PACIFIC
ENVIRONMENTAL
GROUP, INC.

Date July 17, 1989
Project 330-40.02

To: Mr. Bill Howell
Applied GeoSystems
43255 Mission Blvd.
Fremont, CA 94539

We have enclosed

Copies	Description
1	Final soil gas investigation report for ARCO SS #0276, located at 10600 MacArthur Blvd. Oakland California.

For your
XX Use
____ Approval
____ Information

Comments: Enclosed is the soil gas investigation report for the above mentioned ARCO Service Station. If there are any questions, please call.

Sincerely,

John Baldwin

1601 Civic Center Drive, Suite 202, Santa Clara, California 95050, (408) 984-6536
FAX: (408) 243-3911

PACIFIC
ENVIRONMENTAL
GROUP INC.

July 17, 1989
Project No. 330-40.02

ARCO Petroleum Products Company
P.O. Box 5811
San Mateo, California 94403

Attn: Mr. Kyle Christie

RE: ARCO Station No. 0276
10600 MacArthur Boulevard at 106th Avenue
Oakland, California

Dear Mr. Christie:

This letter presents the results of a soil gas investigation conducted by Pacific Environmental Group, Inc. (PACIFIC) at ARCO service station No. 0276, located at 10600 MacArthur Boulevard, Oakland, California (see Figure 1). Following is a preliminary report of the procedures and findings of the soil gas survey that was conducted on June 21 and 22, 1989.

The soil vapor probe locations were selected to define the extent of hydrocarbon migration southeast of the ARCO station. A total of sixteen soil gas probes were installed during the investigation and were sampled at two depth intervals: four on-site probes (P-1 to P-4) were set at depth intervals of 14 to 16 feet and 19 to 21 feet; and twelve off-site probes (P-5 to P-16) were set at depth intervals of 17 to 19 feet and 22 to 24 feet below grade. The three-foot difference in sampling depth between the on-site and off-site probes allowed similar elevation intervals to be sampled throughout the area of investigation. (The ARCO station is situated approximately three feet lower in elevation than the adjacent lot.)

The elevation intervals sampled were 39-41 feet mean sea level (MSL) for the shallower sampling interval, and 34-36 feet MSL for the deeper interval. MSL elevations were taken from Cross-Section A-A', prepared by Applied Geosystems in a preliminary report dated May 12, 1989.

The probes were constructed of 1/2-inch diameter steel pipe, with the lower two feet perforated with 3/16-inch holes. The probes were driven into the soil with pneumatic equipment.

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ANALYTICAL PROCEDURES

The sample of soil gas was drawn from each probe by means of a diaphragm pump through a stainless steel well head fitting and a Teflon sampling line, into a Beckman Model 400 Total Hydrocarbon Analyzer equipped with a flame-ionization detector and a Houston Instruments chart recorder. This detector uses a hydrogen flame to measure gas vapor. The detector is calibrated relative to propane; therefore, the total hydrocarbon concentration (THC) is reported with a detection limit of 150 parts per million (ppm) as propane (volume basis). The rate through the pump was maintained at 5 to 10 cubic feet per minute.

Once the flame ionization reading stabilized, a sample of soil gas was also taken from the probe head and injected into a Photovac Model 10S55 portable gas chromatograph equipped with an 11 eV photo-ionization detector. An ultraviolet (UV) light source in the detector ionizes the chemical compounds that have an ionization potential less than that of the UV light (11 electron volts). The temperature controlled chromatographic column separates the individual compounds for speciation. Table 1 presents a summary of the analytical results for each probe location and depth. Chromatograms are included in Appendix A.

The gas chromatograph was calibrated with a certified standard mixture of benzene, toluene, ethylbenzene, and xylene isomers (BTEX). The THC measurements obtained by the flame-ionization detector were used to set the sample gain on the detector in the gas chromatograph. The carrier gas rate through the gas chromatograph was 7 cubic centimeters per minute, and the oven temperature was maintained at 40 degrees Celsius.

The lowest sample volume and least sensitive gain were used in locations where hydrocarbon concentrations were high. Compounds that were not quantifiable at these locations are shown as Excessive Hydrocarbon Interference (EHI) in Table 1 and the accompanying figures.

A number of measures have been implemented to prevent cross contamination of samples by residual hydrocarbons in the sampling equipment. In addition, the gas chromatograph is calibrated frequently during the test to ensure accurate results. The quality assurance/quality control information relating to the techniques used to obtain accurate results and prevent cross contamination of samples is presented as Attachment 1.

FINDINGS

- Probe installation in the adjacent parking lot was hampered by a localized resistant layer (possibly buried pavement) located approximately four feet below grade (see Figure 1). At approximately four feet in depth the soil vapor probes within the resistant area met refusal and soil gas samples were not collected.

- At the approximate elevation of 39-41 feet MSL, benzene concentrations ranged from none detected to 100 ppm; and total hydrocarbon concentrations ranged from 5 ppm to 31,900 ppm (see Table 1). Isoconcentration maps for the THC and total BTEX at 39-41 feet MSL were prepared assuming a logarithmic decrease in concentration between sample points (see Figures 2 and 3). The highest THC and benzene concentrations were found within approximately 150 feet southeast of the ARCO station.

- At the elevation of approximately 34-36 feet MSL, benzene concentrations ranged from none detected to 300 ppm, and total hydrocarbon concentrations ranged from 20 ppm to 40,000 ppm (see Table 1). Isoconcentration maps for THC and total BTEX at 34-36 feet MSL were prepared (see Figures 4 and 5). THC and BTEX concentrations generally decrease southeast of the ARCO station for a distance of approximately 200 feet, and increase for sample points beyond approximately 250 feet from the station.

- The chromatograms for probes P-7, P-8 and P-9 indicated an unknown compound which was detected during the soil-gas investigation that does not correspond to gasoline constituents (see Appendix A).

CONCLUSIONS

- Based on the soil gas survey it appears that a hydrocarbon plume is extending from ARCO's southeastern property boundary, near the underground fuel tanks, to the adjacent parking lot to the southeast (see Figures 4 and 5). The western boundary of the plume remains undefined and may extend into MacArthur Boulevard.

- THC and total BTEX concentrations decrease in the area of probes P-7, P-8 and P-10 at both sampling depths, indicating the plume extends approximately 200 feet off-site to the southeast. A second source may exist as indicated by probes P-9 and P-11, located downgradient of the southern edge of the plume, where elevated levels of hydrocarbons were detected (see Figures 4 and 5).

If there are any questions regarding the contents of this letter, please call.

Sincerely,

PACIFIC ENVIRONMENTAL GROUP, INC.

John N. Baldwin
Staff Geologist

Debra Moser
Senior Geologist

enclosures

cc: Richard Gilchrest, Drake Builders
Bill Howell, Applied GeoSystems
Chris Winsor, ARCO Petroleum Products Company

Project No. 330-40.02

TABLE 1

Summary of Soil-Gas results for ARCO Station #0276

Sampled on June 21-22, 1989

PROBE #	DEPTH (in feet)	BENZENE (ppm)	TOLUENE (ppm)	E-BENZENE (ppm)	P,M-XYLENE (ppm)	O-XYLENE (ppm)	THC (ppm)	TOTAL BTEX (ppm)
1	14-16	EHI	1000	45	190	26	31,900	1300
1	19-21	.8	9.3	40	33	14	20,000	98
2	14-16	EHI	63	9.7	47	16	200	140
2	19-21	3.2	7.3	1.0	4.1	.6	200	16
3	14-16	10	60	7.9	32	5.2	1,000	110
3	19-21	63	9.3	BRL	1.9	BRL	25,000	74
4	14-16	BRL	.8	.4	1.6	.4	200	3.2
4	19-21	.2	.1	.2	1.3	.4	500	2.2
5	17-19	1.3	1.3	BRL	BRL	BRL	300	2.6
5	22-24	130	190	20	17	19	25,300	380
6	17-19	BRL	BRL	BRL	BRL	BRL	80	BRL
6	22-24	130	39	BRL	BRL	BRL	21,500	170
7	17-19	.1	.5	BRL	.2	BRL	10	.8
7	22-24	BRL	BRL	BRL	BRL	BRL	20	BRL
8	17-19	BRL	BRL	BRL	BRL	BRL	45	BRL
8	22-24	BRL	.2	BRL	BRL	BRL	100	.2
9	17-19	BRL	BRL	BRL	BRL	BRL	BRL	BRL
9	22-24	6.7	7.8	15	4.5	BRL	2,100	34
10	17-19	.1	.3	BRL	.1	BRL	160	.5
10	22-24	1.2	.8	BRL	BRL	BRL	800	2.0
11	17-19	BRL	BRL	BRL	BRL	BRL	5	BRL
11	22-24	.1	9.7	.7	2.2	1.5	14,000	14
12	17-19	BRL	.4	BRL	BRL	BRL	10	.4
12	22-24	EHI	300	BRL	BRL	BRL	33,500	300
Reporting Limit:		.1	.1	.1	.1	.1	5	.1

THC: Total Hydrocarbons recorded by Flame Ionization Detector. All other gasoline constituents recorded by gas chromatograph.

EHI: Not quantified due to Excessive Hydrocarbon Interference. (Lowest volume of injection and least sensitive gain set for gas chromatograph).

BRL: Below Reporting Limit.

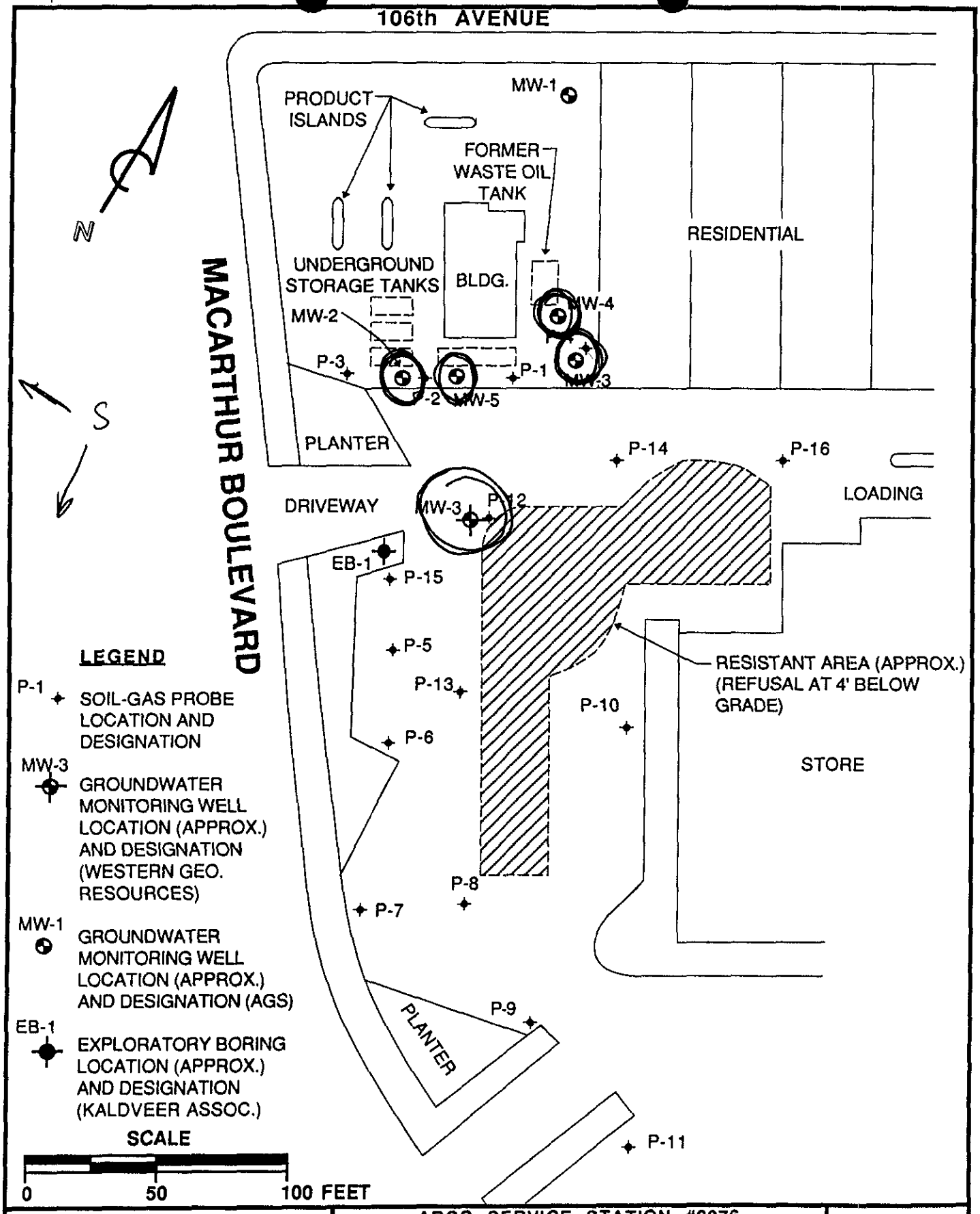
ppm: parts per million on a volume to volume basis.

Project No. 330-40.02

TABLE 1 (cont.)
Summary of Soil-Gas results for ARCO Station #0276
Sampled on June 21-22, 1989

PROBE #	DEPTH (in feet)	BENZENE (ppm)	TOLUENE (ppm)	E-BENZENE (ppm)	P,M-XYLENE (ppm)	O-XYLENE (ppm)	THC (ppm)	TOTAL BTEX (ppm)
13	17-19	.1	.5	.1	.2	.1	60	1.0
13	22-24	300	190	BRL	25	BRL	24,500	510
14	17-19	.1	.3	.1	.2	.1	50	.8
14	22-24	20	29	1.8	6.3	1.6	5,000	59
15	17-19	100	180	11	7.4	8.7	23,500	300
15	22-24	EHI	2000	79	230	48	40,000	2400
16	17-19	3.1	4.1	.5	.5	BRL	500	8.2
16	22-24	.5	1.2	BRL	.4	.1	500	2.2
Reporting Limit:		.1	.1	.1	.1	.1	5	.1

THC: Total Hydrocarbons recorded by Flame Ionization Detector. All other gasoline constituents recorded by gas chromatograph.
EHI: Not quantified due to Excessive Hydrocarbon Interference. (Lowest volume of injection and least sensitive gain set for gas chromatograph).
BRL: Below Reporting Limit.
ppm: parts per million on a volume to volume basis.



