AEI CONSULTANTS
ENVIRONMENTAL & CIVIL ENGINEERING

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RO 226

March 31, 2003

Mr. Amir Gholami
Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Alameda County
APR 04 2003
Environmental Health

Subject:
625 Hegenberger Road
Oakland, California
AEI Project No. 6274

Dear Mr. Gholami:

Enclosed is our closure report for the fuel release case at the above referenced property. Also enclosed is copy of the ACHCSA Case Closure Summary Form, which you requested. I have also emailed this form to you so you may input your own comments.

We look forward to receiving case closure for the property owner and will be in contact with you shortly.

If you have any questions or need any additional information, please don't hesitate to contact either Joe Derhake (310/798-4255) or myself at (925/283-6000).

Sincerely,

Peter McIntyre
Project Manager, Geologist

RO 226 1/29/03 email

Table 3
Groundwater Sample Analytical Data

	Date	TPH-g µg/L	TPH-d µg/L	TPH-o µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Xylenes µg/L	MTBE µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	EBD µg/L	1,2-DCA µg/L
		EPA method 8015M			EPA method 8020					EPA method 8260B						
MW-8	5/28/1993	19000	1000	-	6400	28	160	36	-	-	-	-	-	-	-	-
	12/22/1993	56000	300	<200	16000	5999.3	650	2700	-	-	-	-	-	-	-	-
	6/30/1994	41000	<500	500	11000	4800	2200	8200	-	-	-	-	-	-	-	-
	9/27/1994	28000	620	<200	8500	260	1600	5300	-	-	-	-	-	-	-	-
	1/10/1995	58000	70	<200	10000	11000	2400	12000	-	-	-	-	-	-	-	-
	10/2/1995	28000	<50	<500	51	16	54	80	-	-	-	-	-	-	-	-
	1/8/1996	72000	3700	<250	8600	13000	2200	12000	-	-	-	-	-	-	-	-
	1/8/1996	62000	-	-	7200	9500	1600	8000	-	-	-	-	-	-	-	-
	4/25/1996	33000	3100	-	7600	2300	1500	4800	-	-	-	-	-	-	-	-
	3/25/1997	23000	1900	-	8300	80	350	380	1500	-	-	-	-	-	-	-
	7/3/1997	14000	1400	-	6600	32	190	100	1300	-	-	-	-	-	-	-
	7/3/1997	15000	1400	-	7300	34	160	110	1700	-	-	-	-	-	-	-
	10/2/1997	7600	810	-	3500	14	37	21	890	-	-	-	-	-	-	-
	1/28/1998	21000	2700	-	5500	270	730	780	900	-	-	-	-	-	-	-
	9/9/1999	2500	-	-	790	2.8	4.7	8	380	-	-	-	-	-	-	-
	2/9/2000	39000	-	-	6400	4300	950	390	460	-	-	-	-	-	-	-
	8/9/2000	5500	-	-	1700	15	130	370	540	-	-	-	-	-	-	-
	5/31/2001	14,000	-	-	2,800	63	610	540	370	-	-	-	-	-	-	-
	8/10/2001	4,400	-	-	1,200	41	160	170	380	-	-	-	-	-	-	-
	9/25/2001	2,100	-	-	470	7.2	6.5	7.1	210	-	-	-	-	-	-	-
	12/14/2001	1800	-	-	230	34	67	150	26	-	-	-	-	-	-	-
	4/8/2002	32000	-	-	2000	820	1100	2300	62							
	9/11/2002	**2000**	-	-	**520**	**5.4**	**11**	**8.7**	**430**	**270**	**<5.0**	**<5.0**	**<5.0**	**<50**	**<5.0**	**<5.0**
MW-10	5/28/1993	<50	54	-	<0.3	<0.3	<0.3	<0.9	-	-	-	-	-	-	-	-
	12/22/1993	<50	580	<200	<0.5	<0.7	<0.5	<0.2	-	-	-	-	-	-	-	-
	6/30/1994	<50	<50	600	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	9/27/1994	<50	610	<200	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	1/10/1995	<50	600	<200	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	10/2/1995	350	<50	<500	4.4	2.6	2.3	6.4	-	-	-	-	-	-	-	-
	1/8/1996	50	<50	<250	5.8	7.1	1.2	6.4	-	-	-	-	-	-	-	-
	4/25/1996	<50	<50	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-
	3/25/1997	<50	<50	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	7/3/1997	<50	<50	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	10/2/1997	<50	110	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	1/28/1998	<50	<50	-	5.7	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	8/19/1999	<50	-	-	5.7	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	2/9/2000	<50	-	-	5.7	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	8/9/2000	<50	-	-	5.7	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	8/10/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/11/2002	**<50**	-	-	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**2.3**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

Table 3: Continued

	Date	TPH-g µg/L	TPH-d µg/L	TPH-o µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Xylenes µg/L	MTBE µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	EBD µg/L	1,2-DCA µg/L
		EPA method 8015M			EPA method 8020					EPA method 8260B						
MW-11	5/28/1993	1200	<50	-	450	17	1.5	2.1	-	-	-	-	-	-	-	-
	12/22/1993	9200	530	<200	4500	38.3	12	43	-	-	-	-	-	-	-	-
	6/30/1994	8800	<50	1100	1500	13	690	1200	-	-	-	-	-	-	-	-
	6/30/1994	9700	-	-	1700	14	730	1300	-	-	-	-	-	-	-	-
	9/27/1994	15000	910	<200	6500	26	870	590	-	-	-	-	-	-	-	-
	1/10/1995	14000	1100	<200	890	220	840	2400	-	-	-	-	-	-	-	-
	10/2/1995	7100	<50	<500	47	5.7	11	36	-	-	-	-	-	-	-	-
	1/8/1996	12000	2000	<250	1200	99	790	1400	-	-	-	-	-	-	-	-
	4/25/1996	5800	1400	-	230	59	200	770	-	-	-	-	-	-	-	-
	3/25/1997	760	490	-	130	49	2.9	1	130	-	-	-	-	-	-	-
	7/3/1997	290	<50	-	<0.5	<0.5	600	<0.5	380	-	-	-	-	-	-	-
	10/2/1997	220	220	-	8.8	0.73	<0.5	0.67	720	-	-	-	-	-	-	-
	1/28/1998	540	160	-	140	0.81	<0.5	<0.5	360	-	-	-	-	-	-	-
	8/19/1999	590	-	-	180	3.2	<0.5	<0.5	720	-	-	-	-	-	-	-
	2/9/2000	680	-	-	100	3.1	<0.5	2.9	280	-	-	-	-	-	-	-
	8/9/2000	350	-	-	1.7	2.6	<0.5	0.84	410	-	-	-	-	-	-	-
	5/31/2001	280	-	-	1.1	1.6	0.25	0.25	430	-	-	-	-	-	-	-
	8/10/2001	300	-	-	0.95	1.6	0.25	0.66	340	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	250	-	-	2.8	1.7	0.25	0.9	300	-	-	-	-	-	-	-
	4/8/2002	86	-	-	0.7	0.77	<0.5	<0.5	300							
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**320**	**250**	**<2.5**	**<2.5**	**<2.5**	**98**	**<2.5**	**<2.5**
MW-12	5/28/1993	<50	<50	-	<0.3	<0.3	<0.3	<0.9	-	-	-	-	-	-	-	-
	12/22/1993	50	300	<200	<0.5	<0.7	<0.5	<0.2	-	-	-	-	-	-	-	-
	6/30/1994	<50	<50	400	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	9/27/1994	<50	400	<200	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	9/27/1994	<50	-	-	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	1/10/1995	<50	300	<200	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	10/2/1995	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-
	1/8/1996	<50	<50	<250	2.4	2.7	0.54	2.8	-	-	-	-	-	-	-	-
	4/25/1996	<50	<50	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-
	3/25/1997	<50	<50	-	<0.5	<0.5	<0.5	<0.5	16	-	-	-	-	-	-	-
	7/3/1997	<50	<50	-	<0.5	<0.5	<0.5	<0.5	16	-	-	-	-	-	-	-
	10/2/1997	<50	120	-	<0.5	<0.5	<0.5	<0.5	17	-	-	-	-	-	-	-
	1/28/1998	<50	<50	-	1.3	<0.5	<0.5	<0.5	13	-	-	-	-	-	-	-
	8/19/1999	<50	-	-	<0.5	<0.5	<0.5	<0.5	9.1	-	-	-	-	-	-	-
	2/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	6.2	-	-	-	-	-	-	-
	8/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	6.4	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	6.5	-	-	-	-	-	-	-
	8/10/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	5.3	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	51	-	-	3.1	0.98	1.2	2	<5.0	-	-	-	-	-	-	-
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**6.2**	**3.6**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

Table 3: Continued

	Date	TPH-g µg/L	TPH-d µg/L	TPH-o µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Xylenes µg/L	MTBE µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	EBD µg/L	1,2-DCA µg/L
		EPA method 8015M			EPA method 8020					EPA method 8260B						
MW-16	5/28/1993	<50	<50	-	2.8	0.3	<0.7	<0.9	-	-	-	-	-	-	-	-
	12/22/1993	2200	520	<200	<0.5	<0.7	<0.5	<0.2	-	-	-	-	-	-	-	-
	6/30/1994	<50	<50	900	8	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	9/27/1994	70	590	<200	17	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	1/10/1995	300	700	<200	190	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	10/2/1995	550	<50	<500	7.7	0.7	3.5	13	-	-	-	-	-	-	-	-
	1/8/1996	360	140	<250	<0.5	<0.5	4	9.7	-	-	-	-	-	-	-	-
	4/25/1996	1100	330	-	390	3.7	3.2	14	-	-	-	-	-	-	-	-
	3/25/1997	310	120	-	<0.5	<0.5	<0.5	1.4	2100	-	-	-	-	-	-	-
	7/3/1997	250	130	-	<0.5	<0.5	<0.5	<0.5	1900	-	-	-	-	-	-	-
	10/2/1997	290	180	-	<0.5	<0.5	<0.5	<0.5	2000	-	-	-	-	-	-	-
	1/28/1998	150	130	-	<0.5	<0.5	<0.5	<0.5	1900	-	-	-	-	-	-	-
	9/9/1999	<50	-	-	<0.5	<0.5	<0.5	<0.5	880	-	-	-	-	-	-	-
	2/9/2000	<50	-	-	<0.5	0.6	<0.5	8.7	88	-	-	-	-	-	-	-
	8/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	800	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	69	-	-	-	-	-	-	-
	8/10/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	300	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	<50	-	-	1.7	0.61	0.78	1.4	45	-	-	-	-	-	-	-
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**280**	**250**	**<2.5**	**<2.5**	**<2.5**	**33**	**<2.5**	**<2.5**
EW-01	2/9/2000	2600	-	-	800	48	21	91	750	-	-	-	-	-	-	-
	8/9/2000	6700	-	-	2700	19	120	31	1300	-	-	-	-	-	-	-
	5/31/2001	3,100	-	-	580	24	36	32	850	-	-	-	-	-	-	-
	8/10/2001	210	-	-	14	2.2	1.0	1.1	620	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	2,400	-	-	320	57	23	70	510	-	-	-	-	-	-	-
	4/8/2002	230	-	-	37	3.1	1.5	1	190	-	-	-	-	-	-	-
	9/11/2002	**1600**	**-**	**-**	**400**	**5.2**	**22**	**56**	**630**	**470**	**<5.0**	**<5.0**	**<5.0**	**77**	**<5.0**	**<5.0**
MW-26	8/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	8.3	-	-	-	-	-	-	-
	8/10/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**0.80**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-27	8/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	8/10/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**0.52**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

TPH-g = TPH as gasoline
TPH-d = TPH as diesel
TPH-o = TPH as motor oil

November 21, 2002

MONITORING AND TREATMENT REPORT

20226

625 Hegenberger Road
Oakland, California

11/21/02

AEI Project No. 5392

Prepared For

Diversified Investment and Management Corporation
400 Oyster Point Boulevard
South San Francisco, CA 94080

Prepared By

AEI Consultants
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549
(925) 283-6000

AEI

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AEI

1.0 INTRODUCTION

AEI Consultants (AEI) has prepared this report on behalf of Diversified Investment Management Group for the site located at 625 Hegenberger Road in Oakland, California (Figure 1: Site Location Map). AEI has been retained by Diversified to provide environmental engineering and consulting services to address the release of petroleum hydrocarbons that occurred at the property. This report has been prepared for the Alameda County Health Care Services Agency (ACHCSA), which is the local oversight agency with jurisdiction over the investigation and cleanup of the release.

