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GEOMATRIX

SHC 6669 P

April 12, 2000
Project 6262.000.0

Mr. Hugh J. Murphy
City of Hayward Fire Department
777 B Street
Hayward, CA 94541-5007

Subject: Soil Sampling Results – Holyoke Street, Branaugh Court, and Silverstar Lane
Canterbury Residential Development
Hayward, California

Dear Mr. Murphy:

On behalf of the City of Hayward, Geomatrix Consultants, Inc. (Geomatrix) has prepared this summary of the results of a soil sampling program performed beneath several streets in the Canterbury Residential Development in Hayward, California (Figure 1). The scope of work described herein was based on Geomatrix's March 29, 2000 work plan ("the work plan")[1].

Based on a report by ACC Consultants[2] and information provided by the Fire Department, affected soil from other properties in the development appears to have been placed below several streets in the development. Geomatrix has included herein tabulations of site soil and groundwater data collected by ACC[2] in March 2000. The goals of Geomatrix's sampling effort were to evaluate the quality of soil likely to be contacted during street maintenance, from the ground surface to the deepest utility buried beneath the streets. It should be noted that the work plan originally proposed the installation and sampling of three groundwater monitoring wells to evaluate groundwater quality beneath the streets. However, on March 24, 2000, Mr. Roger Brewer of the Regional Water Quality Control Board (RWQCB) informed Geomatrix that installation of the monitoring wells was not required.

This report is divided into four sections. The first section describes the methods used to collect the soil samples. The second section describes the analytical methods used by the laboratories. The third section presents the results of the field and analytical programs and summarizes soil and groundwater data from the March 2000 ACC report[2]. The fourth section compares the detected concentrations to U.S. Environmental Protection Agency (U.S. EPA) Preliminary Remediation Goals (PRGs) for residential land use.

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[1] Geomatrix Consultants, Inc., 2000, Soil Sampling Plan, Canterbury Residential Development, Hayward, California, March 17.

[2] Acc Environmental Consultants, 2000, Subsurface Investigation Report, Holyoke Street and Olympic Avenue, Hayward, California, March 22.

FIELD PROGRAM

Prior to performing the field investigation, Geomatrix completed the following tasks: reviewed the existing Health and Safety Plan (no update required); obtained boring and well installation permits from the Alameda County Public Works Department (Attachment A); and cleared boring locations for underground utilities by notifying appropriate utilities through Underground Service Alert (USA). Prior to drilling, Geomatrix consulted in the field with a representative of the City of Hayward Department of PublicWorks regarding the location of underground utilities.

On March 30, 2000, Geomatrix supervised the advancement of eight borings (GMX-1 through GMX-8) at locations on Holyoke Street and Branaugh Court as shown on Figure 2. These borings were located adjacent to the ACC borings and numbered similarly (e.g., GMX-1 was next to EB-1, etc.). Fas-Tek Engineering Support Services, Inc., a California-licensed drilling firm from Richmond, California, advanced the borings using a Geoprobe 5400 rig.

The borings were continuously cored to a maximum depth of about 6 feet below ground surface (bgs) using the Geoprobe's dual-tube sampling system. The inner sample barrel consisted of 1.25-inch diameter by 4-feet-long polybutyrate tubing. The recovered soil was logged in accordance with the Unified Soil Classification System visual-manual procedure (ASTM D2488-90) under the direction of a Geomatrix geologist registered in the State of California. The soil was screened in the field for volatile organic compounds (VOCs) using an organic vapor monitor equipped with a photoionization detector (PID).

Soil samples selected for laboratory analyses were cut from the polybutyrate sample barrel. The soil samples were collected from each boring at approximately 2.5 and 5.5 feet bgs. Samples were packaged for laboratory analyses by covering the ends of each sampling tube with Teflon sheets and plastic caps. The caps were secured with silicon tape. The soil samples were labeled, placed in resealable plastic bags, and stored in coolers with ice pending delivery to an analytical laboratory under Geomatrix chain-of-custody.

Downhole equipment, including outer drive casing, and drive rods, was steam cleaned prior to borehole advancement at each location. Soil cuttings and cleaning water rinsate were placed in labeled 5-gallon pails pending characterization for disposal by SummerHill Homes.

ANALYTICAL PROGRAM

As outlined in the work plan, soil samples were submitted to Friedman & Bruya, a California-certified analytical laboratory in Seattle, Washington for analyses of:

- total petroleum hydrocarbons quantified as motor oil (TPHmo), in accordance with U.S. EPA Method 8015 modified, after a silica gel cleanup;
- polycyclic aromatic hydrocarbons (PAHs), in accordance with U.S. EPA Method 8270C SIM (selected ion mode); and
- VOCs, in accordance with U.S. EPA Method 8260.

For quality assurance/quality control (QA/QC) purposes, the laboratories analyzed method blanks, matrix spike/matrix spike duplicate samples, and laboratory control samples. In addition, Friedman and Bruya analyzed laboratory duplicate samples.

RESULTS OF FIELD PROGRAM

This section presents the results of the field program. A summary of the soil types observed during drilling and a discussion of the analytical results follow.

SOIL CLASSIFICATION

Soil observed during sampling consisted of approximately 1 foot of silty sand with gravel (road base) underlain by lean clay and/or lean clay with sand, to the total depth of the borings. Groundwater was not encountered during soil sampling activities. No observable indications of chemical impacts such as elevated PID readings, odor, or staining were observed.

Soil boring logs for the eight borings are included as Attachment B.

ANALYTICAL LABORATORY RESULTS

Soil Sample Results

Analytical results for TPHmo, PAHs and VOCs are summarized in Table 1. Laboratory analytical reports from Friedman and Bruya are presented in Attachment C. A review of the Quality Assurance/Quality Control data is presented in Attachment D.

TPHmo was detected in four of the shallow samples (collected at about 2.5-feet bgs) at concentrations ranging from 72 to 580 milligrams per kilogram (mg/kg). TPHmo was detected in three of the deep samples (collected at about 5.0 and 5.5 feet bgs) at concentrations ranging from 57 to 320 mg/kg. Naphthalene was detected at a concentration of 62 micrograms per kilogram (ug/kg) in only one sample (the 5.0-foot sample at GMX5-5.0) of the 16 samples analyzed. Naphthalene is also included in the VOC analytes list and was detected in GMX5-5.0 at a concentration of 45 µg/kg.

One other VOC was detected in the 5 foot bgs samples from GMX3-5.0 and GMX5-5.0 at concentrations of 54 and 330 µg/kg, respectively. It should be noted that acetone is a common laboratory contaminant and its detection in the two soil sample may not be representative of soil quality at those locations. Furthermore, as shown in Table 1, several internal laboratory standards were beyond control limits for acetone and napthalene, indicating the reported concentrations are estimated.

Summary of ACC Soil (Deeper Soil) and Groundwater Data

On behalf of the City of Hayward, in March 2000, ACC Environmental Consultants collected soil and grab groundwater samples from eight borings located on Holyoke Avenue, Branaugh Court, and Silverstar Lane. Boring locations are shown on Figure 2. The investigation was conducted to evaluate the nature and extent of potentially impacted soil reportedly used as fill beneath the streets and groundwater quality in the site vicinity.

Borings were advanced to depths of 12 to 16 feet bgs; groundwater was encountered at depths of 7 to 12 feet bgs and grab samples were collected from each borehole for analysis. Composite soil samples representing 4-foot intervals were initially analyzed, with follow-up analysis of discrete samples at selected locations. The soil and groundwater samples were analyzed for:

- total extractable hydrocarbons (total petroleum hydrocarbons in the diesel range [TPHd] and total oil and grease [TOG]);
- total purgeable hydrocarbons (TPH in the gasoline range [TPHg]), benzene, toluene, ethylbenzene, and total xylenes (BTEX);
- methyl-tertiary butyl ether (MTBE)
- VOCs;
- semi-volatile organic compounds (SVOCs);
- LUFT metals (cadmium, chromium, lead, nickel, and zinc); and
- polychlorinated biphenyls (PCBs).

Constituents detected in these sampling activities are summarized in Tables 2 through 5.

Organic Results - Soil

Total extractable hydrocarbons (TPHd and TOG analyses) were detected in 27 of 30 composite and discrete soil samples at concentrations ranging from 1.1 to 3200 mg/kg (Table 3). Concentrations greater than 1000 mg/kg were detected in three discrete samples (EB-2 at 7 feet and 9 feet bgs, and EB-8 at 9 feet bgs). Purgeable hydrocarbons (TPHg analyses) were detected in two of 11 composite soil samples analyzed, at 1.8 and 4.4 mg/kg. Up to three VOCs (ethylbenzene, napthalene[3], and isopropylbenzene) were detected in two of 11 composite soil samples (EB2 5-8 and EB2 9-12) at concentrations ranging from 6.9 to 93 ug/kg; one additional SVOC (2-methylnapthalene) was detected in the EB2 9-12 sample at 170 ug/kg. No MTBE or PCBs were detected in any samples analyzed.

Inorganic Results - Soil

Cadmium was detected in four soil samples at concentrations ranging from 0.51 to 0.62 mg/kg (Table 4). Chromium was detected in 11 soil samples at 27 to 42 mg/kg. Lead was detected in all soil samples analyzed at 5.9 to 48 mg/kg. Nickel was detected in soil samples at 30 to 43 mg/kg. Zinc was detected in soil samples at 30 to 110 mg/kg.

Organic Results - Groundwater

Napthalene, ethylbenzene, total xylenes, isopropylbenzene, 2-methylnapthalene, and chlorobenzene were detected in up to seven of eight grab groundwater samples analyzed at concentrations ranging from 0.66 to 13 micrograms per liter (ug/L)(Table 5). No TOG, TPHg, MTBE, or PCBs were reported in the eight groundwater samples analyzed.

Inorganic Results - Groundwater

Cadmium was detected in seven of eight groundwater samples at concentrations ranging from 0.0076 to 0.023 mg/L (Table 6). Chromium was detected in all groundwater samples at 0.051 to 1.2 mg/l. Lead was detected in seven of eight groundwater samples at 0.077 to 0.24 mg/l. Nickel was detected in all groundwater samples at 0.046 to 1.3 mg/l. Zinc was detected in all groundwater samples at 0.1 to 1.7 ug/l. It should be noted that the all samples were not filtered prior to analysis. Therefore, the detected concentrations may not represent dissolved metals in groundwater.

Data Evaluation

In accordance with the work plan, the concentrations of constituents in soil detected at the site were compared to residential PRGs established by U.S. EPA Region 9[4]. For groundwater

[3] Naphthalene is included in both the VOC and SVOC anayte lists.
[4] U.S. EPA, 1999, Region 9 Preliminary Remediation Goals (PRGs), October 1.

samples, concentrations were compared to maximum contaminant limits (MCLs) published for drinking water sources in California.

PRGs combine current EPA toxicity values with standard exposure factors to estimate concentrations in environmental media (e.g., soil) that are protective of human health, including sensitive subgroups, over a lifetime. Although this evaluation was conducted for potential exposure by utility maintenance workers to chemicals in soil beneath the street, residential PRGs were used to be conservative. For some chemicals, variations in exposure or toxicity assessment required in California have been applied and a "Cal-modified" PRG has been published. The Cal-modified PRGs have been used in this assessment, where available.

If chemicals are present at concentrations below the PRGs, then exposure to these chemicals should not result in adverse health effects. If multiple chemicals are present, then the potential for adverse health effects associated with cumulative exposure may need to be evaluated. The presence of chemicals at concentrations exceeding PRGs does not indicate that adverse health effects will occur, but "suggests that further evaluation of the potential risks that may be posed by site contaminants is appropriate."[4]

Total petroleum hydrocarbon measurements, such as TPHmo, represent mixtures of chemicals that, because of their potentially highly variable composition, have no associated health criteria. Therefore, the toxicity of these mixtures is best described by the aggregate toxicity of key individual chemicals in the mixture. As is the practice in California[5], only petroleum hydrocarbon constituents detected in soil, i.e., PAHs and VOCs, were considered for comparison to PRGs.

Shallow Soil Beneath the Streets

Geomatrix's data was collected at depths associated with exposure by potential utility maintenance workers (2.5 to 5.5 feet bgs) based on available utility maps for the development. The residential PRGs are listed at the bottom of the Table 1 for detected chemicals. Concentrations of organic compounds detected were at least 1000 times less than the residential PRGs.

Deeper Soil and Groundwater beneath the Streets

Of the organic compounds detected in deeper soil samples (5 to 12 feet bgs), concentrations were at least 500 times less than the residential PRGs. Inorganic compounds were three to 200 times lower than the residential PRG. No California Drinking Water Maximum

[5] Cal-EPA, 1994, Preliminary Endangerment Assessment Guidance Manual: Department of Toxic Substances control, Naphthalene Sacramento, California.

Contaminant Levels (MCLs) were exceeded for organic constituents detected in grab groundwater samples collected by ACC in March 2000; MCLs for cadmium and chromium (total) were exceeded in the some of the samples. However, as previously noted, samples were not filtered prior to metals analysis, and the detected concentrations may not represent metals dissolved in groundwater.

Conclusions

Based on data presented in this report and comparisons of maximum detected soil concentrations to levels considered acceptable by U.S. EPA for residential site use, no further action is recommended. Routine maintenance activities in the streets would not result in exposure exceeding levels consider acceptable to U.S. EPA. Groundwater data do not ~~organic not~~ indicate a significant impact from chemicals in soil. Metals detected above MCLs are likely related to sampling technique.

Geomatrix appreciates this opportunity to provide consulting services to the City of Hayward. If you have any further questions, please contact any of the undersigned.

Sincerely yours,
GEOMATRIX CONSULTANTS, INC.

