3R - 79

REPORTS

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Thomas #1 Well Site
Subsurface Investigation Report
San Juan County, New Mexico

November 26, 1991

Prepared for:

Mr. Robert Wessman
Hobbs Asset Team
Mobil Exploration and Producing
P.O. Box 633
Midland, Texas 79702

Prepared by:

H+GCL

ALBUQUERQUE OFFICE
505 Marquette Avenue, NW
Suite 1100
Albuquerque, New Mexico 87102
(505) 842-0001
FAX (505) 842-0595

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1.0 Introduction

The New Mexico Oil Conservation Division (NMOCD) requested that Mobil perform a soil-vapor survey and monitor well installation and sampling program to determine the severity and extent of any contamination at Mobil's Thomas #1 well site. H+GCL was retained by Mobil Exploration and Producing to conduct the subsurface investigation.

1.1 Location

Mobil's Thomas #1 well is located in the NW 1/4 SE 1/4 NW 1/4 SW 1/4 of Section 30, T29N R11W, San Juan County, New Mexico. It is south of U.S. Highway 64, approximately three miles west of Bloomfield (figure 1). The site is accessible using county roads 5173 or 5211.

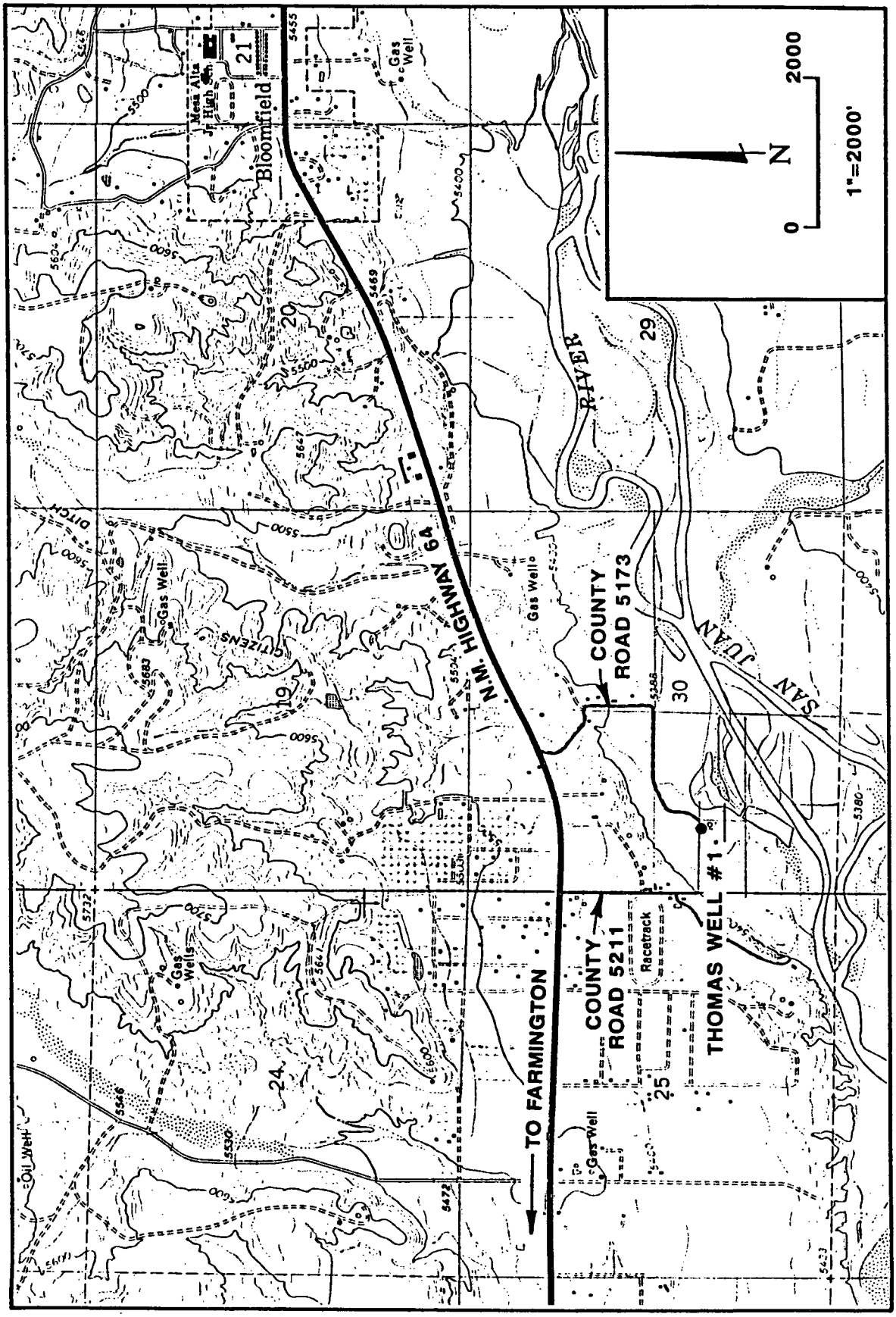
1.2 Environmental Setting

The Thomas #1 well site is situated on flat-lying ranch land along the flood plain of the San Juan River. An oxbow pond borders the eastern edge of the site. Immediately to the north and west of the site is irrigated alfalfa pasture. To the south of the site is a house, a mobile home trailer, and various livestock corrals. A dirt access road runs through the western half of the site.

The alfalfa pasture is heavily irrigated by a water cannon. The above ground six inch irrigation line which feeds the cannon leaks along its joints. The irrigation and the leaking line allow for substantial percolation of the fresh irrigation water through the sands, silts, clays and gravels onsite. The irrigation line runs along the western edge of the site.

Various above ground structures are present on the site. These include a natural gas well head, production unit, a produced water tank, a condensate tank, and a dehydration unit. A gazebo, which is used by the property owners for recreation, is adjacent to the pond, and is not associated with the natural gas well equipment.

FIGURE 1
LOCATION MAP OF THOMAS WELL #1
SAN JUAN COUNTY, NEW MEXICO.



2.0 Methods

2.1 Soil-Vapor Survey

This section describes the procedures that were followed during the soil-vapor survey of the Mobil Thomas #1 Well Subsurface Investigation. The survey involved collection and analysis of subsurface vapors at 37 locations on a rectilinear grid. At the request of the NMOCD, stations were located at fifty-foot intervals within the area surrounding the well and ancillary equipment. Sampling station spacings of 100 feet were used outside of the immediate well area. Sample collection points within the grid were varied throughout the study area. Station locations are shown in map form on plate 1.

Soil-vapor samples were collected using schedule-40, galvanized steel sampling probes. The probes were driven 3 to 3.5 feet using a compressor-driven, pneumatic post-hole driver. Each subsurface vapor sample was collected in the following manner:

- The sampling probe was withdrawn a distance of one to six inches. This step separates the probe from the drive point, permitting unobstructed entry of soil-vapor into the probe volume.
- An adaptor and evacuation line were attached to the probe. A battery-powered vacuum pump was then used to extract vapor from the soil matrix. The pump was attached to the evacuation line and operated for thirty seconds prior to collection of the actual sample to remove atmospheric vapors from the probe volume.
- A gas-tight syringe was used to collect the sample. The syringe needle was inserted through a length of rubber tubing at the adaptor/evacuation line junction. The vacuum pump was stopped and an aliquot of vapor was collected and analyzed immediately using a portable gas chromatograph.

The portable gas chromatograph (Photovac Model 10S70) was calibrated daily using a commercially-prepared standard gas mixture that contains known levels of benzene, toluene, ethylbenzene, and para-, meta-, and ortho-xylenes in a nitrogen matrix. The standard gas and actual soil-vapor standards were analyzed using identical procedures.

Instrument sensitivity, sample size, and sample dilution factors were varied in response to the hydrocarbon levels that were present at individual stations. For example, if very high

levels of volatile organic compounds were present in subsurface vapors, instrument gain and/or sample size were reduced and/or the dilution factor was increased. These adjustments permitted more accurate analysis of vapors containing high levels of volatile organic compounds.

The standard gas was analyzed at least once for each set of five soil-vapor analyses as a quality control measure. In addition, duplicate analyses were performed at several soil-vapor stations to demonstrate that the analytical data are reproducible.

2.2 Drive-Point Monitor Well Installation

A total of five monitor well locations were selected based on the soil-vapor results. Due to the shallow water table and the presence of numerous cobbles encountered during the soil-vapor survey, the monitor wells were installed using a hand-held auger in conjunction with a pneumatic-driven hammer. All wells were started using a hand-held auger with a standard sand bucket to allow visual inspection of the soil down to the water table or to auger refusal. Lithologic logs of the wells were then constructed in the field. The galvanized well points were then driven with the compressed air hammer to total depth. The wells were completed according to H+GCL's standard operating procedures with a bentonite plug, locking well cap and a concrete pad.

2.3 Water Sampling

After installation, the monitor wells were sampled according to H+GCL's standard operating procedures (appendix A) under strict chain-of-custody. A new and packaged 1-inch, disposable polyethylene bailer was designated for each well to prevent cross-contamination between wells during sampling. A total of three well casing volumes of water were withdrawn and the pH, conductivity, and temperature were periodically measured until these parameters stabilized. All purged water from the wells was disposed of by pouring into the on-site water storage tank. Ground-water samples were then collected and sent to Core Laboratories and analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX), Total Dissolved Solids (TDS), and major cations and anions.

Upon the request of the NMOCD, a surface water sample was also collected from the adjacent pond to the east and analyzed for BTEX.

3.0 Results

3.1 Soil-Vapor

Analytical results for BTEX in soil-vapor at the Mobil Thomas #1 well site are shown in table 1. Copies of the chromatographs are presented in appendix B.

3.2 Drive-Point Monitor Well Installation

The monitoring wells were surveyed by Brewer Associates, Inc. Ground-water elevations are presented in table 2. Lithologic logs of the monitoring wells are presented in appendix C, and well completion diagrams are shown in appendix D.

3.3 Water Samples

Analytical laboratory reports are presented in appendix E. Table 3 present these data as well as NMWQCC standards.

Table 1

Soil-Vapor Data for
Mobil Thomas Well #1 Site

Refined Chemical Data

Station Number	Benzene	Toluene	Ethylbenzene	p,m-Xylene	o-Xylene	Sum of BTEX
1	445	1074	1734	293	856	4405
2	0	0.0748	0	0	0.0224	0.0972
3	0	0	0	0	0.0848	0.0848
4	0	0.03	0	0	0.0316	0.0653
5	2732.0	206.0	4.548	3.990	9.115	2956.0
6	0.0018	0.0809	0	0	0.0812	0.1639
7	0	1250	691.6	654.1	461.3	3057
8	0	0	0.0996	0	0.0786	0.1782
9	0.0070	0.0558	0.0031	0.0526	0.0058	0.1243
10	0	0.124	0.0011	0.0154	0.0043	0.1448
11	0	0.1404	0	0.021	0.0033	0.1647
12	0.0089	0.1456	0	0	0.0014	0.1558
13	0	0.1258	0	0	0.0020	0.1278
14	5550	0	1764	6060	1164	1454
15	0	0.1424	0	0	0	0.1424
16	0	0.1688	0	0	0	0.1688
17	0	0.177	0.0026	0.0554	0.0097	0.2447
18	0	0.1662	0.0196	0	0	0.1858
19	9200	3105	0	8400	2605	2331
20	0	7300	1494	6980	1368	1714
21	0	0.1396	0	0	0	0.1396
22	Analysis not stored to disk–Total of benzene, toluene, ethylbenzene and xylene = 12 ppmv					
23	1.36	0	0.62	0.034	0.0160	2.0300
24	0	0	0.0096	0.0482	0.0134	0.0712
25	4905	5400	18250	4860	1605	35020
26	14.4	2.4	11	0.0561	1.03	28.88
27	4.52	1.652	11.66	0	7.72	25.552
28	0	0	0	0.0554	0	0.0554
29	0	0.0824	0	0.0022	0	0.0846
30	0	0	0	0	0	0
31	0	0	0	0.0057	0	0.0057
32	0.0013	0.0576	0	0.0059	0	0.0647
33	0	0.202	1.554	0.254	2.18	4.19
34	478	0	092.8	354	100.6	1025
34 duplicate	444	0	0	329.4	87.8	861.2
35	0.0023	0	0	0.0077	0.0041	0.0147
36	0	0.0268	0.036	0	0	0.0628
37	0	0	0.014	0	0	0.014

0569/MTHOM1A.TBL

Table 2

Ground-Water Elevations

	MW-1	MW-2	MW-3	MW-4	MW-5
Elevation, ft. (AMSL)	5371.75	5371.39	5371.33	5371.22	5370.79

Table 3
Ground-Water Sampling Results

Description	MW-1	MW-2	MW-3	MW-4	MW-4 Duplicate	MW-5	Pond
(Concentrations reported in ppm)							
Alkalinity, Total (Unfilt.)	386	746	905	672		851	152
Bicarbonate (Unfilt.)	470	910	1100	819		1040	185
Carbonate (Unfilt.)	<1	<1	<1	<1		<1	<1
Chloride (Unfilt.)	12.8	45	115	55		155	7.1
Solids, Total Dissolved (TDS)	2650	2230	2310	2240		6250	627
Sulfate (Unfilt.)	1530	970	926	1020		3610	288
Calcium, Total (Ca)	565	407	463	320		761	123
Magnesium, Total (Mg)	47.3	72.5	70.1	67.1		173	20.6
Potassium, Total (K)	4.6	6.5	4.1	4.8		9.9	2.3
Sodium, Total (Na)	193	249	296	295		977	55
pH (Unfilt.) (pH units)	7.22	7.45	7.4	7.41		7.42	7.71
(Concentrations reported in ppb)							
8020-Aromatic Volatile Organics							
Benzene	ND	800	1500	ND	ND	ND	ND
Toluene	ND	2800	30000	ND	ND	2	13
Ethyl Benzene	ND	400	2000	ND	ND	ND	2
Xylenes	ND	8100	36000	ND	ND	6	45

NMWQCC Standards	
Chloride	250 ppm
TDS	1000 ppm
Sulfate	600 ppm
Benzene	10 ppb
Toluene	750 ppb
Ethyl Benzene	750 ppb
Xylenes	620 ppb

0569/GWSAMPIN.TBL

4.0 Discussion

Based upon the preliminary soil vapor survey and ground-water sampling results, petroleum hydrocarbons have entered the soil and have impacted ground-water at the site. The contaminant plume originates from the areas of the produced water tank and production unit as well as from the condensate tank location.

4.1 Ground-Water Flow

At the Thomas #1 well site, the direction of ground-water flow is south to southwest which is parallel to the flow of the San Juan River in that area. A ground-water elevation and gradient map of the site is shown on plate 2. At the site the depth-to-ground-water ranges from 3.5 to 4.5 feet below ground surface. The gradient drops one foot over a length of 500 linear feet beneath the site. The wells were completed in fine-grained sands and silts.

4.2 Soil-Vapor

The results of the soil vapor survey showing total BTEX concentrations are presented in map form on plate 1. The results indicate that a vapor plume is elongate and parallel to the direction of ground-water flow.

4.3 Water Chemistry

Analytical laboratory results from the monitor well sampling program for BTEX are presented on plate 3. The dissolved-phase BTEX plume appears to mimic the geometry of the soil-vapor plume.

December 23, 1987

Procedures for Purging and Sampling Wells

1.0 Purpose

To describe the Standard Operating Procedures SOP for purging and sampling wells.

2.0 Scope

This document describes procedures to be used in purging and sampling wells for determination of water quality and potential contamination. The procedures described in this document are consistent with the requirements of all Federal regulations, and are specifically designed to comply with ground water monitoring requirements under RCRA.

3.0 Procedures

3.1 Preparations for Sampling

Before proceeding to the field area, be sure that all necessary equipment and supplies are on hand. To the extent possible, all equipment and supplies should be decontaminated in the laboratory before proceeding to the field area. Equipment decontamination procedures are described in a separate SOP.

Equipment and supplies needed for collecting representative ground water samples include:

- An electronic water-level sounder or steel tape and chalk,
- Distilled water and wash bottles,
- Brushes and laboratory soap,

- Heavy plastic bags,
- Paper towels or clean rags,
- Zip-lock plastic bags,
- Rubber gloves,
- Several 500 ml beakers,
- A submersible pump (at some sites there is a dedicated pump for each well) with appropriate attachments to enable purging and sampling the well,
- A hose to direct pump discharge several feet away from the well, and containers for discharge if it is contaminated,
- Plastic sheet film,
- A graduated bucket,
- A bottom-filling teflon or stainless steel bailer with sufficient cord and/or cable,
- All necessary sample containers with the appropriate volume of preservatives added to the containers by the laboratory,
- pH meter,
- Thermometers,
- Specific conductance meter,
- Field log book and sample forms,
- Ice and ice chest for samples,
- Strapping tape and shipping labels,

- Waterproof marking pen,
- Chain-of-Custody labels,
- Watch or stopwatch for use in determining pumping rates.

A nearby location of a steam cleaner is desirable in order to avoid long delays for cleaning of equipment, if necessary, between sampling of individual wells.

3.2 Determine Water Level and Test for "Floaters" and "Sinkers"

Using an electronic sounder ("water level probe") or other suitable device, measure the depth to water (DTW) in the well. If approximate total depth (TD) of the well is not known, it will also be necessary to measure total depth with the sounder. If approximate total depth is known, defer the measurement until after sampling has been completed. Use of the electronic sounder is described in a separate SOP. If the presence of floating or sinking immiscible phases is known or suspected, they must be evaluated and sampled before purging or other sampling.

After determining the water level and total depth, coat the electronic sounder's tape with an indicator paste which changes color when exposed to organic chemicals. Apply the paste in a thin layer over a 1-foot interval at the bottom of the tape, and over a 1- to 2-foot interval including the tape measurement corresponding to the water level elevation above the bottom of the well. Lower the sounder into the well so that it reaches the bottom of the well, and the upper paste zone spans the water level.

Withdraw the tape, and observe whether the indicator paste has changed color (refer to the manufacturer's instructions for the color change to be anticipated). If floating or sinking phases are present, they must be sampled before purging the well. Instructions for sampling "floaters" and "sinkers" are included in the following section.

3.3 Collection oF "Floaters" and "Sinders"

3.3.1 Collection of Light Immiscibles (Floaters)

The approach to collection of floaters is dependent on the depth to the surface of the floating layer and the thickness of that layer. The thickness of the layer can be determined by using an interface probe, which indicates the depths to both top and bottom of the layer.

If the thickness of the floater is two feet or greater, a bottom valve bailer is the equipment of choice. Slowly lower the bailer until contact is made with the floater surface and lower the bailer to a depth less than that of the floater/water interface depth as determined by preliminary measures with the interface probe.

When thickness of the floating layer is less than 2 feet but the depth to the surface of the floating layer is less than about 15 feet, a peristaltic pump can be used to collect a sample.

When the thickness of the floating layer is less than two feet and the depth to the surface of the floating layer is beyond the effective "reach" of a peristaltic pump (greater than 25 feet), a bailer must be modified to allow filling only from the top. Disassemble the bailer's bottom check valve and insert a piece of two-inch diameter Teflon sheet between the ball and ball seat to seal off the bottom valve. Remove the ball from the top check valve, thus allowing the sample to enter from the top. To overcome buoyancy when the bailer is lowered into the floater, place a length of one-inch stainless steel pipe on the retrieval line above the bailer (this pipe may have to be notched to allow sample entry if the pipe remains within the top of the bailer). Lower the device, carefully measuring the depth to the surface of the floating layer, until the top of the bailer is level with the top of the floating layer. Lower the bailer an additional one-half thickness of the floating layer and collect sample. This technique is the most effective method of collection if the floater consists of only a few inches of materials.

3.3.2 Collection of Heavy Immiscibles (Sinkers)

The best method for collection of sinkers is use of a double check valve bailer. The key to collection is controlled, slow lowering and raising of the bailer to and from the bottom of the well. Collection methods when using a bailer are equivalent to those described above.

3.4 Determine the Volume of Water to be Purged from the Well

This normally is at least 3 casing volumes, determined as follows:

- Measure the true inside diameter of the casing, using a steel tape or ruler; convert to feet.
- Find the true inside radius (r) of the casing by dividing the diameter by 2.
- Determine 1 casing volume in cubic feet (V_d) by calculating:

$$V_d = 3.14 \times (r)^2 \times (TD - DTW).$$

- Determine 1 casing volume in gallons by multiplying V_d x (7.48 gals/ft^3).
- Multiply by 3 to determine total volume of water to be pumped from the well.

The exception to this standard (other than program requirements) is in the case of low yield wells. When purging low yield wells, pump the well once to dryness. Samples should be collected as soon as the well recovers. When full recovery exceeds three hours, samples should be collected as soon as sufficient water volume is available.

3.5 Purge the Well

Currently, standards allow for four options for purging wells. They are:

- Teflon or stainless steel bailers
- Existing dedicated equipment - Use of these devices must be approved by On-Site Representatives.
- Peristaltic pumps - Use of these devices, suitable for shallow wells only, must be approved by the On-Site Representative.

- Positive displacement bladder pump, capable of being completely disassembled and cleaned before use in each well.

At no time during purging should the evacuation rate be high enough to cause the ground water to cascade back into the well thus causing excessive aeration and potential stripping of volatile constituents.

The actual volume of purged water can be measured by several acceptable methods.

- When bailers are used to purge, the actual volume of each bailer's contents can be measured using a calibrated bucket.

- If a pump is used for purging, the pump rate can be determined by using a bucket and stopwatch, and the duration of pumping timed until the necessary volume is purged. A totalizing flow meter may be used, if available.

Monitor the pH, temperature, and specific conductance of the water purged to ensure that these parameters have stabilized by the time 3 casing volumes have been withdrawn. If stabilization has not been achieved at that time, continue purging until it is achieved.

3.6 Disposal of Purged Water

Dispose of pumped water in a manner which poses no threat of contamination to any surface or ground water in the vicinity. If the water is determined to be hazardous, it must be contained and disposed of according to appropriate regulations.

3.7 Initial Sampling for Field Parameters

Begin sampling by withdrawing water from the well in accordance with the procedures of section 3.8. Place the first water withdrawn in a 500 ml or larger flask or beaker which has been properly cleaned, then rinsed 3 times with the well water being recovered. Use this sample for field measurement of temperature, specific conductance, and pH. Procedures for these field measurements are described in a separate SOP document.

3.8 Sample Collection

3.8.1 General Considerations

The technique used to withdraw a ground water sample from a well should be selected based on a consideration of the parameters which will be analyzed. To ensure the ground water samples' representativeness, it is important to avoid physically altering or chemically contaminating the samples during collection, withdrawal, and containerization.

The preferred sampling device for all parameters is a double check valve stainless steel or Teflon bailer.

To the extent possible, no sampling device constructed of or containing neoprene, PVC, Tygon, silicone, polyethylene, or Viton will be used to collect ground-water samples.

In some cases, it may be necessary to use equipment already in the well to collect samples. This is particularly true of high volume, deep wells (>150 feet) where purging pumps are ineffective, and bailing is impractical. If existing equipment must be used, determine the make and model of the pump and check with the manufacturer concerning component construction materials.

General sampling procedures include the following:

- Clean sampling equipment should not be placed directly on the ground. Use a drop cloth or feed line from clean reels. If reels are used, avoid placing contaminated lines back on reels.
- Lower sampling equipment slowly into the well to avoid degassing of the water and damage to the equipment.
- If bailer cable is to be decontaminated and reused, it must be Teflon-coated or made of stainless steel. Braided polypropylene is also acceptable.
- Check the operation of bailer check valve assemblies to confirm free operation.

- Purging pump flow rates should be adjusted to eliminate intermittent or pulsed flow. The settings should be determined during the purging operations. Flow rate should be less than 100 ml/minute when sampling for volatile organic compounds (VOC's).

- Samples should be collected and containerized in the order of the parameters volatilization sensitivity. Table 3-1 lists the preferred collection order for some common ground-water parameters.

3.8.2 Collection of Volatile Organics Samples (VOAs)

VOAs should be collected from the first bailer removed from the well after purging, immediately following collection of the sample for field analyses. The most effective means of controlled collection of the sample is by employing two people. One person should retrieve the bailer from the well and place the bottom over a VOA container (40 ml septum vial) held by the second person. The second person should insert the Teflon bottom emptying device into the bailer, bring the vial to tip of the bottom emptying device, and tilt the vial to approximately 60. from the vertical.

Delivery of the sample from the bailer down the edge of the vial is accomplished when the person holding the bailer slowly opens the top check valve with a Teflon, glass, or stainless steel insert. As the vial is filled, the second person should return it to the vertical position.

Fill the septum vial until it is just overflowing. Cap the vial and invert. If a bubble exists, discard and repeat. Do not reopen the vial and add additional sample.

If a sampling pump is used, reduce the flow to less than 100 ml per minute prior to sample collection.

3.9 Containers

Collect and preserve all samples in approved containers and by the standard methods described in the Sampling and Analysis Plan for the project. The specific containers and preservatives used for each analyte may vary among laboratories. The standard methods of the laboratory selected for analysis will be followed in each project Sampling and Analysis

Plan. Handle all samples in accordance with the procedures described in the SOP documents "Procedures for Packing and Shipping of Samples" and "Chain-of-Custody Procedures."

3.10 Final Field Analyses

Immediately after collection of all samples required in the Sampling and Analysis Plan, collect a final sample for field analyses, as described in Section 3.7 above. The purpose of these repeat analyses is to check for possible changes in water quality during the time of sampling. Samples used for field analyses should be discarded when the analyses are complete (see table 3-1).

Table 3-1

Preferred Order of Sample Collection

1. Volatile organics (VOA)
2. Purgeable organic carbon (POC)
3. Purgeable organic halogens (POX)
4. Extractable organics
5. Total metals
6. Dissolved metals
7. Total organic carbon (TOC)
8. Total organic halogens (TOX)
9. Phenols
10. Cyanide
11. Sulfate and chloride
12. Nitrate and ammonia
13. Radionuclides

3.11 Measure Total Depth of Well

After collection and preservation of all samples and completion of final field analyses, measure depth to bottom of the well, using the electronic sounder. Use of the sounder is described in a separate SOP.

4.0 References

U.S. Code of Federal Regulations, 1983, 40 CFR 264.97.

U.S. Environmental Protection Agency, 1986a, RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, p. 97-114.

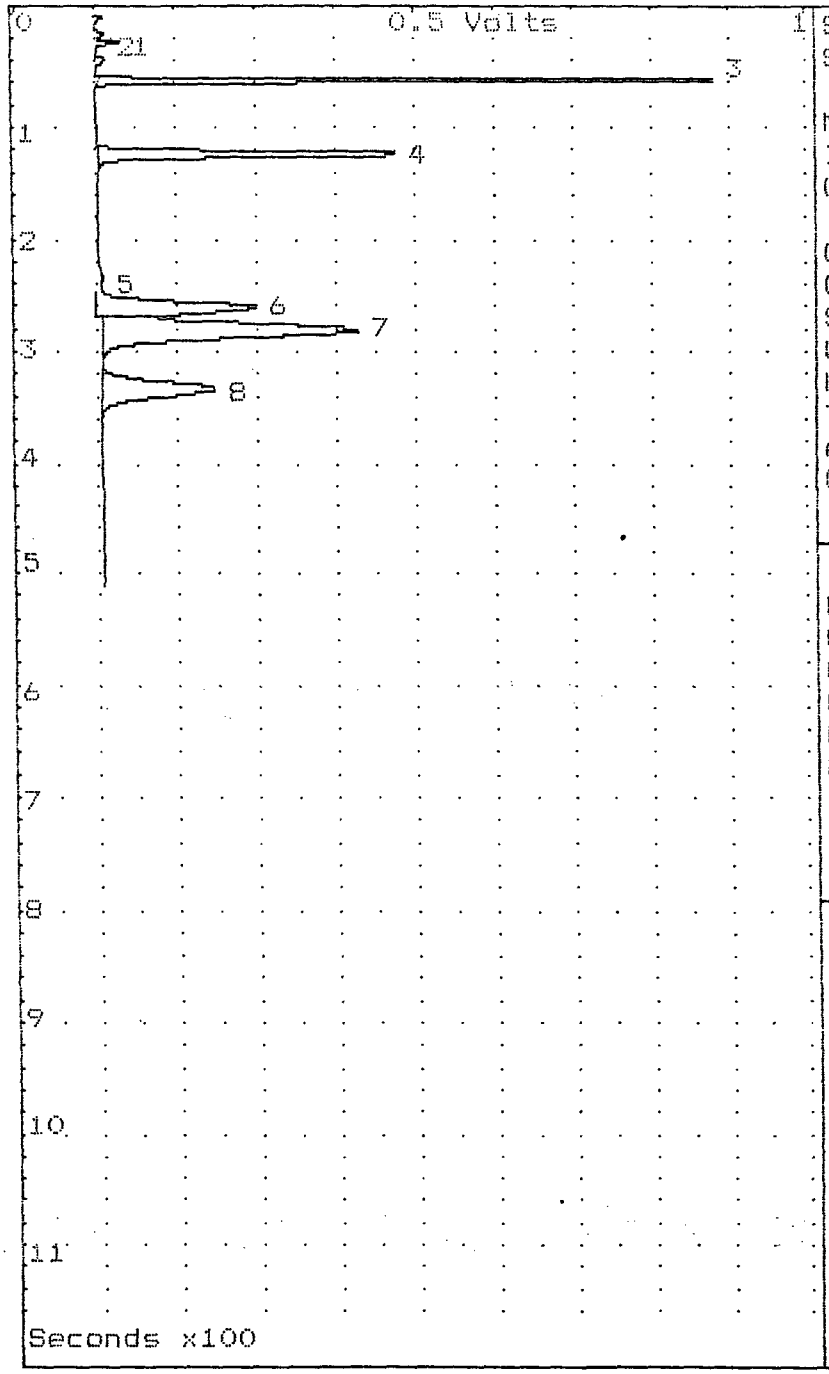
U.S. Environmental Protection Agency, 1986b, Test Methods for Evaluating Solid Waste: EPA Report SW-846; Volume I: Physical/Chemical Methods.

