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February 27, 1992

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MAR 13 1992
QUALITY CONTROL BOARD

Mr. Barney Chan
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, California 94621

Re: Avis Rent A Car System, Inc.
Oakland Airport Remediation

Dear Mr. Chan:

Enclosed please find Avis' Quarterly Ground-Water Monitoring Report dated February 26, 1992, prepared by McCulley, Frick & Gilman on the remediation being conducted at the Oakland Airport rental car facility.

Please let us know if you have any questions or comments.

Very truly yours,

Beth L. Hamilton
Beth L. Hamilton MSF

Enc.

- cc: Mr. Karl Westermann, Avis w/enc.
- ✓ Mr. Lester Feldman, RWQCB w/enc.
- Ms. Michele Heffes, Port of Oakland w/enc.
- Mr. Ed Conti, MF&G w/o enc.

QUARTERLY GROUND WATER MONITORING REPORT

**Avis Rent A Car System, Inc.
Oakland International Airport Facility
Oakland, California**

Prepared for

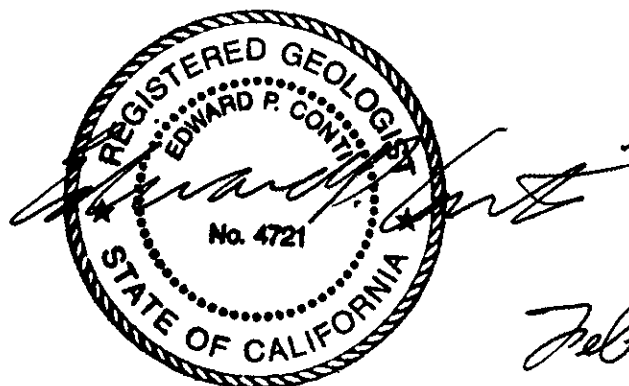
**Avis Rent A Car System, Inc.
900 Old Country Road
Garden City, New York 11530**

February 26, 1992

**McCULLEY, FRICK & GILMAN, INC.
Consulting Hydrologists and Geologists**

PROFESSIONAL CERTIFICATION

This report has been prepared by McCulley, Frick & Gilman, Inc. under the professional supervision of Edward P. Conti. The findings, recommendations, specifications and/or professional opinions presented in this report have been prepared in accordance with generally accepted professional hydrogeologic practice, and within the scope of the project. There is no other warranty, either express or implied.



February 26, 1992

Edward P. Conti
RG No. 4721
Project Geologist
McCULLEY, FRICK & GILMAN, INC.

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A

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QUARTERLY GROUND WATER MONITORING REPORT

AVIS RENT A CAR SYSTEM, INC.
OAKLAND INTERNATIONAL AIRPORT FACILITY
OAKLAND, CALIFORNIA

1.0 INTRODUCTION

This report presents the methods and results of the January 1992 quarterly ground water monitoring event conducted at the Avis Rent A Car System, Inc. (Avis) facility at Oakland International Airport, Neil Armstrong Way, Oakland, California (hereinafter the "Site"). The Site location is illustrated in Figure 1. The monitoring program was conducted by McCulley, Frick & Gilman, Inc. (MFG) on behalf of Avis.

The ground water monitoring was performed in accordance with the monitoring program outlined in Section 5.0 of the report prepared by MFG entitled "Additional Soil Excavation and Quarterly Ground Water Monitoring Report", dated May 20, 1991. In addition to the January 1992 ground water monitoring event, this report includes the results of supplemental sampling of well MW-1A performed in November 1991. The supplemental sampling was performed to confirm the analytical results obtained during the October 1991 ground water monitoring event.

The monitoring program conducted at the Avis facility consisted of the following tasks:

- (1) Measurement of water levels in monitoring wells MW-1A, MW-2 and MW-3, and preparation of a potentiometric surface map of the shallow ground water; and
- (2) Collection and chemical analysis of ground water samples from monitoring wells MW-1A, MW-2 and MW-3.

The monitoring well locations are illustrated in Figure 2. The methods and results of the ground water monitoring program are described below.

2.0 GROUND WATER SAMPLING AND ANALYSIS

2.1 FIELD METHODS

The methods used to measure the water levels and collect ground water samples from monitoring wells MW-1A, MW-2 and MW-3 are described below.

2.1.1 Water Level Measurement

MFG measured the water levels in monitoring wells MW-1A, MW-2 and MW-3 on January 3, 1992 using a weighted, graduated steel tape. Evaluation of the water level data is discussed in Section 3.0 of this report. Following water level measurement, MFG checked for the presence of a light immiscible layer (free product) or sheen using a clear, acrylic bailer. No free product or sheen was observed in the three wells.

2.1.2 Ground Water Sampling

MFG collected ground water samples from monitoring well MW-1A on November 25, 1991 and from monitoring wells MW-1A, MW-2 and MW-3 on January 3, 1992. Prior to collecting samples, each well was purged using a positive displacement hand pump. Wells MW-1A, MW-2 and MW-3 were pumped dry after removal of approximately 3 casing volumes (4 gallons), 4 casing volumes (6 gallons), and 2 casing volumes (3 gallons), respectively. The temperature, pH and specific conductance of the water were monitored during purging.

After purging, the ground water samples were collected using a Teflon[®] bailer. One bailer volume collected from each well was used to measure the temperature, pH and specific conductance of the sample. The field measured values of these parameters were as follows:

Sample	Temperature (°C)	pH	Specific Conductance (micromhos/cm at 25°C)
MW-1A (25-Nov-91)	20	7.1	13,000
MW-1A (3-Jan-92)	18	7.1	10,000
MW-2	16	7.3	8,500
MW-3	17	7.5	26,000

The following samples were subsequently collected from each well and placed in containers supplied by the laboratory:

- A. Total Volatile Petroleum Hydrocarbons (TPH) as Gasoline and Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX): three, 40-milliliter (ml) glass vials closed with a screw cap with a Teflon®-lined septum, containing hydrochloric acid placed in the vials by the laboratory for sample preservation; and
- B. Polynuclear Aromatic Hydrocarbons (PNA's): two, one-liter amber glass bottles with Teflon®-lined lids.

A ground water sample for PNA analysis was not collected from monitoring well MW-1A during the November 25, 1991 supplemental sampling event.

After filling, the ground water sample containers were placed in an ice-cooled, insulated chest for transport to the laboratory for analysis. A chain-of-custody record was completed for the samples and accompanied the samples until receipt by the laboratory.

All equipment used in purging the wells was washed in an Alconox detergent-water solution and rinsed with tap water both before and after use in each well. All equipment used in sampling the wells was washed in an Alconox detergent-water solution, rinsed with tap water, and then rinsed with deionized water both before and after use in each well.

2.2 ANALYTICAL METHODS AND RESULTS

The ground water samples were analyzed by Anametrix, Inc. (Anametrix) laboratory of San Jose, California. The following analyses were performed by Anametrix:

- A. TPH as Gasoline (EPA Method 5030/modified EPA Method 8015)
- B. BTEX (EPA Method 5030/modified EPA Method 8020)
- C. PNA's (EPA Method 610/8310)

The laboratory results are summarized in Table 1. Copies of the laboratory reports and chain-of-custody records are included in Appendix A.

TPH as gasoline was detected at a concentration of 0.051 milligrams per liter (mg/L) in the sample collected from well MW-1A on November 25, 1991. Benzene and total xylenes were also detected in that sample at concentrations of 0.0018 and 0.0017 mg/L, respectively. Toluene and ethylbenzene were not detected above their respective laboratory method reporting limits in the sample collected from well MW-1A on November 25, 1991.

TPH as gasoline was detected at a concentration of 0.077 mg/L in the sample collected from well MW-1A on January 3, 1992. Benzene, toluene, ethylbenzene and total xylenes were also detected in that sample at concentrations of 0.0024, 0.0009, 0.0014 and 0.0032 mg/L, respectively. PNA's were not detected above their laboratory method reporting limits in the ground water samples collected from well MW-1A on January 3, 1992.

None of the target constituents were detected above the laboratory method reporting limits in the samples collected from wells MW-2 and MW-3.

3.0 EVALUATION OF LATERAL HYDRAULIC GRADIENT

MFG measured the depth to ground water in wells MW-1A, MW-2 and MW-3 on January 3, 1992 (Table 2). The depth to water in the wells ranged from approximately six to seven feet below the ground surface. The elevations of the water surface in the wells were calculated using the depth to water measurements and the measuring point (north side, top of casing) elevations of the wells. A potentiometric surface map of the shallow ground water on January 3, 1992 was constructed using these data and is shown in Figure 9. The potentiometric surface contours illustrate that the direction of the lateral hydraulic gradient on January 3, 1992 was southeast, with an approximate magnitude of 0.003.

Water level measurements performed periodically at the Site since May 1990 indicate that the direction of the lateral hydraulic gradient has varied from south-southeast to east-southeast. Historical potentiometric surface maps of the shallow ground water at the Site are included in Figures 3 through 8.

