	13.2	1430	µg/L	R15575
Surr: Dibromofluoromethane	SW8260B	3/4/2008	0	8.8	61.2-131	79.5	%REC	R15575
Surr: 4-Bromofluorobenzene	SW8260B	3/4/2008	0	8.8	64.1-120	95.9	%REC	R15575
Surr: Toluene-d8	SW8260B	3/4/2008	0	8.8	75.1-127	93.7	%REC	R15575
TPH (Gasoline)	SW8260B(TPH)	3/4/2008	50	22	1100	10100x	µg/L	G15575
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	3/4/2008	0	22	58.4-133	112	%REC	G15575

Note: x- Although TPHg as gasoline is present, result is elevated due to the presence of non-target hydrocarbons within gasoline quantitative range.

**Definitions, legends and Notes**

<b>Note</b>	<b>Description</b>
ug/kg	Microgram per kilogram (ppb, part per billion).
ug/L	Microgram per liter (ppb, part per billion).
mg/kg	Milligram per kilogram (ppm, part per million).
mg/L	Milligram per liter (ppm, part per million).
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate.
MDL	Method detection limit.
MRL	Modified reporting limit. When sample is subject to dilution, reporting limit times dilution factor yields MRL.
MS/MSD	Matrix spike/matrix spike duplicate.
N/A	Not applicable.
ND	Not detected at or above detection limit.
NR	Not reported.
QC	Quality Control.
RL	Reporting limit.
% RPD	Percent relative difference.
a	pH was measured immediately upon the receipt of the sample, but it was still done outside the holding time.
sub	Analyzed by subcontracting laboratory, Lab Certificate #

**CLIENT:** Remediation Risk Management, Inc.  
**Work Order:** 0802158  
**Project:** 900 Central Ave., Alameda

**ANALYTICAL QC SUMMARY REPORT**

**BatchID: G15575**

Sample ID: <b>MB-G</b>	SampType: <b>MBLK</b>	TestCode: <b>TPH_GAS_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/4/2008</b>	RunNo: <b>15575</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>G15575</b>	TestNo: <b>SW8260B(TP)</b>	Analysis Date: <b>3/4/2008</b>	SeqNo: <b>223660</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	ND	50									
Surr: 4-Bromofllurobenzene	12.00	0	11.36	0	106	58.4	133				

Sample ID: <b>LCS-G</b>	SampType: <b>LCS</b>	TestCode: <b>TPH_GAS_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/4/2008</b>	RunNo: <b>15575</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>G15575</b>	TestNo: <b>SW8260B(TP)</b>	Analysis Date: <b>3/4/2008</b>	SeqNo: <b>223661</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	207.0	50	227	0	91.2	52.4	127				
Surr: 4-Bromofllurobenzene	12.00	0	11.36	0	106	58.4	133				

Sample ID: <b>LCSD-G</b>	SampType: <b>LCSD</b>	TestCode: <b>TPH_GAS_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/5/2008</b>	RunNo: <b>15575</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>G15575</b>	TestNo: <b>SW8260B(TP)</b>	Analysis Date: <b>3/5/2008</b>	SeqNo: <b>223662</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	215.0	50	227	0	94.7	52.4	127	207	3.79	20	
Surr: 4-Bromofllurobenzene	12.00	0	11.36	0	106	58.4	133	0	0	0	

**Qualifiers:** E Value above quantitation range      H Holding times for preparation or analysis exceeded      J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit      R RPD outside accepted recovery limits      S Spike Recovery outside accepted recovery limits

**CLIENT:** Remediation Risk Management, Inc.  
**Work Order:** 0802158  
**Project:** 900 Central Ave., Alameda

## ANALYTICAL QC SUMMARY REPORT

**BatchID: R15575**

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>8260B_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/4/2008</b>	RunNo: <b>15575</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R15575</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/4/2008</b>	SeqNo: <b>223649</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.500									
Ethyl tert-butyl ether (ETBE)	ND	0.500									
Ethylbenzene	ND	0.500									
t-Butyl alcohol (t-Butanol)	ND	5.00									
tert-Amyl methyl ether (TAME)	ND	0.500									
Toluene	ND	0.500									
Xylenes, Total	ND	1.50									
Surr: Dibromofluoromethane	9.040	0	11.36	0	79.6	61.2	131				
Surr: 4-Bromofluorobenzene	12.63	0	11.36	0	111	64.1	120				
Surr: Toluene-d8	10.45	0	11.36	0	92.0	75.1	127				

