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September 3, 1992

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 August 27, 1992 prepared by McCulley, Frick & Gilman on the remediation being conducted at the Oakland Airport rental car facility.

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

Very truly yours,

Beth Hamilton

Beth L. Hamilton

Enc.

cc: Mr. Ralph DeCarli, 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.

11180299

QUARTERLY GROUND WATER MONITORING REPORT

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

Prepared for

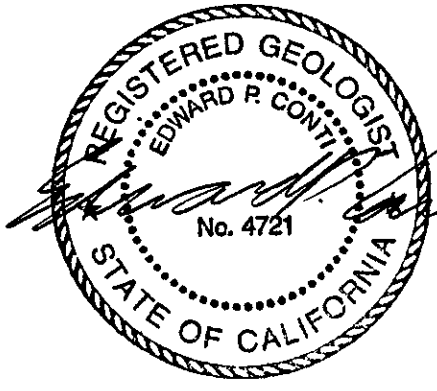
Avis Rent A Car System, Inc.
900 Old Country Road
Garden City, New York 11530

August 27, 1992

McCULLEY, FRICK & GILMAN, INC.
Environmental Sciences and Engineering

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.



August 27, 1992

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

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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 July 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 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 July 28, 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 wells MW-1A, MW-2 and MW-3 on July 28, 1992. Prior to collecting samples, each well was purged using a positive displacement hand pump. Wells MW-1A and MW-3 were pumped dry after removal of approximately 3.1 casing volumes (4 gallons) and 1.6 casing volumes (2.2 gallons), respectively. Approximately 5.4 casing volumes (7.5 gallons) of water were removed from well MW-2 during the purging process. 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	23	7.1	11,000
MW-2	20	7.0	5,300
MW-3	21	7.1	35,000

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

- Total Volatile Petroleum Hydrocarbons (TPH) as Gasoline and Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX): two, 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

In addition, the following sample was collected from well MW-1A and placed in containers supplied by the laboratory:

- Polynuclear Aromatic Hydrocarbons (PNA's): two, one-liter amber glass bottles with Teflon®-lined lids.

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 Sequoia Analytical, Inc. (Sequoia) laboratory of Redwood City, California. The following analyses were performed by Sequoia:

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 8310)

The laboratory results are summarized in Table 1. Copies of the laboratory report and chain-of-custody record 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-1A, MW-2 and MW-3 on July 28, 1992. In addition, PNA's were not detected above their respective laboratory method reporting limits in the ground water sample collected from well MW-1A.

3.0 EVALUATION OF LATERAL HYDRAULIC GRADIENT

MFG measured the depth to ground water in wells MW-1A, MW-2 and MW-3 on July 28, 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 July 28, 1992 was constructed using these data and is shown in Figure 11. The potentiometric surface contours illustrate that the direction of the lateral hydraulic gradient on July 28, 1992 was southeast, with an approximate magnitude of 0.003.

Water level measurements performed periodically at the Site from May 1990 to April 1992 indicate that the direction of the lateral hydraulic gradient has varied from south-southeast to east-northeast. Historical potentiometric surface maps of the shallow ground water at the Site are included in Figures 3 through 10.

4.0 GROUND WATER MONITORING SCHEDULE

The anticipated date for the next ground water monitoring event is October 1992. The next ground water monitoring report will be submitted by November 30, 1992.

TABLE 1
(Page 1 of 3)

SUMMARY OF CHEMICAL ANALYSES OF GROUND WATER SAMPLES[1]

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-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-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

TABLE 1
(Page 2 of 3)

SUMMARY OF CHEMICAL ANALYSES OF GROUND WATER SAMPLES[1]

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	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-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 SAMPLES[1]

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

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
(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
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
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

TABLE 2
(Page 2 of 2)

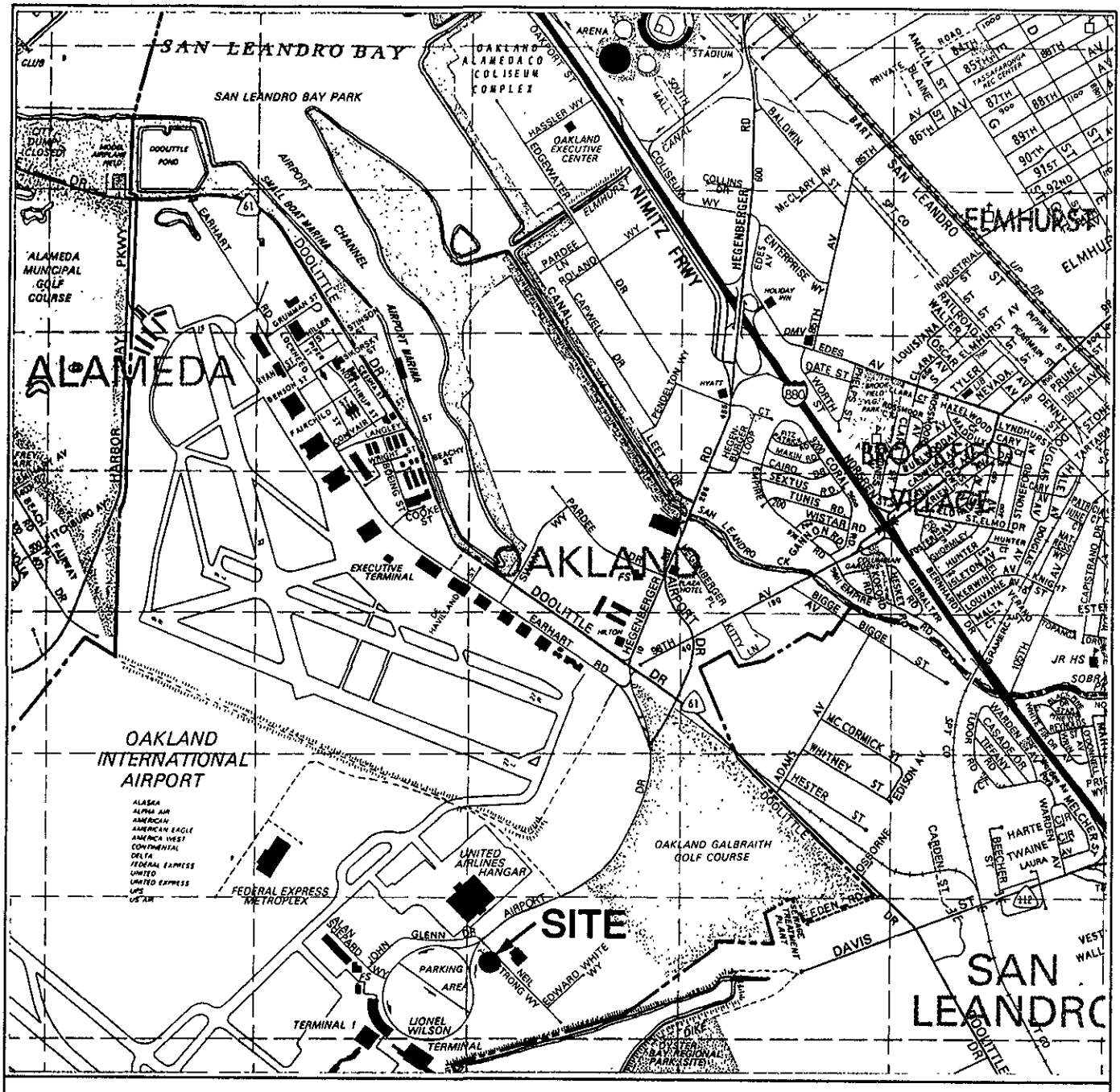
SUMMARY OF WATER LEVEL DATA FOR GROUND WATER MONITORING WELLS

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

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.