Prepared By: _____

Reviewed By: _____

Reviewed By: _____

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 15 1991 8:31
Stopped at 515.1 sec

Number	7	mobil thomas 1
Internal Temp	38	btex cal
Gain	2	ov 40 10 ml/min
Offset	18.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	5	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	25.3	57.7 mVS
UNKNOWN	2	42.3	15.6 mVS
UNKNOWN	3	60.9	2.5 VS
UNKNOWN	4	127.6	2.4 VS
UNKNOWN	5	238.8	16 mVS
UNKNOWN	6	266.1	2.3 VS
UNKNOWN	7	286.7	4.5 VS
UNKNOWN	8	339.4	2.1 VS

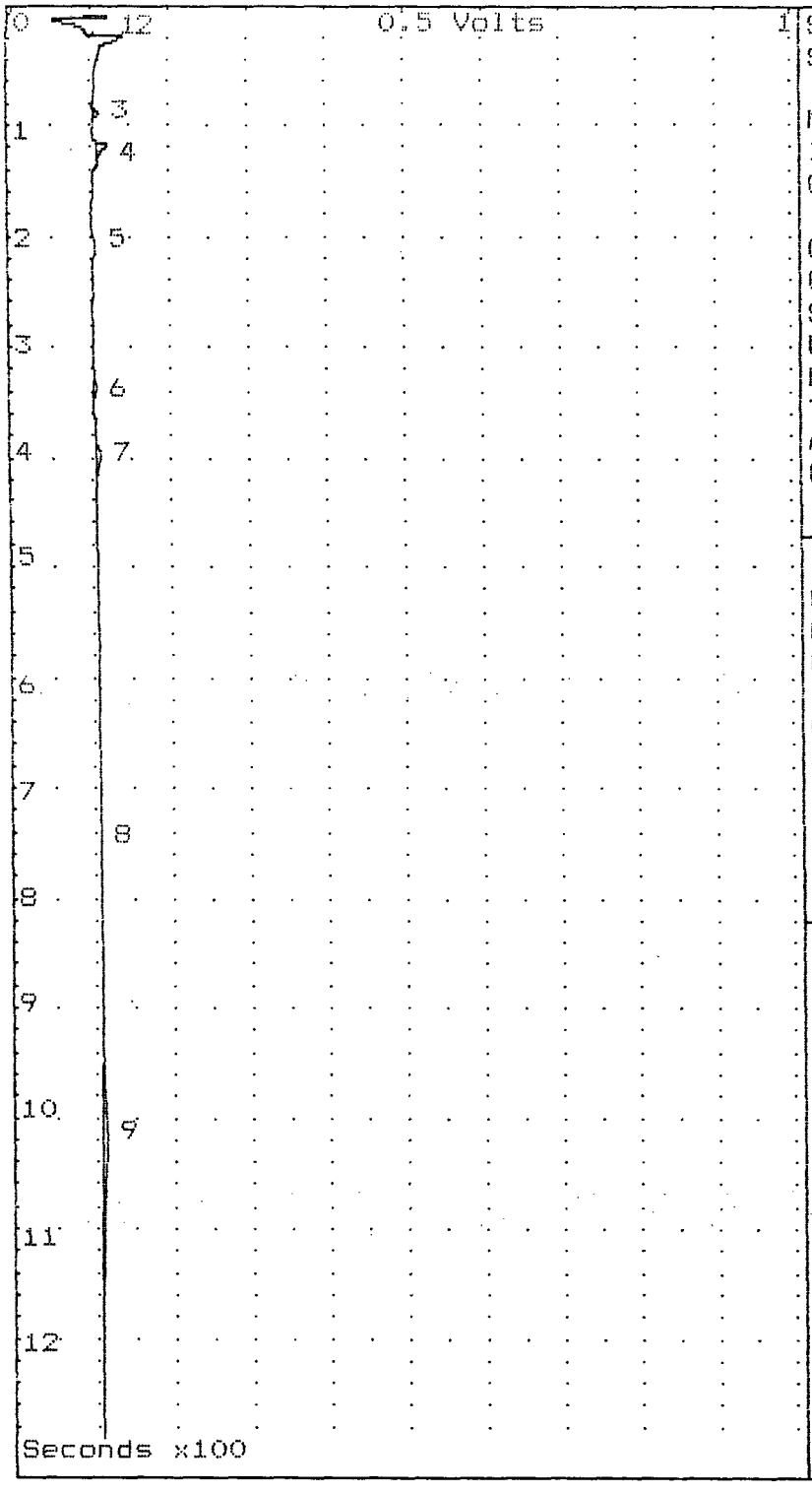
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

BTEX CALIBRATION

Analysis Report - Photovac 10S70 Gas Chromatograph



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Number	9	mobil thomas 1
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Offset	31.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	5	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	3.8	135 mVS
UNKNOWN	2	22.3	42.2 mVS
UNKNOWN	3	93.1	18.4 mVS
toluene	4	122.4	374 PPB*
UNKNOWN	5	214.8	13.9 mVS
o-xylene	6	343.0	112 PPB*
UNKNOWN	7	403.6	165 mVS
UNKNOWN	8	786.6	5.6 mVS
UNKNOWN	9	1034.4	426 mVS

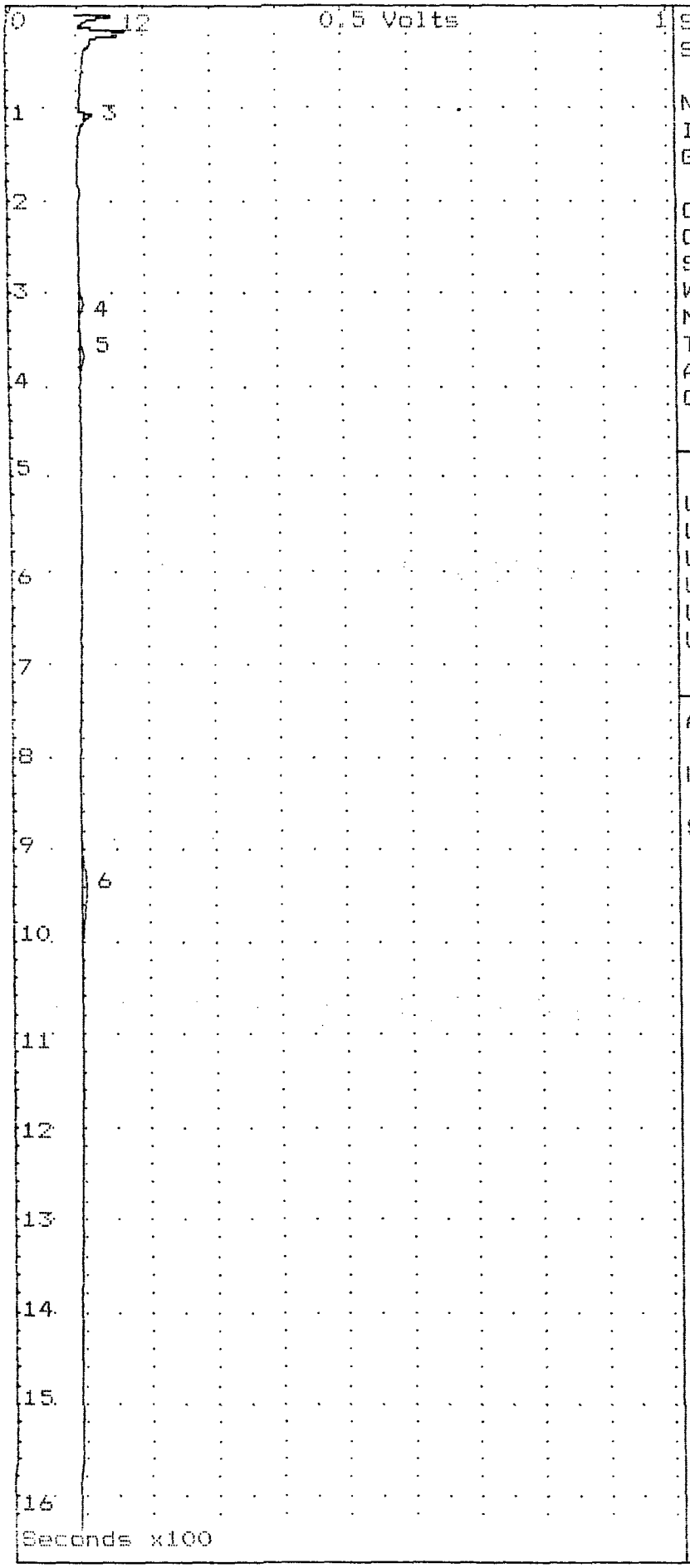
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 2

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 15 1991 10: 0
Stopped at 1639.8 sec

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Gain	2	ov 40 10 ml/min
Offset	36.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	5	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	4.1	49.1 mVS
UNKNOWN	2	19.4	106 mVS
UNKNOWN	3	111.7	94.8 mVS
UNKNOWN	4	316.3	62.4 mVS
UNKNOWN	5	373.2	115 mVS
UNKNOWN	6	958.0	479 mVS

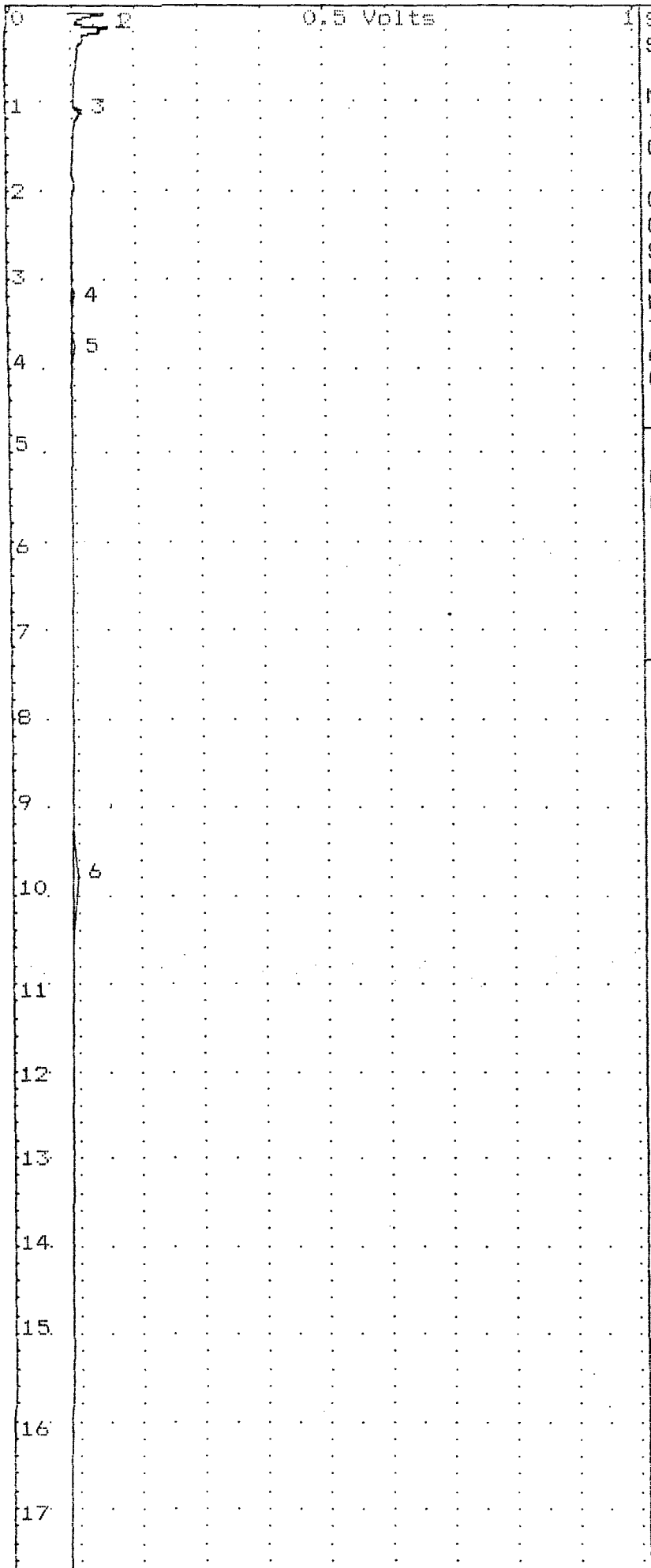
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 3

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 15 1991 10:33
Stopped at 2000.0 sec

Number	11	mobil thomas 1
Internal Temp	39	pt 3
Gain	2	ov 40 10 ml/min
Offset	32.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	5	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	4.1	45.7 mVS
UNKNOWN	2	19.4	33.3 mVS
UNKNOWN	3	115.0	45.7 mVS
o-xylene	4	324.1	158 PPB*
UNKNOWN	5	384.2	77.5 mVS
UNKNOWN	6	998.0	440 mVS

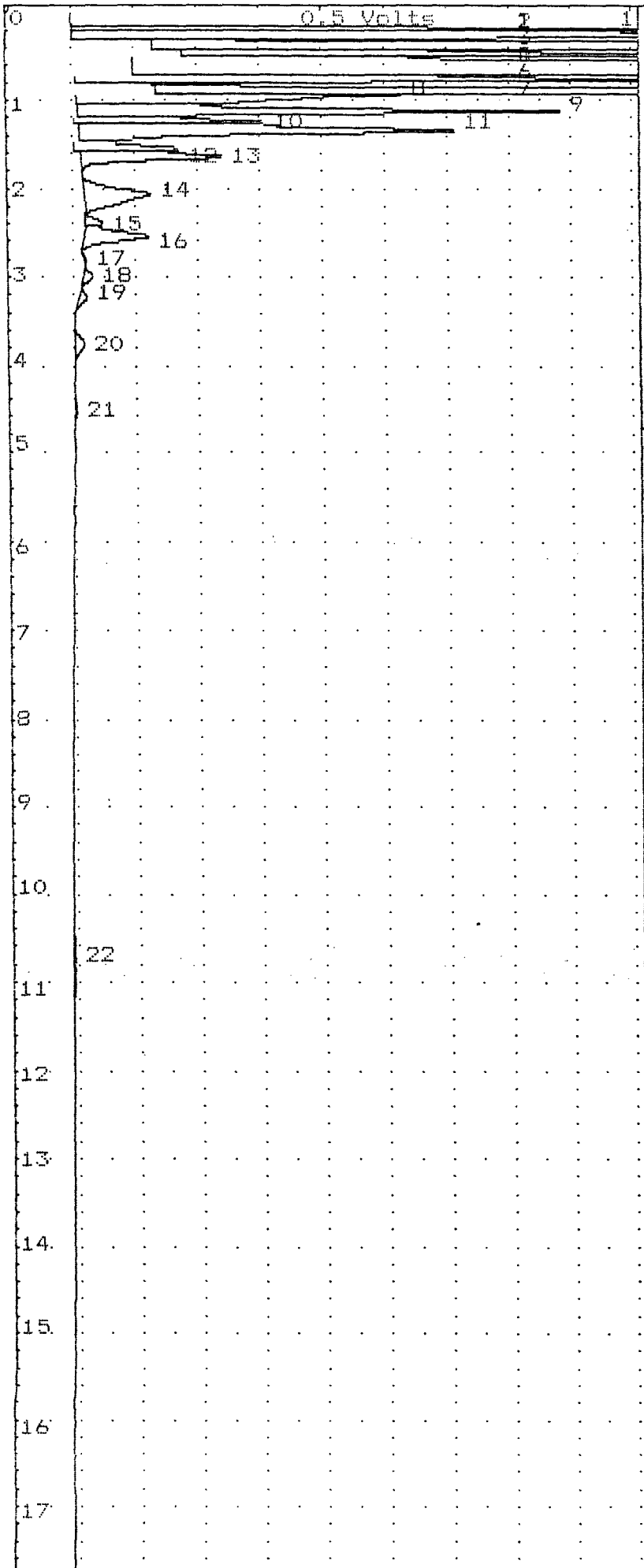
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 4

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 15 1991 11:14
Stopped at 2000.0 sec

Number	12	mobil thomas 1
Internal Temp	38	pt 5
Gain	2	ov 40 10 ml/min
Offset	22.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	5	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	21.5	5.7	VS
UNKNOWN	2	26.8	7.6	VS
UNKNOWN	3	39.8	26.7	VS
UNKNOWN	4	49.9	6.8	VS
UNKNOWN	5	64.4	73.6	VS
UNKNOWN	6	78.5	5.8	VS
UNKNOWN	7	91.3	19.1	VS
UNKNOWN	8	100.3	3.1	VS
UNKNOWN	9	116.5	5.4	VS
toluene	10	130.4	8.04	PPM*
UNKNOWN	11	138.4	5.6	VS
UNKNOWN	12	159.2	1.3	VS
UNKNOWN	13	168.7	1.8	VS
UNKNOWN	14	211.2	1.8	VS
UNKNOWN	15	244.4	250	mVS
ethylbenzene	16	259.8	4.04	PPM*
p,m-xylene	17	287.5	98.5	PPB*
UNKNOWN	18	305.1	129	mVS
o-xylene	19	328.6	421	PPB*
UNKNOWN	20	382.2	247	mVS
UNKNOWN	21	458.0	39.8	mVS
UNKNOWN	22	1102.7	114	mVS

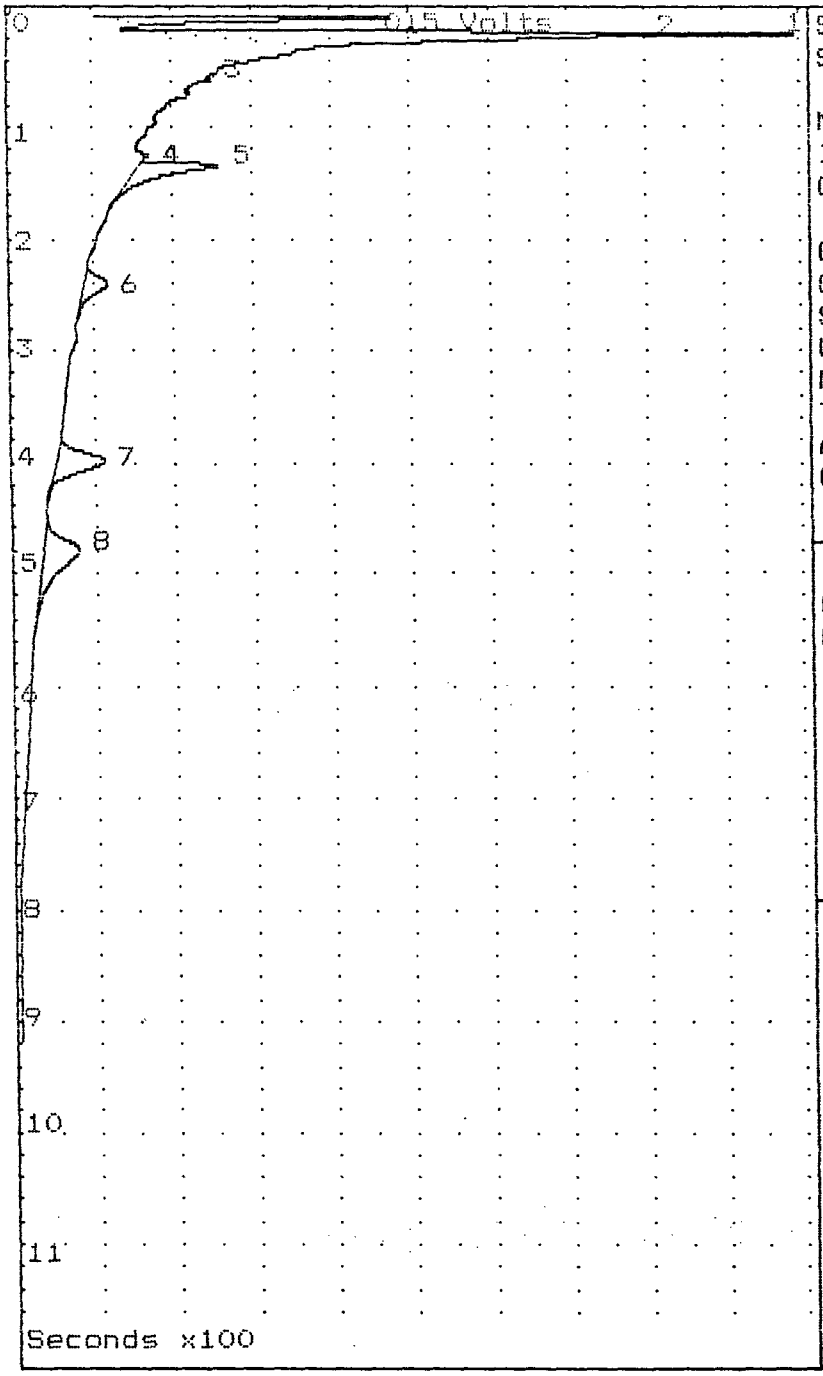
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 5

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 15 1991 12:20
Stopped at 917.1 sec

Number	15	mobil thomas 1
Internal Temp	34	pt 6
Gain	20	ov 40 10 ml/min
Offset	54.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	5	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.2	2	VS
UNKNOWN	2	19.2	5.6	VS
benzene	3	59.7	8.99	PPB*
toluene	4	129.2	14.6	PPB*
UNKNOWN	5	138.4	1.1	VS
UNKNOWN	6	245.1	457	mVS
UNKNOWN	7	405.8	1.1	VS
UNKNOWN	8	487.5	1.3	VS

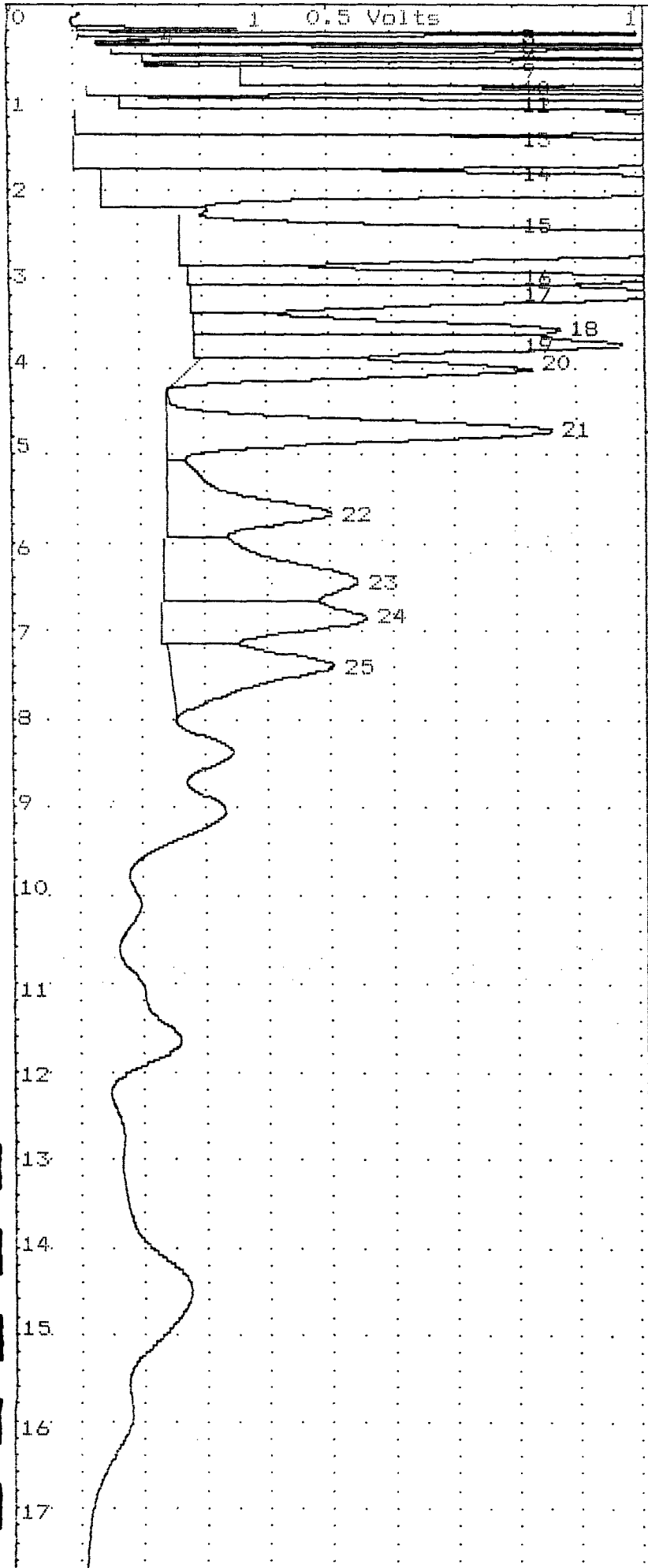
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 6

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 15 1991 13:33
Stopped at 2000.0 sec

Number	17	mobil thomas 1
Internal Temp	29	pt 7
Gain	20	ov 40 10 ml/min
Offset	46.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	5	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	21.5	825 mVS
UNKNOWN	2	26.0	1.9 VS
UNKNOWN	3	28.3	1.2 VS
UNKNOWN	4	33.1	245 mVS
UNKNOWN	5	39.0	5.5 VS
UNKNOWN	6	42.5	2.5 VS
UNKNOWN	7	46.5	3.1 VS
UNKNOWN	8	55.4	6.8 VS
UNKNOWN	9	76.3	93.3 VS
UNKNOWN	10	91.7	6.5 VS
UNKNOWN	11	106.8	32.1 VS
toluene	12	127.1	12.5 PPM*
UNKNOWN	13	160.3	123 VS
UNKNOWN	14	196.8	95.6 VS
ethylbenzene	15	262.0	44.2 PPM*
p,m-xylene	16	300.7	6.86 PPM*
UNKNOWN	17	319.2	18.7 VS
UNKNOWN	18	363.2	10.6 VS
UNKNOWN	19	380.2	12.5 VS
UNKNOWN	20	409.1	10.2 VS
UNKNOWN	21	479.7	17.4 VS
UNKNOWN	22	575.8	11 VS
UNKNOWN	23	653.6	15.9 VS
UNKNOWN	24	697.1	11.1 VS
UNKNOWN	25	749.1	10.7 VS
UNKNOWN	26	849.5	2.5 VS
UNKNOWN	27	917.2	3.1 VS
UNKNOWN	28	1024.0	764 mVS
UNKNOWN	29	1181.3	7.4 VS
UNKNOWN	30	1291.3	1 VS
UNKNOWN	31	1469.9	15.4 VS
UNKNOWN	32	1610.4	2 VS

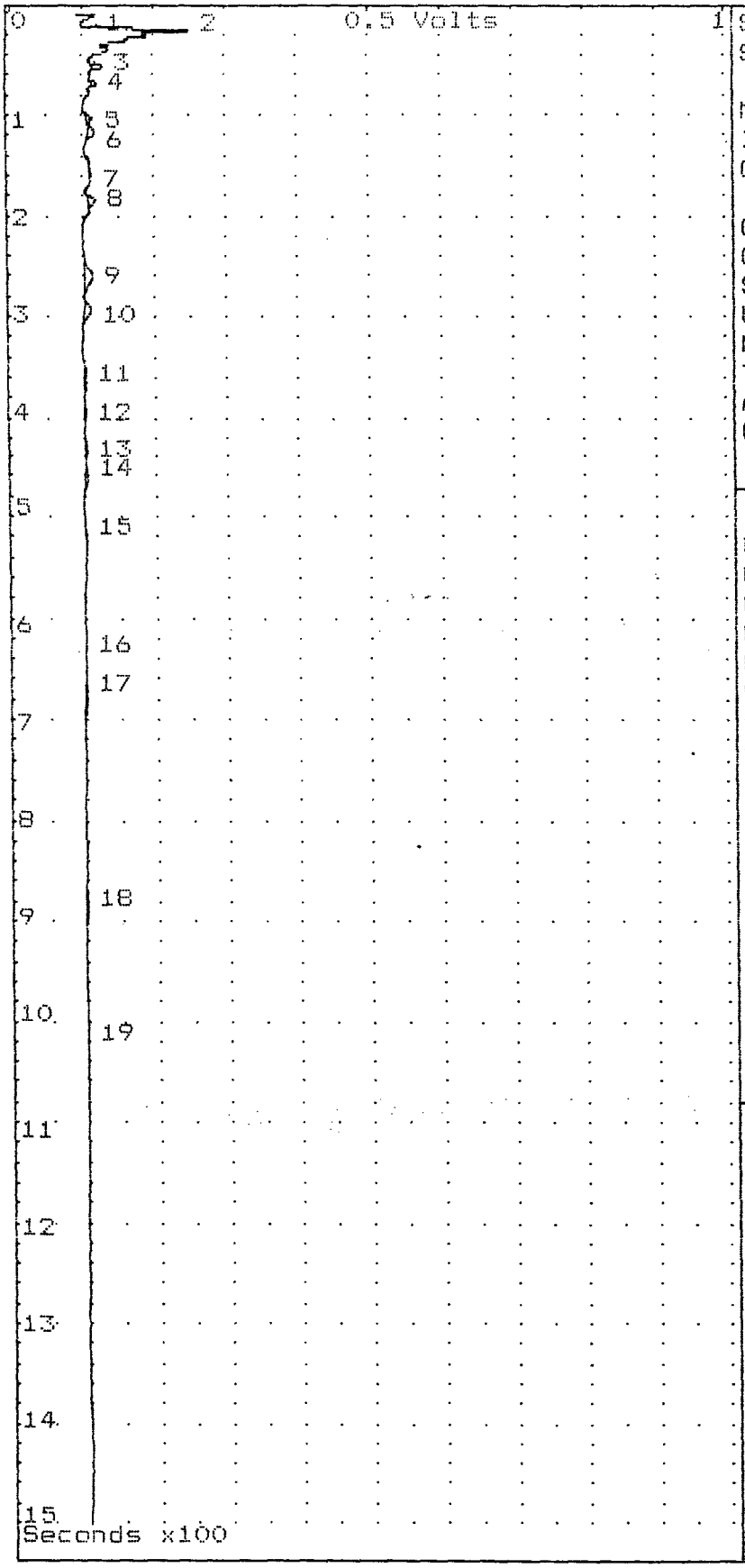
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 7

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 10:37
Stopped at 1500.0 sec

Number	4	mobil thomas 1
Internal Temp	26	mach blank
Gain	2	ov 40 10 ml/min
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1500.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	4.5	22.5 mVS
UNKNOWN	2	19.0	412 mVS
UNKNOWN	3	54.3	76.6 mVS
UNKNOWN	4	71.7	29.3 mVS
UNKNOWN	5	106.6	37.3 mVS
UNKNOWN	6	122.0	85 mVS
UNKNOWN	7	162.7	58 mVS
UNKNOWN	8	189.2	97.5 mVS
UNKNOWN	9	264.7	139 mVS
ethylbenzene	10	298.7	498 PPB*
o-xylene	11	372.2	393 PPB*
UNKNOWN	13	437.7	18.7 mVS
UNKNOWN	14	468.8	38.8 mVS
UNKNOWN	15	529.9	39 mVS
UNKNOWN	16	638.3	17.2 mVS
UNKNOWN	17	689.9	21.7 mVS
UNKNOWN	18	898.8	42.5 mVS
UNKNOWN	19	1034.4	20.4 mVS

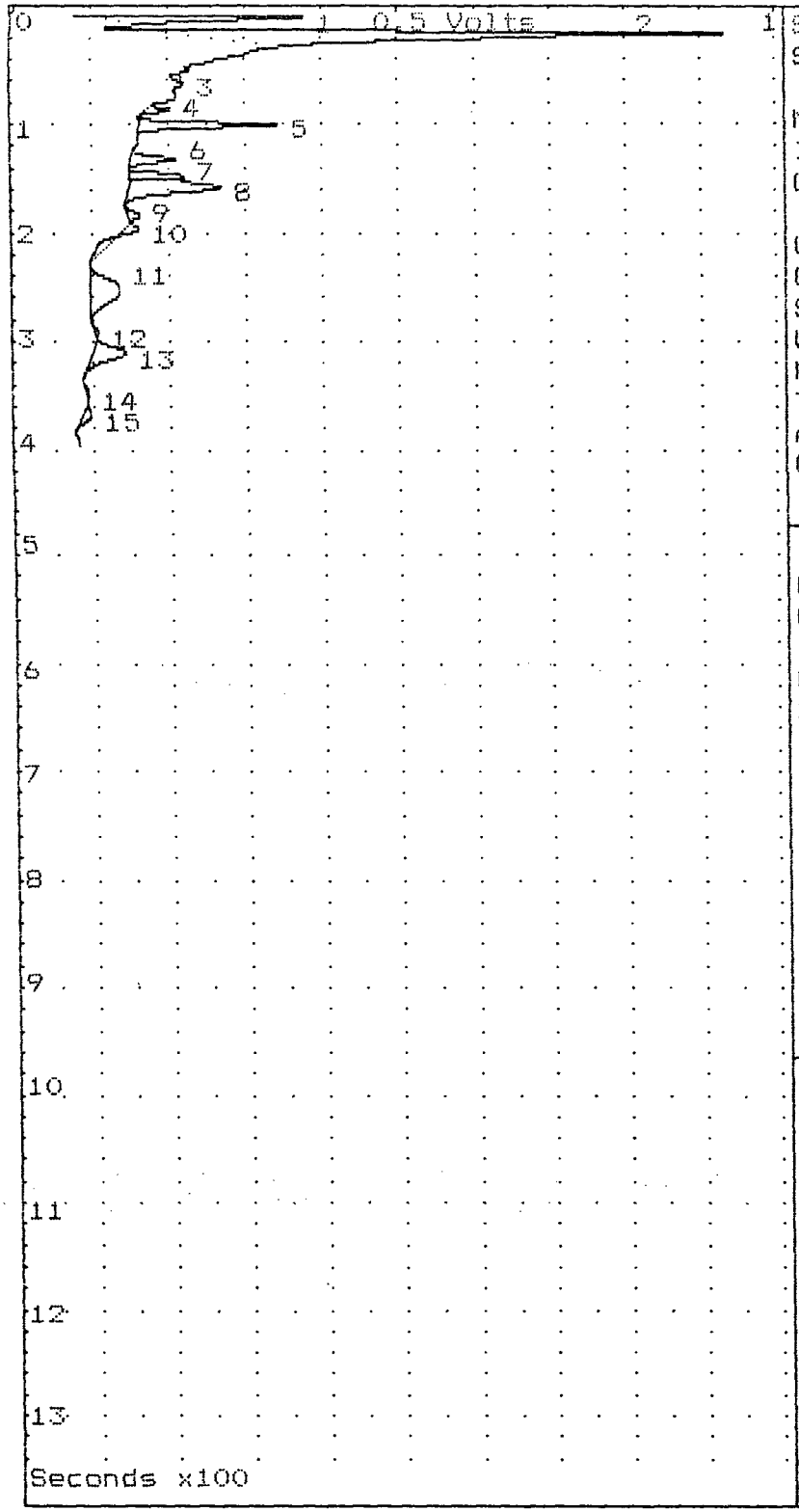
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 8

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 10:57
Stopped at 400.0 sec

Number	6	mobil thomas 1
Internal Temp	26	pt 9
Gain	20	ov 40 10 ml/min
Offset	43.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	400.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.6	1.4	VS
UNKNOWN	2	19.0	5.6	VS
benzene	3	66.5	34.9	PPB*
UNKNOWN	4	90.1	89.6	mVS
UNKNOWN	5	104.2	1	VS
toluene	6	136.0	168	PPB*
toluene	7	152.4	279	PPB*
UNKNOWN	8	162.7	1.1	VS
UNKNOWN	9	188.2	107	mVS
UNKNOWN	11	255.6	913	mVS
ethylbenzene	12	297.9	15.4	PPB*
p,m-xylene	13	315.5	263	PPB*
o-xylene	14	353.8	23.4	PPB*
o-xylene	15	374.2	29.1	PPB*

