ACTON • MICKELSON • van DAM, INC.
Consulting Scientists, Engineers, and Geologists

5090 Robert J. Mathews Parkway, #4
El Dorado Hills, California 95762

(916) 939-7550
Fax (916) 939-7570

November 22, 1993

Mr. Terrence A. Fox
Ultramar Inc.
525 West Third Street
Hanford, California 93230

19024.04

Subject: Ground Water Monitoring Report, Fourth Quarter 1993
Beacon Station #604
1619 West First Street, Livermore, California

Dear Mr. Fox:

Acton • Mickelson • van Dam, Inc. (AMV), has been authorized to continue a hydrogeologic investigation of ground water conditions at Beacon Station #604, located at 1619 West First Street, Livermore, California (Figures 1 and 2). The investigation is intended to assess the distribution of petroleum hydrocarbon constituents in the ground water beneath the site. This letter report summarizes the results of ground water sampling conducted on October 6, 1993. The procedures used to purge and sample monitoring wells and measure water levels are described in Enclosure A.

Ground Water Level Measurements, Hydraulic Gradient, and Flow Direction

Depth to ground water was measured in monitoring wells MW-1 through MW-3. Depth to ground water ranged from 41.15 to 43.72 feet below top of casing. Ground water level measurements from this sampling event, as well as previous ground water depth measurements, are presented in Table 1. Ground water levels have decreased an average of approximately 4.2 feet since the last quarterly monitoring event. The inferred direction of ground water flow was toward the northwest (Figure 3) which is consistent with previous monitoring events. Gradient was calculated to be approximately 0.03 foot per foot.

Ground Water Sample Analytical Results

Ground water samples were collected from monitoring wells MW-1 through MW-3 on October 6, 1993, using the procedures outlined in Enclosure A. Field observations and ground water sampling documentation are presented in Enclosure B. Ground water samples were

submitted to a state-certified laboratory for analysis of benzene, toluene, ethylbenzene, xylenes, and total petroleum hydrocarbons as gasoline (TPHg). Ground water sample analytical results from this sampling event and previous events are compiled in Table 2. Copies of the certified laboratory analytical reports from this sampling event are presented in Enclosure C.

Discussion

Benzene concentrations in ground water ranged from 17,000 μg/l in samples collected from monitoring well MW-2 to 57 μg/l in a sample collected from monitoring well MW-3. A benzene concentration map based on the October 6, 1993, ground water sample analytical results is illustrated on Figure 4.

Future Work

Quarterly ground water monitoring will continue on the site. The next sampling event is scheduled for January 1994.

Remarks

The opinions and conclusions contained in this letter report represent our professional opinions. These opinions are based on currently available information and were developed in accordance with currently accepted hydrogeologic and engineering practices at this time. Other than this, no warranty is implied or intended.

AMV recommends that a copy of this quarterly monitoring report be forwarded to the following:

Ms. Eva Chu
Department of Environmental Health
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, California 94612

Mr. Cecil Fox
California Regional Water Quality Control Board,
San Francisco Bay Region
2101 Webster Street, Room 500
Oakland, California 94612

If you have any questions, please call the undersigned at (916) 939-7550.

Sincerely,

ACTON • MICKELSON • van DAM, INC.

Hal Hansen for

Todd A. Del Frate
Staff Geologist

Dale A. van Dam

Dale A. van Dam, R.G.
California Registered Geologist #4632

TAD:DAvD:ecd
Enclosures

TABLE 1

WATER ELEVATION DATA

Monitoring Well	Date	Top of Riser	Depth of Water (feet)	Ground Water Elevation (feet)	Physical Observation
MW-1	06-01-93	100.00	37.50	62.50	No Product
	06-22-93		38.46	61.54	No Product
	10-06-93		42.22	57.78	No Product
MW-2	06-01-93	98.68	38.02	60.66	No Product
	06-22-93		39.07	59.61	No Product
	10-06-93		43.72	54.96	No Product
MW-3	06-01-93	97.08	36.18	61.90	No Product
	06-22-93		37.11	61.97	No Product
	10-06-93		41.15	55.93	No Product

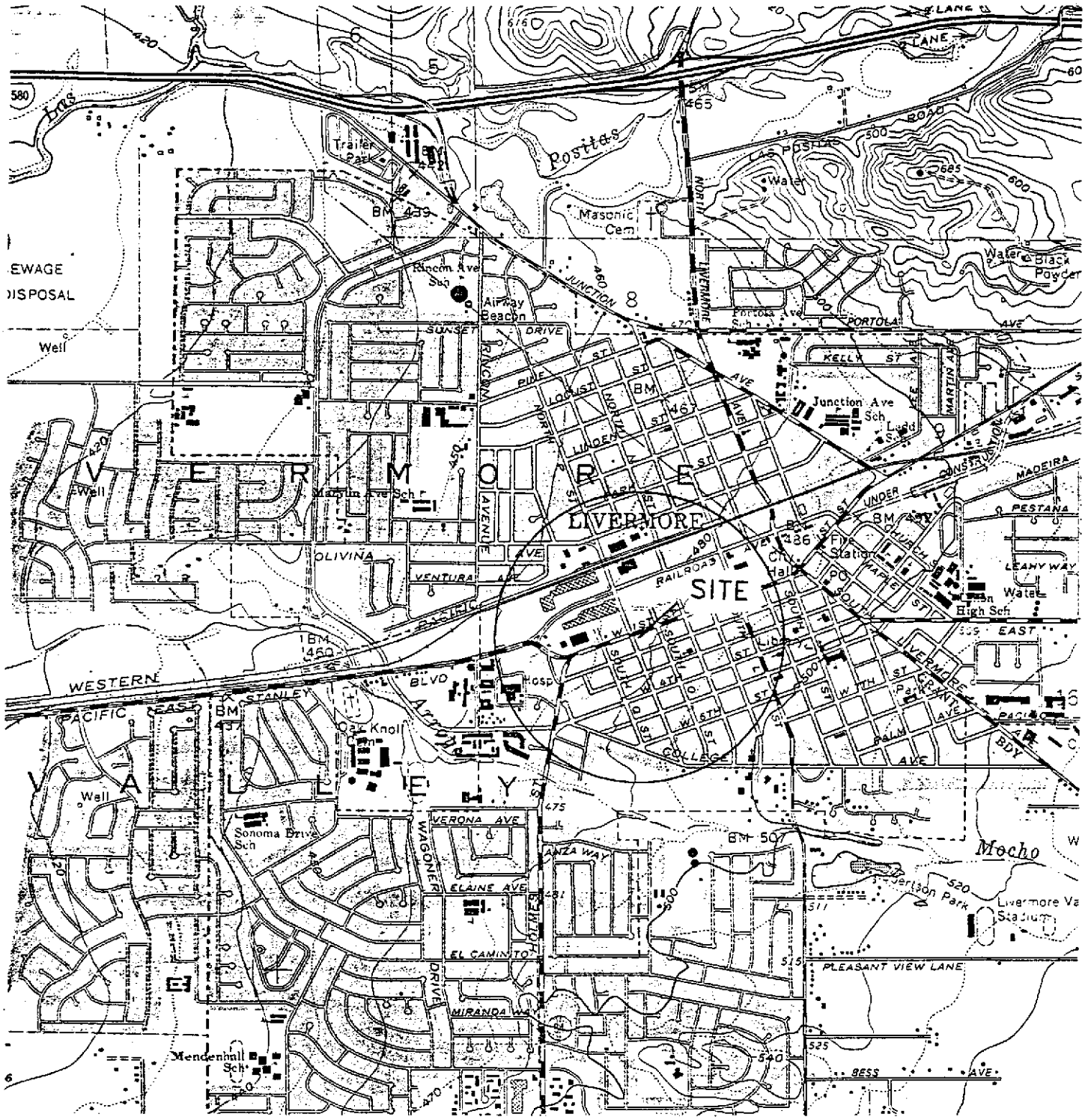
NOTE: Monitoring well elevations were surveyed relative to an arbitrary benchmark at the top of the casing of monitoring well MW-1 with an assumed elevation of 100.00 feet.

