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April 13, 1998

Alameda County Health Care Services
Environmental Health Services
ATTN : Mr. Barney Chan
1131 Harbor Bay Parkway, Suite 250
Alameda, California 95402-6577

Re: First Quarter 1998 Groundwater Monitoring Report
3927 East 14th Street
Oakland, California

Dear Mr. Chan:

Enclosed is a copy of the *First Quarter 1998 Groundwater Monitoring Report* prepared for Ruben Hausauer's 3927 East 14th Street, Oakland, California site. This report documents the results of the first quarter of groundwater monitoring performed at the site. Groundwater monitoring was performed on 17 March 1998 by Groundworks Environmental, Inc. personnel. This report was prepared by Groundworks Environmental, Inc. at the request of Ruben Hausauer.

If you have any questions or comments, please call either Groundworks Environmental, Inc. at (408) 327-0010, or me at (415) 621-3939. Thank you for your time and attention.

Very truly yours,

Tommy A. Conner

TAC:syr

Enclosure

cc State Water Resources Control Board (w encl)
P. O. Box 944212
Sacramento, California 94244-2120

[illegible]

First Quarter 1998
Groundwater Monitoring Report
New Genico Facility
3927 East 14th Street
Oakland, California

Prepared for:
Mr. Tommy A. Conner, Esq.
Law Offices of Tommy A. Conner
444 De Haro Street, Suite 121
San Francisco, California 94107

Prepared by:

Groundworks Environmental, Inc.
1900 Lafayette Street, Suite 209
Santa Clara, California 95050-3946

Project No. HA5501
April 10, 1998

Contents

Tables

Illustrations

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1 Introduction

This report presents the first quarter 1998 groundwater monitoring results for the New Genico facility (New Genico) located at 3927 East 14th Street, Oakland, California (Figure 1). The following activities were performed at the site this quarter.

- Groundwater levels were measured in all site wells on March 17, 1998.
- Groundwater pH, specific conductivity, temperature, dissolved oxygen content, and oxidation-reduction potential (redox potential) were measured in the field prior to, or during, groundwater sampling on March 17, 1998.
- Groundwater samples from four wells were collected on March 17, 1998 and analyzed for total petroleum hydrocarbons (TPH) as gasoline (TPHg); benzene, toluene, ethylbenzene, and xylenes (BTEX); methyl tert-butyl ether (MtBE), TPH as diesel (TPHd), TPH as motor oil (TPHmo), ferrous iron, nitrate and sulfate.
- This Groundwater Monitoring Report documenting the recent sampling event was prepared.

The procedures used for groundwater sampling and analysis are presented below in Section 2. The results of this quarter's sampling event are discussed in Section 3. A schedule for implementing future activities at the site is presented in Section 4.

2 Groundwater Sampling and Analysis Procedures

The locations of site groundwater monitoring wells are shown on Figure 2. All of the wells are completed in the first continuous water-bearing zone encountered beneath the site. Wells HMW-1 through HMW-3 are 2-inch diameter PVC casing and HMW-4 was "pre-constructed" using 0.6-inch inner diameter PVC casing that was installed using direct push technology on November 18, 1997.

On March 17, 1998 water levels in all wells were measured by Groundworks Environmental Inc. (Groundworks) to within 0.01 foot using an electronic measuring device (see Appendix A for field data sheets). Water levels in Motor Partners wells, located across 40th Avenue, were measured by Rogers Environmental Services on March 17, 1998, and the data were provided to Groundworks by facsimile.

Groundwater from wells HMW-1 through HMW-4 was sampled by Groundworks on March 17, 1998. Prior to purging the wells, water levels were re-measured using an electronic measuring device, and in three of the four wells, a translucent bailer was used to monitor for the presence of floating product or a sheen. Due to the small diameter of HMW-4, this step was not performed in this well. Well HMW-4 was purged with a peristaltic pump and the others with a PVC bailer, until a minimum of four casing volumes of water were removed. The purge water was monitored for temperature, pH, and conductivity. Purging was considered complete when these parameters had stabilized. Turbidity was also noted as purging proceeded.

As conditions permitted, each well was sampled after the water level had recovered to at least 80 percent of its initial level. Groundwater samples for chemical analysis were collected using a VOSS® disposable bailer, with the exception of HMW-4, which was sampled using the peristaltic pump and dedicated tubing. The samples for analysis of TPHg, BTEX, and MtBE were transferred from the bailer or peristaltic pump tubing into 40-milliliter glass containers ("VOAs"). The groundwater was transferred to the VOA bottles in a manner that minimized aeration or volatilization. The remaining samples were transferred into the appropriate laboratory-supplied containers. The bottles were labeled and placed in a cooler with blue ice. The samples were stored overnight at Groundworks in a refrigerator. Laboratory personnel picked up the samples and a chain-of-custody document was maintained with the samples as transfers were made between sample custodians.

The groundwater samples were submitted to American Environmental Network (AEN), of Pleasanton, California for analysis. AEN subcontracted the analysis for lead to Environmental Technical Services (ETS) of Petaluma, California. AEN and ETS are accredited by the California Department of Health Services to perform the specified analyses. The groundwater samples were analyzed in accordance with the following analytical methods:

- TPHg by Modified USEPA Method 5030/8015
- BTEX and MtBE by USEPA Method 8020

- TPHd and TPHmo by Modified USEPA Method 3510/8015M
- Ferrous iron by Standard Methods for the Evaluation of Wastewater 2580 (SMEWW 2580)
- Nitrate and sulfate by USEPA Method 300

The sampling equipment was washed with a non-phosphate detergent and rinsed twice with tap water, and a final distilled water rinse to minimize the likelihood of cross-contamination. Dedicated disposable bailers and string, or dedicated tubing (HMW-4), were used for sampling each well. The purge water and rinsate were containerized, and are stored on site in 55-gallon drums pending their proper recycling or disposal.

The field data sheets are included in Appendix A. The certified analytical reports (CARs) and chain-of-custody documents are included in Appendix B.

3 Groundwater Monitoring Program Results

3.1 Groundwater Flow Analysis

Table 1 and Table 2 present the water-level data for March 1998 for the New Genico and the Motor Partners facilities, respectively. Figure 2 presents the groundwater piezometric contours for March 1998, using the combined data. Note, however, that the location and top of casing elevation for Motor Partners' new well (MW-5), has not yet been provided to Groundworks, and hence was not included in this figure.

As illustrated in Figure 2, the groundwater flow direction beneath the site was southerly during March 1998. The magnitude of the hydraulic gradient was approximately 0.011. This flow direction and hydraulic gradient are generally consistent with previous findings. Groundwater levels rose greater than 2 feet since last quarter in three of the four groundwater monitoring wells.

3.2 Quality Control Results

A trip blank was stored with the samples collected and submitted to the laboratory for analysis. The trip blank was analyzed for TPHg, BTEX and MtBE. None of these constituents were detected in the trip blank.

Laboratory quality control (QC) data were evaluated to assess the acceptability of the analytical results. QC results are included with the CARs in Appendix B.

Laboratory QC consisted of checking adherence to holding times and evaluating method blanks and blank spikes (BS). All analyses were performed within the required holding times. No compounds were detected in any of the method blanks. BS recoveries were within the laboratory acceptance limits.

The laboratory QC results indicate the data are of acceptable quality.