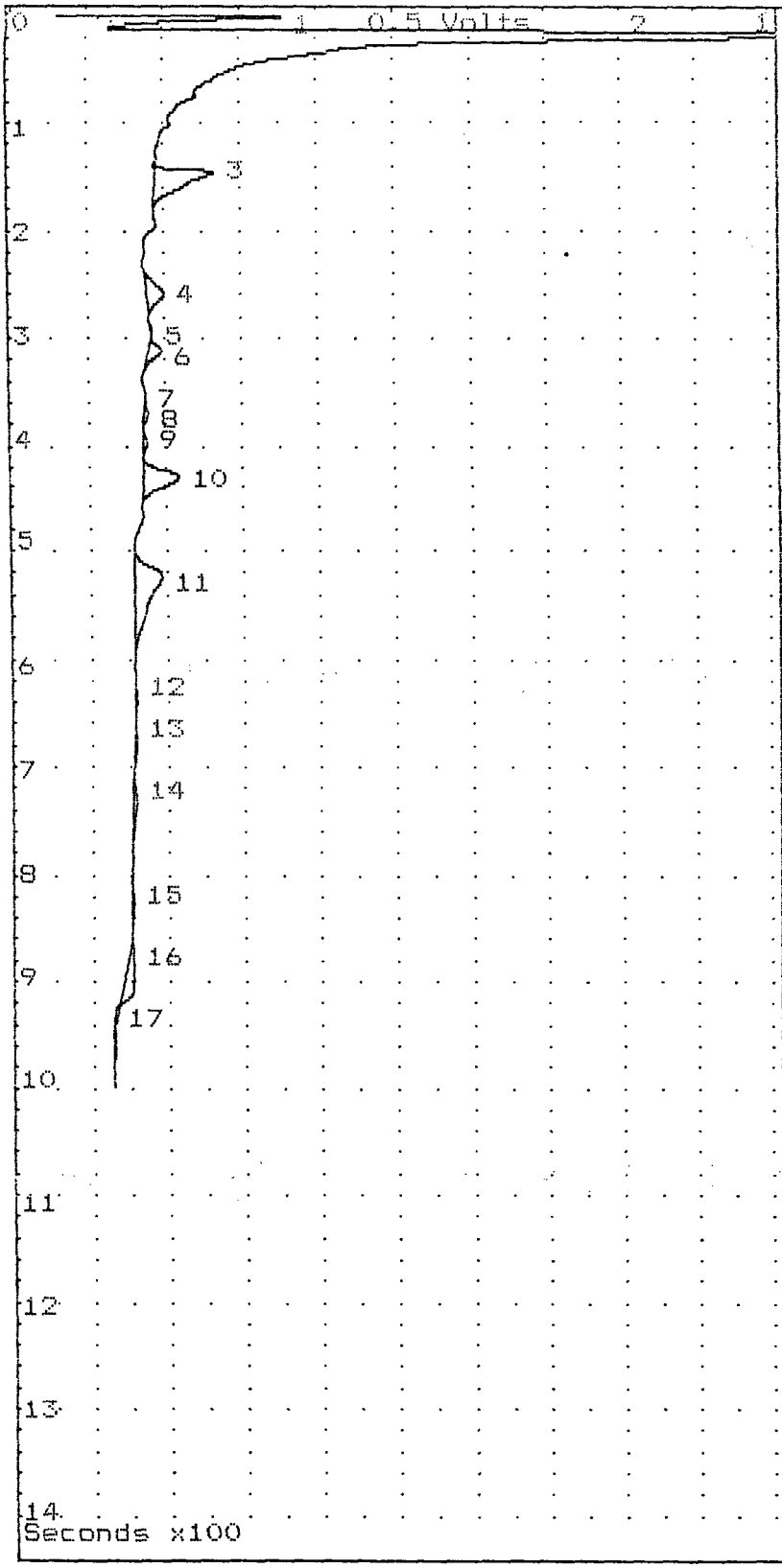
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 9

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 11:42
Stopped at 1000.0 sec

Number	8	mobil thomas 1
Internal Temp	28	pt 10
Gain	20	ov 40 10 ml/min
Offset	39.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.7	1.3	VS
UNKNOWN	2	19.3	4.1	VS
toluene	3	150.4	620	PPB*
UNKNOWN	4	264.0	467	mVS
ethylbenzene	5	297.9	5.62	PPB*
p,m-xylene	6	317.1	77	PPB*
o-xylene	7	358.3	5.26	PPB*
o-xylene	8	376.2	19.6	PPB*
o-xylene	9	403.6	21.5	PPB*
UNKNOWN	10	438.8	863	mVS
UNKNOWN	11	532.7	1.3	VS
UNKNOWN	12	643.4	46.5	mVS
UNKNOWN	13	689.9	22.5	mVS
UNKNOWN	14	743.4	93.8	mVS
UNKNOWN	15	840.7	28	mVS
UNKNOWN	16	903.4	364	mVS

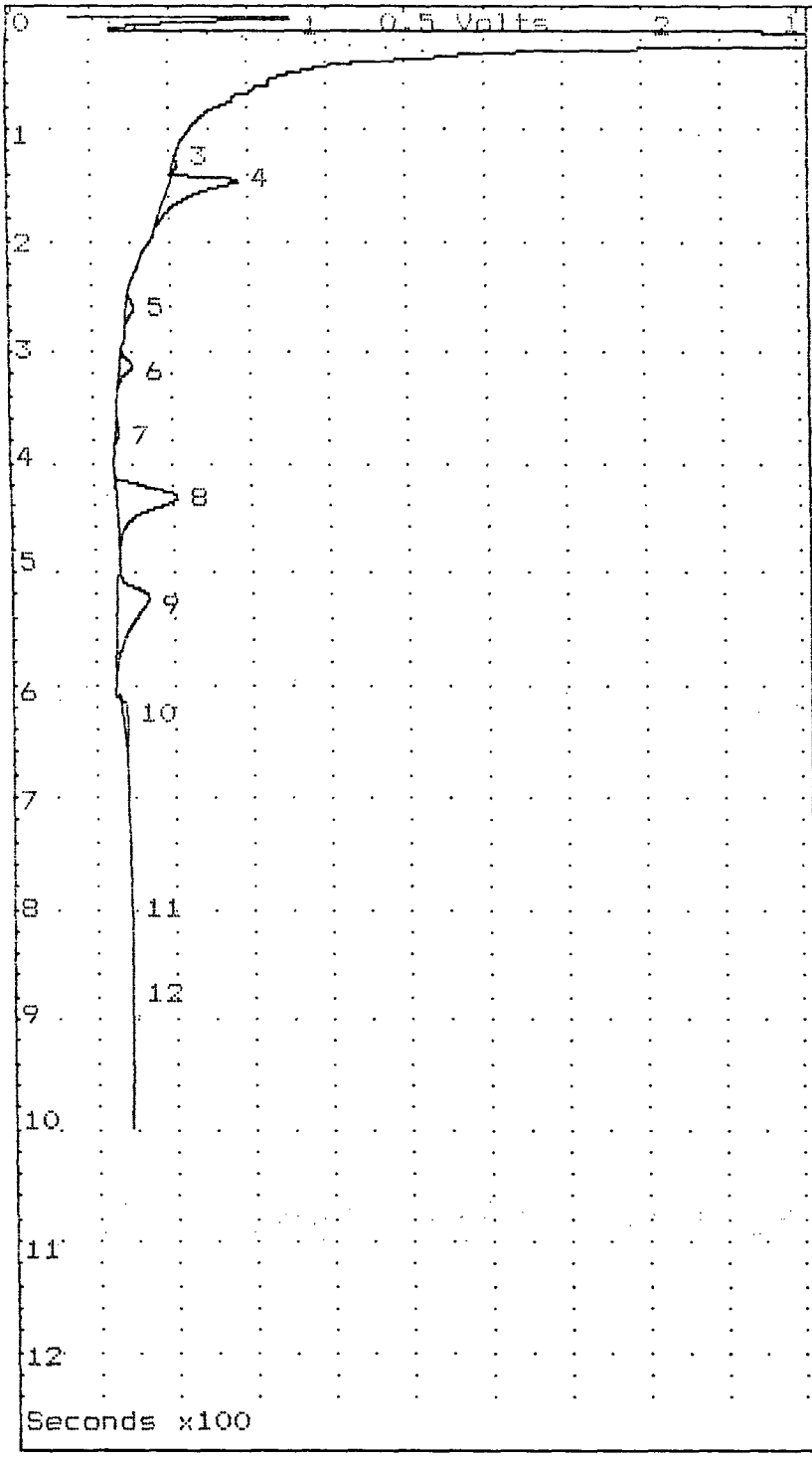
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 10

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 12: 3
Stopped at 1000.0 sec

Number	9	mobil thomas 1
Internal Temp	27	pt 11
Gain	20	ov 40 10 ml/min
Offset	40.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.5	1.3	VS
UNKNOWN	2	22.8	35.7	VS
toluene	4	150.0	702	PPB*
UNKNOWN	5	265.4	111	mVS
p,m-xylene	6	317.1	105	PPB*
o-xylene	7	379.2	16.6	PPB*
UNKNOWN	8	440.0	2	VS
UNKNOWN	9	532.7	1.1	VS
UNKNOWN	10	660.4	275	mVS
UNKNOWN	11	821.7	56	mVS
UNKNOWN	12	908.0	7.5	mVS

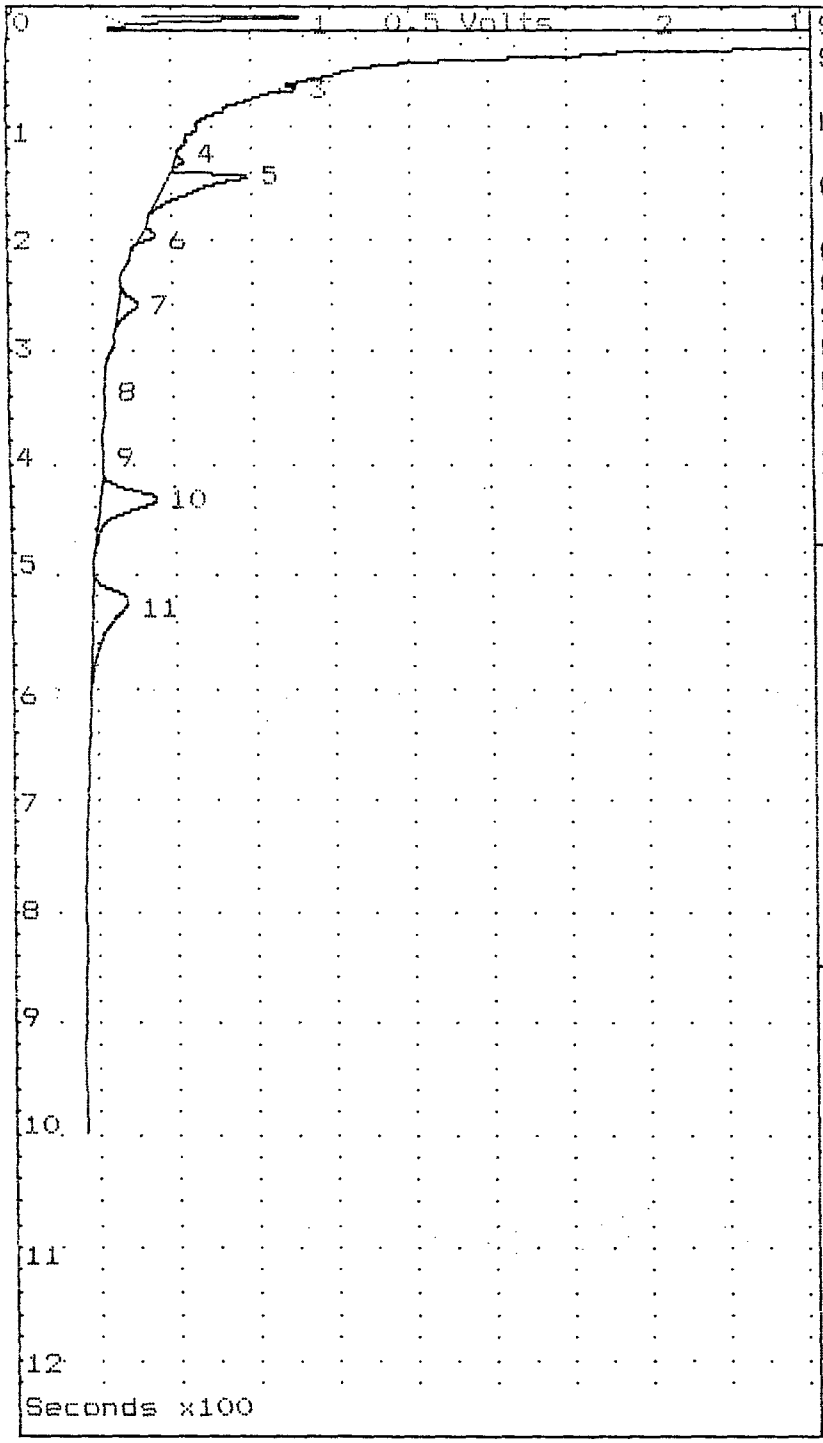
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 11

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 12:49
Stopped at 1000.0 sec

Number	12	mobil thomas 1
Internal Temp	28	pt 12
Gain	20	ov 40 10 ml/min
Offset	42.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.1	1.3	VS
UNKNOWN	2	24.1	54	VS
benzene	3	68.7	44.3	PPB*
toluene	4	135.6	26.1	PPB*
toluene	5	148.8	728	PPB*
UNKNOWN	6	201.0	79.9	mVS
UNKNOWN	7	264.7	386	mVS
o-xylene	9	403.6	7.12	PPB*
UNKNOWN	10	438.8	1.5	VS
UNKNOWN	11	531.3	1.6	VS

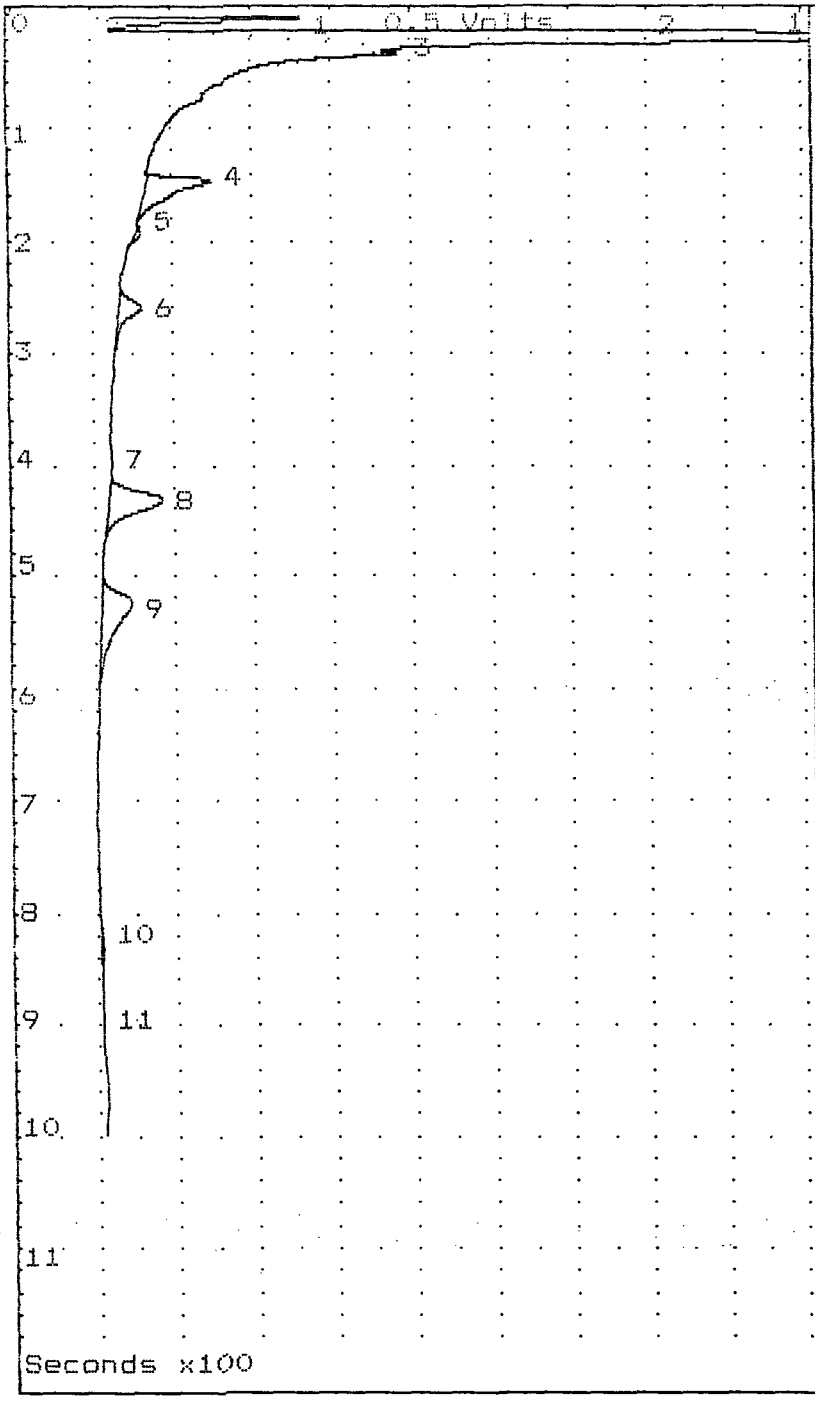
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 12

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 13:14
Stopped at 1000.0 sec

Number	13	mobil thomas 1
Internal Temp	28	pt 12
Gain	20	ov 40 10 ml/min
Offset	41.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.3	1.3	VS
UNKNOWN	2	20.9	20	VS
toluene	4	150.0	629	PPB*
UNKNOWN	5	196.7	26.9	mVS
UNKNOWN	6	264.7	509	mVS
o-xylene	7	397.2	9.75	PPB*
UNKNOWN	8	438.8	1.4	VS
UNKNOWN	9	532.7	1.3	VS
UNKNOWN	10	845.1	146	mVS

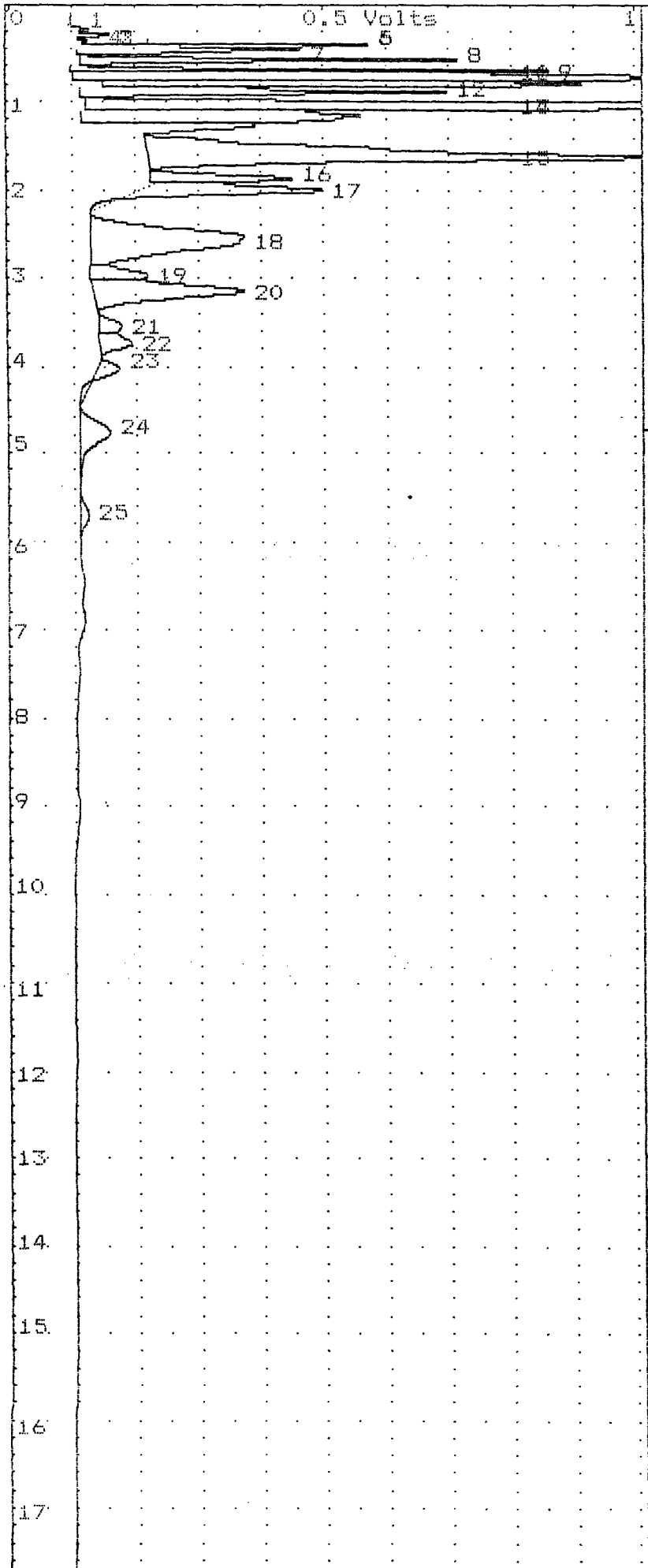
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 13

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 14:22
Stopped at 1783.1 sec

Number	15	mobil thomas 1
Internal Temp	29	pt 14
Gain	2	ov 40 10 ml/min
Offset	3.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	20.3	26.6 mVS
UNKNOWN	2	25.8	° 45 mVS
UNKNOWN	3	28.0	9.2 mVS
UNKNOWN	4	32.8	22.6 mVS
UNKNOWN	5	38.7	1.3 VS
UNKNOWN	6	42.7	1.4 VS
UNKNOWN	7	46.9	797 mVS
UNKNOWN	8	55.9	2.6 VS
benzene	9	68.5	18.5 PPM*
UNKNOWN	10	74.2	9 VS
UNKNOWN	11	83.5	4.7 VS
UNKNOWN	12	92.5	3 VS
UNKNOWN	13	106.4	22.9 VS
UNKNOWN	14	118.9	5.4 VS
UNKNOWN	15	165.0	12.6 VS
UNKNOWN	16	191.7	2 VS
UNKNOWN	17	205.2	2.5 VS
UNKNOWN	18	258.4	7.3 VS
ethylbenzene	19	302.7	5.88 PPM*
p,m-xylene	20	320.5	20.2 PPM*
o-xylene	21	361.2	3.03 PPM*
o-xylene	22	380.2	3.88 PPM*
o-xylene	23	410.2	1.27 PPM*
UNKNOWN	24	484.9	1.3 VS
UNKNOWN	25	580.3	321 mVS
UNKNOWN	26	658.7	92.6 mVS
UNKNOWN	27	700.7	103 mVS
UNKNOWN	28	754.8	40.2 mVS
UNKNOWN	29	853.9	24.3 mVS
UNKNOWN	30	914.9	172 mVS
UNKNOWN	311	193.3	95.5 mVS
UNKNOWN	321	484.9	60.8 mVS

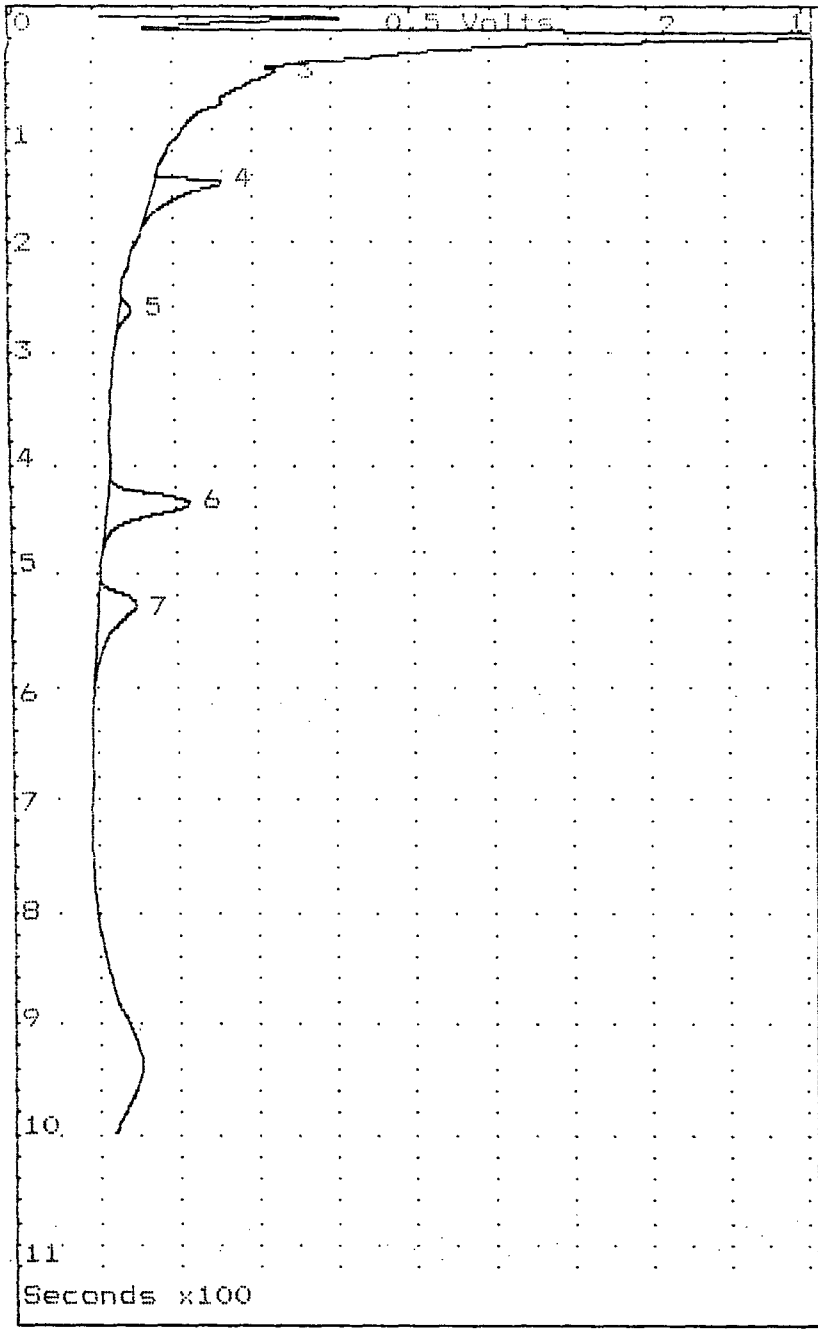
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 14

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 14:50
Stopped at 1000.0 sec

Number	17	mobil thomas 1
Internal Temp	28	pt 15
Gain	20	ov 40 10 ml/min
Offset	44.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.5	1.4	VS
UNKNOWN	2	19.7	3.2	VS
UNKNOWN	3	51.1	19	mVS
toluene	4	151.6	712	PPB*
UNKNOWN	5	267.5	235	mVS
UNKNOWN	6	443.6	2.2	VS
UNKNOWN	7	535.5	1.4	VS

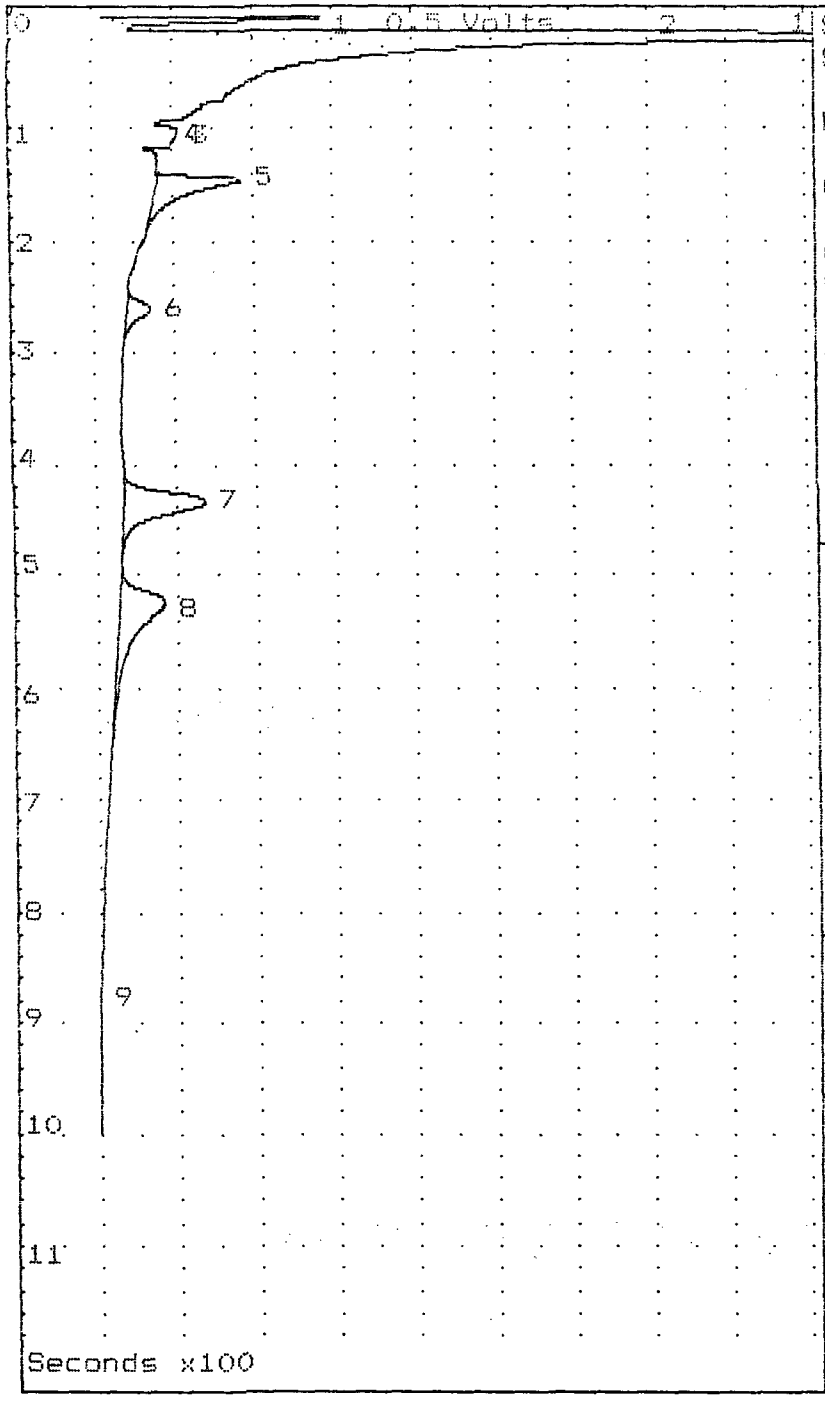
* exceeds alarm level

AUGUST 26, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 15

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 15:20
Stopped at 1000.0 sec

Number	19	mobil thomas 1
Internal Temp	29	pt 16
Gain	20	ov 40 10 ml/min
Offset	43.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.4	1.5	VS
UNKNOWN	2	20.4	16.3	VS
UNKNOWN	3	105.4	71.6	mVS
toluene	4	126.0	14.7	PPB*
toluene	5	149.6	844	PPB*
UNKNOWN	6	266.1	505	mVS
UNKNOWN	7	442.4	2.3	VS
UNKNOWN	8	532.7	2	VS
UNKNOWN	9	914.9	10.5	mVS

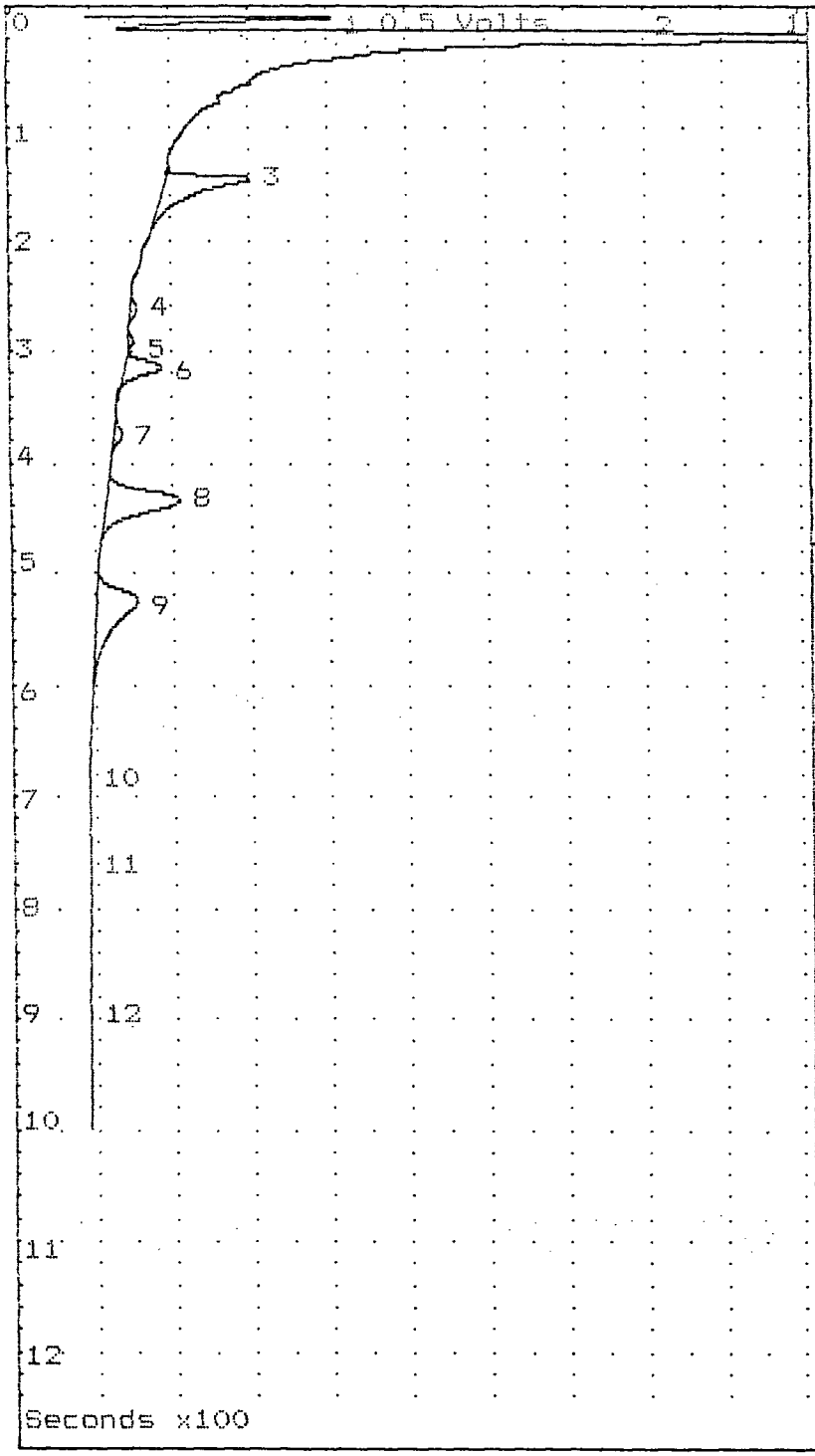
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 16