TABLE 2

GROUND WATER SAMPLE ANALYTICAL RESULTS
Concentrations in micrograms per liter (μg/l)

Monitoring Well	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPHg[a]
MW-1	06-01-93	2,200	400	<50	4,900	27,000
	06-22-93	8,000	10,000	260	10,000	87,000
	10-06-93	4,700	6,500	740	5,300	40,000
MW-2	06-01-93	20,000	21,000	3,300	18,000	170,000
	06-22-93	19,000	22,000	3,500	18,000	160,000
	10-06-93	17,000	17,000	3,000	15,000	110,000
MW-3	06-01-93	4.6	<0.50	<0.50	1.9	270
	06-22-93	8.2	<0.50	<0.50	0.72	160
	10-06-93	57	110	24	120	740

[a]TPHg = total petroleum hydrocarbons as gasoline.



General Notes

Base Map from U.S.G.S.
Livermore, California
7.5 Minute Topographic
Photorevised 1980

QUADRANGLE LOCATION

N

0 2000

Scale
1" = 2000'

FIGURE 1

SITE LOCATION MAP
BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CALIFORNIA

Project No.	Drawn by:
19024.01	EAF
File No.	Prepared by:
19024015	HEH
Revision No.	Reviewed by:

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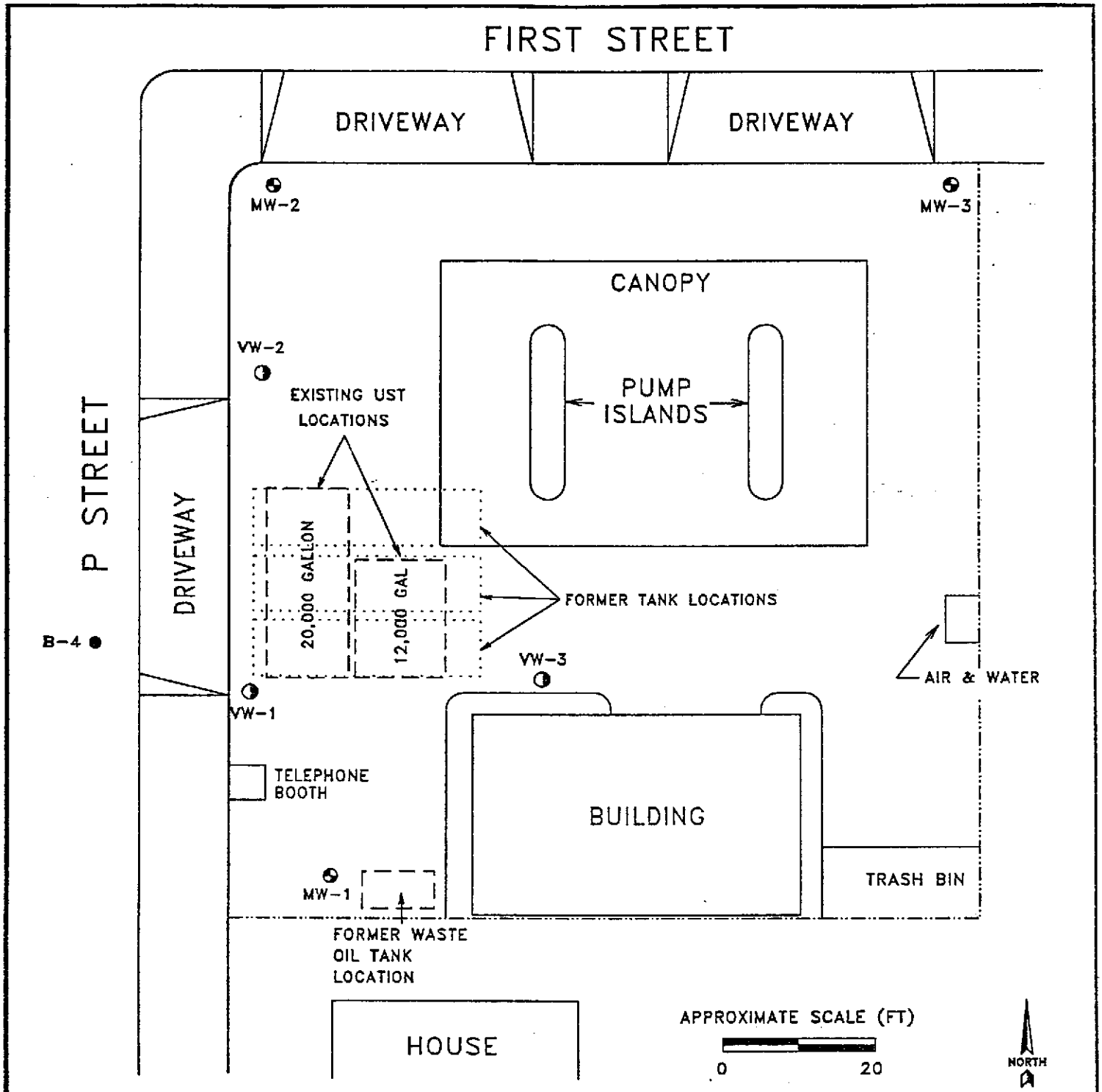