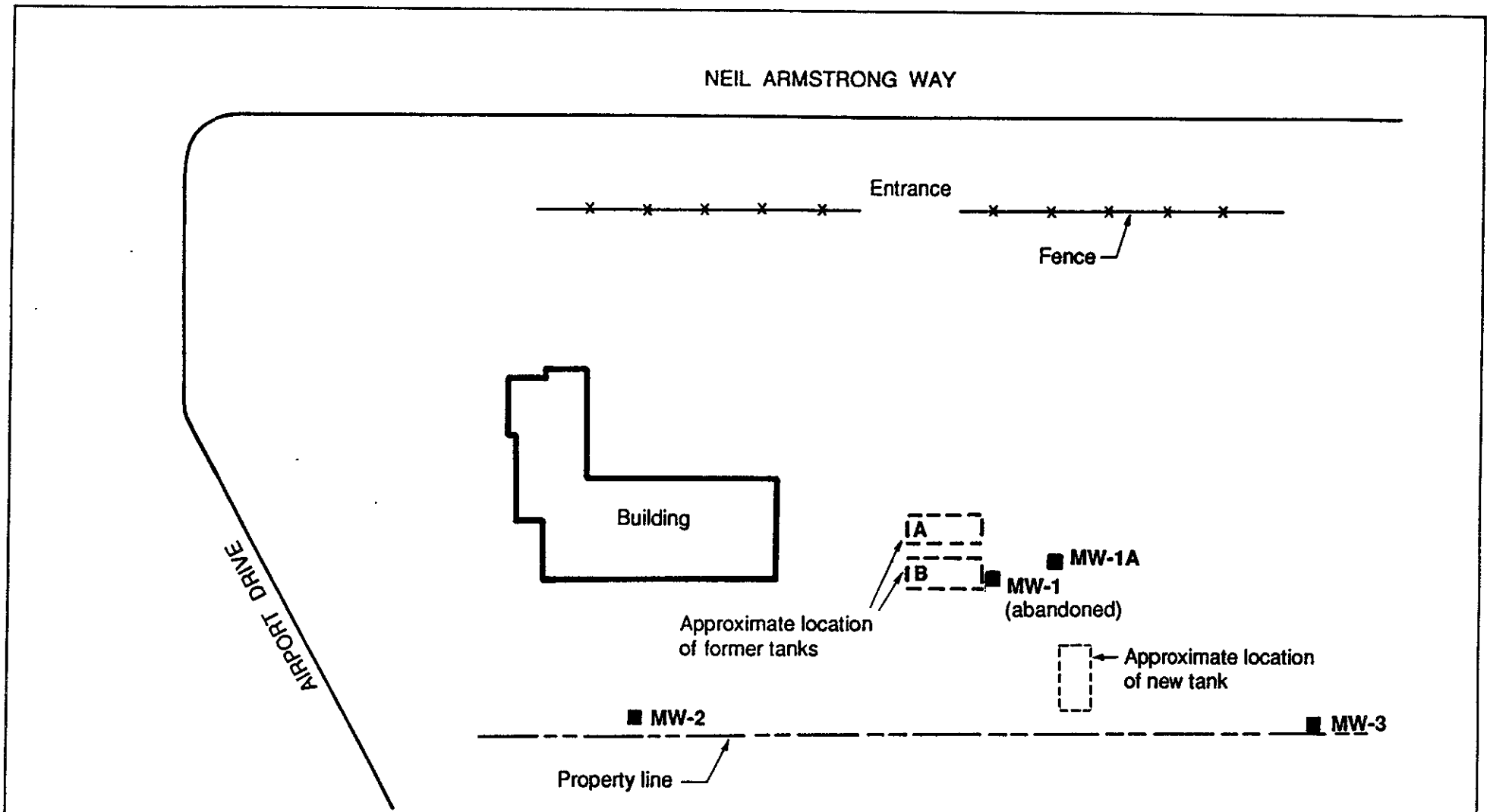
Source: The Thomas Guide,
Alameda and Santa Clara Counties Street Guide and Directory,
1989 Edition

N

0 1/2 Mile

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:

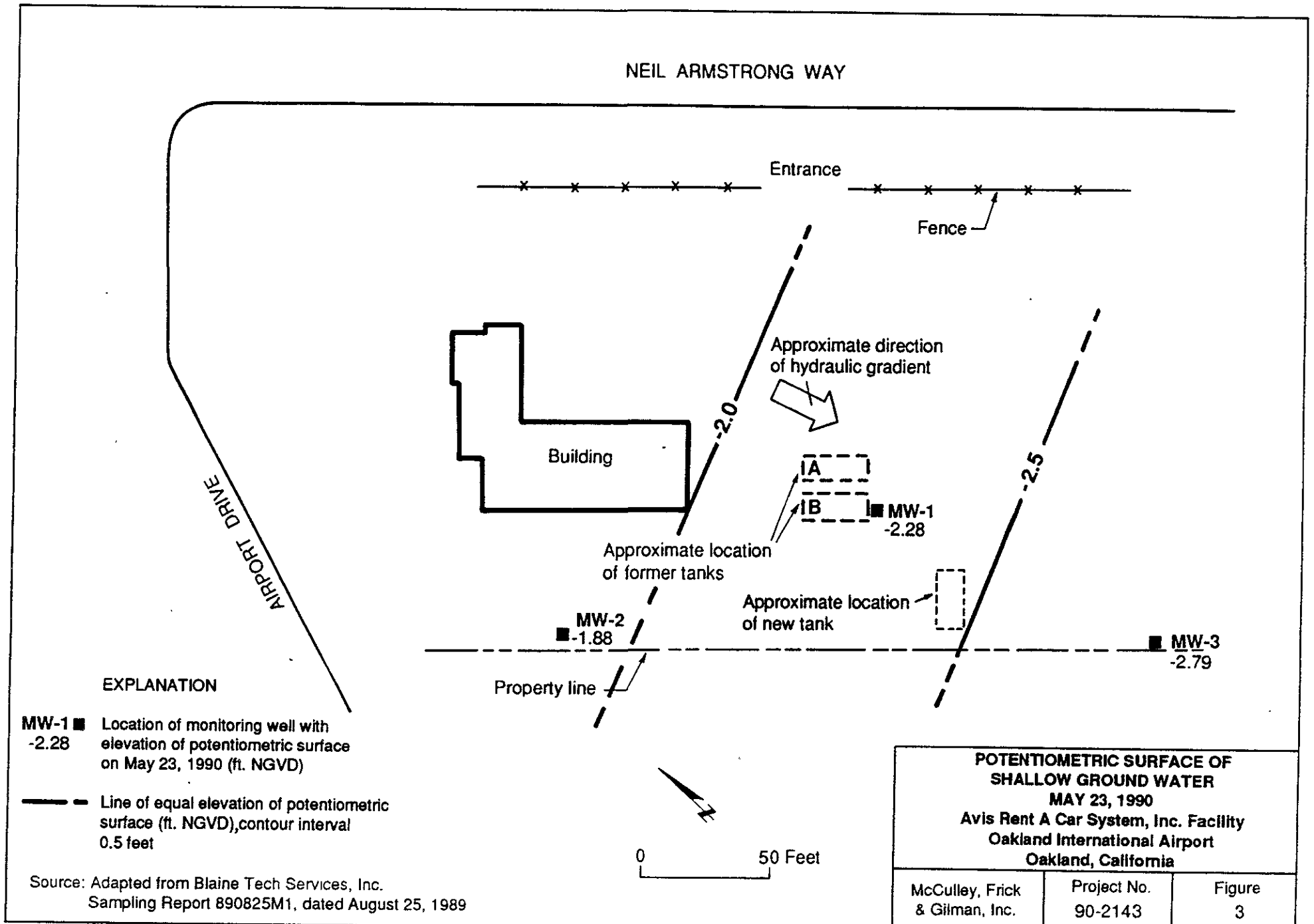
1. Well MW-1 abandoned on February 26, 1991.
2. Well MW-1A installed on April 1, 1991.

