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Alameda County  
Environmental Health

5655 Silver Creek Valley Road  
PMB 281  
San Jose, CA 95138  
408-677-3307 (P)  
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bkellehr@ix.netcom.com



**KELLEHER & ASSOCIATES**

Environmental Mgmt LLC

January 22, 2009

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

**LUFT Site:** 900 Central Ave, Alameda (Site)  
**Re:** Report Submittal – *Fourth Quarter 2008 Groundwater-Monitoring Results*,  
January 21, 2009.

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 above-reference technical report prepared by RRM, Inc., Santa Cruz, CA (RRM). On behalf of the parties participating in site-remediation efforts, I declare under penalty of perjury that the information contained in the enclosed document is true and correct to the best of my knowledge.

The report covers the groundwater-monitoring event RRM conducted on November 6, 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. RRM is recommending that the dual extraction pilot test be conducted during low water table conditions.

Per the resolves of a recent telephone conference, RRM is preparing a letter responding to County correspondence dated December 8, 2008. We anticipate that the letter will be issued within the next few days and that RRM will complete the workplan requested in the letter by February 28, 2009.

We are in the process of making all the associated Geotracker and FTP uploads that are due in connection with this report. Thank you for your ongoing courtesy and cooperation.

Sincerely:

Brian T. Kelleher

Court consultant/project coordinator

Cc with enclosure: Robert Bucciare, Esq., and Kim O'Dincel, Esq., Long & Levit counsel for Pearce Parties; Gail Ward, Senior Claims Specialist, Safeco, for Thompson Parties; Joe Ryan, Esq., Ryan & Lifter, counsel for Thompson Parties; Laurie Sherwood, Esq., Walsworth & Franklin et al counsel for Peterson Parties; Edward Martins, Esq., counsel for Ann Marie Holland and Estate of John Holland Sr.; Hal Reiland, counsel for Barbara Holland; Jack Holland Jr., c/o Mulholland Bros; cc cover letter only, Matt Kaempf, RRM



January 21, 2009  
RRM Project # KCE514

900 Central Avenue Corrective Action Account  
c/o Mr. Brian Kelleher  
Kelleher & Associates  
5655 Silver Creek Valley Road PMB 281  
San Jose, CA 95138

Re: ***Fourth 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 fourth quarter 2008 groundwater monitoring event conducted on November 6, 2008, at the referenced site (Figure 1). Well specifications are summarized in Table 1 and groundwater elevation and analytical data are summarized in Table 2. A map of the site is shown on Figure 2, a groundwater elevation contour map is shown on Figure 3, and a gasoline range total petroleum hydrocarbon (TPHg) and benzene concentration map is shown on Figure 4. Previous remedial investigation work is summarized in Attachment A; field and analytical procedures are presented in Attachment B; and certified analytical reports, chain-of-custody, and field data sheets are presented in 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 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. 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 (Table 2). Groundwater elevations ranged from 14.12 feet above mean sea level (MSL) at well MW-4 to 14.79 feet above MSL at well MW-2. The groundwater flow direction is toward the west at a gradient of approximately of 0.01 foot/foot. Groundwater elevations have decreased approximately 0.5 foot since the September 2008 monitoring event, presumably due to the lack of precipitation between events; pronounced seasonal fluctuations in the shallow water table are typical at the site. A groundwater elevation contour for the November 6, 2008 event is shown on Figure 3.

### **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 in wells MW-1, MW-2, and RW-1 at concentrations of 100,000 parts per billion (ppb), 52 ppb, and 19,000 ppb, respectively. Benzene was only detected in Well MW-1 at a concentration of 2,870 ppb. Analysis for MtBE and other fuel oxygenates has been discontinued, as these compounds have not been detected in groundwater at the site. It should be noted that the laboratory flagged the TPHg results for well MW-2; stating that although gasoline constituents are present, the reported value contains a portion of non-target hydrocarbons present within the gasoline range. Certified analytical reports and chain-of-custody documentation are presented in Attachment C.

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## CONCLUSIONS

- Groundwater sample analytical data show that dissolved petroleum hydrocarbons extend from the former UST area to the southwest beneath Ninth Street. Dissolved petroleum hydrocarbons have been defined to low and/or non-detect levels by well MW-2 to the east (upgradient), by well MW-3 to the south (cross-gradient), and by wells MW-4 through 6 to the southwest (downgradient).
- Due to the heavy traffic along Central Avenue, it is considered impractical to install a monitoring well in the roadway to define dissolved petroleum hydrocarbons to the north (cross-gradient).
- As fuel oxygenates were not detected in any of the groundwater samples analyzed, the subsurface release likely occurred prior to the 1980s.
- The current and historic shallow groundwater flow direction is west to southwest 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 wells RW-1 and MW-1 indicate the presence of residual contamination in the vicinity of the former USTs; these concentrations will likely continue to affect groundwater quality. In addition, the TPHg and/or 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.

## RECOMMENDATIONS

Recommendations, based on the current and historical site data and on the Alameda County Environmental Health staff letter dated December 8, 2008, are presented in RRM's *Response to Technical Comments* letter dated January 21, 2009.

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

Sincerely,

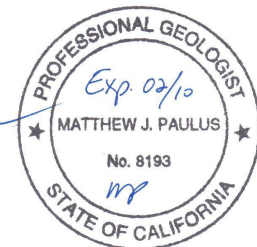
**RRM, Inc.**



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, November 6, 2008  
Figure 4 – TPHg/Benzene Groundwater Concentration Map, November 6, 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
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Table 2  
Groundwater Elevation and Analytical Data