Ann M. Holbrow
Senior Scientist

Thomas H. Gavigan, R.G., C.HG.
Project Hydrogeologist

Attachments:

Tables 1 through 5
Figures 1 and 2
Attachment A – Permit
Attachment B – Boring Logs
Attachment C – Laboratory Analytical Results
Attachment D – Results of Quality Assurance/Quality Control Review

cc: Susan Hugo – Alameda County Health Care Services
Denise Tsuji – Department of Toxic Substances Control
Roger Brewer – California Regional Water Quality Control Board, San Francisco Bay Region
Mark Beskind – SummerHill Homes
Kim Brandt – LFR Levine*Fricke

TABLES

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TABLE 1

ANALYTICAL RESULTS IN SHALLOW SOIL[1]
TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL AND POLYCYCLIC AROMATIC HYDROCARBONS

Canterbury Residential Development
Hayward, California

Sample ID	Sample Date	Depth (ft bgs)[2]	TPHmo[3] (mg/kg)	Naphthalene[4] (ug/kg)	Acetone
GMX1-2.5	3/30/00	2.5	<50	<50/5I[5]	<50
GMX1-5.0	3/30/00	5.0	**320**[6]	<50/<5	<50
GMX2-2.5	3/30/00	2.5	<50	<50/<5	<50
GMX2-5.0	3/30/00	5.0	**100**	<50/<5	<50
GMX3-2.5	3/30/00	2.5	**300**	<50/<5I	<50
GMX3-5.0	3/30/00	5.0	<50	<50/<5	**54**
GMX4-2.5	3/30/00	2.5	**580**[7]	<250/<5	<50
GMX4-5.5	3/30/00	5.5	<50	<5/<5	<50
GMX5-2.5	3/30/00	2.5	<50	<50/<5I	<50 I
GMX5-5.0	3/30/00	5.0	**57**	**62/45I**	**330**
GMX6-2.5	3/30/00	2.5	<50	<50/<5I	<50
GMX6-5.5	3/30/00	5.5	<50	<5/<5	<50
GMX7-2.5	3/30/00	2.5	**73**	<50/<5I	<5 I
GMX7-5.5	3/30/00	5.5	<50	<50/<5I	<50 I
GMX8-2.5	3/30/00	2.5	**72**	<50/<5	<50
GMX8-5.5	3/30/00	5.5	<50	<5/<5	<50
PRGs[8]			NA[9]	56,000	16,000,000

Notes:

1. Analyzed in accordance with U.S. EPA Methods 8015 modified (TPHmo following silica gel cleanup), 8260 (for VOCs), and 8270 SIM (selected ion mode for polycyclic aromatic hydrocarbons). Only detected analytes are tabulated.
2. Depth in feet below ground surface.
3. TPHmo - total petroleum hydrocarbons as motor oil reported in milligrams per kilogram (mg/kg).
4. Napthalene included in 8270 and 8260 analyte list results are reported as (8270/8240).
5. I- The internal standard associated with the analyte is out of control limits. The reporting limit or reported concentration is an estimate.
6. Detected values highlighted in bold.
7. The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
8. PRGs - Residential Preliminary Remediation Goals (U.S. EPA, 1999).
9. Not available; PRGs have not been delveloped for mixtures. TPHmo is evaluated based on the individual constituents detected.

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TABLE 2

ANALYTICAL RESULTS IN DEEPER SOIL[1]
PETROLEUM HYDROCARBONS, VOLATILE ORGANIC COMPOUNDS AND SEMI-VOLATILE ORGANIC COMPOUNDS
March 6, 2000

Canterbury Residential Development
Hayward, California

ACC		Total Petroleum Hydrocarbons[3]			Volatile Organic Compounds[5]			Semi-Volatile Organic Compounds[5]
Sample ID	Sample Depth (ft bgs)[2]	TPHg (mg/kg)	TPHd (mg/kg)	TOG (mg/kg)	Ethylbenzene[4] (µg/kg)[5]	Isopropylbenzene (µg/kg)	Naphthalene[6] (µg/kg)	2-Methylnaphthalene (µg/kg)
EB1 5-8	5 - 8	<1.0[7]	66[8]	410	<5.0/<5.0	<50	<10/<500	<500
EB1 10-12	10 - 12	<1.0	21	120	<5.0/<5.0	<50	<10/<500	<500
EB2 5-8	5 - 8	1.8	200	760	6.9/6.1	24	93/<500	<500
EB2 9-12	9 - 12	4.4	7.4	330	<5.0/<5.0	11	<10/<100	170
EB3 5-8	5 - 8	<1.0	22	270	<5.0/<5.0	<5.0	<10/<500	<500
EB3 10-12	10 - 12	<1.0	4.8	56	<5.0/<5.0	<5 0	<10/<100	<100
EB4 4-8	4 - 8	<1.0	1.1	<50	<5.0/<5.0	<5.0	<10/<100	<100
EB5 5-8	5 - 8	<1.0	4.4	160	<5.0/<5.0	<5.0	<10/<100	<100
EB6 5-8	5 - 8	<1.0	7.7	190	<5.0/<5.0	<5.0	<10/<500	<500
EB7 5-9	5 - 9	<1.0	20	420	<5.0/<5.0	<5.0	<10/<500	<500
EB8 5-9	5 - 9	<1.0	22	490	<5.0/<5.0	<5.0	<10/<500	<500
EB1 5	5	--[9]	140	130	--	--	--	--
EB1 6	6	--	20	470	--	--	--	--
EB1 7	7	--	3.8	90	--	--	--	--
EB1 8	8	--	130	700	--	--	--	--
EB2 5	5	--	2.8	<50	--	--	--	--
EB2 6	6	--	15	210	--	--	--	--
EB2 7	7	--	340	2,500	--	--	--	--
EB2 8	8	--	110	190	--	--	--	--
EB2 9	9	--	11	1,400	--	--	--	--
EB7 5	5	--	--	<50	--	--	--	--
EB7 6	6	--	--	330	--	--	--	--
EB7 7	7	--	--	520	--	--	--	--
EB7 8	8	--	--	100	--	--	--	--
EB7 9	9	--	--	740	--	--	--	--
EB8 5	5	--	--	<50	--	--	--	--
EB8 6	6	--	--	310	--	--	--	--

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TABLE 2

ANALYTICAL RESULTS IN DEEPER SOIL[1]
PETROLEUM HYDROCARBONS, VOLATILE ORGANIC COMPOUNDS AND SEMI-VOLATILE ORGANIC COMPOUNDS

March 6, 2000

Canterbury Development
Olympic Avenue
Hayward, California

		Total Petroleum Hydrocarbons[3]			Volatile Organic Compounds[5]			Semi-Volatile Organic Compounds[5]
Sample ID	Sample Depth (ft bgs)[2]	TPHg (mg/kg)	TPHd (mg/kg)	TOG (mg/kg)	Ethylbenzene[4] (µg/kg)[5]	Isopropylbenzene (µg/kg)	Naphthalene[6] (µg/kg)	2-Methylnaphthalene (µg/kg)
EB8 7	7	--	--	**100**	--	--	--	--
EB8 8	8	--	--	<50	--	--	--	--
EB8 9	9	--	--	**3,200**	--	--	--	--
PRGs[10]		NA[11]	NA	NA	230,000	160,000	56,000	56,000 [12]

Notes:

1. Concentrations for analytes detected in one or more samples are presented. Samples collected by ACC Environmental Consultants.
2. Depth in feet below ground surface.
3. Total petroleum hydrocarbons as gasoline (TPHg), as diesel (TPHd), and total oil and grease (TOG) reported in milligrams per kilogram (mg/kg).
4. X/Y First by EPA Method 8260 and second by EPA Method 8020/8015.
5. Volatile organic compounds and semi-volatile organic compounds reported in micrograms per kilogram (µg/kg).
6. X/Y First by EPA Method 8260 and second by EPA Method 8270. Naphthalene is included in both the VOC and SVOC analyte lists.
7. < indicates not detected above reporting limit shown.
8. Detected values highlighted in bold.
9. -- indicates not analyzed.
10. PRGs – Residential Preliminary Remediation Goals (U.S. EPA, 1999).
11. Not available; PRGs have not been developed for mixtures. TPH is evaluated based on the individual constituents detected.
12. Naphthalene's PRG was used a surrogate for 2-methylnaphthalene based on physico chemical properties.

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TABLE 3

ANALYTICAL RESULTS IN DEEPER SOIL[1] - METALS
March 6, 2000
Canterbury Residential Development
Hayward, California

Concentrations reported in milligrams per kilogram (mg/kg)

Sample ID	Sample Depth (ft bgs)[2]	Cadmium	Chromium	Lead	Nickel	Zinc
EB1 5-8	5 - 8	**0.62**[3]	**40**	**33**	**43**	**110**
EB1 10-12	10 - 12	**0.59**	**42**	**8.4**	**41**	**47**
EB2 5-8	5 - 8	<0.5[4]	**33**	**9.3**	**35**	**41**
EB2 9-12	9 - 12	<0.5	**27**	**5.9**	**31**	**30**
EB3 5-8	5 - 8	<0.5	**30**	**8.9**	**30**	**35**
EB3 10-12	10 - 12	<0.5	**29**	**8.8**	**31**	**39**
EB4 4-8	4 - 8	<0.5	**33**	**6.2**	**37**	**35**
EB5 5-8	5 - 8	**0.51**	**36**	**8.9**	**41**	**43**
EB6 5-8	5 - 8	<0.5	**35**	**6.9**	**37**	**36**
EB7 5-9	5 - 9	**0.51**	**36**	**10**	**39**	**44**
EB8 5-9	5 - 9	<0.5	**36**	**6.4**	**40**	**36**
EB1 5	5	--[5]	--	**13**	--	--
EB1 6	6	--	--	**48**	--	--
EB1 7	7	--	--	**6.5**	--	--
EB1 8	8	--	--	**9.8**	--	--
PRGs[6]		9	210	400	150	23,000

Notes:
1. Samples collected by ACC Environmental Consultants. Metals detected using U.S. EPA Methods 6010/7000 series.
2. Depth in feet below ground surface.
3. Detected values highlighted in bold.
4. < indicates not detected above reporting limit shown.
5. -- indicates not analyzed.
6. PRGs – Residential Preliminary Remediation Goals (U.S. EPA, 1999).

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TABLE 4

ANALYTICAL RESULTS IN GROUNDWATER[1]
PETROLEUM HYDROCARBONS, VOLATILE ORGANIC COMPOUNDS, AND SEMI-VOLATILE ORGANIC COMPOUNDS

Canterbury Residential Development
Hayward, California

Concentrations reported in micrograms per liter (µg/L)

			Volatile Organic Compounds[2]					Semi-Volatile Organic Compounds
Sample ID	**Date Sample**	**TPHd[3]**	**Chloro-benzene**	**Ethyl-benzene[4]**	**Isopropyl-benzene**	**Naphthalene[5]**	**Total Xylenes[4]**	**2-methyl-naphthalene**
EB1	3/6/00	**130[6]**	<0.5[7]	<0.5/<0.5	**0.77**	**11/11**	**1.4/0.99**	**13**
EB2	3/6/00	**190**	<0.5	<0.5/<0.5	<0.5	**9.5**/<1.0	**1.2/1.1**	**13**
EB3	3/6/00	<50	<0.5	<0.5/<0.5	<0.5	<1.0/<2.5	**4.0**/<0.5	<2.5
EB4	3/6/00	<50	<0.5	<0.5/<0.5	<0.5	<1.0/<2.4	**1.6/3.4**	<2.4
EB5	3/6/00	**85**	<0.5	<0.5/<0.5	<0.5	<1.0/<2.9	<1.0/<0.5	<2.9
EB6	3/6/00	<50	**0.66**	**0.77/0.70**	**2.3**	**9.7**/<2.8	**1.7/2.7**	<2.8
EB7	3/6/00	**77**	<0.5	<0.5/<0.5	<0.5	**1.1**/<2.8	**4.0**/<0.5	<2.8
EB8	3/6/00	ND	<0.5	ND	<0.5	<1.0/<2.9	**1.8/2.1**	<2.9
MCLs[8]		NA	70	700	NA	NA	**1750**	NA

Notes:

1. Concentrations for analytes detected in one or more samples are presented. Data collected by ACC Environmental Consultants (2000).
2. Volatile organic compounds analyzed by EPA Method 8260.
3. Total petroleum hydrocarbons reported as diesel (TPHd); EPA Method 8015
4. X/Y - First by EPA Method 8260 and second by EPA Method 8020/8015.
5. X/Y - First by EPA Method 8270 and second by EPA Method 8260. Naphthalene is included in both the VOC and SVOC analyte lists.
6. Detected values highlighted in bold.
7. < indicates not detected above reporting limit shown.
8. California Drinking Water Maximum Contaminant Level (MCL)(January 1999).

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TABLE 5

ANALYTICAL RESULTS IN GROUNDWATER[1] - METALS

Canterbury Residential Development
Hayward, California

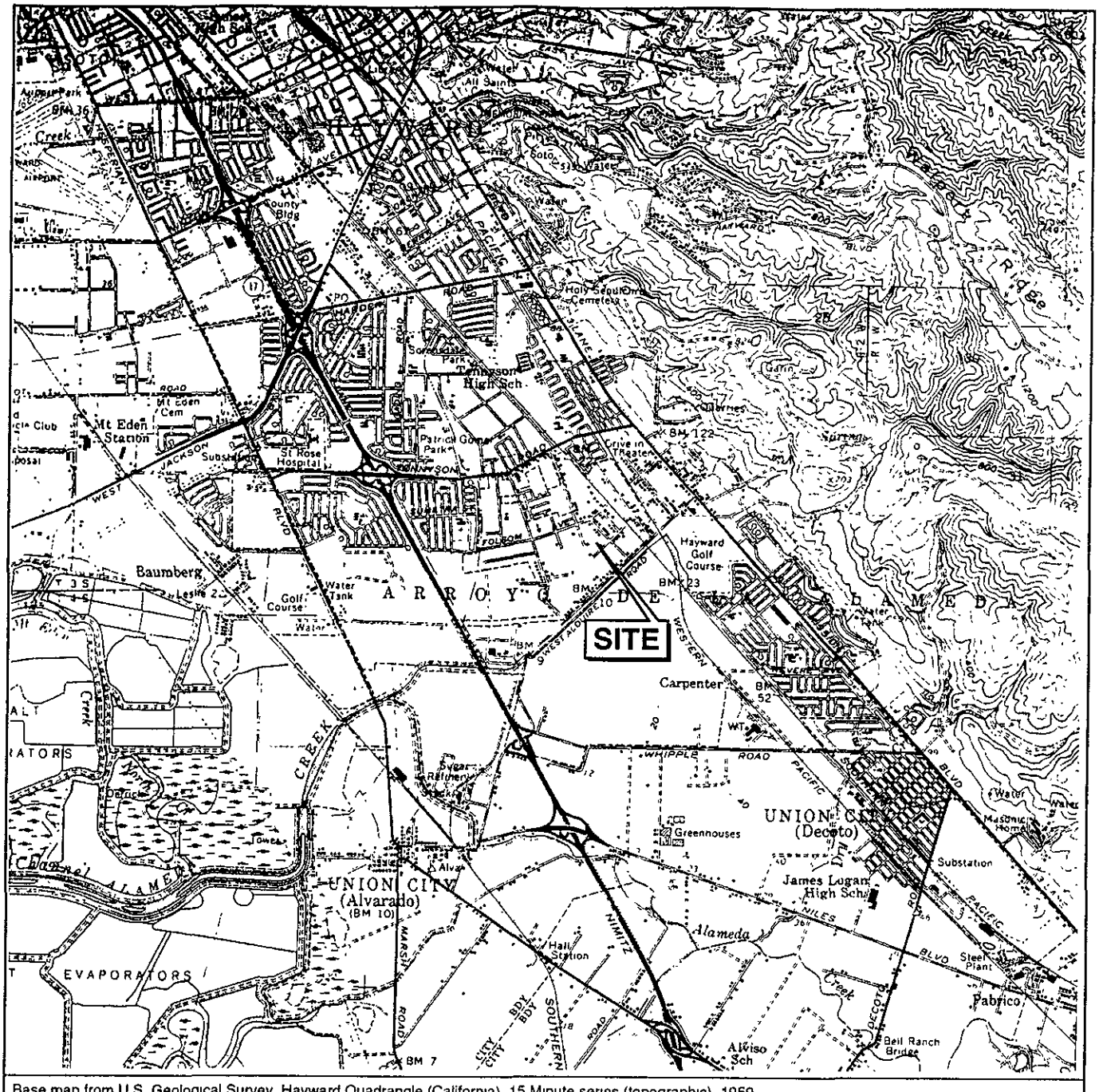
Concentrations reported in milligrams per liter (mg/L)

Sample ID	Sample Date	Cadmium	Chromium	Lead	Nickel	Zinc
EB1	3/6/00	**0.015**[2]	**0.70**	**0.16**	**0.71**	**1.2**
EB2	3/6/00	**0.0078**	**0.48**	**0.14**	**0.49**	**0.78**
EB3	3/6/00	**0.0093**	**0.53**	**0.24**	**0.56**	**0.93**
EB4	3/6/00	<0.0020[3]	**0.051**	<0.0050	**0.046**	**0.10**
EB5	3/6/00	**0.019**	**1.0**	**0.21**	**1.3**	**1.4**
EB6	3/6/00	**0.0076**	**0.40**	**0.069**	**0.47**	**0.59**
EB7	3/6/00	**0.0078**	**0.50**	**0.077**	**0.54**	**0.68**
EB8	3/6/00	**0.023**	**1.2**	**0.23**	**1.3**	**1.7**
MCLs[4]		0.005	0.05	1.3	0.10	5

Notes:

1. Metals analyzed using U.S. EPA Methods 6010/7000 series. Data collected by ACC Environmental Consultants (March 2000).
2. Detected values highlighted in bold.
3. < indicates not detected above reporting limit shown.
4. California Drinking Water Maximum Contaminant Level (MCL) (January 1999).
5. Samples for metals analysis were not filtered prior to analysis. Therefore, results may not represent dissolved metals concentrations in groundwater.

