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Ultramar

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Ultramar Inc.
P.O. Box 466
525 W. Third Street
Hanford, CA 93232-0466
(209) 582-0241

Telecopy: 209-584-6113 Credit & Wholesale
209-583-3330 Administrative
209-583-3302 Information Services
209-583-3358 Accounting

August 10, 1993

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

SUBJECT: BEACON STATION NO. 604, 1619 FIRST STREET, LIVERMORE, CALIFORNIA

Dear Ms. Chu:

Enclosed is a copy of the report on the assessment at the above-referenced Ultramar facility.

A workplan detailing further assessment will be sent to your office when it has been completed.

Please call if you have any questions regarding this site.

Sincerely,

ULTRAMAR INC.

Terrence A. Fox
Senior Project Manager
Marketing Environmental Department

cc: Alameda County Local Coordinator, San Francisco Bay Region, RWQCB

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

August 6, 1993

Mr. Terrence A. Fox
Ultramar, Inc.
525 West Third Street
Hanford, California 93232

19024.01

Subject: Soil and Ground Water Investigation--Beacon Station No. 604
1619 West First Street, Livermore, California

Dear Mr. Fox:

Acton • Mickelson • van Dam, Inc. (AMV), has been authorized to conduct an investigation of soil and ground water conditions at Beacon Station No. 604 located at 1619 West First Street, Livermore, Alameda County, California (Figure 1). This letter summarizes the results of soil boring, ground water monitoring well and vapor extraction well installation, and soil and ground water sampling performed at the site on May 27, 28, June 1, and June 22, 1993.

Scope of Work

The work included advancing three 10-inch-diameter soil borings to a depth of approximately 54 feet below grade and completing each of these borings as monitoring wells (MW-1, MW-2, and MW-3) and advancing four 8-inch-diameter soil borings to approximate depths of 50, 37, 36, and 35 feet below grade (VW-1, VW-2, VW-3, and B-4, respectively). Soil borings VW-1, VW-2, and VW-3 were completed as vapor extraction wells. Soil boring B-4 was grouted to the surface shortly after drilling. Monitoring and vapor extraction well and soil boring locations are illustrated on Figure 2. Methods used to drill and sample the soil borings are described in Enclosure A. Soil boring logs containing detailed descriptions of soil characteristics are included in Enclosure B.

Selected soil samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons as gasoline (TPHg). Analytical procedures conformed to U.S. Environmental Protection Agency (EPA) and California Environmental Protection Agency (CAL-EPA) approved methods.

Ground water monitoring wells MW-1, MW-2, and MW-3 were constructed of 4-inch-diameter, Schedule 40 PVC casing. Vapor extraction wells VW-1, VW-2, and VW-3 were constructed of 2-inch-diameter Schedule 40 PVC casing. Details of monitoring well and vapor extraction well construction are contained in Enclosure C. The monitoring wells were developed, purged, and sampled in accordance with methods outlined in Enclosure A. A ground water sample from each monitoring well was submitted for laboratory analysis of BTEX and TPHg in accordance with the requirements of the Department of Environmental Health, County of Alameda.

Soil Borings

Soil samples collected from the borings consisted of silty clay and clayey gravel. For example, samples collected from the boring of monitoring well MW-3 indicated the following vertical soil sequence: from below the concrete to 18.5 feet below grade, the soil encountered consisted of clayey gravel; from 18.5 to 35 feet, a silty clay unit was encountered; from 35 feet to a total depth of 53 feet below grade, a clayey gravel unit was present. Contacts between the soil types were gradational. Soil boring logs containing detailed descriptions of soil conditions encountered in each boring are included in Enclosure B.

Soil Sample Analytical Results

A portion of each soil sample collected from the soil borings was sealed in a plastic bag and allowed to reach ambient air temperature. The headspace of the bag was then screened in the field for the presence of organic vapors with a photoionization detector (PID). The highest PID reading for each sample was recorded on the right-hand side of the boring logs (Enclosure B.)

Soil samples were selected for chemical analysis on the basis of PID screening results and the location of the soil samples in relation to the most likely source of petroleum constituents. Twenty-four soil samples were submitted for analysis of concentrations of BTEX and TPHg. Analytical results of soil samples submitted by AMV are summarized in Table 1. Copies of certified analytical reports are contained in Enclosure D.

Ground Water Level Measurements

Ground water level measurements were collected from each monitoring well on June 1 and June 22, 1993 (Table 2). Ground water was present at depths ranging from 37.11 to 39.07 feet below the top of the monitoring well casings on June 22, 1993. Water level measurements from the June 22, 1993, indicate an inferred direction of ground water flow toward the northwest as illustrated on Figure 3. On June 22, 1993, the ground water gradient was approximately 0.03 foot per foot.

Ground Water Analytical Results

On June 1 and June 22, 1993, ground water samples were collected from the three on-site monitoring wells (MW-1, MW-2, and MW-3). Samples were collected as described in Enclosure A. Copies of field notes for sampling activities conducted on June 22, 1993, are contained in Enclosure E. Each ground water sample was analyzed for BTEX and TPHg by state and federal EPA approved methods. Analytical results are compiled in Table 3. Copies of certified analytical reports are contained in Enclosure F.

Discussion

Soil samples containing TPHg concentrations exceeding 100 parts per million (ppm) were collected from 40 feet below grade in soil boring VW-1 and 20 feet below grade in soil boring VW-2. The area of soil containing TPHg at concentrations exceeding 100 ppm has been defined. A soil sample collected at 40 feet below grade from soil boring VW-1 contained benzene at a concentration of 1.8 ppm.

The most recent ground water samples collected on June 22, 1993, contained TPHg concentrations ranging from 160,000 micrograms per Liter (μg/L) in monitoring well MW-2, to 160 μg/L monitoring well MW-3. The ground water sample collected from monitoring well MW-2 on June 22, 1993, contained the highest concentration of benzene at 19,000 μg/L.

It is recommended that a copy of this report be forwarded to the following agencies:

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

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

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

Sincerely,

ACTON • MICKELSON • van DAM, INC.

Hal Hansen for

Steven A. Liaty
Geologist

Dale A. van Dam

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

SAL:DAvD:ecd
Enclosures

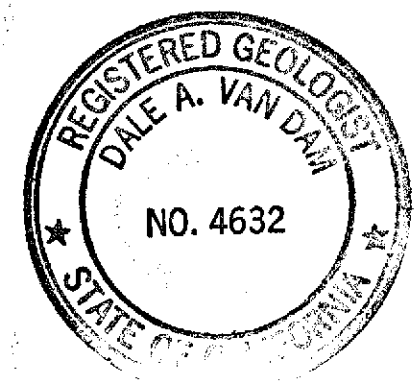


TABLE 1

SOIL SAMPLE ANALYTICAL RESULTS
Concentrations in milligrams per kilogram (mg/kg)

Boring No.	Sample No.	Depth (feet below grade)	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPHg[a]
VW-1	6	30	05-27-93	<0.50	4.3	2.6	17	280
	7	35	05-27-93	0.20	0.45	0.11	0.56	11
	8	40	05-27-93	[redacted]	16	5.3	32	340
VW-2	4	20	05-28-93	<0.50	4.0	4.0	25	200
	6	30	05-28-93	0.018	0.15	0.044	0.23	3.5
	7	35	05-28-93	0.021	0.024	0.0086	0.056	<1.0
VW-3	4	20	06-01-93	<0.0050	<0.0050	<0.0050	<0.0050	<1.0
	5	25	06-01-93	0.017	<0.0050	<0.0050	<0.0050	<1.0
	6	30	06-01-93	<0.0050	<0.0050	<0.0050	<0.0050	<1.0
	7	35	06-01-93	<0.0050	<0.0050	<0.0050	<0.0050	<1.0
MW-1	5	25	05-27-93	<0.0050	<0.0050	<0.0050	<0.0050	<1.0
	6	30	05-27-93	<0.0050	<0.0050	<0.0050	<0.0050	<1.0
	7	35	05-27-93	0.029	0.015	0.0051	0.031	<1.0
MW-2	4	20	05-27-93	<0.0050	<0.0050	<0.0050	0.037	6.4
	5	25	05-27-93	0.057	0.099	0.026	0.22	1.5
	6	30	05-27-93	0.040	0.065	0.0070	0.051	<1.0
	7	35	05-27-93	<0.0050	<0.0050	<0.0050	<0.0050	<1.0
MW-3	5	25	05-28-93	<0.0050	<0.0050	<0.0050	<0.0050	<1.0
	6	30	05-28-93	<0.0050	<0.0050	<0.005	<0.0050	<1.0
	7	35	05-28-93	<0.0050	<0.0050	<0.005	<0.0050	<1.0
B-4	4	20	06-01-93	<0.0050	<0.0050	<0.0050	0.020	<1.0
	5	25	06-01-93	<0.050	0.27	0.18	1.7	16
	6	30	06-01-93	0.17	0.044	0.013	0.057	<1.0
	7	35	06-01-93	0.073	0.11	0.30	0.65	[redacted]

TABLE 2

WATER ELEVATION DATA

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

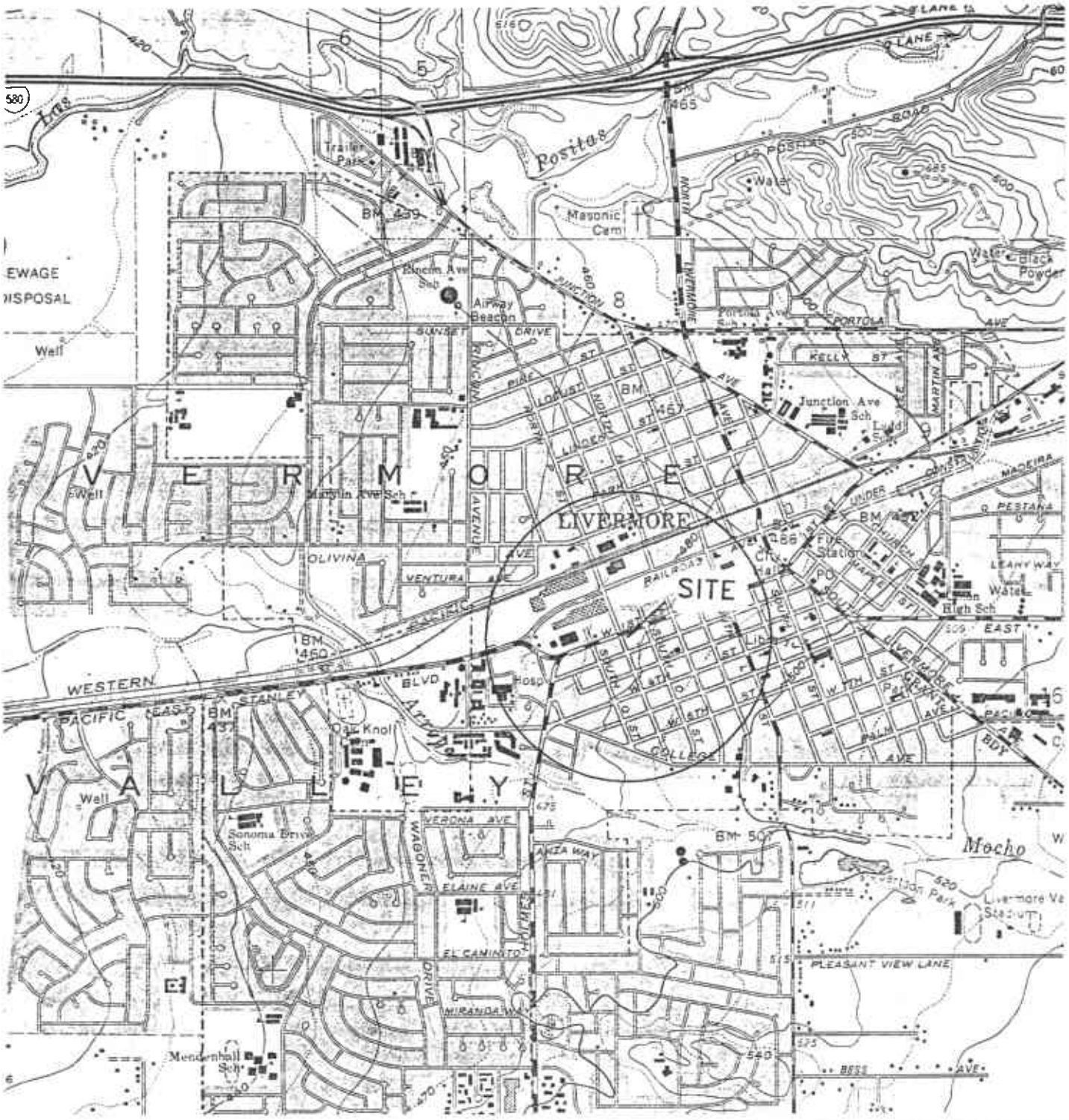
NOTE: Monitoring well elevations were surveyed relative to an arbitrary bench mark at the top of the casing of monitoring well MW-1 with an assumed elevation of 100.00 feet.

TABLE 3

GROUND WATER SAMPLE ANALYTICAL RESULTS
Concentrations in micrograms per Liter (μg/L)

Monitoring Well	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPHg*
MW-1	06-01-93 06-22-93	2,200 8,000	400 10,000	<50 260	4,900 10,000	27,000 87,000
MW-2	06-01-93 06-22-93	20,000 19,000	21,000 22,000	3,300 3,500	18,000 18,000	170,000 160,000
MW-3	06-01-93 06-22-93	4.6 8.2	<0.50 <0.50	<0.50 <0.50	1.9 0.72	270 160

*Total Petroleum Hydrocarbons as gasoline.



General Notes

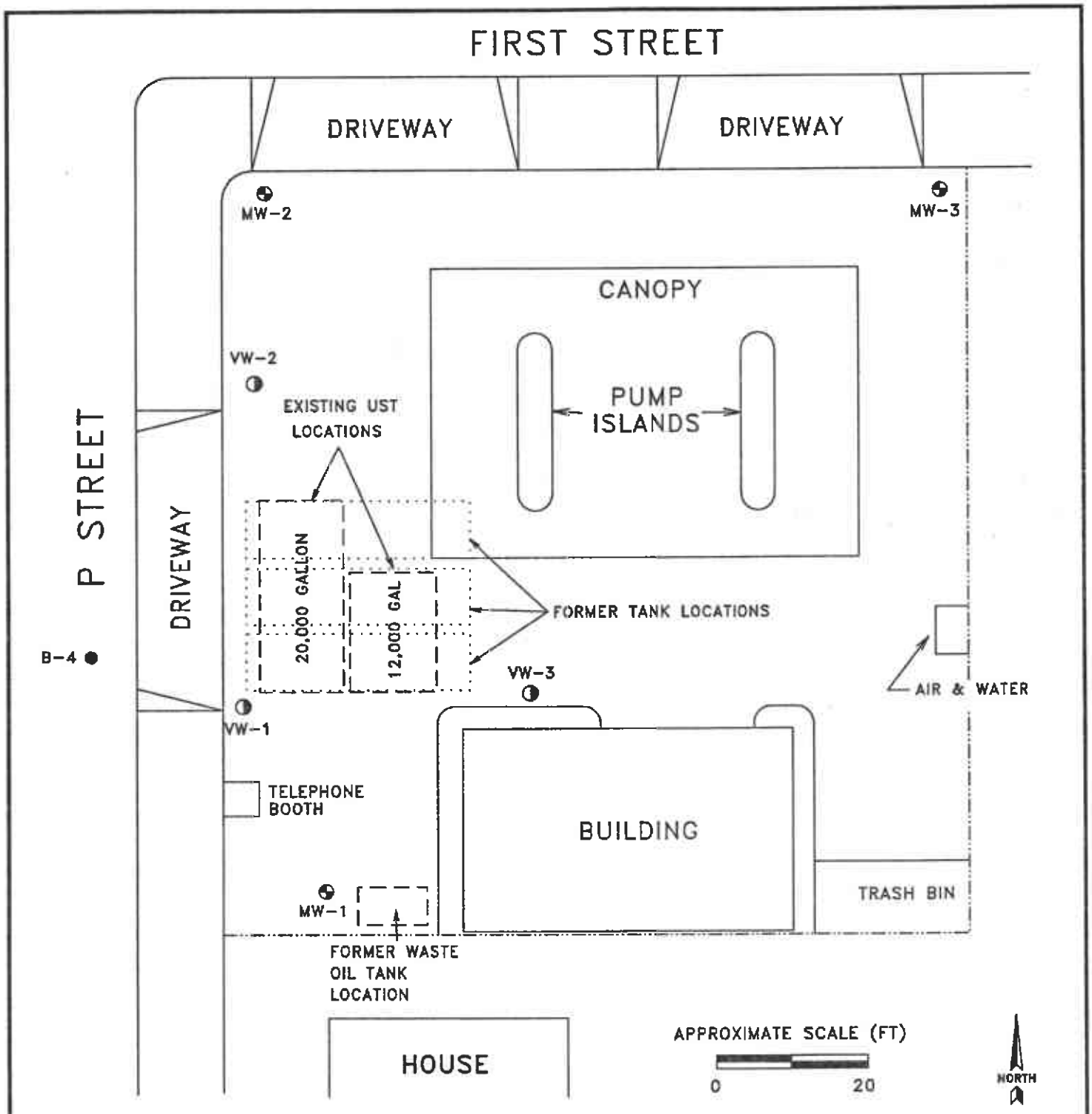
Base Map from U.S.G.S.
Livermore, California
7.5 Minute Topographic
Photorevised 1980

FIGURE 1

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

Project No.	Drawn by:
19021.01	EAF
File No.	Prepared by:
19021015	HEH
Revision No.	Reviewed by:

Acton • Mickelson • van Dam, Inc.
Consulting Scientists, Engineers, and Geologists
5090 Robert J. Mathews Parkway, #4
El Dorado Hills, California 95762
(916) 939-7550



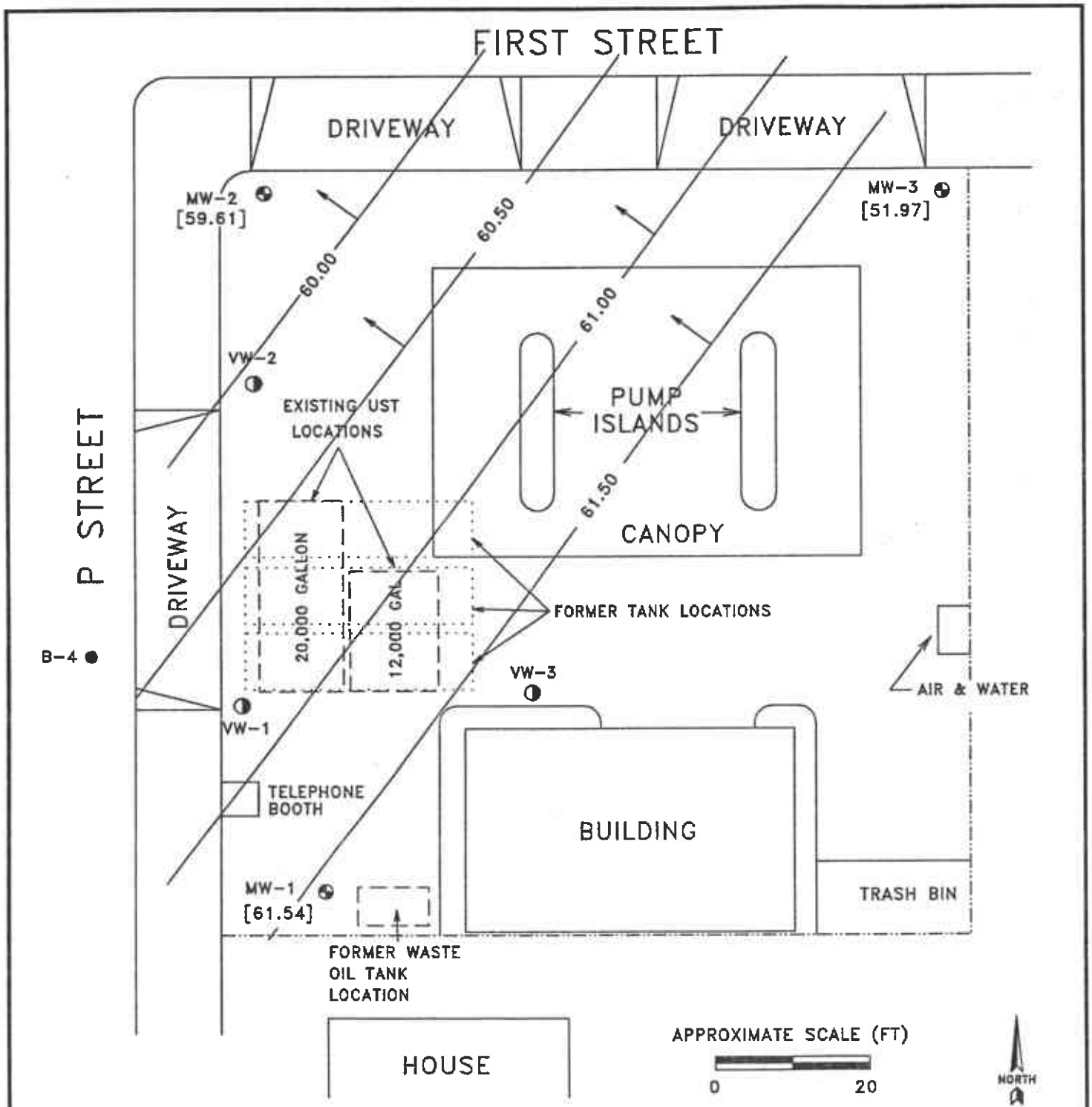
LEGEND

- 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

Acton • Mickelson • van Dam, Inc.
Consulting Scientists, Engineers, and Geologists
5090 Robert J. Mathews Parkway, #4
El Dorado Hills, California 95762
(916) 939-7550