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 16: 4
Stopped at 1000.0 sec

Number	20	mobil thomas 1
Internal Temp	29	pt 17
Gain	20	ov 40 10 ml/min
Offset	43.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.4	1.5	VS
UNKNOWN	2	21.0	20.3	VS
toluene	3	149.6	885	PPB*
UNKNOWN	4	266.1	82.7	mVS
ethylbenzene	5	295.5	13.1	PPB*
p,m-xylene	6	319.6	277	PPB*
o-xylene	7	381.2	48.3	PPB*
UNKNOWN	8	442.4	1.9	VS
UNKNOWN	9	532.7	1.7	VS
UNKNOWN	11	788.6	5.3	mVS
UNKNOWN	12	917.2	39.4	mVS

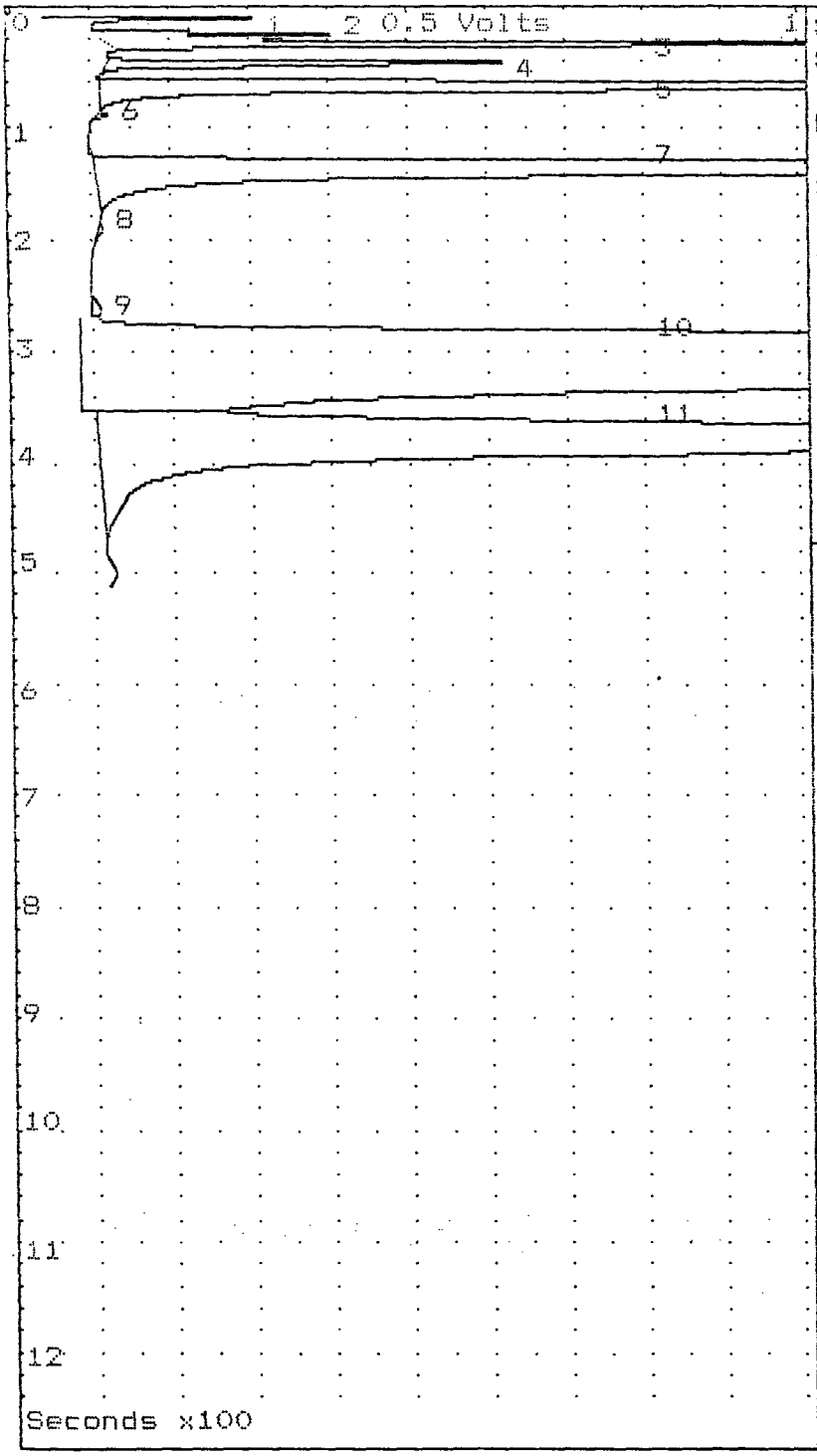
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 17

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 16:40
Stopped at 514.6 sec

Number	21	mobil thomas 1
Internal Temp	30	btex
Gain	20	ov 40 10 ml/min
Offset	42.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.2	731	mVS
UNKNOWN	2	19.4	1.6	VS
UNKNOWN	3	26.0	6.1	VS
UNKNOWN	4	44.3	2.5	VS
benzene	5	64.5	11.1	PPM*
UNKNOWN	6	92.5	46.4	mVS
toluene	7	138.1	22.8	PPM*
UNKNOWN	8	194.7	25.3	mVS
ethylbenzene	9	268.9	70.1	PPB*
p,m-xylene	10	309.9	244	PPM*
o-xylene	11	379.5	74.6	PPM*

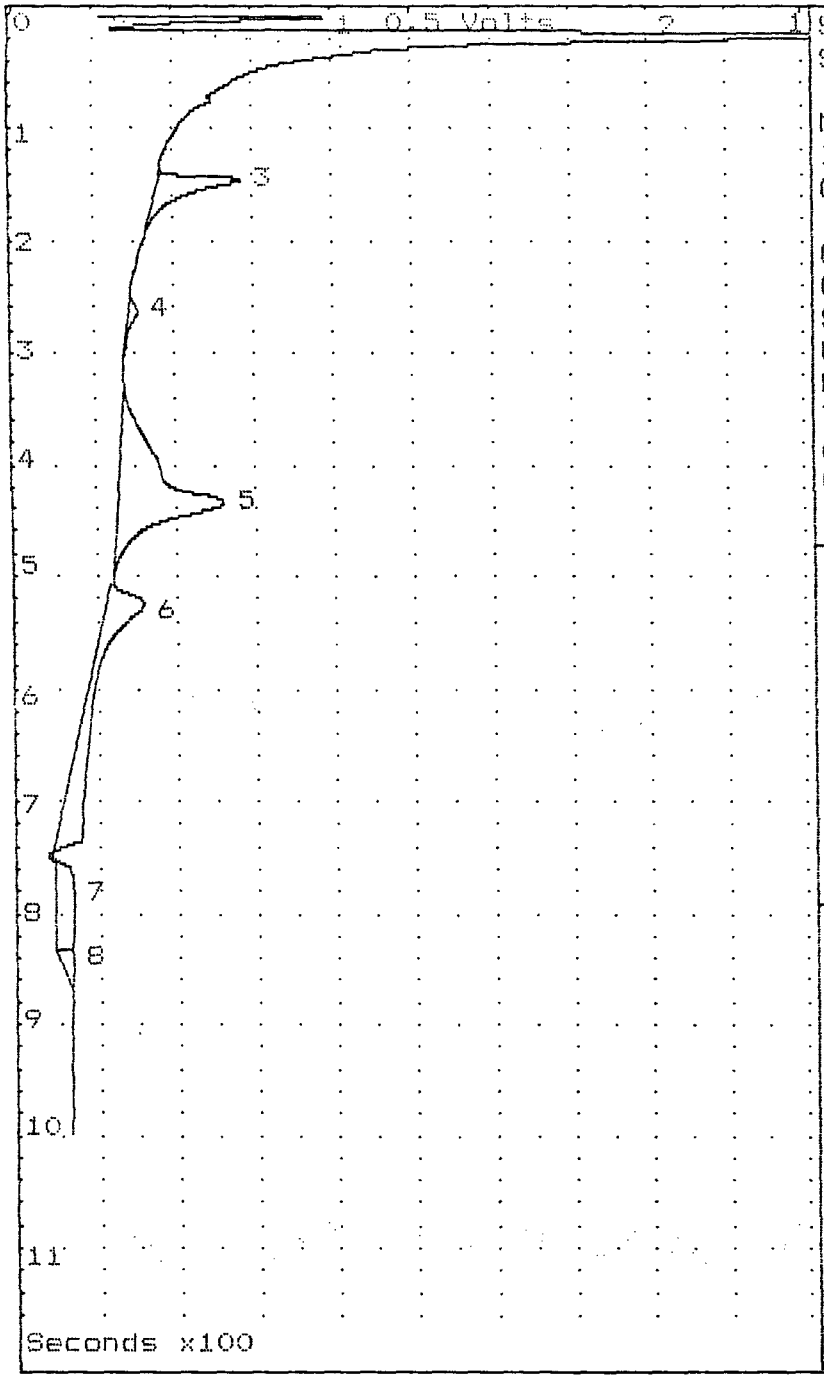
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

BTEX CALIBRATION

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 17: 5
Stopped at 1000.0 sec

Number	22	mobil thomas 1
Internal Temp	28	btex
Gain	20	ov 40 10 ml/min
Offset	42.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.4	1.5	VS
UNKNOWN	2	19.3	10.1	VS
toluene	3	150.0	831	PPB*
ethylbenzene	4	268.2	98.2	PPB*
UNKNOWN	5	442.4	6.3	VS
UNKNOWN	6	534.1	3.3	VS
UNKNOWN	7	804.9	1.7	VS
UNKNOWN	8	853.9	404	mVS

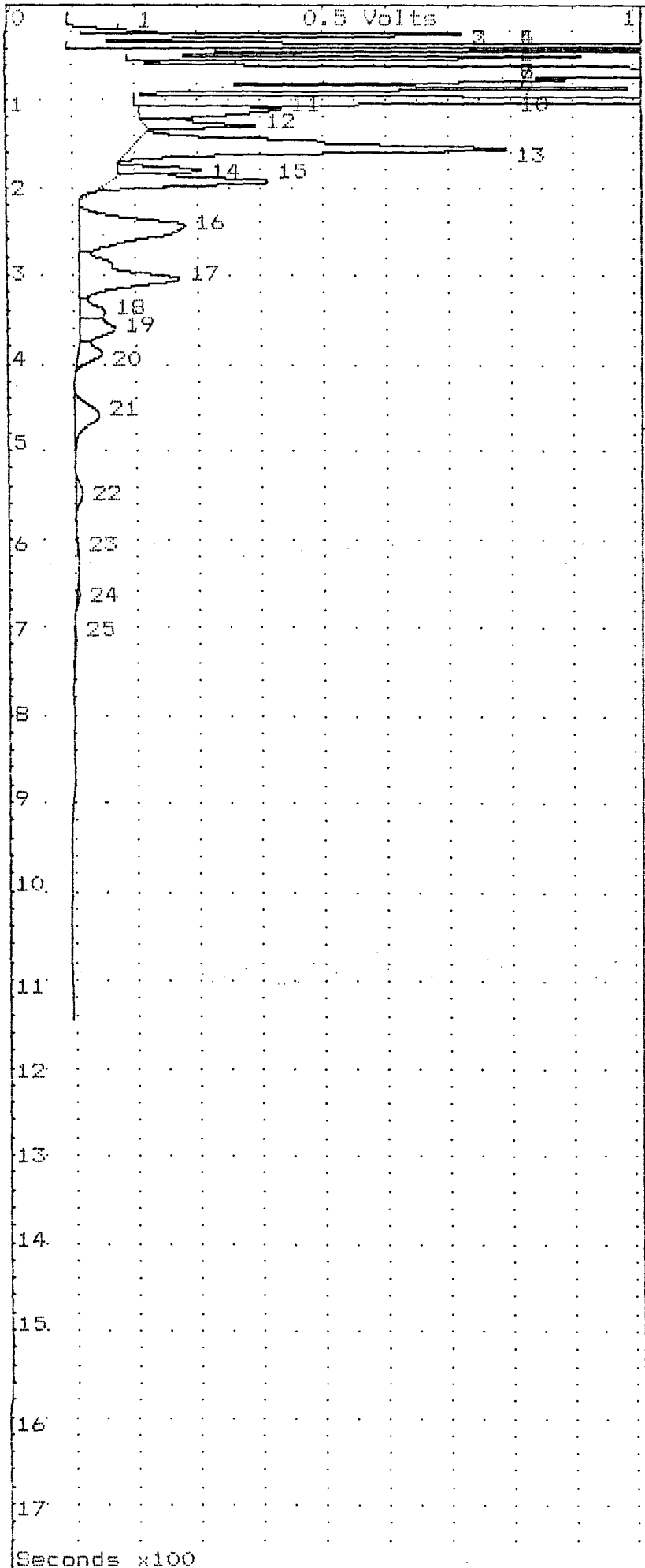
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 18

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 19:16
Stopped at 1146.8 sec

Number	24	mobil thomas 1
Internal Temp	23	PT 19
Gain	2	ov 40 10 ml/min
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	20.8	180 mVS
UNKNOWN	2	25.5	1.2 VS
UNKNOWN	3	27.4	1.7 VS
UNKNOWN	4	39.4	8.3 VS
UNKNOWN	5	45.1	3.8 VS
UNKNOWN	6	54.1	3.7 VS
benzene	7	65.9	18.4 PPM*
UNKNOWN	8	80.2	260 mVS
UNKNOWN	9	90.1	2.8 VS
UNKNOWN	10	102.7	19.4 VS
UNKNOWN	11	114.4	2.2 VS
toluene	12	133.6	6.21 PPM*
UNKNOWN	13	159.7	8.1 VS
UNKNOWN	14	185.2	1.1 VS
UNKNOWN	15	197.7	2.3 VS
UNKNOWN	16	249.3	4.6 VS
p,m-xylene	17	309.9	16.8 PPM*
o-xylene	18	348.4	3.73 PPM*
o-xylene	19	367.2	5.21 PPM*
o-xylene	20	394.2	3.09 PPM*
UNKNOWN	21	466.4	1.1 VS
UNKNOWN	22	556.5	268 mVS
UNKNOWN	23	630.3	61.7 mVS
UNKNOWN	24	670.6	28.9 mVS
UNKNOWN	25	726.3	65.7 mVS
UNKNOWN	26	815.4	24.5 mVS
UNKNOWN	27	878.1	49 mVS
UNKNOWN	28	985.5	13.5 mVS

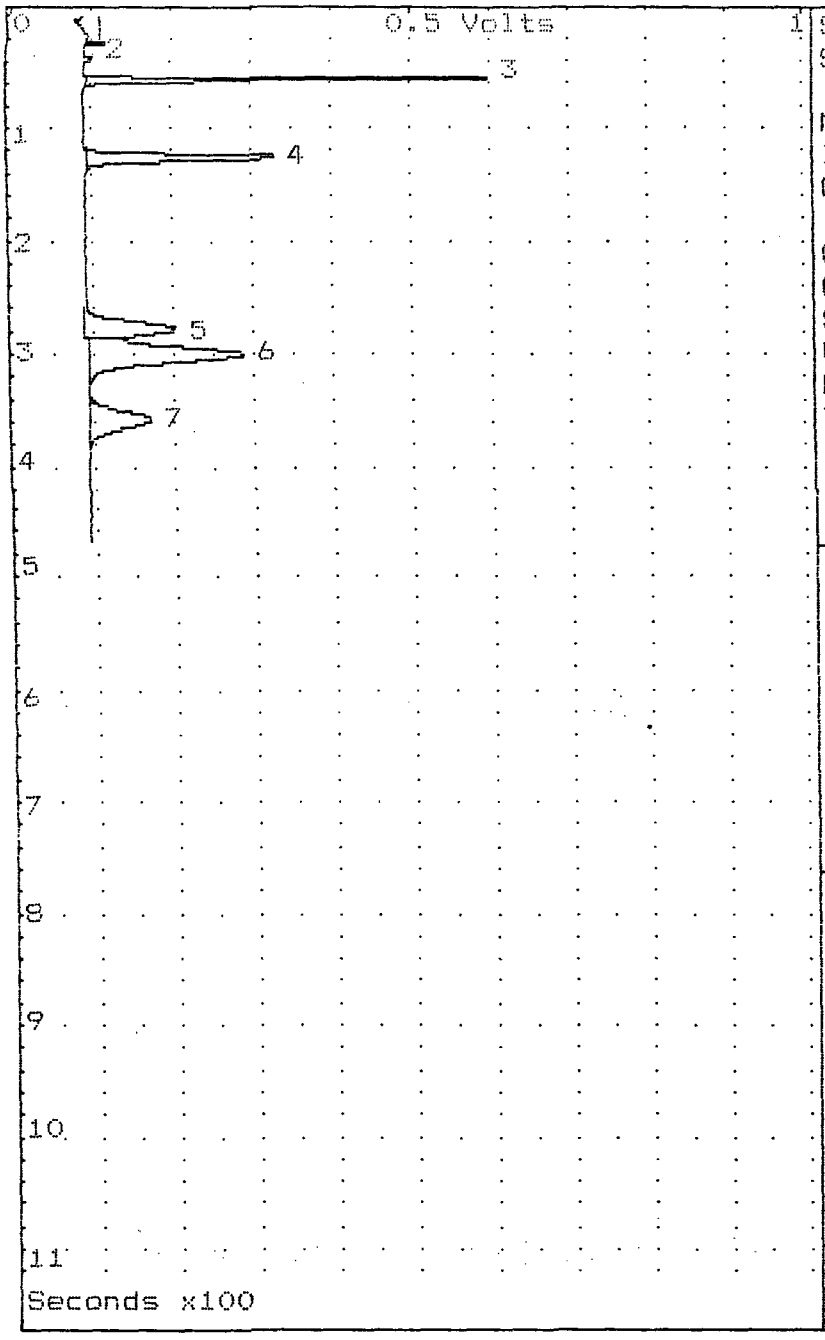
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 19

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 19:30
Stopped at 476.0 sec

Number	26	mobil thomas 1
Internal Temp	23	btex
Gain	2	ov 40 10 ml/min
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	2000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	25.9	20.2 mVS
UNKNOWN	2	43.7	6.5 mVS
benzene	3	63.1	9.04 PPM*
toluene	4	134.8	8.48 PPM*
ethylbenzene	5	287.5	7.6 PPM*
p,m-xylene	6	309.9	14.9 PPM*
o-xylene	7	369.2	7.22 PPM*

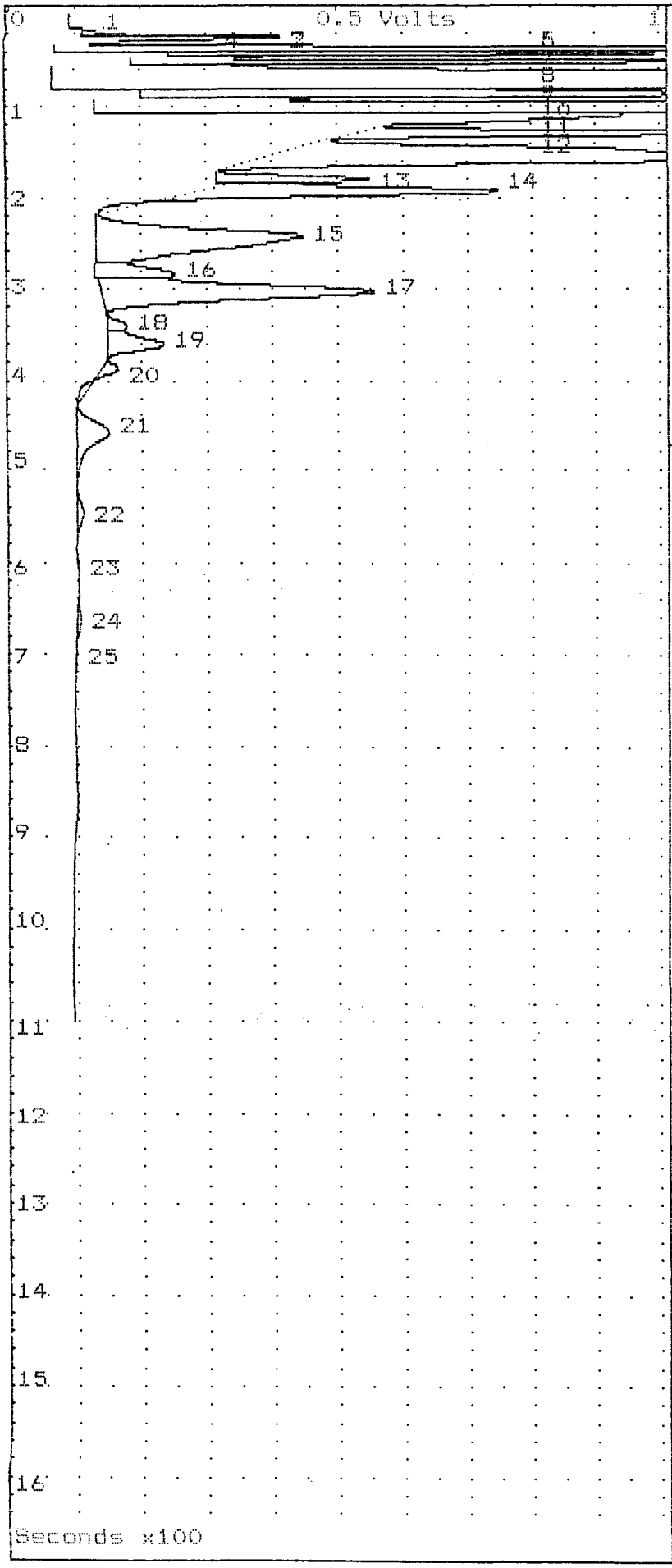
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

BTEX CALIBRATION

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 19:49
Stopped at 1100.0 sec

Number	27	mobil thomas 1
Internal Temp	24	pt 20
Gain	2	ov 40 10 ml/min
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1100.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	20.6	53.9 mVS
UNKNOWN	2	25.3	661 mVS
UNKNOWN	3	27.3	827 mVS
UNKNOWN	4	31.7	9.9 mVS
UNKNOWN	5	39.4	8.3 VS
UNKNOWN	6	45.2	3.5 VS
UNKNOWN	7	53.4	6.4 VS
UNKNOWN	8	73.3	57 VS
UNKNOWN	9	88.6	8.4 VS
UNKNOWN	10	103.5	37.7 VS
toluene	11	131.8	36.5 PPM*
UNKNOWN	12	158.0	13.8 VS
UNKNOWN	13	184.7	1.8 VS
UNKNOWN	14	197.7	4.1 VS
UNKNOWN	15	247.9	8 VS
ethylbenzene	16	289.1	7.47 PPM*
p,m-xylene	17	308.3	34.9 PPM*
p,m-xylene	18	346.6	1.71 PPM*
o-xylene	19	367.2	6.84 PPM*
UNKNOWN	21	466.4	1.4 VS
UNKNOWN	22	556.5	248 mVS
UNKNOWN	23	630.3	47.2 mVS
UNKNOWN	24	670.6	88.4 mVS
UNKNOWN	25	718.7	11.2 mVS
UNKNOWN	26	873.7	343 mVS

* exceeds alarm level

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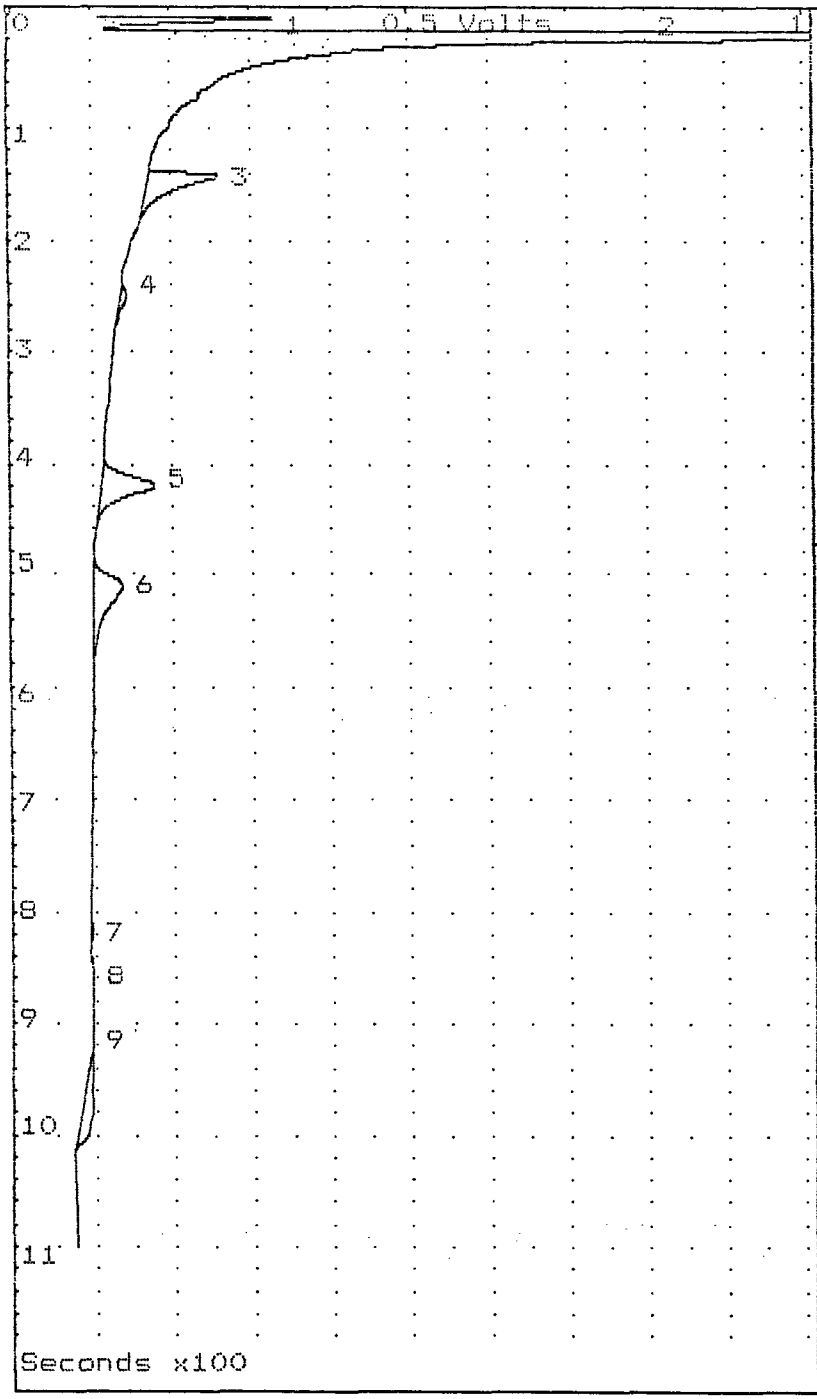
MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 20

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 27 1991 20:20
Stopped at 1100.0 sec

Number	28	mobil thomas 1
Internal Temp	24	pt 21
Gain	20	ov 40 10 ml/min
Offset	38.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1100.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.5	1.1	VS
UNKNOWN	2	19.5	14.4	VS
toluene	3	146.8	698	PPB*
UNKNOWN	4	255.6	107	mVS
UNKNOWN	5	426.7	1.4	VS
UNKNOWN	6	520.1	1.2	VS
UNKNOWN	7	830.1	19.8	mVS
UNKNOWN	8	891.9	74.1	mVS
UNKNOWN	9	948.4	568	mVS

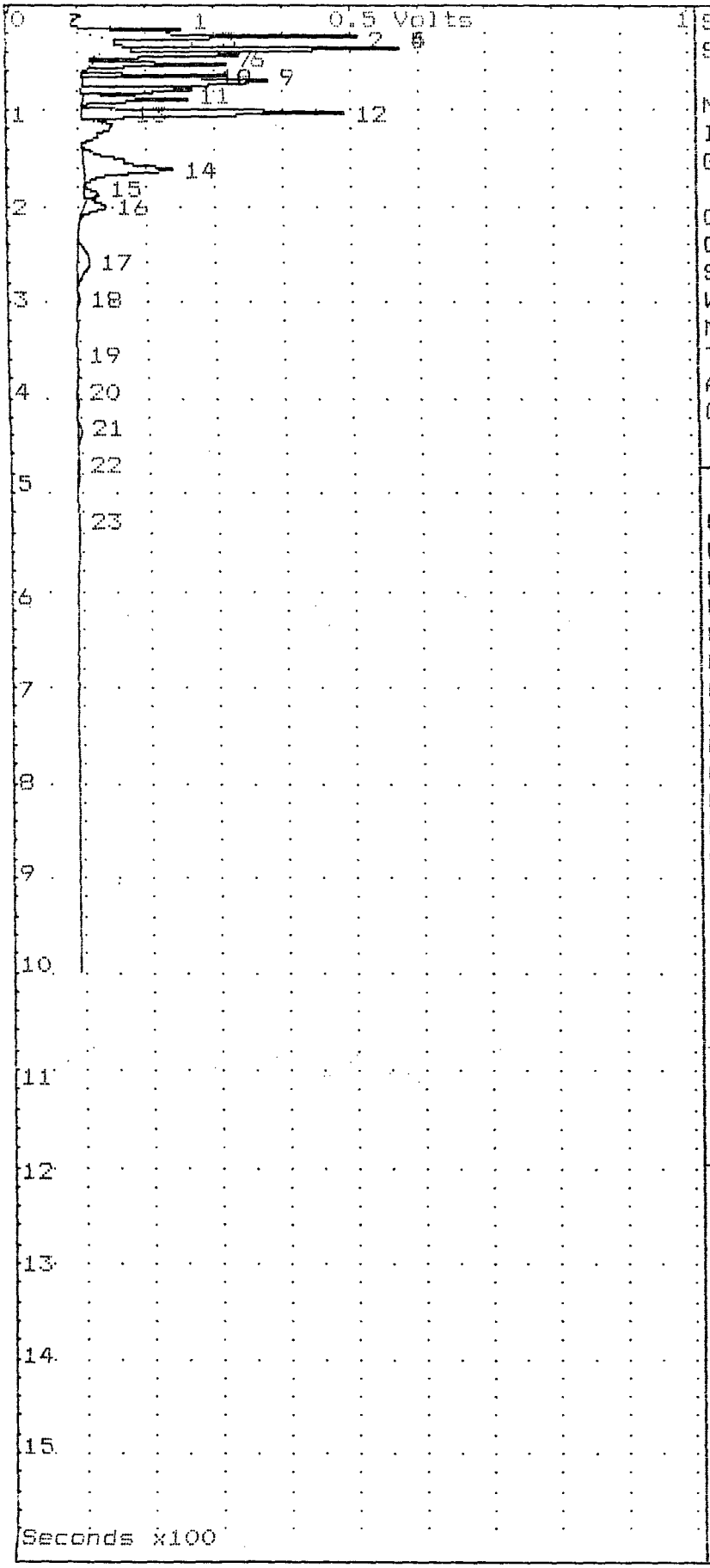
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 21

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 0:14
Stopped at 1000.0 sec

Number	6	mobil thomas 1
Internal Temp	31	PT 23
Gain	2	ov 40 10 ml/min
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	20.0	731 mVS
UNKNOWN	2	25.7	1.6 VS
UNKNOWN	3	32.4	23.3 mVS
UNKNOWN	4	38.4	1.4 VS
UNKNOWN	5	42.1	872 mVS
UNKNOWN	6	46.5	580 mVS
UNKNOWN	7	55.3	839 mVS
BENZENE	8	68.1	3.4 PPM*
UNKNOWN	9	72.9	2 VS
UNKNOWN	10	82.9	790 mVS
UNKNOWN	11	92.2	695 mVS
UNKNOWN	12	106.3	2.3 VS
UNKNOWN	13	118.9	158 mVS
UNKNOWN	14	165.7	1.7 VS
UNKNOWN	15	191.7	166 mVS
UNKNOWN	16	205.2	306 mVS
ETHYLBENZENE	17	265.4	1.55 PPM*
P,M-XYLENE	18	302.7	85 PPB*
O-XYLENE	19	361.2	39.9 PPB*
UNKNOWN	21	444.8	66.3 mVS
UNKNOWN	22	483.6	19.6 mVS
UNKNOWN	23	539.7	44.4 mVS

