Aquatic & Environmental Applications

March 31, 1998

REF: 1004-1Q.98

Mr. Barney Chan
Environmental Health
Alameda County
1131 Harbor Bay Pkwy
Alameda, CA 94502-6577

SUBJECT: WELL INSTALLATION AND QUARTERLY MONITORING REPORT MOTOR PARTNERS, 1234 40TH AVE., OAKLAND, CA

Dear Barney:

I have enclosed a copy of the Well Installation and Quarterly Monitoring report prepared for the Motor Partners site, 1234 40th Ave., Oakland, California. This report discusses the installation of a new monitoring well (MW-5) located inside the Motor Partners building and down gradient from the former tank locations. The results of soil sampling completed at the time of monitoring well installation reported hydrocarbon contamination in the diesel range. However, benzene and TPH-G levels were below reporting limits.

In addition, groundwater sampling results are presented for the first quarterly monitoring event in 1998. The results of sampling indicate that hydrocarbon contamination is present in groundwater samples from four of the wells (MW-1, MW-3, MW-4 and MW-5). Concentrations of hydrocarbons are in the same range as those of the previous monitoring period.

As requested, samples were also collected from each of the wells for analysis of dissolved oxygen, redox, nitrate, sulfate, iron, total phosphorus, and ammonia. The results of these additional parameters suggests that levels of hydrocarbon contamination may be reduced by increasing dissolved oxygen and nutrient levels in the groundwater, thus enhancing natural bioremediation processes. A program using Oxygen Release Compound (ORC) has been approved by Alameda County and will be implemented in the near future.

If you have any questions or comments regarding the report, please give me a call.

Sincerely,

Gary Rogers

Gary Rogers, Ph.D.

cc: Bill Owens

38053 Davy Ct. ❖ Fremont, CA 94536 ❖ 510-791-7157 ❖ E-mail rogers1@ix.netcom.com

WELL INSTALLATION AND QUARTERLY MONITORING REPORT

1st Quarter, 1998

PROJECT SITE:

MOTOR PARTNERS
1234 40TH AVE., OAKLAND, CALIFORNIA
StID #3682

PREPARED FOR:

Mr. Bill Owens
2221 Olympic Blvd.
Walnut Creek, CA 94595
510-935-3840

SUBMITTED TO:

Mr. Barney Chan
Environmental Health
Alameda County
1131 Harbor Bay Pkwy
Alameda, CA 94502-6577

PREPARED BY:

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Aquatic & Environmental Applications
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PROJECT NO. 1004.95

March 31, 1998

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INTRODUCTION

PROJECT DESCRIPTION

This report discusses the results of installation of monitoring well MW-5 and quarterly sampling for the first quarter in 1998 at the Motor Partners site, 1234 40th Ave., Oakland, California.

SITE LOCATION AND DESCRIPTION

The project site is known as Motor Partners, 1234 40th Avenue, Oakland, California (Figure 1), located in a commercial/light industrial area. The elevation of the site is approximately 30 feet above mean sea level.

Motor Partners is located at 1234 40th Avenue near Nimitz Highway (880) in the Fruitvale District of Oakland, California (Figure 1). The BART rail tracks are about 500 feet west of the site and San Leandro Bay is less than one mile to the southwest.

Motor Partners utilized the site for auto repair shops. Two underground storage tanks were maintained outside the 1234 40th Avenue building. A 1,000-gallon underground gasoline tank and a 500-gallon underground waste oil tank were located below the sidewalk (Figure 2). No reliable records exist to determine if inventory was lost.

Previous Subsurface Investigations

On Oct. 12, 1990, Semco, Inc. of Modesto, California removed both the 1,000-gallon gasoline tank and the 500-gallon waste oil tank. The concentration of total petroleum hydrocarbons in the gasoline range (TPH-G) below the 1,000-gallon tank was 1,600 mg/Kg. The TPH-G and TPH-D concentrations below the 500-gallon tank were 570 mg/Kg and 650 mg/Kg, respectively. There was no record of groundwater in the excavations. The excavations were backfilled to grade with original spoils.

In January, 1994, SEMCO re-excavated the area to remove contaminated soil, and dispose of the contaminated backfill. During the course of over excavation, it was noted that contamination extended beneath the building and into the street. Utilities prevented further excavation. The over excavation was halted and samples taken from the sidewalls of each excavation. An extraction well casing was installed in each excavation. Clean imported soil was used to backfill the two areas and the sidewalk was resurfaced with Christy boxes housing the two extraction casings.

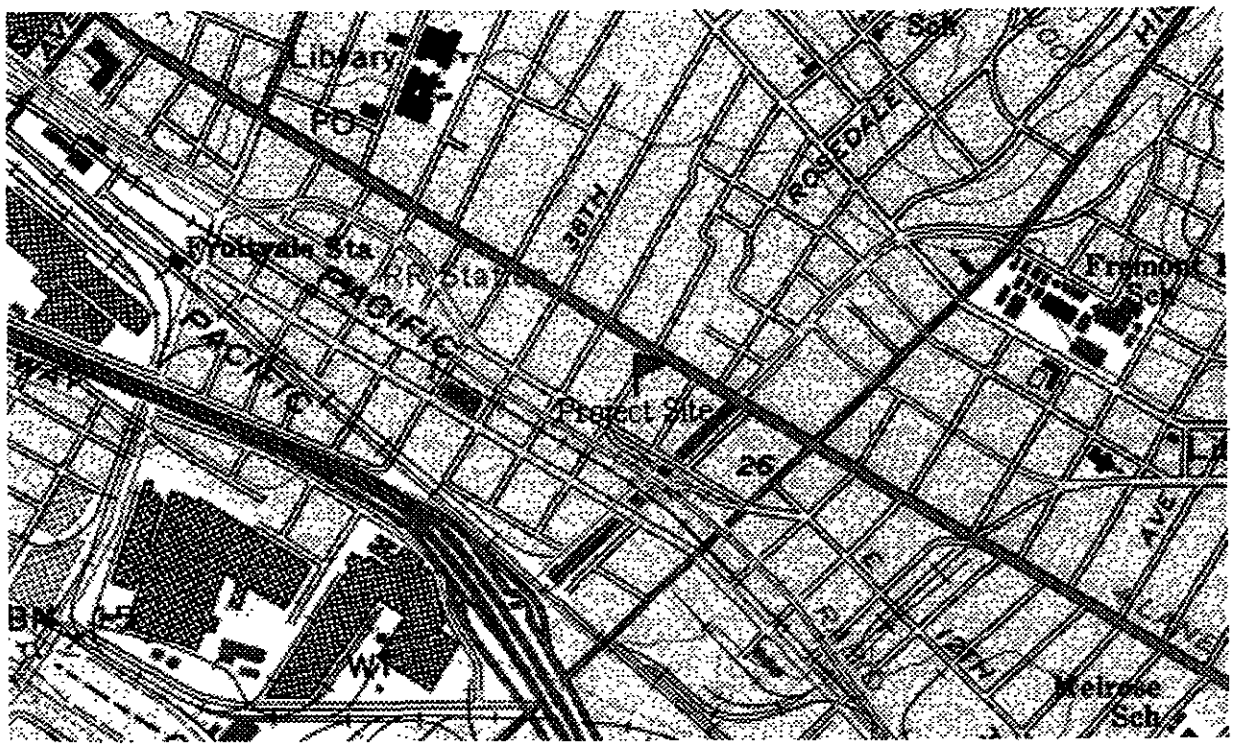
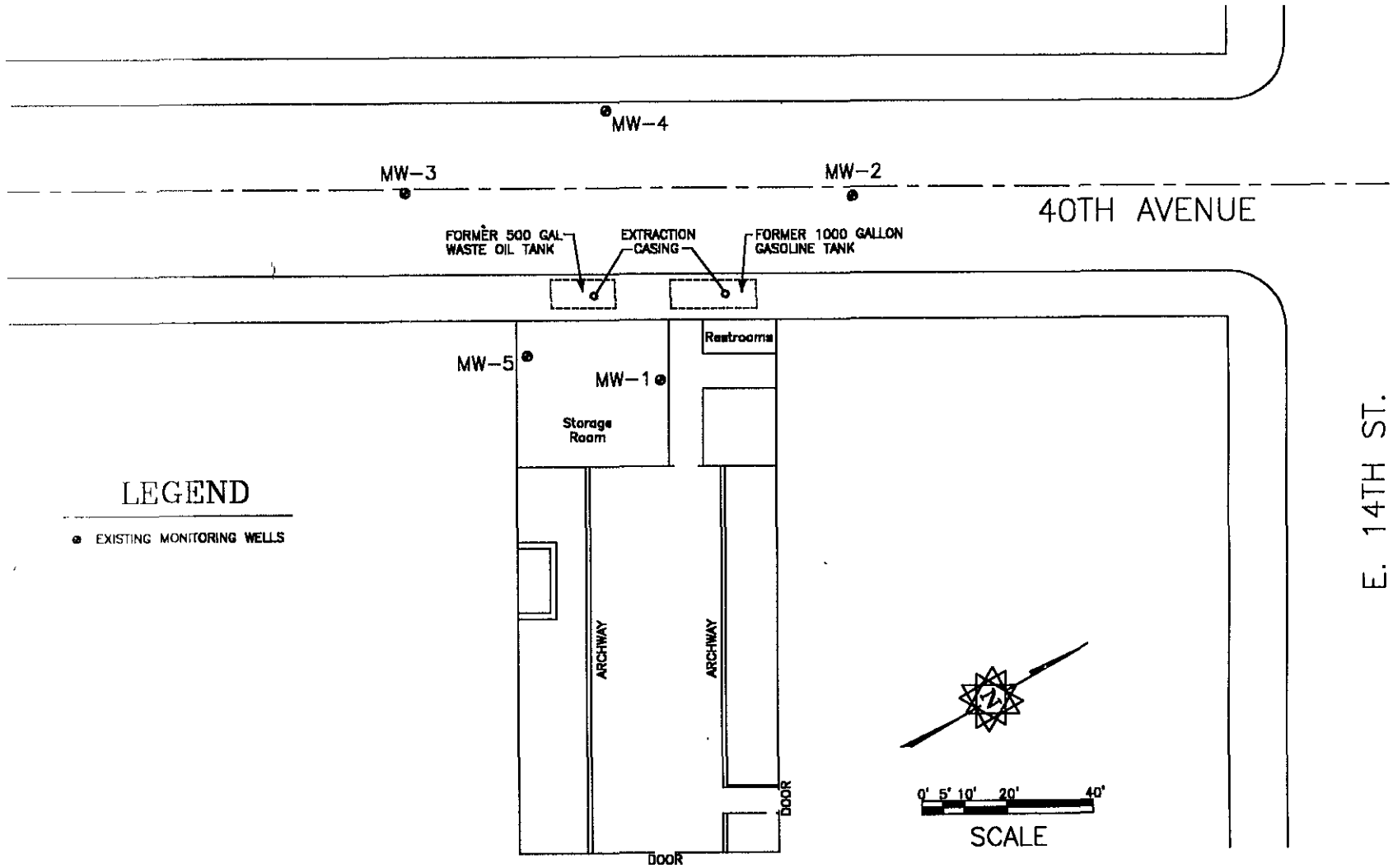


