ACTON •
MICKELSON •
van DAM, INC.

Consulting Scientists, Engineers, and Geologists

June 2, 1994

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

19024.04

Subject: Ground Water Monitoring Report, Second Quarter 1994
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 April 25, 1994. 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-7. Depth to ground water ranged from 32.46 (MW-3) to 35.49 (MW-6) feet below the top of respective well casings. Ground water level measurements from this sampling event, as well as previous ground water depth measurements, are presented in Table 1. Ground water elevations decreased an average of approximately 1.62 feet between March 30 and April 25, 1994. The inferred direction of ground water flow was generally toward the northwest (Figure 3) which is consistent with previous monitoring events. Gradient was calculated to be approximately 0.02 foot per foot.

Ground Water Sample Analytical Results

Ground water samples were collected from monitoring wells MW-1 through MW-7 on April 25, 1994, 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.

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Fax (916) 939-7570

Discussion

Benzene concentrations in ground water ranged from 22,000 µg/l in the sample collected from monitoring well MW-6 to less than 0.50 µg/l in a sample collected from monitoring well MW-4. Compared to previous monitoring events, benzene concentrations in water samples collected on April 25, 1994, decreased in monitoring wells MW-2 and MW-3 and increased slightly in MW-1. Benzene concentrations reported from the April 25, 1994, ground water sample analytical results are presented on Figure 4.

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.

Steven A. Liaty
Staff Geologist

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

SAL:DAvD:maf
Enclosures

REGISTERED GEOLOGIST
DALE A. VAN DAM
NO. 4632
STATE OF CALIFORNIA

TABLE 1

HISTORIAL GROUND WATER ELEVATION DATA
Beacon Station #604
1619 West First Street, Livermore, California

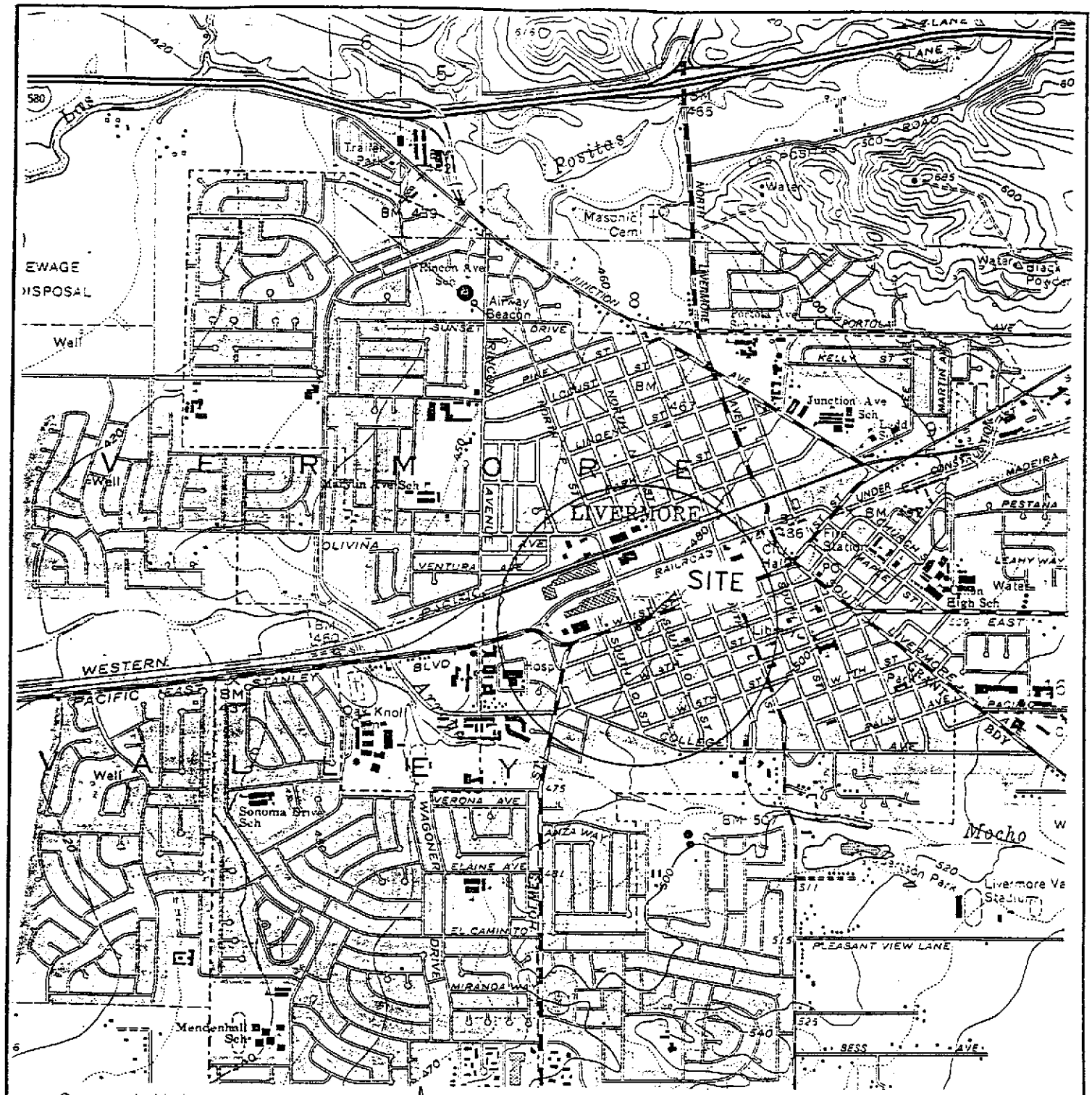
Monitoring Well	Date	Top of Riser (feet)	Depth of Water (feet)	Ground Water Elevation (feet)	Physical Observation
MW-1	06-01-93	100.00	37.50	62.50	No Product
	06-22-93		38.46	61.54	No Product
	10-06-93		42.22	57.78	No Product
	01-13-94		34.52	65.48	No Product
	03-30-94		31.93	68.07	No Product
	04-25-94		33.49	66.51	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
	01-13-94		35.85	62.83	No Product
	03-30-94		32.82	65.86	No Product
	04-25-94		34.76	63.92	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
	01-13-94		33.95	63.13	No Product
	03-30-94		30.97	66.11	No Product
	04-25-94		32.46	64.62	No Product
MW-4	03-30-94	99.35	31.56	67.79	No Product
	04-25-94		32.73	66.62	No Product
MW-5	03-30-94	98.37	32.07	66.30	No Product
	04-25-94		33.65	64.72	No Product
MW-6	03-30-94	97.62	33.38	64.24	No Product
	04-25-94		35.49	62.13	No Product
MW-7	03-30-94	98.03	31.98	66.05	No Product
	04-25-94		33.56	64.47	No Product

Note: Monitoring well casing elevations were surveyed relative to an arbitrary bench mark 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
Beacon Station #604
1619 West First Street, Livermore, CA
Concentrations in micrograms per liter (µg/l)

