ARCADIS GERAGHTY & MILLER

98 DEC 15 PM 4:11

ARCADIS Geraghty & Miller, Inc.
1050 Marina Way South
Richmond
California 94804
Tel 510 233 3200
Fax 510 233 3204

WESTERN REGION

Mr. Barney Chan
Division of Hazardous Materials
Department of Environmental Health
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502

Subject:
Results of Quarterly Groundwater Monitoring - May 1998
Former Penske Truck Leasing Company Facility
725 Julie Ann Way
Oakland, California

Richmond, California,
December 11, 1998

Contact:
Paul V. Hehn

Extension:
(510) 233-3200

Dear Mr. Chan:

The above referenced report is being forwarded to you at the request of Penske Truck Leasing Co. The report details the results of quarterly groundwater monitoring and sampling for May 1998 at the Former Penske Truck Leasing Facility at 725 Julie Ann Way, Oakland.

This report also includes the results of additional sampling, analysis, and field activities related to biodegradation parameter testing requested in your May 20, 1998 letter. The results of this additional testing shows that based on the bacteria enumeration, both the total heterotropic and hydrocarbons utilizing bacteria are present in the groundwater beneath the site. However, the biodegradation parameter testing has shown that the dissolved oxygen, nutrients and alternative electron acceptors are depleted in the downgradient direction from the former USTs excavation. Overall, it appears that if adequate nutrients, or dissolved oxygen, or alternative electron acceptors were added to the groundwater, the biodegradation in the groundwater would be enhanced.

Penske is currently reviewing several options for possible biodegradation enhancement in the groundwater. When the appropriate technology is selected, your office will be notified, and a biodegradation enhancement technique will be proposed in a future correspondence.

Do not agree w/ semi annual mon of ORP & D.O.

Our ref.:
Project No. RC000321.0002/aclt1298.doc

If you have any questions, please do not hesitate to call

Sincerely,

ARCADIS Geraghty & Miller, Inc.

Paul Hehn, R.G.
Project Geologist/Project Manager

Copies:
Mr. Richard G. Saut
Penske Truck Leasing Co.

Files - Project No. RC000019.0010

PENSKE
Truck Leasing

Via Fax 510-233-3204

December 7, 1998

Mr. Paul Hehn
Arcadis, Inc.
1050 Marina Way South
Richmond, CA 94804

Re: Quarterly Groundwater Monitoring Report
Former Penske Truck Leasing Facility
725 Julie Ann Way
Oakland, CA

Dear Paul,

I have reviewed and approve the above referenced report. Please forward the appropriate number of copies to the required regulatory agencies. Please provide one copy for my file with a copy of your report transmittal letters to the agencies. If you have questions or need assistance, please call my office at 610-775-6010.

Sincerely,

Richard Saut

Richard G. Saut
Environmental Project Manager

RGS/csk
L1120798.rgs

PENSKE TRUCK LEASING CO. / ROUTE 10 GREEN HILLS / P.O. BOX 7635 / READING, PA 19603-7635
TELEPHONE: 610-775-6298 / FAX: 610-775-6442

Quarterly Groundwater Monitoring and Sampling

May 1998

Former Penske Truck Leasing Facility
725 Julie Ann Way
Oakland, California

ARCADIS
GERAGHTY & MILLER

1050 Marina Way South
Richmond, CA 94804
(510) 233-3200

QUARTERLY REPORT

Prepared November 20, 1998

ARCADIS GERAGHTY & MILLER

ARCADIS Geraghty & Miller, Inc.
1050 Marina Way South
Richmond
California 94804
Tel 510 233 3200
Fax 510 233 3204

WESTERN REGION

Mr. Richard G. Saut
Environmental Project Manager
Penske Truck Leasing Company, L.P.
Route 10, Green Hills
P.O. Box 7635
Reading, Pennsylvania 19603-7635

Subject:
Results of Quarterly Groundwater Monitoring, May 1998,
Former Penske Truck Leasing Facility, 725 Julie Ann Way, Oakland, California.

Richmond,
20 November 1998

Contact:
Paul V. Hehn

Extension:
510 233 3200

Dear Mr. Saut:

This report presents the results of the quarterly groundwater monitoring and sampling activities performed on May 27 and 29, 1998, at the former Penske Truck Leasing Co. (Penske) facility referenced above (Figure 1). The scope of work for this project was presented to Penske in an ARCADIS Geraghty & Miller letter dated January 25, 1996. The scope of work for groundwater monitoring and sampling consists of collecting depth-to-water measurements, total-well-depth measurements, and water samples for laboratory analysis from selected wells. The scope of work also includes preparation of quarterly groundwater sampling and monitoring reports based on the data and groundwater samples collected during each quarterly event. This quarterly groundwater sampling and monitoring program is related to the containment zone (CZ) concept remedial approach approved by the Alameda County Health Care Services Agency (ACHCSA) and the California Regional Water Quality Control Board – San Francisco Bay Region (RWQCB) in its letter to Penske dated March 25, 1994.

The current report also details the results of additional groundwater sampling and analysis for biodegradation parameters. The biodegradation parameters were tested at the request of the ACHCSA. In a letter to Penske dated December 9. 1997, the ACHCSA requested that monitoring wells be sampled and analyzed for dissolved oxygen (DO), oxidation-reduction potential (redox), nitrate, sulfate and ferrous iron. The ACHCSA also requested that several of the wells located downgradient from the former underground storage tanks (USTs) be analyzed for bacterial enumeration for total petroleum hydrocarbon-degraders and total heterotrophs. The results of this additional sampling are detailed in this report, and also presented in the attached tables and figures.

Field Procedures

The subject quarterly groundwater monitoring was performed on May 27 and 29, 1998. Monitoring was completed and groundwater samples were collected from Monitoring Wells MW-1 through MW-5, MW-7, and MW-8 in accordance with the CZ remedial approach monitoring and sampling plan referenced above. The monitoring-well locations are shown in Figure 2.

Prior to sampling, depth-to-water measurements were obtained from all on-site wells. Additionally, the wells were checked for the presence of liquid-phase hydrocarbons. Each well sampled was purged of at least four casing volumes of water using a 1-inch diaphragm pump. Prior to sampling each well, all equipment that entered the well was washed in a solution of nonphosphate detergent and water and then triple rinsed in deionized water. Purged water was monitored for pH, temperature, and specific conductance. A summary of the field data is presented in Table 1. Following purging, groundwater samples were collected using a new disposable polyethylene bailer for each well. The purged water was initially stored in 55-gallon drum and eventually removed by a Penske-contracted vacuum truck for proper disposal.

Groundwater samples were put into the appropriate USEPA-approved containers, placed on ice, and transported to American Environmental Network (AEN), in Pleasant Hill, California, under appropriate chain-of-custody documentation. The water samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline (USEPA Method 8015, modified); TPH as diesel (USEPA Method 8015, modified); benzene, toluene, ethylbenzene, and total xylenes (BTEX) (USEPA Method 8020); methyl tertiary butyl ether (MTBE) (USEPA Method 8020); and total dissolved solids (TDS) (USEPA Method 160.1). As requested by the ACHCSA, the water samples were also analyzed for nitrate as nitrogen (USEPA Method 300), sulfate (USEPA Method 300), ferrous iron (ASTM Phenanthroline Method – modified 3500/FE D). The ferrous iron analysis was performed by Environmental Technical Services (ETS) of Petaluma, California under subcontract to AEN. The water samples from Wells MW-7 and MW-8 were also analyzed for bacterial enumeration for total petroleum hydrocarbon-degraders and total heterotrophs by an environmental biotechnology laboratory subcontracted by AEN.

Results

Shallow Groundwater Flow

A summary of the depth-to-water data is presented in Table 1. Depth to water ranged from 5.17 feet (Monitoring Well MW-7) to 6.42 feet (Monitoring Well MW-1) below the ground surface. A contour map based on the groundwater elevation data collected May 29, 1998, is presented in Figure 2. The historic shallow groundwater flow is toward the west; however, there are local variations in flow directions at the facility, as indicated by the groundwater contours from the data collected during May 1998.

The difference in the elevation of the groundwater surface between Wells MW-2 and MW-1 is 1.32 feet, producing a hydraulic gradient (slope of the groundwater surface) of approximately 0.0143 in a southwesterly direction. The groundwater gradient and groundwater contours for the current quarter are consistent with those presented during previous quarters.

Field Parameters

As in all previous quarterly sampling events at this facility, the specific conductance measurements for the groundwater purged during the sampling continue to be high (Table 1) due to the brackish nature of the groundwater beneath this site. Liquid-phase hydrocarbons were measured in Wells MW-1 (0.01 foot), MW-4 (0.01 foot), and MW-7 (0.56 foot) during this monitoring event.

Groundwater Analytical Results

A summary of the groundwater analytical results is presented in Table 2. Copies of the certified laboratory reports and chain-of-custody documentation are included in Attachment 1. TPH as gasoline was detected in the groundwater samples from Monitoring Wells MW-1 (13,000 micrograms per liter [µg/L]), MW-4 (3,900 µg/L), and MW-7 (140 µg/L). TPH as diesel was detected in the groundwater samples collected from Monitoring Wells MW-1 (280,000 µg/L), MW-2 (1,300 µg/L), MW-4 (11,000 µg/L), MW-7 (1,600 µg/L), and MW-8 (70 µg/L). Benzene was detected in the groundwater samples collected from Monitoring Wells MW-1 (110 µg/L), MW-4 (1.4 µg/L), and MW-7 (2.3 µg/L). All other BTEX constituent results are presented in Table 2. MTBE was not detected in any of the groundwater samples.

Discussion and Compliance with Containment Zone Approach

Benzene was detected in the shallow groundwater sample collected from designated CZ-concept Guard Well MW-7 (2.3 µg/L) but at concentrations below the compliance concentration of 71 µg/L. Based on the results of the benzene concentration detected in Well MW-7 (80 µg/L) during the February 1998 groundwater sampling event, Compliance Well MW-8 was sampled during this quarterly event. No benzene concentrations were detected in the groundwater sample collected from Compliance Well MW-8 during the current quarterly event.

During this quarterly groundwater sampling event significant decreases in the concentration of TPH as gasoline were detected in the groundwater samples from Well MW-1 (from 380,000 µg/L to 13,000 µg/L) and MW-7 (from 45,000 µg/L to 140 µg/L). The concentration of TPH as gasoline increased in Well MW-4 (from 580 µg/L to 3,900 µg/L). The concentrations of TPH as diesel decreased in the groundwater samples from Well MW-1 (from 1,200,000 µg/L to 280,000 µg/L), Well MW-7 (from 290,000 µg/L to 1,600 µg/L), and Well MW-8 (from 150 µg/L to 70 µg/L). The concentrations of TPH as diesel increased in the groundwater samples from Well MW-2 (from 340 µg/L to 1,300 µg/L), Well MW-4 (from 9,300 µg/L to 11,000 µg/L), and Well MW-5 (from ND to 770 µg/L). The concentrations of benzene decrease in the groundwater samples collected from Well MW-4 (from 2.7 µg/L to 1.4 µg/L) and Well MW-7 (from 80 µg/L to 2.3 µg/L). The concentrations of benzene increase only in the groundwater samples collected from Well MW-1 (from 50 µg/L to 110 µg/L).

Concentrations of petroleum hydrocarbons continue to be detected in Wells MW-1, MW-4 and MW-7, all of which are located immediately downgradient from the former UST excavation. The concentrations that continue to be detected from these wells indicate that additional mass of petroleum hydrocarbons remains in the groundwater and probably within the soil downgradient from the former UST excavation. However, recent decreases in the concentrations of petroleum hydrocarbons detected in the groundwater samples collected from the three wells may indicate that there is increased biodegradation activity taking place. These reductions may also be as a result of the addition of the ORC™ socks in Observation Wells OW-1 and OW-2 which are both located upgradient from these wells

At the request of Penske, additional groundwater purging will be continued during future quarterly events. The additional purging will help remove additional mass of petroleum hydrocarbons from the groundwater downgradient from the former tank excavation to aid in the remediation of the groundwater at this former facility.

Results of Regulatory Requested Additional Groundwater Sampling

Penske received a letter dated May 20, 1998 from Mr. Barney Chan at the ACHCSA. In this letter Mr. Chan requested that biodegradation parameters be analyzed in all wells to establish baseline concentrations for assessing biodegradation activity at this site. He also requested that dissolved oxygen (DO) and redox measurements be collected during each quarterly sampling event also to monitor natural biodegradation indicators. The results of these requests are detailed in this report. The results of the additional sampling and analysis are presented in Table 3 and on Figure 4.

Biodegradation parameters, and DO and redox measurements were not collected from Observation Wells OW-1 and OW-2 since ORC™ socks in these wells prevent measurements or samples from being collected. The DO and redox measurements will be collected during the next replacement event of the ORC™ socks.

The results of the biodegradation testing have shown that the conditions for active biodegradation of petroleum hydrocarbons are present at the site. However, the testing has also shown that dissolved oxygen, nutrients and alternative electron acceptors are depleted in the groundwater downgradient from the former USTs excavation (Figure 4).

The biodegradation parameter testing has shown that the DO and redox measurements, the bacteria enumeration of the total heterotropic and hydrocarbon utilizing bacteria, and concentrations of nitrate, sulfate and ferrous iron are generally higher in upgradient wells MW-2 and MW-3 than in Wells MW-1, 4, 7 and 8 downgradient from the former USTs excavation. The exceptions are higher total heterotropic and hydrocarbon utilizing bacteria counts, and nitrate and sulfate concentrations in the area of downgradient Wells MW-1 and MW-7. Based on the depth-to-water measurements and groundwater contour maps from recent quarterly groundwater monitoring reports, it appears that these wells are affected by the tidal actions from the tidal channel adjacent to the site. The tidal interaction between the tidal channel and the groundwater may replenish nutrients and alternative electron acceptors in the groundwater near these wells, and thus promote more bacterial activity.

Based on the bacteria enumeration, both the total heterotropic and hydrocarbons utilizing bacteria are present in the groundwater beneath the site. However, the biodegradation parameter testing has shown that the dissolved oxygen, nutrients and alternative electron acceptors are depleted in the downgradient direction from the former USTs excavation. Overall, it appears that if adequate nutrients, or dissolved oxygen, or alternative electron acceptors were added to the groundwater, the biodegradation in the groundwater would be enhanced. The enhancements of the

biodegradation parameters would provide an increase in the biodegradation of the petroleum hydrocarbons in the groundwater beneath the site.

Revisions to Future Sampling Events

As specified by the ACHCSA in their letter to Penske dated December 9, 1997, the following modifications to the quarterly groundwater sampling were requested and approved by the ACHCSA:

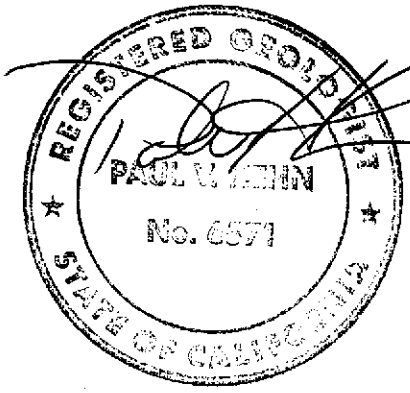
1) It will no longer be necessary to sample and analyze groundwater samples from Monitoring Wells MW-3 and MW-6. However, these wells will continue to be measured for depth-to-water in order to construct a meaningful groundwater contour map for the site.
2) It will no longer be necessary to analyze the groundwater samples for total dissolved solids.
3) The ACHCSA recommended that future groundwater monitoring events should include measurements of dissolved oxygen and oxygen-reduction potential for all monitoring wells. ARCADIS Geraghty & Miller recommends, and Penske would prefer, that these measurements be collected twice a year during the spring quarterly sampling event (higher average groundwater levels) and during the fall quarterly sampling event (lower average groundwater levels) rather than measured during each quarterly event. This recommended frequency would collect sufficient information to monitor biodegradation activity while still being cost effective for Penske.