FIGURES



Base map from U.S. Geological Survey, Hayward Quadrangle (California), 15 Minute series (topographic), 1959.

0 1 Mile

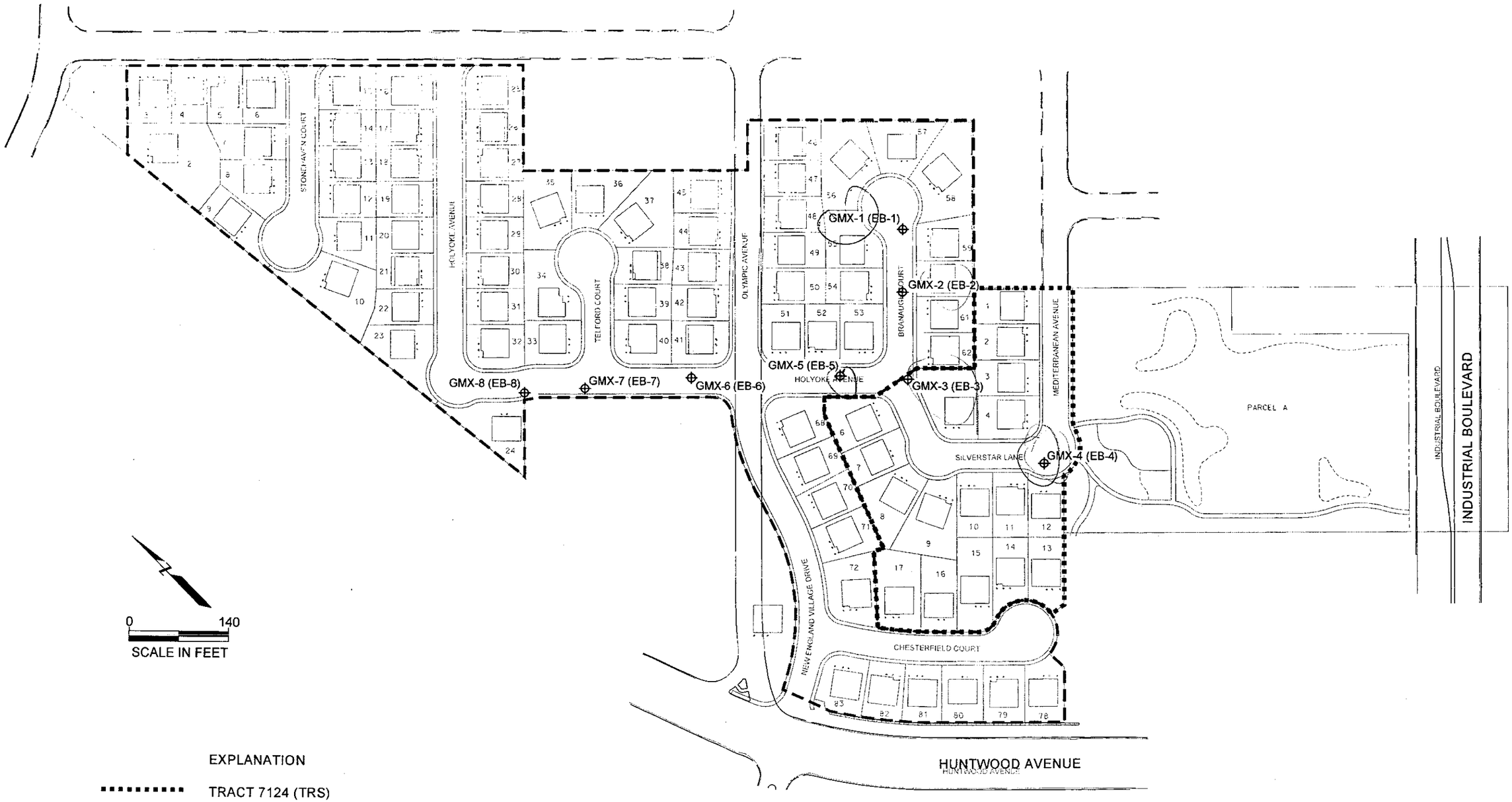
GEOMATRIX

SITE LOCATION MAP
Canterbury Development
Hayward, California

Project No.
6262.000 6

Figure
1

s:\6262\6262.000\6262 000 6\holyoke_0004_fig_01(01).ai



EXPLANATION

- TRACT 7124 (TRS)
- TRACT 7069 (TRN)
- GMX-1 (EB-1) ⊕ SOIL BORING (LOCATIONS CORRESPOND TO ACC BORING LOCATIONS AND USED THE SAME NUMBERING SEQUENCE (eg., GMX-1 CORRESPONDS TO EB-1)

SITE PLAN SHOWING RESIDENTIAL DEVELOPMENT AND BORING LOCATIONS
Canterbury Development
Hayward, California

GEOMATRIX	Project No. 6262.000 6	Figure 2

GEOMATRIX

ATTACHMENT A

Permit

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST., HAYWARD, CA 94544
PHONE (510) 670-5554
FAX (510) 782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Canterbury Development, Olympic Avenue, Hayward, CA
→ see attached figure ←

CLIENT
Name City of Hayward
Address 777 B. Street, Phone 510-583-4724
City Hayward, CA Zip 94541

APPLICANT
Name Ms Adel Hollaeo
Company Geomatrix Consultants Fax 510-663-4141
Address 2101 Webster St., 12th Floor Phone 510-663-4100
City Oakland, CA Zip 94612

TYPE OF PROJECT
Well Construction
Cathodic Protection ( )
Water Supply ( )
Monitoring ( )
Soil Borings (✓)
Geotechnical Investigation
General ( )
Contamination (X)
Well Destruction ( )

PROPOSED WATER SUPPLY WELL USE
New Domestic ( )
Municipal ( )
Industrial ( )
Replacement Domestic ( )
Irrigation ( )
Other ( )
} N/A

DRILLING METHOD
Mud Rotary ( )
Cable ( )
Air Rotary ( )
Other (✓) (direct Push)
Auger ( )

DRILLER'S LICENSE NO. C57 589008
Fast-Tek Engineering

WELL PROJECTS
Drill Hole Diameter 2 in. Maximum Depth 8 ft.
Casing Diameter N/A in. Number 8
Surface Seal Depth N/A ft.

GEOTECHNICAL PROJECTS
Number of Borings N/A Maximum Depth N/A ft.
Hole Diameter N/A in.

ESTIMATED STARTING DATE March 30, 2000
ESTIMATED COMPLETION DATE March 30, 2000

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 3/28/00

FOR OFFICE USE

PERMIT NUMBER W00-133
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A.) GENERAL
(1) A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2) Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Well Completion Report.
(3) Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(D.) GEOTECHNICAL
Backfill bore hole with cement grout or cement grout/sand mixture. Upper two-three feet shall be replaced in kind.

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED [signature] DATE 3-28-00

FAXED 3-28-00

GEOMATRIX

ATTACHMENT B

Boring Logs

PROJECT: CANTERBURY RESIDENTIAL DEVELOPMENT Hayward, California	**Log of Boring No. GMX-1**
BORING LOCATION: End of Branaugh Court	ELEVATION AND DATUM. Not surveyed; datum is ground surface
DRILLING CONTRACTOR: Fas-Tek Engineering Support Services	DATE STARTED: 3/30/00 / DATE FINISHED: 3/30/00
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 6.0 / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: Geoprobe 5400	DEPTH TO WATER — FIRST: ND / COMPL: ND
SAMPLING METHOD: Geoprobe DT21 dual tube soil sampler [4' x 1.125']	LOGGED BY: T. Gavigan
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: T. Gavigan / REG. NO.: RG 6782

DEPTH (feet)	SAMPLES: Sample No	SAMPLES: Sample	SAMPLES: Blows/Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation. Not surveyed	
0					ASPHALT	
1				0	SILTY SAND with GRAVEL (SM): Dark brown (7.5 YR 3/2), moist, 70% fine to coarse sand, 15% fine angular gravel, 15% low plasticity fines.	
2	GMX-1-2.5			0	LEAN CLAY with SAND (CL): Very dark brown (5 Y 3/1), moist, 85% fines, 15% fine to coarse sand, low to medium plasticity, firm	OVM=Thermo Environmental Instruments 580B PID calibrated with 100 ppm isobutylene standard.
3				0	mottled with olive gray (5 Y 3/2)	
4				0		
5	GMX-1-5.0			0		
6					Bottom of boring at 6.0 feet	Borehole destroyed using Type I-II neat cement grout placed from total depth to ground surface.
7						
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PROJECT: CANTERBURY RESIDENTIAL DEVELOPMENT Hayward, California	**Log of Boring No. GMX-2**
BORING LOCATION: Branaugh Court	ELEVATION AND DATUM: Not surveyed; datum is ground surface
DRILLING CONTRACTOR: Fas-Tek Engineering Support Services	DATE STARTED: 3/30/00 / DATE FINISHED: 3/30/00
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 6.0 / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: Geoprobe 5400	DEPTH TO WATER: FIRST ND / COMPL. ND
SAMPLING METHOD: Geoprobe DT21 dual tube soil sampler [4' x 1.125']	LOGGED BY: T. Gavigan
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: T. Gavigan / REG. NO: RG 6782

DEPTH (feet)	SAMPLES: Sample No	SAMPLES: Sample	SAMPLES: Blows/Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation: Not surveyed	
0					ASPHALT	
1				0	SILTY SAND with GRAVEL (SM): Dark brown (7.5 YR 3/2), moist, 70% fine to coarse sand, 15% fine angular gravel, 15% low plasticity fines.	
2	GMX-2-2.5			0	LEAN CLAY with SAND (CL): Dark brown (7.5 YR 3/2), moist, 80% fines, 20% fine to coarse sand, trace fine angular gravel, low to medium plasticity, soft.	OVM=Thermo Environmental Instruments 580B PID calibrated with 100 ppm isobutylene standard.
3						
4					firm	
5	GMX-2-5.0			0		
6				0	SANDY LEAN CLAY (CL) Bottom of boring at 6.0 feet	Borehole destroyed using Type I-II neat cement grout placed from total depth to ground surface.
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PROJECT: CANTERBURY RESIDENTIAL DEVELOPMENT Hayward, California	**Log of Boring No. GMX-3**
BORING LOCATION: Intersection of Holyoke Street and Branaugh Court	ELEVATION AND DATUM: Not surveyed; datum is ground surface
DRILLING CONTRACTOR: Fas-Tek Engineering Support Services	DATE STARTED: 3/30/00 / DATE FINISHED: 3/30/00
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 6.0 / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: Geoprobe 5400	DEPTH TO WATER — FIRST: ND / COMPL.: ND
SAMPLING METHOD: Geoprobe DT21 dual tube soil sampler [4' x 1.125']	LOGGED BY: T Gavigan
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: T. Gavigan / REG. NO.: RG 6782

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation. Not surveyed	
0					ASPHALT	
1	GMX-3-2.5			0	SILTY SAND with GRAVEL (SM): Dark brown (7.5 YR 3/2), moist, 70% fine to coarse sand, 15% fine angular gravel, 15% low plasticity fines.	
2				0	LEAN CLAY with SAND (CL): Dark brown (7.5 YR 3/2), moist, 80% fines, 20% fine to coarse sand, trace fine angular gravel, low to medium plasticity, soft.	OVM=Thermo Environmental Instruments 580B PID calibrated with 100 ppm isobutylene standard.
3						
4	GMX-3-5.0				LEAN CLAY (CL): Very dark gray (5 Y 3/1), moist, 95% fines, 5% fine sand, low to medium plasticity, firm.	
5				0		
6				0	Bottom of boring at 6.0 feet	Borehole destroyed using Type I-II neat cement grout placed from total depth to ground surface.
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PROJECT: CANTERBURY RESIDENTIAL DEVELOPMENT Hayward, California	**Log of Boring No. GMX-4**
BORING LOCATION: Intersection of Holyoke Street and Mediterranean	ELEVATION AND DATUM: Not surveyed; datum is ground surface
DRILLING CONTRACTOR. Fas-Tek Engineering Support Services	DATE STARTED: 3/30/00 / DATE FINISHED: 3/30/00
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 6.0 / MEASURING POINT: Ground surface
DRILLING EQUIPMENT. Geoprobe 5400	DEPTH TO WATER — FIRST: ND / COMPL.: ND
SAMPLING METHOD. Geoprobe DT21 dual tube soil sampler [4' x 1.125']	LOGGED BY: T. Gavigan
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: T. Gavigan / REG. NO.: RG 6782

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react w/HCl, geo. inter. Surface Elevation. Not surveyed	REMARKS
1				0	ASPHALT SILTY SAND with GRAVEL (SM): Grayish brown (2.5 Y 5/2), moist, 60% fine to coarse sand, 20% fine angular gravel, 20% low plasticity fines.	
2	GMX-4-2.5			0	SANDY LEAN CLAY (CL): Dark gray (5 Y 4/1), moist, 70% fines, 30% fine sand, low to medium plasticity, firm.	OVM=Thermo Environmental Instruments 580B PID *calibrated with 100 ppm* isobutylene standard.
3				0	porcelin debris	
4					LEAN CLAY (CL): Dark gray (5 Y 4/1), moist, 95% fines, 5% fine sand, low to medium plasticity, firm.	
5	GMX-4-5.5			0		
6				0	mottled with olive gray (5 Y 4/2) Bottom of boring at 6.0 feet	Borehole destroyed using Type I-II neat cement grout placed from total depth to ground surface.
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PROJECT: CANTERBURY RESIDENTIAL DEVELOPMENT Hayward, California	**Log of Boring No. GMX-6**	
BORING LOCATION: Intersection of Holyoke Street and Olypic	ELEVATION AND DATUM: Not surveyed; datum is ground surface	
DRILLING CONTRACTOR: Fas-Tek Engineering Support Services	DATE STARTED: 3/30/00	DATE FINISHED: 3/30/00
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 6.0	MEASURING POINT: Ground surface
DRILLING EQUIPMENT: Geoprobe 5400	DEPTH TO WATER — FIRST: ND	COMPL.: ND
SAMPLING METHOD: Geoprobe DT21 dual tube soil sampler [4' x 1.125']	LOGGED BY: T. Gavigan	
HAMMER WEIGHT: NA — DROP: NA	RESPONSIBLE PROFESSIONAL: T. Gavigan	REG. NO. RG 6782