3.3 Analytical Results

This quarter's groundwater chemistry data for the site are presented in Table 3. Historic data, also presented on Table 3, were obtained from ATC Associates Inc.'s *Fourth Quarter 1997, Groundwater Monitoring Report*, 3927 East 14th Street, Oakland, California (January 8, 1998), and Artesian Environmental's *Groundwater Sampling Point Installation and Sampling Report* (January 30, 1998)

Very minor floating product (approximately 0.01 foot thick) was observed in well HMW-1 Neither a sheen nor floating product were observed in any of the remaining monitoring wells Historic data with respect to the presence/absence of floating product or a sheen was not available at the time of preparation of this report Neither current nor historic data, with

respect to the presence/absence of floating product or a sheen on the Motor Partners' wells, were available at the time of preparation of this report. Associated corrections to ground water elevations, if warranted, could therefore not be performed.

The following summarizes the March 1998 analytical results for the New Genico facility.

- The TPHg concentration in well HMW-1 was above historic concentrations. The TPHg concentrations in HMW-2, HMW-3 (not detected above reporting limit [ND]) and HMW-4 were similar to their historic concentrations.
- TPHd was ND in all wells.
- The TPHmo concentration in HMW-1 was above historic concentrations. TPHmo was detected above reporting limits in HMW-3 for the first time and was ND in the remaining two wells.
- Benzene concentrations increased in downgradient wells.
- Toluene, ethylbenzene, and total xylenes increased over historic concentrations in HMW-1 and HMW-2, and remained low to ND in HMW-3 and HMW-4.
- Reported concentrations of MtBE increased in HMW-1, HMW-2, and HMW-4, and remained ND in HMW-3. Note that previously, when samples reported to contain MtBE were re-analyzed by "gas chromatograph - mass spectrometer" (GCMS; the method used for USEPA Method 8260 analyses), the result was ND. Reports of detected MtBE using USEPA Method 8020 analyses are suspected to be "false positives".

Biodegradation Indicator Parameters

Selected biodegradation indicator parameters were either measured in the field (dissolved oxygen and redox potential) or analyzed by the analytical laboratory (nitrate, sulfate, and ferrous iron). Results for upgradient well HMW-3 were compared to wells located downgradient of the former UST location to see if any general trends were discernible.

The relative dissolved oxygen content of the environment was evaluated. Dissolved oxygen concentrations were low (less than 1.0 mg/L) in three of the four wells. The high concentration in new well HMW-4 (2.4 mg/L) was likely due to the field method used for this well. A peristaltic pump was used to collect this sample and the dissolved oxygen was measured in a sample container. For the other three wells dissolved oxygen was measured in the well. Exposure of the sample to air could have resulted in an increase in dissolved oxygen. No discernible pattern with respect to the dissolved oxygen contents of groundwater from the various wells was noted.

It appears that anaerobic biodegradation is occurring proximate to, and downgradient of, the former UST location. Generally, when biodegradation occurs in relatively anaerobic environments:

- nitrate concentrations decrease;
- sulfate concentrations decrease;
- ferrous iron concentrations increase; and
- redox potentials become increasingly negative.

The following present our findings with respect to the selected biodegradation indicator parameters during this quarter.

- Nitrate concentrations in downgradient wells decreased relative to HMW-3, suggestive of anaerobic biodegradation.
- Sulfate concentrations in downgradient wells decreased relative to HMW-3, suggestive of anaerobic biodegradation.
- Ferrous iron concentrations in downgradient wells increased relative to HMW-3, suggestive of anaerobic biodegradation.
- Redox potentials in downgradient wells became increasingly negative relative to HMW-3, suggestive of anaerobic biodegradation.

4 Schedule of Future Activities

The next groundwater sampling and analysis event is scheduled for June 1998. A quarterly monitoring report will be submitted by July 31, 1998.

5 Document Distribution List

As requested, four copies of this report are being mailed to your offices. Further distribution to Ruben Hausauer; Alameda County Health Services; and the State Water Resources Control Board, Underground Storage Tank Cleanup Fund, are to be handled by your office.

Professional Certification

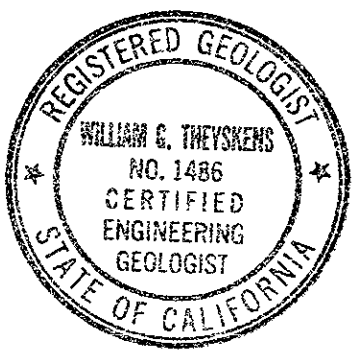
First Quarter 1998
Groundwater Monitoring Report
New Genico Facility
3927 East 14th Street
Oakland, California

This Groundwater Monitoring Report has been prepared by Groundworks Environmental, Inc. for the Law Offices of Tommy Conner. This report has been prepared under the professional supervision of:

4/10/98

William G. Theyskens, CEG 1496, CHG 245
Groundworks Environmental, Inc.

Date



Limitations

This report and the evaluations presented herein have been prepared in accordance with generally accepted professional standards and is based solely on the scope of work and services described herein. This document has been prepared solely for the use of the Law Offices of Tommy Conner for the purpose of reporting groundwater monitoring results. Any use of this report, in whole or in part, by a third party for other than the purposes noted herein is at such party's sole risk.

Table 1
Groundwater Elevations (1)
New Genico Facility
1397 East 14th Street Oakland, California

Well	Date	Casing Elevation (feet, MSL)	Depth to Groundwater (feet)	Groundwater Elevation (feet, MSL)	Floating Product (2) (feet)	Corrected Elevation (3) (feet, MSL)
HMW-1	8/22/96	31.25	8.01	23.24	----	23.24
	2/25/97		5.95	25.30	----	25.30
	5/28/97		7.65	23.60	----	23.60
	9/2/97		8.56	22.69	----	22.69
	11/26/97		7.50	23.75	----	23.75
	2/9/98		3.35	27.90	----	27.90
	3/17/98		5.29	25.96	0.01	25.97
HMW-2	8/22/96	29.43	8.71	20.72	----	20.72
	2/25/97		6.00	23.43	----	23.43
	5/28/97		7.65	21.78	----	21.78
	9/2/97		8.59	20.84	----	20.84
	11/26/97		6.82	22.61	----	22.61
	2/9/98		3.24	26.19	----	26.19
	3/17/98		4.44	24.99	----	24.99
HMW-3	8/22/96	31.48	8.10	23.38	----	23.38
	2/25/97		6.00	25.48	----	25.48
	5/28/97		7.74	23.74	----	23.74
	9/2/97		8.60	22.88	----	22.88
	11/26/97		7.50	23.98	----	23.98
	2/9/98		2.34	29.14	----	29.14
	3/17/98		5.23	26.25	----	26.25
HMW-4	11/26/97	28.80	7.42	21.38	----	21.38
	2/9/98		2.96	25.84	----	25.84
	3/17/98		5.72	23.08	----	23.08

feet, MSL = feet, relative to Mean Sea Level
"----" = not measured, or data not readily available
(1) Data prior to 3 17 98 was obtained from reports prepared by ATC Associates Inc (1 8 98) and Artesian Environmental (1 30 98), and a Field Report Data Sheet (ATC, 2 9 98)
(2) Data regarding the presence absence of floating product prior to March 1998 was not available at the time of preparation of this report
(3) Corrected elevation is equal to groundwater elevation plus the estimated specific gravity of the floating product (0 83) multiplied by the floating product thickness
Corrected Elevation = Groundwater Elevation + (0 83 x Floating Product Thickness)

Table 2
Groundwater Elevations (1)
Motor Partners Facility
1234 40th Avenue
Oakland, California

Well	Date	Casing Elevation (feet, MSL)	Depth to Groundwater (feet)	Groundwater Elevation (feet, MSL)	Floating Product (2) (feet)	Corrected Elevation (3) (feet, MSL)
MW-1	11/26/97	31.44	7.98	23.46	----	23.46
	3/17/98		5.84	25.60	----	25.60
MW-2	11/26/97	31.06	7.24	23.82	----	23.82
	3/17/98		5.05	26.01	----	26.01
MW-3	11/26/97	30.43	7.06	23.37	----	23.37
	3/17/98		5.11	25.32	----	25.32
MW-4	11/26/97	30.37	6.64	23.73	----	23.73
	3/17/98		4.52	25.85	----	25.85
MW-5	11/26/97	30.37	-----	-----	-----	-----
	3/17/98		5.80	24.57	-----	24.57

feet, MSL = feet, relative to Mean Sea Level
"----" = Not measured, or data not readily available

(1) Data prior to 3/17/98 was obtained from a report prepared by ATC Associates Inc. (1/8/98); 3/17/98 data was obtained from Gary Rogers of Aquatic & Environmental Applications.