ARCADIS Geraghty & Miller appreciates the opportunity to be of service to Penske. If you have any questions regarding this report, please do not hesitate to call us.

Sincerely,
ARCADIS Geraghty & Miller, Inc.

Paul V. Hehn, R.G.
Project Geologist/Project Manager

Donald C. Trueblood
Regional Manager



Attachments: References

Table 1	Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data
Table 2	Summary of Groundwater Analytical Results-Monthly and Quarterly Sampling
Table 3	Biodegradation Parameters Results
Figure 1	Site Location Map
Figure 2	Shallow Groundwater Contours - May 1998
Figure 3	Benzene Concentrations - May 1998
Figure 4	Biodegradation Parameter Results - May 1998
Attachment 1	Copies of Certified Laboratory Reports and Chain-of-Custody Documentation

References

Alameda County Health Care Services Agency. May 20, 1998. Letter to Penske Truck Leasing Co. on Former Penske Truck Leasing Facility, 725 Julie Ann Way, Oakland, CA 94621.

———. December 6, 1996. Letter to Penske Truck Leasing Co. on Former Penske Truck Leasing Facility, 725 Julie Ann Way, Oakland, CA 94621.

Geraghty & Miller, Inc. November 15, 1990. Results of Initial Soil and Ground-Water Assessment Activities, Former Penske Truck Leasing Co. Facility, 725 Julie Ann Way, Oakland, California.

———. February 7, 1991. Scope of Work and Project Budget Estimate for Ground-Water Monitoring Activities for the Period February 1991 through February 1992, Former Penske Truck Leasing Co. Facility, 725 Julie Ann Way, Oakland, California.

———. January 25, 1995. Work Plan and Budget Cost Estimate for Groundwater Sampling Coordination, Quarterly Report Preparation, and Purge Water Disposal Assistance, Former Penske Truck Leasing Co. Facility, 725 Julie Ann Way, Oakland, California.

———. January 25, 1996. Work Plan and Budget Cost Estimate for Groundwater Sampling Coordination, Quarterly Report Preparation, and Purge Water Disposal Assistance, Former Penske Truck Leasing Co. Facility, 725 Julie Ann Way, Oakland, California.

ARCADIS GERAGHTY&MILLER

Table 1: Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet)	Top of Water Elevation (feet)	Measured Depth of Well (a) (feet)	Calculated Purge Volume (b) (gallons)	Actual Purge Volume (gallons)	Field Measurements pH	Temp. (°F)	SC (µS/cm)	Casing Diameter (inches)
MW-1	2-Oct-90	9.76	5.42	-4.34	37.28	58.56	47	6.71	87.5	5,280	4
	28-Feb-91	8.54		-3.12	33.58	65.00	70	6.30	66.0	9,700	
	25-Mar-91	7.35		-1.93	33.50	71.00	75	6.50	64.0	7,200	
	1-May-91	7.91		-2.49	33.70	67.00	51	6.20	65.0	3,500	
	5-Aug-91	8.63		-3.21	NM	51.00	68	NM	63.6	7,690	
	23-Oct-91	9.00		-3.58	33.77	67.00	67	9.40	64.2	7,470	
	6-Jan-92	8.52		-3.10	33.87	65.00	69	9.40	63.2	6,640	
	20-Jul-92	7.94		-2.52	33.95	65.02	66	7.20	65.7	6,410	
	23-Oct-92	8.62		-3.20	33.57	64.80	60	7.50	69.8	1,930	
	4-Feb-93	6.55	5.43 (c)	-1.12	33.84	70.96	71	8.02	65.0	9,520	
	8-Apr-93	6.37		-0.94	33.80	71.32	65	6.60	66.7	>2,000	
	6-Aug-93	7.39		-1.96	33.88	68.67	69	7.22	68.1	5,890	
	28-Oct-93	7.85		-2.42	33.80	67.48	68	7.00	68.3	5,910	
	1-Feb-94	7.25		-1.82	33.99	69.52	70	7.63	63.2	7,610	
	12-Sep-94	6.75		-1.32	33.95	70.72	70	6.90	75.8	7,950	
	23-Nov-94	6.13		-0.70	33.93	72.28	73	6.10	66.2	>2,000	
	21-Feb-95	6.00		-0.57	34.00	55.44	56	7.36	70	890	
	23-May-95	6.04		-0.61	34.00	54.52	56	7.11	66.2	5,920	
	16-Aug-95	6.03		-0.60	34.00	55.94	56	7.27	69.3	5,510	
	21-Nov-95	6.90		-1.47	34.00	52.85	54	7.19	67.8	5,720	
	13-Feb-96	5.18		0.25	33.87	74.59	>75	7	71.2	6,070	
	13-May-96	6.10		-0.67	NM	72.20 (f)	>73	6.5	76.4	14,370	
	28-Aug-96	6.17		-0.74	33.85	71.96	>72	7	85.5	4,820	
	21-Nov-96	6.09		-0.66	33.92	72.43	>73	6.5	77.8	7,890	
	20-Feb-97	5.41		0.02	33.94	74.17	>75	6.0	66.3	1,900	
	28-May-97	5.98		-0.55	NM	72.69 (f)	>73	8.0	77	9,000	
	19-Sep-97	6.45		-1.02	33.80	71.12	>72	7.4	71.3	5,500	
	17-Nov-97	6.14		-0.71	34.03	72.51	>73	7.12	75	6,690	
	27-Feb-98	4.83		0.60	33.97	75.76	>76	6.80	65	6,680	
	27-May-98	**6.42**		**-0.99**	**34.00**	**71.60**	**72**	**6.79**	**62.42**	**7,990**	

ARCADIS GERAGHTY&MILLER

Table 1: Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet)	Top of Water Elevation (feet)	Measured Depth of Well (a) (feet)	Calculated Purge Volume (b) (gallons)	Actual Purge Volume (gallons)	Field Measurements pH	Temp. (°F)	SC (µS/cm)	Casing Diameter (inches)
MW-2	2-Oct-90	10.38	6.21	-4.17	32.97	48.07	47	6.92	86.4	5,460	4
	28-Feb-91	9.19		-2.98	29.39	53.00	55	6.60	64.0	9,000	
	25-Mar-91	7.95		-1.74	29.39	57.00	70	6.60	63.0	6,400	
	1-May-91	8.58		-2.37	29.60	55.00	50	6.20	64.0	3,000	
	5-Aug-91	9.33		-3.12	NM	40.00	54	NM	65.1	5,680	
	23-Oct-91	9.57		-3.36	29.35	52.00	53	7.60	65.4	7,970	
	6-Jan-92	9.08		-2.87	29.50	53.00	53	9.18	62.8	6,990	
	20-Jul-92	8.60		-2.39	29.45	54.21	55	6.50	65.2	6,690	
	23-Oct-92	9.33		-3.12	29.18	51.60	55	7.20	69.8	1,900	
	4-Feb-93	7.17	6.20 (c)	-0.97	29.37	57.72	55	8.25	64.0	10,310	
	8-Apr-93	6.95		-0.75	29.32	58.16	60	6.90	66.7	>2,000	
	6-Aug-93	8.05		-1.85	29.33	55.33	66.5	7.26	66.4	6,250	
	28-Oct-93	8.50		-2.30	29.43	54.40	55	7.08	71.2	6,780	
	1-Feb-94	7.87		-1.67	29.54	56.32	57	8.35	62.4	8,250	
	12-Sep-94	7.42		-1.22	29.45	57.24	66	(e)	69.9	8,130	
	22-Nov-94	6.75		-0.55	29.50	59.15	60	6.8	67.6	>2,000	
	21-Feb-95	6.20		0.00	30.00	47.12	48	6.97	64	1,050	
	23-May-95	6.10		0.10	30.00	46.60	48	7.18	70.3	7,710	
	16-Aug-95	6.69		-0.49	30.00	46.62	46	7.42	65	6,790	
	21-Nov-95	7.62		-1.42	30.00	43.64	45	7.30	67.6	7,250	
	13-Feb-96	5.81		0.39	29.47	61.51	>62	7	71.8	2,890	
	13-May-96	6.40		-0.20	NM	59.98 (f)	>60	5.5	74.4	860	
	28-Aug-96	7.11		-0.91	29.42	58.00	>58	6	83.5	590	
	21-Nov-96	6.41		-0.21	29.43	59.85	>60	6.5	76.3	4,160	
	20-Feb-97	6.26		-0.06	29.54	60.52	>61	6.5	65.2	1,940	
	28-May-97	6.65		-0.45	NM	59.51 (f)	>60	7.0	73.6	5,540	
	19-Sep-97	6.90		-0.70	29.47	58.68	>59	6.9	69.7	12,630	
	17-Nov-97	6.75		-0.55	29.56	59.31	>60	8.08	75.7	710	
	27-Feb-98	5.31		0.89	29.45	62.76	>63	6.50	67.3	530	
	27-May-98	**5.87**		**0.33**	**29.47**	**61.36**	**62**	**6.95**	**63.5**	**5,870**	

ARCADIS GERAGHTY & MILLER

Table 1: Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet)	Top of Water Elevation (feet)	Measured Depth of Well (a) (feet)	Calculated Purge Volume (b) (gallons)	Actual Purge Volume (gallons)	Field Measurements pH	Temp. (°F)	SC (µS/cm)	Casing Diameter (inches)
MW-3	2-Oct-90	10.38	6.10	-4.28	37.08	56.82	54	6.89	88.4	639	4
	28-Feb-91	9.45		-3.35	31.61	58.00	60	6.10	66.0	1,020	
	25-Mar-91	7.98		-1.88	31.60	70.00	75	6.40	65.0	8,200	
	1-May-91	8.58		-2.48	33.70	65.00	50	6.40	67.0	4,100	
	5-Aug-91	9.26		-3.16	NM	50.00	67	NM	64.1	6,190	
	23-Oct-91	9.60		-3.50	33.48	66.00	66	7.30	67.3	8,430	
	6-Jan-92	9.08		-2.98	33.66	64.00	64	9.98	61.7	7,010	
	20-Jul-92	8.59		-2.49	33.76	65.44	66	6.80	66.0	7,540	
	23-Oct-92	9.30		-3.20	33.47	63.40	65	7.50	71.6	1,800	
	4-Feb-93	7.19	6.10 (c)	-1.09	33.65	68.79	65	8.29	64.0	10,290	
	8-Apr-93	6.98		-0.88	33.55	69.08	72	6.90	68.2	>2,000	
	6-Aug-93	8.01		-1.91	33.55	66.40	56 (d)	7.43	67.3	6,490	
	28-Oct-93	8.45		-2.35	33.60	65.40	66	7.02	72.0	6,590	
	1-Feb-94	8.03		-1.93	33.74	66.84	67	8.32	63.3	8,400	
	12-Sep-94	7.39		-1.29	33.70	68.40	70	7.73	68.7	8,030	
	22-Nov-94	6.76		-0.66	33.75	70.17	70	6.60	65.8	>2,000	
	21-Feb-95	6.36		-0.26	33.50	53.74	54	6.99	85.4	880	
	23-May-95	6.48		-0.38	33.50	52.69	54	7.25	68.7	6,060	
	16-Aug-95	6.63		-0.53	33.50	53.74	54	7.53	66.1	5,390	
	21-Nov-95	7.51		-1.41	33.50	50.68	52	7.34	67.4	5,730	
	13-Feb-96	5.91		0.19	33.69	72.24	>73	7	71.5	6,790	
	13-May-96	6.36		-0.26	NM	71.06 (f)	>72	6.5	76.7	14,360	
	28-Aug-96	7.15		-1.05	33.52	68.56	>69	8	79.2	2,930	
	21-Nov-96	6.64		-0.54	33.54	69.94	>70	6.5	77.0	7,500	
	20-Feb-97	6.36		-0.26	33.67	71.00	>72	6.5	68.7	4,180	
	28-May-97	6.62		-0.52	NM	70.33 (f)	>71	7.0	74.1	6,580	
	19-Sep-97	6.83		-0.73	33.55	69.48	>70	7.0	70.8	8,570	
	17-Nov-97	6.77		-0.67	33.59	69.73	>70	7.08	75.0	6,580	
	27-Feb-98	5.38		0.72	33.60	73.37	>74	7.0	65.9	7,530	
	27-May-98	**6.05**		**0.05**	**33.63**	**71.72**	**72**	**8.28**	**64.8**	**6,880**	

ARCADIS GERAGHTY&MILLER

Table 1: Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet)	Top of Water Elevation (feet)	Measured Depth of Well (a) (feet)	Calculated Purge Volume (b) (gallons)	Actual Purge Volume (gallons)	Field Measurements pH	Temp. (°F)	SC (µS/cm)	Casing Diameter (inches)
MW-4	4-Feb-93	6.68	5.18 (c)	-1.50	32.70	64.38	60 (d)	NM	63.5	14,100	4
	8-Apr-93	6.21		-1.03	33.04	69.76	70	6.80	69.1	>2,000	
	6-Aug-93	7.20		-2.02	32.92	66.87	60 (d)	7.44	68.9	13,900	
	28-Oct-93	7.64		-2.46	32.98	65.88	66	6.79	72.1	11,940	
	1-Feb-94	7.26		-2.08	33.31	67.72	68	8.65	63.6	18,110	
	12-Sep-94	6.55		-1.37	33.41	69.84	60 (d)	6.03	77.5	16,710	
	23-Nov-94	6.08		-0.90	33.35	70.90	55 (d)	5.60	66.7	>2,000	
	21-Feb-95	5.36		-0.18	33.50	55.71	48 (d)	6.83	80.2	880	
	23-May-95	5.05		0.13	33.50	55.48	59	6.71	66.5	12,090	
	16-Aug-95	5.63		-0.45	33.50	55.74	33 (d)	7.34	69.8	8,670	
	21-Nov-95	6.63		-1.45	33.50	52.39	34 (d)	7.03	68.2	10,380	
	13-Feb-96	5.14		0.04	33.25	73.08	>74	7	75.3	6,090	
	13-May-96	5.75		-0.57	NM	71.50 (f)	>72	7	76.1	>20,000	
	28-Aug-96	6.04		-0.86	33.20	70.61	>71	7.4	83.9	2,600	
	21-Nov-96	7.90		-2.72	33.17	65.70	>66	6.5	75.9	8,940	
	20-Feb-97	5.29		-0.11	33.28	72.77	>73	6.5	66.1	2,110	
	28-May-97	5.66		-0.48	NM	71.81 (f)	>72	7.0	74	6,480	
	19-Sep-97	6.00		-0.82	33.31	71.00	>71	7.4	71	4,330	
	17-Nov-97	6.06		-0.88	33.35	70.95	>71	6.81	70	11,020	
	27-Feb-98	4.66		0.52	33.22	74.25	>75	7.30	65.9	15,720	
	27-May-98	**5.98**		**-0.80**	**33.00**	**70.40**	**35 (d)**	**6.89**	**62.4**	**10,980**	