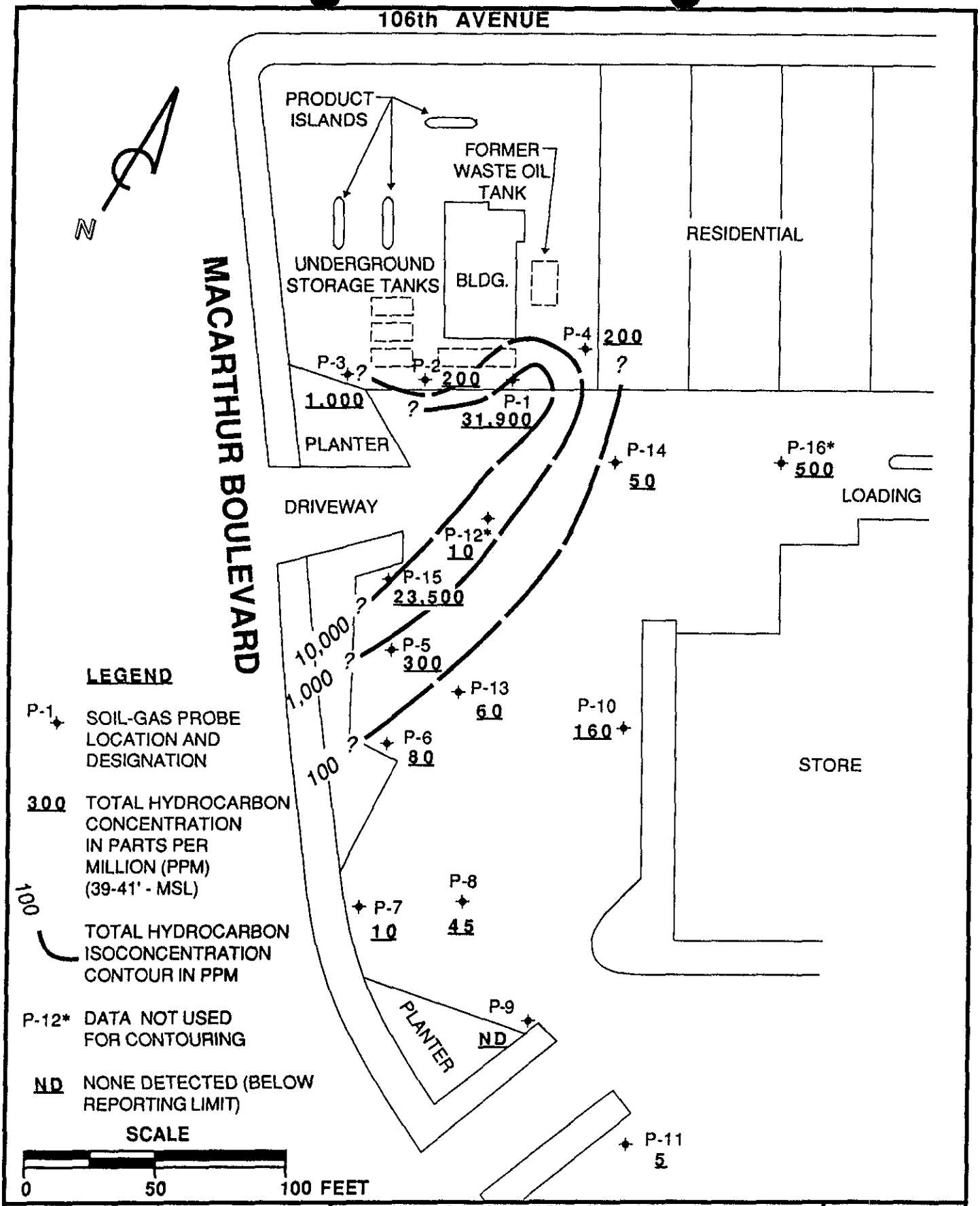
PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #0276
10600 MacArthur Boulevard
Oakland, California

SITE MAP

FIGURE: 1

PROJECT: 330-40.02



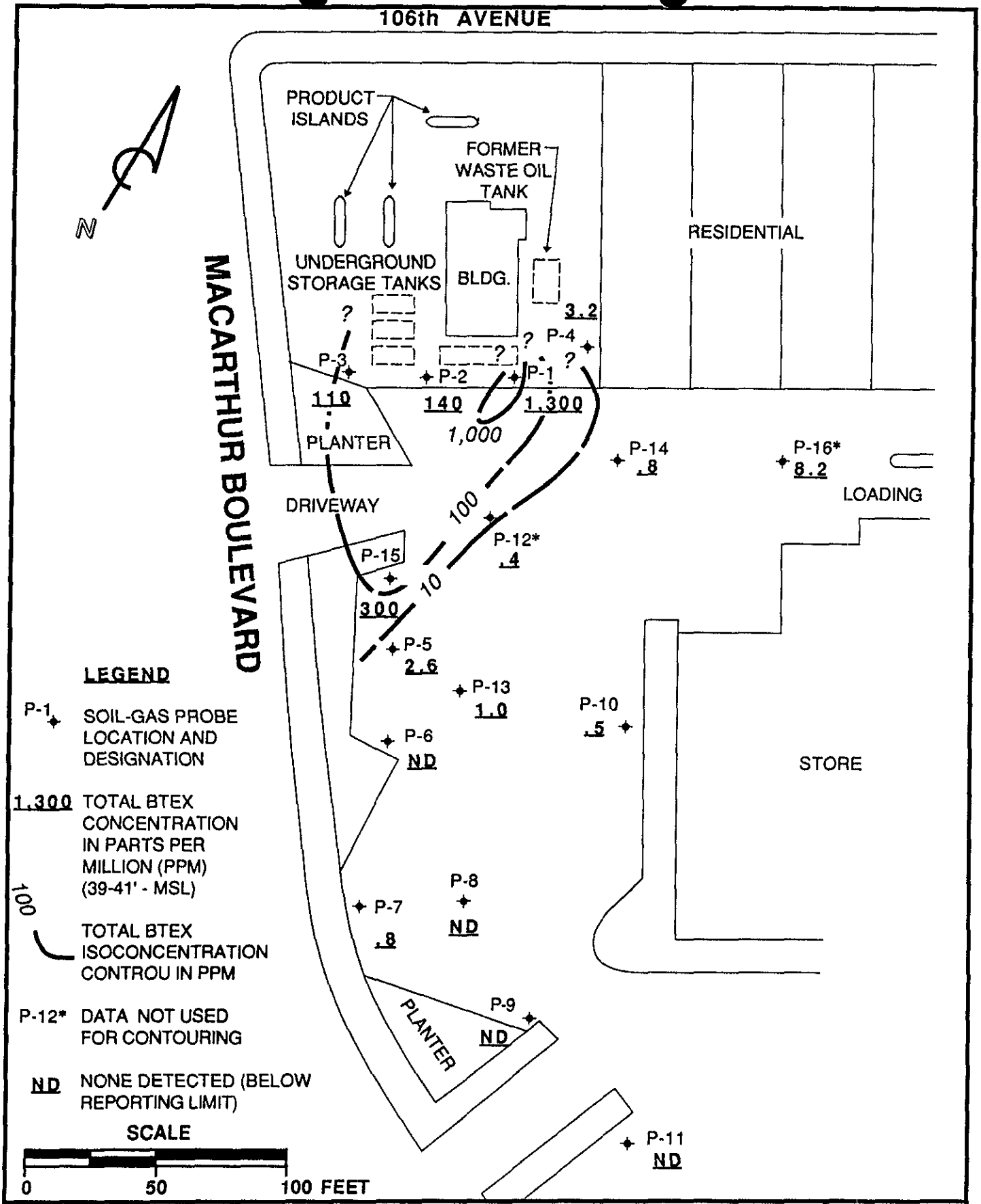
PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #0276
10600 MacArthur Boulevard
Oakland, California

TOTAL HYDROCARBON ISOCONCENTRATION MAP AT 39-41' - MSL

FIGURE: **2**

PROJECT: 330-40.02



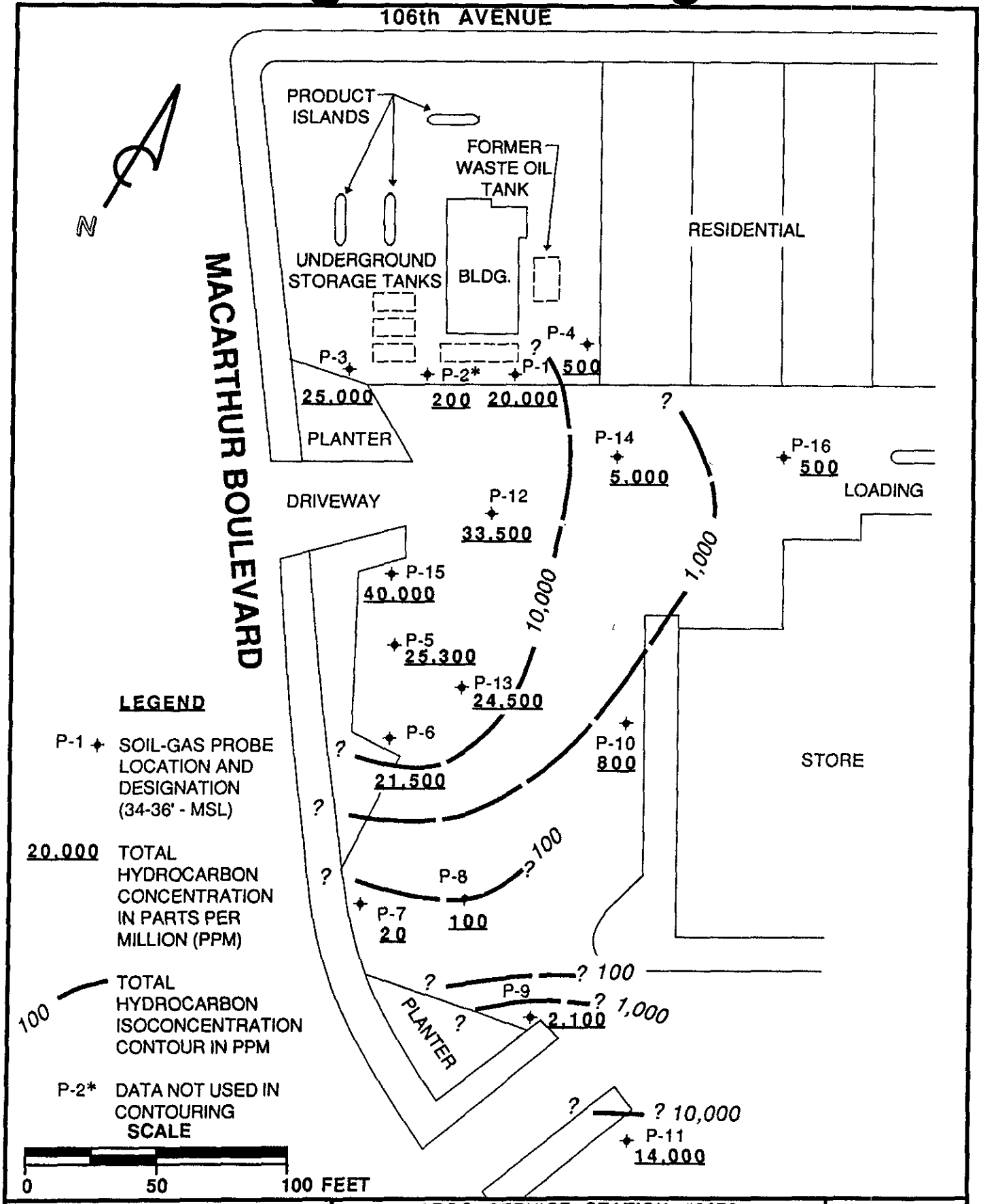
PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #0276
10600 MacArthur Boulevard
Oakland, California

TOTAL BTEX ISOCONCENTRATION MAP AT 39-41' - MSL

FIGURE: 3

PROJECT: 330-40.02



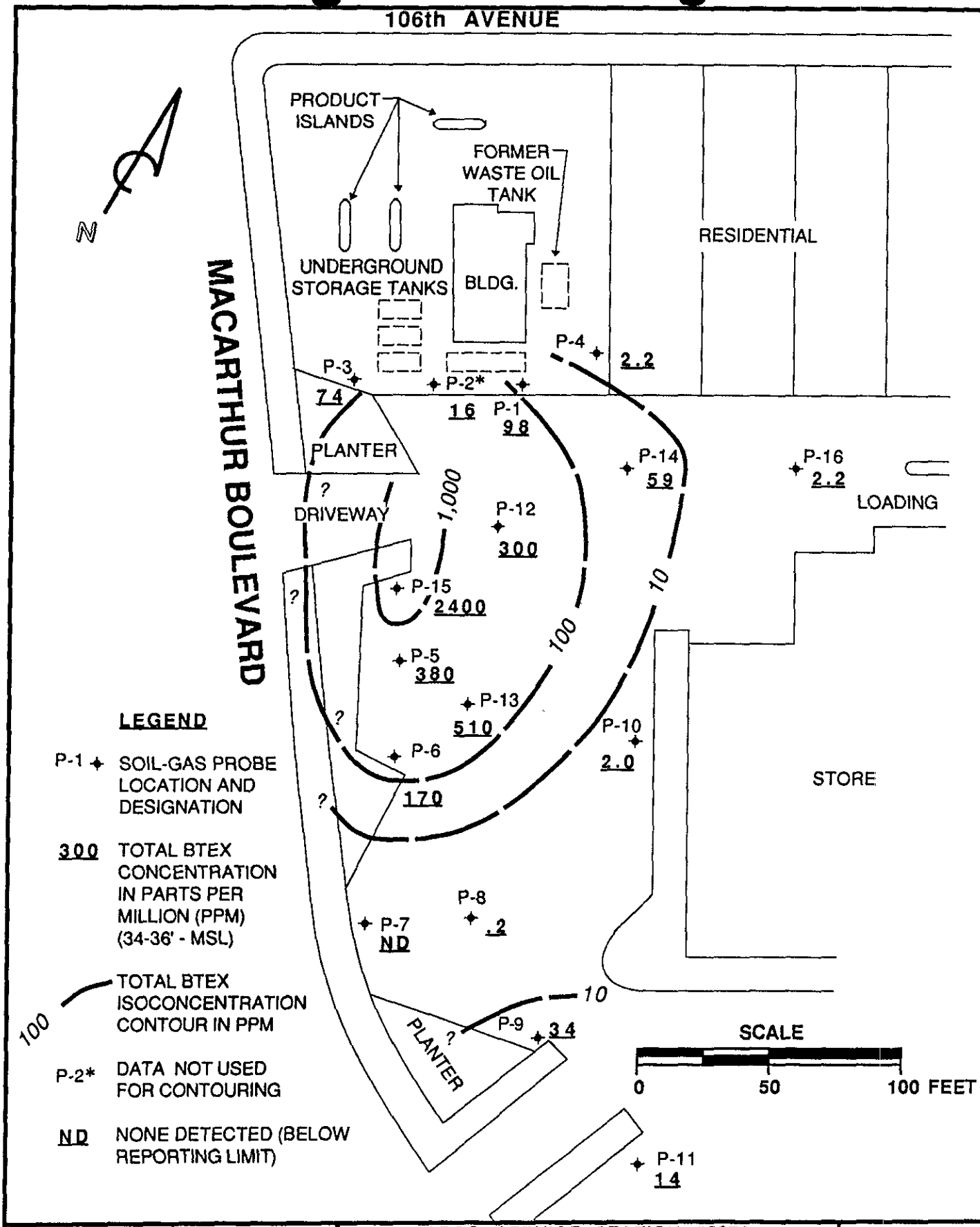
PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #0276
10600 MacArthur Boulevard
Oakland, California