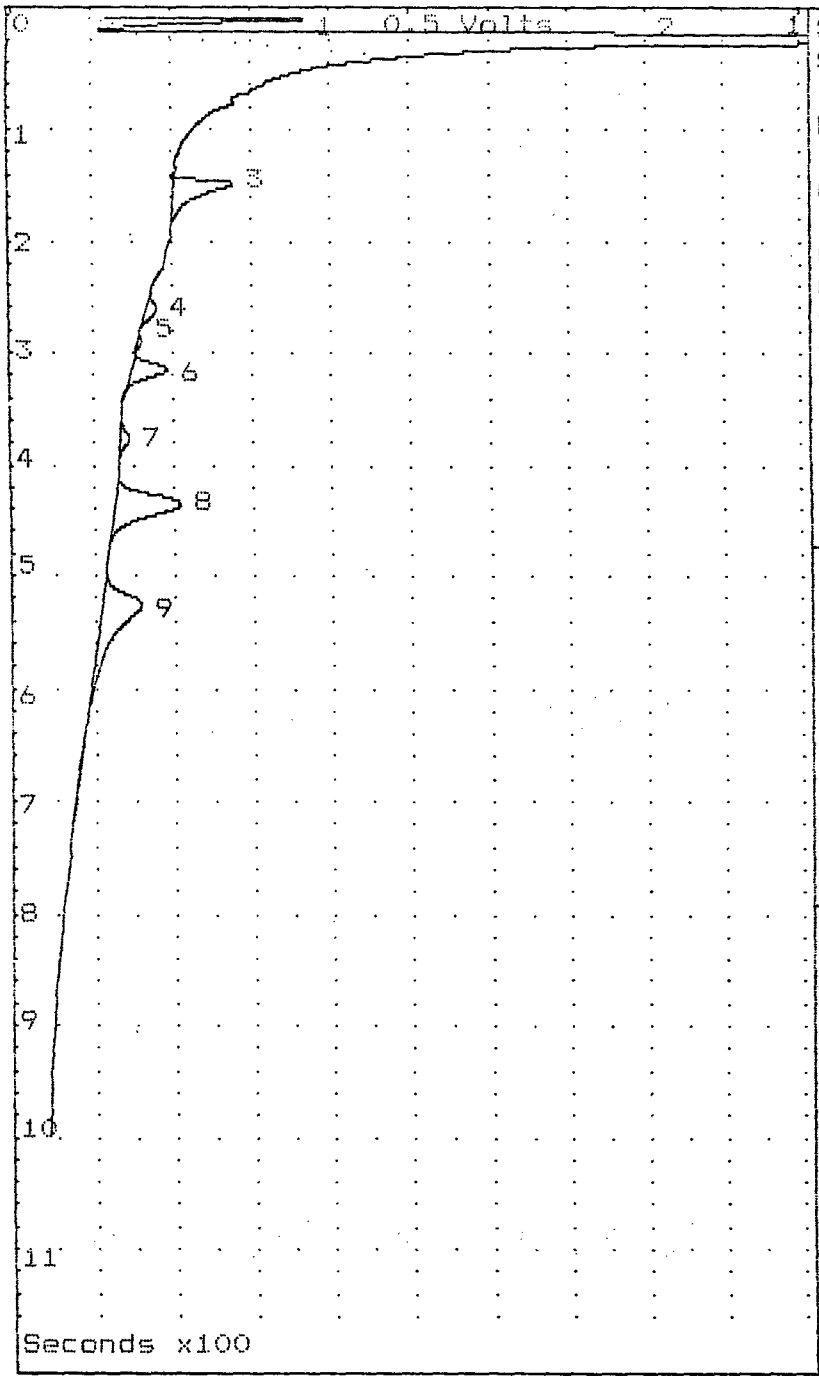
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 23

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 0:35
Stopped at 1000.0 sec

Number	7	mobil thomas 1
Internal Temp	32	PT 24
Gain	20	ov 40 10 ml/min
Offset	38.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.3	1.3	VS
UNKNOWN	2	21.4	24.2	VS
UNKNOWN	3	152.0	1.1	VS
ETHYLBENZENE	4	266.8	47.9	PPB*
P,M-XYLENE	6	320.5	241	PPB*
O-XYLENE	7	382.2	67.2	PPB*
UNKNOWN	8	443.6	1.7	VS
UNKNOWN	9	534.1	1.5	VS

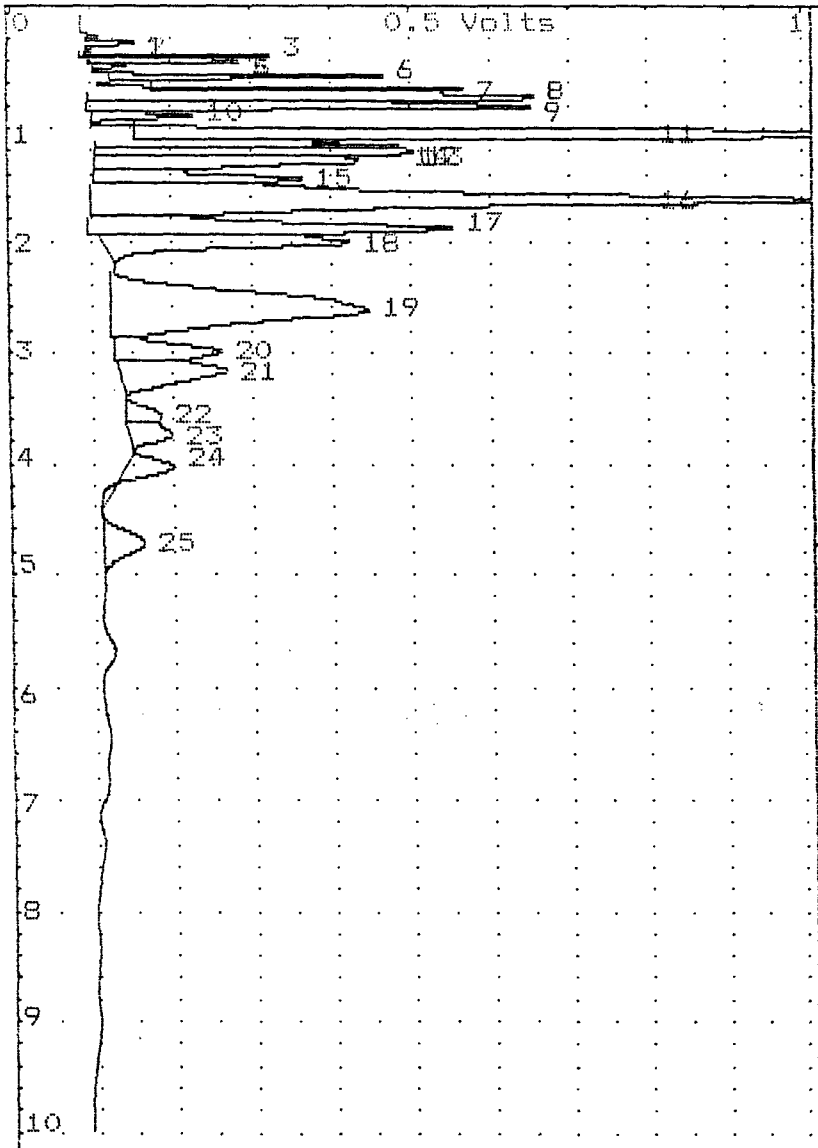
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 24

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 1:36
Stopped at 1000.0 sec

Number	10	mobil thomas 1
Internal Temp	32	PT 25
Gain	2	ov 40 10 ml/min
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	26.1	59 mVS
UNKNOWN	2	28.4	12 mVS
UNKNOWN	3	39.0	776 mVS
UNKNOWN	4	43.1	597 mVS
UNKNOWN	5	47.1	139 mVS
UNKNOWN	6	56.1	1.4 VS
BENZENE	7	68.9	9.81 PPM*
UNKNOWN	8	76.3	4.2 VS
UNKNOWN	9	84.4	3.2 VS
UNKNOWN	10	92.8	501 mVS
UNKNOWN	11	106.9	18.9 VS
UNKNOWN	12	120.4	2.4 VS
TOLUENE	13	125.2	10.1 PPM*
TOLUENE	14	132.4	10.8 PPM*
TOLUENE	15	148.4	8.14 PPM*
UNKNOWN	16	165.6	15 VS
UNKNOWN	17	192.7	5.3 VS
UNKNOWN	18	205.2	3.1 VS
ETHYLBENZENE	19	267.5	36.5 PPM*
P,M-XYLENE	20	304.3	7.84 PPM*
P,M-XYLENE	21	322.3	9.72 PPM*
O-XYLENE	22	363.2	3.1 PPM*
O-XYLENE	23	380.2	3.21 PPM*
O-XYLENE	24	410.2	2.64 PPM*
UNKNOWN	25	478.4	1.2 VS
UNKNOWN	27	577.3	366 mVS
UNKNOWN	28	655.3	176 mVS
UNKNOWN	29	693.5	35.1 mVS
UNKNOWN	30	751.0	208 mVS
UNKNOWN	31	847.3	72.9 mVS
UNKNOWN	32	912.6	150 mVS

* exceeds alarm level

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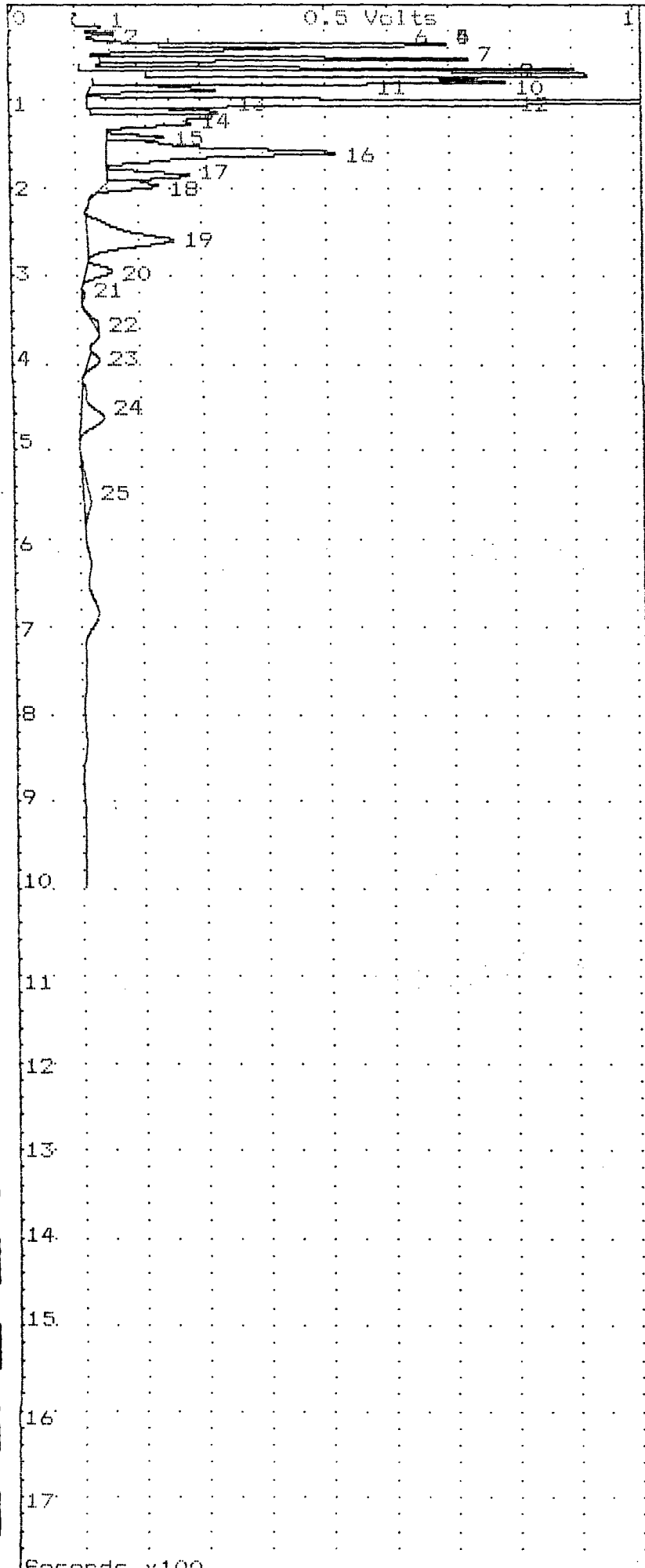
MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 25

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 3: 9
Stopped at 1000.0 sec

Number	14	mobil thomas 1
Internal Temp	29	PT 26
Gain	2	ov 40 10 ml/min
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	20.5	131 mVS
UNKNOWN	2	25.3	91.2 mVS
UNKNOWN	3	32.4	67.8 mVS
UNKNOWN	4	38.2	1.7 VS
UNKNOWN	5	42.3	1.8 VS
UNKNOWN	6	46.3	480 mVS
UNKNOWN	7	55.1	2.8 VS
BENZENE	8	67.7	14.4 PPM*
UNKNOWN	9	73.7	6.1 VS
UNKNOWN	10	82.9	3.8 VS
UNKNOWN	11	91.6	926 mVS
UNKNOWN	12	105.0	11.5 VS
UNKNOWN	13	118.0	1.3 VS
TOLUENE	15	146.4	2.4 PPM*
UNKNOWN	16	164.7	4.5 VS
UNKNOWN	17	190.2	1.1 VS
UNKNOWN	18	202.2	610 mVS
ETHYLBENZENE	19	264.7	11 PPM*
ETHYLBENZENE	20	300.3	1.97 PPM*
P,M-XYLENE	21	328.6	56.1 PPB*
O-XYLENE	22	362.2	657 PPB*
O-XYLENE	23	402.5	1.03 PPM*
UNKNOWN	24	470.0	909 mVS
UNKNOWN	25	566.8	513 mVS
UNKNOWN	26	638.3	128 mVS
UNKNOWN	27	693.5	513 mVS
UNKNOWN	28	751.0	14 mVS
UNKNOWN	29	840.7	115 mVS
UNKNOWN	30	926.8	37.4 mVS

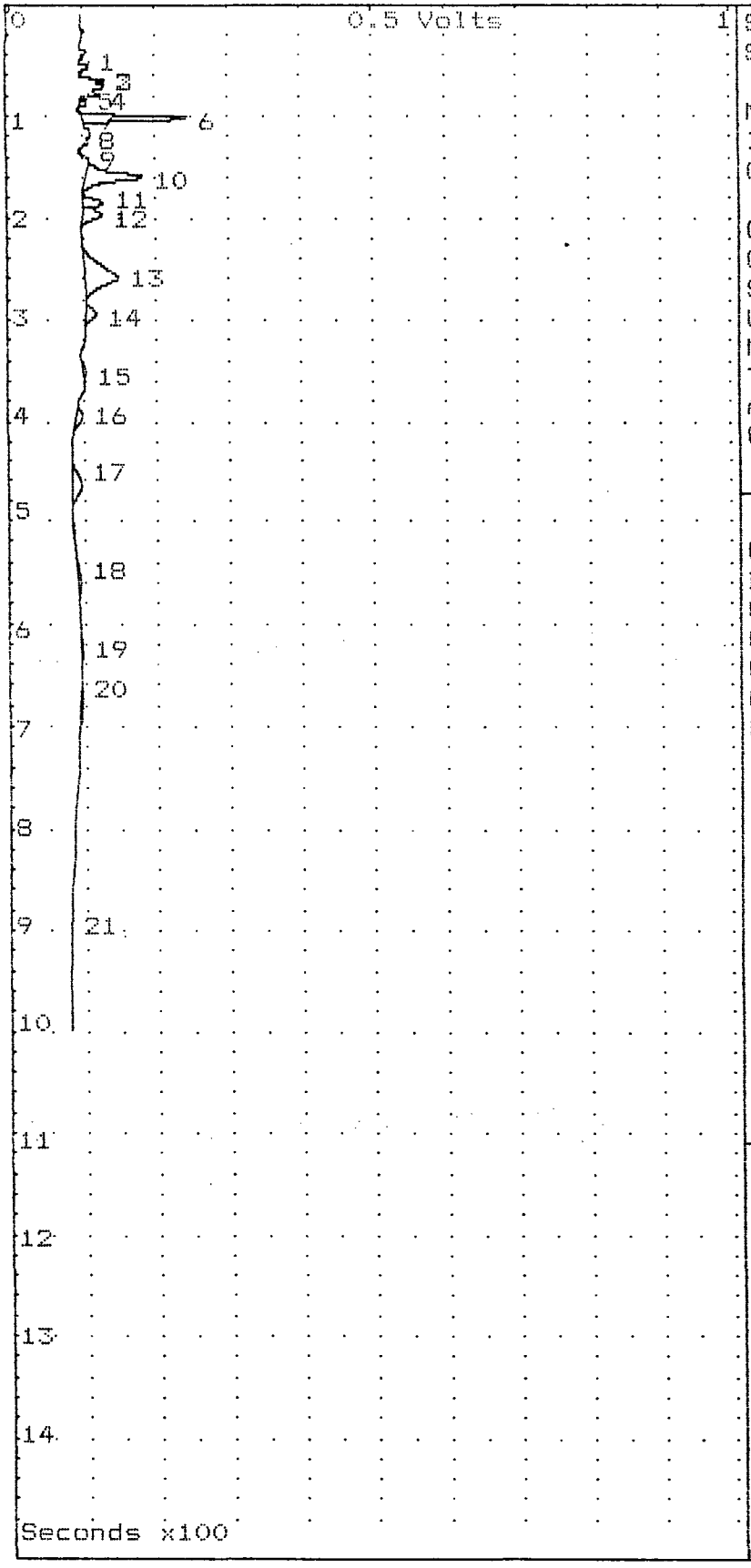
* exceeds alarm level

AUGUST 27, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 26

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 4: 4
Stopped at 1000.0 sec

Number	17	mobil thomas 1
Internal Temp	27	PT 27
Gain	2	ov 40 10 ml/min
Offset	14.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	54.9	36 mVS
BENZENE	2	67.3	226 PPB*
UNKNOWN	3	72.5	10.5 mVS
UNKNOWN	4	82.3	17.2 mVS
UNKNOWN	5	91.0	31.9 mVS
UNKNOWN	6	105.1	847 mVS
UNKNOWN	7	117.1	13.4 mVS
TOLUENE	9	146.0	82.6 PPB*
UNKNOWN	10	163.7	731 mVS
UNKNOWN	11	189.2	249 mVS
UNKNOWN	12	201.6	231 mVS
UNKNOWN	13	263.3	1 VS
ETHYLBENZENE	14	298.7	583 PPB*
O-XYLENE	15	356.5	256 PPB*
O-XYLENE	16	401.4	386 PPB*
UNKNOWN	17	471.2	310 mVS
UNKNOWN	18	568.3	176 mVS
UNKNOWN	19	640.0	72.7 mVS
UNKNOWN	20	686.3	20.2 mVS

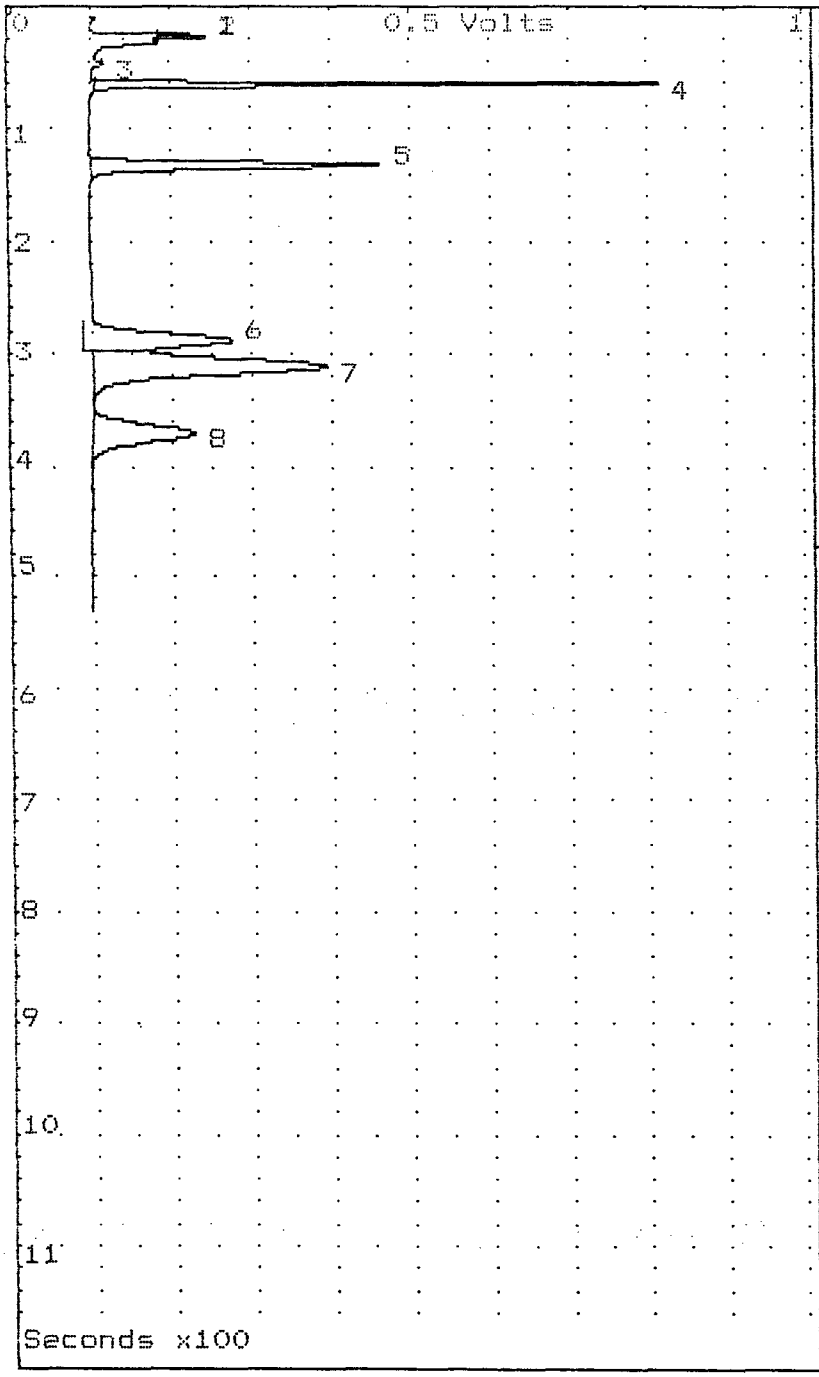
* exceeds alarm level

AUGUST 28, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 27

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 4:16
Stopped at 533.6 sec

Number	18	mobil thomas 1
Internal Temp	28	BTEX
Gain	2	ov 40 10 ml/min
Offset	3.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	20.1	605 mVS
UNKNOWN	2	25.0	204 mVS
UNKNOWN	3	43.1	13.1 mVS
BENZENE	4	63.1	10.4 PPM*
TOLUENE	5	136.4	9.77 PPM*
ETHYLBENZENE	6	293.1	10.1 PPM*
P,M-XYLENE	7	316.3	19.5 PPM*
O-XYLENE	8	377.2	10.3 PPM*

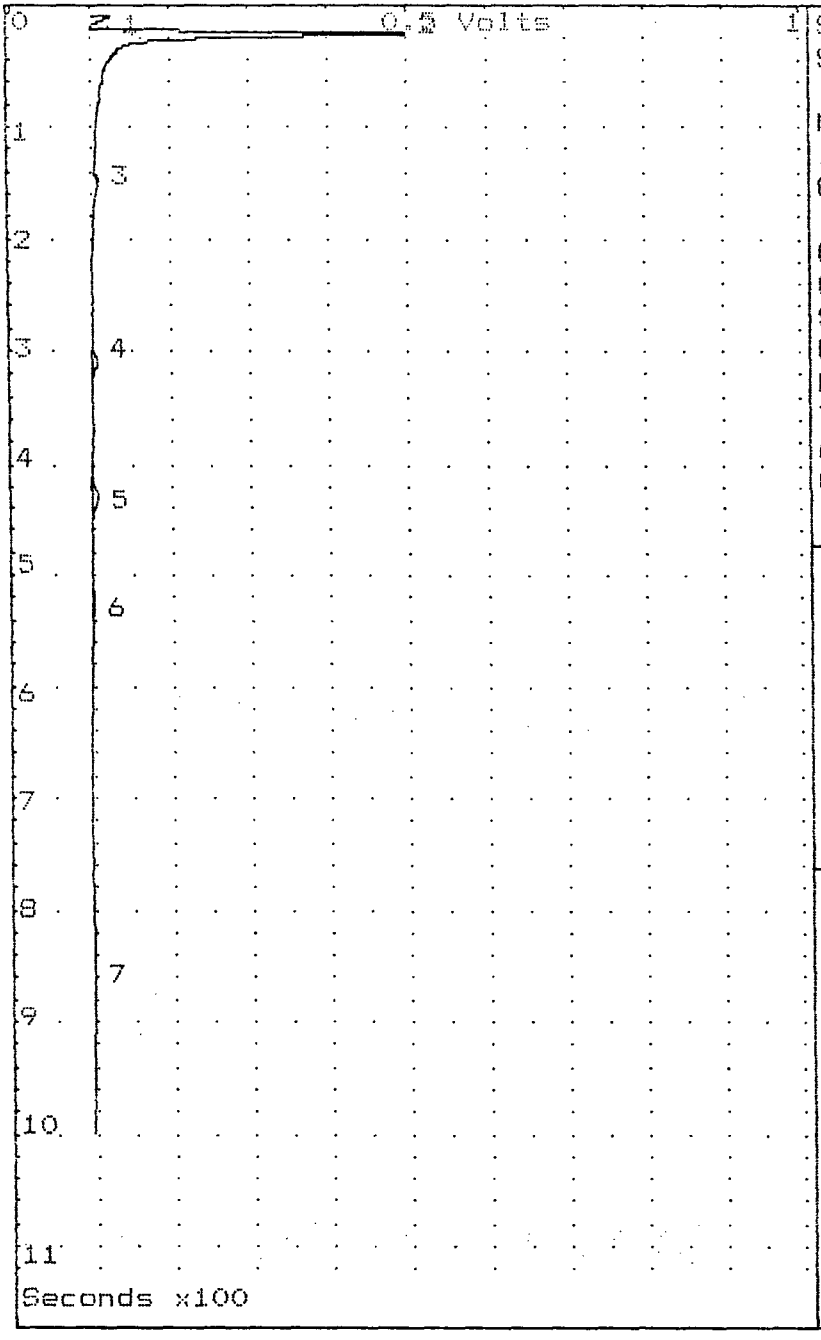
* exceeds alarm level

AUGUST 28, 1991

MOBIL THOMAS NO. 1 WELL SITE

BTEX CALIBRATION

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 4:33
Stopped at 1000.0 sec

Number	19	mobil thomas 1
Internal Temp	27	BTEX
Gain	2	ov 40 10 ml/min
Offset	1.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	4.3	23.7 mVS
UNKNOWN	2	19.6	1.9 VS
UNKNOWN	3	151.2	14.2 mVS
P,M-XYLENE	4	314.7	277 PPB*
UNKNOWN	5	436.6	109 mVS
UNKNOWN	6	529.9	58.9 mVS
UNKNOWN	7	871.5	11.7 mVS

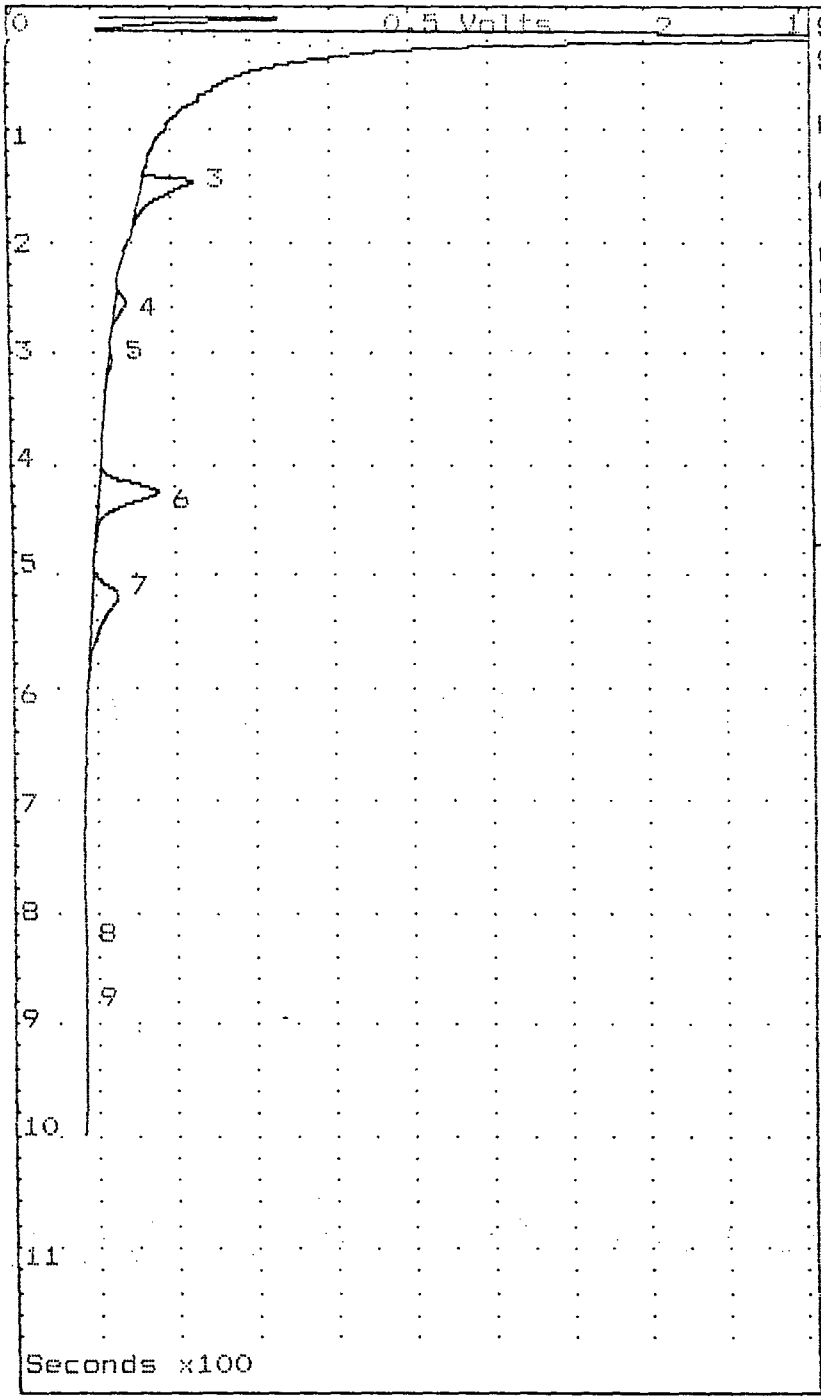
* exceeds alarm level

AUGUST 28, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 28

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 5:55
Stopped at 1000.0 sec

Number	21	mobil thomas 1
Internal Temp	27	PT 29
Gain	20	ov 40 10 ml/min
Offset	37.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.4	1.1	VS
UNKNOWN	2	19.7	13.2	VS
TOLUENE	3	150.4	412	PPB*
UNKNOWN	4	261.2	185	mVS
P,M-XYLENE	5	312.3	10.9	PPB*
UNKNOWN	6	433.3	1.5	VS
UNKNOWN	7	527.1	1.1	VS
UNKNOWN	8	851.7	10.5	mVS
UNKNOWN	9	891.9	7.8	mVS

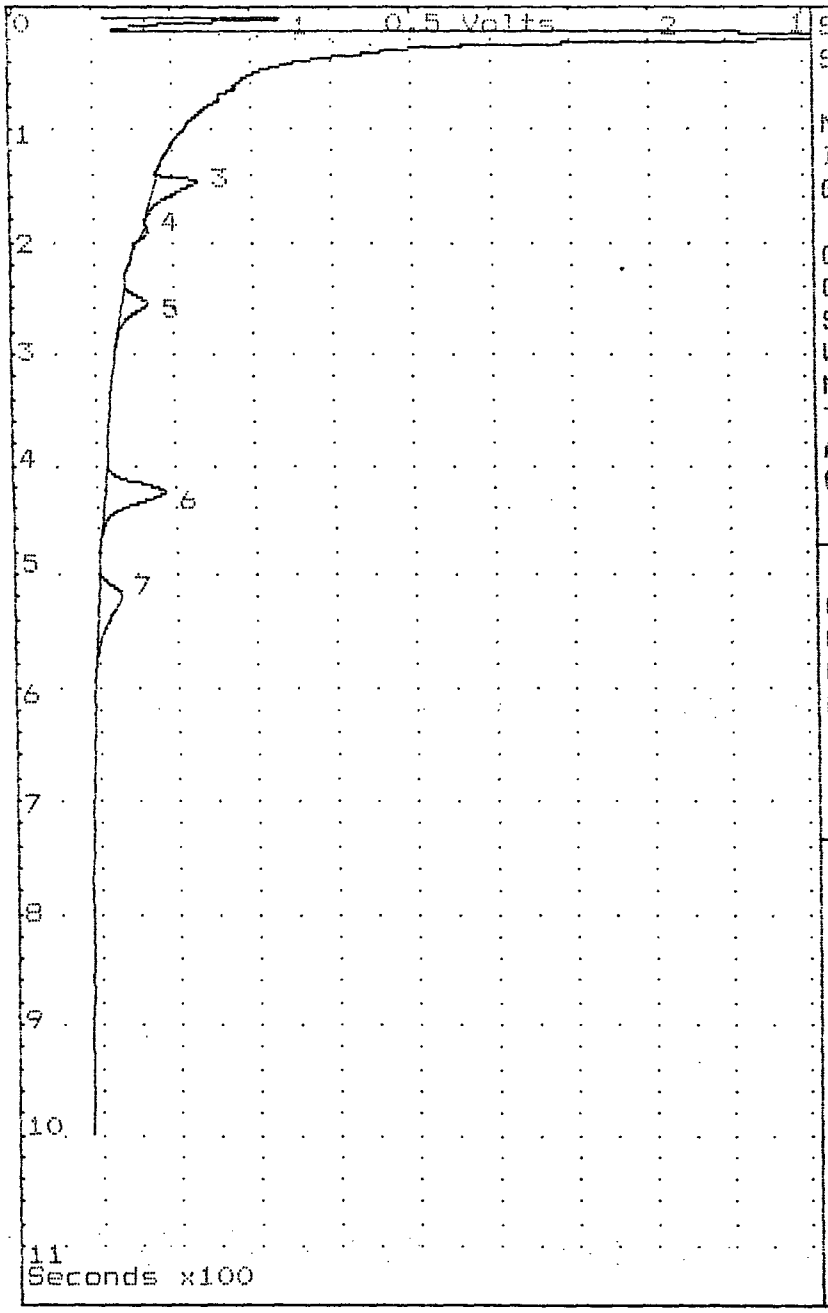
* exceeds alarm level

AUGUST 28, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 29

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 6:17
Stopped at 1000.0 sec

Number	22	mobil thomas 1
Internal Temp	26	PT 30
Gain	20	ov 40 10 ml/min
Offset	35.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.4	1	VS
UNKNOWN	2	19.7	13.5	VS
UNKNOWN	3	150.8	788	mVS
UNKNOWN	5	259.8	556	mVS
UNKNOWN	6	432.2	1.6	VS
UNKNOWN	7	527.1	947	mVS