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260B_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/4/2008</b>	RunNo: <b>15575</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R15575</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/4/2008</b>	SeqNo: <b>223650</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	17.26	0.500	17.04	0	101	66.9	140				
Toluene	17.80	0.500	17.04	0	104	76.6	123				
Surr: Dibromofluoromethane	9.260	0	11.36	0	81.5	61.2	131				
Surr: 4-Bromofluorobenzene	9.560	0	11.36	0	84.2	64.1	120				
Surr: Toluene-d8	10.44	0	11.36	0	91.9	75.1	127				

Sample ID: <b>LCS D</b>	SampType: <b>LCS D</b>	TestCode: <b>8260B_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/4/2008</b>	RunNo: <b>15575</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R15575</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/4/2008</b>	SeqNo: <b>223651</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	17.02	0.500	17.04	0	99.9	66.9	140	17.26	1.40	20	
Toluene	16.38	0.500	17.04	0	96.1	76.6	123	17.8	8.31	20	
Surr: Dibromofluoromethane	8.850	0	11.36	0	77.9	61.2	131	0	0	0	
Surr: 4-Bromofluorobenzene	9.850	0	11.36	0	86.7	64.1	120	0	0	0	
Surr: Toluene-d8	9.830	0	11.36	0	86.5	75.1	127	0	0	0	

**Qualifiers:** E Value above quantitation range      H Holding times for preparation or analysis exceeded      J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit      R RPD outside accepted recovery limits      S Spike Recovery outside accepted recovery limits



483 Sinclair Frontage Road  
 Milpitas, CA 95035  
 Phone: 408.263.5258  
 FAX: 408.263.8293  
 www.torrentlab.com

# CHAIN OF CUSTODY

LAB WORK ORDER NO

0802158

NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY

Company Name: RNM, Inc Location of Sampling: 900 Central Ave., Alameda  
 Address: 2560 Soquel Ave. #202 Purpose: Q-GWS  
 City: Santa Cruz State: CA Zip Code: 95062 Special Instructions / Comments: KCES14 (no M+BE)  
 Telephone: 831 475 8141 FAX: 831 475 8249 Global ID# 70600102089  
 REPORT TO: Matt Kacmpf SAMPLER: UB P.O. #: \_\_\_\_\_ EMAIL: matthew@rrnmsc.com  
labdata@rrnmsc.com

TURNAROUND TIME:

- 10 Work Days  3 Work Days  Noon - Nxt Day  
 7 Work Days  2 Work Days  2 - 8 Hours  
 5 Work Days  1 Work Day  Other

SAMPLE TYPE:

- Storm Water  Air  
 Waste Water  Other  
 Ground Water  
 Soil

REPORT FORMAT:

- QC Level IV  
 EDF  
 Excel / EDD

- EPA 8260B - Full List  
 EPA 8260B - 8010 List  
 THP gas  BTEX  MTHBL  
 Oxygenates  
 THP Diesel  Si-Gel  
 Motor Oil  
 Pesticide - 8081  
 PCB - 8082  
 Metals CAM - 17  
 LUFT 5  7 Metals  
 8270 Full List  
 PAHs Only

ANALYSIS REQUESTED

LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	EPA 8260B - Full List	EPA 8260B - 8010 List	THP gas	BTEX	MTHBL	Oxygenates	THP Diesel	Si-Gel	Motor Oil	Pesticide - 8081	PCB - 8082	Metals CAM - 17	LUFT 5	7 Metals	8270 Full List	PAHs Only	REMARKS
01A	MW-1	022808/1005	L	3	HCL VOA			X	X													
02A	MW-2	0945																				
03A	MW-3	0930																				
04A	MW-4	0905																				
05A	MW-5	0850																				
06A	MW-6	0835																				
07A	RW-1	1030																				