Figure 1. Site Location Map



AQUATIC & ENVIRONMENTAL APPLICATIONS 38053 DAVY CT. FREMONT, CA 94536 (510) 791-7157	DRAWN BY: GLR	PROJECT NUMBER: 1004	DESCRIPTION: Site Layout	FIGURE: 2
	DRAWING DATE: 3/27/98	FILE NAME: 1004-198.DWG		
	REVISION BY:	PROJECT MANAGER: GLR	PROJECT/LOCATION: Motor Partners 1234 40th Ave., Oakland	
	REVISION BY:	CHECKED BY:		

Sampling conducted on January 11, 1994 indicated levels of TPH-gasoline for the former waste oil tank area between 100 and 700 ppm. Levels of TPH-gasoline for the former gasoline tank area ranged from 150 to 1,200 ppm.

GROWTH Environmental completed soil borings at the property between May and June of 1994. Eleven borings were drilled and three monitoring wells were installed. Both soil and groundwater samples were collected from the borings. Soil and groundwater contamination was found in nearly every boring. Levels of TPH-D up to 2,700 ppm were observed on the west side of the building. A sample from inside the building had a TPH-D level of 520 ppm.

Groundwater samples had highest concentrations near the former tank excavations. The highest level of TPH-G was 64,000 ppb. BTEX compounds were found in groundwater samples from all the borings.

The monitoring wells were sampled on June 17, 1994 and December 7, 1994. Contamination was reported in all three wells. Levels of TPH-G were up to 17,000 ppb and Benzene levels were up to 1,200 ppb in MW-1.

A quarterly monitoring sampling event was completed on November 29, 1995. All of the wells showed increased TPH-G and BTEX levels when compared to the previous sampling event. TPH-G levels were up to 67,000 ppb in MW-1. The groundwater gradient was calculated to be in a southwesterly direction.

Additional geoprobe borings were completed along 40th Avenue between November, 1995 and February, 1996 to determine the extent of contamination.

On February 1, 1996, Bay Area Exploration drilled a soil boring across the street from the former underground storage tank excavations at the Motor Partners site (location shown in Figure 3). A two-inch groundwater monitoring well (MW-4) was installed in the boring. The monitoring well was installed according to State of California Water Resource Control Board standards to a depth of 25 feet below grade surface (bgs) and screened from 5 to 25 feet bgs.

GEOLOGY AND HYDROGEOLOGY

Regional Geology.

The site is located on the East Bay Plain about 1.0 mile west of the Oakland Hills, about 1.0 mile east of the San Francisco Bay, and about 0.5 miles north of San Leandro Bay. The nearest cross street is 14th Street.

The site rests on Quaternary Deposits of various physical and compositional properties. The predominant formation is the Temescal Formation consisting of contemporaneous alluvial units of different origin, lithology, and physical properties. The material ranges from irregularly bedded clay, silt, sand and gravel to lenses of clay, silt, sand, and gravel with Claremont Chert.

The Hayward Fault is approximately 1.5 miles East of the site and is an active historic Fault. The Hayward Fault is the only active fault in the Oakland East Quadrangle.

Regional Hydrogeology.

The site is located within the East Bay Plain which makes up the ground water reservoir in the area. The water bearing capacity varies within the area due to the juxtaposed positions of the various types of soils and strata encountered underneath the East Bay Plain.

In General the water bearing capacities of the Younger Alluvium range from moderately permeable to low permeable soils. Below the Younger Alluvium at a depth of approximately 70 feet lies the Older Alluvium, which yields large to small quantities of well water.

Site Geology. The site soils were characterized using the United Soil Classification System (USCS). During on-site subsurface drilling, CEC (GROWTH) encountered up to two feet of baserock (fill) followed by a 4 to 5 foot layer of dark sandy clay (CL). Below the dark clay to a depth between 7 and 15 feet, a grey sandy gravel was found. Below the sandy gravel the soil varied between a clayey sand to a sandy silty clay (SC). The gravels are poorly sorted, angular to rounded clasts ranging in size from 0.2 cm to 3.0 cm.

Site Hydrogeology. The depth of first water ranged from 8 to 10 feet below the ground surface (bgs) in the borings. Groundwater was encountered within the grey clayey sandy gravel layers.

INSTALLATION OF MONITORING WELL (MW-5)

On February 11, 1998, HK2, Inc./SEMCO drilled a soil boring inside the building and down gradient from the former underground storage tank excavations at the Motor Partners site (location shown in Figure 3). Soil samples were collected at 5 foot depths using the Earthprobe 200 hydraulic sampling unit.

The Earthprobe 200 rotary unit and solid flight augers were then used to drill to a final depth of 21 feet below grade. A two-inch groundwater monitoring well (MW-5) was installed in the boring. The monitoring well was installed according to State of California Water Resource Control Board standards to a depth of 21 feet below grade surface (bgs) and screened from 6 to 21 feet bgs. Well specifications for the new well (MW-5) are presented in Table 2 with data on the other monitoring wells located at the site. In addition a boring log for MW-5 is presented in Appendix C.

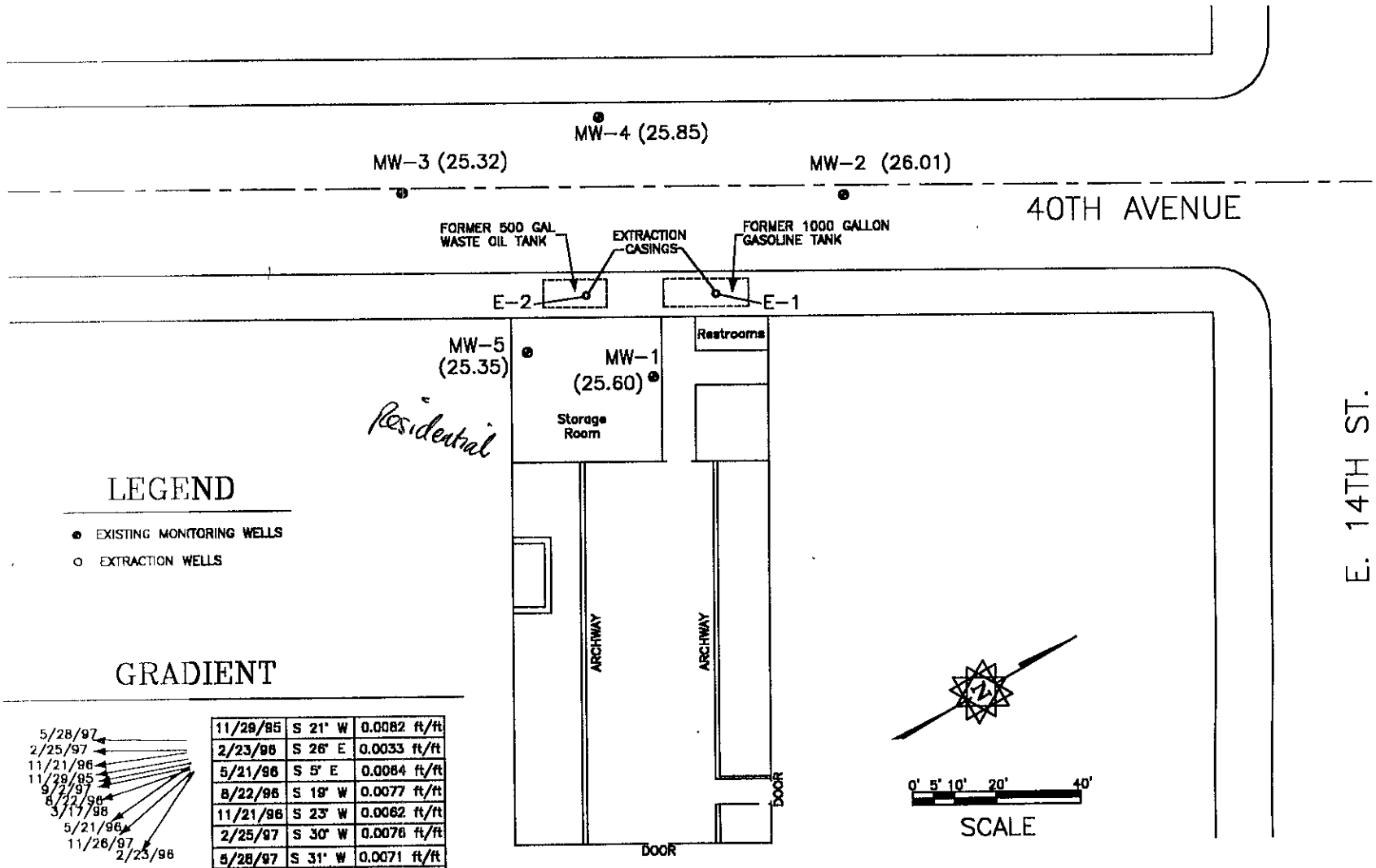
The top of casing elevation for the new well was surveyed on March 20, 1998. The surveying data are presented in Appendix C.

