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**QUARTERLY GROUND WATER
MONITORING REPORT**

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

Feb 1993

February 16, 1993

Prepared For:

**AVIS RENT A CAR SYSTEM, INC.
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Garden City, New York 11530**

Prepared By:

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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 16, 1993

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A

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QUARTERLY GROUND WATER MONITORING REPORT

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

1.0 INTRODUCTION

This report presents the methods and results of the January 1993 quarterly ground water monitoring event conducted at the Avis Rent A Car System, Inc. (Avis) service center 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 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 5, 1993 using an Environmental Instruments electronic well probe. 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, PVC 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 wells MW-1A, MW-2 and MW-3 on January 5, 1993. Prior to collecting samples, each well was purged using a positive displacement hand pump. Four casing volumes (6.0 gallons) were purged from well MW-2. Wells MW-1A and MW-3 were pumped dry after removal of approximately 3.7 casing volumes (5.2 gallons) and 2.5 casing volumes (4.0 gallons), respectively. MFG resampled well MW-1A on February 2, 1993 to confirm the chemical analysis results for the ground water sample collected from this well on January 5, 1993. Prior to collecting the sample on February 2, 1993, approximately four casing volumes (6.0 gallons) were purged from well MW-1A. The temperature, pH and specific conductance of the water removed from the wells during purging were monitored for both sampling events.

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 (5 Jan 93)	14	7.1	8,700
MW-1A (2 Feb 93)	16	7.0	12,000
MW-2	14	7.3	4,200
MW-3	14	7.4	28,000

The following samples were subsequently collected from wells MW-1A, MW-2 and MW-3 on January 5, 1993 and placed in containers supplied by the laboratory:

- Total Purgeable 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 for sample preservation.

In addition, the following sample was collected from well MW-1A on January 5, 1993 and placed in a container supplied by the laboratory:

- Polynuclear Aromatic Hydrocarbons (PNA's): one, one-liter amber glass bottle with a Teflon®-lined lid.

Well MW-1A was resampled on February 2, 1993. The following samples were collected from MW-1A on that date:

- TPH as Gasoline and BTEX: three, 40-milliliter (ml) glass vials closed with a screw cap with a Teflon®-lined septum, containing hydrochloric acid for sample preservation; and
- Fuel Fingerprinting: three, 40-milliliter (ml) glass vials closed with a screw cap with a Teflon®-lined septum, containing hydrochloric acid for sample preservation.

After filling, the ground water sample containers were placed in ice-cooled, insulated chests for transport to the laboratories for analysis. Chain-of-custody records were completed for the samples and accompanied the samples until receipt by the laboratories.

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

Chemical analysis of the groundwater samples (other than for fuel fingerprinting) was performed by Sequoia Analytical laboratory (Sequoia) of Redwood City, California. The fuel fingerprinting analysis is discussed in Section 2.3. The following analyses were performed by Sequoia:

- TPH as Gasoline (EPA Method 5030/modified EPA Method 8015)
- BTEX (EPA Method 8020)
- PNA's (EPA Method 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, benzene, toluene, ethylbenzene and total xylenes were not detected above their laboratory method reporting limits in the ground water samples collected from wells MW-2 and MW-3 on January 5, 1993.

Benzene, toluene, ethylbenzene and total xylenes were not detected above the laboratory method reporting limit in the sample collected from well MW-1A on January 5, 1993. PNA's were also not detected above their respective laboratory method reporting limits in the ground water sample collected from well MW-1A on January 5, 1993.

TPH as gasoline was detected at a concentration of 0.100 milligrams per liter (mg/L) in the ground water sample collected from well MW-1A on January 5, 1993. However, the laboratory indicated that the chromatogram pattern for this sample did not resemble gasoline (Appendix A). Well MW-1A was resampled on February 2, 1993 to confirm the results of the January 5, 1993 sampling event.

In the sample collected from Well MW-1A on February 2, 1993, TPH as gasoline was detected at a concentration of 0.054 mg/L, benzene was detected at a concentration of 0.011 mg/L and total xylenes were detected at a concentration of 0.00092 mg/L. Toluene and ethylbenzene were not detected above the laboratory method reporting limit in the sample collected from well MW-1A on February 2, 1993. The laboratory indicated that the chromatogram pattern of this sample resembled a gasoline pattern (Appendix A).

2.3 FUEL FINGERPRINTING

To evaluate the possibility that a mixture of compounds other than gasoline may be present in the ground water collected from well MW-1A, a ground water sample was collected on February 2, 1993 for fuel fingerprinting analysis. The fuel fingerprinting analysis was performed by Friedman & Bruya, Inc. laboratory (F&B) of Seattle, Washington. F&B concluded that low concentrations of low boiling point hydrocarbons were present, but the compounds did not create a discernable chromatographic pattern. Identification of the specific compounds present was not possible because of their low concentrations. A copy of the laboratory report, which includes the laboratory's description of the sample chromatographic pattern, the sample chromatograms and the chain-of-custody record, is provided in Appendix A.

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 5, 1993 (Table 2). The depth to water in the wells ranged from approximately five to six feet below the ground surface. The elevations of the potentiometric 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 5, 1993 was constructed using these data and is shown in Figure 13. The potentiometric surface contours illustrate that the direction of the lateral hydraulic gradient on January 5, 1993 was northeast, with an approximate magnitude of 0.003.

Water level measurements performed periodically at the Site from May 1990 to October 1992 indicate that the direction of the lateral hydraulic gradient has varied from south-southeast to northeast. Historical potentiometric surface maps of the shallow ground water at the Site are included in Figures 3 through 12.

4.0 GROUND WATER MONITORING SCHEDULE

The anticipated date for the next ground water monitoring event is April 1993. The next ground water monitoring report will be submitted by May 31, 1993.

TABLE 1
(Page 1 of 3)

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	0.0005	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-1A	2-Apr-92	ND	ND	ND	ND	ND	ND	ND
	MW-1A	28-Jul-92	ND	ND	ND	ND	ND	ND [0.005]	ND
	MW-1A	20-Oct-92	ND	ND	ND	ND	ND	ND [0.004]	ND
	MW-1A	05-Jan-93	0.100	ND	ND	ND	ND	ND [0.001]	ND
	MW-1A	02-Feb-93 ⁹	0.054	0.011	ND	ND	0.00092	NA	NA
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

TABLE 1
(Page 2 of 3)

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-2	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
	MW-2	2-Apr-92	ND	ND	ND	ND	ND	NA	NA
	MW-2	28-Jul-92	ND	ND	ND	ND	ND	NA	NA
	MW-2	20-Oct-92	ND	ND	ND	ND	ND	NA	NA
	MW-2	05-Jan-93	ND	ND	ND	ND	ND	NA	NA
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

TABLE 1
(Page 3 of 3)

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	2-Apr-92	ND	ND	ND	ND	ND	NA	NA
	MW-3	28-Jul-92	ND	ND	ND	ND	ND	NA	NA
	MW-3	20-Oct-92	ND	ND	ND	ND	ND	NA	NA
	MW-3	05-Jan-93	ND	ND	ND	ND	ND	NA	NA

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
- ⁹ Well MW-1A was resampled on February 2, 1993 to confirm the chemical analysis results of the sample collected on January 5, 1993.

TABLE 2
(Page 1 of 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
	2-Apr-92	4.75	3.20	-1.55
	28-Jul-92	5.93	3.20	-2.73
	20-Oct-92	6.06	3.20	-2.86
	05-Jan-93	4.97	3.20	-1.77
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
	2-Apr-92	5.58	4.07	-1.51
	28-Jul-92	6.38	4.07	-2.31
	20-Oct-92	6.49	4.07	-2.42
	05-Jan-93	5.64	4.07	-1.57
	MW-3	23-May-90	6.77	3.98
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

TABLE 2
(Page 2 of 2)

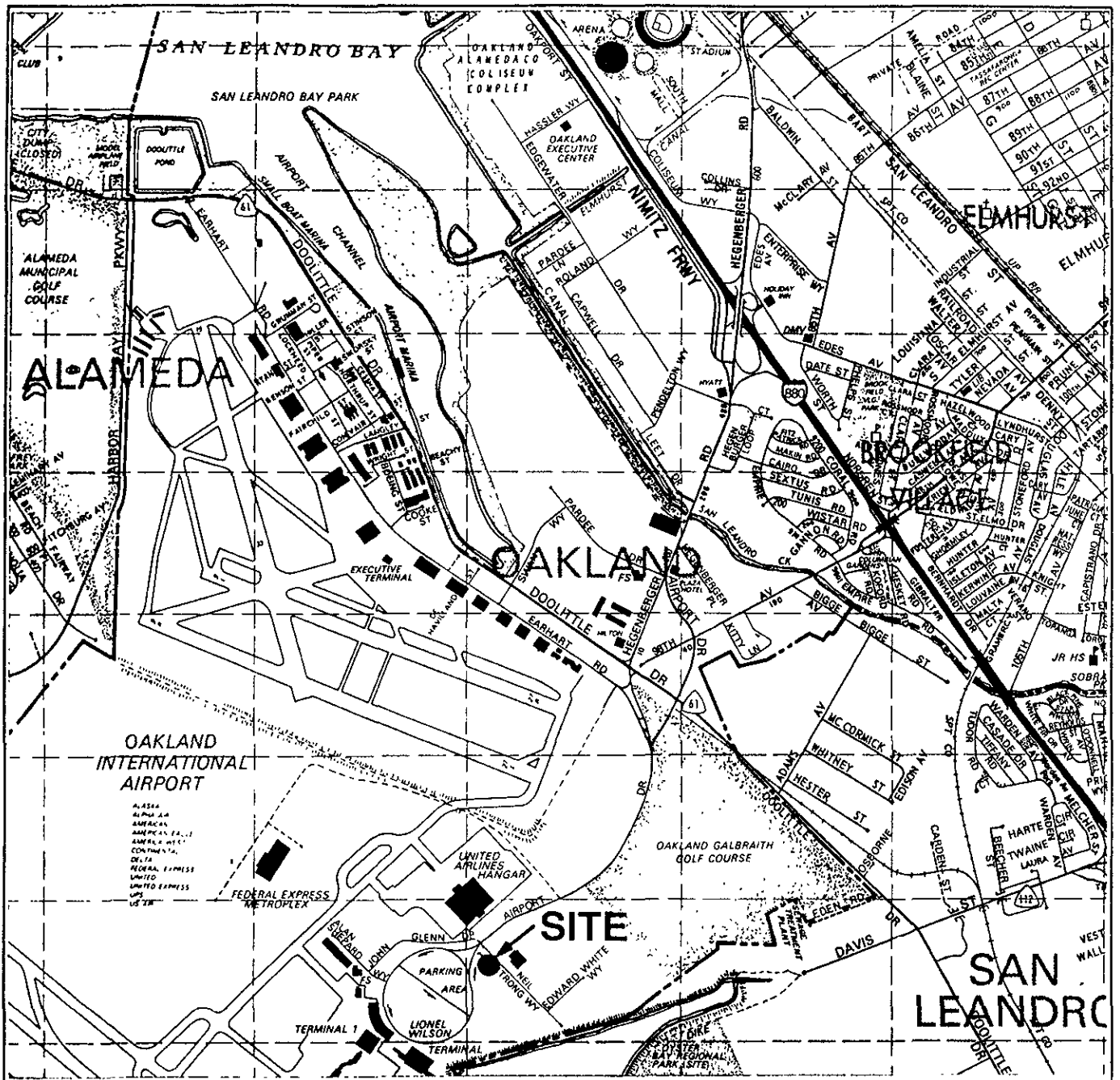
SUMMARY OF WATER LEVEL DATA FOR
GROUND WATER MONITORING WELLS

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

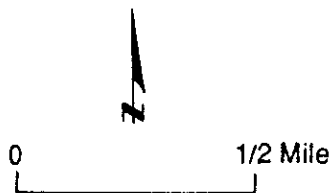
WELL	MEASUREMENT DATE	DEPTH TO WATER (ft BMP ¹)	MEASURING POINT ELEVATION ² (ft NGVD ³)	WATER LEVEL ELEVATION (ft NGVD)
MW-3	2-Apr-92	5.53	3.98	-1.55
	28-Jul-92	7.00	3.98	-3.02
	20-Oct-92	7.25	3.98	-3.27
	05-Jan-93	5.61	3.98	-1.63

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.