1 Relinquished By: Will Bachar, RNM Print: \_\_\_\_\_ Date: 022808 Time: \_\_\_\_\_ Received By: W.S. [Signature] Print: \_\_\_\_\_ Date: 2/28/08 Time: 4:15 pm

2 Relinquished By: \_\_\_\_\_ Print: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Print: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Were Samples Received in Good Condition?  Yes  NO Samples on Ice?  Yes  NO Method of Shipment Drop off Sample seals intact?  Yes  NO  N/A

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Log In By: MSH Date: 2/29 Log In Reviewed By: \_\_\_\_\_ Date: \_\_\_\_\_ Page 1 of 1

TORRENT LAB

**Field Data Sheet**  
**Depth to Water Data Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

Site Information

900 Central Ave. 022808 KCE514  
 Project Address Date Project Number


Alameda Alameda California  
 City County State

Water Level Equipment

Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

Measured By: UCS  
 name

Notes: \_\_\_\_\_



DTW Order	Well ID	Time (24:00)	Total Depth	First DTW (toc or tob)	Total Depth (toc or tob)	Depth to SPH (toc or tob)	SPH Thickness (toc or tob)	Notes (describe SPH):
#6	MW-1	0804	18.79'	8.10				
#5	MW-2	0802	18.40'	7.89				
#4	MW-3	0800	18.70'	7.46				
#3	MW-4	0758	17.95'	7.81				
#2	MW-5	0756	17.95'	7.55				
#1	MW-6	0748	17.10'	7.43				
#7	RW-1	0806	19.05'	7.22				4" Well

Signature: [Handwritten Signature]

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

**Site Information**

900 Central Ave. .MW-1 KCE514  
 Project Address Well/Sample Point ID Project Number

Alameda Alameda California  
 City County State

**Purge Information**

**Water Level Equipment**  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

**Purge Equipment**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

**Purge Calculation**

total depth = 16.73  
 depth to water = 8.10  
 linear feet of water = 10.63  
 gallons per linear foot X .17  
 gallons per casing = 1.81  
 number of casings X 3  
 calculated purge = 5.43

casing diameter		gallons per linear foot
0.75 in.	<input type="checkbox"/>	0.023
1 in.	<input type="checkbox"/>	0.04
2 in.	<input checked="" type="checkbox"/>	0.17
4 in.	<input type="checkbox"/>	0.67
6 in.	<input type="checkbox"/>	1.5
other	<input type="checkbox"/>	calculate

1 cubic foot = 7.48 gallons

Purged By: CO  
 name

Purge Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0948	0						
volume 1	0951	1.75	6.34	158	73.7	brown	mod	slight
volume 2	0953	3.50	6.34	163	14.7	u	hwy	u
volume 3	0955	5.50	6.34	161	15.3	u	u	u
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate slight, none

**Groundwater Sampling Information**

**Sample Type**  
 Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

**Sampling Equipment**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID MW-1      Date 022808      Time (24:00) 1005  
 Dupe # \_\_\_\_\_      12:00

Sampled By: CO  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
<u>3</u>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MIBE (8270) <input checked="" type="checkbox"/> Fuel Oxy, no MIBE (8270) <input type="checkbox"/> Other (specify) _____	<u>40 ml</u> <u>VOA</u>	<u>HCl</u>
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: [Signature]

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
Santa Cruz, CA 95062  
(831) 475-8141

**Site Information**

900 Central Ave. MW-2 KCE514  
Project Address Well/Sample Point ID Project Number

Alameda Alameda California  
City County State

**Purge Information**

**Water Level Equipment**

Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

**Purge Equipment**

Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

**Purge Calculation**

total depth =	16.40
depth to water =	7.89
linear feet of water =	10.51
gallons per linear foot X	.17
gallons per casing =	1.79
number of casings X	3
calculated purge =	5.34

casing diameter		gallons per linear foot
0.75 in.	<input type="checkbox"/>	0.023
1 in.	<input type="checkbox"/>	0.04
2 in.	<input checked="" type="checkbox"/>	0.17
4 in.	<input type="checkbox"/>	0.67
6 in.	<input type="checkbox"/>	1.5
other	<input type="checkbox"/>	calculate
1 cubic foot = 7.48 gallons		