4.0 GROUND WATER MONITORING SCHEDULE

The anticipated date for the next quarterly monitoring event is April 1992. Ground water monitoring at the Site will consist of:

- (1) Measurement of water levels in monitoring wells MW-1A, MW-2 and MW-3, and preparation of a potentiometric surface map of the shallow ground water; and
- (2) Collection and chemical analysis of ground water samples from monitoring wells MW-1A, MW-2 and MW-3.

The samples from all three wells will be analyzed for TPH as gasoline and benzene, toluene, ethylbenzene and total xylenes. The ground water sample collected from well MW-1A will also be analyzed for PNA's. Because the target constituents, including TPH as gasoline, BTEX and PNA's, have never been detected in samples collected from wells MW-2 and MW-3, the samples collected from these wells will no longer be analyzed for PNA's. Ground water samples have been collected and analyzed from monitoring wells MW-2 and MW-3 have been sampled for seven consecutive quarters from May 1990 to January 1992.

A quarterly ground water monitoring report will be prepared and submitted approximately 30 days after receipt of the final analytical results. The anticipated submittal date for this report is May 1992.

TABLE 1
(Page 1 of 2)

SUMMARY OF CHEMICAL ANALYSES OF GROUND WATER SAMPLES¹

Avis Rent A Car System, Inc.
Oakland International Airport Facility
Oakland, California

WELL NO.	SAMPLE NO.	DATE SAMPLED	Reporting Limit:						
			TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYLBENZENE (mg/L)	TOTAL XYLENES (mg/L)	NAPHTHALENE (mg/L)	OTHER POLYNUCLEAR AROMATIC HYDROCARBONS (mg/L)
			0.05	0.0005	0.0005	0.0005	0.0005	0.01	0.01
MW-1	MW-1	23-May-90	12	0.65	0.05	ND ² [0.05] ³	2.2	0.25	0.033 ⁴
	MW-1	26-Sep-90	0.66	ND [0.0025]	0.004	0.028	0.046	0.016	ND
	MW-1	17-Dec-90 ⁵	1.6	0.19	ND [0.005]	0.063	0.027	0.039	0.023 ⁶
MW-1A ⁷	MW-1A	30-Apr-91	ND	ND	ND	ND	ND	ND	ND
	MW-1A	17-Jul-91	ND	ND	ND	ND	ND	ND	ND
	MW-1A	18-Oct-91	ND	ND	0.0023	ND	ND	ND	ND
	MW-1A	25-Nov-91	0.051	0.0018	ND	ND	0.0017	NA ⁸	NA
	MW-1A	3-Jan-92	0.077	0.0024	0.0009	0.0014	0.0032	ND	ND
MW-2	MW-2	23-May-90	ND	ND	ND	ND	ND	ND	ND
	MW-2	26-Sep-90	ND	ND	ND	ND	ND	ND	ND
	MW-2	17-Dec-90	ND	ND	ND	ND	ND	ND	ND
	MW-2	13-Mar-91	ND	ND	ND	ND	ND	ND	ND
	MW-2	17-Jul-91	ND	ND	ND	ND	ND	ND	ND
	MW-2	18-Oct-91	ND	ND	ND	ND	ND	ND	ND
	MW-2	3-Jan-92	ND	ND	ND	ND	ND	ND	ND

TABLE 1
(Page 2 of 2)

SUMMARY OF CHEMICAL ANALYSES OF GROUND WATER SAMPLES¹

Avis Rent A Car System, Inc.
Oakland International Airport Facility
Oakland, California

WELL NO.	SAMPLE NO.	DATE SAMPLED	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYLBENZENE (mg/L)	TOTAL XYLENES (mg/L)	NAPHTHALENE (mg/L)	OTHER POLYNUCLEAR AROMATIC HYDROCARBONS (mg/L)
			Reporting Limit: 0.05	0.0005	0.0005	0.0005	0.0005	0.01	0.01
MW-3	MW-3	23-May-90	ND	ND	ND	ND	ND	ND	ND
	MW-3	26-Sep-90	ND	ND	ND	ND	ND	ND	ND
	MW-3	17-Dec-90	ND	ND	ND	ND	ND	ND	ND
	MW-3	13-Mar-91	ND	ND	ND	ND	ND	ND	ND
	MW-3	17-Jul-91	ND	ND	ND	ND	ND	ND	ND
	MW-3	18-Oct-91	ND	ND	ND	ND	ND	ND	ND
	MW-3	3-Jan-92	ND	ND	ND	ND	ND	ND	ND

NOTES:

- ¹ Constituents in the EPA Method 8270 or 8310 analyses (PNA's) which are not listed were not detected in ground water samples.
- ² ND = Not Detected at or above the reporting limit indicated at top of column.
- ³ [] Indicates reporting limit other than that indicated at top of column.
- ⁴ The PNA compound 2-methyl-naphthalene was detected at a concentration of 0.033 mg/L.
- ⁵ Monitoring Well MW-1 was sealed and abandoned on February 26, 1991.
- ⁶ The PNA compound acenaphthene was detected at a concentration of 0.023 mg/L.
- ⁷ Monitoring Well MW-1A was installed on April 1, 1991.
- ⁸ NA = Not Analyzed

TABLE 2

SUMMARY OF WATER LEVEL DATA FOR
GROUND WATER MONITORING WELLS

Avis Rent A Car System, Inc.
Oakland International Airport Facility
Oakland, California

WELL	MEASUREMENT DATE	DEPTH TO WATER (ft BMP ¹)	MEASURING POINT ELEVATION ² (ft NGVD ³)	WATER LEVEL ELEVATION (ft NGVD)
MW-1	23-May-90	5.62	3.34	-2.28
	26-Sep-90	6.29	3.34	-2.95
	17-Dec-90	5.92	3.34	-2.58
	26-Feb-91 ⁴	5.69	3.34	-2.35
MW-1A	30-Apr-91 ⁵	5.10	3.20	-1.90
	17-Jul-91	5.73	3.20	-2.53
	18-Oct-91	6.09	3.20	-2.89
	3-Jan-92	5.90	3.20	-2.70
MW-2	23-May-90	6.13	4.25	-1.88
	26-Sep-90	6.62	4.25	-2.37
	17-Dec-90	6.40	4.25	-2.15
	26-Feb-91	5.96	4.25	-1.71
	17-Jul-91	6.09	4.07 ⁶	-2.02
	18-Oct-91	6.47	4.07	-2.40
	3-Jan-92	6.39	4.07	-2.32
MW-3	23-May-90	6.77	3.98	-2.79
	26-Sep-90	7.28	3.98	-3.30
	17-Dec-90	7.05	3.98	-3.07
	26-Feb-91	6.63	3.98	-2.65
	17-Jul-91	6.75	3.98	-2.77
	18-Oct-91	7.18	3.98	-3.20
	3-Jan-91	6.91	3.98	-2.93

NOTES:

¹ BMP = Below Measuring Point.

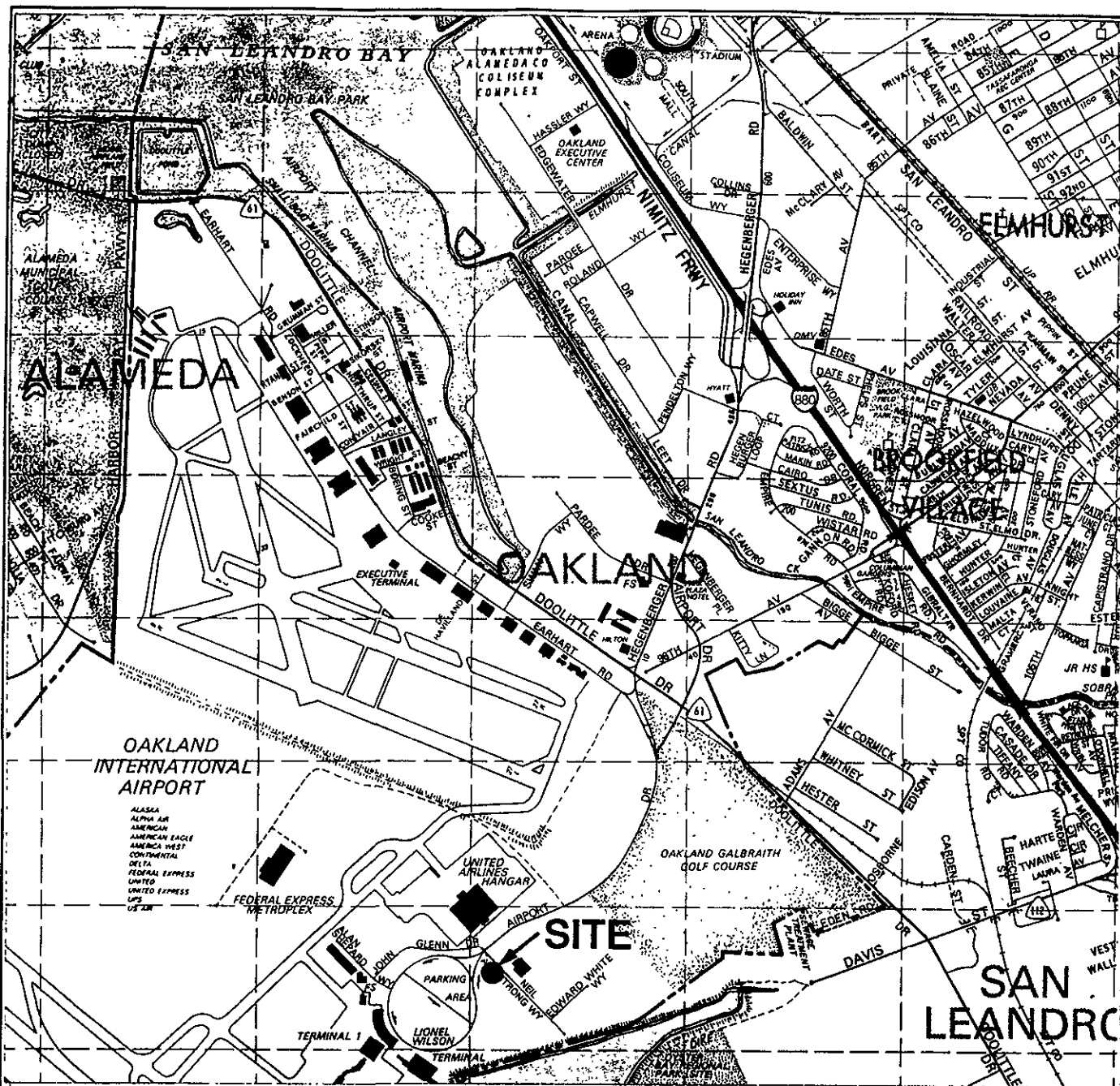
² Measuring Point is north side of top of PVC well casing.