ARCADIS GERAGHTY&MILLER

Table 1: Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data
Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet)	Top of Water Elevation (feet)	Measured Depth of Well (a) (feet)	Calculated Purge Volume (b) (gallons)	Actual Purge Volume (gallons)	Field Measurements pH	Temp. (°F)	SC (µS/cm)	Casing Diameter (inches)
MW-5	4-Feb-93	8.94	4.71 (c)	-4.23	31.40	61.65	40 (d)	8.43	63.2	16,870	4
	8-Apr-93	5.43		-0.72	31.36	67.42	68	7.20	68.0	>2,000	
	6-Aug-93	6.19		-1.48	31.30	65.29	68	7.47	63.6	5,180	
	28-Oct-93	6.86		-2.15	31.43	62.72	48 (d)	7.12	70.6	4,980	
	1-Feb-94	6.48		-1.77	31.43	64.84	49 (d)	(e)	63.1	6,120	
	12-Sep-94	5.89		-1.18	31.43	66.40	39 (d)	(e)	69.4	5,020	
	22-Nov-94	5.66		-0.95	31.44	67.02	58 (d)	6.80	68.4	>2,000	
	21-Feb-95	4.90		-0.19	31.00	51.68	45 (d)	7.30	82.5	880	
	23-May-95	4.86		-0.15	31.00	50.97	52	7.03	66.5	4,320	
	16-Aug-95	4.97		-0.26	31.00	52.06	36 (d)	7.48	67.5	3,900	
	21-Nov-95	5.82		-1.11	31.00	49.10	32 (d)	7.26	67.0	4,110	
	13-Feb-96	4.86		-0.15	31.41	69.03	>69	7	68.3	5,950	
	13-May-96	5.06		-0.35	NM	68.51 (f)	>69	6.5	71.9	9,830	
	28-Aug-96	5.29		-0.58	31.34	67.73	>68	7.9	79.6	2,590	
	21-Nov-96	5.44		-0.73	31.33	67.31	>67	6.5	76.0	7,260	
	20-Feb-97	4.68		0.03	31.46	69.62	>70	6.5	60.7	1,990	
	28-May-97	5.21		-0.50	NM	68.25 (f)	>69	7.8	70.7	11,500	
	19-Sep-97	5.43		-0.72	31.46	67.68	>68	7.1	67.9	3,920	
	17-Nov-97	5.28		-0.57	31.44	68.02	>69	7.0	73.0	5,180	
	27-Feb-98	4.10		0.61	31.49	71.21	>72	6.8	62.5	1,650	
	27-May-98	**5.40**		**-0.69**	**32.00**	**70.40**	**70**	**6.89**	**64.2**	**4,830**	

ARCADIS GERAGHTY & MILLER

Table 1: Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data
Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet)	Top of Water Elevation (feet)	Measured Depth of Well (a) (feet)	Calculated Purge Volume (b) (gallons)	Actual Purge Volume (gallons)	Field Measurements pH	Temp. (°F)	SC (µS/cm)	Casing Diameter (inches)
MW-6	12-Sep-94	6.56	5.37	-1.19	24.85	47.55	41 (d)	(e)	71.2	12,970	4
	22-Nov-94	6.04		-0.67	24.88	48.98	50	6.70	66.4	>2,000	
	21-Feb-95	NS		NS	NS	NS	NS	NS	NS	NS	
	23-May-95	5.32		0.05	24.70	NS	NS	NS	NS	NS	
	16-Aug-95	5.97		-0.60	24.70	NS	NS	NS	NS	NS	
	21-Nov-95	6.78		-1.41	24.70	NS	NS	NS	NS	NS	
	13-Feb-96	5.14		0.23	24.71	NS	NS	NS	NS	NS	
	13-May-96	5.64		-0.27	NM	NS	NS	NS	NS	NS	
	28-Aug-96	6.15		-0.78	24.67	NS	NS	NS	NS	NS	
	21-Nov-96	5.71		-0.34	24.65	NS	NS	NS	NS	NS	
	20-Feb-97	5.38		-0.01	24.79	NS	NS	NS	NS	NS	
	28-May-97	5.93		-0.56	NM	NS	NS	NS	NS	NS	
	19-Sep-97	6.15		-0.78	24.76	NS	NS	NS	NS	NS	
	17-Nov-97	6.06		-0.69	27.71	NS	NS	NS	NS	NS	
	27-Feb-98	4.74		0.63	24.64	NS	NS	NS	NS	NS	
	27-May-98	**5.40**		**-0.03**	**29. 0**	**NS**	**NS**	**NS**	**NS**	**NS**	

ARCADIS GERAGHTY&MILLER

Table 1: Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data
Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet)	Top of Water Elevation (feet)	Measured Depth of Well (a) (feet)	Calculated Purge Volume (b) (gallons)	Actual Purge Volume (gallons)	Field Measurements pH	Temp. (°F)	SC (µS/cm)	Casing Diameter (inches)
MW-7	12-Sep-94	6.16	5.38	-0.78	28.51	58.08	60	6.65	73.5	7,920	4
	23-Nov-94	5.61		-0.23	28.46	59.40	60	6.00	64.6	>2,000	
	21-Feb-95	5.25		0.13	28.30	45.64	46	7.46	69.5	910	
	23-May-95	5.10		0.28	28.30	45.24	46	7.21	65.0	5,740	
	16-Aug-95	5.42		-0.04	28.30	45.76	46	7.36	66.8	5,560	
	21-Nov-95	6.28		-0.90	28.30	42.99	44	7.29	65.9	5,650	
	13-Feb-96	4.64		0.74	28.39	61.75	>62	7	70.1	7,050	
	13-May-96	5.36		0.02	NM	59.88 (f)	>60	6.5	76.6	15,030	
	28-Aug-96	6.20		-0.82	28.30	57.46	>58	7.4	76.4	3,980	
	21-Nov-96	6.12		-0.74	28.30	57.66	>58	6.5	75.2	8,400	
	20-Feb-97	5.70		-0.32	28.46	59.17	>60	6.5	63.9	4,410	
	28-May-97	5.46		-0.08	NM	59.80 (f)	>60	7.5	71.3	9,790	
	19-Sep-97	5.91		-0.53	28.49	58.72	>59	7.3	71.4	4,910	
	17-Nov-97	5.59		-0.21	23.39	46.28	>47	6.97	71.0	6,410	
	27-Feb-98	4.68		0.70	23.40	74.63	>75	6.80	64.0	7,070	
	27-May-98	**5.17**		**0.21**	**30.00**	**66.00**	**65**	**6.89**	**63.0**	**4,980**	

ARCADIS GERAGHTY&MILLER

Table 1: Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data
Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet)	Top of Water Elevation (feet)	Measured Depth of Well (a) (feet)	Calculated Purge Volume (b) (gallons)	Actual Purge Volume (gallons)	Field Measurements pH	Temp. (°F)	SC (µS/cm)	Casing Diameter (inches)
MW-8	12-Sep-94	6.46	5.44	-1.02	25.15	48.56	55	(e)	(e)	11,400	4
	23-Nov-94	6.01		-0.57	25.66	78.60	75	5.60	61.5	>2,000	
	21-Feb-95	NS		NS	NS	NS	NS	NS	NS	NS	
	23-May-95	5.53		-0.09	25.40	NS	NS	NS	NS	NS	
	16-Aug-95	5.68		-0.24	25.40	NS	NS	NS	NS	NS	
	21-Nov-95	6.37		-0.93	25.40	NS	NS	NS	NS	NS	
	13-Feb-96	5.36		0.08	25.54	NS	NS	NS	NS	NS	
	13-May-96	5.62		-0.18	NM	NS	NS	NS	NS	NS	
	28-Aug-96	6.17		-0.73	25.52	NS	NS	NS	NS	NS	
	21-Nov-96	5.74		-0.30	25.45	51.24	>52	6.5	73.6	9,300	
	20-Feb-97	5.10		0.34	25.54	53.14	>54	6.5	61.5	4,950	
	28-May-97	5.68		-0.24	NM	51.63 (f)	>54	7.5	71.2	14,930	
	19-Sep-97	5.95		-0.51	25.41	50.60	>51	7.0	67.8	7,860	
	17-Nov-97	5.91		-0.47	25.59	51.17	>52	7.49	70.2	8,320	
	27-Feb-98	4.50		0.94	25.58	54.80	>55	7.00	63.8	6,310	
	27-May-98	**6.10**		**-0.66**	**31.00**	**65.00**	**65. 0**	**7.19**	**63.9**	**6,460**	

Notes appear on the follwong page.

ARCADIS GERAGHTY&MILLER

Table 1: Summary of Field Sampling, Depth-to-Water, and Casing Elevation Data

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet)	Top of Water Elevation (feet)	Measured Depth of Well (a) (feet)	Calculated Purge Volume (b) (gallons)	Actual Purge Volume (gallons)	Field Measurements pH	Temp. (°F)	SC (µS/cm)	Casing Diameter (inches)

(a) Measured from top of PVC casing.
(b) Based on four casing volumes.
(c) All well elevations resurveyed to site benchmark on February 10, 1993.
(d) Well went dry during purging.
(e) No reading - instrument malfunction.
(f) Purge volume estimated using well depth-to-bottom measurements from previous quarter.

SC Specific Conductance
(µS/cm) Microsiemens per centimeter
NM Not measured
NS Well not sampled or monitored during this quarterly event.

All elevations are measured relative to a site benchmark (elevation 6.62') based on the City of Oakland datum which is 3 feet higher than mean sea level.

ARCADIS GERAGHTY&MILLER

Table 2: Summary of Groundwater Analytical Results - Monthly and Quarterly Sampling

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	MTBE (b) (µg/L)	Total Dissolved Solids (c) (mg/L)
MW-1	2-Oct-90	170	2,900	20	18	1.9	5.7		--
	28-Feb-91	260	550	43	1	7	1		--
	25-Mar-91	73	160	10	ND(<0.3)	0.5	ND(<0.3)		--
	1-May-91	ND(<50)	(d)	2.2	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	5-Aug-91	310	330	22	5.5	9.5	23		--
	23-Oct-91	440	1,800	23	21	6.2	35		--
	6-Jan-92	430	1,600	56	8.4	18	22		--
	20-Jul-92	ND(<50)	25,000	0.4	0.8	1	2.1		--
	23-Oct-92	280	6,500	9.3	13	8.2	15		--
	4-Feb-93	68 (f)	320	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	8-Apr-93	180	7,800	0.5	2.1	0.8	13		--
	6-Aug-93	740	17,000	75	100	25	130		3,500
	28-Oct-93	140	7,600	4.7	1.9	3.2	5.4		3,500
	1-Feb-94	430	10,000	8.2	1.1	3.5	4.8		3,800
	12-Sep-94	230	22,000	0.7	1.7	2.0	3.7		4,000
	23-Nov-94	ND(<50)	1,700	ND(<0.5)	ND(<0.5)	ND(<0.5)	0.6		3,600
	21-Feb-95	ND(<50)	4,200	ND(<0.5)	ND(<0.5)	0.8	0.6		4,200
	23-May-95	ND(<50)	300	ND(<0.5)	ND(<0.5)	2.1	2.0		3,800
	16-Aug-95	ND(<50)	740	ND(<0.5)	ND(<0.5)	1.4	1.4		3,800
	21-Nov-95	ND(<50)	410	ND(<0.5)	ND(<0.5)	0.7	0.8		4,100
	13-Feb-96	ND(<50)	400	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,600
	13-May-96	310 (k)	12,000	13	14	2.4	11		3,500
	28-Aug-96	11,000 (k)	56,000	110	ND(<50)	ND(<50)	ND(<50)		3,300
	21-Nov-96	65 (k)	1,500	3.3	0.51	0.59	0.84		3,400
	20-Feb-97	2,900 (k)	200,000	260	61	42	96		1,400
	28-May-97	2,100	28,000 (o)	230	42	55	110		3,100
	19-Sep-97	110,000	2,700,000	230	140	250	700	ND (<500)	3,200
	17-Nov-97	40,000 (r)	950,000 (r)	240 (r)	190 (r)	270 (r)	880 (r)	ND (<300) (r)	3,400
	27-Feb-98	380,000	1,200,000	50	50	200	800	ND (<500)	3,600
	29-May-98	**13,000**	**280,000**	**110**	**13**	**66**	**390**	**ND (<50)**	--

ARCADIS GERAGHTY&MILLER

Table 2: Summary of Groundwater Analytical Results - Monthly and Quarterly Sampling

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	MTBE (b) (µg/L)	Total Dissolved Solids (c) (mg/L)
MW-2	2-Oct-90	ND(<50)	80	0.4	ND(<0.3)	ND(<0.3)	0.5		--
	28-Feb-91	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	25-Mar-91	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	1-May-91	ND(<50)	(d)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	5-Aug-91	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	23-Oct-91	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	6-Jan-92	11,000	1200 (e)	ND(<0.3)	83	82	940		--
	20-Jul-92	73	120	1.7	3.3	1.1	9.6		--
	23-Oct-92	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	0.5		--
	4-Feb-93	ND(<50)	330 (e)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	8-Apr-93	150	74 (h)	1	2.1	1	13		--
	6-Aug-93	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.9)		990
	28-Oct-93	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.9)		1,500
	1-Feb-94	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,000
	12-Sep-94	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,100
	22-Nov-94	ND(<50)	51 (h)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,400
	21-Feb-95	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		5,700
	23-May-95	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		5,100
	16-Aug-95	ND(<50)	190	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		5,400
	21-Nov-95	ND(<50)	180	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		5,800
	13-Feb-96	ND(<50)	1,500	ND(<0.5)	ND(<0.5)	ND(<0.5)	8.7		1,100
	13-May-96	ND(<50)	25,000 (l)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		150
	28-Aug-96	ND(<50)	680	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		410
	21-Nov-96	ND(<50)	1,800 (n)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		720
	20-Feb-97	ND(<50)	1,000 (n)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)		1,400
	28-May-97	ND(<50)	3,700 (n) (o)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)		830
	19-Sep-97	ND(<50)	4,100	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<2)	ND(<5)	1,200
	17-Nov-97	ND(<50)	1,300	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<2)	ND(<5)	340
	27-Feb-98	ND(<50)	340	ND(<0.5)	0.9	ND(<0.5)	ND(<2)	ND(<5)	210
	27-May-98	**ND(<50)**	**1,300**	**ND(<0.5)**	**ND(<0.5)**	**ND(<0.5)**	**ND(<2)**	**ND(<5)**	--