Purged By: WJ  
name

Purge Notes:  
Water like odor

Purged Dry?: N circle Y Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle °C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0730	0						
volume 1	0933	1.75	6.34	120	12.7	brown	mod.	strong
volume 2	0935	3.50	6.34	128	13.9	"	high	"
volume 3	0937	5.50	6.34	124	13.7	"	"	"
volume 4								
complete								

brown, yellow cloudy, clear heavy, moderate light, trace strong, moderate slight, none

**Groundwater Sampling Information**

**Sample Type**

Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

**Sampling Equipment**

Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID	Date	Time (24:00)
MW-2	01/08	0945
Dupe #		12:00

Sampled By: WJ  
name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
3	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MtBE (8270) <input checked="" type="checkbox"/> Fuel Oxy, no MtBE (8270) <input type="checkbox"/> Other (specify) _____	40 ml VOA	HCl
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature: WJ



**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

**Site Information**

900 Central Ave. MW-3 KCE514  
 Project Address Well/Sample Point ID Project Number

Alameda Alameda California  
 City County State

**Purge Information**

**Water Level Equipment**

Electronic Indicator  Bailer  Disposable  Teflon #: \_\_\_\_\_

Oil Water Interface Probe  Submersible Pump; type: \_\_\_\_\_

Other (specify) \_\_\_\_\_  Other (specify) \_\_\_\_\_

**Purge Calculation**

total depth = 18.70  
 depth to water = 7.45  
 linear feet of water = 11.25  
 gallons per linear foot X .17  
 gallons per casing = 1.91  
 number of casings X 3  
 calculated purge = 5.73

casing diameter		gallons per linear foot
0.75 in.	<input type="checkbox"/>	0.023
1 in.	<input type="checkbox"/>	0.04
2 in.	<input checked="" type="checkbox"/>	0.17
4 in.	<input type="checkbox"/>	0.67
6 in.	<input type="checkbox"/>	1.5
other	<input type="checkbox"/>	calculate
1 cubic foot = 7.48 gallons		

Purged By: WWS  
 name

Purge Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle °C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0910	0						
volume 1	0913	1.75	6.34	171	14.8	brown	mod.	None
volume 2	0916	3.75	6.34	181	15.7	"	"	"
volume 3	0919	5.75	6.34	197	16.1	"	high	"
volume 4								
complete								

brown, yellow cloudy, clear neavy, moderate light, trace strong, moderate slight, none

**Groundwater Sampling Information**

**Sample Type**

Monitoring Well  Bailer  Disposable  Teflon #: \_\_\_\_\_

Extraction Well  Submersible Pump; type: \_\_\_\_\_

Domestic Well  Sampling Port

Other (specify) \_\_\_\_\_  Other (specify) \_\_\_\_\_

Sample ID MW-3 Date 022808 Time (24:00) 0930

Dupe # \_\_\_\_\_ 12:00

Sampled By: WWS  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
3	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MIBE (8270) <input checked="" type="checkbox"/> Fuel Oxys, no MIBE (8270) <input type="checkbox"/> Other (specify) _____	40 ml VOA	HCl
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: WWS

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

**Site Information**

900 Central Ave. MW-4 KCE514  
 Project Address Well/Sample Point ID Project Number

Alameda Alameda California  
 City County State

**Purge Information**

**Water Level Equipment**  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

**Purge Equipment**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

**Purge Calculation**

total depth = 17.95  
 depth to water = 7.81  
 linear feet of water = 10.14  
 gallons per linear foot X .17  
 gallons per casing = 1.72  
 number of casings X 3  
 calculated purge = 5.17

casing diameter		gallons per linear foot
0.75 in.	<input type="checkbox"/>	0.023
1 in.	<input type="checkbox"/>	0.04
2 in.	<input checked="" type="checkbox"/>	0.17
4 in.	<input type="checkbox"/>	0.67
6 in.	<input type="checkbox"/>	1.5
other	<input type="checkbox"/>	calculate