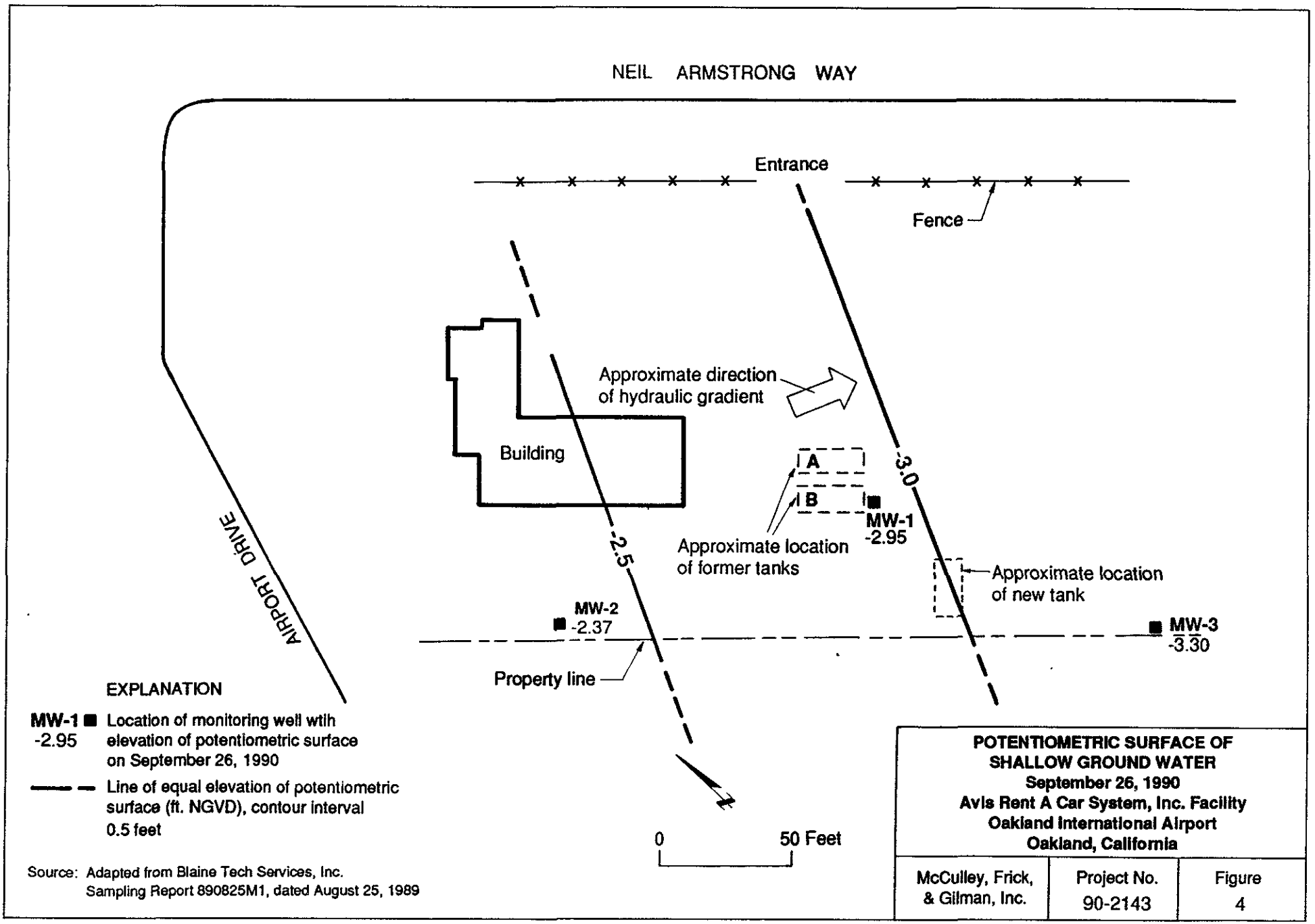
Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989