900 Central Avenue  
Alameda, California

Sample ID	Date Gauged & Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	TPHd (ppb)	TPHmo (ppb)	Notes
<b>Monitoring Wells</b>													
MW-1	11/27/98	25.17	11.77	13.40	360	5.8	5.5	9.2	40	<5.0	<50	<500	
	03/12/99		6.59	18.58	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	06/01/99		8.71	16.46	930	<0.50	19	52	230	<5.0	540	<500	
	09/03/99		11.79	13.38	14,000	300	1,900	890	5,600	<5.0	2,100	<500	
	03/29/02		8.32	16.85	<50	<0.50	<0.50	<0.50	<0.50	<0.50	61	<610	
	07/15/02		11.39	13.78	39,000	1,700	2,900	1,800	7,800	<10	4,200	<5000	
	10/03/02		12.88	12.29	42,000	2,600	3,300	1,800	10,000	<500	8,400	<2500	
	02/05/07		10.40	14.77	26,000	2,550	2,010	1,140	4,870	<0.5	NA	NA	1
	05/04/07		9.77	15.40	28,000	2,080	1,820	739	5,500	NA	NA	NA	1
	08/23/07	28.27	12.23	16.04	56,700	2,570	2,370	1,120	9,560	<11	NA	NA	1,3
	11/28/07		12.94	15.33	51,700	3,160	3,270	1,050	9,250	<11.0	NA	NA	1,3
	02/28/08		8.10	20.17	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	4
	06/03/08		11.40	16.87	11,000	1,060	2,080	784	4,370	NA	NA	NA	1,5
	09/04/08		13.23	15.04	66,000	4,000	5,410	62.0	11,700	NA	NA	NA	1
	<b>11/06/08</b>		<b>13.76</b>	<b>14.51</b>	<b>100,000</b>	<b>2,870</b>	<b>5,160</b>	<b>1,720</b>	<b>13,800</b>	<b>NA</b>	<b>NA</b>	<b>NA</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	1
	11/28/07		12.67	15.64	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.89	20.42	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	4
	06/03/08		11.07	17.24	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	1
	09/04/08		12.95	15.36	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	<b>11/06/08</b>		<b>13.52</b>	<b>14.79</b>	<b>52</b>	<b>&lt;0.500</b>	<b>&lt;0.500</b>	<b>&lt;0.500</b>	<b>&lt;1.50</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>3</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-3	11/27/98	24.58	11.41	13.76	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	03/12/99		6.01	19.16	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	06/01/99		8.16	17.01	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	09/03/99		11.27	13.90	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	03/29/02		7.78	17.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<50	<500	
	07/15/02		10.82	14.35	<50	<0.50	<0.50	<0.50	<0.50	<0.50	110	<500	
	10/03/02		12.28	12.89	<50	<0.50	<0.50	<0.50	<0.50	<5.0	<50	<500	
	02/05/07		9.85	15.32	<50	<0.5	<0.5	<0.5	<1.50	<0.5	NA	NA	1
	05/04/07		9.19	15.98	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	08/23/07	27.69	11.63	16.06	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	11/28/07		12.31	15.38	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.46	20.23	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	4
	06/03/08		10.82	16.87	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	1
	09/04/08		12.62	15.07	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
	<b>11/06/08</b>		<b>13.20</b>	<b>14.49</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>NA</b>	<b>NA</b>	<b>NA</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
	11/28/07		12.43	14.94	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.81	19.56	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	4
	06/03/08		10.99	16.38	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	1
	09/04/08		12.68	14.69	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
		<b>11/06/08</b>		<b>13.25</b>	<b>14.12</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>NA</b>	<b>NA</b>	<b>NA</b>
MW-5	08/23/07	27.25	11.56	15.69	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	11/28/07		12.29	14.96	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.55	19.70	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	4
	06/03/08		10.84	16.41	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	1
	09/04/08		12.53	14.72	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
		<b>11/06/08</b>		<b>13.12</b>	<b>14.13</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>NA</b>	<b>NA</b>	<b>NA</b>
MW-6	08/23/07	27.24	11.52	15.72	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	11/28/07		12.24	15.00	<50	<0.500	<0.500	<0.500	<1.50	<0.500	NA	NA	1
	02/28/08		7.43	19.81	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	4
	06/03/08		10.81	16.43	<50	<0.5	<0.5	<0.5	<1.5	NA	NA	NA	1
	09/04/08		12.51	14.73	<50	<0.500	<0.500	<0.500	<1.50	NA	NA	NA	1
		<b>11/06/08</b>		<b>13.10</b>	<b>14.14</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>NA</b>	<b>NA</b>	<b>NA</b>



Table 2  
Groundwater Elevation and Analytical Data

900 Central Avenue  
Alameda, California

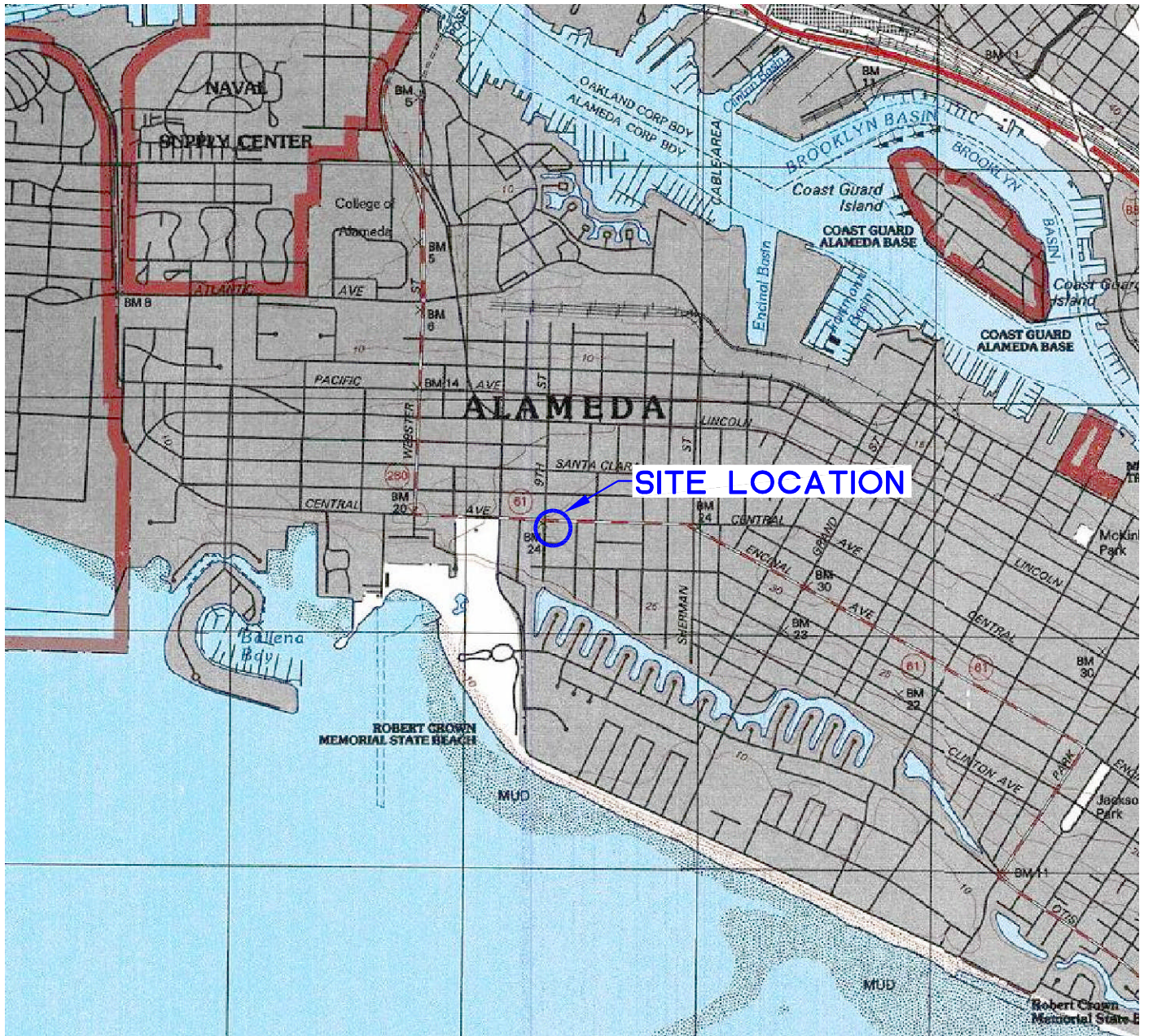
Sample ID	Date Gauged & Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	MtBE (ppb)	TPHd (ppb)	TPHmo (ppb)	Notes
RW-1	08/23/07	27.43	11.23	16.20	16,000	<4.40	38.9	571	2,660	<4.40	NA	NA	1,3
	11/28/07		11.97	15.46	24,400	4.75	110	915	3,980	<4.40	NA	NA	1,3
	02/28/08		7.22	20.21	10,100	<0.5	40.3	256	1,430	NA	NA	NA	1,3
	06/03/08		10.41	17.02	40,000	<4.40	120	1,100	8,810	NA	NA	NA	1, 5
	09/04/08		12.25	15.18	17,000	<4.40	41.1	640	3,290	NA	NA	NA	1, 5
	<b>11/06/08</b>		<b>12.75</b>	<b>14.68</b>	<b>19,000</b>	<b>&lt;4.40</b>	<b>28.1</b>	<b>369</b>	<b>2,340</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>6</b>

