



June 30, 1993

1248
1287

Ms. Jennifer Eberle
Hazardous Materials Specialist
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, CA 94621

**Subject: Second Quarterly Report - 1993
Groundwater Monitoring Report & Subsurface Investigation
Dreyer's Grand Ice Cream
5929 College Avenue, Oakland, California
(Project No. 919313)**

Dear Ms. Eberle:

Aqua Terra Technologies
Consulting Engineers
& Scientists

2950 Buskirk Avenue
Suite 120
Walnut Creek, CA
94596-2079
FAX 934-0418
510 934-4884

Aqua Terra Technologies, Inc. (ATT) is pleased to present the results for groundwater monitoring activities conducted by ATT during the second quarter, 1993 for the subject site. A site location map is presented on Plate 1 (Attachment A). Monitoring activities during the reporting period included recording of groundwater level measurements, groundwater sample collection, and laboratory sample analysis.

BACKGROUND

One 1,000-gallon and one 8,000-gallon gasoline tank, two 4,000-gallon diesel tanks and one 2,000-gallon diesel tank were removed from the southeast corner of the property during December, 1989 (before construction of the current office building at the site). Two 1,000-gallon waste oil tanks were also removed from the southwest portions of the property in December, 1989. The approximate locations of the former underground tank excavations are shown on Plate 2.

QUARTERLY GROUNDWATER MONITORING

Groundwater Elevations and Flow Direction

~~Groundwater level measurements were recorded on April 20, 1993.~~
Groundwater elevation contours and flow directions for this date are shown on Plate 2 (Attachment A). Historic groundwater elevations are summarized in Table 1 (Attachment B).

Ms. Jennifer Eberle
Hazardous Materials Specialist
Alameda County Health Care Services Agency
June 30, 1993
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During the second quarter 1993, groundwater table elevations ranged from 172.09 feet above mean sea level (msl) to 176.89 feet above msl. The groundwater gradient was approximately 0.035 feet per foot (ft/ft). The groundwater flow direction was predominantly towards the northwest.

Groundwater Sample Collection & Analytical Methods

~~On June 2, 1993 ATT field personnel collected a set of groundwater samples~~ from all site monitoring wells (MW1, MW2, and MW3). The samples were transported with ATT chain-of-custody documentation to a California Department of Health Services (DHS) certified laboratory for analysis of total petroleum hydrocarbons as diesel and as gasoline (TPH/d and TPH/g, respectively), and of benzene, toluene, ethylbenzene, and total xylenes (BTEX). U.S. Environmental Protection Agency (EPA) Test Methods 3510/8015, 5030/8015, and 602 were used for analysis of TPH/d, TPH/g, and BTEX, respectively.

Groundwater Sample Analytical Results

The analytical results for groundwater samples collected from monitoring wells MW1, MW2, and MW3 to date, are summarized in Table 2 (Attachment B). Copies of the signed laboratory reports, chain-of-custody documentation, and sample collection records are presented in Attachment C.

Concentrations of TPH/d, TPH/g, and BTEX were below method detection limits in the sample collected from monitoring well MW1. TPH/d was not detected in the samples collected from wells MW2 and MW3.

Concentrations of TPH/g and BTEX, in the sample collected from well MW2, were 58,000 micrograms per liter (ug/L), and 50 ug/L, 68 ug/L, 70 ug/L, and 170 ug/L, respectively. Concentrations of TPH/g and BTEX, in the sample collected from well MW3, were 14,000 ug/L, and 11 ug/L, 13 ug/L, 16 ug/L, and 49 ug/L, respectively.

Planned Activities

Monthly groundwater level measurements will be recorded during the third quarter 1993. Groundwater samples will be collected quarterly from the

Ms. Jennifer Eberle
Hazardous Materials Specialist
Alameda County Health Care Services Agency
June 30, 1993
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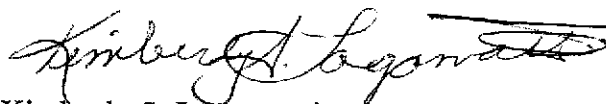
existing monitoring wells and submitted for laboratory analysis. Quarterly groundwater monitoring reports will be compiled and submitted to the appropriate regulatory agencies. ~~In response to the HPCRA letter of May 20, 1993, a proposal for additional groundwater monitoring wells will be submitted to Dreyer's in July, 1993.~~

Limitations and uncertainties to this report are in Attachment D.