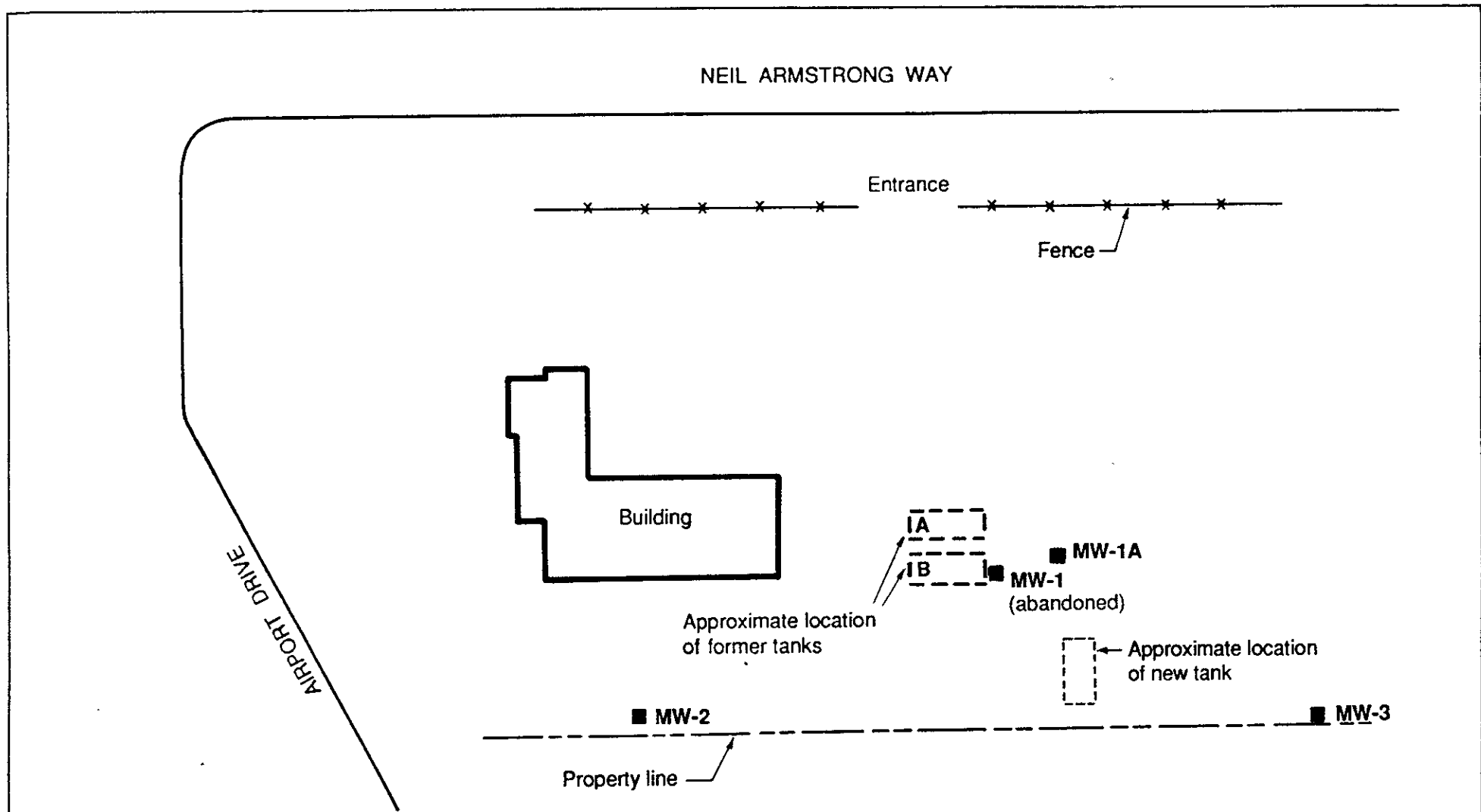


Source: The Thomas Guide,
Alameda and Santa Clara Counties Street Guide and Directory,
1989 Edition



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

McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 1
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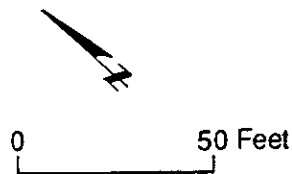
EXPLANATION

MW-2 ■ Location of monitoring well

Notes:

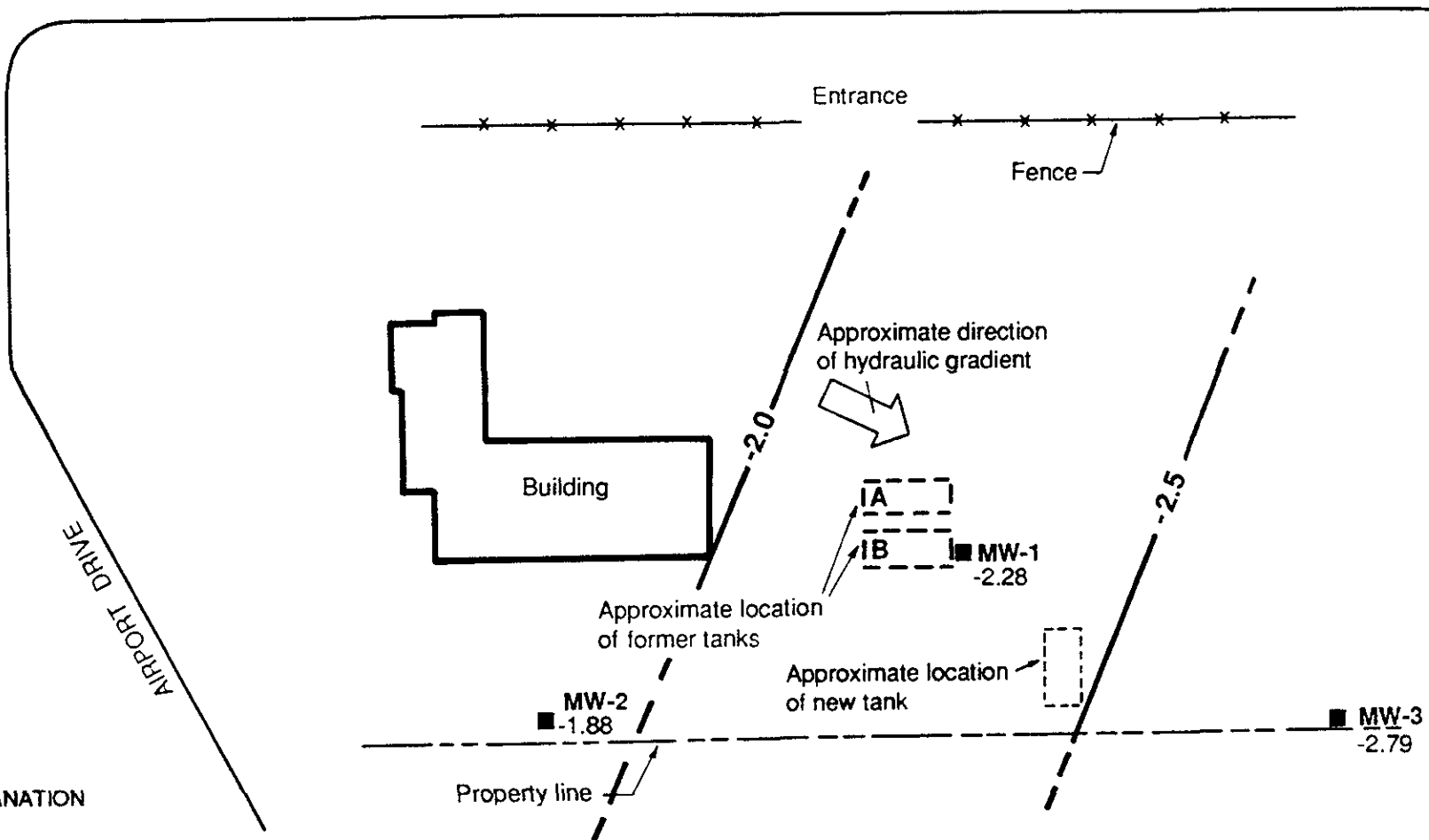
1. Well MW-1 abandoned on February 26, 1991.
2. Well MW-1A installed on April 1, 1991.

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



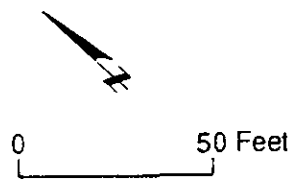
SITE PLAN Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California		
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 2

NEIL ARMSTRONG WAY



EXPLANATION

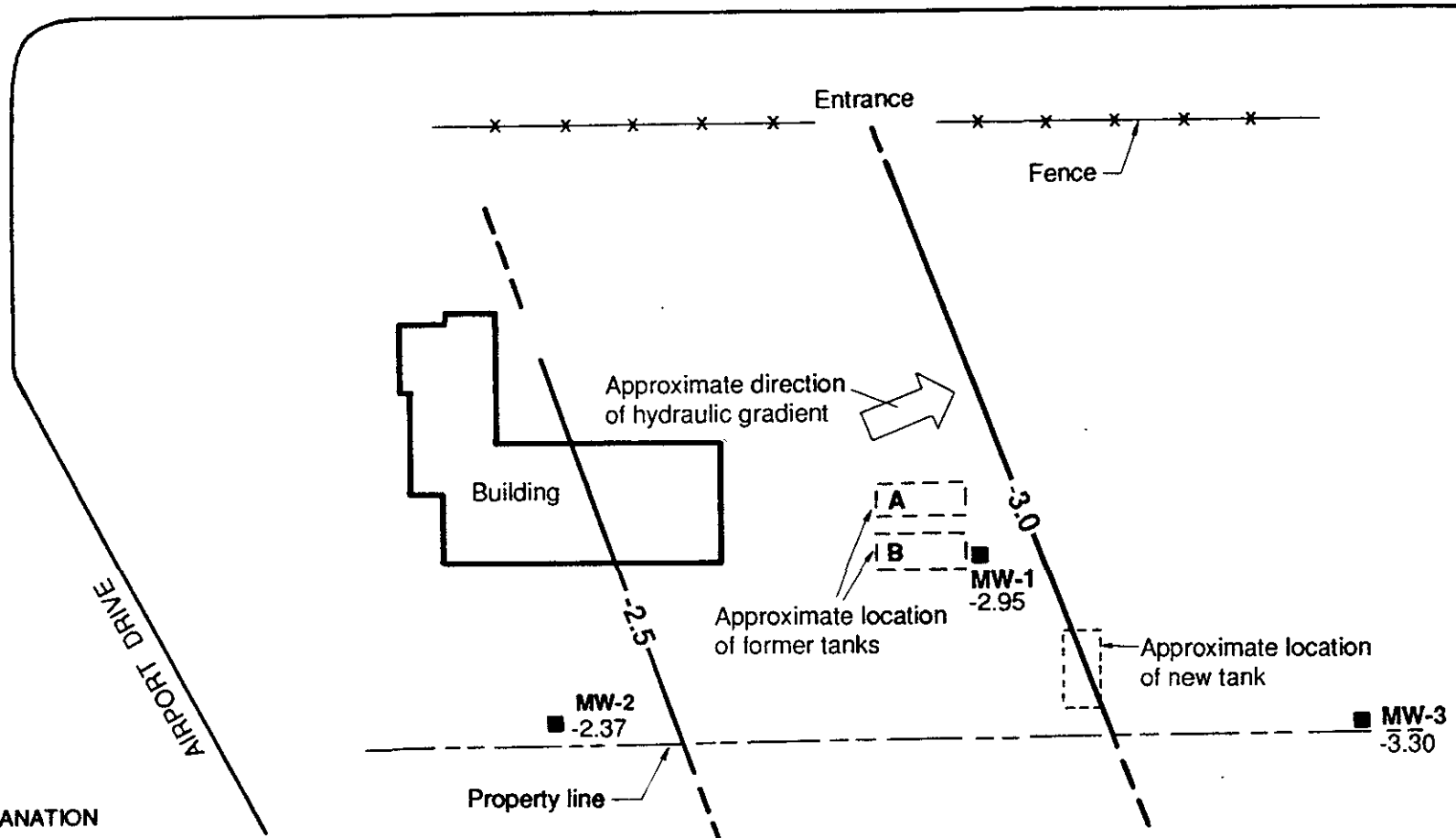
- MW-1 ■ Location of monitoring well with elevation of potentiometric surface on May 23, 1990 (ft. NGVD) -2.28
- — Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet



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

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

NEIL ARMSTRONG WAY



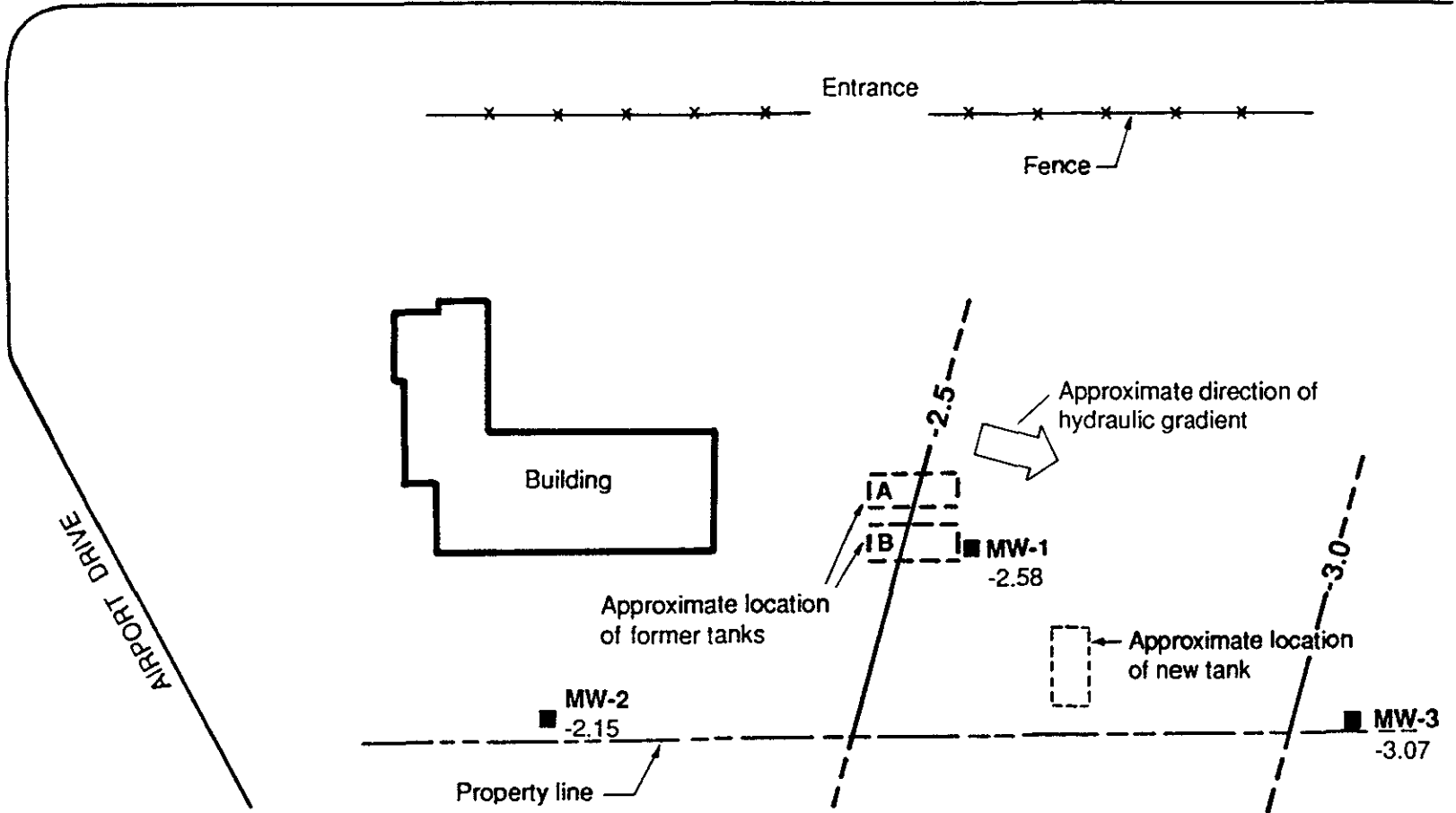
EXPLANATION

- MW-1** ■ Location of monitoring well with elevation of potentiometric surface on 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