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl; geo. inter	REMARKS
					Surface Elevation: Not surveyed	
0					ASPHALT	
1				0	SILTY SAND with GRAVEL (SM): Dark brown (7.5 YR 3/2), moist, 70% fine to coarse sand, 15% fine angular gravel, 15% low plasticity fines.	
2	GMX-6-2.5			0	LEAN CLAY with SAND (CL): Dark brown (7.5 YR 3/2), moist, 85% fines, 15% fine to coarse sand, trace fine gravel low to medium plasticity, firm.	
				0		
3				0		OVM=Thermo Environmental Instruments 580B PID calibrated with 100 ppm isobutylene standard.
4				0		
5	GMX-6-5.5			0	LEAN CLAY (CL): Olive gray (5 Y 3/2), moist, 90% fines, 10% fine sand, low to medium plasticity, soft.	
				0		
6					Bottom of boring at 6.0 feet	Borehole destroyed using Type I-II neat cement grout placed from total depth to ground surface.
7						
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PROJECT: CANTERBURY RESIDENTIAL DEVELOPMENT Hayward, California	**Log of Boring No. GMX-7**
BORING LOCATION: Holyoke Street at foot of Telford Court	ELEVATION AND DATUM: Not surveyed; datum is ground surface
DRILLING CONTRACTOR: Fas-Tek Engineering Support Services	DATE STARTED: 3/30/00 / DATE FINISHED: 3/30/00
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 6.0 / MEASURING POINT: Ground surface
DRILLING EQUIPMENT: Geoprobe 5400	DEPTH TO WATER — FIRST: ND / COMPL: ND
SAMPLING METHOD: Geoprobe DT21 dual tube soil sampler [4' x 1.125']	LOGGED BY: T. Gavigan
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: T. Gavigan / REG. NO.: RG 6782

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter	REMARKS
					Surface Elevation: Not surveyed	
0					ASPHALT	
1	GMX-7-2 5			0	SILTY SAND with GRAVEL (SM): Dark brown (7.5 YR 3/2), moist, 70% fine to coarse sand, 15% fine angular gravel, 15% low plasticity fines.	
2				0	LEAN CLAY with SAND (CL): Dark brown (7.5 YR 3/2), moist, 85% fines, 15% fine to coarse sand, low to medium plasticity, firm.	OVM=Thermo Environmental Instruments 580B PID calibrated with 100 ppm isobutylene standard.
3				0		
4						
5	GMX-7-5 5			0		
6					Bottom of boring at 6.0 feet	Borehole destroyed using Type I-II neat cement grout placed from total depth to ground surface.
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PROJECT: CANTERBURY RESIDENTIAL DEVELOPMENT Hayward, California	**Log of Boring No. GMX-8**	
BORING LOCATION: Holyoke Street	ELEVATION AND DATUM: Not surveyed; datum is ground surface	
DRILLING CONTRACTOR: Fas-Tek Engineering Support Services	DATE STARTED: 3/30/00	DATE FINISHED: 3/30/00
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 6.0	MEASURING POINT: Ground surface
DRILLING EQUIPMENT: Geoprobe 5400	DEPTH TO WATER — FIRST: ND	COMPL.: ND
SAMPLING METHOD: Geoprobe DT21 dual tube soil sampler [4' x 1.125"]	LOGGED BY: T. Gavigan	
HAMMER WEIGHT: NA — DROP: NA	RESPONSIBLE PROFESSIONAL: T. Gavigan	REG. NO. RG 6782

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID READING (ppm)	DESCRIPTION NAME (USCS). color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation: Not surveyed	
0					ASPHALT	
1				0	SILTY SAND with GRAVEL (SM): Dark brown (7.5 YR 3/2), moist, 70% fine to coarse sand, 15% fine angular gravel, 15% low plasticity fines.	
2	GMX-8-2.5			0	LEAN CLAY with SAND (CL): Dark brown (7.5 YR 3/2), moist, 80% fines, 20% fine to coarse sand, trace fine gravel, low to medium plasticity, firm.	OVM=Thermo Environmental Instruments 580B PID calibrated with 100 ppm isobutylene standard.
3				0		
4						
5	GMX-8-5.0			0 0	LEAN CLAY (CL): Olive gray (5 Y 3/2), moist, 90% fines, 10% fine sand, low to medium plasticity, soft.	
6					Bottom of boring at 6.0 feet	Borehole destroyed using Type I-II neat cement grout placed from total depth to ground surface.
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GEOMATRIX

ATTACHMENT C

Laboratory Analytical Results

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Jensen, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

April 6, 2000

Ann Holbrow, Project Manager
Geomatrix Consultants, Inc.
2101 Webster Street, 12th Floor
Oakland, CA 94612

Dear Ms. Holbrow:

Included are the results from the testing of material submitted on March 31, 2000 from your 6262.000.0 project. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Charlene Jensen

Charlene Jensen
Chemist

Enclosures
GMC0406R.DOC

Date of Report: 04/06/00
Date Received: 03/31/00
Project: 6262.000.0
Date Extracted: 04/03/00
Date Analyzed: 04/03/00 and 04/04/00

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING EPA METHOD 8015M
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported as µg/g (ppm)

Sample ID Laboratory ID	Motor Oil Range	Surrogate (% Recovery)
GMX6-2.5 003201-01	<50	85
GMX6-5.5 003201-02	<50	89
GMX7-2.5 003201-03	73	89
GMX7-5.5 003201-04	<50	88
GMX8-2.5 003201-05	72	90
GMX8-5.5 003201-06	<50	90
GMX4-2.5 003201-07	580 d	90
GMX4-5.5 003201-08	<50	88
GMX3-2.5 003201-09	300	91
GMX3-5.0 003201-10	<50	86

d - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Date of Report: 04/06/00
Date Received: 03/31/00
Project: 6262.000.0
Date Extracted: 04/03/00
Date Analyzed: 04/03/00 and 04/04/00

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING EPA METHOD 8015M
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported as µg/g (ppm)

Sample ID Laboratory ID	Motor Oil Range	Surrogate (% Recovery)
GMX2-2.5 003201-11	<50	85
GMX2-5.0 003201-12	100	86
GMX1-2.5 003201-13	<50	86
GMX1-5.0 003201-14	320	92
GMX5-2.5 003201-15	<50	86
GMX5-5.0 003201-16	57	91
Method Blank	<50	89

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX6-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-01
Date Analyzed:	03/31/00	Data File:	033112.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	108	50	150
1,2-Dichloroethane-d4	111	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	120 I	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5 I
cis-1,2-Dichloroethene	<5	Bromobenzene	<5 I
Chloroform	<5	1,3,5-Trimethylbenzene	<5 I
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5 I
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5 I
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5 I
1,1-Dichloropropene	<5	4-Chlorotoluene	<5 I
Carbon Tetrachloride	<5	tert-Butylbenzene	<5 I
Benzene	<5	1,2,4-Trimethylbenzene	<5 I
Trichloroethene	<5	sec-Butylbenzene	<5 I
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5 I
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5 I
Dibromomethane	<5	1,4-Dichlorobenzene	<5 I
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5 I
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5 I
Toluene	<5	1,2,4-Trichlorobenzene	<5 I
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5 I
1,1,2-Trichloroethane	<5	Naphthalene	<5 I
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5 I
1,3-Dichloropropane	<5		

I - The internal standard associated with the analyte is out of control limits. The reporting limit or reported concentration is an estimate.

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX6-5.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-02
Date Analyzed:	04/01/00	Data File:	033113.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	99	50	150
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX7-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-03
Date Analyzed:	04/01/00	Data File:	033114.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	102 I	50	150
1,2-Dichloroethane-d4	108 I	50	150
Toluene-d8	101 I	50	150
4-Bromofluorobenzene	114 I	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5 I	Tetrachloroethene	<5 I
Chloromethane	<5 I	Dibromochloromethane	<5 I
Vinyl chloride	<5 I	1,2-Dibromoethane (EDB)	<5 I
Bromomethane	<5 I	Chlorobenzene	<5 I
Chloroethane	<5 I	Ethylbenzene	<5 I
Trichlorofluoromethane	<5 I	1,1,1,2-Tetrachloroethane	<5 I
Acetone	<50 I	m,p-Xylene	<5 I
1,1-Dichloroethene	<5 I	o-Xylene	<5 I
Methylene chloride	<50 I	Styrene	<5 I
trans-1,2-Dichloroethene	<5 I	Isopropylbenzene	<5 I
1,1-Dichloroethane	<5 I	Bromoform	<5 I
2,2-Dichloropropane	<5 I	n-Propylbenzene	<5 I
cis-1,2-Dichloroethene	<5 I	Bromobenzene	<5 I
Chloroform	<5 I	1,3,5-Trimethylbenzene	<5 I
2-Butanone (MEK)	<50 I	1,1,2,2-Tetrachloroethane	<5 I
1,2-Dichloroethane (EDC)	<5 I	1,2,3-Trichloropropane	<5 I
1,1,1-Trichloroethane	<5 I	2-Chlorotoluene	<5 I
1,1-Dichloropropene	<5 I	4-Chlorotoluene	<5 I
Carbon Tetrachloride	<5 I	tert-Butylbenzene	<5 I
Benzene	<5 I	1,2,4-Trimethylbenzene	<5 I
Trichloroethene	<5 I	sec-Butylbenzene	<5 I
1,2-Dichloropropane	<5 I	p-Isopropyltoluene	<5 I
Bromodichloromethane	<5 I	1,3-Dichlorobenzene	<5 I
Dibromomethane	<5 I	1,4-Dichlorobenzene	<5 I
4-Methyl-2-pentanone	<50 I	1,2-Dichlorobenzene	<5 I
cis-1,3-Dichloropropene	<5 I	1,2-Dibromo-3-chloropropane	<5 I
Toluene	<5 I	1,2,4-Trichlorobenzene	<5 I
trans-1,3-Dichloropropene	<5 I	Hexachlorobutadiene	<5 I
1,1,2-Trichloroethane	<5 I	Naphthalene	<5 I
2-Hexanone	<50 I	1,2,3-Trichlorobenzene	<5 I
1,3-Dichloropropane	<5 I		

I - The internal standard associated with the analyte is out of control limits. The reporting limit or reported concentration is an estimate.

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX7-5.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-04
Date Analyzed:	04/01/00	Data File:	033115.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	102 I	50	150
1,2-Dichloroethane-d4	90 I	50	150
Toluene-d8	100 I	50	150
4-Bromofluorobenzene	110 I	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5 I	Tetrachloroethene	<5 I
Chloromethane	<5 I	Dibromochloromethane	<5 I
Vinyl chloride	<5 I	1,2-Dibromoethane (EDB)	<5 I
Bromomethane	<5 I	Chlorobenzene	<5 I
Chloroethane	<5 I	Ethylbenzene	<5 I
Trichlorofluoromethane	<5 I	1,1,1,2-Tetrachloroethane	<5 I
Acetone	<50 I	m,p-Xylene	<5 I
1,1-Dichloroethene	<5 I	o-Xylene	<5 I
Methylene chloride	<50 I	Styrene	<5 I
trans-1,2-Dichloroethene	<5 I	Isopropylbenzene	<5 I
1,1-Dichloroethane	<5 I	Bromoform	<5 I
2,2-Dichloropropane	<5 I	n-Propylbenzene	<5 I
cis-1,2-Dichloroethene	<5 I	Bromobenzene	<5 I
Chloroform	<5 I	1,3,5-Trimethylbenzene	<5 I
2-Butanone (MEK)	<50 I	1,1,2,2-Tetrachloroethane	<5 I
1,2-Dichloroethane (EDC)	<5 I	1,2,3-Trichloropropane	<5 I
1,1,1-Trichloroethane	<5 I	2-Chlorotoluene	<5 I
1,1-Dichloropropene	<5 I	4-Chlorotoluene	<5 I
Carbon Tetrachloride	<5 I	tert-Butylbenzene	<5 I
Benzene	<5 I	1,2,4-Trimethylbenzene	<5 I
Trichloroethene	<5 I	sec-Butylbenzene	<5 I
1,2-Dichloropropane	<5 I	p-Isopropyltoluene	<5 I
Bromodichloromethane	<5 I	1,3-Dichlorobenzene	<5 I
Dibromomethane	<5 I	1,4-Dichlorobenzene	<5 I
4-Methyl-2-pentanone	<50 I	1,2-Dichlorobenzene	<5 I
cis-1,3-Dichloropropene	<5 I	1,2-Dibromo-3-chloropropane	<5 I
Toluene	<5 I	1,2,4-Trichlorobenzene	<5 I
trans-1,3-Dichloropropene	<5 I	Hexachlorobutadiene	<5 I
1,1,2-Trichloroethane	<5 I	Naphthalene	<5 I
2-Hexanone	<50 I	1,2,3-Trichlorobenzene	<5 I
1,3-Dichloropropane	<5 I		

I - The internal standard associated with the analyte is out of control limits. The reporting limit or reported concentration is an estimate.

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX8-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-05
Date Analyzed:	04/01/00	Data File:	033116.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	102	50	150
1,2-Dichloroethane-d4	107	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	115	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX8-5.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-06
Date Analyzed:	04/01/00	Data File:	033117.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	108	50	150
1,2-Dichloroethane-d4	112	50	150
Toluene-d8	109	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX4-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-07
Date Analyzed:	04/01/00	Data File:	033118.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	105	50	150
1,2-Dichloroethane-d4	111	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	115	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX4-5.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-08
Date Analyzed:	04/01/00	Data File:	033126.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	105	50	150
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	114	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX3-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-09
Date Analyzed:	04/01/00	Data File:	033127.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	105	50	150
1,2-Dichloroethane-d4	110	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	117 I	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5 I
cis-1,2-Dichloroethene	<5	Bromobenzene	<5 I
Chloroform	<5	1,3,5-Trimethylbenzene	<5 I
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5 I
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5 I
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5 I
1,1-Dichloropropene	<5	4-Chlorotoluene	<5 I
Carbon Tetrachloride	<5	tert-Butylbenzene	<5 I
Benzene	<5	1,2,4-Trimethylbenzene	<5 I
Trichloroethene	<5	sec-Butylbenzene	<5 I
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5 I
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5 I
Dibromomethane	<5	1,4-Dichlorobenzene	<5 I
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5 I
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5 I
Toluene	<5	1,2,4-Trichlorobenzene	<5 I
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5 I
1,1,2-Trichloroethane	<5	Naphthalene	<5 I
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5 I
1,3-Dichloropropane	<5		

I - The internal standard associated with the analyte is out of control limits. The reporting limit or reported concentration is an estimate.