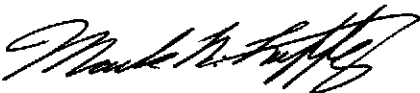
Please call if you have any questions regarding this quarterly report.

Sincerely,

AQUA TERRA TECHNOLOGIES, INC.



Kimberly S. Lagomarsino
Staff Scientist



Mark R. Lafferty, R.G.
Senior Hydrogeologist
California Registered Geologist #4701
(Expires 6/30/94)



Terrance E. Carter
Senior Environmental Engineer
Project Manager

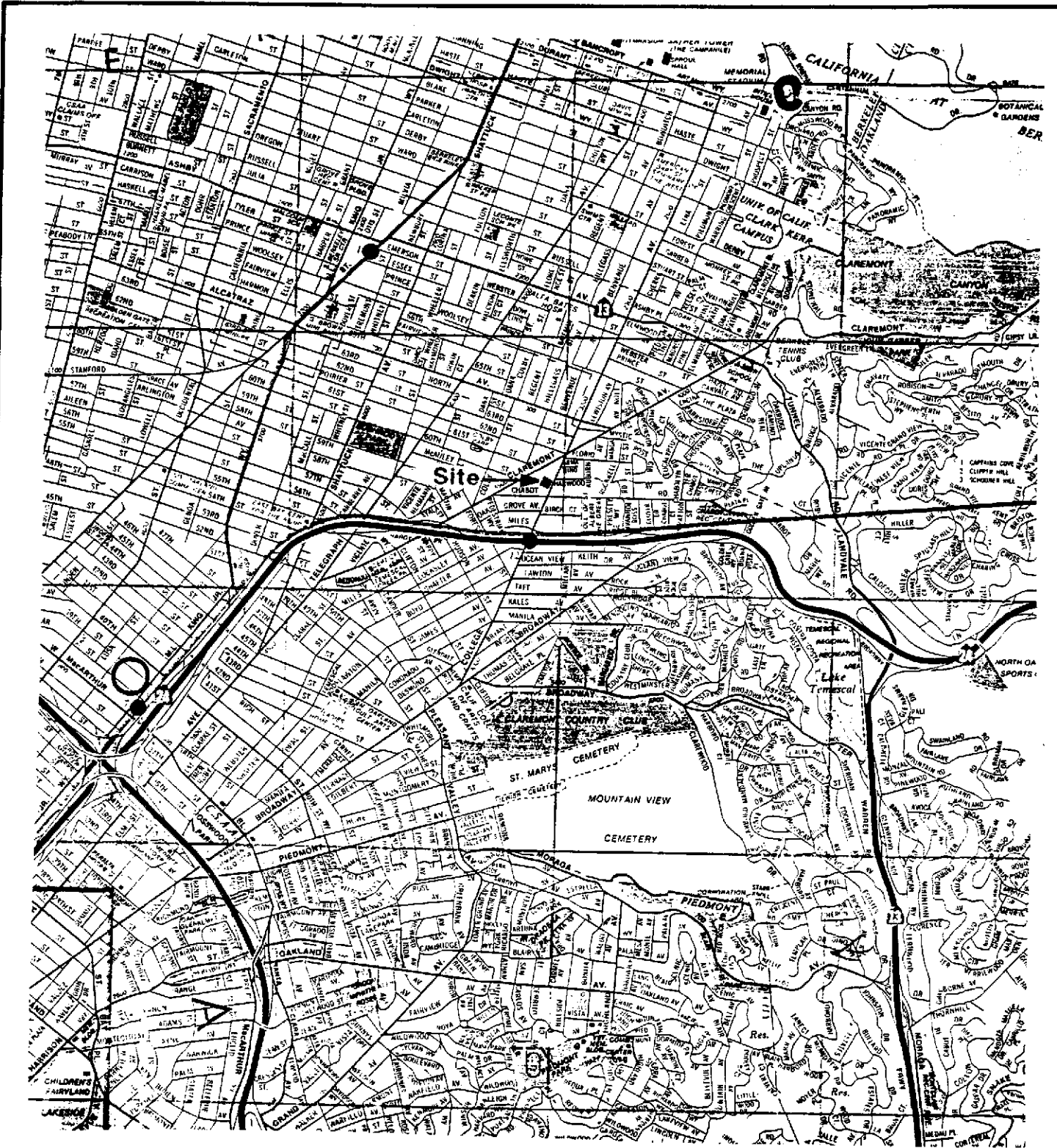
KSL/MRL/TEC/:pd

Attachments

cc: William C. Collett, Dreyer's Grand Ice Cream
Rich Hiatt, RWQCB

ATTACHMENT A

Plates



0 1/2 1 mile
SCALE



Property Location Map

ATT

**Aqua Terra Technologies
Consulting Engineers
& Scientists**

Dreyer's Grand Ice Cream, Inc.