LEGEND

- VW-3 — VADOSE WELL LOCATION AND NUMBER
- MW-2 — MONITORING WELL LOCATION AND NUMBER
- B-4 — SOIL BORING LOCATION
- PROPERTY BOUNDARY

FIGURE 2
SITE MAP
BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CA

Project No. 19024.01	Drawn SAL
File No. 19024SM	Prepared SAL
Revision	Reviewed

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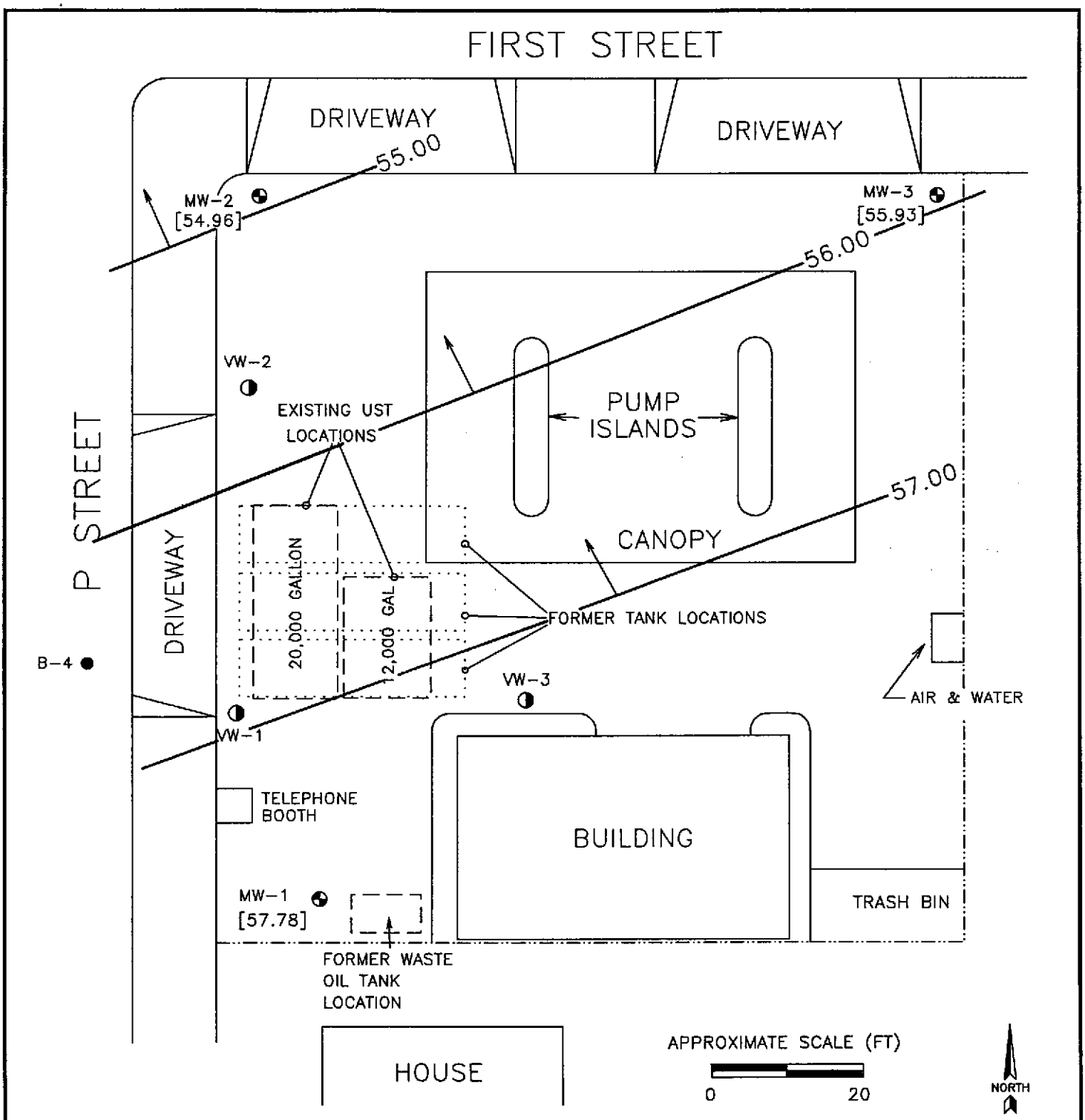

LEGEND

VW-3 ◑	VADOSE WELL LOCATION AND NUMBER
MW-2 ◒	MONITORING WELL LOCATION AND NUMBER
[57.78]	GROUND WATER ELEVATION
57.00	INFERRED WATER TABLE CONTOUR SHOWING GROUND WATER ELEVATION AND INFERRED GROUND WATER FLOW DIRECTION
B-4 ●	PREVIOUS SOIL BORING LOCATION
—·—·—	PROPERTY BOUNDARY

FIGURE 3
WATER TABLE CONTOUR MAP 10/6/93
BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CA

