

GROUNDWATER MONITORING REPORT
FIRST QUARTER 1996

FOR

4/96

HEGENBERGER MAINTENANCE STATION
OAKLAND, CALIFORNIA

PREPARED FOR

CALTRANS DISTRICT 4
OAKLAND, CALIFORNIA

PREPARED BY

GEOCON ENVIRONMENTAL CONSULTANTS
SACRAMENTO, CALIFORNIA

CALTRANS CONTRACT NO. 53W202
TASK ORDER NO. 04-5T9000-01

GEOCON PROJECT NO. S8100-06-34

APRIL 1996

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

GEOCON

Environmental Consultants Inc.



GEOTECHNICAL ENGINEERING AND ENVIRONMENTAL SCIENCES

Project No. S8100-06-34
April 29, 1996

California Department of Transportation
District 4
P.O. Box 23660
Oakland, California 94623

Attention: Mr. Ronald Dong

Subject: HEGENBERGER MAINTENANCE STATION
OAKLAND, CALIFORNIA
CONTRACT NO. 53W202
TASK ORDER NO. 04-5T9000-01
FIRST QUARTER 1996 GROUNDWATER MONITORING REPORT

Dear Mr. Dong:

In accordance with Caltrans Contract No. 53W202 and Task Order No. 04-5T9000-01, Geocon Environmental Consultants has completed First Quarter 1996 groundwater monitoring services at the subject site. The scope of services provided by Geocon included groundwater level measurements, the sampling of five monitoring wells, and the submittal of the water samples to a California-certified laboratory for analytical testing.

The site is located east of Route 880 at 555 Hegenberger Road in Oakland, California. The approximate location of the site is depicted on the attached Vicinity Map, Figure 1.

PROJECT SCOPE

Well Sounding

A representative of Geocon measured the depths to groundwater in the existing groundwater monitoring wells (MW-1 through MW-5) on January 17, 1996. Additionally, the wells were sounded for the presence of floating hydrocarbon product. Groundwater was measured at depths ranging from approximately 5.32 to 5.82 feet below the top of the well casings. Floating hydrocarbon product was not present in any of the wells sounded. A summary of the top of well casing elevations, groundwater depth measurements and groundwater elevations are presented on Table I.

Well Purging and Sampling

Three casing volumes of water (approximately 28 gallons) were purged from each monitoring well on January 17, 1996. During purging, the pH, temperature, and electrical conductivity of the groundwater were measured and the purging was considered complete when these parameters stabilized to within approximately 10%. Extracted groundwater was contained in DOT 17-H 55-gallon drums which were labeled and stored onsite pending receipt of laboratory analysis and subsequent disposal following regulatory protocols. Following well purging, water samples were collected from each well using Voss polyethylene disposable bailers with samples decanted into three pre-preserved 40-ml volatile organic analyses (VOA) vials equipped with teflon septums, and three one-liter amber bottles. The groundwater samples and a travel blank consisting of one pre-preserved 40-ml VOA vial were sealed, labeled and placed in an ice chest containing blue ice and subsequently transported to Sparger Technology Inc. (Sparger) of Sacramento, California, using standard chain-of-custody documentation. Monitoring Well Sampling Data sheets are presented in Appendix A.

Laboratory Analyses

The water samples were submitted to Sparger for the analysis of total petroleum hydrocarbons as gasoline, diesel fuel and motor oil (TPHg, TPHd and TPHmo) following EPA Test Method 8015 modified, and benzene, toluene, ethylbenzene and total xylenes (BTEX) following EPA Test Method 8020. A summary of the TPHg, TPHd, TPHmo and BTEX analyses are presented on Table I. Copies of the laboratory reports and chain-of-custody record are presented in Appendix B.

Groundwater Elevations and Gradient

Since October 1995, the groundwater elevations beneath the site have increased an average of approximately 1 foot. Based on the January 17, 1996 groundwater elevation data, the groundwater flow is directed to the northwest at an approximate gradient of 0.02 ft/ft. The interpreted groundwater flow direction and elevation contours are depicted on Figure 2, Groundwater Elevation Map - 1/17/96.

Analytical Results

The results of laboratory tests indicate that TPHg was detected in MW-1 through MW-4 at concentrations ranging from 171 to 4,900 ug/l. TPHg was not detected in MW-5. TPHd and TPHmo were not detected in each well sampled. Benzene was detected in each well at concentrations ranging from 2.0 to 2,100 ug/l. Toluene was detected in MW-1 and MW-4 at concentrations of 30 and 4.1 ug/l, respectively. Ethylbenzene was detected in MW-1 and MW-3 at concentrations of 21 and 1.0 ug/l, respectively. Total xylenes were detected in MW-1 and MW-4 at concentrations of 17 and 1.7 ug/l, respectively. TPHg and benzene concentrations are depicted on Figure 3, TPHg and Benzene Concentrations in Groundwater - 1/17/96. A cumulative summary of groundwater analytical data is presented on Table I.