PLATE

**JOB NUMBER
919313**

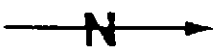
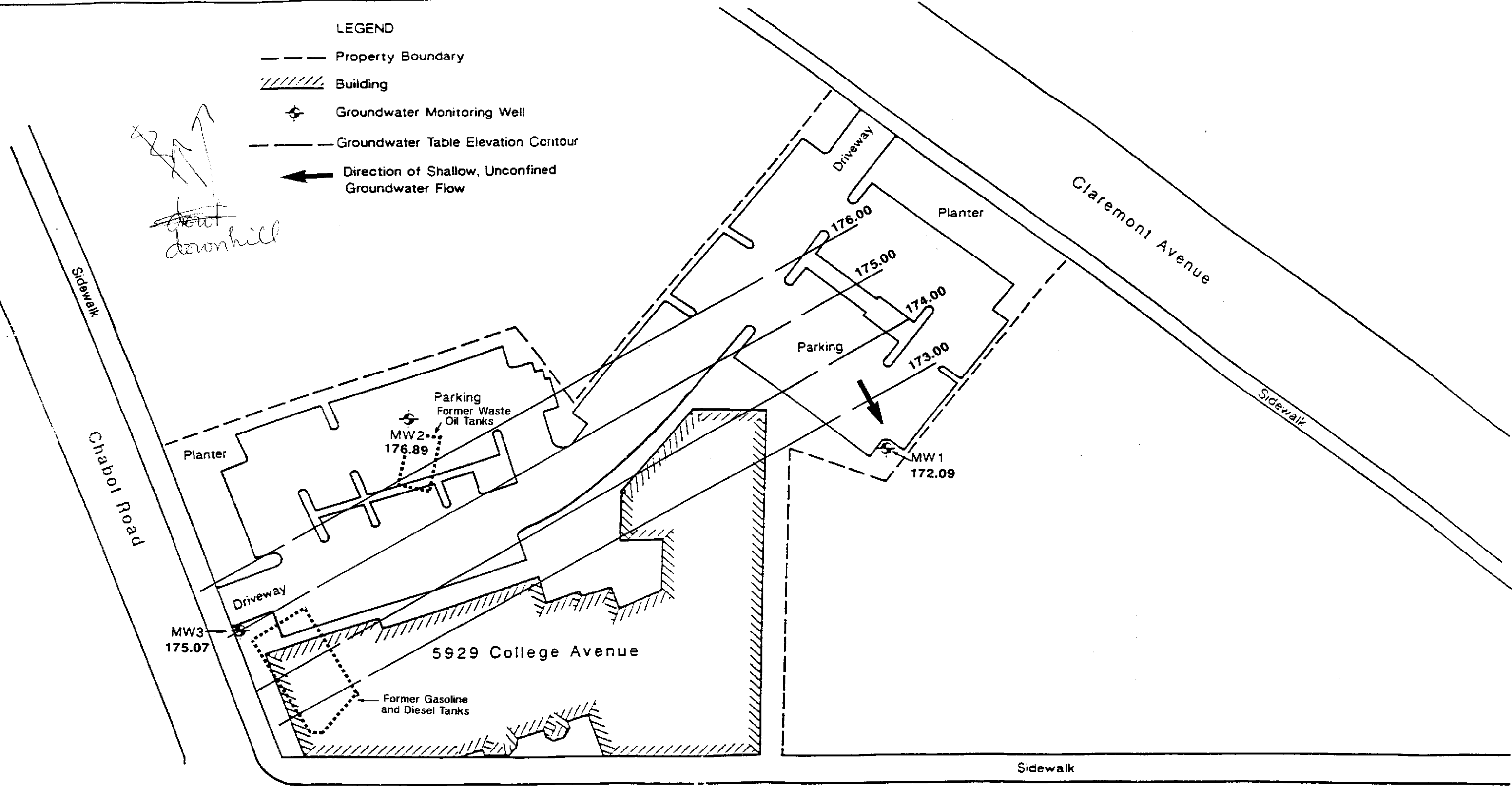
**DATE
07/93**