(2) Data regarding the presence/absence of floating product prior to March 1998 was not available at the time of preparation of this report.

(3) Corrected elevation is equal to groundwater elevation plus the estimated specific gravity of the floating product (0.83) multiplied by the floating product thickness:
Corrected Elevation = Groundwater Elevation + (0.83 x Floating Product Thickness).

Table 3
Groundwater Analytical Results [1]
New Gemco Facility
3927 E. 14th Street Oakland, California

Well ID No	Sample Date	TPH as Diesel (µg/L)	TPH as motor oil (µg/L)	TPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Methyl tert Butyl Ether (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous Iron (mg/L)	Dissolved Oxygen* (mg/L)	Redox Potential* (mV)
HMW-1	8 22 96	ND	ND	7,400	1,200	170	530	490	-----	-----	-----	-----	-----	-----
	2 25 97	2 000	ND	5,400	760	110	260	260	ND	-----	-----	-----	-----	-----
	5 28 97	2 000	600	6,600	1,100	100	290	340	130	-----	-----	-----	-----	-----
	9 2 97	8 700	3,700	4,000	460	40	200	100	ND [2]	2	12	4.20	0.24	-14.4
	11 26 97	4 700	3,000	7,500	1,000	120	270	320	ND [2]	0.6	ND	<0.01	2.0	+105
	3 17 98	ND	16,000	11,000	2,100	290	600	760	1,200	ND	0.8	0.16	0.8 [3]	-60.4
HMW-2	8 22 96	7 100 [4]	2,100	6,300	170	57	370	120	-----	2100	2100	-----	-----	-----
	2 25 97	90	ND	8,400	150	35	280	70	ND [2]	ND	ND	-----	-----	-----
	5 28 97	130	200	6,000	170	35	170	67	150	200	200	-----	-----	-----
	9 2 97	4 502	ND [5]	8,000	210	30	160	90	ND [2]	ND	0.5	1.37	0.38	+25 2
	11 26 97	180	ND	1,600	41	7.5	40	10	31	ND	ND	0.03	2.5	+52
	3 17 98	ND	ND	8,600	200	96	410	120	330	ND	0 8	0.01	0.48 [3]	-50.28
HMW-3	8 22 96	ND	ND	1,300	3	6	8	12	----	ND	ND	-----	-----	-----
	2 25 97	70	ND	150	ND	ND	ND	ND	ND	ND	ND	-----	-----	-----
	5 28 97	ND	ND	80	ND	ND	0.60	ND	ND	ND	ND	-----	-----	-----
	9 2 97	ND [5]	ND [5]	140	ND	ND	2.1	ND	ND	2	53	0.03	0.88	+98 6
	11 26 97	50	ND	70	0 6	0 8	0.8	ND	ND	3.5	50	0.01	1.4	+102
	3 17 98	ND	200	ND	ND	ND	ND	ND	ND	1.1	43	ND	0.63 [3]	91 90
HMW-4	11 26 97	300	ND	1,600	4.2	3 1	1.7	5.9	ND	----	----	----	----	----
	3 17 98	ND	ND	1,300	20	1 4	6 8	3.0	19	ND	8 6	0.12	2.4 [3]	-26.67
TRIP BLANK	3 17 98	- --	----	ND	ND	ND	ND	ND	ND	----	----	----	----	----

NOTES

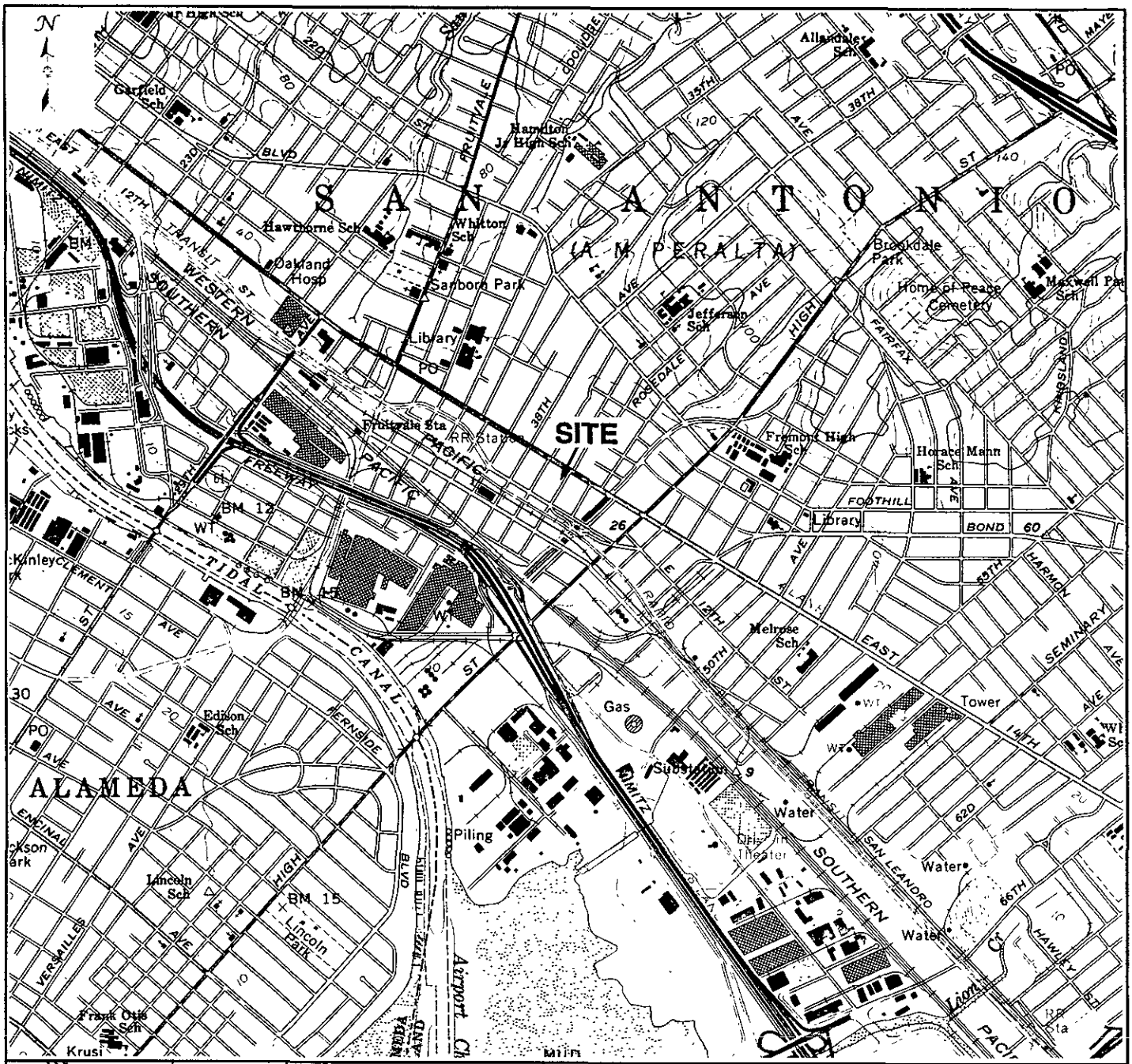
Well ID No	HMW-1, HMW-2 and HMW-3 are New Gemco wells MW-1, MW-2, and MW-3, respectively
TPH	Total petroleum hydrocarbons
ND	Not detected above reporting limit
-	Not analyzed
*	Measured in the field
1	Data prior to 3 17 98 was obtained from a report prepared by ATC Associates Inc (1/8/98)
2	Positive result by initial USEPA Method 8020 analysis, confirmation performed by USEPA Method 8260 reports ND
3	Dissolved oxygen measured prior to purging
4	Laboratory reported concentration for diesel is estimated due to overlapping fuel patterns
5	Samples collected on 10/3/97

