

EMERYVILLE  
CALIFORNIA  
94502-6577

9 February 1996  
A953399

Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway  
Alameda, California 94502-6577

Attention: Ms. Susan L Hugo, Senior Hazardous Materials Specialist


SUBJECT: FIRST QUARTER 1996, GROUNDWATER MONITORING REPORT,  
WATSON TRUST PROPERTY, 1461 PARK AVENUE, EMERYVILLE,  
CALIFORNIA

Dear Ms. Hugo:

Applied Geosciences Inc. is pleased to submit this report summarizing the first quarter of 1996 groundwater monitoring activities conducted at the Watson Trust Property, located at 1461 Park Avenue, Emeryville, California (site, Figure 1). This sampling event represents the fourth consecutive quarterly sampling round conducted at the site. The work was conducted under contract with Union Bank acting as Trustee for the property Trustees in general accordance with the Union Bank Letter Authorization (LOA) dated 3 November 1995, and pursuant to the Professional Environmental Services Agreement between Union Bank and Applied Geosciences Inc dated 28 October 1992.

If you have any questions regarding this report, please feel free to contact me at your convenience at (408) 452-0262.

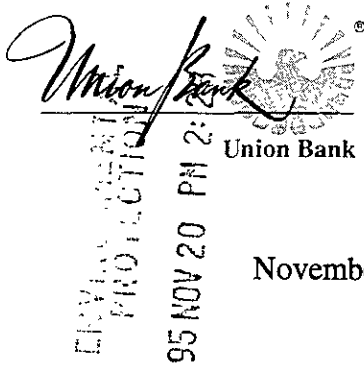
Very truly yours,  
APPLIED GEOSCIENCES INC.

  
ALEX J. GALLEGO, R.G. 6349  
Project Manager

enclosure

cc: Ms. Susan E. McCormack, Union Bank





Union Bank

November 7, 1995

Hazardous Materials Department  
17800 Castleton Street, Suite 586  
City of Industry, California 91748 - 1749  
Post Office Box 926  
La Puente, California 91747 - 0926  
818 810 6541/FAX 818 964.7306

Ms. Susan L. Hugo  
Senior Hazardous Materials Specialist  
Alameda Health Care Services  
UST Local Oversight Program  
1131 Harbor Bay Parkway  
Alameda, CA 95402-6577

RE: October 26, 1995 Correspondence

Dear Ms. Hugo:

This is to clarify my previous correspondence where I indicated that I spoke with David Blakely. I did not actually speak with him, but with his new employer who indicated that Blakely Environmental was no longer in business and that we should probably not expect to receive any reports from Blakely Environmental.

Please contact me with any questions at 818-810-6594.

Susan E. McCormack  
Vice President

A handwritten signature in cursive script that reads "Susan E. McCormack".

cc: Stephen Breskin

October 26, 1995

Ms. Susan L. Hugo  
Senior Hazardous Materials Specialist  
Alameda Health Care Services  
UST Local Oversight Program  
1131 Harbor Bay Parkway  
Alameda, CA 95402-6577

RE: Third Quarter Monitoring Report Deadline  
Watson Trust Property  
1461 Park Avenue  
Emeryville, CA

Dear Ms. Hugo:

As indicated to you by telephone, Union Bank has been experiencing some difficulty with our environmental consultant, Blakely Environmental. I have not received any communication from them for some time. Blakely Environmental was to provide a copy of the quarterly report to me by October 13, 1995. I did not receive a report and I tried repeatedly to reach them by telephone, but was unable to. On October 25 I was able to locate David Blakely who has gone to work for another company. David indicated that Blakely Environmental is no longer in business. David also indicated that even though the monitoring wells at the Watson site were sampled in late September, and the laboratory analyses conducted, David will not be providing a report. Union Bank has therefore terminated Blakely's services.

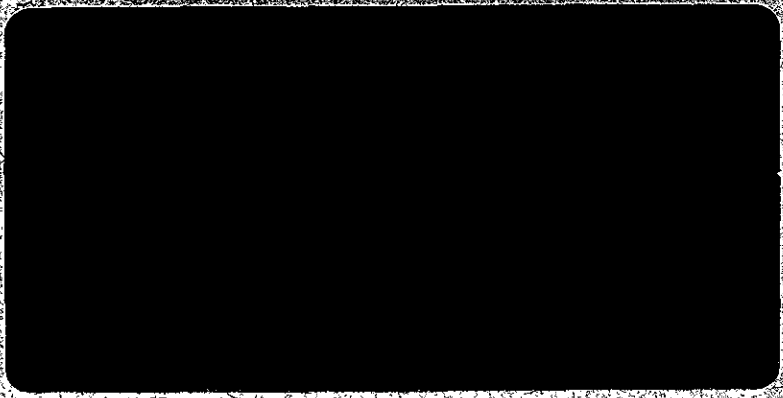
Therefore, I verbally requested a three week extension in which to provide you with the third quarter sampling report. You indicated that this was acceptable. Union Bank will provide you with a report by November 14th.

Please contact me with any questions at 818-810-6594.