TOTAL HYDROCARBON ISOCONCENTRATION MAP AT 34'-36' MSL

FIGURE: **4**

PROJECT: 330-40.02



PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #0276
10600 MacArthur Boulevard
Oakland, California

TOTAL BTEX ISOCONCENTRATION MAP AT 34'-36' MSL

FIGURE: **5**

PROJECT: 330-40.02

Attachment 1

Quality Assurance/Quality Control

PACIFIC's normal quality assurance procedures were followed to prevent contamination of the soil gas samples. The method of installation provides for a good seal between geologic material and the probe surface to prevent leakage of surface air into the perforated sampling zone. The sample train is tested for leaks at the beginning of each day.

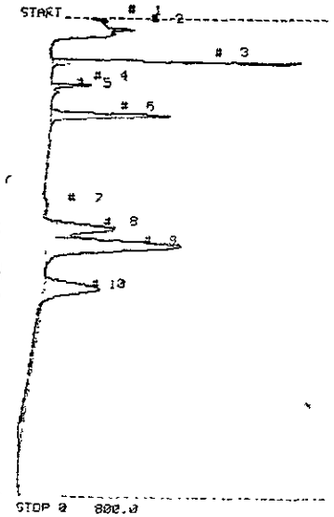
To prevent cross-contamination of samples with residual hydrocarbons, the sampling equipment is made up of non-contaminating steel or Teflon tubing. A different probe is used for each sample. The equipment is steam cleaned prior to each use. An equipment blank, a sample of air ambient air taken through the equipment, is obtained periodically and the results compared with that of an ambient air sample. In addition, syringe blanks are periodically taken with the syringe used to inject the soil gas sample into the gas chromatograph to check for possible contamination of the syringe.

The FID and gas chromatograph are calibrated using certified standards throughout the course of each day. At a minimum, one standard is run before the sampling begins, one in the middle of the day, and one at the conclusion of the test. Blank samples are also run periodically.

APPENDIX A

PHOTOVAC

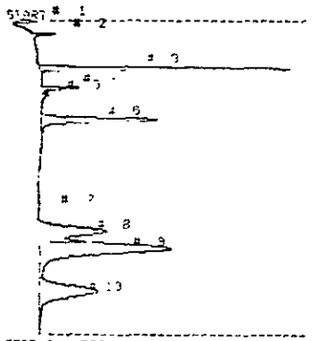
6/22/89
Flow = ~7 ml/min



STOP @ 800.0
SAMPLE LIBRARY 2 JUN 22 1989 9:38
ANALYSIS # 1 MCARTHUR
INTERNAL TEMP 23 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	20.	153.0 mVS
UNKNOWN	3	25.3	3.4 VS
UNKNOWN	4	114.7	426.3 mVS
UNKNOWN	6	166.9	3.1 VS
UNKNOWN	7	313.6	172.1 mVS
UNKNOWN	8	359.2	4.0 VS
UNKNOWN	9	389.2	2.2 VS
UNKNOWN	10	462.8	5.2 VS

PHOTOVAC



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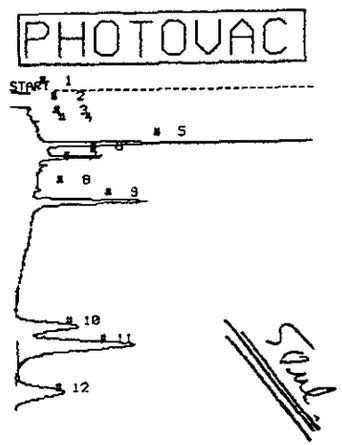
ANALYSIS # 2 MCARTHUR
INTERNAL TEMP 25 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	3.8	189.1 mVS
UNKNOWN	2	23.4	148.8 mVS
UNKNOWN	3	8.4	3.5 VS
UNKNOWN	4	114.7	448.3 mVS
UNKNOWN	5	22.2	3.3 VS
UNKNOWN	8	369.2	4.0 VS
UNKNOWN	9	389.2	3.3 VS
UNKNOWN	10	462.8	4.6 VS

PHOTOVAC



Equil

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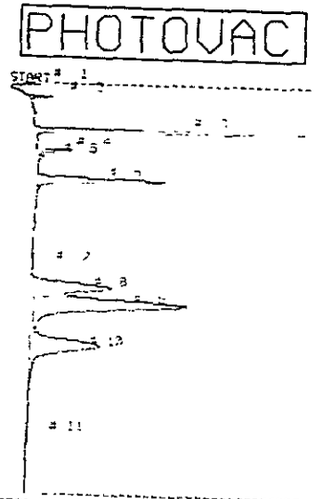
ANALYSIS # 5 MCARTHUR
INTERNAL TEMP 28 OAKLAND
GAIN 50 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	3.8	444.3 mVS
UNKNOWN	5	92.8	3.5 VS
UNKNOWN	6	114.7	386.3 mVS
UNKNOWN	9	192.2	3.2 VS
UNKNOWN	10	305.8	3.9 VS
UNKNOWN	11	497.7	8.3 VS
UNKNOWN	12	520.1	2.4 VS

PHOTOVAC



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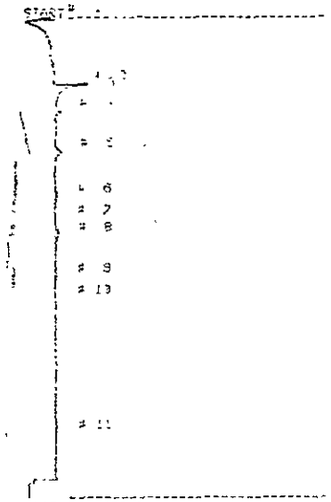
ANALYSIS # 7 MCARTHUR
INTERNAL TEMP 28 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	23.5	162.6 mVS
UNKNOWN	3	73.3	3.6 VS
UNKNOWN	4	114.7	424.6 mVS
UNKNOWN	6	166.2	3.3 VS
UNKNOWN	8	359	4.2 VS
UNKNOWN	9	378.2	10.5 VS
UNKNOWN	10	448.4	3.3 VS

Eq - Blank

PHOTOVAC



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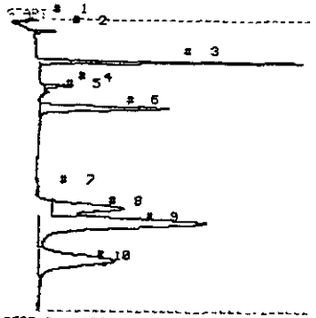
ANALYSIS # 10 MCARTHUR
INTERNAL TEMP 29 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	3.2	154.5 mVS
UNKNOWN	2	114.7	368.4 mVS
UNKNOWN	5	228.6	191.3 mVS
UNKNOWN	8	369.2	171.3 mVS

STANDARD RUNS

330-40.02 CHROMATOGRAMS

PHOTOVAC



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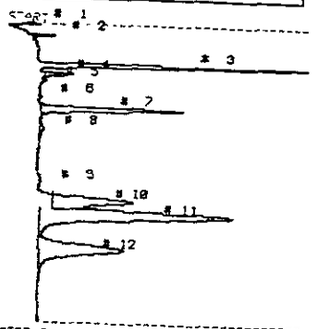
ANALYSIS # 22 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	22.0	166.8	mUS
UNKNOWN	3	73.5	3.1	US
UNKNOWN	4	114.7	459.1	mUS
UNKNOWN	6	153.2	3.2	US
UNKNOWN	8	322.3	4.5	US
UNKNOWN	9	348.4	10.6	US
UNKNOWN	10	413.5	5.7	US

PHOTOVAC



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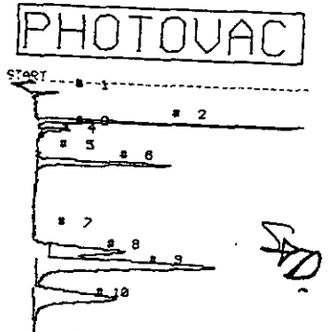
ANALYSIS # 25 MCARTHUR
INTERNAL TEMP 33 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	21.4	168.9	mUS
UNKNOWN	3	69.5	3.4	US
UNKNOWN	4	84.7	328.6	mUS
UNKNOWN	7	144.4	3.3	US
UNKNOWN	10	301.1	4.7	US
UNKNOWN	11	325.0	11.7	US
UNKNOWN	12	385.2	5.9	US

PHOTOVAC



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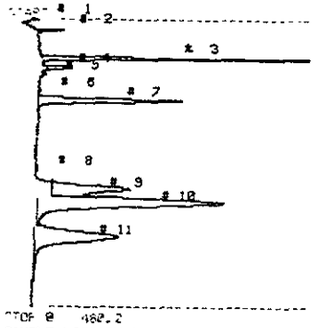
ANALYSIS # 27 MCARTHUR
INTERNAL TEMP 33 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	1	21.1	191.9	mUS
UNKNOWN	2	62.9	3.0	US
UNKNOWN	3	84.7	371.5	mUS
UNKNOWN	6	138.8	2.3	US
UNKNOWN	8	299.	4..	US
UNKNOWN	9	311.5	8.3	US
UNKNOWN	10	369.2	5.5	US

PHOTOVAC



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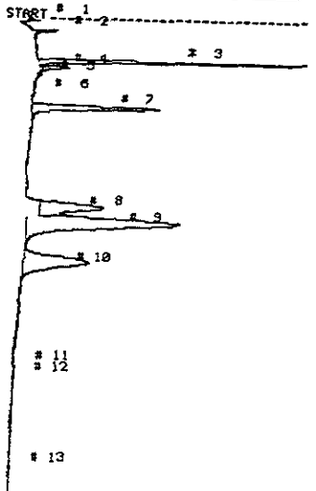
ANALYSIS # 34 MCARTHUR
INTERNAL TEMP 33 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	22.3	163.8	mUS
UNKNOWN	3	62.1	3.1	US
UNKNOWN	4	[illegible]	[illegible]	mUS
UNKNOWN	7	33.[illegible]	3.2	US
UNKNOWN	9	332.[illegible]	4.	US
UNKNOWN	10	374.[illegible]	4.	US
UNKNOWN	11	415.2	5.0	US

PHOTOVAC



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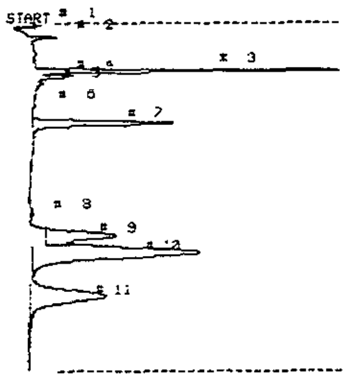
ANALYSIS # 40 MCARTHUR
INTERNAL TEMP 29 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	21.4	158.1	mUS
UNKNOWN	3	72.6	3.3	US
UNKNOWN	4	84.7	325.3	mUS
UNKNOWN	7	152.4	3.1	US
UNKNOWN	8	325.0	4.2	US
UNKNOWN	9	351.1	9.5	US
UNKNOWN	10	417.9	4.3	US

STANDARD RUNS

PHOTOVAC



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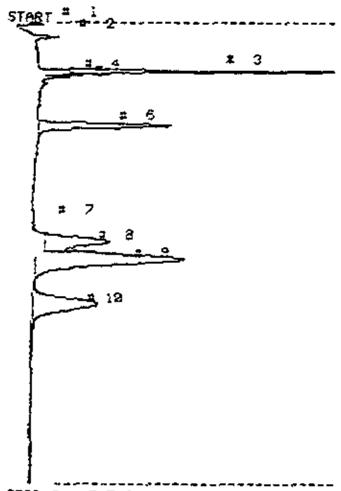
ANALYSIS # 44 MCARTHUR
INTERNAL TEMP 29 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	22.3	152.8 mVS
UNKNOWN	3	75.7	3.4 VS
UNKNOWN	4	84.7	435.6 mVS
UNKNOWN	7	158.8	3.3 VS
UNKNOWN	9	337.6	4.2 VS
UNKNOWN	10	364.2	10.0 VS
UNKNOWN	11	432.2	5.0 VS

PHOTOVAC



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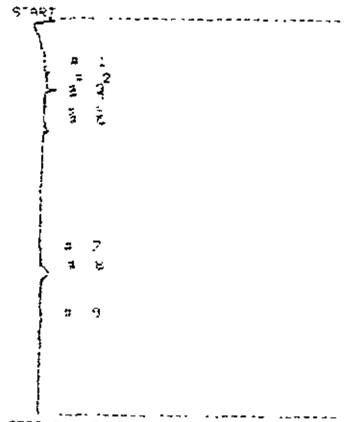
SAMPLE LIBRARY 2 JUN 22 1989 20:28
ANALYSIS # 50 MCARTHUR
INTERNAL TEMP 26 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	22.6	159.8 mVS
UNKNOWN	3	77.5	3.5 VS
UNKNOWN	4	84.4	479.6 mVS
UNKNOWN	6	163.7	3.3 VS
UNKNOWN	8	347.5	3.9 VS
UNKNOWN	9	376.2	9.1 VS
UNKNOWN	10	447.2	4.2 VS

Eq-check 50 ul

PHOTOVAC

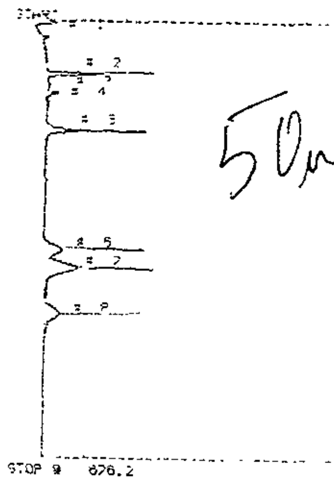


STOP @ 614.3
SAMPLE LIBRARY 2 JUN 21 1989 11:56
ANALYSIS # 9 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 10 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	[illegible]	[illegible]02.5	3[illegible]

standard

PHOTOVAC



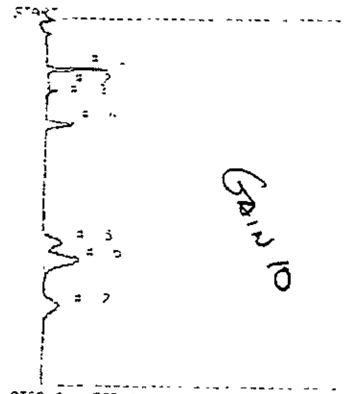
50 ul.