1

LEGEND

- Property Boundary
- ▨ Building
- ⊕ Groundwater Monitoring Well
- - - Groundwater Table Elevation Contour
- ← Direction of Shallow, Unconfined Groundwater Flow

downhill



0 50 feet
SCALE

College Avenue

Groundwater Elevations and Contours
04/20/93

ATT Aqua Terra Technologies
Consulting Engineers
& Scientists

Dreyer's Grand Ice Cream, Inc.		PLATE 2
JOB NUMBER 919313	DATE 07/93	

ATTACHMENT B

Tables

Table 1

Groundwater Elevation Summary
 Dreyer's Grand Ice Cream
 5929 College Avenue
 Oakland, California

Well No.	TOC Elevation ^a (feet)	Date	Groundwater Depth ^b (feet)	Groundwater Elevation ^c (feet)
MW1	189.14	08/12/91	14.86	174.28
		12/04/91	16.16	172.98
		04/24/92	11.93	177.21
		05/04/92	12.15	176.99
		06/17/92	13.17	175.97
		07/15/92	13.66	175.48
		08/31/92	14.91	174.23
		09/14/92	15.18	173.96
		10/22/92	15.34	173.80
		11/20/92	15.27	173.87
		12/03/92	14.44	174.70
		01/18/93	7.85	181.29
		02/10/93	9.29	179.85
		03/10/93	9.88	179.26
	04/20/93	10.43	178.83	
MW2	185.23	08/12/92	12.26	172.97
		12/04/91	12.30	172.93
		04/24/92	10.00	175.23
		05/04/92	10.29	174.94
		06/17/92	10.86	174.37
		07/15/92	11.48	173.75
		08/31/92	12.02	173.21
		09/14/92	12.34	172.89
		10/22/92	12.37	172.86
		11/20/92	11.64	173.59

Table 1

Groundwater Elevation Summary
Dreyer's Grand Ice Cream
5929 College Avenue
Oakland, California

Well No.	TOC Elevation ^a (feet)	Date	Groundwater Depth ^b (feet)	Groundwater Elevation ^c (feet)
	185.84 ^d	12/03/92	11.95	173.28
		01/18/93	5.86	179.37
		02/10/93	8.20	177.03
		03/10/93	8.57	176.66
		04/20/93	8.95	176.80
MW3	184.68	08/12/91	11.73	172.95
		12/04/91	11.65	173.03
		04/24/92	11.00	173.68
		05/04/92	11.09	173.59
		06/17/92	11.51	173.17
		07/15/92	11.84	172.84
		08/31/92	11.70	172.98
		09/14/92	11.74	172.94
		10/22/92	11.33	173.35
		11/20/92	10.58	174.10
		12/03/92	10.12	174.56
	185.29 ^d	01/18/93	8.42	176.26
		02/10/93	9.94	174.74
		03/10/93	10.19	174.49
		04/20/93	10.22	173.67

- a. TOC: top of well casing elevation measured relative to an arbitrary bench mark which was measured to mean sea level (MSL) by interpolation from the Oakland West, California, 7.5' Quadrangle Topographic Map (T.1S, R.3W).
- b. Depth to groundwater measured from the TOC.
- c. Groundwater elevation is equal to the difference between the TOC elevation and groundwater depth.
- d. Top of casing resurveyed on May 1, 1993

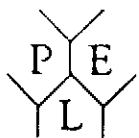
Table 2
Summary of Laboratory Analytical Results
Groundwater Samples
5929 College Avenue, Oakland, California

Well No./ Sample I.D.	Sample Collection Date	Concentration (µg/L)					
		TPH/d ^a	TPH/g ^b	B ^c	T ^c	E ^c	X ^c
MW1	08/05/91	NA ^d	<50 ^e	1.1	<0.5 ^e	<0.5 ^e	<0.5 ^e
	12/04/91	<50 ^e	<50 ^e	<0.5 ^e	<0.5	<0.5	<0.5
	03/10/93	85	<50	<0.5	<0.5	<0.5	<0.5
	06/10/93	<50	<50	<0.5	<0.5	<0.5	<0.5
MW2	08/05/91	1,900 ^f	38,000	8,300	8,200	2,300	13,000
	12/04/91	<50	91,000	6,900	6,800	3,200	25,000
	03/10/93	89	59,000	5,800	5,300	3,100	15,000
	06/10/93	<50	3,000	50	68	70	170
MW3	08/05/91	800 ^f	3,300	3,900	160	95	150
	12/04/91	<50	10,000	3,300	88	80	130
	03/10/93	<50	8,100	2,000	31	240	30
	06/10/93	<50	14,000	11	13	16	49