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX3-5.0	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-10
Date Analyzed:	04/01/00	Data File:	033128.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	105	50	150
1,2-Dichloroethane-d4	111	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	117	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	54	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX2-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-11
Date Analyzed:	04/01/00	Data File:	033129.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	106	50	150
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	109	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX2-5.0	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-12
Date Analyzed:	04/01/00	Data File:	033130.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	106	50	150
1,2-Dichloroethane-d4	107	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	119	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX1-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-13
Date Analyzed:	04/01/00	Data File:	033131.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	108	50	150
1,2-Dichloroethane-d4	116	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	117 I	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5 I
cis-1,2-Dichloroethene	<5	Bromobenzene	<5 I
Chloroform	<5	1,3,5-Trimethylbenzene	<5 I
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5 I
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5 I
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5 I
1,1-Dichloropropene	<5	4-Chlorotoluene	<5 I
Carbon Tetrachloride	<5	tert-Butylbenzene	<5 I
Benzene	<5	1,2,4-Trimethylbenzene	<5 I
Trichloroethene	<5	sec-Butylbenzene	<5 I
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5 I
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5 I
Dibromomethane	<5	1,4-Dichlorobenzene	<5 I
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5 I
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5 I
Toluene	<5	1,2,4-Trichlorobenzene	<5 I
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5 I
1,1,2-Trichloroethane	<5	Naphthalene	<5 I
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5 I
1,3-Dichloropropane	<5		

I - The internal standard associated with the analyte is out of control limits. The reporting limit or reported concentration is an estimate.

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX1-5.0	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-14
Date Analyzed:	04/01/00	Data File:	033132.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	105	50	150
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	109	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX5-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-15
Date Analyzed:	04/01/00	Data File:	033133.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	103 I	50	150
1,2-Dichloroethane-d4	103 I	50	150
Toluene-d8	99 I	50	150
4-Bromofluorobenzene	116 I	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5 I	Tetrachloroethene	<5 I
Chloromethane	<5 I	Dibromochloromethane	<5 I
Vinyl chloride	<5 I	1,2-Dibromoethane (EDB)	<5 I
Bromomethane	<5 I	Chlorobenzene	<5 I
Chloroethane	<5 I	Ethylbenzene	<5 I
Trichlorofluoromethane	<5 I	1,1,1,2-Tetrachloroethane	<5 I
Acetone	<50 I	m,p-Xylene	<5 I
1,1-Dichloroethene	<5 I	o-Xylene	<5 I
Methylene chloride	<50 I	Styrene	<5 I
trans-1,2-Dichloroethene	<5 I	Isopropylbenzene	<5 I
1,1-Dichloroethane	<5 I	Bromoform	<5 I
2,2-Dichloropropane	<5 I	n-Propylbenzene	<5 I
cis-1,2-Dichloroethene	<5 I	Bromobenzene	<5 I
Chloroform	<5 I	1,3,5-Trimethylbenzene	<5 I
2-Butanone (MEK)	<50 I	1,1,2,2-Tetrachloroethane	<5 I
1,2-Dichloroethane (EDC)	<5 I	1,2,3-Trichloropropane	<5 I
1,1,1-Trichloroethane	<5 I	2-Chlorotoluene	<5 I
1,1-Dichloropropene	<5 I	4-Chlorotoluene	<5 I
Carbon Tetrachloride	<5 I	tert-Butylbenzene	<5 I
Benzene	<5 I	1,2,4-Trimethylbenzene	<5 I
Trichloroethene	<5 I	sec-Butylbenzene	<5 I
1,2-Dichloropropane	<5 I	p-Isopropyltoluene	<5 I
Bromodichloromethane	<5 I	1,3-Dichlorobenzene	<5 I
Dibromomethane	<5 I	1,4-Dichlorobenzene	<5 I
4-Methyl-2-pentanone	<50 I	1,2-Dichlorobenzene	<5 I
cis-1,3-Dichloropropene	<5 I	1,2-Dibromo-3-chloropropane	<5 I
Toluene	<5 I	1,2,4-Trichlorobenzene	<5 I
trans-1,3-Dichloropropene	<5 I	Hexachlorobutadiene	<5 I
1,1,2-Trichloroethane	<5 I	Naphthalene	<5 I
2-Hexanone	<50 I	1,2,3-Trichlorobenzene	<5 I
1,3-Dichloropropane	<5 I		

I - The internal standard associated with the analyte is out of control limits. The reporting limit or reported concentration is an estimate.

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	GMX5-5.0	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-16
Date Analyzed:	04/01/00	Data File:	033134.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	105	50	150
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	124 I	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	330	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5 I
cis-1,2-Dichloroethene	<5	Bromobenzene	<5 I
Chloroform	<5	1,3,5-Trimethylbenzene	<5 I
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5 I
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5 I
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5 I
1,1-Dichloropropene	<5	4-Chlorotoluene	<5 I
Carbon Tetrachloride	<5	tert-Butylbenzene	<5 I
Benzene	<5	1,2,4-Trimethylbenzene	<5 I
Trichloroethene	<5	sec-Butylbenzene	<5 I
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5 I
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5 I
Dibromomethane	<5	1,4-Dichlorobenzene	<5 I
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5 I
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5 I
Toluene	<5	1,2,4-Trichlorobenzene	<5 I
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5 I
1,1,2-Trichloroethane	<5	Naphthalene	45 I
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5 I
1,3-Dichloropropane	<5		

I - The internal standard associated with the analyte is out of control limits. The reporting limit or reported concentration is an estimate.

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	Method Blank	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	00-239 mb
Date Analyzed:	03/31/00	Data File:	033110.D
Matrix:	Soil	Instrument:	5972 -Ins
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Dibromofluoromethane	103	50	150
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/kg (ppb)	Compounds:	Concentration ug/kg (ppb)
Dichlorodifluoromethane	<5	Tetrachloroethene	<5
Chloromethane	<5	Dibromochloromethane	<5
Vinyl chloride	<5	1,2-Dibromoethane (EDB)	<5
Bromomethane	<5	Chlorobenzene	<5
Chloroethane	<5	Ethylbenzene	<5
Trichlorofluoromethane	<5	1,1,1,2-Tetrachloroethane	<5
Acetone	<50	m,p-Xylene	<5
1,1-Dichloroethene	<5	o-Xylene	<5
Methylene chloride	<50	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon Tetrachloride	<5	tert-Butylbenzene	<5
Benzene	<5	1,2,4-Trimethylbenzene	<5
Trichloroethene	<5	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<5
Toluene	<5	1,2,4-Trichlorobenzene	<5
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<5
1,1,2-Trichloroethane	<5	Naphthalene	<5
2-Hexanone	<50	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<5		

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX6-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-01 1/10
Date Analyzed:	04/03/00	Data File:	040316.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	114	50	150
Benzo(a)anthracene-d12	77	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX6-5.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-02
Date Analyzed:	04/03/00	Data File:	040309.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	75	50	150
Benzo(a)anthracene-d12	74	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<5
Acenaphthylene	<5
Acenaphthene	<5
Fluorene	<5
Phenanthrene	<5
Anthracene	<5
Fluoranthene	<5
Pyrene	<5
Benz(a)anthracene	<5
Chrysene	<5
Benzo(b)fluoranthene	<5
Benzo(k)fluoranthene	<5
Benzo(a)pyrene	<5
Indeno(1,2,3-cd)pyrene	<5
Dibenzo(a,h)anthracene	<5
Benzo(g,h,i)perylene	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX7-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-03 1/10
Date Analyzed:	04/03/00	Data File:	040317.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	183 vo	50	150
Benzo(a)anthracene-d12	68	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

vo - The value reported fell outside the control limits established for this analyte.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX7-5.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-04 1/10
Date Analyzed:	04/03/00	Data File:	040327.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	162 vo	50	150
Benzo(a)anthracene-d12	78	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

vo - The value reported fell outside the control limits established for this analyte.

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX8-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-05 1/10
Date Analyzed:	04/03/00	Data File:	040328.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	143	50	150
Benzo(a)anthracene-d12	79	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX8-5.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-06
Date Analyzed:	04/03/00	Data File:	040310.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	74	50	150
Benzo(a)anthracene-d12	71	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<5
Acenaphthylene	<5
Acenaphthene	<5
Fluorene	<5
Phenanthrene	<5
Anthracene	<5
Fluoranthene	<5
Pyrene	<5
Benz(a)anthracene	<5
Chrysene	<5
Benzo(b)fluoranthene	<5
Benzo(k)fluoranthene	<5
Benzo(a)pyrene	<5
Indeno(1,2,3-cd)pyrene	<5
Dibenzo(a,h)anthracene	<5
Benzo(g,h,i)perylene	<5

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX4-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-07 1/10
Date Analyzed:	04/03/00	Data File:	040329.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	0 vo	50	150
Benzo(a)anthracene-d12	87	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<250
Acenaphthylene	<250
Acenaphthene	<250
Fluorene	<250
Phenanthrene	<250
Anthracene	<250
Fluoranthene	<250
Pyrene	<250
Benz(a)anthracene	<250
Chrysene	<250
Benzo(b)fluoranthene	<250
Benzo(k)fluoranthene	<250
Benzo(a)pyrene	<250
Indeno(1,2,3-cd)pyrene	<250
Dibenzo(a,h)anthracene	<250
Benzo(g,h,i)perylene	<250

vo - The value reported fell outside the control limits established for this analyte.

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX4-5.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-08
Date Analyzed:	04/03/00	Data File:	040311.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	62	50	150
Benzo(a)anthracene-d12	93	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<5
Acenaphthylene	<5
Acenaphthene	<5
Fluorene	<5
Phenanthrene	<5
Anthracene	<5
Fluoranthene	<5
Pyrene	<5
Benz(a)anthracene	<5
Chrysene	<5
Benzo(b)fluoranthene	<5
Benzo(k)fluoranthene	<5
Benzo(a)pyrene	<5
Indeno(1,2,3-cd)pyrene	<5
Dibenzo(a,h)anthracene	<5
Benzo(g,h,i)perylene	<5

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX3-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-09 1/10
Date Analyzed:	04/03/00	Data File:	040320.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	173 vo	50	150
Benzo(a)anthracene-d12	69	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

vo - The value reported fell outside the control limits established for this analyte.

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX3-5.0	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-10 1/10
Date Analyzed:	04/04/00	Data File:	040330.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	170 vo	50	150
Benzo(a)anthracene-d12	89	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

vo - The value reported fell outside the control limits established for this analyte.

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX2-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-11 1/10
Date Analyzed:	04/03/00	Data File:	040319.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	156 vo	50	150
Benzo(a)anthracene-d12	69	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

vo - The value reported fell outside the control limits established for this analyte.

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX2-5.0	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-12 1/10
Date Analyzed:	04/03/00	Data File:	040322.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	147	50	150
Benzo(a)anthracene-d12	92	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX1-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-13 1/10
Date Analyzed:	04/03/00	Data File:	040321.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	157 vo	50	150
Benzo(a)anthracene-d12	73	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

vo - The value reported fell outside the control limits established for this analyte.

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX1-5.0	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-14 1/10
Date Analyzed:	04/03/00	Data File:	040318.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	173 vo	50	150
Benzo(a)anthracene-d12	80	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

vo - The value reported fell outside the control limits established for this analyte.

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX5-2.5	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-15 1/10
Date Analyzed:	04/04/00	Data File:	040410.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	121	50	150
Benzo(a)anthracene-d12	78	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<50
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	GMX5-5.0	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	003201-16 1/10
Date Analyzed:	04/04/00	Data File:	040411.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	134	50	150
Benzo(a)anthracene-d12	89	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	62
Acenaphthylene	<50
Acenaphthene	<50
Fluorene	<50
Phenanthrene	<50
Anthracene	<50
Fluoranthene	<50
Pyrene	<50
Benz(a)anthracene	<50
Chrysene	<50
Benzo(b)fluoranthene	<50
Benzo(k)fluoranthene	<50
Benzo(a)pyrene	<50
Indeno(1,2,3-cd)pyrene	<50
Dibenzo(a,h)anthracene	<50
Benzo(g,h,i)perylene	<50

Note: The sample was diluted due to high levels of interfering compounds. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

Analysis For PNA Compounds By EPA Method 8270C SIM

Client Sample ID:	Method Blank	Client:	Geomatrix Consultants, Inc.
Date Received:	03/31/00	Project:	6262.000.0
Date Extracted:	03/31/00	Lab ID:	00-242mb
Date Analyzed:	04/03/00	Data File:	040306.D
Matrix:	Soil	Instrument:	GCMS#2
Units:	ug/kg (ppb)	Operator:	YA

Surrogates:	% Recovery	Lower Limit	Upper Limit
Anthracene-d10	77	50	150
Benzo(a)anthracene-d12	76	50	150

Compounds:	Concentration ug/kg (ppb)
Naphthalene	<5
Acenaphthylene	<5
Acenaphthene	<5
Fluorene	<5
Phenanthrene	<5
Anthracene	<5
Fluoranthene	<5
Pyrene	<5
Benz(a)anthracene	<5
Chrysene	<5
Benzo(b)fluoranthene	<5
Benzo(k)fluoranthene	<5
Benzo(a)pyrene	<5
Indeno(1,2,3-cd)pyrene	<5
Dibenzo(a,h)anthracene	<5
Benzo(g,h,i)perylene	<5

Date of Report: 04/06/00
Date Received: 03/31/00
Project: 6262.000.0

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING EPA METHOD 8015M

Laboratory Code: 003201-08 (Duplicate) Silica gel

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Motor Oil	µg/g (ppm)	<50	<50	nm	0-20

Laboratory Code: 003201-05 (Matrix Spike) Silica gel

Analyte	Reporting Units	Spike Level	Sample Result	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Motor Oil	µg/g (ppm)	500	72	69	111	41-170	47 h

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	Acceptance Criteria
Motor Oil	µg/g (ppm)	500	102	59-138

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

h - RPD results are likely outside control limits due to sample inhomogeneity.