STOP @ 676.2
SAMPLE LIBRARY 2 JUN 21 1989 12: 9
ANALYSIS # 10 MCARTHUR
INTERNAL TEMP 33 OAKLAND
GAIN 10 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	35.2	623.5 mVS
UNKNOWN	3	[illegible]14.9	[illegible]24.[illegible] mVS
UNKNOWN	[illegible]	[illegible]74.[illegible]	5[illegible] mVS
UNKNOWN	[illegible]	[illegible]63.[illegible]	[illegible]42.[illegible] mVS
UNKNOWN	[illegible]	[illegible]91.2	[illegible] VS
UNKNOWN	5	[illegible]	[illegible] mVS

STD.

PHOTOVAC



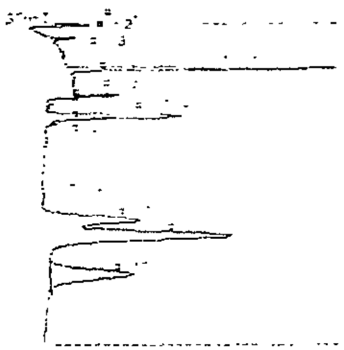
Gain 10

STOP @ 567.0
SAMPLE LIBRARY 2 JUN 21 1989 13:49
ANALYSIS # 17 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 10 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	[illegible]	91.[illegible]	[illegible] mVS
UNKNOWN	[illegible]	[illegible]88.7	[illegible] mVS
UNKNOWN	[illegible]	354.7	856.[illegible] mVS
UNKNOWN	6	383.2	[illegible]
UNKNOWN	[illegible]	[illegible]	32[illegible] mVS

STANDARD RUNS

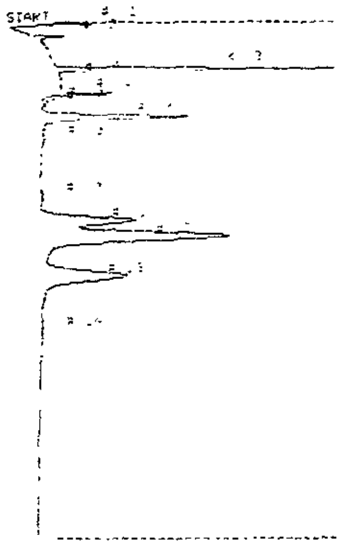
PHOTOVAC



STOP @ 497.4
SAMPLE LIBRARY 2 JUN 21 1989 15:38
ANALYSIS # 21 MCARTHUR
INTERNAL TEMP 35 OAKLAND
GAIN 50 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	3.[illegible]	3[illegible]2.3 mVS
UNKNOWN	2	23.[illegible]	[illegible]54.[illegible] mVS
UNKNOWN	[illegible]	[illegible]2.[illegible]	2.9 VS
UNKNOWN	6	114.4	2[illegible].2 mVS
UNKNOWN	[illegible]	[illegible]48.0	2.8 VS
UNKNOWN	13	312.3	4.[illegible] VS
UNKNOWN	14	336.[illegible]	[illegible]0.[illegible] VS

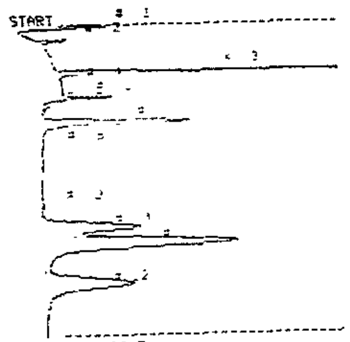
PHOTOVAC



STOP @ 800.0
SAMPLE LIBRARY 2 JUN 21 1989 16:14
ANALYSIS # 23 MCARTHUR
INTERNAL TEMP 34 OAKLAND
GAIN 50 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	3.4	396.3 mVS
UNKNOWN	2	24.0	18[illegible].7 mVS
UNKNOWN	3	[illegible]4	3.2 VS
UNKNOWN	5	[illegible]4.4	[illegible]45.5 mVS
UNKNOWN	9	1[illegible].2	3.[illegible] VS
UNKNOWN	1[illegible]	3.5[illegible]	4.2 VS
UNKNOWN	12	348.3	[illegible]3.0 VS
UNKNOWN	13	[illegible]02.5	5.[illegible] [illegible]

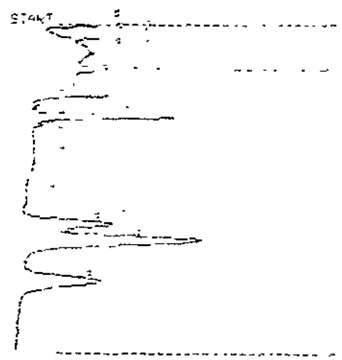
PHOTOVAC



STOP @ 480.7
SAMPLE LIBRARY 2 JUN 21 1989 17:32
ANALYSIS # 24 MCARTHUR
INTERNAL TEMP 34 OAKLAND
GAIN 50 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	3.5	4[illegible]8.[illegible] mVS
UNKNOWN	2	23.[illegible]	[illegible]62.8 mVS
UNKNOWN	3	74.3	3.4 VS
UNKNOWN	5	1[illegible]4	408.[illegible] mVS
UNKNOWN	7	153.2	3.2 VS
UNKNOWN	10	321.[illegible]	4.5 VS
UNKNOWN	11	[illegible]6.5	[illegible]0.6 VS
UNKNOWN	12	[illegible].0[illegible]	5.[illegible] VS

PHOTOVAC



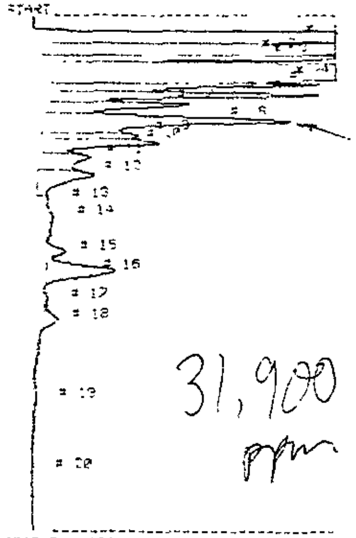
STOP @ 510.1
SAMPLE LIBRARY 2 JUN 21 1989 18:14
ANALYSIS # 28 MCARTHUR
INTERNAL TEMP 33 OAKLAND
GAIN 50 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	[illegible]	3.3	2[illegible]5.[illegible] mVS
UNKNOWN	2	22.6	[illegible]0[illegible] mVS
UNKNOWN	[illegible]	[illegible]0.[illegible]	3.[illegible] VS
UNKNOWN	6	114.4	[illegible]22.3 mVS
UNKNOWN	8	148.0	[illegible] VS
UNKNOWN	[illegible]	[illegible].0	[illegible]72.[illegible] mVS
UNKNOWN	[illegible]	31[illegible]	[illegible].2 VS
UNKNOWN	1[illegible]	343.[illegible]	2.[illegible] VS
UNKNOWN	15	[illegible]	[illegible] VS

STANDARD RUNS

P-1 5ul 16'

PHOTOVAC



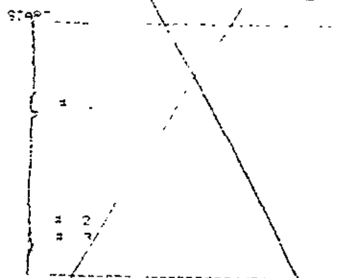
31,900 ppm

STOP @ 820.2
SAMPLE LIBRARY 2 JUN 21 1989 10:49
ANALYSIS # 6 MCARTHUR
INTERNAL TEMP 29 OAKLAND
GAIN 2 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	34.4	49. VS
UNKNOWN	2	53.9	24.3 VS
UNKNOWN	3	66.8	8.9 VS
UNKNOWN	4	89.0	139. VS
UNKNOWN	5	109.7	7.9 VS
UNKNOWN	6	127.6	8.3 VS
UNKNOWN	7	142.3	5.9 VS
UNKNOWN	8	169.2	13.0 VS
UNKNOWN	9	[illegible]	3.3 VS
UNKNOWN	10	222.3	4.8 VS
UNKNOWN	11	225.0	3.4 VS
UNKNOWN	12	253.5	4.0 VS
UNKNOWN	13	294.7	326.6 mVS
UNKNOWN	14	[illegible]	231.0 mVS
UNKNOWN	15	376.2	736.[illegible] mVS
UNKNOWN	16	[illegible]	4.3 VS
UNKNOWN	18	483.5	[illegible] mVS
UNKNOWN	[illegible]	604.[illegible]	377.[illegible] mVS

P-1 5ul 21'

PHOTOVAC

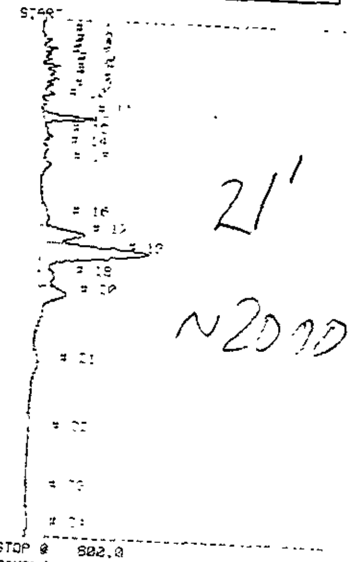


STOP @ [illegible]
SAMPLE LIBRARY 2 JUN 21 1989 12:37
ANALYSIS # 12 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 2 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	[illegible]47.6	[illegible]43.[illegible] mVS
UNKNOWN	3	353.5	[illegible] mVS

P-1 50ul

PHOTOVAC



21'

~2000

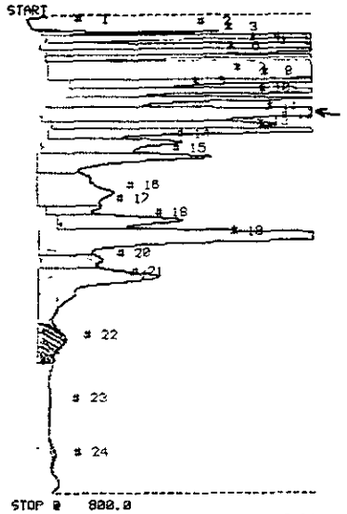
STOP @ 802.0
SAMPLE LIBRARY 2 JUN 21 1989 12:52
ANALYSIS # 13 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 2 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	[illegible]	24.3	113.[illegible] mVS
UNKNOWN	[illegible]	[illegible]	142.[illegible] mVS
UNKNOWN	[illegible]	[illegible]56.8	[illegible] VS
UNKNOWN	14	226.[illegible]	121.[illegible] mVS
UNKNOWN	15	[illegible]	295 mVS
UNKNOWN	16	[illegible]	[illegible] mVS
UNKNOWN	[illegible]	340.3	2.0 VS
UNKNOWN	18	[illegible]67.2	7. VS
UNKNOWN	[illegible]	[illegible]	[illegible]
UNKNOWN	22	[illegible]	2.7 VS
UNKNOWN	21	543.[illegible]	[illegible]33.[illegible] mVS

PROBE P-1

50ml P-2 16'

PHOTOVAC

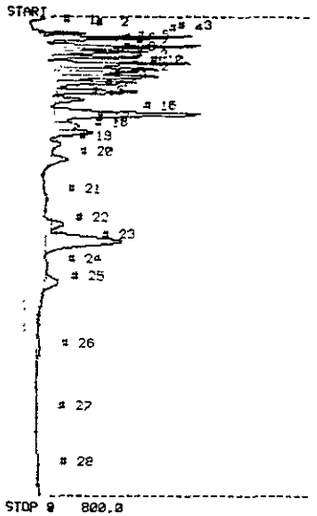


STOP @ 800.0
SAMPLE LIBRARY 2 JUN 21 1989 12:28
ANALYSIS # 11 MCARTHUR
INTERNAL TEMP 33 OAKLAND
GAIN 10 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	1	26.7	178.4	mVS
UNKNOWN	2	30.8	1.8	VS
UNKNOWN	3	38.9	28.2	VS
UNKNOWN	4	54.1	17.2	VS
UNKNOWN	5	62.2	7.3	VS
UNKNOWN	6	71.0	8.7	VS
UNKNOWN	7	94.0	186.4	VS
UNKNOWN	8	113.6	10.4	VS
UNKNOWN	9	130.0	14.7	VS
UNKNOWN	10	143.7	11.2	VS
UNKNOWN	11	166.3	40.6	VS
UNKNOWN	12	187.7	8.2	VS
UNKNOWN	13	196.0	13.4	VS
UNKNOWN	14	218.4	8.6	VS
UNKNOWN	15	243.7	11.4	VS
UNKNOWN	16	305.1	10.6	VS
UNKNOWN	17	327.7	3.0	VS
UNKNOWN	18	352.0	8.6	VS
UNKNOWN	19	375.1	58.1	VS
UNKNOWN	20	413.0	4.1	VS
UNKNOWN	21	448.4	15.2	VS
UNKNOWN	22	555.1	4.5	VS
UNKNOWN	24	751.2	368.4	mVS