ARCADIS GERAGHTY&MILLER

Table 2: Summary of Groundwater Analytical Results - Monthly and Quarterly Sampling
Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	MTBE (b) (µg/L)	Total Dissolved Solids (c) (mg/L)
MW-3	2-Oct-90	ND(<50)	90	28	3.1	0.6	1.5		--
	28-Feb-91	ND(<50)	ND(<50)	6	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	25-Mar-91	ND(<50)	ND(<50)	0.6	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	1-May-91	ND(<50)	(d)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	5-Aug-91	ND(<50)	ND(<50)	1.7	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	23-Oct-91	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	6-Jan-92	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	20-Jul-92	66	ND(<50)	1.1	2.2	0.7	6.4		--
	23-Oct-92	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	4-Feb-93	270	ND(<100)(g)	9.8	4.6	4.5	8.7		--
	8-Apr-93	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.9)		--
	6-Aug-93	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.9)		3,400
	28-Oct-93	ND(<50)	ND(<50)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.9)		2,700
	1-Feb-94	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,400
	12-Sep-94	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,500
	22-Nov-94	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,400
	21-Feb-95	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		4,200
	23-May-95	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		4,100
	16-Aug-95	ND(<50)	240	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		4,100
	21-Nov-95	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		4,200
	13-Feb-96	ND(<50)	72	16	ND(<0.5)	ND(<0.5)	0.73		3,400
	13-May-96	ND(<50)	250 (m)	1.7	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,700
	28-Aug-96	ND(<50)	1,200	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,200
	21-Nov-96	ND(<50)	ND(<50)	0.82	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,500
	20-Feb-97	ND(<50)	140 (n)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)		2,900
	28-May-97	ND(<50)	240 (n) (o)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)		1,900
	19-Sep-97	ND(<50)	ND(<50)	0.7	ND(<0.5)	ND(<0.5)	ND(<2)	ND(<5)	3,300
	17-Nov-97	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<2)	ND(<5)	3,400
	27-Feb-98	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<2)	ND(<5)	3,800
	27-May-98	**ND(<50)**	**ND(<50)**	**ND(<0.5)**	**ND(<0.5)**	**ND(<0.5)**	**ND(<2)**	**ND(<5)**	--

ARCADIS GERAGHTY & MILLER

Table 2: Summary of Groundwater Analytical Results - Monthly and Quarterly Sampling

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	MTBE (b) (µg/L)	Total Dissolved Solids (c) (mg/L)
MW-4	4-Feb-93	58 (f)	450	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	8-Apr-93	74	220	19	0.4	ND(<0.3)	ND(<0.9)		--
	6-Aug-93	95	ND(<50)	68	0.9	1.1	ND(<0.9)		5,800
	28-Oct-93	160	600	46	0.7	1.6	1.2		5,200
	1-Feb-94	320	160	290	0.6	6.7	3.2		6,200
	12-Sep-94	390	95	120	3.9	14	14		6,000
	23-Nov-94	100	1,800	9.9	0.7	1.6	3.8		5,600
	21-Feb-95	91	680	23	ND(<0.5)	1.0	ND(<0.5)		7,100
	23-May-95	ND(<50)	270	5.3	ND(<0.5)	ND(<0.5)	ND(<0.5)		8,300
	16-Aug-95	ND(<50)	610	4.1	ND(<0.5)	ND(<0.5)	ND(<0.5)		7,100
	21-Nov-95	ND(<50)	280	1.0	ND(<0.5)	ND(<0.5)	ND(<0.5)		9,800
	13-Feb-96	980 (i)	7,500	570	ND(<0.5)	9.2	13		3,600
	13-May-96	150 (k)	1,200	45	ND(<1.0)	ND(<1.0)	1.5		7,900
	28-Aug-96	70,000 (k)	1,300,000	340	ND(<200)	ND(<200)	ND(<200)		1,800
	21-Nov-96	52,000 (i)	40,000	130	ND(<100)	ND(<100)	ND(<100)		5,400
	20-Feb-97	64,000 (i)	470,000	ND(<100)	ND(<100)	ND(<100)	ND(<100)		1,500
	28-May-97	11,000 (i)	1,000,000 (o)	ND(<100)	ND(<100)	ND(<100)	ND(<100)		1,700
	19-Sep-97	37,000	2,600,000	260	ND(<30)	ND(<30)	ND(<100)	ND(<300)	2,700
	17-Nov-97	4,400 (r)	57,000 (r)	25 (r)	ND(<5) (r)	ND(<5) (r)	ND(<20) (r)	ND(<50) (r)	7,900
	27-Feb-98	580	9,300	2.7	0.8	0.8	3	ND(<50)	9,700
	29-May-98	**3,900**	**11,000**	**1.4**	**0.6**	**ND(<0.5)**	**ND(<2)**	**ND(<5)**	--

ARCADIS GERAGHTY&MILLER

Table 2: Summary of Groundwater Analytical Results - Monthly and Quarterly Sampling
Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	MTBE (b) (µg/L)	Total Dissolved Solids (c) (mg/L)
MW-5	4-Feb-93	ND(<50)	240	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.3)		--
	8-Apr-93	ND(<50)	480	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.9)		--
	6-Aug-93	ND(<50)	120	0.8	ND(<0.3)	ND(<0.3)	ND(<0.9)		2,800
	28-Oct-93	ND(<50)	370	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<0.9)		2,400
	1-Feb-94	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,500
	12-Sep-94	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,600
	22-Nov-94	ND(<50)	160	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,600
	21-Feb-95	ND(<50)	170	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,800
	23-May-95	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		4,100
	16-Aug-95	ND(<50)	590	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,800
	21-Nov-95	ND(<50)	500	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,800
	13-Feb-96	ND(<50)	830	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,000
	13-May-96	ND(<50)	870	0.59	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,700
	28-Aug-96	ND(<50)	1,000	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,000
	21-Nov-96	ND(<50)	610	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		2,700
	20-Feb-97	ND(<50)	1,100 (n)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)		1,300
	28-May-97	60 (i)	560 (p) (o)	ND(<0.50)	ND(<0.50)	ND(<0.50)	ND(<0.50)		2,500
	19-Sep-97	70	1,000	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<2)	ND(<5)	2,400
	17-Nov-97	70	1,100	0.6	0.7	0.5	ND(<2)	5	2,800
	27-Feb-98	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<2)	5	330
	29-May-98	**ND(<50)**	**770**	**ND(<0.5)**	**ND(<0.5)**	**ND(<0.5)**	**ND(<2)**	**ND(<5)**	--

ARCADIS GERAGHTY&MILLER

Table 2: Summary of Groundwater Analytical Results - Monthly and Quarterly Sampling

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	MTBE (b) (µg/L)	Total Dissolved Solids (c) (mg/L)
MW-6	12-Sep-94	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		560
	22-Nov-94	ND(<50)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	1.5		1,800
	21-Feb-95	NS	NS	NS	NS	NS	NS		NS
	23-May-95	NS	NS	NS	NS	NS	NS		NS
	16-Aug-95	NS	NS	NS	NS	NS	NS		NS
	21-Nov-95	NS	NS	NS	NS	NS	NS		NS
	13-Feb-96	NS	NS	NS	NS	NS	NS		NS
	13-May-96	NS	NS	NS	NS	NS	NS		NS
	28-Aug-96	NS	NS	NS	NS	NS	NS		NS
	21-Nov-96	NS	NS	NS	NS	NS	NS		NS
	20-Feb-97	NS	NS	NS	NS	NS	NS		NS
	28-May-97	NS	NS	NS	NS	NS	NS		NS
	19-Sep-97	NS	NS	NS	NS	NS	NS	NS	NS
	17-Nov-97	NS	NS	NS	NS	NS	NS	NS	NS
	27-Feb-98	NS	NS	NS	NS	NS	NS	NS	NS
	29-May-98	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
MW-7	12-Sep-94	160	620	2.7	1.3	ND(<0.5)	2.1		1,100
	23-Nov-94	ND(<50)	150	2.4	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,600
	21-Feb-95	93	1,400	0.6	0.8	0.8	3.3		4,000
	23-May-95	ND(<50)	360	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,400
	16-Aug-95	53	1,100	0.5	ND(<0.5)	ND(<0.5)	0.5		4,000
	21-Nov-95	87	9,100	1.4	ND(<0.5)	1.0	1.5		4,200
	13-Feb-96	1,800,000 (j)	5,000,000	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)		3,900
	13-May-96	ND(<50,000)	2,300,000	ND(<500)	ND(<500)	ND(<500)	500 (i)		3,500
	28-Aug-96	59,000 (k)	640,000	ND(<200)	ND(<200)	ND(<200)	600		3,100
	21-Nov-96	3,800 (k)	780,000	130	93	33	64		3,400
	20-Feb-97	15,000 (i)	1,500,000	81	51	ND(<50)	ND(<50)		3,300
	28-May-97	390,000 (i)	440,000 (o)	ND(<1000)	ND(<1000)	ND(<1000)	ND(<1000)		3,500
	19-Sep-97	3,600	910,000	110	64	37	ND(<100)	ND(<300)	3,200
	17-Nov-97	15,000 (r)	18,000,000 (r)	110 (r)	41 (r)	12 (r)	110 (r)	ND(<50) (r)	3,300
	27-Feb-98	45,000	290,000	80	60	ND(<50)	ND(<200)	ND(<500)	3,300
	29-May-98	**140**	**1,600**	**2.3**	**0.9**	**0.9**	**3**	**ND(<5)**	**3,300**

ARCADIS GERAGHTY&MILLER

Table 2: Summary of Groundwater Analytical Results - Monthly and Quarterly Sampling

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	MTBE (b) (µg/L)	Total Dissolved Solids (c) (mg/L)
MW-8	12-Sep-94	170	850	2.7	0.5	ND(<0.5)	2		5,500
	23-Nov-94	ND(<50)	570	1.5	ND(<0.5)	ND(<0.5)	ND(<0.5)		6,300
	21-Feb-95	NS	NS	NS	NS	NS	NS		NS
	23-May-95	NS	NS	NS	NS	NS	NS		NS
	16-Aug-95	NS	NS	NS	NS	NS	NS		NS
	21-Nov-95	NS	NS	NS	NS	NS	NS		NS
	13-Feb-96	NS	NS	NS	NS	NS	NS		NS
	13-May-96	NS	NS	NS	NS	NS	NS		NS
	28-Aug-96	NS	NS	NS	NS	NS	NS		NS
	21-Nov-96	400 (k)	2,200	4.6	37	4.6	68		5,100
	20-Feb-97	340 (k)	2,500	2.1	53	7.1	94		3,800
	28-May-97	480 (k)	200 (q) (o)	2.5	12	ND(<2.5)	76		4,100
	19-Sep-97	1,000	7,000	0.8	5.0	0.5	130	ND(<5)	5,000
	17-Nov-97	250	520	1.4	2.1	0.7	3	ND(<5)	4,600
	27-Feb-98	ND(<50)	150	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<2)	ND(<5)	3,500
	29-May-98	**ND(<50)**	**70**	**ND(<0.5)**	**ND(<0.5)**	**ND(<0.5)**	**ND(<2)**	**ND(<5)**	**3,500**
TB-LB	**29-May-98**	**ND(<50)**	**NA**	**ND(<0.5)**	**ND(<0.5)**	**ND(<0.5)**	**ND(<2)**	**ND(<5)**	**NA**

Notes appear on the following page.

ARCADIS GERAGHTY&MILLER

Table 2: Summary of Groundwater Analytical Results - Monthly and Quarterly Sampling

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	MTBE (b) (µg/L)	Total Dissolved Solids (c) (mg/L)

(a) Analyzed by USEPA Method 8015, modified.
(b) Analyzed by USEPA Method 8020.
(c) Analyzed by USEPA Method 160.1.
(d) No results - sample for TPH as diesel not collected.
(e) Diesel range concentration reported. A nonstandard diesel pattern was observed in the chromatogram.
(f) Does not match typical gasoline pattern. Pattern of peaks observed in the chromatograms is indicative of hydrocarbons heavier than gasoline.
(g) Detection limit increased due to insufficient sample amount.
(h) Diesel range concentration reported. The chromatogram shows only a single peak in the diesel range.
(i) Laboratory reports that chromatogram indicates unidentified hydrocarbons >C8.
(j) Laboratory reports that chromatogram indicates unidentified hydrocarbons >C9.
(k) Laboratory reports that chromatogram indicates gasoline and unidentified hydrocarbons >C8.
(l) Laboratory reports that chromatogram indicates diesel and unidentified hydrocarbons >C16.
(m) Laboratory reports that chromatogram indicates diesel and discrete peaks.
(n) Laboratory reports that chromatogram indicates diesel and unidentified hydrocarbons >C20.
(o) Laboratory reports that the laboratory control sample failed for this batch, as well as when it was initially analyzed on 6/3/97. All results should be considered as estimated values. No additional sample was available for re-extraction.
(p) Laboratory reports that chromatogram indicates diesel and unidentified hydrocarbons >C24.
(q) Laboratory reports that chromatogram indicates diesel and unidentified hydrocarbons <C15.
(r) Laboratory reports reporting limits for diesel and gas/BTEX elevated due to high levels of target compound. Samples run at dilution.
(s) Laboratory reports analysis was performed outside of hold time due to improper preservation. Results are estimated.

( ) Reported detection limit
-- Not analyzed
ND Not detected
µg/L Micrograms per liter
mg/L Milligrams per liter
NS Well not sampled or monitored during this quarterly event.

Analysis prior to May 28, 1997 by Sequoia Analytical, Walnut Creek, California.
Analysis after May 28, 1997 by American Environmental Network (AEN), Pleasant Hill, California.

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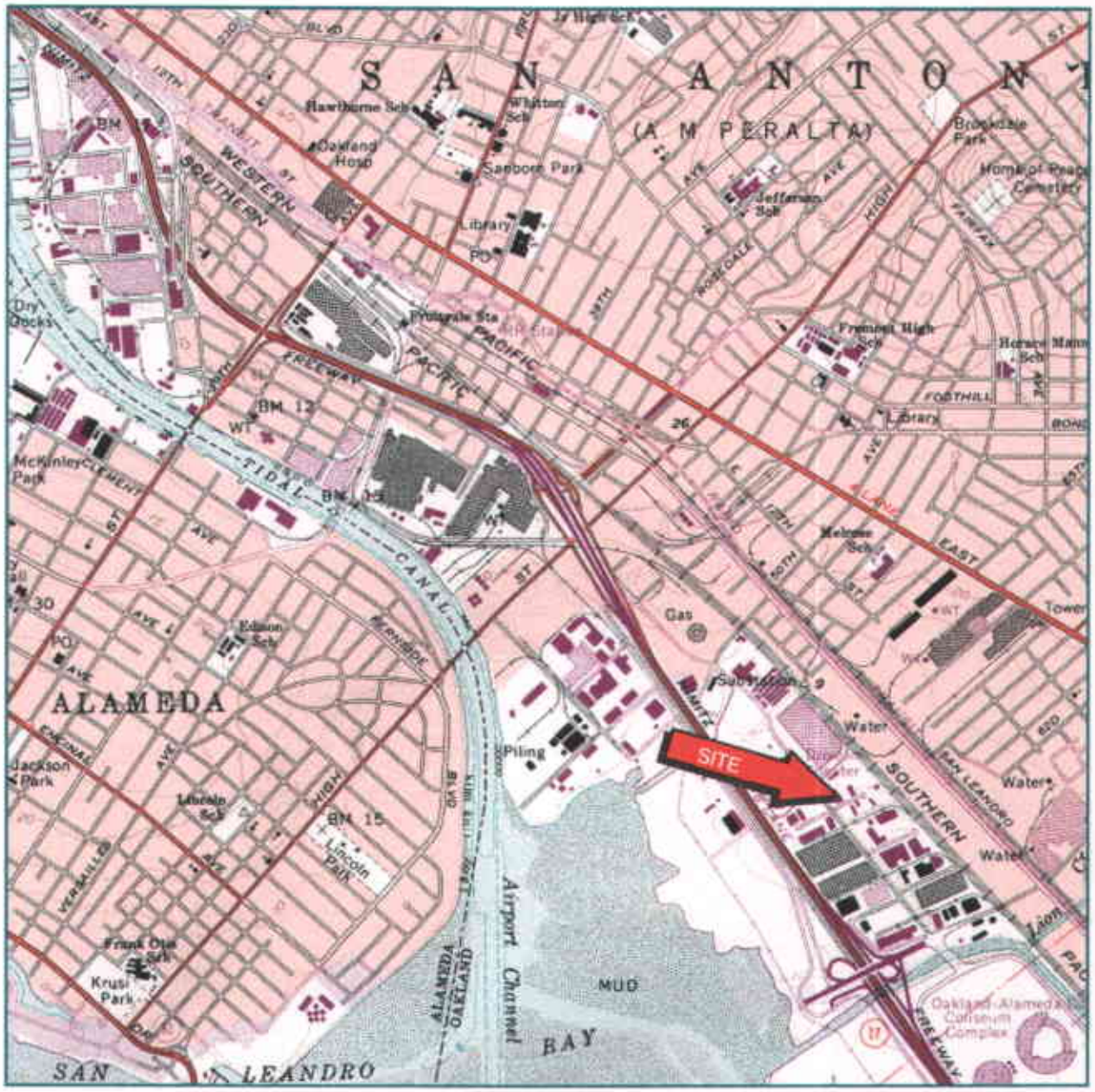
Table3: Biodegradation Parameters

Former Penske Truck Leasing Facility,
725 Julie Ann Way, Oakland, California.