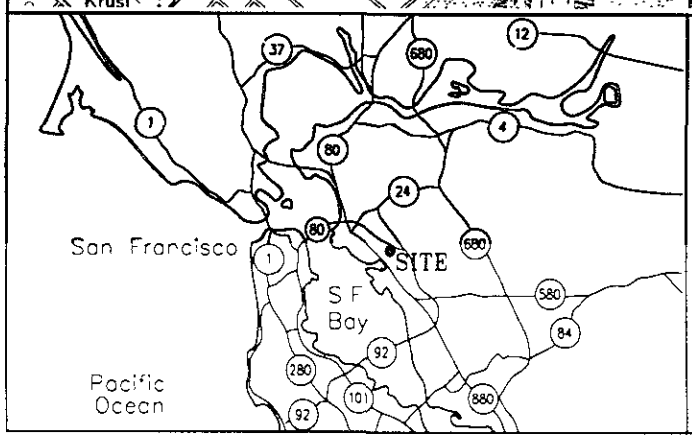
Table 4
Groundwater Parameters Measured Prior to Sampling
New Genico Facility
3927 E. 14th Street Oakland, California

Well I.D. No.	Sample Date	pH	Specific Conductivity (μmhos/cm)	Temperature (°F)
HMW-1	8/22/96	-----	-----	-----
	2/25/97	4.55	680	75.0
	5/28/97	7.70	810	70.4
	9/2/97	6.73	1074	73.4
	11/26/97	6.93	966	70.0
	3/17/98	6.16	1,163	67.6
HMW-2	8/22/96	-----	-----	-----
	2/25/97	4.65	450	72.1
	5/28/97	7.80	480	69.4
	9/2/97	6.82	762	74.8
	11/26/97	6.99	731	69.8
	3/17/98	6.62	741	66.0
HMW-3	8/22/96	-----	-----	-----
	2/25/97	5.87	390	63.3
	5/28/97	8.00	400	67.6
	9/2/97	6.97	669	70.9
	11/26/97	6.87	665	67.8
	3/17/98	6.43	734	65.9
HMW-4	11/26/97	-----	-----	-----
	3/17/98	6.66	769	66.3

NOTES

"----" = Not Measured





Notes:

1) **All locations and dimensions are approximate.**

2) **Map provided by ATC Associates, Inc. and created from USGS Oakland East (1961) Quadrangle, 7.5 Minute Series Topographic.** Photorevised in 1980.

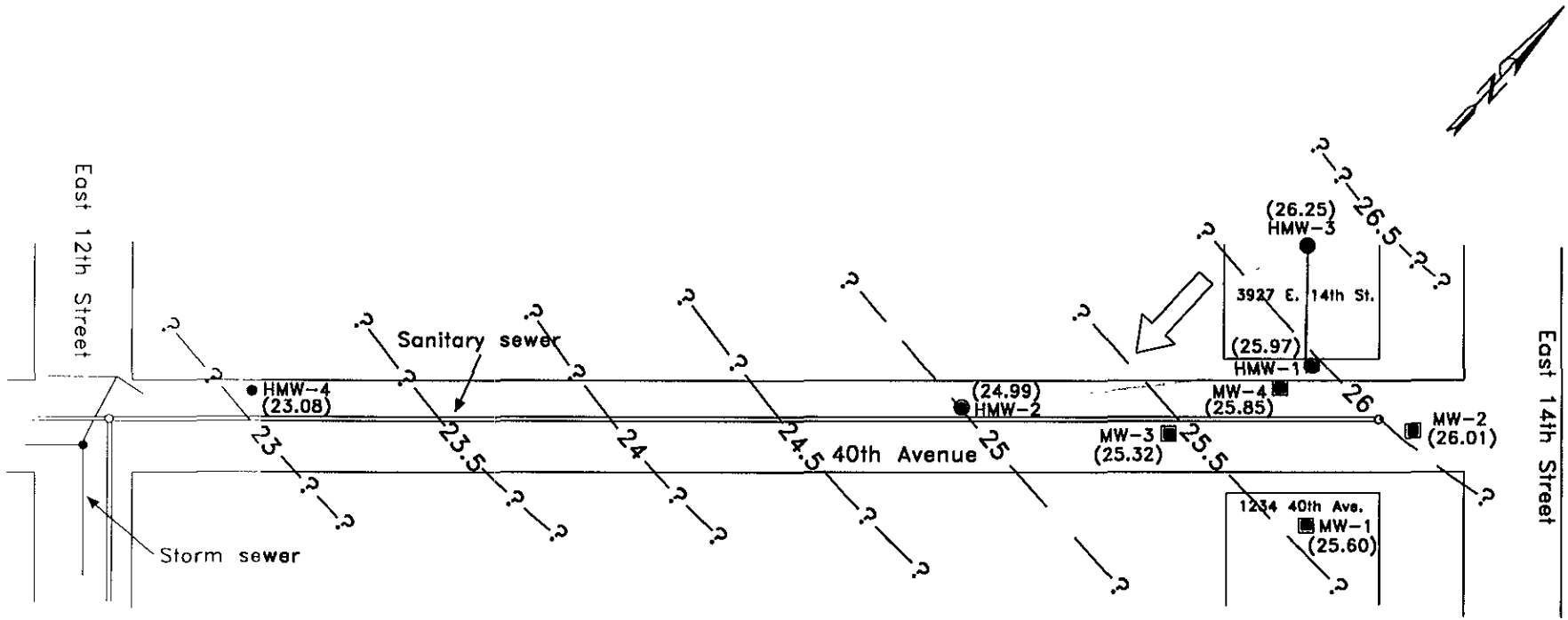
0 1/4 1/2 1

SCALE (MILES)

HA5501FIG1.DWG

GROUNDWORKS ENVIRONMENTAL, INC

HA5501
Motor Partners
3927 East 14th Street
Oakland, California
Figure 1.



Explanation:

HMW-3 — Groundwater monitoring well 3927 E. 14th St. (New Genico)

MW-1 — Groundwater monitoring well 1234 40th Ave. (Motor Partners)

(23.74) — Groundwater elevation measured on March 17, 1998. Elevation measured in feet relative to mean sea level.