This report has been prepared to address the concerns discussed in a letter from the ACHCSA, dated May 31, 2002. The following items are discussed in detail in the report:

- Additional treatment of well MW-8 occurred via placement of Oxygen Release Compound (ORC®) socks within the well. This was performed to treat residual hydrocarbons persisting after the groundwater treatment program was terminated.
- An additional monitoring and sampling event was performed, which included the requested analyses of samples for fuel additives by EPA method 8260.
- Details of the previous groundwater treatment program are presented.

2.0 SITE DESCRIPTION AND BACKGROUND

The site is located on the northwestern corner of Collins Drive and Hegenberger Road in a commercial area of the City of Oakland. The Coliseum Complex is located to the northwest of the site. The site is currently vacant and unimproved.

In October 1993, three underground gasoline storage tanks (12,000 gallons each), one 260 gallon waste oil tank, and related structures were removed from the site under the observation of Levine Fricke. Approximately 300 cubic yards (cy) of soil was excavated during the tank removal. Levine Fricke and Subsurface Consultants performed several shallow soil borings and installed six groundwater monitoring wells at the site. Results of the comprehensive soil investigation indicated that hydrocarbon contamination was present in elevated levels at the site.

The quarterly monitoring of the six monitoring wells was performed by Levine Fricke through January 1995. AEI began monitoring the wells in October 1995. In March 1996, AEI destroyed one of the wells (designated MW-24) in anticipation of excavation activities.

AEI excavated and aerated 1,600 cubic yards of contaminated soil in the spring and summer of 1996 as detailed in AEI's report, *Phase II Environmental Site Assessment*, dated March 3, 1997. The excavation extended through the capillary fringe, to approximately 5 to 7 feet below ground

surface (bgs). Figure 3 shows the areas excavated. It was concluded after the excavation activities that the majority of the impacted soil was removed and treated. However, TPH as gasoline, benzene, and MTBE remained in the dissolved phase in significant concentrations in the shallow groundwater. Please refer to Table 3 for a history of groundwater quality data.

The excavation was backfilled with pea gravel through the capillary fringe to approximately ½ foot above static groundwater. The remainder of the excavation was filled with the treated soil.

On October 1, 1999, AEI installed one (1) 4" diameter well (EW-01) just west of the former tank hold (Figure 3). The well was screened from 5 feet below ground surface (bgs) to 22.5 feet bgs. The well was installed in the apparent center of the hydrocarbon plume, to be used as an extraction well for groundwater treatment.

In June 2000, two additional groundwater monitoring wells (MW-26 and MW-27) were installed on the western end of the site (Figure 3). The wells were constructed of 2" diameter well casing, screened from 5 to 15 feet bgs. Historical groundwater sample analytical results are presented in Table 3.

Also in June 2000, one soil boring (AEI-B28) was advanced. The boring was placed in the apparent center of the dissolved hydrocarbon plume. The boring was advanced to 44.5 feet bgs to determine the vertical extent of the plume. Three groundwater samples were analyzed, the results of which revealed significant attenuation with depth of the hydrocarbon plume. Refer to Table 4 for laboratory analytical results.

A groundwater treatment program was initiated in June 2001. The system was designed to supplement natural bacterial colonies present in the shallow water table aquifer with bacterial colonies culture to metabolize aromatic hydrocarbons. The system consisted of an extraction well (EW-01), batch treatment tank, batch injection network of 12 injection points, and air sparging system consisting of a compressor and 12 sparge points. The system operated from June 2001 through February 2002. Operational details are discussed in Section 5.0.

3.0 SUPPLEMENTAL TREATMENT WITH ORC

Due to the remnant hydrocarbons present in this well after treatment had ceased (TPH-g at 32,000 µg/l and benzene at 2,000 µg/l), localized treatment of this well was requested by ACHCSA. Oxygen Release Compound™ (ORC) provided by Regenesis, Inc. was selected as an effective method of inducing localized oxygenation of the groundwater around this well and promoting hydrocarbon degradation.

On July 29, 2002, MW-8 was purged of approximately 5 gallons and a water sample was collected. Following sample collection, a total of nine (9) socks of ORC were suspended in the well, which

were placed to cover the water column exposed by the well. The socks were allowed to remain in the well until September 11, 2002, when the next monitoring event of the entire well network occurred.

4.0 GROUNDWATER MONITORING EVENT

A groundwater monitoring event occurred on September 11, 2002. Prior to sample collection, each of the eight wells was opened and water levels were measured. Each well was then purged of approximately 3 well volumes of water. The ORC socks were removed from MW-8, and approximately 10 gallons (7 well volumes of water) were purged from this well to ensure that the sample collected was not overly biased by the ORC. Water temperature, pH, specific conductivity, and dissolved oxygen were monitored prior to sample collected. Refer to Appendix A and to Tables 1 & 2 for details of the monitoring activities.

Water level measurements did not reveal any significant changes in groundwater flow direction or gradient. A depiction of the water table is presented on Figure 2 as is a rose diagram of historical groundwater flow directions.

Groundwater samples were collected from each of the wells with clean, disposable bailers. The samples were sealed in HCl preserved VOA vials, labeled, and stored over ice during transportation to the laboratory. The eight samples were analyzed at McCampbell Analytical, Inc. (DOHS Cert. # 1644) for TPH as gasoline by EPA method 8015M, BTEX and MTBE by EPA method 8020, and by EPA method 8260 for the requested fuel additives.

TPH as gasoline and BTEX compounds were detected in only two of the wells (MW-08 and EW-01), with the highest concentrations of TPH as gasoline and benzene at 2,000 µg/l and 520 µg/l, respectively. MTBE was detected in all of the wells, ranging from 0.52 µg/l (MW-27) up to 470 µg/l (EW-01). Tertiary butyl alcohol (TBA) was detected in three wells, up to 98 µg/l in MW-11. No other target analytes of the 8260 method were detected.

A summary of sample analytical data is presented in Figure 3 and all current and historical sample analytical data from the existing wells is presented in Table 3. Laboratory analytical reports are included as Appendix B.

5.0 TREATMENT SYSTEM OPERATIONAL DATA

The goal of the treatment program was to reduce dissolved hydrocarbon concentrations, specifically TPH-g and BTEX, within the source area, thereby limiting the potential for future migration of the hydrocarbon plume from the site. The system was designed to increase oxygen content of the shallow water table aquifer within the former source area and supplement natural bacterial colonies

with bacterial species cultured to metabolize aromatic hydrocarbons. Of particular importance when designing the system was the presence of the pea gravel backfill material placed within the bottom of the former excavation in the source area. This material has a higher porosity and hydraulic conductivity than the native soils, therefore allowing for distribution of the oxygenated water and injected waters.

The system consisted of two simultaneously operating system: the air sparge system and batch treatment and distribution system. A total of twelve (12) dual completion wells (labeled IW-01 to IW-12) were installed. The air compressor and generator were stored in a locked shed constructed on the western side of the source area. Please refer to Figure 4 for locations of the wells and system components. Photographs of the site are included in Figure 5.

As requested by ACHCSA, system operation details from June 2001 through February 2002 is presented. The data is presented in Table 4, as taken from system log and field notes. Refer to the *Groundwater Treatment and Site Closure Summary Report*, May 3, 2002, for additional information of system construction.

6.0 SUMMARY AND CONCLUSIONS

It is apparent that the remaining dissolved phase hydrocarbons are localized near the former source area, and are not migrating from the site. This is supported by the continued absence of TPH as gasoline or BTEX in any of the wells except MW-08 and EW-01.

The additional monitoring has revealed that none of the suspected fuel additives exist in the groundwater at appreciable concentrations. Although TBA was detected at low concentrations in three samples, this contaminant is a common daughter product of aerobic MTBE degradation and is relatively short lived. The distribution and relative concentrations of TBA in relation to the MTBE detected tend to support this conclusion.

As requested earlier this case should be considered eligible for case closure, as is supported by the following conclusions:

- The majority of hydrocarbons were removed from the impacted soil in the vadose zone during the 1996 soil excavation and treatment activities.
- A significant decrease in dissolved phase hydrocarbons was observed within the source area following the soil treatment and during and following the recently completed groundwater treatment program.
- Remaining dissolved phase hydrocarbons are localized to the immediate former source area, with the lateral extent of the plume having been defined. Non-detect to very low TPH-g, BTEX, and MTBE detections occurred in wells MW-10, MW-12, MW-26 or MW-27. The

plume is shown to be limited vertically directly beneath the source area, with hydrocarbon concentrations decreasing by nearly two orders of magnitude only 20 feet below the water table and evidence of a regional confining layer present below this.

- Survey of nearby groundwater wells and surface waters did not reveal any groundwater resources or ecological receptors that may be threatened by the minimal mass of hydrocarbons remaining in the localized former source area.
- No complete human exposure pathways currently exist onsite, nor is it expected that risk based screening levels would be exceeded if commercial development and land use occurred at the site.

7.0 REPORT LIMITATIONS AND SIGNATURES

This report presents a summary of work completed by AEI, including observations and descriptions of site conditions. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide required information, but it cannot be assumed that they are entirely representative of all areas not sampled. All conclusions and recommendations are based on these analyses, observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document.

These services were performed in accordance with generally accepted practices in the environmental engineering and consulting field that existed at the time and location of the work.