P-2 2½' 50ml

PHOTOVAC



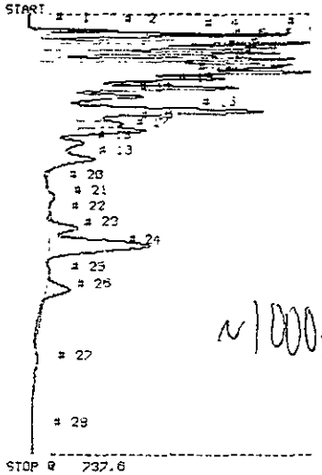
STOP @ 800.0
SAMPLE LIBRARY 2 JUN 21 1989 13:36
ANALYSIS # 15 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 10 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	29.5	308.3	mVS
UNKNOWN	3	35.0	1.1	VS
UNKNOWN	4	37.9	1.4	VS
UNKNOWN	5	51.3	1.5	VS
UNKNOWN	6	55.1	1.0	VS
UNKNOWN	7	60.5	1.5	VS
UNKNOWN	8	70.1	1.1	VS
UNKNOWN	9	81.1	2.4	VS
UNKNOWN	10	91.0	1.8	VS
UNKNOWN	11	95.2	1.2	VS
UNKNOWN	12	103.6	2.3	VS
UNKNOWN	13	113.5	1.8	VS
UNKNOWN	14	130.0	1.7	VS
UNKNOWN	15	143.6	654.5	mVS
UNKNOWN	16	168.2	4.7	VS
UNKNOWN	17	187.7	861.4	mVS
UNKNOWN	18	188.2	1.2	VS
UNKNOWN	19	219.0	256.2	mVS
UNKNOWN	20	245.1	634.3	mVS
UNKNOWN	21	307.5	182.6	mVS
UNKNOWN	22	355.6	920.9	mVS
UNKNOWN	23	384.2	4.4	VS
UNKNOWN	25	454.4	599.6	mVS
UNKNOWN	26	586.8	293.5	mVS

PROBE P-2

P-3 16'
50ml

PHOTOVAC



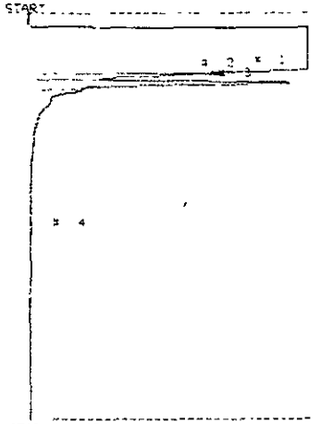
~1000 ppm

STOP @ 737.6
SAMPLE LIBRARY 2 JUN 21 1989 11:31
ANALYSIS # 7 MCARTHUR
INTERNAL TEMP 31 OAKLAND
GAIN 2 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	27.3	748.4	mVS
UNKNOWN	3	32.8	2.2	VS
UNKNOWN	4	35.2	3.7	VS
UNKNOWN	5	47.6	4.3	VS
UNKNOWN	6	51.9	3.8	VS
UNKNOWN	7	57.3	4.3	VS
UNKNOWN	8	66.7	4.3	VS
UNKNOWN	9	76.7	4.3	VS
UNKNOWN	10	82.7	1.9	VS
UNKNOWN	11	93.7	1.7	VS
UNKNOWN	12	108.8	1.7	VS
UNKNOWN	13	126.8	3.1	VS
UNKNOWN	14	148.4	1.6	VS
UNKNOWN	15	166.7	7.7	VS
UNKNOWN	16	180.2	1.8	VS
UNKNOWN	17	198.7	2.4	VS
UNKNOWN	18	222.8	620.6	mVS
UNKNOWN	19	248.8	1.3	VS
UNKNOWN	21	313.9	381.6	mVS
UNKNOWN	23	362.2	1.4	VS
UNKNOWN	24	386.2	5.7	VS
UNKNOWN	25	421.2	1.6	VS
UNKNOWN	27	488.8	186.8	mVS

21' P-3
50ml.

PHOTOVAC

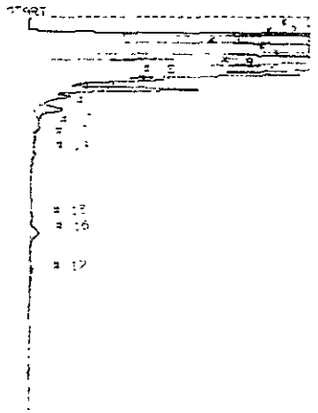


STOP @ 678.1
SAMPLE LIBRARY 2 JUN 21 1989 14:07
ANALYSIS # 18 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 2 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	1	62.6	1.0	KVS
UNKNOWN	2	104.2	4.2	VS
UNKNOWN	3	120.4	7.5	VS

21' P-3
50ml 25,000

PHOTOVAC



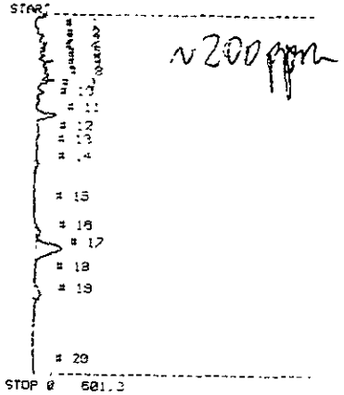
STOP @ 800.0
SAMPLE LIBRARY 2 JUN 21 1989 14:22
ANALYSIS # 19 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 2 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	1	28.3	8.2	VS
UNKNOWN	2	38.3	28.0	VS
UNKNOWN	3	54.2	17.2	VS
UNKNOWN	4	67.6	7.2	VS
UNKNOWN	5	77.3	3.3	VS
UNKNOWN	6	88.2	11.6	VS
UNKNOWN	7	100.8	6.5	VS
UNKNOWN	8	120.8	3.3	VS
UNKNOWN	9	125.6	4.3	VS
UNKNOWN	10	132.6	1.4	VS
UNKNOWN	11	152.7	1.2	VS
UNKNOWN	16	321.2	385.7	mVS

PROBE P-3

P-4 50ml 16'

PHOTOVAC



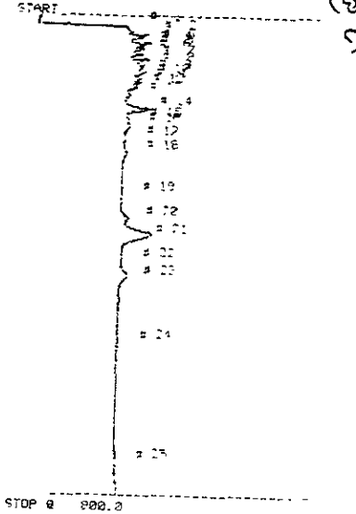
~200 ppm

STOP @ 601.3
SAMPLE LIBRARY 2 JUN 21 1989 11:45
ANALYSIS # 8 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 10 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	5	83.2	126.5	mVS
UNKNOWN	8	114.2	132.6	mVS
UNKNOWN	9	134.4	104.7	mVS
UNKNOWN	11	174.2	532.1	mVC
UNKNOWN	16	373.2	311.8	mVS
UNKNOWN	17	402.6	1.2	VS
UNKNOWN	18	422.2	373.2	mVS

P-4 gain adj. to 10 @ 21

PHOTOVAC



STOP @ 900.0
SAMPLE LIBRARY 2 JUN 21 1989 13:14
ANALYSIS # 14 MCARTHUR
INTERNAL TEMP 31 OAKLAND
GAIN 10 330-40.01

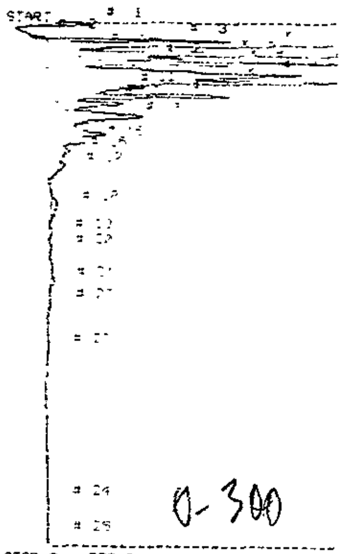
COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	1	22.4	536.9	mVS
UNKNOWN	2	26.1	43.3	mVS
UNKNOWN	14	350.2	670.3	mVS
UNKNOWN	12	348.6	29.6	mVS
UNKNOWN	11	375.2	1.4	VS
UNKNOWN	13	443.6	349.1	mVS

PROBE P-4

P-5 19'
50 ul

PHOTOVAC

START



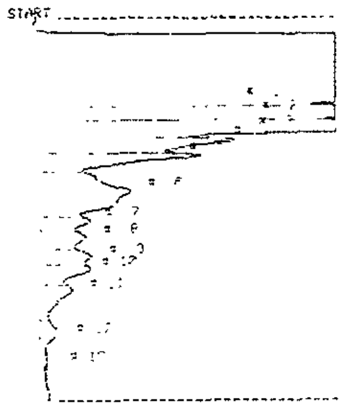
STOP @ 800.0
SAMPLE LIBRARY 2 JUN 21 1989 15:28
ANALYSIS # 20 MCARTHUR
INTERNAL TEMP 35 OAKLAND
GAIN 50 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	3.8	492.[illegible] mVS
UNKNOWN	3	27.6	1.7 VS
UNKNOWN	4	33.4	[illegible] VS
UNKNOWN	5	40.9	732.3 mVS
UNKNOWN	6	48.0	14.7 VS
UNKNOWN	7	57.1	2.1 VS
UNKNOWN	8	63.9	[illegible] VS
UNKNOWN	→ 9	83.7	10.0 VS
UNKNOWN	10	94.3	6.2 VS
UNKNOWN	11	102.7	7.7 VS
UNKNOWN	12	115.8	4.2 VS
UNKNOWN	13	128.8	2.7 VS
UNKNOWN	→ [illegible]	148.8	4.3 VS
UNKNOWN	15	178.7	924.[illegible] mVS
UNKNOWN	16	195.2	103.6 mVS
UNKNOWN	18	228.7	678.3 mVS
UNKNOWN	→ 21	397.2	287.[illegible] mVS
UNKNOWN	22	430.0	133.[illegible] mVS
UNKNOWN	23	483.2	127.7 mVS
UNKNOWN	24	733.0	122.[illegible] mVS

25,300
50 ul
P-5 24'

PHOTOVAC

START



STOP @ 591.3
SAMPLE LIBRARY 2 JUN 21 1989 17:43
ANALYSIS # 25 MCARTHUR
INTERNAL TEMP 34 OAKLAND
GAIN 2 330-40.01

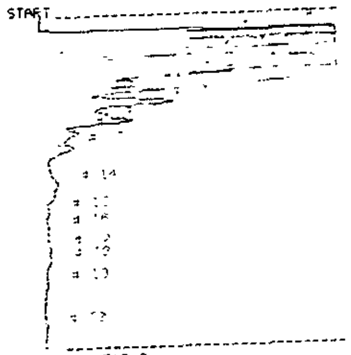
COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	80.8	2.6 KVS
UNKNOWN	2	148.	27.9 VS
UNKNOWN	3	171.2	23.2 VS
UNKNOWN	4	194.2	11.3 VS
UNKNOWN	5	217.8	9.7 VS
UNKNOWN	6	274.5	14.6 VS
UNKNOWN	7	320.5	3.[illegible] VS
UNKNOWN	8	346.5	3.5 VS
UNKNOWN	9	377.2	2.6 VS
UNKNOWN	10	397.2	3.7 VS
UNKNOWN	11	431.1	3.6 VS
UNKNOWN	12	499.2	2.[illegible] VS
UNKNOWN	13	[illegible]42.5	473.0 mVS

— EHI

P-5 24' 10 ul

PHOTOVAC

START

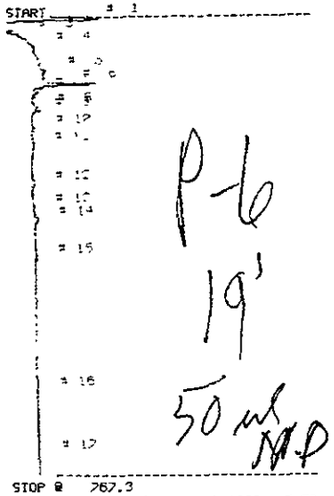


STOP @ 512.2
SAMPLE LIBRARY 2 JUN 21 1989 17:54
ANALYSIS # 26 MCARTHUR
INTERNAL TEMP 34 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	25.7	3.1 VS
UNKNOWN	2	32.4	16.1 VS
UNKNOWN	3	46.9	27.2 VS
UNKNOWN	4	58.3	7.5 VS
UNKNOWN	5	67.0	4.1 VS
UNKNOWN	6	79.9	23.7 VS
UNKNOWN	7	93.4	3.5 VS
UNKNOWN	8	107.2	5.3 VS
UNKNOWN	9	117.1	3.4 VS
UNKNOWN	→ 10	137.2	5.9 VS
UNKNOWN	11	166.7	4.5 VS
UNKNOWN	12	183.7	[illegible].6 VS
UNKNOWN	13	207.0	[illegible].1 VS
UNKNOWN	14	264.0	235.[illegible] mVS
UNKNOWN	20	4[illegible]4.9	103.[illegible] mVS

PROBE P-5

PHOTOVAC

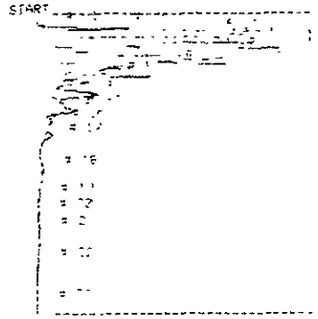


STOP @ 767.3
SAMPLE LIBRARY 2 JUN 21 1989 15:59
ANALYSIS # 22 MCARTHUR
INTERNAL TEMP 35 OAKLAND
GAIN 50 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	4.4	883.7 mVS
UNKNOWN	6	114.4	50.6 mVS
UNKNOWN	12	282.7	214.5 mVS
UNKNOWN	14	344.6	145.9 mVS

24'
P-6 21,500
10 ml

PHOTOVAC



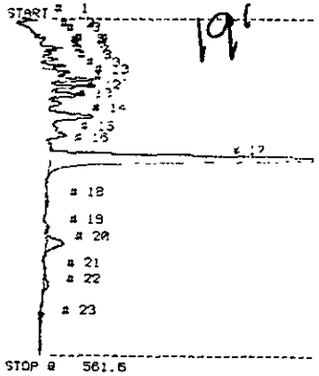
STOP @ 500.2
SAMPLE LIBRARY 2 JUN 21 1989 18: 4
ANALYSIS # 27 MCARTHUR
INTERNAL TEMP 34 OAKLAND
GAIN 2 330-40.01

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	25.7	772.8 mVS
UNKNOWN	3	31.5	11.2 VS
UNKNOWN	4	44.4	11.8 VS
UNKNOWN	5	52.9	3.. VS
UNKNOWN	6	58.1	3.5 VS
UNKNOWN	7	67.5	.,. VS
UNKNOWN	8	75.3	5.. VS
UNKNOWN	9	86.2	3.3 VS
UNKNOWN	10	93.-	.,5 VS
UNKNOWN	11	97.2	2.4 VS
UNKNOWN	12	117..	1.. VS
UNKNOWN	13	132.6	1.6 VS
UNKNOWN	15	157.2	207.5 mVS
UNKNOWN	17	206.2	178.2 mVS

PROBE P-6

P-7 50ml
10ppm.