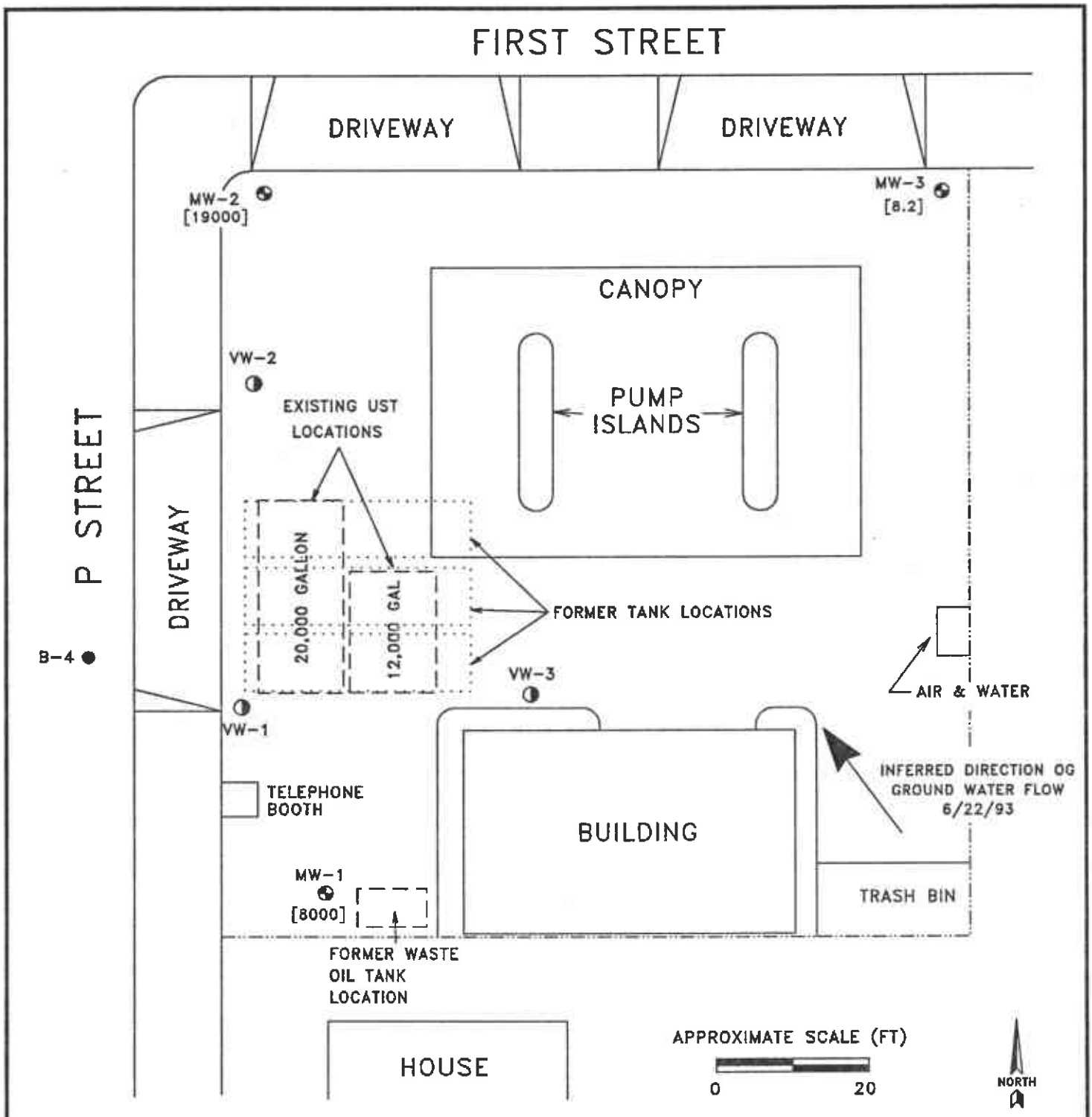
LEGEND

- VW-3 ◑ — VADOSE WELL LOCATION AND NUMBER
- MW-2 ◒ [59.61] — MONITORING WELL LOCATION AND NUMBER; GROUND WATER ELEVATION
- 60.50 — 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 6/22/93
BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CA

Project No.	Drawn
19024.01	LGP
File No.	Prepared
19024GWC	HEH
Revision	Reviewed

Acton • Mickelson • van Dam, Inc.
Consulting Scientists, Engineers, and Geologists
5090 Robert J. Mathews Parkway, #4
El Dorado Hills, California 95762
(916) 939-7550



LEGEND

- VW-3 — VADOSE WELL LOCATION AND NUMBER
- MW-2 — MONITORING WELL LOCATION AND NUMBER
- [19000] — BENZENE CONCENTRATION IN MICROGRAMS PER LITER (ug/l)
- B-4 — PREVIOUS SOIL BORING LOCATION
- PROPERTY BOUNDARY

FIGURE 4
BENZENE CONCENTRATION MAP 6/22/93
BEACON STATION #604
1619 WEST FIRST STREET
LIVERMORE, CA

Project No. 19024.01	Drawn LGP
File No. 19024BZC	Prepared HEH
Revision	Reviewed

Acton • Mickelson • van Dam, Inc.
Consulting Scientists, Engineers, and Geologists
5090 Robert J. Mathews Parkway, #4
El Dorado Hills, California 95762
(916) 939-7550

ENCLOSURE A

SOIL AND GROUND WATER SAMPLING TECHNIQUES

ENCLOSURE A

SOIL AND GROUND WATER 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 EXPLORATION BORING/SOIL SAMPLING PROCEDURES

Soil borings and soil sampling were performed under the direction of an AMV geologist. The soil borings were advanced using a truck-mounted, hollow-stem auger drill rig.

Soil samples were collected at 5-foot vertical intervals. Soil sampling was done in accordance with ASTM 1586-84. Using this procedure, three 2-inch-diameter, 6-inch-length, brass tubes were placed in a California-type split-barrel sampler. The sampler was driven into the soil by a 140-pound weight falling 30 inches. After an initial set of 6 inches, the number of blows required to drive the sampler an additional 12 inches is known as penetration resistance, or the "N" value. The "N" value was used as an empirical measure of the relative density of cohensionless soils and the consistency of cohesive soils.

Upon recovery of the split-barrel sampler, the brass tubes containing the soil were removed. The ends of one of the three brass tubes were sealed with Teflon tape and plastic end caps. The sample was labeled with an identification number, time, date, location, and requested laboratory analysis. The sample was placed in a plastic bag and stored at approximately 4° Celsius (C) in an ice chest for transport to the laboratory. Sample custody procedures outlined in Section 5.0 of this exhibit were followed. This was performed for each sample collection.

Soil in one of the brass tubes was extracted upon recovery, placed in a plastic bag, and sealed for later screening for organic vapors using a photoionization detector (PID) or a flame ionization detector (FID). The remaining portion of the soil sample was examined and a complete log of soil conditions was recorded on a soil boring log (Enclosure A) using the Unified Soil Classification System (Enclosure B). The soil was examined for grain size, color, and moisture content.

The split-barrel sampler was cleaned to prevent cross-contamination for each sampling interval using procedures described in Section 3.0.

Soil borings were normally advanced with 8- or 10-inch-diameter, hollow-stem augers. The soil generated from the soil borings was stored on visqueen.

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

2.1 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.

2.2 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 was 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.

2.3 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.

3.0 DECONTAMINATION AND DISPOSAL PROCEDURES

3.1 Equipment Decontamination

All equipment that came in contact with potentially contaminated soil, drilling fluid, air, or water was decontaminated before each use. Decontamination consisted of steam-cleaning, a high-pressure, hot-water rinse, or trisodium phosphate (TSP) wash and freshwater rinse, as appropriate.

Drilling and sampling equipment were decontaminated as follows:

1. Drill rig augers, drill rods, and drill bits were steam-cleaned prior to use and between borings. Visible soil, grease, and other impurities were removed.

2. Soil sampling equipment was steam-cleaned prior to use and between each boring. 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.

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

4. Stainless steel or brass soil sampling tubes were steam-cleaned or washed in TSP solution and rinsed with clean water.

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

4.0 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.

4.1 Buried Utility Locations

Prior to commencement of work on site, AMV contacted appropriate utility companies to have underground utility lines located. AMV also researched the location of all underground utilities using past site construction and surveying plans and by conducting a ground reconnaissance of the area. All work associated with the borings was preceded by hand augering to a minimum depth of 5 feet below grade to avoid contact with underground utilities.

4.2 Lithologic Logging

A log of soil conditions encountered during the drilling and sample collection (Enclosure A) was maintained using the Unified Soil Classification System (Enclosure B) by an AMV geologist. All boring logs were reviewed by a California registered geologist.

The collected soil samples were examined and the following information recorded: boring location, sample interval and depth, blow counts, color, soil type, moisture content (qualitative), and depth at which ground water (if present) is first encountered. Also recorded on the soil boring logs were the field screening results derived from the use of a portable PID or FID.

4.3 Disposal Procedures

Soils and fluids that were produced and/or used during the installation and sampling of borings, and that are known or suspected to contain potentially hazardous materials, were contained during the above operations. These substances were retained on site until chemical testing had been completed to determine the proper means of disposal. Handling and disposal of substances known or suspected to contain potentially hazardous materials complied with the applicable regulations of DHS, the California Department of Water Resources, and any other applicable regulations. Soils and fluids produced and/or used during the above-described operations that appeared to contain potentially hazardous materials were disposed of appropriately.

Residual substances generated during cleaning procedures that are known or suspected to pose a threat to human health or the environment were placed in appropriate containers until chemical testing had been completed to determine the proper means for their disposal.

4.4 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.

5.0 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.

5.1 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.

5.1.1 Field Documentation

Each sample was labeled and sealed properly immediately after collection. Sample identification documents was 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

5.1.2 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)

5.1.3 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.).

5.1.4 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.

5.1.5 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.

5.2 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.

5.3 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.

5.4 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 B

SOIL BORING LOGS

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Consulting Scientists, Engineers, and Geologists

Log of Soil Boring MW-1

Casing Elevation: 100.00 feet

Completion Depth: 54 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified
split-spoon sampler

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-27-93	13:10
Finish	05-27-93	15:15
Water Depth	Initial	Completion 38.46 feet

Logged by: H. Hansen

Checked by: DvD

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		12 inch bore concrete								
1		CLAYEY GRAVEL Olive brown, 1/2 to 2 inch gravel, fine to coarse-grained sand, common plastic fines, dry (GC)								
2										
3										
4										
5					17 12 35	18	14		MW1-1	0
6										
7										
8										
9										
10			GC		40 45 50/4	18	12		MW1-2	0
11										
12										
13										
14										
15										
16					35 50/3	9	9		MW1-3	0
17										
18										
19										
20		moist at 20.5 feet			18 27 28	18	18		MW1-4	0

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Log of Soil Boring MW-1 (cont)

Casing Elevation: 100.00 feet

Completion Depth: 54 feet

Project No.	Location: Beacon 604, 1619 W. First Street, Livermore, CA.
19024.01	

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA: HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-27-93	
Finish	05-27-93	15:15
Water Depth	Initial	Completion 38.46 feet

Logged by: H. Hansen

Checked by: DvD

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)
20		(continued from above) CLAYEY GRAVEL, olive brown, 1/2 to 3 inch gravel, fine- to coarse-grained sand, common plastic fines, moist (GC)	GC							
21										
22										
23		SILTY CLAY brown, slighty plastic, moist, (CL)	CL							
24										
25					6 27 28	18	18		MW1-5	0
26										
27										
28		CLAYEY GRAVEL Olive brown, 1/2 to 2 inch gravel fine to coarse-grained sand common plastic fines, moist (GC)								
29										
30					14 17 33	18	18		MW1-6	4
31										
32										
33										
34			GC							
35					18 27 33	18	18		MW1-7	110
36										
37										
38										
39										
40		saturated at 40 feet			19 27 37	18	16		MW1-8	40
41										

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Log of Soil Boring MW-1 (cont)

Casing Elevation: 100.00 feet

Completion Depth: 54 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA Hnu PID with 10.2 eV Probe

Drilling	Time	Date
Start	05-27-93	13:10
Finish	05-27-93	15:15
Water Depth	Initial	Completion 38.46 feet

Logged by: H. Hansen

Checked by: DvD

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)
40		(continued from above) CLAYEY GRAVEL, olive brown, 1/2 to 2 inch gravel, fine- to coarse-grained sand, common plastic fines, saturated (GC)	GC							
41										
42										
43										
44										
45					28 29 42	18	18		MW1-9	15
46										
47										
48										
49										
50					16 14 33	18"	15		MW1-10	150
51										
52										
53										
54					16 17 24	18	9		MW1-11	60
55		Boring terminated at 55 feet								
56										
57										
58										
59										
60										
61										

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Log of Soil Boring MW-2

Casing Elevation: 98.68 feet

Completion Depth: 54 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-27-93	07:00
Finish	05-27-93	09:00
Water Depth	Initial	Completion 39.07 feet

Logged by: H. Hansen

Checked by: DJL

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		Concrete								
1		CLAYEY GRAVEL Olive brown, 1/2 to 2 inch gravel, fine to coarse-grained sand, common plastic fines, slighty moist, (GC)	GC							
2										
3					2 3 -	12	12		MW2-1	0
4										
5										
6										
7										
8										
9					9 7 10	18	14		MW2-2	0
10										
11										
12										
13										
14										
15					11 17 37	18	12		MW2-3	0
16										
17										
18		SILTY CLAY brown, moderately plastic, moist, (CL)	CL							
19										
20					14 22 24	18	16		MW2-4	12

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Log of Soil Boring MW-2 (cont)

Casing Elevation: 98.68 feet

Completion Depth: 54 feet

Project No.	Location:
19024.01	Beacon 604, 1619 W. First Street, Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA: HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-27-93	07:00
Finish	05-27-93	09:00
Water Depth	Initial	Completion 39.07 feet

Logged by: H. Hansen

Checked by: DvD

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)
20		(continued from above) SILTY CLAY, brown, moderately plastic, moist (CL)	CL							
21										
22										
23										
24										
25		CLAYEY GRAVEL olive brown, 1/2 to 1 inch gravel fine to coarse-grained sand common plastic fines, very moist, (GC)			7 19 24	18	15		MW2-5	30
26										
27										
28										
29										
30					28 32 41	18	18		MW2-6	150
31										
32										
33										
34			GC							
35					26 78	12	12		MW2-7	4
36										
37										
38										
39		saturated at 39.5 feet			24 38 32	18	14		MW2-8	400
40										
41										

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Log of Soil Boring MW-2 (cont)

Casing Elevation: 98.68 feet

Completion Depth: 54 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-27-93	07:00
Finish	05-27-93	09:00
Water Depth	Initial	Completion 39.07 feet

Logged by: H. Hansen

Checked by: DVD

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)
40		(continued from above) CLAYEY GRAVEL, olive brown, 1/2 to 1 inch gravel, fine- to coarse-grained sand, common plastic fines, saturated (GC)	GC							
41										
42										
43										
44										
45		- SILTY CLAY brown, moderately plastic saturated, (CL)	CL		18 17 22	18	18		MW2-9	300
46										
47										
48										
49										
50					19 24 22	18	17		MW2-10	250
51										
52										
53										
54					8 9 12	18	12		MW2-11	15
55		Total depth 55 feet.								
56										
57										
58										
59										
60										
61										

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Log of Soil Boring MW-3

Casing Elevation: 99.08 feet

Completion Depth: 54 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-28-93	12:30
Finish	05-28-93	15:30
Water Depth	Initial	Completion 37.11 feet

Logged by: H. Hansen

Checked by: DvD

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		Concrete/roadbase								
1		CLAYEY GRAVEL Olive brown, 1/2 to 2 inch gravel, fine to coarse-grained sand, common plastic fines, moist, (GC)	GC		6 17 42	18	17		MW3-1	0
2										
3										
4										
5										
6										
7										
8										
9					9 24 32	18	18		MW3-2	0
10										
11										
12										
13										
14										
15					10 5 12	18	0		MW3-3	NO RECOVERY
16										
17										
18										
19		SILTY CLAY brown, moderately plastic, moist, (CL)	CL							
20					18 24 22	18	9		MW3-4	0

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Log of Soil Boring MW-3 (cont)

Casing Elevation: 99.08 feet

Completion Depth: 54 feet

Project No.	Location:
19024.01	Beacon 804 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-28-93	12:30
Finish	05-28-93	15:30
Water Depth	Initial	Completion 37.11 feet

Logged by: H. Hansen

Checked by: DvD

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)
20		(continued from above) SILTY CLAY, brown, moderately plastic, moist (CL)	CL		22 28 29	18	11		MW3-5	0
21										
22										
23										
24										
25										
26										
27										
28										
29										
30					17 19 21	18	16		MW3-6	0
31										
32										
33										
34										
35		CLAYEY GRAVEL 1/2 to 2 inch gravel, fine to coarse-grained sand, common plastic fines, saturated (GC)	GC		9 37 42	18	11		MW3-7	0
36										
37										
38										
39										
40					14 22 25	18	18		MW3-8	0
41										

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Log of Soil Boring VW-1

Casing Elevation:

Completion Depth: 37 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-27-93	08:30
Finish	05-27-93	10:30
Water Depth	Initial	Completion N/A

Logged by: H. Hansen

Checked by: DvD

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		Concrete								
1		0 to 27 feet; conductor casing, no samples collected								
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

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Log of Soil Boring VW-1 (cont)

Project No. 19024.01

Location: Beacon 604, 1619 W. First Street, Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods: BK-81 HSA California Modified split-spoon sampler

Casing Elevation:

OVM/OVA: HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-27-93	08:30
Finish	05-27-93	10:30
Water Depth	Initial	Completion N/A

Completion Depth: 37 feet

Logged by: H. Hansen

Checked by: DvD

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)
20		(continued from above) 0 to 27 feet; conductor casing, no samples collected								
21										
22										
23										
24										
25										
26										
27		CLAYEY GRAVEL olive brown, 1/2 to 1 inch gravel, fine to coarse-grained sand, common plastic fines, very moist, (GC)	GC		23 13 11	18	9		VW1-6	225
28										
29										
30										
31										
32										
33										
34										
35					21 31 33	18	16		VW1-7	325
36										
37										
38										
39		Saturated at 39.5 feet			37 14 13	18	18		VW1-8	500
40										
41										

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Log of Soil Boring MW-3 (cont)

Casing Elevation: 99.08 feet

Completion Depth: 54 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-28-93	12:30
Finish	05-28-93	15:30
Water Depth	Initial	Completion 37.11 feet

Logged by: H. Hansen

Checked by: DVD

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)
40		(continued from above) CLAYEY GRAVEL, 1/2 to 2 inch gravel, fine- to coarse-grained sand, common plastic fines, saturated (GC)	GC							
41										
42										
43										
44										
45					9 37 42	18	18		MW3-9	0
46										
47										
48										
49					7 9 24	18	12		MW3-10	0
50										
51										
52										
53		Boring terminated at 53 feet								
54										
55										
56										
57										
58										
59										
60										
61										

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Log of Soil Boring VW-1 (cont)

Project No. 19024.01

Location: Beacon 604, 1619 W. First Street, Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods: BK-81 HSA California Modified split-spoon sampler

Casing Elevation:

OVM/OVA: HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-27-93	08:30
Finish	05-27-93	10:30
Water Depth	Initial	Completion N/A

Completion Depth: 37 feet

Logged by: H. Hansen

Checked by: DvD

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)
40		(continued from above) CLAYEY GRAVEL, olive brown, 1/2 to 1 inch gravel, fine- to coarse-grained sand, common plastic fines, saturated (GC)	GC		19 22 18	18	18		VW1-9	300
41										
42										
43										
44										
45										
46										
47										
48										
49										
50		Boring terminated at 50 feet			26 36 24	18	18		VW1-10	450
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										
61										

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Log of Soil Boring VW-2

Casing Elevation:

Completion Depth: 37 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-28-93	08:45
Finish	05-27-93	09:45
Water Depth	Initial	Completion N/A

Logged by: H. Hansen

Checked by: DvD

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		Concrete								
1		CLAYEY GRAVEL olive brown, 1/2 to 2 inch gravel, fine to coarse-grained sand common plastic fines, slightly moist, (GC)								
2										
3										
4										
5					17 19 24	18	17		VW2-1	0
6										
7										
8										
9										
10			GC		25 35	12	9		VW2-2	0
11										
12										
13										
14										
15					49 38	12	8		VW2-3	0
16										
17										
18										
19										
20					11 9 22	18	10		VW2-4	0

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Log of Soil Boring VW-2 (cont)

Casing Elevation:

Completion Depth: 37 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:
BK-81 HSA California Modified
split-spoon sampler

OVM/OVA: HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	05-28-93	08:45
Finish	05-27-93	09:45
Water Depth	Initial	Completion N/A

Logged by: H. Hansen

Checked by: DvD

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)
20		(continued from above) CLAYEY GRAVEL, olive brown, 1/2 to 2 inch gravel, fine- to coarse-grained sand, common plastic fines, slightly moist (GC)	GC							
21										
22		SILTY CLAY brown, moderately plastic moist, (CL)	CL							
23										
24										
25		CLAYEY GRAVEL 1/2 to 2 inch gravel, fine to coarse-grained sand, common plastic fines, (GC)			15 17 19	18	2		VW2-5	225
26										
27										
28										
29										
30			GC		12 19 27	18	6	Retained for chemical analysis.	VW2-6	—
31										
32										
33										
34										
35					42 50/0				VW2-7	475
36										
37		boring terminated at 37 feet								
38										
39										
40										
41										

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Log of Soil Boring VW-3

Project No. 19024.01	Location: Beacon 604, 1619 W. First Stree, Livermore, CA.
Drilling Company: Turner Exploration	
Driller: Mike Barr	
Drilling and Sampling Methods: BK-81 HSA California Modified split-spoon sampler	
Casing Elevation:	OVM/OVA: HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	06-01-93	08:40
Finish	06-01-93	09:30
Water Depth	Initial	Completion N/A

Completion Depth: 36 feet

Logged by: H. Hansen

Checked by: DvD

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		Concrete								
1		CLAYEY GRAVEL olive brown, 1/2 to 2 inch gravel, fine to coarse-grained sand, common plastic fines, moist, (GC)								
2										
3										
4					12					
5					12	18	18		VW3-1	2
6					14					
7										
8			GC							
9										
10					15					
11					17	16	16		VW3-2	0
12					22					
13										
14										
15					26					
16					50/6	12	12		VW3-3	0
17										
18		SILTY CLAY olive brown, moderately plastic, (CL)								
19										
20			CL		15					
					19	18	18		VW3-4	0
					25					

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Log of Soil Boring VW-3 (cont)

Project No. 19024.01

Location: Beacon 604, 1619 W. First Street, Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

Casing Elevation:

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	06-01-93	08:40
Finish	06-01-93	09:30
Water Depth	Initial	Completion N/A

Completion Depth: 36 feet

Logged by: H. Hansen

Checked by: DvD

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)
20		(continued from above)								
21										
22										
23			CL							
24										
25					19 24 32	18	17		VW3-5	2
26										
27		CLAYEY GRAVEL brown, fine to coarse-grained, common plastic fines, very moist, (GC)								
28										
29										
30			GC		27 25 42	18	18		VW3-6	1
31										
32										
33										
34					20 25 31	18	18		VW3-7	1
35										
36		boring terminated at 36.0 feet								
37										
38										
39										
40										
41										

Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

Log of Soil Boring B-4

Casing Elevation:

Completion Depth: 35.0 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration

Driller: Mike Barr

Drilling and Sampling Methods:

BK-81 HSA California Modified split-spoon sampler

OVM/OVA: HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	06-01-93	11:20
Finish	06-01-93	12:20
Water Depth	Initial	Completion N/A

Logged by: H. Hansen

Checked by: D.P

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		Asphalt								
1		CLAYEY GRAVEL olive brown, 1/2 to 2 inch gravel, fine to coarse-grained sand, common plastic fines, (GC)								
2										
3										
4										
5					16 18 22	18	12		B4-1	0
6										
7										
8										
9										
10			GC		10 28 23	18	17		B4-2	0
11										
12										
13										
14										
15					12 14 42	18	12		B4-3	0
16										
17										
18										
19										
20					15 43 50/6	18	16		B4-4	25

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Consulting Scientists, Engineers, and Geologists

Log of Soil Boring B-4 (cont)

Casing Elevation:

Completion Depth: 35.0 feet

Project No.	Location:
19024.01	Beacon 604 1619 W. First Street Livermore, CA.