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Page 3

If you have any questions concerning the contents of this groundwater monitoring report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON ENVIRONMENTAL CONSULTANTS



Richard H. Walls, PE
Sr. Remediation Engineer

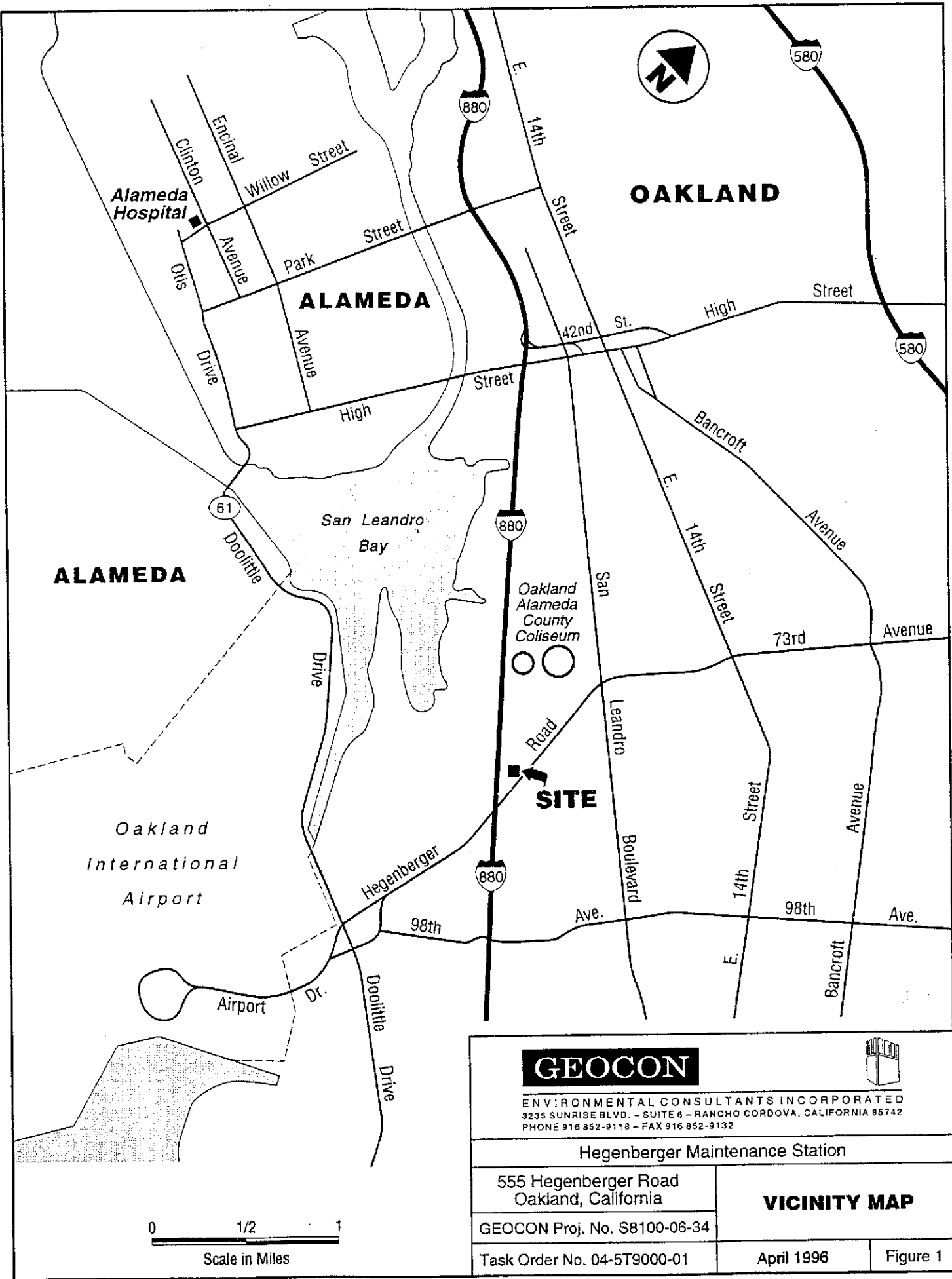


Rebecca L. Silva
Environmental Scientist

RLS/RHW:rs

(5) Addressee

Attachments: Figure 1 - Vicinity Map
Figure 2 - Groundwater Elevation Map - 1/17/96
Figure 3 - TPHg and Benzene Concentrations in Groundwater - 1/17/96
Table I - Cumulative Summary of Groundwater Elevation and Analytical Data
Appendix A: Monitoring Well Sampling Data Sheets
Appendix B: Laboratory Reports and Chain of Custody Records



GEOCON



ENVIRONMENTAL CONSULTANTS INCORPORATED
 3235 SUNRISE BLVD. - SUITE 6 - RANCHO CORDOVA, CALIFORNIA 95742
 PHONE 916 852-9118 - FAX 916 852-9132