**Grab Groundwater Samples**

P-1-W	06/30/97	NA	NA	NA	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
P-2-W	06/30/97	NA	NA	NA	290	2.4	2.1	1.4	3.1	NA	<100	<1,000	
P-3-W	06/30/97	NA	NA	NA	92,000	190	5,000	4,600	24,000	NA	<100	<1,000	
P-4-W	06/30/97	NA	NA	NA	17,000	610	720	940	3,800	NA	<100	<1,000	
P-5-W	06/30/97	NA	NA	NA	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
P-6-W	06/30/97	NA	NA	NA	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
P-7-W	06/30/97	NA	NA	NA	66	2.3	6.5	0.8	4.7	NA	NA	NA	
P-8-W	06/30/97	NA	NA	NA	51	1.7	5.1	0.55	2.4	NA	NA	NA	

Notes:

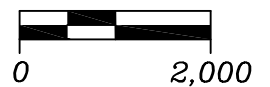
MSL = relative to mean sea level	MtBE = Methyl tert-Butyl Ether
TOC = top of casing	ppb = parts per billion (micrograms per liter)
TPHg = gasoline range total petroleum hydrocarbons	< = none detected at or above reported detection limit
TPHd = diesel range total petroleum hydrocarbons	NS = not sampled
TPHmo = motor oil range total petroleum hydrocarbons	NA = not analyzed
TBA = tert-Butanol	
1 = also sampled for the fuel oxygenates ethyl tert-butyl ether (ETBE), isopropyl ether (DIPE), t-butyl alcohol (t-butanol) (TBA), and tert-amyl methyl ether (TAME); none of these compounds detected above the laboratory limit.	
2 = the laboratory reported value due to discrete peaks present within the TPH as gasoline quantitation range (heavy end); not typical gasoline.	
3 = the laboratory reported results are elevated due to non-target compounds within the gasoline range	
4 = also sampled for the fuel oxygenates ethyl tert-butyl ether (ETBE), t-butyl alcohol (t-butanol) (TBA), and tert-amyl methyl ether (TAME); none of these compounds detected above the laboratory limit.	
5 = laboratory noted that although TPH as gasoline constituents are present, TPH value includes a significant portion of non-target hydrocarbons present within gasoline range.	
6 = Although TPH as Gasoline compounds are present, result includes heavy end hydrocarbons within the C5 - C12 quantitation range (possibly aged gasoline).	