Sincerely,
AEI Consultants

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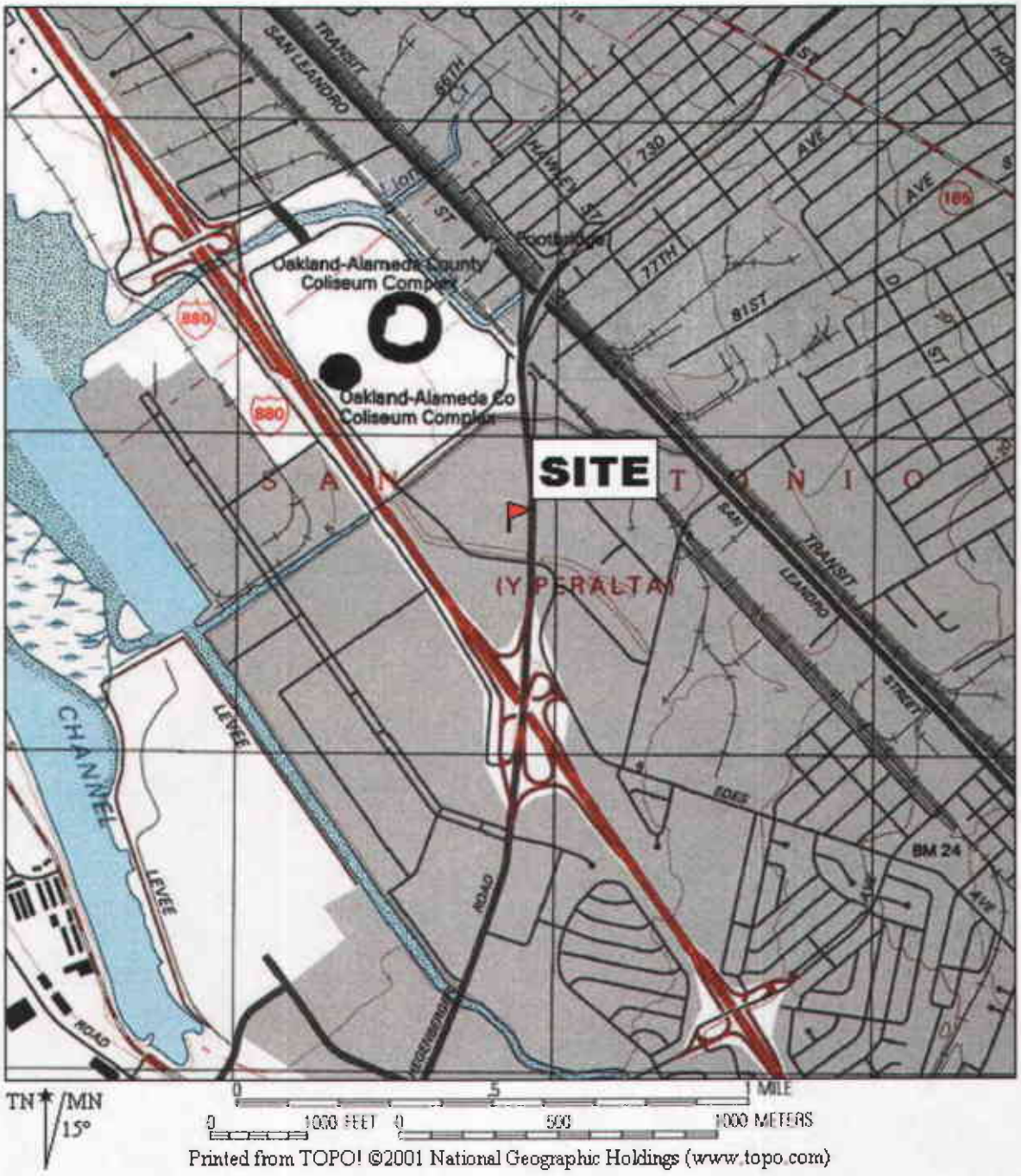

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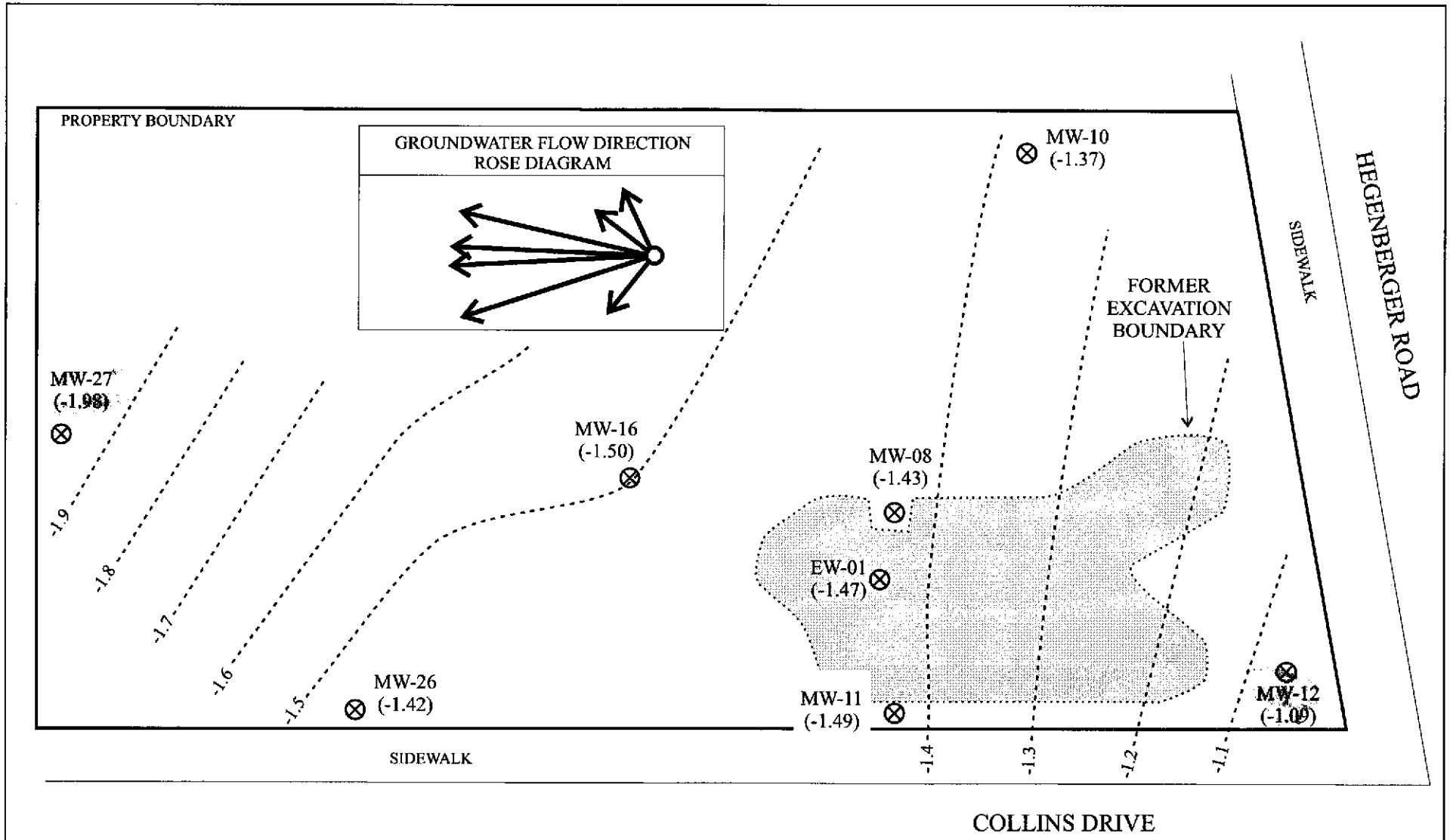
AEI CONSULTANTS 3210 OLD TUNNEL RD, STE B, LAFAYETTE, CA	
SITE LOCATION MAP	
625 HEGENBERGER ROAD OAKLAND, CALIFORNIA	**FIGURE 1** PROJECT NO. 5392



N

0' 20' 40'

SCALE: 1 in = 45 ft

KEY

⊗ Monitoring Well

Water Table contour in feet above mean sea level. Contour interval = 0.1 feet

ROSE DIAGRAM SCALE: ½ in = 1 episode

NOTE: Rose diagram does not include effects of MW-26 & MW-27

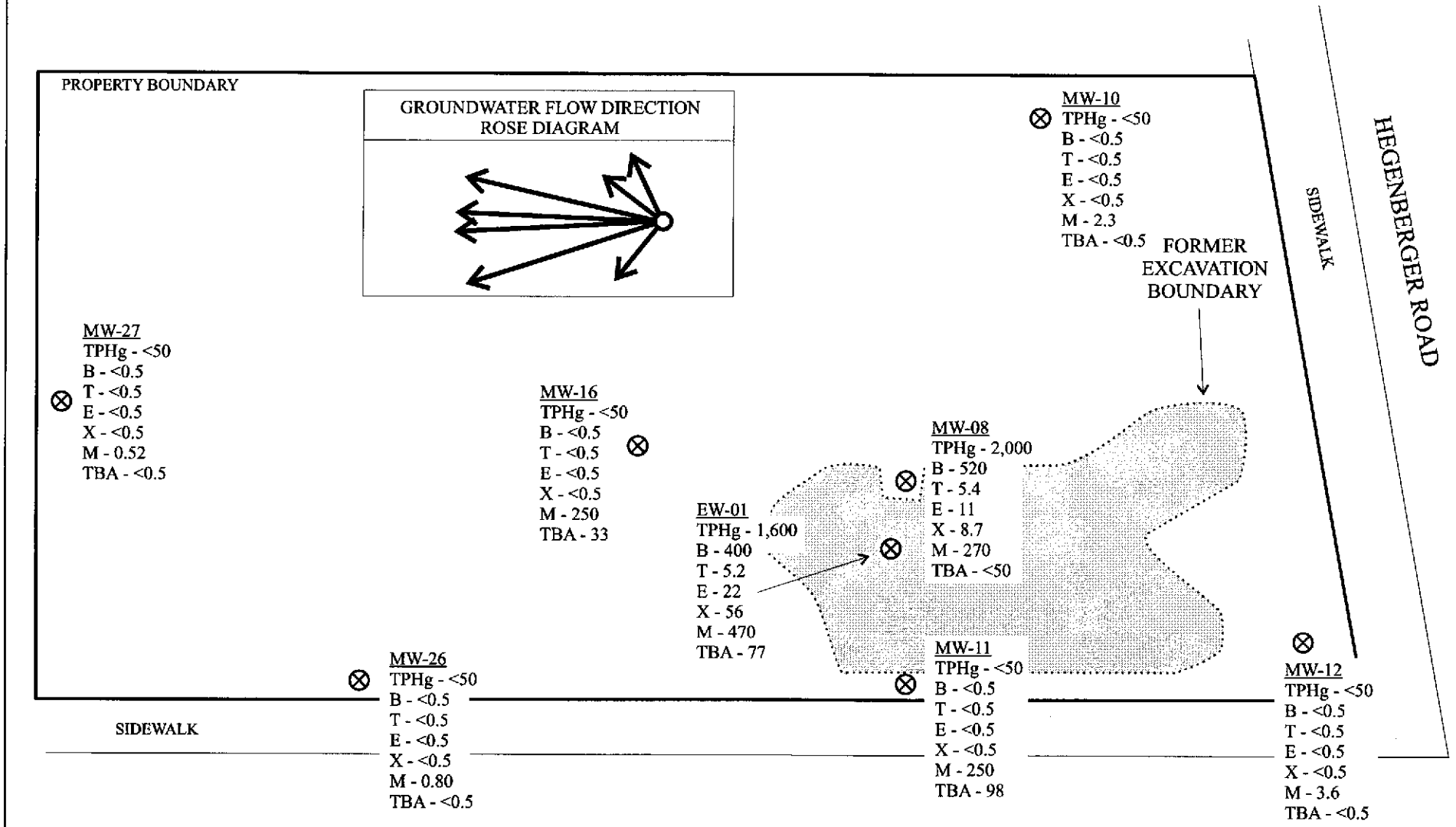
AEI CONSULTANTS

3210 OLD TUNNEL ROAD, SUITE B, LAFAYETTE, CA

WATER TABLE CONTOURS: 9/11/02

625 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE 2
AEI PROJECT NO 5392



KEY

⊗ Well locations with dissolved phase hydrocarbons in µg/l

TPHg-TPH gasoline
B-Benzene T-Toluene
E-Ethylbenzene X-Xylenes
M-MTBE (8260 result)
TBA - t-Butyl alcohol