Susan E. McCormack  
Vice President

cc: Stephen Breskin

ENVIRONMENTAL  
PROTECTION  
96 FEB 13 PM 2:15



**APPLIED  
GEOSCIENCES  
INC.**

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*Environmental Consultants*



Real Estate Appraisal Department  
City of Industry

*STD 388*

# FACSIMILE COVER SHEET

To: SUSAN HUGO  
From: Judy Sollazzo

Date: 10-4-95  
Page 1 of 2

THE SIGNED ORIGINAL FOLLOWS IN TODAY'S MAIL.  
THANK YOU

9 February 1996


FIRST QUARTER 1996  
GROUNDWATER MONITORING REPORT  
WATSON TRUST PROPERTY  
1461 PARK AVENUE  
EMERYVILLE, CALIFORNIA

Prepared for:

Union Bank (as Trustee)  
17800 Castleton Street, Suite 586  
City of Industry, California 91748

by:

  
NICOLE M. FOURCADE  
Assistant Staff Geologist

  
ALEX J. GALLEGO, R.G. 6349  
Project Manager

Applied Geosciences Inc.  
1641 North First Street, Suite 235  
San Jose, California 95112  
(408) 452-0262

Project No. A953399

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**FIRST QUARTER 1996  
GROUNDWATER MONITORING REPORT  
WATSON TRUST PROPERTY  
1461 PARK AVENUE  
EMERYVILLE, CALIFORNIA**

## **1.0 INTRODUCTION**

Applied Geosciences Inc. is pleased to submit this report summarizing the first quarter of 1996 groundwater monitoring activities conducted at the Watson Trust Property, located at 1461 Park Avenue, Emeryville, California (site, Figure 1). The field work was conducted on 4 January 1996 by Applied Geosciences Inc. personnel. The work was conducted, at your request and authorization, to interpret the groundwater flow direction and to assess the concentrations of total petroleum hydrocarbons as gasoline (TPHg); and benzene, toluene, ethylbenzene, and total xylenes (BTEX) in the groundwater related to a historic release of petroleum hydrocarbons located at the site.

It is the understanding of Applied Geosciences Inc. that Union Bank (as Trustee) has been required to conduct quarterly groundwater monitoring by the Alameda County Health Care Services Agency, Department of Environmental Health, UST Local Oversight Program (ACHCSA). This is the second of the two proposed quarterly groundwater monitoring events. This report summarizes the fourth consecutive quarterly monitoring event at the site. The first two quarterly monitoring events were conducted by Blakely Environmental Inc.

In March 1990, two underground storage tanks (UST) were removed from the site. A 3,000-gallon gasoline UST was reported to be found in good condition. A 500-gallon UST, thought to contain either diesel or gasoline, was reported to have showed evidence of leakage. The tanks were excavated, and soil samples and groundwater samples were collected. The soil was reported to contain elevated concentrations of TPHg and BTEX, but not TPH as diesel (TPHd). The groundwater was reported to contain elevated concentrations of TPHg and BTEX, but not TPHd. In September 1990, three groundwater monitoring wells were installed. Groundwater sampling was conducted by Blakely Environmental Inc. in May 1995 and July 1995.

## **2.0 OBJECTIVE**

The objective of the work summarized in this report is to interpret the groundwater flow direction and to assess the concentrations of TPHg and BTEX in the groundwater at the site.



### 3.0 GROUNDWATER MONITORING

Applied Geosciences conducted the first quarter 1996 groundwater monitoring event at the site on 4 January 1996. The sampling event was delayed due activities at the site being conducted by the East Bay Municipal Utilities District (East Bay MUD). One of the monitoring wells was inaccessible for most of December 1995 due to construction equipment covering the well during East Bay MUD's installation of a new water lateral at the site. Groundwater monitoring included the measurement of groundwater levels, observations related to the presence/absence of floating product and/or a petroleum hydrocarbon odor, purging of groundwater monitoring wells, measurements of the water temperature, pH, specific conductivity and dissolved oxygen content of the extracted groundwater, and the collection and analysis of groundwater samples from the three on-site monitoring wells. The well locations are presented in Figure 2.

To assess the piezometric conditions at the site, the groundwater levels in each of the monitoring wells were measured within an approximate 15-minute period on 4 January 1996, prior to the initiation of groundwater sampling. Groundwater levels were measured using an MMC Interface Meter, which would allow the measurement of separate-phase petroleum hydrocarbons, if present in the wells. The January 1996 and historic groundwater piezometric elevations, referenced to an arbitrary datum, are presented in Table 1. The January 1996 groundwater levels data are interpreted to indicate a northwesterly groundwater flow direction. The groundwater elevation data suggests a hydraulic gradient of approximately 0.0084 foot per foot. Piezometric groundwater levels as measured on 4 January 1996, an interpretation of groundwater elevation contours, and the interpreted groundwater flow direction are presented in Figure 3. A summary of the field procedures used to monitor and sample groundwater are presented in Appendix A. Groundwater sampling was conducted with procedures developed by Applied Geosciences that are in general accordance with Regional Water Quality Control Board (RWQCB) and ACHCSA guidelines. Conditions encountered were recorded on groundwater collection logs, which are presented in Appendix B.

### 4.0 LABORATORY ANALYSIS

Groundwater samples collected during the first quarter 1996 were transported to American Environmental Network (AEN) of Pleasant Hill, California, a State-certified hazardous waste laboratory, for analysis using chain-of-custody procedures. The three groundwater water samples were analyzed for TPHg in general accordance with Environmental Protection Agency (EPA) Method 8015 (modified), and for BTEX in general accordance with EPA Method 8020. A summary of the laboratory results is presented in Table 2. The laboratory analytical results and the chain-of-custody form are presented in Appendix C.