QUADRANGLE LOCATION



SCALE IN FEET



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

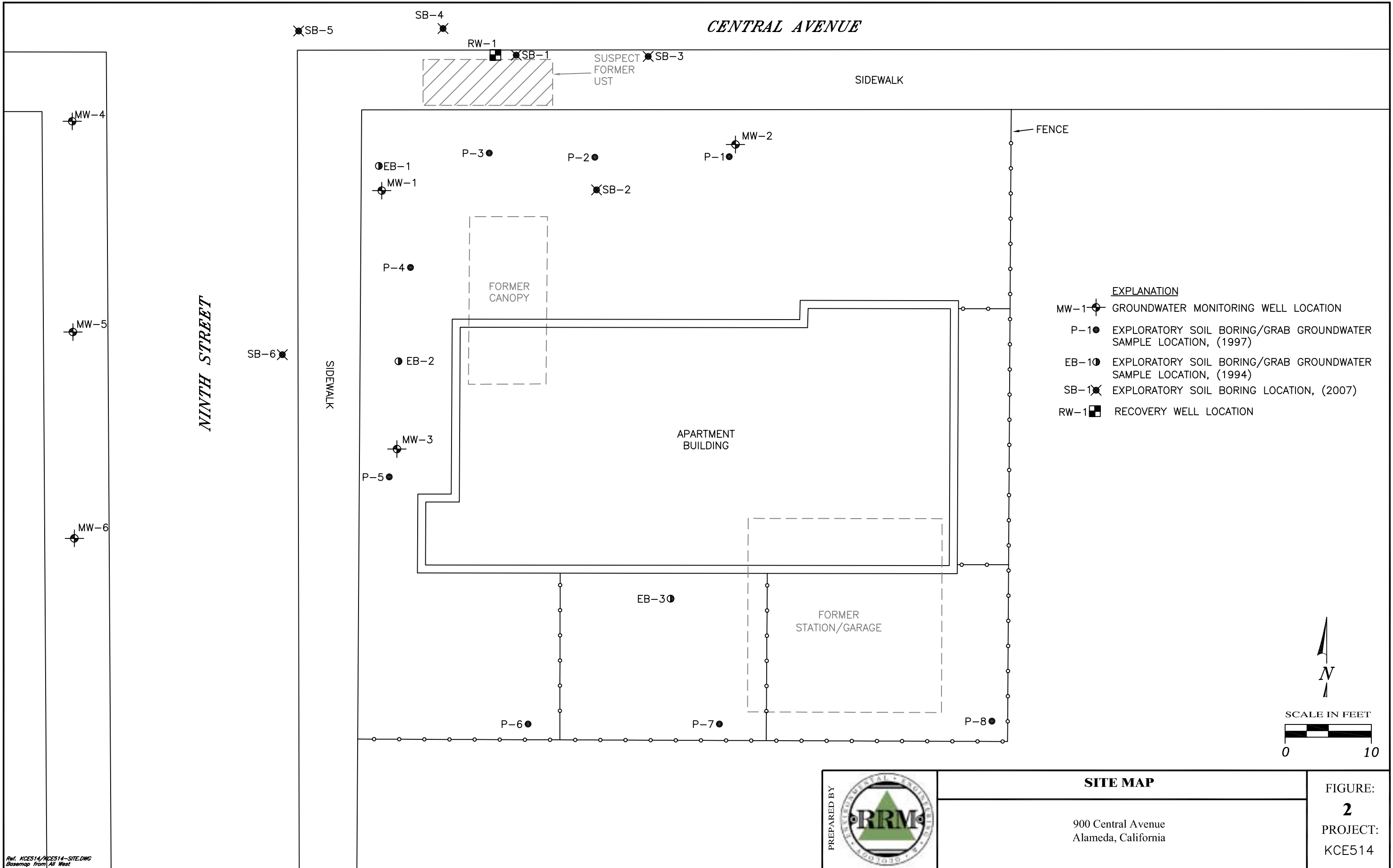
**SITE LOCATION MAP**

900 Central Avenue  
Alameda, California

FIGURE:  
**1**  
PROJECT:  
KCE514

PREPARED BY





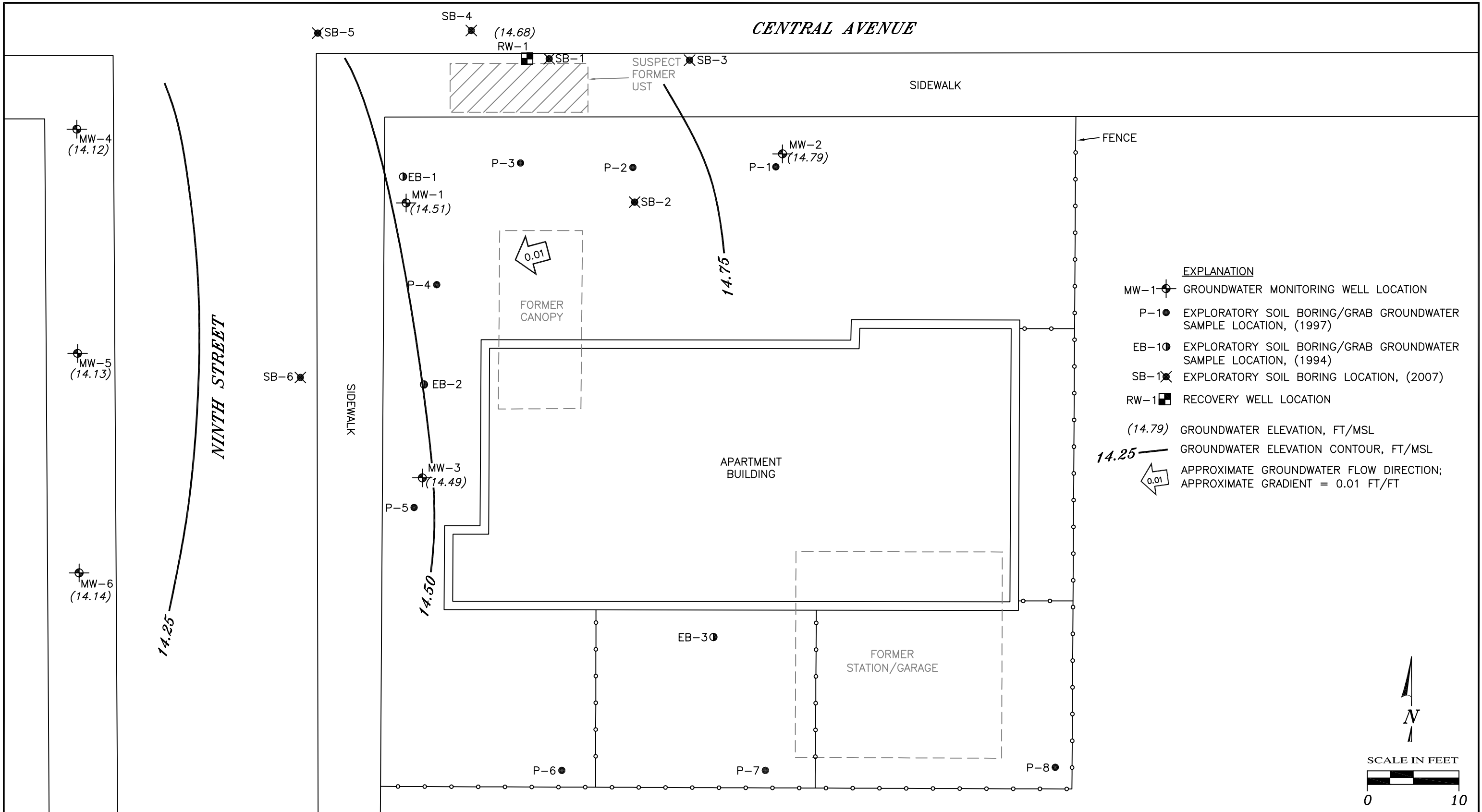
Ref. KCE514/KCE514-SITE.DWG  
 Basemap from All West