Hegenberger Maintenance Station

555 Hegenberger Road
 Oakland, California

VICINITY MAP

GEOCON Proj. No. S8100-06-34

Task Order No. 04-5T9000-01

April 1996

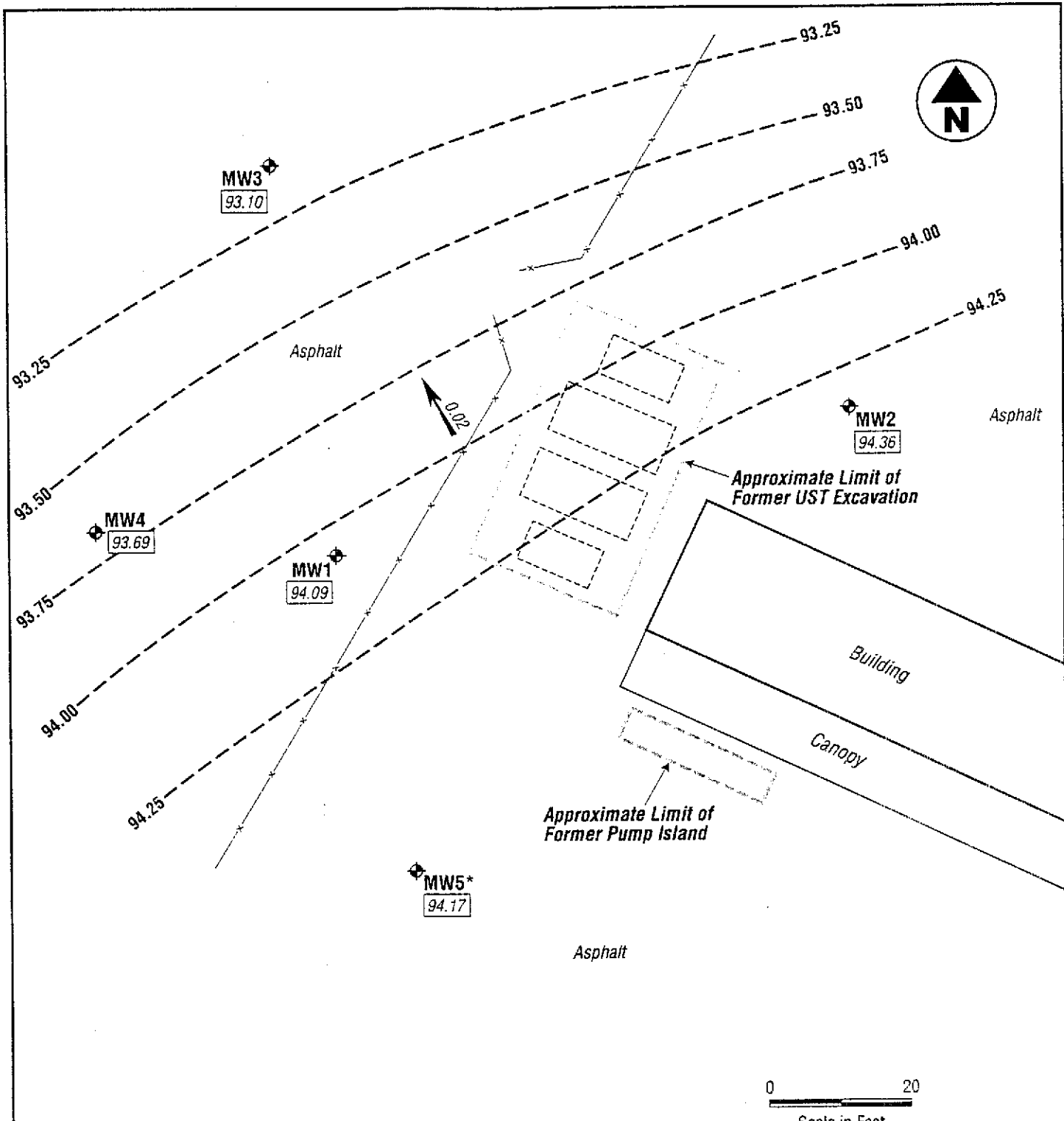
Figure 1

5/15/96: Conv w/ Richard Walls.

- gradient consistently N.W.
- pH meter was on the Fritz
- he thinks ^{site} would pass a Tier I RBCA
- said 5 ppm ^{pH9} near SW
- After receiving 2nd GWR + mu invest. report
write letter requesting:
a) add site characterization
b) Tier I evaluation.

5/28/96

Upon review of initial soil + GW invest 1/96 + these GWR results, looks like monitoring is sufficient for site



LEGEND:



Location of Former UST



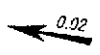
Location of Groundwater Monitoring Well, GEOCON, Sept. 95



Groundwater Elevation Contour (Interval = 0.25 Ft.)



Relative Elevation of Groundwater Measured 1/17/96



Approximate Groundwater Gradient



MW5 Not Used to Calculate Groundwater Gradient



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Hegenberger Maintenance Station