## 5.0 DISCUSSION

Depths to water were measured on 4 January 1996. Groundwater elevations were reported to range from approximately 94.84 feet to 95.80 feet with respect to an arbitrary datum. Groundwater levels have decreased an average of 0.66 feet from the previous monitoring event (October 1995). Groundwater elevations, using the 4 January 1996 data, are interpreted to suggest a northwesterly groundwater flow direction on-site. The hydraulic gradient in the vicinity of the three wells is estimated to be 0.0084 foot per foot. There was no evidence of floating product in the three on-site wells.

TPHg was reported above the laboratory reporting limit in the groundwater sample collected from MW-1. The concentrations of TPHg have increased from 300  $\mu\text{g/L}$  to 900  $\mu\text{g/L}$  since the November 1995 quarterly, but are significantly lower than the concentration reported for the July 1995 quarterly (4400  $\mu\text{g/L}$ ). TPHg was reported above the laboratory reporting limit in the groundwater sample collected from MW-2 during one of four quarters of sampling (July 1995). TPHg has never been reported in the groundwater samples collected from MW-3 during this sampling round or in previous sampling rounds.

BTEX was reported above the laboratory reporting limit in the groundwater sample collected from MW-1. The concentrations of BTEX in MW-1 have increased since the last sampling event, but are in the historic range of concentrations for these constituents. Low concentrations of benzene and toluene were reported in MW-2, and only benzene was reported in MW-3. The concentration of toluene in MW-2 has remained constant since the previous sampling round, and was not reported above the laboratory reporting limits in MW-3 for the fourth time. Ethylbenzene and total xylenes were again not reported above the laboratory report in limits in MW-2 or MW-3.

Relatively low concentrations, to non-detect levels, of petroleum hydrocarbons and/or associated constituents were reported in the groundwater samples collected from the three monitoring wells. The highest concentrations of petroleum hydrocarbons were reported in the sample collected from monitoring well MW1, located immediately adjacent to the former location of the UST, with concentrations attenuating rapidly in a down-gradient groundwater flow direction. Low concentrations of benzene and toluene were reported in MW-2, and only benzene was reported in MW-3.

## 6.0 CONCLUSIONS

Based on the information presented in this report, current regulatory guidelines, and the judgment of Applied Geosciences, the following conclusions are presented:

- Groundwater elevations, using the 4 January 1996 data, are interpreted to suggest a northwesterly groundwater flow direction on-site. The hydraulic gradient in the vicinity of the three wells is estimated to be 0.0084 foot per foot in a northwesterly direction.

- Relatively low concentrations, to non-detect levels, of petroleum hydrocarbons and/or associated constituents were reported in the groundwater samples collected from the three monitoring wells.
- The highest concentrations of petroleum hydrocarbons were reported in the sample collected from monitoring well MW1, located immediately adjacent to the former location of the UST, with concentrations attenuating rapidly in the down-gradient groundwater flow direction.

## 7.0 RECOMMENDATION

Based on the data and conclusions presented in this report, and the judgment of Applied Geosciences, the following recommendation is presented for your consideration:

- A review of historical soil and groundwater data should be conducted and a summary letter, presenting recommendations for the site, should be prepared and submitted to the ACHCSA by 1 March 1996.

The judgements, conclusions, and recommendations described in this report pertain to the conditions judged to be present or applicable at the time the work was performed. The future conditions may differ from those described herein and this report is not intended for use in future evaluations of the site unless an update is conducted by a consultant familiar with environmental assessments and/or subsurface investigations. Use of this report is provided to Union Bank, solely for their exclusive use and shall be subject to the terms and conditions in the applicable contract between Union Bank, and Applied Geosciences. Any third party use of this report shall also be subject to the terms and conditions governing the work in the contract between Union Bank, and Applied Geosciences. Any unauthorized release or misuse of this report shall be without risk or liability to Applied Geosciences.

Certain information contained in this report may have been rightfully provided to Applied Geosciences by third parties or other outside sources. Applied Geosciences does not make any warranties or representations, whether expressed or implied, regarding the accuracy of such information, and shall not be held accountable or responsible in the event that any such inaccuracies are present.

## 8.0 REFERENCES

Applied Geosciences Inc., 1995, Third Quarter 1995, Groundwater Monitoring Report, Watson Trust Property, 1461 Park Avenue, Emeryville, California, dated 13 November 1995.

Blakely Environmental Inc., 1995, 1995 Second Quarterly Groundwater Monitoring Report for the Watson Trust Property, 1461 Park Avenue, Emeryville, California, dated 21 July 1995.

**TABLE 1**  
**1461 PARK AVENUE, EMERYVILLE, CALIFORNIA**  
**HISTORICAL GROUNDWATER ELEVATION DATA**

Well I.D.	T.O.C. Elevation	Date	DTW	Elevation
MW-1	99.56	05 MAY 95	4.47	95.09
		05 JULY 95	3.83	95.73
		03 NOV. 95	4.41	95.15
		04 JAN. 96	3.97	95.59
MW-2	99.83	05 MAY 95	4.52	95.31
		05 JULY 95	3.88	95.95
		03 NOV. 95	4.54	95.29
		04 JAN. 96	4.03	95.8
MW-3	98.67	05 MAY 95	4.43	94.24
		05 JULY 95	3.95	94.72
		03 NOV. 95	4.88	93.79
		04 JAN. 96	3.83	94.84

Notes:

T.O.C. = Top of Casing

Top of Casing elevations for three wells are reported in Blakely Environmental Inc., dated 21 July 1995.