Table 1

Soil Sampling Results from Installation of MW-5
Motor Partners, 1234 40th Ave., Oakland, California

Sample I.D. Number	Date Collected	TPH-D (mg/Kg)	TPH-G (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)
MW-5-5'	**2/11/98**	**2,100**	**ND**	**ND**	**ND**	**23**	**34**
MW-5-10'	**2/11/98**	**1,700**	**ND**	**1.5**	**ND**	**10**	**18**
Reporting Limit		50	20	1.2	1.2	1.2	1.2

Notes: All results in mg/Kg (ppm)
ND = Not Detected
NA = Not Analyzed



11/29/95	S 21° W	0.0082 ft/ft
2/23/96	S 26° E	0.0033 ft/ft
5/21/96	S 5° E	0.0084 ft/ft
8/22/96	S 19° W	0.0077 ft/ft
11/21/96	S 23° W	0.0062 ft/ft
2/25/97	S 30° W	0.0076 ft/ft
5/28/97	S 31° W	0.0071 ft/ft
9/2/97	S 20° W	0.0086 ft/ft
11/26/97	S 11° E	0.0057 ft/ft
3/17/98	S 11° W	0.0029 ft/ft

AQUATIC & ENVIRONMENTAL APPLICATIONS 38053 DAVY CT. FREMONT, CA 94536 (510) 791-7157	DRAWN BY: GLR	PROJECT NUMBER: 1004	DESCRIPTION: Ground Water Gradient	FIGURE: 3
	DRAWING DATE: 3/27/98	FILE NAME: 1004-198.DWG		
	REVISION BY	PROJECT MANAGER: GLR	PROJECT/LOCATION: Motor Partners 1234 40th Ave., Oakland	
	REVISION BY	CHECKED BY		

Table 2
Monitoring Well Construction Data for Motor Partners Site
1234 40th Ave., Oakland, California

	MW-1	MW-2	MW-3	MW-4	MW-5
Date Drilled	6/15/94	6/14/94	6/14/94	2/1/96	2/11/98
Total Depth	22.5 ft.	22.0 ft.	23.0 ft.	23.0 ft.	21.0 ft.
Bore Diameter	10 inches	10 inches	10 inches	10 inches	6 inches
Casing Diameter	2 inch	2 inch	2 inch	2 inch	2 inch
Well Seal Type	Bentonite Pellets	Bentonite Pellets	Bentonite Pellets	Bentonite Pellets	Bentonite Pellets
Well Seal Interval	5.0 - 6.0 bgs	5.0 - 6.0 bgs	5.0 - 6.0 bgs	3.0 - 4.0 bgs	4.0 - 5.0 bgs
Filter Pack Material	2/14 Lonestar Sand	2/14 Lonestar Sand	2/14 Lonestar Sand	2/14 Lonestar Sand	2/14 Lonestar Sand
Filter Pack Interval	6.0 - 17.0 bgs	9.0 - 20.0 bgs	6.5 - 20.0 bgs	4.0 - 25.0 bgs	5.0 - 21.0 bgs
Screen Slot Size	0.020 in.	0.020 in.	0.020 in.	0.010 in.	0.020 in.
Screened Interval	7.0 - 17.0 bgs	10.0 - 20.0 bgs	7.0 - 20.0 bgs	5.0 - 25.0 bgs	6.0 - 21.0 bgs
Well Elevation[1]	31.44 ft.	31.06 ft.	31.43 ft.	31.37 ft.	31.15 ft.

[1]TOC -Top of Casing Elevations for MW-1, MW-2, MW-3, and MW-4 were surveyed on 8/22/96 by Kier & Wright Civil Engineers & Surveyors, Inc. TOC. Elevation for MW-5 surveyed on 3/20/98 by AEA.

GROUNDWATER MONITORING

GROUNDWATER ELEVATION MEASUREMENTS

The static water level was measured in all five monitoring wells (MW-1, MW-2, MW-3, MW-4 and MW-5) on March 17, 1998 and the depths were recorded to the nearest 0.01 foot using an electronic water level sounder. All of the results were recorded on Quarterly Monitoring Data Sheets presented in Appendix B.

MONITORING WELL SAMPLING

The monitoring wells were purged by withdrawing a minimum of three casing volumes from each well using a 2" submersible pump. The purging continued until the turbidity was less than 100 NTU and the temperature, electric conductivity, and pH were relatively stable. Samples were collected when the water levels recovered to at least 80% of the original static level.

A groundwater sample was collected with a disposable Teflon bailer and placed in two 40-ml VOA's and one one-liter amber bottle. The samples were labeled and stored on ice until delivered under a chain of custody to the state certified laboratory. Samples from all five wells (MW-1, MW-2, MW-3, MW-4, and MW-5) were analyzed for total petroleum hydrocarbons as diesel (TPH-D), using EPA methods modified 8015; as gasoline (TPH-G) using EPA methods 8015/5030; benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA methods 8020; and methyl t-butyl ether (MTBE) using EPA method 8020.

In addition to the petroleum hydrocarbon parameters, samples from the five wells were analyzed on-site for dissolved oxygen and redox potential. Groundwater samples from each of the wells were also submitted to a state certified laboratory for analysis of nitrate, sulfate, iron, total phosphorus, and ammonia.

ANALYTICAL RESULTS

GROUNDWATER HYDRAULIC CONDITIONS

Groundwater Elevation. The groundwater elevation data for the monitoring wells is presented in Table 2. Based on groundwater level measurements collected on March 17, 1998, the depth to groundwater in the wells ranged from 4.5 to 5.8 feet below the top of the casing. The groundwater elevations for the wells were as follows; MW-1 was 25.60 feet above mean sea level (msl), MW-2 was 26.01 feet above msl, MW-3 was 25.32 feet above msl, MW-4 was 25.85 feet above msl, and MW-5 was 25.35 feet above msl.

Groundwater Flow Direction and Gradient. Groundwater flow direction was calculated using three wells (MW-1, MW-2, and MW-3). Groundwater flow direction trended to the southwest (S 11°W) at a gradient of 0.0029 ft/ft. The flow direction and gradient are shown in Figure 3.

LABORATORY DATA

A summary of the hydrocarbon analytical results for the quarterly sampling is presented in Table 4. Table 5 presents the results of on-site sampling for dissolved oxygen and redox potential. A summary of the other bio-parameters is presented in Table 6. The additional bio-parameters include; nitrate, sulfate, iron, total phosphorus, and ammonia. Copies of all the analytical data sheets from ChromaLab, Inc. are presented in Appendix A.