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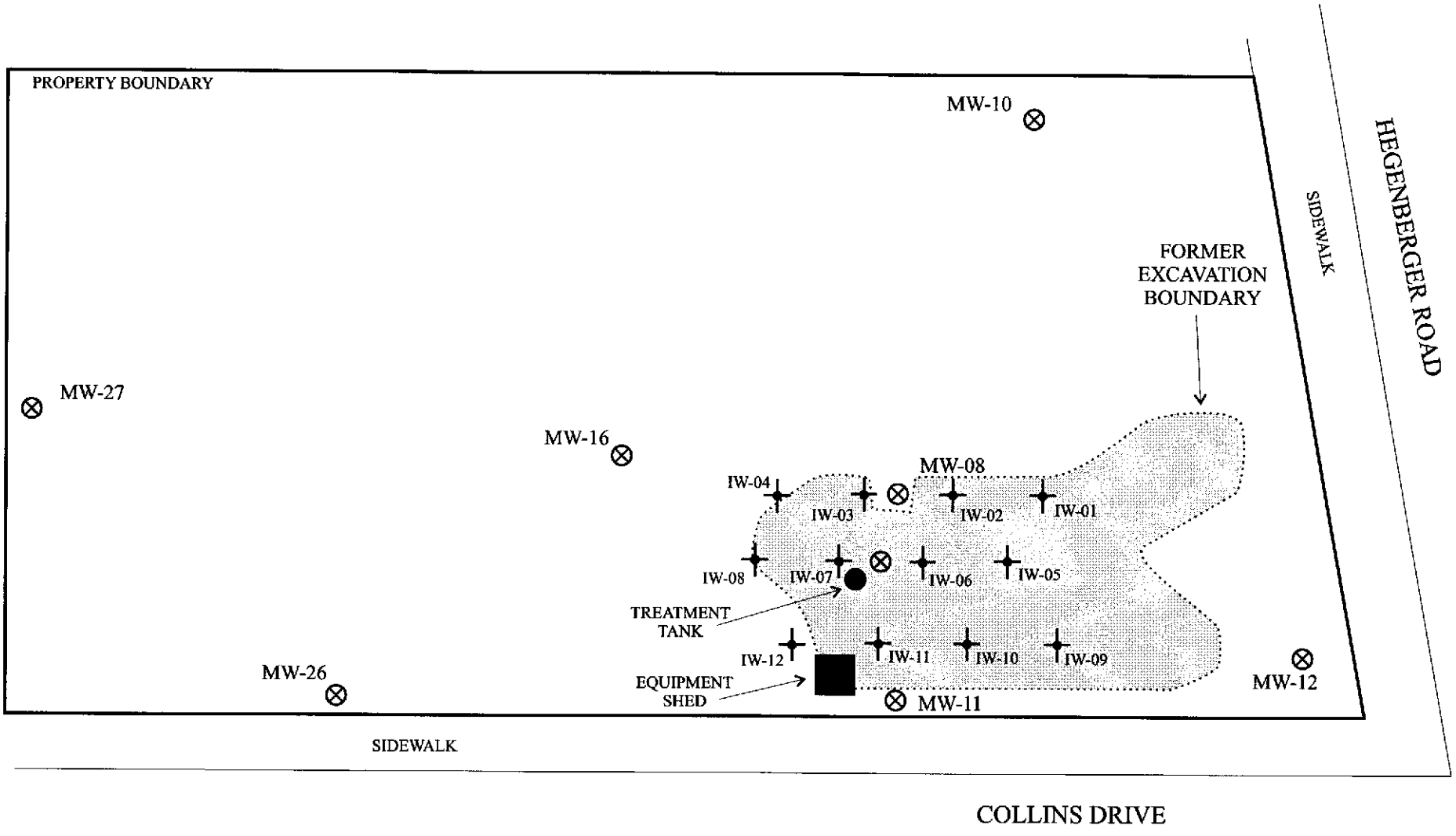
3210 OLD TUNNEL ROAD, SUITE B, LAFAYETTE, CA

HYDROCARBON CONCENTRATIONS: 9/11/02

625 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE 3
AEI PROJECT NO 5392



N

⊗ MONITORING WELL LOCATIONS

✦ DUEL COMPLETION WELLS

SCALE: 1 in. = 45 ft.

AEI CONSULTANTS

3210 OLD TUNNEL ROAD, SUITE B, LAFAYETTE, CA

TREATMENT SYSTEM COMPONENT LOCATIONS

625 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE 4
AEI PROJECT NO 5392

1. Treatment area looking northwest

2. Growth tank and equipment shed, looking west. Air and water discharge lines for IW-01 to IW-04 in the foreground.

3. Growth tank, with water discharge manifold in the foreground.

AEI CONSULTANTS 3210 Old Tunnel Rd. Ste B. Lafayette, CA	
FIGURE 5: PHOTOGRAPHS	
625 HEGENGERGER OAKLAND, CA	Project No: 5392

Table 1
Water Table Elevations

Well ID	Date	Well Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)
MW-8	12/22/1993	4.88	6.72	-1.84
MW-10	12/22/1993	4.21	6.00	-1.79
MW-11	12/22/1993	5.04	6.84	-1.80
MW-12	12/22/1993	4.58	6.07	-1.49
MW-16	12/22/1993	5.53	7.48	-1.95
MW-8	6/30/1994	4.88	6.55	-1.67
MW-10	6/30/1994	4.21	5.79	-1.58
MW-11	6/30/1994	5.04	6.73	-1.69
MW-12	6/30/1994	4.58	6.06	-1.48
MW-16	6/30/1994	5.53	7.28	-1.75
MW-8	9/27/1994	4.88	7.20	-2.32
MW-10	9/27/1994	4.21	6.39	-2.18
MW-11	9/27/1994	5.04	7.41	-2.37
MW-12	9/27/1994	4.58	6.57	-1.99
MW-16	9/27/1994	5.53	7.93	-2.40
MW-8	1/4/1995	4.88	6.21	-1.67
MW-10	1/4/1995	4.21	5.42	-1.58
MW-11	1/4/1995	5.04	6.45	-1.69
MW-12	1/4/1995	4.58	5.50	-1.48
MW-16	1/4/1995	5.53	7.03	-1.50
MW-8	1/10/1995	4.88	5.09	-2.32
MW-10	1/10/1995	4.21	4.67	-2.18
MW-11	1/10/1995	5.04	5.72	-2.37
MW-12	1/10/1995	4.58	4.46	-1.99
MW-16	1/10/1995	5.53	6.21	-2.40
MW-24	1/10/1995	5.49	5.97	-0.48
MW-8	10/2/1995	4.88	7.66	-2.78
MW-10	10/2/1995	4.21	6.87	-2.66
MW-11	10/2/1995	5.04	7.85	-2.81
MW-12	10/2/1995	4.58	6.99	-2.41
MW-16	10/2/1995	5.53	8.40	-2.87
MW-24	10/2/1995	5.49	8.31	-2.82
MW-8	1/8/1996	4.88	7.45	-2.57
MW-10	1/8/1996	4.21	6.82	-2.61
MW-11	1/8/1996	5.04	7.91	-2.87
MW-12	1/8/1996	4.58	6.65	-2.07
MW-16	1/8/1996	5.53	8.23	-2.70
MW-24	1/8/1996	5.49	8.08	-2.59
MW-8	4/25/1996	4.88	7.32	-2.44
MW-10	4/25/1996	4.21	7.48	-3.27
MW-11	4/25/1996	5.04	7.51	-2.47
MW-12	4/25/1996	4.58	6.56	-1.98
MW-16	4/25/1996	5.53	8.06	-2.53
MW-8	3/25/1997	4.88	6.75	-1.87
MW-10	3/25/1997	4.21	5.83	-1.62
MW-11	3/25/1997	5.04	6.83	-1.79
MW-12	3/25/1997	4.58	6.03	-1.45
MW-16	3/25/1997	5.53	7.35	-1.82
MW-8	7/3/1997	4.88	8.70	-3.82
MW-10	7/3/1997	4.21	5.87	-1.66
MW-11	7/3/1997	5.04	6.83	-1.79
MW-12	7/3/1997	4.58	6.03	-1.45
MW-16	7/3/1997	5.53	7.35	-1.82

Table 1: Continued

Well ID	Date	Well Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)
MW-8	10/2/1997	4.88	6.70	-1.82
MW-10	10/2/1997	4.21	5.90	-1.69
MW-11	10/2/1997	5.04	6.85	-1.81
MW-12	10/2/1997	4.58	6.08	-1.50
MW-16	10/2/1997	5.53	7.36	-1.83
MW-8	1/28/1998	4.88	5.20	-0.32
MW-10	1/28/1998	4.21	4.40	-0.19
MW-11	1/28/1998	5.04	5.33	-0.29
MW-12	1/28/1998	4.58	4.54	-0.04
MW-16	1/28/1998	5.53	5.90	-0.37
MW-8	2/9/2000	4.88	5.12	-0.24
MW-10	2/9/2000	4.21	5.25	-1.04
MW-11	2/9/2000	5.04	6.25	-1.21
MW-12	2/9/2000	4.58	5.33	-0.75
MW-16	2/9/2000	5.53	6.81	-1.28
MW-8	8/9/2000*	3.96	5.15	-1.19
MW-10	8/9/2000	4.20	5.33	-1.13
MW-11	8/9/2000	5.01	6.20	-1.19
MW-12	8/9/2000	4.58	5.14	-0.56
MW-16	8/9/2000	5.51	6.74	-1.23
MW-26	8/9/2000	5.12	5.81	-0.69
MW-27	8/9/2000	4.06	5.12	-1.06
EW-01	8/9/2000	5.19	6.38	-1.19
MW-8	5/31/2001	3.96	5.54	-1.58
MW-10	5/31/2001	4.20	5.81	-1.61
MW-11	5/31/2001	5.01	6.65	-1.64
MW-12	5/31/2001	4.58	6.28	-1.70
MW-16	5/31/2001	5.51	7.14	-1.63
MW-26	5/31/2001	5.12	6.25	-1.13
MW-27	5/31/2001	4.06	5.84	-1.78
EW-01	5/31/2001	5.19	6.84	-1.65
MW-8	4/8/2002	3.96	4.85	-0.89
MW-10	4/8/2002	4.20	4.93	-0.73
MW-11	4/8/2002	5.01	5.94	-0.93
MW-12	4/8/2002	4.58	5.08	-0.50
MW-16	4/8/2002	5.51	6.45	-0.94
MW-26	4/8/2002	5.12	5.88	-0.76
MW-27	4/8/2002	4.06	5.32	-1.26
EW-01	4/8/2002	5.19	6.11	-0.92
MW-8	7/29/2002	3.96	5.22	-1.26
MW-8	9/11/2002	3.96	5.39	-1.43
MW-10	9/11/2002	4.20	5.57	-1.37
MW-11	9/11/2002	5.01	6.50	-1.49
MW-12	9/11/2002	4.58	5.67	-1.09
MW-16	9/11/2002	5.51	7.01	-1.50
MW-26	9/11/2002	5.12	6.54	-1.42
MW-27	9/11/2002	4.06	6.04	-1.98
EW-01	9/11/2002	5.19	6.66	-1.47

Notes: All elevations are measured from the top of casing.
ft msl = feet above mean sea level
NA = Not Available
*All well elevations were re-surveyed 9/5/00 by Logan Survey (lic. # 5003)