Drilling Company: Turner Exploration
Driller: Mike Barr
Drilling and Sampling Methods:
BK-81 HSA California Modified
split-spoon sampler

OVM/OVA HNu PID with 10.2 eV probe

Drilling	Time	Date
Start	06-01-93	11:20
Finish	06-01-93	12:20
Water Depth	Initial	Completion N/A

Logged by: H. Hansen
Checked by: DR

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)
20		(continued from above) CLAYEY GRAVEL, 1/2 to 2 inch gravel, fine- to coarse-grained sand, common plastic fines (GC)	GC							
21										
22										
23		SILTY CLAY brown, moderately plastic, very moist, some gravel, (CL)								
24										
25			CL		15 43 50/6	18	16		B4-5	100
26										
27										
28										
29										
30					23 28 41	18	18		B4-6	40
31		CLAYEY GRAVEL olive brown, 1/2 to 3 inch gravel, fine to coarse-grained sand, common plastic fines, (GC)								
32			GC							
33										
34		saturated at 35.0 feet			19 27 42	18	18		B4-7	65
35		boring terminated at 35.0 feet								
36										
37										
38										
39										
40										
41										

ENCLOSURE C

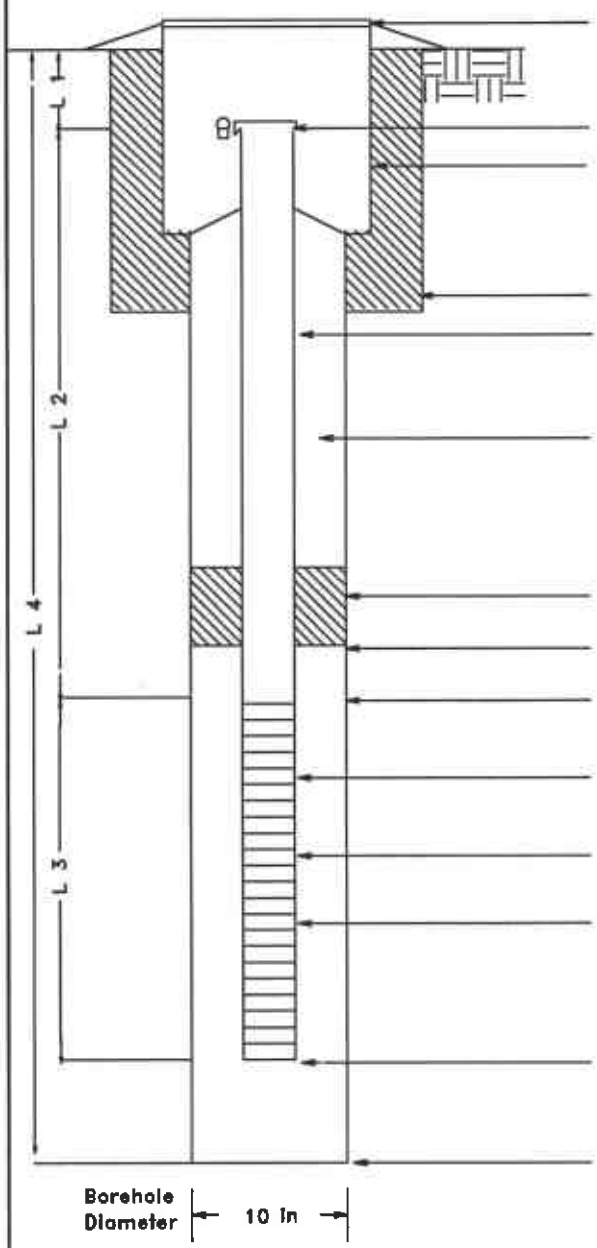
MONITORING WELL AND VAPOR EXTRACTION WELL CONSTRUCTION SPECIFICATIONS

MONITORING WELL CONSTRUCTION DETAILS

MONITORING WELL NO. MW-1

PROJECT: Beacon #604
1619 W. First Street
Livermore, CA

ELEVATION: 100.00



Protective Casing	
Locking Water Tight Cap	
Flush Grade Well Construction	
Diameter and Mat'l	12-inch steel
Total length	12 inches
Length Above Ground	1/4 inch
Thickness and Type of Seal	2 feet, concrete
Diameter, Mat'l and Joint Type of Riser Pipe	4 inch, SCH 40 PVC, flush thread
Type of Backfill Around Riser	cement/ 5% bentonite grout
Thickness and Type of Seal	2 feet bentonite chips
Distance of Filter Sand Above Top of Screen	2 feet
Type of Filter Around Screen	#3 Lonestar
Monitoring Well Mat'l	SCH 40 PVC
Screen Gauge/Slot Size	0.020 inch
Diameter and Length of Screen	4 inch, 20 feet
Depth to Bottom of Monitoring Well	54 feet
Depth to the Bottom of Filter Sand	55 feet

L1 = 0.25

L2 = 33.75

L3 = 20

L4 = 54

MONITORING WELL WATER LEVEL MEASUREMENTS

DATE	TIME	WATER LEVEL*
06-22-93	13:26	38.46 ft

* MEASURING POINT TOP OF CASING

COMPLETION DATE AND TIME 15:30 05-27-93

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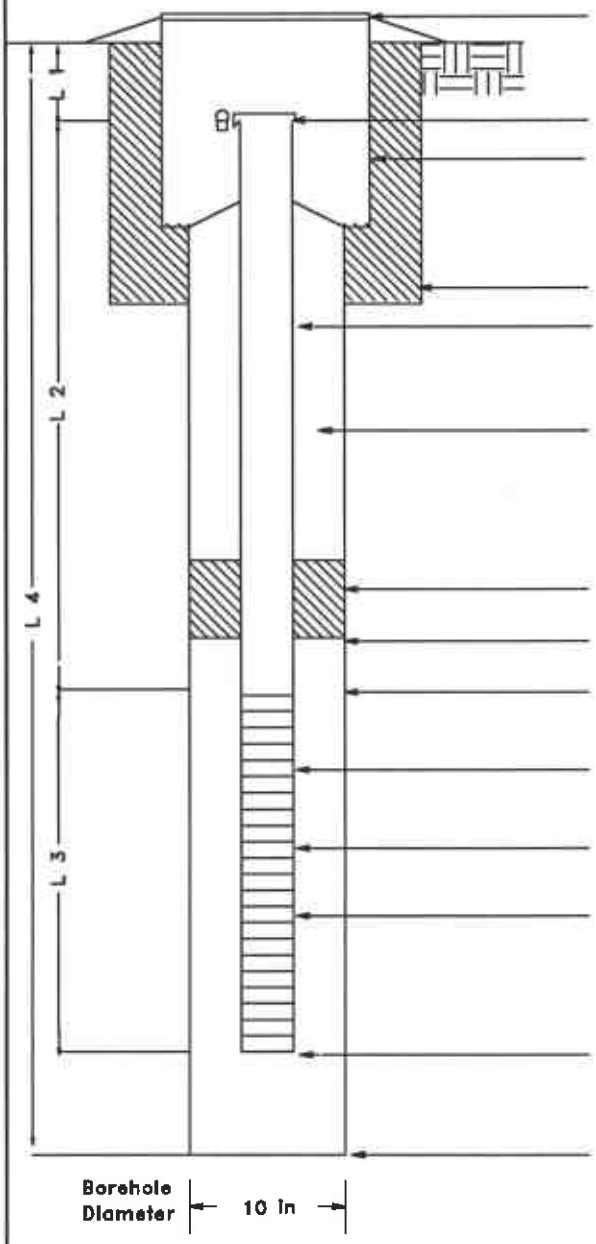
MONITORING WELL CONSTRUCTION DETAILS

MONITORING WELL NO. MW-2

PROJECT: Beacon #604
1619 W. First Street
Livermore, CA

ELEVATION: 98.68



Protective Casing	
Locking Water Tight Cap	
Flush Grade Well Construction	
Diameter and Mat'l	12-inch steel
Total length	12 inches
Length Above Ground	1/4 inch
Thickness and Type of Seal	2 feet, concrete
Diameter, Mat'l and Joint Type of Riser Pipe	4 inch, SCH 40 PVC, flush thread
Type of Backfill Around Riser	cement/ 5% bentonite grout
Thickness and Type of Seal	2 feet bentonite chips
Distance of Filter Sand Above Top of Screen	2 feet
Type of Filter Around Screen	#3 Lonestar
Monitoring Well Mat'l	SCH 40 PVC
Screen Gauge/Slot Size	0.020 inch
Diameter and Length of Screen	4 inch, 20 feet
Depth to Bottom of Monitoring Well	54 feet
Depth to the Bottom of Filter Sand	54 feet

L1 = 0.25

L2 = 33.75

L3 = 20

L4 = 54

MONITORING WELL WATER LEVEL MEASUREMENTS

DATE	TIME	WATER LEVEL*
06-22-93	13:30	39.07 ft

* MEASURING POINT TOP OF CASING

COMPLETION DATE AND TIME 10:00 05-27-93

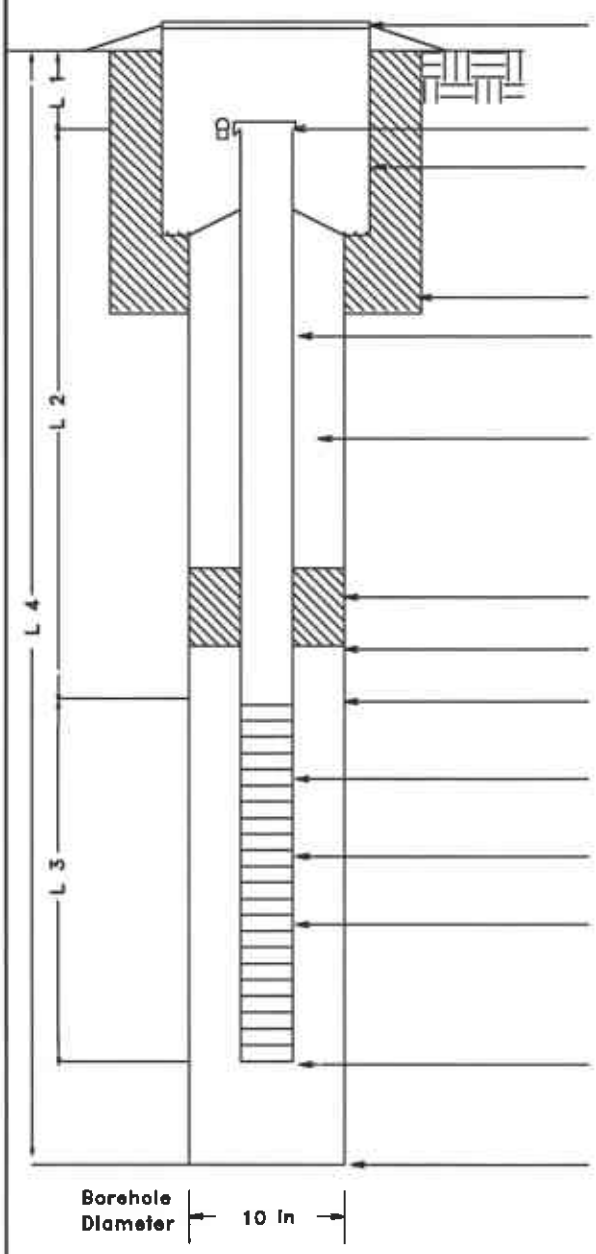
ACTON • MICKELSON • VAN DAM, INC.

MONITORING WELL CONSTRUCTION DETAILS

MONITORING WELL NO. MW-3

PROJECT: Beacon #604
1619 W. First Street
Livermore, CA

ELEVATION: 99.08



Protective Casing	
Locking Water Tight Cap	
Flush Grade Well Construction	
Diameter and Mat'l	12-inch steel
Total length	12 inches
Length Above Ground	1/4 inch
Thickness and Type of Seal	2 feet, concrete
Diameter, Mat'l and Joint Type of Riser Pipe	4 inch, SCH 40 PVC, flush thread
Type of Backfill Around Riser	cement/ 5% bentonite grout
Thickness and Type of Seal	2 feet bentonite chips
Distance of Filter Sand Above Top of Screen	2 feet
Type of Filter Around Screen	#3 Lonestar
Monitoring Well Mat'l	SCH 40 PVC
Screen Gauge/Slot Size	0.020 inch
Diameter and Length of Screen	4 inch, 20 feet
Depth to Bottom of Monitoring Well	53 feet
Depth to the Bottom of Filter Sand	53 feet

L1 = 0.25

L2 = 32.75

L3 = 20

L4 = 53

MONITORING WELL WATER LEVEL MEASUREMENTS

DATE	TIME	WATER LEVEL*
06-22-93	13:22	37.11 ft

* MEASURING POINT TOP OF CASING

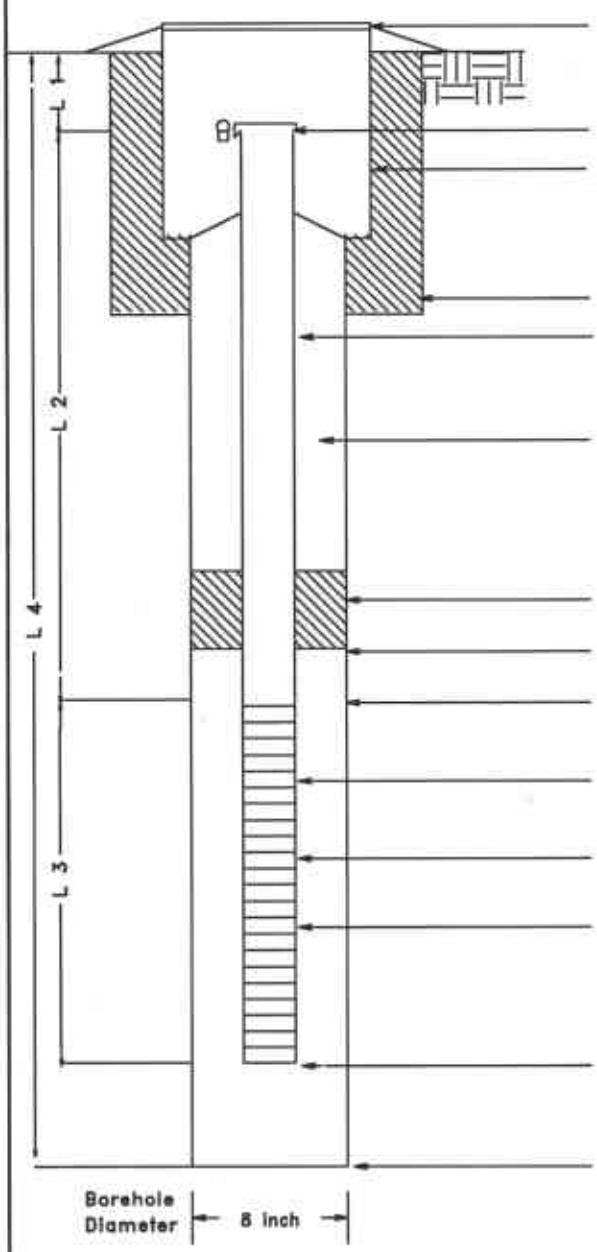
COMPLETION DATE AND TIME 15:45 05-28-93

ACTON • MICKELSON • VAN DAM, INC.

VADOSE WELL CONSTRUCTION DETAILS

VADOSE WELL NO. VW-1

PROJECT: Beacon #604
1619 W. First Street
Livermore, CA



Protective Casing	
Locking Water Tight Cap	
Flush Grade Well Construction	
Diameter and Mat'l	12-inch steel
Total length	12 inches
Length Above Ground	1/4 inch
Thickness and Type of Seal	2 feet, concrete
Diameter, Mat'l and Joint Type of Riser Pipe	2 inch, SCH 40 PVC, flush thread
Type of Backfill Around Riser	cement/ 5% bentonite grout
Thickness and Type of Seal	2 feet bentonite chips
Distance of Filter Sand Above Top of Screen	2 feet
Type of Filter Around Screen	#3 Lonestar
Monitoring Well Mat'l	SCH 40 PVC
Screen Gauge/Slot Size	0.020 inch
Diameter and Length of Screen	2 inch, 10 feet
Depth to Bottom of Monitoring Well	37 feet
Depth to the Bottom of Filter Sand	37 feet

L1 = 0.25
L2 = 26.75
L3 = 10
L4 = 37

COMPLETION DATE AND TIME 18:45 05-28-93

Note: hole backfilled with bentonite chips 37 to 50 feet

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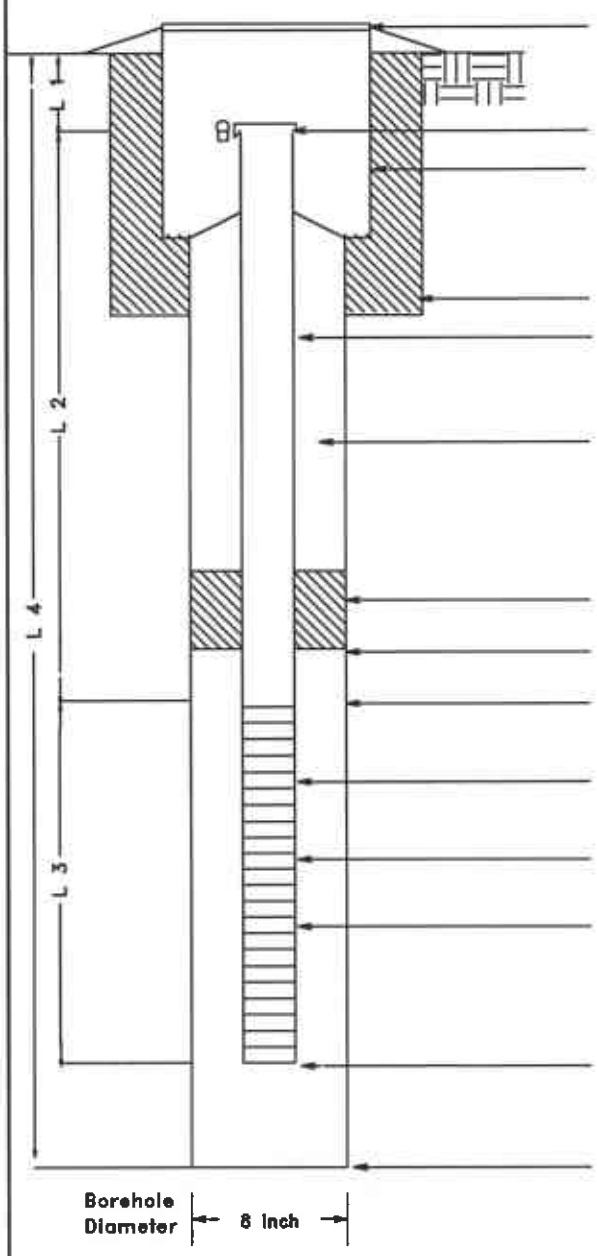
VADOSE WELL CONSTRUCTION DETAILS

VADOSE WELL NO. VW-2

PROJECT: Beacon #604
1619 W. First Street
Livermore, CA



Protective Casing	
Locking Water Tight Cap	
Flush Grade Well Construction	
Diameter and Mat'l	12-inch steel
Total length	12 inches
Length Above Ground	1/4 inch
Thickness and Type of Seal	2 feet, concrete
Diameter, Mat'l and Joint Type of Riser Pipe	2 inch, SCH 40 PVC, flush thread
Type of Backfill Around Riser	cement/ 5% bentonite grout
Thickness and Type of Seal	2 feet bentonite chips
Distance of Filter Sand Above Top of Screen	2 feet
Type of Filter Around Screen	#3 Lonestar
Monitoring Well Mat'l	SCH 40 PVC
Screen Gauge/Slot Size	0.020 inch
Diameter and Length of Screen	2 inch, 15 feet
Depth to Bottom of Monitoring Well	37 feet
Depth to the Bottom of Filter Sand	37 feet

L1 = 0.25

L2 = 21.75

L3 = 15

L4 = 37

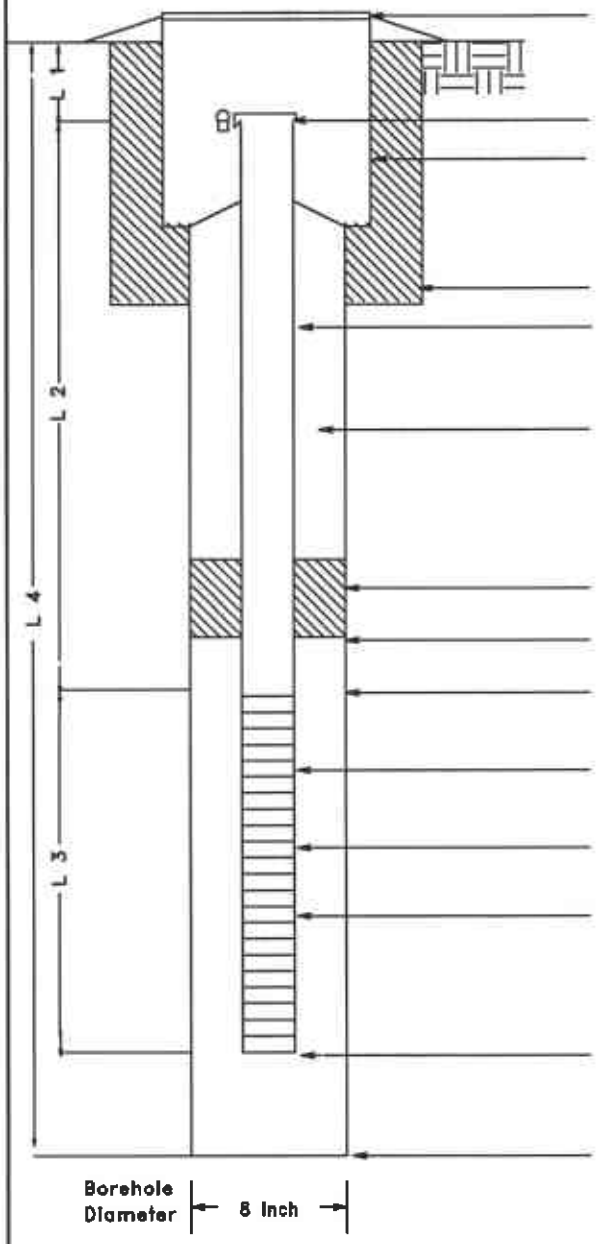
COMPLETION DATE AND TIME 10:45 05-28-93

ACTON • MICKELSON • VAN DAM, INC.