1 cubic foot = 7.48 gallons

Purged By: WB  
 name

Purge Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle °C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0850	0						
volume 1	0853	1.75	6.35	418	16.9	brown	heavy	none
volume 2	0855	3.50	6.34	367	16.7	"	"	"
volume 3	0857	5.25	6.35	308	17.0	"	"	"
volume 4								
complete								

brown, yellow cloudy, clear heavy, moderate light, trace strong, moderate slight, none

**Groundwater Sampling Information**

**Sample Type**  
 Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

**Sampling Equipment**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID MW-4 Date 022808 Time (24:00) 0905  
 Dupe # \_\_\_\_\_

Sampled By: WB  
 name

# of Cont.	Analyses (check for file)	Container/Size	Preservative
<u>3</u>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MIBE (8270) <input checked="" type="checkbox"/> Fuel Oxy, no MIBE (8270) <input type="checkbox"/> Other (specify) _____	<u>40 ml</u> <u>VOA</u>	<u>HCl</u>
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: Walter M...

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
Santa Cruz, CA 95062  
(831) 475-8141

**Site Information**

900 Central Ave. MW-5 KCE514  
Project Address Well/Sample Point ID Project Number

Alameda Alameda California  
City County State

**Purge Information**

**Water Level Equipment**

Electronic Indicator  Oil Water Interface Probe  Other (specify) \_\_\_\_\_

**Purge Equipment**

Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

**Purge Calculation**

total depth = 17.75  
depth to water = 7.55  
linear feet of water = 10.40  
gallons per linear foot X .17  
gallons per casing = 1.77  
number of casings X 3  
calculated purge = 5.30

casing diameter		gallons per linear foot
0.75 in.	<input type="checkbox"/>	0.023
1 in.	<input type="checkbox"/>	0.04
2 in.	<input checked="" type="checkbox"/>	0.17
4 in.	<input type="checkbox"/>	0.67
6 in.	<input type="checkbox"/>	1.5
other	<input type="checkbox"/>	calculate
1 cubic foot = 7.48 gallons		

Purged By: WR  
name \_\_\_\_\_

Purge Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Purged Dry?: N circle Y Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle °C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0835	0						
volume 1	0838	1.75	6.35	365	15.8	brown	hvy	none
volume 2	0840	3.50	6.35	298	16.7	"	"	"
volume 3	0842	5.50	6.35	283	16.8	"	"	"
volume 4								
complete								

brown, yellow cloudy, clear heavy, moderate light, trace strong, moderate slight, none

**Groundwater Sampling Information**

**Sample Type**

Monitoring Well  Extraction Well  Domestic Well  Other (specify) \_\_\_\_\_

**Sampling Equipment**

Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  Other (specify) \_\_\_\_\_

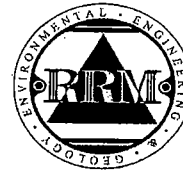
Sample ID MW-5 Date 022808 Time (24:00) 0850  
Dupe # \_\_\_\_\_ 12:00

Sampled By: WR  
name \_\_\_\_\_

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
<u>3</u>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MtBE (8270) <input checked="" type="checkbox"/> Fuel Oxys, no MtBE (8270) <input type="checkbox"/> Other (specify) _____	<u>40 ml</u> <u>VOA</u>	<u>HCl</u>
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Signature: William

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
 Santa Cruz, CA 95062  
 (831) 475-8141

**Site Information**

900 Central Ave. MW-6 KCE514  
 Project Address Well/Sample Point ID Project Number

Alameda Alameda California  
 City County State

**Purge Information**

**Water Level Equipment**

Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

**Purge Equipment**

Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

**Purge Calculation**

total depth =	17.10
depth to water =	7.43
linear feet of water =	9.67
gallons per linear foot X	.17
gallons per casing =	1.64
number of casings X	3
calculated purge =	4.93

casing diameter		gallons per linear foot
0.75 in.	<input type="checkbox"/>	0.023
1 in.	<input type="checkbox"/>	0.04
2 in.	<input checked="" type="checkbox"/>	0.17
4 in.	<input type="checkbox"/>	0.67
6 in.	<input type="checkbox"/>	1.5
other	<input type="checkbox"/>	calculate

