Focused Phase II Environmental Site Assessment
7313/7315 Martin Luther King Jr. Way South
Seattle, Washington

October 16, 2002

For
Seattle Housing Authority

GeoEngineers

October 16, 2002

Consulting Engineers and Geoscientists

Seattle Housing Authority
120 Sixth Avenue North
Seattle, Washington 98109-5003

Attention: Larry Hard

We are pleased to submit three copies of our "Focused Phase II Environmental Site Assessment" at 7313/7315 Martin Luther King Jr. Way South in Seattle, Washington. Our services were completed in general accordance with Contract 2938, as amended and the *Order Compelling Entry Upon Land for Inspection and Other Purposes* (by the Superior Court of the State of Washington) dated July 11, 2002.

We appreciate the opportunity to work with Seattle Housing Authority on this project. Please contact us if you have questions or require additional information.

Respectfully submitted,

GeoEngineers, Inc.

Lisa J. Bona

Lisa J. Bona, P.G.
Senior Geologist

for Dana Carlisle, P.E.
Associate

LJB:DLC:akf
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GeoEngineers, Inc.
2924 Colby Avenue
Everett, WA 98201
Telephone (425) 252-4565
Fax (425) 252-4586

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7313/7315 MARTIN LUTHER KING JR. WAY SOUTH
SEATTLE, WASHINGTON
FOR
SEATTLE HOUSING AUTHORITY

INTRODUCTION AND BACKGROUND

This report presents the results of the focused Phase II Environmental Site Assessment (ESA) at the above-mentioned property on Martin Luther King Jr. Way South (MLK) in Seattle, Washington. The site is owned by Boonlieng Phavong and Keopilavong Kheuansy. The site currently is developed with one building occupied by two businesses, "Pizza Time" and "Little Quarter" retail store. We understand that Seattle Housing Authority (SHA) is considering purchase of this property. SHA's New Holly development is located adjacent to this property. The property is shown relative to surrounding features in Figure 1. The site layout is presented in Figure 2.

PURPOSE AND SCOPE OF SERVICES

The purpose of our services was to assess subsurface soil and groundwater for petroleum-related contamination, based on past and/or present site use. GeoEngineers' specific scope of services included the following.

1. Review the Phase I Environmental Site Assessment and Hazardous Materials Survey (Phase I ESA) prepared by Eco Compliance Corporation for Seattle Housing Authority, dated February 13, 2001.
2. Conduct a search of City of Seattle Department of Construction and Land Use (DCLU) records, Washington State Archives records and Sanborn historical maps to attempt to identify locations of past or present underground storage tanks (USTs) or other features associated with potential sources of contamination on the 7313/7315 MLK property.
3. Request a one-call underground utility locate and subcontract an on-site utility locate service to identify the locations of existing underground utilities before exploration activities are conducted.
4. Subcontract Apollo Geophysics to conduct a geophysical reconnaissance to locate potential existing USTs at the 7313/7315 MLK property.
5. Prepare a site-specific health and safety plan for GeoEngineers' personnel prior to starting the project. The plan will address contaminants and physical hazards that may be encountered during drilling activities.
6. Monitor the excavation of ten direct-push borings on the 7313/7315 MLK property in locations selected based on features associated with potential sources of contamination. The borings extended to depths of approximately 4 to 12 feet below ground surface (bgs).
7. Obtain soil samples from the borings at approximate 3- to 4-foot depth intervals from the soil cores. Field screen the soil samples for evidence of petroleum using visual, water sheen and headspace vapor screening methods. Visually classify the samples in general accordance

with American Society for Testing and Materials (ASTM) D-2488 procedures and maintain a detailed log of each soil boring.

8. Obtain a grab groundwater sample from one boring during drilling using a peristaltic pump.
9. Submit selected soil and groundwater samples for one or more of the following chemical analyses: qualitative petroleum hydrocarbon analysis by Washington State Department of Ecology (Ecology) Method (NWTPH-HCID); benzene, ethylbenzene, toluene and xylenes (BETX) by EPA Method 8021B; gasoline-range hydrocarbons by Northwest Method NWTPH-Gx; and diesel- and heavy oil-range hydrocarbons by Northwest Method NWTPH-Dx.
10. Evaluate data relative to applicable MTCA Method A cleanup levels and Washington State UST regulations.

SITE CONDITIONS

The property is located in a mixed used commercial/residential district in the Rainier Valley of Seattle. The eastern portion of the site is covered by the building and asphalt concrete pavement. The western portion of the site is a parking lot with gravel surfacing. The 7313/7315 MLK property is occupied by two commercial businesses. The Phase I ESA report indicated that the businesses use two aboveground storage tanks (ASTs). The Phase I ESA also indicated the presence of a vent pipe for an underground storage tank (UST) at the western wall of the building. The approximate locations of the ASTs and UST vent pipe are shown in Figure 2.