Project No. 19024.01	Drawn LGP
File No. 19024GW2	Prepared TAD
Revision	Reviewed

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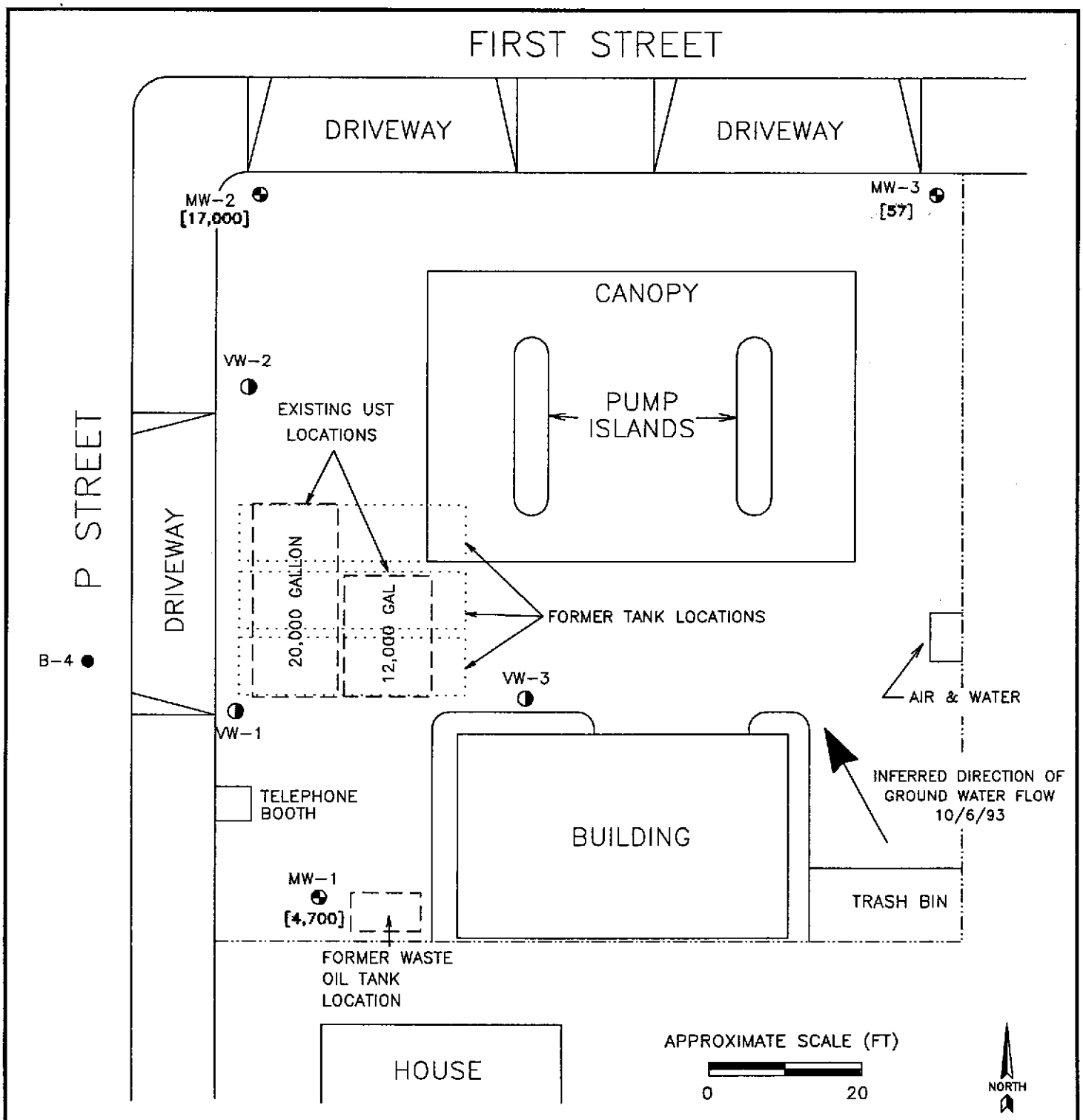

LEGEND

- VW-3 — VADOSE WELL LOCATION AND NUMBER
- MW-2 — MONITORING WELL LOCATION AND NUMBER
- [17,000] — BENZENE CONCENTRATION IN MICROGRAMS PER LITER (ug/l)
- B-4 — PREVIOUS SOIL BORING LOCATION
- PROPERTY BOUNDARY

FIGURE 4
BENZENE CONCENTRATION MAP 10/6/93
BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CA

Project No. 19024.01	Drawn LGP
File No. 19024BZ2	Prepared TAD
Revision	Reviewed

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ENCLOSURE A

SAMPLING TECHNIQUES

ENCLOSURE A

SAMPLING TECHNIQUES

Proper sampling techniques were followed to assure that samples represented actual field conditions and that samples were labeled, preserved, and transported properly to retain sample integrity. This exhibit describes procedures followed by Acton • Mickelson • van Dam, Inc. (AMV), during collection of samples of subsurface soil and ground water. Sampling guidance documents from the American Society of Testing and Materials (ASTM), U.S. Environmental Protection Agency (EPA), and California Department of Health Services (DHS) were followed for all sampling procedures. Actual sampling procedures employed were based on field conditions and may differ from those described here.

1.0 WATER LEVEL AND LIQUID-PHASE HYDROCARBON (LPH) THICKNESS MEASUREMENTS AND GROUND WATER SAMPLING

1.1 Water Level and LPH Thickness Measurements

The static water level and/or LPH thickness in each well was measured prior to purging or sampling.

The depth to water/product was measured using an electronic interface probe. The wire of the interface probe is marked at 0.01 foot intervals. One tone is emitted from the interface probe if LPH is encountered; another tone for water. The wire of the interface probe was lowered slowly until LPH or water was encountered. At this point, the mark on the interface wire opposite the permanent reference point on the top of the well casing was read to the nearest 0.01 foot and recorded. If the first encountered substance was LPH, the probe was lowered until the tone corresponding to water was emitted. This depth was also recorded. The difference between the two depths corresponds to the LPH thickness. The interface probe was rinsed in deionized water between measurements in different wells.

A permanent reference point was marked on the well casings. The permanent reference point on the well casings was surveyed to a common reference point. All well casing riser elevations are known to within 0.01 foot.

Prior to well development, a disposable bailer was used to collect a sample of LPH, if present in a well, for subjective analysis. The sample was collected by gently lowering the bailer approximately one-half the bailer length past the air/LPH interface. The appearance (color, opacity, "freshness") was described and noted on field notes.

1.2 Well Evacuation and Development

After the static water level in a well was determined and prior to collection of a ground water sample, stagnant water was removed from the well casing and the surrounding gravel pack by bailing, pumping, or with a vacuum truck. At least three casing volumes of water were removed from each well from which a sample was collected. The volume of water in the casing was determined from the known elevation of the water surface, the well bottom elevation (as measured when the well is installed), and the well diameter.

If the well was bailed or pumped during purging, samples were collected and field analyzed for pH, temperature, and specific conductance. The well was considered stabilized when repeated readings of the following parameters were within the ranges indicated as follows:

- Specific conductance ±10 percent of the reading range
- pH ±0.1 pH unit
- Temperature ±0.5° C.

After stabilization, and after at least three well volumes were evacuated, a sample was collected for analysis. The field container used for well stabilization measurements, and the pH, temperature, and conductivity probes were rinsed between wells with deionized water.

All purge water was containerized and properly handled and documented for disposal. If the containers were stored on site, a label specifying the date of purging, source, and the known or suspected nature of the contents was affixed to each container.