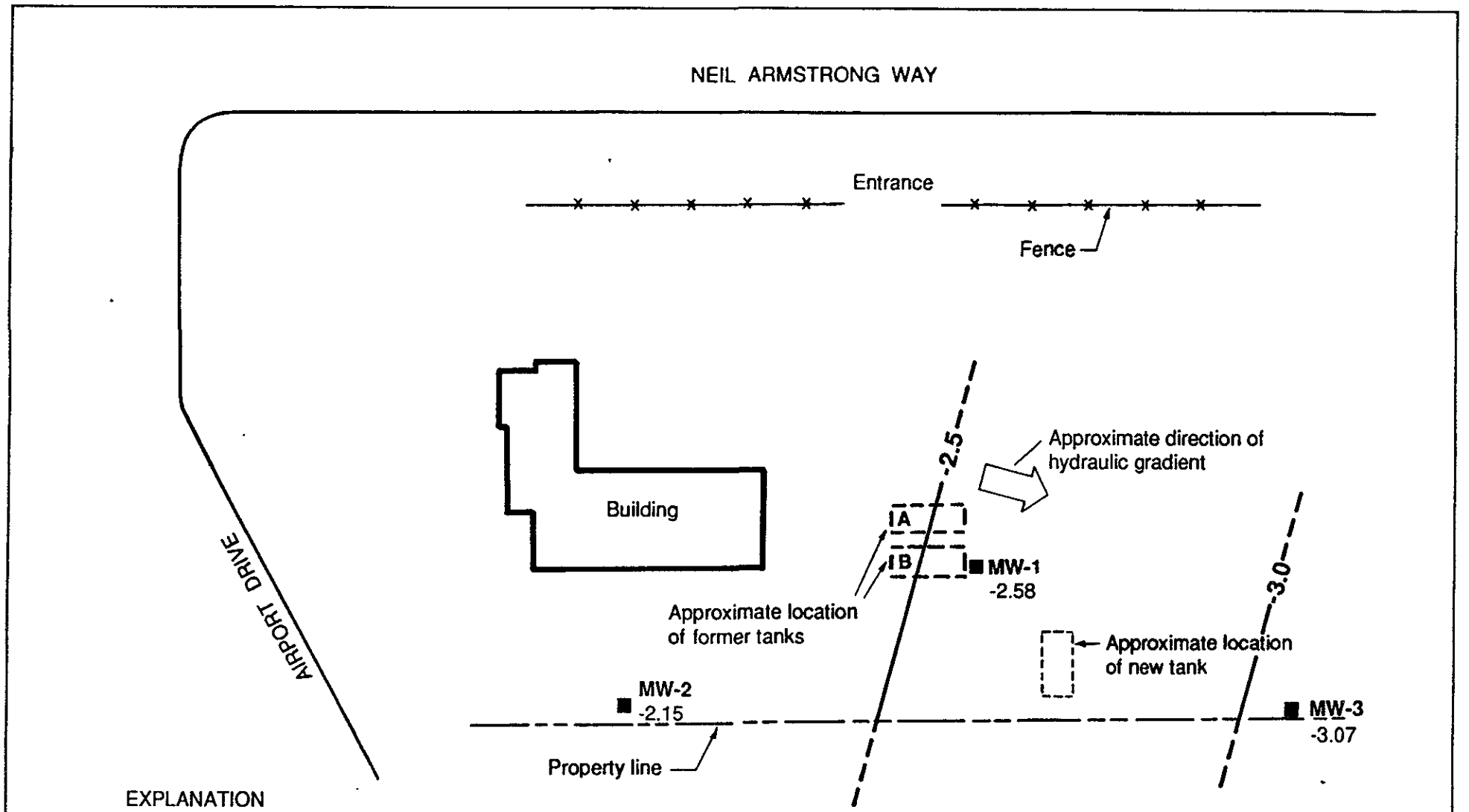
0 50 Feet

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
Entrance
Fence
AIRPORT DRIVE
Building
Approximate direction of hydraulic gradient
-2.0
-2.5
IA
IB
MW-1
-2.28
Approximate location of former tanks
Approximate location of new tank
MW-2
-1.88
MW-3
-2.79
Property line
EXPLANATION
MW-1 -2.28 Location of monitoring well with elevation of potentiometric surface on May 23, 1990 (ft. NGVD)
Line of equal elevation of potentiometric surface (ft. NGVD),contour interval 0.5 feet
0
50 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

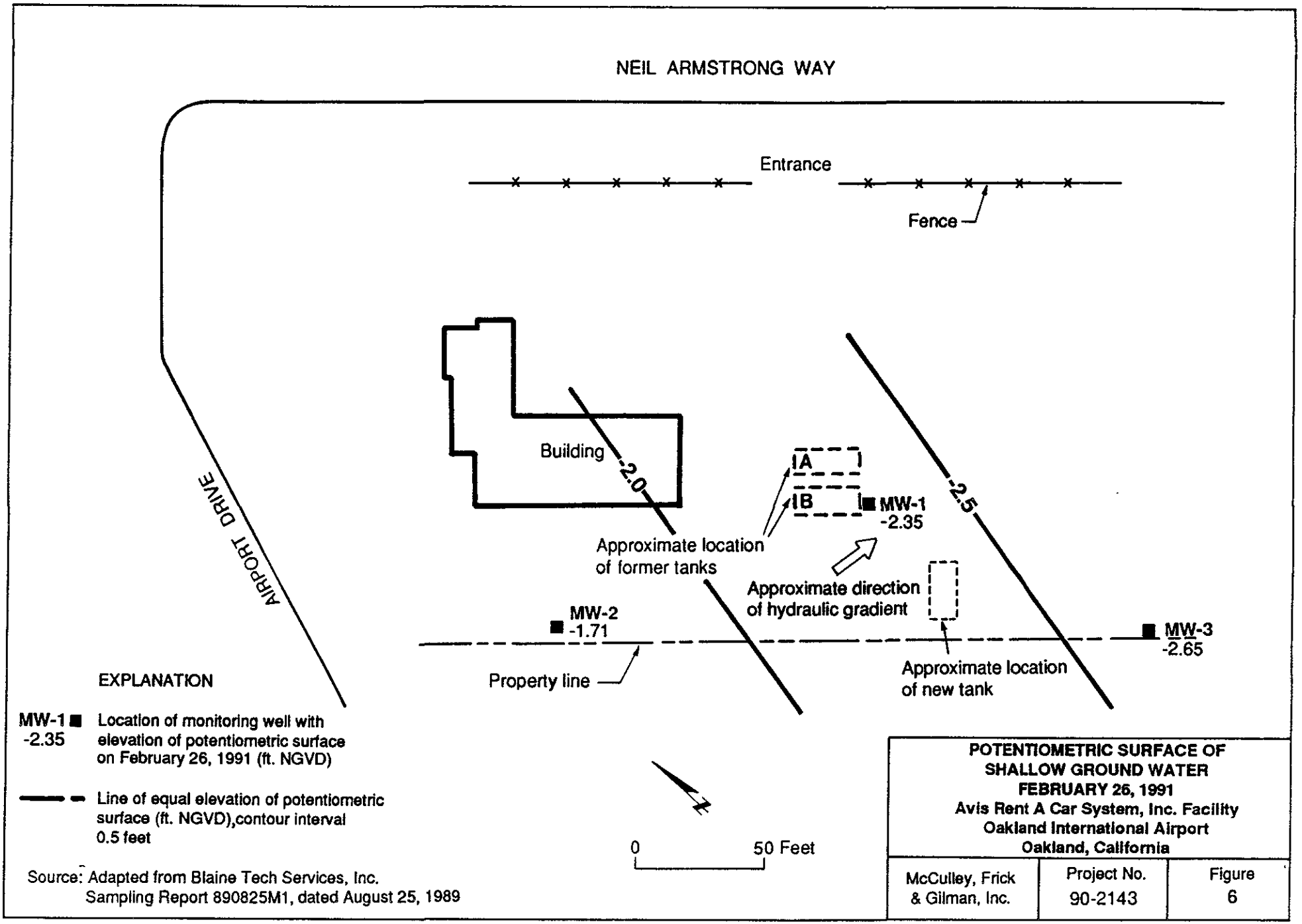

NEIL ARMSTRONG WAY
Entrance
Fence
Approximate direction of hydraulic gradient
Building
A
B
MW-1
-2.95
-3.0
-2.5
Approximate location of former tanks
Approximate location of new tank
MW-2
-2.37
MW-3
-3.30
Property line
AIRPORT DRIVE
EXPLANATION
MW-1 -2.95 Location of monitoring well wtih elevation of potentiometric surface on September 26, 1990
Line of equal elevation of potentiometric surface (ft. NGVD), contour interval 0.5 feet
0
50 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