RESULTS FOR 7313/7315 MLK PROPERTY

HISTORIC RECORDS RESEARCH

Historic maps and tax assessment records were obtained from Environmental Data Resources, Inc. (EDR), the City of Seattle Department of Construction and Land Use (DCLU) and the Puget Sound Regional Archives in October 2001. The following is a summary of site history, based on our review of maps, photos and records from these sources, and our review of the Phase I ESA.

- An undated DCLU drawing indicates that the site is occupied by Empire Oil at 7315 and Brick Castle Café at 7317. The configuration of the building in the drawing appears to be the same as the building that currently occupies the site.
- The Phase I ESA presented city directory information that indicated 7313 MLK, were occupied by Empire Oil Company from at least 1961 to at least 1994. We suspect that 7315 MLK was previously designated as 7317 MLK, based on the DCLU drawing cited above. The 7317 MLK address was occupied by Vince's Italian Pizzeria in 1961 and K&K Foods in 1971. The 7315 MLK address was occupied by Kim Discount Furniture from at lease 1987 to at least 1994.

- Archived tax assessment records identify the site ownership and use from about 1936 to 1973, based on the tax parcel number. Several addresses were referenced in the record for tax parcel number 272404-9190. According to the Puget Sound Regional Archives, this tax number incorporated other previous numbers (-9017, -9018, -9050, -9059 and -9062). Prior occupants of these other parcels include a Standard or Chevron service station at 7160 or 7166 Empire Way from 1936 through at least 1972; a café, laundromat and barber shop at 7144 through 7148 Empire Way from 1948 through at least 1973; a Safeway grocery store at 7153 Empire Way from 1938 through 1956; a National Bank of Commerce at 7153 Empire Way from 1956 through at least 1973; a church at 6701 51st Avenue South from 1938 through at least 1973; an apartment building at 6730 Rainier Avenue from 1957 through at least 1973; and various residential properties from 1938 through 1973. Based on the address numbers, and DCLU and historical directly records, and the sketches of the sites in the archived tax records, it is our opinion that these businesses and residences did not actually occupy the subject site (currently 7317/7315 MLK).

GEOPHYSICAL RECONNAISSANCE FOR SUSPECT USTS

Apollo Geophysics (Apollo) conducted a geophysical reconnaissance at the site on July 19, 2002. Apollo first transversed the site with an electromagnetic (EM) instrument to detect buried metal objects. Apollo then used ground-penetrating radar (GPR) to further investigate possible targets (anomalies) identified with the EM. GPR assists in estimating depth of the object, size and subsurface profile.

Apollo identified four significant geophysical anomalies on the site. Targets #1 and #2 (Figure 2) appeared to be possible USTs, based on Apollo's interpretation of the EM and GPR data. The size of Target #1 would represent a 1,000-gallon UST. The size of Target #2 was not determined. This interpretation at Target #2 was further supported by the presence of a likely UST fill port observed near the anomaly. Targets #3 and #4 were interpreted by Apollo to be debris and/or pipes. The approximate locations of the anomalies are shown in Figure 2. Apollo's report is provided as Appendix A.

Based on the findings of the geophysical reconnaissance, GeoEngineers placed one boring (B-3) near Target #2 and two borings (B-6 and B-7) near Target #1.

SUBSURFACE EXPLORATIONS

Sampling Rationale

The sampling locations and testing planned for the 7313/7315 MLK property were based on recognized environmental concerns identified in the Phase I ESA report for the site prepared by others. Petroleum hydrocarbons were identified as the potential contaminant of concern, based on past site use and activities (Empire Oil and USTs). The exploration locations were selected based on the following: to provide general coverage on the portion of the property not occupied

by the building, to be near the two geophysical anomalies that appeared to represent possible USTs, and to assess lateral extent of possible hydrocarbon contamination surrounding the USTs.

General

Two approximate 300-gallon steel ASTs were observed west of the building during our July 2002 site visit (Figure 2). No staining was observed on the ground surface beneath and surrounding the ASTs. The use of the ASTs is suspected to be storage of heating oil, although we could not confirm this with the property owner or building occupants. In addition, we observed a likely UST vent pipe and fill port west of the building.

Ten explorations (B-1 through B-10) were completed at the 7313/7315 MLK property on July 19, 2002, to investigate subsurface conditions and collect soil samples and one grab groundwater sample. The explorations were completed using direct-push drilling equipment owned and operated by ESN Northwest Inc. The explorations extended to depths ranging from approximately 4 to 12 feet bgs.