**SITE MAP**

900 Central Avenue  
 Alameda, California

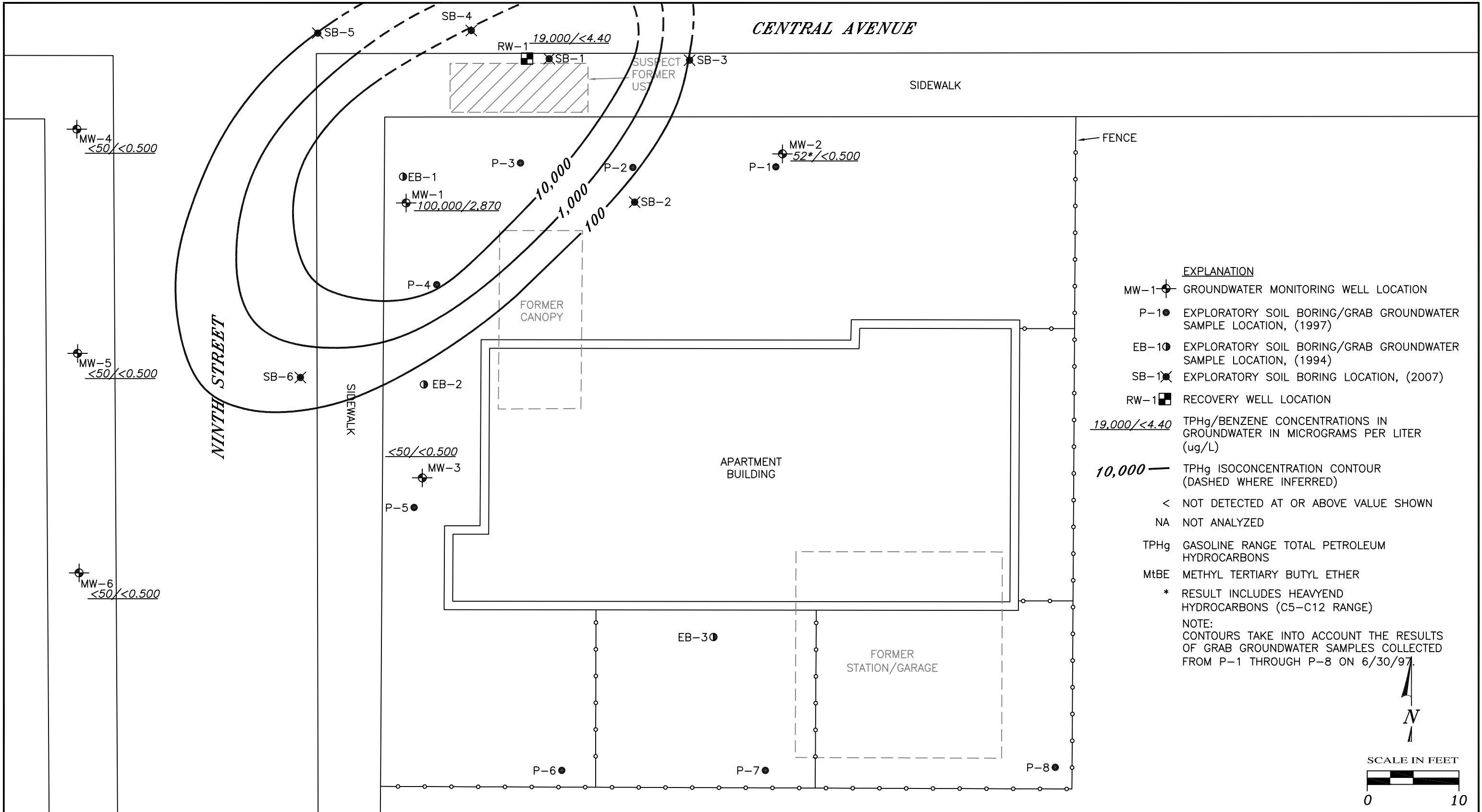
FIGURE:  
**2**  
 PROJECT:  
 KCE514



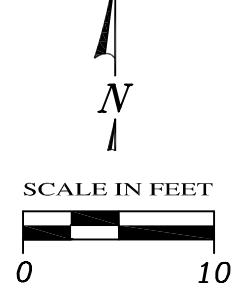
**GROUNDWATER ELEVATION CONTOUR MAP,  
 NOVEMBER 6, 2008**

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
  - $19,000/<4.40$  TPHg/BENZENE CONCENTRATIONS IN GROUNDWATER IN MICROGRAMS PER LITER (ug/L)
  - $10,000$  — TPHg ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED)
  - < NOT DETECTED AT OR ABOVE VALUE SHOWN
  - NA NOT ANALYZED
  - TPHg GASOLINE RANGE TOTAL PETROLEUM HYDROCARBONS
  - MtBE METHYL TERTIARY BUTYL ETHER
  - \* RESULT INCLUDES HEAVYEND HYDROCARBONS (C5-C12 RANGE)
- NOTE:  
CONTOURS TAKE INTO ACCOUNT THE RESULTS OF GRAB GROUNDWATER SAMPLES COLLECTED FROM P-1 THROUGH P-8 ON 6/30/97.



**TPHg/BENZENE GROUNDWATER CONCENTRATION MAP,  
NOVEMBER 6, 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-1 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 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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# Field Data Sheet

## Depth to Water Data Form

Site Information

900 Central Ave.	<u>110608</u>	KCE514
Project Address	Date	Project Number
Alameda	Alameda	California
City	County	State



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

Water Level Equipment

Electronic Indicator

Oil Water Interface Probe

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

Measured By: (WB)  
 name

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

DTW Order	Well ID	Time (24:00)	Total Depth	First DTW <u>(WB)</u> or tob)	Total Depth (toc or tob)	Depth to SPH (toc or tob)	SPH Thickness (toc or tob)	Notes (describe SPH):
#7	MW-1	<u>1204</u>	18.73'	<u>13.76</u>				
#5	MW-2	<u>1158</u>	18.40'	<u>13.52</u>				
#4	MW-3	<u>1155</u>	18.70'	<u>13.20</u>				
#3	MW-4	<u>1153</u>	17.95'	<u>13.25</u>				
#2	MW-5	<u>1151</u>	17.95'	<u>13.12</u>				
#1	MW-6	<u>1148</u>	17.10'	<u>13.10</u>				
#6	RW-1	<u>1201</u>	19.05'	<u>12.75</u>				4" Well

Signature: *Walter P. ...*

**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) \_\_\_\_\_

<p><b>Purge Calculation</b></p> <p>total depth = <u>18.73</u>                  depth to water = <u>13.76</u>                  linear feet of water = <u>4.97</u>                  gallons per linear foot X <u>.17</u>                  gallons per casing = <u>0.84</u>                  number of casings X <u>3</u>                  calculated purge = <u>2.53</u></p>	<table border="1"> <tr> <th>casing diameter</th> <th></th> <th>gallons per linear foot</th> </tr> <tr> <td>0.75 in.</td> <td><input type="checkbox"/></td> <td>0.023</td> </tr> <tr> <td>1 in.</td> <td><input type="checkbox"/></td> <td>0.04</td> </tr> <tr> <td>2 in.</td> <td><input checked="" type="checkbox"/></td> <td>0.17</td> </tr> <tr> <td>4 in.</td> <td><input type="checkbox"/></td> <td>0.67</td> </tr> <tr> <td>6 in.</td> <td><input type="checkbox"/></td> <td>1.5</td> </tr> <tr> <td>other</td> <td><input type="checkbox"/></td> <td>calculate</td> </tr> </table> <p>1 cubic foot = 7.48 gallons</p>	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	<p>Purged By: <u>[Signature]</u>                  name</p> <p>Purge Notes:                  _____                  _____                  _____</p> <p>Purged Dry?: N circle Y      Sampling Delay?: N circle Y</p>
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																					

	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	1413	0						
volume 1	1415	1.00	6.64	609	19.1	brown	mod.	strong.
volume 2	1417	2.00	6.25	623	18.8	"	hvy	"
volume 3	1419	2.75	6.69	612	18.7	"	"	"
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**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Sampling Port  
 Other (specify) \_\_\_\_\_

Sample ID	Date	Time (24:00)
<u>MW-1</u>	<u>110608</u>	<u>1430</u>
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"/> Fuel Oxy, no MIBE (8270) <input type="checkbox"/> 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: [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**  
 Bailer  Disposable  Teflon #: \_\_\_\_\_  
 Submersible Pump; type: \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

**Purge Calculation**

total depth = 18.40  
 depth to water = 13.52  
 linear feet of water = 4.88  
 gallons per linear foot X .17  
 gallons per casing = 0.83  
 number of casings X 3  
 calculated purge = 2.49