VADOSE WELL CONSTRUCTION DETAILS

VADOSE WELL NO. VW-3

PROJECT: Beacon #604
1619 W. First Street
Livermore, CA



Protective Casing	
Locking Water Tight Cap	
Flush Grade Well Construction	
Diameter and Mat'l	8-inch steel
Total length	12 inches
Length Above Ground	1/4 inch
Thickness and Type of Seal	2 feet, concrete
Diameter, Mat'l and Joint Type of Riser Pipe	2 inch, SCH 40 PVC, flush thread
Type of Backfill Around Riser	cement/ 5% bentonite grout
Thickness and Type of Seal	2 feet bentonite chips
Distance of Filter Sand Above Top of Screen	2 feet
Type of Filter Around Screen	#3 Lonestar
Monitoring Well Mat'l	SCH 40 PVC
Screen Gauge/Slot Size	0.020 inch
Diameter and Length of Screen	2 inch, 10 feet
Depth to Bottom of Monitoring Well	36 feet
Depth to the Bottom of Filter Sand	36 feet

L1 = 0.25

L2 = 20.75

L3 = 15

L4 = 36

COMPLETION DATE AND TIME 10:40 06-01-93

ACTON • MICKELSON • VAN DAM, INC.

ENCLOSURE D

SOIL SAMPLE ANALYTICAL RESULTS

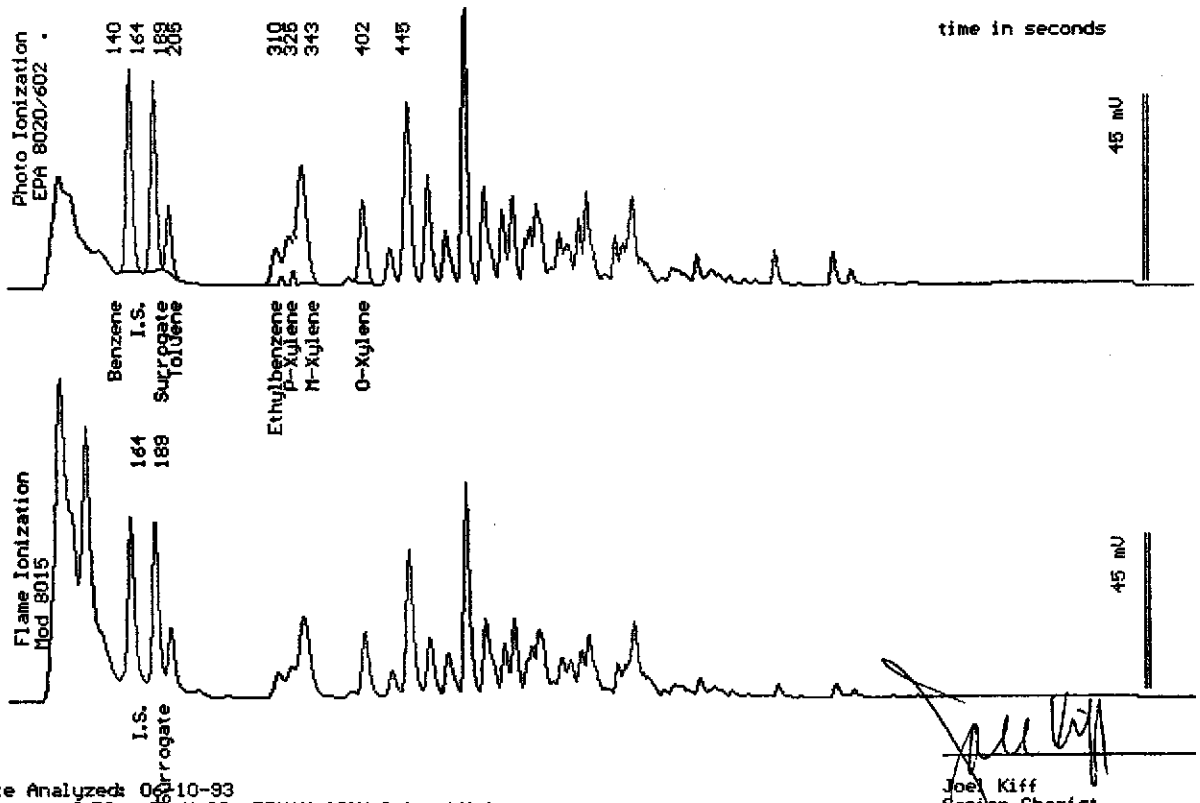
Sample Log 6555

6555-1

Sample: **VW-1-6 30'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:100 QC Batch : 4011m
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.50)	<.50
Toluene	(.50)	4.3
Ethylbenzene	(.50)	2.6
Total Xylenes	(.50)	17
TPH as Gasoline	(100)	280
Surrogate Recovery		92 %



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

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

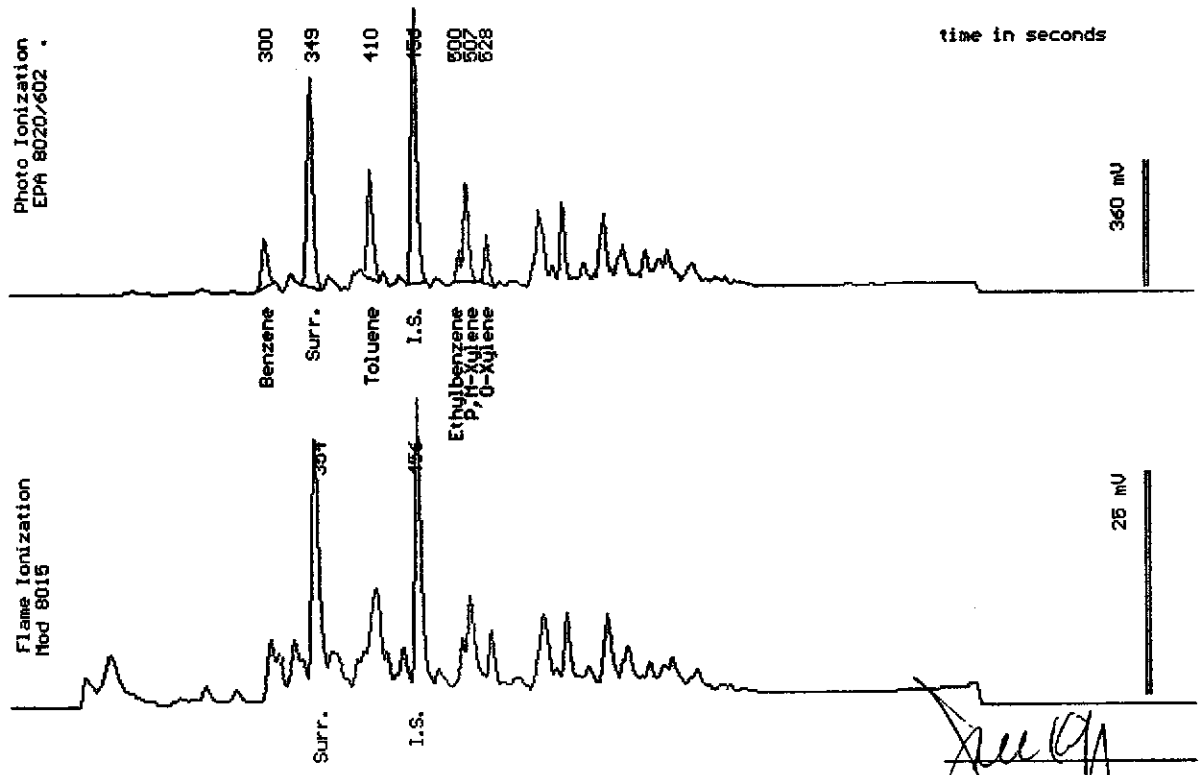
Sample Log 6555

6555-2

Sample: **VW-1-7 35'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:10 QC Batch : 6026b
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg	
Benzene	(.050)	.20	
Toluene	(.050)	.45	
Ethylbenzene	(.050)	.11	
Total Xylenes	(.050)	.56	
TPH as Gasoline	(10)	11	
Surrogate Recovery		89	%



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

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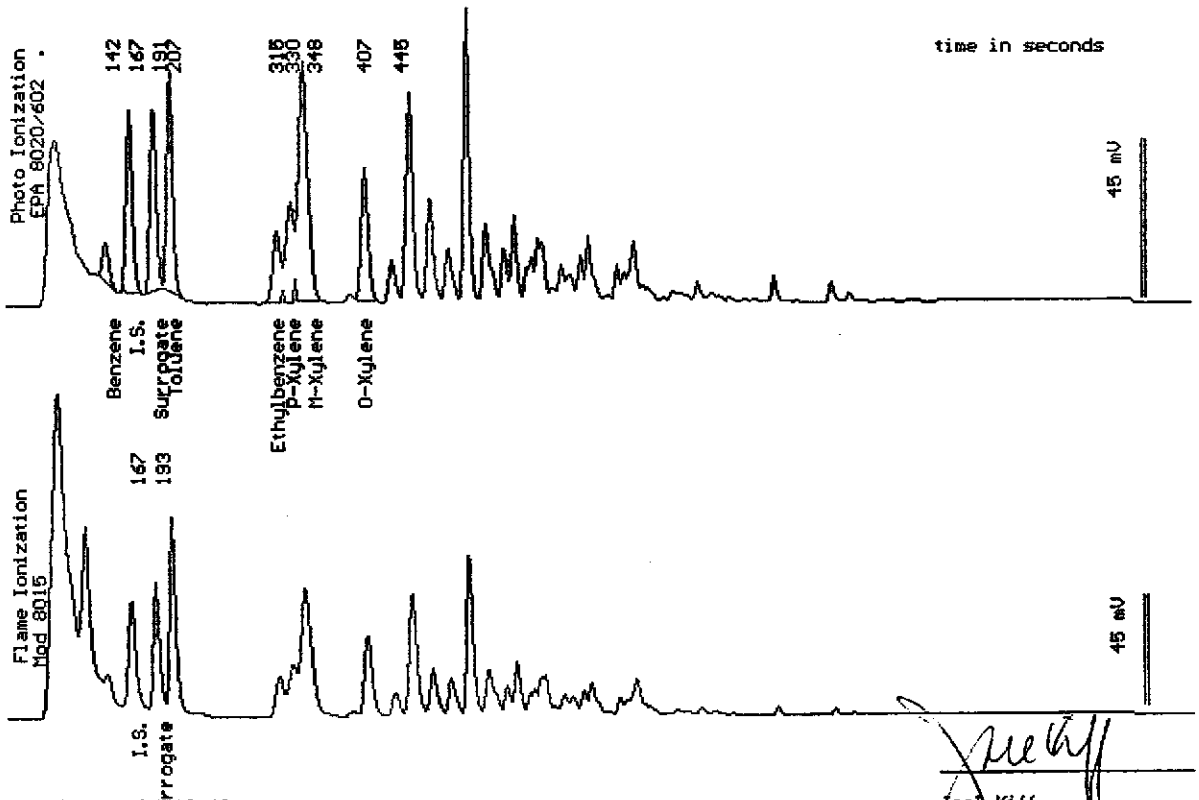
Sample Log 6555

6555-3

Sample: **VW-1-8 40'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:100 QC Batch : 4012d
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.50)	1.8
Toluene	(.50)	16
Ethylbenzene	(.50)	5.3
Total Xylenes	(.50)	32
TPH as Gasoline	(100)	340
Surrogate Recovery		98 %



Date Analyzed: 06/10-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

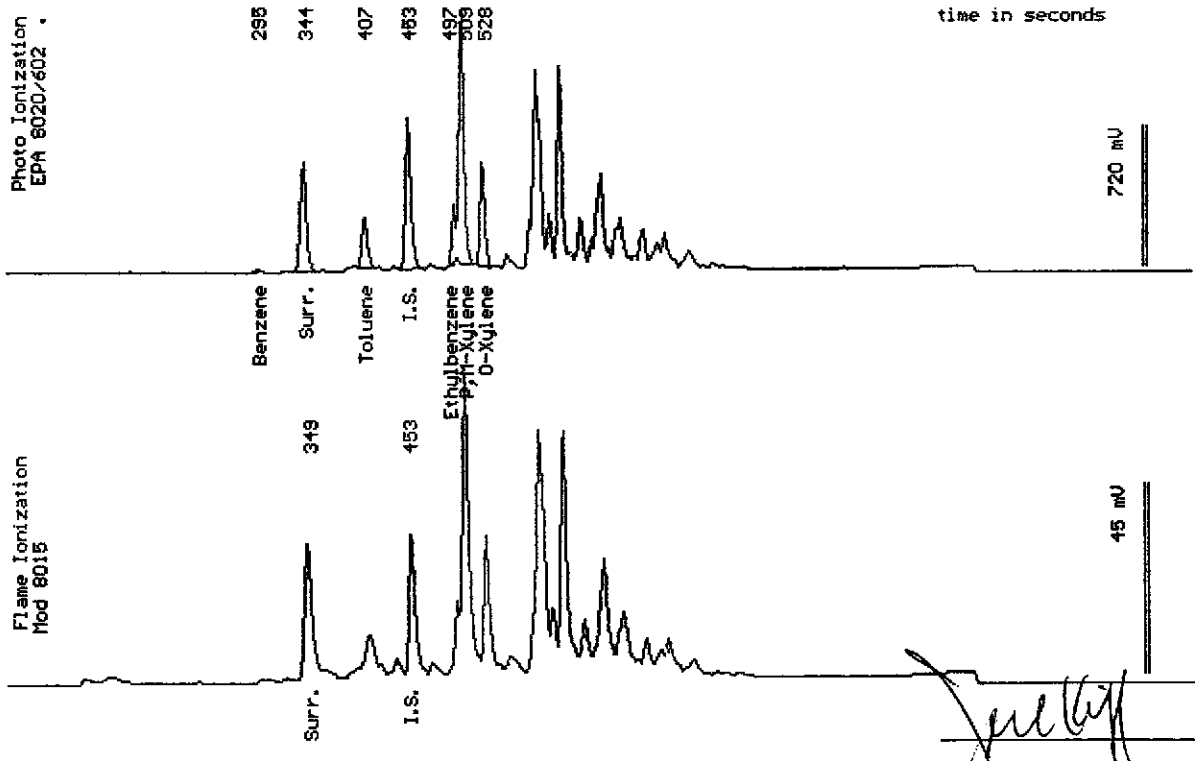
Sample Log 6555

6555-11

Sample: **VW-2-4 20**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/28/93
Dilution : 1:100 QC Batch : 6026c
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.50)	<.50
Toluene	(.50)	4.0
Ethylbenzene	(.50)	4.0
Total Xylenes	(.50)	25
TPH as Gasoline	(100)	200
Surrogate Recovery		88 %



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

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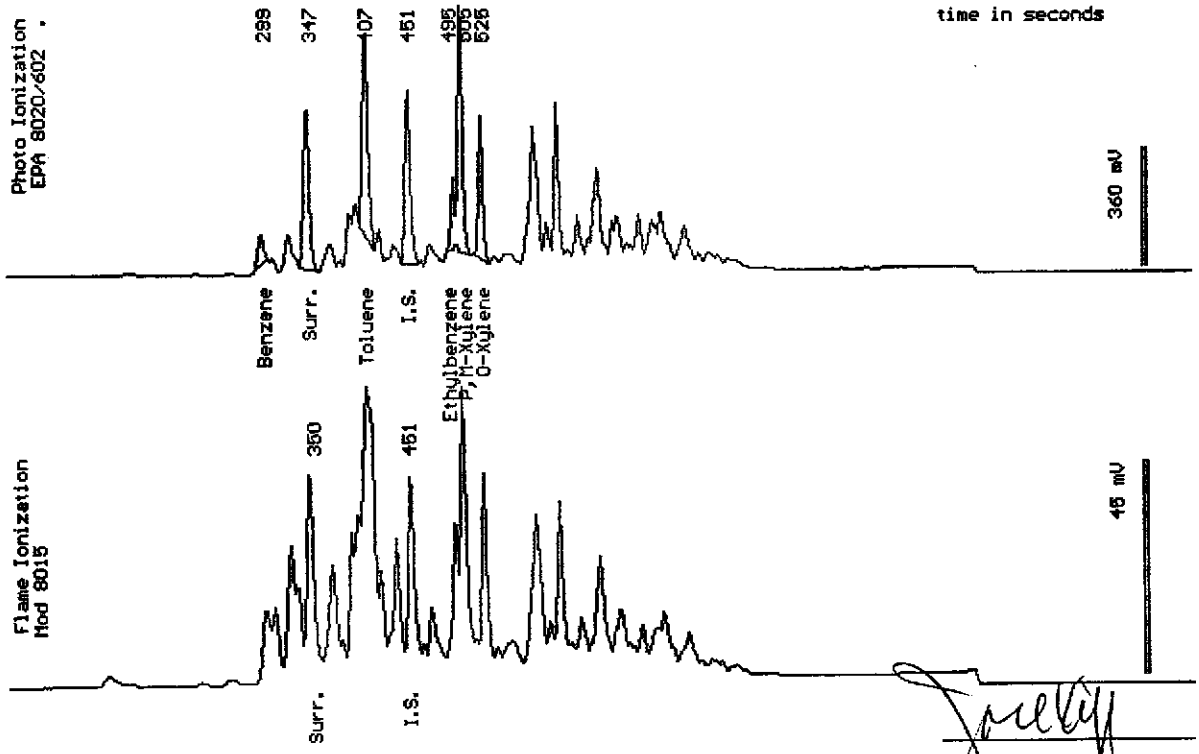
Sample Log 6555

6555-12

Sample: **VW-2-6 30'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/28/93
Dilution : 1:1 QC Batch : 6026c
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	.018
Toluene	(.0050)	.15
Ethylbenzene	(.0050)	.044
Total Xylenes	(.0050)	.23
TPH as Gasoline	(1.0)	3.5
Surrogate Recovery		111 %



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

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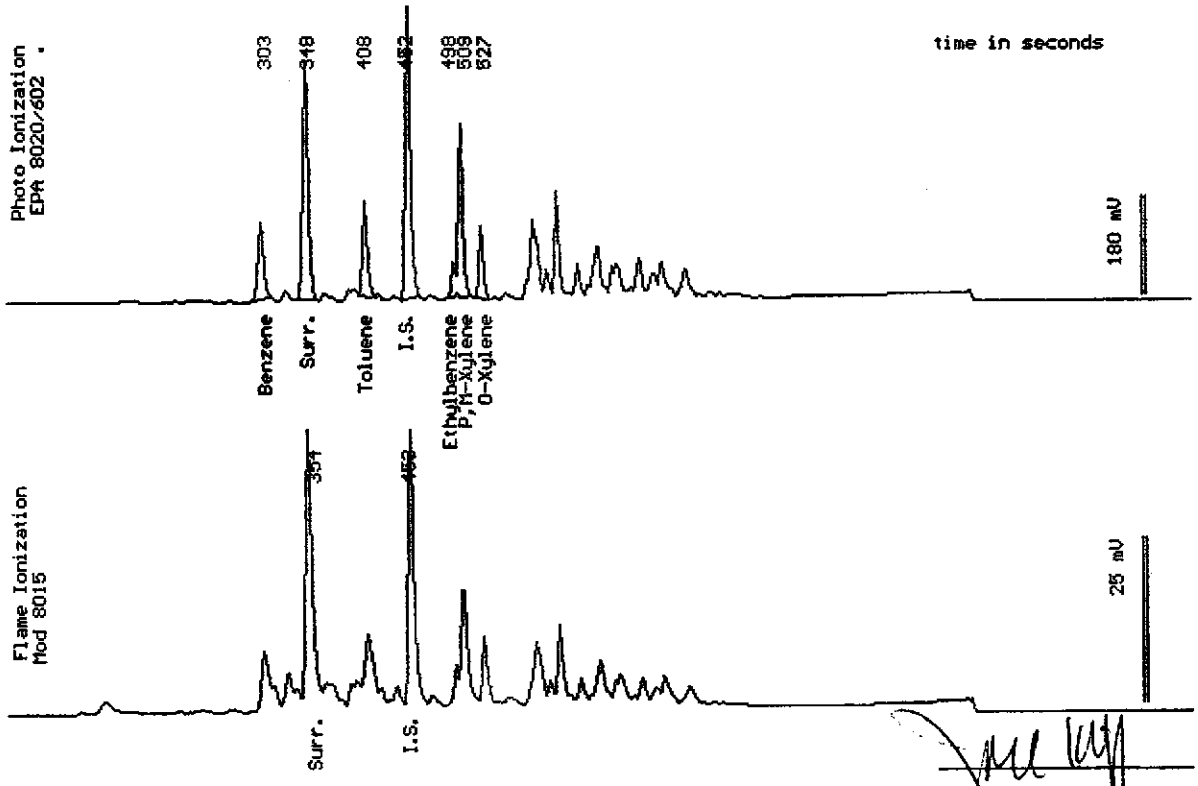
Sample Log 6555