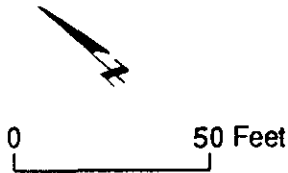
NEIL ARMSTRONG WAY



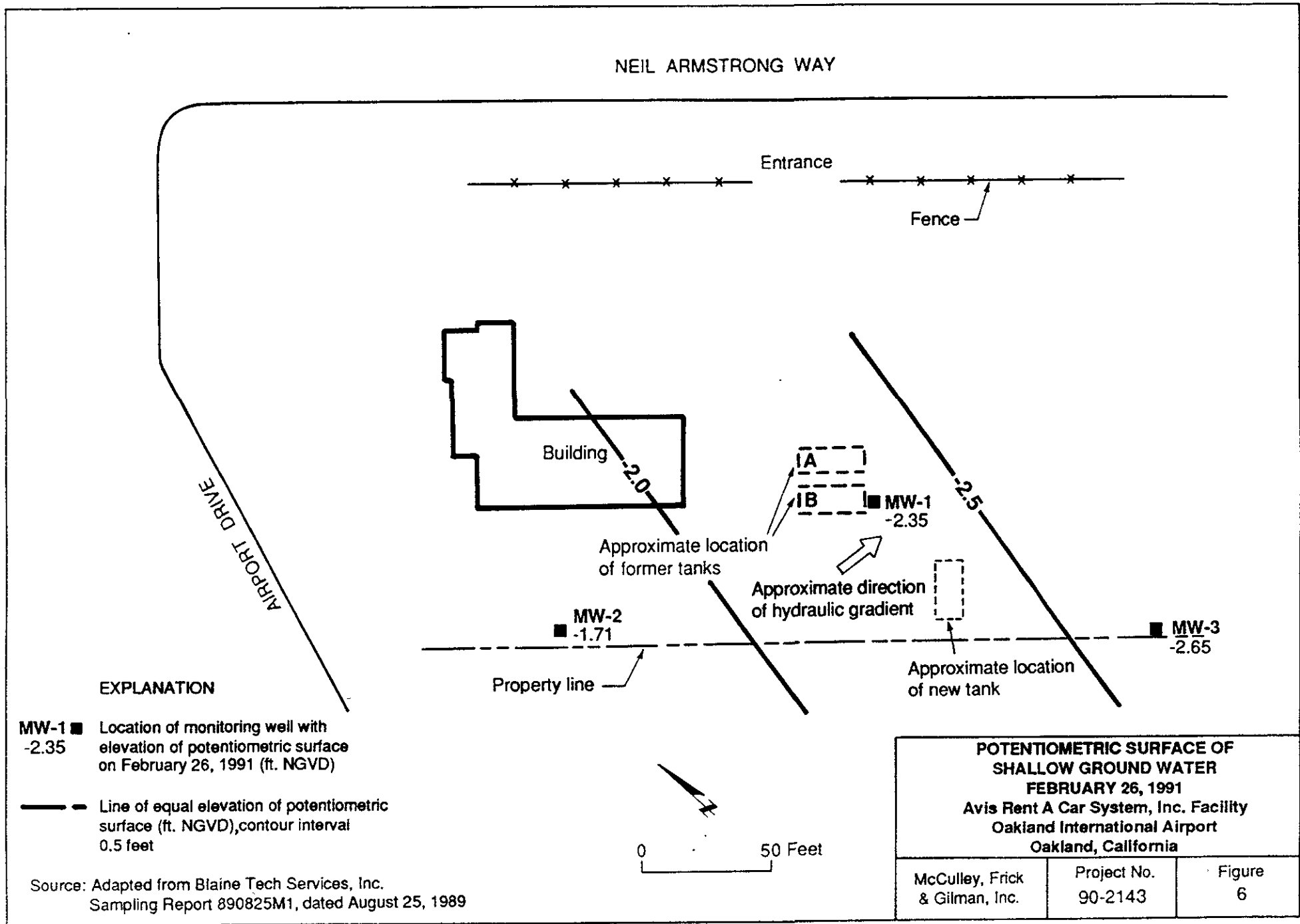
EXPLANATION

- 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

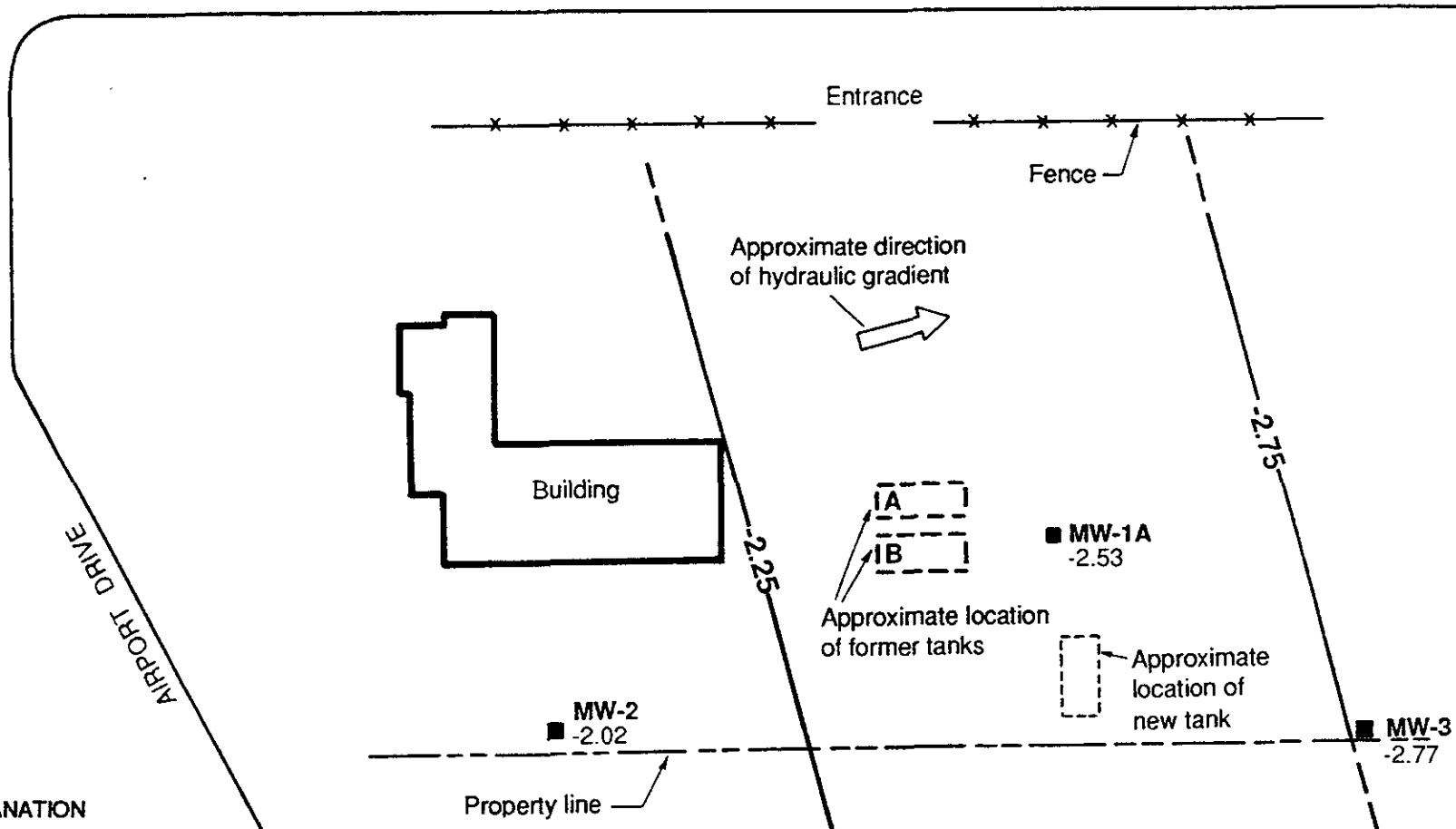
Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989



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

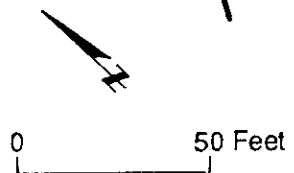


EXPLANATION

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

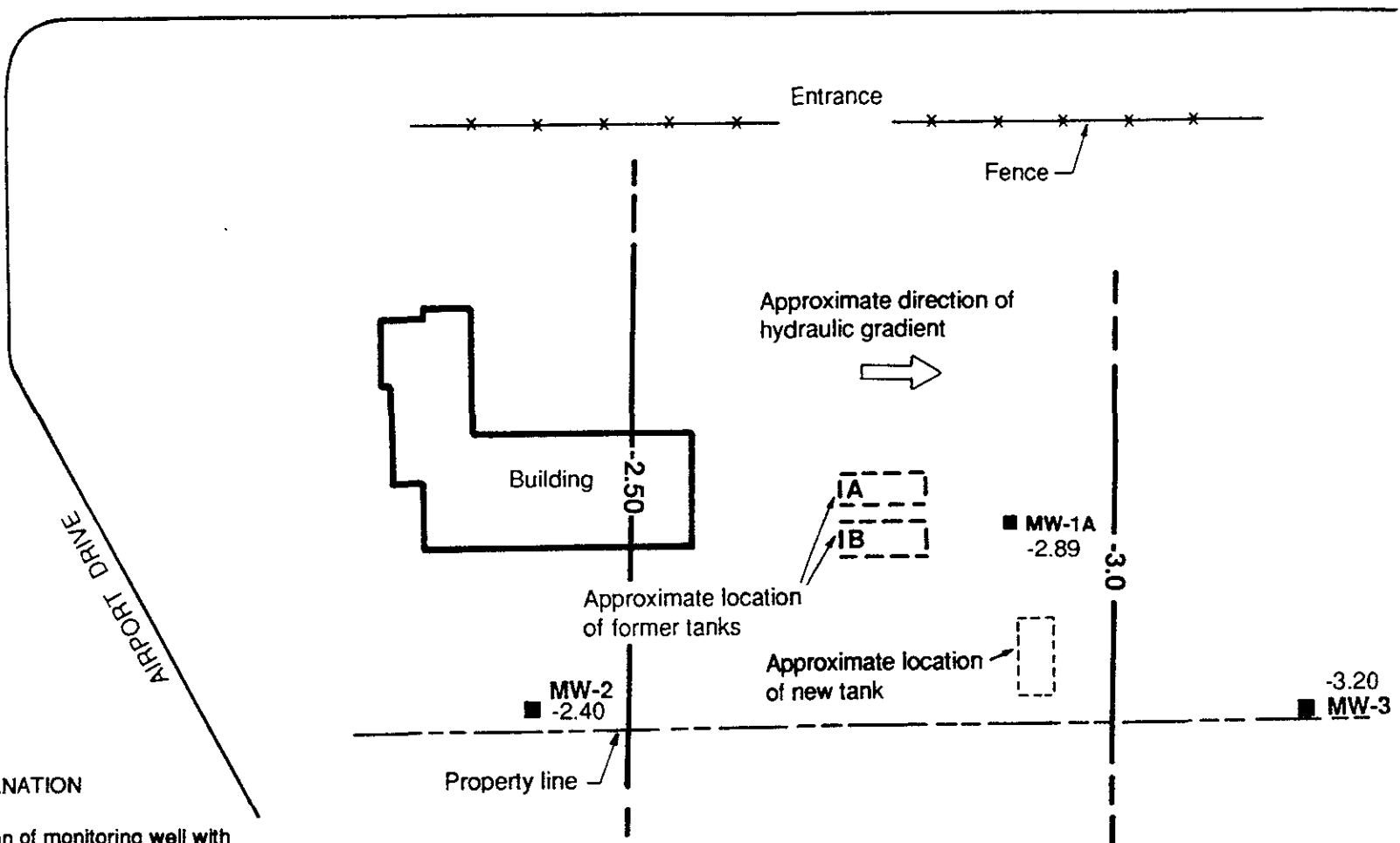
--- Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet

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

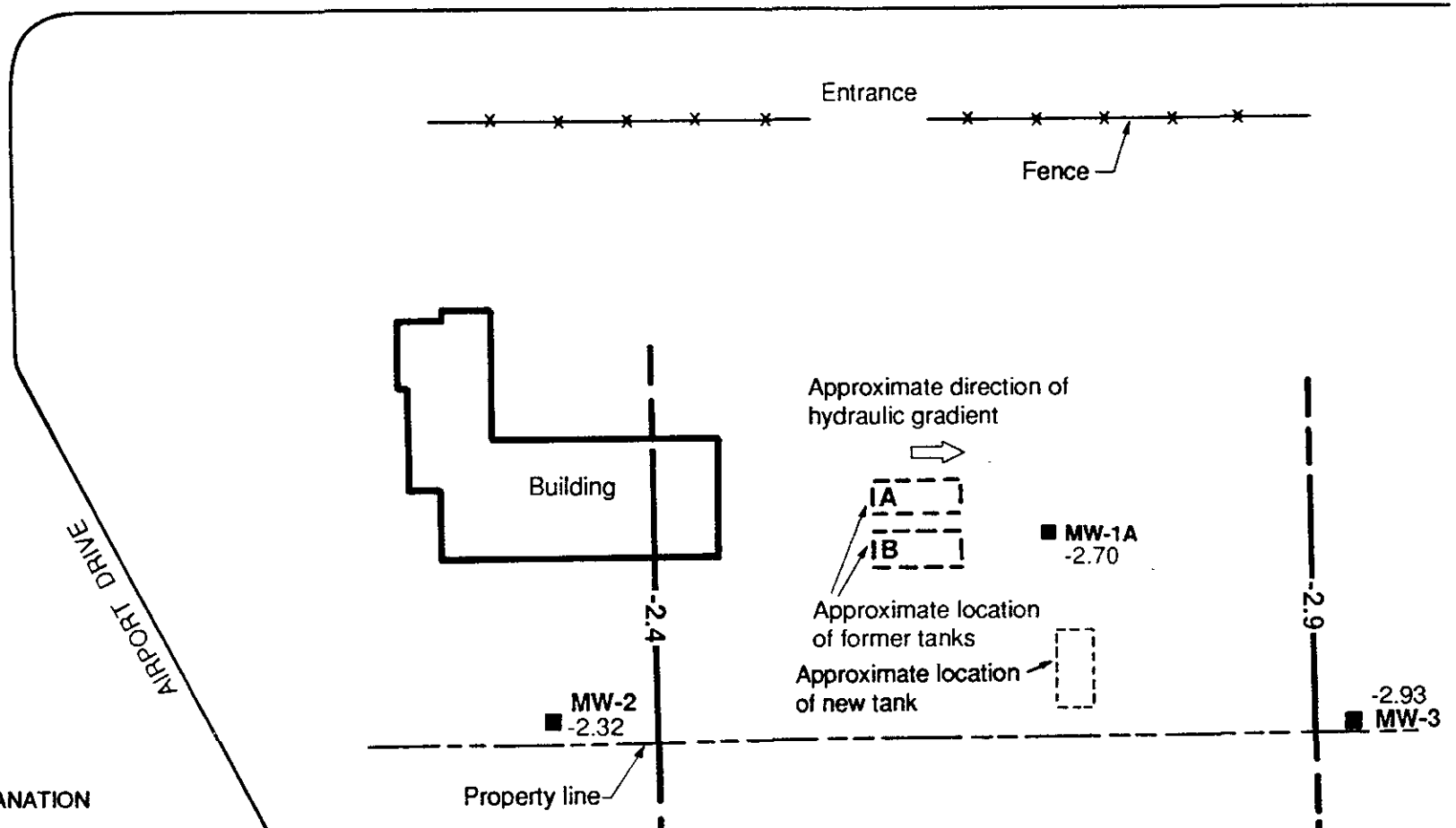
POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER
OCTOBER 18, 1991
Avis Rent A Car System, Inc. Facility
Oakland International Airport
Oakland, California

McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 8
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Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989

0 50 Feet

NEIL ARMSTRONG WAY



EXPLANATION

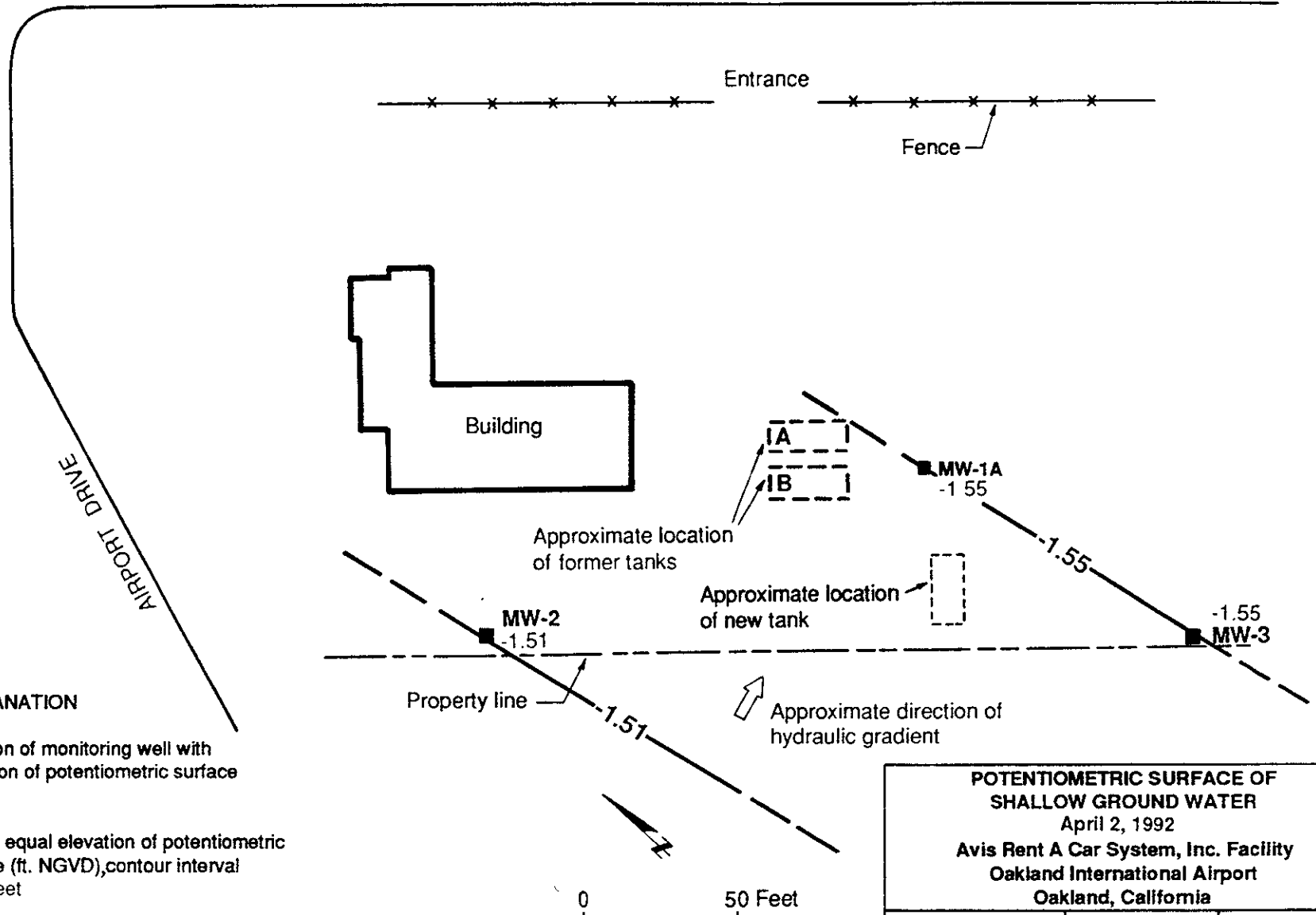
MW-2 ■ Location of monitoring well with elevation of potentiometric surface -2.32

— 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

NEIL ARMSTRONG WAY



EXPLANATION

MW-2 ■ Location of monitoring well with elevation of potentiometric surface -1.51

— Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.04 feet

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

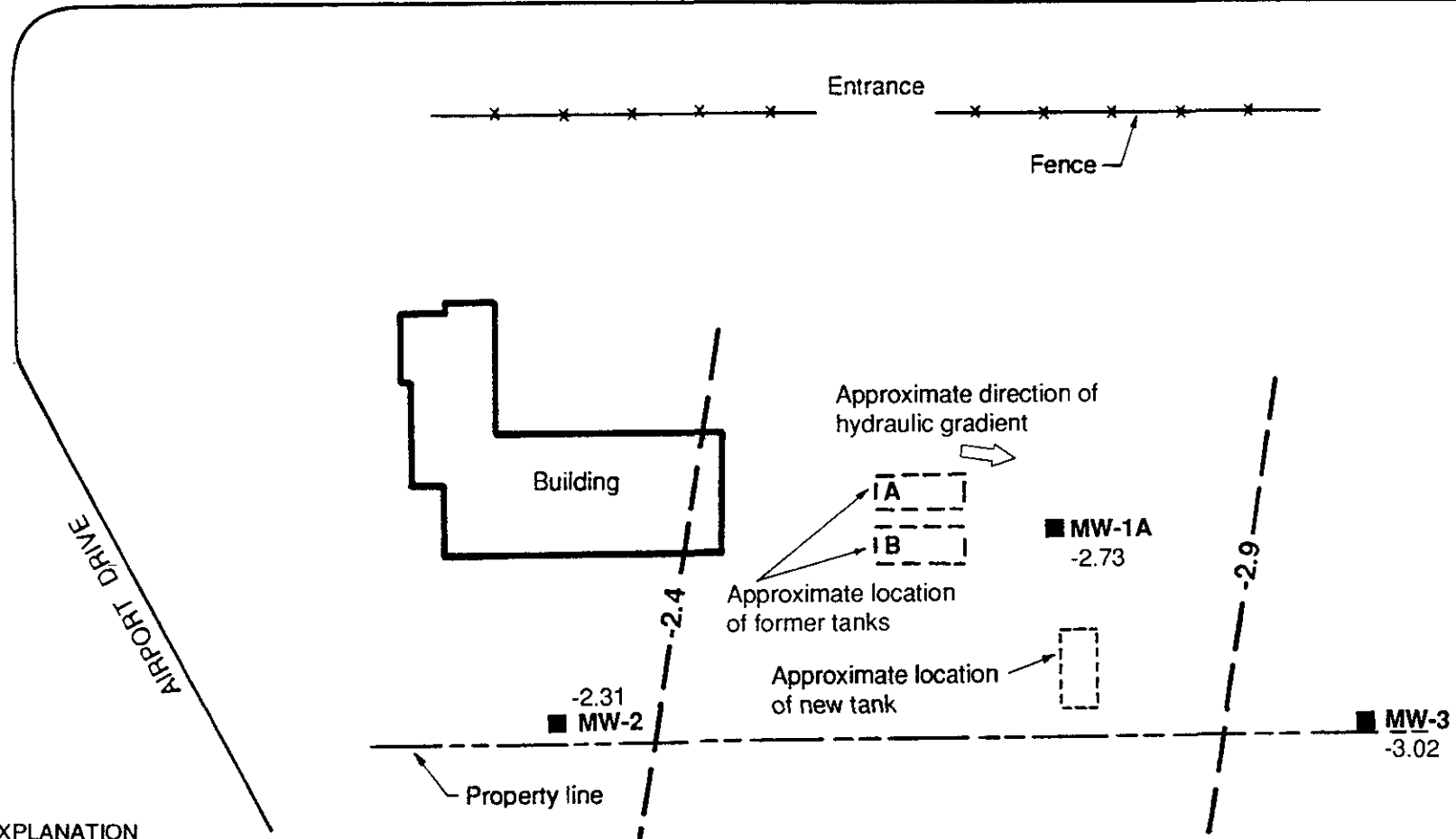
POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER
 April 2, 1992
Avis Rent A Car System, Inc. Facility
Oakland International Airport
Oakland, California

McCulley, Frick & Gilman, Inc.