Date of Report: 04/06/00
Date Received: 03/31/00
Project: 6262.000.0

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260B

Laboratory Code: 003201-13 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
1,1-Dichloroethene	µg/kg (ppb)	<5	<5	nm	0-20
Benzene	µg/kg (ppb)	<5	<5	nm	0-20
Trichloroethene	µg/kg (ppb)	<5	<5	nm	0-20
Toluene	µg/kg (ppb)	<5	<5	nm	0-20
Chlorobenzene	µg/kg (ppb)	<5	<5	nm	0-20

Laboratory Code: 003201-13 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
1,1-Dichloroethene	µg/kg (ppb)	50	<5	100	98	50-150	3
Benzene	µg/kg (ppb)	50	<5	92	93	50-150	1
Trichloroethene	µg/kg (ppb)	50	<5	75	87	50-150	14
Toluene	µg/kg (ppb)	50	<5	70	71	50-150	2
Chlorobenzene	µg/kg (ppb)	50	<5	52	60	50-150	15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	Relative Percent Difference
1,1-Dichloroethene	µg/kg (ppb)	50	86	80	50-150	8
Benzene	µg/kg (ppb)	50	78	67	50-150	14
Trichloroethene	µg/kg (ppb)	50	74	70	50-150	7
Toluene	µg/kg (ppb)	50	71	61	50-150	16
Chlorobenzene	µg/kg (ppb)	50	71	60	50-150	17

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

Date of Report: 04/06/00
Date Received: 03/31/00
Project: 6262.000.0

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270C SIM

Laboratory Code: 003201-16 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD	Acceptance Criteria
Napthalene	µg/kg (ppb)	62	130	68 h	0-20
Acenapthylene	µg/kg (ppb)	<50	<50	nm	0-20
Acenapthene	µg/kg (ppb)	<50	<50	nm	0-20
Fluorene	µg/kg (ppb)	<50	<50	nm	0-20
Phenanthrene	µg/kg (ppb)	<50	<50	nm	0-20
Anthracene	µg/kg (ppb)	<50	<50	nm	0-20
Fluoranthene	µg/kg (ppb)	<50	<50	nm	0-20
Pyrene	µg/kg (ppb)	<50	<50	nm	0-20
Benz(a)anthracene	µg/kg (ppb)	<50	<50	nm	0-20
Chrysene	µg/kg (ppb)	<50	<50	nm	0-20
Benzo(b)fluoranthene	µg/kg (ppb)	<50	<50	nm	0-20
Benzo(k)fluoranthene	µg/kg (ppb)	<50	<50	nm	0-20
Benzo(a)pyrene	µg/kg (ppb)	<50	<50	nm	0-20
Indeno(1,2,3-cd)pyrene	µg/kg (ppb)	<50	<50	nm	0-20
Dibenzo(a,h)anthracene	µg/kg (ppb)	<50	<50	nm	0-20
Benzo(g,h,i)perylene	µg/kg (ppb)	<50	<50	nm	0-20

Laboratory Code: (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	% Recovery MS	% Recovery MSD	Acceptance Criteria	RPD
Napthalene	µg/kg (ppb)	170	<50	93	87	54-110	7
Acenapthylene	µg/kg (ppb)	170	<50	94	94	58-114	0
Acenapthene	µg/kg (ppb)	170	<50	89	93	58-112	4
Fluorene	µg/kg (ppb)	170	<50	80	88	59-113	10
Phenanthrene	µg/kg (ppb)	170	<50	85	96	62-110	12
Anthracene	µg/kg (ppb)	170	<50	112	114	61-111	2
Fluoranthene	µg/kg (ppb)	170	<50	106	121	63-114	13
Pyrene	µg/kg (ppb)	170	<50	114	128	59-110	12
Benz(a)anthracene	µg/kg (ppb)	170	<50	83	81	60-116	2
Chrysene	µg/kg (ppb)	170	<50	107	119	57-118	11
Benzo(b)fluoranthene	µg/kg (ppb)	170	<50	88	96	52-133	9
Benzo(k)fluoranthene	µg/kg (ppb)	170	<50	79	85	57-130	7
Benzo(a)pyrene	µg/kg (ppb)	170	<50	113	113	52-132	0
Indeno(1,2,3-cd)pyrene	µg/kg (ppb)	170	<50	96	100	54-112	4
Dibenzo(a,h)anthracene	µg/kg (ppb)	170	<50	90	95	50-121	5
Benzo(g,h,i)perylene	µg/kg (ppb)	170	<50	80	90	40-114	12

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

h - RPD results are likely outside control limits due to sample inhomogeneity.

Date of Report: 04/06/00
Date Received: 03/31/00
Project: 6262.000.0

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270C SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD
Napthalene	µg/kg (ppb)	170	81	88	51-124	8
Acenapthylene	µg/kg (ppb)	170	83	93	52-125	11
Acenapthene	µg/kg (ppb)	170	80	92	57-122	14
Fluorene	µg/kg (ppb)	170	83	92	55-126	10
Phenanthrene	µg/kg (ppb)	170	76	86	59-126	12
Anthracene	µg/kg (ppb)	170	83	101	45-134	20
Fluoranthene	µg/kg (ppb)	170	83	93	56-132	12
Pyrene	µg/kg (ppb)	170	83	94	54-125	11
Benz(a)anthracene	µg/kg (ppb)	170	70	76	51-130	9
Chrysene	µg/kg (ppb)	170	75	80	57-125	7
Benzo(b)fluoranthene	µg/kg (ppb)	170	88	105	54-135	17
Benzo(k)fluoranthene	µg/kg (ppb)	170	110	117	52-141	6
Benzo(a)pyrene	µg/kg (ppb)	170	98	117	38-140	17
Indeno(1,2,3-cd)pyrene	µg/kg (ppb)	170	102	116	58-122	13
Dibenzo(a,h)anthracene	µg/kg (ppb)	170	99	114	58-130	13
Benzo(g,h,i)perylene	µg/kg (ppb)	170	99	113	54-124	13

CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2000 by Friedman & Bruya, Inc. from the Geomatrix Consultants, Inc. 6262.000.0 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Geomatrix Consultants, Inc.
003201-01	GMX6-2.5
003201-02	GMX6-5.5
003201-03	GMX7-2.5
003201-04	GMX7-5.5
003201-05	GMX8-2.5
003201-06	GMX8-5.5
003201-07	GMX4-2.5
003201-08	GMX4-5.5
003201-09	GMX3-2.5
003201-10	GMX3-5.0
003201-11	GMX2-2.5
003201-12	GMX2-5.0
003201-13	GMX1-2.5
003201-14	GMX1-5.0
003201-15	GMX5-2.5
003201-16	GMX5-5.0

For analysis by method 8260B internal standards were outside of normal acceptance criteria in several samples due to matrix interference. Results and/or reporting limits for affected analytes are reported as estimates. RPDs were outside of normal acceptance criteria for matrix spike samples analyzed for motor oil and for duplicate samples analyzed for naphthalene by method 8270C SIM, likely due to sample inhomogeneity. All other quality control requirements were within acceptable limits.

3 00 8I — Filisonzo + Bauya

CHAIN-OF-CUSTODY RECORD

Nº 12895

Date: 3/30/00

Page 1 of 2

Project No: 6262.000.0

Samplers (Signatures): Tom Gavigan

	Date	Time	Sample Number	EPA Method 8010	EPA Method 8020	EPA Method 8020 (BTEX only)	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as Mob. Oil	PAHs - 8270 SIM	VOCs - 8260	MS/MSD (MO) per T. Gavigan 4-3-00	Cooled	Soil (S), Water (W), or Vapor (V)	Acidified	Number of containers	Additional Comments
01	3/30/00	0855	GMX6-2.5								✓	✓	✓						Please perform silica gel cleanup prior to TPHmo analysis. Results due 4/6/00
02	↓	0905	GMX6-5.5								✓	✓	✓		✓	S	N	1	6" x 1.25" polybutyrate tube
03		0935	GMX7-2.5								✓	✓	✓		✓	S	N	1	6" x 1.25" polybutyrate tube
04		0945	GMX7-5.5								✓	✓	✓		✓	S	N	1	6" x 1.25" polybutyrate tube
05		1010	GMX8-2.5								✓	✓	✓		✓	S	N	1	6" x 1.25" polybutyrate tube
06		1015	GMX8-5.5								✓	✓	✓	✓	✓	S	N	1	6" x 1.25" Polybutyrate tube
07		1100	GMX4-2.5								✓	✓	✓		✓	S	N	1	6" x 1.25" Polybutyrate tube
08		1105	GMX4-5.5								✓	✓	✓		✓	S	N	1	6" x 1.25" Polybutyrate tube
09		1140	GMX3-2.5								✓	✓	✓		✓	S	N	1	6" x 1.25" Polybutyrate tube
10		1150	GMX3-5.0								✓	✓	✓		✓	S	N	1	6" x 1.25" Polybutyrate tube
11		1240	GMX2-2.5								✓	✓	✓		✓	S	N	1	6" x 1.25" polybutyrate tube
12	↓	1250	GMX2-5.0								✓	✓	✓		✓	S	N	1	6" x 1.25" polybutyrate tube
															✓	S	N	1	6" x 1.25" Polybutyrate tube

Turnaround time: Results due 4/6/00

Results to: Ann Holbrow

Total No. of containers: 12

Relinquished by (signature): Tom Gavigan	Date: 3/30/00	Relinquished by (signature):	Date:	Relinquished by (signature):	Date:
Printed Name: Tom Gavigan	Time: 1630	Printed Name:	Time:	Printed Name:	Time:
Company: Geomatrix		Company:		Company:	
Received by (signature): Charlene Jensen	Date: 3-31-00	Received by (signature):	Date:	Received by (signature):	Date:
Printed Name: Charlene Jensen	Time: 10:00	Printed Name:	Time:	Printed Name:	Time:
Company: F&BT		Company:		Company:	

Method of Shipment: Federal Express — Tracking No 8200 7653 2475

Laboratory Comments and Log No.:

Geomatrix Consultants
GEOMATRIX
100 Pine Street, 10th Floor
San Francisco, California 94111
415 434 9400

CJ 3-31-00 BT

CHAIN-OF-CUSTODY RECORD

№ 12893

Date: 3/30/00

Page 2 of 2

Project No: 6262 000.0

Samplers (Signatures):

	Date	Time	Sample Number
13	3/30/00	1315	GMX1-2.5
14		1325	GMX1-5.0
15		1355	GMX5-2.5
16		1400	GMX5-5.0

ANALYSES

EPA Method 8010	EPA Method 8020	EPA Method 8020 (BTEX only)	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as Motor Oil (8015M)	PAHs - 8270 SIM	VOCs - 8260	MS/MSD (8260/8270)
							✓	✓	✓	✓
							✓	✓	✓	
							✓	✓	✓	
							✓	✓	✓	

REMARKS

Cooled	Soil (S), Water (W), or Vapor (V)	Acidified	Number of containers	Additional Comments
				Please perform silica gel cleanup prior to TPHmo Analysis
				Results Due 4/6/00
✓	S	N	1	6" x 1.25" polybutyrate tube
✓	S	N	1	6" x 1.25" polybutyrate tube
✓	S	N	1	6" x 1.25" polybutyrate tube
✓	S	N	1	6" x 1.25" polybutyrate tube

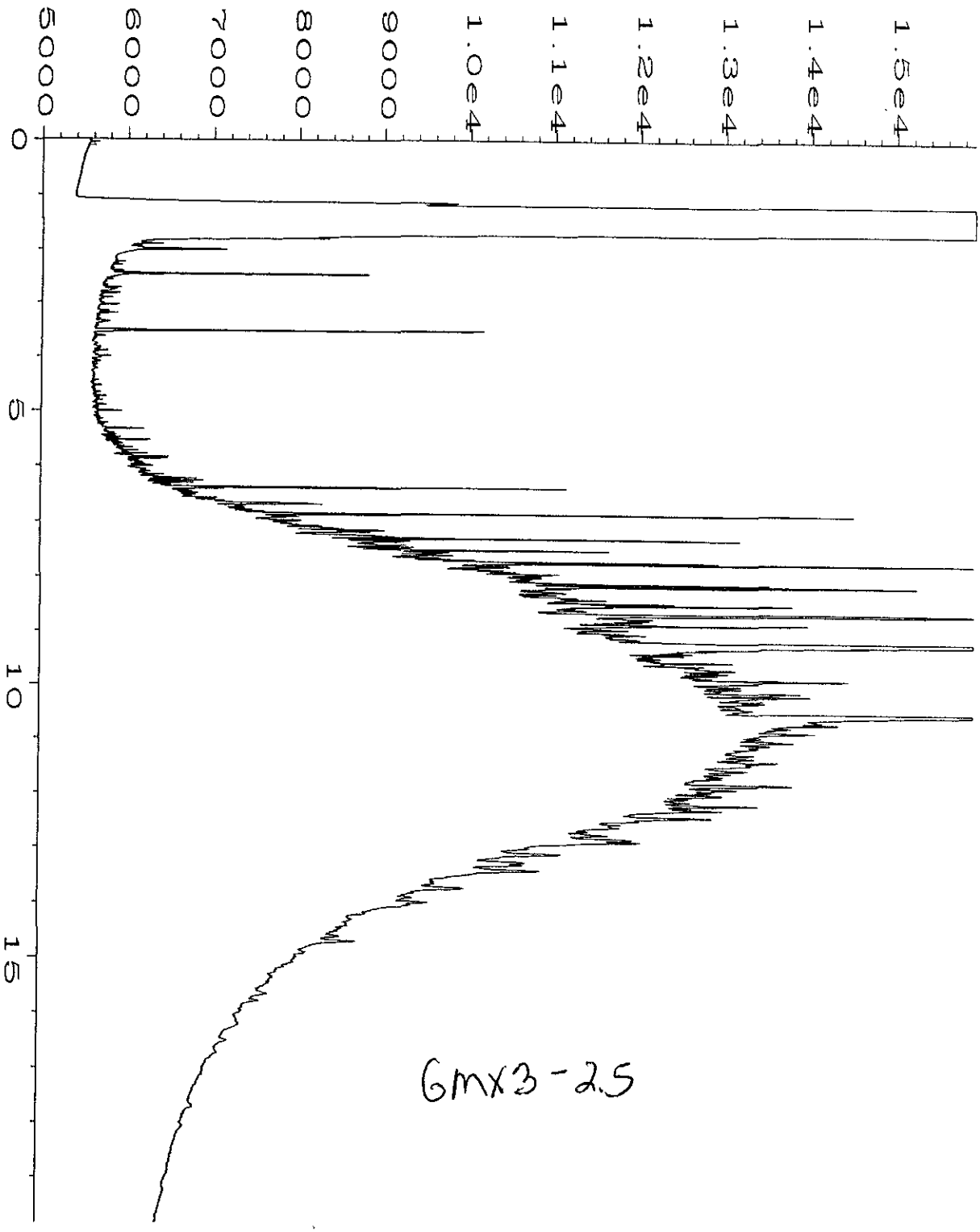
Turnaround time: Results due 4/6/00

Results to: Ann Holbrow

Total No. of containers:

	Date		Date		Date	
Relinquished by (signature):	3/30/00	Relinquished by (signature):		Relinquished by (signature):		Method of Shipment: Federal Express Tracking No: 8200 7653 2475
Printed Name: Tom Gavigan	Time: 1630	Printed Name:	Time:	Printed Name:	Time:	Laboratory Comments and Log No.:
Company: Geomatrix		Company:		Company:		
Received by (signature): Charlene Jensen	Date: 3-31-00	Received by (signature):	Date:	Received by (signature):	Date:	
Printed Name: Charlene Jensen	Time: 10:00	Printed Name.	Time:	Printed Name:	Time:	
Company: For BT		Company:		Company:		

Geomatrix Consultants
100 Pine Street, 10th Floor
San Francisco, California 94111
415 434 9400



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Report Created on: 05 Apr 00 02:45 PM