555 Hegenberger Road
 Oakland, California

**GROUNDWATER
 ELEVATION MAP -
 1/17/96**

GEOCON Proj. No. S8100-06-34

Task Order No. 04-5T9000-01

April 1996

Figure 2



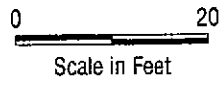
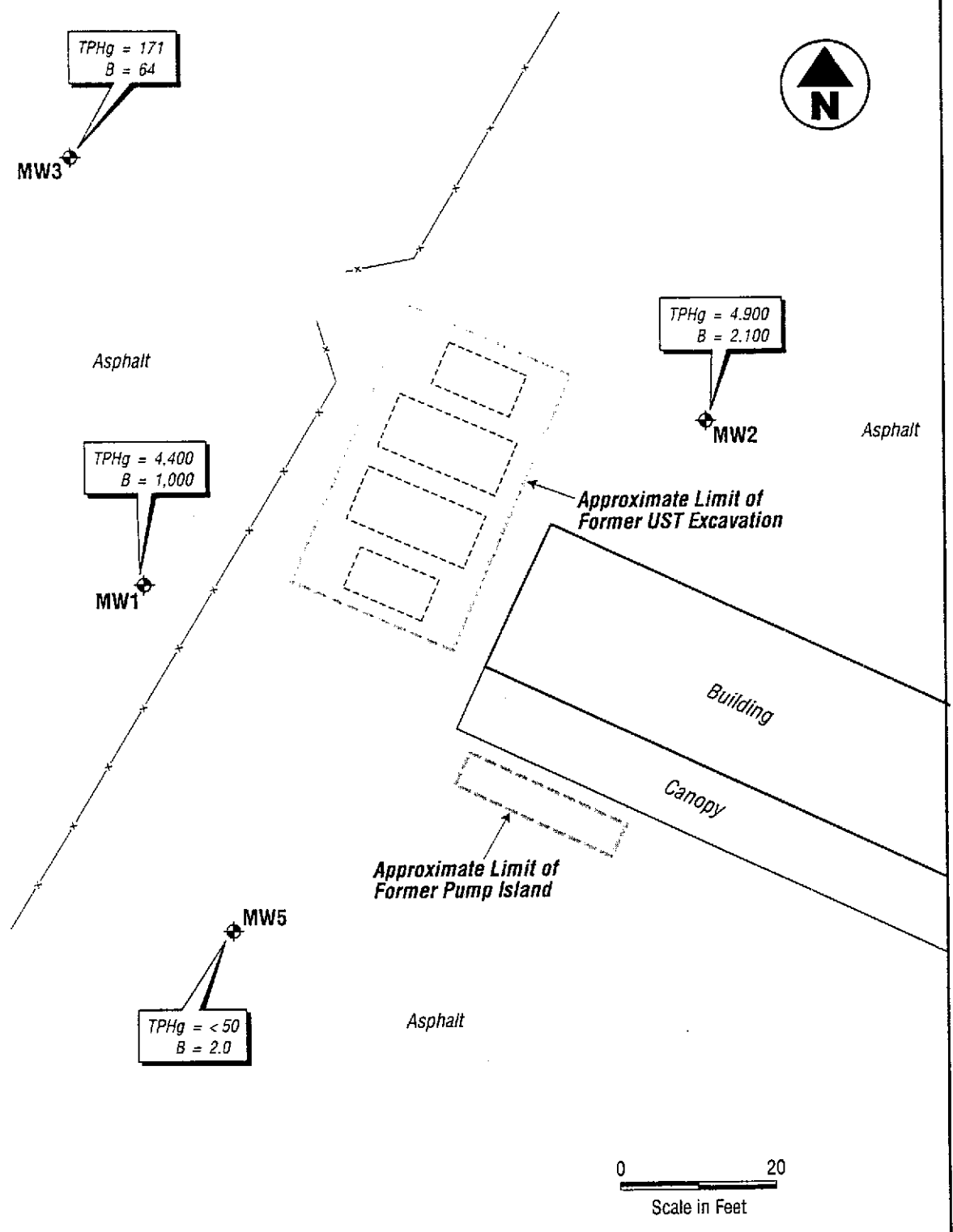
MPHg = 171
 B = 64
 MW3

TPHg = 4.900
 B = 2.100
 MW2

TPHg = 4.400
 B = 1,000
 MW1

MPHg = 459
 B = 72
 MW4

TPHg = < 50
 B = 2.0
 MW5



LEGEND:

- Location of Former UST
- Location of Groundwater Monitoring Well, GEOCON, Sept. 95

TPHg = Total Petroleum Hydrocarbons as Gasoline
 B = Benzene
 All Concentrations in Micrograms Per Liter (ppb)

GEOCON



ENVIRONMENTAL CONSULTANTS INCORPORATED
 3295 SUNRISE BLVD. - SUITE 8 - RANCHO CORDOVA, CALIFORNIA 95742
 PHONE 916 852-9118 - FAX 916 852-9132

Hegenberger Maintenance Station	
555 Hegenberger Road Oakland, California	TPHg & BENZENE CONCENTRATIONS IN GROUNDWATER- 1/17/96
GEOCON Proj. No. S8100-06-34	
Task Order No. 04-5T9000-01	April 1996
	Figure 3

TABLE I
 CUMULATIVE SUMMARY OF GROUNDWATER ELEVATION AND ANALYTICAL DATA
 HEGENBERGER MAINTENANCE STATION
 OAKLAND, CALIFORNIA

SAMPLE I.D.	DATE	TOC ELEVATION (MSL)	DEPTH TO GROUNDWATER (feet)	GROUNDWATER ELEVATION (MSL)	TPHg (ug/l)	TPHd (ug/l)	TPHmo (ug/l)	O&G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)
MW-1	10/11/95	99.73	6.55	93.18	720	<50	<50	<5,000	660	13	4.7	2.8
MW-1	01/17/96	99.73	5.64	94.09	4,400	<50	<50	---	1,000	30	21	17
MW-2	10/11/95	99.68	6.88	92.80	<50	<50	<50	<5,000	<0.3	<0.3	<0.3	<0.5
MW-2	01/17/96	99.68	5.32	94.36	4,900	<50	<50	---	2,100	<15	<15	<15
MW-3	10/11/95	98.92	6.42	92.50	1,300*	<50	<50	<5,000	1.0	<0.3	<0.3	<0.3
MW-3	01/17/96	98.92	5.82	93.10	171	<50	<50	---	64	<0.3	1.0	<0.3
MW-4	10/11/95	99.46	6.63	92.83	500	<50	<50	<5,000	17	1.1	<0.3	0.48
MW-4	01/17/96	99.46	5.77	93.69	459	<50	<50	---	72	4.1	<0.3	1.7
MW-5	10/11/95	99.91	6.68	93.23	1,000	<50	<50	<5,000	45	15	1.9	6.1
MW-5	01/17/96	99.91	5.74	94.17	<50	<50	<50	---	2.0	<0.3	<0.3	<0.3

Notes:
 TOC = top of casing
 MSL = mean sea level
 TPHg = total petroleum hydrocarbons as gasoline
 TPHd = total petroleum hydrocarbons as diesel
 TPHmo = total petroleum hydrocarbons as motor oil
 O&G = oil and grease
 BTEX = benzene, toluene, ethylbenzene and total xylenes
 ug/l = micrograms per liter
 < = less than laboratory test method detection limit
 --- = not tested
 * = laboratory report notation "weathered gas detected"