Table 2

Water Quality Parameters

Well ID	Date	Volume Withdrawn (gallons)	Temperature (deg. C)	Qualitative Tubidity	pH	Stabilized Disolved Oxygen (mg/L)	Specific Conductivy µSeimens/cm	N (mg/L)	P (mg/L)	K (mg/L)
MW-8	12/22/1993	4.5	19.4	turbid*	-	-	-	-	-	-
MW-10	12/22/1993	7.0	20.8	moderately turbid	-	-	-	-	-	-
MW-11	12/22/1993	4.5	20.2	turbid	-	-	-	-	-	-
MW-12	12/22/1993	5.3	20.3	moderately turbid	-	-	-	-	-	-
MW-16	12/22/1993	4.5	20.5	turbid	-	-	-	-	-	-
MW-8	6/30/1994	8.0	21.0	turbid*	-	-	-	-	-	-
MW-10	6/30/1994	6.0	21.0	turbid	-	-	-	-	-	-
MW-11	6/30/1994	6.0	20.2	turbid	-	-	-	-	-	-
MW-12	6/30/1994	6.0	20.6	moderately turbid	-	-	-	-	-	-
MW-16	6/30/1994	4.5	21.8	turbid	-	-	-	-	-	-
MW-8	9/27/1994	4.5	21.6	turbid*	-	-	-	-	-	-
MW-10	9/27/1994	6.0	22.6	turbid	-	-	-	-	-	-
MW-11	9/27/1994	3.0	21.0	turbid	-	-	-	-	-	-
MW-12	9/27/1994	6.0	22.5	turbid	-	-	-	-	-	-
MW-16	9/27/1994	3.0	22.6	turbid	-	-	-	-	-	-
MW-8	1/10/1995	5.3	17.2	turbid*	-	-	-	-	-	-
MW-10	1/10/1995	6.0	19.5	turbid	-	-	-	-	-	-
MW-11	1/10/1995	5.3	18.6	turbid	-	-	-	-	-	-
MW-12	1/10/1995	6.0	19.3	turbid	-	-	-	-	-	-
MW-16	1/10/1995	6.0	19.3	turbid	-	-	-	-	-	-
MW-24	1/10/1995	41.0	18.9	turbid						
MW-8	10/2/1995	11.0	22.8	moderately turbid	6.49	-	-	-	-	-
MW-10	10/2/1995	11.0	22.6	turbid	7.20	-	-	-	-	-
MW-11	10/2/1995	12.0	22.0	moderately turbid	6.85	-	-	-	-	-
MW-12	10/2/1995	11.0	22.9	turbid	7.20	-	-	-	-	-
MW-16	10/2/1995	11.0	22.6	turbid	7.20	-	-	-	-	-
MW-24	10/2/1995	20.0	22.8	turbid	7.10					
MW-8	1/8/1996	12.0	17.30**	slightly turbid	6.74**	-	-	-	-	-
MW-10	1/8/1996	10.0	17.90**	slightly turbid	6.62**	-	-	-	-	-
MW-11	1/8/1996	5.5	17.60**	slightly turbid	6.65**	-	-	-	-	-
MW-12	1/8/1996	10.0	18.00**	slightly turbid	6.49**	-	-	-	-	-
MW-16	1/8/1996	5.0	19.00**	slightly turbid	7.50**	-	-	-	-	-
MW-24	1/8/1996	35.0	17.60**	slightly turbid	6.67**					
MW-8	4/25/1996	5.0	21.1	clear	6.53	-	-	-	-	-
MW-10	4/25/1996	5.0	22.8	slightly turbid	6.70	-	-	-	-	-
MW-11	4/25/1996	5.5	21.4	clear	6.58	-	-	-	-	-
MW-12	4/25/1996	5.0	22.4	clear	6.50	-	-	-	-	-
MW-16	4/25/1996	5.0	25.3	slightly turbid	7.12	-	-	-	-	-
MW-8	3/25/1997	10.0	18.2	clear	6.67	0.23	-	-	-	-
MW-10	3/25/1997	12.0	19.7	slightly turbid	6.79	0.35	-	-	-	-
MW-11	3/25/1997	10.0	18.6	clear	6.64	0.19	-	-	-	-
MW-12	3/25/1997	10.0	18.4	clear	6.67	0.19	-	-	-	-
MW-16	3/25/1997	10.0	17.9	slightly turbid	7.02	0.10	-	-	-	-
MW-8	7/3/1997	12.0	19.6	clear	6.43	0.04	-	<0.5	1.8	-
MW-10	7/3/1997	12.0	21.5	slightly turbid	6.67	0.17	-	-	-	-
MW-11	7/3/1997	12.0	19.4	clear	6.36	0.05	-	<0.5	1.8	-
MW-12	7/3/1997	12.0	20.6	clear	6.50	0.10	-	-	-	-
MW-16	7/3/1997	12.0	19.7	clear	6.76	0.06	-	-	-	-
MW-8	10/2/1997	4.5	21.2	clear	6.93	-	-	-	-	-
MW-10	10/2/1997	5.0	23.0	slightly turbid	7.26	-	-	-	-	-
MW-11	10/2/1997	7.0	22.9	clear	6.73	-	-	-	-	-
MW-12	10/2/1997	4.5	20.9	clear	7.15	-	-	-	-	-
MW-16	10/2/1997	7.0	19.1	slightly turbid	7.22	-	-	-	-	-
MW-8	1/28/1998	15.0	18.5	slightly greenish	6.86	0.10	-	-	-	-
MW-10	1/28/1998	15.0	20.9	moderately turbid	7.05	0.09	-	-	-	-
MW-11	1/28/1998	15.0	20.1	slightly greenish	6.74	0.11	-	-	-	-
MW-12	1/28/1998	14.0	19.8	moderately turbid	6.90	0.11	-	-	-	-
MW-16	1/28/1998	16.0	19.1	slightly turbid	7.20	0.18	-	-	-	-

TABLE 2: Continued

Well ID	Date	Volume Withdrawn (gallons)	Stabilized Temperature (deg. C)	Qualitative Tubidity	Stabilized pH	Stabilized Disolved Oxygen (mg/L)	Specific Conductivy µSeimens/cm	N (mg/L)	P (mg/L)	K (mg/L)
MW-8	2/9/2000	5.0	63.00***	slightly greenish	8.35	1.24	3120	19	3.4	35
MW-10	2/9/2000	5.0	67.7	slightly turbid	8.56	0.70	5610	15	6.4	66
MW-11	2/9/2000	5.0	63.5	slightly turbid	8.35	0.62	2980	<0.2	2.1	49
MW-12	2/9/2000	5.0	62.8	clear	8.41	1.28	2150	10	3.1	33
MW-16	2/9/2000	5.0	63.2	slightly turbid	8.63	3.13	1640	<0.2	1.8	12
EW-01	2/9/2000	32.0	60.0	slightly turbid	8.48	0.51	3190	21	1.7	51
MW-8	8/9/2000	5.0	18.9	Slighlty turbid	6.68	1.55	365	-	-	-
MW-10	8/9/2000	5.0	21.9	Turbid - clears	6.68	1.63	565	-	-	-
MW-11	8/9/2000	5.5	19.7	Slighlty turbid	6.48	1.48	268	-	-	-
MW-12	8/9/2000	5.0	21.3	clear	6.72	1.69	217	-	-	-
MW-16	8/9/2000	4.0	20.5	Turbid - clears	6.62	1.33	286	-	-	-
MW-26	8/9/2000	5.0	21.3	Turbid - clears	6.99	2.78	123	-	-	-
MW-27	8/9/2000	5.0	24.4	clear	6.93	2.21	146	-	-	-
EW-01	8/9/2000	31.0	18.4	Turbid - clears	6.69	1.32	471	-	-	-
MW-8	5/31/2001	4.25	18.8	clears	7.09	0.93	1339	-	-	-
MW-10	5/31/2001	4.75	20.6	clears quickly	6.98	0.86	>2000	-	-	-
MW-11	5/31/2001	5.0	18.8	clears quickly	7.09	1.28	1331	-	-	-
MW-12	5/31/2001	5.0	19.8	clears quickly	7.07	1.47	962	-	-	-
MW-16	5/31/2001	3.0	20.3	Slighlty turbid	7.03	1.44	1307	-	-	-
MW-26	5/31/2001	5.0	19.6	clears quickly	7.01	1.20	615	-	-	-
MW-27	5/31/2001	5.0	22.1	clears quickly	7.06	1.74	790	-	-	-
EW-01	5/31/2001	30.0	17.8	clears quickly	7.09	1.50	>2000	-	-	-
MW-8	4/8/2002	5.0	17.3	Clears	7.30	1.02	>4000	-	-	-
MW-10	4/8/2002	5.5	19.2	Clears	7.31	1.15	>4000	-	-	-
MW-11	4/8/2002	5.0	18.0	Clears quickly	7.28	0.96	2645	-	-	-
MW-12	4/8/2002	5.0	17.9	Clears quickly	7.29	2.86	2604	-	-	-
MW-16	4/8/2002	3.0	18.0	Clear	7.29	0.81	3293	-	-	-
MW-26	4/8/2002	5.0	17.5	Greyish, clear by 2 g	7.31	0.88	1428	-	-	-
MW-27	4/8/2002	6.0	15.9	Black, clear by 3 g	7.32	1.13	1290	-	-	-
EW-01	4/8/2002	32.0	17.6	Clears quickly	7.32	1.30	>4000	-	-	-
MW-8	9/11/2002	10.0	19.8	clears quickly	6.97	3.41	>3999	-	-	-
MW-10	9/11/2002	6.0	21.4	clears quickly	7.19	1.73	>3999	-	-	-
MW-11	9/11/2002	5.0	20.0	clears quickly	7.00	1.77	2686	-	-	-
MW-12	9/11/2002	5.0	21.1	clears quickly	7.32	1.30	2488	-	-	-
MW-16	9/11/2002	3.0	20.2	Black, clear by 1 g	7.34	1.21	3123	-	-	-
MW-26	9/11/2002	4.5	2.8	Greyish, clear by 2 g	6.97	0.42	1367	-	-	-
MW-27	9/11/2002	6.0	21.0	Greyish, clear by 1 g	7.31	1.64	3990	-	-	-
EW-01	9/11/2002	31.0	19.8	clears quickly	7.03	0.60	>3999	-	-	-

Notes:
* A slight hydrocarbon sheen was reported.
** Only one measurement collected.
*** Temperature expressed in degrees Farenheight
N = Nitrogen (total)
P = Phosphoruus (total)
K = Potassium
- = Data not obtained or available

Table 3
Groundwater Sample Analytical Data

	Date	TPH-g µg/L	TPH-d µg/L	TPH-o µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Xylenes µg/L	MTBE µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	EBD µg/L	1,2-DCA µg/L
		EPA method 8015M			EPA method 8020					EPA method 8260B						
MW-8	5/28/1993	19000	1000	-	6400	28	160	36	-	-	-	-	-	-	-	-
	12/22/1993	56000	300	<200	16000	5999.3	650	2700	-	-	-	-	-	-	-	-
	6/30/1994	41000	<500	500	11000	4800	2200	8200	-	-	-	-	-	-	-	-
	9/27/1994	28000	620	<200	8500	260	1600	5300	-	-	-	-	-	-	-	-
	1/10/1995	58000	70	<200	10000	11000	2400	12000	-	-	-	-	-	-	-	-
	10/2/1995	28000	<50	<500	51	16	54	80	-	-	-	-	-	-	-	-
	1/8/1996	72000	3700	<250	8600	13000	2200	12000	-	-	-	-	-	-	-	-
	1/8/1996	62000	-	-	7200	9500	1600	8000	-	-	-	-	-	-	-	-
	4/25/1996	33000	3100	-	7600	2300	1500	4800	-	-	-	-	-	-	-	-
	3/25/1997	23000	1900	-	8300	80	350	380	1500	-	-	-	-	-	-	-
	7/3/1997	14000	1400	-	6600	32	190	100	1300	-	-	-	-	-	-	-
	7/3/1997	15000	1400	-	7300	34	160	110	1700	-	-	-	-	-	-	-
	10/2/1997	7600	810	-	3500	14	37	21	890	-	-	-	-	-	-	-
	1/28/1998	21000	2700	-	5500	270	730	780	900	-	-	-	-	-	-	-
	9/9/1999	2500	-	-	790	2.8	4.7	8	380	-	-	-	-	-	-	-
	2/9/2000	39000	-	-	6400	4300	950	390	460	-	-	-	-	-	-	-
	8/9/2000	5500	-	-	1700	15	130	370	540	-	-	-	-	-	-	-
	5/31/2001	14,000	-	-	2,800	63	610	540	370	-	-	-	-	-	-	-
	8/10/2001	4,400	-	-	1,200	41	160	170	380	-	-	-	-	-	-	-
	9/25/2001	2,100	-	-	470	7.2	6.5	7.1	210	-	-	-	-	-	-	-
	12/14/2001	1800	-	-	230	34	67	150	26	-	-	-	-	-	-	-
	4/8/2002	32000	-	-	2000	820	1100	2300	62	-	-	-	-	-	-	-
	7/29/2002	4300	-	-	1200	21	58	69	280	-	-	-	-	-	-	-
	9/11/2002	**2000**	**-**	**-**	**520**	**5.4**	**11**	**8.7**	**430**	**270**	**<5.0**	**<5.0**	**<5.0**	**<50**	**<5.0**	**<5.0**
MW-10	5/28/1993	<50	54	-	<0.3	<0.3	<0.3	<0.9	-	-	-	-	-	-	-	-
	12/22/1993	<50	580	<200	<0.5	<0.7	<0.5	<0.2	-	-	-	-	-	-	-	-
	6/30/1994	<50	<50	600	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	9/27/1994	<50	610	<200	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	1/10/1995	<50	600	<200	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	10/2/1995	350	<50	<500	4.4	2.6	2.3	6.4	-	-	-	-	-	-	-	-
	1/8/1996	50	<50	<250	5.8	7.1	1.2	6.4	-	-	-	-	-	-	-	-
	4/25/1996	<50	<50	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-
	3/25/1997	<50	<50	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	7/3/1997	<50	<50	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	10/2/1997	<50	110	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	1/28/1998	<50	<50	-	5.7	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	8/19/1999	<50	-	-	5.7	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	2/9/2000	<50	-	-	5.7	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	8/9/2000	<50	-	-	5.7	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	8/10/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**2.3**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