Table 3
Groundwater Elevation Results at Motor Partners Site
1234 40th Ave., Oakland, California

	DATE	MW-1	MW-2	MW-3	MW-4	GRADIENT
TOC		31.44 ft	31.06 ft	30.43 ft.	30. 37 ft.	
SWL	11/29/95	10.13	9.31	9.53		S 21° W
GSE		21.31	21.75	20.90		0.0082 ft/ft
SWL	2/23/96	4.59	3.77	3.56	3.17	S 26° E
GSE		26.85	27.29	26.87	27.20	0.0033 ft/ft
SWL	5/21/96	6.04	5.24	5.29	4.68	S 5° E
GSE		25.40	25.82	25.14	25.69	0.0064 ft/ft
SWL	8/22/96	8.46	7.66	7.88	7.10	S 19° W
GSE		22.98	23.40	22.55	23.27	0.0077 ft/ft
SWL	11/21/96	8.44	7.73	7.76	7.31	S 23° W
GSE		23.00	23.33	22.67	23.06	0.0062 ft/ft
SWL	2/25/97	6.53	5.78	5.97	5.06	S 30° W
GSE		24.91	25.28	24.46	25.31	0.0076 ft/ft
SWL	5/28/97	8.08	7.38	7.53	6.94	S 31° W
GSE		23.36	23.68	22.90	23.43	0.0071 ft/ft
SWL	9/2/97	9.08	8.24	9.26	7.84	S 20° W
GSE		22.36	22.82	21.17	22.53	0.0086 ft/ft
SWL	11/26/97	7.98	7.24	7.06	6.64	S 11° E
GSE		23.46	23.82	23.37	23.73	0.0057 ft/ft

TOC - Top of Casing Elevations for MW-1, MW-2, MW-3, and MW-4 were surveyed on 8/22/96 by Kier & Wright Civil Engineers & Surveyors, Inc
SWL - Static Water Level (ft)
GSE - Groundwater Surface Elevation (feet relative to mean sea level)

Table 3 (Continued)
Groundwater Elevation Results at Motor Partners Site
1234 40th Ave., Oakland, California

	DATE	MW-1	MW-2	MW-3	MW-4	MW-5	GRADIENT
TOC		31.44 ft	31.06 ft	30.43 ft.	30. 37 ft.	31.15 ft.	
SWL	3/17/98	5.84	5.05	5.11	4.52	5.80	S 11° W
GSE		25.60	26.01	25.32	25.85	25.35	0.0029 ft/ft
SWL							
GSE							
SWL							
GSE							
SWL							
GSE							
SWL							
GSE							
SWL							
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SWL							
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GSE							

TOC - Top of Casing Elevations for MW-1, MW-2, MW-3, and MW-4 were surveyed on 8/22/96 by Kier & Wright Civil Engineers & Surveyors, Inc. Elevation for MW-5 surveyed on 3/20/98 by AEA.
SWL - Static Water Level (ft)
GSE - Groundwater Surface Elevation (feet relative to mean sea level)

Table 4
Quarterly Groundwater Sampling Results at Motor Partners
1234 40th Ave., Oakland, California

Sample I.D. Number	Date Collected	TPH-D (μg/L)	TPH-G (μg/L)	MTBE (μg/L)	Benzene (μg/L)	Toluene (μg/L)	Ethyl Benzene (μg/L)	Total Xylenes (μg/L)
MW-1	**6/17/94**	**2,400**	**17,000**		**1,200**	**220**	**1,000**	**2,600**
	11/29/95	**53,000**	**67,000**		**860**	**180**	**1,300**	**3,100**
	2/23/96	**25,000**	**16,000**		**360**	**ND**	**370**	**740**
	5/21/96	**650**	**11,000**		**290**	**37**	**600**	**1,300**
	8/22/96	**ND**	**13,000**		**270**	**51**	**540**	**1,400**
	11/21/96	**5,500**	**15,000**		**810**	**79**	**680**	**1,700**
	2/25/97	**3,900**	**15,000**		**430**	**36**	**760**	**1,200**
	5/28/97	**3,700**	**7,600**		**110**	**15**	**370**	**870**
	9/2/97	**8,200**	**18,000**	**ND**	**1,300**	**81**	**1,300**	**2,800**
	11/26/97	**14,000**	**24,000**	**81**	**760**	**75**	**660**	**2,100**
	3/17/98	**5,000**	**14,000**	**150**	**360**	**120**	**650**	**1,200**
California Drinking Water MCL		None Listed	None Listed	None Listed	1.0	1,000	680	1,750
Reporting Limit		50	50	5	0.5	0.5	0.5	1.0

Notes: All results in μg/l (ppb)
ND = Not Detected
NA = Not Analyzed

Table 4 Continued
Quarterly Groundwater Sampling Results at Motor Partners
1234 40th Ave., Oakland, California

Sample I.D. Number	Date Collected	TPH-D (μg/L)	TPH-G (μg/L)	MTBE (μg/L)	Benzene (μg/L)	Toluene (μg/L)	Ethyl Benzene (μg/L)	Total Xylenes (μg/L)
MW-2	6/17/94	370	990		ND	1.3	2.3	4.4
	12/07/94	ND	170		2.1	0.70	0.60	1.7
	11/29/95	200	400		ND	ND	ND	3
	2/23/96	ND	500		ND	ND	ND	ND
	5/21/96	ND	62		ND	ND	ND	1
	8/22/96	ND	120		0.58	0.62	ND	0.62
	11/21/96	89	89		0.60	0.78	ND	ND
	2/25/97	ND	250		1.2	1.0	ND	ND
	5/28/97	ND	ND		ND	ND	ND	ND
	9/2/97	ND	220	ND	ND	1.2	0.80	1.7
	11/26/97	ND	ND	ND	ND	ND	ND	ND
	3/17/98	ND	ND	ND	ND	ND	ND	ND
California Drinking Water MCL		None Listed	None Listed	None Listed	1.0	1,000	680	1,750
Reporting Limit		50	50	5	0.5	0.5	0.5	1.0

Notes: All results in μg/l (ppb)
ND = Not Detected
NA = Not Analyzed

Table 4 Continued
Quarterly Groundwater Sampling Results at Motor Partners
1234 40th Ave., Oakland, California

Sample I.D. Number	Date Collected	TPH-D (μg/L)	TPH-G (μg/L)	MTBE (μg/L)	Benzene (μg/L)	Toluene (μg/L)	Ethyl Benzene (μg/L)	Total Xylenes (μg/L)
MW-3	6/17/95	2,200	9,500		330	40	100	74
	12/07/94	1,700	7,500		380	42	130	72
	11/29/95	14,000	9,000		300	49	300	16
	2/23/96	14,000	13,000		270	83	260	67
	5/21/96	350	6,600		220	48	160	66
	8/22/96	ND	4,800		120	34	44	44
	11/21/96	3,300	8,700		220	51	150	68
	2/25/97	ND	8,200		260	57	200	72
	5/28/97	1,800	7,000		140	22	44	31
	9/2/97	ND	8,100	65	240	50	170	72
	11/26/97	4,100	5,600	44	140	22	9.6	31
	3/17/98	2,100	10,000	330	270	67	260	96
California Drinking Water MCL		None Listed	None Listed	None Listed	1.0	1,000	680	1,750
Reporting Limit		50	50	5	0.5	0.5	0.5	1.0

Notes: All results in μg/l (ppb)
ND = Not Detected
NA = Not Analyzed

Table 4 Continued
Quarterly Groundwater Sampling Results at Motor Partners
1234 40th Ave., Oakland, California

Sample I.D. Number	Date Collected	TPH-D (μg/L)	TPH-G (μg/L)	MTBE (μg/L)	Benzene (μg/L)	Toluene (μg/L)	Ethyl Benzene (μg/L)	Total Xylenes (μg/L)
MW-4	2/23/96	3,000	6,000		58	36	6	28
	5/21/96	78	1,200		18	2.5	6.2	12
	8/22/96	ND	400		8.6	3.4	1.8	2.6
	11/21/96	87	170		3.6	1.1	1.7	2.3
	2/25/97	ND	120		5.4	0.64	0.93	0.80
	5/28/97	55	150		5.6	0.64	4.4	8.8
	9/2/97	ND	100	ND	3.2	ND	ND	0.7
	11/26/97	ND	240	ND	6.8	ND	1.8	10
	3/17/98	200	300	8.9	4.4	5.1	5.1	20

Sample I.D. Number	Date Collected	TPH-D (μg/L)	TPH-G (μg/L)	MTBE (μg/L)	Benzene (μg/L)	Toluene (μg/L)	Ethyl Benzene (μg/L)	Total Xylenes (μg/L)
MW-5	3/17/98	22,000	58,000	ND	320	590	790	2,300
California Drinking Water MCL		None Listed	None Listed	None Listed	1.0	1,000	680	1,750
Reporting Limit		50	50	5	0.5	0.5	0.5	1.0

Notes: All results in μg/l (ppb)
ND = Not Detected
NA = Not Analyzed

Table 5. Dissolved Oxygen and Redox Results
Motor Partners, 1234 40th Ave., Oakland, California

Sample I.D. Number	Date Collected	Dissolved Oxygen (mg/L)	Redox Potential (mv)
MW-1	11/26/97	1.5	56
	3/17/98	0.9	-2.0
MW-2	11/26/97	3.0	162
	3/17/98	2.7	90
MW-3	11/26/97	2	67
	3/17/98	1.5	18
MW-4	11/26/97	2.4	114
	3/17/98	1.7	69
MW-5	3/17/98	1.5	40

Table 6. Results of Additional Bioremediation Parameters
Motor Partners, 1234 40th Ave., Oakland, California

Sample I.D. Number	Date Collected	Ferrous Iron (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Sulfate (mg/L)	Total Phosphorus (mg/L)
MW-1	11/26/97	1.2	<0.05	<0.05	4200	0.06
	3/17/98	2.0	0.22	<0.05	97	0.14
MW-2	11/26/97	ND	<0.05	1.1	3100	0.08
	3/17/98	0.21	0.08	11	41	0.13
MW-3	11/26/97	2.8	<0.05	<0.05	4100	0.45
	3/17/98	0.31	0.06	<0.05	<2.0	0.17
MW-4	11/26/97	ND	<0.05	0.66	4900	0.16
		0.17	0.06	7.4	33	0.07
MW-5	3/17/98	0.49	0.06	0.83	40	0.13

Notes: All results in mg/L (ppm)
ND = Not Detected
NA = Not Analyzed

SUMMARY AND RECOMMENDATIONS

A new monitoring well (MW-5) was installed inside the Motor Partners building, down gradient from the former tank locations. The results of soil sampling completed at the time of monitoring well installation reported hydrocarbon contamination in the diesel range. Benzene and TPH-G levels were below reporting limits.