³ National Geodetic Vertical Datum of 1929.

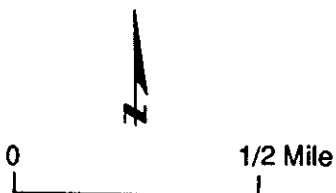
⁴ Monitoring Well MW-1 was sealed and abandoned on February 26, 1991.

⁵ Monitoring well MW-1A was installed on April 1, 1991.

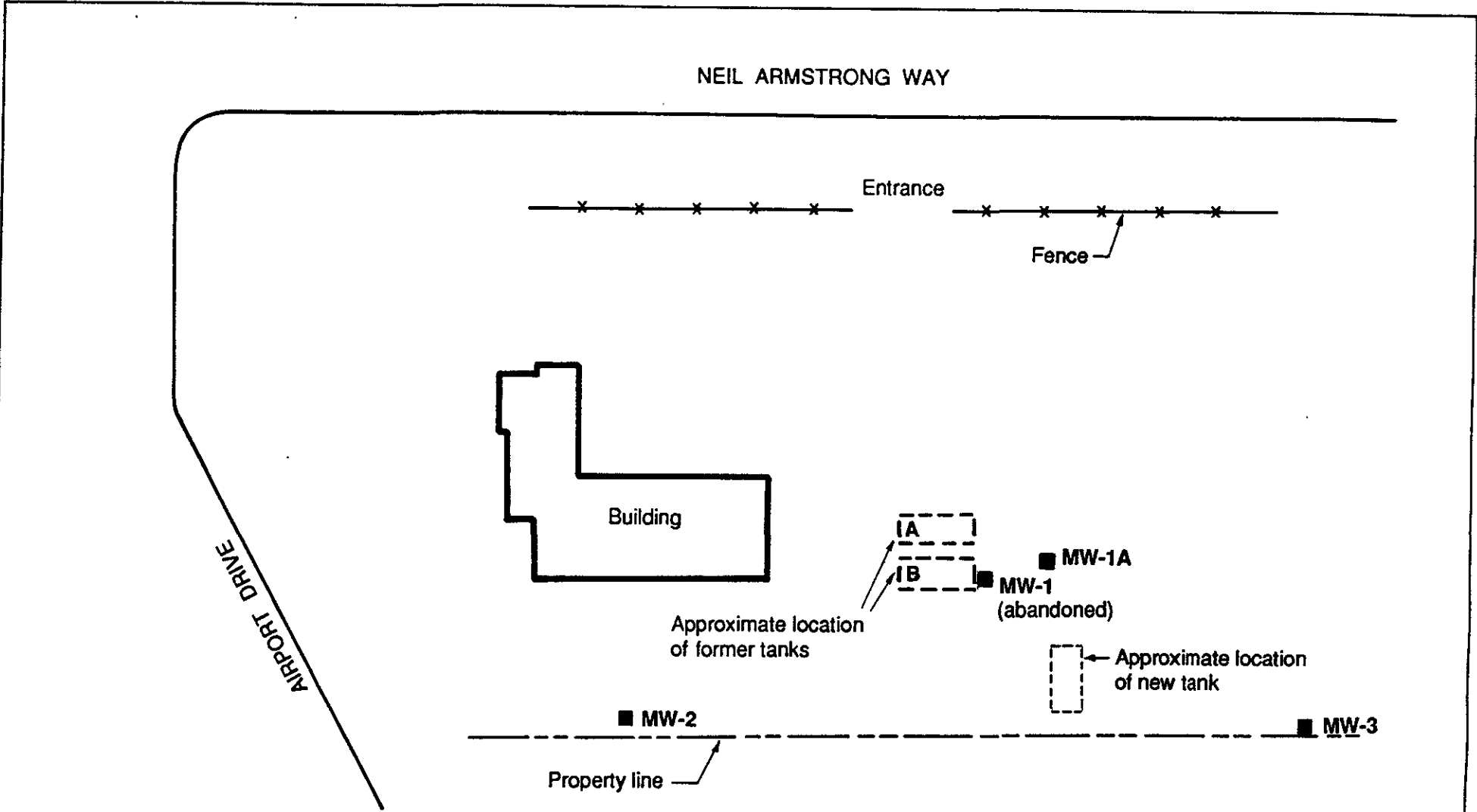
⁶ The top of the PVC casing for well MW-2 was repaired on March 13, 1991. The measuring point elevation of well MW-2 was resurveyed on April 9, 1991. The new measuring point elevation is 4.07 ft. NGVD.



Source: The Thomas Guide,
Alameda and Santa Clara Counties Street Guide and Directory,
1989 Edition



LOCATION MAP Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California		
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 1

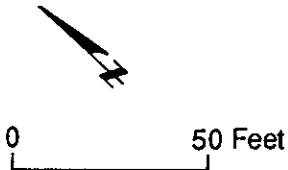


EXPLANATION

MW-2 ■ Location of monitoring well

Notes:

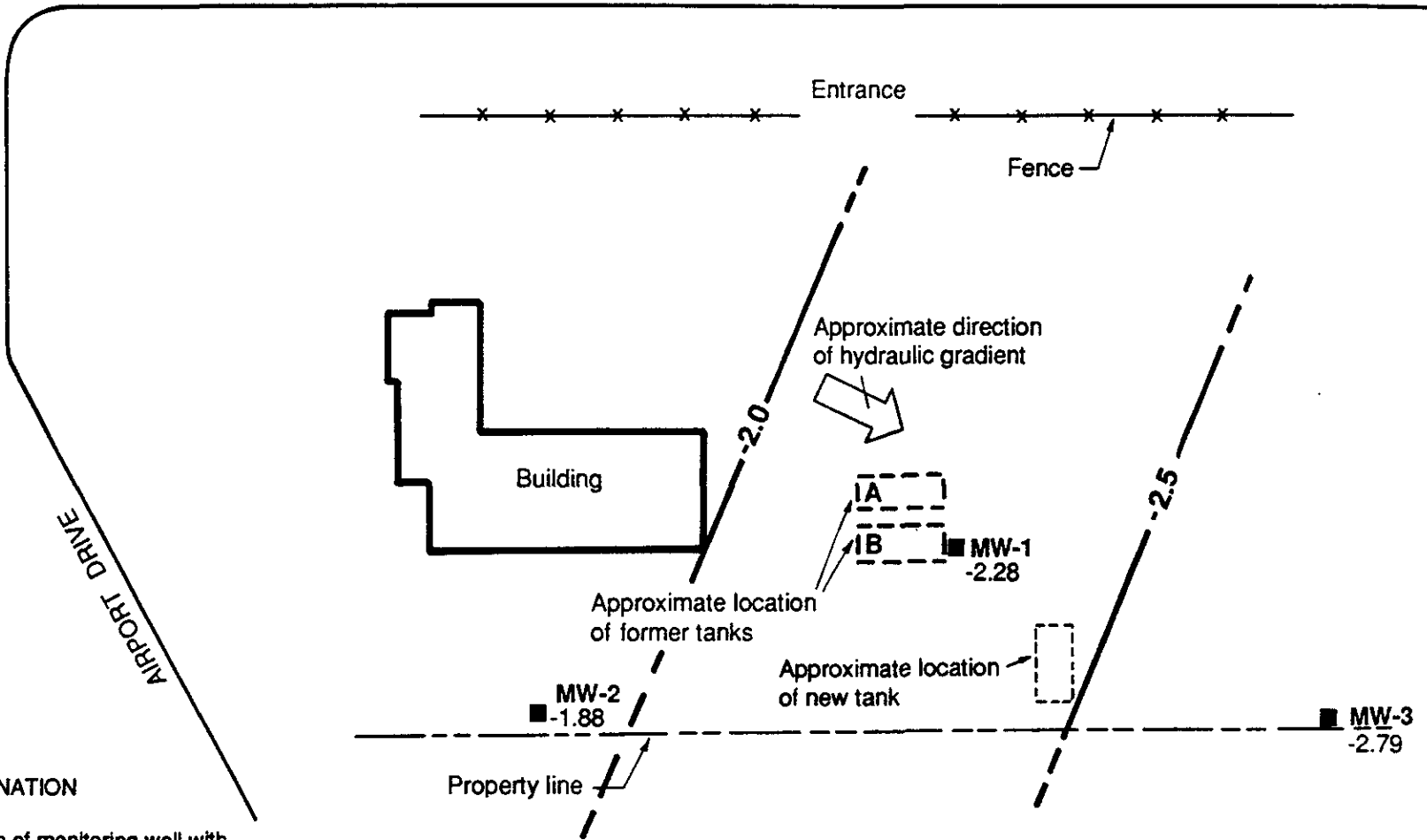
1. Well MW-1 abandoned on February 26, 1991.
2. Well MW-1A installed on April 1, 1991.