- a. TPH/d = total petroleum hydrocarbons as diesel
- b. TPH/g = total petroleum hydrocarbons as gasoline
- c. BTEX: B = benzene, T = toluene, E = ethylbenzene, X = total xylenes
- d. NA = not analyzed
- e. <50 and <0.5 = not detected at or above the test method detection limits
- f. Petroleum hydrocarbons quantified as diesel are due to hydrocarbons that are lighter than diesel

ATTACHMENT C

**Laboratory Analytical Reports
Chain-of-Custody Records
Sample Collection Records**



PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

June 08, 1993

PEL # 9306011

AQUA TERRA TECHNOLOGIES, INC.

Attn: Kimberly Lagomarsino

Re: Three water samples for Gasoline/BTEX and Diesel analyses.

Project number: 919313

Date sampled: Jun 02, 1993


Date submitted: Jun 07, 1993

Date extracted: June 07-08, 1993

Date analyzed: Jun 07-08, 1993

RESULTS:

SAMPLE I.D.	Gasoline (ug/L)	Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
MW 1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
MW 2	58000	N.D.	50	68	70	170
MW 3	14000	N.D.	11	13	16	49
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	92.1%	89.2%	93.5%	91.4%	92.8%	102.0%
Duplicate Spiked Recovery	90.7%	100.4%	91.4%	83.7%	88.4%	95.7%
Detection limit	50	50	0.5	0.5	0.5	0.5
Method of Analysis	5030 / 8015	3510 / 8015	602	602	602	602


David Duong
Laboratory Director

PEL # 9306011

INV # 23666

ATT

Aqua Terra Technologies, Inc.

2950 Buskirk Avenue, Ste. 120
Walnut Creek, CA 94598
Tel. (510) 934-4884
Fax. (510) 934-0418

CHAIN OF SAMPLE CUSTODY RECORD

(original document, please return)

Page 1 of 1

Sampled By: DAVID BENEDISLEY

Date Sampled: 6.2.93

Signature: [Signature]

ATT Job #: 919313

Lab Name: P.E.L.

Results To Be Sent To: KIMBERLY LAGOMARSINO

Contact: VICTOR

Results Needed By: 3 DAY TURNAROUND

Phone #: (408) 946-9136

Fax Results ASAP

Lab Job #: _____

Sample Collection				Sample Preservation			Sample Containers				Analysis/EPA Method No.				Remarks
Sample I.D.	Time (24 hr)	Matrix (e.g. Water, Soil)	Number of Containers	Ice	HCL	Dry Ice	1 LITER AMBER	40 ML	10A	TPH D	TPH G	BTEX			
MW1	12:10	Water	4	✓	✓		2	2		✓	✓	✓			
MW2	11:30	"	4	✓	✓		2	2		✓	✓	✓			
MW3	10:55	"	4	✓	✓		2	2		✓	✓	✓			

Notes:

Reinquished by/ Company Affiliation	Date	Time	Received by: Company Affiliation	Date	Time
<u>[Signature]</u>	<u>6.4.93</u>	<u>805</u>	<u>[Signature]</u>	<u>6/7/93</u>	<u>8:05 AM</u>

SAMPLE COLLECTION RECORD - MONITOR WELL

ATT

Date: 6-7-93 Sample I.D.: MW1 Job No.: 919313

Site Location: DEYERS GRAD OAKLAND

No. of Containers : 4 / (check one): Well Samples;

Duplicates from well _____; Travel Blanks;

Field Blanks; Other (explain)/ _____

W.L. (1/100'): 10.82 Time : 11:43 B.O.W. (1/2'): 28.5

Method: Electric Well Sounder; Other/ _____

Meters calibrated: Y / N Well Loc. Map: Y / N

Calculated Purge Volume (4 casing volumes): 12 gallons

Purging Method: Disposable Bailer; Teflon Bailer;

Other/ _____

Time Start Purging (24 hr): 11:45, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / %LEL
 Turbidity: _____, Color: CLEAR

Time Stop Purging (24 hr): 12:10, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / %LEL
 Turbidity: _____, Color: CLEAR

Time (24 hr)	Temp. (C)	pH	Cond. (uS)	H2O (Gal)	Turbid. (NTU)
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Sample Collection Time (24 hr): 12:10

Notes: _____

Collected By (signature): [Signature]