Soil samples were collected from continuous cores in each of the explorations to the full depth explored. Samples were collected using a 3- or 4-foot-long split-barrel sampler. The explorations were observed by a representative of GeoEngineers who visually classified the soil samples obtained during drilling and performed field screening tests for evidence of petroleum hydrocarbons. Soil samples were classified in accordance with the system described in Appendix B. Field screening consisted of headspace vapor testing for combustible vapors, water sheen testing, and observation for staining. Field screening methods are described in more detail in Appendix B. The exploration logs also are presented in Appendix B.

Seven soil samples from the borings were selected for chemical analysis based on the field screening results and/or proximity to groundwater encountered in the boring. One groundwater sample was selected for chemical analysis. Soil and groundwater samples were submitted to CCI Analytical of Everett, Washington for chemical analysis. The chemical analytical program is discussed in more detail in Appendix C.

Subsurface Conditions

Soil encountered in the borings generally consisted of fill and native soil comprising silty sand and sand with silt underlying the pavement and base course. Based on our experience at nearby properties, bedrock is located at depths close to the base of the deepest boring completed (12 feet bgs). Groundwater was encountered in borings B-2 through B-5 at depths of approximately 8.5 to 9 feet bgs during drilling; no groundwater was observed in borings B-1 and B-6 through B-10 (note that boring B-8 through B-10 extended to only 4 feet bgs). The soil and groundwater conditions encountered at each log are shown on the individual exploration logs. Groundwater levels should be expected to fluctuate as a function of season, precipitation and other factors.

Field screening results did not indicate the likely presence of petroleum-related compounds in the soil samples obtained from the borings, with the following exceptions: (1) a moderate sheen was observed in the 3.5-foot sample from B-6; and (2) slight sheens were observed in the 3.5-foot samples from B-7 and B-9.

CHEMICAL ANALYTICAL RESULTS

General

A summary of the soil chemical analytical data is presented in Table 1A; the groundwater chemical analytical data are presented in Table 1B. The soil samples are identified by the sequential boring number and the sample depth within the exploration (e.g., B-1-6.0). The sample identification numbers are shown on the exploration logs (Appendix B). One soil sample was selected from each of borings B-1 through B-5, B-7, B-9 and B-10. Sample B-8 was placed on hold pending the results for B-7, and was not analyzed since the sample results from B-7 indicated that contamination did not likely extend to the location of B-8. Two soil samples were selected from boring B-6. A grab water sample was submitted from boring B-2.

MTCA Cleanup Levels

Ecology revised the Model Toxics Control Act (MTCA) in February 2001, which became in effect on August 15, 2001. MTCA provides three methods (Methods A, B, and C) to establish requirements for cleanup of soil and groundwater. The regulations that enforce the MTCA are included in WAC Chapter 173-340. The chemical analytical data for site samples were evaluated with respect to MTCA Method A cleanup levels for unrestricted site use conditions. "Unrestricted site use conditions" means restrictions on the use of the site or natural resources affected by releases of hazardous substances from the site are not required to ensure continued protection of human health and the environment. The applicable MTCA Method A cleanup levels are provided in Tables 1A and 1B. Alternative methods could potentially be used to determine cleanup levels for the site.

Analytical Results

Soil. As summarized in Table 1A, diesel-range hydrocarbons were detected at concentrations exceeding the MTCA Method A cleanup levels in soil samples B-6-3.5 and B-9-3.5. The laboratory indicated that the chromatogram for the samples were similar to the chromatogram for diesel #2 (heating oil). Petroleum hydrocarbons either were not detected or were detected at concentrations less than the MTCA Method A cleanup levels in the remaining samples.

Water. As summarized in Table 1B, heavy oil-range hydrocarbons were detected by qualitative hydrocarbon analysis of groundwater sample B-2-W. Follow-up quantitative chemical analysis of sample B-2-W indicated that heavy oil-range hydrocarbons were detected in the water sample from B-2 at a concentration (0.810 milligrams per liter [mg/l]) exceeding the MTCA Method A cleanup level of 0.500 mg/l. Based on the chromatogram, the laboratory characterized the petroleum product as "light oil."

DISCUSSION OF 7313/7315 MLK PROPERTY RESULTS

Historic research indicated the use of the site as a retail fuel oil property for about 35 years, between at least 1961 and at least 1994. No on-site USTs are documented in the historical record.

A geophysical reconnaissance conducted at 7313/7315 MLK in July 2002 indicated two possible USTs (Target #1 and #2 in Figure 2), one located directly west of the existing building, and one located beneath the gravel parking lot in the southwestern portion of the site. The suspect UST at Target #1 does not appear to be in use by the current facilities; it is unknown whether the likely UST at Target #2 is being used. Two ASTs located near the likely UST at Target #2 may be in use.