DTW = Depth to groundwater measured from the top of the 2-inch casing.

All elevations reported are in feet above an arbitrary datum.

Data for 5 July 1995 obtained from Blakely Environmental Inc., dated 21 July 1995.

TABLE 2  
1461 PARK AVENUE, EMERYVILLE, CALIFORNIA  
GROUNDWATER ANALYTICAL RESULTS

WELL NUMBER	DATE	TPHg	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	DISSOLVED OXYGEN
MW1	05 MAY 95	600	540	28	8	180	--
	05 JULY 95	4400	700	14	5	130	2.98
	03 NOV. 95	300	150	2	1	19	2.46*
	04 JAN. 96	900	330	82	13	68	2.76
MW2	05 MAY 95	-500	-0.6	-1	-1	-3	--
	05 JULY 95	1600	-0.6	26	-1	-3	3.2
	03 NOV. 95	-50	5	0.6	-0.5	-2	3.76*
	04 JAN. 96	-50	1	0.6	-0.5	-2	2.9
MW3	05 MAY 95	-500	7.4	-1	-1	-3	--
	05 JULY 95	-500	5.6	-1	-1	-3	6.1
	03 NOV. 95	-50	7.6	-0.5	-0.5	-2	2.9*
	04 JAN. 96	-50	9	-0.5	-0.5	-2	3.9

Notes:

Results are reported in micrograms per liter, except for dissolved oxygen which is reported in the average parts per million.

TPHg = Total Petroleum Hydrocarbons as gasoline analyzed by modified EPA Method 8015 following sample purge and trap by EPA Method 5030.

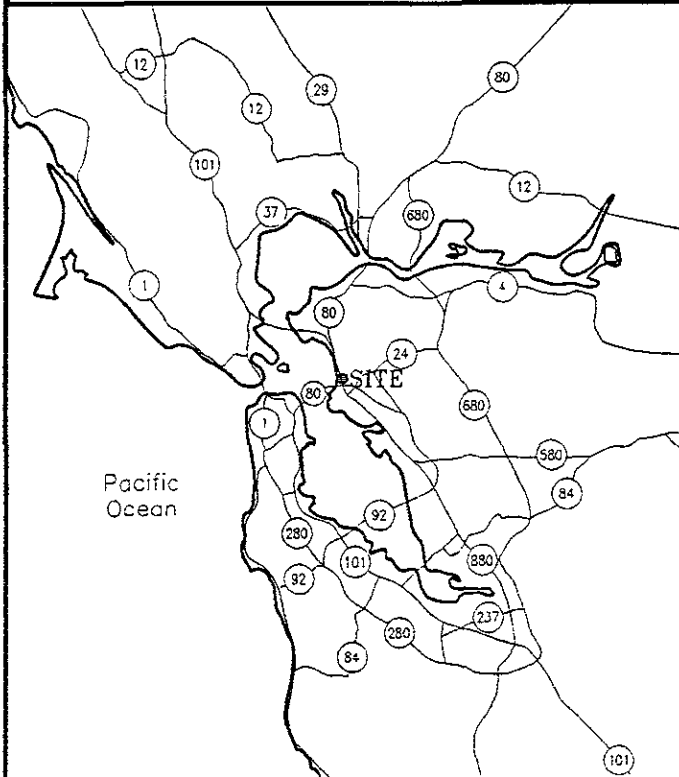
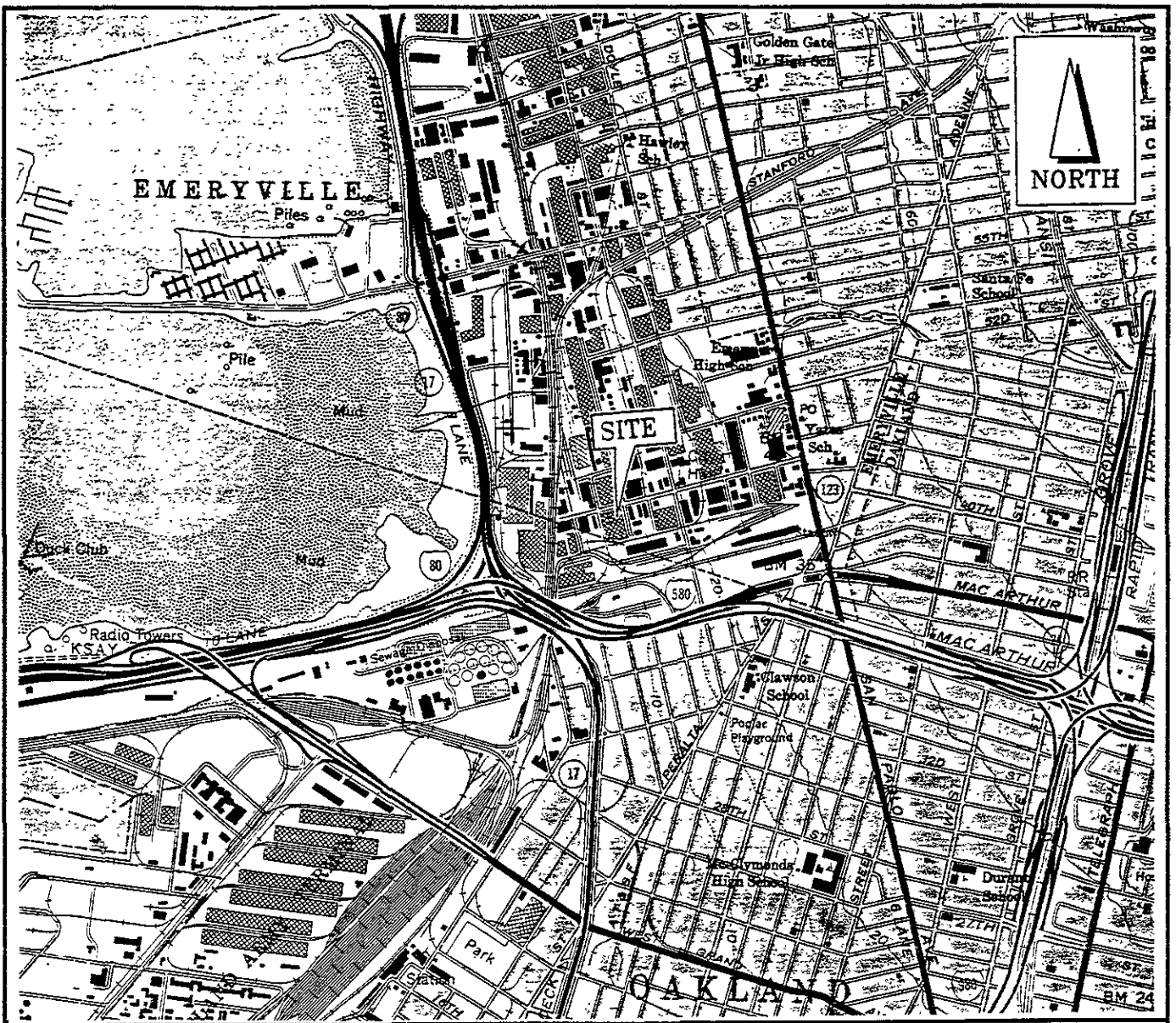
Benzene, Toluene, Ethylbenzene, and Xylenes analyzed by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.