24 — Groundwater elevation contour

Approximate direction of groundwater flow

Note: Locations of sanitary and storm sewers obtained from Oakland Engineering Department.

0 50

Approximate scale in feet

Base map modified from ATC Associates, Inc., November 1997.

HA5501FIG2.DWG 4/9/98

GROUNDWORKS ENVIRONMENTAL, INC.

Project HA5501
New Genico Facility
3927 East 14th Street, Oakland, California
Figure 2. Groundwater Contours–March 1998

Appendix A

Field Data Sheets

SAMPLE COLLECTION FIELD DATA

Project No.:	HA5501	Well ID:	HMW-1
Project Name:	Hausauer	Sample ID:	HMW-1
Location:	3927 E. 14th St., Oakland, CA	Start Date:	3/17/98
Client:	Ruben Hausauer	Finish Date:	3/17/98

WELL INFORMATION (11:11) 5.29 DTW measured w/ sounder

Casing diameter (in.): 2 Depth to water (ft): 5.29 Well depth (ft): 19.35*

One casing volume (gal.): 2.25 Calculated purge volume (gal.) *(4 x casing volume)*: 9

One casing volume = π x [casing radius (in.) x 1 ft/12 in.]² x [well depth (ft) - depth to water (ft)] x 7.48 gal/ft³

Gallons per linear ft for casing diameter of: 1" = 0.04 2" = 0.16 4" = 0.65 4.5" = 0.83 5" = 1.0 6" = 1.5

Floating product thickness (ft): trace Method for checking: Interface probe ____ Clear bailer ✓

WELL PURGING

Date purged: 3-17-98 Start time: 1452 End time: 1514

Purging equipment: Submersible pump ____ Bladder pump ____ Centrifugal pump ____

PVC bailer ____ Teflon bailer ____ Other Disposable bailer

Purge rate: bailed Well yield (H/L): Mod.

Purge water disposal: Drummed. Dissolved O_2 before purging: ~~0.46~~ 0.8** @ 18:3

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC (micromhos/cm)	T (° F)	Color (Visual)	Turbidity (Visual or NTU)
1447	2.4	6.17	1,281	67.1	lt green	heavy
1502	4.4	6.21	1,254	67.5	" "	" "
1508	6.6	6.14	1,174	67.7	" "	" "
1514	9.0	6.16	1,163	67.6	" "	moderate

Total Purged (gal.): 9.0

WELL SAMPLING

Date sampled: 3-17-98* Start time: 1522 End time: 1531

Redox before sampling: -53* (-60.4 corrected) Dissolved O_2 before sampling: 2.12**

Target depth to water (ft): 8.10 (@ 80% recovery) Depth to water (ft) before sampling: 8.01

Depth to water at 80% recovery = well depth - [(well depth - static water depth) x 0.80]

Sampling equipment: Submersible pump ____ Bladder pump ____ Teflon bailer ____

PVC bailer Other Disposable bailer

Weather conditions: clear Ambient temperature (° F) 70

Well condition Remarks: Use measured well w/ interface probe, measured ~0.01' floating orifice. *measured last quarter (11/97) Need to replace locking well cap

** measured in purge. Heavy sheen in water during purge.

Meter calibration: EC 3-17-98 pH 3-17-98 Temperature factory

Dissolved O_2 3-17-98 Redox 3-17-98

Purged and sampled by (print) A. Winkelman & L. Wahlgren

Signature D. Winkelman Reviewed by William Stapleton

SAMPLE COLLECTION FIELD DATA

Project No.: HA5501
Project Name: Hausauer
Location: 3927 E. 14th St., Oakland, CA
Client: Ruben Hausauer

Well ID: HMW-2
Sample ID: HMW-2
Start Date: 3/17/98
Finish Date: 3/17/98

WELL INFORMATION

(10:46)

Casing diameter (in.): 2 Depth to water (ft): 4.44 Well depth (ft): 17.7
One casing volume (gal.): 2.1 Calculated purge volume (gal.) *(4 x casing volume)*: 8.4
One casing volume = π x [casing radius (in.) x 1 ft/12 in.]^2 x [well depth (ft) - depth to water (ft)] x 7.48 gal/ft^3
Gallons per linear ft for casing diameter of: 1" = 0.04 2" = 0.16 4" = 0.65 4.5" = 0.83 5" = 1.0 6" = 1.5
Floating product thickness (ft): Ø Method for checking: Interface probe ____ Clear bailer ✓

WELL PURGING

Date purged: 3-17-98 Start time: 11:39 End time: 11:52
Purging equipment: Submersible pump ____ Bladder pump ____ Centrifugal pump ____
PVC bailer ____ Teflon bailer ____ Other Polyethylene disposable bailer
Purge rate: Bail Well yield (H/L): High
Purge water disposal: Drummed Dissolved O_2 before purging: 0.48*

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC (micromhos/cm)	T (° F)	Color (Visual)	Turbidity (Visual or NTU)
11:41	2.2	6.68	897	~~55.3~~ AV	lt. brown	heavy
11:45	4.4	6.60	743	67.8	" "	" "
11:49	6.4	6.57	745	66.3	" "	" "
11:52	8.4	6.62	741	66.0	" "	" "

Total Purged (gal.): 8.4

WELL SAMPLING

Date sampled: 3-17-98 Start time: 1225 End time: 1233
Redox before sampling: -50.28 @ 25°C ~~-11~~ AV Dissolved O_2 before sampling: 0.82* 2.2 measured in jar.
Target depth to water (ft): 7.09 (@ 80% recovery) Depth to water (ft) ~~before~~ after sampling: 5.41
Depth to water at 80% recovery = well depth - [(well depth - static water depth) x 0.80]
Sampling equipment: Submersible pump ____ Bladder pump ____ Teflon bailer ____
PVC bailer Other same disposable bailer used for purging

Weather conditions clear Ambient temperature (° F): 70
Well condition Remarks Trace sheen on purge water * Measured in well.
Water temp 18.4°C used to ~~complete~~ in calculation to compensate for temp for Redox
Replaced lock w/ American #3425 Slight petroleum odor

Meter calibration EC 3/17/98 pH 3/17/98 Temperature factory
Dissolved O_2 3/17/98 Redox 3/17/98

Purged and sampled by (print) A Waldinger & L Wahlgren
Signature L Wahlgren Reviewed by

SAMPLE COLLECTION FIELD DATA

Project No.:	HA5501	Well ID:	HMW-3
Project Name:	Hausauer	Sample ID:	HMW-3
Location:	3927 E. 14th St., Oakland, CA	Start Date:	3-17-98
Client:	Ruben Hausauer	Finish Date:	3-17-98

WELL INFORMATION (11:00)

Casing diameter (in.): 2 Depth to water (ft): 5.23 Well depth (ft): 16.5

One casing volume (gal.): 1.8 Calculated purge volume (gal.) *(4 x casing volume)*: 7.2

One casing volume = π x [casing radius (in.) x 1 ft/12 in.]^2 x [well depth (ft) - depth to water (ft)] x 7.48 gal/ft^3

Gallons per linear ft for casing diameter of: 1" = 0.04 2" = 0.16 4" = 0.65 4.5" = 0.83 5" = 1.0 6" = 1.5

Floating product thickness (ft): 0 Method for checking: Interface probe ____ Clear bailer ✓