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

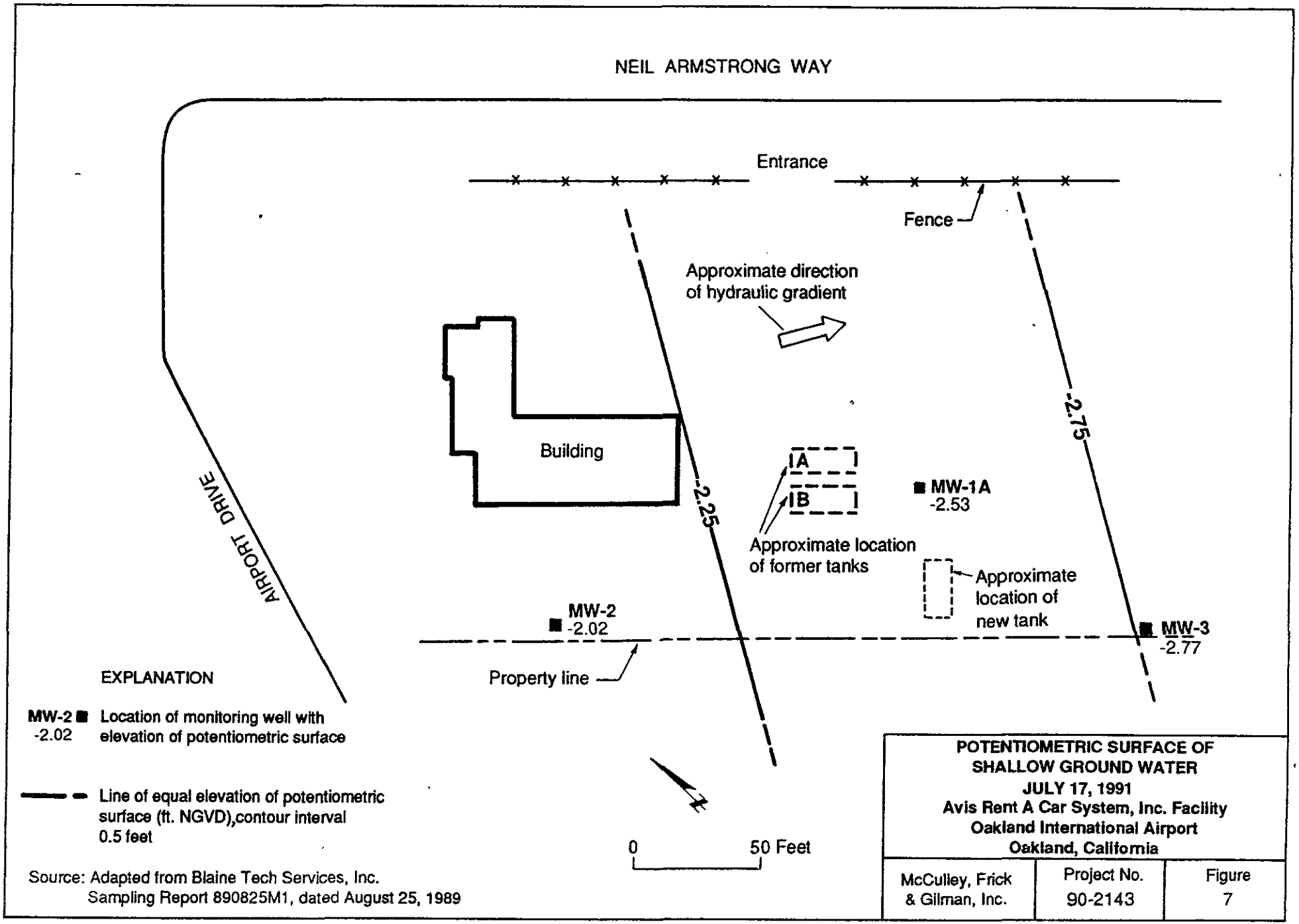
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 5



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

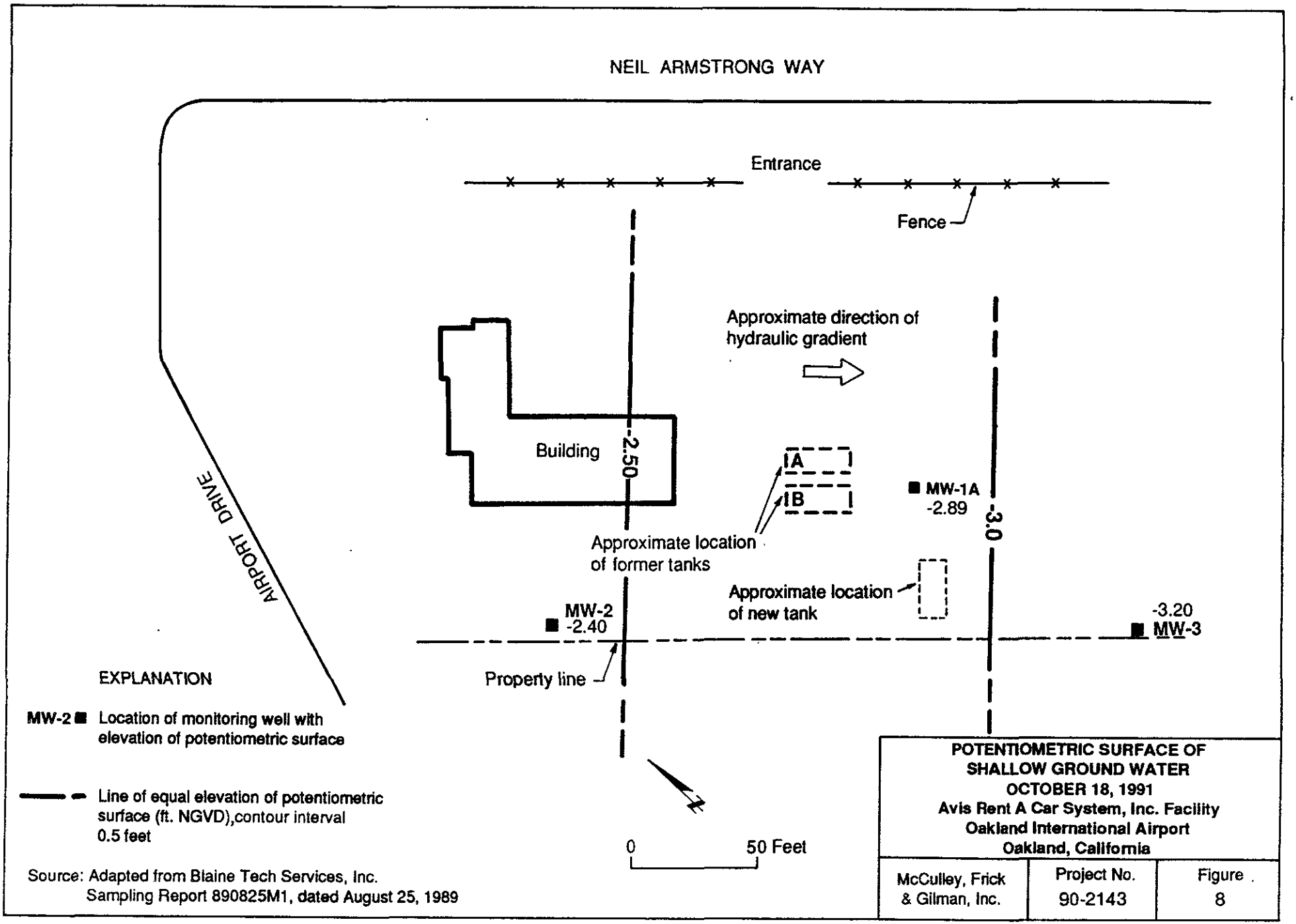
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 6