Negative values (-) represent reporting limits above which concentrations were not reported.

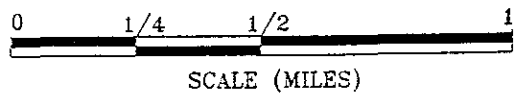
(--) = Analysis not performed.

Results for 5 May 1995 and 5 July 1995 obtained from Blakely Environmental Inc., dated 21 July 1995.

\* = Dissolved Oxygen readings taken on 21 November 1995 for the samples collected on 3 November 1995.



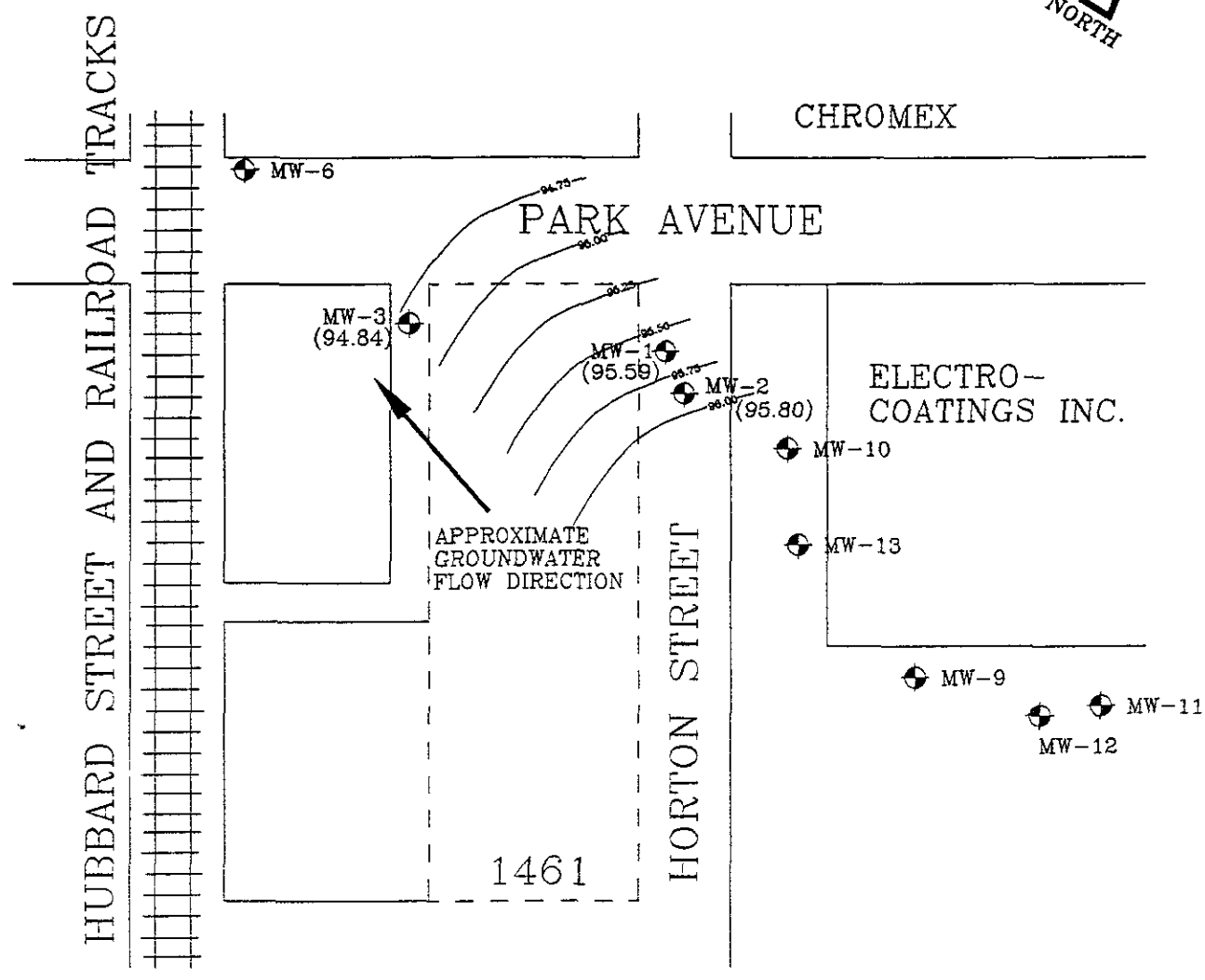
- Notes:
- 1) All locations and dimensions are approximate.
  - 2) Base map from USGS Oakland West (1959), 7.5 Minute Topographic Series, photorevised in 1980.