Table 3: Continued

	Date	TPH-g µg/L	TPH-d µg/L	TPH-o µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Xylenes µg/L	MTBE µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	EBD µg/L	1,2-DCA µg/L
		EPA method 8015M			EPA method 8020					EPA method 8260B						
MW-11	5/28/1993	1200	<50	-	450	17	1.5	2.1	-	-	-	-	-	-	-	-
	12/22/1993	9200	530	<200	4500	38.3	12	43	-	-	-	-	-	-	-	-
	6/30/1994	8800	<50	1100	1500	13	690	1200	-	-	-	-	-	-	-	-
	6/30/1994	9700	-	-	1700	14	730	1300	-	-	-	-	-	-	-	-
	9/27/1994	15000	910	<200	6500	26	870	590	-	-	-	-	-	-	-	-
	1/10/1995	14000	1100	<200	890	220	840	2400	-	-	-	-	-	-	-	-
	10/2/1995	7100	<50	<500	47	5.7	11	36	-	-	-	-	-	-	-	-
	1/8/1996	12000	2000	<250	1200	99	790	1400	-	-	-	-	-	-	-	-
	4/25/1996	5800	1400	-	230	59	200	770	-	-	-	-	-	-	-	-
	3/25/1997	760	490	-	130	49	2.9	1	130	-	-	-	-	-	-	-
	7/3/1997	290	<50	-	<0.5	<0.5	600	<0.5	380	-	-	-	-	-	-	-
	10/2/1997	220	220	-	8.8	0.73	<0.5	0.67	720	-	-	-	-	-	-	-
	1/28/1998	540	160	-	140	0.81	<0.5	<0.5	360	-	-	-	-	-	-	-
	8/19/1999	590	-	-	180	3.2	<0.5	<0.5	720	-	-	-	-	-	-	-
	2/9/2000	680	-	-	100	3.1	<0.5	2.9	280	-	-	-	-	-	-	-
	8/9/2000	350	-	-	1.7	2.6	<0.5	0.84	410	-	-	-	-	-	-	-
	5/31/2001	280	-	-	1.1	1.6	0.25	0.25	430	-	-	-	-	-	-	-
	8/10/2001	300	-	-	0.95	1.6	0.25	0.66	340	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	250	-	-	2.8	1.7	0.25	0.9	300	-	-	-	-	-	-	-
	4/8/2002	86	-	-	0.7	0.77	<0.5	<0.5	300							
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**320**	**250**	**<2.5**	**<2.5**	**<2.5**	**98**	**<2.5**	**<2.5**
MW-12	5/28/1993	<50	<50	-	<0.3	<0.3	<0.3	<0.9	-	-	-	-	-	-	-	-
	12/22/1993	50	300	<200	<0.5	<0.7	<0.5	<0.2	-	-	-	-	-	-	-	-
	6/30/1994	<50	<50	400	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	9/27/1994	<50	400	<200	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	9/27/1994	<50	-	-	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	1/10/1995	<50	300	<200	<0.5	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	10/2/1995	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-
	1/8/1996	<50	<50	<250	2.4	2.7	0.54	2.8	-	-	-	-	-	-	-	-
	4/25/1996	<50	<50	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-
	3/25/1997	<50	<50	-	<0.5	<0.5	<0.5	<0.5	16	-	-	-	-	-	-	-
	7/3/1997	<50	<50	-	<0.5	<0.5	<0.5	<0.5	16	-	-	-	-	-	-	-
	10/2/1997	<50	120	-	<0.5	<0.5	<0.5	<0.5	17	-	-	-	-	-	-	-
	1/28/1998	<50	<50	-	1.3	<0.5	<0.5	<0.5	13	-	-	-	-	-	-	-
	8/19/1999	<50	-	-	<0.5	<0.5	<0.5	<0.5	9.1	-	-	-	-	-	-	-
	2/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	6.2	-	-	-	-	-	-	-
	8/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	6.4	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	6.5	-	-	-	-	-	-	-
	8/10/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	5.3	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	51	-	-	3.1	0.98	1.2	2	<5.0	-	-	-	-	-	-	-
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**6.2**	**3.6**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

Table 3: Continued

	Date	TPH-g µg/L	TPH-d µg/L	TPH-o µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Xylenes µg/L	MTBE µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	EBD µg/L	1,2-DCA µg/L
		EPA method 8015M			EPA method 8020					EPA method 8260B						
MW-16	5/28/1993	<50	<50	-	2.8	0.3	<0.7	<0.9	-	-	-	-	-	-	-	-
	12/22/1993	2200	520	<200	<0.5	<0.7	<0.5	<0.2	-	-	-	-	-	-	-	-
	6/30/1994	<50	<50	900	8	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	9/27/1994	70	590	<200	17	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	1/10/1995	300	700	<200	190	<0.5	<0.5	<0.2	-	-	-	-	-	-	-	-
	10/2/1995	550	<50	<500	7.7	0.7	3.5	13	-	-	-	-	-	-	-	-
	1/8/1996	360	140	<250	<0.5	<0.5	4	9.7	-	-	-	-	-	-	-	-
	4/25/1996	1100	330	-	390	3.7	3.2	14	-	-	-	-	-	-	-	-
	3/25/1997	310	120	-	<0.5	<0.5	<0.5	1.4	2100	-	-	-	-	-	-	-
	7/3/1997	250	130	-	<0.5	<0.5	<0.5	<0.5	1900	-	-	-	-	-	-	-
	10/2/1997	290	180	-	<0.5	<0.5	<0.5	<0.5	2000	-	-	-	-	-	-	-
	1/28/1998	150	130	-	<0.5	<0.5	<0.5	<0.5	1900	-	-	-	-	-	-	-
	9/9/1999	<50	-	-	<0.5	<0.5	<0.5	<0.5	880	-	-	-	-	-	-	-
	2/9/2000	<50	-	-	<0.5	0.6	<0.5	8.7	88	-	-	-	-	-	-	-
	8/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	800	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	69	-	-	-	-	-	-	-
	8/10/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	300	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	<50	-	-	1.7	0.61	0.78	1.4	45	-	-	-	-	-	-	-
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**280**	**250**	**<2.5**	**<2.5**	**<2.5**	**33**	**<2.5**	**<2.5**
EW-01	2/9/2000	2600	-	-	800	48	21	91	750	-	-	-	-	-	-	-
	8/9/2000	6700	-	-	2700	19	120	31	1300	-	-	-	-	-	-	-
	5/31/2001	3,100	-	-	580	24	36	32	850	-	-	-	-	-	-	-
	8/10/2001	210	-	-	14	2.2	1.0	1.1	620	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	2,400	-	-	320	57	23	70	510	-	-	-	-	-	-	-
	4/8/2002	230	-	-	37	3.1	1.5	1	190	-	-	-	-	-	-	-
	9/11/2002	**1600**	**-**	**-**	**400**	**5.2**	**22**	**56**	**630**	**470**	**<5.0**	**<5.0**	**<5.0**	**77**	**<5.0**	**<5.0**
MW-26	8/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	8.3	-	-	-	-	-	-	-
	8/10/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**0.80**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-27	8/9/2000	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	5/31/2001	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	8/10/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9/25/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/14/2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/8/2002	<50	-	-	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/11/2002	**<50**	**-**	**-**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**0.52**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

TPH-g = TPH as gasoline
TPH-d = TPH as diesel
TPH-o = TPH as motor oil

TABLE 4: System Operation Summary

Week of	Extraction	Injection		Sparging	
	volume (gallons)	Volume (gallons)	Target (IW-X)	Target (IW-X)	Duration (hours)
6/18/2001	500	0	-	-	0
6/25/2001	400	400	3,4,7,8	3,4,7,8	36
7/2/2001	700	400	1,2,5,6	3,4,7,8	38
7/9/2001	400	700	1,2,5,6	1,2,5,6	18
7/16/2001	375	400	7,8,11,12	7,8,11,12	28
7/23/2001	400	350	3,4,7,8	7,8,11,12	36
7/30/2001	700	400	3,4,7,8	3,4,7,8	32
8/6/2001	400	700	1,2,5,6	3,4,7,8	32
8/13/2001	450	400	1,2,5,6	1,2,5,6	21
8/20/2001	500	500	5,6,9,10	1,2,5,6	28
8/27/2001	750	400	5,6,9,10	5,6,9,10	35
9/3/2001	800	750	1,2,3,6	5,6,9,10	36
9/10/2001	400	0	-	1,2,3,6	9
11/12/2001*	500	0	-	-	0
11/19/2001	800	400	10,11,6,7	10,11,12,7	36
11/26/2001	400	700	3,4,7,8	3,4,7,8	27
12/3/2001	400	400	1,2,5,6	3,4,7,8	27
12/10/2001	450	400	5,6,9,10	1,2,5,6	36
12/17/2001	400	450	5,6,9,10	5,6,9,10	27
1/7/2002	500	400	1,2,3,6	5,6,9,10	36
1/14/2002	400	450	1,2,3,6	1,2,3,6	27
1/21/2002	400	400	2,3,6,7	1,2,3,6	18
1/28/2002	350	400	2,3,6,7	2,3,6,7	27
2/4/2002	0	400	7,8,11,12	2,3,6,7	9
2/11/2002	500	400	7,10,11	7,8,11,12	28
2/18/2002	400	400	7,8,11,12	7,8,11,12	36
2/25/2002	400	400	7,8,11,12	3,4,6,7	27
3/4/2002	450	850	1,2,3 & 6,7	2,3,6,7	36
Totals (approx):	**13125**	**11850**			**746**

*Equipment stolen, vandalism occurred between September 15 and 21, 2001

AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-8

Project Name: Hegenberger	Date of Sampling: 9/11/02
Job Number: 4342	Name of Sampler: PJM & NG
Project Address: 625 Hegenberger Road	Oakland, CA

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	OK
Well Cap & Lock – OK/Replace	OK
Elevation of Top of Casing	3.96
Depth of Well	14.40
Depth to Water	5.39
Water Elevation	-1.43
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	4.32
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	10
Appearance of Purge Water	Brownish – clears by 2 gal

GROUNDWATER SAMPLES

Number of Samples/Container Size	4 40 ml VOAs

Time	Vol Remvd (gal)	Temp C	PH	Cond (µS)	Dissolved Oxygen (mg/L)	Redox Potential (mV)
10:35	2	20.1	7.22	>3999		
	4	20.0	7.05	>3999		
	6	20.0	7.01	>3999		
	8	19.9	7.02	>3999		
	10	19.8	6.97	>3999		
Stabilized					3.41	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Faint hydrocarbon odor, no sheen.