Well	Date	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Dissolved Oxygen (ppm)	Redox (mv)	Total Heterotrophic Bacteria (cfu/ml)	Hydrocarbon Utilizing Bacteria (cfu/ml)
MW-1	29-May-98	ND(<1)	35	0.08	0.45	NA	300,000	3,100
MW-2	27-May-98	ND(<1)	18	1.59	6.63	125	440,000	18,000
MW-3	27-May-98	3.6	270	0.03	6.23	250	100,000	4,300
MW-4	29-May-98	1	540	0.01	0.49	125	23,000	1,600
MW-5	29-May-98	ND(<0.1)	7.6	0.07	0.67	-212	3,100	340
MW-6	29-May-98	NS	NS	NS	4.20	-240	NS	NS
MW-7	29-May-98	4.0	320	0.05	0.76	187	35,000	4,000
MW-8	29-May-98	3.2	ND(<0.5)	0.01	0.78	-240	250	120

mg/L milligrams per liter
ppm parts per miillion
cfu/ml colony forming units per milliliter

NS Data not available since groundwater samples were not collected from this well.
NA No data available.



QUADRANGLE LOCATION

Reference: U.S.G.S. 7-minute Quadrangle, Oakland East, California, revised, Photorevised 1980.

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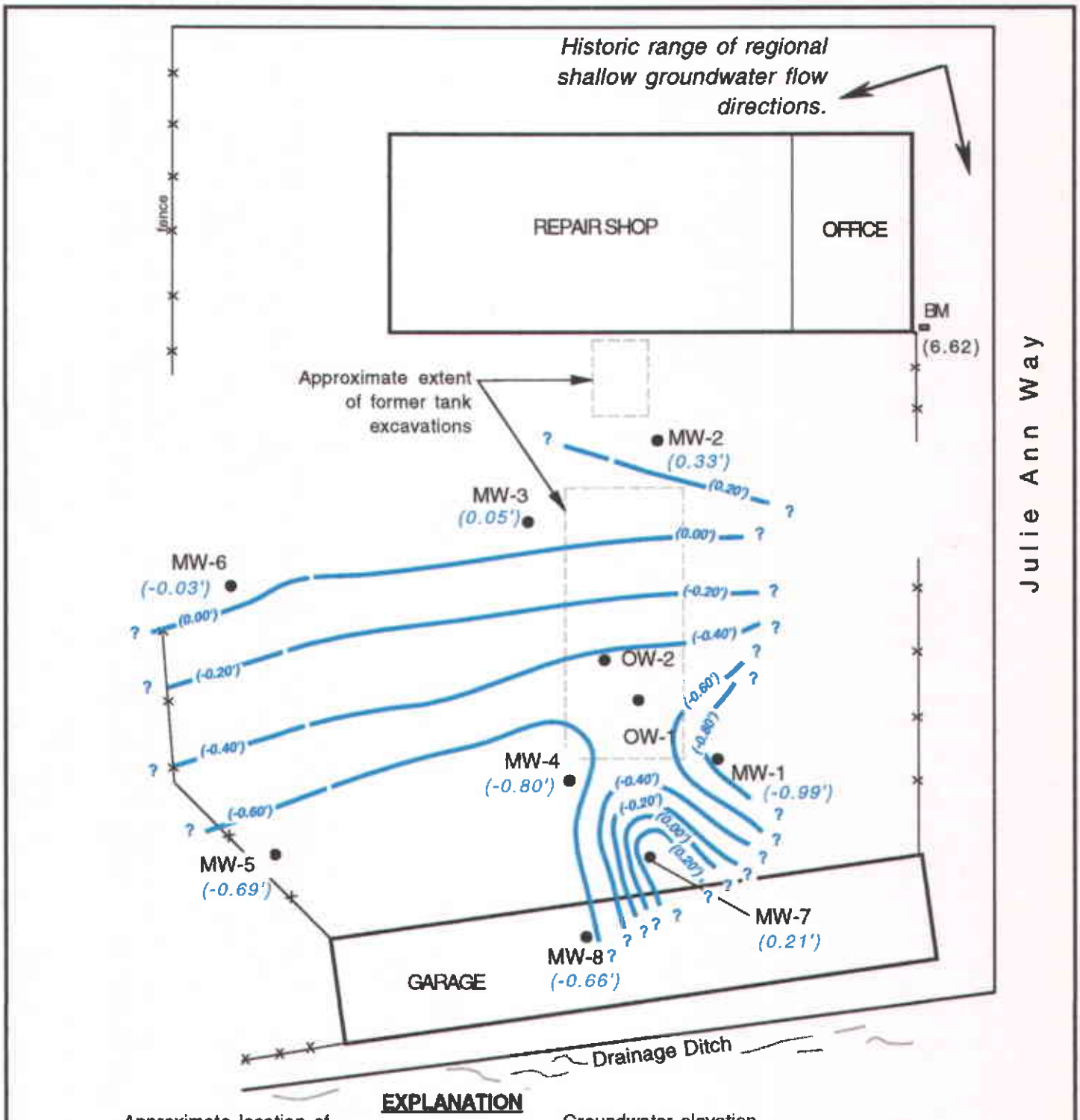
SITE LOCATION MAP
Former Penske Truck Leasing Co. Facility
725 Julie Ann Way
Oakland, California

RC000019.0000

FIGURE
1



EXPLANATION

MW-1 ● Approximate location of existing groundwater monitoring wells.

▬ BM Survey Bench Mark (based on City of Oakland datum which is 3 feet lower than Mean Sea Level).

(-0.71') Groundwater elevation (feet) relative to benchmark, measured May 27, 1998

(-0.30') Groundwater elevation contour (feet); dashed where inferred (contour interval equals 0.10 feet) queried where unknown.

N

0 40

Scale feet

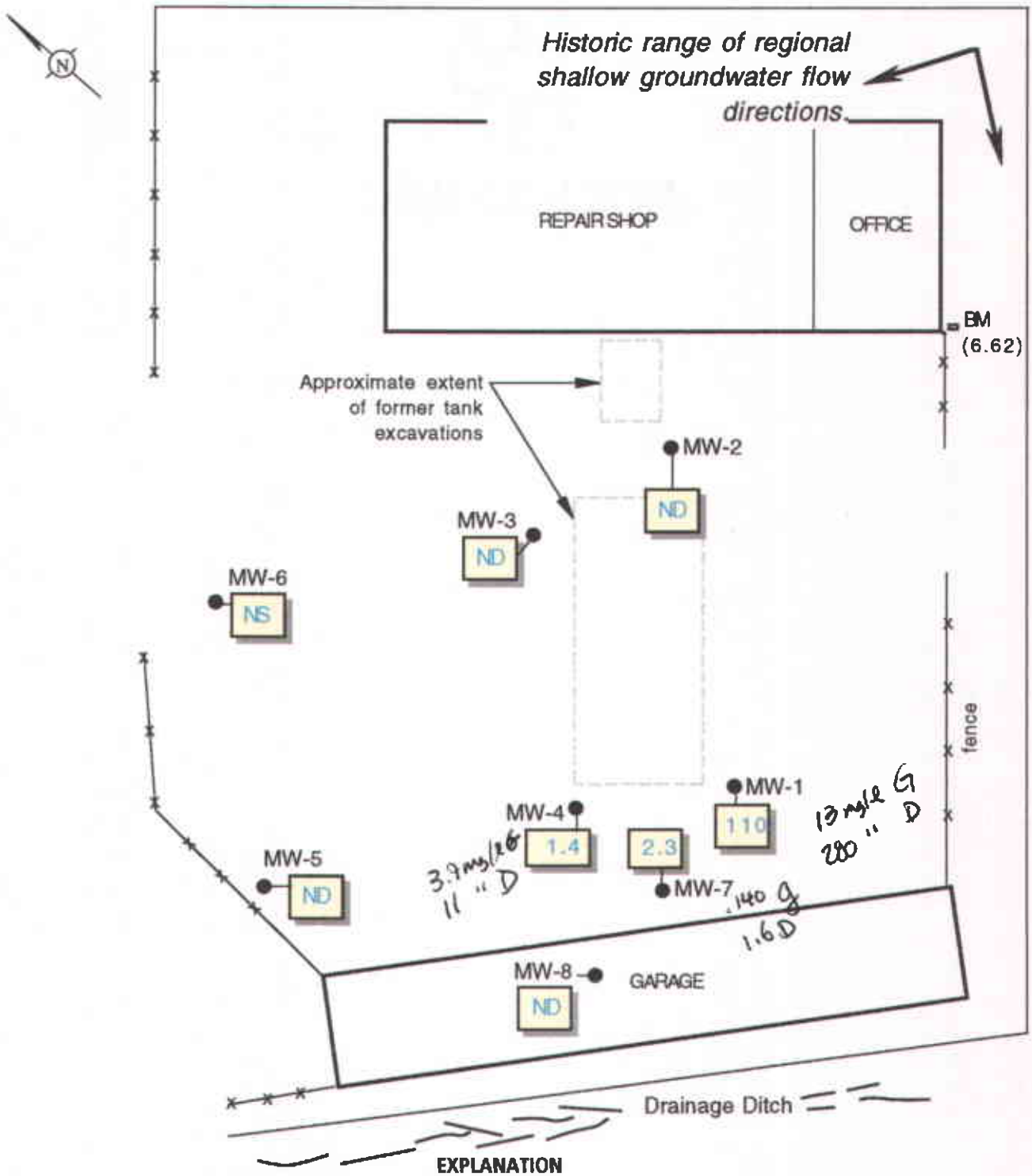
ARCADIS GERAGHTY & MILLER

SHALLOW GROUNDWATER CONTOURS
May 1998

Former Penske Truck Leasing Co.
725 Julie Ann Way, Oakland, California

RC000019.0010

FIGURE
2



EXPLANATION

MW-1 ● Approximate location of existing groundwater monitoring wells.

▬ BM Survey Bench Mark (based on City of Oakland datum which is 3 feet lower than Mean Sea Level).

ND Not Detected-below laboratory detection limits listed in Table 2.

2.3 Benzene concentrations (in µg/L) from groundwater samples collected May 29, 1998

NS Well not sampled or monitored during this quarterly event.

0 40

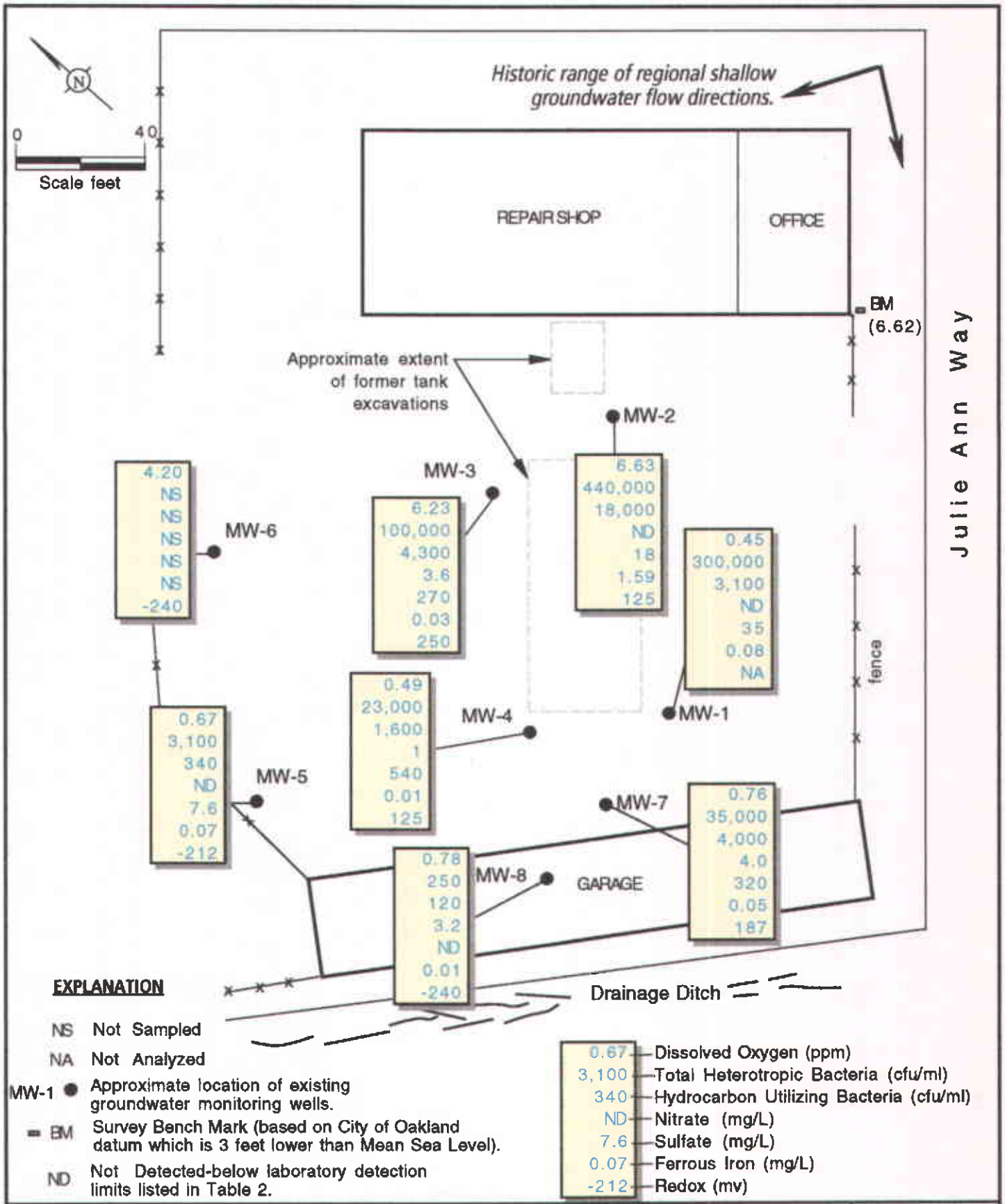
Scale feet

ARCADIS GERAGHTY & MILLER

BENZENE CONCENTRATIONS
May 1998
Former Penske Truck Leasing Co.
725 Julie Ann Way, Oakland, California

RC000019.0010

FIGURE
3



EXPLANATION

NS Not Sampled

NA Not Analyzed

MW-1 ● Approximate location of existing groundwater monitoring wells.