APPLIED GEOSCIENCES INC.  
 Environmental Consultants

SITE LOCATION MAP  
 WATSON TRUST  
 1461 PARK AVENUE  
 EMERYVILLE, CALIFORNIA

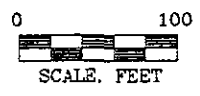
PROJECT NO. A953399 | FIGURE 1



HYDRAULIC GRADIENT OF APPROXIMATELY 0.0084 FOOT PER FOOT (44.4 FEET PER MILE)


EXPLANATION:

- (94.84)  
MW-3    DESIGNATION AND LOCATION OF MONITORING WELLS.
- APPROXIMATE GROUNDWATER ELEVATION CONTOURS
- SITE BOUNDARY



NOTES.

- 1) ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
- 2) SITE PLAN BASED ON OBSERVATIONS MADE DURING SITE RECONNAISSANCE AND FIGURES PREPARED BY BLAKELY ENVIRONMENTAL INC., DATED JULY 1995.

APPLIED GEOSCIENCES INC.   
Environmental Consultants

GROUNDWATER PIEZOMETRIC CONTOUR MAP  
WATSON TRUST  
1461 PARK AVENUE  
EMERYVILLE, CALIFORNIA  
4 JANUARY 1996

PROJECT NO. A953399      FIGURE 2



**APPENDIX A**  
**SUMMARY OF FIELD PROCEDURES**

## SUMMARY OF FIELD PROCEDURES

The procedures that were used to conduct groundwater monitoring are as follows:

### Groundwater Monitoring

- Measurements of depth to groundwater were made from the top of casings of all wells within as short a time span as feasible, and prior to the initiation of other monitoring activities. The top of the casings were observed to have been notched, which usually indicates the northern most portion of the casing. Groundwater levels were measured using a MMC Interface Meter and the notch was used as the reference point. The depth to groundwater, along with the depth of the well, was used to determine the amount of water to purge.
- Prior to the initiation of purging, dedicated translucent Voss disposable bailers were used to allow for the observation of a sheen or floating product. If no sheen or floating product were observed, the bailers were then used to complete the purging process and the subsequent collection of groundwater samples.
- Each well was purged a minimum of approximately five casing volumes of water, to the extent feasible. Water temperature, pH, specific conductivity, and dissolved oxygen content of extracted groundwater were measured.
- Following the purging of a minimum of approximately five casing volumes of water, or recovery to 80% of the original groundwater level if the well was purged dry, groundwater samples were collected from each of the monitoring wells.
- Sampling information was recorded on Groundwater Collection Forms. Work was performed under and at the direction of a State-Registered Geologist from Applied Geosciences Inc.
- The water samples collected were placed into laboratory-provided containers, labeled, and stored on ice in an insulated chest pending delivery to the laboratory for analysis.
- Chain-of-custody procedures were used to document sample handling and transport from the time of sample collection to delivery within 48 hours of sampling to a State-certified hazardous waste laboratory for analysis.
- Purge water recovered from the monitoring wells was stored on-site in a labeled 55-gallon drum. Disposal of the purgewater in accordance with current regulatory guidelines, based on the laboratory results, will be conducted by Applied Geosciences Inc.

**APPENDIX B**  
**GROUNDWATER COLLECTION LOGS**

# GROUNDWATER COLLECTION LOG

WELL NO. MW1-2W

PROJECT NAME Watson Trust  
 PROJECT NUMBER A953399  
 DATE 1/10/96  
 PAGE 1

SAMPLE NUMBER MW1-2W  
 DEPTH TO BOTTOM 19.35  
 DEPTH TO WATER 3.97  
 SAMPLE METHOD disp. bailer  
 PURGE METHOD hand bail

TIME	CUMULATIVE VOLUME OF WATER PURGED	pH	ELECTRICAL CONDUCTIVITY	TEMP. °C	COMMENTS
1025	0				Begin Purge
1041	4	6.33	0.43	07.6	no calibration for salinity needed
1047	3	6.34	0.44	06.3	
1051	12.5	6.93	0.39	05.3	End Purge
1100					no calibration needed
					water is slightly dirt for use. No salts No's seen.