MONITORING WELL SAMPLING DATA

Project Name: Hegenberger Maint. Station	Project Number: S8100-06-34
Well no.: MW-1	Date: 1/17/96
Well Diameter: 4 in.	Field Personnel: DW
Casing Length: 20 feet	Screened Casing Length
Well Elevation: feet MSL measured from	

PURGE CHARACTERISTICS	
Water Depth Before Pumping: 5.64 ft.	2 in. = .1632 Gal/ft. 4 in. = .6528 Gal/ft.
Calculated Water Column Volume: 9.4 Gal.	Volumes Purged: 3
Start Pumping Time:	End Pumping Time:
Total Time: min.	Flow Gauge: to
Total Volume Pumped: 28 Gal.	Avg. Flow Rate: gpm
Water Depth After Pumping: feet	Time:

SAMPLING CHARACTERISTICS				
Sampling Method: disposable bailer				
Laboratory Analysis: TPHg, TPHd, TPHmo, BTEX				
TIME	TEMPERATURE	CONDUCTIVITY	pH	Gallons Purged
1410	64.1	1130	12.49	9.5
1415	65.2	1270	12.17	19
1420	65.2	1358	11.99	28

comments: turbid; slight odor; hand bailed

MONITORING WELL SAMPLING DATA

Project Name: Hegenberger Maint. Station	Project Number: S8100-06-34
Well no.: MW-2	Date: 1/17/96
Well Diameter: 4 in.	Field Personnel: DW
Casing Length: 20 feet	Screened Casing Length
Well Elevation: feet MSL measured from	

PURGE CHARACTERISTICS	
Water Depth Before Pumping: 5.32 ft.	2 in. = .1632 Gal/ft. 4 in. = .6528 Gal/ft.
Calculated Water Column Volume: 9.5 Gal.	Volumes Purged: 3
Start Pumping Time:	End Pumping Time:
Total Time: min.	Flow Gauge: to
Total Volume Pumped: 29 Gal.	Avg. Flow Rate: gpm
Water Depth After Pumping: feet	Time:

SAMPLING CHARACTERISTICS				
Sampling Method: disposable bailer				
Laboratory Analysis: TPHg, TPHd, TPHmo, BTEX				
TIME	TEMPERATURE	CONDUCTIVITY	pH	Gallons Purged
1145	69.5	1035	12.42	9.5
1155	69.9	826	11.95	19
1205	70.0	809	11.40	29

comments: very turbid; slight odor; slow recharge

MONITORING WELL SAMPLING DATA

Project Name: Hegenberger Maint. Station	Project Number: S8100-06-34
Well no.: MW-3	Date: 1/17/96
Well Diameter: 4 in.	Field Personnel: DW
Casing Length: 20 feet	Screened Casing Length
Well Elevation: feet MSL measured from	

PURGE CHARACTERISTICS	
Water Depth Before Pumping: 5.82 ft.	2 in. = .1632 Gal/ft. 4 in. = .6528 Gal/ft.
Calculated Water Column Volume: 9.5 Gal.	Volumes Purged: 3
Start Pumping Time:	End Pumping Time:
Total Time: min.	Flow Gauge: to
Total Volume Pumped: 28 Gal.	Avg. Flow Rate: gpm
Water Depth After Pumping: feet	Time:

SAMPLING CHARACTERISTICS				
Sampling Method: disposable bailer				
Laboratory Analysis: TPHg, TPHd, TPHmo, BTEX				
TIME	TEMPERATURE	CONDUCTIVITY	pH	Gallons Purged
1446	66.0	461	9.50	9.5
1458	65.9	596	9.21	19
1515	65.8	605	9.77	28

comments: very turbid; strong odor; bailed dry after 13 gallons

MONITORING WELL SAMPLING DATA

Project Name: Hegenberger Maint. Station	Project Number: S8100-06-34
Well no.: MW-4	Date: 1/17/96
Well Diameter: 4 in.	Field Personnel: DW
Casing Length: 20 feet	Screened Casing Length
Well Elevation: feet MSL measured from	

PURGE CHARACTERISTICS	
Water Depth Before Pumping: 5.77 ft.	2 in. = .1632 Gal/ft. 4 in. = .6528 Gal/ft.
Calculated Water Column Volume: 9.5 Gal.	Volumes Purged: 3
Start Pumping Time:	End Pumping Time:
Total Time: min.	Flow Gauge: to
Total Volume Pumped: 28 Gal.	Avg. Flow Rate: gpm
Water Depth After Pumping: feet	Time:

SAMPLING CHARACTERISTICS				
Sampling Method: disposable bailer				
Laboratory Analysis: TPHg, TPHd, TPHmo, BTEX				
TIME	TEMPERATURE	CONDUCTIVITY	pH	Gallons Purged
1315	67.4	1232	11.96	9.5
1320	67.1	276	11.14	19
1330	66.8	250	10.49	28

comments: gray color; slight odor; bailed dry after 23 gallons

MONITORING WELL SAMPLING DATA

Project Name: Hegenberger Maint. Station	Project Number: S8100-06-34
Well no.: MW-5	Date: 1/17/96
Well Diameter: 4 in.	Field Personnel: DW
Casing Length: 20 feet	Screened Casing Length
Well Elevation: feet MSL measured from	

PURGE CHARACTERISTICS	
Water Depth Before Pumping: 5.74 ft.	2 in. = .1632 Gal/ft. 4 in. = .6528 Gal/ft.
Calculated Water Column Volume: 9.3 Gal.	Volumes Purged: 3
Start Pumping Time:	End Pumping Time:
Total Time: min.	Flow Gauge: to
Total Volume Pumped: 28 Gal.	Avg. Flow Rate: gpm
Water Depth After Pumping: feet	Time:

SAMPLING CHARACTERISTICS				
Sampling Method: disposable bailer				
Laboratory Analysis: TPHg, TPHd, TPHmo, BTEX				
TIME	TEMPERATURE	CONDUCTIVITY	pH	Gallons Purged
1230	68.5	615	14.00	9.5
1245	68.0	556	13.81	19
1255	67.7	518	13.55	28

comments: very turbid; slight odor; bailed dry after 17 gallons

February 5, 1996

Mr. Rick Walls
Geocon Environmental
3235 Sunrise Blvd., Suite 6
Rancho Cordova, CA 95742

Dear Mr. Walls:

Enclosed is the report for the six (6) water samples. The sample were received at Sparger Technology Analytical Lab on January 18, 1996.

The samples were received in eighteen (18) 40 mL VOAs and eighteen (18) 1L amber bottles. The sample were transported and received under documented chain of custody and stored at four (4) degrees C until analysis was performed.

The report consists of the following sections:

- I. Sample Description & Analysis Request
- II. Quality Control Report
- III. Analysis Results

No problems were encountered with the analysis of your samples.

If you have questions, please feel free to call.

Sincerely,



R. L. James
Principal Chemist

II Quality Control

A. **Project Specific QC.** No project specific QC (i.e., spikes and/or duplicates) was requested.

B. **Method Blank Results.** A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your sample.

No target parameters were detected in the method blank associated with your sample at the reporting limit levels noted on the data sheets in the Analytical Results section.

C. **Laboratory Control Spike.** A Laboratory Control Spike (LCS) is a sample which is spiked with known analyte concentrations, and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The LCS results associated with your samples are on the attached Laboratory Control Spike and Laboratory Control Spike Duplicate Analysis Report.

D. **Matrix Spike Results.** A Matrix Spike is a sample which is spiked with known analyte concentrations, and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The Matrix Spike results associated with your samples are on the attached Matrix Spike and Matrix Spike Duplicate Analysis Report.

Accuracy is measured by Percent Recovery as in:

$$\% \text{ recovery} = \frac{(\text{measured concentration}) \times 100}{(\text{actual concentration})}$$

III Analysis Results

Results are on the attached data sheets.

Sample Description & Analysis Request

The following analytical tests were requested:

<u>Laboratory ID</u>	<u>Sample ID</u>	<u>Analysis Description</u>
ST96 01 1377 A	MW-2	TPhgas & BTEX
ST96 01 1378 A	MW-2	TPHdiesel/motor oil
ST96 01 1379 A	MW-4	TPhgas & BTEX
ST96 01 1380 A	MW-4	TPHdiesel/motor oil
ST96 01 1381 A	MW-1	TPhgas & BTEX
ST96 01 1382 A	MW-1	TPHdiesel/motor oil
ST96 01 1383 A	MW-3	TPhgas & BTEX
ST96 01 1384 A	MW-3	TPHdiesel/motor oil
ST96 01 1385 A	MW-3 DUP	TPhgas & BTEX
ST96 01 1386 A	MW-3 DUP	TPHdiesel/motor oil
ST96 01 1387 A	MW-5	TPhgas & BTEX
ST96 01 1388 A	MW-5	TPHdiesel/motor oil

8020/8015 Modified Analysis Report

Attention: Mr. Rick Walls
Geocon Environmental
3235 Sunrise Blvd., Ste. 6
Rancho Cordova, CA 95742

Date Sampled: Jan 17, 1996
Date Received: Jan 18, 1996
Date Analyzed: Jan 31, 1996
Invoice #: 6174

Project #: S8100-06-34

Project Name: Hagenburger

Client ID: MW-1

LAB ID: ST96-01-1381A

Matrix: Water

Dilution: 1:25

Name	Amount	Detection Limit	Units
Benzene	1000	7.5	ug/L
Toluene	30	7.5	ug/L
Ethylbenzene	21	7.5	ug/L
Xylenes	17	7.5	ug/L
TPHgas	4400	1250	ug/L

Surrogate % Recovery of Trifluorotoluene = 102%

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Feb 1, 1996
Date

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1614)

8020/8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 30, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-2	LAB ID:	ST96-01-1377A
Matrix:	Water	Dilution:	1:50

Name	Amount	Detection Limit	Units
Benzene	2100	15	ug/L
Toluene	ND	15	ug/L
Ethylbenzene	ND	15	ug/L
Xylenes	ND	15	ug/L
TPHgas	4900	2500	ug/L

Surrogate % Recovery of Trifluorotoluene = 98%

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Feb 1, 1996

Date

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(Certification No. 1614)

8020/8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 29, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-3	LAB ID:	ST96-01-1383A
Matrix:	Water	Dilution:	

Name	Amount	Detection Limit	Units
Benzene	64	0.3	ug/L
Toluene	ND	0.3	ug/L
Ethylbenzene	1.0	0.3	ug/L
Xylenes	ND	0.3	ug/L
TPHgas	171	50	ug/L

Surrogate % Recovery of Trifluorotoluene = 98%

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Feb 1, 1996
Date

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8020/8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 31, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-3 DUP	LAB ID:	ST96-01-1385A
Matrix:	Water	Dilution:	1:5

Name	Amount	Detection Limit	Units
Benzene	70	1.5	ug/L
Toluene	ND	1.5	ug/L
Ethylbenzene	1.3	1.5	ug/L
Xylenes	2.2	1.5	ug/L
TPHgas	240	250	ug/L