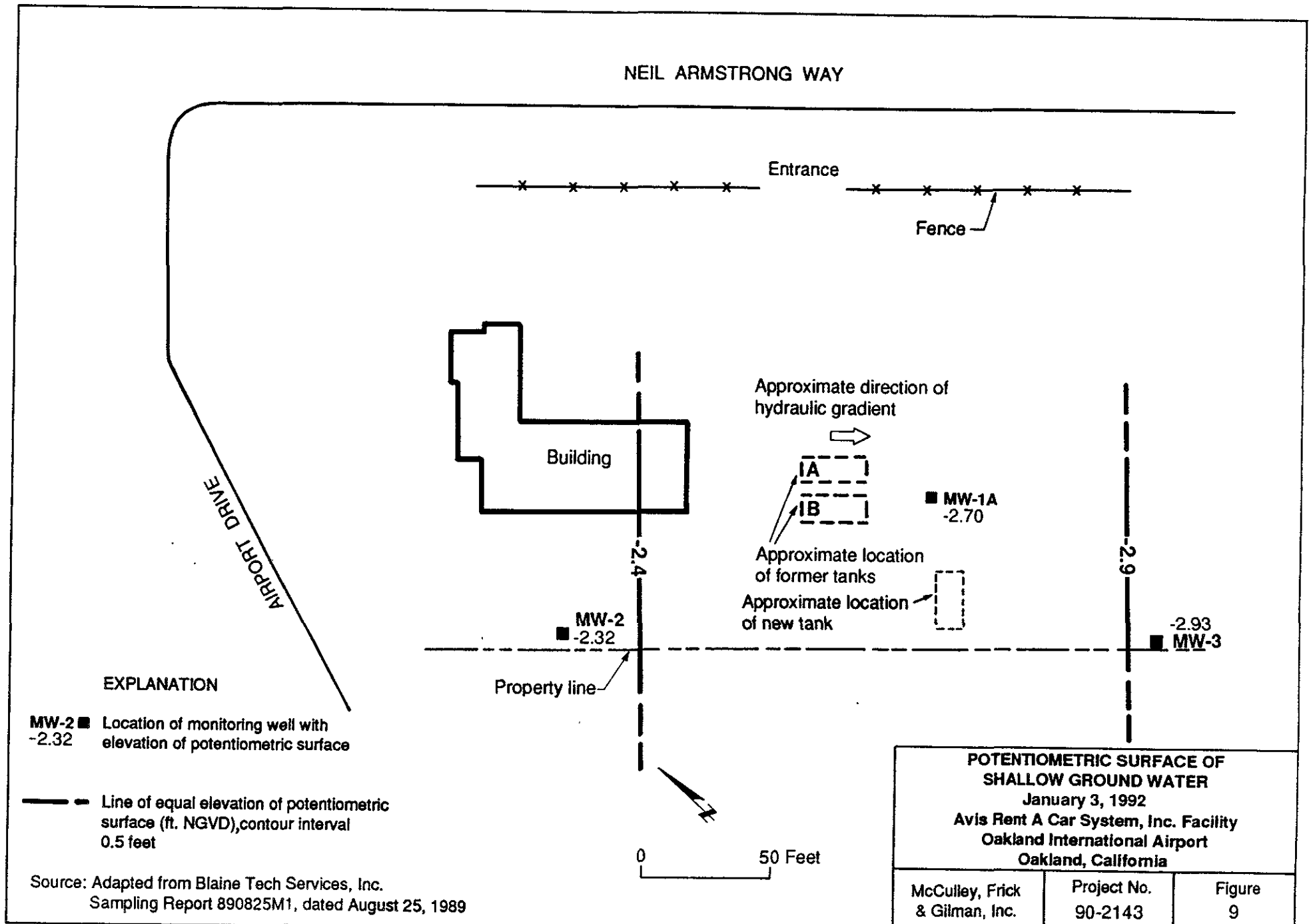


Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989

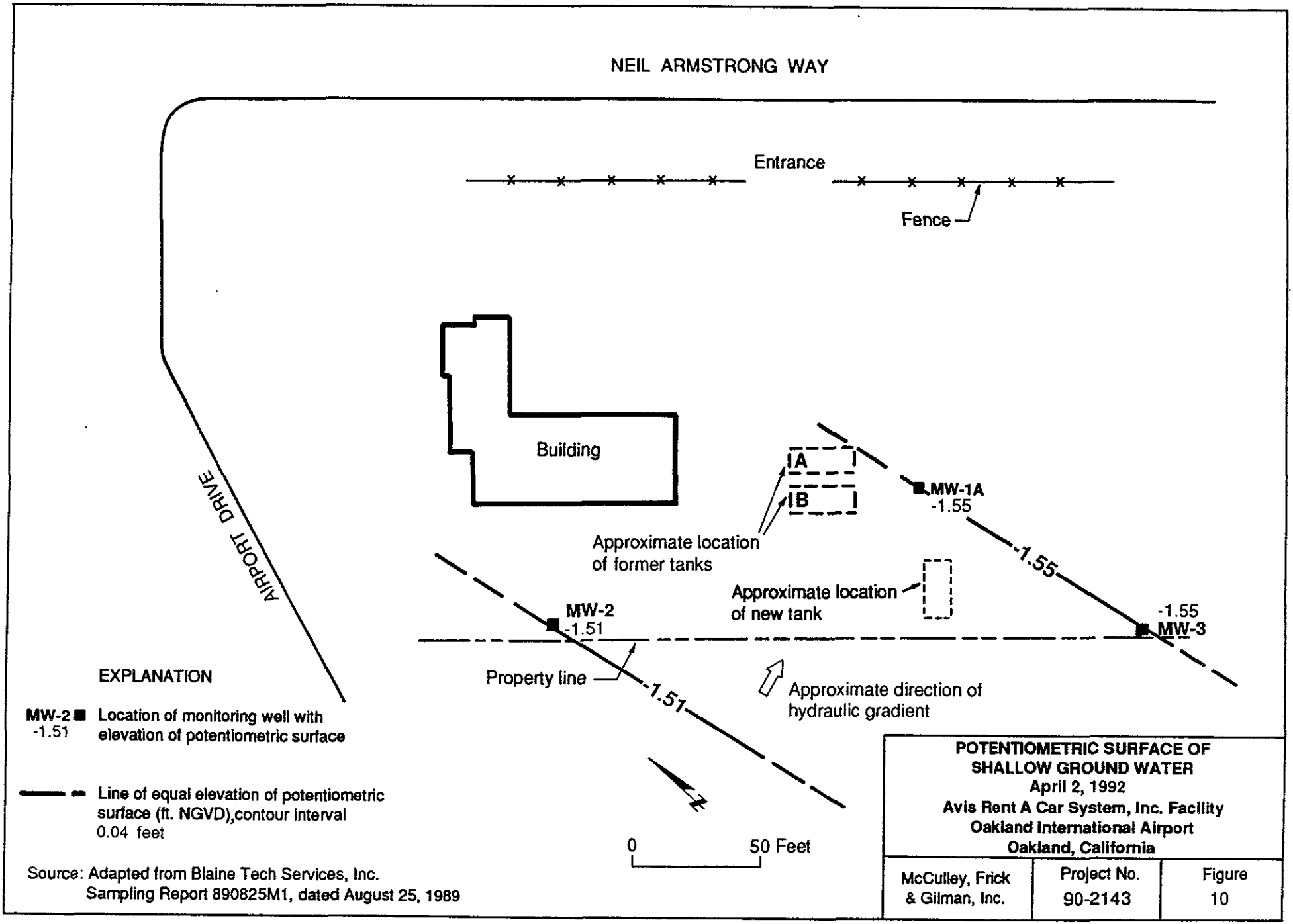
POTENTIOMETRIC SURFACE OF SHALLOW GROUND WATER
JULY 17, 1991
Avis Rent A Car System, Inc. Facility
Oakland International Airport
Oakland, California