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	1337	0						
volume 1	1339	1.00	7.01	186	18.4	brown	hvy	hmm
volume 2	1341	1.75	6.63	186	18.4	n	n	n
volume 3	1343	2.50	6.41	185	18.4	n	n	n
volume 4								
complete								

brown, yellow cloudy, clear      heavy, moderate light, trace      strong, moderate sight, 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-2      Date 110608      Time (24:00) 1350  
 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	HCl
	<input checked="" type="checkbox"/> BTEX (8260B)		
	<input type="checkbox"/> Fuel Oxy's, no MtBE (8270)		
	<input type="checkbox"/> 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 \_\_\_\_\_ 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 = 18.70  
 depth to water = 13.20  
 linear feet of water = 5.50  
 gallons per linear foot X .17  
 gallons per casing = 0.94  
 number of casings X 3  
 calculated purge = 2.80

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: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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>1318</u>	<u>0</u>						
volume 1	<u>1321</u>	<u>1.00</u>	<u>6.69</u>	<u>209</u>	<u>20.2</u>	<u>brown</u>	<u>hvy</u>	<u>none</u>
volume 2	<u>1323</u>	<u>2.00</u>	<u>6.64</u>	<u>210</u>	<u>20.1</u>	<u>u</u>	<u>u</u>	<u>u</u>
volume 3	<u>1325</u>	<u>3.00</u>	<u>6.62</u>	<u>215</u>	<u>19.6</u>	<u>u</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  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

**Sampling Equipment**

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

Sample ID	Date	Time (24:00)
<u>MW-3</u>	<u>110608</u>	<u>1335</u>
Dupe # _____		12:00

Sampled By: WJ  
name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative	Sampling Notes:
<u>3</u>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> Fuel Oxy's, no MiBE (8270) <input type="checkbox"/> MiBE (8270) <input type="checkbox"/> Other (specify) _____	40 ml  VOA	HCl  HNO <sub>3</sub>	_____
	<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>	_____

Signature: William M...

**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 = 13.25  
 linear feet of water = 4.70  
 gallons per linear foot X .17  
 gallons per casing = 0.80  
 number of casings X 3  
 calculated purge = 2.40

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:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purged Dry?: N  Y       Sampling Delay?: N  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>1257</u>	<u>0</u>						
volume 1	<u>1300</u>	<u>1.00</u>	<u>6.48</u>	<u>234</u>	<u>19.8</u>	<u>brown</u>	<u>hvy</u>	<u>none</u>
volume 2	<u>1304</u>	<u>2.00</u>	<u>6.46</u>	<u>235</u>	<u>19.9</u>	<u>"</u>	<u>"</u>	<u>"</u>
volume 3	<u>—</u>	<u>—</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  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

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

Sample ID MW-4      Date 110608      Time (24:00) 1315  
 Dupe # \_\_\_\_\_      12:00

Sampled By: WJ  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative	Sampling Notes: _____ _____ _____ _____
<u>3</u>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> Fuel Oxy, no MtBE (8270) <input type="checkbox"/> 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>	

Signature: Walter W. [Signature]



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

**Purge Calculation**

total depth = 17.95  
 depth to water = 13.12  
 linear feet of water = 4.83  
 gallons per linear foot X .17  
 gallons per casing = 0.82  
 number of casings X 3  
 calculated purge = 2.46

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:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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>1237</u>	<u>0</u>						
volume 1	<u>1239</u>	<u>1.00</u>	<u>6.44</u>	<u>268</u>	<u>19.9</u>	<u>brown</u>	<u>mod.</u>	<u>none</u>
volume 2	<u>1243</u>	<u>2.00</u>	<u>6.43</u>	<u>267</u>	<u>20.0</u>	<u>"</u>	<u>hwy</u>	<u>"</u>
volume 3	<u>-</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  
 Extraction Well  
 Domestic Well  
 Other (specify) \_\_\_\_\_

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

Sample ID	Date	Time (24:00)
<u>MW-5</u>	<u>110608</u>	<u>1255</u>
Dupe # _____		12:00

Sampled By: WJ  
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
<b>3</b>	<input checked="" type="checkbox"/> TPH gas (8260B) <input checked="" type="checkbox"/> BTEX (8260B) <input type="checkbox"/> Fuel Oxy, no MtBE (8270) <input type="checkbox"/> MtBE (8270) <input type="checkbox"/> Other (specify) _____	40 ml  VOA	HCl  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-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		casing diameter		gallons per linear foot
total depth =	17.10	0.75 in.	<input type="checkbox"/>	0.023
depth to water =	13.10	1 in.	<input type="checkbox"/>	0.04
linear feet of water =	4.00	2 in.	<input checked="" type="checkbox"/>	0.17
gallons per linear foot X	.17	4 in.	<input type="checkbox"/>	0.67
gallons per casing =	0.68	6 in.	<input type="checkbox"/>	1.5
number of casings X	3	other	<input type="checkbox"/>	calculate
calculated purge =	2.04	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	1223	0						
volume 1	1225	0.75	6.57	240	20.1	brown	hwy	none
volume 2	1227	1.50	6.43	223	20.2	"	"	"
volume 3								
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-6	110608	1235
Dupe # _____		12:00

Sampled By:           
 name

# of Cont.	Analyses (check and circle)	Container/Size	Preservative
3	<input checked="" type="checkbox"/> TPH gas (8260B)	40 ml	HCl
	<input checked="" type="checkbox"/> BTEX (8260B)		
	<input type="checkbox"/> Fuel Oxy, no MtBE (8270)		
	<input type="checkbox"/> 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:

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



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

Site Information

900 Central Ave.  
 Project Address

RW-1 Well/Sample Point ID      KCE514 Project Number

Alameda City      Alameda 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

total depth = 19.05

depth to water = 12.75

linear feet of water = 6.30

gallons per linear foot ~~6.27~~

gallons per casing = ~~1.07~~ 4.22

number of casings X 3

calculated purge = ~~3.21~~ 12.66

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

Purged By: WJ  
 name

Purge Notes:

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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	1353	0						
volume 1	1356	4.25	6.38	296	18.4	gray	hazy	strong
volume 2	1359	8.50	6.43	280	19.1	"	"	"
volume 3	1402	12.75	6.50	291	19.2	"	"	"
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)
<u>RW-1</u>	<u>110608</u>	<u>1410</u>
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"/> Fuel Oxy, no MtBE (8270) <input type="checkbox"/> 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:

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Signature: William WJ



November 13, 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: KCE514/900 Central Ave., Alameda

Order No.: 0811037

Dear Matt Kaempf:

Torrent Laboratory, Inc. received 7 samples on 11/6/2008 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 test results, please feel free to contact the Project Management Team at (408)263-5258; ext: 204.