In addition, the five monitoring wells at Motor Partners were purged and sampled for the first quarter, 1998. The results of the sampling indicate that hydrocarbon contamination is present in groundwater samples from four of the wells (MW-1, MW-3, MW-4 and MW-5). Concentrations of hydrocarbons were in the same range as the results from the previous monitoring period.

TPH-Gasoline and Benzene contamination exists in groundwater on the property. The highest concentrations reported from the five wells were from the groundwater samples collected at MW-1 and MW-5 (both located inside the building). Groundwater flow direction for this sampling period was shown to be in a southwesterly direction.

The levels of MTBE reported in the well samples from MW-1 and MW-3 are of concern. However, it is possible that the numbers are false positives. It is recommended that during the next quarterly monitoring event at least one sample be submitted for analysis of EPA method 8260 to verify the MTBE values reported by EPA method 8015/8020. agree

In addition to the petroleum hydrocarbon parameters discussed above, samples were collected from each of the wells for analysis of dissolved oxygen, redox, nitrate, sulfate, iron, total phosphorus, and ammonia. The results of these additional parameters suggests that levels of hydrocarbon contamination may be reduced by increasing dissolved oxygen and nutrient levels in the groundwater, thus enhancing natural bioremediation processes. A program using Oxygen Release Compound (ORC) has been approved by Alameda County and will be implemented in the near future. specifics?

Investigation and remediation activities are on-going at the site. It is recommended that quarterly groundwater sampling be continued.

LIMITATIONS

This report has been prepared in accordance with generally accepted environmental, geological and engineering practices. No warranty, either expressed or implied is made as to the professional advice presented herein. The analysis, conclusions, and recommendations contained in this report are based upon site conditions as they existed at the time of the investigation and they are subject to change.

The conclusions presented in this report are professional opinions based solely upon visual observations of the site and vicinity, and interpretation of available information as described in this report. The scope of services performed in execution of this investigation may not be appropriate to satisfy the needs of other users and any use or reuse of this document or its findings, conclusions or recommendations presented herein is at the sole risk of the said user.

Stanley L. Klemetson Ph.D., P.E.
P.E No. 40087

APPENDIX A

Analytical Results

38157

CHROMALAB, INC.

Environmental Services (SDB) (DOHS 1094)

SUBM #: 9802179 RCP: PM
CLIENT: NONCCOUNT
DUE: 02/10/98
RCI #: 38157

Chain of Custody

DATE 2-11-98 PAGE 1 OF 1

PROJ MGR Gary Rogers
COMPANY Aquatic & Environmental Apps
ADDRESS 3825 Davy Ct
Fremont, CA 94536
SAMPLERS (SIGNATURE) Mary Rogers
(PHONE NO.) 510-791-7157
(FAX NO.) 510-791-7157

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel, TEPH (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		LUFT METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)				NUMBER OF CONTAINERS
MW-S S'	2-11-98	11:05	S			X	X																	1
MW-S 10'	2-11-98	11:30	S			X	X																	1
MW-S 15'	2-11-98	12:00	S																			Hold	Hold	1

PROJECT INFORMATION

PROJECT NAME: Motor Partners
PROJECT NUMBER: 1004.95
P.O.#:

TAT: STANDARD 5 DAY | 24 | 48 | 72 | OTHER

SPECIAL INSTRUCTIONS/COMMENTS

SAMPLE RECEIPT

TOTAL NO OF CONTAINERS	
HEAD SPACE	
RECD GOOD CONDITION/COLD	
CONFORMS TO RECORD	

RELINQUISHED BY 1
(SIGNATURE) Mary Rogers 4:45 (TIME)
Gary Rogers 2-11-98
(PRINTED NAME) (DATE)
Aquatic & Env. Apps.
(COMPANY)

RECEIVED BY 1
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)

RELINQUISHED BY 2
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)

RELINQUISHED BY 3
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3
1645
(SIGNATURE) (TIME)
Mike Narajo 2/11/98
(PRINTED NAME) (DATE)
CL
(LAB)

CHROMALAB, INC.

Environmental Services (SDB)

February 19, 1998 *Submission #:* 9802179

Atten: Gary Rogers-AQUATIC & ENV

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: February 11, 1998

re: One sample for Gasoline BTEX analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-5-10'**
Spl#: 170552 *Matrix:* SOIL
Sampled: February 11, 1998 *Run#:*11237 *Analyzed:* February 13, 1998

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	20	N.D.	100	2
BENZENE	1.5	1.2	N.D.	93	2
TOLUENE	N.D.	1.2	N.D.	96	2
ETHYL BENZENE	10	1.2	N.D.	108	2
XYLENES	18	1.2	N.D.	108	2

Note: Hydrocarbon found in Gasoline Range is uncharacteristic of Gasoline Profile.If quantified using Gasoline's response factor, concentration would equal 810mg/Kg.Surrogate Recoveries biased high due to Hydrocarbon co-elution.

Vincent Vancil
Chemist

Michael Verona
Operations Manager

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

PM v135 O:BTEXQC022(
VINCE 17:19

CHROMALAB, INC.

Environmental Services (SDB)

February 19, 1998 *Submission #:* 9802179

Atten: Gary Rogers-AQUATIC & ENV

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: February 11, 1998

re: One sample for Gasoline BTEX analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-5-5'**
Spl#: 170551 *Matrix:* SOIL
Sampled: February 11, 1998 *Run#:*11237 *Analyzed:* February 13, 1998

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	20	N.D.	100	2
BENZENE	N.D.	1.2	N.D.	93	2
TOLUENE	N.D.	1.2	N.D.	96	2
ETHYL BENZENE	23	1.2	N.D.	108	2
XYLENES	34	1.2	N.D.	108	2

Note: Hydrocarbon found in Gasoline Range is uncharacteristic of Gasoline Profile.If quantified using Gasoline's response factor, concentration would equal 1200mg/Kg.Surrogate Recoveries biased high due to Hydrocarbon co-elution.

Vincent Vancil
Chemist

Michael Verona
Operations Manager

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

PM V135 O:BTEXQC022(
VINCE 17 19

CHROMALAB, INC.

Environmental Services (SDB)

February 19, 1998 *Submission #:* 9802179

Atten: Gary Rogers-AQUATIC & ENVIRONM

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: February 11, 1998

re: 2 samples for TPH - Diesel analysis.
Method: *EPA 8015M*

Matrix: SOIL *Extracted:* February 3, 1998
Sampled: February 11, 1998 *Run#:* 11172 *Analyzed:* February 6, 1998

Spl#	CLIENT SPL ID	DIESEL (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
170551	MW-5-5'	2100	50	N.D.	99.5	50

Note: Hydrocarbon reported has characteristics of weathered/aged Diesel. Surrogate diluted out.

Matrix: SOIL *Extracted:* February 13, 1998
Sampled: February 11, 1998 *Run#:* 11172 *Analyzed:* February 16, 1998

Spl#	CLIENT SPL ID	DIESEL (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
170552	MW-5-10'	1700	50	N.D.	99.5	50

Note: Hydrocarbon reported has characteristics of weathered/aged Diesel. Surrogate diluted out.

Bruce Havlik
Chemist

Carolyn House
Chemist

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

Reference #: 38747

CHROMALAB, INC.

Environmental Services (SDB) (DOHS 1094)

1220 Quarry Lane • Pleasanton, California 94566-4756
510/484-1919 • Facsimile 510/484-1096

Chain of Custody

DATE March 17, 1998 PAGE 1 OF 1

PROJ MGR Gary Rogers
COMPANY Aquatic & Environmental App.
ADDRESS 38053 Davy Ct
Fremont CA 94536
SAMPLERS (SIGNATURE) Gary Rogers
(PHONE NO.) 510-791-7157
(FAX NO.) 510-791-7157

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH-(EPA 8015,8020) X Gas w/ X BTEX MTBE	PURGEABLE AROMATICS BTEX (EPA 8020)	TPH-Diesel (EPA 8015M)	TEPH (EPA 8015M) ☐Kerosene, ☐Diesel, ☐M.O.	PURGEABLE HALOCARBONS (HVOCs) (EPA8010 by 8260)	VOLATILE ORGANICS (VOCs) (EPA 8260)	SEMIVOLATILES (EPA 8270)	TOTAL OIL AND GREASE (SM 5520 B+F, E+F)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)	☐ PESTICIDES(EPA 8080) ☐ PCB'S (EPA 8080)	PNA's by ☐ 8270 ☐ 8310	☐ pH ☐ Spec. Cond. ☐ TSS ☐ TDS	LUFT METALS: Cd, Cr, Pb, Ni, Zn	CAM 17 METALS (EPA 6010/7470/7471)	TOTAL LEAD	☐ W.E.T. ☐ TCLP	Sulfate, Nitrate Ammonia, Total-Plus.	Ferrous Iron			NUMBER OF CONTAINERS
MW-2	3-17-98	12:55			X		X														X	X			
MW-3		1:15			X		X														X	X			
MW-5		1:25			X		X														X	X			
MW-4		1:40			X		X														X	X			
MW-1	3-17-98	1:50			X		X														X	X			

PROJECT INFORMATION

PROJECT NAME: Motor Partners
PROJECT NUMBER: 1004.95
P.O. #:

TAT: STANDARD 5 DAY | 24 | 48 | 72 | OTHER

SAMPLE RECEIPT

TOTAL NO OF CONTAINERS	
HEAD SPACE	
TEMPERATURE	
CONFORMS TO RECORD	

Report: ☐ Routine ☐ Level 2 ☐ Level 3 ☐ Level 4

SPECIAL INSTRUCTIONS/COMMENTS:
USE 1/2 LITER FOR DIESEL
1/2 FOR WET CHEM
RUN METALS OFF 2 UNPRES.