Project No. 90-2143

Figure 10

NEIL ARMSTRONG WAY



EXPLANATION

- MW-2** ■ Location of monitoring well with elevation of potentiometric surface -2.31
- — — 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

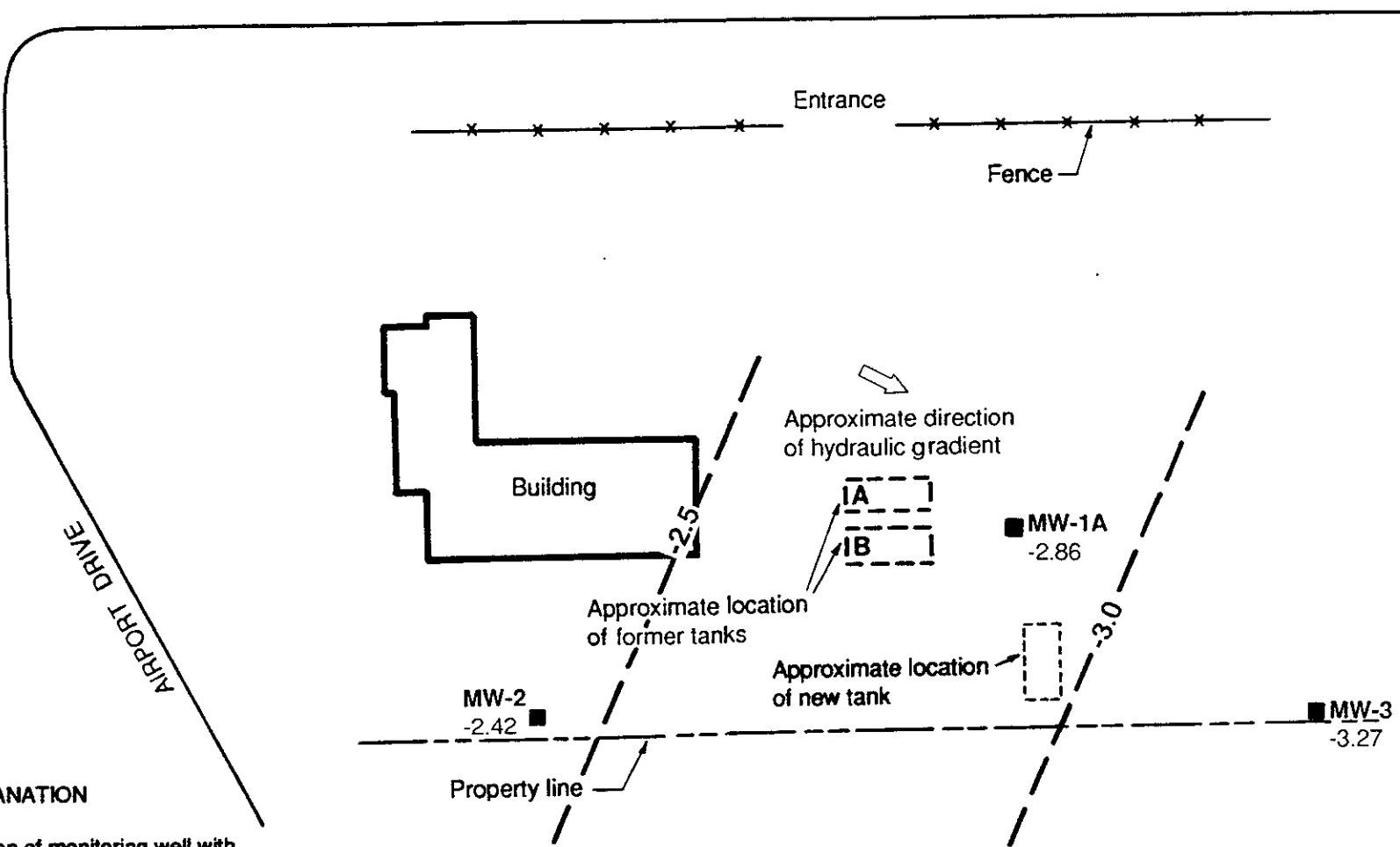
POTENTIOMETRIC SURFACE OF
SHALLOW GROUND WATER
July 28, 1992
Avis Rent A Car System, Inc. Facility
Oakland International Airport
Oakland, California

McCulley, Frick
& Gilman, Inc.

Project No.
90-2143

Figure
11

NEIL ARMSTRONG WAY



EXPLANATION

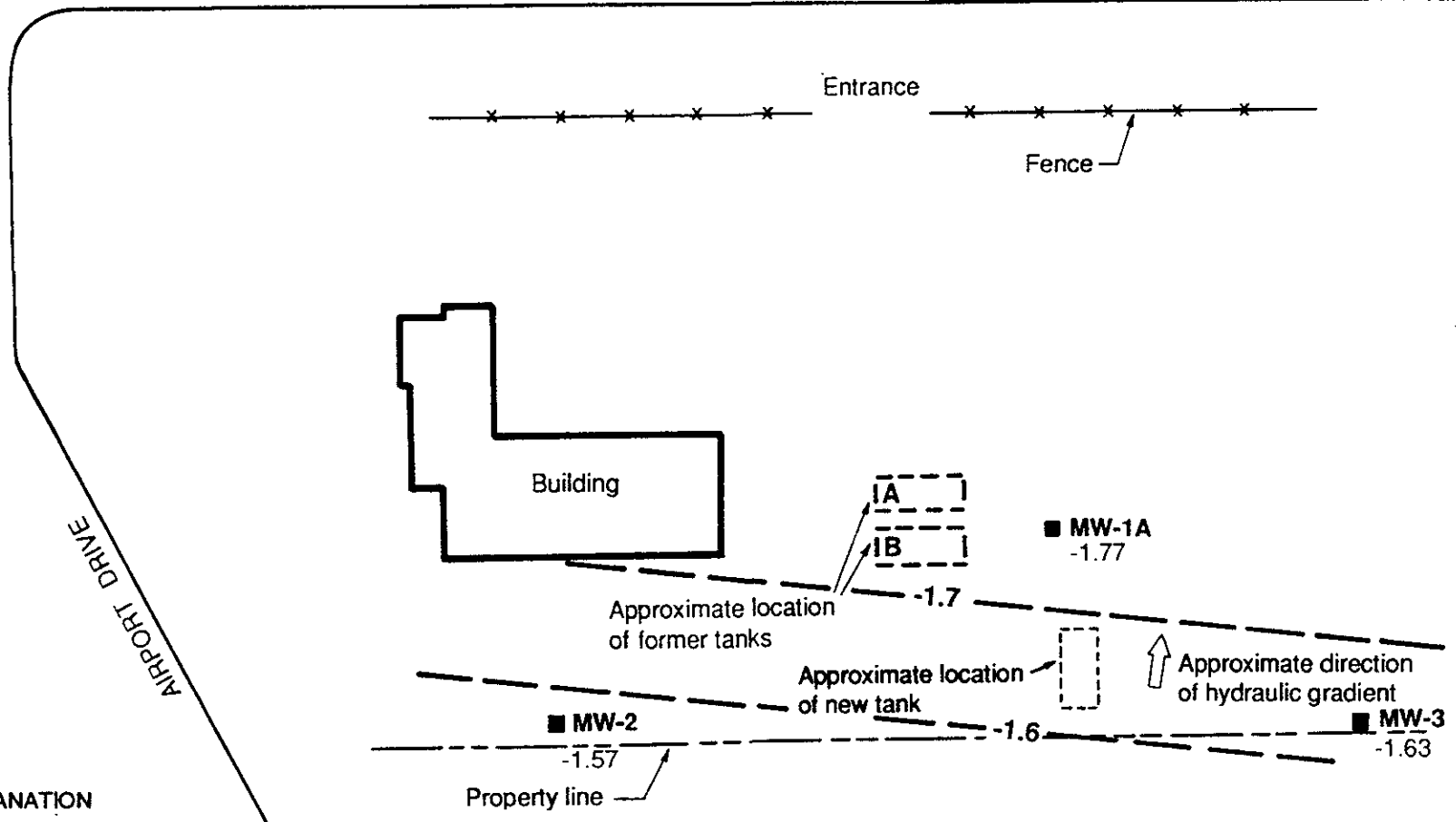
MW-2 ■ Location of monitoring well with elevation of potentiometric surface -2.42

— — 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 October 20, 1992 Avis Rent A Car System, Inc. Facility Oakland, California		
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 12

NEIL ARMSTRONG WAY

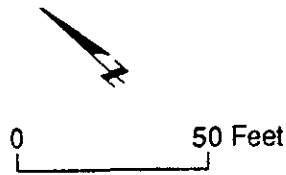


EXPLANATION

MW-2 ■ Location of monitoring well with elevation of potentiometric surface -1.57

--- Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.1 feet

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



POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER January 5, 1993 Avis Rent A Car System, Inc. Facility Oakland International Airport Oakland, California		
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 13

APPENDIX A

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



SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

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JAN 28 1993

McCULLEY, FRICK
& GILMAN, INC.

McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Ed Conti

Client Project ID: 90-2143
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 301-0653 ✓

Sampled: Jan 5, 1993
Received: Jan 6, 1993
Reported: Jan 25, 1993

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 301-0653 MW-2	Sample I.D. 301-0654 MW-3	Sample I.D. 301-0655 MW-1A	Sample I.D. 301-0656 Trip Blank	Sample I.D. GBLK010993 Method Blank	Sample I.D. GBLK010993 Method Blank
Purgeable Hydrocarbons	50	N.D.	N.D.	100	N.D.	N.D.	N.D.
Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	Non-Gas Mix <C8	--	--	--

Quality Control Data

Report Limit							
Multiplication Factor:		1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:		1/9/93	1/9/93	1/9/93	1/9/93	1/9/93	1/9/93
Instrument Identification:		GCHP-2	GCHP-2	GCHP-2	GCHP-3	GCHP-3	GCHP-2
Surrogate Recovery, %: (QC Limits = 70-130%)		78	77	94	89	97	91

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

3010653.MMM <1>



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McCULLEY, FRICK
& GILMAN, INC.

McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Ed Conti

Client Project ID: 90-2143
Sample Descript: Water, MW-1A
Analysis Method: EPA 8310
Lab Number: 301-0655
Instrument ID: GCW1

Sampled: Jan 5, 1993
Received: Jan 6, 1993
Extracted: Jan 8, 1993
Analyzed: Jan 14, 1993
Reported: Jan 25, 1993

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 8310)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthylene.....	10	N.D.
Indeno (1,2,3,cd) pyrene.....	0.10	N.D.
Naphthalene.....	1.0	N.D.
Acenaphthene.....	0.10	N.D.
Fluorene.....	1.0	N.D.
Phenanthrene.....	0.050	N.D.
Anthracene.....	0.25	N.D.
Fluoranthene.....	2.0	N.D.
Pyrene.....	0.010	N.D.
Benzo (a) anthracene.....	0.0025	N.D.
Chrysene.....	0.020	N.D.
Benzo (b) fluoranthene.....	0.25	N.D.
Benzo (k) fluoranthene.....	0.050	N.D.
Benzo (a) pyrene.....	0.010	N.D.
Dibenzo (a,h) anthracene.....	0.010	N.D.
Benzo (g,h,i) perylene.....	0.025	N.D.
2- Methylanthracene.....	2.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection

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Project Manager



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& GILMAN, INC.

McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Ed Conti

Client Project ID: 90-2143
Sample Descript: Water, Method Blank
Analysis Method: EPA 8310
Lab Number: BLK011393
Instrument ID: GCW1

Extracted: Jan 8, 1993
Analyzed: Jan 14, 1993
Reported: Jan 25, 1993

POLYNUCLEAR AROMATIC HYDROCARBONS by HPLC (EPA 8310)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acenaphthylene.....	10	N.D.
Indeno (1,2,3,cd) pyrene.....	0.10	N.D.
Naphthalene.....	1.0	N.D.
Acenaphthene.....	0.10	N.D.
Fluorene.....	1.0	N.D.
Phenanthrene.....	0.050	N.D.
Anthracene.....	0.25	N.D.
Fluoranthene.....	2.0	N.D.
Pyrene.....	0.010	N.D.
Benzo (a) anthracene.....	0.0025	N.D.
Chrysene.....	0.020	N.D.
Benzo (b) fluoranthene.....	0.25	N.D.
Benzo (k) fluoranthene.....	0.050	N.D.
Benzo (a) pyrene.....	0.010	N.D.
Dibenzo (a,h) anthracene.....	0.010	N.D.
Benzo (g,h,i) perylene.....	0.025	N.D.
2- Methylanthracene.....	2.5	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Tod Granicher
Project Manager



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& GILMAN, INC.

McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Ed Conti

Client Project ID: 90-2143

QC Sample Group: 301-0653-55

Reported: Jan 25, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Nipp	M. Nipp	M. Nipp	M. Nipp
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Jan 9, 1993	Jan 9, 1993	Jan 9, 1993	Jan 9, 1993
QC Sample #:	GBLK010993	GBLK010993	GBLK010993	GBLK010993
Instrument ID:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10	30
Conc. Matrix Spike:	8.6	8.6	8.6	26
Matrix Spike % Recovery:	86	86	86	87
Conc. Matrix Spike Dup.:	8.4	8.4	8.6	26
Matrix Spike Duplicate % Recovery:	84	84	86	87
Relative % Difference:	2.4	2.4	0.0	0.0

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Tod Granicher
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

3010653.MMM <4>



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McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Ed Conti

Client Project ID: 90-2143

QC Sample Group: 301-0656

Reported: Jan 25, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Nipp	M. Nipp	M. Nipp	M. Nipp
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Jan 9, 1993	Jan 9, 1993	Jan 9, 1993	Jan 9, 1993
QC Sample #:	GBLK010993	GBLK010993	GBLK010993	GBLK010993
Instrument ID:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10	30
Conc. Matrix Spike:	9.7	9.9	9.6	29
Matrix Spike % Recovery:	97	99	96	97
Conc. Matrix Spike Dup.:	9.9	9.8	10	30
Matrix Spike Duplicate % Recovery:	99	98	100	100
Relative % Difference:	2.0	1.0	4.1	3.4

SEQUOIA ANALYTICAL

Tod Granicher
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Ed Conti

Client Project ID: 90-2143

QC Sample Group: 301-0655

Reported: Jan 25, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Naphthalene	Acceaphthene	Pyrene
---------	-------------	--------------	--------

Method:	EPA 8310	EPA 8310	EPA 8310
Analyst:	D. Dreblow	D. Dreblow	D. Dreblow
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Dec 28, 1992	Dec 28, 1992	Dec 28, 1992
QC Sample #:	BLK122892	BLK122892	BLK122892
Instrument ID:	GCW1	GCW1	GCW1
Sample Conc.:	N.D.	N.D.	N.D.
Spike Conc. Added:	7500	1000	100
Conc. Matrix Spike:	4100	700	72
Matrix Spike % Recovery:	55	70	72
Conc. Matrix Spike Dup.:	3300	680	69
Matrix Spike Duplicate % Recovery:	44	68	69
Relative % Difference:	22	2.9	4.3

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

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& GILMAN, INC.

McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Ed Conti

Client Project ID: 90-2143
Method: EPA 8310

QC Sample #: 301-0655
Instrument ID: GCW1

Reported: Jan 25, 1993

QUALITY CONTROL DATA REPORT: SURROGATE RECOVERIES, EPA 8310

Surrogate	Percent Recovery, BLK010893	Percent Recovery, 301-0655
2 fluoro biphenyl	115	110

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

3010653.MMM <7>

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

McCULLLEY, FRICK & GILMAN, INC.

NO. _____

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

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JAN 28 1993

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

McCULLLEY, FRICK & GILMAN, INC.

PROJECT No.: 90-2143 PROJECT NAME: Avis - Oakland PAGE: 1 OF: 1
 SAMPLER (Signature): Miles E. Waste PROJECT MANAGER: Ed Conti DATE: 1/5/93
 METHOD OF SHIPMENT: Lab Courier CARRIER/WAYBILL NO. _____ DESTINATION: Sageon Analytical
 SPECIAL INSTRUCTIONS/HAZARDS: _____

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 810	HOLD		RUSH	STANDARD			
3010653	MW-2	1/5/93	9:40	AQ	✓			✓			40	G	3				✓	✓										
↓	54 MW-3		10:45		✓			✓			40	G	3				✓	✓										
↓	55 MW-1A		11:45		✓			✓			40	G	3				✓	✓										
↓	MW-1A	1/5/93	11:45					✓			1000	G	1						✓									* Method 8310 should include the analyte
↓	56 trip blank	—	—	AQ	✓			✓			40	G	1				✓	✓									2-methylnaphthalene (reporting limit must be 5.0 ug/L or less)	

TOTAL NUMBER OF CONTAINERS 11

LABORATORY COMMENTS/ CONDITION OF SAMPLES _____

RELINQUISHED BY:				DATE	TIME	RECEIVED BY:		
SIGNATURE	PRINTED NAME	COMPANY				SIGNATURE	PRINTED NAME	COMPANY
<u>Miles E. Waste</u>	<u>Miles E. Waste</u>	<u>MFL</u>		<u>1/6/93</u>	<u>11:30</u>	<u>Sophia Patiga</u>	<u>SOPHIA PATIGA</u>	<u>SEAGRAM</u>
<u>Ed Conti</u>	<u>Ed Conti</u>	<u>SEAGRAM</u>		<u>1/6/93</u>	<u>12:00</u>	<u>Sophia Patiga</u>	<u>SOPHIA PATIGA</u>	<u>SEAGRAM</u>
								<u>LABORATORY</u>

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

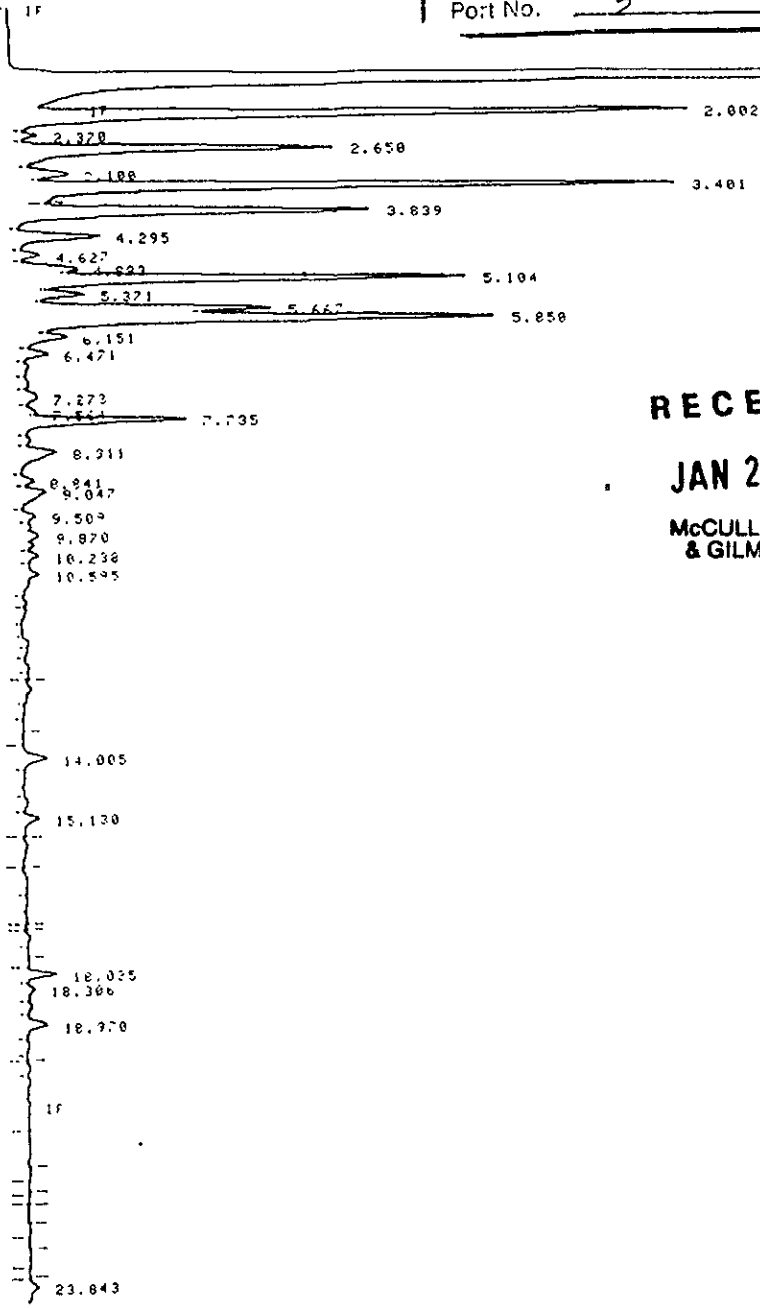
DISTRIBUTION: PINK: Field Copy YELLOW: Laboratory Copy WHITE: Return to Originator

PUN #17124-004

17

RUN #17135 JAN 9, 1993 19:27:54
START

File ID	63010655
Client ID	MW-1A
Volume	10mL
Injection	-
Detector	FID
Port No.	5

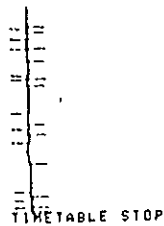


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McCULLEY, FRICK & GILMAN, INC.

PUN #17135-002



TIME TABLE STOP

Closing signal file MISIGNAL .BNC

HEWLETT-PACKARD PART NUMBER 5181-1219 PRINT THIS SIDE

PRINT THIS SIDE

RUN #17135-001

PUM# 17125 JAN 9, 1993 19:27:54

IDENTIFIER : GCHF-2 FID
SIGNAL FILE: N:SIGNAL.BNC
AFER:

RT	AREA	TYPE	WIDTH	AREA%
2.002	731510	BP	.125	13.66592
2.370	12106	FP	.081	.22616
2.450	411787	PF	.137	7.69292
3.100	56546	FV	.157	1.05825
3.401	815794	VB	.133	15.24050
3.839	490627	BP	.152	9.16579
4.295	115744	PV	.142	2.16831
4.627	27076	VV	.124	.50582
4.893	78404	VV	.131	1.46473
5.104	611714	VV	.141	11.42792
5.371	98116	VV	.149	1.03298
5.667	345284	VV	.140	6.45053
5.850	730793	VV	.159	13.05253
6.151	89262	VV	.181	1.64889
6.471	44343	VV	.147	.82841
7.273	46712	VV	.214	.76857
7.564	23137	VV	.136	.43224
7.735	203670	VV	.136	4.17871
8.311	77277	VP	.215	1.44554
8.841	18766	PV	.122	.35058
9.047	51644	VV	.206	.96480
9.501	20215	VV	.139	.37765
9.870	27214	VV	.157	.50841
10.238	24837	VV	.153	.46400
10.595	41295	VF	.252	.77146
14.005	38762	BY	.167	.72414
15.150	20733	PB	.139	.38731
18.035	21535	FP	.110	.59025
18.306	10565	FV	.137	.19737
18.770	21276	VF	.155	.39558
23.843	12192	BF	.140	.22777

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McCULLY, FRICK & GILMAN, INC.

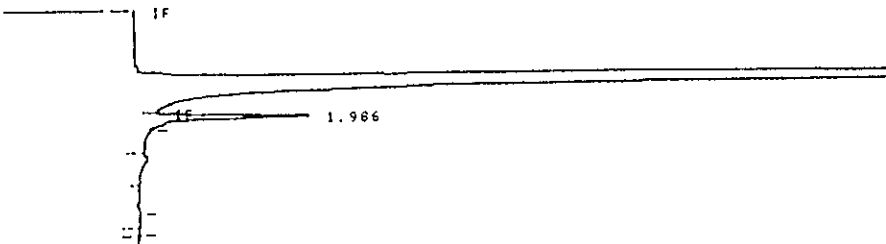
$$TPH = \frac{(5353 - 469)}{(4.8 \times 10 \text{ mL})} = 100 \mu\text{g/L}$$

TOTAL AREA=5353202
MUL FACTOR=1.0000E+00

RUN #17135-004

RUN #17136 JAN 9, 1993 20:04:28

START



PRINT THIS SIDE

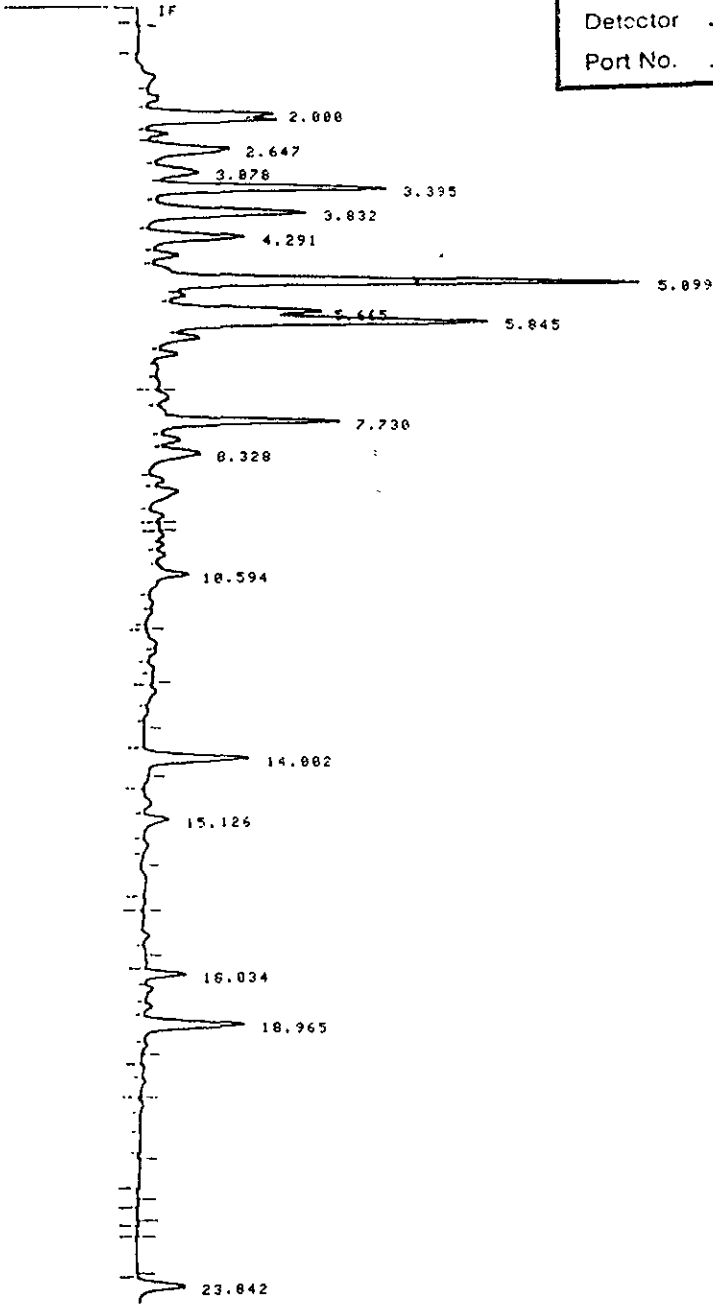
219 PRINT THIS SIDE PART NUMBER 5181-1219 HEWLETT-PACKARD PRINT THIS SIDE

PUN # 1489-004

17

File ID	<u>G3010655</u>
Client ID	<u>MW-1A</u>
Vol. Inj.	<u>10ul</u>
Dil./Conc.	<u>-</u>
Detector	<u>P10</u>
Port No.	<u>5</u>

* RUN # 1489 JAN 9. 1993 19:27:51
START



RECEIVED

JAN 28 1993

MCCULLEY, FRICK & GILMAN, INC.

RUN # 1489-002



RUN # 1489-003

PUR# 1489 JAN 9, 1993 19:27:51

SIGNAL FILE: M:SIGNAL.BNC

ETER: WATER

ESTD%-AREA

RT	TYPE	AREA	WIDTH	HEIGHT	CAL#	PPB	NAME
2.000	VV	76003	.120	10700			.000
2.647	VV	83170	.199	6970			.000
3.070	VV	49932	.108	4415			.000
3.395	VV	167256	.144	19400			.000
3.832	VP	131482	.172	12731			.000
4.291	PV	67807	.146	7764			.000
5.099	VV	334347	.142	39285	2	9.368	TRIFLUOROTOLUENE
5.665	VV	116613	.143	13631			.000
5.845	VV	260370	.160	27104			.000
7.730	VV	125584	.140	14963			.000
8.328	VP	49526	.206	4012			.000
10.594	VP	31837	.179	2970			.000
14.002	BB	78899	.157	8350			.000
15.126	VV	22019	.171	2149			.000
18.034	BP	23010	.113	3399			.000
18.965	VV	76902	.156	8233			.000
23.042	BB	37540	.160	3904			.000

TOTAL AREA=173317
 MUL FACTOR=1.0000E+00
 SAMPLE AMT=1.0000E+03

RECEIVED

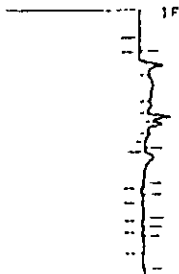
JAN 28 1993

McCULLEY, FRICK & GILMAN, INC.