▬ BM Survey Bench Mark (based on City of Oakland datum which is 3 feet lower than Mean Sea Level).

ND Not Detected-below laboratory detection limits listed in Table 2.

0.67	Dissolved Oxygen (ppm)
3,100	Total Heterotropic Bacteria (cfu/ml)
340	Hydrocarbon Utilizing Bacteria (cfu/ml)
ND	Nitrate (mg/L)
7.6	Sulfate (mg/L)
0.07	Ferrous Iron (mg/L)
-212	Redox (mv)

ARCADIS GERAGHTY & MILLER

BIODEGRADATION PARAMETER RESULTS
May 1998

Former Penske Truck Leasing Co.
725 Julie Ann Way, Oakland, California

RC000019.0010

FIGURE
4

ATTACHMENT 1

COPIES OF CERTIFIED LABORATORY REPORTS

AND CHAIN-OF-CUSTODY DOCUMENTATION

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

ARCADIS GERAGHTY & MILLER INC
1050 MARINA WAY SOUTH
RICHMOND, CA 94804

ATTN: PAUL HEHN
CLIENT PROJ. ID: RC000019.001
CLIENT PROJ. NAME: PENSKE/OAKLAND

REPORT DATE: 06/18/98

DATE(S) SAMPLED: 05/29/98

DATE RECEIVED: 06/02/98

AEN WORK ORDER: 9806028

PROJECT SUMMARY:

On June 2, 1998, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Portions for hydrocarbon degrading, heterotrophic bacteria and ferrous iron were subcontracted to DOHS certified laboratories; subcontract report(s) are included. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Reviewed by:

William Sobota

GERAGHTY & MILLER, INC.

SAMPLE ID: MW-7
AEN LAB NO: 9806028-01
AEN WORK ORDER: 9806028
CLIENT PROJ. ID: RC000019.001

DATE SAMPLED: 05/29/98
DATE RECEIVED: 06/02/98
REPORT DATE: 06/18/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	2.3 *	0.5	ug/L	06/09/98
Toluene	108-88-3	0.9 *	0.5	ug/L	06/09/98
Ethylbenzene	100-41-4	0.9 *	0.5	ug/L	06/09/98
Xylenes, Total	1330-20-7	3 *	2	ug/L	06/09/98
Purgeable HCs as Gasoline	5030/GCFID	0.14 *	0.05	mg/L	06/09/98
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	06/09/98
#Extraction for TPH	EPA 3510	-		Extrn Date	06/08/98
TPH as Diesel	GC-FID	1.6 *	0.05	mg/L	06/10/98
#Anion Sample Prep.		-		Prep date	06/03/98
Nitrate as Nitrogen	EPA 300	4.0 *	0.1	mg/L	06/03/98
Sulfate	EPA 300	320 *	0.5	mg/L	06/05/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GERAGHTY & MILLER, INC.

SAMPLE ID: MW-8
AEN LAB NO: 9806028-02
AEN WORK ORDER: 9806028
CLIENT PROJ. ID: RC000019.001

DATE SAMPLED: 05/29/98
DATE RECEIVED: 06/02/98
REPORT DATE: 06/18/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	06/09/98
Toluene	108-88-3	ND	0.5	ug/L	06/09/98
Ethylbenzene	100-41-4	ND	0.5	ug/L	06/09/98
Xylenes, Total	1330-20-7	ND	2	ug/L	06/09/98
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	06/09/98
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	06/09/98
#Extraction for TPH	EPA 3510	-		Extrn Date	06/08/98
TPH as Diesel	GC-FID	0.07 *	0.05	mg/L	06/10/98
#Anion Sample Prep.		-		Prep date	06/03/98
Nitrate as Nitrogen	EPA 300	3.2 *	0.1	mg/L	06/03/98
Sulfate	EPA 300	ND	0.5	mg/L	06/03/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GERAGHTY & MILLER, INC.

SAMPLE ID: TB-LB
AEN LAB NO: 9806028-03
AEN WORK ORDER: 9806028
CLIENT PROJ. ID: RC000019.001

DATE SAMPLED: 05/29/98
DATE RECEIVED: 06/02/98
REPORT DATE: 06/18/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	06/09/98
Toluene	108-88-3	ND	0.5	ug/L	06/09/98
Ethylbenzene	100-41-4	ND	0.5	ug/L	06/09/98
Xylenes, Total	1330-20-7	ND	2	ug/L	06/09/98
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	06/09/98
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	06/09/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9806028
CLIENT PROJECT ID: RC000019.001

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

ANALYSIS: Extractable TPH

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:
LAB ID: BLKW-0608-1
PREPARED: 06/08/98
ANALYZED: 06/08/98
INSTR RUN: GC C\980601000000/110/
BATCH ID: DSLW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
Diesel		ND		0.05						
Motor Oil		ND		0.2						
n-Pentacosane	(surr)	97.7			100	97.7	60	130		

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:
LAB ID: LCDW-0608-1
PREPARED: 06/08/98
ANALYZED: 06/08/98
INSTR RUN: GC C\980601000000/112/110
BATCH ID: DSLW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
Diesel		1.76	ND	0.05	2.00	88.0	60	130		
n-Pentacosane	(surr)	98.7	97.7		100	98.7	60	130		

SAMPLE TYPE: Laboratory Control Spike
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:
LAB ID: LCSW-0608-1
PREPARED: 06/08/98
ANALYZED: 06/08/98
INSTR RUN: GC C\980601000000/111/110
BATCH ID: DSLW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
Diesel		1.80	ND	0.05	2.00	90.0	60	130		
n-Pentacosane	(surr)	100.2	97.7		100	100	60	130		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control Sample Duplicate
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:
LAB ID: LCRW-0608-1
PREPARED: 06/08/98
ANALYZED: 06/08/98
INSTR RUN: GC C\980601000000/113/111
BATCH ID: DSLW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
Diesel		1.76	1.80	0.05					2.25	20
Motor Oil		ND	ND	0.2					0	
n-Pentacosane	(surr)	98.7	100.2		100	98.7	60	130		

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:
LAB ID: 9806028-01D
PREPARED: 06/08/98
ANALYZED: 06/10/98
INSTR RUN: GC C\980601000000/147/
BATCH ID: DSLW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	110.8			100	111	60	130		

ANALYSIS: Extractable TPH

MATRIX: Water

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: 9806028-02D
PREPARED: 06/08/98
ANALYZED: 06/10/98

INSTR RUN: GC C\980601000000/148/
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	109.8			100	110	60	130		

ANALYSIS: Major Anions

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:
LAB ID: IC_BLNK
PREPARED:
ANALYZED: 06/03/98
INSTR RUN: IC\980603000000/1/
BATCH ID: IC060398
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Nitrate, NO3-N	ND		0.1						
Sulfate, SO4	ND		0.5						

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:
LAB ID: IC_BLNK
PREPARED:
ANALYZED: 06/05/98
INSTR RUN: IC\980605000000/1/
BATCH ID: IC060598
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Chloride, Cl	ND		0.5						
Nitrate, NO3-N	ND		0.1						
Nitrite, NO2-N	ND		0.1						
Sulfate, SO4	ND		0.5						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:
LAB ID: IC_LCD
PREPARED:
ANALYZED: 06/03/98
INSTR RUN: IC\980603000000/3/1
BATCH ID: IC060398
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Nitrate, NO3-N	1.94	ND	0.1	2.00	97.0	80	120		
Sulfate, SO4	9.93	ND	0.5	10.0	99.3	80	120		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:
LAB ID: IC_LCS
PREPARED:
ANALYZED: 06/03/98
INSTR RUN: IC\980603000000/2/1
BATCH ID: IC060398
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Nitrate, NO3-N	1.94	ND	0.1	2.00	97.0	80	120		
Sulfate, SO4	9.90	ND	0.5	10.0	99.0	80	120		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:
LAB ID: IC_LCD
PREPARED:
ANALYZED: 06/05/98
INSTR RUN: IC\980605000000/3/1
BATCH ID: IC060598
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Chloride, Cl	9.96	ND	0.5	10.0	99.6	80	120		
Nitrate, NO3-N	1.96	ND	0.1	2.00	98.0	80	120		
Nitrite, NO2-N	1.87	ND	0.1	2.00	93.5	80	120		
Sulfate, SO4	9.86	ND	0.5	10.0	98.6	80	120		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:
LAB ID: IC_LCS
PREPARED:
ANALYZED: 06/05/98
INSTR RUN: IC\980605000000/2/1
BATCH ID: IC060598
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Chloride, Cl	9.87	ND	0.5	10.0	98.7	80	120		
Nitrate, NO3-N	1.97	ND	0.1	2.00	98.5	80	120		
Nitrite, NO2-N	1.87	ND	0.1	2.00	93.5	80	120		
Sulfate, SO4	9.91	ND	0.5	10.0	99.1	80	120		

ANALYSIS: Major Anions

MATRIX: Water

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_LCR
PREPARED:
ANALYZED: 06/03/98

INSTR RUN: IC\980603000000/4/2
BATCH ID: IC060398
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Nitrate, NO3-N	1.94	1.94	0.1					0	15
Sulfate, SO4	9.93	9.90	0.5					0.303	15

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_LCR
PREPARED:
ANALYZED: 06/05/98

INSTR RUN: IC\980605000000/4/2
BATCH ID: IC060598
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Chloride, Cl	9.96	9.87	0.5					0.908	15
Nitrate, NO3-N	1.96	1.97	0.1					0.509	15
Nitrite, NO2-N	1.87	1.87	0.1					0	15
Sulfate, SO4	9.86	9.91	0.5					0.506	15

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9806028
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
06/09/98	MW-7	01	92
06/09/98	MW-8	02	92
06/09/98	TB-LB	03	92
QC Limits:			70-130

DATE ANALYZED: 06/09/98
SAMPLE SPIKED: 9806027-03
INSTRUMENT: F

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	200	95	11	70-130	20
Toluene	200	99	13	70-130	20
Ethylbenzene	200	105	15	70-130	20
Total Xylenes	600	105	15	70-130	20

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

Hydrocarbon-Degrading and Heterotrophic Bacteria Enumeration Results

CLIENT SAMPLE NUMBER	SAMPLE DATE	HYDROCARBON DEGRADERS (CFU/ML)	TOTAL HETEROTROPHS (CFU/ML)
MW-7	5/29/98	4.0×10^3	3.5×10^4
MW-8	5/29/98	1.2×10^2	2.5×10^2

Bacterial enumerations were performed by Dr. Sean P. Bushart. CytoCulture is available on a consulting basis to assist in the interpretation of these data and their application to field remediation protocols.

Sean P. Bushart, Ph.D.
Laboratory Services

Randall von Wedel, Ph.D.
Principal, Director of Research

CytoCulture
ENVIRONMENTAL
BIOTECHNOLOGY
CytoCulture International, Inc. 1986

June 12, 1998

Client: American Environmental Network
Contact: Bill Svoboda
3440 Vincent Rd.
Pleasant Hill, CA 94523
Client PO #: 9806028

Telephone: (510) 930-9090
Fax: (510) 930-0256
Project ID #: RC000019.0010

SAMPLES: Two water samples were received on 6/3/98. The samples were assayed the next day and then stored at 4°C for any follow-up work.

Hydrocarbon-Degrading and Total Heterotrophic Bacteria Enumeration Assays

ANALYSIS REQUEST: Bacterial enumeration for total petroleum hydrocarbon-degraders (broad range petroleum hydrocarbons: diesel) and total heterotrophs.

CARBON SOURCE: Petroleum hydrocarbons were added as the sole carbon and energy sources for the growth of hydrocarbon-degrading aerobic bacteria on agar plates. Diesel was blended into the agar to provide aliphatic and aromatic hydrocarbons in the growth matrix.
Heterotrophic bacteria plates were prepared with Difco Total Plate Count Agar providing a wide range of amino acid and carbohydrate carbon sources.

PROTOCOLS:

Hydrocarbon Degraders: Sterile agar plates (100 x 15 mm) were prepared with minimal salts medium at pH 6.8 with 1.5% noble agar, without any other carbon sources or nutrients added. Plates were inoculated with 1.0 ml of sample or a log dilution of each water sample. Triplicate plates were inoculated with sample log dilutions of 10^0, 10^{-1}, and 10^{-2}. The hydrocarbon plates were poured on 6/4/98 and counted after 7 days on 6/11/98. The plate count data are reported as colony forming units (**cfu**) per milliliter (**ml**) of sample. Each bacteria population value represents a statistical average of the plate count data obtained with inoculations for two of the three log dilutions tested.

Heterotrophs: Sterile agar plates (100 x 15 mm) were prepared with minimal salts medium and 2.35% plate count agar at pH 6.8 without any other carbon sources or nutrients added. Plates were inoculated with 1.0 ml of water sample, or a log dilution of the sample, in triplicate at sample dilutions of 10^{-1}, 10^{-2}, and 10^{-3}. The heterotroph plates were poured on 6/4/98 and counted after 4 days on 6/8/98. The plate count data are reported as colony forming units (**cfu**) per milliliter (**ml**) for each water sample. Each enumeration value represents a statistical average of two of the three log dilutions inoculated in plates.

Reporting Information:

1. Client: AEN(CA)
Address:
Contact: BILL SVOBODA
Alt. Contact:

American Environmental Network
3440 Vincent Road, Pleasant Hill, CA 94523
Phone (510) 930-9090
FAX (510) 930-0256

AEN

Page 1 of 1

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number:
Lab Destination: CYTO CULTURE
Date Samples Shipped:
Lab Contact:
Date Results Required: STANDARD
Date Report Required:
Client Phone No.:
Client FAX No.:

Address Report To:
2. #1

Send Invoice To:
3. #1

Send Report To: (1) or 2 (Circle one)

Client P.O. No.: 9806028 Client Project I.D. No.: RC000019.0010

Sample Team Member (s)

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	ANALYSIS: THB[1]	ANALYSIS: HUB[2]	Comments / Hazards
	MW-7		5/29/98	7	COLD	2	VOA	X	X	INCLUDE P.O.# AND
	MW-8		↓	↓	↓	↓	↓	X	X	PROJECT I.D. # ON
										REPORT AND INVOICE.
										FAX RESULTS.
		1. TOTAL HETEROTROPHIC BACTERIA								
		2. HYDROCARBON UTILIZING BACTERIA – DIESEL TARGET								

Relinquished by: (Signature)	DATE 6/3/98	TIME 11:00	Received by: (Signature) DATE 6/3/98 TIME 1100
Relinquished by: (Signature)	DATE 6/3/98	TIME 1230	Received by: (Signature) DATE 6/3/98 TIME 12:30
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature) DATE TIME
Method of Shipment			Lab Comments

*Sample type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25mm 0.4 µm polycarb. filter
4) PVC filter, diam. ____ pore size ____ 5) Charcoal tube 6) Silica gel tube (7) Water 8) Soil 9) Bulk Sample
10) Other 11) Other

COPIES: WHITE - JOB FILE YELLOW - PROJECT FILE PINK - CLIENT

E T S
1343 Redwood Way
Petaluma, CA 94954
(707) 795-9605/FAX 795-9384

Environmental Technical Services

Soil, Water & Air
Testing & Monitoring
Analytical Labs
Technical Support

Serving people and the environment so that both benefit.