WELL PURGING

Date purged: 3-17-98 Start time: 1307 End time: 1322

Purging equipment: Submersible pump ____ Bladder pump ____ Centrifugal pump ____

PVC bailer ____ Teflon bailer ____ Other Disposable bailer

Purge rate: bailer Well yield (H/L): High

Purge water disposal: Drummed Dissolved O_2 before purging: ~~0.83~~ * AW 16.9°C 0.63 * BW 18.5°C

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC (micromhos/cm)	T (° F)	Color (Visual)	Turbidity (Visual or NTU)
1310	1.8	6.57	762	66.0	lt. brown	light
1314	3.6	6.42	734	65.7	colorless	slight
1319	5.6	6.43	736	65.8	" "	" "
1322	7.4	6.43	734	65.9	" "	" "

Total Purged (gal.): 7.4

WELL SAMPLING

Date sampled: 3-17-98 Start time: 1335 End time: 1341

Redox before sampling: 101 (91.9 corrected) ** Dissolved O_2 before sampling: 1.65 * @ 18.3°C

Target depth to water (ft): 7.48 (@ 80% recovery) Depth to water (ft) before sampling: 5.27

Depth to water at 80% recovery = well depth - [(well depth - static water depth) x 0.80]

Sampling equipment: Submersible pump ____ Bladder pump ____ Teflon bailer ____

PVC bailer Other same disposable bailer

Weather conditions: Clear Ambient temperature (° F): 70

Well condition Remarks: * Measured DO downhole

** measured in jar, corrected for temp: 18°C Replaced lock on HMW-2

Meter calibration EC 3/17/98 pH 3/17/98 Temperature factory

Dissolved O_2 3/17/98 Redox 3/17/98

Purged and sampled by (print): A. Winston & L. Winbigler

Signature: A. Winston Reviewed by: William Stapleton

SAMPLE COLLECTION FIELD DATA

Project No.: HA5501
Project Name: Hausauer
Location: 3927 E. 14th St., Oakland, CA
Client: Ruben Hausauer

Well ID: HMW-4
Sample ID: HMW-4
Start Date: 3/17/98
Finish Date: 3/17/98

WELL INFORMATION

0.6 (10:51)

Casing diameter (in.): ~~4~~ 1 AW Depth to water (ft): 5.72 Well depth (ft): 14.4

One casing volume (gal.): 0.13 Calculated purge volume (gal.) *(4 x casing volume)*: AW ~~0.65~~ 0.52

One casing volume = π *x [casing radius (in.) x 1 ft/12 in.]*^{2} *x [well depth (ft) - depth to water (ft)] x 7.48 gal/ft*^{3}

Gallons per linear ft for casing diameter of: 1" = 0.04 2" = 0.16 4" = 0.65 4.5" = 0.83 5" = 1.0 6" = 1.5

Floating product thickness (ft): NM Method for checking: Interface probe ___ Clear bailer ___

WELL PURGING

Date purged: 3-17-98 Start time: 1408 End time: 1419

Purging equipment: Submersible pump ___ Bladder pump ___ Centrifugal pump ___
PVC bailer ___ Teflon bailer ___ Other Peristaltic pump

Purge rate: ~0.25 gpm/2 min. Well yield (H/L): High

Purge water disposal: drummed. Dissolved O_2 before purging: AW ~~2.67~~ 2.40 * @ 19.1°C

Time (2400 hr)	Cumulative Vol. Purged (gal.)	pH (units)	EC (micromhos/cm)	T (° F)	Color (Visual)	Turbidity (Visual or NTU)
1410	0.25	6.77	802	66.9	lt gray	moderate
1413	0.75	6.67	—	66.2	" "	slight
1417	1.0	6.60	771	~~66.4~~	colorless	clear
1419	1.3	6.44	769	66.3	" "	" "

Total Purged (gal.): 1.3

WELL SAMPLING

Date sampled: 3-17-98 Start time: 1425 End time: 1431

Redox before sampling: -19 (-26.67 corrected)* Dissolved O_2 before sampling: 1.62* 19.2°C

Target depth to water (ft): 7.46 (@ 80% recovery) Depth to water (ft) ~~before~~ after sampling: 5.95

Depth to water at 80% recovery = well depth - [(well depth - static water depth) x 0.80]

Sampling equipment: Submersible pump ___ Bladder pump ___ Teflon bailer ___
PVC bailer ___ Other Peristaltic pump.

Weather conditions: Clear Ambient temperature (° F): 70

Well condition Remarks: OK * measured in jar because probe too large to fit in well.

~~[illegible]~~ Replaced lock. [illegible]

Meter calibration: EC 3-17-98 pH 3-17-98 Temperature factory
Dissolved O_2 3-17-98 Redox 3-17-98

Purged and sampled by (print): A. Waldman & L. Wahlgren

Signature: [signature] Reviewed by: [signature]

Appendix B

Certified Analytical Reports and Chain-of-Custody Documentation

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

GROUNDWORKS ENVIRONMENTAL
1900 LAFAYETTE ST. #209
SANTA CLARA, CA 95050

ATTN: BILL THEYSKINS
CLIENT PROJ. ID: HA5501

REPORT DATE: 04/03/98

DATE(S) SAMPLED: 03/17/98

DATE RECEIVED: 03/17/98

AEN WORK ORDER: 9803200

PROJECT SUMMARY:

On March 17, 1998, this laboratory received 5 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Portion for ferrous iron was subcontracted to a DOHS certified laboratory; subcontract report is 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

GROUNDWORKS ENVIRONMENTAL

SAMPLE ID: HMW-1
AEN LAB NO: 9803200-01
AEN WORK ORDER: 9803200
CLIENT PROJ. ID: HA5501

DATE SAMPLED: 03/17/98
DATE RECEIVED: 03/17/98
REPORT DATE: 04/03/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	03/17/98
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	2,100 *	3	ug/L	03/25/98
Toluene	108-88-3	290 *	3	ug/L	03/25/98
Ethylbenzene	100-41-4	600 *	3	ug/L	03/25/98
Xylenes, Total	1330-20-7	760 *	10	ug/L	03/25/98
Purgeable HCs as Gasoline	5030/GCFID	11 *	0.3	mg/L	03/25/98
Methyl t-Butyl Ether	1634-04-4	1,200 *	30	ug/L	03/25/98
#Extraction for TPH	EPA 3510	-		Extrn Date	03/27/98
TPH as Diesel	GC-FID	ND	0.2	mg/L	03/30/98
TPH as Oil	GC-FID	16 *	1	mg/L	03/30/98
#Anion Sample Prep.		-		Prep date	03/18/98
Nitrate as Nitrogen	EPA 300	ND	0.1	mg/L	03/18/98
Sulfate	EPA 300	0.8 *	0.5	mg/L	03/18/98

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

GROUNDWORKS ENVIRONMENTAL

SAMPLE ID: HMW-2
AEN LAB NO: 9803200-02
AEN WORK ORDER: 9803200
CLIENT PROJ. ID: HA5501

DATE SAMPLED: 03/17/98
DATE RECEIVED: 03/17/98
REPORT DATE: 04/03/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	03/17/98
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	200 *	3	ug/L	03/25/98
Toluene	108-88-3	96 *	3	ug/L	03/25/98
Ethylbenzene	100-41-4	410 *	3	ug/L	03/25/98
Xylenes, Total	1330-20-7	120 *	10	ug/L	03/25/98
Purgeable HCs as Gasoline	5030/GCFID	8.6 *	0.3	mg/L	03/25/98
Methyl t-Butyl Ether	1634-04-4	330 *	30	ug/L	03/25/98
#Extraction for TPH	EPA 3510	-		Extrn Date	03/27/98
TPH as Diesel	GC-FID	ND	0.05	mg/L	03/28/98
TPH as Oil	GC-FID	ND	0.2	mg/L	03/28/98
#Anion Sample Prep.		-		Prep date	03/18/98
Nitrate as Nitrogen	EPA 300	ND	0.1	mg/L	03/18/98
Sulfate	EPA 300	0.8 *	0.5	mg/L	03/18/98