1 cubic foot = 7.48 gallons

Purged By: WLB  
 name

Purge Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	0818	0						
volume 1	0820	1.50	6.34	427	15.6	brown	heavy	none
volume 2	0822	3.25	6.35	401	16.1	"	"	"
volume 3	0824	5.00	6.35	355	16.6	"	"	"
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate slight, none

**Groundwater Sampling Information**

**Sample Type**

Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

**Sampling Equipment**

Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID MW-6      Date 022808      Time (24:00) 0835

Dupe # \_\_\_\_\_      12:00

Sampled By: WLB  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
3	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MtBE (8270) <input checked="" type="checkbox"/> Fuel Oxys, no MtBE (8270) <input type="checkbox"/> Other (specify) _____	40 ml VOA	HCl
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Signature: WLB

**Field Data Sheet**  
**Groundwater Sampling Form**



2560 Soquel Ave. #202  
Santa Cruz, CA 95062  
(831) 475-8141

**Site Information**

900 Central Ave. RW-1 KCE514  
 Project Address Well/Sample Point ID Project Number

Alameda Alameda California  
 City County State

**Purge Information**

**Water Level Equipment**  
 Electronic Indicator  
 Oil Water Interface Probe  
 Other (specify) \_\_\_\_\_

**Purge Equipment**  
 Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: heck  
 Other (specify) \_\_\_\_\_

Purge Calculation		casing diameter		gallons per linear foot
total depth =	<u>19.05</u>	0.75 in.	<input type="checkbox"/>	0.023
depth to water =	<u>7.22</u>	1 in.	<input type="checkbox"/>	0.04
linear feet of water =	<u>11.83</u>	2 in.	<input type="checkbox"/>	0.17
gallons per linear foot X	<u>.67</u>	4 in.	<input checked="" type="checkbox"/>	0.67
gallons per casing =	<u>7.93</u>	6 in.	<input type="checkbox"/>	1.5
number of casings X	<u>3</u>	other	<input type="checkbox"/>	calculate
calculated purge =	<u>23.78</u>	1 cubic foot = 7.48 gallons		

Purged By: [Signature]  
name \_\_\_\_\_

Purge Notes: \_\_\_\_\_

Purged Dry?: N circle Y      Sampling Delay?: N circle Y

	time (24:00)	gallons (purged)	pH (units)	EC (us @ 25° C)	temp (°F circle °C)	color (see below)	turbidity (NTU or see below)	odor (see below)
start	<u>1006</u>	<u>0</u>						
volume 1	<u>1015</u>	<u>8.00</u>	<u>6.49</u>	<u>122</u>	<u>16.0</u>	<u>cloudy</u>	<u>light</u>	<u>strong</u>
volume 2	<u>1017</u>	<u>16.00</u>	<u>6.35</u>	<u>119</u>	<u>16.0</u>	<u>"</u>	<u>trace</u>	<u>"</u>
volume 3	<u>10.20</u>	<u>24.00</u>	<u>6.34</u>	<u>131</u>	<u>15.9</u>	<u>clear</u>	<u>none</u>	<u>slight</u>
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate slight, none

**Groundwater Sampling Information**

**Sample Type**  
 Monitoring Well  
 Extraction Well  
 Domestic Well  
 Other (specify) Recovery Well

**Sampling Equipment**  
 Bailor  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: heck  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID RW-1      Date 022808      Time (24:00) 1030  
 Dipe # \_\_\_\_\_      12:00

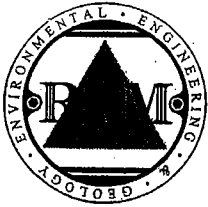
Sampled By: [Signature]  
name \_\_\_\_\_

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
<u>3</u>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> MIBE (8270) <input checked="" type="checkbox"/> Fuel Oxy, no MtBE (8270) <input type="checkbox"/> Other (specify) _____	<u>40 ml</u> <u>VOA</u>	<u>HCl</u>
	<input type="checkbox"/> VOCs (8010 or 8240 or 8260B) <input type="checkbox"/> TPH diesel (8015M) <input type="checkbox"/> Metals (8010) <input type="checkbox"/> Other (specify) _____	40 ml VOA 1 liter amber 500 ml plastic	HCl none HNO <sub>3</sub>