Sincerely,

  
Laboratory Director

  
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:** 11/6/2008  
**Date Reported:** 11/13/2008

**Client Sample ID:** MW-1  
**Sample Location:** 900 Central Ave., Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/6/2008 2:30:00 PM

**Lab Sample ID:** 0811037-001  
**Date Prepared:** 11/11/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	11/11/2008	0.5	88	44.0	2870	µg/L	P17864
Toluene	SW8260B	11/11/2008	0.5	88	44.0	5160	µg/L	P17864
Ethylbenzene	SW8260B	11/11/2008	0.5	88	44.0	1720	µg/L	P17864
Xylenes, Total	SW8260B	11/11/2008	1.5	88	132	13800	µg/L	P17864
Surr: Dibromofluoromethane	SW8260B	11/11/2008	0	88	61.2-131	104	%REC	P17864
Surr: 4-Bromofluorobenzene	SW8260B	11/11/2008	0	88	64.1-120	116	%REC	P17864
Surr: Toluene-d8	SW8260B	11/11/2008	0	88	75.1-127	121	%REC	P17864
TPH (Gasoline)	SW8260B(TPH)	11/11/2008	50	88	4400	100000	µg/L	G17864
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	11/11/2008	0	88	58.4-133	86.9	%REC	G17864

Note: Although TPH as Gasoline compounds are present, result includes heavy end hydrocarbons within the C5 - C12 quantitation range (possibly aged gasoline).

**Client Sample ID:** MW-2  
**Sample Location:** 900 Central Ave., Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/6/2008 1:50:00 PM

**Lab Sample ID:** 0811037-002  
**Date Prepared:** 11/11/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Toluene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Ethylbenzene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Xylenes, Total	SW8260B	11/11/2008	1.5	1	1.50	ND	µg/L	P17864
Surr: Dibromofluoromethane	SW8260B	11/11/2008	0	1	61.2-131	109	%REC	P17864
Surr: 4-Bromofluorobenzene	SW8260B	11/11/2008	0	1	64.1-120	118	%REC	P17864
Surr: Toluene-d8	SW8260B	11/11/2008	0	1	75.1-127	91.0	%REC	P17864
TPH (Gasoline)	SW8260B(TPH)	11/11/2008	50	1	50	52x	µg/L	G17864
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	11/11/2008	0	1	58.4-133	103	%REC	G17864

Note: x- Sample chromatogram does not resemble gasoline standard pattern. Reported TPH value due to presence of non-target gasoline compounds within range of C5-C12 quantified as Gasoline (possibly heavily gasoline).

**These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991**

**Client Sample ID:** MW-3  
**Sample Location:** 900 Central Ave., Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/6/2008 1:35:00 PM

**Lab Sample ID:** 0811037-003  
**Date Prepared:** 11/11/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Toluene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Ethylbenzene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Xylenes, Total	SW8260B	11/11/2008	1.5	1	1.50	ND	µg/L	P17864
Surr: Dibromofluoromethane	SW8260B	11/11/2008	0	1	61.2-131	112	%REC	P17864
Surr: 4-Bromofluorobenzene	SW8260B	11/11/2008	0	1	64.1-120	105	%REC	P17864
Surr: Toluene-d8	SW8260B	11/11/2008	0	1	75.1-127	87.0	%REC	P17864
TPH (Gasoline)	SW8260B(TPH)	11/11/2008	50	1	50	ND	µg/L	G17864
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	11/11/2008	0	1	58.4-133	89.8	%REC	G17864

**Client Sample ID:** MW-4  
**Sample Location:** 900 Central Ave., Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/6/2008 1:15:00 PM

**Lab Sample ID:** 0811037-004  
**Date Prepared:** 11/11/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Toluene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Ethylbenzene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Xylenes, Total	SW8260B	11/11/2008	1.5	1	1.50	ND	µg/L	P17864
Surr: Dibromofluoromethane	SW8260B	11/11/2008	0	1	61.2-131	110	%REC	P17864
Surr: 4-Bromofluorobenzene	SW8260B	11/11/2008	0	1	64.1-120	109	%REC	P17864
Surr: Toluene-d8	SW8260B	11/11/2008	0	1	75.1-127	82.5	%REC	P17864
TPH (Gasoline)	SW8260B(TPH)	11/11/2008	50	1	50	ND	µg/L	G17864
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	11/11/2008	0	1	58.4-133	89.1	%REC	G17864

**Client Sample ID:** MW-5  
**Sample Location:** 900 Central Ave., Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/6/2008 12:55:00 PM

**Lab Sample ID:** 0811037-005  
**Date Prepared:** 11/11/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Toluene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Ethylbenzene	SW8260B	11/11/2008	0.5	1	0.500	ND	µg/L	P17864
Xylenes, Total	SW8260B	11/11/2008	1.5	1	1.50	ND	µg/L	P17864
Surr: Dibromofluoromethane	SW8260B	11/11/2008	0	1	61.2-131	114	%REC	P17864
Surr: 4-Bromofluorobenzene	SW8260B	11/11/2008	0	1	64.1-120	114	%REC	P17864
Surr: Toluene-d8	SW8260B	11/11/2008	0	1	75.1-127	95.3	%REC	P17864
TPH (Gasoline)	SW8260B(TPH)	11/11/2008	50	1	50	ND	µg/L	G17864
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	11/11/2008	0	1	58.4-133	92.9	%REC	G17864

**Client Sample ID:** MW-6  
**Sample Location:** 900 Central Ave., Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/6/2008 12:35:00 PM

**Lab Sample ID:** 0811037-006  
**Date Prepared:** 11/12/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	11/12/2008	0.5	1	0.500	ND	µg/L	P17864
Toluene	SW8260B	11/12/2008	0.5	1	0.500	ND	µg/L	P17864
Ethylbenzene	SW8260B	11/12/2008	0.5	1	0.500	ND	µg/L	P17864
Xylenes, Total	SW8260B	11/12/2008	1.5	1	1.50	ND	µg/L	P17864
Surr: Dibromofluoromethane	SW8260B	11/12/2008	0	1	61.2-131	114	%REC	P17864
Surr: 4-Bromofluorobenzene	SW8260B	11/12/2008	0	1	64.1-120	112	%REC	P17864
Surr: Toluene-d8	SW8260B	11/12/2008	0	1	75.1-127	85.0	%REC	P17864
TPH (Gasoline)	SW8260B(TPH)	11/12/2008	50	1	50	ND	µg/L	G17864
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	11/12/2008	0	1	58.4-133	100	%REC	G17864

**Client Sample ID:** RW-1  
**Sample Location:** 900 Central Ave., Alameda  
**Sample Matrix:** GROUNDWATER  
**Date/Time Sampled** 11/6/2008 2:10:00 PM

**Lab Sample ID:** 0811037-007  
**Date Prepared:** 11/12/2008

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Benzene	SW8260B	11/12/2008	0.5	8.8	4.40	ND	µg/L	P17864
Toluene	SW8260B	11/12/2008	0.5	8.8	4.40	28.1	µg/L	P17864
Ethylbenzene	SW8260B	11/12/2008	0.5	8.8	4.40	369	µg/L	P17864
Xylenes, Total	SW8260B	11/12/2008	1.5	22	33.0	2340	µg/L	P17864
Surr: Dibromofluoromethane	SW8260B	11/12/2008	0	8.8	61.2-131	115	%REC	P17864
Surr: Dibromofluoromethane	SW8260B	11/12/2008	0	22	61.2-131	111	%REC	P17864
Surr: 4-Bromofluorobenzene	SW8260B	11/12/2008	0	8.8	64.1-120	109	%REC	P17864
Surr: 4-Bromofluorobenzene	SW8260B	11/12/2008	0	22	64.1-120	109	%REC	P17864
Surr: Toluene-d8	SW8260B	11/12/2008	0	8.8	75.1-127	89.7	%REC	P17864
Surr: Toluene-d8	SW8260B	11/12/2008	0	22	75.1-127	86.3	%REC	P17864
TPH (Gasoline)	SW8260B(TPH)	11/12/2008	50	22	1100	19000	µg/L	G17864
Surr: 4-Bromofluorobenzene	SW8260B(TPH)	11/12/2008	0	22	58.4-133	92.5	%REC	G17864

Note: Although TPH as Gasoline compounds are present, result includes heavy end hydrocarbons within the C5 - C12 quantitation range (possibly aged gasoline).