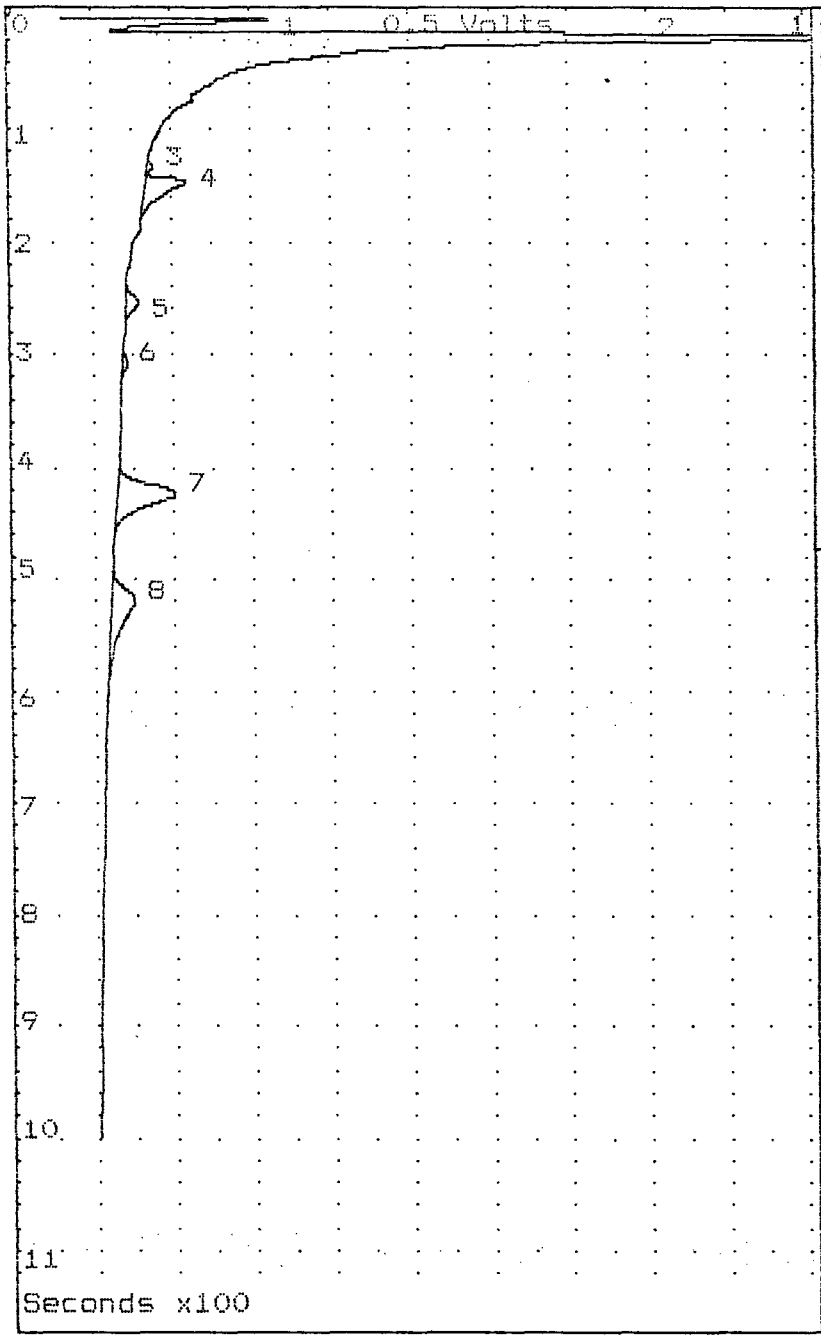
* exceeds alarm level

AUGUST 28, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 30

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 6:44
Stopped at 1000.0 sec

Number	23	mobil thomas 1
Internal Temp	26	PT 30
Gain	20	ov 40 10 ml/min
Offset	35.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM	
UNKNOWN	1	4.9	1	VS
UNKNOWN	2	19.4	9.7	VS
UNKNOWN	4	150.8	797	mVS
UNKNOWN	5	259.1	228	mVS
P,M-XYLENE	6	312.3	28.4	PPB*
UNKNOWN	7	431.1	1.6	VS
UNKNOWN	8	527.1	1	VS

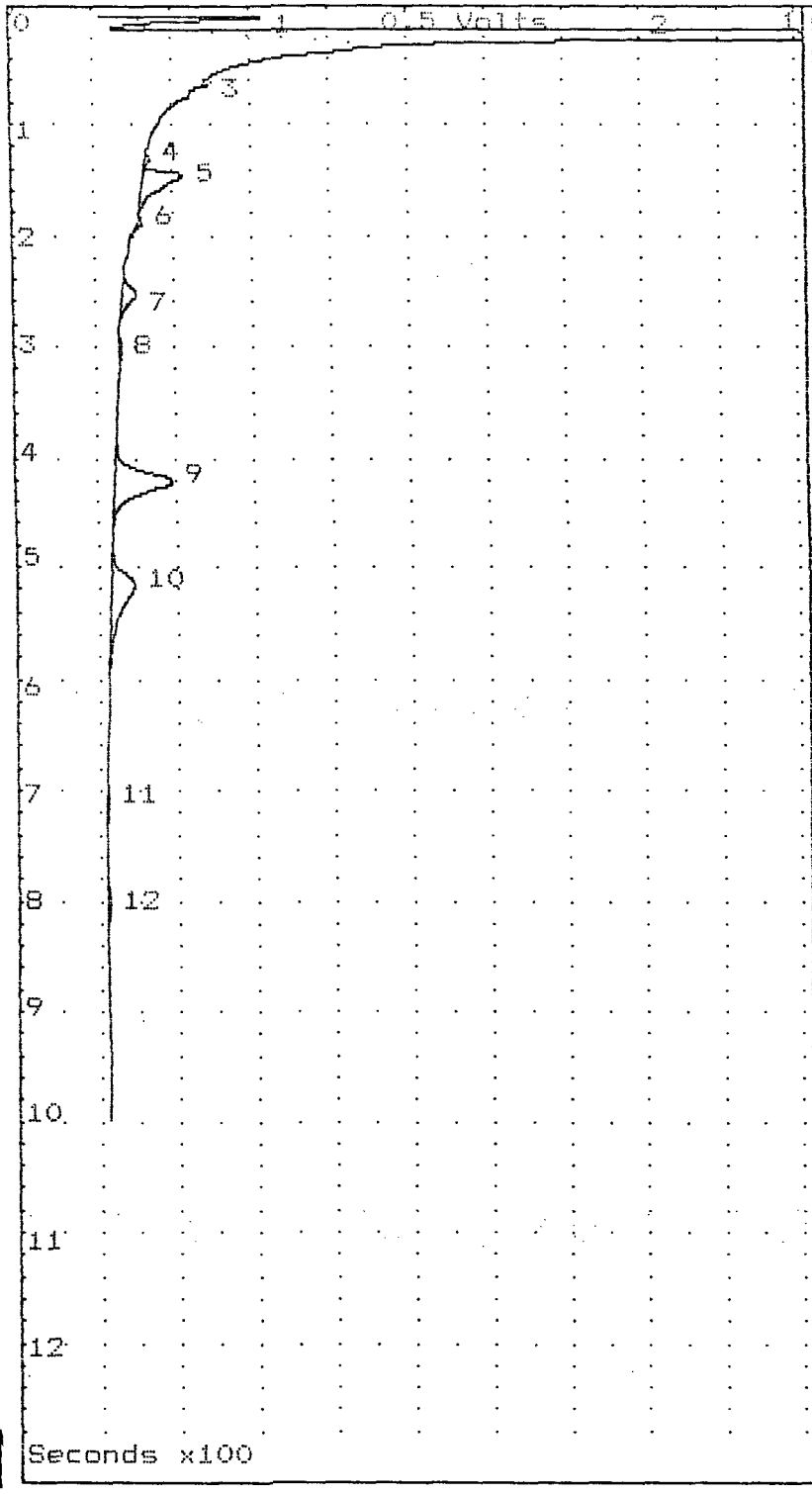
* exceeds alarm level

AUGUST 28, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 31

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 7:17
Stopped at 1000.0 sec

Number	25	mobil thomas 1
Internal Temp	24	pt 31
Gain	20	ov 40 10 ml/min
Offset	33.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	4.5	984 mVS
UNKNOWN	2	20.1	17.2 VS
BENZENE	3	67.1	6.33 PPB*
TOLUENE	4	136.0	2.13 PPB*
TOLUENE	5	150.0	288 PPB*
UNKNOWN	6	194.2	30.3 mVS
UNKNOWN	7	257.7	315 mVS
P,M-XYLENE	8	309.1	29.4 PPB*
UNKNOWN	9	427.8	1.7 VS
UNKNOWN	10	524.3	1 VS
UNKNOWN	11	728.2	23.9 mVS
UNKNOWN	12	817.5	83.1 mVS

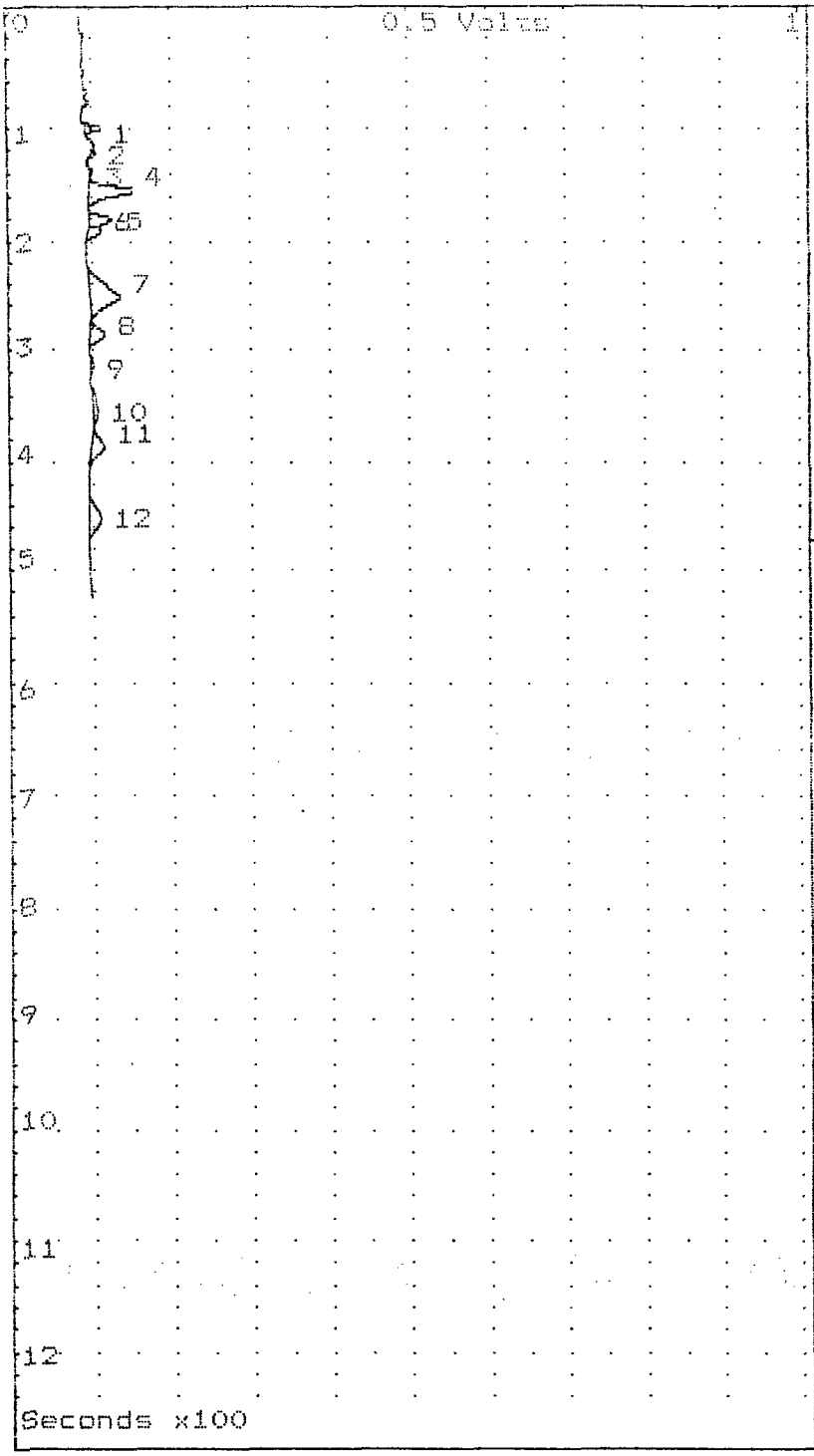
* exceeds alarm level

AUGUST 28, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 32

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 7:49
Stopped at 525.9 sec

Number	27	mobil thomas 1
Internal Temp	23	pt 33
Gain	2	ov 40 10 ml/min
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	103.0	118 mVS
TOLUENE	3	142.0	101 PPB*
UNKNOWN	4	158.8	495 mVS
UNKNOWN	5	184.2	269 mVS
UNKNOWN	6	195.2	100 mVS
UNKNOWN	7	257.0	851 mVS
ETHYLBENZENE	8	291.5	777 PPB*
P,M-XYLENE	9	319.6	127 PPB*
O-XYLENE	10	363.2	595 PPB*
O-XYLENE	11	392.2	1.09 PPM*
UNKNOWN	12	458.0	330 mVS

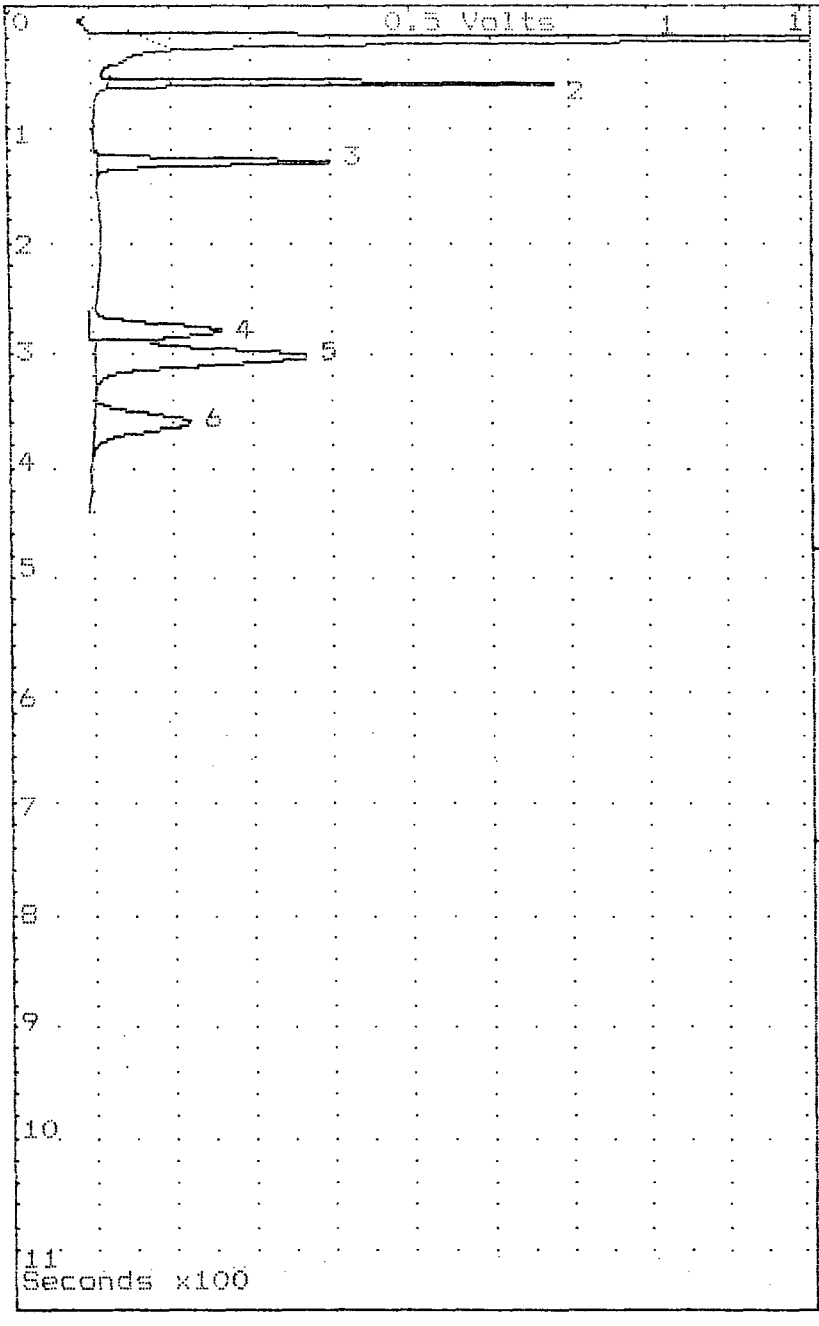
* exceeds alarm level

AUGUST 28, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 33

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 8:17
Stopped at 442.7 sec

Number	29	mobil thomas 1
Internal Temp	23	btex
Gain	2	ov 40 10 ml/min
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

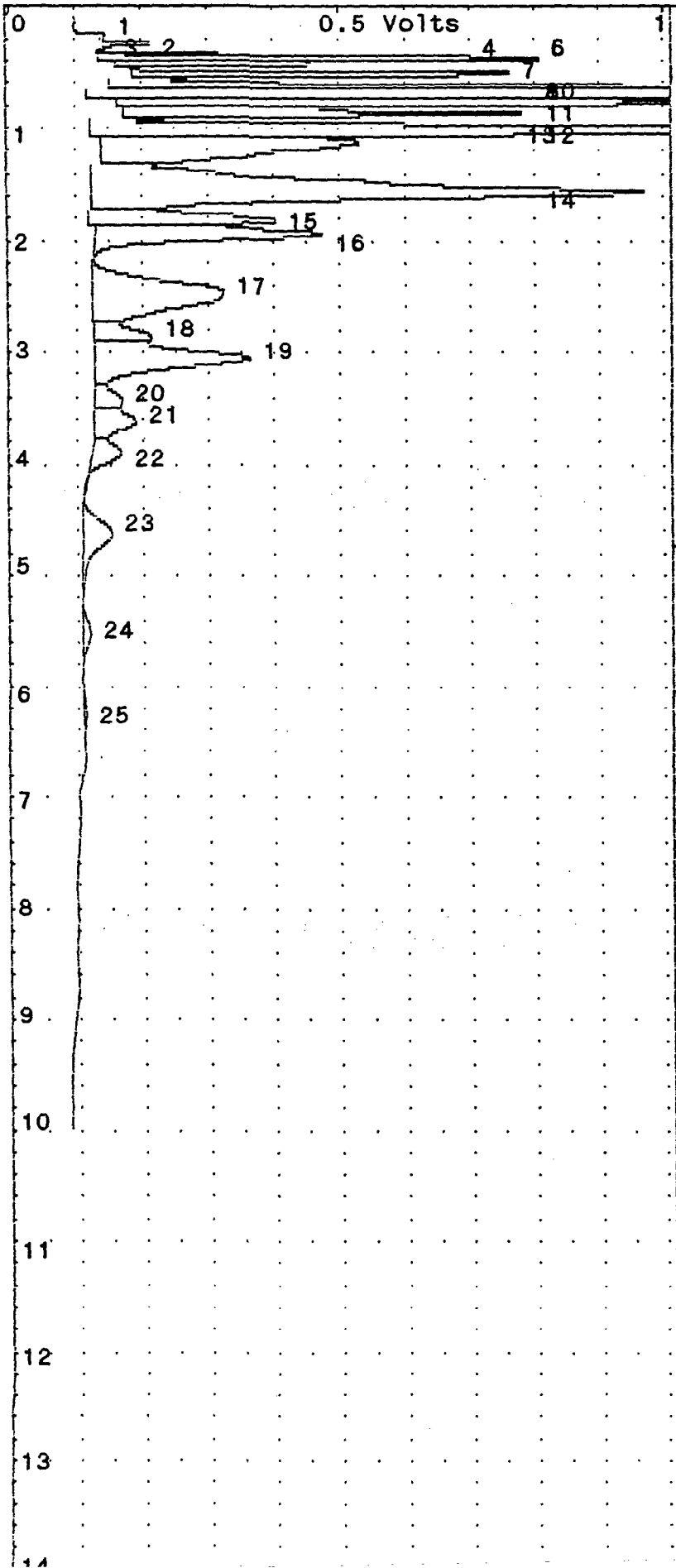
Name	#	R.T.	Area/PPM	
UNKNOWN	1	22.1	13.1	VS
BENZENE	2	62.3	9.55	PPM*
TOLUENE	3	133.2	7.78	PPM*
ETHYLBENZENE	4	285.1	8.7	PPM*
P,M-XYLENE	5	307.5	17.4	PPM*
O-XYLENE	6	366.2	9.65	PPM*

* exceeds alarm level

AUGUST 28, 1991

BTEX CALIBRATION

Analysis Report - Photovac 10S70 Gas Chromatograph



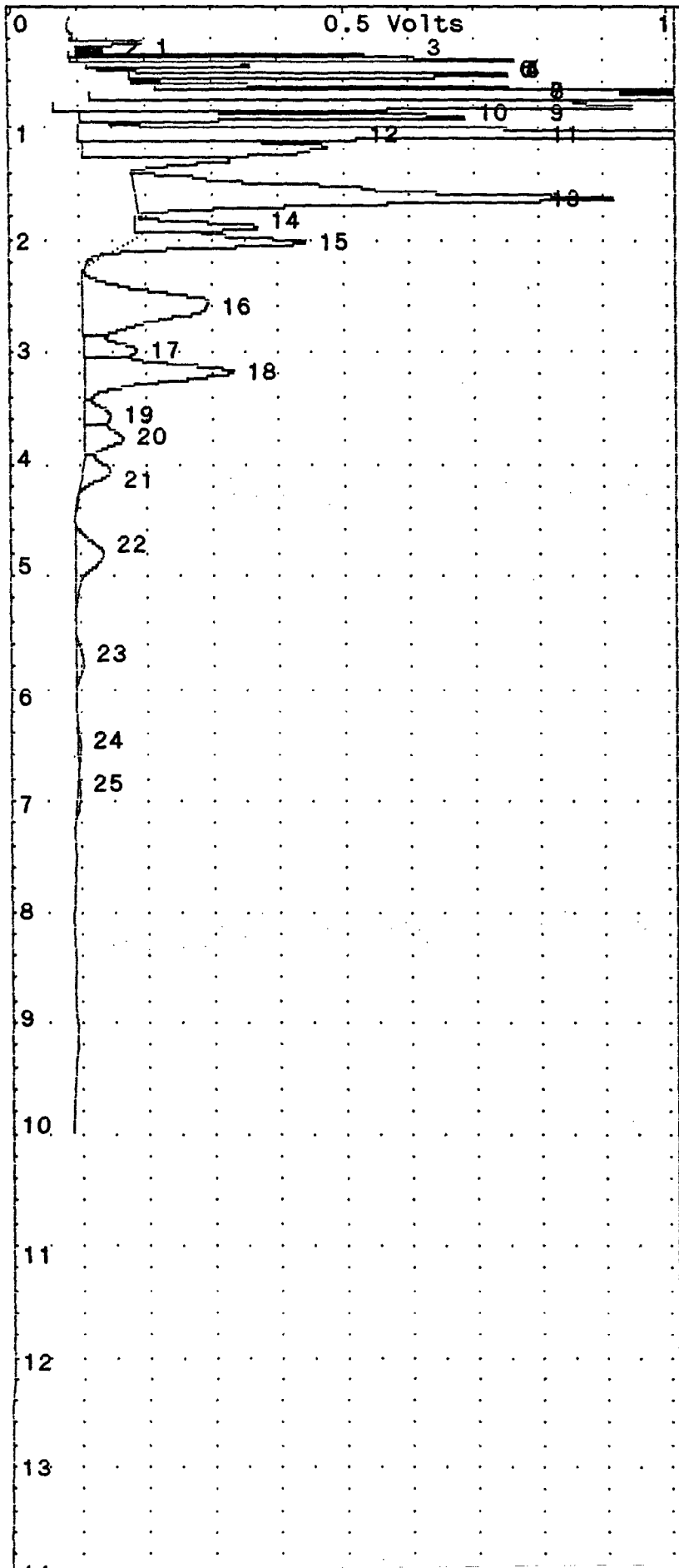
SAMPLE LIBRARY 3 AUG 28 1991 10:25
Stopped at 1000.0 sec

Number	2	mobil thomas 1
Internal Temp	24	btex
Gain	2	OV 40 10 m
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	20.0	95 mVS
UNKNOWN	2	25.3	131 mVS
UNKNOWN	3	32.1	58.5 mVS
UNKNOWN	4	37.8	1.7 VS
UNKNOWN	5	41.7	2.5 VS
UNKNOWN	6	45.5	969 mVS
UNKNOWN	7	54.3	3.3 VS
BENZENE	8	66.0	23.9 PPM*
UNKNOWN	9	72.2	7.9 VS
UNKNOWN	10	79.9	5.6 VS
UNKNOWN	11	90.1	3.6 VS
UNKNOWN	12	103.2	21.1 VS
UNKNOWN	13	115.3	6.4 VS
UNKNOWN	14	161.2	14.6 VS
UNKNOWN	15	186.2	3 VS
UNKNOWN	16	198.7	3.8 VS
UNKNOWN	17	251.4	5.8 VS
ETHYLBENZENE	18	292.3	4.64 PPM*
P,M-XYLENE	19	311.5	17.7 PPM*
O-XYLENE	20	349.3	3.17 PPM*
O-XYLENE	21	369.2	5.03 PPM*
O-XYLENE	22	396.2	3 PPM*
UNKNOWN	23	468.8	1.2 VS
UNKNOWN	24	560.8	296 mVS
UNKNOWN	25	635.1	89.5 mVS
UNKNOWN	26	674.0	30.3 mVS
UNKNOWN	28	821.7	19.8 mVS
UNKNOWN	29	882.7	89.4 mVS

* exceeds alarm level

Analysis Report - Photovac 10S70 Gas Chromatograph



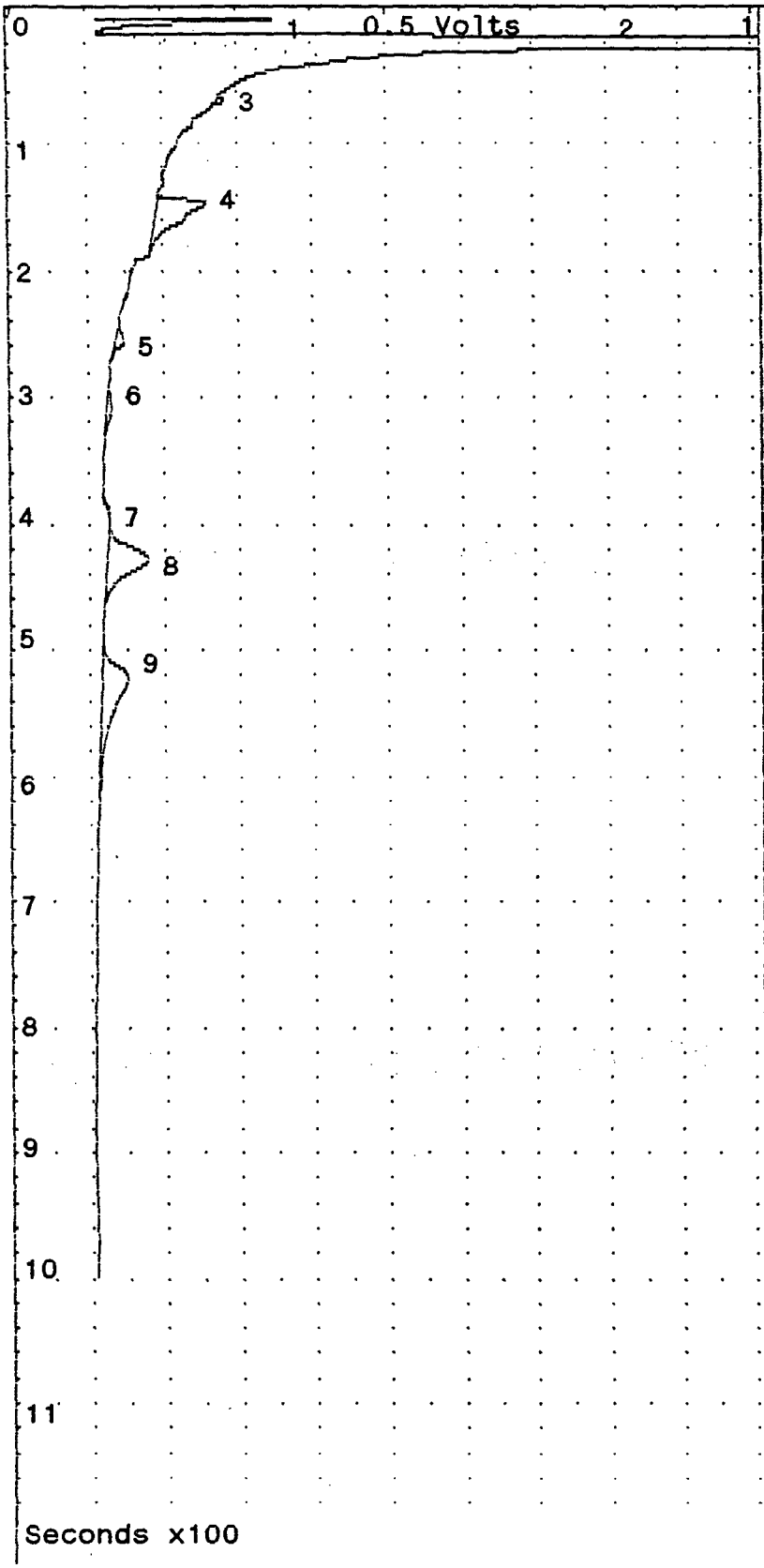
SAMPLE LIBRARY 3 AUG 28 1991 11:5
Stopped at 1000.0 sec

Number	5	mobil thomas 1
Internal Temp	30	pt 34
Gain	2	OV 40 10 m
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	26.3	118 mVS
UNKNOWN	2	33.5	65.8 mVS
UNKNOWN	3	39.5	2.1 VS
UNKNOWN	4	43.5	2 VS
UNKNOWN	5	47.7	904 mVS
UNKNOWN	6	56.7	3.2 VS
BENZENE	7	68.8	22.2 PPM
UNKNOWN	8	74.9	8.6 VS
UNKNOWN	9	84.4	4.9 VS
UNKNOWN	10	93.7	3.4 VS
UNKNOWN	11	107.3	20.5 VS
UNKNOWN	12	120.4	4.6 VS
UNKNOWN	13	167.7	10.9 VS
UNKNOWN	14	193.2	1.6 VS
UNKNOWN	15	207.6	2.4 VS
UNKNOWN	16	260.5	5.6 VS
P,M-XYLENE	17	303.5	4.47 PPM
P,M-XYLENE	18	324.1	16.4 PPM
O-XYLENE	19	364.2	2.95 PPM
O-XYLENE	20	384.2	4.39 PPM
O-XYLENE	21	413.5	2.8 PPM
UNKNOWN	22	490.1	1.2 VS
UNKNOWN	23	584.8	278 mVS
UNKNOWN	24	663.8	106 mVS
UNKNOWN	25	706.1	62 mVS
UNKNOWN	26	760.6	58.3 mVS
UNKNOWN	27	860.5	41.9 mVS
UNKNOWN	28	924.4	181 mVS

* exceeds alarm level

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 10:47
Stopped at 1000.0 sec

Number	3	mobil thomas 1
Internal Temp	25	pt35
Gain	20	OV 40 10 m
Offset	36.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	4.4	983 mVS
UNKNOWN	2	21.5	22.9 VS
BENZENE	3	68.7	11.7 PPB*
UNKNOWN	4	151.6	1.1 VS
UNKNOWN	5	261.9	67.2 mVS
P,M-XYLENE	6	313.9	38.5 PPB*
O-XYLENE	7	397.2	20.6 PPB*
UNKNOWN	8	434.4	1.2 VS
UNKNOWN	9	529.9	1.2 VS