RUN # 1489-004

18

* RUN # 1490 JAN 9, 1993 20:04:17
 START



Resistor

PRINT THIS SIDE

HEWLETT-PACKARD

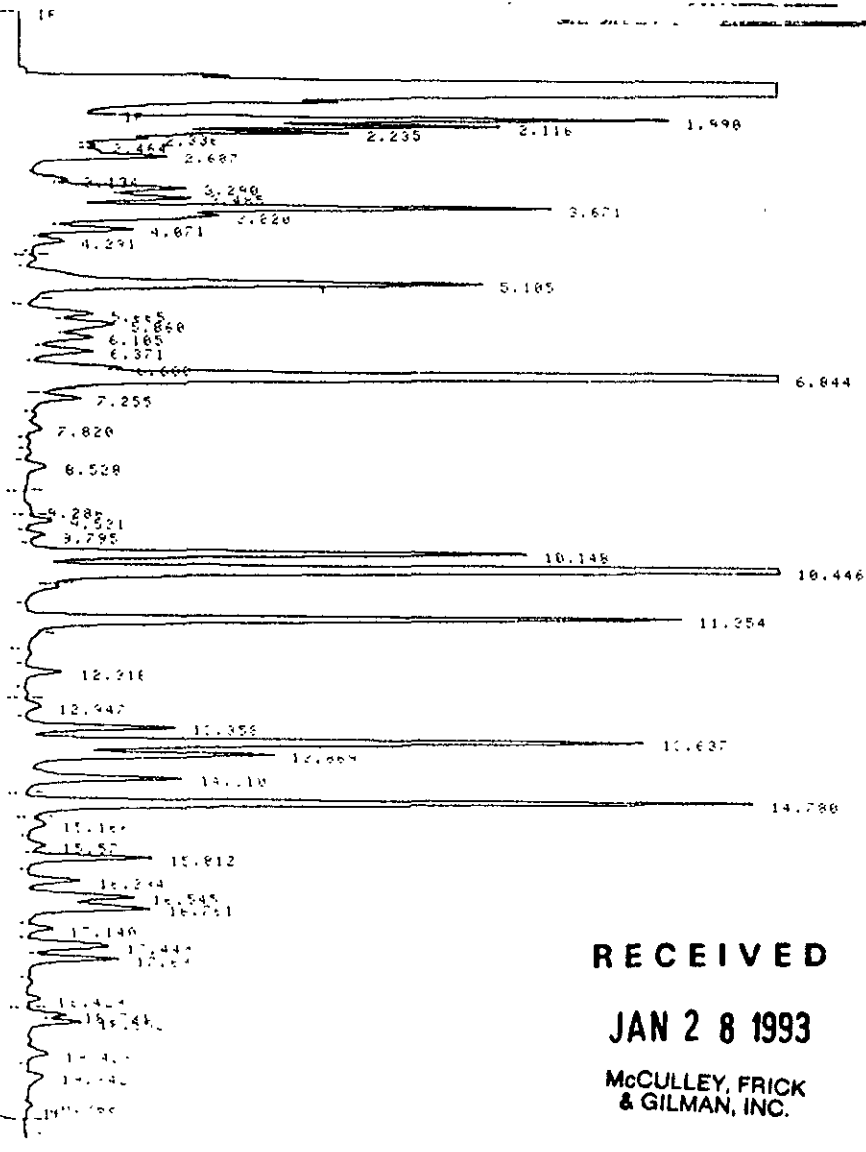
PRINT THIS SIDE

(3)

GSTD 10223 B
GSTD 12192 B
ID# _____
Drops _____
FID _____
1 _____

PUN #17120-000

PUN #17121 JAN 9, 1993 11:23:55
STAFF



RECEIVED
JAN 28 1993
McCULLY, FRICK
& GILMAN, INC.

Closing signal file M:SIGNAL .BNC

PUN #17121-002

PUN# 17121 JAN 9, 1993 11:23:55

IDENTIFIER: GCHF-2 FID
SIGNAL FILE: M:SIGNAL.BNC
MPEM:

RT	AREA	TYPE	WIDTH	AREA%
1.998	456453	BV	.085	3.66328
2.116	299827	VV	.079	2.40627
2.235	176178	VV	.072	1.41392
2.336	43558	VV	.074	.34958
2.464	13506	VV	.071	.10839
2.667	146348	VP	.136	1.17452
3.134	33484	PV	.096	.26873
3.298	194628	VV	.130	1.56199
3.426	314045	VV	.129	2.51785

12460 - 469 = 480
200

HEWLETT-PACKARD PART NUMBER 5181-1219 PRINT THIS SIDE

IDENTIFIER: GCHP-2 FID
 SIGNAL FILE: M51GNAL.BNC
 AREA:

PT	AREA	TYPE	WIDTH	AREA:
1.958	456453	BV	.085	3.66328
2.116	294227	VV	.079	2.40627
2.235	176172	VV	.072	1.41392
2.236	43558	VV	.074	.34958
2.464	13506	VV	.071	.10839
2.667	14434	VF	.136	1.17452
3.134	33484	PV	.096	.26873
3.298	194628	VV	.138	1.56199
3.485	214048	VV	.139	1.71785
3.671	568316	VV	.112	4.49684
3.828	239948	VV	.133	1.92565
4.071	116411	VV	.128	.93426
4.291	39188	VV	.127	.31388
5.185	643521	PB	.148	5.16468
5.665	81434	PV	.134	.65355
5.860	150910	VV	.191	1.21113
6.185	83543	VV	.146	.87848
6.371	78550	VP	.139	.63841
6.688	78888	PV	.890	.56185
6.844	2239968	VB	.115	18.13748
7.255	36435	BP	.186	.38846
7.828	18538	VP	.144	.14871
8.528	31968	PB	.158	.25658
9.286	1582	PB	.853	.81278
9.531	25546	BP	.189	.28582
9.795	16412	PP	.183	.13172
10.148	518544	PV	.118	4.16168
10.446	1955251	VB	.111	15.69195
11.354	718823	PB	.113	5.69832
12.318	41612	PP	.118	.33396
12.347	22944	BP	.158	.18414
13.358	166587	PV	.116	1.33695
13.637	772818	VV	.138	6.19586
13.869	292765	VV	.123	2.35762
14.318	194216	VB	.138	1.55869
14.788	776373	PB	.112	6.23881
15.166	18568	EP	.148	.14895
15.573	22271	PV	.129	.17874
15.812	131523	VV	.111	1.85554
16.234	59218	VV	.118	.47526
16.545	134369	VV	.132	1.87838
16.761	164763	VV	.158	1.48282
17.148	28738	VV	.113	.23864
17.449	118381	VV	.154	.94943
17.697	181881	VV	.116	.61859
18.429	13883	PB	.898	.18588
18.721	37421	BV	.181	.38832
18.452	56388	VV	.111	.45184
19.428	32584	VV	.148	.26886
19.842	28539	VV	.178	.22984
20.366	8125	VB	.112	.86521

$$\frac{12460 - 469}{2500} = 4.80$$

0% D=13

RECEIVED

JAN 28 1993

MCCULLY, FRICK & GILMAN, INC.

TOTAL AREA=1.2468E+07

RUN #17121-803

MUL FACTOR=1.0000E+00

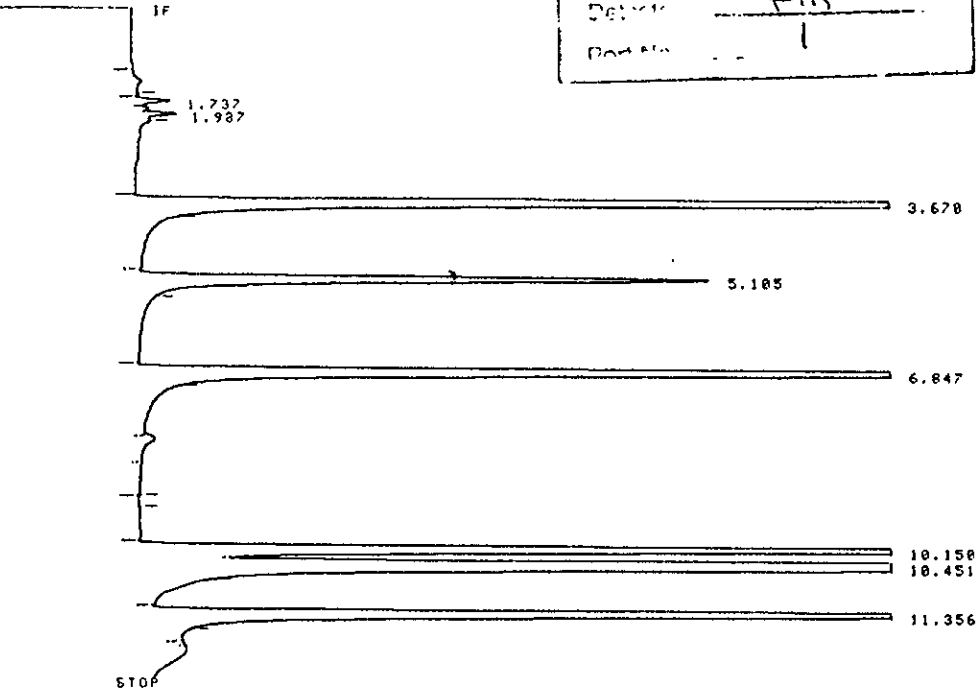
HEWLETT-PACKARD PART NUMBER 5181-1219 PRINT THIS SIDE
 NUMBER 5181-1219 PRINT THIS SIDE

(2)

File ID	657016998 A
Client	657016998
Vol	52
Dilution	25ppm
Detector	Pin
Port No	1

PUN # 1473-004

* PUN # 1474 JAN 9. 1993 10:55:21
START



Closing signal file M:SIGNAL .BNC

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JAN 28 1993

McCULLY, FRICK & GILMAN, INC.

PUN # 1474-002

PUN# 1474 JAN 9. 1993 10:55:21

SIGNAL FILE: M:SIGNAL.BNC

PTEX WATER

ESTD:-AREA

RT	PT TYPE	AREA	WIDTH	HEIGHT	CAL#	PPB	NAME
1.737	PV	11231	.073	2551		.000	
1.987	VB	9373	.061	2547		.000	
3.678	PB	960402	.109	146298	1	10.651	BENZENE
5.185	PB	356904	.132	45197	2	9.802	TRIFLUOROTOLUENE
6.847	PB	890677	.117	127191	3	10.468	TOLUENE
10.158	PV	752137	.114	109970	4	10.514	ETHYL BENZENE
10.451	PV	171021	.111	25501	5	10.514	ETHYL BENZENE

HEWLETT-PACKARD PART NUMBER 5161-219 PRINT THIS SIDE

219 PRINT THIS SIDE

HEWLETT-PACKARD PART NUMBER 5181-1219 PRINT THIS SIDE

AMT/AREA: 1.00000000

CAL#1: 2
RT: 5.100
AMT:
AMT/AREA:
NAME:

CAL#1: 2
RT: 6.847
AMT:
AMT/AREA: .000200167
NAME:

CAL#1: 3
RT: 6.847
AMT:
AMT/AREA: .000112274
NAME:

CAL#1: 4
RT: 10.150
AMT:
AMT/AREA:
NAME:

CAL#1: 4
RT: 10.150
AMT:
AMT/AREA: .000132954
NAME:

CAL#1: 5
RT: 10.451
AMT:
AMT/AREA: .000113121
NAME:

CAL#1:

SECTION TO BE EDITED: 2

CAL#1: 6
RT: 11.356
AMT:
AMT/AREA: .000131338
NAME: BREA

* REPORT

RUN# 1474 JAN 9, 1993 10:55:21

SIGNAL FILE: M:SIGNAL.BNC

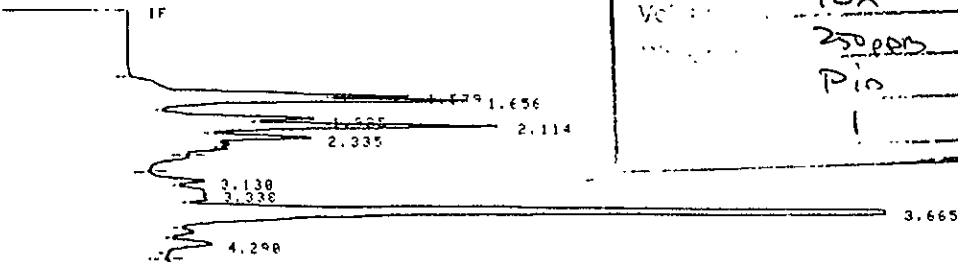
RT# WATER

ESTD%-AREA	FT TYPE	AREA	WIDTH	HEIGHT	CAL#	PPB	NAME
1.737	PV	11231	.073	2551		.000	
1.927	VB	9373	.061	2547		.000	
3.678	PB	969402	.109	146299	1	10.000	BENZENE
5.105	PB	356904	.132	45197	2	10.000	TRIFLUOROTOLUENE
6.847	PB	890677	.117	127191	3	10.000	TOLUENE
10.150	PV	752137	.114	109870	4	10.000	ETHYL BENZENE
10.451	VB	1768013	.115	255844	5	20.000	P+M XYLENES
11.356	PB	761389	.117	108083	6	10.000	ORTHO XYLENE

TOTAL AREA=5510125
MUL FACTOR=1.0000E+00
SAMPLE AMT=1.0000E+03

3

* RUN # 1475 JAN 9, 1993 11:23:53
START



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JAN 28 1993

McCULLY, FRICK & GILMAN, INC.