<p>SITE PLAN Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California</p>		
<p>McCulley, Frick & Gilman, Inc.</p>	<p>Project No. 90-2143</p>	<p>Figure 2</p>

Source: Adapted from Blaine Tech Services, Inc.
 Sampling Report 890825M1, dated August 25, 1989

NEIL ARMSTRONG WAY



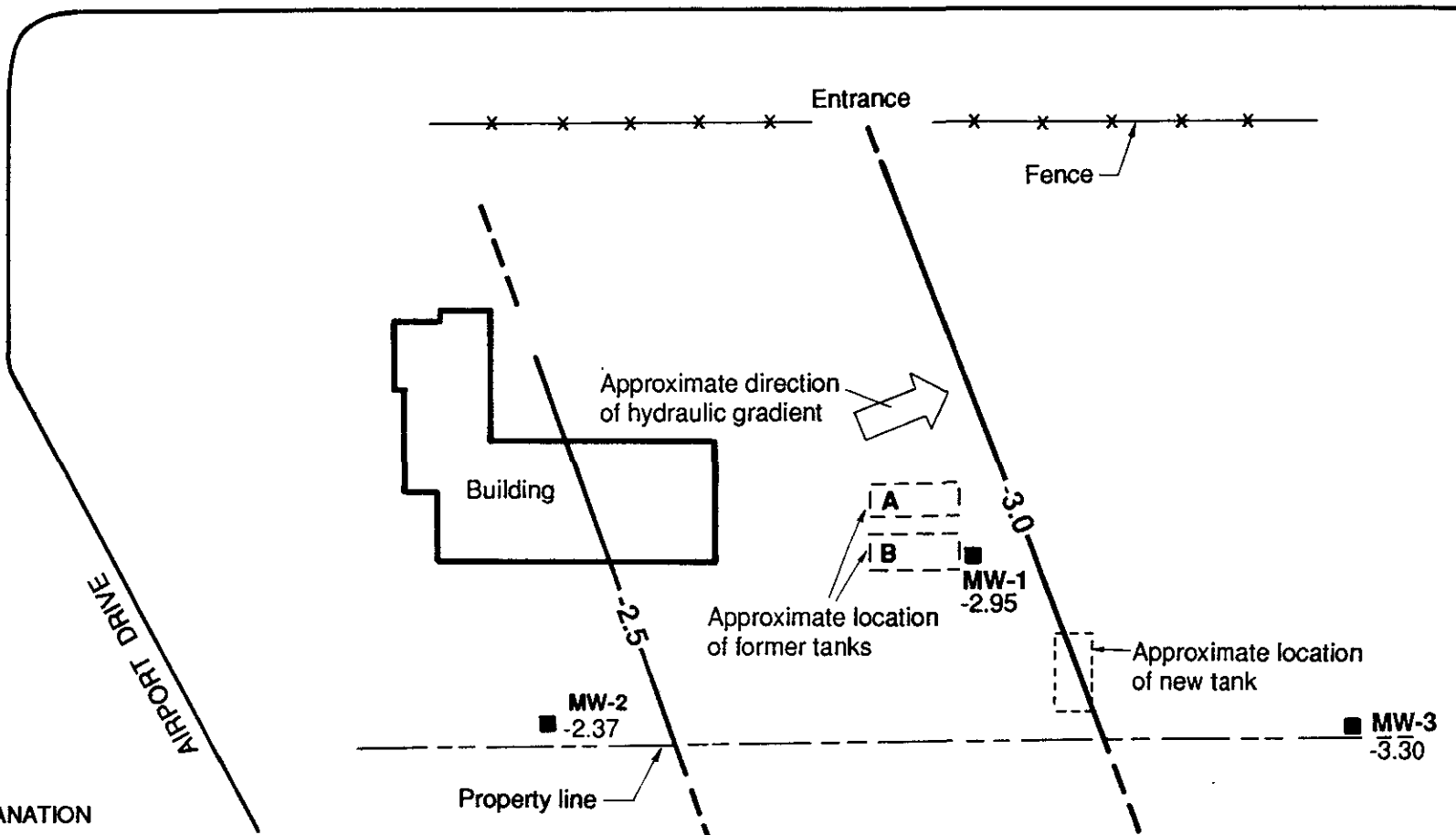
EXPLANATION

- MW-1 ■ Location of monitoring well with elevation of potentiometric surface on May 23, 1990 (ft. NGVD)
- 2.28
- — Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet

Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989

POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER MAY 23, 1990 Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California		
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 3

NEIL ARMSTRONG WAY



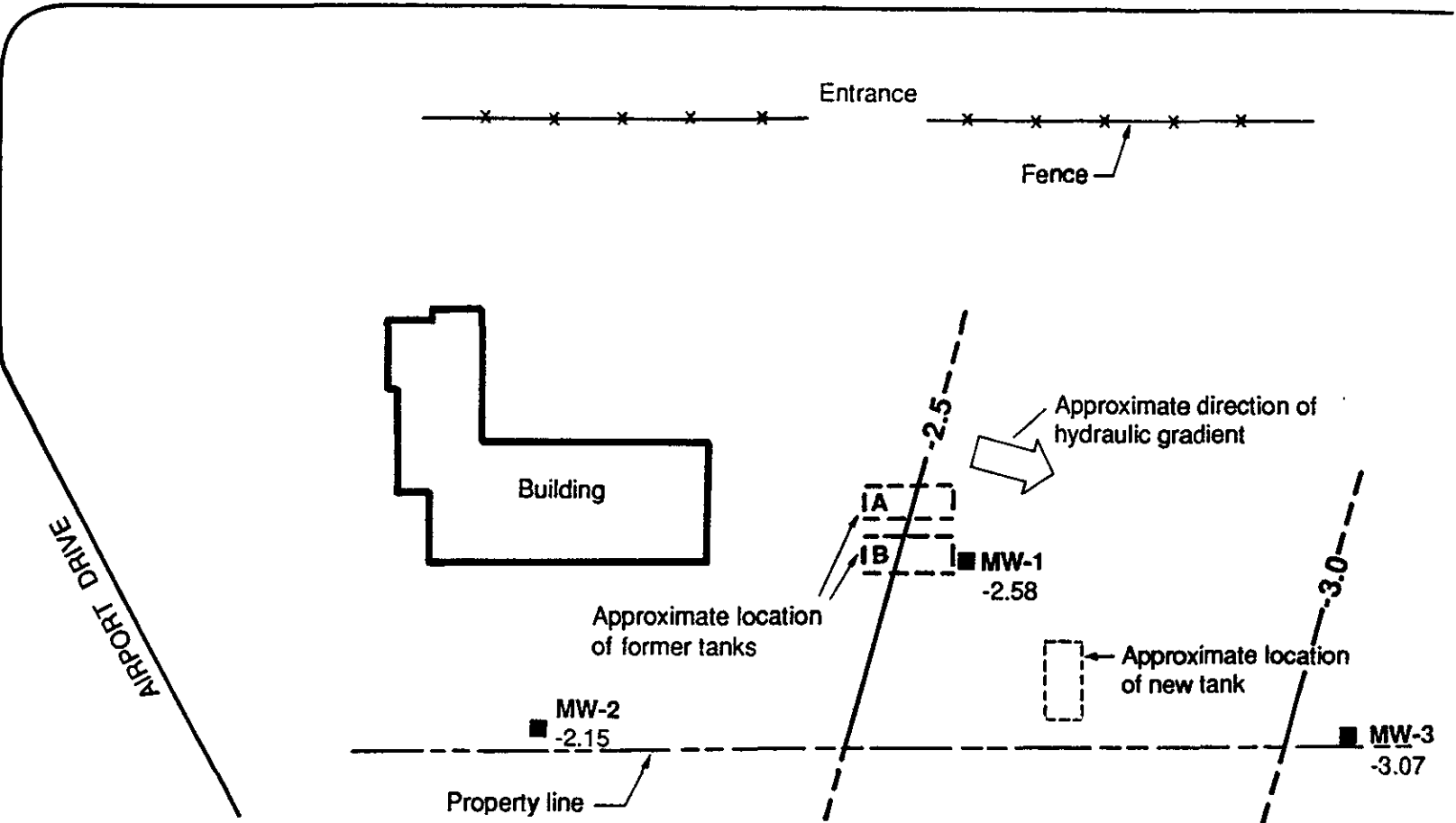
EXPLANATION

- MW-1** ■ Location of monitoring well with elevation of potentiometric surface on September 26, 1990
- Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet

Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989

POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER September 26, 1990 Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California		
McCulley, Frick, & Gilman, Inc.	Project No. 90-2143	Figure 4

NEIL ARMSTRONG WAY



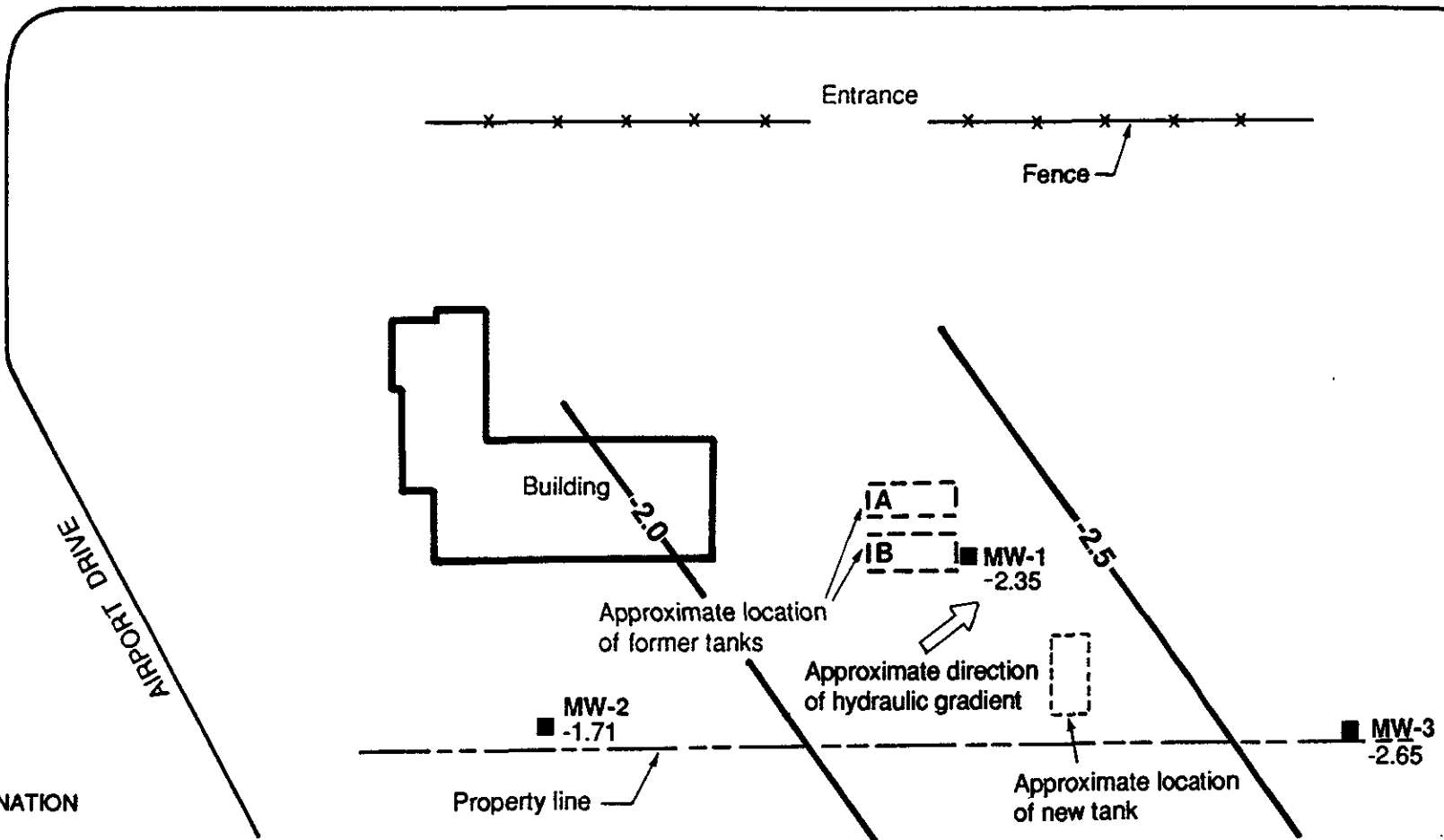
EXPLANATION

- MW-1 ■ Location of monitoring well with elevation of potentiometric surface on December 17, 1990 (ft. NGVD) -2.58
- — Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet

Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989

POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER DECEMBER 17, 1990 Avis Rent a Car System, Inc. Facility Oakland International Airport Oakland, California		
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 5

NEIL ARMSTRONG WAY

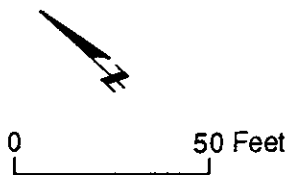


EXPLANATION

MW-1 ■ Location of monitoring well with elevation of potentiometric surface on February 26, 1991 (ft. NGVD)

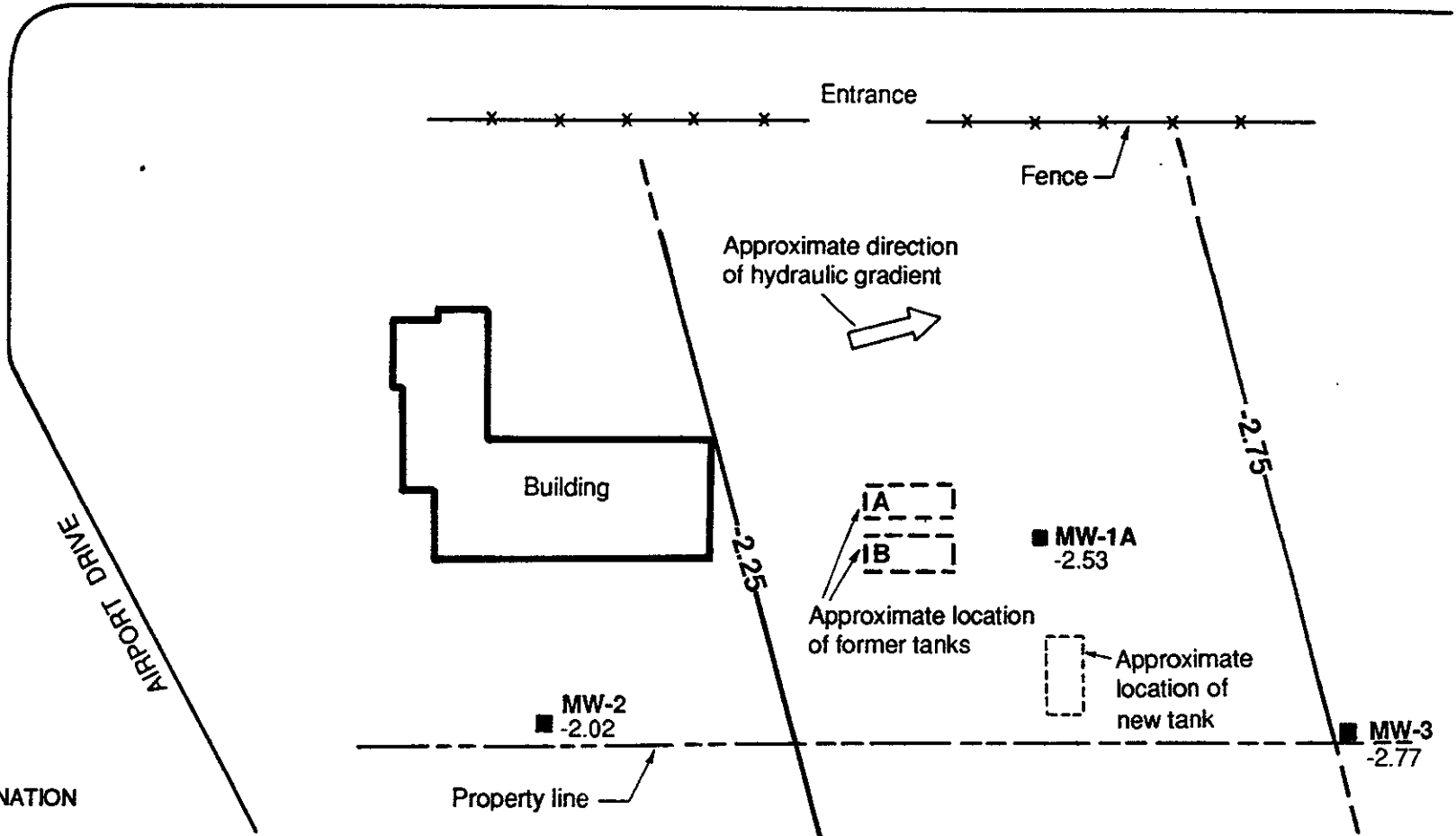
— Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet

Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989



POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER FEBRUARY 26, 1991 Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California		
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 6