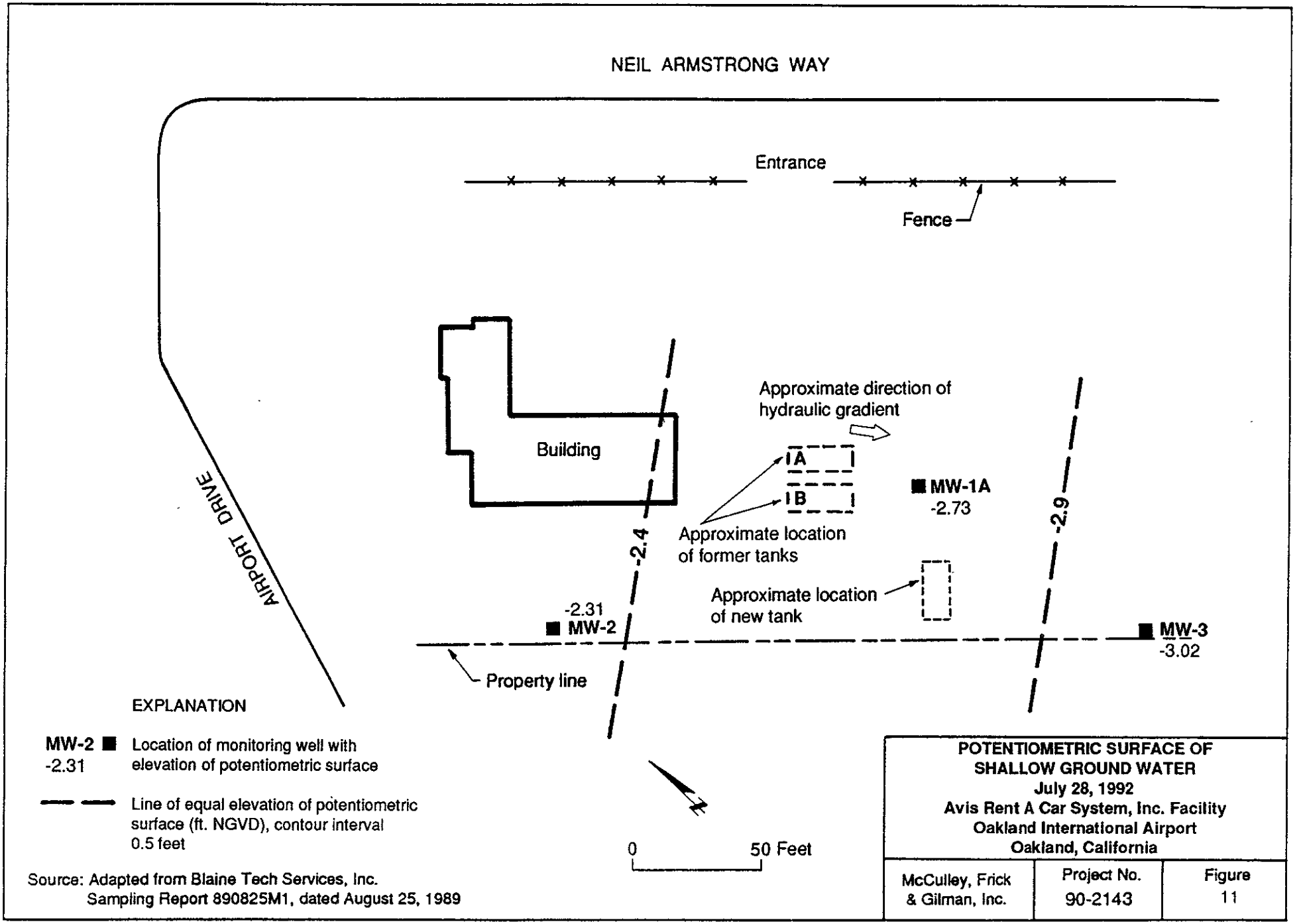
McCulley, Frick & Gilman, Inc.	Project No. 90-2143	Figure 7


NEIL ARMSTRONG WAY
Entrance
Fence
AIRPORT DRIVE
Building
-2.50
Approximate direction of hydraulic gradient
IA
IB
MW-1A
-2.89
-3.0
Approximate location of former tanks
Approximate location of new tank
MW-2
-2.40
-3.20
MW-3
Property line
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
0
50 Feet
Source: Adapted from Blaine Tech Services, Inc. Sampling Report 890825M1, dated August 25, 1989
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



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


NEIL ARMSTRONG WAY
Entrance
Fence
Building
AIRPORT DRIVE
1A
1B
MW-1A
-1.55
-1.55
Approximate location
of former tanks
Approximate location
of new tank
MW-2
-1.51
-1.55
MW-3
Property line
-1.51
Approximate direction of
hydraulic gradient
EXPLANATION
MW-2 ■ Location of monitoring well with
-1.51 elevation of potentiometric surface
Line of equal elevation of potentiometric
surface (ft. NGVD),contour interval
0.04 feet
0
50 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



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

APPENDIX A

Laboratory Report and Chain-of-Custody Record for Ground Water Samples

SEQUOIA ANALYTICAL

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

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McCULLEY, FRICK
& GILMAN, INC.