Surrogate % Recovery of Trifluorotoluene = 97%

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Feb 1, 1996

Date

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8020/8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 29, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-4	LAB ID:	ST96-01-1379A
Matrix:	Water	Dilution:	

Name	Amount	Detection Limit	Units
Benzene	72	0.3	ug/L
Toluene	4.1	0.3	ug/L
Ethylbenzene	ND	0.3	ug/L
Xylenes	1.7	0.3	ug/L
TPHgas	459	50	ug/L

Surrogate % Recovery of Trifluorotoluene = 108%

ppb = parts per billion = ug/L = micrograms per Liter
 ppm = parts per million = ug/mL = micrograms per milliliter
 ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Feb 1, 1996

Date

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(Certification No. 1614)

8020/8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 31, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-5	LAB ID:	ST96-01-1387A
Matrix:	Water	Dilution:	

Name	Amount	Detection Limit	Units
Benzene	2.0	0.3	ug/L
Toluene	ND	0.3	ug/L
Ethylbenzene	ND	0.3	ug/L
Xylenes	ND	0.3	ug/L
TPHgas	ND	50	ug/L

Surrogate % Recovery of Trifluorotoluene = 102%

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Feb 1, 1996
Date

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1614)

8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 22, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-1	LAB ID:	ST96-01-1382A
Matrix:	Water	Dilution:	1 : 1

Name	Amount	Detection Limit	Units
TPHdiesel	ND	50	ug/L
TPHmotor oil	ND	50	ug/L

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/mL = micrograms per milliliter
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R. L. James, Principal Chemist

Jan. 23, 1996
Date Reported

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(Certification No. 1614)

8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 22, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-2	LAB ID:	ST96-01-1378A
Matrix:	Water	Dilution:	1 : 1

Name	Amount	Detection Limit	Units
TPHdiesel	ND	50	ug/L
TPHmotor oil	ND	50	ug/L

ppb = parts per billion = ug/L = micrograms per Liter
 ppm = parts per million = ug/mL = micrograms per milliliter
 ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Jan. 23, 1996
Date Reported

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 DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
 (Certification No. 1614)

8015 Modified Analysis Report

Attention: Mr. Rick Walls
Geocon Environmental
3235 Sunrise Blvd., Ste. 6
Rancho Cordova, CA 95742

Date Sampled: Jan 17, 1996
Date Received: Jan 18, 1996
Date Analyzed: Jan 22, 1996
Invoice #: 6174

Project #: S8100-06-34
Project Name: Hagenburger

Client ID: MW-3
LAB ID: ST96-01-1384A

Matrix: Water
Dilution: 1 : 1

Name	Amount	Detection Limit	Units
TPHdiesel	ND	50	ug/L
TPHmotor oil	ND	50	ug/L

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Jan. 23, 1996

Date Reported

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(Certification No. 1614)

8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 22, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-3 DUP	LAB ID:	ST96-01-1386A
Matrix:	Water	Dilution:	1 : 1

Name	Amount	Detection Limit	Units
TPHdiesel	ND	50	ug/L
TPHmotor oil	ND	50	ug/L

ppb = parts per billion = ug/L = micrograms per Liter
 ppm = parts per million = ug/mL = micrograms per milliliter
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R. L. James, Principal Chemist

Jan. 23, 1996

Date Reported

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(Certification No. 1614)

8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 22, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-4	LAB ID:	ST96-01-1380A
Matrix:	Water	Dilution:	1 : 1

Name	Amount	Detection Limit	Units
TPHdiesel	ND	50	ug/L
TPHmotor oil	ND	50	ug/L

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/ml = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit



R. L. James, Principal Chemist

Jan. 23, 1996

Date Reported

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(Certification No. 1614)

8015 Modified Analysis Report

Attention:	Mr. Rick Walls Geocon Environmental 3235 Sunrise Blvd., Ste. 6 Rancho Cordova, CA 95742	Date Sampled:	Jan 17, 1996
		Date Received:	Jan 18, 1996
		Date Analyzed:	Jan 22, 1996
		Invoice #:	6174
Project #:	S8100-06-34	Project Name:	Hagenburger
Client ID:	MW-5	LAB ID:	ST96-01-1388A
Matrix:	Water	Dilution:	1 : 1

Name	Amount	Detection Limit	Units
TPHdiesel	ND	50	ug/L
TPHmotor oil	ND	50	ug/L

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Jan. 23, 1996

Date Reported

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(Certification No. 1614)

**8020 Modified Laboratory Control Spike (LCS) &
Laboratory Control Spike Duplicate (LCSD) BTEX Analysis Report**

Attention: Mr. Rick Walls
Geocon Environmental
3235 Sunrise Blvd., Ste. 6
Rancho Cordova, CA 95742

Date Sampled: Jan 17, 1996
Date Received: Jan 18, 1996
Date Analyzed: Jan 31, 1996
Invoice #: 6174

Project ID: S8100-06-34
Project Name: Hagenburger

Client ID: LCS/LCSD
LAB ID: ST96-01-031 LCS
ST96-01-031 LCSD

Matrix: Water
Dilution:

Name	Conc. Spike Added	Sample Result	LCS Result	LCSD Result	Units	LCS % Recovery	LCSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	33	28	ug/L	110%	93%	16%
Toluene	30 ppb	ND	31	29	ug/L	103%	97%	7%
Ethylbenzene	30 ppb	ND	31	27	ug/L	103%	90%	14%
Xylenes	30 ppb	ND	33	28	ug/L	110%	93%	16%