RELINQUISHED BY 1.	RELINQUISHED BY 2	RELINQUISHED BY 3
(SIGNATURE) Gary L Rogers 3:55 (TIME)	(SIGNATURE) (TIME)	(SIGNATURE) (TIME)
(PRINTED NAME) Gary Rogers 3-17-98 (DATE)	(PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)
(COMPANY) AEA	(COMPANY)	(COMPANY)
RECEIVED BY 1	**RECEIVED BY 2**	**RECEIVED BY (LABORATORY) 3**
(SIGNATURE) (TIME)	(SIGNATURE) (TIME)	(SIGNATURE) Chris Rowley 1550 (TIME)
(PRINTED NAME) (DATE)	(PRINTED NAME) (DATE)	(PRINTED NAME) Chris Rowley 3/17/98 (DATE)
(COMPANY)	(COMPANY)	

CHROMALAB, INC.

Environmental Services (SDB)

March 30, 1998 *Submission #:* 9803221

AQUATIC & ENVIRONMENTAL APPS

Attn: Gary Rogers

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-1**
Spl#: 175648 *Matrix:* WATER
Sampled: March 17, 1998 *Run#:*11808 *Analyzed:* March 25, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	14000	1000	N.D.	107	20
MTBE	150	100	N.D.	78	20
BENZENE	360	10	N.D.	78	20
TOLUENE	120	10	N.D.	85	20
ETHYL BENZENE	650	10	N.D.	100	20
XYLENES	1200	10	N.D.	90	20

Vincent Vancil
Chemist

Michael Verona
Operations Manager

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

MD V132 O:BTEXQC0220
VINCE 18:47

CHROMALAB, INC.

Environmental Services (SDB)

March 30, 1998 *Submission #:* 9803221

AQUATIC & ENVIRONMENTAL APPS

Atten: Gary Rogers

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-2**
Spl#: 175644 *Matrix:* WATER
Sampled: March 17, 1998 *Run#:*11808 *Analyzed:* March 25, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	107	1
MTBE	N.D.	5.0	N.D.	78	1
BENZENE	N.D.	0.50	N.D.	78	1
TOLUENE	N.D.	0.50	N.D.	85	1
ETHYL BENZENE	N.D.	0.50	N.D.	100	1
XYLENES	N.D.	0.50	N.D.	90	1

Vincent Vancil
Chemist

Michael Verona
Operations Manager

CHROMALAB, INC.

Environmental Services (SDB)

March 30, 1998 *Submission #:* 9803221

AQUATIC & ENVIRONMENTAL APPS

Atten: Gary Rogers

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-3**
Spl#: 175645 *Matrix:* WATER
Sampled: March 17, 1998 *Run#:*11792 *Analyzed:* March 25, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	10000	250	N.D.	95	5
MTBE	330	25	N.D.	92	5
BENZENE	270	2.5	N.D.	90	5
TOLUENE	67	2.5	N.D.	97	5
ETHYL BENZENE	260	2.5	N.D.	106	5
XYLENES	96	2.5	N.D.	95	5

Vincent Vancil
Chemist

Michael Verona
Operations Manager

510-791-7157

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 30, 1998 *Submission #:* 9803221

AQUATIC & ENVIRONMENTAL APPS

Atten: Gary Rogers

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-4
Spl#: 175647 *Matrix:* WATER
Sampled: March 17, 1998 *Run#:*11808 *Analyzed:* March 25, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	300	50	N.D.	107	1
MTBE	8.9	5.0	N.D.	78	1
BENZENE	4.4	0.50	N.D.	78	1
TOLUENE	5.1	0.50	N.D.	85	1
ETHYL BENZENE	5.1	0.50	N.D.	100	1
XYLENES	20	0.50	N.D.	90	1

Vincent Vancil
Chemist

Michael Verona
Operations Manager

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 30, 1998 *Submission #:* 9803221

AQUATIC & ENVIRONMENTAL APPS

Atten: Gary Rogers

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: **MW-5**
Spl#: 175646 *Matrix:* WATER
Sampled: March 17, 1998 *Run#:*11808 *Analyzed:* March 25, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	58000	5000	N.D.	107	100
MTBE	N.D.	500	N.D.	78	100
BENZENE	320	50	N.D.	78	100
TOLUENE	590	50	N.D.	85	100
ETHYL BENZENE	790	50	N.D.	100	100
XYLENES	2300	50	N.D.	90	100

Note: Surrogate Recoveries biased high due to Hydrocarbon co-elution.

Vincent Vancil
Chemist

Michael Verona
Operations Manager

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

fax

Attention: Gary Rodgers

Company: Aquatic & Environm.

Fax No.: 791-7157

Date / Time: 105 3/27

8 Pages will follow

Hard Copy to Follow:

YES NO

From: Ken Wright
ph: (510) 484-1919 ext. 111
fax: (510) 484-1096

PROBLEMS WITH THIS TRANSMISSION? PLEASE CALL 510-484-1919.

Message:

results for Sub# 9803221

San Francisco Regional Office

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
LABORATORY
SERVICES

March 27, 1998

Mr. Ken Wright
CHROMALAB, INC.
1220 Quarry Lane
Pleasanton, CA 94566

Client Ref.: 9803221
Clayton Project No.: 98032.25

Dear Mr. Wright:

Attached is our analytical laboratory report for the samples received on March 18, 1998. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after April 26, 1998, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Client Services at (510) 426-2657.

Sincerely,

Kare Bradeen for

Andrew C. Bradeen
Director, Laboratory Services
San Francisco Regional Office

ACB/kmd

Attachments

San Francisco Regional Office

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
LABORATORY
SERVICES

March 27, 1998

Mr. Ken Wright
CHROMALAB, INC.
1220 Quarry Lane
Pleasanton, CA 94566

Client Ref.: 9803221
Clayton Project No.: 98032.25

Dear Mr. Wright:

Attached is our analytical laboratory report for the samples received on March 18, 1998. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after April 26, 1998, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Client Services at (510) 426-2657.

Sincerely,

Kenneth Bell for

Andrew C. Bradeen
Director, Laboratory Services
San Francisco Regional Office

ACB/kmd

Attachments

Clayton LABORATORY SERVICES

Analytical Results
for
CHROMALAB, INC.
Client Reference: 9803221
Clayton Project No. 98032.25

Sample Identification: METHOD BLANK
Lab Number: 9803225-06
Sample Matrix/Media: WATER

Date Sampled: --
Date Received: --

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
Ammonia-N	<0.05	0.05	mg/L	--	03/22/98	--	EPA 350.3
Nitrate-N	<0.05	0.05	mg/L	--	03/24/98	--	EPA 353.2
Sulfate	<2	2	mg/L	--	03/24/98	--	EPA 300.0
Total Phosphorus	<0.02	0.02	mg/L	--	03/24/98	--	EPA 365.3

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Clayton LABORATORY SERVICES

Analytical Results
for
CHROMALAB, INC.
Client Reference: 9803Z21
Clayton Project No. 98032.25

Sample Identification: MW 5
Lab Number: 9803225-05
Sample Matrix/Media: WATER

Date Sampled: 03/17/98
Date Received: 03/18/98

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
Ammonia-N	0.06	0.05	mg/L	--	03/22/98	--	EPA 350.3
Nitrate-N	0.83	0.05	mg/L	--	03/24/98	--	EPA 353.2
Sulfate	40	2	mg/L	--	03/24/98	--	EPA 300.0
Total Phosphorus	0.13	0.02	mg/L	--	03/24/98	--	EPA 365.3

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Clayton LABORATORY SERVICES

Analytical Results
for
CHROMALAB, INC.
Client Reference: 9803221
Clayton Project No. 98032.25

Sample Identification: MW 4
Lab Number: 9803225-04
Sample Matrix/Media: WATER

Date Sampled: 03/17/98
Date Received: 03/18/98

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
Ammonia-N	0.06	0.05	mg/L	--	03/22/98	--	EPA 350.3
Nitrate-N	7.4	0.05	mg/L	--	03/24/98	--	EPA 353.2
Sulfate	33	2	mg/L	--	03/24/98	--	EPA 300.0
Total Phosphorus	0.07	0.02	mg/L	--	03/24/98	--	EPA 365.3

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Clayton LABORATORY SERVICES

Analytical Results
for
CHROMALAB, INC.
Client Reference: 9803221
Clayton Project No. 98032.25

Sample Identification: MW 3
Lab Number: 9803225-03
Sample Matrix/Media: WATER

Date Sampled: 03/17/98
Date Received: 03/18/98

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
Ammonia-N	0.06	0.05	mg/L	--	03/22/98	--	EPA 350.3
Nitrate-N	<0.05	0.05	mg/L	--	03/24/98	--	EPA 353.2
Sulfate	<2	2	mg/L	--	03/24/98	--	EPA 300.0
Total Phosphorus	0.17	0.02	mg/L	--	03/24/98	--	EPA 365.3