McCulley, Frick, & Gilman	Client Project ID:	90-2143	Sampled:	Jul 28, 1992
5 Third Street, Suite 400	Sample Matrix:	Water	Received:	Jul 28, 1992
San Francisco, CA 94103	Analysis Method:	EPA 5030/8015/8020	Reported:	Aug 12, 1992
Attention: Ed Conti	First Sample #:	207-4683 ✓		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 207-4683 MW - 1A	Sample I.D. 207-4684 MW - 2	Sample I.D. 207-4685 MW - 3	Sample I.D. GBLK073092 Method Blank	Sample I.D. GBLK073192 Method Blank
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	7/31/92	7/30/92	7/31/92	7/30/92	7/31/92
Instrument Identification:	GCHP 2	GCHP 2	GCHP 2	GCHP 2	GCHP 2
Surrogate Recovery, %: (QC Limits = 70-130%)	103	100	102	99	99

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

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Andrea Fulcher
Project Manager

2074683.MMM <1>

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McCulley, Frick, & Gilman	Client Project ID:	90-2143	Sampled:	Jul 28, 1992
5 Third Street, Suite 400	Sample Descript:	Water, MW - 1A	Received:	Jul 28, 1992
San Francisco, CA 94103	Analysis Method:	EPA 8310	Extracted:	Aug 4, 1992
Attention: Ed Conti	Instrument ID:	GCW 1	Analyzed:	Aug 10, 1992
	Lab Number:	207-4683	Reported:	Aug 12, 1992

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	0.50	N.D.
Naphthalene	5.0	N.D.
Acenaphthene	2.0	N.D.
Fluorene	5.0	N.D.
Phenanthrene	0.10	N.D.
Anthracene	2.5	N.D.
Fluoranthene	2.0	N.D.
Pyrene	0.050	N.D.
Benzo (a) anthracene	0.010	N.D.
Chrysene	0.10	N.D.
Benzo (b) fluoranthene	0.10	N.D.
Benzo (k) fluoranthene	0.025	N.D.
Benzo (a) pyrene	0.010	N.D.
Dibenzo (a,h) anthracene	0.010	N.D.
Benzo (g,h,i) perylene	0.10	N.D.
2-methylnaphthalene	2.5	N.D.

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

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McCULLEY, FRICK & GILMAN, INC.

McCulley, Frick, & Gilman	Client Project ID:	90-2143	Sampled:	Jul 28, 1992
5 Third Street, Suite 400	Sample Descript:	Water, Method Blank	Received:	Jul 28, 1992
San Francisco, CA 94103	Analysis Method:	EPA 8310	Extracted:	Aug 4, 1992
Attention: Ed Conti	Instrument ID:	GCW 1	Analyzed:	Aug 10, 1992
	Lab Number:	BLK080492	Reported:	Aug 12, 1992

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	0.50	N.D.
Naphthalene	5.0	N.D.
Acenaphthene	2.0	N.D.
Fluorene	5.0	N.D.
Phenanthrene	0.10	N.D.
Anthracene	2.5	N.D.
Fluoranthene	2.0	N.D.
Pyrene	0.050	N.D.
Benzo (a) anthracene	0.010	N.D.
Chrysene	0.10	N.D.
Benzo (b) fluoranthene	0.10	N.D.
Benzo (k) fluoranthene	0.025	N.D.
Benzo (a) pyrene	0.010	N.D.
Dibenzo (a,h) anthracene	0.010	N.D.
Benzo (g,h,i) perylene	0.10	N.D.
2-methylnaphthalene	2.5	N.D.

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

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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: 207-4684

Reported: Aug 12, 1992

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:	Jul 30, 1992	Jul 30, 1992	Jul 30, 1992	Jul 30, 1992
QC Sample #:	GBLK073092	GBLK073092	GBLK073092	GBLK073092
Instr. 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:	10	10	10	30
Matrix Spike % Recovery:	100	100	100	100
Conc. Matrix Spike Dup.:	11	11	11	32
Matrix Spike Duplicate % Recovery:	110	110	110	107
Relative % Difference:	9.5	9.5	9.5	6.5

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Andrea Fulcher
Project Manager

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

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

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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: 2074683, 85

Reported: Aug 12, 1992

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:	Jul 31, 1992	Jul 31, 1992	Jul 31, 1992	Jul 31, 1992
QC Sample #:	GBLK073192	GBLK073192	GBLK073192	GBLK073192
Instr. 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:	10	10	10	31
Matrix Spike % Recovery:	100	100	100	108
Conc. Matrix Spike Dup.:	11	11	11	34
Matrix Spike Duplicate % Recovery:	110	110	110	113
Relative % Difference:	9.5	9.5	9.5	9.2

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Andrea Fulcher
Project Manager

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

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McCulley, Frick, & Gilman	Client Project ID:	90-2143
5 Third Street, Suite 400	Method:	EPA 8310
San Francisco, CA 94103	Instrument ID:	GCW1
Attention: Ed Conti	QC Sample #:	BLK080492

Reported: Aug 12, 1992

QUALITY CONTROL DATA REPORT: SURROGATE RECOVERIES, EPA 8310

Surrogate	Percent Recovery, 207-4683	Percent Recovery, BLK080492	Percent Recovery, BLK080492 MS	Percent Recovery, BLK080492 MSD
Decafluoro-biphenyl	70	75	80	80

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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: 207-4683

Reported: Aug 12, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Naphthalene	Acenaphthene	Pyrene
Method:	EPA 8310	EPA 8310	EPA 8310
Analyst:	L. Haar	L. Haar	L. Haar
Reporting Units:	µg/L	µg/L	µg/L
Date Analyzed:	Aug 10, 1992	Aug 10, 1992	Aug 10, 1992
QC Sample #:	BLK080492	BLK080492	BLK080492
Instru. ID:	GCW 1	GCW 1	GCW 1
Sample Conc.:	N.D.	N.D.	N.D.
Spike Conc. Added:	7500	2500	100
Conc. Matrix Spike:	5400	2200	110
Matrix Spike % Recovery:	79	88	110
Conc. Matrix Spike Dup.:	5500	2400	98
Matrix Spike Duplicate % Recovery:	73	96	98
Relative % Difference:	7.0	8.7	12

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Andrea Fulcher
Project Manager

% Recovery: $\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

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

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

McCULLEY, FRICK & GILMAN, INC.

NO. _____

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AUG 14 1992
McCULLEY, FRICK & GILMAN, INC.

☐ 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

☒ 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 PAGE: 1 OF: 1
SAMPLER (Signature): Mila E Waite PROJECT MANAGER: Edward Conti DATE: 7/28/92
METHOD OF SHIPMENT: Lab Courier CARRIER/ WAYBILL NO. _____ DESTINATION: Sequoia Analytical
SPECIAL INSTRUCTIONS/HAZARDS:

SAMPLES															ANALYSIS REQUEST																
					Preservation						Containers*			Methods												Handling			REMARKS (Special handling procedures, specific analytical methods, observations, etc.)
Lab No.	Sample Identification	Sample Collection DATE	Sample Collection TIME	Matrix*	HCL	HNO_3	H_2SO_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	
20 74683	MW-1A	7/28/92	1405	AQ				X			1000	G	2								X						X	★ Make sure EPA
↓	MW-1A	7/28/92	1405	AQ	X			X			40	G	2					X		X							X	8310 includes the
84	MW-2	7/28/92	1156	AQ	X			X			40	G	2					X		X							X	analyte 2-methylnaphthalene
85	MW-3	7/28/92	1300	AQ	X			X			40	G	2					X		X							X	Reporting limit must
↓ 86	Travel blank			AQ	X			X			40	G	2					X		X							X	be 5.0 µg/L or
																												less

TOTAL NUMBER OF CONTAINERS 10

LABORATORY COMMENTS/ CONDITION OF SAMPLES

RELINQUISHED BY:					RECEIVED BY:		
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY
Mila E Waite	Milan Waite	MFG	7/28/92	1615	L O'Rourke	O'ROURKE	PRIME
L O'Rourke	O'ROURKE	PRIME	7/28/92	1745		UGU-TW	SEQUOIA LABORATORY

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

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