1.3 Sample Collection, Preservation, and Handling

After purging, a new polyethylene disposable bailer was used to collect samples for analysis. The bailer was attached to a new disposable rope and lowered slowly into the water to avoid agitation of the collected sample. Containers for volatile organics analyses were filled completely so no airspace remained in the vial after sealing.

All sample containers were prewashed and prepared at the analyzing laboratory in accordance with quality assurance/quality control protocols of the laboratory. Only sample containers appropriate for the intended analyses were used.

After sample collection, the samples were placed into coolers with ice packs. Internal temperature of the cooler was maintained at approximately 4 degrees Celsius. Samples were kept in coolers during transport to the analyzing laboratory.

2.0 DECONTAMINATION AND DISPOSAL PROCEDURES

2.1 Equipment Decontamination

Sampling equipment was decontaminated as follows:

1. Prior to individual sample collection, any sampling device was cleaned in a TSP solution and rinsed twice in clean water. Any visible soil residue was removed.

2. Water sampling containers were cleaned and prepared by the respective analytical laboratories.

3. Field monitoring equipment (pH, conductivity, or temperature probes) was rinsed with clean water prior to use and between samples.

3.0 FIELD MEASUREMENTS

Field data were collected during various sampling and monitoring activities; this section describes routine procedures followed by personnel performing field measurements. The methods presented below are intended to ensure that field measurements are consistent and reproducible when performed by various individuals.

3.1 Conductivity, Temperature, and pH

Specific conductance, water temperature, and pH measurements were made when a water sample was collected. Regardless of the sample collection method, a representative water sample was placed in a transfer bottle used solely for field parameter determinations. A conventional pH meter with a combination electrode or equivalent was used for field-specific conductance measurements. Temperature measurements were performed using standard thermometers or equivalent temperature meters. Combination instruments capable of measuring two or all three of the parameters may have also been used.

All instruments were calibrated in accordance with manufacturer methods. The values for conductivity standards and pH buffers used in calibration were recorded daily in a field notebook. All probes were thoroughly cleaned and rinsed with fresh water prior to any measurements, in accordance with Section 3.1.

4.0 SAMPLE CUSTODY

This section describes standard operating procedures for sample custody and custody documentation. Sample custody procedures were followed through sample collection, transfer, analysis, and ultimate disposal. The purpose of these procedures is to assure that (1) the integrity of samples was maintained during their collection, transportation, and storage prior to analysis and (2) post-analysis sample material was properly disposed of. Sample custody is divided into field procedures and laboratory procedures, as described below.

4.1 Field Custody Procedures

Sample quantities, types, and locations were determined before the actual fieldwork commenced. As few people as possible handled samples. The field sampler was personally responsible for the care and custody of the collected samples until they were properly transferred.

4.1.1 Field Documentation

Each sample was labeled and sealed properly immediately after collection. Sample identification documents were carefully prepared so that identification and chain-of-custody records could be maintained and sample disposition could be controlled. Forms were filled out with waterproof ink. The following sample identification documents were utilized.

- Sample labels
- Field notebook
- Chain-of-custody forms

4.1.2 Sample Labels

Sample labels provide identification of samples. Preprinted sample labels were provided. Where necessary, the label was protected from water and solvents with clean label-protection tape. Each label contained the following information:

- Name of collector
- Date and time of collection
- Place of collection
- AMV project number
- Sample number
- Preservative (if any)

4.1.3 Field Notebook

Information pertinent to a field survey, measurements, and/or sampling were recorded in a bound notebook. Entries in the notebook may have included the following:

- Name and title of author, date and time of entry, and physical/environmental conditions during field activity.
- Location of sampling or measurement activity.
- Name(s) and title(s) of field crew.
- Type of sampled or measured media (e.g., soil, ground water, air, etc.)
- Sample collection or measurement method(s).
- Number and volume of sample(s) taken.
- Description of sampling point(s).
- Description of measuring reference points.
- Date and time of collection or measurement.
- Sample identification number(s).
- Sample preservative (if any).
- Sample distribution (e.g., laboratory).
- Field observations/comments.
- Field measurements data (pH, etc.).

4.1.4 Chain-of-Custody Record

A chain-of-custody record was filled out for and accompanied every sample and every shipment of samples to the analytical laboratories in order to establish the documentation necessary to trace sample possession from the time of collection. The record contained the following information:

- Sample or station number or sample I.D.
- Signature of collector, sampler, or recorder.
- Date and time of collection.
- Place of collection.
- Sample type.
- Signatures of persons involved in the chain of possession.
- Inclusive dates of possession.

The laboratory portion of the form was completed by laboratory personnel and contains the following information:

- Name of person receiving the sample.
- Laboratory sample number.
- Date and time of sample receipt.
- Analyses requested.
- Sample condition and temperature.

4.1.5 Sample Transfer and Shipment

Samples were always accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving the samples signed, dated, and noted the time on the chain-of-custody record. Samples were packaged properly for shipment and dispatched to the

appropriate laboratory for analysis. The chain-of-custody record accompanied each shipment. The method of shipment, courier name(s), and other pertinent information was entered in the chain-of-custody record.

4.2 Laboratory Custody Procedures

A designated sample custodian accepted custody of the shipped samples and verified that the information on the sample label matched that on the chain-of-custody record. Information regarding method of delivery and sample conditions was also checked on the chain-of-custody record. The custodian then entered the appropriate data into the laboratory sample tracking system. The laboratory custodian may have used the sample number on the sample label or may have assigned a unique laboratory number to each sample. The custodian then transferred the sample(s) to the proper analyst(s) or stored the sample(s) in the appropriate secure area.

Laboratory personnel are responsible for the care and custody of samples from the time they are received until the sample is exhausted. Once at the laboratory, the samples are handled in accordance with U.S. Environmental Protection Agency SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods, Third Edition, for the intended analyses. All data sheets, chromatographs, and laboratory records were filed as part of the permanent documentation.

4.3 Corrections to Documentation

Original data recorded in field notebooks, chain-of-custody records, and other forms were written in ink. These documents were not altered, destroyed, or discarded, even if they were illegible or contained inaccuracies that required a replacement document.

If an error was made or found on a document, the individual making the corrections did so by crossing a single line through the error, entering the correct information, and initialing and dating the change. The erroneous information was obliterated. Any subsequent error(s) discovered on a document were corrected. All corrections were initialed and dated.