6555-13

Sample: **VW-2-7 35'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/28/93
Dilution : 1:1 QC Batch : 6026d
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	.021
Toluene	(.0050)	.024
Ethylbenzene	(.0050)	.0086
Total Xylenes	(.0050)	.056
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		100 %



Date Analyzed: 06-11-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

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Senior Chemist

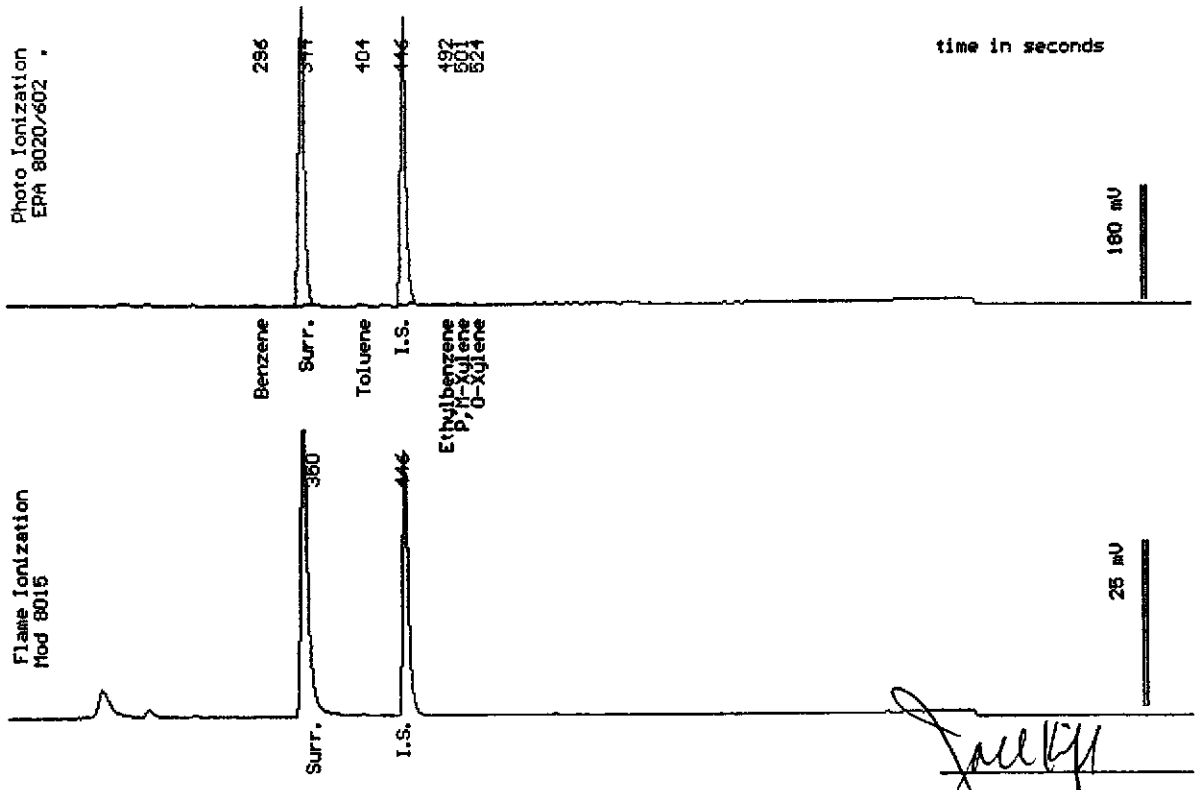
Sample Log 6568

6568-1

Sample: **VW-3-4**

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:1 QC Batch : 6026d
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		122 %



Date Analyzed: 06-11-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

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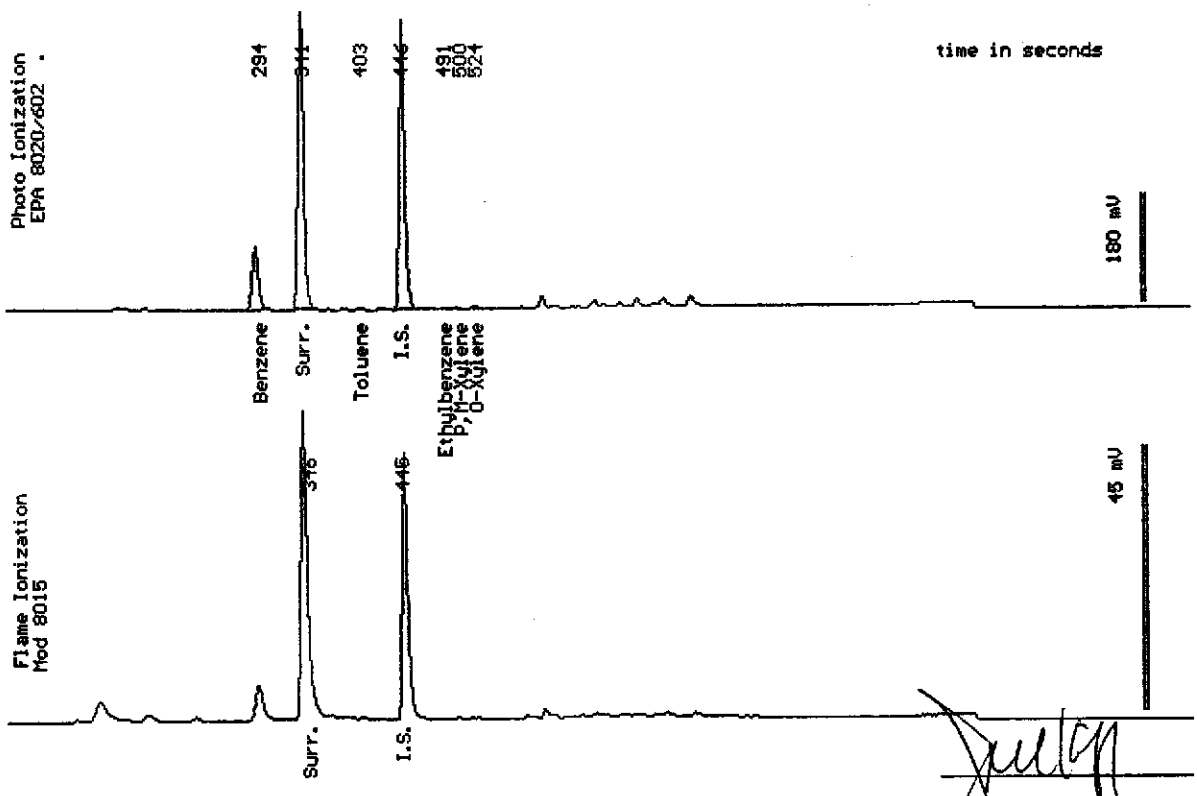
Sample Log 6568
6568-2

Sample: VW-3-5

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:1 QC Batch : 6026d
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	.017
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		127 %



Date Analyzed: 06-11-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

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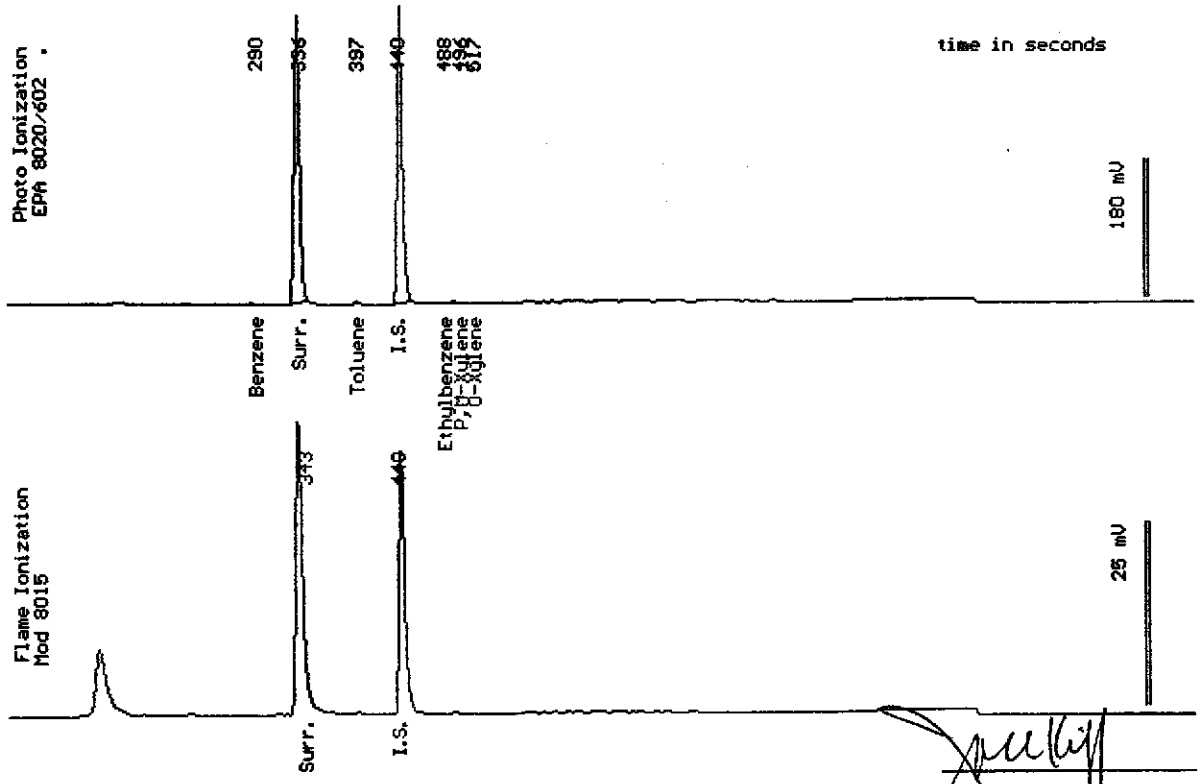
Sample Log 6568

6568-11

Sample: VW-3-6

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:1 QC Batch : 6026d
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		115 %



Date Analyzed: 06-11-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

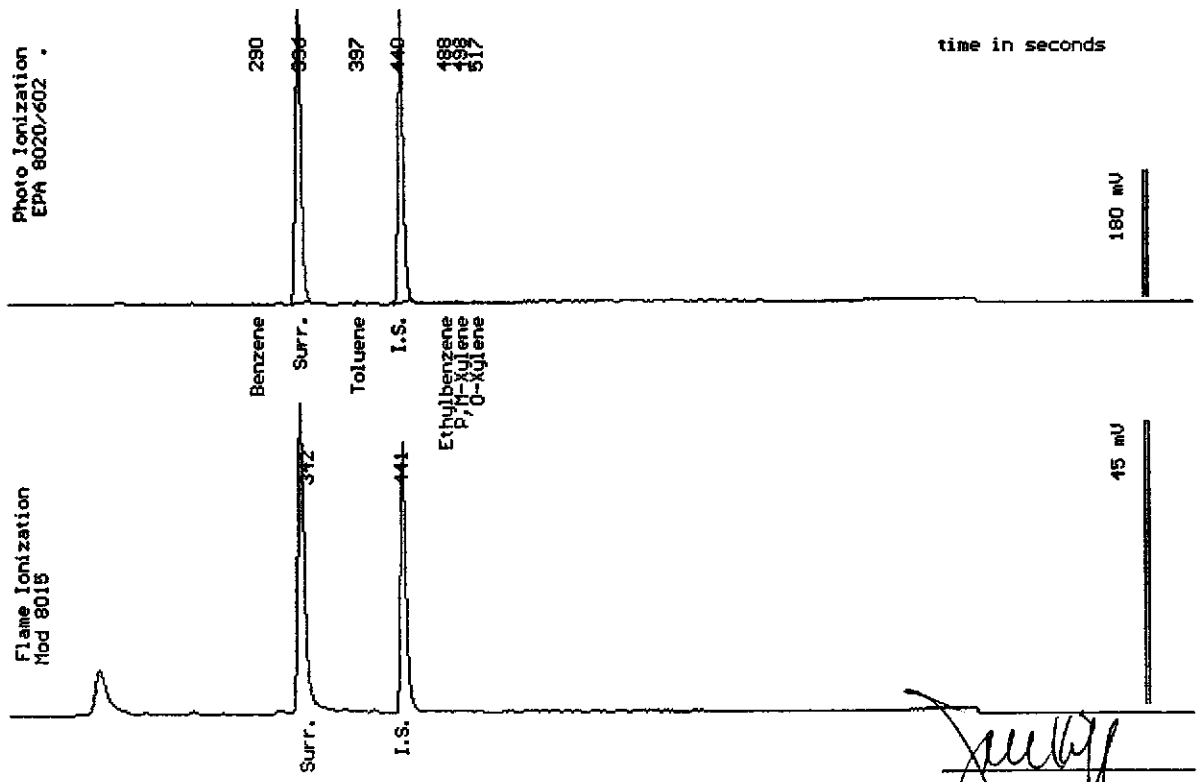
Sample Log 6568

6568-3

Sample: **VW-3-7**

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:1 QC Batch : 6026d
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		124 %



Date Analyzed: 06-11-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

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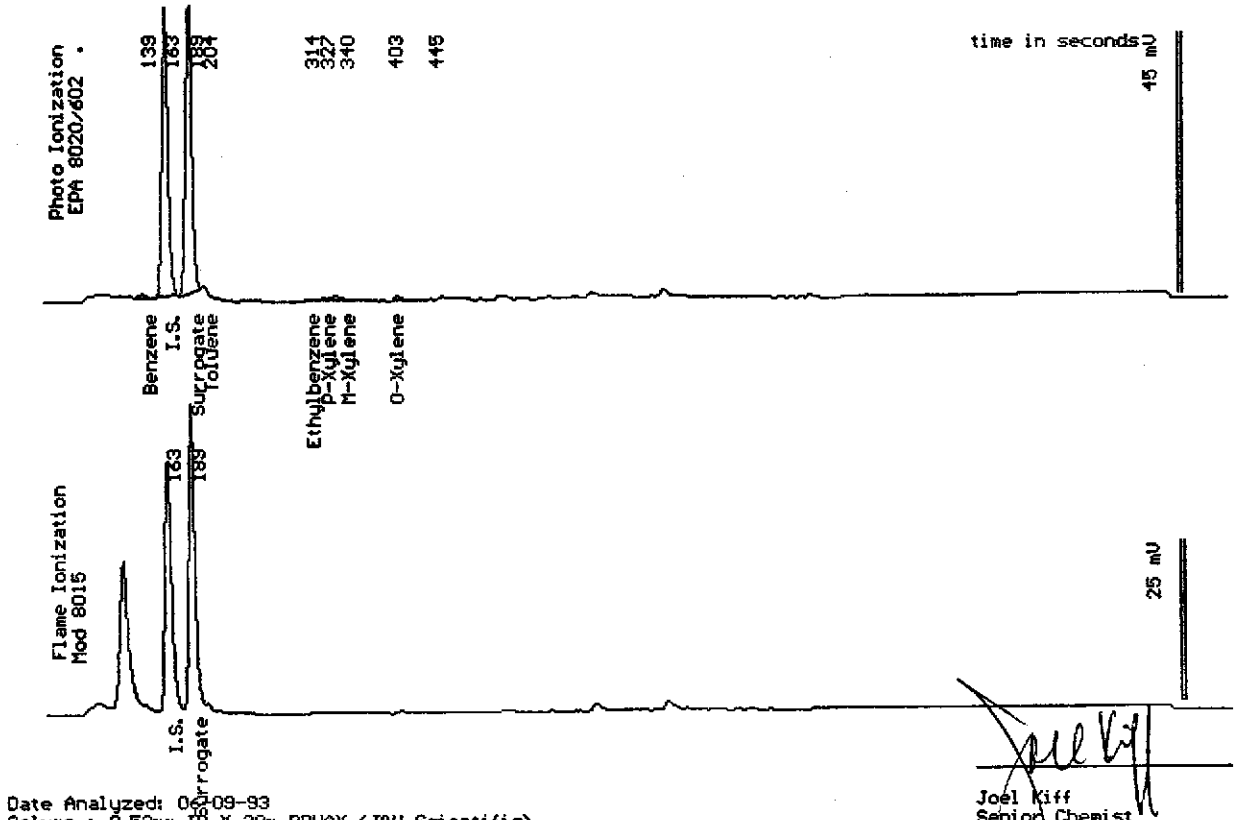
Sample Log 6555

6555-4

Sample: **MW-1-5 25'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:1 QC Batch : 4011m
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		108 %



Date Analyzed: 06-09-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

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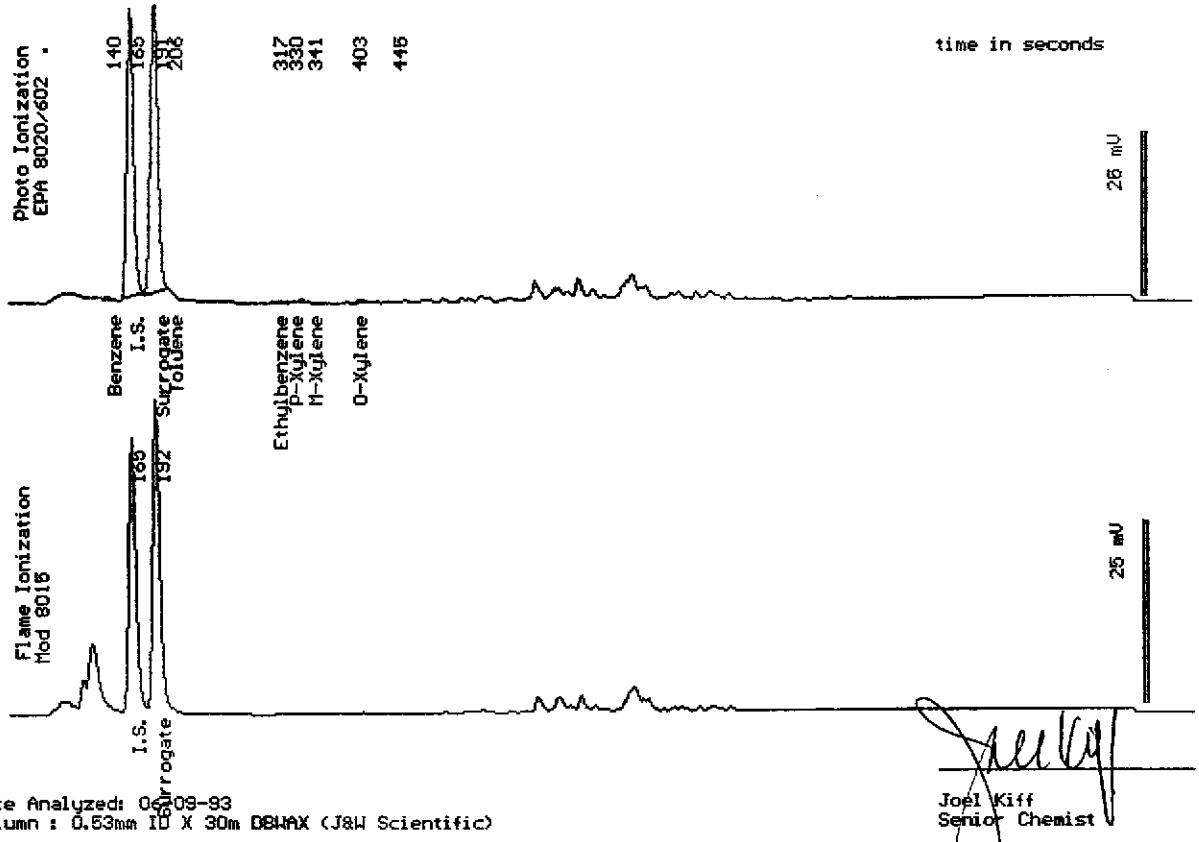
Sample Log 6555

6555-5

Sample: **MW-1-6 30'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:1 QC Batch : 4011m
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		117 %



Date Analyzed: 06/09-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

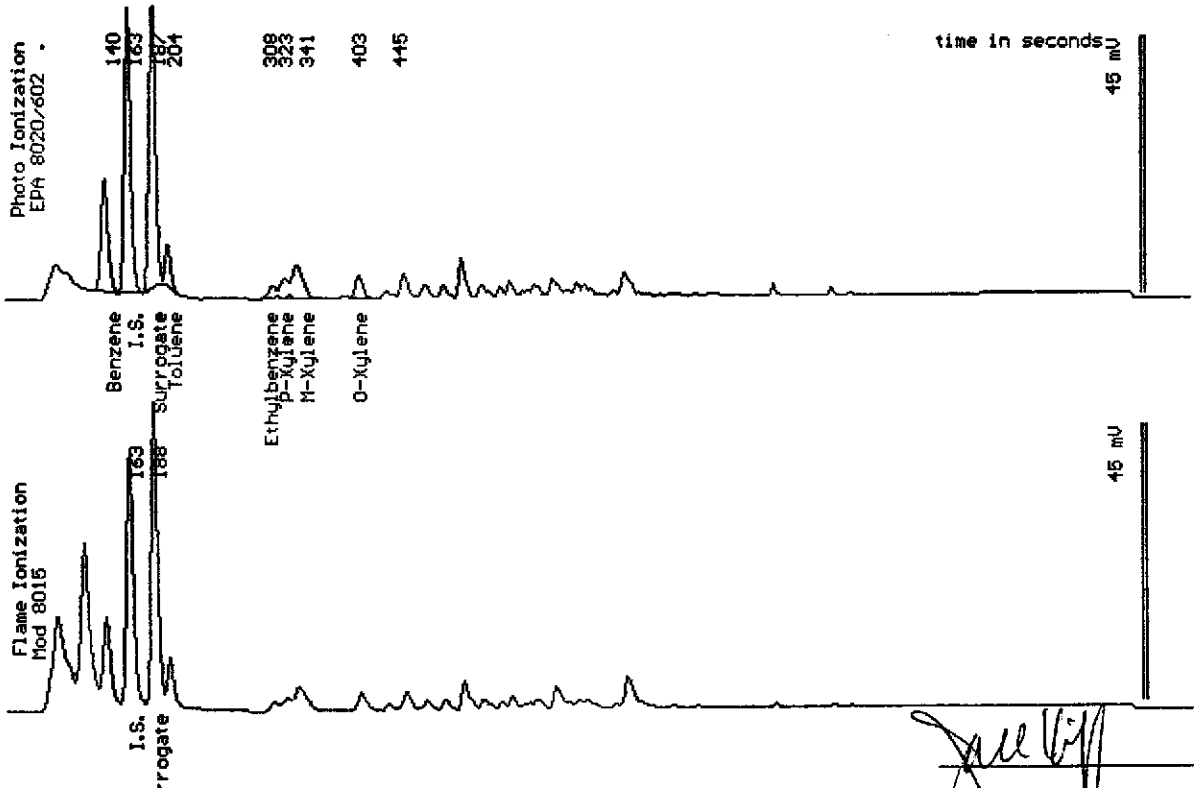
Sample Log 6555

6555-6

Sample: **MW-1-7 35'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:1 QC Batch : 4011m
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	.029
Toluene	(.0050)	.015
Ethylbenzene	(.0050)	.0051
Total Xylenes	(.0050)	.031
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		107 %