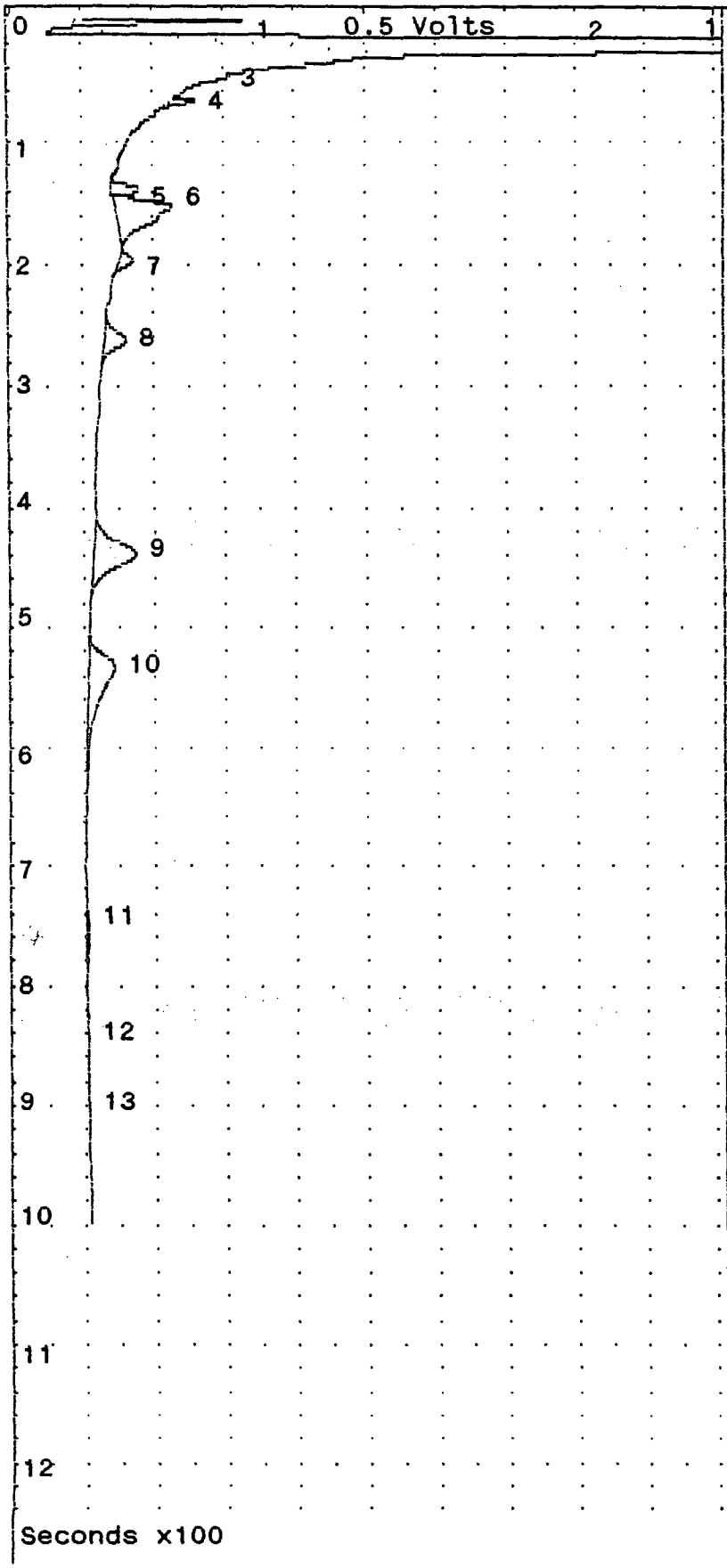
* exceeds alarm level

AUGUST 29, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 35

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 11:32
Stopped at 1000.0 sec

Number	4	mobil thomas 1
Internal Temp	28	PT YV
Gain	20	OV 40 10 m
Offset	36.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14 6	mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	4.4	1.1 VS
UNKNOWN	2	22.9	32.1 VS
UNKNOWN	4	71.1	154 mVS
TOLUENE	5	142.4	134 PPB*
UNKNOWN	6	155.6	1.6 VS
UNKNOWN	7	201.6	150 mVS
ETHYLBENZENE	8	267.5	180 PPB*
UNKNOWN	9	444.8	1.4 VS
UNKNOWN	10	541.1	1.3 VS
UNKNOWN	11	770.6	122 mVS
UNKNOWN	12	860.5	19.6 mVS

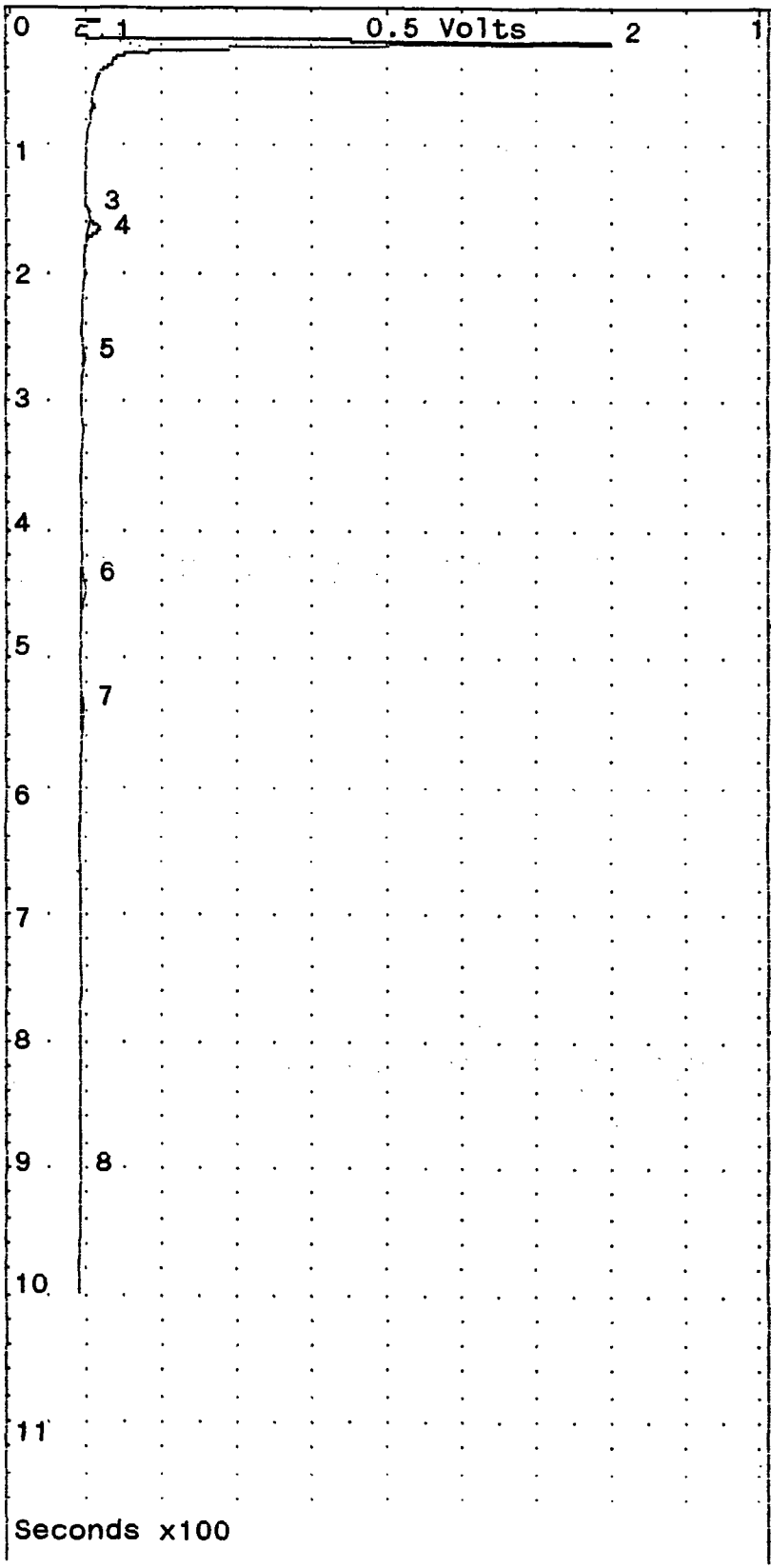
* exceeds alarm level

AUGUST 29, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 36

Analysis Report - Photovac 10S70 Gas Chromatograph



SAMPLE LIBRARY 3 AUG 28 1991 12:2
Stopped at 1000.0 sec

Number	6	mobil thomas 1
Internal Temp	32	pt 34
Gain	2	OV 40 10 m
Offset	0.0	mV
Chart speed	0.5	cm/min
Slope sens.	18 14	6 mV/Sec
Window +/-	10	Percent
Minimum area	5	mVsec
Timer delay	10.0	sec
Analysis time	1000.0	sec
Cycle time	0	min

Name	#	R.T.	Area/PPM
UNKNOWN	1	4.8	34.5 mVS
UNKNOWN	2	21.4	3.7 VS
UNKNOWN	3	158.0	9 mVS
UNKNOWN	4	169.7	119 mVS
ETHYLBENZENE	5	271.0	70 PPB*
UNKNOWN	6	453.2	106 mVS
UNKNOWN	7	546.7	76.2 mVS
UNKNOWN	8	919.6	11.4 mVS

* exceeds alarm level

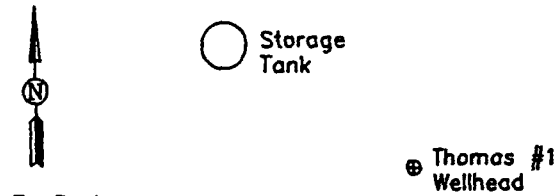
AUGUST 29, 1991

MOBIL THOMAS NO. 1 WELL SITE

SOIL VAPOR SAMPLING STATION 37

MW-1 Lithlog

LOCATION MAP:



Not To Scale

NW 1/4 SE 1/4 NW 1/4 SW 1/4 S 30 T 29N R 11W

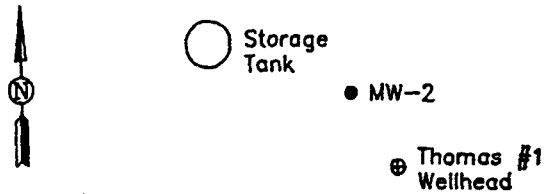
SITE ID: Thomas #1 LOCATION ID: MW-1
SITE COORDINATES (ft.):
N 1215.49 E 1069.32
GROUND ELEVATION (ft. MSL): 5375.66
STATE: N.M. COUNTY: San Juan
DRILLING METHOD: Drive Point
DRILLING CONTR.: H+GCL
DATE STARTED: 8-29-91 DATE COMPLETED: 8-30-91
FIELD REP.: M. Mohorcich, P. Eberly
COMMENTS:

LOCATION DESCRIPTION: 6' East And 215' North Of Thomas #1 Wellhead

DEPTH (ft.)	LITH.	REC	SAM	RUN #	RUN FROM	RUN TO	SAMPLE I.D.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
										0–1.5' Sandy Silt: With Roots And Some Caliche, Moderatly Consolidated.
										1.5–2.5' Silty Sand: Fine To Medium Sand.
										2.5–4' Silty Clay: Moderatly Consolidated.
										4–6' Clayey Sand: Water Detected At 4'.
5										
										Note: Drove In Well From 6'
10										10.66' T.D. Well = 10.66'
15										

MW-2 Lithlog

LOCATION MAP:



Not To Scale

NW 1/4 SE 1/4 NW 1/4 SW 1/4 S 30 T 29N R 11W

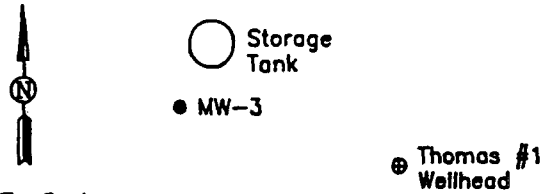
SITE ID: Thomas #1 LOCATION ID: MW-2
SITE COORDINATES (ft.):
N 1057.96 E 1027.11
GROUND ELEVATION (ft. MSL): 5375.71
STATE: N.M. COUNTY: San Juan
DRILLING METHOD: Drive Point
DRILLING CONTR.: H+GCL
DATE STARTED: 8-29-91 DATE COMPLETED: 8-30-91
FIELD REP.: M. Mohorcich, P. Eberly
COMMENTS:

LOCATION DESCRIPTION: 36' West And 58' North Of Thomas #1 Wellhead.

DEPTH (ft.)	LITH.	REC	SAM	RUN #	RUN FROM	RUN TO	SAMPLE I.D.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
										0–2.5' Sand: 10YR 5/4, Fine To Medium Grained, Unconsolidated.
										2.5–3.0' Clayey Sand: 10YR 4/2, Moderately Consolidated.
										3.0–3.5' Sand Loss In Clay With Black Stain And Hydrocarbon (HC) Odor At 3.3'.
										3.5–4.0' Clayey Sand: Black, Fine Grained Sand, HC Odor And Stained.
										4.0–5.5' Sand: Black, Fine Grained From 4.0'–5.0', H2O At 4.5', Medium To Coarse Grained From 5.0'–5.5'
5										
										Note: Drove In Well From 5.5'.
10										10.79' T.D. Well = 10.79'
15										

MW-3 Lithlog

LOCATION MAP:



Not To Scale

NW 1/4 SE 1/4 NW 1/4 SW 1/4 S 30 T 29N R 11W

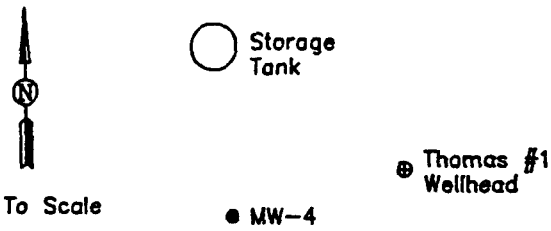
SITE ID: Thomas #1 LOCATION ID: MW-3
SITE COORDINATES (ft.):
N 1063.88 E 896.19
GROUND ELEVATION (ft. MSL): 5374.28
STATE: N.M. COUNTY: San Juan
DRILLING METHOD: Drive Point
DRILLING CONTR.: H+GCL
DATE STARTED: 8-29-91 DATE COMPLETED: 8-30-91
FIELD REP.: M. Mohorcich, P. Eberly
COMMENTS:

LOCATION DESCRIPTION: 167' West And 64' North Of Thomas #1 Wellhead.

DEPTH (ft.)	LITH.	REC	SAM	RUN #	RUN FROM	RUN TO	SAMPLE I.D.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
										0–1.5' Silty Sand: 10YR, Roots, Moderately Consolidated.
										1.5–2.0' Clayey Sand 10YR, Well Sorted, Unconsolidated.
										2.0–4.0' Sand: 5Y 6/4, Medium To Coarse Grained, Clay Poor, Unconsolidated Grades To Black Highly Organic, Staining And Odor At 2.5–4.0'. H2O At 4'.
5										
										Note: Drove In Well From 4'.
10										10.80' T.D. Well = 10.80'
15										

MW-4 Lithlog

LOCATION MAP:



Not To Scale

NW 1/4 SE 1/4 NW 1/4 SW 1/4 S 30 T 29N R 11W

SITE ID: Thomas #1 LOCATION ID: MW-4
SITE COORDINATES (ft.):
N 972.75 E 946.58
GROUND ELEVATION (ft. MSL): 5374.31
STATE: N.M. COUNTY: San Juan
DRILLING METHOD: Drive Point
DRILLING CONTR.: H+GCL
DATE STARTED: 8-29-91 DATE COMPLETED: 8-30-91
FIELD REP.: M. Mohorcich, P. Eberly
COMMENTS:

LOCATION DESCRIPTION: 116' West And 27' South Of Thomas #1 Wellhead.

DEPTH (ft.)	LITH.	REC	SAM	RUN #	RUN FROM	RUN TO	SAMPLE I.D.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
										0–1.5' Sandy Silt: Very Fine Grained Sand in Silt.
										1.5–2.3' Cobbles & Gravel: Up To 5" In Diameter, Unconsolidated.
5										Note: Unable To Auger Past 2.3' Due To Cobbles. Drove Well From 2.3'.
10										10.82' T.D. Well = 10.82'
15										

MW-5 Lithlog

LOCATION MAP:

⊕ Thomas #1 Wellhead

Not To Scale

Trailer

● MW-5

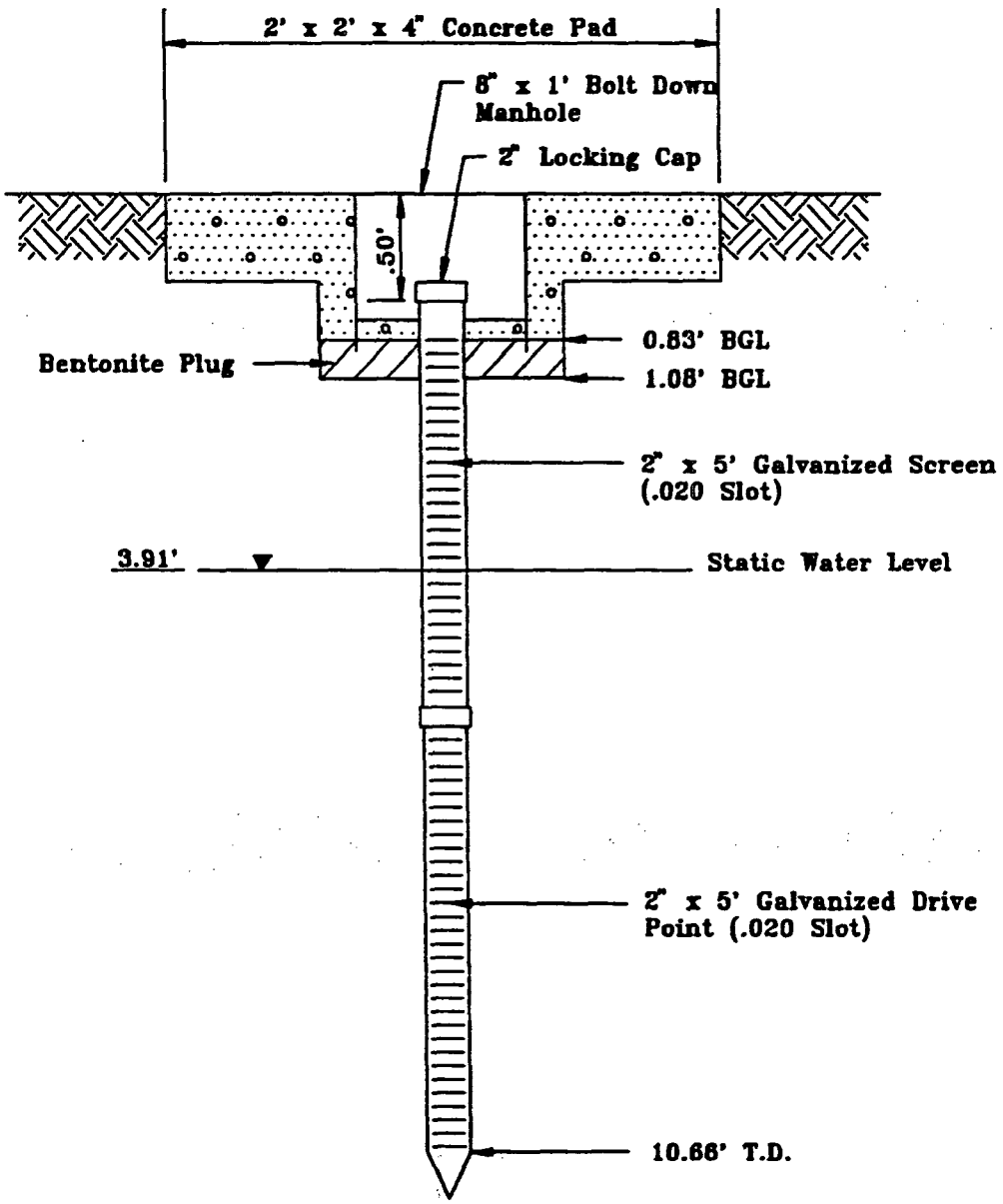
NW 1/4 SE 1/4 NW 1/4 SW 1/4 S 30 T 29N R 11W

SITE ID: Thomas #1 LOCATION ID: MW-5
SITE COORDINATES (ft.):
N 851.28 E 728.94
GROUND ELEVATION (ft. MSL): 5375.07
STATE: N.M. COUNTY: San Juan
DRILLING METHOD: Drive Point
DRILLING CONTR.: H+GCL
DATE STARTED: 8-29-91 DATE COMPLETED: 8-30-91
FIELD REP.: M. Mohorcich, P. Eberly
COMMENTS:

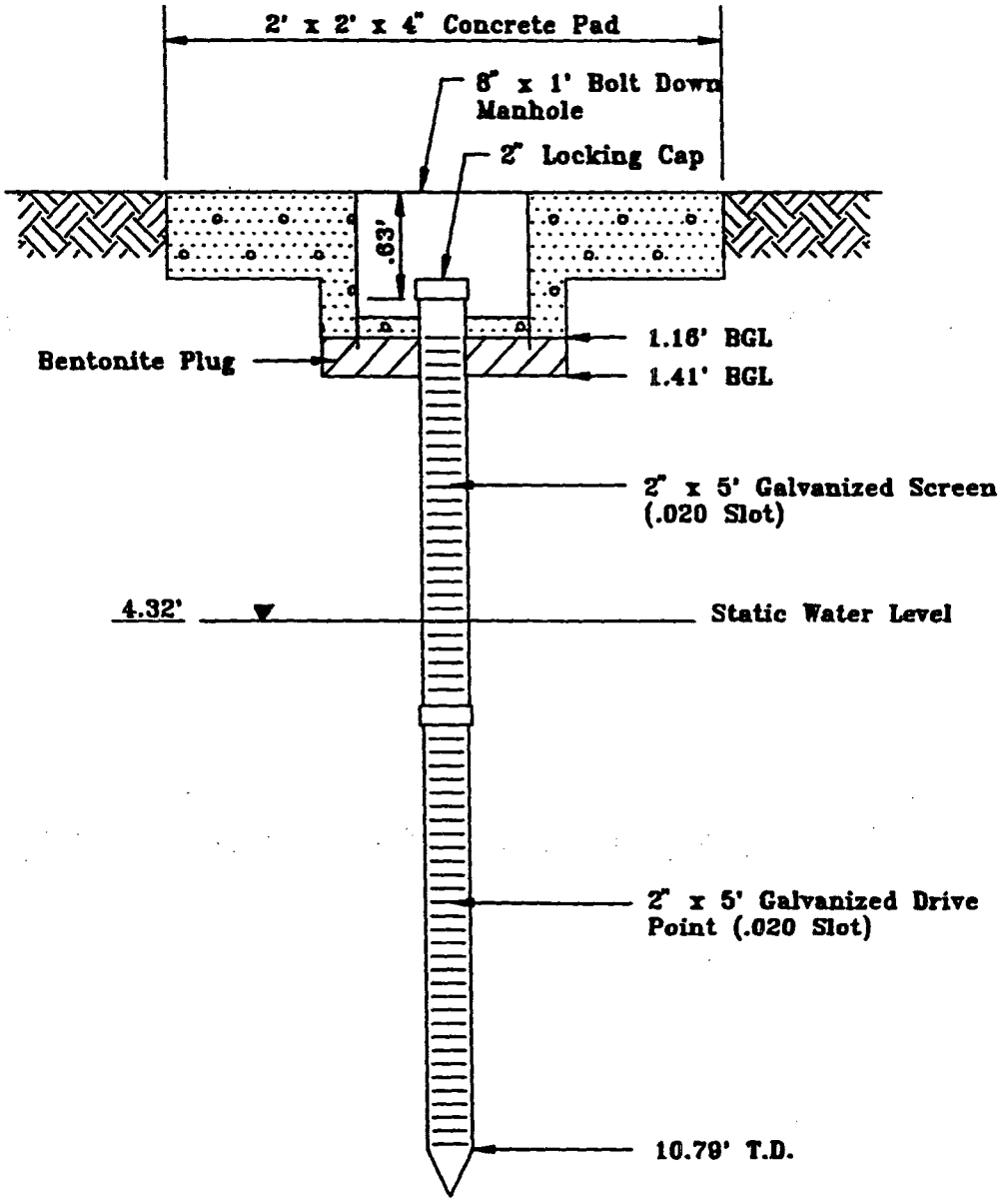
LOCATION DESCRIPTION: 334' West And 149' South Of Thomas #1 Wellhead.

DEPTH (ft.)	LITH.	REC	SAM	RUN #	RUN FROM	RUN TO	SAMPLE I.D.	SAMPLE TYPE	USCS	VISUAL CLASSIFICATION
										0-2.0' Sandy Silt: Organic, Very Moist From Irrigating.
5										Note: Drove In Well From 2'.
10										10.79' T.D. Well = 10.79'
15										

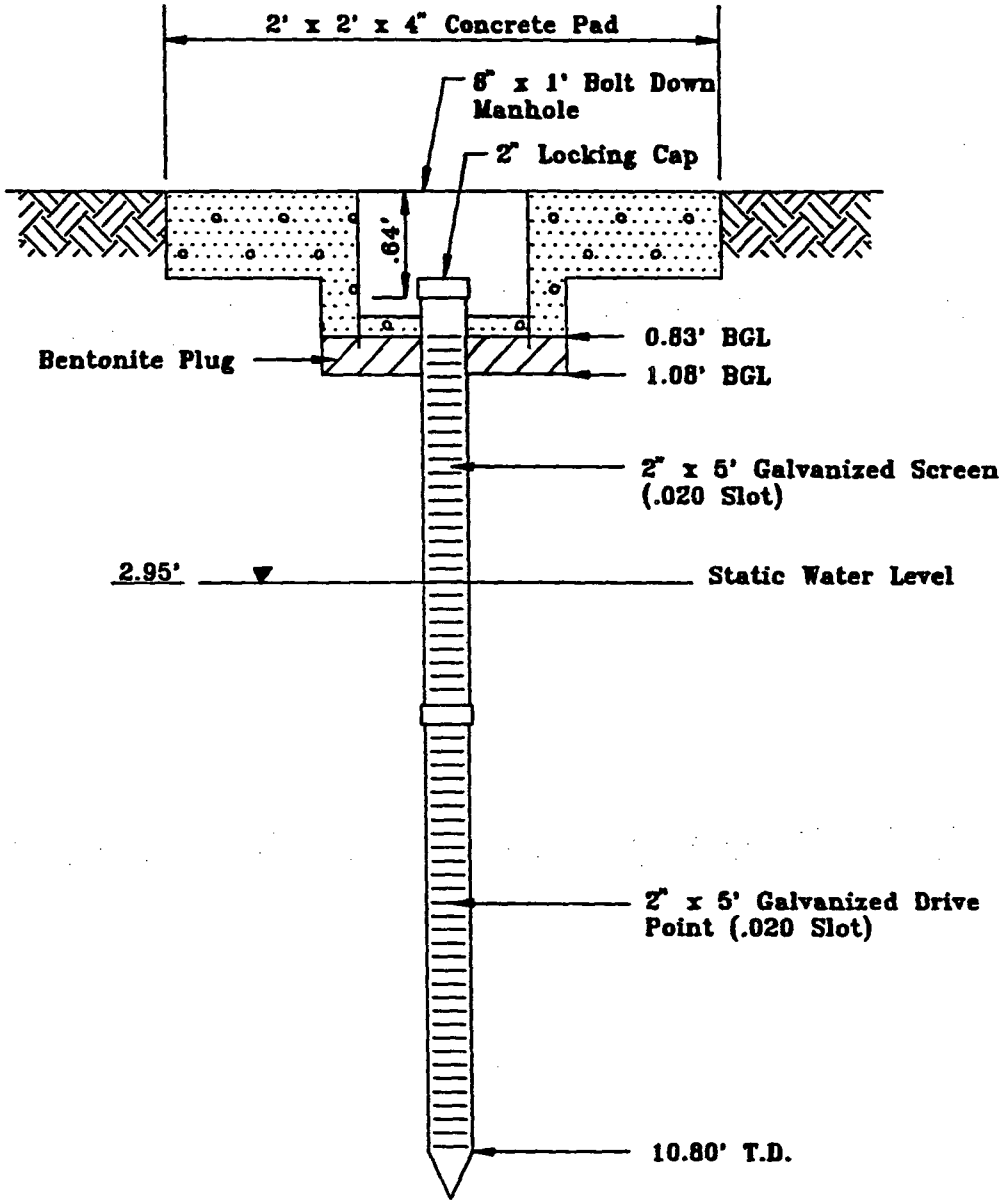
Monitor Well MW-1 Completion Diagram



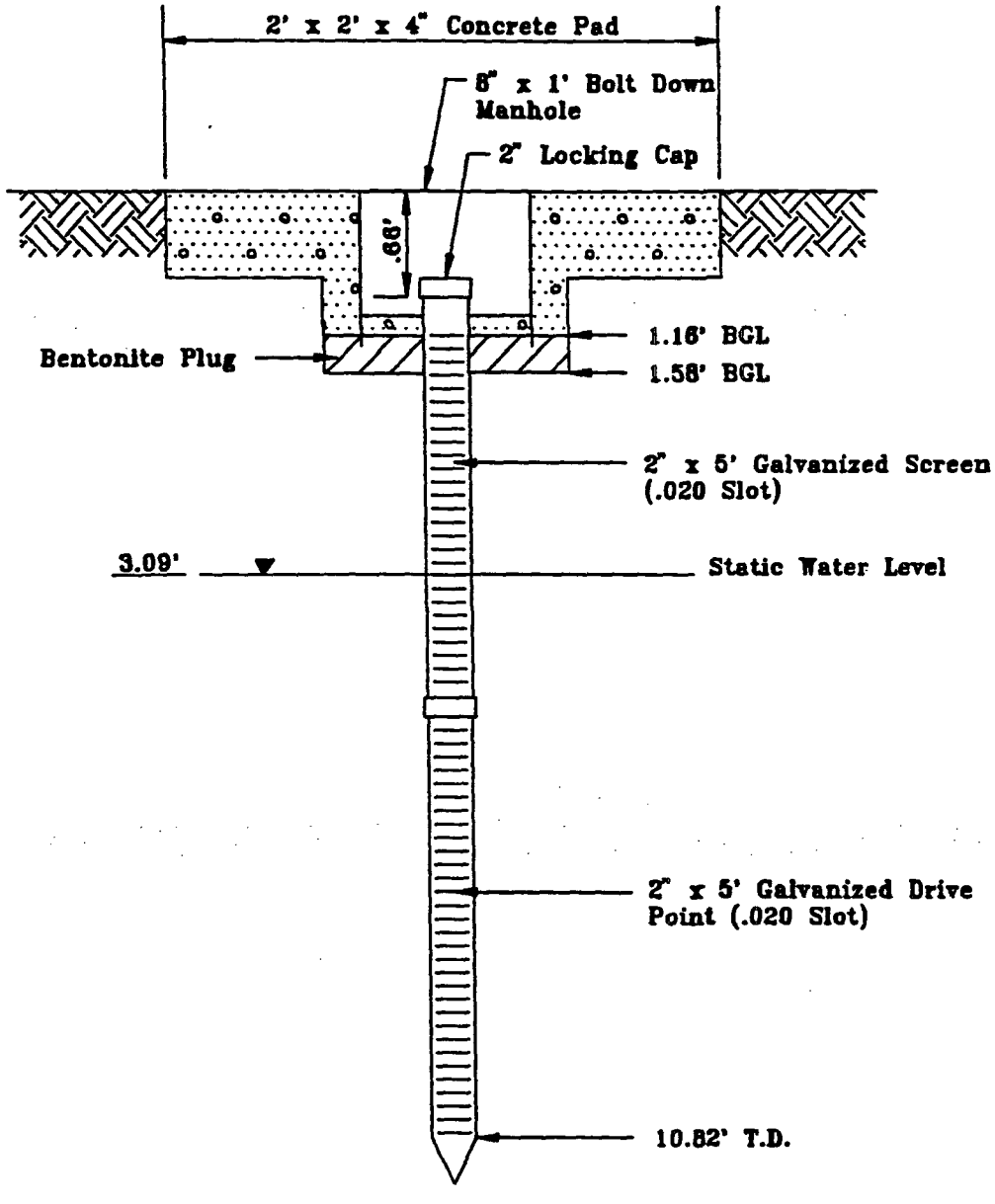
Monitor Well MW-2 Completion Diagram



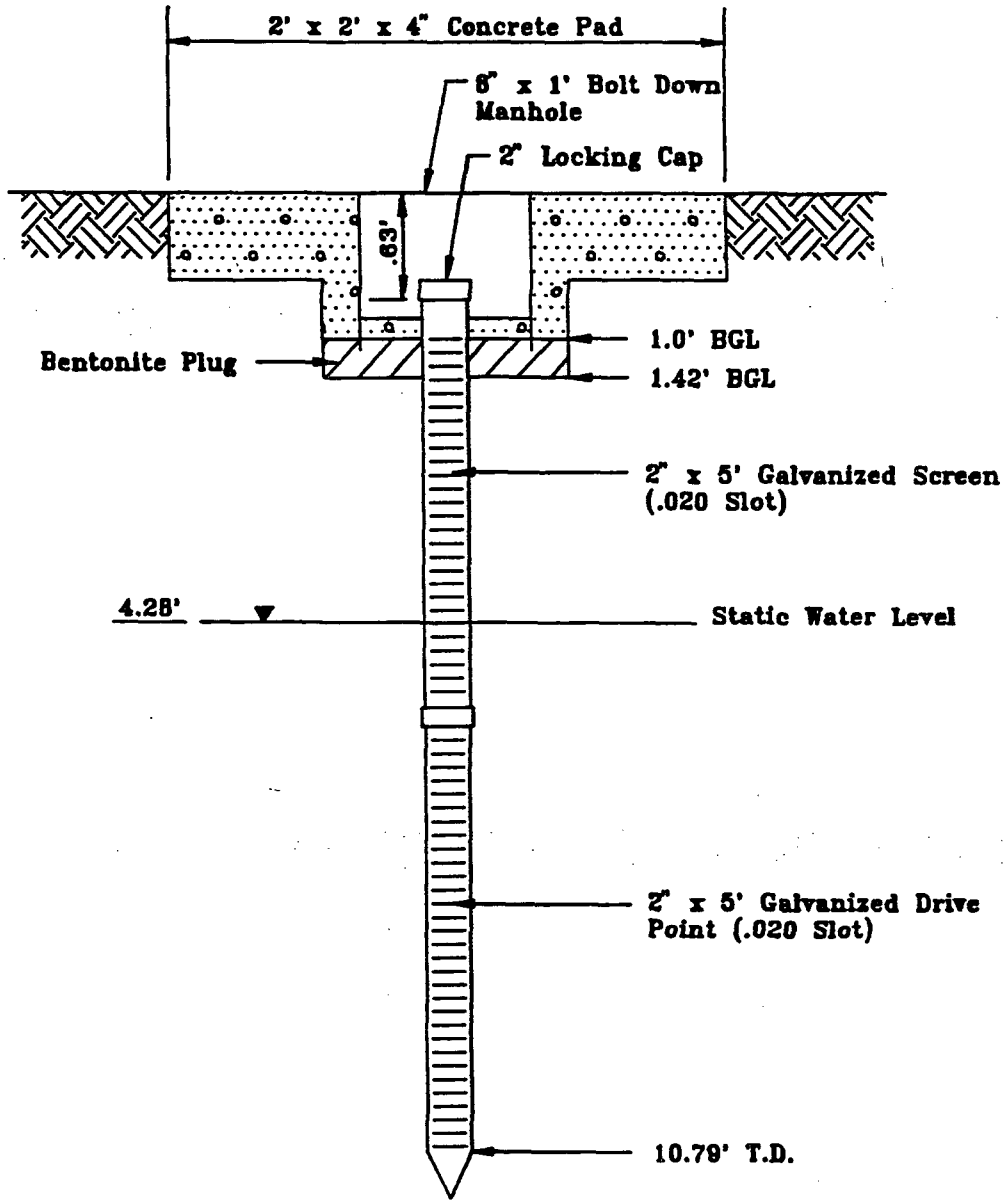
Monitor Well MW-3 Completion Diagram



Monitor Well MW-4 Completion Diagram



Monitor Well MW-5 Completion Diagram



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CORE LABORATORIES

ANALYTICAL REPORT

911642

FOR

GEOSCIENCE CONSULTANTS, LTD.