Monitoring Well	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPHg*
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
	01-13-94	1,300	950	110	850	9,400
	04-25-94	1,500	1,800	290	1,700	11,000
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
	01-13-94	20,000	19,000	2,300	14,000	93,000
	04-25-94	9,600	7,300	840	7,800	41,000
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
	01-13-94	2.6	0.67	0.78	4.2	83
	04-25-94	0.75	3.2	0.50	3.6	60
MW-4	03-30-94	4.2	15	2.5	26	120
	04-25-94	<0.50	1.8	<0.50	2.1	65
MW-5	03-30-94	1,300	20	<13	160	7,500
	04-25-94	1,100	41	130	740	6,500
MW-6	03-30-94	21,000	8,600	1,700	12,000	63,000
	04-25-94	22,000	12,000	2,300	16,000	77,000
MW-7	03-30-94	7,200	2,400	1,600	11,000	43,000
	04-25-94	3,900	1,000	940	6,900	30,000



General Notes

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

NORTH

0 2,000

Approximate Scale
(in feet)

CALIF

QUADRANGLE LOCATION

FIGURE 1

SITE LOCATION MAP

BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CALIFORNIA

Project No.	Drawn
19024	LMC
File No.	Prepared
FIG1	SAL
Revision	Reviewed

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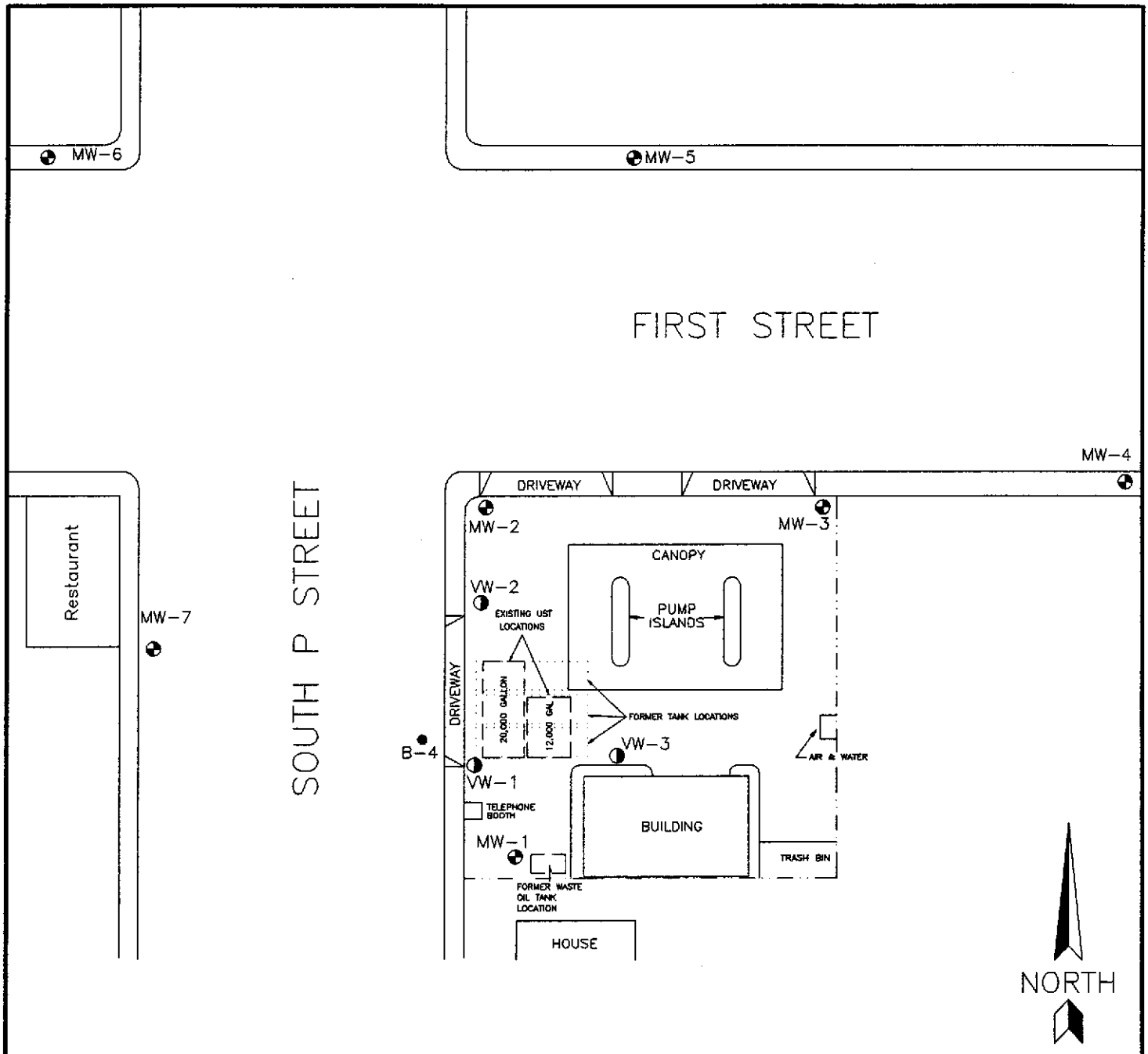

LEGEND

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

FIGURE 2

SITE MAP

BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CALIFORNIA

Project No.	Drawn
19024.04	LMC
File No.	Prepared
FIG2	TAD
Revision	Reviewed

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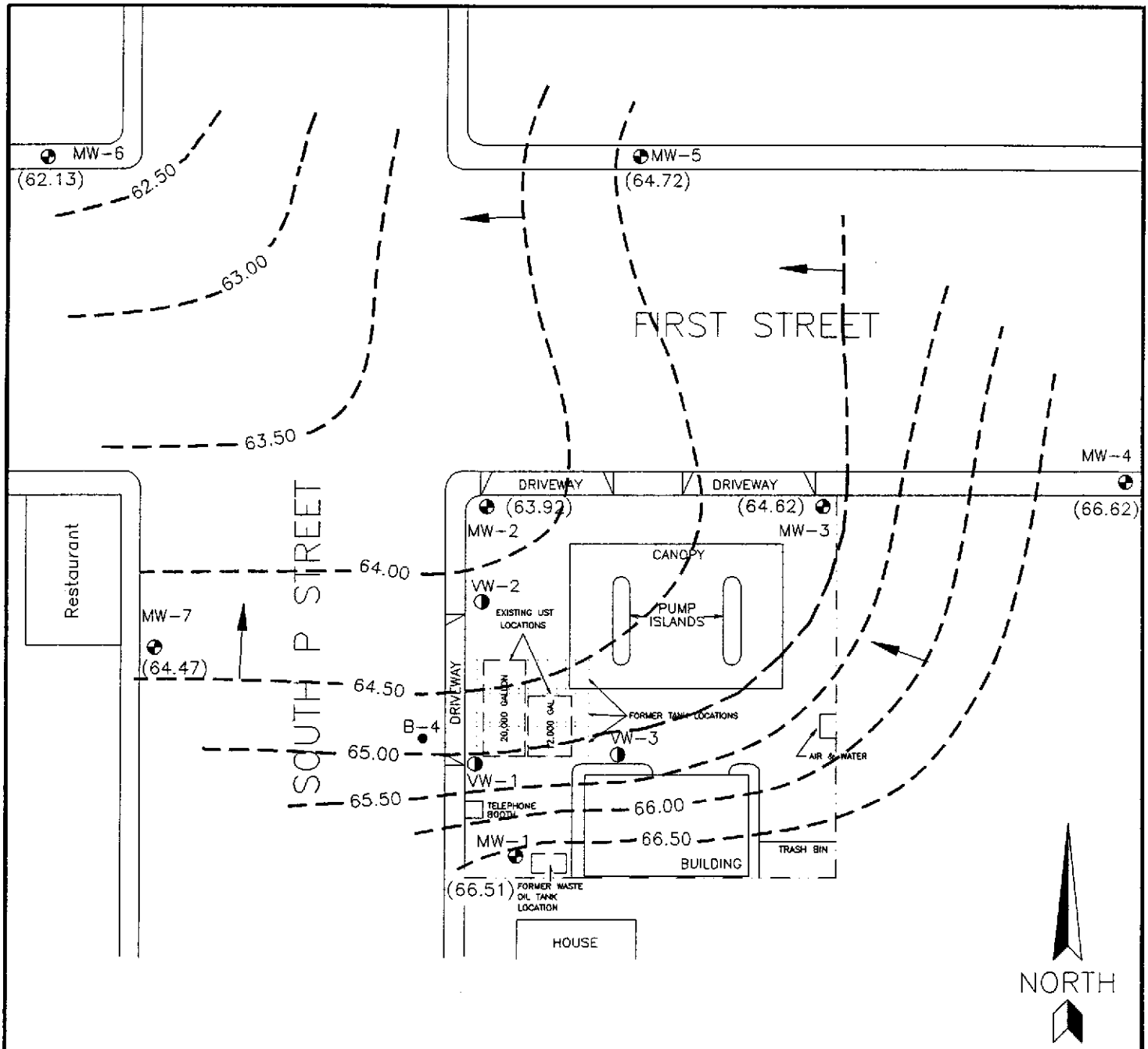