SAMPLE COLLECTION RECORD - MONITOR WELL

ATT

Date: 6-2-93 Sample I.D.: MW2 Job No.: 919313

Site Location: DREYERS CREEK DALLAS

No. of Containers : 4 / (check one): Well Samples;
 Duplicates from well _____; Travel Blanks;
 Field Blanks; Other (explain)/ _____

W.L. (1/100'): 9.10 Time : 11:04 B.O.W. (1/2'): 26.5

Method: Electric Well Sounder; Other/ _____

Meters calibrated: Y / N . Well Loc. Map: Y / N

Calculated Purge Volume (4 casing volumes): 44 gallons

Purging Method: Disposable Bailer; Teflon Bailer;
 Other/ _____

Time Start Purging (24 hr): 11:05, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / LEL
 Turbidity: _____, Color: CLEAR

Time Stop Purging (24 hr): 11:29, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / LEL
 Turbidity: _____, Color: CLEAR

Time (24 hr)	Temp. (C)	pH	Cond. (uS)	H2O (Gall)	Turbid. (NTU)
;	_____	_____	_____	_____	_____
;	_____	_____	_____	_____	_____
;	_____	_____	_____	_____	_____
;	_____	_____	_____	_____	_____
;	_____	_____	_____	_____	_____

Sample Collection Time (24 hr): 11:30

Notes: TWO BAILETS USED 4" WELL, SLIGHT SHEEN
AFTER PURGE STARTED

Collected By (signature): [Signature]

SAMPLE COLLECTION RECORD - MONITOR WELL

ATT

Date: 6-2-93 Sample I.D.: MW3 Job No.: 919313

Site Location: DEEVARS GRAND OAKLAND

No. of Containers : 4 / (check one): Well Samples;
 Duplicates from well _____; Travel Blanks;
 Field Blanks; Other (explain) / _____

W.L. (1/100'): 10.73 Time : 10:28 B.O.W. (1/2'): 26.5

Method: Electric Well Sounder; Other / _____

Meters calibrated: Y / N Well Loc. Map: Y / N

Calculated Purge Volume (4 casing volumes): 48 gallons

Purging Method: Disposable Bailer; Teflon Bailer;

Other / _____

Time Start Purging (24 hr): 10:31, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / %LEL
 Turbidity: _____, Color: CLEAR

Time Stop Purging (24 hr): 10:52, Product: Y / N
 Sheen: Y / N, Odor: Y / N, Vapor: _____ ppm / %LEL
 Turbidity: _____, Color: CLEAR

Time (24 hr)	Temp. (C)	pH	Cond. (uS)	H2O (Gal)	Turbid. (NTU)
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Sample Collection Time (24 hr): 10:55

Notes: TWO BAULERS NEEDED 4" WELL,

Collected By (signature): [Signature]

ATTACHMENT D

Limitations & Uncertainty

LIMITATIONS AND UNCERTAINTY

This report was prepared in general accordance with the accepted standard of practice which exists in northern California at the time the investigation was conducted and within the scope of services outlined in our proposal. It should be recognized that the definition and evaluation of surface and subsurface environmental conditions is a difficult and inexact science. Judgements leading to conclusions is a difficult and inexact science. Judgements leading to conclusions and recommendations generally are made with an incomplete knowledge of the conditions present. It is possible that variations in the soil and/or groundwater conditions could exist beyond the points explored for this investigation. Also changes in groundwater conditions could occur sometime in the future due to variations in tides, rainfall, temperature, local or regional water use or other factors. If the client wishes to reduce the uncertainty beyond the level associated with this study, ATT should be notified for additional consultation.

The discussion and recommendations presented in this report are based on: 1) information and data provided by third party consultants, 2) the exploratory test borings drilled at the site, 3) the observations of field personnel, 4) the results of laboratory analysis by a California Department of Health Services (DHS) accredited laboratory, and 5) interpretations of federal, state, and local regulations and/or ordinances.

Chemical analytical data included in this report have been obtained from state certified laboratories. The analytical methods employed by the laboratories were in accordance with procedures suggested by the U.S. Environmental Protection Agency and the State of California. ATT is not responsible for laboratory errors in procedures or reporting.

ATT has conducted this investigation in a manner consistent with the level of care and skill ordinarily exercised by members of the environmental consulting profession currently practicing under similar conditions in northern California. ATT has prepared this report for the client's (and assigned parties) exclusive use for this particular project. No other warranties, expressed or implied, as to the professional advice provided are made.