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Clayton LABORATORY SERVICES

Analytical Results
for
CHROMALAB, INC.
Client Reference: 9803221
Clayton Project No. 98032.25

Sample Identification: MW 2
Lab Number: 9803225-02
Sample Matrix/Media: WATER

Date Sampled: 03/17/98
Date Received: 03/18/98

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
Ammonia-N	0.08	0.05	mg/L	--	03/22/98	--	EPA 350.3
Nitrate-N	11	0.05	mg/L	--	03/24/98	--	EPA 353.2
Sulfate	41	2	mg/L	--	03/24/98	--	EPA 300.0
Total Phosphorus	0.13	0.02	mg/L	--	03/24/98	--	EPA 365.3

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Clayton LABORATORY SERVICES

Analytical Results
for
CHROMALAB, INC.
Client Reference: 9803221
Clayton Project No. 98032.25

Sample Identification: MW 1
Lab Number: 9803225-01
Sample Matrix/Media: WATER

Date Sampled: 03/17/98
Date Received: 03/18/98

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
Ammonia-N	0.22	0.05	mg/L	--	03/22/98	--	EPA 350.3
Nitrate-N	<0.05	0.05	mg/L	--	03/24/98	--	EPA 353.2
Sulfate	97	2	mg/L	--	03/24/98	--	EPA 300.0
Total Phosphorus	0.14	0.02	mg/L	--	03/24/98	--	EPA 365.3

ND: Not detected at or above limit of detection
--: Information not available or not applicable

CHROMALAB, INC.

Environmental Services (SDB)

March 20, 1998 *Submission #:* 9803221

Atten: Gary Rogers-AQUATIC & ENVIRONM

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Soluble Miscellaneous Metals with Mercury analysis.
Method: *EPA 3005A/6010A/7470A Nov 1990*

Client Sample ID: **MW-2**
Spl#: 175644 *Matrix:* WATER *Extracted:* March 19, 1998
Sampled: March 17, 1998 *Run#:* 11699 *Analyzed:* March 19, 1998

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	0.21	0.10	N.D.	97.2	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 20, 1998 *Submission #:* 9803221

Atten: Gary Rogers-AQUATIC & ENVIRONM

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Soluble Miscellaneous Metals with Mercury analysis.
Method: *EPA 3005A/6010A/7470A Nov 1990*

Client Sample ID: **MW-5**
Spl#: 175646 *Matrix:* WATER *Extracted:* March 19, 1998
Sampled: March 17, 1998 *Run#:* 11699 *Analyzed:* March 19, 1998

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	0.49	0.10	N.D.	97.2	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 20, 1998 *Submission #:* 9803221

Atten: Gary Rogers-AQUATIC & ENVIRONM

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Soluble Miscellaneous Metals with Mercury analysis.
Method: *EPA 3005A/6010A/7470A Nov 1990*

Client Sample ID: **MW-4**
Spl#: 175647 *Matrix:* WATER *Extracted:* March 19, 1998
Sampled: March 17, 1998 *Run#:* 11699 *Analyzed:* March 19, 1998

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	0.17	0.10	N.D.	97.2	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 20, 1998 *Submission #:* 9803221

Atten: Gary Rogers-AQUATIC & ENVIRONM

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Soluble Miscellaneous Metals with Mercury analysis.
Method: *EPA 3005A/6010A/7470A Nov 1990*

Client Sample ID: **MW-1**
Spl#: 175648 *Matrix:* WATER *Extracted:* March 19, 1998
Sampled: March 17, 1998 *Run#:* 11699 *Analyzed:* March 19, 1998

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	2.0	0.10	N.D.	97.2	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 20, 1998 *Submission #:* 9803221

Atten: Gary Rogers-AQUATIC & ENVIRONM

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: One sample for Soluble Miscellaneous Metals with Mercury analysis.
Method: *EPA 3005A/6010A/7470A Nov 1990*

Client Sample ID: **MW-3**
Spl#: 175645 *Matrix:* WATER *Extracted:* March 19, 1998
Sampled: March 17, 1998 *Run#:* 11699 *Analyzed:* March 19, 1998

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	0.31	0.10	N.D.	97.2	1

Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 24, 1998 Submission #: 9803221

Attn: Gary Rogers-AQUATIC & ENVIRONMENTAL APP

RE: Analysis for project MOTOR PARTNERS, number 1004.95.

REPORTING INFORMATION

Samples were received cold and in good condition on March 17, 1998. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

No discrepancies were observed or difficulties encountered with the testing.

Motor Oil was found in sample MW-1.
Motor Oil was found in sample MW-5.

Carolyn House
Chemist

Bruce Havlik
Chemist

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 24, 1998 *Submission #:* 9803221

Atten: Gary Rogers-AQUATIC & ENVIRONM

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: 5 samples for TPH - Diesel analysis.
Method: *EPA 8015M*

Sampled: March 17, 1998 *Matrix:* WATER *Extracted:* March 20, 1998
Run#: 11726 *Analyzed:* March 23, 1998

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
175644	MW-2	N.D.	83	N.D.	113	1
175645	MW-3	2100	83	N.D.	113	1
	Note: *Hydrocarbon reported is in the early Diesel Range and does not match our Diesel Standard.*					
175647	MW-4	200	83	N.D.	113	1
	Note: *Hydrocarbon reported is in the early Diesel Range and does not match our Diesel Standard.*					

Sampled: March 17, 1998 *Matrix:* WATER *Extracted:* March 20, 1998
Run#: 11726 *Analyzed:* March 24, 1998

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
175646	MW-5	22000	83	N.D.	113	1
	Note: *Hydrocarbon reported is in the early Diesel Range and does not match our Diesel Standard. Surrogate high due to matrix interference.*					
175648	MW-1	5000	83	N.D.	113	1
	Note: *Hydrocarbon reported is in the early Diesel Range and does not match our Diesel Standard.*					

Carolyn House
Chemist

Bruce Havlik
Chemist

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 24, 1998 *Submission #:* 9803221

Atten: Gary Rogers-AQUATIC & ENVIRONM

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: **Blank spike and duplicate** report for TPH - Diesel analysis.

Method: EPA 8015M

Matrix: WATER
Lab Run#: 11726

Analyzed: March 23, 1998

Analyte	Spike Amount BSP (ug/L)	Spike Amount Dup	Found BSP (ug/L)	Found Dup	Recov BSP (%)	Recov Dup (%)	Control Limits	% RPD	% RPD Lim
DIESEL	2500	2500	2820	2980	113	119	60-130	5.17	25

BS Smpl #: 176301
BSD Smpl #: 176302

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 24, 1998 *Submission #:* 9803221

Atten: Gary Rogers-AQUATIC & ENVIRONM

Project: MOTOR PARTNERS *Project#:* 1004.95
Received: March 17, 1998

re: **Surrogate** report for 5 samples for TPH - Diesel analysis.

Method: EPA 8015M
Lab Run#: 11726
Matrix: WATER

Sample#	Client Sample ID	Surrogate	% Recovered	Recovery Limits
175644-1	MW-2	O-TERPHENYL	82.8	60-130
175645-1	MW-3	O-TERPHENYL	83.9	60-130
175646-1	MW-5	O-TERPHENYL	163	60-130
175647-1	MW-4	O-TERPHENYL	81.5	60-130
175648-1	MW-1	O-TERPHENYL	113	60-130

Sample#	QC Sample Type	Surrogate	% Recovered	Recovery Limits
176300-1	*Reagent blank (MDB)*	O-TERPHENYL	108	60-130
176301-1	*Spiked blank (BSP)*	O-TERPHENYL	122	60-130
176302-1	*Spiked blank duplicate (BSD)*	O-TERPHENYL	127	60-130

8005
QCSURR1229 CMH 24-Mar-98 12:03

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

APPENDIX B

Quarterly Monitoring Data Sheets

Quarterly Monitoring Data Sheet

Date: 3/17/98
Project Location: Motor Partners Site
1234 40th Ave., Oakland
Sampler: G. Rogers

Well Diameter: 2 Inches Well ID: MW-1
Well Type: Monitoring Well
Total Depth as Built: 19 ft
Screened Interval: 7 ft to 17 ft

Water Level Data

Time Depth Sounded: 12:10 PM
Measured Depth to Water: 5.84 ft.
Measured Total Depth: 16.7 ft.

Purge Calculation(Min 3 Casing Volumes)

gal/ft X ft = gal X 3 = gal

0.163 X 10.9 = 1.8 X 3 = 5.3

Purge Data

Time	Flowrate (gpm)	Volume (gal)	Temp (°C)	EC (μs/cm)	pH	Turbidity (NTU)	
12:15		0	18.3	901	6.63	>1000	
12:18		2	18.2	908	6.67	103	
12:21		4	18.2	903	6.64	10	
12:24		6	18.2	901	6.65	9	

Observations/Comments:

Inside Building

Laboratory Analysis:

Sample at 1:50 PM
Water depth - 5.84 ft.
Analyze for TPH-D, TPH-G, BTEX, and MTBE

Data for Volume Calculation:

1 cu. ft. = 7.48 gal = 62.4 lbs (approx)
2" well = 0.163 gal/linear ft.
4" well= 0.653 gal/linear ft.

1 gal = 0.134 cu. ft. = 8.34 lbs (approx)
3" well = 0.367 gal/linear ft.
6" well = 1.469 gal/linear ft.