Date Analyzed: 06-09-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

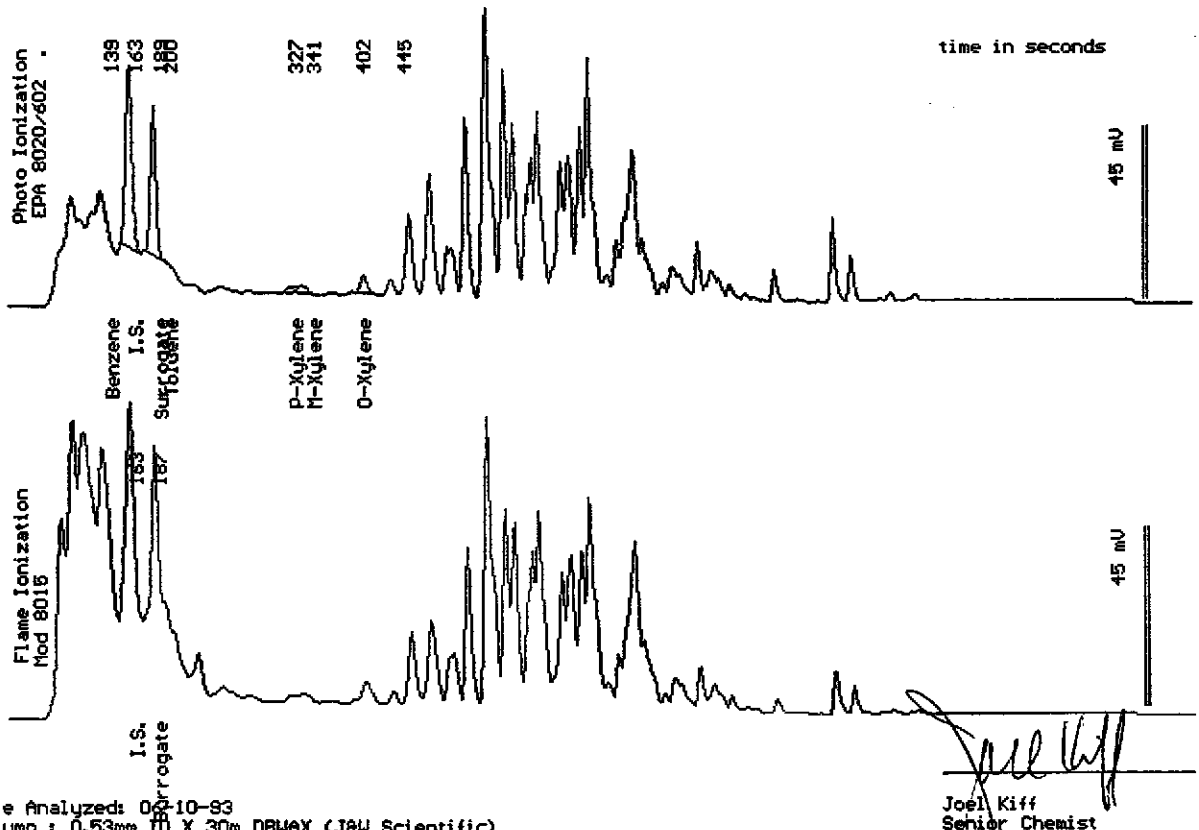
Sample Log 6555

6555-7

Sample: **MW-2-4 20'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:1 QC Batch : 4011m
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	.037
TPH as Gasoline	(1.0)	6.4
Surrogate Recovery		70 %



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

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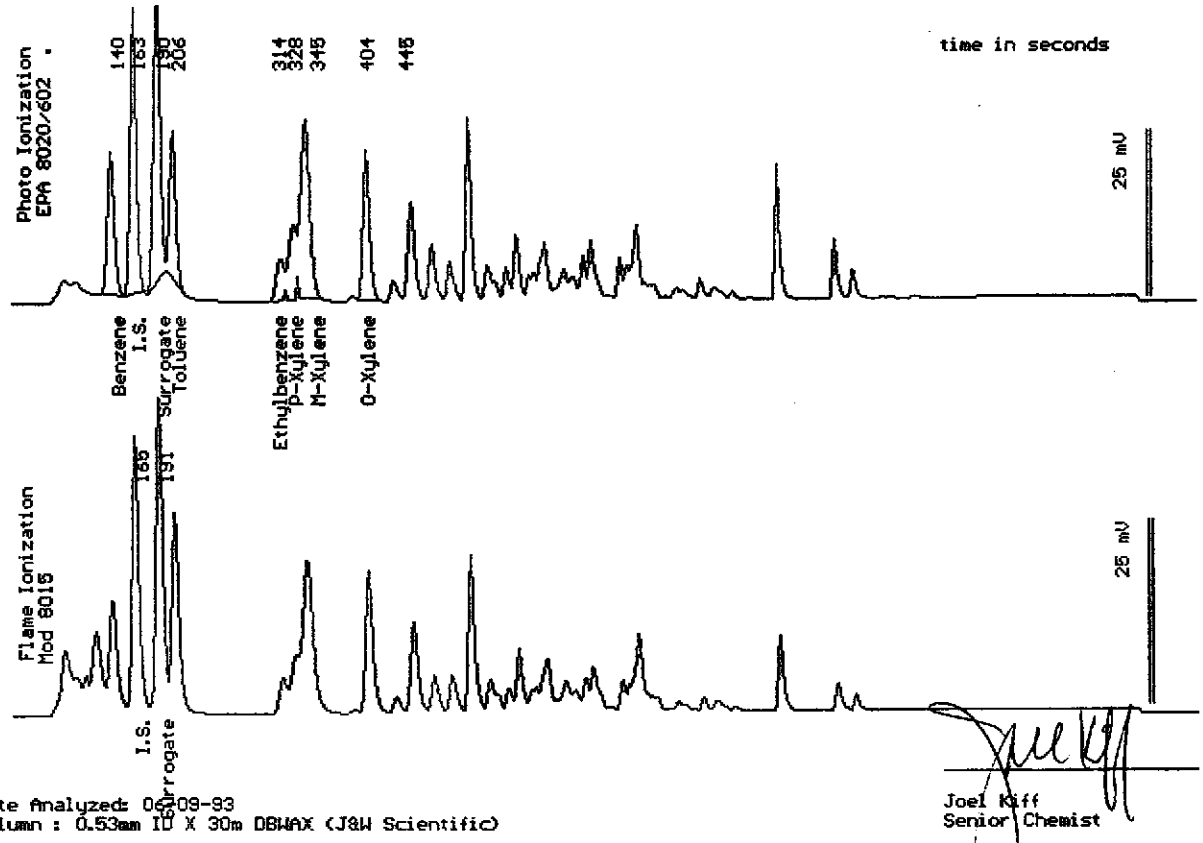
Sample Log 6555

6555-8

Sample: **MW-2-5 25'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:1 QC Batch : 4011m
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	.057
Toluene	(.0050)	.099
Ethylbenzene	(.0050)	.026
Total Xylenes	(.0050)	.22
TPH as Gasoline	(1.0)	1.5
Surrogate Recovery		114 %



Date Analyzed: 06/09-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

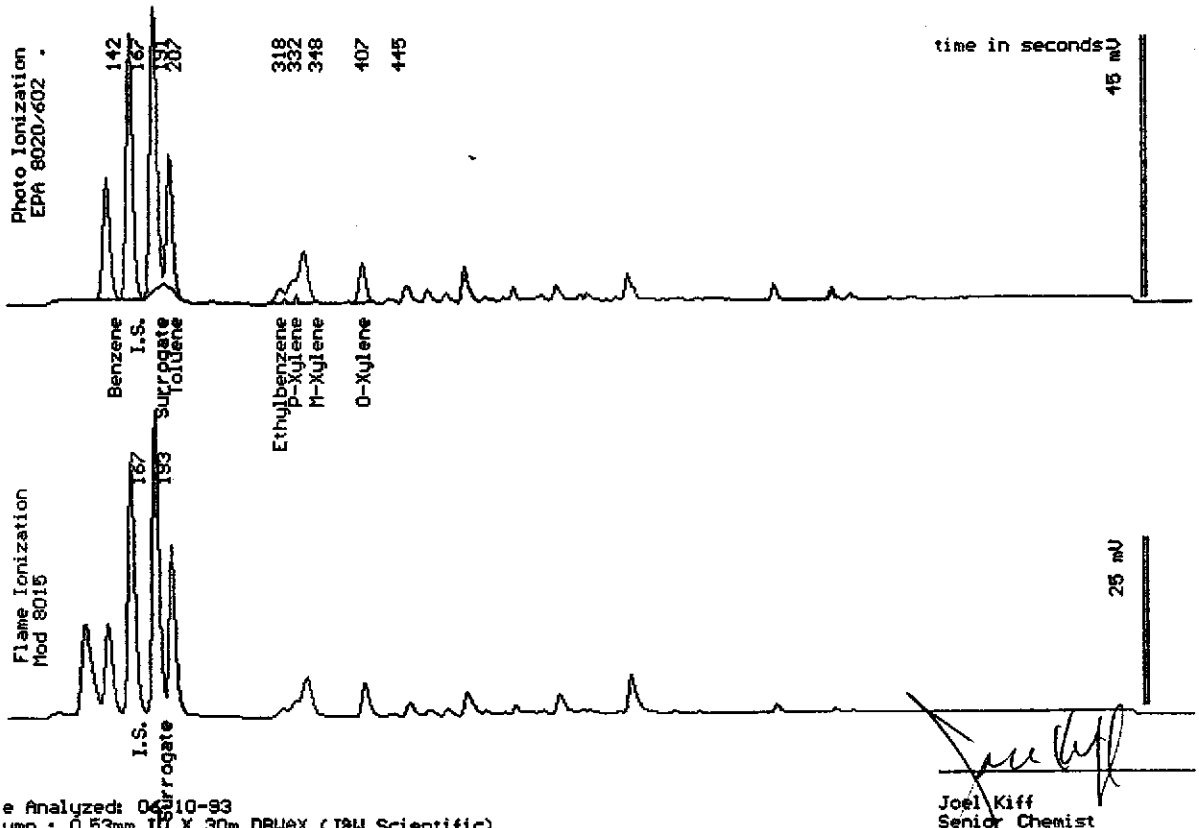
Sample Log 6555

6555-9

Sample: **MW-2-6 30'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:1 QC Batch : 4012d
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	.040
Toluene	(.0050)	.065
Ethylbenzene	(.0050)	.0070
Total Xylenes	(.0050)	.051
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		112 %



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

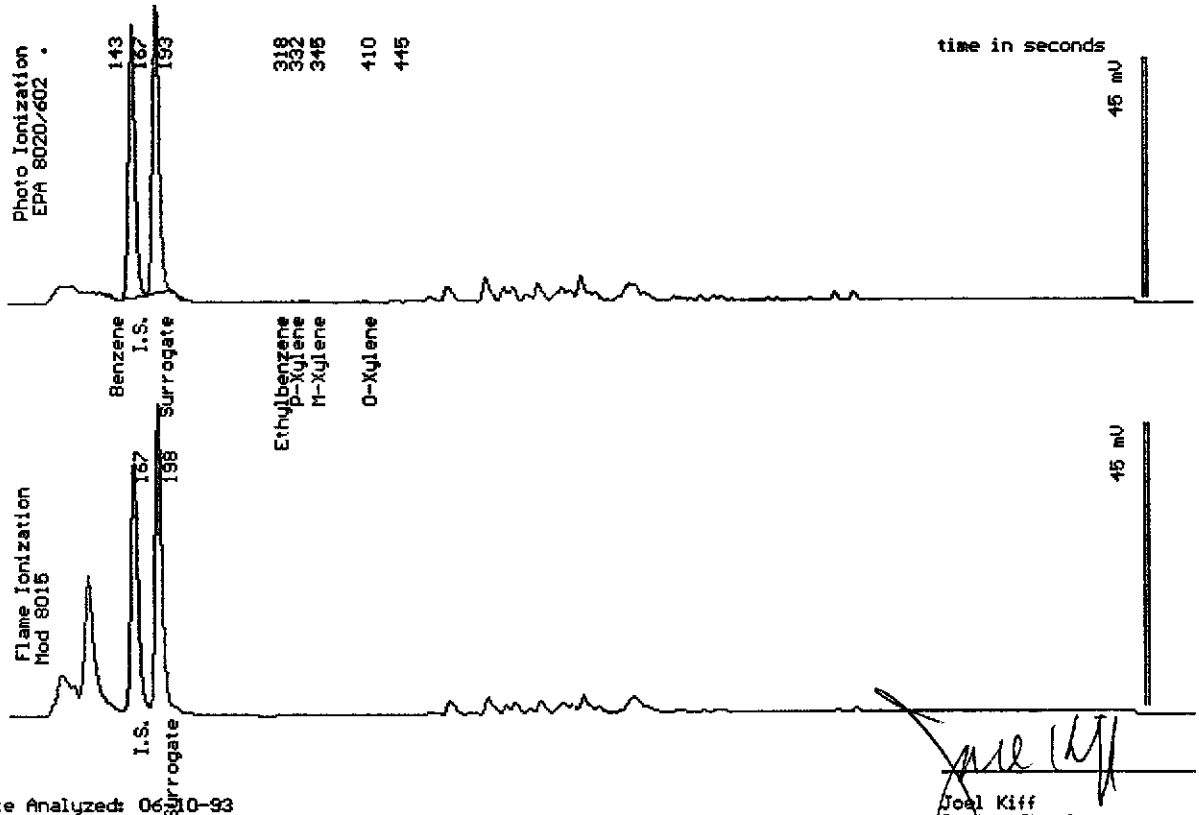
Sample Log 6555

6555-10

Sample: **MW-2-7 35'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/27/93
Dilution : 1:1 QC Batch : 4012c
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		110 %



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

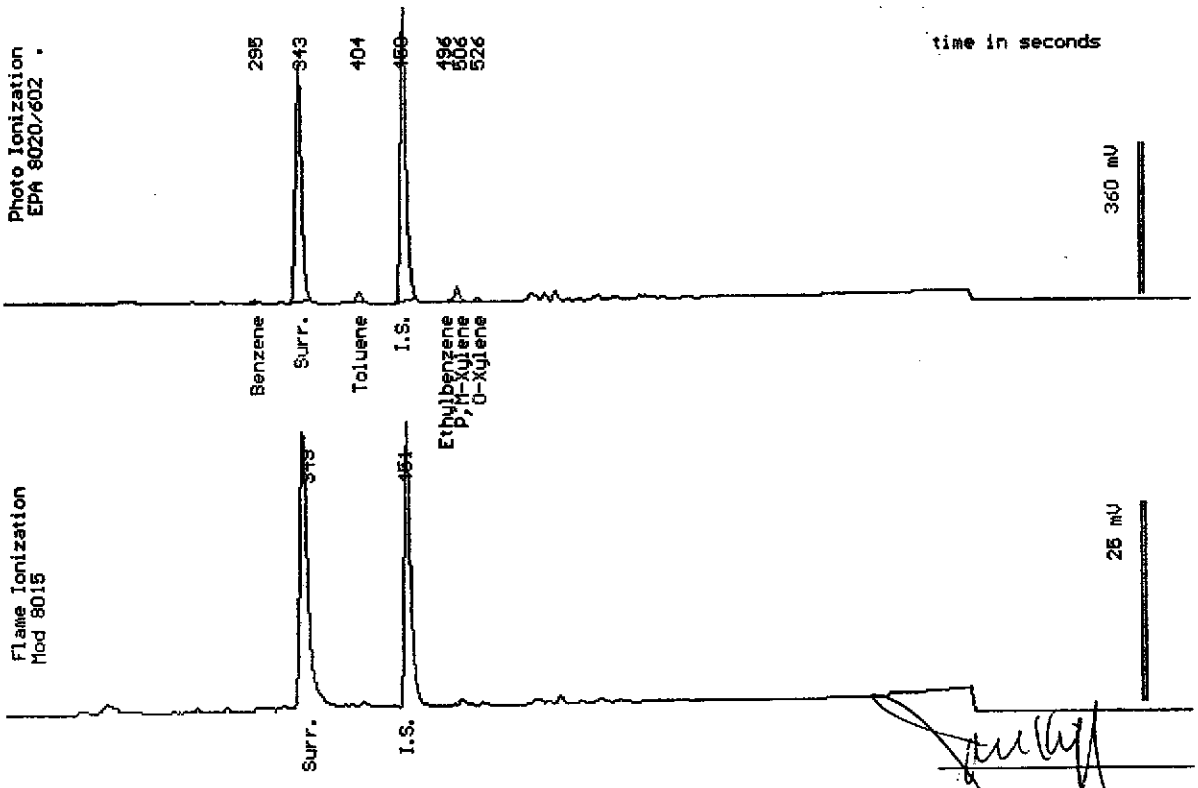
Sample Log 6555

6555-14

Sample: **MW-3-5 25'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/28/93
Dilution : 1:1 QC Batch : 6026c
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		95 %



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

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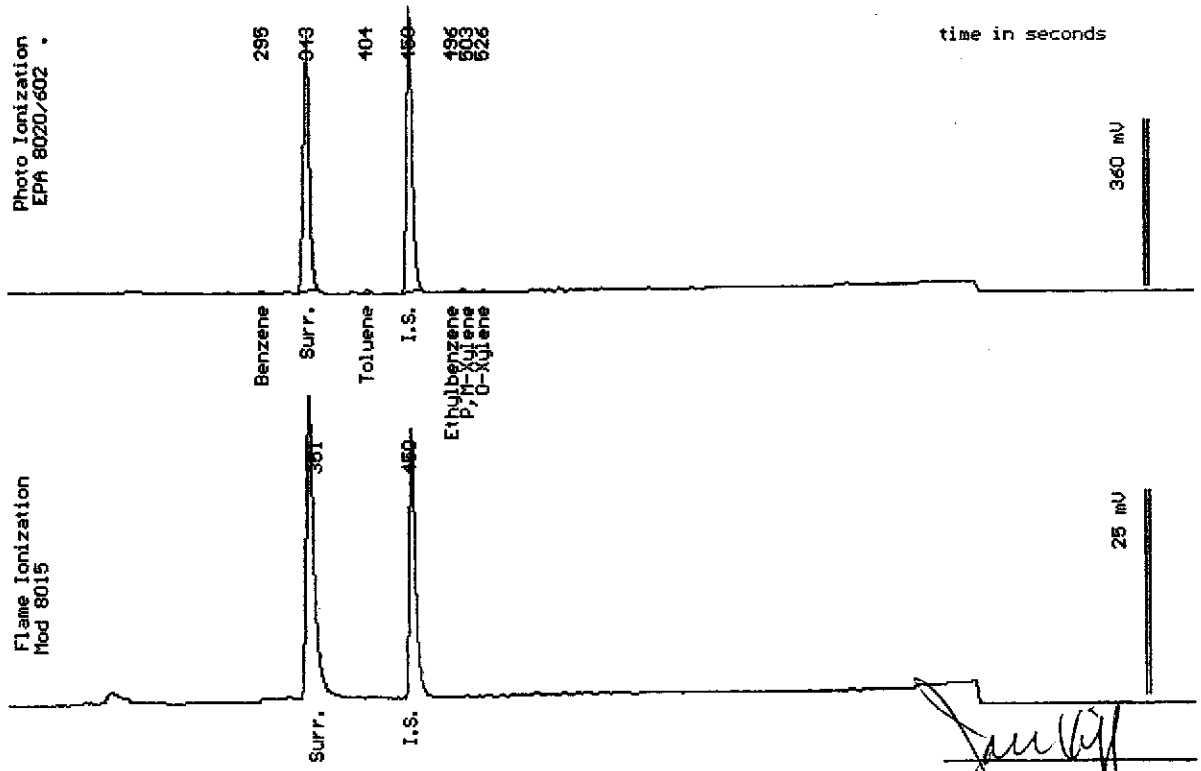
Sample Log 6555

6555-15

Sample: **MW-3-6 30'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/28/93
Dilution : 1:1 QC Batch : 6026c
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		102 %