DO ppm  
 1.9  
 2.3  
 3.6  
 avg 2.76

TOTAL NUMBER OF SAMPLES COLLECTED 3  
 VOA VILE(S) \_\_\_\_\_  
 1 LITER BOTTLE(S) \_\_\_\_\_  
 OTHER \_\_\_\_\_

LABORATORY: AEN  
 DATE SHIPPED: 1/10/96 SHIPPED VIA: counter  
 SAMPLED BY: AP

ESTIMATED VOLUME TO PURGE =  $3.14 \times (5 \text{ casing volume}) \times (7.5 \text{ gallons/cubic-foot}) \times (\text{height of water [feet]}) \times (\text{radius of well [feet]})^2$   
 ESTIMATED VOLUME TO PURGE =  $3.14 \times 5.0 \times 7.5 \times [1.538]^2 \times [0.083]^2 = 12.5$



# GROUNDWATER COLLECTION LOG

W.L. NO. MW2

PROJECT NAME Waltson Trust  
 PROJECT NUMBER A953399  
 DATE 1/14/1995  
 PAGE 1

SAMPLE NUMBER MW2-210  
 DEPTH TO BOTTOM 19.55  
 DEPTH TO WATER 9.03  
 SAMPLE METHOD disp. bailer  
 PURGE METHOD hand bail

TIME	CUMULATIVE VOLUME OF WATER PURGED	pH	ELECTRICITY CONDUCTIVITY	TEMP. °C	COMMENTS	DO ppm
11:10	0				Begin Purge	
11:13	4	6.93	0.23	63.5	no solution for salinity needed	3.3
11:25	8	6.72	0.16	63.7		1.6
11:30	12.6	6.93	0.16	64.7	End Purge	3.8
11:35					Sample collected	avg 2.9
					water is very turbid No odor & No sheen	

TOTAL NUMBER OF SAMPLES COLLECTED 3  
 VOA VILE(S) \_\_\_\_\_  
 1 LITER BOTTLE(S) \_\_\_\_\_  
 OTHER \_\_\_\_\_

LABORATORY: AEN  
 DATE SHIPPED: 1/15/1995 SHIPPED VIA: Courier  
 SAMPLED BY: NR

ESTIMATED VOLUME TO PURGE =  $3.14 \times (5 \text{ casing volume}) \times (7.5 \text{ gallons/cubic-foot}) \times (\text{height of water [feet]}) \times (\text{radius of well [feet]})^2$   
 ESTIMATED VOLUME TO PURGE =  $3.14 \times 5.0 \times 7.5 \times [1.52]^2 \times [0.083]^2 = 12.6$



# GROUNDWATER COLLECTION LOG

WELL NO. MW3

PROJECT NAME: Watson Trust  
 PROJECT NUMBER: A953399  
 DATE: 1/2/96  
 PAGE: 1

SAMPLE NUMBER: MW3-210  
 DEPTH TO BOTTOM: 19.50  
 DEPTH TO WATER: 3.83  
 SAMPLE METHOD: disp. bailer  
 PURGE METHOD: hand bail

TIME	CUMULATIVE VOLUME OF WATER PURGED	PH #	ELECTRICAL CONDUCTIVITY	TEMP. °C	COMMENTS
11:45	0				Begin Purge
11:50	4	6.33	0.34	63.1	no correction for gas being added
12:10	3	6.87	0.33	63.6	
12:15	12.7	6.89	0.39	64.3	End Purge
12:20					Sample taken
					Water is ... brown
					Water is ... clear

DO: ppm  
 2.8  
 4.7  
 4.2  
 avg 3.9

TOTAL NUMBER OF SAMPLES COLLECTED: 3  
 VOA VILE(S) \_\_\_\_\_  
 1 LITER BOTTLE(S) \_\_\_\_\_  
 OTHER \_\_\_\_\_

LABORATORY: AEN  
 DATE SHIPPED: 1/2/96 SHIPPED VIA: courier  
 SAMPLED BY: MR

ESTIMATED VOLUME TO PURGE =  $3.14 \times (5 \text{ casing volume}) \times (7.5 \text{ gallons/cubic-foot}) \times (\text{height of water (feet)}) \times (\text{radius of well (feet)})^2$   
 ESTIMATED VOLUME TO PURGE =  $3.14 \times 5.0 \times 7.5 \times [1.5]^2 = 12.7$



APPENDIX C

LABORATORY ANALYTICAL RESULTS  
AND  
CHAIN-OF-CUSTODY FORM

# American Environmental Network

## Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

APPLIED GEOSCIENCES INC.  
1641 N. FIRST ST. #235  
SAN JOSE, CA 95112

ATTN: NICOLE FOURCADE  
CLIENT PROJ. ID: A953399  
CLIENT PROJ. NAME: WATSON TRUST

REPORT DATE: 01/17/96

DATE(S) SAMPLED: 01/04/96

DATE RECEIVED: 01/05/96

AEN WORK ORDER: 9601048


### PROJECT SUMMARY:

On January 5, 1996, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for organic parameters. 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.