4.4 Sample Storage and Disposal

Samples and extracts were retained by the analytical laboratory for 60 days after a written report was issued by the laboratory. Unless notified by the program manager, excess or unused samples were disposed of by the laboratory in an appropriate manner consistent with applicable government regulations.

ENCLOSURE A

Acton • Mickelson • van Dam, Inc.
Consulting Scientists, Engineers, and Geologists
Log of Soil Boring

Coordinates:
Surface Elevation:
Casing Elevation:
Reference Elevation:
Reference Desc:

Completion Depth:

Project No.	Location:

Drilling Company:
Driller:
Drilling and Sampling Methods:

OVM/OVA

Drilling	Time	Date
Start		
Finish		
Water Depth	Initial	Completion

Logged by:
Checked by:

Depth (feet)	Sample Int.	Description	Graphic Log	Boring/ Well Detail	Blows/6 in	Inches Driven	Inches Recov'd	Comments	Sample #	Field OVM/OVA Reading (ppm)
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

ENCLOSURE B

UNIFIED SOIL CLASSIFICATION SYSTEM CHART

Major Divisions			Group Symbols	Typical Names
Coarse-Grained Soils More than 50% retained on No. 200 sieve*	Gravels 50% or more of coarse fraction retained on No. 4 sieve	Clean Gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		Gravels With Fines	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sands More than 50% of coarse fraction passes No. 4 sieve	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		Sands With Fines	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
Fine-Grained Soils 50% or more passes No. 200 sieve*	Silts and Clays Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

*Based on the material passing the 3-in. (75-mm) sieve.

ENCLOSURE B

FIELD NOTES

ACTON • MICKELSON • van DAM, INC.

GROUND WATER LEVEL DATA

Project Name Beacon 604 Project Number 19024.04

Date 10-6-93 Field Crew SAL Measuring Device and Number

Well No.	Time	Depth to Product (feet)	Depth to Ground Water (feet)	Product Thickness (feet)	Reference Elevation (feet)	Ground Water Elevation (feet)	Physical Observations/Comments
MW-1	1220		42.22		100.00	57.78	No product.
MW-2	1330		43.72		98.68	54.96	No product
MW-3	1046		41.15		97.08	55.93	No product

Signature

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point MW-1
Sample I.D.
Describe Sampling/Development Point

Project Name Beacon #204
Project No. 19024.04
Work Order #
Date 10-6-93
Field Crew SAL

Well Depth 53.5 feet below MP
Depth to Water (below MP) 42.22 feet
Discharge Rate 3.0 gpm
Number of borehole volumes evacuated before sampling: 4+ (36 gal)

Casing Diameter 4 inches
Time 1210 AM/PM

Sampling/Development Method:

X Tap
X Submersible
Bailer
Other
Centrifugal Pump

Pump intake or bailer set at 51.0 feet below MP.

Sample Appearance:
Note any Sampling Problems: Slow recharge of well
Note any Equipment Washing: Decon pump / disposable bailer
Samples Collected/Time: 3 40ml VOA's at 1300

EVACUATION/STABILIZATION TEST DATA

Time	pH (units)	Temperature Corrected Conductance (umhos/cm)	Temperature (°C)	Water Level (nearest 0.01 foot)	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate (gpm)
1215	7.75	1.79	75.2°F /		12	3.0
1223	7.77	1.70	74.4 °F /		4	3.0
1236	7.82	170	75.6°F /		9	2.5

Bailing Start Time 1212
Bailing Stop Time 1250

WL 42.22
WL 50.05

Comments:

Signature Steve Lugo

Date 10-6-93

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point MW-2
Sample I.D.
Describe Sampling/Development Point

Project Name Beacon 604
Project No. 19024.04
Work Order #
Date 10-6-93
Field Crew SAL

Well Depth 54 feet below MP
Depth to Water (below MP) 43.72 feet
Discharge Rate gpm
Number of borehole volumes evacuated before sampling: 4+ (37 gal)

Casing Diameter inches
Time AM/PM

Sampling/Development Method:

_____ Tap
_X_ Submersible
_____ Bailer
_____ Other
_____ Centrifugal Pump

Pump intake or bailer set at _____ feet below MP.

Sample Appearance:
Note any Sampling Problems:
Note any Equipment Washing: Decon pump / disposable bailer
Samples Collected/Time: 1

EVACUATION/STABILIZATION TEST DATA

Time	pH (units)	Temperature Corrected Conductance (umhos/cm)	Temperature (°C)	Water Level (nearest 0.01 foot)	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate (gpm)
13:33	7.73	~~733~~ 2.13	73.3°F /		9	3.0
13:40					12	
13:50					16	

Bailing Start Time 1330
Bailing Stop Time 1354

WL 43.72
WL 49.8

Comments:

Signature Steve Latt

Date 10-6-93

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point MW-3
Sample I.D.
Describe Sampling/Development Point Monitoring well

Project Name Beacon 604
Project No. 19024.04
Work Order #
Date 10-6-93
Field Crew SAL

Well Depth 52.60 feet below MP
Depth to Water (below MP) 41.15 feet
Discharge Rate 3 gpm gpm
Number of borehole volumes evacuated before sampling: 4+ (36 gal)

Casing Diameter 4 inches
Time 10:46 AM/PM

Sampling/Development Method:
X Tap
X Submersible
Bailer
Other
Centrifugal Pump

Pump intake or bailer set at 50 feet below MP.

Sample Appearance: Cloudy / Silty
Note any Sampling Problems:
Note any Equipment Washing: Decon pump / disposable bailer
Samples Collected/Time: 3 40ml VOA's at 1130

EVACUATION/STABILIZATION TEST DATA

Time	pH (units)	Temperature Corrected Conductance (umhos/cm)	Temperature (°C)	Water Level (nearest 0.01 foot)	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate (gpm)
1056	7.93	2.33	66.6°F /		12	3.0
1103	7.72	1.52	66.5°F /		12	3.0
1110	7.59	2.03	65.8°F /		12	3.0

Bailing Start Time 1055
Bailing Stop Time 1114

WL 41.15
WL 45.31

Comments:

Signature Steve Latt

Date 10-6-93

ENCLOSURE C

GROUND WATER SAMPLE ANALYTICAL RESULTS

October 14, 1993
Sample Log 7606

Hal Hansen
Acton, Mickelson & van Dam
5090 Robert J. Matthews Pkwy
El Dorado Hills, CA 95762

Subject: Analytical Results for 3 Water Samples
Identified as: Project # 19024 (Beacon 604)
Received: 10/06/93

Dear Mr. Hansen:

Analysis of the sample(s) referenced above has been completed. This report is written to confirm results communicated on October 14, 1993 and describes procedures used to analyze the samples.