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

GROUNDWORKS ENVIRONMENTAL

SAMPLE ID: HMW-3
AEN LAB NO: 9803200-03
AEN WORK ORDER: 9803200
CLIENT PROJ. ID: HA5501

DATE SAMPLED: 03/17/98
DATE RECEIVED: 03/17/98
REPORT DATE: 04/03/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	03/17/98
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	03/26/98
Toluene	108-88-3	ND	0.5	ug/L	03/26/98
Ethylbenzene	100-41-4	ND	0.5	ug/L	03/26/98
Xylenes, Total	1330-20-7	ND	2	ug/L	03/26/98
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	03/26/98
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	03/26/98
#Extraction for TPH	EPA 3510	-		Extrn Date	03/27/98
TPH as Diesel	GC-FID	ND	0.05	mg/L	03/28/98
TPH as Oil	GC-FID	0.2 *	0.2	mg/L	03/28/98
#Anion Sample Prep.		-		Prep date	03/18/98
Nitrate as Nitrogen	EPA 300	1.1 *	0.1	mg/L	03/18/98
Sulfate	EPA 300	43 *	0.5	mg/L	03/18/98

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

GROUNDWORKS ENVIRONMENTAL

SAMPLE ID: HMW-4
AEN LAB NO: 9803200-04
AEN WORK ORDER: 9803200
CLIENT PROJ. ID: HA5501

DATE SAMPLED: 03/17/98
DATE RECEIVED: 03/17/98
REPORT DATE: 04/03/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	03/17/98
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	20 *	0.5	ug/L	03/25/98
Toluene	108-88-3	1.5 *	0.5	ug/L	03/25/98
Ethylbenzene	100-41-4	6.9 *	0.5	ug/L	03/25/98
Xylenes, Total	1330-20-7	3 *	2	ug/L	03/25/98
Purgeable HCs as Gasoline	5030/GCFID	1.3 *	0.05	mg/L	03/25/98
Methyl t-Butyl Ether	1634-04-4	19 *	5	ug/L	03/25/98
#Extraction for TPH	EPA 3510	-		Extrn Date	03/27/98
TPH as Diesel	GC-FID	ND	0.05	mg/L	03/28/98
TPH as Oil	GC-FID	ND	0.2	mg/L	03/28/98
#Anion Sample Prep.		-		Prep date	03/18/98
Nitrate as Nitrogen	EPA 300	ND	0.1	mg/L	03/18/98
Sulfate	EPA 300	8.6 *	0.5	mg/L	03/18/98

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

GROUNDWORKS ENVIRONMENTAL

SAMPLE ID: TB-1
AEN LAB NO: 9803200-05
AEN WORK ORDER: 9803200
CLIENT PROJ. ID: HA5501

DATE SAMPLED: 03/17/98
DATE RECEIVED: 03/17/98
REPORT DATE: 04/03/98

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	03/25/98
Toluene	108-88-3	ND	0.5	ug/L	03/25/98
Ethylbenzene	100-41-4	ND	0.5	ug/L	03/25/98
Xylenes, Total	1330-20-7	ND	2	ug/L	03/25/98
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	03/25/98
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	03/25/98

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9803200
CLIENT PROJECT ID: HA5501

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

ANALYSIS: Extractable TPH

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank | LAB ID: BLKW-0327-1 | INSTR RUN: GC C\980301000000/376/
INSTRUMENT: HP 5890 | PREPARED: 03/27/98 | BATCH ID: DS□W032798-1
UNITS: mg/L | ANALYZED: 03/28/98 | DILUTION: 1.000000
METHOD:

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)	98.8			100	98.8	60	130		

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Laboratory Control Spike | LAB ID: LCDW-0327-1 | INSTR RUN: GC C\980301000000/378/376
INSTRUMENT: HP 5890 | PREPARED: 03/27/98 | BATCH ID: DS□W032798-1
UNITS: mg/L | ANALYZED: 03/28/98 | DILUTION: 1.000000
METHOD:

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
Diesel		1.83	ND	0.05	2.00	91.5	60	130		
n-Pentacosane	(surr)	103.3	98.8		100	103	60	130		

SAMPLE TYPE: Laboratory Control Spike | LAB ID: LCSW-0327-1 | INSTR RUN: GC C\980301000000/377/376
INSTRUMENT: HP 5890 | PREPARED: 03/27/98 | BATCH ID: DS□W032798-1
UNITS: mg/L | ANALYZED: 03/28/98 | DILUTION: 1.000000
METHOD:

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
Diesel		1.79	ND	0.05	2.00	89.5	60	130		
n-Pentacosane	(surr)	100.4	98.8		100	100	60	130		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Laboratory Control Sample Duplicate | LAB ID: LCRW-0327-1 | INSTR RUN: GC C\980301000000/379/377
INSTRUMENT: HP 5890 | PREPARED: 03/27/98 | BATCH ID: DS□W032798-1
UNITS: mg/L | ANALYZED: 03/28/98 | DILUTION: 1.000000
METHOD:

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
Diesel		1.83	1.79	0.05					2.21	20
Motor Oil		ND	ND	0.2					0	
n-Pentacosane	(surr)	103.3	100.4		100	103	60	130		

SAMPLE SURROGATES

SAMPLE TYPE Sample-Client | LAB ID 9803200-01D | INSTR RUN GC C\980301000000/386/
INSTRUMENT HP 5890 | PREPARED 03/27/98 | BATCH ID DS□W032798 1
UNITS mg/L | ANALYZED 03/30/98 | DILUTION 1 000000
METHOD

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY ( )	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT ( )
n Pentacosane	(surr)	125 1			100	125	60	130		

ANALYSIS: Extractable TPH

MATRIX: Water

SAMPLE SURROGATES

SAMPLE TYPE: Sample-Client | LAB ID: 9803200-02D | INSTR RUN: GC_C\980301000000/387/
INSTRUMENT: HP 5890 | PREPARED: 03/27/98 | BATCH ID: DS□W032798-1
UNITS: mg/L | ANALYZED: 03/28/98 | DILUTION: 1.000000
METHOD:

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	101.1			100	101	60	130		

SAMPLE TYPE: Sample-Client | LAB ID: 9803200-03D | INSTR RUN: GC_C\980301000000/388/
INSTRUMENT: HP 5890 | PREPARED: 03/27/98 | BATCH ID: DS□W032798-1
UNITS: mg/L | ANALYZED: 03/28/98 | DILUTION: 1.000000
METHOD:

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	116.7			100	117	60	130		

SAMPLE TYPE: Sample-Client | LAB ID: 9803200-04D | INSTR RUN: GC_C\980301000000/389/
INSTRUMENT: HP 5890 | PREPARED: 03/27/98 | BATCH ID: DS□W032798-1
UNITS: mg/L | ANALYZED: 03/28/98 | DILUTION: 1.000000
METHOD:

ANALYTE		RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	HIGH	RPD (%)	RPD LIMIT (%)
n-Pentacosane	(surr)	102.9			100	103	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_PBW
PREPARED:
ANALYZED: 03/18/98