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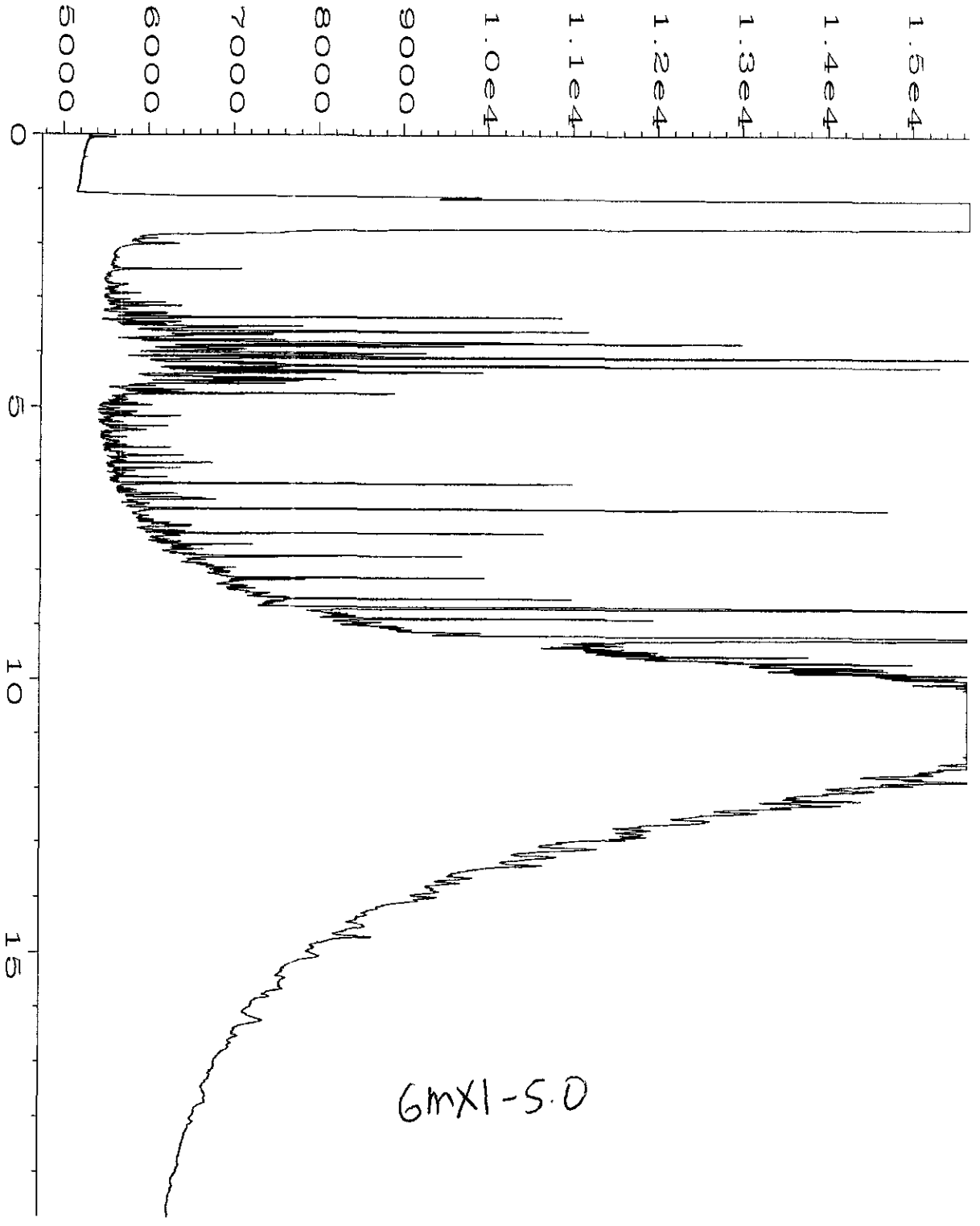
Analysis Method : TPHD.MTH



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Instrument : GC #6
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mc 4/5/00

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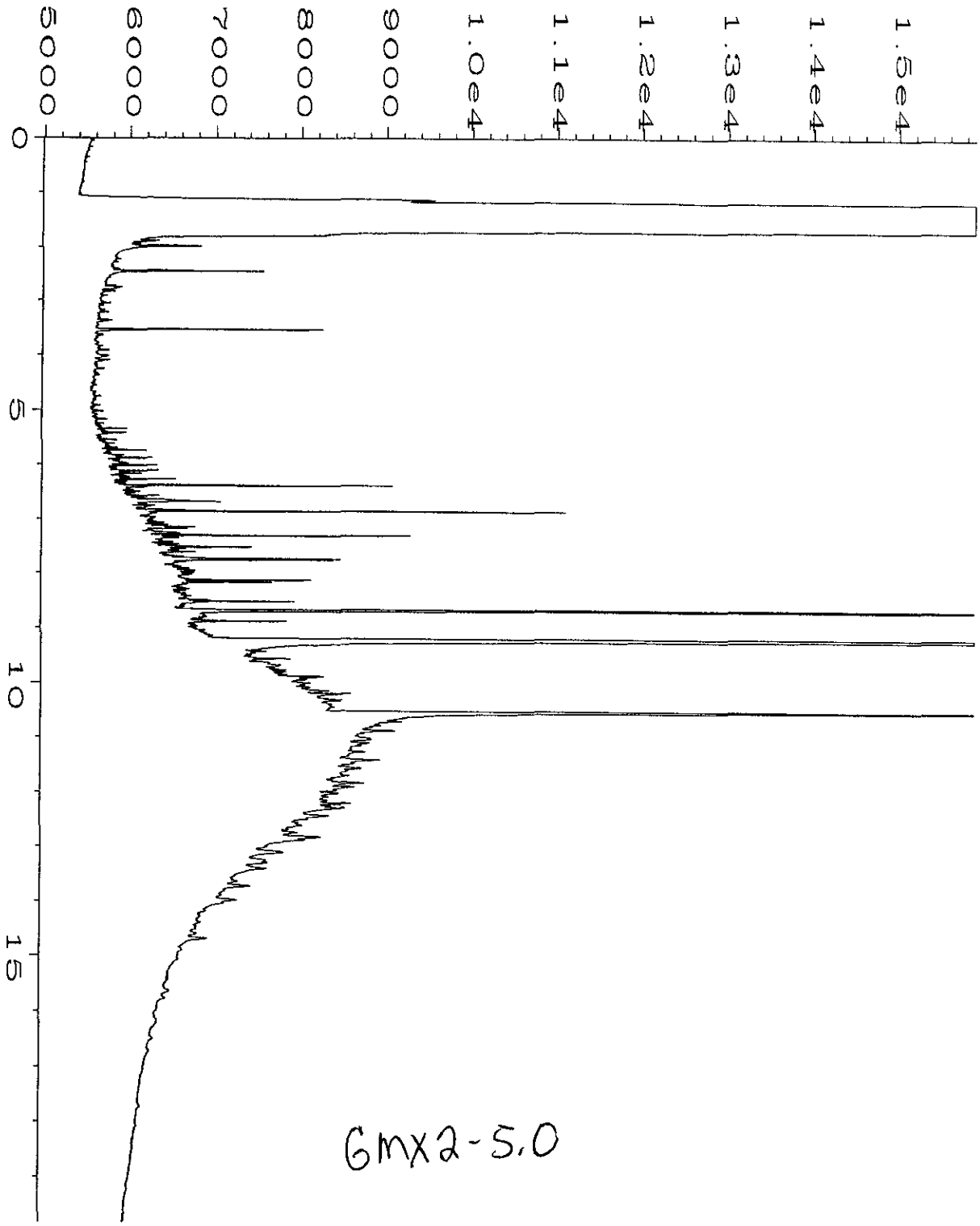
Analysis Method : TPHD.MTH



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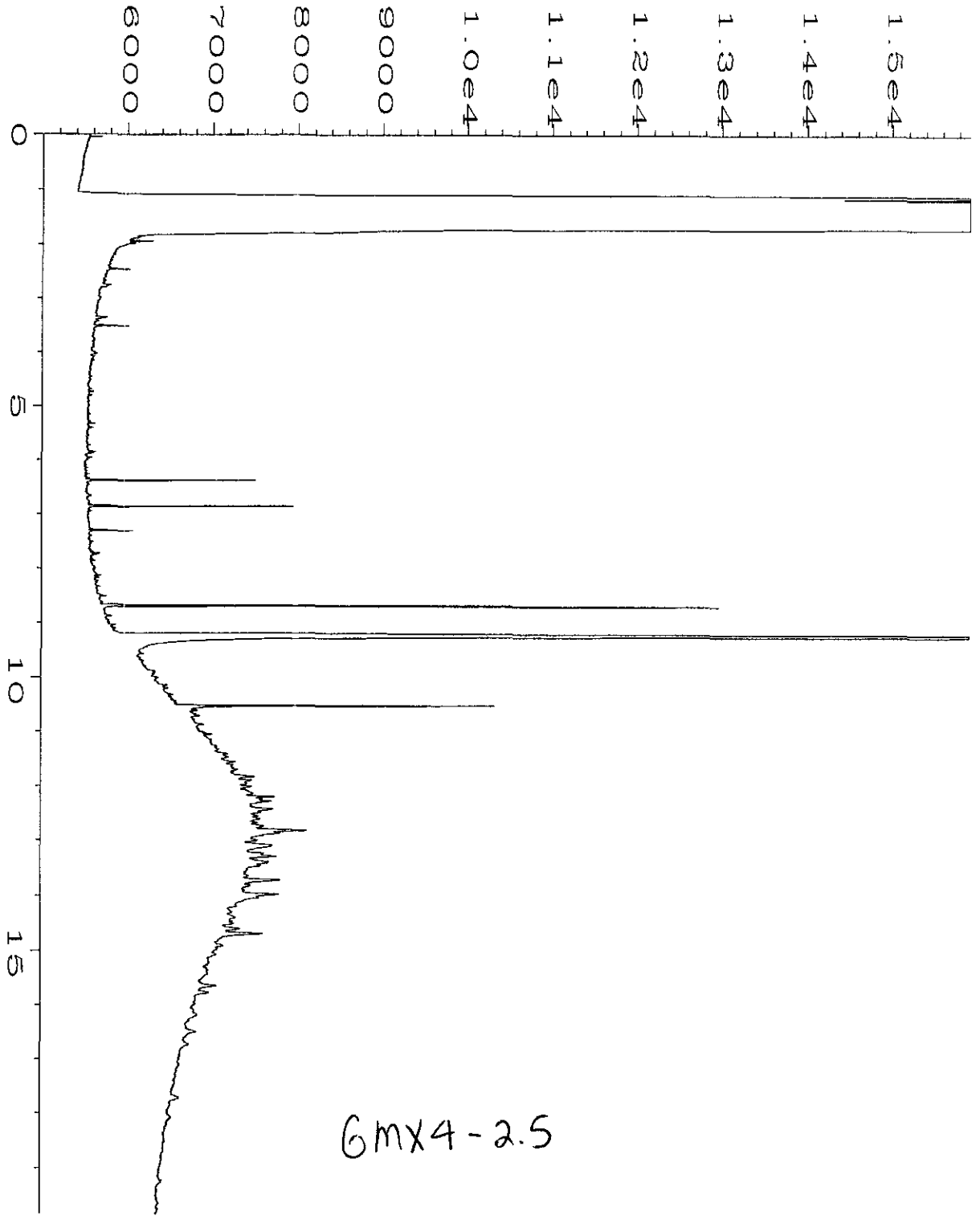
Analysis Method : TPHD.MTH



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Run Time Bar Code:
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Report Created on: 05 Apr 00 02:44 PM

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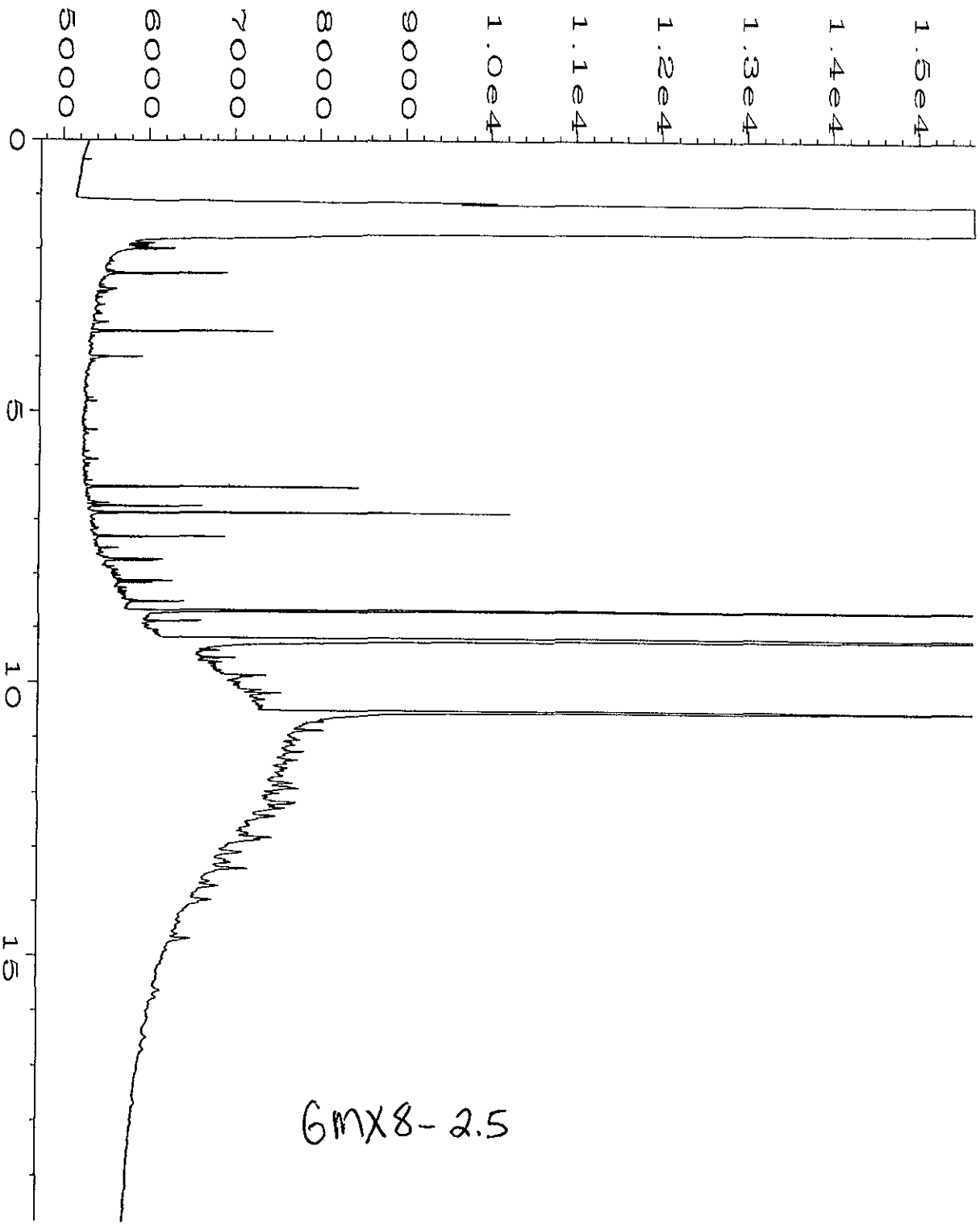
Analysis Method : TPHD.MTH



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Report Created on: 05 Apr 00 02:44 PM