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

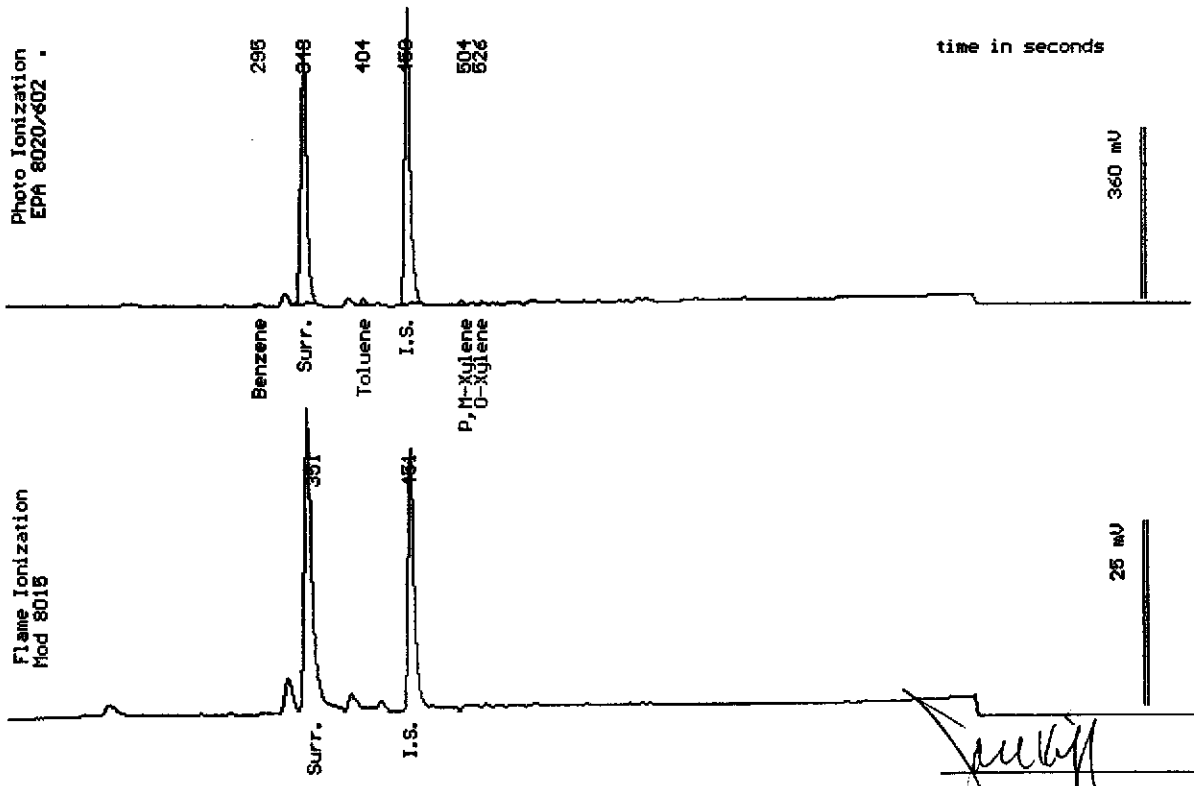
Sample Log 6555

6555-16

Sample: **MW-3-7 35'**

From : Project # 19024.01 (Beacon 604)
Sampled : 05/28/93
Dilution : 1:1 QC Batch : 6026c
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		103 %



Date Analyzed: 06-10-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

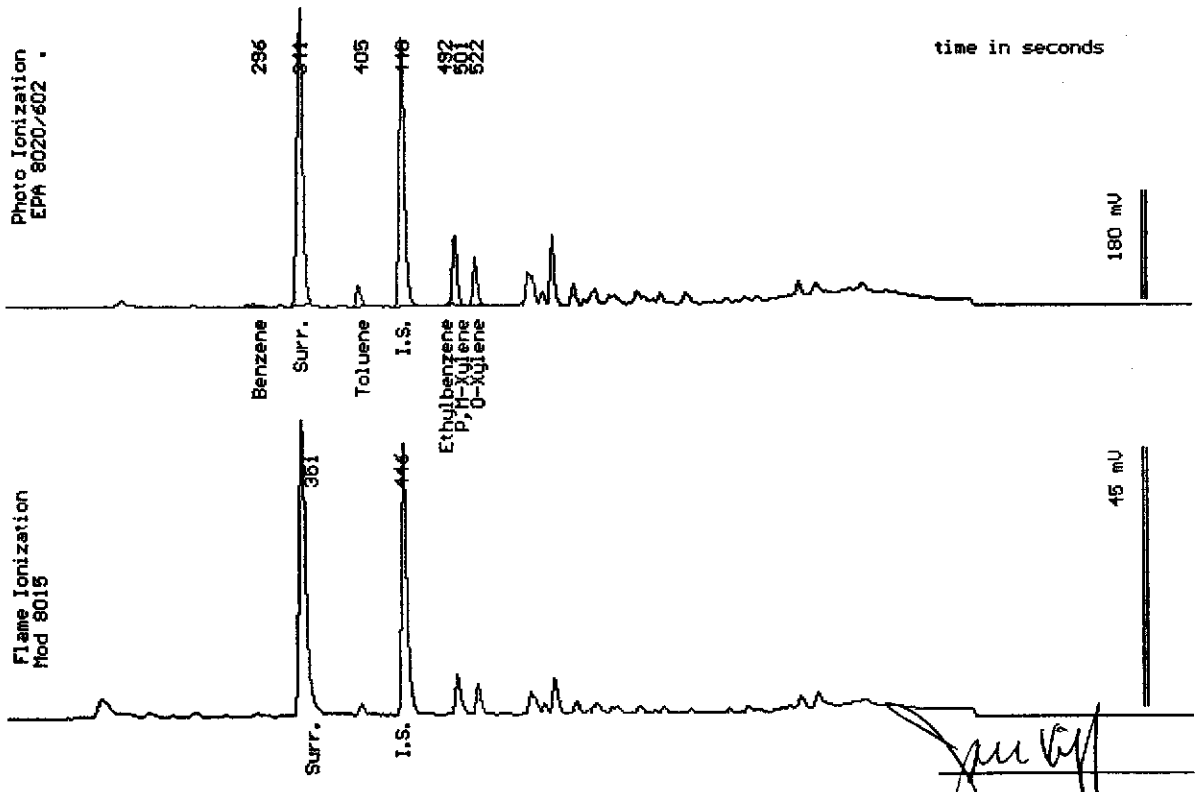
Sample Log 6568

6568-4

Sample: **B-4-4 20'**

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:1 QC Batch : 6027a
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	.020
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		122 %



Date Analyzed: 06-14-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

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Senior Chemist

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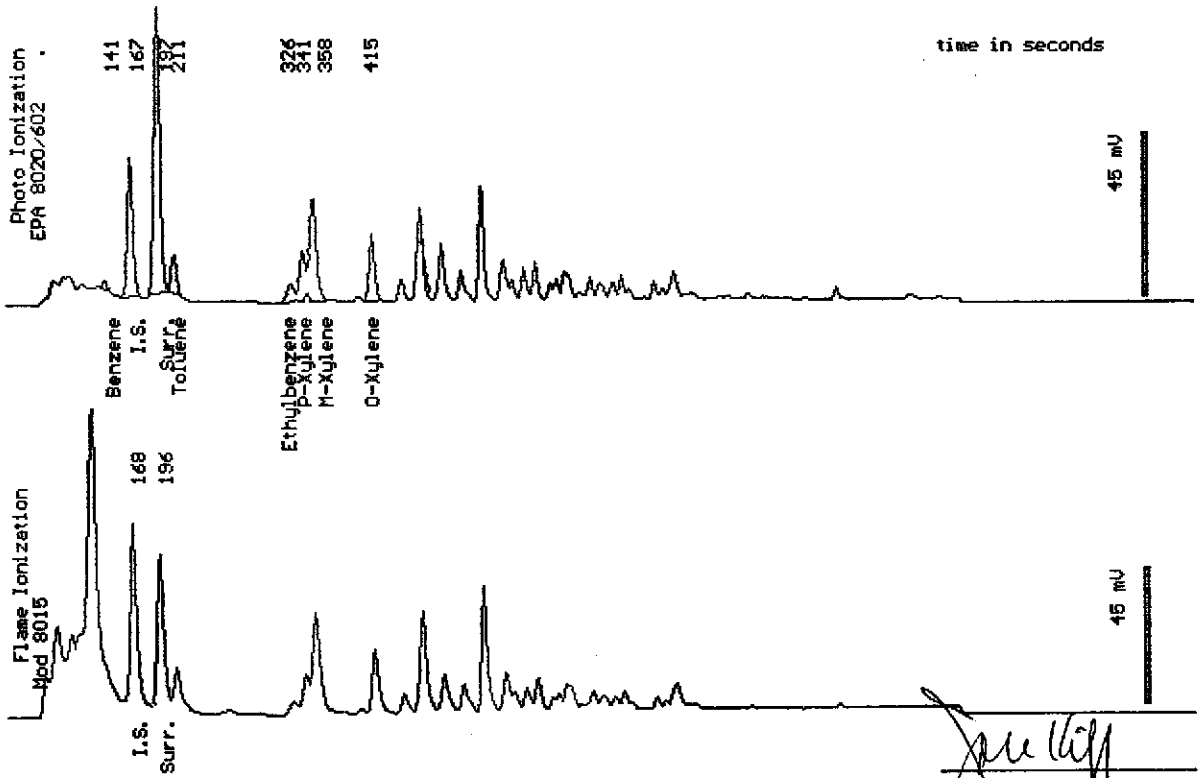
Sample Log 6568

6568-5

Sample: **B-4-5 25'**

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:10 QC Batch : 2001b
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg	
Benzene	(.050)	<.050	
Toluene	(.050)	.27	
Ethylbenzene	(.050)	.18	
Total Xylenes	(.050)	1.7	
TPH as Gasoline	(10)	16	
Surrogate Recovery		86	%



Date Analyzed: 06-14-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

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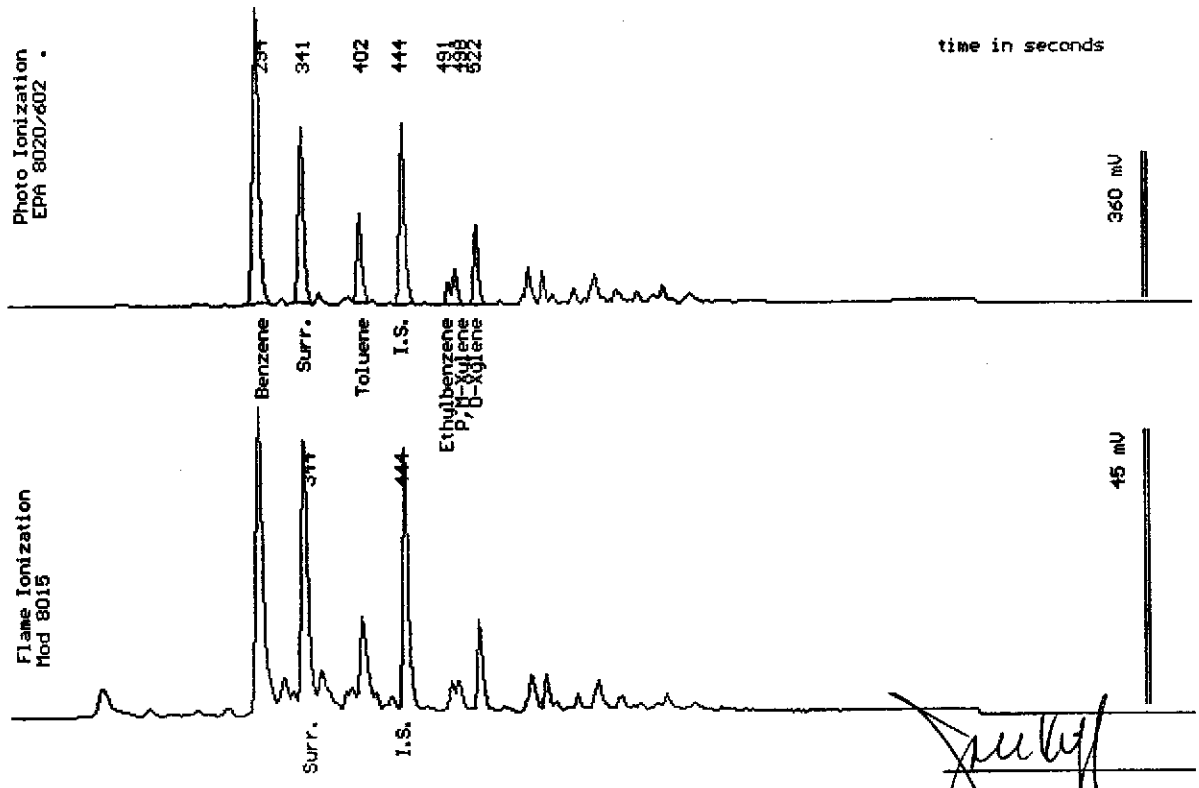
Sample Log 6568

6568-6

Sample: **B-4-6 30'**

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:1 QC Batch : 6026d
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	.17
Toluene	(.0050)	.044
Ethylbenzene	(.0050)	.013
Total Xylenes	(.0050)	.057
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		118 %



Date Analyzed: 06-11-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

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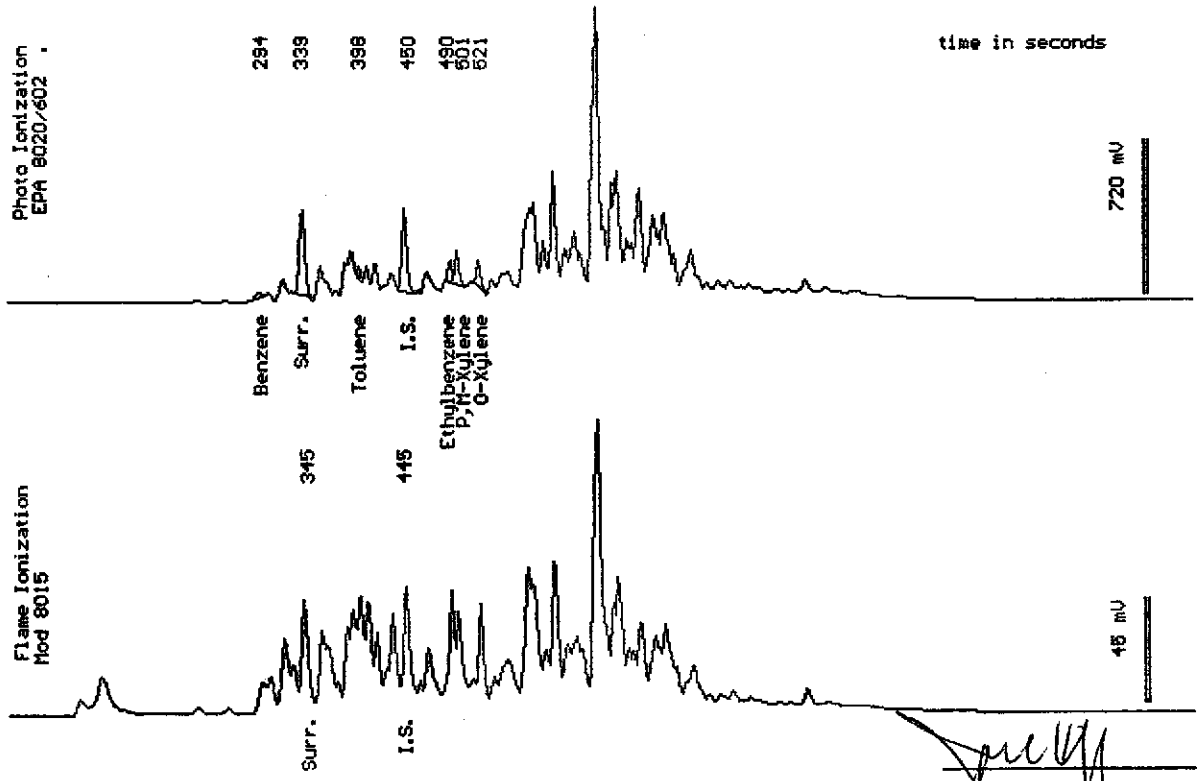
Sample Log 6568

6568-7

Sample: B-4-7 35'

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:10 QC Batch : 6027e
Matrix : Soil

Parameter	(MDL) mg/kg	Measured Value mg/kg
Benzene	(.050)	.073
Toluene	(.050)	.11
Ethylbenzene	(.050)	.30
Total Xylenes	(.050)	.65
TPH as Gasoline	(10)	55
Surrogate Recovery		123 %



Date Analyzed: 06-15-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

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Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)	ANALYSES	Date	Form No.
604	Hal Hansen		5-26-93	1 of 4
Project No. 19024.01	Sampler (Signature) Hal Hansen			
Project Location 1619 W. First St Livermore Ca	Affiliation AMV			

RECEIVED by W.E.S.T. date 0°c

Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)	No. of Containers	REMARKS
VW-1-6 30'	5-27-93			X	X		1	
VW-1-7 35'				X	X			
VW-1-8 40'				X	X			[illegible]
MW-1-1 5'								hold
MW-1-2 10'								hold
MW-1-3 15'								hold
MW-1-4 20'								hold
MW-1-5 25'				X	X			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Hal Hansen AMV	5-28-93	807			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
				5/28/93	15:12

Report To: Hal Hansen AMV

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

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

32-8003 1/90

Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)			ANALYSES									Date	Form No.
604	Hal Hansen												5-28-93	2 of 4
Project No. 19026.101	Sampler (Signature) Hal Hansen													
Project Location 1619 W. Jack Ln Livermore	Affiliation AMV													
Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)						No. of Containers	REMARKS	
MW-1-6 30'	5-27-93			X	X							1		
MW-1-7 35'				X	X									
MW-1-8 40'													hold	
MW-2-1 5'													hold	
MW-2-2 10'													hold	
MW-2-3 15'													hold	
MW-2-4 20'				X	X								~~hold~~	
MW-2-5 25'				X	X								-	

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Hal Hansen AMV	5/28/93	3:07			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
				5/28/93	15:12

Report To: Hal Hansen AMV

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

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

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Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)	Date	Form No.
604	Hal Hansen	5-28-93	3 of 4
Project No.	**Sampler (Signature)**		
19024.01	Hal Hansen		
Project Location 1619 ~~S. Sherman~~ W. First St Turlock Ca	**Affiliation** AMV Inc		

Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)	No. of Containers	REMARKS
MW-2-6 30'	5-27-93			X	X		1	
MW-2-7 35'				X	X			
MW-2-8 40'								hold
~~X~~W-2-1 5'	5-28-93							hold
VW-2-2 10'								hold
VW-2-3 15'								hold
VW-2-4 20'				X	X			
VW-2-6 30'				X	X			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Hal Hansen AMV	5-28-93	307			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
				5/28/93	15:12

Report To: Hal Hansen AMV

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

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

32-8003 1/90

Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)			ANALYSES									Date	Form No.
604	Hal Hansen												5-28-93	4 of 4
Project No.	Sampler (Signature)													
19024.01	Hal Hansen													
Project Location 1619 W. Zinnia St Livermore Ca	Affiliation AMV inc													
Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)						No. of Containers	REMARKS	
VW-2-7 35	5-28-93			X	X							1		
MW-3-1 5'													Hold	
MW-3-2 10'													Hold	
MW-3-4 15'													Hold	
MW-3-5 25'				X	X									
MW-3-6 30'				X	X									
MW-3-7 35'				X	X									
MW-3-8 40'													Hold	

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Hal Hansen AMV	5-28-93	3:01			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
				5/28/93	15:10

Report To: Hal Hansen AMV

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

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

32-8003 1/90

Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)	ANALYSES										Date	Form No.
604	Hal Hansen											6-1-93	1 of 3
Project No. 19024.01	Sampler (Signature)												
Project Location 1414 W. First St Suisun	Affiliation AMV												

Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)						No. of Containers	REMARKS
VW-3-1	6-1-93			X	X							1	Hold
VW-3-2	"											1	Hold
VW-3-3	"											1	Hold
VW-3-4	"											1	
VW-3-5	"											1	
VW-3-6	"											1	
VW-3-7	"											1	
	"												

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Hal Hansen AMV	6-1-93	1400			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
				6/2/93	1756

Report To: Hal Hansen
AMV

Bill to: ULTRAMAR INC.
525 West Third Street
Hanford, CA 93230
Attention: Jane Doe

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

32-8003 1/90

Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)	ANALYSES								Date	Form No.
604	Hal Hansen									6-1-93	2 of 3
Project No.	**Sampler (Signature)**										
19024.01	Hal Hansen										
Project Location 1619 W. Front Fresno Ca	**Affiliation** AMV										

Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)					No. of Containers	REMARKS
B-4-1 5'	6-1-93			X	X						1	Hold
B-4-2 10'											1	Hold
B-4-3 15'											1	Hold
B-4-4 20'											1	
B-4-5 25'											1	
B-4-6 30'											1	
B-4-7 35'	↓			↓	↓						1	

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Hal Hansen	6-1-93	2:47			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
				6/4/93	14:50

Report To: Hal Hansen
AMV

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

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

32-8003 1/90

ENCLOSURE E

FIELD NOTES

ACTON • MICKELSON • van DAM, INC.

GROUND WATER LEVEL DATA

Project Name Beacon 604 Project Number 19024.01

Date 6-22-93 Field Crew Hal Hansen + Steve Lisaty Measuring Device and Number unk

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
MW3	1:22		37.11		99.08	61.97	TD 54
MW-1	1:26		38.46		100.00	61.54	TD 53
MW-2	1:30		39.07		98.68	59.61	TD 54

Signature

ACTON • MICKELSON • van DAM, INC.

GROUND WATER LEVEL DATA

Project Name Beacon #604 Livermore Project Number 1902L.01

Date 6-1-93 Field Crew Hal Hansen Measuring Device and Number dipper 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	636		37.50		100.00	62.50	TDS4
MW-2	627		38.02		98.68	60.66	TDS4
MW-3	618		36.18		99.08	61.90	TDS3

Signature

DAILY FIELD REPORT

ACTON • MICKELSON • van DAM, INC.

Project No. 19624.01	Date: 6-24-93 work performed 6-22-93
Project Name: Former Beacon 604	Project Location: 1619 First St. Livermore, CA
Weather: Clear, warm	Field Crew: HEH, SAL

Today's Work Activities:

- Arrived at site approximately 12:45.
- Took water level measurements
- Hand bailed three well volumes from MW1, MW2, & MW-3
- Collected samples from each well after 80% recharge
- Left site @ approximately 5:30 pm.

Signature Steve Beaty Date 6/22/93

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point MW-1
Sample I.D. —
Describe Sampling/Development Point SW corner of site

Project Name Beacon 604
Project No. 19024
Work Order #
Date 6/22/93
Field Crew HEH / SAL

Well Depth 53' feet below MP
Depth to Water (below MP) 38.46 feet
Discharge Rate gpm
Number of borehole volumes evacuated before sampling: 3

Casing Diameter 4 inches
Time 3:11 AM/PM
No product observed

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

Pump intake or bailer set at 53 feet below MP.

Sample Appearance: Cloudy
Note any Sampling Problems:
Note any Equipment Washing:
Samples Collected/Time: 350 Cloudy. 3 VOA's

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)

Bailing Start Time 3:00 WL 38.46'
Bailing Stop Time 3:45 pm WL 40.40'

Comments:

Signature Steve Leaty
Date 6/22/93

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point MW-2
Sample I.D.
Describe Sampling/Development Point NW Corner of site

Project Name Beacon 604
Project No. 19024
Work Order #
Date 6-22-93
Field Crew SAL

Well Depth 54' feet below MP
Depth to Water (below MP) 39.07 feet
Discharge Rate gpm
Number of borehole volumes evacuated before sampling: 3

Casing Diameter 4 inches
Time 415 AM/PM

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

Pump intake or bailer set at 50.00 feet below MP.