INSTR RUN: IC\980318000000/1/
BATCH ID: IC031898
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Fluoride, F			0.1						
Chloride, Cl	ND		0.5						
Nitrate, NO3-N	ND		0.1						
Nitrite, NO2-N	ND		0.1						
Phosphate, PO4-P			0.5						
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: 03/18/98

INSTR RUN: IC\980318000000/3/1
BATCH ID: IC031898
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Fluoride, F			0.1	2.00	0 !	80	120		
Chloride, Cl	9.90	ND	0.5	10.0	99.0	80	120		
Nitrate, NO3-N	1.94	ND	0.1	2.00	97.0	80	120		
Nitrite, NO2-N	1.97	ND	0.1	2.00	98.5	80	120		
Phosphate, PO4-P			0.5	4.00	0 !	80	120		
Sulfate, SO4	9.38	ND	0.5	10.0	93.8	80	120		

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

LAB ID: IC_LCS
PREPARED:
ANALYZED: 03/18/98

INSTR RUN: IC\980318000000/2/1
BATCH ID: IC031898
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Fluoride, F			0.1	2.00	0 !	80	120		
Chloride, Cl	9.88	ND	0.5	10.0	98.8	80	120		
Nitrate, NO3-N	1.94	ND	0.1	2.00	97.0	80	120		
Nitrite, NO2-N	1.98	ND	0.1	2.00	99.0	80	120		
Phosphate, PO4-P			0.5	4.00	0 !	80	120		
Sulfate, SO4	9.29	ND	0.5	10.0	92.9	80	120		

LABORATORY CONTROL DUPLICATES

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

LAB ID: IC_LCR
PREPARED:
ANALYZED: 03/18/98

INSTR RUN: IC\980318000000/4/2
BATCH ID: IC031898
DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%) LOW	REC LIMITS (%) HIGH	RPD (%)	RPD LIMIT (%)
Fluoride, F			0.1					0	15
Chloride, Cl	9.90	9.88	0.5					0.202	15
Nitrate, NO3-N	1.94	1.94	0.1					0	15
Nitrite, NO2-N	1.97	1.98	0.1					0.506	15
Phosphate, PO4-P			0.5					0	15
Sulfate, SO4	9.38	9.29	0.5					0.964	15

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9803200
INSTRUMENT: F
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
03/25/98	HMW-1	01	95
03/25/98	HMW-2	02	96
03/26/98	HMW-3	03	95
03/25/98	HMW-4	04	105
03/25/98	TB-1	05	95
QC Limits:			70-130

DATE ANALYZED: 03/25/98
SAMPLE SPIKED: LCS
INSTRUMENT: F

Laboratory Control Sample Recovery

Analyte	Spike Added (ug/L)	Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	200	100	<1	70-130	20
Toluene	200	100	1	70-130	20
Ethylbenzene	200	103	2	70-130	20
Total Xylenes	600	106	1	70-130	20

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

*** END OF REPORT ***

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

Sample of: monitor well water

Date: March 25, 1998
Lab #s: 98-03-0221 thru 03-0224
Received: March 18, 1998
Tech(s): C. Lawrence
Lab Supervisor: D. Jacobson
Lab Director: G.S. Conrad, Ph.D.
Sample ID(s): HMW-1, HMW-2, HMW-3 & HMW-4

Site Location: northern California; Project ID No.: HA5501

RESULTS

SAMPLE ID	FERROUS IRON
HMW-1	**0.16 mg/l**
HMW-2	**0.01 mg/l**
HMW-3	**<0.01 mg/l**
HMW-4	**0.12 mg/l**

COMMENTS

Ferrous irons were all low running from low to very low; and one was non-detect. The differences suggest a potential decreasing concentration gradient from monitor wells #1 and #4 in the direction of #2 and #3 in iron levels with total iron, oxidation, or bacterial activity varying accordingly.

QC DATA - Ferrous Tests 2/25/98

Test	Lab Standard	Result	Percent Recovery
Ferrous Iron*	1.000 mg/l	0.915 mg/l	91.5%

* Ferrous Ammonium Sulfate - $(Fe(NH_4)_2(SO_4)_2\ 6H_2O$. ¤ SMEWW 2580

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., ç 1992: Ferrous Iron (Fe^{++}) - Phenanthroline Method (modified SMEWW 3500-Fe D); Redox - ASTM D 1498.

Recording Information

1 Client
Address
Contact
Alt Contact

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

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number:
Lab Destination: ETS - PETALUMA
Date Samples Shipped:
Lab Contact:
Date Results Required: 3/31-4/5 3:24-1.12
Date Report Required:
Client Phone No.:
Client FAX No.:

Address Report To

2

Send Invoice To:

3. H. I

Send Report To: 1 or 2 (Circle one)

Client P.O. No.:

Client Project I.D. No.: 11215.501

Sample Team Member (s)

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	FERROUS IRON	ANALYSIS	Comments / Hazards
			3/11/98	"1	COLD	1	JAR	X		INCLUDE P.O.# AND
							VIAL	X		PROJECT I.D.# ON
								X		REPORT AND INVOICE.
								X		
										FAX RESULTS

	DATE	TIME		DATE	TIME
Relinquished by (Signature)	3.12.98	1:30PM	Received by: (Signature) Rick Dickinson	3.13.98	9:30AM
Relinquished by (Signature)	3.13.98	11:15AM	Received by: (Signature) Daniel R. Jackson	3-14-98	7:15A.M
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) Other ____ 11) Other ____

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

1 [redacted] Groundwork [redacted] Vi[redacted]

Address 1900 Lafayette St #209
Santa Clara, CA 95050

Contact Bill Theyskins

Alt. Contact

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

AEN

P[redacted]

R-3, S-2
R-5, S-N (NO_3)
R-7, S-A

REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number: ~~9803201~~ 9803200
Lab Destination:
Date Samples Shipped: 3/17/98
Lab Contact:
Date Results Required: 3/24/98 per A. Waldman
Date Report Required: 3/24/98
Client Phone No.: (408) 327-0110
Client FAX No.: (408) 327-0119

AEN STAND TA OK 3/18 OW

Address Report To

2. As above

Send Invoice To:

3. as above.

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

Client P.O. No

Client Project I.D. No.: HA5501

Sample Team Member (s) A. Waldman & L. Wahlgren

Lab Number	Client Sample Identification	Air Volume	Date/ Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	MTBE (gas/diesel)	TPH(g) (gas/diesel)	BTEX	TPH as motor oil	TPH as diesel	Ferrous iron	Nitrate	Sulfate			Comments / Hazards
1A-G	HMW-1		3/17/98 1522	H_2O	HCl preserved	7		X	X	X	X	X	X	X	X			Please filter ferrous iron immediately upon arrival at lab.
2A-G	HMW-2		1225			7		X	X	X	X	X	X	X	X			
3A-G	HMW-3		1335			7		X	X	X	X	X	X	X	X			
4A-G	HMW-4		1425			7		X	X	X	X	X	X	X	X			
5A-G	TB-1					3		X	X	X								

Relinquished by (Signature) A. Waldman	DATE 3/17/98	TIME 1541	Received by: (Signature) Michael E. Mullin
Relinquished by (Signature) Michael E. Mullin	DATE 3/17/98	TIME 1715	Received by: (Signature) Paola Andrade
Relinquished by (Signature)	DATE	TIME	Received by: (Signature)
Method of Shipment			Lab Comments

DATE 3/17/98 TIME 1541
DATE 3/17/98 TIME 1715
DATE TIME

*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