LEGEND

- VW-3 — VADOSE WELL LOCATION AND NUMBER
- MW-3 — MONITORING WELL LOCATION AND NUMBER
- B-4 — SOIL BORING LOCATION AND NUMBER
- PROPERTY BOUNDARY
- (66.05) GROUND WATER ELEVATION (FEET)
- 68.00 GROUND WATER ELEVATION CONTOUR WITH INFERRED DIRECTION OF FLOW

0 40 80

Approximate Scale (in feet)

FIGURE 3

GROUND WATER TABLE CONTOUR MAP (04/25/94)

BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CALIFORNIA

Project No.	Drawn
19024.04	LMC
File No.	Prepared
FIG3C	SAL
Revision	Reviewed

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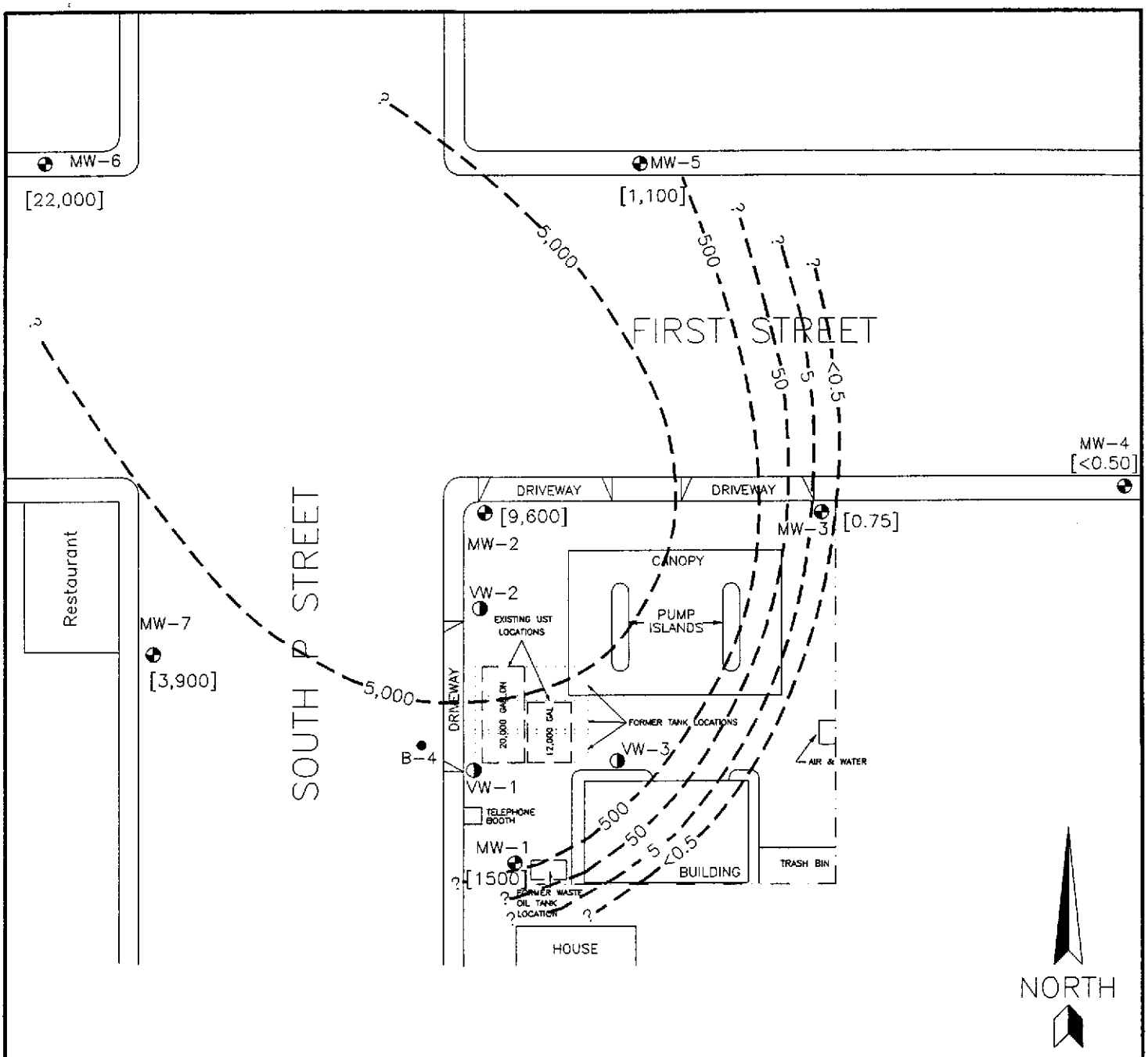

LEGEND

- VW-3 — VADOSE WELL LOCATION AND NUMBER
- MW-3 — MONITORING WELL LOCATION AND NUMBER
- B-4 — SOIL BORING LOCATION AND NUMBER
- — · — PROPERTY BOUNDARY
- [4.2] — BENZENE CONCENTRATION IN MICROGRAMS PER/LITER
- 5 — BENZENE ISOCONCENTRATION CONTOUR IN MICROGRAMS PER/LITER

FIGURE 4
INFERRED DISTRIBUTION OF BENZENE IN GROUND WATER (04/25/94)

BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CALIFORNIA

Project No.	Drawn
19024.04	LMC
File No.	Prepared
FIG4A	SAL
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.

If LPH was encountered in the well, it was removed by bailing or pumping and the approximate volume of LPH removed was recorded. LPH thickness was then remeasured. If LPH was still present, the thickness was recorded and the well was not sampled. If LPH was not present, the well was developed, purged, and sampled as described below.

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.

DAILY FIELD REPORT

ACTON • MICKELSON • van DAM, INC.