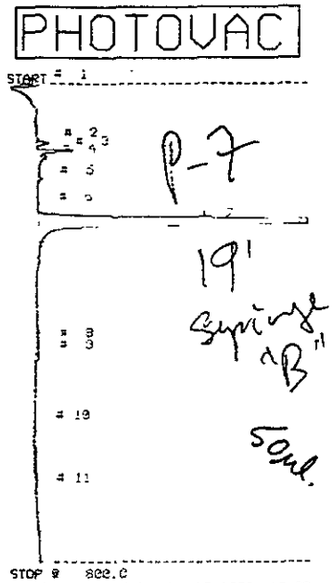
PHOTOVAC



STOP @ 561.6
SAMPLE LIBRARY 2 JUN 22 1989 10: 0
ANALYSIS # 3 MCARTHUR
INTERNAL TEMP 26 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	4	50.1	198.3 mVS
UNKNOWN	5	54.1	138.3 mVS
UNKNOWN	6	59.2	123.5 mVS
UNKNOWN	7	63.5	174.3 mVS
UNKNOWN	8	80.8	335.4 mVS
UNKNOWN	9	91.3	189.7 mVS
UNKNOWN	10	104.2	568.0 mVS
UNKNOWN	11	114.7	538.6 mVS
UNKNOWN	12	130.4	558.3 mVS
UNKNOWN	13	144.4	214.6 mVS
UNKNOWN	14	168.2	1.5 VS
UNKNOWN	15	188.7	687.3 mVS
UNKNOWN	17	238.0	18.3 VS
UNKNOWN	20	384.2	861.7 mVS
UNKNOWN	22	454.4	221.1 mVS

PHOTOVAC

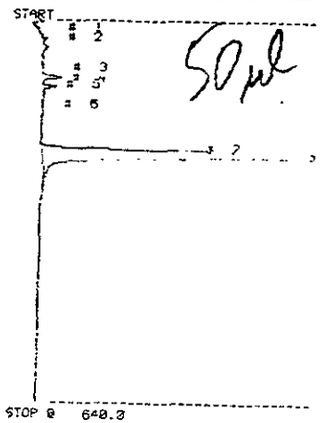


STOP @ 800.0
SAMPLE LIBRARY 2 JUN 22 1989 10:36
ANALYSIS # 6 MCARTHUR
INTERNAL TEMP 27 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	3.8	196.3 mVS
UNKNOWN	2	102.4	195.6 mVS
UNKNOWN	3	114.7	416.7 mVS
UNKNOWN	7	233.7	26.5 VS

P-7 24'

PHOTOVAC



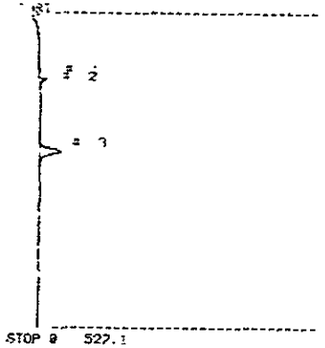
STOP @ 640.0
SAMPLE LIBRARY 2 JUN 22 1989 11:35
ANALYSIS # 9 MCARTHUR
INTERNAL TEMP 28 OAKLAND
GAIN 20 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	3	99.1	248.8 mVS
UNKNOWN	4	114.7	158.7 mVS
UNKNOWN	7	228.7	26.2 VS

PROBE P-7

P-8 50 ml
19' syringe

PHOTOVAC

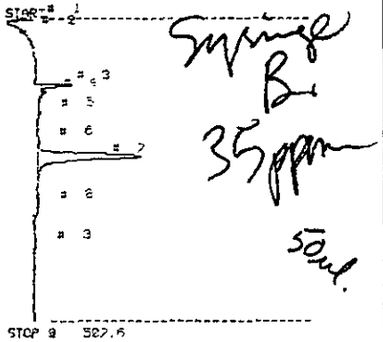


STOP @ 527.1
SAMPLE LIBRARY 2 JUN 22 1989 10:11
ANALYSIS # 4 MCARTHUR
INTERNAL TEMP 27 OAKLAND
GAIN 10 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	3	238.2	790.2 mVS

P-8 19'

PHOTOVAC

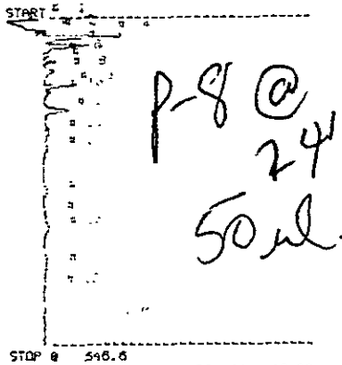


Syringe B
35 ppm
50 ml

STOP @ 527.6
SAMPLE LIBRARY 2 JUN 22 1989 10:21
ANALYSIS # 5 MCARTHUR
INTERNAL TEMP 27 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	3.5	185.2 mVS
UNKNOWN	3	114.7	557.2 mVS
UNKNOWN	7	237.0	4.1 VS

PHOTOVAC



P-8 @ 24'
50 ml.

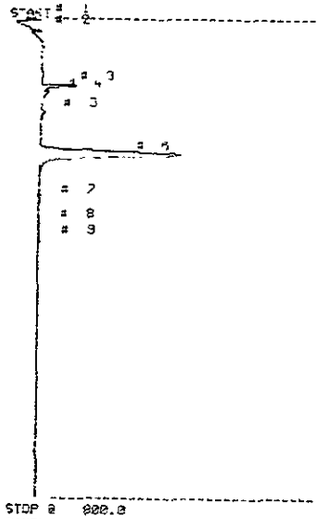
STOP @ 546.6
SAMPLE LIBRARY 2 JUN 22 1989 12:28
ANALYSIS # 13 MCARTHUR
INTERNAL TEMP 31 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	4	32.2	372.3 mVS
UNKNOWN	5	47.5	432.3 mVS
UNKNOWN	7	75.5	117.2 mVS
UNKNOWN	8	91.6	168.2 mVS
UNKNOWN	9	114.7	326.5 mVS
UNKNOWN	11	158.0	548.0 mVS
UNKNOWN	12	195.2	125.1 mVS
UNKNOWN	14	297.1	282.3 mVS
UNKNOWN	16	359.2	182.9 mVS
UNKNOWN	17	420.1	241.7 mVS

PROBE P-8

P-9 5cc 19'

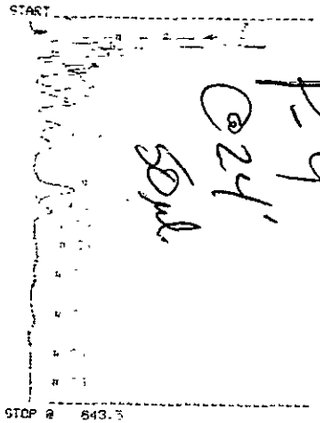
PHOTOVAC



STOP @ 800.0
SAMPLE LIBRARY 2 JUN 22 1989 11:10
ANALYSIS # 8 MCARTHUR
INTERNAL TEMP 28 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	3	114.7	387.3	mVS
UNKNOWN	6	231.6	5.4	VS

PHOTOVAC



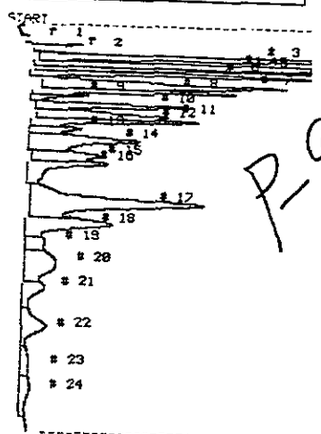
P-9 @ 24, 50cc

STOP @ 643.5
SAMPLE LIBRARY 2 JUN 22 1989 12:45
ANALYSIS # 14 MCARTHUR
INTERNAL TEMP 31 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	31.9	1.9	VS
UNKNOWN	3	34.2	1.4	VS
UNKNOWN	4	47.1	2.5	VS
UNKNOWN	5	50.3	1.6	VS
UNKNOWN	6	55.3	943.6	mVS
UNKNOWN	7	64.9	1.0	VS
UNKNOWN	8	85.3	1.8	VS
UNKNOWN	9	96.1	881.7	mVS
UNKNOWN	11	122.8	831.2	mVS
UNKNOWN	12	140.8	739.7	mVS
UNKNOWN	13	148.4	1.0	VS
UNKNOWN	14	166.2	288.3	mVS
UNKNOWN	15	185.2	841.0	mVS
UNKNOWN	16	213.6	234.3	mVS
UNKNOWN	17	226.2	324.2	mVS
UNKNOWN	18	296.3	2.6	VS
UNKNOWN	19	333.1	1.0	VS
UNKNOWN	21	402.5	389.2	mVS
UNKNOWN	23	517.4	348.0	mVS

P-9 24 50cc

PHOTOVAC



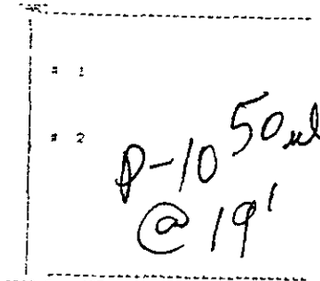
P-9

STOP @ 661.4
SAMPLE LIBRARY 2 JUN 22 1989 13:28
ANALYSIS # 23 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 10 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	2	26.0	411.4	mVS
UNKNOWN	3	32.5	17.3	VS
UNKNOWN	4	46.8	18.8	VS
UNKNOWN	5	53.1	4.3	VS
UNKNOWN	6	62.0	6.0	VS
UNKNOWN	7	81.7	9.4	VS
UNKNOWN	8	92.8	4.6	VS
UNKNOWN	9	101.5	1.2	VS
UNKNOWN	10	117.7	4.2	VS
UNKNOWN	11	135.6	4.6	VS
UNKNOWN	12	142.8	5.[illegible]	VS
UNKNOWN	13	158.8	1.7	VS
UNKNOWN	14	178.2	6.4	VS
UNKNOWN	15	205.8	3.3	VS
UNKNOWN	16	217.2	4.3	VS
UNKNOWN	17	284.3	13.4	VS
UNKNOWN	18	319.6	6.[illegible]	VS
UNKNOWN	19	352.0	1.3	VS
UNKNOWN	20	382.2	4.8	VS
UNKNOWN	21	428.9	2.[illegible]	VS
UNKNOWN	22	496.6	2.[illegible]	VS
UNKNOWN	23	558.3	[illegible].2	VS
UNKNOWN	24	601.5	1.9	VS

PROBE P-9

PHOTOVAC

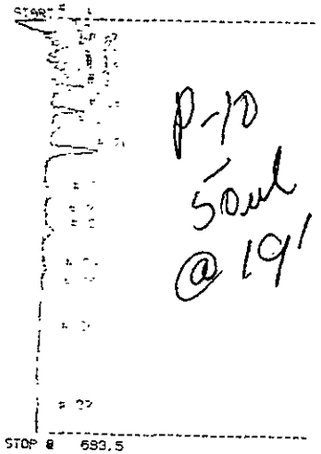


P-10 50ml @19'

STOP @ 435.1
SAMPLE LIBRARY 2 JUN 22 1989 12: 2
ANALYSIS # 11 MCARTHUR
INTERNAL TEMP 30 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM

PHOTOVAC



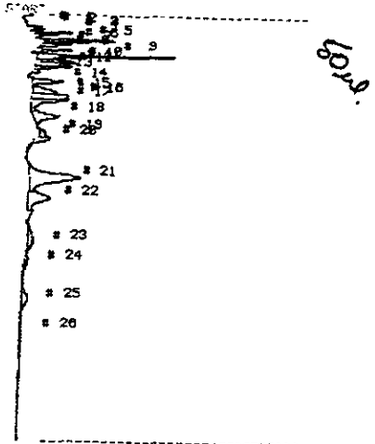
P-10 50ml @19'

STOP @ 693.5
SAMPLE LIBRARY 2 JUN 22 1989 12:15
ANALYSIS # 12 MCARTHUR
INTERNAL TEMP 30 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	23.6	126.8 mVS
UNKNOWN	4	35.2	107.0 mVS
UNKNOWN	6	48.1	286.7 mVS
UNKNOWN	9	66.3	121.0 mVS
UNKNOWN	10	76.3	200.6 mVS
UNKNOWN	11	86.8	111.1 mVS
UNKNOWN	12	91.6	145.7 mVS
UNKNOWN	13	99.1	302.8 mVS
UNKNOWN	15	114.7	365.5 mVS
UNKNOWN	16	124.0	358.5 mVS
UNKNOWN	18	158.2	851.5 mVS
UNKNOWN	19	188.2	216.9 mVS
UNKNOWN	20	226.2	1.8 VS
UNKNOWN	21	300.3	471.4 mVS
UNKNOWN	23	363.2	429.3 mVS
UNKNOWN	24	426.2	242.5 mVS