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

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FEB 12 1993

McCULLY, FRICK & GILMAN, INC.

McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Ed Conti

Client Project ID: 90-2143 Avis-Oakland Airport
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 3B12001 ✓

Sampled: Feb 2, 1993
Received: Feb 2, 1993
Reported: Feb 9, 1993

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3B12001 MW-1A	Sample I.D. GBLK020693 Method Blank	Sample I.D.	Sample I.D.	Sample I.D.	Sample I.D.
Purgeable Hydrocarbons	50	54	N.D.				
Benzene	0.50	11	N.D.				
Toluene	0.50	N.D.	N.D.				
Ethyl Benzene	0.50	N.D.	N.D.				
Total Xylenes	0.50	0.92	N.D.				
Chromatogram Pattern:		Gas	--				

Quality Control Data

Report Limit		
Multiplication Factor:	1.0	1.0
Date Analyzed:	2/6/93	2/6/93
Instrument Identification:	GCHP-3	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	111	103

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

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FEB 12 1993

McCULLY, FRICK
& GILMAN, INC.

McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Ed Conti

Client Project ID: 90-2143 Avis-Oakland Airport

QC Sample Group: 3B12001

Reported: Feb 9, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A.Miraftab	A.Miraftab	A.Miraftab	A.Miraftab
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Feb 6, 1993	Feb 6, 1993	Feb 6, 1993	Feb 6, 1993
QC Sample #:	GBLK020893	GBLK020893	GBLK020893	GBLK020893
Instrument ID#	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10	30
Conc. Matrix Spike:	10	10	10	31
Matrix Spike % Recovery:	100	100	100	103
Conc. Matrix Spike Dup.:	10	10	10	30
Matrix Spike Duplicate % Recovery:	100	100	100	100
Relative % Difference:	0.0	0.0	0.0	3.3

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL


Tod Granicher
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

3B12001.MMM <2>

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3008-B 16th Avenue West
Seattle, WA 98119
FAX: (206) 283-5044

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FEB 11 1993

McCULLY, FRICK
& GILMAN, INC.

February 9, 1993

Ed Conti, Project Manager
McCulley, Frick & Gilman, Inc.
5 Third Street, Suite 400
San Francisco, CA 94103

Dear Mr. Conti:

Enclosed are the results from the testing of material submitted on February 3, 1993 from Project 90-2143, AVIS - Oakland Airport.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

Amy Gray

Amy M. Gray
Chemist

AMG/dp

Enclosures

FEB 11 1993

McCULLEY, FRICK
& GILMAN, INC.

Date of Report: February 9, 1993
Date Received: February 3, 1993
Project: 90-2143, AVIS - Oakland Airport

**RESULTS FROM THE ANALYSIS OF WATER SAMPLE
FOR FINGERPRINT CHARACTERIZATION
BY CAPILLARY GAS CHROMATOGRAPHY
USING A FLAME IONIZATION DETECTOR (FID)
AND ELECTRON CAPTURE DETECTOR (ECD)**

Sample #

GC Characterization

MW-1A

The gas chromatographic FID trace showed the presence of low boiling compounds at a level less than 10 ppm and without a discernable pattern. This characterization is based on the presence of a relatively ragged envelope of peaks present from ca *n*-C₅ to *n*-C₇. Peaks eluting from 26 to 30 minutes are laboratory contamination from the vial's septum. The large peak seen at 25 minutes is pentacosane, a compound added as a QA/QC check. The GC/ECD trace showed an absence of significant levels of halogenated or oxygenated material. Due to the level of material present, the peaks were unidentifiable by GC/MS.

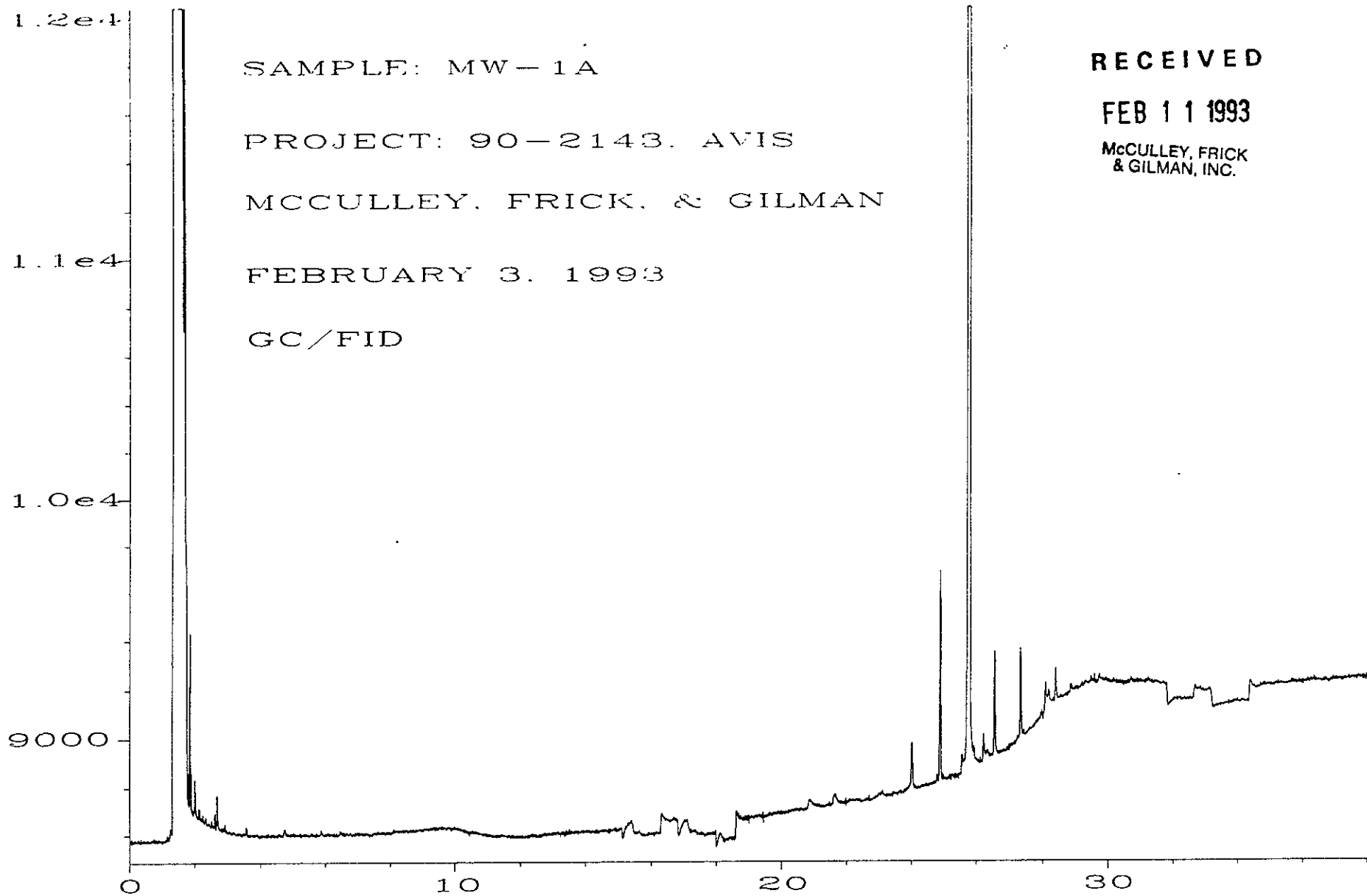


Fig. 1 in C:\HPCHEM\4\DATA\02-03-93\019F0601.D

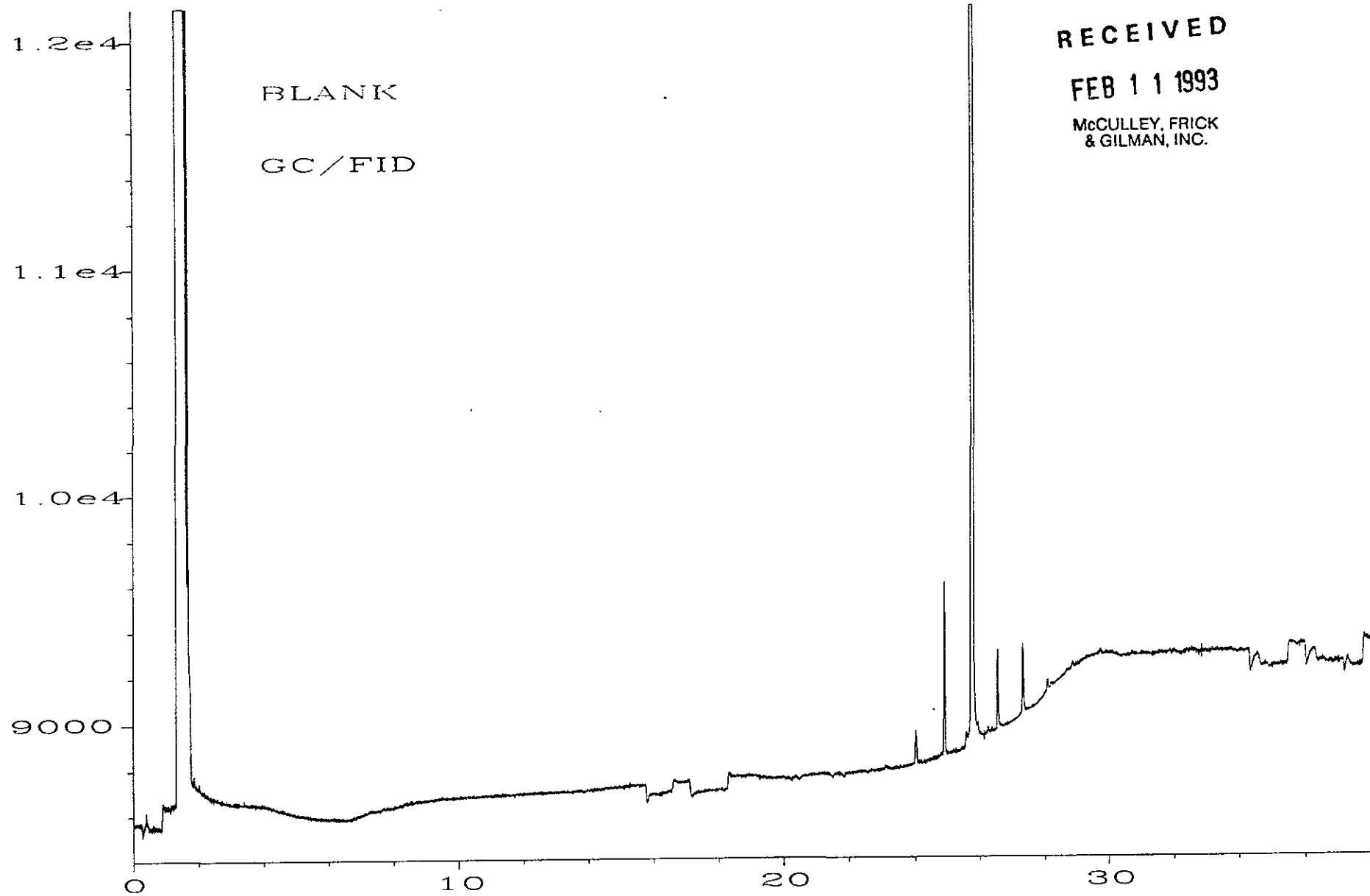


Fig. 1 in C:\HPCHEM\4\DATA\02-03-93\008F0801.D

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

McCULLY, FRICK & GILMAN, INC.

NO. _____

2 H
2:5:13 PM

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

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

FEB 11 1993

PROJECT No.: 90-2143 PROJECT NAME: Avis - Oakland Airport McCULLY, FRICK & GILMAN, INC. PAGE: 1 OF: 1
 SAMPLER (Signature): M. E. Noilo PROJECT MANAGER: Ed Corti DATE: 2/2/93
 METHOD OF SHIPMENT: Federal Express CARRIER/WAYBILL NO. 19793122-15 DESTINATION: Frederick + Baya
 SPECIAL INSTRUCTIONS/HAZARDS: _____

SAMPLES										ANALYSIS REQUEST										REMARKS (Special handling procedures, specific analytical methods, observations, etc.)							
Lab No.	Sample Identification	Sample Collection		Matrix	Preservation					Containers*			Methods					Handling									
		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	Fuel Injector	G-C/M5	HOLD	RUSH	STANDARD	
31264	MW-1A	2/2/93	1145	AQ	X			X				40	G	3							X	X				X	Run G-C/M5 to identify peaks if any peaks are present. Call with verbal report prior to preparing the final report

TOTAL NUMBER OF CONTAINERS 3

LABORATORY COMMENTS/ CONDITION OF SAMPLES

RELINQUISHED BY:				RECEIVED BY:			
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY
<u>M. E. Noilo</u>	<u>M. E. Noilo</u>	<u>MFG</u>	<u>2/2/93</u>	<u>12:00 PM</u>	<u>[Signature]</u>	<u>[Name]</u>	<u>FR LABORATORY</u>

*KEY: Matrix AQ-aqueous NA-nonaqueous SO-sol SL-sludge P-petroleum A-air OT-other
 Containers P-plastic G-glass T-terlon B-brass OT-other
 DISTRIBUTION: PINK: Field Copy YELLOW: Laboratory Copy WHITE: Return to Originator