Surrogate % Recovery of Trifluorotoluene = 105% LCS 100% LCSD

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/mL = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Feb 1, 1996

Date Reported

SPARGER TECHNOLOGY ANALYTICAL LABORATORY, INC. IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1614)

**8020 Modified Matrix Spike (MS) & Matrix Spike Duplicate (MSD)
BTEX Analysis Report**

Attention: Mr. Rick Walls
Geocon Environmental
3235 Sunrise Blvd., Ste. 6
Rancho Cordova, CA 95742

Date Sampled: Jan 17, 1996
Date Received: Jan 18, 1996
Date Analyzed: Jan 31, 1996
Invoice #: 6174

Project ID: S8100-06-34

Project Name: Hagenburger

Client ID: MS/MSD(Batch)

LAB ID: ST96-01-1720 MS
ST96-01-1720 MSD

Matrix: Water

Dilution:

Name	Conc. Spike Added	Sample Result	MS Result	MSD Result	Units	MS % Recovery	MSD % Recovery	% RPD Recovery
Benzene	30 ppb	ND	24	29	ug/L	80%	97%	19%
Toluene	30 ppb	ND	24	27	ug/L	80%	90%	12%
Ethylbenzene	30 ppb	ND	24	26	ug/L	80%	87%	8%
Xylenes	30 ppb	ND	25	27	ug/L	83%	90%	8%

Surrogate % Recovery of Trifluorotoluene =

85% MS

100% MSD

ppb = parts per billion = ug/L = micrograms per liter
ppm = parts per million = ug/ml = micrograms per milliliter
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Feb 1, 1996

Date

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(Certification No. 1614)

**8015 Modified Laboratory Control Spike (LCS) &
Laboratory Control Spike Duplicate (LCSD)
TPHdiesel Analysis Report**

Attention: Mr. Rick Walls
Geocon Environmental
3235 Sunrise Blvd., Ste. 6
Rancho Cordova, CA 95742

Date Sampled: Jan 17, 1996
Date Received: Jan 18, 1996
Date Analyzed: Jan 22, 1996
Invoice #: 6174

Project ID: S8100-06-34

Project Name: Hagenburger

Client ID: LCS/LCSD


LAB ID: ST96-01-022 LCS
ST96-01-022 LCSD

Matrix: Water

Dilution:

Name	Conc. Spike Added	Sample Result	LCS Result	LCSD Result	Units	LCS % Recovery	LCSD % Recovery	% RPD Recovery
TPHdiesel	600 ppb	ND	612	630	ug/L	102%	105%	3%

ppb = parts per billion = ug/L = micrograms per Liter
ppm = parts per million = ug/g = micrograms per gram
ND = Not Detected. Compound(s) may be present at concentrations below the detection limit.



R. L. James, Principal Chemist

Jan 23, 1996
Date Reported

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(Certification No. 1614)

SPARGER TECHNOLOGY, INC.

Analytical Laboratory

3050 Fite Circle, #112 Sacramento, CA 95827

Phone: (916) 362-8947

FAX: (916) 362-0947

CHAIN OF CUSTODY FORM

C.O.C. No. 11164

Page 1 of 1

STAL Invoice Number:

4174

Company: Geocon Env.

Phone: 852-9118

Project Manager: Rick Walls

FAX: 852-9132

Report Address:

3235 Sunrise Blvd #6

Billing Name & Address:

Rancho Cordova Ca 95

Project Name: Hogenberger

Project/Job#: S8100-06-34

58100-06-34

Project Location:

DARLAND CA

PO#:

CALTRANS 53W202

REMARKS:

1. TPAH Gas - BTEX
2. TPAH Muel - MO
3. Oil, Grease Im 01/18/96

Sampler's Name:

Day
Wimbledon

ANALYSIS REQUEST

		All OK	None OK	Some OK	WET(STLC)
Cooler Temp. °C					TCLP
Sample Condition					Total
pH					TAT

NO.	SAMPLE ID	Sampling		Container	Preservative Used	Matrix					TCLP										Total		TAT														
		Date	Time			40 mL VOA	Brass Sleeve	1 L amber bottle	250 mL Plastic	Other: <u>HOGENBERGER</u>	None	Other:	Water	Soil	Air	Other:	BTEX (602/8020/503.1)	BTEX/TPH Gas (602/8020/8015) #90/95	TPH Diesel/TPH motor Oil/kerosene (8015)	EPA 601/8010/502.2/504	EPA 602/8020	EPA 608/8080 (Pesticides)/505/508	EPA 608/8080 (PCBS)	EPA 624/8240/524.2	EPA 625/8270/525	Total Oil & Grease (5520)	Non-Polar O & G/TPRH (418.1)	Organic Lead	PCI	<u>HOLD</u>	CAM-17 Metals	CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Lead	Standard	Rush Services (72hr / 48hr / 24hr / 12hr)	Holiday/Weekend Rush	
1	MW-2	01/17	1215	3					X						X	X																			X		
2	MW-4		1345	3											X	X																					
3	MW-1		1430	3											X	X																					
4	MW-3		1530	3											X	X																					
5	MW-3 Dup		1540	3											X	X																					
6	MW-5	01/17	1300	3											X	X																					
7	TB-01	01/17	1600	1					X																		X										
8																																					
9																																					
10																																					

Relinquished by: [Signature]
Date: 01/18/96 Time: 1045

Received by: [Signature]
Date: 1/18/96 Time: 1045

Relinquished by:
Date:
Time:

Received by:
Date:
Time:

PLEASE READ REVERSE SIDE FOR TERMS AND CONDITIONS