P-10 @24' ~~2400 ppm~~ 400 ppm

PHOTOVAC



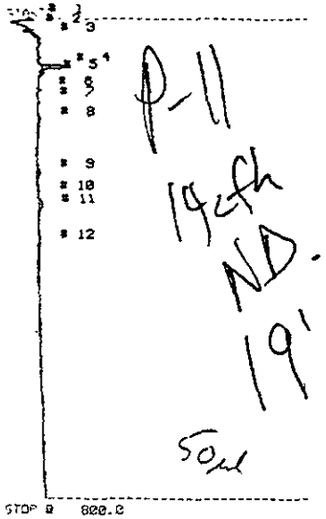
50ml

STOP @ 712.4
SAMPLE LIBRARY 2 JUN 22 1989 13:34
ANALYSIS # 24 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 28 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	3	30.2	262.5 mVS
UNKNOWN	4	32.6	198.2 mVS
UNKNOWN	5	44.5	728.5 mVS
UNKNOWN	6	47.9	462.1 mVS
UNKNOWN	7	52.3	905.9 mVS
UNKNOWN	8	61.3	338.2 mVS
UNKNOWN	9	70.2	1.8 VS
UNKNOWN	10	79.3	585.2 mVS
UNKNOWN	11	84.1	614.3 mVS
UNKNOWN	12	90.1	684.1 mVS
UNKNOWN	13	98.8	104.9 mVS
UNKNOWN	14	114.7	741.8 mVS
UNKNOWN	15	132.8	816.4 mVS
UNKNOWN	16	140.8	952.4 mVS
UNKNOWN	17	146.0	1.8 VS
UNKNOWN	18	174.2	1.8 VS
UNKNOWN	19	202.2	268.5 mVS
UNKNOWN	20	212.4	485.3 mVS
UNKNOWN	21	278.8	3.5 VS
UNKNOWN	22	312.3	1.4 VS
UNKNOWN	23	386.2	552.2 mVS
UNKNOWN	25	486.2	439.7 mVS

PROBE P-10

PHOTOVAC

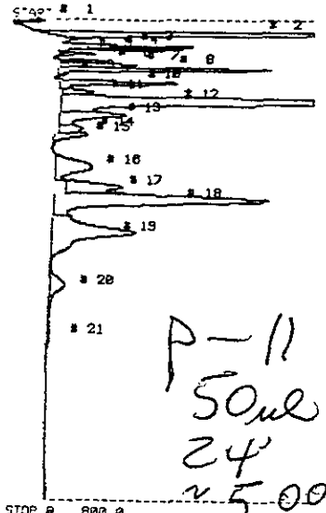


P-11
19th
ND.
19'
50µl

STOP @ 800.0
SAMPLE LIBRARY 2 JUN 22 1989 14: 6
ANALYSIS # 26 MCARTHUR
INTERNAL TEMP 33 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	4	84.4	391.5 mVS
UNKNOWN	9	261.9	101.2 mVS
UNKNOWN	11	318.7	163.3 mVS

PHOTOVAC

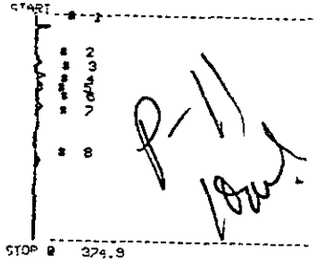


P-11
50µl
24'
x 5,000

STOP @ 800.0
SAMPLE LIBRARY 2 JUN 22 1989 14:40
ANALYSIS # 28 MCARTHUR
INTERNAL TEMP 33 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	23.2	12.4 VS
UNKNOWN	3	46.7	1.6 VS
UNKNOWN	4	50.9	.0 VS
UNKNOWN	5	58.1	377.1 mVS
UNKNOWN	6	71.7	678.6 mVS
UNKNOWN	7	77.3	.4 VS
UNKNOWN	8	85.0	3.9 VS
UNKNOWN	10	108.1	2.5 VS
UNKNOWN	11	124.8	872.2 mVS
UNKNOWN	12	136.3	31.9 VS
UNKNOWN	13	162.7	3.0 VS
UNKNOWN	14	186.7	948.9 mVS
UNKNOWN	15	197.7	978.3 mVS
UNKNOWN	16	253.5	3.2 VS
UNKNOWN	17	286.2	3.3 VS
UNKNOWN	18	307.5	12.1 VS
UNKNOWN	19	363.2	2.5 VS
UNKNOWN	20	453.2	1.2 VS
UNKNOWN	21	536.9	152.2 mVS

PHOTOVAC



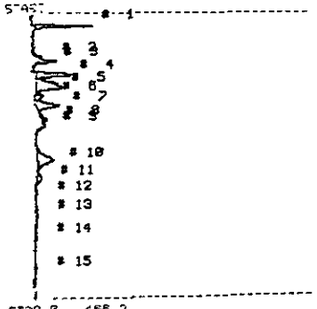
P-11
10wk

STOP @ 374.9
SAMPLE LIBRARY 2 JUN 22 1989 14:55
ANALYSIS # 29 MCARTHUR
INTERNAL TEMP 34 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	3	105.1	140.5 mVS
UNKNOWN	4	122.2	132.3 mVS
UNKNOWN	8	253.7	139.8 mVS

P-11 Bad

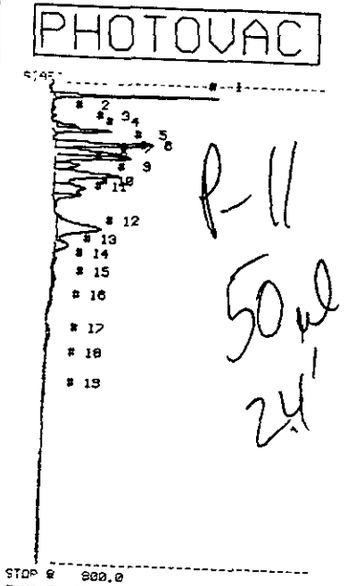
PHOTOVAC



STOP @ 466.2
SAMPLE LIBRARY 2 JUN 22 1989 15: 4
ANALYSIS # 30 MCARTHUR
INTERNAL TEMP 34 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	22.9	517.9 mVS
UNKNOWN	3	84.1	219.7 mVS
UNKNOWN	4	106.6	826.0 mVS
UNKNOWN	5	128.8	1.3 VS
UNKNOWN	6	142.8	273.2 mVS
UNKNOWN	7	159.2	756.5 mVS
UNKNOWN	10	251.4	889.2 mVS
UNKNOWN	11	281.9	127.4 mVS

PHOTOVAC



P-11
50µl
24'

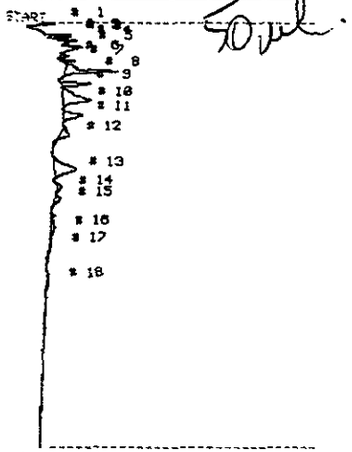
STOP @ 900.0
SAMPLE LIBRARY 2 JUN 22 1989 15:19
ANALYSIS # 31 MCARTHUR
INTERNAL TEMP 34 OAKLAND
GAIN 5 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	20.8	1.6 VS
UNKNOWN	3	73.7	467.1 mVS
UNKNOWN	4	81.7	1.0 VS
UNKNOWN	5	104.2	2.2 VS
UNKNOWN	6	119.6	1.7 VS
UNKNOWN	7	126.0	1.9 VS
UNKNOWN	8	140.4	268.0 mVS
UNKNOWN	9	156.4	2.7 VS
UNKNOWN	10	179.7	1.4 VS
UNKNOWN	11	188.7	817.1 mVS
UNKNOWN	12	247.9	2.8 VS
UNKNOWN	13	278.0	626.8 mVS
UNKNOWN	15	334.0	211.9 mVS
UNKNOWN	17	428.9	180.4 mVS

Probe P-11

P-12 19'

PHOTOVAC



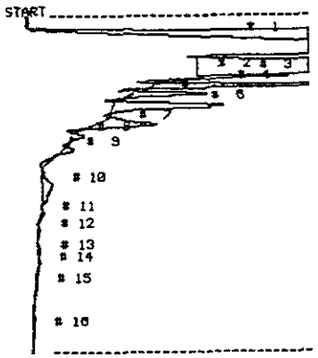
50 µl.

STOP @ 708.1
SAMPLE LIBRARY 2 JUN 22 1989 16: 5
ANALYSIS # 32 MCARTHUR
INTERNAL TEMP 33 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	21.7	190.2 mUS
UNKNOWN	3	24.3	125.8 mUS
UNKNOWN	7	56..	115.8 mUS
UNKNOWN	8	84.4	263.1 mUS
UNKNOWN	9	105.4	582.8 mUS
UNKNOWN	10	134.8	1.2 US
UNKNOWN	11	138.4	532.5 mUS
UNKNOWN	12	191.7	254.2 mUS
UNKNOWN	13	251.4	1.2 US
UNKNOWN	14	282.7	150.7 mUS
UNKNOWN	15	321.9	116.7 mUS
UNKNOWN	16	552.8	249.8 mUS

P-12 24'
5 µl.

PHOTOVAC

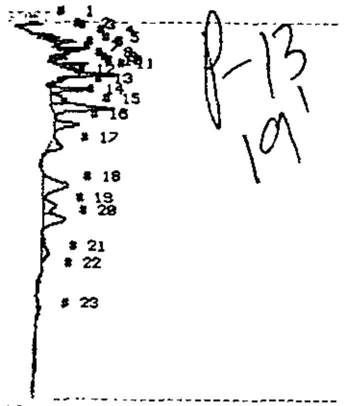


STOP @ 561.2
SAMPLE LIBRARY 2 JUN 22 1989 18:43
ANALYSIS # 43 MCARTHUR
INTERNAL TEMP 29 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	33.4	46.4 US
UNKNOWN	2	88.5	47.1 US
UNKNOWN	3	104.8	1.2 US
UNKNOWN	4	119.9	5.7 US
UNKNOWN	5	134.4	1.8 US
UNKNOWN	6	154.4	3.9 US
UNKNOWN	7	185.7	2.6 US
UNKNOWN	8	204.6	487.2 mUS
UNKNOWN	9	228.8	273.6 mUS
UNKNOWN	10	289.1	1.1 US

PROBE P-12

PHOTOVAC



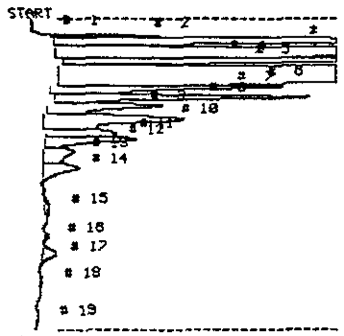
STOP @ [illegible]

SAMPLE LIBRARY 2 JUN 22 1989 16:28
ANALYSIS # 33 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	22.1	144.4 mUS
UNKNOWN	3	24.3	129.0 mUS
UNKNOWN	4	32.4	317.6 mUS
UNKNOWN	5	43.5	307.8 mUS
UNKNOWN	7	59.3	138.8 mUS
UNKNOWN	8	67.9	292.1 mUS
UNKNOWN	11	85.3	370.1 mUS
UNKNOWN	13	108.7	635.7 mUS
UNKNOWN	14	125.2	324.0 mUS
UNKNOWN	15	139.2	[illegible] US
UNKNOWN	16	164.7	614.[illegible] mUS
UNKNOWN	17	195.7	430.[illegible] mUS
UNKNOWN	18	260.3	[illegible] US
UNKNOWN	[illegible]	312.3	655.[illegible] mUS
UNKNOWN	20	[illegible]	[illegible] US
UNKNOWN	21	365.2	405.8 mUS
UNKNOWN	23	[illegible]	171.[illegible] mUS

P-13
10ul 24'

PHOTOVAC

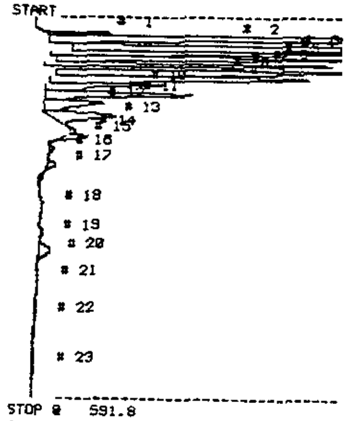


STOP @ 480.8
SAMPLE LIBRARY 2 JUN 22 1989 20: 0
ANALYSIS # 48 MCARTHUR
INTERNAL TEMP 27 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	27.4	1.1 US
UNKNOWN	3	34.9	20.1 US
UNKNOWN	4	52.5	44.0 US
UNKNOWN	5	65.7	8.6 US
UNKNOWN	6	87.5	134.3 US
UNKNOWN	7	107.8	5.9 US
UNKNOWN	8	124.8	7.1 US
UNKNOWN	9	138.0	4.1 US
UNKNOWN	10	158.4	6.9 US
UNKNOWN	11	181.7	2.1 US
UNKNOWN	12	190.7	3.3 US
UNKNOWN	13	210.8	1.8 US
UNKNOWN	14	235.8	1.8 US
UNKNOWN	15	297.1	345.8 mUS
UNKNOWN	16	344.8	123.0 mUS
UNKNOWN	17	373.2	863.8 mUS

P-13
5ul 24'