Quarterly Monitoring Data Sheet

Date: 3/17/98
Project Location: Motor Partners Site
1234 40th Ave., Oakland
Sampler: G. Rogers

Well Diameter: 2 Inches Well ID: MW-2
Well Type: Monitoring Well
Total Depth as Built: 22 ft
Screened Interval: 10 ft to 20 ft

Water Level Data

Time Depth Sounded: 9:40 AM
Measured Depth to Water: 5.05 ft.
Measured Total Depth: 19.2 ft.

Purge Calculation(Min 3 Casing Volumes)

gal/ft X ft = gal X 3 = gal

0.163 X 14.2 = 2.3 X 3 = 6.9

Purge Data

Time	Flowrate (gpm)	Volume (gal)	Temp (°C)	EC (µs/cm)	pH	Turbidity (NTU)	
9:45		0	17.4	290	6.88	7	
9:50		2	17.0	730	6.81	1	
9:58		4	17.5	697	6.83	10	
10:08		6	17.6	706	6.84	10	

Observations/Comments:

Clear and Sunny

Laboratory Analysis:

Sample at 12:55 PM
Water depth - 5.08 ft.
Analyze for TPH-D, TPH-G, BTEX and MTBE

Data for Volume Calculation:

1 cu. ft. = 7.48 gal = 62.4 lbs (approx)
1 gal = 0.134 cu. ft. = 8.34 lbs (approx)
2" well = 0.163 gal/linear ft.
3" well = 0.367 gal/linear ft.
4" well = 0.653 gal/linear ft.
6" well = 1.469 gal/linear ft.

Quarterly Monitoring Data Sheet

Date: 3/17/98
Project Location: Motor Partners Site
1234 40th Ave., Oakland
Sampler: G. Rogers

Well Diameter: 2 Inches Well ID: MW-3
Well Type: Monitoring Well
Total Depth as Built: 23 ft
Screened Interval: 7 ft to 20 ft

Water Level Data

Time Depth Sounded: 10:16 AM
Measured Depth to Water: 5.11 ft.
Measured Total Depth: 21.3 ft.

Purge Calculation(Min 3 Casing Volumes)

gal/ft X ft = gal X 3 = gal

0.163 X 16.2 = 2.6 X 3 = 7.9

Purge Data

Time	Flowrate (gpm)	Volume (gal)	Temp (°C)	EC (µs/cm)	pH	Turbidity (NTU)	
10:18		0	17.4	843	6.77	35	
10:25		2	17.2	866	6.75	31	
10:30		4	17.3	858	6.74	27	
10:33		6	17.2	867	6.77	17	

Observations/Comments:

Clear and Sunny

Laboratory Analysis:

Sample at 1:15 PM
Water depth - 5.18 ft.
Analyze for TPH-D, TPH-G, BTEX and MTBE

Data for Volume Calculation:

1 cu. ft. = 7.48 gal = 62.4 lbs (approx)
2" well = 0.163 gal/linear ft.
4" well = 0.653 gal/linear ft.

1 gal = 0.134 cu. ft. = 8.34 lbs (approx)
3" well = 0.367 gal/linear ft.
6" well = 1.469 gal/linear ft.

Quarterly Monitoring Data Sheet

Date: 3/17/98
Project Location: Motor Partners Site
1234 40th Ave., Oakland
Sampler: G. Rogers

Well Diameter: 2 Inches Well ID: MW-4
Well Type: Monitoring Well
Total Depth as Built: 25 ft
Screened Interval: 5 ft to 25 ft

Water Level Data

Time Depth Sounded: 11:40 AM
Measured Depth to Water: 4.52 ft.
Measured Total Depth: 24.5 ft.

Purge Calculation(Min 3 Casing Volumes)

gal/ft X ft = gal X 3 = gal

0.163 X 19.9 = 3.3 X 3 = 9.7

Purge Data

Time	Flowrate (gpm)	Volume (gal)	Temp (°C)	EC (μs/cm)	pH	Turbidity (NTU)	
11:45		0	19.0	710	6.76	110	
11:48		2	19.2	711	6.73	381	
11:53		4	19.4	708	6.76	57	
11:56		6	19.5	706	6.76	9	
12:00		8	19.5	711	6:76	10	

Observations/Comments:

Clear and Sunny

Laboratory Analysis:

Sample at 1:40 PM
Water depth - 4.54 ft.
Analyze for TPH-D, TPH-G, BTEX and MTBE

Data for Volume Calculation:

1 cu. ft. = 7.48 gal ≈ 62.4 lbs (approx)
2" well = 0.163 gal/linear ft.
4" well= 0.653 gal/linear ft.

1 gal = 0.134 cu. ft. = 8.34 lbs (approx)
3" well = 0.367 gal/linear ft.
6" well = 1.469 gal/linear ft.

Quarterly Monitoring Data Sheet

Date: 3/17/98
Project Location: Motor Partners Site
1234 40th Ave., Oakland
Sampler: G. Rogers

Well Diameter: 2 Inches Well ID: MW-5
Well Type: Monitoring Well
Total Depth as Built: 21 ft
Screened Interval: 6 ft to 21 ft

Water Level Data

Time Depth Sounded: 10:45 AM
Measured Depth to Water: 5.80 ft.
Measured Total Depth: 20.8 ft.

Purge Calculation(Min 3 Casing Volumes)

gal/ft X ft = gal X 3 = gal

0.163 X 15.0 = 2.4 X 3 = 7.3

Purge Data

Time	Flowrate (gpm)	Volume (gal)	Temp (°C)	EC (μs/cm)	pH	Turbidity (NTU)	
11:05		0	17.7	832	6.82	>1000	
11:10		2	17.9	850	6.81	>1000	
11:15		4	18.0	867	6.81	>1000	
11:20		6	18.1	874	6.80	663	
11:24		8	18.5	869	6.88	412	
11:28		10	18.5	871	6.81	238	

Observations/Comments:

Inside Building

Laboratory Analysis:

Sample at 1:25 PM
Water depth - 5.84 ft.
Analyze for TPH-D, TPH-G, BTEX and MTBE

Data for Volume Calculation:

1 cu. ft. = 7.48 gal = 62.4 lbs (approx)
1 gal = 0.134 cu. ft. = 8.34 lbs (approx)
2" well = 0.163 gal/linear ft.
3" well = 0.367 gal/linear ft.
4" well = 0.653 gal/linear ft
6" well = 1.469 gal/linear ft.

APPENDIX C

MW-5 Boring Log and Surveying Data Results

Aquatic & Environmental Applications
38053 Davy Ct.
Fremont, CA 94536
510-791-7157 (Voice/FAX)

BORING NUMBER **MW-5** SHEET 1 OF 1

PROJECT **Motor Partners**

LOCATION **1234 40th Ave, Oakland, CA**

CONTRACT NUMBER **1004**

COORDINATES

SURFACE ELEVATION DATUM

LOGGED BY **G. Rogers**

SAMPLE INFORMATION						STRATA	DESCRIPTION	WELL CONSTRUCTION DETAIL	ELEVATION FEET
DEPTH FEET	LAB SAMPLE	SAMPLE TYPE	BLOW COUNTS	Recovery %	HNu (ppm)				
							Concrete Surface -- 6" Thick		
							SILTY CLAY (CL) Dark Black Color Moist		
5	MW-5-5'	MC					Hydrocarbon Odor Color change to Black/Green Soil		
10	MW-5-10	MC					**SANDY CLAY (SC)** Saturated		
15	MW-5-15	MC					Color Change to Brown Brown Sandy Soil		
20							Bottom of Borehole 21'		

DRILLING CONTRACTOR HK2, Inc./SEMCO

DRILLING METHOD Solid Stem Auger

DRILLING EQUIPMENT EarthProbe 200

DRILLING STARTED 2/11/98 ENDED 2/11/98

REMARKS Monitoring Well MW-5

See key sheet for symbols and abbreviations used above

LL GW 3 21 98

FIELD SURVEY RECORD

Date: March 20, 1998

Page:1

CLIENT: Motor Partners	LOCATION: 1234 40th Ave., Oakland, CA
SURVEYORS: Rogers	WEATHER: Partly Cloudy

STATION	BACKSIGHT	HI	FORESIGHT	ELEVATION	WATER DEPTH	WATER ELEV.
MW-1	5.09	36.53		31.44		
MW-5			5.38	31.15		
MW-1	4.13	35.57		31.44		
E-1			4.71	30.86		
E-2			4.83	30.73		

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-6262
(510) 670-5349 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1234 40th Ave
Oakland, CA

California Coordinates Source _____ ft. Accuracy ± ___ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name Bill Owens
Address 2221 Olympic Blvd Phone 510-935-[illegible]
City Walnut Creek, CA Zip 94595

APPLICANT
Name Gary Rogers Fax 510-791-7157
Address 5900 Hwy 84 Phone 510-791-7157
City Livermore, CA Zip 94550

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. 538628

WELL PROJECTS
Drill Hole Diameter 6 in. Maximum
Casing Diameter 2 in. Depth 25 ft.
Surface Seal Depth 20 ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE Feb. 16, 1998
ESTIMATED COMPLETION DATE _____

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Gary Rogers DATE Feb 2, 1998

FOR OFFICE USE

PERMIT NUMBER 98WR051
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2) Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
(3) Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED [signature] DATE 2/3/98