Sample(s) were received in 40-milliliter glass vials sealed with TFE lined septae and plastic screw-caps. Each sample was transported and received under documented chain of custody and stored at 4 degrees C until analysis was performed.

Sample(s) were analyzed using the following method(s):

"BTEX" (EPA Method 602/Purge-and-Trap)
"TPH as Gasoline" (Modified EPA Method 8015/Purge-and-Trap)

Please refer to the following table(s) for summarized analytical results and contact us at 916-757-4650 if you have questions regarding procedures or results. The chain-of-custody document is enclosed.

Approved by:

Stewart Podolsky
Senior Chemist

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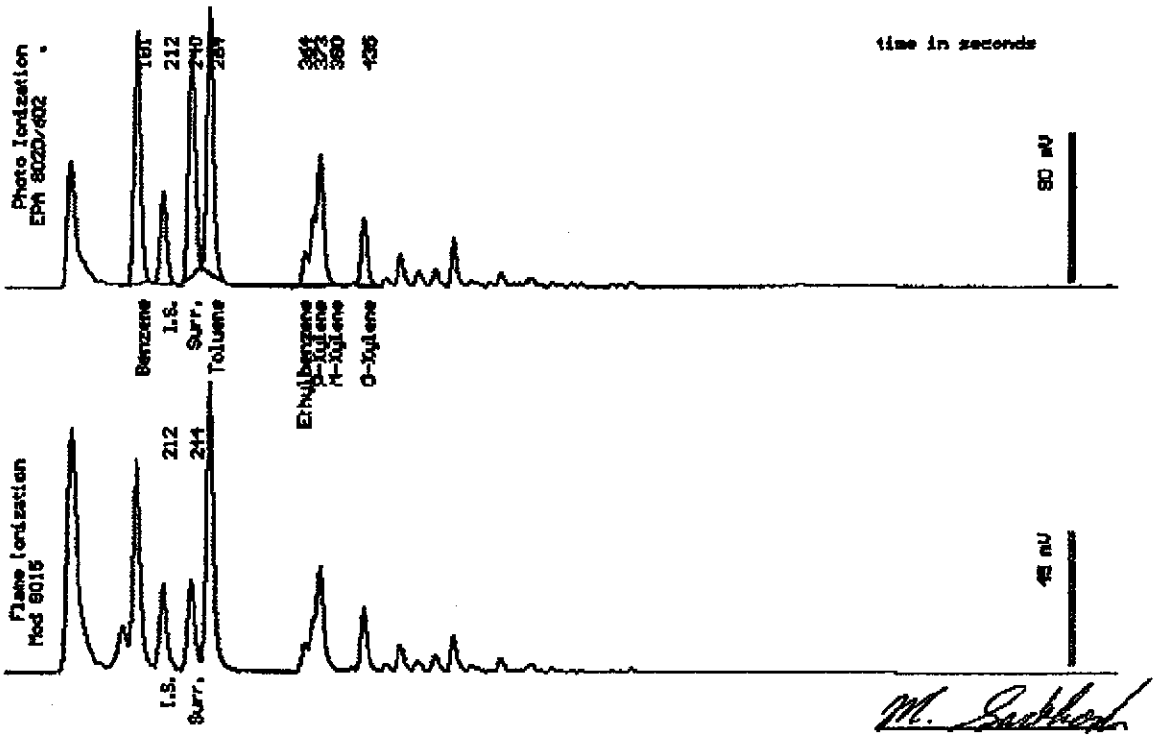
Sample Log 7606
7606-1

Sample: MW-1

From : Project # 19024 (Beacon 604)
Sampled : 10/06/93
Dilution : 1:100 QC Batch : 2025d
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(50)	4700
Toluene	(50)	6500
Ethylbenzene	(50)	740
Total Xylenes	(50)	5300
TPH as Gasoline	(5000)	40000
Surrogate Recovery		95 %