TD - Total Depth of Well
DTW - Depth To Water

AEI CONSULTANTS – GROUNDWATER MONITORING WELL FIELD SAMPLING FORM	
Monitoring Well Number: MW-10	
Project Name: Hegenberger	Date of Sampling: 9/11/02
Job Number: 4342	Name of Sampler: PJM & NG
Project Address: 625 Hegenberger Road	Oakland, CA
MONITORING WELL DATA	
Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	
Well Cap & Lock – OK/Replace	
Elevation of Top of Casing	4.20
Depth of Well	15.7
Depth to Water	5.57
Water Elevation	-1.37
Three Well Volumes (gallons)*	
2" casing: (TD – DTW)(0.16)(3)	4.86
4" casing: (TD – DTW)(0.65)(3)	
6" casing: (TD – DTW)(1.44)(3)	
Actual Volume Purged (gallons)	6
Appearance of Purge Water	Clears quickly
GROUNDWATER SAMPLES	
Number of Samples/Container Size	4 40 ml VOAs

Time	Vol Remvd (gal)	Temp C	PH	Cond (µS)	Dissolved Oxygen (mg/L)	Redox Potential (mV)
9.34	2	21.6	7.18	>3999		
	4	21.1	7.17	>3999		
	6	21.4	7.19	>3999		
Stabilized					1.73	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

TD - Total Depth of Well
DTW - Depth To Water

AEI CONSULTANTS – GROUNDWATER MONITORING WELL FIELD SAMPLING FORM						
Monitoring Well Number: MW-11						
Project Name: Hegenberger				Date of Sampling: 9/11/02		
Job Number: 4342				Name of Sampler: PJM & NG		
Project Address: 625 Hegenberger Road				Oakland, CA		
MONITORING WELL DATA						
Well Casing Diameter (2"/4"/6")				2"		
Seal at Grade -- Type and Condition						
Well Cap & Lock – OK/Replace				OK		
Elevation of Top of Casing				5.01		
Depth of Well				15		
Depth to Water				6.50		
Water Elevation				-1.49		
Three Well Volumes (gallons)*						
2" casing: (TD – DTW)(0.16)(3)				4.08		
4" casing: (TD – DTW)(0.65)(3)						
6" casing: (TD – DTW)(1.44)(3)						
Actual Volume Purged (gallons)				5		
Appearance of Purge Water				Clears quickly		
GROUNDWATER SAMPLES						
Number of Samples/Container Size				4 40 ml VOAs		
Time	Vol Remvd (gal)	Temp C	PH	Cond (µS)	Dissolved Oxygen (mg/L)	Redox Potential (mV)
10:01	2	19.8	7.05	2750		
	4	20.0	7.00	2686		
Stabilized					1.77	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)						
Mild HC odor						

TD - Total Depth of Well
DTW - Depth To Water

AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM						
Monitoring Well Number: MW-12						
Project Name: Hegenberger				Date of Sampling: 9/11/02		
Job Number: 4342				Name of Sampler: PJM & NG		
Project Address: 625 Hegenberger Road				Oakland, CA		
MONITORING WELL DATA						
Well Casing Diameter (2"/4"/6")				2"		
Seal at Grade – Type and Condition						
Well Cap & Lock – OK/Replace						
Elevation of Top of Casing				4.58		
Depth of Well				15.5		
Depth to Water				5.67		
Water Elevation				-1.09		
Three Well Volumes (gallons)*						
2" casing: (TD – DTW)(0.16)(3)				4.72		
4" casing: (TD – DTW)(0.65)(3)						
6" casing: (TD – DTW)(1.44)(3)						
Actual Volume Purged (gallons)				5		
Appearance of Purge Water				Clears quickly		
GROUNDWATER SAMPLES						
Number of Samples/Container Size				4 40 ml VOAs		
Time	Vol Remvd (gal)	Temp C	PH	Cond (µS)	Dissolved Oxygen (mg/L)	Redox Potential (mV)
9:49	1	20.7	7.32	3422		
	3	21.0	7.31	2692		
	5	21.1	7.32	2488		
Stabilized					1.30	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)						
No HC odor						

TD - Total Depth of Well
DTW - Depth To Water

AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM						
Monitoring Well Number: MW-16						
Project Name: Hegenberger				Date of Sampling: 9/11/02		
Job Number: 4342				Name of Sampler: PJM & NG		
Project Address: 625 Hegenberger Road				Oakland, CA		
MONITORING WELL DATA						
Well Casing Diameter (2"/4"/6")				2"		
Seal at Grade -- Type and Condition						
Well Cap & Lock – OK/Replace						
Elevation of Top of Casing				5.51		
Depth of Well				12.5		
Depth to Water				7.01		
Water Elevation				-1.50		
Three Well Volumes (gallons)*						
2" casing: (TD – DTW)(0.16)(3)				2.64		
4" casing: (TD – DTW)(0.65)(3)						
6" casing: (TD – DTW)(1.44)(3)						
Actual Volume Purged (gallons)				3		
Appearance of Purge Water				Initially black – clears quickly		
GROUNDWATER SAMPLES						
Number of Samples/Container Size				4 40 ml VOAs		
Time	Vol Remvd (gal)	Temp C	PH	Cond (µS)	Dissolved Oxygen (mg/L)	Redox Potential (mV)
9:24	1	19.7	7.23	3119		
	3	20.2	7.34	3123		
Stabilized					1.21	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)						
Slight rotten egg odor (H_2S)						

TD - Total Depth of Well
DTW - Depth To Water

AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM						
Monitoring Well Number: EW-01						
Project Name: Hegenberger				Date of Sampling: 9/11/02		
Job Number: 4342				Name of Sampler: PJM & NG		
Project Address: 625 Hegenberger Road				Oakland, CA		
MONITORING WELL DATA						
Well Casing Diameter (2"/4"/6")				4"		
Seal at Grade – Type and Condition				OK		
Well Cap & Lock – OK/Replace				OK		
Elevation of Top of Casing				5.19		
Depth of Well				22.5		
Depth to Water				6.66		
Water Elevation				-1.47		
Three Well Volumes (gallons)*						
2" casing: (TD – DTW)(0.16)(3)						
4" casing: (TD – DTW)(0.65)(3)				30.89		
6" casing: (TD – DTW)(1.44)(3)						
Actual Volume Purged (gallons)				31		
Appearance of Purge Water				Clears by 5 gallons		
GROUNDWATER SAMPLES						
Number of Samples/Container Size				4 40 ml VOAs		
Time	Vol Remvd (gal)	Temp C	pH	Cond (µS)	Dissolved Oxygen (mg/L)	Redox Potential (mV)
10.14	5	19.4	7.08	>3999		
	10	22.4	7.06	>3999		
	15	19.9	7.03	>3999		
	20	19.7	6.95	>3999		
	25	19.8	7.03	>3999		
	30	-	-	-		
Stabilized					0.60	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)						
Slight HC odor, no sheen						

TD - Total Depth of Well
DTW - Depth To Water

AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM						
Monitoring Well Number: MW-26						
Project Name: Hegenberger				Date of Sampling: 9/11/02		
Job Number: 4342				Name of Sampler: PJM & NG		
Project Address: 625 Hegenberger Road				Oakland, CA		
MONITORING WELL DATA						
Well Casing Diameter (2"/4"/6")				2"		
Seal at Grade -- Type and Condition				Cement / Good		
Well Cap & Lock – OK/Replace				OK		
Elevation of Top of Casing				5.12		
Depth of Well				15.0		
Depth to Water				6.54		
Water Elevation				-1.42		
Three Well Volumes (gallons)*						
2" casing: (TD - DTW)(0.16)(3)				4.06		
4" casing: (TD - DTW)(0.65)(3)						
6" casing: (TD - DTW)(1.44)(3)						
Actual Volume Purged (gallons)				4.5		
Appearance of Purge Water				Greyish, clears by 2 gallons		
GROUNDWATER SAMPLES						
Number of Samples/Container Size				4 40 ml VOAs		
Time	Vol Remvd (gal)	Temp C	PH	Cond (µS)	Dissolved Oxygen (mg/L)	
9:04	2	20.3	7.07	1443		
	4	20.8	6.97	1367		
Stabilized					0.42	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)						
No HC odor or sheen						

TD - Total Depth of Well
DTW - Depth To Water

AEI CONSULTANTS – GROUNDWATER MONITORING WELL FIELD SAMPLING FORM						
Monitoring Well Number: MW-27						
Project Name: Hegenberger				Date of Sampling: 9/11/02		
Job Number: 4342				Name of Sampler: PJM & NG		
Project Address: 625 Hegenberger Road				Oakland, CA		
MONITORING WELL DATA						
Well Casing Diameter (2"/4"/6")				2"		
Seal at Grade -- Type and Condition				Cement / Good		
Well Cap & Lock – OK/Replace				OK		
Elevation of Top of Casing				4.06		
Depth of Well				15.0		
Depth to Water				6.04		
Water Elevation				-1.98		
Three Well Volumes (gallons)*						
2" casing: (TD – DTW)(0.16)(3)				4.3		
4" casing: (TD – DTW)(0.65)(3)						
6" casing: (TD – DTW)(1.44)(3)						
Actual Volume Purged (gallons)				6		
Appearance of Purge Water				Initially grayish, clears by 1 gallon		
GROUNDWATER SAMPLES						
Number of Samples/Container Size				4 40 ml VOAs		
Time	Vol Remvd (gal)	Temp C	PH	Cond (µS)	Dissolved Oxygen (mg/L)	
9:12	2	19.9	7.22	>3999		
	4	20.1	7.10	>3999		
	6	21.0	7.31	3990		
Stabilized					1.64	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)						
No HC odor or sheen						

TD - Total Depth of Well
DTW - Depth To Water

McCampbell Analytical Inc.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc. 3210 Old Tunnel Rd., Ste. B Lafayette, CA 94549-4157	Client Project ID: #5392; 9392-1	Date Sampled: 07/29/02
		Date Received: 07/29/02
	Client Contact: Peter McIntyre	Date Reported: 08/05/02
	Client P.O.:	Date Completed: 08/05/02

August 05, 2002

Dear Peter:

Enclosed are:

1). the results of **1** samples from your **#5392; 9392-1 project,**

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager

McCampbell Analytical Inc.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc.	Client Project ID: #5392; 9392-1	Date Sampled: 07/29/02
3210 Old Tunnel Rd., Ste. B		Date Received: 07/29/02
Lafayette, CA 94549-4157	Client Contact: Peter McIntyre	Date Extracted: 07/31/02
	Client P.O.:	Date Analyzed: 07/31/02

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0207426

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-8	W	4300,a	280	1200	21	58	69	10	108
Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	ug/L		
	S	1.0	0.05	0.005	0.005	0.005	0.005	mg/Kg		

*water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipe samples in ug/wipe, product/oil/non-aqueous liquid samples in mg/L, and TCLP extracts in ug/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCampbell Analytical Inc.
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QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W WorkOrder: 0207426

EPA Method: SW8021B/8015Cm Extraction: SW5030B BatchID: 3213 Spiked Sample ID: 0207421-001A

Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	ND	60	100	97.4	2.71	108	106	1.83	80	120
MTBE	ND	10	102	100	1.87	99.1	98.7	0.350	80	120
Benzene	ND	10	113	110	2.43	112	110	1.50	80	120
Toluene	ND	10	118	115	1.84	115	113	1.89	80	120
Ethylbenzene	ND	10	112	110	2.06	118	116	2.23	80	120
Xylenes	ND	30	110	107	3.08	113	113	0	80	120
%SS:	110	100	111	110	0.546	104	103	0.772	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

McCAMPBELL ANALYTICAL INC.