Sampling Notes: \_\_\_\_\_

Signature: [Signature]

*[Handwritten scribbles and notes at the bottom left of the page.]*



2560 SOQUEL AVENUE, SUITE E  
SANTA CRUZ, CALIFORNIA 95062  
TEL: 831.475.8141  
FAX: 831.475.8249

**FIELD  
DATA SHEET**

Client: <u>Former Holland oil</u>	Project #: <u>KCE514</u>
Job Address: <u>900 Central Ave, Alameda.</u>	Date: <u>022808</u>
Weather Conditions: <u>clear</u>	Personnel: <u>(WA)</u>
Equipment on site: <u>truck, sampling equipment.</u>	
Arrival Time: <u>0730</u>	
Departure Time: <u>1045</u>	

**FIELD NOTES:**

Prepare for work, peruse site and secure access to wells.  
0745 Begin DTW measurements  
0810 Finish " " , begin pump calculations.  
0815 Begin Sampling.  
1035 Finish " , begin cleanup and water transfer

6 soil drums still at site  
complaints fielded from tenant & neighbor

Signature: [Handwritten Signature]

## CHAIN OF CUSTODY

LAB WORK ORDER NO

Company Name: RRM, INC. Location of Sampling: 900 Central Ave., Alameda  
 Address: 2500 Soquel Ave. #202 Purpose: QGWS  
 City: San Jose State: CA Zip Code: 95122 Special Instructions/Comments: KCES14 (no M+BE)  
 Telephone: 831 475 8141 FAX: 831 475 8249 GLI ID# 70100102089  
 REPORT TO: Matt Karpf SAMPLER: L/B P.O. #:  
 EMAIL: matthew@rrm-sc.com  
rlab@rrm-sc.com

TURNAROUND TIME:

- 10 Work Days  3 Work Days  Noon - Nxt Day  
 7 Work Days  2 Work Days  2-8 Hours  
 5 Work Days  1 Work Day  Other

SAMPLE TYPE:

- Storm Water  Air  
 Waste Water  Other  
 Ground Water  
 Soil

REPORT FORMAT:

- QC Level IV  
 EDF  
 Excel / EDD

- EPA 8260B - Full List  
 EPA 8260B - 8010 List  
 THP gas  BTEX  
 Oxygenates  MTBE  
 THP Diesel  Si-Gel  
 Motor Oil  
 Pesticide - 8081  
 PCB - 8082  
 Metals  CAM - 17  
 LUFT 5  7 Metals  
 8270 Full List  
 PAHs Only

ANALYSIS REQUESTED

LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	EPA 8260B - Full List	EPA 8260B - 8010 List	THP gas	Oxygenates	MTBE	THP Diesel	Si-Gel	Motor Oil	Pesticide - 8081	PCB - 8082	Metals	CAM - 17	LUFT 5	7 Metals	8270 Full List	PAHs Only	REMARKS	
	MW-1	022808/1005	L	3	HCL VOA			X															
	MW-2	0945																					
	MW-3	0930																					
	MW-4	0905																					
	MW-5	0850																					
	MW-6	0835																					
	RW-1	1030																					

CLIENT

1 Relinquished By: <u>Will Backer</u> Print: <u>Will Backer</u> Date: <u>022808</u> Time: <u></u>	Received By: <u>Will Backer</u> Print: <u>Will Backer</u> Date: <u>2/28/08</u> Time: <u>4:15 pm</u>
2 Relinquished By: <u></u> Print: <u></u> Date: <u></u> Time: <u></u>	Received By: <u></u> Print: <u></u> Date: <u></u> Time: <u></u>

Were Samples Received in Good Condition?  Yes  NO Samples on Ice?  Yes  NO Method of Shipment Drop off Sample seals intact?  Yes  NO  N/A

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Log In By:  Date:  Log In Reviewed By:  Date:  Page 1 of 1