**Definitions, legends and Notes**

Note	Description
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:** 0811037  
**Project:** KCE514/900 Central Ave., Alameda

**ANALYTICAL QC SUMMARY REPORT**

**BatchID: G17864**

Sample ID: <b>MB_G17864</b>	SampType: <b>MBLK</b>	TestCode: <b>TPH_GAS_W</b>	Units: <b>µg/L</b>	Prep Date: <b>11/11/2008</b>	RunNo: <b>17864</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>G17864</b>	TestNo: <b>SW8260B(TP</b>	Analysis Date: <b>11/11/2008</b>	SeqNo: <b>256525</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	9.980	0	11.36	0	87.9	58.4	133				

Sample ID: <b>LCS_G17864</b>	SampType: <b>LCS</b>	TestCode: <b>TPH_GAS_W</b>	Units: <b>µg/L</b>	Prep Date: <b>11/11/2008</b>	RunNo: <b>17864</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>G17864</b>	TestNo: <b>SW8260B(TP</b>	Analysis Date: <b>11/11/2008</b>	SeqNo: <b>256526</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	10.18	0	11.36	0	89.6	58.4	133				

Sample ID: <b>LCSD_G17864</b>	SampType: <b>LCSD</b>	TestCode: <b>TPH_GAS_W</b>	Units: <b>µg/L</b>	Prep Date: <b>11/11/2008</b>	RunNo: <b>17864</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>G17864</b>	TestNo: <b>SW8260B(TP</b>	Analysis Date: <b>11/11/2008</b>	SeqNo: <b>256527</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline)	212.0	50	227	0	93.4	52.4	127	207	2.39	20	
Surr: 4-Bromofllurobenzene	9.700	0	11.36	0	85.4	58.4	133	0	0	0	

**Qualifiers:** 3 Recovery of the MS and/or MSD was out of control due to 4 The MS/MSD RPD was out of control due to matrix inter Q Spike recovery and RPD control limits do not apply result  
R RPD outside accepted recovery limits S Spike Recovery outside accepted recovery limits

CLIENT: Remediation Risk Management, Inc.  
 Work Order: 0811037  
 Project: KCE514/900 Central Ave., Alameda

## ANALYTICAL QC SUMMARY REPORT

**BatchID: P17864**

Sample ID: <b>MB_P17864</b>	SampType: <b>MBLK</b>	TestCode: <b>8260B_W_PE</b>	Units: <b>µg/L</b>	Prep Date: <b>11/11/2008</b>	RunNo: <b>17864</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>P17864</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>11/11/2008</b>	SeqNo: <b>256511</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.500									
Toluene	ND	0.500									
Ethylbenzene	ND	0.500									
Xylenes, Total	ND	1.50									
Surr: Dibromofluoromethane	12.20	0	11.36	0	107	61.2	131				
Surr: 4-Bromofluorobenzene	12.15	0	11.36	0	107	64.1	120				
Surr: Toluene-d8	10.75	0	11.36	0	94.6	75.1	127				

Sample ID: <b>LCS_P17864</b>	SampType: <b>LCS</b>	TestCode: <b>8260B_W_PE</b>	Units: <b>µg/L</b>	Prep Date: <b>11/11/2008</b>	RunNo: <b>17864</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>P17864</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>11/11/2008</b>	SeqNo: <b>256512</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	14.65	0.500	17.04	0	86.0	66.9	140				
Toluene	15.86	0.500	17.04	0	93.1	76.6	123				
Surr: Dibromofluoromethane	9.760	0	11.36	0	85.9	61.2	131				
Surr: 4-Bromofluorobenzene	12.86	0	11.36	0	113	64.1	120				
Surr: Toluene-d8	10.81	0	11.36	0	95.2	75.1	127				

Sample ID: <b>LCSD_P17864</b>	SampType: <b>LCSD</b>	TestCode: <b>8260B_W_PE</b>	Units: <b>µg/L</b>	Prep Date: <b>11/11/2008</b>	RunNo: <b>17864</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>P17864</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>11/11/2008</b>	SeqNo: <b>256513</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	13.72	0.500	17.04	0	80.5	66.9	140	14.65	6.56	20	
Toluene	14.97	0.500	17.04	0	87.9	76.6	123	15.86	5.77	20	
Surr: Dibromofluoromethane	11.04	0	11.36	0	97.2	61.2	131	0	0	0	
Surr: 4-Bromofluorobenzene	13.18	0	11.36	0	116	64.1	120	0	0	0	
Surr: Toluene-d8	10.64	0	11.36	0	93.7	75.1	127	0	0	0	

**Qualifiers:** 3 Recovery of the MS and/or MSD was out of control due to 4 The MS/MSD RPD was out of control due to matrix inter Q Spike recovery and RPD control limits do not apply result  
 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

0811037

NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY

Company Name: RRM, Inc. Location of Sampling: 900 Central Ave, Alameda  
 Address: 2560 Soquel Ave #202 Purpose: 4th Qtr. GWS  
 City: Santa Cruz State: CA Zip Code: 95062 Special Instructions / Comments: Global ID # 10600102089  
 Telephone: 831 475 8141 FAX: 831 475 8249  
 REPORT TO: Matt Kaempf SAMPLER: Will B. P.O. #: KCES14 EMAIL: matt@rrm-sc.com & labdata@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	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
001A	MW-1	110608/1430	GW	3	HCL Wa			X															
002A	MW-2	1350																					
003A	MW-3	1335																					
004A	MW-4	1315																					
005A	MW-5	1255																					
006A	MW-6	1235																					
007A	RW-1	1410																					

1	Relinquished By: <u>Will Bachan</u> Print: <u>Will Bachan</u>	Date: <u>110608</u>	Time:	Received By: <u>H.S. Kadi</u> Print: <u>H.S. Kadi</u>	Date: <u>11/6/08</u>	Time: <u>3:20pm</u>
2	Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Were Samples Received in Good Condition?  Yes  NO Samples on Ice?  Yes  NO Method of Shipment: D/eff. 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 1 of 1

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

TORRENT LAB