WATER ANALYSIS REPORT

To: Bill Svoboda
American Environmental Network
3440 Vincent Road
Pleasant Hill, CA 94523

Date: June 11, 1998
Lab #s: 98-06-0051 thru 06-0057
Received: June 4, 1998
Tech(s): C. Lawrence
Lab Supervisor: D. Jacobson
Lab Director: G.S. Conrad, Ph.D.
Sample ID(s): MW-1,MW-2,MW-3,MW-4 MW-5, MW-7 & MW-8

Sample of: monitor well water

Site Location: northern California; Project ID No.: RC000019.0010

RESULTS

SAMPLE ID	REDOX	FERROUS IRON
MW-1	---	0.08 mg/l
MW-2	---	1.59 mg/l
MW-3	---	0.03 mg/l
MW-4	---	0.01 mg/l
MW-5	---	0.07 mg/l
MW-7	---	0.05 mg/l
MW-8	---	0.01 mg/l

COMMENTS

All ferrous irons in this set were very low with only one exception which was very high and way out range as compared with the other samples. Thus, while most ferrous values suggest decent oxidation, and/or bacterial activity in the groundwater, the one elevated ferrous value suggests at the very least a much higher amount of total iron and perhaps little of the usually more desirable types of bacterial activity.

NOTES:
These tests were done according to the Association for Testing Materials (ASTM), and/or conform to standard and accepted protocols as described in Standard Methods for the Examination of Water and Wastewater, 18th ed., © 1992: Ferrous Iron (Fe^{++}) - Phenanthroline Method (mod. 3500-Fe D); Mn^{++} - PAN Method; Redox - ASTM D 1498.

Reporting Information:

1. Client: AEN(CA)
Address:
Contact: BILL SVOBODA
Alt. Contact:

American Environmental Network.
3440 Vincent Road, Pleasant Hill, CA 94523
Phone (510) 930-9090
FAX (510) 930-0256

AEN

Page 1 of 1

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number:
Lab Destination: ETS - PETALUMA
Date Samples Shipped:
Lab Contact:
Date Results Required: STANDARD
Date Report Required:
Client Phone No.:
Client FAX No.:

Address Report To:

2. #1

Send Invoice To:

3. #1

Send Report To: (1) or 2 (Circle one)

Client P.O. No.: 9806023 Client Project I.D. No.: RC000019.0010

Sample Team Member (s)

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	ANALYSIS: FERROUS IRON	Comments / Hazards
	MW-7		5/29/98	7	COLD	1	PLAST	X	INCLUDE P.O.# AND
	MW-8		↓	↓	↓	↓	↓	X	PROJECT I.D. # ON
									REPORT AND INVOICE.
									FAX RESULTS.
	NOTE: OKAY TO ANALYZE PAST HOLD TIME.								

	DATE	TIME		DATE	TIME
Relinquished by: (Signature) Ronald C. Jensen	6/3/98	14:15	Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		
Method of Shipment			Lab Comments		

*Sample type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25mm 0.4 µm polycarb. filter
4) PVC filter, diam. ____ pore size ____ 5) Charcoal tube 6) Silica gel tube 7) Water 8) Soil 9) Bulk Sample
10) Oth[illegible] 11) Other

COPIES: WHITE - JOB FILE YELLOW - PROJECT FILE PINK - CLIENT

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. 9806028 (9806027)

CHAIN-OF-CUSTODY RECORD

Project Number/Name RC000019.0070
Project Location PENSKE / OAKLAND
Laboratory AEN
Project Manager DVH
Sampler(s)/Affiliation LMC

2 coolers

9806027

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	TPHG/BTEX/MTBE	TPHD	Total Heterotrophic Bacteria	Hydrocarbon Specific Bacteria	Nitrate, Nitrogen, Sulfate, Ferrous Iron (x2)		Remarks	Total
* MW-1	L	As labeled	5/29 1700	X	X	X	X	X			5
MW-2			5/29 1000	X	X	X	X	X			5
MW-3			5/27 1330	X	X	X	X	X			[illegible]
* MW-4			5/29 1200	X	X	X	X	X			[illegible]
MW-5			1230	X	X	X	X	X			5
* MW-7			1130	X	X	X	X	X			5
MW-8			1300	X	X	X	X	X			5
TB-LB				X							1

* PRODUCT PRESENT - Sample the dissolved

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 36

Relinquished by: J. Payne	Organization: AGM	Date 6/2/98	Time 15:40	Seal Intact? Yes No N/A
Received by: Rick Gilmore	Organization: AEN	Date 6/2/98	Time 15:40	
Relinquished by: Rick Gilmore	Organization: AEN	Date 6/2/98	Time 17:00	Seal Intact? Yes No N/A
Received by: [illegible signature]	Organization: AEN	Date 6/2/98	Time 1700	

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☐ Common Carrier ☒ Lab Courier ☐ Other

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

ARCADIS GERAGHTY & MILLER INC
1050 MARINA WAY SOUTH
RICHMOND, CA 94804

REPORT DATE: 06/18/98

DATE(S) SAMPLED: 05/27/98-05/29/98

DATE RECEIVED: 06/02/98

AEN WORK ORDER: 9806027

ATTN: PAUL HEHN
CLIENT PROJ. ID: RC000019.001
CLIENT PROJ. NAME: PENSKE/OAKLAND

PROJECT SUMMARY:

On June 2, 1998, this laboratory received 5 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Portions for hydrocarbon degrading, heterotrophic bacteria and ferrous iron were subcontracted to DOHS certified laboratories; subcontract report(s) are included. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Reviewed by:

William Luboda

GERAGHTY & MILLER, INC.

SAMPLE ID: MW-1
AEN LAB NO: 9806027-01
AEN WORK ORDER: 9806027
CLIENT PROJ. ID: RC000019.001

DATE SAMPLED: 05/29/98
DATE RECEIVED: 06/02/98
REPORT DATE: 06/18/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	110 *	5	ug/L	06/09/98
Toluene	108-88-3	13 *	5	ug/L	06/09/98
Ethylbenzene	100-41-4	66 *	5	ug/L	06/09/98
Xylenes, Total	1330-20-7	390 *	20	ug/L	06/09/98
Purgeable HCs as Gasoline	5030/GCFID	13 *	0.5	mg/L	06/09/98
Methyl t-Butyl Ether	1634-04-4	ND	50	ug/L	06/09/98
#Extraction for TPH	EPA 3510	-		Extrn Date	06/08/98
TPH as Diesel	GC-FID	280 *	2	mg/L	06/09/98
#Anion Sample Prep.		-		Prep date	06/03/98
Nitrate as Nitrogen	EPA 300	ND	1	mg/L	06/03/98
Sulfate	EPA 300	35 *	5	mg/L	06/03/98

RLs for g/BTEX & DSL elevated due to high levels of target compounds. Samples run at dilution. RLs elevated for NO3 & SO4 due to matrix interference.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GERAGHTY & MILLER, INC.

SAMPLE ID: MW-2
AEN LAB NO: 9806027-02
AEN WORK ORDER: 9806027
CLIENT PROJ. ID: RC000019.001

DATE SAMPLED: 05/27/98
DATE RECEIVED: 06/02/98
REPORT DATE: 06/18/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	06/10/98
Toluene	108-88-3	ND	0.5	ug/L	06/10/98
Ethylbenzene	100-41-4	ND	0.5	ug/L	06/10/98
Xylenes, Total	1330-20-7	ND	2	ug/L	06/10/98
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	06/10/98
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	06/10/98
#Extraction for TPH	EPA 3510	-		Extrn Date	06/08/98
TPH as Diesel	GC-FID	1.3 *	0.05	mg/L	06/08/98
#Anion Sample Prep.		-		Prep date	06/03/98
Nitrate as Nitrogen	EPA 300	ND	1	mg/L	06/03/98
Sulfate	EPA 300	18 *	5	mg/L	06/03/98

Reporting limits elevated for nitrate-nitrogen and sulfate due to matrix interference.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GERAGHTY & MILLER, INC.

SAMPLE ID: MW-3
AEN LAB NO: 9806027-03
AEN WORK ORDER: 9806027
CLIENT PROJ. ID: RC000019.001

DATE SAMPLED: 05/27/98
DATE RECEIVED: 06/02/98
REPORT DATE: 06/18/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	06/10/98
Toluene	108-88-3	ND	0.5	ug/L	06/10/98
Ethylbenzene	100-41-4	ND	0.5	ug/L	06/10/98
Xylenes, Total	1330-20-7	ND	2	ug/L	06/10/98
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	06/10/98
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	06/10/98
#Extraction for TPH	EPA 3510	-		Extrn Date	06/08/98
TPH as Diesel	GC-FID	ND	0.05	mg/L	06/09/98
#Anion Sample Prep.		-		Prep date	06/03/98
Nitrate as Nitrogen	EPA 300	3.6 *	0.1	mg/L	06/03/98
Sulfate	EPA 300	270 *	0.5	mg/L	06/03/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GERAGHTY & MILLER, INC.

SAMPLE ID: MW-4
AEN LAB NO: 9806027-04
AEN WORK ORDER: 9806027
CLIENT PROJ. ID: RC000019.001

DATE SAMPLED: 05/29/98
DATE RECEIVED: 06/02/98
REPORT DATE: 06/18/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	1.4 *	0.5	ug/L	06/10/98
Toluene	108-88-3	0.6 *	0.5	ug/L	06/10/98
Ethylbenzene	100-41-4	ND	0.5	ug/L	06/10/98
Xylenes, Total	1330-20-7	ND	2	ug/L	06/10/98
Purgeable HCs as Gasoline	5030/GCFID	3.9 *	0.05	mg/L	06/10/98
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	06/10/98
#Extraction for TPH	EPA 3510	-		Extrn Date	06/08/98
TPH as Diesel	GC-FID	11 *	0.2	mg/L	06/09/98
#Anion Sample Prep.		-		Prep date	06/03/98
Nitrate as Nitrogen	EPA 300	1 *	1	mg/L	06/03/98
Sulfate	EPA 300	540 *	5	mg/L	06/03/98

RLs for DSL elevated due to high levels of target compounds. Sample run at dilution. Reporting limits elevated for NO3 & SO4 due to matrix interference.

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

GERAGHTY & MILLER, INC.

SAMPLE ID: MW-5
AEN LAB NO: 9806027-05
AEN WORK ORDER: 9806027
CLIENT PROJ. ID: RC000019.001

DATE SAMPLED: 05/29/98
DATE RECEIVED: 06/02/98
REPORT DATE: 06/18/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	06/10/98
Toluene	108-88-3	ND	0.5	ug/L	06/10/98
Ethylbenzene	100-4I-4	ND	0.5	ug/L	06/10/98
Xylenes, Total	1330-20-7	ND	2	ug/L	06/10/98
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	06/10/98
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	06/10/98
#Extraction for TPH	EPA 3510	-		-xtrn Date	06/08/98
TPH as Diesel	GC-FID	0.77 *	0.05	mg/L	06/09/98
#Anion Sample Prep.		-		Prep date	06/03/98
Nitrate as Nitrogen	EPA 300	ND	0.1	mg/L	06/03/98
Sulfate	EPA 300	7.6 *	0.5	mg/L	06/03/98

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9806027
CLIENT PROJECT ID: RC000019.001

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

ANALYSIS: Extractable TPH

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: BLKW-0608-1
PREPARED: 06/08/98
ANALYZED: 06/08/98

INSTR RUN: GC C\980601000000/110/
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Diesel		ND		0.05						
Motor Oil		ND		0.2						
n-Pentacosane	(surr)	97.7			100	97.7	60	130		

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: LCDW-0608-1
PREPARED: 06/08/98
ANALYZED: 06/08/98

INSTR RUN: GC C\980601000000/112/110
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Diesel		1.76	ND	0.05	2.00	88.0	60	130		
n-Pentacosane	(surr)	98.7	97.7		100	98.7	60	130		

SAMPLE TYPE: Laboratory Control Spike
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: LCSW-0608-1
PREPARED: 06/08/98
ANALYZED: 06/08/98

INSTR RUN: GC C\980601000000/111/110
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Diesel		1.80	ND	0.05	2.00	90.0	60	130		
n-Pentacosane	(surr)	100.2	97.7		100	100	60	130		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control Sample Duplicate
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: LCRW-0608-1
PREPARED: 06/08/98
ANALYZED: 06/08/98

INSTR RUN: GC C\980601000000/113/111
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Diesel		1.76	1.80	0.05					2.25	20
Motor Oil		ND	ND	0.2					0	
n-Pentacosane	(surr)	98.7	100.2		100	98.7	60	130		

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: 9806027-01D
PREPARED: 06/08/98
ANALYZED: 06/09/98

INSTR RUN: GC C\980601000000/135/
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	D			100	0 !	60	130		

ANALYSIS: Extractable TPH

MATRIX: Water

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: 9806027-02D
PREPARED: 06/08/98
ANALYZED: 06/08/98

INSTR RUN: GC C\980601000000/120/
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	107.1			100	107	60	130		

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: 9806027-03D
PREPARED: 06/08/98
ANALYZED: 06/09/98

INSTR RUN: GC C\980601000000/121/
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	103.9			100	104	60	130		

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: 9806027-04D
PREPARED: 06/08/98
ANALYZED: 06/09/98

INSTR RUN: GC C\980601000000/122/
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	93.3			100	93.3	60	130		

SAMPLE TYPE: Sample-Client
INSTRUMENT: HP 5890
UNITS: mg/L
METHOD:

LAB ID: 9806027-05D
PREPARED: 06/08/98
ANALYZED: 06/09/98

INSTR RUN: GC C\980601000000/123/
BATCH ID: DSCW060898-1
DILUTION: 1.000000

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	109.2			100	109	60	130		

ANALYSIS: Major Anions

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_BLNK
PREPARED:
ANALYZED: 06/03/98

INSTR RUN: IC\980603000000/1/
BATCH ID: IC060398
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Nitrate, NO3-N	ND		0.1						
Sulfate, SO4	ND		0.5						

SAMPLE TYPE: Blank-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_BLNK
PREPARED:
ANALYZED: 06/05/98

INSTR RUN: IC\980605000000/1/
BATCH ID: IC060598
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Chloride, Cl	ND		0.5						
Nitrate, NO3-N	ND		0.1						
Nitrite, NO2-N	ND		0.1						
Sulfate, SO4	ND		0.5						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_LCD
PREPARED:
ANALYZED: 06/03/98