Date Analyzed 10-13-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

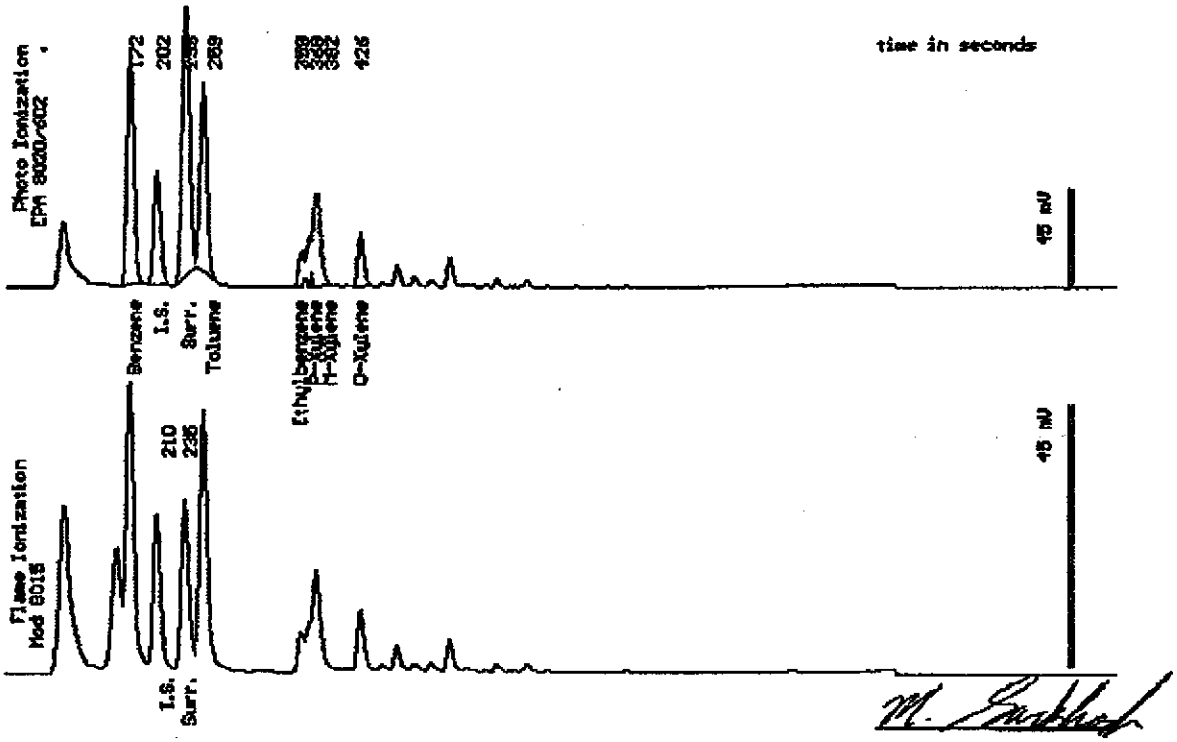
Nitra Sarkhosh
Senior Chemist

Sample Log 7606
7606-2

Sample: MW-2

From : Project # 19024 (Beacon 604)
Sampled : 10/06/93
Dilution : 1:500 QC Batch : 2025d
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(250)	17000
Toluene	(250)	17000
Ethylbenzene	(250)	3000
Total Xylenes	(250)	15000
TPH as Gasoline	(25000)	110000
Surrogate Recovery		99 %



Date Analyzed 10-13-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Nitra Sarkhosh
Senior Chemist

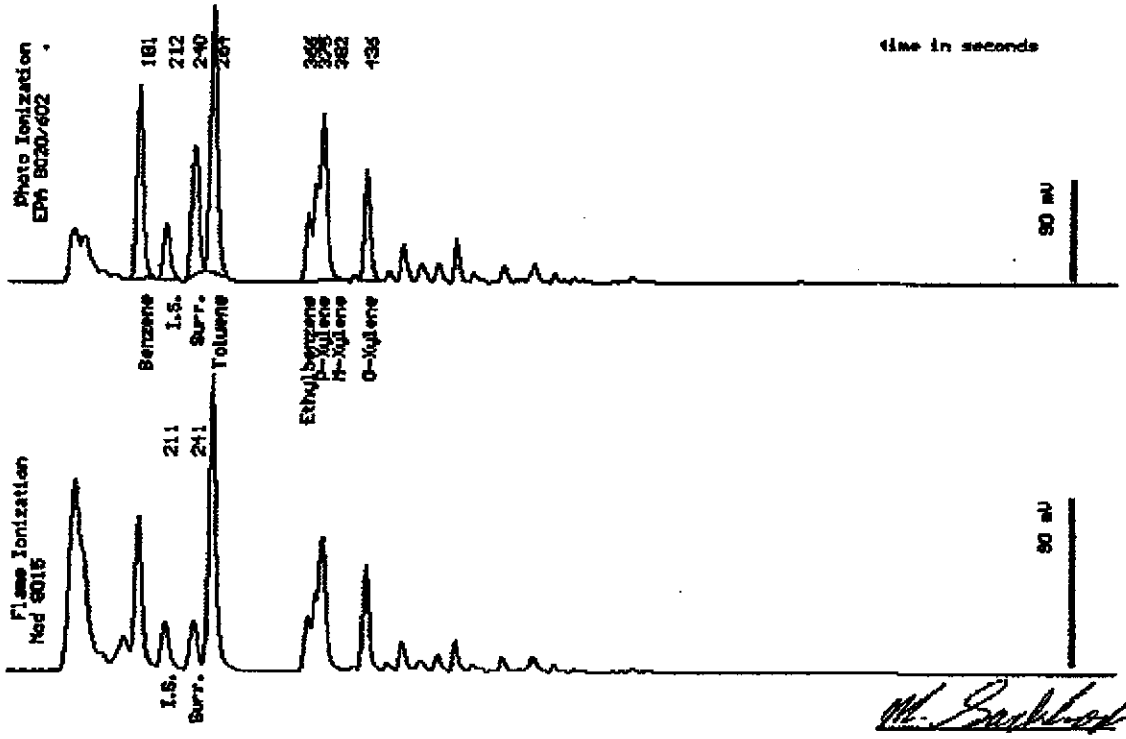
Sample Log 7606

7606-3

Sample: MW-3

From : Project # 19024 (Beacon 604)
Sampled : 10/06/93
Dilution : 1:1 QC Batch : 2025d
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	57
Toluene	(.50)	110
Ethylbenzene	(.50)	24
Total Xylenes	(.50)	120
TPH as Gasoline	(50)	740
Surrogate Recovery		89 %



Date Analyzed: 10-13-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

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7506-

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FAX #: 916-753-6091
LAB#: 916-757-4650

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Hal Hansen
Phone #: 916 939-7550
Company/Address: AMV 5090 S Mathews Pkwy #4 El Dorado Hills, CA
FAX #: 916 939 7576
Project Number: 19024
P.O.#:
Project Name: Beacon 604
Project Location: Livermore
Sampler Signature: Steve List

Sample ID	Sampling DATE	Sampling TIME	Container VOA	Container SLEEVE	Container 1L GLASS	Container 1L PLASTIC	Method Preserved HCl	Method Preserved HNO3	Method Preserved ICE	Method Preserved NONE	Matrix WATER	Matrix SOIL	BTEX (602/8020)	BTEX/TPH as Gasoline (602/8020/8015)	TPH as Diesel/Oil (8015)	Total Oil & Grease (5520 B/E,F)	Total Oil & Grease IR (5520 B/E,F,C)	96 - Hour Fish Bioassay	EPA 601/8010	EPA 602/8020	EPA 615/6150	EPA 608/8080 - Pesticides	EPA 608/8080-PCBs	EPA 624/8240	EPA 625/8270	ORGANIC LEAD	Reactivity, Corrosivity, Ignitibility	W.E.T.(Y)	TOTAL(Y)	CAM - 17 Metals	EPA - Priority Pollutant Metals	LEAD(7420/7421/239.2)	Cd, Cr, Pb, Zn, Ni	RUSH SERVICE (12 hr) or (24 hr)	EXPEDITED SERVICE (48 hr) or (1 wk)	STANDARD SERVICE (2wk)
MW-1	10-6-93		3				✓		X		X			X																						
MW-2	↓		3				✓		X		X			X																						
MW-3	↓		3				✓		X		X			X																						

Relinquished by:	Date	Time	Received by:	Remarks:
Steve List	10-6-93	16 50		1wk TAT
Relinquished by	Date	Time	Received by:	
Relinquished by	Date	Time	Received by Laboratory:	Bill To: Ultramar, Inc Attn: T. Fox
	10/6/93	16 50		