Project No. 1924.04	Date: 4-25-94
Project Name: Beacon 604	Project Location: Livermore
Weather: Heavy Rain / Windy	Field Crew: SAL

Today's Work Activities:

0750-0845 Load equipment and label VOA's
0850-1030 Drive from office to Livermore
1035-1110 Collect water level measurements
1115-1600 Perform Quarterly Monitoring of MW-1 through MW-7
1630 Clean and leave site

Signature: Steve Ly Date: 425-94

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GROUND WATER LEVEL DATA

Project Name Beacon 604 Project Number 19024.04

Date 4-25-94 Field Crew SAL Measuring Device and Number Interface Probe

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	1107		33.49		100.00	66.51	
MW-2	1112		34.76		98.68	63.92	
MW-3	1035		32.46		97.08	64.62	
MW-4	1040		32.73		99.35	66.62	
MW-5	1050		33.65		98.37	64.72	
MW-6	1055		35.49		97.62	62.13	
MW-7	1100		33.56		98.03	64.47	

Signature Steve Lang

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SAMPLING/DEVELOPMENT INFORMATION

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

Project Name Beacon 604
Project No. 19024.04
Work Order #
Date 4-25-94
Field Crew SAL

Well Depth 53.5 feet below MP
Depth to Water (below MP) 33.49 feet
Discharge Rate 3 gpm
Number of borehole volumes evacuated before sampling: 4

Casing Diameter 4 inches
Time 1107 (AM)

Sampling/Development Method:

___ Tap
X Submersible
___ Bailer
___ Other
___ Centrifugal Pump

Pump intake or bailer set at 43 feet below MP.

Sample Appearance: Clear
Note any Sampling Problems: None
Note any Equipment Washing: Decon pump/hose - D.sp. bailer
Samples Collected/Time: 3 40ml VOA's @ 1250

EVACUATION/STABILIZATION TEST DATA

Time	pH (units)	Temperature Corrected Conductance (umhos/cm)	Temperature (°C/°F)	Water Level (nearest 0.01 foot)	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate (gpm)
1210	7.27	5.60	64.2		3	≈3
1220	7.75	5.82	62.2		27	
1230	7.59	5.86	62.0		42	

Pumping Start Time 1209
Pumping Stop Time 1230

WL 33.49
WL 40.26

Comments:

Signature Steve Lang

Date 4-25-94

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SAMPLING/DEVELOPMENT INFORMATION

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

Project Name Beacon 604
Project No. 19024.04
Work Order #
Date 4-25-94
Field Crew SMK

Well Depth 54 feet below MP
Depth to Water (below MP) 34.76 feet
Discharge Rate ~3 gpm
Number of borehole volumes evacuated before sampling: 4

Casing Diameter 4 inches
Time 1112 AM/PM

Sampling/Development Method:

X Tap Submersible
Bailer
Other
Centrifugal Pump

Pump intake or bailer set at 44 feet below MP.

Sample Appearance: Silty orange-brown
Note any Sampling Problems: None
Note any Equipment Washing: Decon pump / Disp. bailer
Samples Collected/Time: 3 40ml VOA's @ 1550

EVACUATION/STABILIZATION TEST DATA

Time	pH (units)	Temperature Corrected Conductance (umhos/cm)	Temperature (°F)	Water Level (nearest 0.01 foot)	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate (gpm)
1512	7.82	5.67	59.1		6	~3
1522	7.87	5.62	62.2		27	
1530	7.97	5.60	62.7		48	

Pumping Start Time 1510
Pumping Stop Time 1530

WL 34.76
WL 33.21

Comments: Well box filled with water bailed before opening well cap

Signature Steve Kay

Date 4-25-94

ACTION • 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 4-25-94
Field Crew SH

Well Depth 52 feet below MP
Depth to Water (below MP) 32.46 feet
Discharge Rate ~3 gpm
Number of borehole volumes evacuated before sampling: 4

Casing Diameter 4 inches
Time 1035 AM/PM

Sampling/Development Method:

_____ Tap
X Submersible
_____ Bailer
_____ Other
_____ Centrifugal Pump

Pump intake or bailer set at 39 feet below MP.

Sample Appearance: Clear
Note any Sampling Problems: None
Note any Equipment Washing: Decon pump / disp. bailer
Samples Collected/Time: 3 40ml VOA's @ 1120

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)
1110	6.87	4.76	64.7		3	~3
1120	7.13	4.53	63.2		30	↓
1130	7.52	4.50	63.7		41	↓

Pumping Start Time 1109
Pumping Stop Time 1130

WL 32.46
WL 35.21

Comments:

Signature Steve Hay

Date 4-25-94

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point: MW-4
Sample I.D.
Describe Sampling/Development Point: Monitoring Well

Project Name: Beacon 604
Project No.: 19024.04
Work Order #:
Date: 4-25-94
Field Crew: SM

Well Depth: 47 feet below MP
Depth to Water (below MP): 32.73 feet
Discharge Rate: / gpm
Number of borehole volumes evacuated before sampling: 4

Casing Diameter: 2 inches
Time: 1040 AM/PM

Sampling/Development Method:
___ Tap
___ Submersible
X Disp. bailer
___ Bailer
___ Other
___ Centrifugal Pump

Pump intake or bailer set at: 3 feet below MP.

Sample Appearance: Clear
Note any Sampling Problems: None
Note any Equipment Washing: Used disp. bailer to purge and sample
Samples Collected/Time: 3 40ml VOA's @ 1205

EVACUATION/STABILIZATION TEST DATA

Time	pH (units)	Temperature Corrected Conductance (umhos/cm)	Temperature (°C/°F)	Water Level (nearest 0.01 foot)	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate (gpm)
1142	7.17	5.93	62.1		2.0	≈ 1
1152	7.18	5.87	63.2		5.5	↓
1159	7.02	5.89	62.9		9.6	

Pumping Start Time: 1140
Pumping Stop Time: 1154

WL 32.73
WL 32.93

Comments:

Signature: Steve Lee
Date: 4-25-94

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point: MW-5
Sample I.D.:
Describe Sampling/Development Point: Monitoring Well

Project Name: Beacon 604
Project No.: 19024.04
Work Order #:
Date: 4-25-94
Field Crew: SAE

Well Depth: 47 feet below MP
Depth to Water (below MP): 33.65 feet
Discharge Rate: ~3 gpm
Number of borehole volumes evacuated before sampling: 4

Casing Diameter: 2 inches
Time: 1050 AM/PM

Sampling/Development Method:

- ___ Tap
- X Submersible
- ___ Bailer
- ___ Other
- ___ Centrifugal Pump

Pump intake or bailer set at 40.00 feet below MP.
Sample Appearance: Clear
Note any Sampling Problems: None
Note any Equipment Washing: Dram pump/hose - probe / Disp. bailer
Samples Collected/Time: 3 40ml VOA's @ 1425

EVACUATION/STABILIZATION TEST DATA

Time	pH (units)	Temperature Corrected Conductance (umhos/cm)	Temperature (°F)	Water Level (nearest 0.01 foot)	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate (gpm)
1340	7.96	5.79	66.2		2.0	~3
1343	7.82	5.72	64.1		5.5	↓
1346	7.85	5.70	64.1		8.6	

Pumping Start Time: 1338
Pumping Stop Time: 1346
WL: 33.65
WL: 39.12

Comments:

Signature: Steve Ly
Date: 4-25-94

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point: MW-6
Sample I.D.:
Describe Sampling/Development Point: Monitoring well