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ALBUQUERQUE, NM 87102

10/07/91

GCL

Geoscience Consultants, Ltd.

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☐ East Coast: 4221 Forbes Blvd., Suite 240, Lanham, MD 20706, (301) 459-9677
☐ Rocky Mountain: 13111 E. Briarwood Ave., Suite 250, Englewood, CO 80112, (303) 649-9001
☐ Las Cruces: P.O. Drawer MM, Las Cruces, NM 88004, (505) 524-5364

№ 4368

Chain of Custody

DATE 8-31-91 PAGE 1 OF 1

LAB NAME CORE LABORATORIES
ADDRESS 1300 S. Potomac St. Ste 130, Aurora, CO 80012
TELEPHONE 303/751-1780

SAMPLERS (SIGNATURE): Mark Mohrmid

SAMPLE NUMBER	MATRIX	LOCATION	BASE/NEU/ACID CMPDS. GC/MS/ 625/8270	VOLATILE CMPDS. GC/MS/624/8240	PESTICIDES/PCB 608/8080	POLYNUCLEAR AROMATIC 610/8310	PHENOLS, SUB PHENOLS 604/8040	HALOGENATED VOLATILES 601/8010	AROMATIC VOLATILES 602/8020	TOTAL ORGANIC CARBON 415/9060	TOTAL ORGANIC HALIDES 9020	PETROLEUM HYDROCARBONS 418.1	TPH MODIFIED 8015	TDS	PRIORITY POLLUTANT METALS (13)	CAM METALS (18) TTLC/STLC	EP TOX METALS (8)	SDWA-INORGANICS PRIMARY/SECONDARY'	HAZARDOUS WASTE PROFILE	BTEX	Cations + Anions		NUMBER OF CONTAINERS
9108311455	H_2O	MW-4												1						2	2		5
9108311600	H_2O	MW-1												1						3	2		6
9108311715	H_2O	MW-5												1						3	2		6
9108311820	H_2O	MW-2												1						3	2		6
9108311910	H_2O	MW-3												1						3	2		6
9108311950	H_2O	POND												1						3	2		6
9108311457	H_2O	MW-4																		2			2
9108311955	H_2O	POND		1																			1

PROJECT INFORMATION

PROJECT: Mobil Thomas #1 Wellsite
PROJECT DIRECTOR: Monroe
CHARGE CODE NO. 569000
SHIPPING ID. NO. 025442 3805
VIA: FedEx.

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	38
CHAIN OF CUSTODY SEALS	yes
REC'D GOOD CONDITION/COLD	yes
CONFORMS TO RECORD	yes

LAB NO. 911642

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY 1.	RELINQUISHED BY 2.	RELINQUISHED BY 3.
Mark Mohrmid 1745		
(Signature) (Time)	(Signature) (Time)	(Signature) (Time)
Mark Mohrmid 9/3/91		
(Printed Name) (Date)	(Printed Name) (Date)	(Printed Name) (Date)
GCL		
(Company)	(Company)	(Company)
RECEIVED BY 1.	**RECEIVED BY 2.**	**RECEIVED BY (LABORATORY) 3.**
		Darryl Ng-A-Qui 9-15
(Signature) (Time)	(Signature) (Time)	(Signature) (Time)
		DARRYL NG-A-QUI 9-4-91
(Printed Name) (Date)	(Printed Name) (Date)	(Printed Name) date
		CORE LABORATORIES
(Company)	(Company)	ANALYTI

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CORE LABORATORIES

LABORATORY TESTS RESULTS
10/07/91

JOB NUMBER: 911642 CUSTOMER: GEOSCIENCE CONSULTANTS, LTD. ATTN:

CLIENT I.D.....: MOBIL THOMAS #1 WELL COC #4368
DATE SAMPLED.....: 08/31/91
TIME SAMPLED.....: 14:55
WORK DESCRIPTION...: 9108311455

LABORATORY I.D...: 911642-0001
DATE RECEIVED....: 09/04/91
TIME RECEIVED....: 09:15
REMARKS.....: VOA HAVE SMALL BUBBLES

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Alkalinity, Total (Unfilt.)	672	5	mg/L CaCO3	310.1 (1)	09/17/91	MRC
Bicarbonate (Unfilt.)	819	5	mg/L	403 (3)	09/17/91	MRC
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	09/17/91	MRC
Chloride (Unfilt.)	55	1	mg/L	325.2 (1)	09/16/91	DTJ
pH (Unfilt.)	7.41	0.01	pH Units	150.1 (1)	09/17/91	MRC
Solids, Total Dissolved (TDS)	2240	10	mg/L	160.1 (1)	09/05/91	RMN
Sulfate (Unfilt.)	1020	10	mg/L	375.3 (1)	09/23/91	MW
Calcium, Total (Ca)	320	0.5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Magnesium, Total (Mg)	67.1	0.5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Potassium, Total (K)	4.8	0.01	mg/L	258.1 (1)	09/23/91	WGL
Sodium, Total (Na)	295	5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/05/91	MRC
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			

APPROVED BY: Ellen J. Mahoney

1300 S. Potomac St., Suite 130
Aurora, CO 80012
(303) 751-1780

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CORE LABORATORIES

LABORATORY TESTS RESULTS
10/07/91

JOB NUMBER: 911642 CUSTOMER: GEOSCIENCE CONSULTANTS, LTD. ATTN:

CLIENT I.D.....: MOBIL THOMAS #1 WELL COC #4368
DATE SAMPLED.....: 08/31/91
TIME SAMPLED.....: 16:00
WORK DESCRIPTION...: 9108311600

LABORATORY I.D...: 911642-0002
DATE RECEIVED....: 09/04/91
TIME RECEIVED....: 09:15
REMARKS.....: 1 VOA HAS A BUBBLE

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Alkalinity, Total (Unfilt.)	386	5	mg/L CaCO3	310.1 (1)	09/17/91	MRC
Bicarbonate (Unfilt.)	470	5	mg/L	403 (3)	09/17/91	MRC
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	09/17/91	MRC
Chloride (Unfilt.)	12.8	0.5	mg/L	325.2 (1)	09/16/91	DTJ
pH (Unfilt.)	7.22	0.01	pH Units	150.1 (1)	09/17/91	MRC
Solids, Total Dissolved (TDS)	2650	10	mg/L	160.1 (1)	09/05/91	RMN
Sulfate (Unfilt.)	1530	10	mg/L	375.3 (1)	09/23/91	MW
Calcium, Total (Ca)	565	5	mg/L	200.7/6010 (1,2)	09/24/91	TLK
Magnesium, Total (Mg)	47.3	0.1	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Potassium, Total (K)	4.6	0.01	mg/L	258.1 (1)	09/23/91	WGL
Sodium, Total (Na)	193	5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/13/91	MRC
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			

APPROVED BY: Ellen J. Mayger

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LABORATORY TESTS RESULTS
10/07/91

JOB NUMBER: 911642 CUSTOMER: GEOSCIENCE CONSULTANTS, LTD. ATTN:

CLIENT I.D.....: MOBIL THOMAS #1 WELL COC #4368
DATE SAMPLED.....: 08/31/91
TIME SAMPLED.....: 17:15
WORK DESCRIPTION...: 9108311715

LABORATORY I.D...: 911642-0003
DATE RECEIVED....: 09/04/91
TIME RECEIVED....: 09:15
REMARKS.....: VOA HAVE SMALL BUBBLES

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Alkalinity, Total (Unfilt.)	851	5	mg/L CaCO3	310.1 (1)	09/17/91	MRC
Bicarbonate (Unfilt.)	1040	5	mg/L	403 (3)	09/17/91	MRC
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	09/17/91	MRC
Chloride (Unfilt.)	155	1	mg/L	325.2 (1)	09/16/91	DTJ
pH (Unfilt.)	7.42	0.01	pH Units	150.1 (1)	09/17/91	MRC
Solids, Total Dissolved (TDS)	6250	10	mg/L	160.1 (1)	09/05/91	RMN
Sulfate (Unfilt.)	3610	10	mg/L	375.3 (1)	09/23/91	MW
Calcium, Total (Ca)	761	5	mg/L	200.7/6010 (1,2)	09/24/91	TLK
Magnesium, Total (Mg)	173	0.5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Potassium, Total (K)	9.9	0.01	mg/L	258.1 (1)	09/23/91	WGL
Sodium, Total (Na)	977	5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/13/91	MRC
Benzene	ND	1	ug/L			
Toluene	2	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	6	1	ug/L			

APPROVED BY: Ellen J. Noggles

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LABORATORY TESTS RESULTS
10/07/91

JOB NUMBER: 911642 CUSTOMER: GEOSCIENCE CONSULTANTS, LTD. ATTN:

CLIENT I.D.....: MOBIL THOMAS #1 WELL COC #4368
DATE SAMPLED.....: 08/31/91
TIME SAMPLED.....: 18:20
WORK DESCRIPTION...: 9108311820

LABORATORY I.D...: 911642-0004
DATE RECEIVED....: 09/04/91
TIME RECEIVED....: 09:15
REMARKS.....: VOA HAVE SMALL BUBBLES

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Alkalinity, Total (Unfilt.)	746	5	mg/L CaCO3	310.1 (1)	09/17/91	MRC
Bicarbonate (Unfilt.)	910	5	mg/L	403 (3)	09/17/91	MRC
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	09/17/91	MRC
Chloride (Unfilt.)	45	1	mg/L	325.2 (1)	09/24/91	DTJ
pH (Unfilt.)	7.45	0.01	pH Units	150.1 (1)	09/17/91	MRC
Solids, Total Dissolved (TDS)	2230	10	mg/L	160.1 (1)	09/05/91	RMN
Sulfate (Unfilt.)	970	10	mg/L	375.3 (1)	09/23/91	MW
Calcium, Total (Ca)	407	0.5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Magnesium, Total (Mg)	72.5	0.5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Potassium, Total (K)	6.5	0.01	mg/L	258.1 (1)	09/23/91	WGL
Sodium, Total (Na)	249	5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
8020 - AROMATIC VOLATILE ORGANICS		*100		8020 (2)	09/13/91	MRC
Benzene	800	100	ug/L			
Toluene	2800	100	ug/L			
Ethyl Benzene	400	100	ug/L			
Xylenes	8100	100	ug/L			

APPROVED BY: Ellen J. Naggar

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LABORATORY TESTS RESULTS
10/07/91

JOB NUMBER: 911642 CUSTOMER: GEOSCIENCE CONSULTANTS, LTD. ATTN:

CLIENT I.D.....: MOBIL THOMAS #1 WELL COC #4368
DATE SAMPLED.....: 08/31/91
TIME SAMPLED.....: 19:10
WORK DESCRIPTION...: 9108311910

LABORATORY I.D...: 911642-0005
DATE RECEIVED....: 09/04/91
TIME RECEIVED....: 09:15
REMARKS.....: VOA HAVE SMALL BUBBLES

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Alkalinity, Total (Unfilt.)	905	5	mg/L CaCO3	310.1 (1)	09/17/91	MRC
Bicarbonate (Unfilt.)	1100	5	mg/L	403 (3)	09/17/91	MRC
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	09/17/91	MRC
Chloride (Unfilt.)	115	1	mg/L	325.2 (1)	09/24/91	DTJ
pH (Unfilt.)	7.40	0.01	pH Units	150.1 (1)	09/17/91	MRC
Solids, Total Dissolved (TDS)	2310	10	mg/L	160.1 (1)	09/05/91	RMN
Sulfate (Unfilt.)	926	10	mg/L	375.3 (1)	09/23/91	MW
Calcium, Total (Ca)	463	0.5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Magnesium, Total (Mg)	70.1	0.5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Potassium, Total (K)	4.1	0.01	mg/L	258.1 (1)	09/23/91	WGL
Sodium, Total (Na)	296	5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
8020 - AROMATIC VOLATILE ORGANICS		*500		8020 (2)	09/13/91	MRC
Benzene	1500	500	ug/L			
Toluene	30000	500	ug/L			
Ethyl Benzene	2000	500	ug/L			
Xylenes	36000	500	ug/L			

APPROVED BY: Ellen J. Naggar

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LABORATORY TESTS RESULTS
10/07/91

JOB NUMBER: 911642 CUSTOMER: GEOSCIENCE CONSULTANTS, LTD. ATTN:

CLIENT I.D.....: MOBIL THOMAS #1 WELL COC #4368
DATE SAMPLED.....: 08/31/91
TIME SAMPLED.....: 19:50
WORK DESCRIPTION...: 9108311950

LABORATORY I.D...: 911642-0006
DATE RECEIVED....: 09/04/91
TIME RECEIVED....: 09:15
REMARKS.....: 2 VOA HAVE SMALL BUBBLES

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Alkalinity, Total (Unfilt.)	152	5	mg/L CaCO3	310.1 (1)	09/17/91	MRC
Bicarbonate (Unfilt.)	185	5	mg/L	403 (3)	09/17/91	MRC
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	09/17/91	MRC
Chloride (Unfilt.)	7.1	0.5	mg/L	325.2 (1)	09/16/91	DTJ
pH (Unfilt.)	7.71	0.01	pH Units	150.1 (1)	09/17/91	MRC
Solids, Total Dissolved (TDS)	627	10	mg/L	160.1 (1)	09/05/91	RMN
Sulfate (Unfilt.)	288	10	mg/L	375.3 (1)	09/23/91	MW
Calcium, Total (Ca)	123	0.5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Magnesium, Total (Mg)	20.6	0.1	mg/L	200.7/6010 (1,2)	09/18/91	TLK
Potassium, Total (K)	2.3	0.01	mg/L	258.1 (1)	09/23/91	WGL
Sodium, Total (Na)	55	5	mg/L	200.7/6010 (1,2)	09/18/91	TLK
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/05/91	MRC
Benzene	ND	1	ug/L			
Toluene	13	1	ug/L			
Ethyl Benzene	2	1	ug/L			
Xylenes	45	1	ug/L			

APPROVED BY: Ellen J Naggar

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Aurora, CO 80012
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LABORATORY TESTS RESULTS
10/07/91

JOB NUMBER: 911642 CUSTOMER: GEOSCIENCE CONSULTANTS, LTD. ATTN:

CLIENT I.D.....: MOBIL THOMAS #1 WELL COC #4368
DATE SAMPLED.....: 08/31/91
TIME SAMPLED.....: 14:57
WORK DESCRIPTION...: 9108311457

LABORATORY I.D...: 911642-0007
DATE RECEIVED....: 09/04/91
TIME RECEIVED....: 09:15
REMARKS.....: VOA HAVE SMALL BUBBLES

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/05/91	MRC
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			

APPROVED BY: Ellen J. Mapper

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Aurora, CO 80012
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LABORATORY TESTS RESULTS
10/07/91

JOB NUMBER: 911642 CUSTOMER: GEOSCIENCE CONSULTANTS, LTD. ATTN:

CLIENT I.D.....: MOBIL THOMAS #1 WELL COC #4368
DATE SAMPLED.....: 08/31/91
TIME SAMPLED.....: 19:55
WORK DESCRIPTION...: 9108311955

LABORATORY I.D...: 911642-0008
DATE RECEIVED....: 09/04/91
TIME RECEIVED....: 09:15
REMARKS.....: VOA HAS SMALL BUBBLES

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
624 - VOLATILE ORGANICS		*1		624 (1)	09/09/91	MLD
Benzene	ND	1	ug/L			
Bromodichloromethane	ND	5	ug/L			
Bromoform	ND	5	ug/L			
Bromomethane	ND	5	ug/L			
Carbon tetrachloride	ND	5	ug/L			
Chlorobenzene	ND	5	ug/L			
Chloroethane	ND	5	ug/L			
2-Chloroethylvinyl ether	ND	5	ug/L			
Chloroform	ND	5	ug/L			
Chloromethane	ND	5	ug/L			
Dibromochloromethane	ND	5	ug/L			
1,1-Dichloroethane	ND	5	ug/L			
1,2-Dichloroethane	ND	5	ug/L			
1,1-Dichloroethene	ND	5	ug/L			
trans-1,2-Dichloroethene	ND	5	ug/L			
1,2-Dichloropropane	ND	5	ug/L			
cis-1,3-Dichloropropene	ND	5	ug/L			
trans-1,3-Dichloropropene	ND	5	ug/L			
Ethylbenzene	ND	5	ug/L			
Methylene chloride	ND	5	ug/L			
1,1,2,2-Tetrachloroethane	ND	5	ug/L			
Tetrachloroethene	ND	5	ug/L			
Toluene	ND	5	ug/L			
1,1,1-Trichloroethane	ND	5	ug/L			
1,1,2-Trichloroethane	ND	5	ug/L			
Trichloroethene	ND	5	ug/L			
Trichlorofluoromethane	ND	5	ug/L			
Vinyl chloride	ND	10	ug/L			

APPROVED BY: Ellen J. Noggle

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Aurora, CO 80012
(303) 751-1780

Geoscience Consultants, Ltd.

XXX Albuquerque: 500 Copper N.W., Suite 200, Albuquerque, NM 87102, (505) 842-0001
☐ East Coast: 4221 Forbes Blvd., Suite 240, Lanham, MD 20706, (301) 459-9677
☐ Rocky Mountain: 13111 E. Briarwood Ave., Suite 250, Englewood, CO 80112, (303) 649-9001
☐ Las Cruces: P.O. Drawer MM, Las Cruces, NM 88004, (505) 524-5364

№ 4368

Chain of Custody

DATE 8-31-91 PAGE 1 OF 1

LAB NAME CORE LABORATORIES
ADDRESS 1300 S. Potomac St. Ste 130, Aurora, CO 80012
TELEPHONE 303/751-1780

SAMPLERS (SIGNATURE): Mark Mohovich

SAMPLE NUMBER	MATRIX	LOCATION	BASE/NEU/ACID CMPDS. GC/MS/ 625/8270	VOLATILE CMPDS. GC/MS/624/8240	PESTICIDES/PCB 608/8080	POLYNUCLEAR AROMATIC 610/8310	PHENOLS, SUB PHENOLS 604/8040	HALOGENATED VOLATILES 601/8010	AROMATIC VOLATILES 602/8020	TOTAL ORGANIC CARBON 415/9060	TOTAL ORGANIC HALIDES 9020	PETROLEUM HYDROCARBONS 418.1	TPH MODIFIED 8015	TDS	PRIORITY POLLUTANT METALS (13)	CAM METALS (18) TTLC/STLC	EP TOX METALS (8)	SDWA-INORGANICS PRIMARY/SECONDARY	HAZARDOUS WASTE PROFILE	BTEX	Cations + Anions		NUMBER OF CONTAINERS
9108311455	H_2O	MW-4												1						2	2		5
9108311600	H_2O	MW-1												1						3	2		6
9108311715	H_2O	MW-5												1						3	2		6
9108311820	H_2O	MW-2												1						3	2		6
9108311910	H_2O	MW-3												1						3	2		6
9108311950	H_2O	POND												1						3	2		6
9108311457	H_2O	MW-4																		2			2
9108311955	H_2O	POND		1																			1

PROJECT INFORMATION

PROJECT: Mobil Thomas #1 Wellsite
PROJECT DIRECTOR: Mohovich
CHARGE CODE NO. 569000
SHIPPING ID. NO. 025442 3805
VIA: FedEx.

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	38
CHAIN OF CUSTODY SEALS	yes
REC'D GOOD CONDITION/COLD	yes
CONFORMS TO RECORD	yes

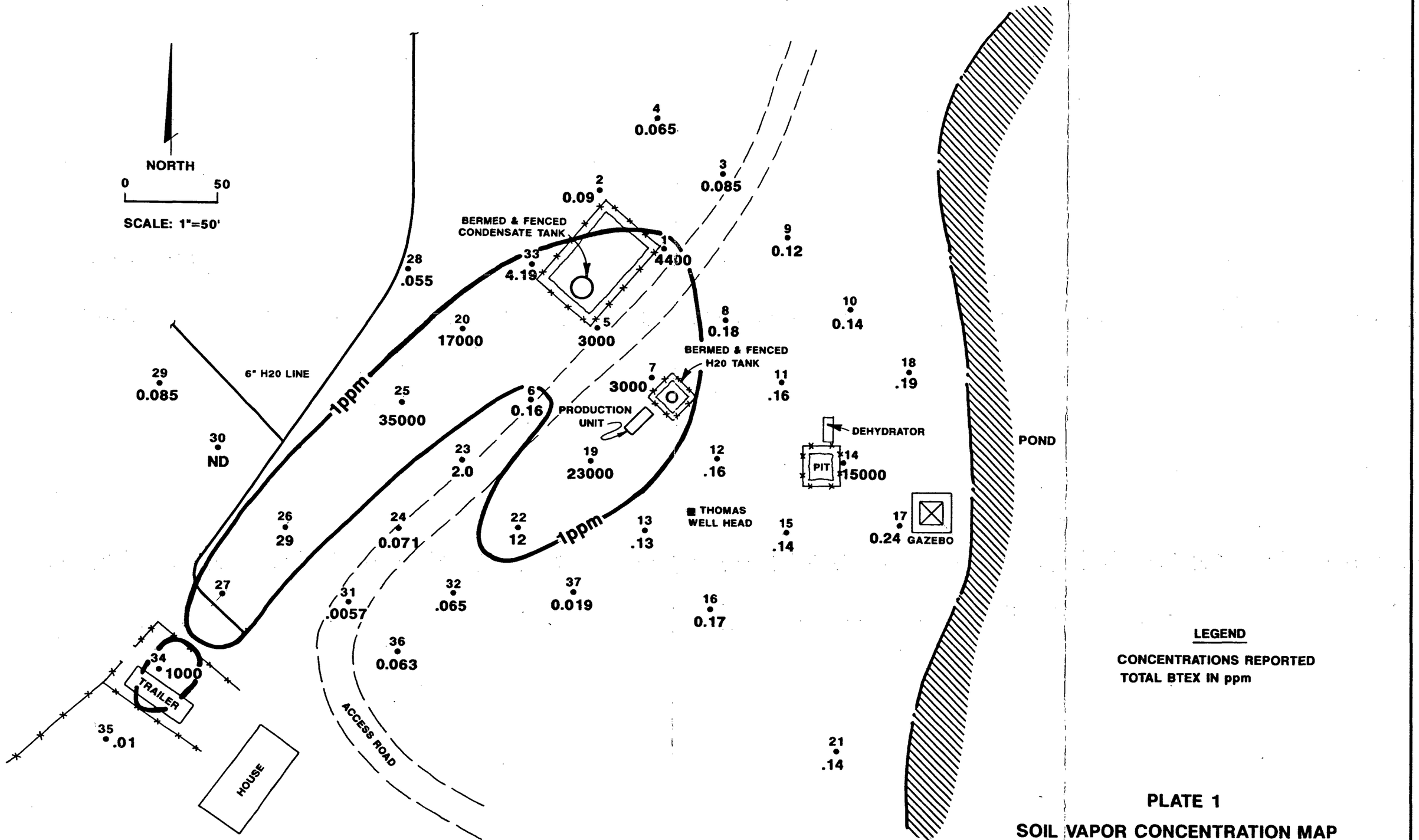
LAB NO. 911642

SPECIAL INSTRUCTIONS/COMMENTS:

RECEIVED SEP 0 9 1991

RELINQUISHED BY 1.	RELINQUISHED BY 2.	RELINQUISHED BY 3.
Mark Mohovich 1745		
(Signature) (Time)	(Signature) (Time)	(Signature) (Time)
Mark Mohovich 9/3/91		
(Printed Name) (Date)	(Printed Name) (Date)	(Printed Name) (Date)
GCL		
(Company)	(Company)	(Company)
RECEIVED BY 1.	**RECEIVED BY 2.**	**RECEIVED BY (LABORATORY) 3.**
		Darryl Ng-A-Qui 9-15
(Signature) (Time)	(Signature) (Time)	(Signature) (Time)
		DARRYL NG-A-QUI 9-4-91
(Printed Name) (Date)	(Printed Name) (Date)	(Printed Name) date
		CORE LABORATORIES
(Company)	(Company)	ANALYTI

DISTRIBUTION: WHITE, CANARY - LABORATORY · PINK - GEOSCIENCE CONSULTANTS, LTD.



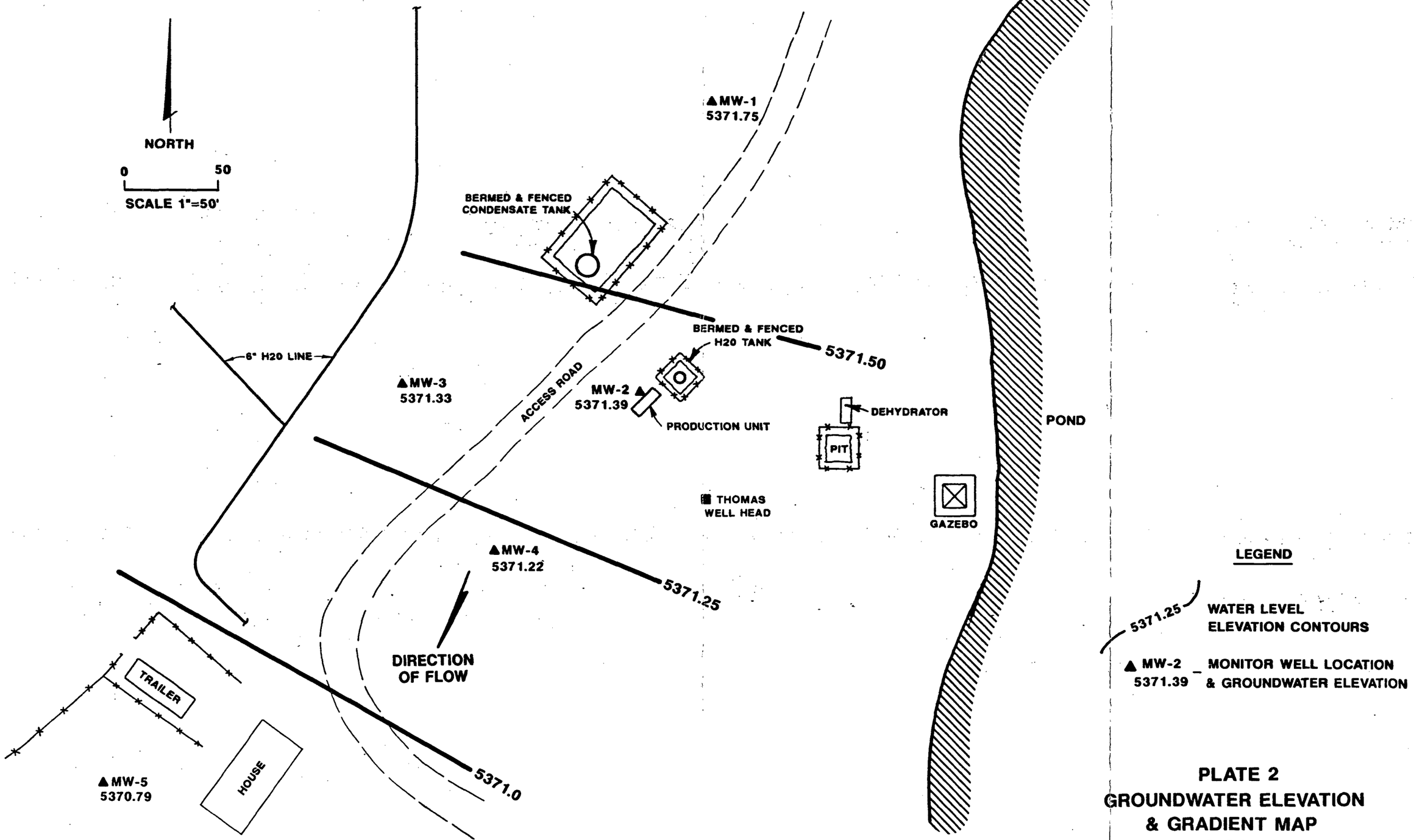
LEGEND

CONCENTRATIONS REPORTED
TOTAL BTEX IN ppm

PLATE 1

SOIL VAPOR CONCENTRATION MAP

8-31-91

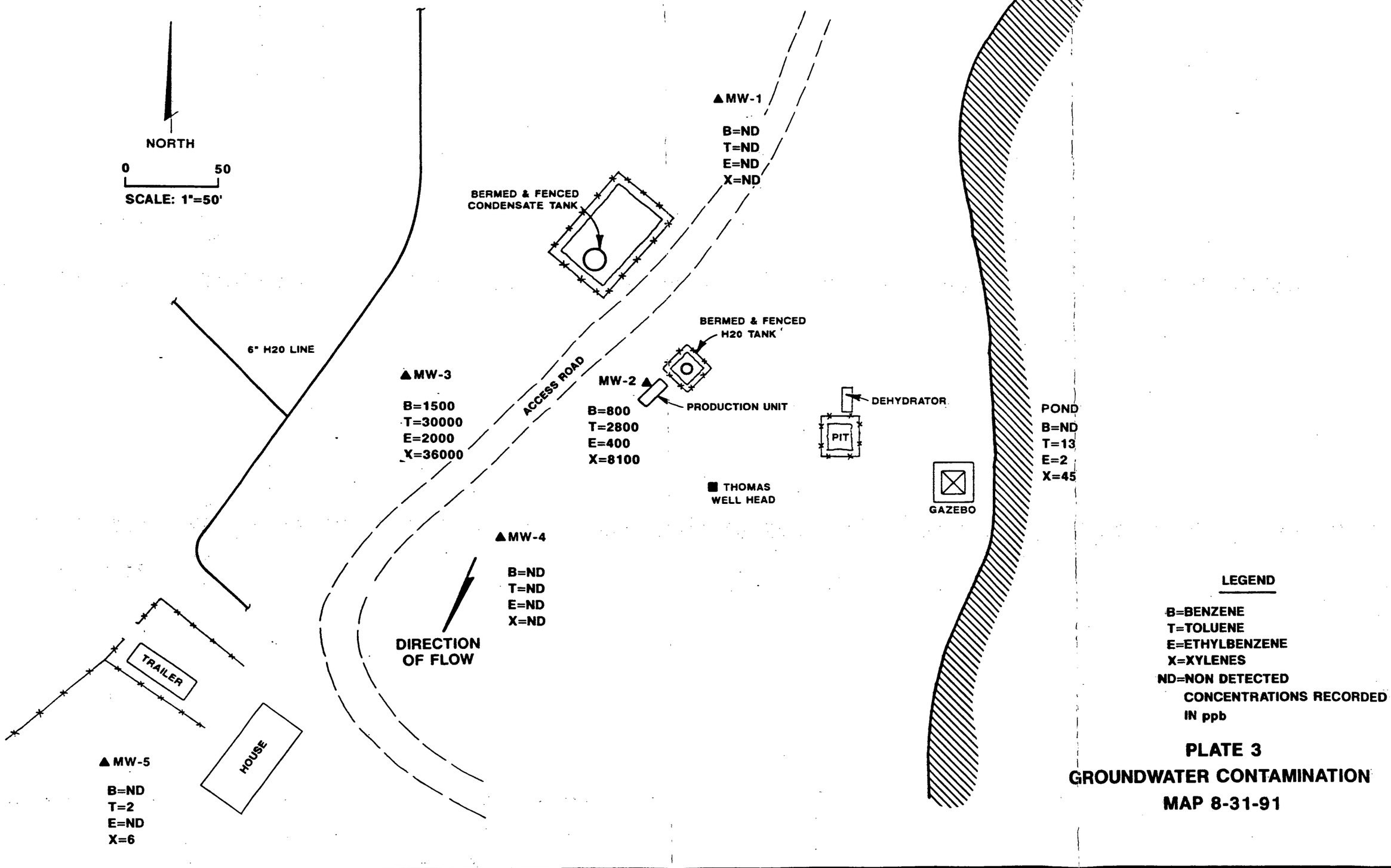


LEGEND

5371.25 — WATER LEVEL ELEVATION CONTOURS

▲ MW-2 _ MONITOR WELL LOCATION
5371.39 & GROUNDWATER ELEVATION

PLATE 2
GROUNDWATER ELEVATION & GRADIENT MAP
8-31-91



LEGEND

B=BENZENE
T=TOLUENE
E=ETHYLBENZENE
X=XYLENES
ND=NON DETECTED
CONCENTRATIONS RECORDED
IN ppb

PLATE 3
GROUNDWATER CONTAMINATION
MAP 8-31-91