NEIL ARMSTRONG WAY



EXPLANATION

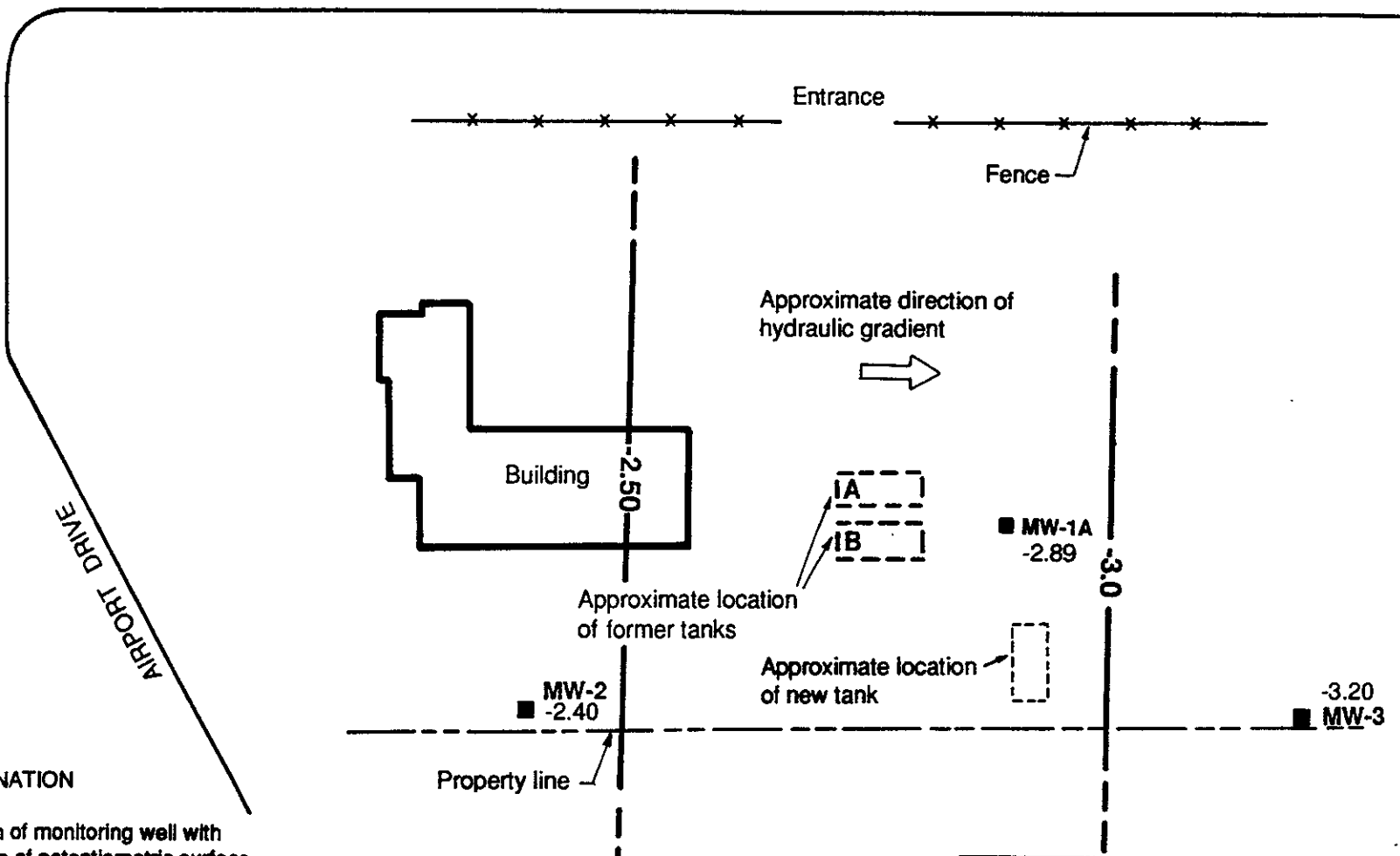
MW-2 ■ Location of monitoring well with elevation of potentiometric surface -2.02

— Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet

Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989

POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER JULY 17, 1991 Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California		
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 7

NEIL ARMSTRONG WAY



EXPLANATION

MW-2 ■ Location of monitoring well with elevation of potentiometric surface

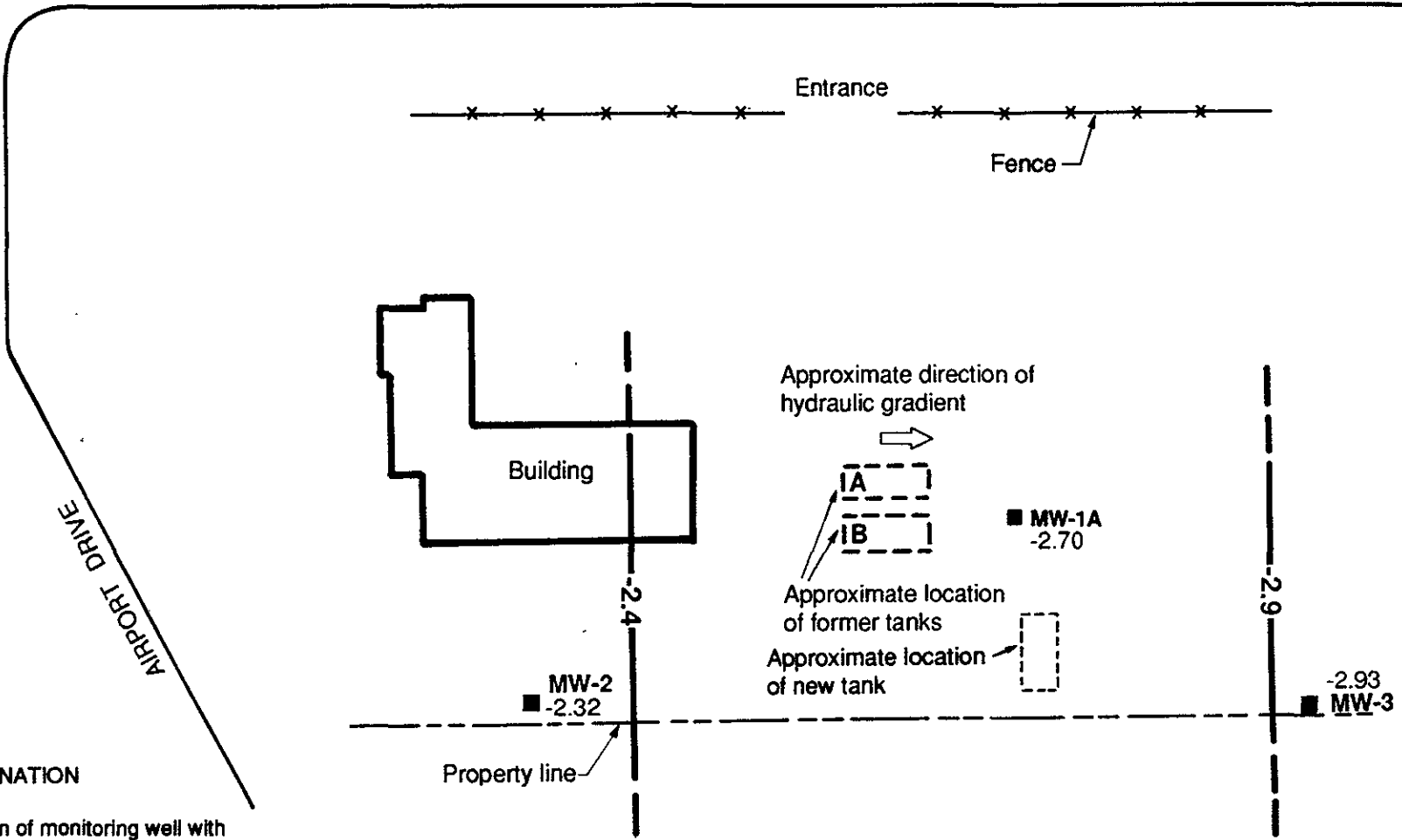
— Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet

Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989

0 50 Feet

<p>POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER OCTOBER 18, 1991 Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California</p>		
<p>McCulley, Frick & Gilman, Inc.</p>	<p>Project No. 90-2143</p>	<p>Figure 8</p>

NEIL ARMSTRONG WAY



EXPLANATION

MW-2 ■ Location of monitoring well with elevation of potentiometric surface -2.32

— Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet

Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989

POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER January 3, 1992 Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California		
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 9

APPENDIX A

**Laboratory Reports and Chain-of-Custody Records
for
Ground Water Samples**

ANAMETRIX INC

Environmental & Analytical Chemistry
 1961 Concourse Drive, Suite E, San Jose, CA 95131.
 (408) 432-8192 • Fax (408) 432-8198

**REPORT**

MR. YOHJI ONO
 McCULLEY, FRICK & GILMAN, INC.
 5 THIRD STREET, SUITE 400
 SAN FRANCISCO, CA 94103

Workorder # : 9111264
 Date Received : 11/25/91
 Project ID : 90-2143
 Purchase Order: N/A

The following samples were received at Anamatrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9111264- 1	MW-1A
9111264- 2	TRAVEL BLANK

This report consists of 3 pages not including the cover letter, and is organized in sections according to the specific Anamatrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anamatrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anamatrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anamatrix.