Project Name: Beacon 604
Project No.: 19024.04
Work Order #:
Date: 4-25-94
Field Crew: SAL

Well Depth: 48 feet below MP
Depth to Water (below MP): 35.49 feet
Discharge Rate: gpm
Number of borehole volumes evacuated before sampling: 4

Casing Diameter: 2 inches
Time: 1055 AM/PM

Sampling/Development Method:

_____ Tap
__X__ Submersible
_____ Bailer
_____ Other
_____ Centrifugal Pump

Pump intake or bailer set at 45 feet below MP.
Sample Appearance: Clear
Note any Sampling Problems: None
Note any Equipment Washing: Decon pump / Probe / Disp. bailer
Samples Collected/Time: 3 40ml VOA's @ 1505

EVACUATION/STABILIZATION TEST DATA

Time	pH (units)	Temperature Corrected Conductance (umhos/cm)	Temperature (°F)	Water Level (nearest 0.01 foot)	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate (gpm)
1440	7.35	5.99	65.3		2	≈ 1
1445	7.47	6.03	68.0		5	
1450	7.50	5.82	67.9		10	

Pumping Start Time: 1438
Pumping Stop Time: 1450
WL: 35.49
WL: 39.93

Comments:

Signature: Steve Lang
Date: 4-25-94

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point: MW-7
Sample I.D.:
Describe Sampling/Development Point: Monitoring well

Project Name: Beacon 604
Project No.: 19024.04
Work Order #:
Date: 4-25-94
Field Crew: SK

Well Depth: 47 feet below MP
Depth to Water (below MP): 33.56 feet
Discharge Rate: < gpm
Number of borehole volumes evacuated before sampling: 4

Casing Diameter: 2 inches
Time: 1100 AM/PM

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

Pump intake or bailer set at 3 feet below MP.
Sample Appearance: Clear
Note any Sampling Problems: None
Note any Equipment Washing: Used disposable bailers to purge and sample.
Samples Collected/Time: 3 40ml VOA's @ 1335

EVACUATION/STABILIZATION TEST DATA

Time	pH (units)	Temperature Corrected Conductance (umhos/cm)	Temperature (°F)	Water Level (nearest 0.01 foot)	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate (gpm)
1310	7.37	5.16	66.2		2	~~<1~~ <1
1320	7.17	5.20	66.5		5	
1330	7.21	5.12	67.0		9	

Drilling Start Time: 1305 WL 33.56
Drilling Stop Time: 1330 WL 33.92

Comments:

Signature: Steve Kay
Date: 4-25-94

ENCLOSURE C

GROUND WATER SAMPLE ANALYTICAL RESULTS

May 2, 1994
Sample Log 9250

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

Subject: Analytical Results for 7 Water Samples
Identified as: Project # 19024.04 (Beacon 604)
Received: 04/26/94

Dear Mr. Liaty:

Analysis of the sample(s) referenced above has been completed. This report is written to confirm results communicated on May 2, 1994 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 916-753-9500 if you have questions regarding procedures or results. The chain-of-custody document is enclosed.

Approved by:

Joel Kiff
Senior Chemist

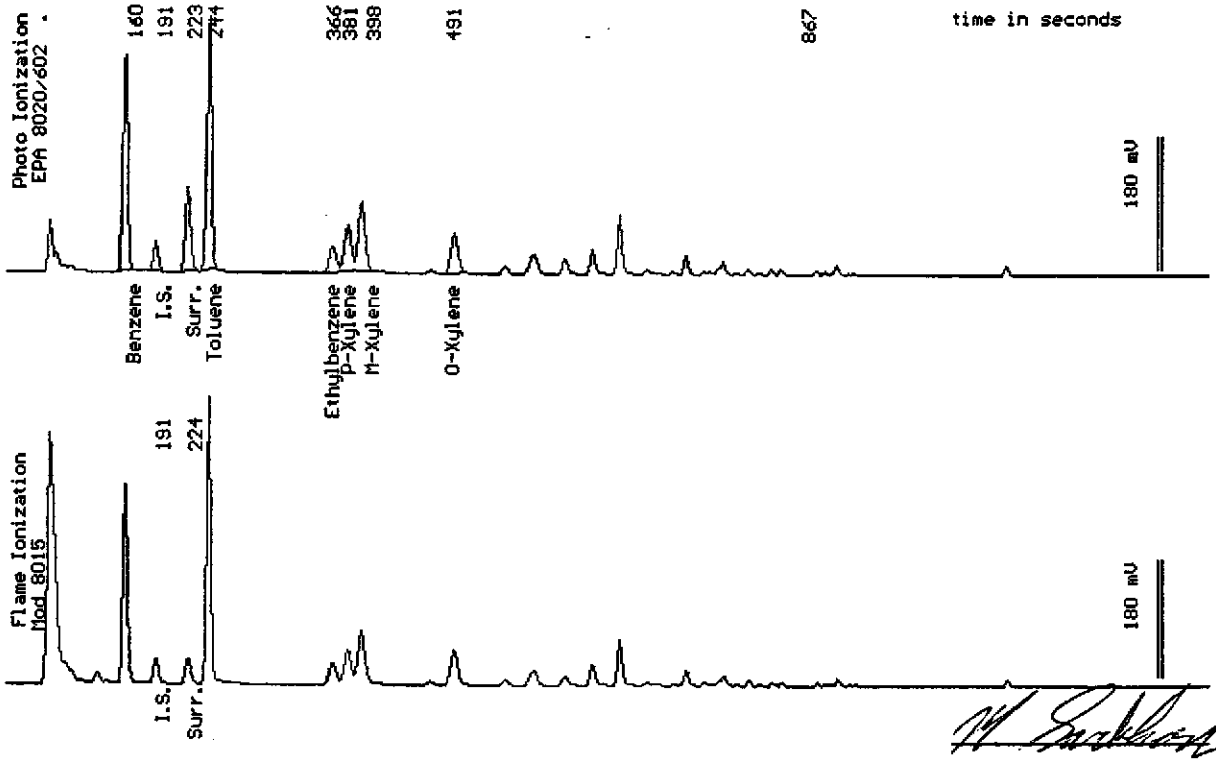
Sample Log 9250

9250-1

Sample: **MW-1**

From : Project # 19024.04 (Beacon 604)
Sampled : 04/25/94
Dilution : 1:10 QC Batch : 4081E
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(5.0)	1500
Toluene	(5.0)	1800
Ethylbenzene	(5.0)	290
Total Xylenes	(5.0)	1700
TPH as Gasoline	(500)	11000
Surrogate Recovery		98 %