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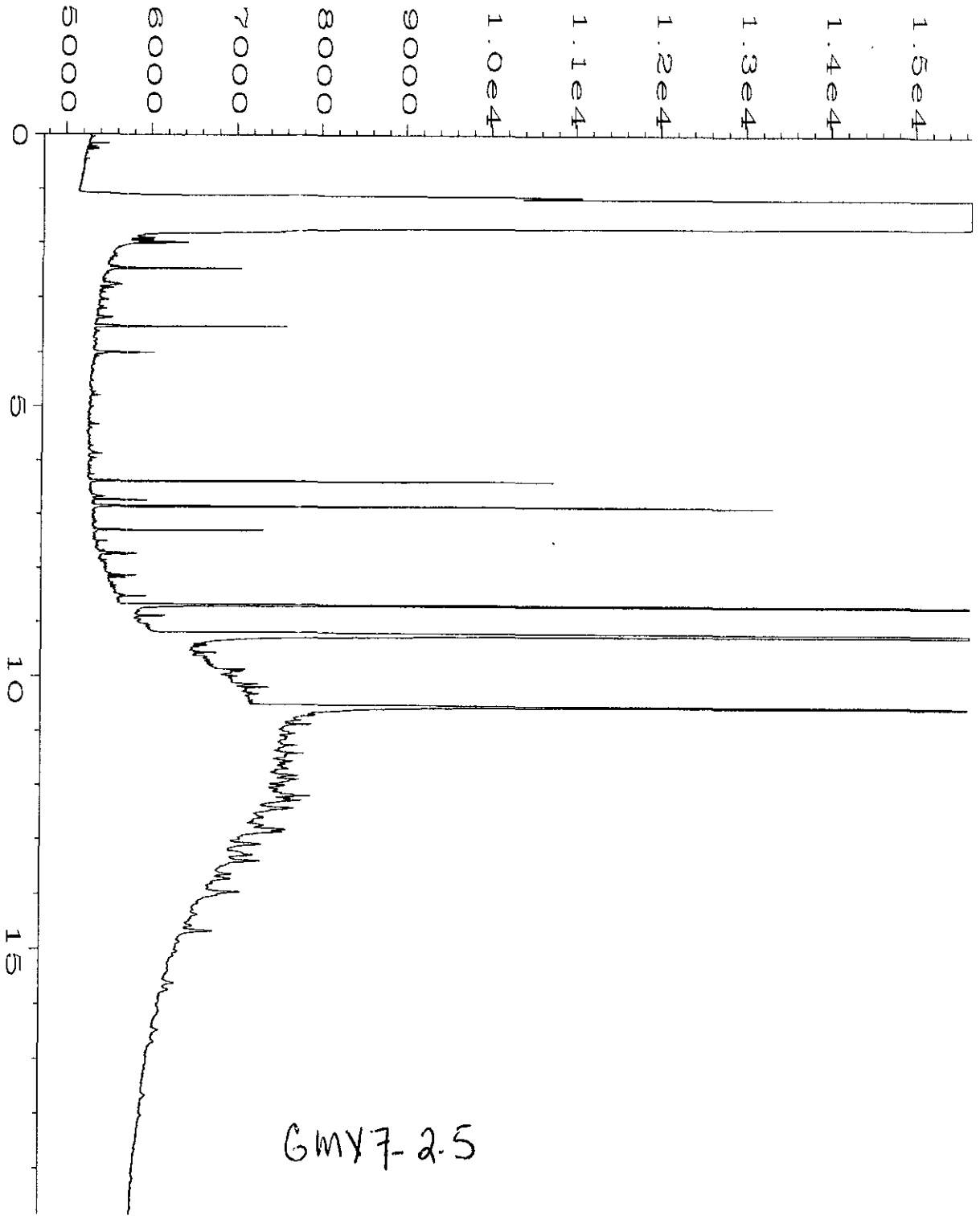
Analysis Method : TPHD.MTH



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Report Created on: 05 Apr 00 02:43 PM

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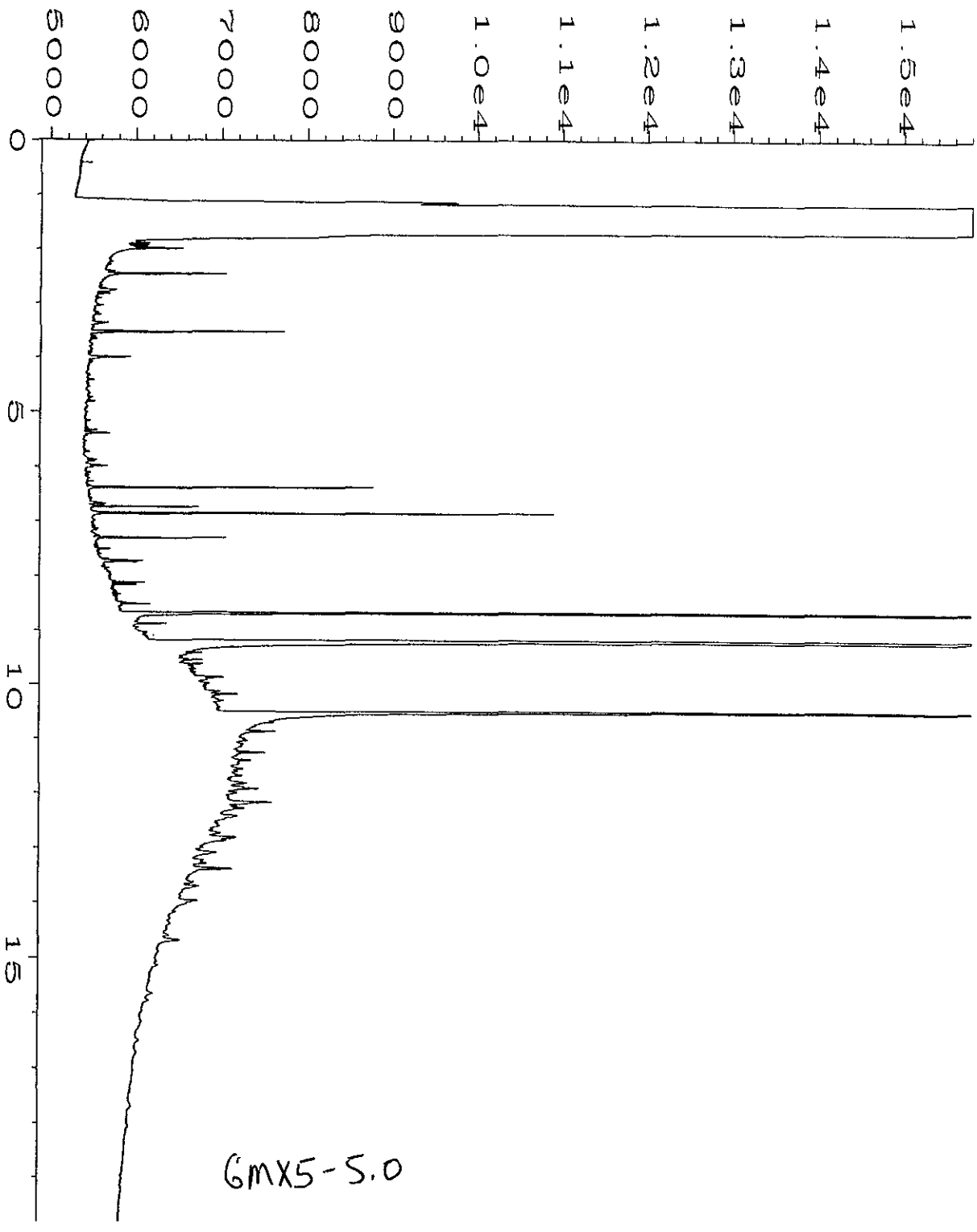
Analysis Method : TPHD.MTH



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Instrument : GC #6
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Run Time Bar Code:
Acquired on : 04 Apr 00 07:01 AM
Report Created on: 05 Apr 00 02:46 PM

Page Number : 1
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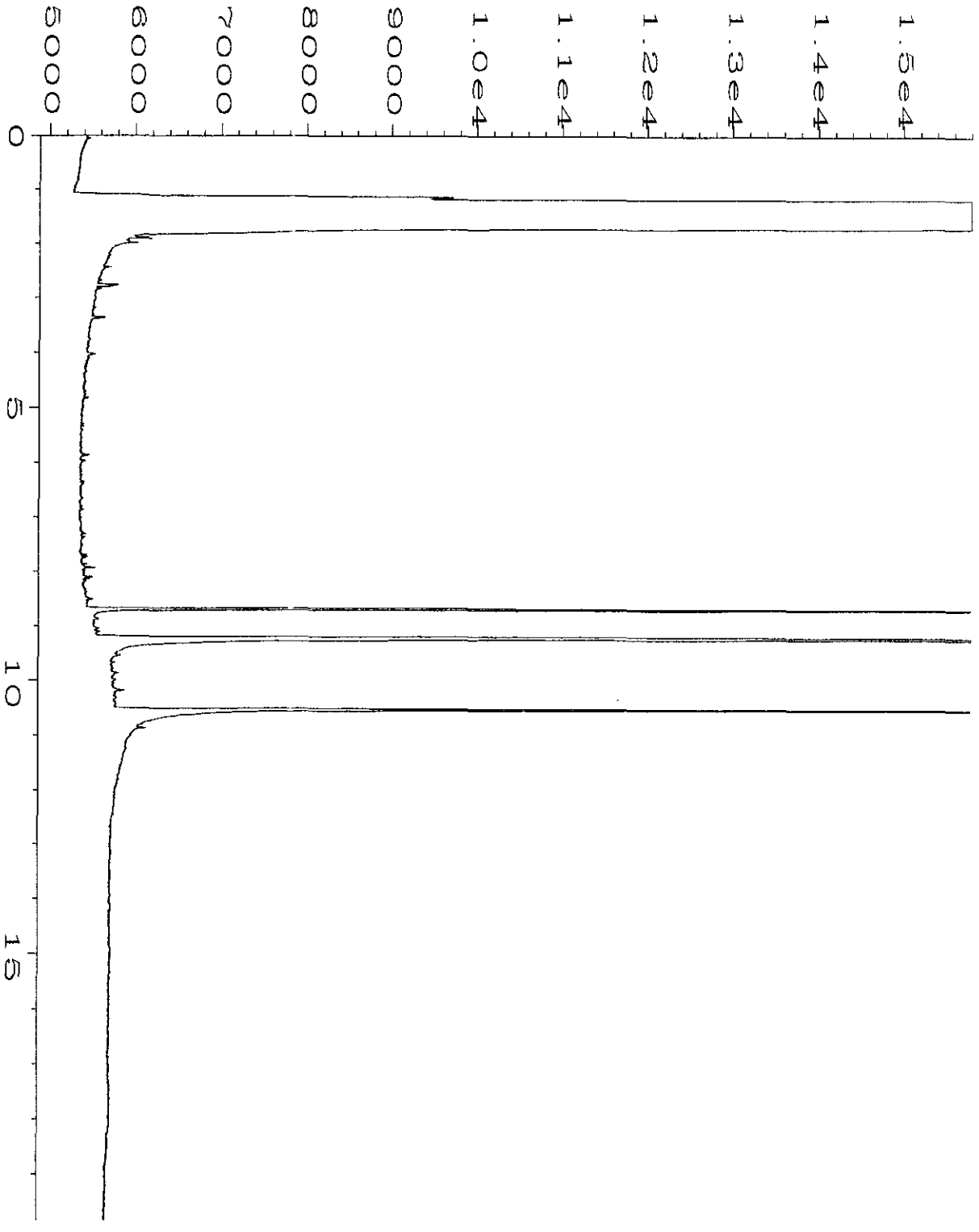
Injection Number : 1
Sequence Line : 14
Instrument Method: TPHD.MTH
Analysis Method : TPHD.MTH



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Instrument : GC #6
Sample Name : 00-243 MB
Run Time Bar Code:
Acquired on : 04 Apr 00 07:27 AM
Report Created on: 06 Apr 00 12:06 PM

Page Number : 1
Vial Number : 39
Injection Number : 1
Sequence Line : 14
Instrument Method: TPHD.MTH
Analysis Method : TPHD.MTH

GEOMATRIX

ATTACHMENT D

Results of Quality Assurance/Quality Control Review

ATTACHMENT D

RESULTS OF QUALITY ASSURANCE/QUALITY CONTROL

Canterbury Residential Development
Hayward, California

Quality Assurance/Quality Control (QA/QC)

The parameters used to evaluate data quality are as follows:

- Accuracy: The agreement of a measurement with an accepted reference or true value. Accuracy was assessed using the laboratory method blanks, laboratory control samples, and matrix spike samples. Laboratory method blanks test for false positive results. For laboratory control samples, a known quantity of a chemical is added by the laboratory to deionized water, which is then analyzed. For matrix spike samples, a known quantity of a chemical is added to a site-specific sample designated on the chain-of-custody. In addition, the laboratory adds surrogates (chemicals with similar characteristics that are unlikely to be detected in environmental media) to each sample to test the accuracy of the measurements for these surrogate compounds. The accuracy goal for each analyte is specified by the laboratory on the laboratory data sheets (Attachment C).

- Precision: A measurement of the degree of agreement of replicate data, which is quantitatively assessed based on the relative percent difference or standard deviation. Precision was assessed using matrix spike/matrix spike duplicate samples, laboratory control/duplicate samples, and site-specific duplicate samples selected by the laboratory. The precision goal for these samples was set at 20%.

- Completeness: The amount of valid data obtained from a prescribed measurement system throughout the project, as compared with that expected and required to meet the project goals.

Documentation of calculations for accuracy (percent recovery) and precision (relative percent difference) are presented in the laboratory data sheets for the appropriate QA/QC sample (Attachment C and D).

Accuracy

For all method blank samples, all analyte concentrations were below method reporting limits, indicating that the laboratory results represented the contents of the sample.

Surrogates were run in every sample analyzed. Surrogate recoveries were within analyte-specific control limits with the following exceptions:

- Internal stand surrogates was below control limits for four samples (GMX40C-1.5, GMX37C-1.0, GMX36C-1.0, and GMX33B-1.0). As the other PCB surrogate was within control limits, the results were considered acceptable.

- Recovery of one of two PAH surrogates was below control limits for one sample (GMX36C-1.5). In addition, this sample was diluted because of interfering compounds, which can affect the surrogate recoveries. As the other PAH surrogate was within control limits, these analytical results are considered acceptable.

For VOCs, one of the internal surrogates was outside the control limits for five samples (GMX36C-1.5, GMX36C-5.0, GMX40C-1.5, GMX34B-1.5, and GMX35C-4.5). As stated by the laboratory, the reporting limit or reported concentration for chemicals related to this internal standard is an estimate. However, this is not considered to significantly affect the conclusions from this assessment.

Laboratory control samples, matrix spike samples, and laboratory duplicates were also used to evaluate the accuracy of the analytical results. At least two laboratory control samples and two duplicate samples (TPHmo, VOC, and PAH analyses only) were run for each analysis. At least three matrix spike samples were run for each analysis. The accuracy of these results were within the analyte-specific control limits with the following exceptions:

- One of three matrix spike recoveries was below control limits (GMX33B-1.0). As laboratory control samples were within acceptance limits, the variation was attributed to matrix interference for this sample.

- For the metals matrix spike recoveries, recoveries of antimony, barium, vanadium, zinc, and thallium were outside control limits in one or more of the three samples analyzed. However, the laboratory control samples were within control limits for these analytes verifying the accuracy of these results.

Precision

To evaluate precision, at least three matrix spike/matrix spike duplicate samples and at least two laboratory control samples were analyzed using each analysis method as discussed previously. The relative percent difference for these samples was within analyte-specific control limits.

Completeness

Data generated during the project were evaluated for completeness, that is, the amount of data meeting project QA/QC goals. Data generated for this project were considered complete.