Sarah Schoen, Ph.D.
 Laboratory Manager

12-06-91

Date

RECEIVED

DEC 9 1991

**McCULLEY, FRICK
& GILMAN, INC.**

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. YOHJI ONO
McCULLEY, FRICK & GILMAN, INC.
5 THIRD STREET, SUITE 400
SAN FRANCISCO, CA 94103

Workorder # : 9111264
Date Received : 11/25/91
Project ID : 90-2143
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9111264- 1	MW-1A	WATER	11/25/91	TPHg/BTEX
9111264- 2	TRAVEL BLANK	WATER	11/25/91	TPHg/BTEX

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McCULLEY, FRICK
& GILMAN, INC.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. YOHJI ONO
McCULLEY, FRICK & GILMAN, INC.
5 THIRD STREET, SUITE 400
SAN FRANCISCO, CA 94103

Workorder # : 9111264
Date Received : 11/25/91
Project ID : 90-2143
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

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McCULLEY, FRICK
& GILMAN, INC.

Cheryl Balmer 12/6/91
Department Supervisor Date

C. Fern 12.6.91
Chemist Date

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ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

McCULLLEY, FRICK
& GILMAN, INC.

Anamatrix W.O.: 9111264
Matrix : WATER
Date Sampled : 11/25/91

Project Number : 90-2143
Date Released : 12/05/91

Reporting Limit	Sample I.D.# MW-1A	Sample I.D.# TRAVEL BLANK	Sample I.D.# 04B1202B	Sample I.D.# 04B1203B
COMPOUNDS (ug/L)	-01	-02	BLANK	BLANK
Benzene	0.5	1.8	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	1.7	ND	ND
TPH as Gasoline	50	51	ND	ND
% Surrogate Recovery	81%	109%	93%	99%
Instrument I.D.	HP4	HP4	HP4	HP4
Date Analyzed	12/03/91	12/02/91	12/02/91	12/03/91
RLMF	1	1	1	1

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
- BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
- RLMF - Reporting Limit Multiplication Factor.

Anamatrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Lina Sher 12/5/91
Analyst Date

Cheyl Balma 12/5/91
Supervisor Date

ANAMETRIX INC

Environmental & Analytical Chemistry
 1961 Concourse Drive, Suite E, San Jose, CA 95131
 (408) 432-8192 • Fax (408) 432-8198

**REPORT**

MR. ED CONTI
 McCULLEY, FRICK & GILMAN, INC.
 5 THIRD STREET, SUITE 400
 SAN FRANCISCO, CA 94103

Workorder # : 9201019
 Date Received : 01/03/92
 Project ID : 90-2143
 Purchase Order: N/A

The following samples were received at Anamatrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9201019- 1	MW-2
9201019- 2	MW-3
9201019- 3	MW-1A
9201019- 4	TRIP BLANK

This report consists of 11 pages not including the cover letter, and is organized in sections according to the specific Anamatrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anamatrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anamatrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anamatrix.

Sarah Schoen, Ph.D.
 Laboratory Manager

1-10-92

Date

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JAN 15 1992

McCULLEY, FRICK
 & GILMAN, INC.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. ED CONTI
McCULLEY, FRICK & GILMAN, INC.
5 THIRD STREET, SUITE 400
SAN FRANCISCO, CA 94103

Workorder # : 9201019
Date Received : 01/03/92
Project ID : 90-2143
Purchase Order: N/A
Department : GC
Sub-Department: PEST

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9201019- 1	MW-2	WATER	01/03/92	8310
9201019- 2	MW-3	WATER	01/03/92	8310
9201019- 3	MW-1A	WATER	01/03/92	8310

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JAN 15 1992

McCULLEY, FRICK
& GILMAN, INC.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. ED CONTI
McCULLEY, FRICK & GILMAN, INC.
5 THIRD STREET, SUITE 400
SAN FRANCISCO, CA 94103

Workorder # : 9201019
Date Received : 01/03/92
Project ID : 90-2143
Purchase Order: N/A
Department : GC
Sub-Department: PEST

QA/QC SUMMARY :

- No QA/QC problems encountered for samples.

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JAN 15 1992

McCULLEY, FRICK
& GILMAN, INC.

Stanton Jiman 1-10-92
Department Supervisor Date

Juliet Ofwono 1-10-92
Chemist Date

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 610/8310
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 90-2143 MW-2
 Matrix : WATER
 Date sampled : 01/03/92
 Date ext. : 01/06/92
 Date analyzed: 01/08/92
 Dilut. factor: NONE

Anamatrix I.D. : 9201019-1
 Analyst : JWO
 Supervisor : SMR
 Date released : 01/09/92
 Volume ext. : 1000 ml
 Instrument ID : HP 17

CAS #	Compound Name	Reporting Limit (ug/L)	Amount Found (ug/L)
91-20-3	* Naphthalene	10	ND
91-57-6	* 2-Methylnaphthalene	10	ND
208-96-8	* Acenaphthylene	10	ND
83-32-9	* Acenaphthene	10	ND
86-73-7	* Fluorene	5	ND
85-01-8	* Phenanthrene	5	ND
120-12-7	* Anthracene	5	ND
206-44-0	* Fluoranthene	5	ND
129-00-0	* Pyrene	5	ND
56-55-3	* Bnz (a) Anthracene	5	ND
218-01-9	* Chrysene	5	ND
205-99-2	* Bnz (b) Fluoranthene	5	ND
207-08-9	* Bnz (k) Fluoranthene	5	ND
50-32-8	* Bnz (a) Pyrene	5	ND
53-70-3	* DiBnz (ah) Anthracene	5	ND
191-24-2	* Bnz (g, h, i) Perylene	5	ND
193-39-5	* Indeno (123cd) Pyrene	5	ND
% Surrogate Recovery		34-121%	73%

ND : Not detected at or above the practical quantitation limit for the method.

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JAN 22 1992

McCULLY, FRICK & GILMAN, INC.

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 610/8310
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 90-2143 MW-3
 Matrix : WATER
 Date sampled : 01/03/92
 Date ext. : 01/06/92
 Date analyzed: 01/08/92
 Dilut. factor: NONE

Anamatrix I.D. : 9201019-2
 Analyst : JHO
 Supervisor : SM
 Date released : 01/09/92
 Volume ext. : 1000 ml
 Instrument ID : HP 17

CAS #	Compound Name	Reporting Limit (ug/L)	Amount Found (ug/L)
91-20-3	* Naphthalene	10	ND
91-57-6	* 2-Methylnaphthalene	10	ND
208-96-8	* Acenaphthylene	10	ND
83-32-9	* Acenaphthene	10	ND
86-73-7	* Fluorene	5	ND
85-01-8	* Phenanthrene	5	ND
120-12-7	* Anthracene	5	ND
206-44-0	* Fluoranthene	5	ND
129-00-0	* Pyrene	5	ND
56-55-3	* Bnz (a) Anthracene	5	ND
218-01-9	* Chrysene	5	ND
205-99-2	* Bnz (b) Fluoranthene	5	ND
207-08-9	* Bnz (k) Fluoranthene	5	ND
50-32-8	* Bnz (a) Pyrene	5	ND
53-70-3	* DiBnz (ah) Anthracene	5	ND
191-24-2	* Bnz (g, h, i) Perylene	5	ND
193-39-5	* Indeno (123cd) Pyrene	5	ND
% Surrogate Recovery		34-121%	69%

ND : Not detected at or above the practical quantitation limit for the method.

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JAN 22 1992

McCULLEY, FRICK & GILMAN, INC.

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 610/8310
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 90-2143 MW-1A
 Matrix : WATER
 Date sampled : 01/03/92
 Date ext. : 01/06/92
 Date analyzed: 01/08/92
 Dilut. factor: NONE

Anamatrix I.D. : 9201019-3
 Analyst : JFW
 Supervisor : SPK
 Date released : 01/09/92
 Volume ext. : 1000 ml
 Instrument ID : HP 17

CAS #	Compound Name	Reporting Limit (ug/L)	Amount Found (ug/L)
91-20-3	* Naphthalene	10	ND
91-57-6	* 2-Methylnaphthalene	10	ND
208-96-8	* Acenaphthylene	10	ND
83-32-9	* Acenaphthene	10	ND
86-73-7	* Fluorene	5	ND
85-01-8	* Phenanthrene	5	ND
120-12-7	* Anthracene	5	ND
206-44-0	* Fluoranthene	5	ND
129-00-0	* Pyrene	5	ND
56-55-3	* Bnz (a) Anthracene	5	ND
218-01-9	* Chrysene	5	ND
205-99-2	* Bnz (b) Fluoranthene	5	ND
207-08-9	* Bnz (k) Fluoranthene	5	ND
50-32-8	* Bnz (a) Pyrene	5	ND
53-70-3	* DiBnz (ah) Anthracene	5	ND
191-24-2	* Bnz (g, h, i) Perylene	5	ND
193-39-5	* Indeno (123cd) Pyrene	5	ND
% Surrogate Recovery		34-121%	65%

ND : Not detected at or above the practical quantitation limit for the method.