Date Analyzed: 04-29-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

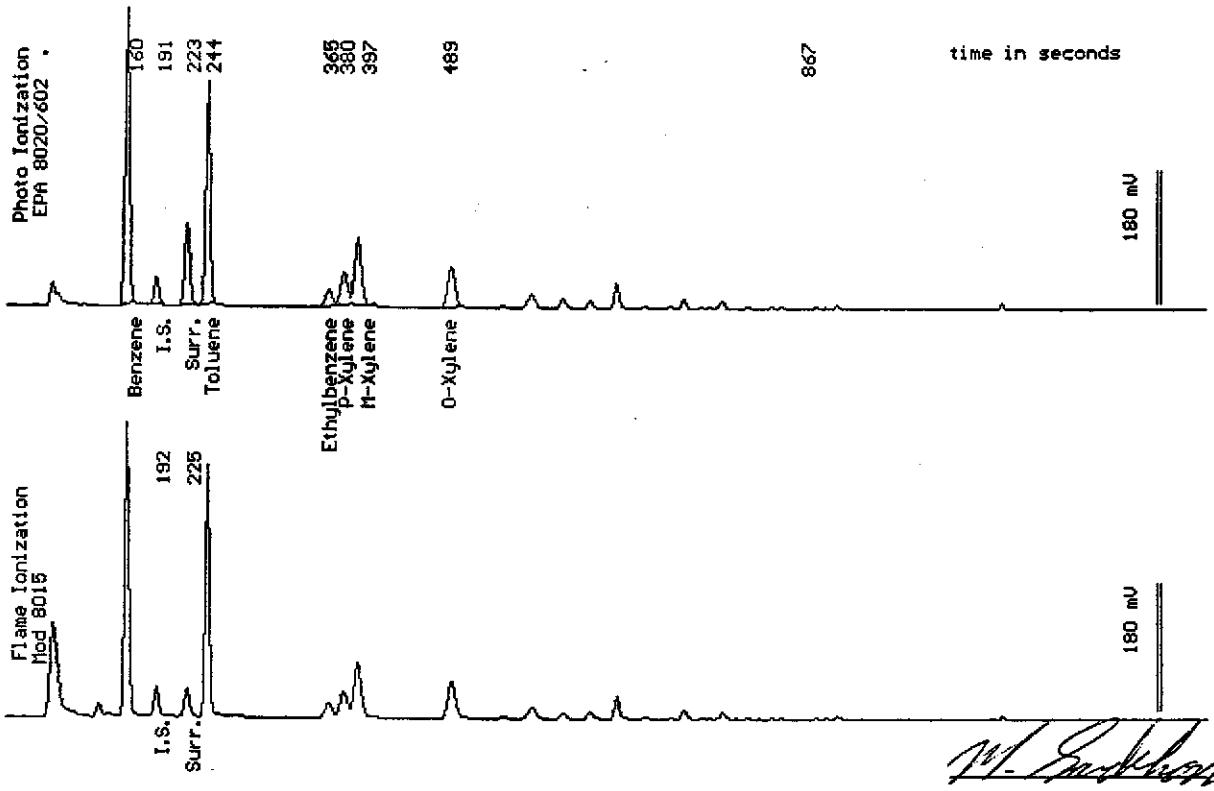
Sample Log 9250

9250-2

Sample: **MW-2**

From : Project # 19024.04 (Beacon 604)
Sampled : 04/25/94
Dilution : 1:50 QC Batch : 4081E
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(25)	9600
Toluene	(25)	7300
Ethylbenzene	(25)	840
Total Xylenes	(25)	7800
TPH as Gasoline	(2500)	41000
Surrogate Recovery		97 %



Date Analyzed: 04-29-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

Western Environmental Science & Technology • 45133 County Road 32B • Davis, CA 95616 • 916 753-9500 • FAX: 916 757-4652

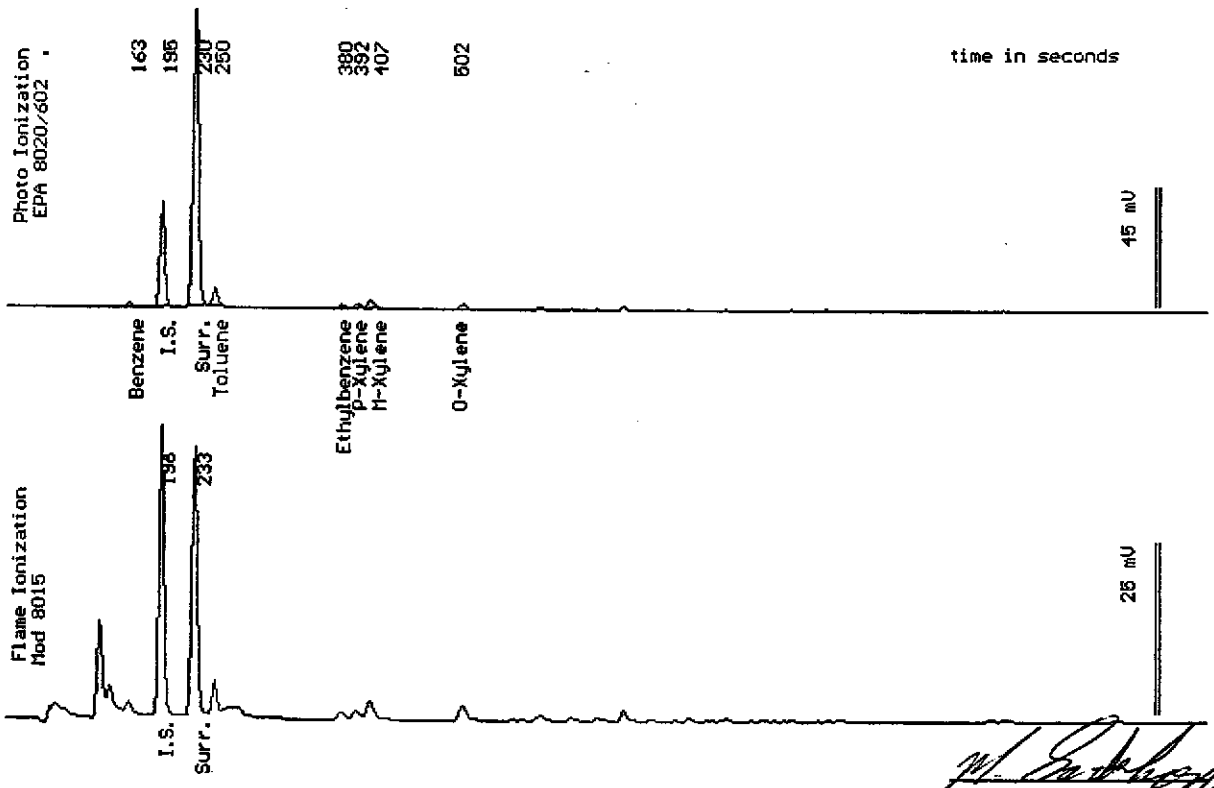
Sample Log 9250

9250-3

Sample: **MW-3**

From : Project # 19024.04 (Beacon 604)
Sampled : 04/25/94
Dilution : 1:1 QC Batch : 4081E
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	.75
Toluene	(.50)	3.2
Ethylbenzene	(.50)	.50
Total Xylenes	(.50)	3.6
TPH as Gasoline	(50)	60
Surrogate Recovery		101 %