PHOTOVAC



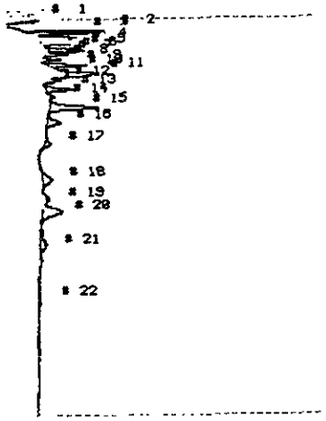
STOP @ 591.8
SAMPLE LIBRARY 2 JUN 22 1989 20:12
ANALYSIS # 49 MCARTHUR
INTERNAL TEMP 27 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	26.8	598.9 mUS
UNKNOWN	2	33.7	13.7 US
UNKNOWN	3	48.8	17.4 US
UNKNOWN	4	55.8	5.6 US
UNKNOWN	5	65.2	6.9 US
UNKNOWN	6	75.9	4.4 US
UNKNOWN	7	80.5	1.7 US
UNKNOWN	8	85.9	8.5 US
UNKNOWN	9	98.2	6.1 US
UNKNOWN	10	107.5	3.0 US
UNKNOWN	11	124.4	3.7 US
UNKNOWN	12	137.6	2.0 US
UNKNOWN	13	158.4	2.4 US
UNKNOWN	14	181.2	186.4 mUS
UNKNOWN	15	190.7	595.2 mUS
UNKNOWN	16	210.6	138.3 mUS
UNKNOWN	17	235.8	276.7 mUS
UNKNOWN	20	372.2	561.7 mUS

PROBE P-13

P-14
19' 50ml

PHOTOVAC

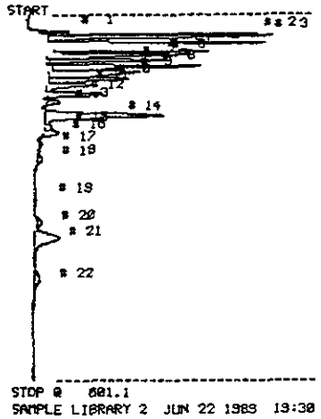


STOP @ 662.5
SAMPLE LIBRARY 2 JUN 22 1989 16:53
ANALYSIS # 35 MCARTHUR
INTERNAL TEMP 32 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	21.5	392.7 mVS
UNKNOWN	3	25.4	182.8 mVS
UNKNOWN	4	33.1	466.4 mVS
UNKNOWN	5	44.7	363.8 mVS
UNKNOWN	6	48.1	260.3 mVS
UNKNOWN	7	52.3	215.9 mVS
UNKNOWN	8	60.3	136.2 mVS
UNKNOWN	9	68.2	225.3 mVS
UNKNOWN	11	84.4	619.0 mVS
UNKNOWN	12	110.8	426.2 mVS
UNKNOWN	14	125.2	113.3 mVS
UNKNOWN	15	162.2	1.1 VS
UNKNOWN	16	182.7	384.4 mVS
UNKNOWN	17	223.1	182.5 mVS
UNKNOWN	18	265.4	563.3 mVS
UNKNOWN	19	282.1	227.3 mVS
UNKNOWN	20	348.2	1.1 VS
UNKNOWN	21	374.2	342.2 mVS

P-14 50ml @ 24'

PHOTOVAC



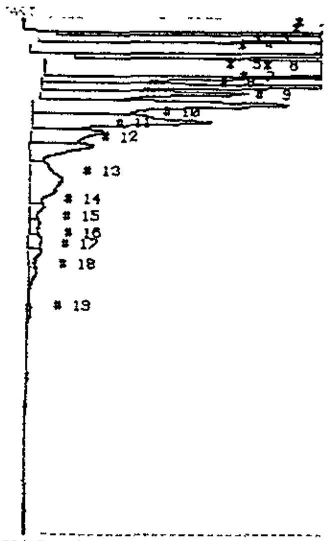
STOP @ 601.1
SAMPLE LIBRARY 2 JUN 22 1989 19:30
ANALYSIS # 46 MCARTHUR
INTERNAL TEMP 28 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	1	27.9	220.8 mVS
UNKNOWN	2	33.3	1.9 VS
UNKNOWN	3	36.8	3.4 VS
UNKNOWN	4	48.9	2.8 VS
UNKNOWN	5	52.5	1.7 VS
UNKNOWN	6	57.9	2.5 VS
UNKNOWN	7	67.3	1.9 VS
UNKNOWN	8	77.5	2.3 VS
UNKNOWN	9	82.4	2.6 VS
UNKNOWN	10	99.4	1.9 VS
UNKNOWN	11	109.0	1.0 VS
UNKNOWN	12	125.6	1.1 VS
UNKNOWN	13	138.8	289.8 mVS
UNKNOWN	14	162.2	3.7 VS
UNKNOWN	15	181.7	238.6 mVS
UNKNOWN	16	191.7	465.0 mVS
UNKNOWN	18	235.8	144.9 mVS
UNKNOWN	20	343.9	328.1 mVS
UNKNOWN	21	371.2	1.4 VS
UNKNOWN	22	440.0	32.9 mVS

Probe P-14

10µl P-15 19'

PHOTOVAC

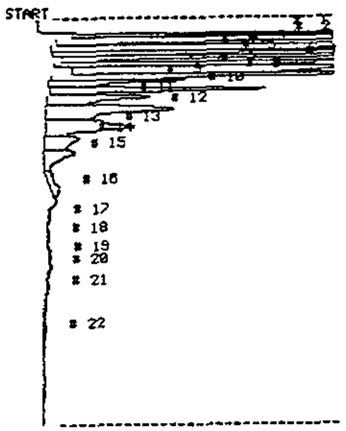


STOP @ 800.0
SAMPLE LIBRARY 2 JUN 22 1989 17:13
ANALYSIS # 36 MCARTHUR
INTERNAL TEMP 31 OAKLAND
GAIN 5 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	1	23.5	6.8	VS
UNKNOWN	2	32.8	10.[illegible]	VS
UNKNOWN	[illegible]	47.6	24.1	VS
UNKNOWN	[illegible]	53.8	7.4	VS
UNKNOWN	5	78.1	40.[illegible]	VS
UNKNOWN	[illegible]	94.3	5.[illegible]	VS
UNKNOWN	[illegible]	106.1	[illegible]	VS
UNKNOWN	[illegible]	120.[illegible]	6.8	VS
UNKNOWN	[illegible]	131.2	[illegible]	VS
UNKNOWN	10	145.[illegible]	2.2	VS
UNKNOWN	11	182.7	3.3	VS
UNKNOWN	12	209.0	[illegible]	VS
UNKNOWN	13	237.0	[illegible]	VS
UNKNOWN	[illegible]	293.5	461.[illegible]	mVS
UNKNOWN	[illegible]	325.9	126.[illegible]	mVS
UNKNOWN	16	332.[illegible]	335.[illegible]	[illegible]
UNKNOWN	[illegible]	[illegible]	[illegible]	[illegible]
UNKNOWN	[illegible]	[illegible]	[illegible]	[illegible]
UNKNOWN	[illegible]	[illegible]	[illegible]	[illegible]

P-15 5µl @ 19'

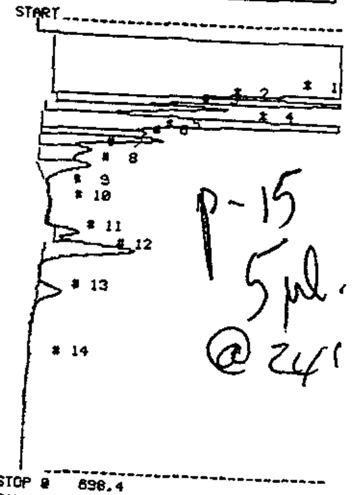
PHOTOVAC



STOP @ 629.4
SAMPLE LIBRARY 2 JUN 22 1989 17:33
ANALYSIS # 39 MCARTHUR
INTERNAL TEMP 31 OAKLAND
GAIN 5 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	1	26.4	3.6	VS
UNKNOWN	2	33.1	15.3	VS
UNKNOWN	3	46.8	16.2	VS
UNKNOWN	4	52.9	4.3	VS
UNKNOWN	5	61.5	7.0	VS
UNKNOWN	6	70.6	7.5	VS
UNKNOWN	7	80.8	11.0	VS
UNKNOWN	8	89.9	7.8	VS
UNKNOWN	9	99.4	3.1	VS
UNKNOWN	10	114.1	4.9	VS
UNKNOWN	11	126.8	3.3	VS
UNKNOWN	12	145.2	5.9	VS
UNKNOWN	13	174.2	4.5	VS
UNKNOWN	14	191.2	1.9	VS
UNKNOWN	15	214.2	1.7	VS
UNKNOWN	16	269.6	849.7	mVS

PHOTOVAC



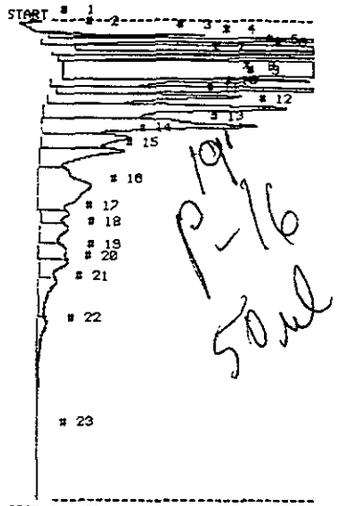
P-15 5µl. @ 24'

STOP @ 698.4
SAMPLE LIBRARY 2 JUN 22 1989 19: 6
ANALYSIS # 45 MCARTHUR
INTERNAL TEMP 29 OAKLAND
GAIN 2 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM	
UNKNOWN	1	66.5	1.3	KVS
UNKNOWN	2	120.3	14.1	VS
UNKNOWN	3	134.8	6.4	VS
UNKNOWN	4	155.6	25.2	VS
UNKNOWN	5	176.7	2.7	VS
UNKNOWN	6	186.2	4.7	VS
UNKNOWN	7	205.8	3.1	VS
UNKNOWN	8	230.4	2.7	VS
UNKNOWN	10	290.7	196.7	mVS
UNKNOWN	11	336.7	1.4	VS
UNKNOWN	12	363.2	5.2	VS
UNKNOWN	13	431.1	1.0	VS
UNKNOWN	14	534.1	118.4	mVS

PROBE P-15

PHOTOVAC

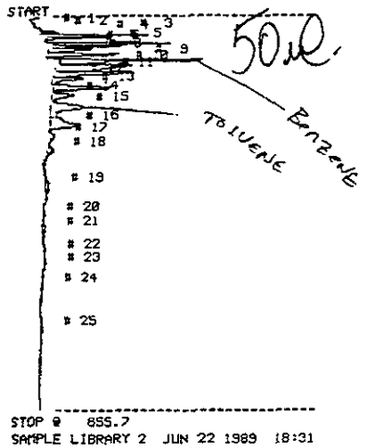


STOP @ 800.0
SAMPLE LIBRARY 2 JUN 22 1989 18:18
ANALYSIS # 41 MCARTHUR
INTERNAL TEMP 29 OAKLAND
GAIN 50 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	2	22.3	287.2 mVS
UNKNOWN	3	25.9	1.5 VS
UNKNOWN	4	32.3	13.8 VS
UNKNOWN	5	46.8	17.0 VS
UNKNOWN	6	53.9	5.7 VS
UNKNOWN	7	62.6	7.9 VS
UNKNOWN	8	83.3	153.0 VS
UNKNOWN	9	103.0	7.1 VS
UNKNOWN	10	117.1	13.1 VS
UNKNOWN	11	131.8	7.2 VS
UNKNOWN	12	151.2	13.0 VS
UNKNOWN	13	181.7	12.3 VS
UNKNOWN	14	200.4	5.6 VS
UNKNOWN	15	223.8	5.7 VS
UNKNOWN	16	283.5	9.0 VS
UNKNOWN	17	330.4	2.1 VS
UNKNOWN	18	354.7	2.7 VS
UNKNOWN	19	393.2	2.2 VS
UNKNOWN	20	412.4	2.4 VS
UNKNOWN	21	446.0	2.4 VS
UNKNOWN	22	516.1	1.3 VS

19' P-16

PHOTOVAC

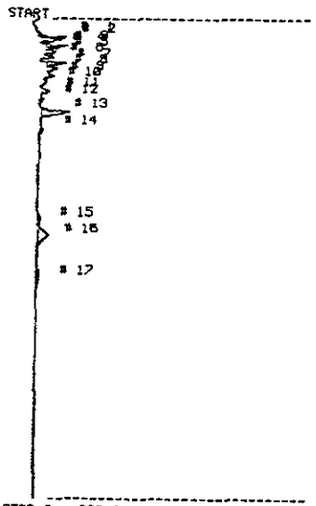


STOP @ 855.7
SAMPLE LIBRARY 2 JUN 22 1989 18:31
ANALYSIS # 42 MCARTHUR
INTERNAL TEMP 29 OAKLAND
GAIN 10 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	3	32.2	784.8 mVS
UNKNOWN	4	34.8	553.7 mVS
UNKNOWN	5	47.5	1.3 VS
UNKNOWN	6	50.9	726.2 mVS
UNKNOWN	7	56.1	710.4 mVS
UNKNOWN	8	65.3	996.2 mVS
UNKNOWN	9	75.3	2.3 VS
UNKNOWN	10	85.3	2.1 VS
UNKNOWN	11	96.4	1.7 VS
UNKNOWN	12	105.7	738.8 mVS
UNKNOWN	13	121.8	1.3 VS
UNKNOWN	14	134.8	687.1 mVS
UNKNOWN	15	154.8	1.4 VS
UNKNOWN	16	185.7	1.1 VS
UNKNOWN	17	205.2	138.2 mVS
UNKNOWN	18	228.0	127.4 mVS
UNKNOWN	19	289.1	249.8 mVS

P-16 24'
50ml.

PHOTOVAC



STOP @ 800.0
SAMPLE LIBRARY 2 JUN 22 1989 19:49
ANALYSIS # 47 MCARTHUR
INTERNAL TEMP 27 OAKLAND
GAIN 10 330-40.02

COMPOUND NAME	PEAK	R.T.	AREA/PPM
UNKNOWN	3	48.3	289.3 mVS
UNKNOWN	4	52.1	126.8 mVS
UNKNOWN	5	57.5	141.0 mVS
UNKNOWN	6	66.7	104.0 mVS
UNKNOWN	7	76.3	334.6 mVS
UNKNOWN	8	88.2	211.5 mVS
UNKNOWN	11	125.2	120.2 mVS
UNKNOWN	13	162.2	747.7 mVS
UNKNOWN	16	371.2	489.4 mVS
UNKNOWN	17	440.0	139.4 mVS

PROBE P-16