Sample Appearance: Cloudy
Note any Sampling Problems:
Note any Equipment Washing:
Samples Collected/Time: 450 pm 3 VOA's

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)

Bailing Start Time 4:00 WL 39.07
Bailing Stop Time 4:45 pm WL 41.3

Comments:

Signature Steve Latt
Date 6/22/93

ACTON • MICKELSON • van DAM, INC.

SAMPLING/DEVELOPMENT INFORMATION

Sampling/Development Point MW-3
Sample I.D. —
Describe Sampling/Development Point NE corner of MW

Project Name Beale 604
Project No. 19024
Work Order # —
Date 6-22-93
Field Crew HH & SL

Well Depth 54' feet below MP
Depth to Water (below MP) 37.11 feet
Discharge Rate _____ gpm
Number of borehole volumes evacuated before sampling: 3

Casing Diameter 4 inches
Time 1:30 AM/PM

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

Pump intake or bailer set at 52 feet below MP.

Sample Appearance: Cloudy
Note any Sampling Problems: _____
Note any Equipment Washing: _____
Samples Collected/Time: 2:45 3 VOA's

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)
					34	

Bailing Start Time 2:15 WL 37.41
Bailing Stop Time 2:40 WL 40.50

Comments: _____

Signature Steve Lutz
Date 6-22-93

ACTON • MICKELSON • van DAM, INC.

SURVEY FIELD NOTES

Project Name	Project No. 19024.01	Date 6-1-93
	Bench Mark MW-1	Bench Mark Description
Surveyor Hal Hansen	Rod Man	

Station	(+) B.S.	H.I.	(-) F.S.	Elevation	Stadia Readings	Distance	Horizontal Angle	Remarks
MW-1	5.07	105.07		100.00				
MW-2			6.39	98.68				
MW-3			5.99	99.08				
MW-1	5.31	105.31		100.00				
MW-2			6.63	98.68				
MW-3			6.23	99.08				

SITE SKETCH

Signature

ENCLOSURE F

GROUND WATER SAMPLE ANALYTICAL RESULTS

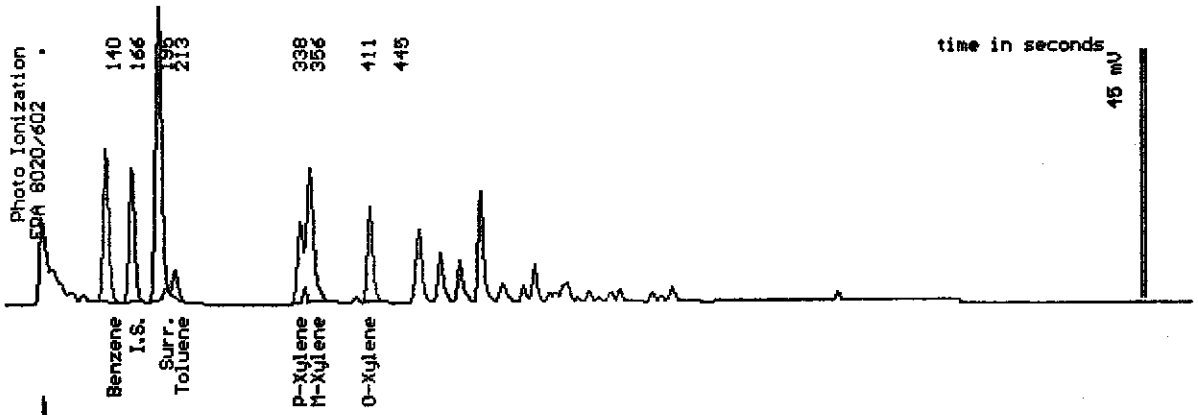
Sample Log 6568

6568-8

Sample: **MW-1**

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:100 QC Batch : 2000h
Matrix : Water

Parameter	(MDL) ug/L	Measured Value ug/L
Benzene	(50)	2200
Toluene	(50)	400
Ethylbenzene	(50)	<50
Total Xylenes	(50)	4900
TPH as Gasoline	(5000)	27000
Surrogate Recovery		89 %



Date Analyzed: 06-12-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

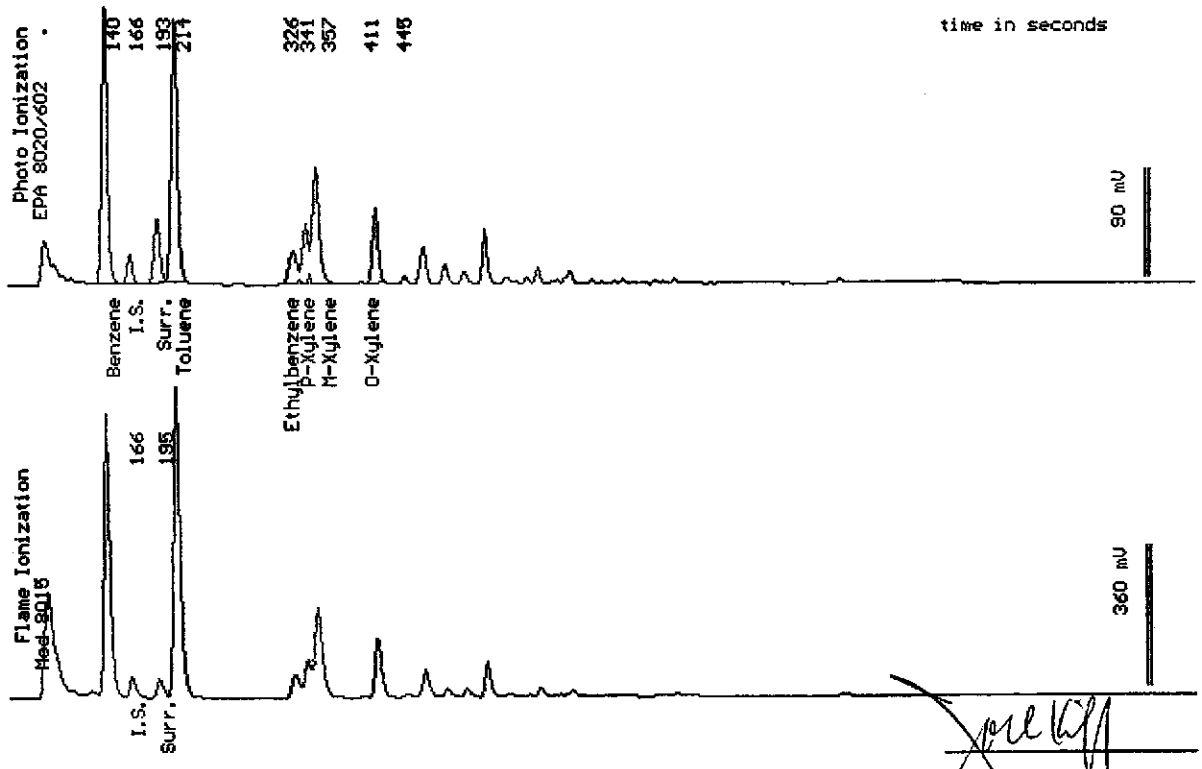
Sample Log 6568

6568-9

Sample: **MW-2**

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:100 QC Batch : 2000h
Matrix : Water

Parameter	(MDL) ug/L	Measured Value ug/L
Benzene	(50)	20000
Toluene	(50)	21000
Ethylbenzene	(50)	3300
Total Xylenes	(50)	18000
TPH as Gasoline	(5000)	170000
Surrogate Recovery		90 %



Date Analyzed: 06-12-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

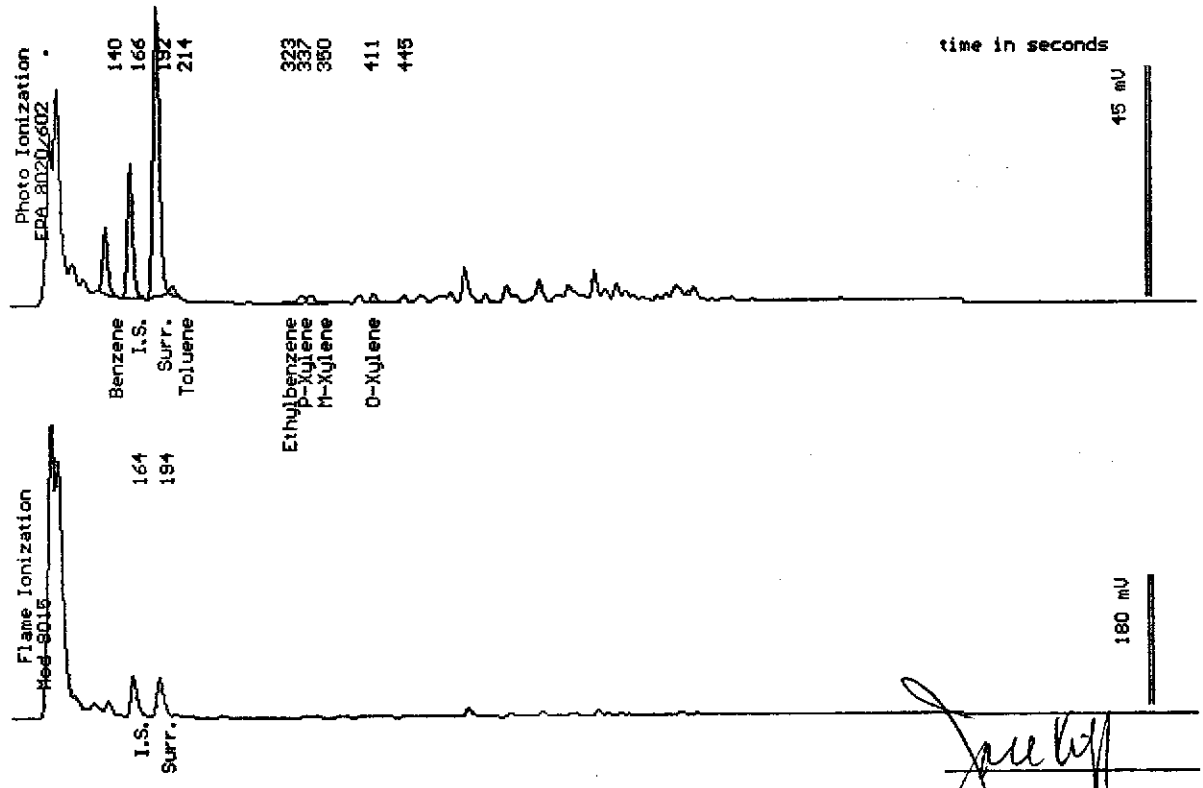
Sample Log 6568

6568-10

Sample: **MW-3**

From : Project # 19024.01
Sampled : 06/01/93
Dilution : 1:1 QC Batch : 2000h
Matrix : Water

Parameter	(MDL) ug/L	Measured Value ug/L	
Benzene	(.50)	4.6	
Toluene	(.50)	<.50	
Ethylbenzene	(.50)	<.50	
Total Xylenes	(.50)	1.9	
TPH as Gasoline	(50)	270	
Surrogate Recovery		92	%



Date Analyzed: 06-12-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

Ultramar Inc.
CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)	ANALYSES										Date	Form No.
604	Hal Hansen											6-1-93	3 of 3
Project No.	**Sampler (Signature)**												
1902-4.01	Hal Hansen												
Project Location 1619 W. First St Livermore Ca	**Affiliation** AMV inc												

Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)						No. of Containers	REMARKS
MW-1	6-1-93			X	X							3	
MW-2												3	
MW-3												3	

RECEIVED
by W.E.S.T.
date 6/2/93

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Hal Hansen AMV	6-1-93				
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
				6/1/93	1456

Report To: Hal Hansen
AMV

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

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

32-8003 1/90

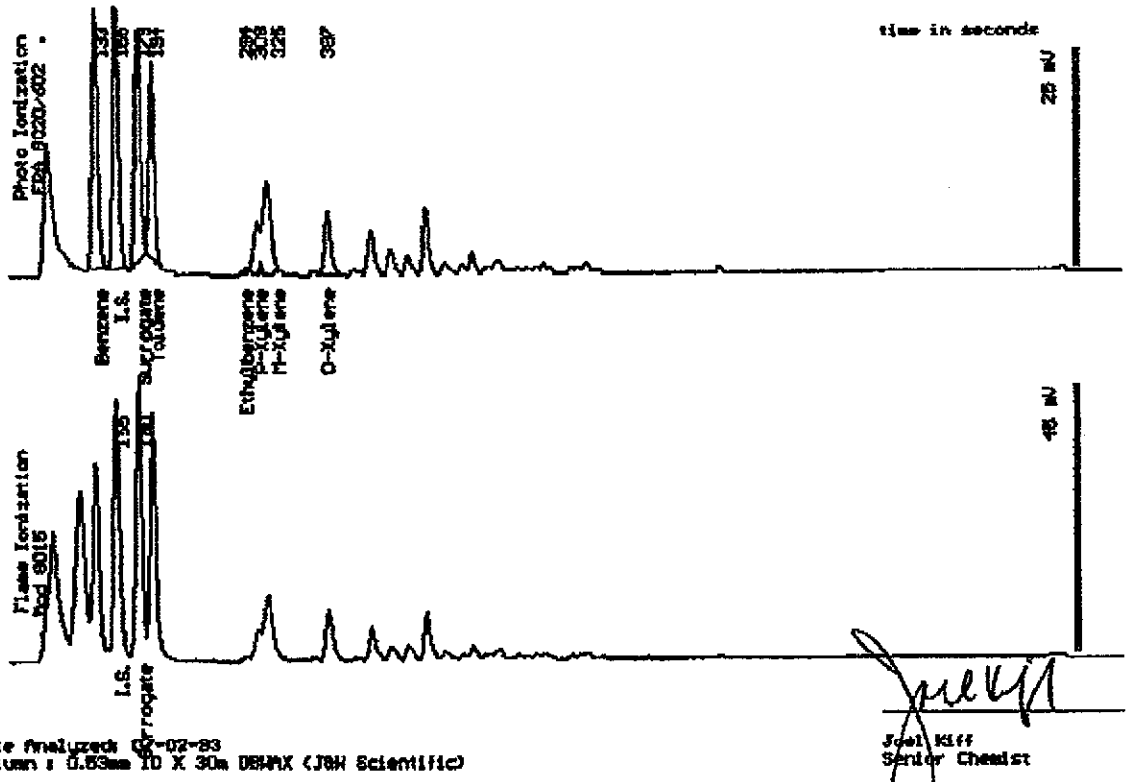
Sample Log 6755

6755-2

Sample: MW1

From : Project # 19024.01 (Beacon 604)
Sampled : 06/22/93
Dilution : 1:500 QC Batch : 4017A
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(250)	8000
Toluene	(250)	10000
Ethylbenzene	(250)	260
Total Xylenes	(250)	10000
TPH as Gasoline	(25000)	87000
Surrogate Recovery		94 %



Date Analyzed 06-02-93
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

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

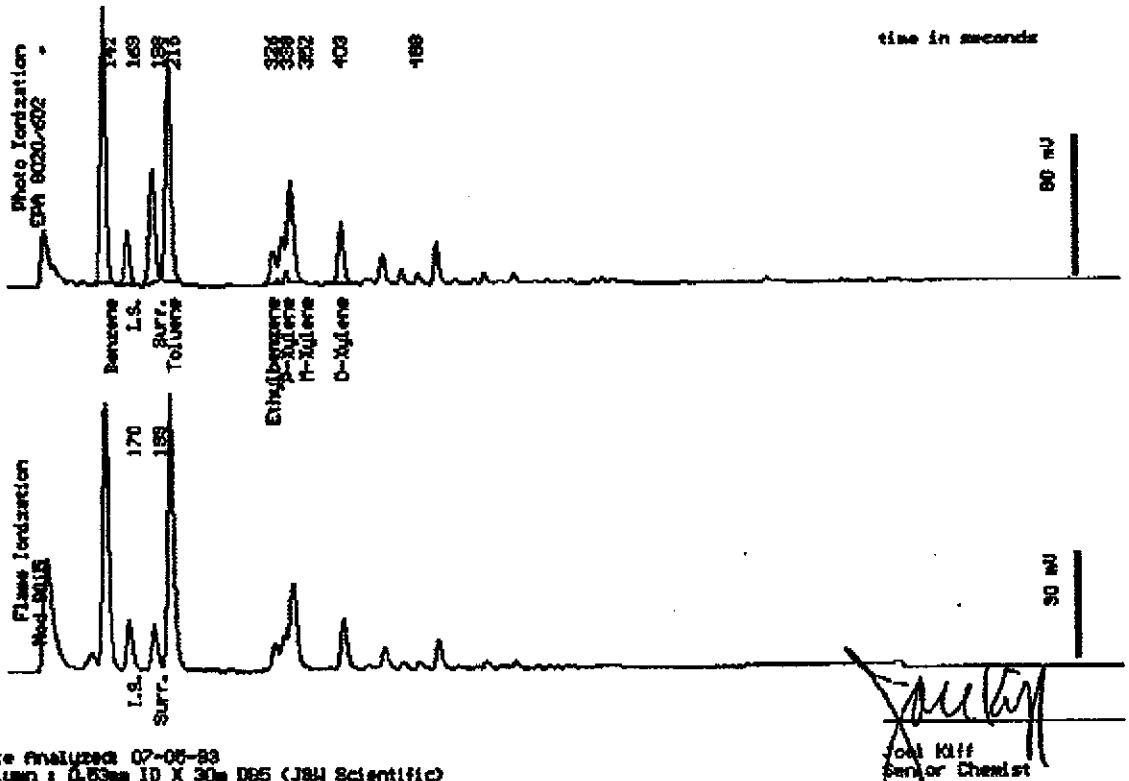
Sample Log 6755

6755-2

Sample: MW2

From : Project # 19024.01 (Beacon 604)
Sampled : 06/22/93
Dilution : 1:250 QC Batch : 2004C
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(130)	19000
Toluene	(130)	22000
Ethylbenzene	(130)	3500
Total Xylenes	(130)	18000
TPH as Gasoline	(13000)	160000
Surrogate Recovery		102 %



Date Analyzed 07-06-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

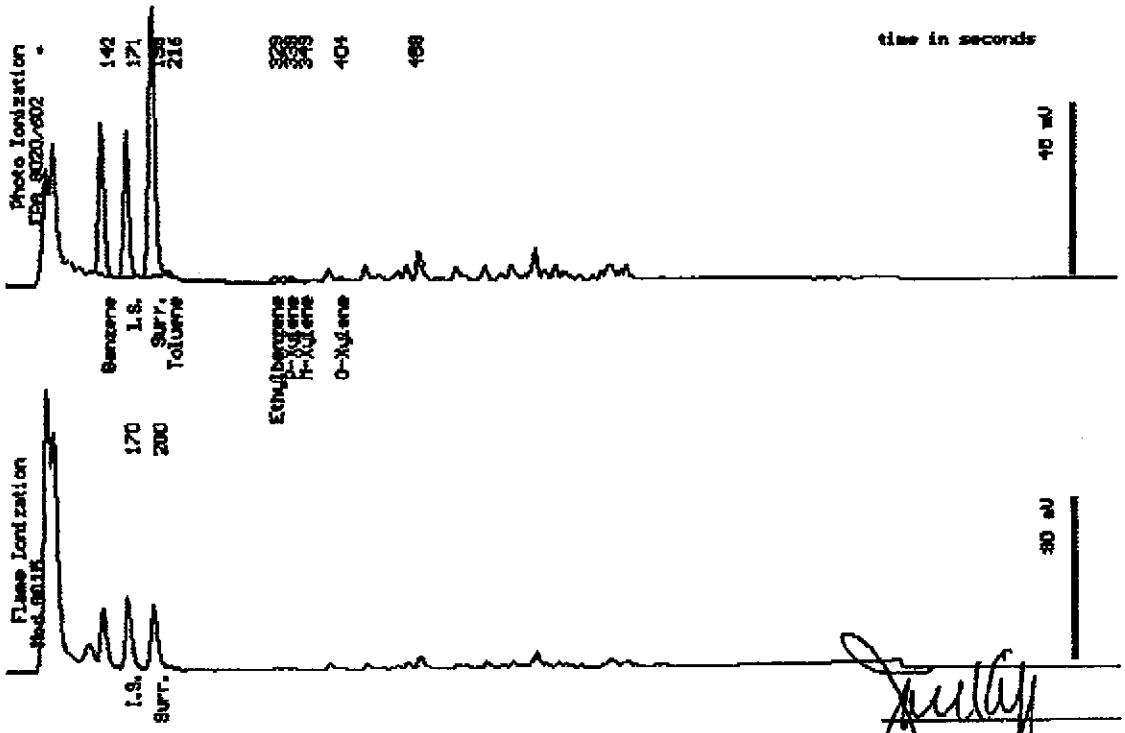
Joel Kiff
Senior Chemist

Sample Log 6755
6755-3

Sample: MW3

From : Project # 19024.01 (Beacon 604)
Sampled : 06/22/93
Dilution : 1:1 QC Batch : 2004C
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	8.2
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	.72
TPH as Gasoline	(50)	160
Surrogate Recovery		106 %



Date Analyzed: 07-05-93
Column : 0.53mm ID X 30m DB5 (J&W Scientific)

Joel Kiff
Senior Chemist

Ultramar Inc.

CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)			ANALYSES				Date	Form No.
604	Steve Liaty							6-24-93	1 of 1
Project No.	Sampler (Signature)							3 40ml VOAs w/preserv	
190 24.01	Steve Liaty								
Project Location 1619 First St Livermore CA	Affiliation Acton Mickelson van Dam			BTEX	TPH (gasoline)	TPH (diesel)	No. of Containers		
Sample No./Identification	Date	Time	Lab No.					REMARKS	
MW1	6-22-93	350p		X	X		3		
MW2	↓	450p		X	X		3		
MW3	↓	245p		X	X		3		

RECEIVED by W.E.S.T. date 6/24/93 52

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Steve Liaty	6-24-93	910am			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
				6/24/93	9:50

Report To: Dale van Dam
Acton Mickelson van Dam

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

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

32-6003 1/90