Date Analyzed: 04-29-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

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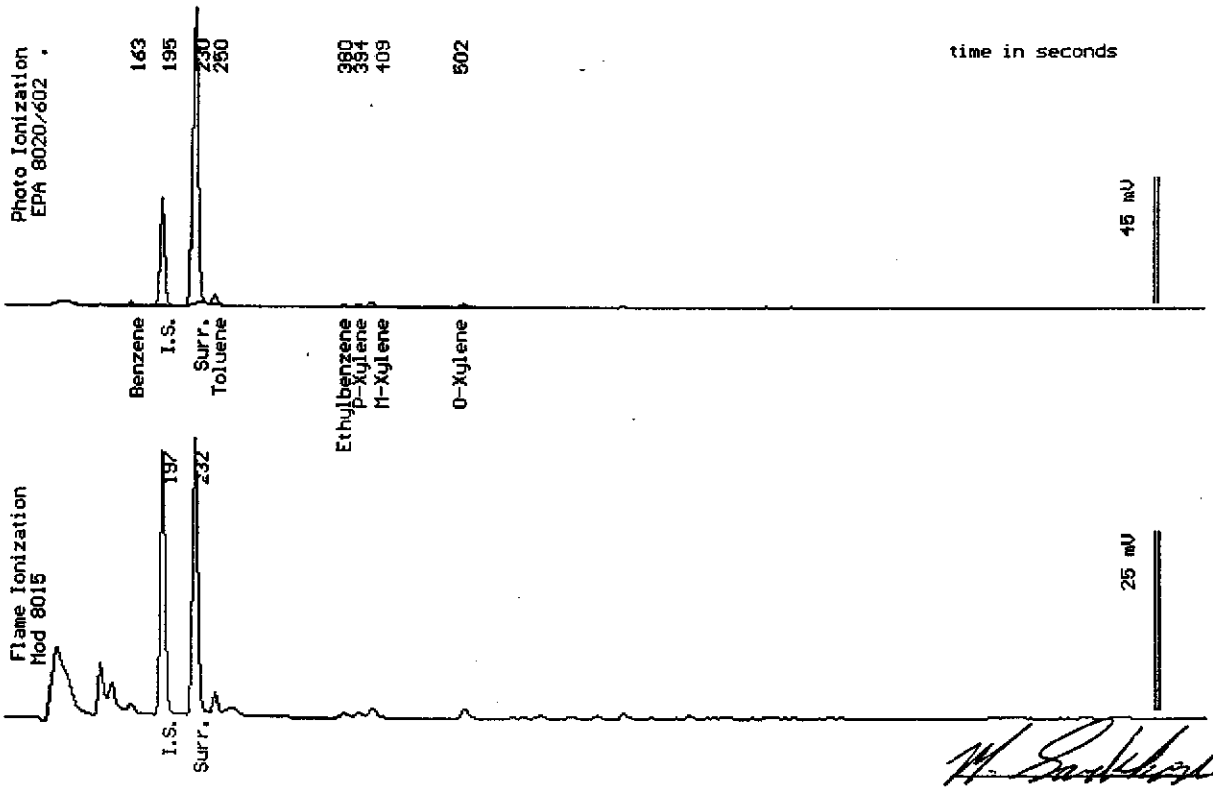
Sample Log 9250

9250-4

Sample: **MW-4**

From : Project # 19024.04 (Beacon 604)
Sampled : 04/25/94
Dilution : 1:1 QC Batch : 4081E
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	<.50
Toluene	(.50)	1.8
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	2.1
TPH as Gasoline	(50)	65
Surrogate Recovery		100 %



Date Analyzed: 04-29-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

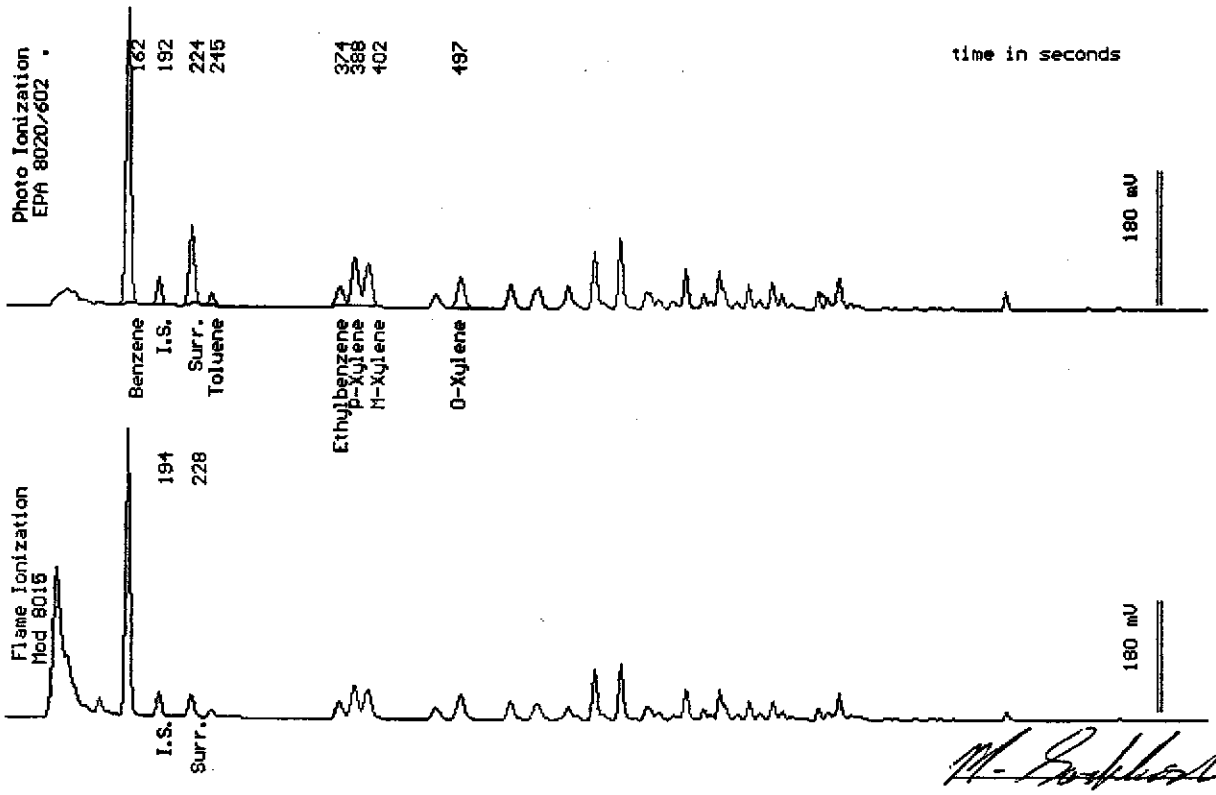
Sample Log 9250

9250-5

Sample: **MW-5**

From : Project # 19024.04 (Beacon 604)
Sampled : 04/25/94
Dilution : 1:5 QC Batch : 4081E
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(2.5)	1100
Toluene	(2.5)	41
Ethylbenzene	(2.5)	130
Total Xylenes	(2.5)	740
TPH as Gasoline	(250)	6500
Surrogate Recovery		96 %