INSTR RUN: IC\980603000000/3/1
BATCH ID: IC060398
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Nitrate, NO3-N	1.94	ND	0.1	2.00	97.0	80	120		
Sulfate, SO4	9.93	ND	0.5	10.0	99.3	80	120		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_LCS
PREPARED:
ANALYZED: 06/03/98

INSTR RUN: IC\980603000000/2/1
BATCH ID: IC060398
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Nitrate, NO3-N	1.94	ND	0.1	2.00	97.0	80	120		
Sulfate, SO4	9.90	ND	0.5	10.0	99.0	80	120		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_LCD
PREPARED:
ANALYZED: 06/05/98

INSTR RUN: IC\980605000000/3/1
BATCH ID: IC060598
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Chloride, Cl	9.96	ND	0.5	10.0	99.6	80	120		
Nitrate, NO3-N	1.96	ND	0.1	2.00	98.0	80	120		
Nitrite, NO2-N	1.87	ND	0.1	2.00	93.5	80	120		
Sulfate, SO4	9.86	ND	0.5	10.0	98.6	80	120		

SAMPLE TYPE: Spike-Method/Media blank
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_LCS
PREPARED:
ANALYZED: 06/05/98

INSTR RUN: IC\980605000000/2/1
BATCH ID: IC060598
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Chloride, Cl	9.87	ND	0.5	10.0	98.7	80	120		
Nitrate, NO3-N	1.97	ND	0.1	2.00	98.5	80	120		
Nitrite, NO2-N	1.87	ND	0.1	2.00	93.5	80	120		
Sulfate, SO4	9.91	ND	0.5	10.0	99.1	80	120		

ANALYSIS: Major Anions

MATRIX: Water

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_LCR
PREPARED:
ANALYZED: 06/03/98

INSTR RUN: IC\980603000000/4/2
BATCH ID: IC060398
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Nitrate, NO3-N	1.94	1.94	0.1					0	15
Sulfate, SO4	9.93	9.90	0.5					0.303	15

SAMPLE TYPE: Method Spike Sample Duplicate
INSTRUMENT: Dionex ion chromatograph
UNITS: mg/L
METHOD:

LAB ID: IC_LCR
PREPARED:
ANALYZED: 06/05/98

INSTR RUN: IC\980605000000/4/2
BATCH ID: IC060598
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Chloride, Cl	9.96	9.87	0.5					0.908	15
Nitrate, NO3-N	1.96	1.97	0.1					0.509	15
Nitrite, NO2-N	1.87	1.87	0.1					0	15
Sulfate, SO4	9.86	9.91	0.5					0.506	15

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9806027
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
06/09/98	MW-1	01	91
06/10/98	MW-2	02	91
06/10/98	MW-3	03	91
06/10/98	MW-4	04	89
06/10/98	MW-5	05	91
QC Limits:			70-130

DATE ANALYZED: 06/09/98
SAMPLE SPIKED: 9806027-03
INSTRUMENT: F

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	200	95	11	70-130	20
Toluene	200	99	13	70-130	20
Ethylbenzene	200	105	15	70-130	20
Total Xylenes	600	105	15	70-130	20

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. 9806027

CHAIN-OF-CUSTODY RECORD

Project Number/Name RC000019.0010

Project Location PENSKE / OAKLAND

Laboratory AEN

Project Manager PVH

Sampler(s)/Affiliation LMC

2 coolers

ANALYSIS / METHOD / SIZE

	Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	TPH-G/BTEX/MTBE	TPH-D	Total Heterotrophic Bacteria	Hydrocarbon w/ Specific Bacteria	Nitrate, Nitrogen, Sulfate, Ferrous Iron (+2)			Remarks	Total
1A-H	* MW-1	L	5/29	700	X	X	X	X	X				5
2A-H	MW-2		5/29	900	X	X	X	X	X				5
3A-H	MW-3		5/27	1530	X	X	X	X	X				5
4A-H	* MW-4		5/29	1000	X	X	X	X	X				5
5A-H	MW-5			1230	X	X	X	X	X				5
	* MW-7			1130	X	X	X	X	X				5
	MW-8			1300	X	X	X	X	X				5
	TB-LC				X								1
	* PRODUCT	PRESENT -	Sample the dissolved										

9806028

9806028

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 57

Relinquished by: J. Payne	Organization: AG&M	Date 6/2/98	Time 15:40	Seal Intact?
Received by: Rick Gillmore	Organization: AEN	Date 6/2/98	Time 15:40	Yes No N/A
Relinquished by: Rick Gillmore	Organization: AEN	Date 6/2/98	Time 17:00	Seal Intact?
Received by: [illegible]	Organization: AEN	Date 6/2/98	Time 1700	Yes No N/A

Special Instructions/Remarks:

[redacted] Delivery Method: [redacted] ☐ In Person [redacted] ☐ Common Carrier [redacted] ☐ Lab Courier [redacted] ☐ Other [redacted]

SPECIFY SPECIFY

AG 05-0597

CytoCulture
ENVIRONMENTAL
BIOTECHNOLOGY
CytoCulture International, Inc. 1986

June 12, 1998

Client: American Environmental Network
Contact: Bill Svoboda
3440 Vincent Rd.
Pleasant Hill, CA 94523
Client PO #: 9806027

Telephone: (510) 930-9090
Fax: (510) 930-**0256**
Project ID #: RC000019.0010

SAMPLES: Five water samples were received on 6/3/98. The samples were assayed the next day and then stored at 4°C for any follow-up work.

Hydrocarbon-Degrading and Total Heterotrophic Bacteria Enumeration Assays

ANALYSIS REQUEST: Bacterial enumeration for total petroleum hydrocarbon-degraders (broad range petroleum hydrocarbons: diesel) and total heterotrophs.

CARBON SOURCE: Petroleum hydrocarbons were added as the sole carbon and energy sources for the growth of hydrocarbon-degrading aerobic bacteria on agar plates. Diesel was blended into the agar to provide aliphatic and aromatic hydrocarbons in the growth matrix.
Heterotrophic bacteria plates were prepared with Difco Total Plate Count Agar providing a wide range of amino acid and carbohydrate carbon sources.

PROTOCOLS:

Hydrocarbon Degraders: Sterile agar plates (100 x 15 mm) were prepared with minimal salts medium at pH 6.8 with 1.5% noble agar, without any other carbon sources or nutrients added. Plates were inoculated with 1.0 ml of sample or a log dilution of each water sample. Triplicate plates were inoculated with sample log dilutions of 10^0, 10^{-1}, and 10^{-2}. The hydrocarbon plates were poured on 6/4/98 and counted after 7 days on 6/11/98. The plate count data are reported as colony forming units (**cfu**) per milliliter (**ml**) of sample. Each bacteria population value represents a statistical average of the plate count data obtained with inoculations for two of the three log dilutions tested.

Heterotrophs: Sterile agar plates (100 x 15 mm) were prepared with minimal salts medium and 2.35% plate count agar at pH 6.8 without any other carbon sources or nutrients added. Plates were inoculated with 1.0 ml of water sample, or a log dilution of the sample, in triplicate at sample dilutions of 10^{-1}, 10^{-2}, and 10^{-3}. The heterotroph plates were poured on 6/4/98 and counted after 4 days on 6/8/98. The plate count data are reported as colony forming units (**cfu**) per milliliter (**ml**) for each water sample. Each enumeration value represents a statistical average of two of the three log dilutions inoculated in plates.

Hydrocarbon-Degrading and Heterotrophic Bacteria Enumeration Results

CLIENT SAMPLE NUMBER	SAMPLE DATE	HYDROCARBON DEGRADERS (CFU/ML)	TOTAL HETEROTROPHS (CFU/ML)
MW-1	5/29/98	3.1×10^3	3.0×10^5
MW-2	5/29/98	1.8×10^4	4.4×10^5
MW-3	5/29/98	4.3×10^3	1.0×10^5
MW-4	5/29/98	1.6×10^3	2.3×10^4
MW-5	5/29/98	3.4×10^2	3.1×10^3

Bacterial enumerations were performed by Dr. Sean P. Bushart. CytoCulture is available on a consulting basis to assist in the interpretation of these data and their application to field remediation protocols.

Sean P. Bushart, Ph.D.
Laboratory Services

Randall von Wedel, Ph.D.
Principal, Director of Research

Reporting Information:

1. Client: (ENRICA)
Address:
Contact: BILL SVOBODA
Alt. Contact:

American Environmental Network
3440 Vincent Road, Pleasant Hill, CA 94523
Phone (510) 930-9090
FAX (510) 930-0256

Page 1

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number:
Lab Destination: CYTO CULTURE
Date Samples Shipped:
Lab Contact:
Date Results Required: STANDARD
Date Report Required:
Client Phone No.:
Client FAX No.:

Address Report To:
2. #1

Send Invoice To:
3. #1

Send Report To: (1) or 2 (Circle one)

Client P.O. No.: 9806027 Client Project I.D. No.: RC000019.0010

Sample Team Member (s)

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	ANALYSIS: THB1	ANALYSIS: HUB2	Comments / Hazards
	MW-1		5/29/98	7	COLD	2	VOA	X	X	INCLUDE P.O. # AND
	MW-2		↓	↓	↓	↓	↓	X	X	PROJECT I.D. # ON
	MW-3							X	X	REPORT AND INVOICE.
	MW-4							X	X	
	MW-5		↓	↓	↓	↓	↓	X	X	FAX RESULTS.
			1. TOTAL HETEROTROPHIC BACTERIA							
			2. HYDROCARBON UTILIZING BACTERIAL - DIESEL TARGET							

Relinquished by: (Signature)	Ronald C. Jensen	DATE 6/3/98	TIME 11:00	Received by: (Signature)	DATE 6/3/98	TIME 1100
Relinquished by: (Signature)	[signature]	DATE 6/3/98	TIME 1230	Received by: (Signature)	DATE 6/3/98	TIME 12:30
Relinquished by: (Signature)		DATE	TIME	Received by: (Signature)	DATE	TIME
Method of Shipment				Lab Comments		

*Sample type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25mm 0.4 µm polycarb. filter
4) PVC filter, diam. ____ pore size ____ 5) Charcoal tube 6) Silica gel tube (7) Water 8) Soil 9) Bulk Sample
10) Other ____ 11) Other ____

COPIES: WHITE - JOB FILE YELLOW - PROJECT FILE PINK - CLIENT

E T S
1343 Redwood Way
Petaluma, CA 94954
(707) 795-9605/FAX 795-9384

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WATER ANALYSIS REPORT

To: Bill Svoboda
American Environmental Network
3440 Vincent Road
Pleasant Hill, CA 94523

Date: June 11, 1998
Lab #s: 98-06-0051 thru 06-0057
Received: June 4, 1998
Tech(s): C. Lawrence
Lab Supervisor: D. Jacobson
Lab Director: G.S. Conrad, Ph.D.
Sample ID(s): MW-1,MW-2,MW-3,MW-4 MW-5, MW-7 & MW-8

Sample of: monitor well water

Site Location: northern California; Project ID No.: RC000019.0010

RESULTS

SAMPLE ID	REDOX	FERROUS IRON
MW-1	---	0.08 mg/l
MW-2	---	1.59 mg/l
MW-3	---	0.03 mg/l
MW-4	---	0.01 mg/l
MW-5	---	0.07 mg/l
MW-7	---	0.05 mg/l
MW-8	---	0.01 mg/l

COMMENTS

All ferrous irons in this set were very low with only one exception which was very high and way out range as compared with the other samples. Thus, while most ferrous values suggest decent oxidation, and/or bacterial activity in the groundwater, the one elevated ferrous value suggests at the very least a much higher amount of total iron and perhaps little of the usually more desirable types of bacterial activity.

NOTES:
These tests were done according to the Association for Testing Materials (ASTM), and/or conform to standard and accepted protocols as described in Standard Methods for the Examination of Water and Wastewater, 18th ed., © 1992: Ferrous Iron (Fe^{++}) - Phenanthroline Method (mod. 3500-Fe D); Mn++ - PAN Method; Redox - ASTM D 1498.

Reporting Information:

1. Client: AEN(CA)
Address:
Contact: BILL SVOBODA
Alt. Contact:

American Environmental Network
3440 Vincent Road, Pleasant Hill, CA 94523
Phone (510) 930-9090
FAX (510) 930-0256

AEN

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REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number:
Lab Destination: ETS - PETALUMA
Date Samples Shipped:
Lab Contact:
Date Results Required: STANDARD
Date Report Required:
Client Phone No.:
Client FAX No.:

Address Report To:

2. #1

Send Invoice To:

3. #1

Send Report To: (1) or 2 (Circle one)

Client P.O. No.: 9806027 Client Project I.D. No.: RC000019.0010

Sample Team Member (s)

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	ANALYSIS: FERROUS IRON	Comments / Hazards
	MW-1		5/29/98	7	COLD	1	PLAST	X	INCLUDE P.O. # AND
	MW-2		↓	↓	↓	↓	↓	X	PROJECT I.D. # ON
	MW-3							X	REPORT AND INVOICE.
	MW-4							X	
	MW-5		↓	↓	↓	↓	↓	X	FAX RESULTS.
	NOTE: OKAY TO ANALYZE PAST HOLD TIME								

Relinquished by: (Signature)	Ronald C. Gunsch	DATE 6/3/98	TIME 14:15	Received by: (Signature) DATE TIME
Relinquished by: (Signature)		DATE	TIME	Received by: (Signature) DATE TIME
Relinquished by: (Signature)		DATE	TIME	Received by: (Signature) DATE TIME
Method of Shipment				Lab Comments

*Sample type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25mm 0.4 µm polycarb. filter
4) PVC filter, diam. ____ pore size ____ 5) Charcoal tube 6) Silica gel tube (7) Water 8) Soil 9) Bulk Sample
10) Other 11) Other

COPIES: WHITE - LAB FILE YELLOW - PROJECT FILE PINK - CLIENT

ARCADIS GERAGHTY&MILLER

Laboratory Task Order No./P.O. No. 9806028 (9806027)

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

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Laboratory AEN

Project Manager PVH

Sampler(s)/Affiliation LMC

2 coolers

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* MW-1	L	5/29	700	X	X	X	X	X			5
MW-2		5/29	900	X	X	X	X	X			5
MW-3		5/29	1030	X	X	X	X	X			5
* MW-4		5/29	1000	X	X	X	X	X			5
MW-5			1230	X	X	X	X	X			5
* MW-7			1130	X	X	X	X	X			5
MW-8			1300	X	X	X	X	X			5
TB-LB				X							1

Margin notes: 9806027; 1 A-H, 2 A-H, 3 AB; "As labeled"

* PRODUCT PRESENT - Sample the dissolved

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 36

Relinquished by: J. Payne	Organization: G&M	Date 6/2/98	Time 15:40	Seal Intact?
Received by: Rick Gillmore	Organization: AEN	Date 6/2/98	Time 15:40	Yes No N/A
Relinquished by: Rick Gillmore	Organization: AEN	Date 6/2/98	Time 17:00	Seal Intact?
Received by: [illegible]	Organization: AEN	Date 6/2/98	Time 1700	Yes No N/A

Special Instructions/Remarks:

Delivery Method: [redacted] ☐ In Person [redacted] ☐ Common Carrier [redacted] SPECIFY ☑ Lab Courier [redacted] ☐ Other [redacted] SPECIFY

AG 05-0597