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McCULLY, FRICK
& GILMAN, INC.

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 610/8310
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : BLANK
 Matrix : WATER
 Date sampled : NA
 Date ext. : 01/06/92
 Date analyzed: 01/08/92
 Dilut. factor: NONE

Anamatrix I.D. : PAHWBLK01692
 Analyst : JWO
 Supervisor : SM
 Date released : 01/09/92
 Volume ext. : 1000 ml
 Instrument ID : HP 17

CAS #	Compound Name	Reporting Limit (ug/L)	Amount Found (ug/L)
91-20-3	* Naphthalene	10	ND
91-57-6	* 2-Methylnaphthalene	10	ND
208-96-8	* Acenaphthylene	10	ND
83-32-9	* Acenaphthene	10	ND
86-73-7	* Fluorene	5	ND
85-01-8	* Phenanthrene	5	ND
120-12-7	* Anthracene	5	ND
206-44-0	* Fluoranthene	5	ND
129-00-0	* Pyrene	5	ND
56-55-3	* Bnz (a) Anthracene	5	ND
218-01-9	* Chrysene	5	ND
205-99-2	* Bnz (b) Fluoranthene	5	ND
207-08-9	* Bnz (k) Fluoranthene	5	ND
50-32-8	* Bnz (a) Pyrene	5	ND
53-70-3	* DiBnz (ah) Anthracene	5	ND
191-24-2	* Bnz (g, h, i) Perylene	5	ND
193-39-5	* Indeno (123cd) Pyrene	5	ND
	% Surrogate Recovery	34-121%	64%

ND : Not detected at or above the practical quantitation limit for the method.

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McCULLY, FRICK
& GILMAN, INC.

POLYNUCLEAR AROMATIC HYDROCARBONS METHOD SPIKE REPORT
 EPA METHOD 610/8310
 ANAMETRIX, INC. (408)432-8192

Sample I.D. : METHOD SPIKE
 Matrix : WATER
 Date sampled : N/A
 Date extracted: 01/06/92
 Date analyzed : 01/08/92

Anamatrix I.D : 9201019
 Analyst : *SW*
 Supervisor : *SD*
 Date released : 01/09/92
 Instrument I.D.: HP17

COMPOUND	SPIKE AMT. (ug/L)	MS (ug/L)	%REC MS	MSD (ug/L)	%REC MSD	RPD	%REC LIMITS
Naphthalene	100.0	59.0	59%	60.0	60%	2%	35-125%
Acnaphthene	100.0	63.0	63%	70.0	70%	11%	35-125%
Flurene	100.0	76.0	76%	74.0	74%	-3%	35-125%
Benzo(a)anthracene	20.0	15.0	75%	14.0	70%	-7%	35-125%
Chrysene	20.0	13.0	65%	12.0	60%	-8%	35-125%

* Limits established by Anamatrix, Inc.

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McCULLEY, FRICK
& GILMAN, INC.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. ED CONTI
McCULLEY, FRICK & GILMAN, INC.
5 THIRD STREET, SUITE 400
SAN FRANCISCO, CA 94103

Workorder # : 9201019
Date Received : 01/03/92
Project ID : 90-2143
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9201019- 1	MW-2	WATER	01/03/92	TPHg/BTEX
9201019- 2	MW-3	WATER	01/03/92	TPHg/BTEX
9201019- 3	MW-1A	WATER	01/03/92	TPHg/BTEX
9201019- 4	TRIP BLANK	WATER	01/03/92	TPHg/BTEX

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McCULLEY, FRICK
& GILMAN, INC.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. ED CONTI
McCULLEY, FRICK & GILMAN, INC.
5 THIRD STREET, SUITE 400
SAN FRANCISCO, CA 94103

Workorder # : 9201019
Date Received : 01/03/92
Project ID : 90-2143
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

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JAN 15 1992

McCULLEY, FRICK
& GILMAN, INC.

Cheryl Balmer 1/10/92
Department Supervisor Date

Gene Yarnell 01-10-92
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9201019
Matrix : WATER
Date Sampled : 01/03/92

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Project Number : 90-2143
Date Released : 01/10/92

JAN 15 1992

McCULLY, FRICK
& GILMAN, INC.

Reporting Limit	Sample I.D.#	Sample I.D.#	Sample I.D.#	Sample I.D.#	Sample I.D.#
	MW-2	MW-3	MW-1A	TRIP BLANK	04B0108D
COMPOUNDS (ug/L)	-01	-02	-03	-04	BLANK
Benzene	0.5	ND	ND	2.4	ND
Toluene	0.5	ND	ND	0.9	ND
Ethylbenzene	0.5	ND	ND	1.4	ND
Total Xylenes	0.5	ND	ND	3.2	ND
TPH as Gasoline	50	ND	ND	77	ND
% Surrogate Recovery	118%	74%	99%	93%	103%
Instrument I.D.	HP4	HP4	HP4	HP4	HP4
Date Analyzed	01/08/92	01/08/92	01/08/92	01/08/92	01/08/92
RLMF	1	1	1	1	1

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
- BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
- RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Leanne Jusik 01-10-92
Analyst Date

Cheryl Balmer 1/10/92
Supervisor Date

BTEX METHOD SPIKE REPORT
 EPA METHOD 5030 WITH GC/PID
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : METHOD SPIKE
 Matrix : WATER
 Date Sampled : N/A
 Date Analyzed : 01/08/92

Anamatrix I.D.: SPK0108
 Analyst : *zy*
 Supervisor : *ch*
 Date Released : 01/10/92
 Instrument ID : HP8

COMPOUND	SPIKE AMT. (ug/L)	MS (ug/L)	REC MS	MSD (ug/L)	REC MSD	RPD	%REC LIMITS
Benzene	10	6.4	64%	6.6	66%	3%	46-149
Toluene	10	6.8	68%	6.8	68%	0%	43-146
Ethylbenzene	10	7.0	70%	7.0	70%	0%	51-138
M+P-Xylenes	6.7	4.8	72%	4.7	70%	-2%	39-161
O-Xylene	3.3	2.3	70%	2.3	70%	0%	37-156
	0						
P-BFB			121%		127%		53-147

* Limits established by Anamatrix, Inc.

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JAN 15 1992

McCULLY, FRICK
& GILMAN, INC.

9201019 10/12^{TT}
1930

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

NO. _____

McCULLY, FRICK & GILMAN, INC RECEIVED

737 29th Street, Suite 202
Boulder, CO 80303
TEL: (303) 447-1823
FAX: (303) 447-1836

5818 Balcones Dr., Suite 202
Austin, TX 78731
TEL: (512) 371-1667
FAX: (512) 454-4126

JAN 15 1992
McCULLY, FRICK
& GILMAN, INC.

5 Third St., Suite 400
San Francisco, CA 94103
TEL: (415) 495-7110
FAX: (415) 495-7107

PROJECT No.: 90-2143 PROJECT NAME: Avis-Oakland Int'l Airport PAGE: 1 OF: 1
 SAMPLER (Signature): K.B. Alex DATE: 1/3/92
 METHOD OF SHIPMENT: courier CARRIER/WAYBILL NO. _____ DESTINATION: Anamatrix
 SPECIAL INSTRUCTIONS/HAZARDS: note condition of samples upon receipt

SAMPLES

ANALYSIS REQUEST

Lab No.	Sample Identification	Sample Collection		Matrix*	Preservation						Containers*			Methods				Handling			REMARKS (Special handling procedures, specific analytical methods, observations, etc.)						
		DATE	TIME		HCL	HNO ₃	H ₂ SO ₄	COLD	NONE	OTHER	VOL. (ml)	TYPE*	No.	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	TPH as Gasoline	TPH as Diesel	BTEX		EPA 8310 (PNA)	HOLD	RUSH	STANDARD		
	MW-2	1/3	10 ⁴⁰	AQ	✓			✓				40	G	3				✓	✓								No bubbles
	MW-2	1/3	10 ⁴⁰					✓				1000	G	2					✓								
	MW-3	1/3	11 ³⁰		✓			✓				40	G	3				✓	✓								
	MW-3	1/3	11 ³⁰					✓				1000	G	2					✓								
	MW-1A	1/3	12 ⁴⁰		✓			✓				40	G	3				✓	✓								
	MW-1A	1/3	12 ⁴⁰					✓				1000	G	2					✓								
	travel blank	-	-	AQ	✓			✓				40	G	3				✓	✓								2x VOAs w/ 3mm bnb

TOTAL NUMBER OF CONTAINERS 18

LABORATORY COMMENTS/CONDITION OF SAMPLES

RELINQUISHED BY:				DATE		RECEIVED BY:			
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME
<i>K.B. Alex</i>	K.B. Alexander	MFG	1/3/92	134	<i>Benny S. Carr</i>	BENNY S. CARR	ANAMATRIX		
<i>Benny S. Carr</i>	BENNY S. CARR	ANAMATRIX	1/3/92	1550	<i>Tram Tran</i>	TRAM TRAN	ANAMATRIX		

*KEY: Matrix AQ-aqueous NA-nonaqueous SO-soil SL-sludge P-petroleum A-air OT-other Containers P-plastic G-glass T-teslon B-brass OT-other

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