Date Analyzed: 04-29-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

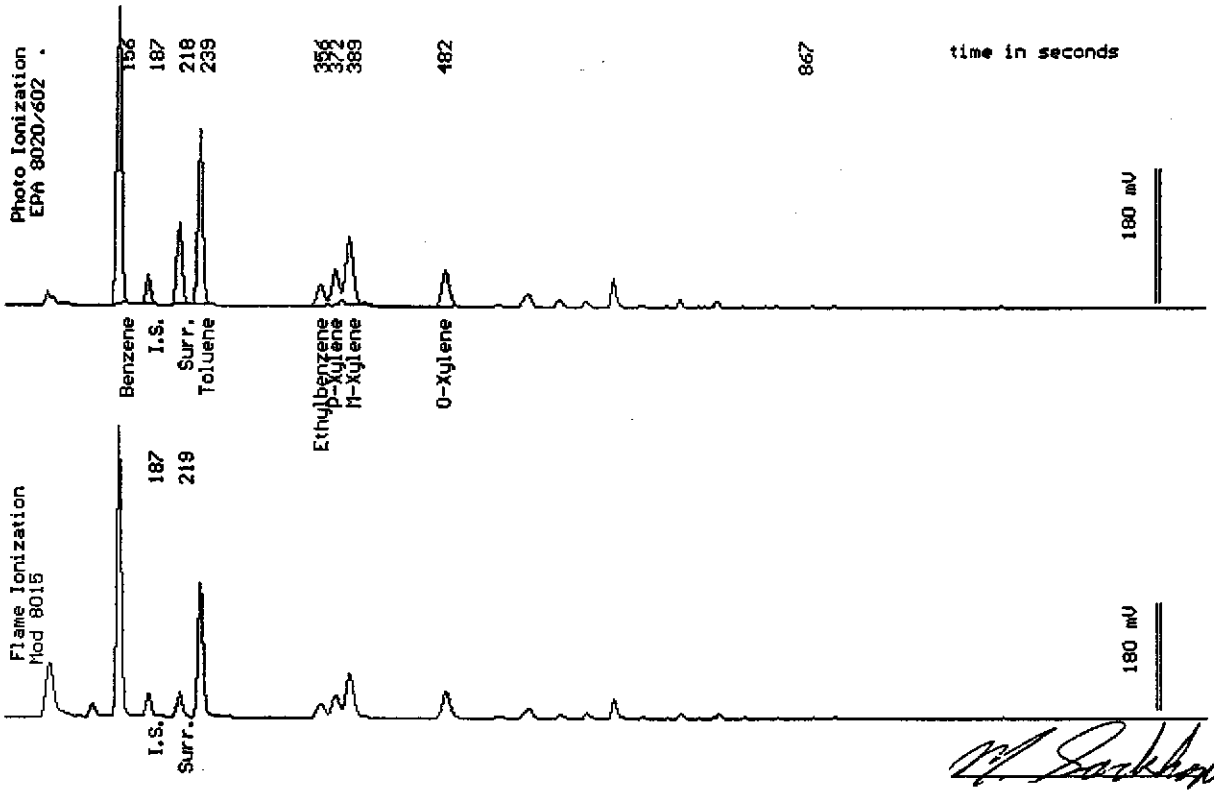
Sample Log 9250

9250-6

Sample: **MW-6**

From : Project # 19024.04 (Beacon 604)
Sampled : 04/25/94
Dilution : 1:100 QC Batch : 4082a
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(50)	22000
Toluene	(50)	12000
Ethylbenzene	(50)	2300
Total Xylenes	(50)	16000
TPH as Gasoline	(5000)	77000
Surrogate Recovery		97 %



Date Analyzed: 05-02-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

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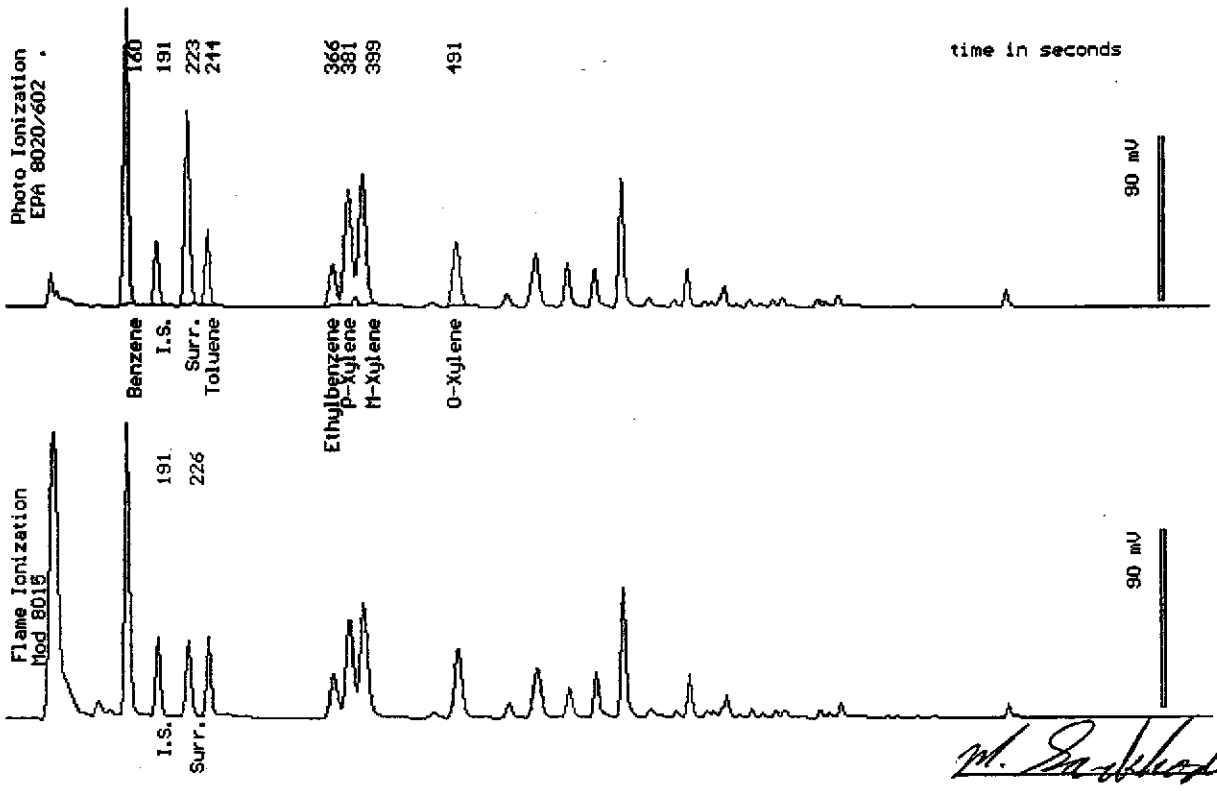
Sample Log 9250

9250-7

Sample: **MW-7**

From : Project # 19024.04 (Beacon 604)
Sampled : 04/25/94
Dilution : 1:50 QC Batch : 4082a
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(25)	3900
Toluene	(25)	1000
Ethylbenzene	(25)	940
Total Xylenes	(25)	6900
TPH as Gasoline	(2500)	30000
Surrogate Recovery		98 %



Date Analyzed: 05-02-94
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Mitra Sarkhosh
Senior Chemist

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Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)			ANALYSES				Date	Form No.
602 604 4/26/94	Steve Liety							4-26-94	1 of 1
Project No.	Sampler (Signature)								
19024.04	Steve Liety							Standard TAT	
Project Location	Affiliation								
Livermore	AMW Geo								
Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)	No. of Containers	REMARKS	
MW-1	4-25-94	1250		X	X		3	40 ml VOA's	
MW-2		1550							
MW-3		1120							
MW-4		1205							
MW-5		1425							
MW-6		1505							
MW-7		1335							

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Steve Liety	4-26-94	1056		4/26/94	1056
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
	4/26/94	1721			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
			WEST	4/26/94	1221

Report To:
Steve Liety
AMW
(916) 939-7570 fax

Bill to: ULTRAMAR INC.
525 West Third Street
Hanford, CA 93230
Attention: Terry Fox

RECEIVED
by W.E.S.T.
date 04/26/94

WHITE: Return to Client with Report YELLOW: Laboratory Copy PINK: Originator Copy