110 2[nd] AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☑ 5 DAY

Report To: Peter McIntyre Bill To:
Company: All Environmental
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549-4157
Tele: (925) 283-6000 Fax: (925) 283-6121
Project #: 5392 Project Name: 5392-1
Project Location: Hegenberber, Oakland
Sampler Signature: [signature]

SAMPLE ID	LOCATION	Sampling Date	Sampling Time	# Containers	Type Containers	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix: Sludge	Matrix: Other	Method Preserved: Ice	Method Preserved: HCl	Method Preserved: HNO_3	Method Preserved: Other	BTEX & TPH as Gas (602/8020 + 8015)/ MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Comments
MW-8		7/20/04	2:00	2	Voas	X					X	X			X																

Relinquished By:	Date:	Time:	Received By:
[signature]	7/20/04	3:39	[signature]
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Remarks:
ICE/t° ✓ PRESERVATION ✓ VOAS O&G METALS OTHER
GOOD CONDITION ✓ APPROPRIATE
HEAD SPACE ABSENT CONTAINERS ✓

LSV

McCampbell Analytical Inc.
110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0207426

Client:
All Environmental, Inc.
3210 Old Tunnel Rd., Ste. B
Lafayette, CA 94549-4157

TEL: (925) 283-6000
FAX: (925) 283-6121
ProjectNo: #5392; 9392-1
PO:

29-Jul-02

Sample ID	ClientSampID	Matrix	Collection Date	Bottle	Requested Tests						
					8021B/8015						
0207426-001	MW-8	Water	7/29/02 2:00:00 AM		A						

Comments:

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

McCampbell Analytical Inc.

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http://www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc. 3210 Old Tunnel Rd., Ste. B Lafayette, CA 94549-4157	Client Project ID: #5392; Hegen Denjer	Date Sampled: 09/11/02
		Date Received: 09/11/02
	Client Contact: Peter McIntyre	Date Reported: 09/18/02
	Client P.O.: Peter McIntyre	Date Completed: 09/18/02

September 18, 2002

Dear Peter:

Enclosed are:

1). the results of **8** analyzed samples from your **#5392; Hegen Denjer project,**

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager

McCampbell Analytical Inc.
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Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc.	Client Project ID: #5392; Hegen Denjer	Date Sampled: 09/11/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/11/02
Lafayette, CA 94549-4157	Client Contact: Peter McIntyre	Date Extracted: 09/13/02-09/17/02
	Client P.O.: Peter McIntyre	Date Analyzed: 09/13/02-09/17/02

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0209145

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-8	W	2000,a	430	520	5.4	11	8.7	5	104
002A	MW-10	W	ND	ND	ND	ND	ND	ND	1	97.9
003A	MW-11	W	ND	320	ND	ND	ND	ND	1	99.7
004A	MW-12	W	ND	6.2	ND	ND	ND	ND	1	97.2
005A	MW-16	W	ND	280	ND	ND	ND	ND	1	103
006A	EW-01	W	1600,a	630	400	5.2	22	56	2	---#
007A	MW-26	W	ND	ND	ND	ND	ND	ND	1	101
008A	MW-27	W	ND	ND	ND	ND	ND	ND	1	100
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	50	5.0	0.5	0.5	0.5	0.5	1	µg/L
		S	NA	NA	NA	NA	NA	NA	1	mg/Kg

*water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipe samples in ug/wipe, product/oil/non-aqueous liquid samples in mg/L, and TCLP extracts in ug/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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All Environmental, Inc.	Client Project ID: #5392; Hegen Denjer	Date Sampled: 09/11/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/11/02
Lafayette, CA 94549-4157	Client Contact: Peter McIntyre	Date Extracted: 09/13/02-09/14/02
	Client P.O.: Peter McIntyre	Date Analyzed: 09/13/02-09/14/02

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B | Analytical Method: SW8260B | Work Order: 0209145

Lab ID	0209145-001B	0209145-002B	0209145-003B	0209145-004B	Reporting Limit for DF =1	
Client ID	MW-8	MW-10	MW-11	MW-12		
Matrix	W	W	W	W		
DF	10	1	5	1	S	W
Compound	**Concentration**				ug/kg	µg/L
Diisopropyl ether (DIPE)	ND<5.0	ND	ND<2.5	ND	NA	0.5
Ethyl tert-butyl ether (ETBE)	ND<5.0	ND	ND<2.5	ND	NA	0.5
Methyl-t-butyl ether (MTBE)	270	2.3	250	3.6	NA	0.5
tert-Amyl methyl ether (TAME)	ND<5.0	ND	ND<2.5	ND	NA	0.5
t-Butyl alcohol (TBA)	ND<50	ND	98	ND	NA	5.0
1,2-Dibromoethane (EDB)	ND<5.0	ND	ND<2.5	ND	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<5.0	ND	ND<2.5	ND	NA	0.5
Surrogate Recoveries (%)						
%SS:	97.8	99.1	96.1	98.8		
Comments						

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in ug/kg, wipe samples in ug/wipe, product/oil/non-aqueous liquid samples in mg/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) sample diluted due to high organic content.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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All Environmental, Inc.	Client Project ID: #5392; Hegen Denjer	Date Sampled: 09/11/02
3210 Old Tunnel Rd., Ste. B		Date Received: 09/11/02
Lafayette, CA 94549-4157	Client Contact: Peter McIntyre	Date Extracted: 09/13/02-09/14/02
	Client P.O.: Peter McIntyre	Date Analyzed: 09/13/02-09/14/02

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0209145

Lab ID	0209145-005B	0209145-006B	0209145-007B	0209145-008B	Reporting Limit for DF =1	
Client ID	MW-16	EW-01	MW-26	MW-27		
Matrix	W	W	W	W		
DF	5	10	1	1	S	W
Compound	**Concentration**				ug/kg	µg/L
Diisopropyl ether (DIPE)	ND<2.5	ND<5.0	ND	ND	NA	0.5
Ethyl tert-butyl ether (ETBE)	ND<2.5	ND<5.0	ND	ND	NA	0.5
Methyl-t-butyl ether (MTBE)	250	470	0.80	0.52	NA	0.5
tert-Amyl methyl ether (TAME)	ND<2.5	ND<5.0	ND	ND	NA	0.5
t-Butyl alcohol (TBA)	33	77	ND	ND	NA	5.0
1,2-Dibromoethane (EDB)	ND<2.5	ND<5.0	ND	ND	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<2.5	ND<5.0	ND	ND	NA	0.5
Surrogate Recoveries (%)						
%SS:	98.7	96.3	97.2	95.8		
Comments						

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in ug/kg, wipe samples in ug/wipe, product/oil/non-aqueous liquid samples in mg/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) sample diluted due to high organic content.

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QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W WorkOrder: 0209145

EPA Method: SW8021B/8015Cm Extraction: SW5030B BatchID: 3912 Spiked Sample ID: 0209143-001A

Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	ND	60	99.4	93.6	6.06	93.9	99	5.35	80	120
MTBE	ND	10	81.2	90.7	11.0	80.1	86.8	8.03	80	120
Benzene	ND	10	85.6	88.6	3.43	86.6	85	1.85	80	120
Toluene	ND	10	92.1	95.7	3.90	94	98.2	4.38	80	120
Ethylbenzene	ND	10	96.1	98	1.89	97.1	95	2.09	80	120
Xylenes	ND	30	95.7	99.3	3.76	98.7	95	3.79	80	120
%SS:	108	100	95.7	97.7	2.03	97.8	101	2.98	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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QC SUMMARY REPORT FOR SW8260B

Matrix: W WorkOrder: 0209145

EPA Method: SW8260B	Extraction: SW5030B	BatchID: 3911	Spiked Sample ID: N/A

Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
tert-Amyl methyl ether (TAME)	N/A	10	N/A	N/A	N/A	84.5	83.4	1.34	70	130
Methyl-t-butyl ether (MTBE)	N/A	10	N/A	N/A	N/A	89.9	87.6	2.60	70	130
Diisopropyl ether (DIPE)	N/A	10	N/A	N/A	N/A	87	85.9	1.30	70	130
Ethyl tert-butyl ether (ETBE)	N/A	10	N/A	N/A	N/A	87.6	87	0.755	70	130
%SS1:	N/A	100	N/A	N/A	N/A	116	111	4.01	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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QC SUMMARY REPORT FOR SW8260B

Matrix: W WorkOrder: 0209145

EPA Method: SW8260B Extraction: SW5030B BatchID: 3916 Spiked Sample ID: 0209145-007B

Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
tert-Amyl methyl ether (TAME)	ND	10	93.3	92.5	0.803	77.6	92.3	17.4	70	130
Methyl-t-butyl ether (MTBE)	ND	10	97.3	97.1	0.178	83.5	88.8	6.06	70	130
Diisopropyl ether (DIPE)	ND	10	98.9	98.9	0.00364	81.6	101	21.5	70	130
Ethyl tert-butyl ether (ETBE)	ND	10	93.7	93.6	0.102	82.5	95.2	14.3	70	130
%SS1:	95.3	100	96	96.8	0.847	105	95.9	8.91	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.
NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS – MSD) / (MS + MSD) * 2.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

ASV

McCAMPBELL ANALYTICAL INC.

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CHAIN OF CUSTODY RECORD

TURN AROUND TIME: ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

Report To: Peter McIntyre Bill To:
Company: All Environmental
3210 Old Tunnel Road, Suite B
Lafayette, CA 94549-4157
Tele: (925) 283-6000 Fax: (925) 283-6121
Project #: 5392 Project Name: Hegenberger
Project Location: Oakland
Sampler Signature: [signature]

SAMPLE ID	LOCATION	Date	Time	# Containers	Type Containers	Water	Soil	Air	Sludge	Other	Ice	HCl	HNO3	Other	BTEX & TPH as Gas (602/8020 + 8015)/ MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260 (Fuel oxy's + lead scav ONLY)	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Comments
MW-8		9/4/02	9-11am	4	Voa	X					X	X			X								X								
MW-10		↓		4	↓	X					X	X			X								X								
MW-11		↓		4	↓	X					X	X			X								X								
MW-12		↓		4	↓	X					X	X			X								X								
MW-16		↓		4	↓	X					X	X			X								X								
EW-01		↓		4	↓	X					X	X			X								X								
MW-26		↓		4	↓	X					X	X			X								X								
MW-27		↓		4	↓	X					X	X			X								X								

LOG BY EV

Relinquished By:	Date:	Time:	Received By:
[signature]	9/4/02	1230	[signature]
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Remarks:

ICE/t° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
DECHLORINATED IN LAB

PRESERVATION: VOAS ✓ | O&G | METALS | OTHER
APPROPRIATE CONTAINERS ✓

McCampbell Analytical Inc.
110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0209145

Client:
All Environmental, Inc.
3210 Old Tunnel Rd., Ste. B
Lafayette, CA 94549-4157

TEL: (925) 283-6000
FAX: (925) 283-6121
ProjectNo: #5392; Hegen D
PO: Peter McIntyre

11-Sep-02

Sample ID	ClientSampID	Matrix	Collection Date	Bottle	Requested Tests						
					8021B/8015	SW8260B					
0209145-001	MW-8	Water	9/11/02		A	B					
0209145-002	MW-10	Water	9/11/02		A	B					
0209145-003	MW-11	Water	9/11/02		A	B					
0209145-004	MW-12	Water	9/11/02		A	B					
0209145-005	MW-16	Water	9/11/02		A	B					
0209145-006	EW-01	Water	9/11/02		A	B					
0209145-007	MW-26	Water	9/11/02		A	B					
0209145-008	MW-27	Water	9/11/02		A	B					

Comments:

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other