  
Larry Klein  
Laboratory Director



## APPLIED GEOSCIENCES INC.

SAMPLE ID: MW1-2W  
AEN LAB NO: 9601048-01  
AEN WORK ORDER: 9601048  
CLIENT PROJ. ID: A953399

DATE SAMPLED: 01/04/96  
DATE RECEIVED: 01/05/96  
REPORT DATE: 01/17/96

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ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	330 *	0.5	ug/L	01/12/96
Toluene	108-88-3	82 *	0.5	ug/L	01/12/96
Ethylbenzene	100-41-4	13 *	0.5	ug/L	01/12/96
Xylenes, Total	1330-20-7	68 *	2	ug/L	01/12/96
Purgeable HCs as Gasoline	5030/GCFID	0.9 *	0.05	mg/L	01/12/96

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

## APPLIED GEOSCIENCES INC.

SAMPLE ID: MW2-2W  
 AEN LAB NO: 9601048-02  
 AEN WORK ORDER: 9601048  
 CLIENT PROJ. ID: A953399

DATE SAMPLED: 01/04/96  
 DATE RECEIVED: 01/05/96  
 REPORT DATE: 01/17/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	1 *	0.5	ug/L	01/12/96
Toluene	108-88-3	0.6 *	0.5	ug/L	01/12/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	01/12/96
Xylenes, Total	1330-20-7	ND	2	ug/L	01/12/96
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	01/12/96

ND = Not detected at or above the reporting limit

\* = Value at or above reporting limit

## APPLIED GEOSCIENCES INC.

SAMPLE ID: MW3-2W  
AEN LAB NO: 9601048-03  
AEN WORK ORDER: 9601048  
CLIENT PROJ. ID: A953399

DATE SAMPLED: 01/04/96  
DATE RECEIVED: 01/05/96  
REPORT DATE: 01/17/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	9 *	0.5	ug/L	01/12/96
Toluene	108-88-3	ND	0.5	ug/L	01/12/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	01/12/96
Xylenes, Total	1330-20-7	ND	2	ug/L	01/12/96
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	01/12/96

ND = Not detected at or above the reporting limit

\* = Value at or above reporting limit

AEN (CALIFORNIA)  
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9601048

CLIENT PROJECT ID: A953399

Quality Control and Project Summary

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

Definitions

Laboratory Control Sample (LCS)/Method Spike(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 analysis.

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

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

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

## QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9601048  
 INSTRUMENT: H  
 MATRIX: WATER

## Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery	
			Fluorobenzene	
01/12/96	MW1-2W	01	108	
01/12/96	MW2-2W	02	95	
01/12/96	MW3-2W	03	95	
QC Limits:			70-130	

DATE ANALYZED: 01/11/96  
 SAMPLE SPIKED: 9601013-07  
 INSTRUMENT: H

## Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Benzene	39.1	101	8	85-109	17
Toluene	104	101	8	87-111	16
Hydrocarbons as Gasoline	1000	114	5	66-117	19

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

\*\*\*END OF REPORT\*\*\*

# Chain of Custody

96010110

1641 North First Street  
Suite 235  
San Jose, CA 95112  
TEL: 408/452-0262  
FAX: 408/452-0265

R 153

Project Name <b>Watson Trust</b>										TPH as gas/TEX, EPA 8015M	TPH as diesel, EPA 8015M	VOCs, EPA 8020	TRPH, SM 5520F	TOG, SM 5520B	VOCs, EPA 8010	VOCs, EPA 8010/8020	VOCs, EPA 8240	SVOCs, EPA 8270	Title 22 Metals, EPA 6010/7000	PP (13) Metals, EPA 6010/7000	Pesticides Only, EPA 8080	<b>Turn Around Time</b>		
Project Number <b>A953399</b>																						Standard 5 to 10 Business Days <input checked="" type="checkbox"/>		
Applied Geosciences Inc. Contact <b>Nicole Fourcade</b>																						Priority Rush ____ Business Day(s) <input type="checkbox"/>		
Laboratory Name <b>AEN</b>																								
Sample Number	Location	Date	Time	Matrix			Preserv-ative	No. of Containers	Type of Containers	TPH as gas/TEX, EPA 8015M	TPH as diesel, EPA 8015M	VOCs, EPA 8020	TRPH, SM 5520F	TOG, SM 5520B	VOCs, EPA 8010	VOCs, EPA 8010/8020	VOCs, EPA 8240	SVOCs, EPA 8270	Title 22 Metals, EPA 6010/7000	PP (13) Metals, EPA 6010/7000	Pesticides Only, EPA 8080	Remarks		
				Soil	Water	Other																		
Mw1-2w	Mw1	1/15/96	1100		X		1100	3	40ml VOA	X													STAKE	
Mw2-2w	Mw2		1135		X					X													U: ABC	
Mw3-2w	Mw3		1220		X					X													U: ABC	
Relinquished by sampler <i>Nicole Fourcade</i>										Date	Time	Received by <i>Matthew Williams</i>												
Relinquished by <i>Nicole Fourcade</i>										Date	Time	Received by <i>Michelle E. Kelle</i>												
Relinquished by <i>Nicole Fourcade</i>										Date	Time	Received by laboratory <i>Don J. Pruitt</i>												
										Date	Time	Date												
												Time												