Field screening and soil and groundwater chemical analytical data from ten borings completed at 7313/7315 MLK confirmed diesel-related soil contamination is present at concentrations greater than the default MTCA Method A cleanup levels in the southwest portion of the property, near Target #1, as suspect UST. Soil appears to be contaminated at depths ranging from approximately 3 to about 5 feet bgs. The one-time grab groundwater sample analyzed from boring B-2 confirmed that heavy oil-range groundwater contamination is present beneath the property. The source of the heavy oil contamination is not known. No soil contamination was encountered near Target #2, a likely UST.

Under the MTCA (Washington Administrative Code [WAC] 173-340-300), a release from a UST system needs to be reported within 24 hours after discovery. GeoEngineers reported the release to Ecology on July 29, 2002, after receiving confirmation of the diesel-range hydrocarbon concentrations in soil from boring B-6. The owner should follow up the report of a release by sending this report to Ecology within ninety days of the discovery. Additionally, in accordance with WAC 173-360-310, existing UST systems must comply with UST system performance standards, be upgraded or be decommissioned.

LIMITATIONS

We have prepared this report for use by the Seattle Housing Authority for evaluation of the 7313/7315 Martin Luther King Jr. Way South property in Seattle, Washington.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Please refer to the Appendix D, "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

We appreciate the opportunity to work with Seattle Housing Authority on this project. Please call if you have questions or require additional information.

Respectfully submitted,

GeoEngineers, Inc.

Lisa J Bona

Lisa J. Bona, P.G.
Senior Geologist

for Debra Carlisle

Dana Carlisle, P.E.
Associate

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TABLE 1A (Page 1 of 2)
SUMMARY OF SOIL FIELD SCREENING AND CHEMICAL ANALYTICAL DATA
DIRECT-PUSH BORINGS, 7313/7315 MARTIN LUTHER KING JR. WAY SOUTH
SEATTLE, WASHINGTON

Boring Number - Depth Sampled[1] (feet bgs)	Date Sampled	Field Screening Results[2]		Qualitative Hydrocarbon Analysis[3] (mg/kg)			BETX[4] (mg/kg)				Gasoline-range Hydrocarbons[5] (mg/kg)	Diesel-range Hydrocarbons[6] (mg/kg)	Heavy Oil-range Hydrocarbons[6] (mg/kg)
		Headspace Vapors (ppm)	Sheen	Gasoline-range	Diesel-range	Heavy oil-range	B	E	T	X			
B-1-6.0	07/19/02	<100	NS	<20	<50	<100	--	--	--	--	--	--	--
B-2-11.5	07/19/02	<100	NS	<20	<50	<100	--	--	--	--	--	--	--
B-3-9.0	07/19/02	<100	NS	<20	<50	<100	--	--	--	--	--	--	--
B-4-3.5	07/19/02	<100	NS	<20	<50	<100	--	--	--	--	--	--	--
B-5-7.5	07/19/02	<100	NS	<20	<50	<100	--	--	--	--	--	--	--
B-6-3.5	07/19/02	<100	MS	--	--	--	<0.3	<0.5	<0.5	<2.0	<50	7,200	<500
B-6-7.5	07/19/02	<100	NS	--	--	--	--	--	--	--	--	39	<50
B-7-3.5	07/19/02	<100	SS	--	--	--	<0.06	<0.1	<0.1	<0.4	<5	280	<50
B-9-3.5	07/19/02	<100	SS	--	--	--	<0.12	<0.2	<0.2	<0.8	<20	3,000	<250
B-10-3.5	07/19/02	<100	NS	--	--	--	--	--	--	--	--	<25	<50
MTCA Method A Cleanup Level[7]				100	2,000	2,000	0.03	6	7	9	100	2,000	2,000

TABLE 1B
SUMMARY OF GROUNDWATER CHEMICAL ANALYTICAL DATA
DIRECT-PUSH BORING B-2, 7313/7315 MARTIN LUTHER KING JR. WAY SOUTH
SEATTLE, WASHINGTON

Sample Number[1]	Date Sampled	Qualitative Hydrocarbon Analysis[3] (mg/l)			Diesel-range Hydrocarbons[6] (mg/l)	Heavy Oil-range Hydrocarbons[6] (mg/l)
		Gasoline-range	Diesel-range	Heavy Oil-range		
B-2-W	07/19/02	<0.25	<0.63	>0.63	<0.130	0.810
MTCA Method A Cleanup Level[7]		1.00	0.500	0.500	0.500	0.500

Notes appear on page 2 of 2.

TABLE 1A and 1B (Page 2 of 2)

NOTES:

[1]Approximate boring locations are shown in Figure 2.

[2]Field screening methods are described in Appendix B.
NS=no sheen, SS=slight sheen, MS=moderate sheen

[3]Analyzed by Ecology Method NWTPH-HCID.

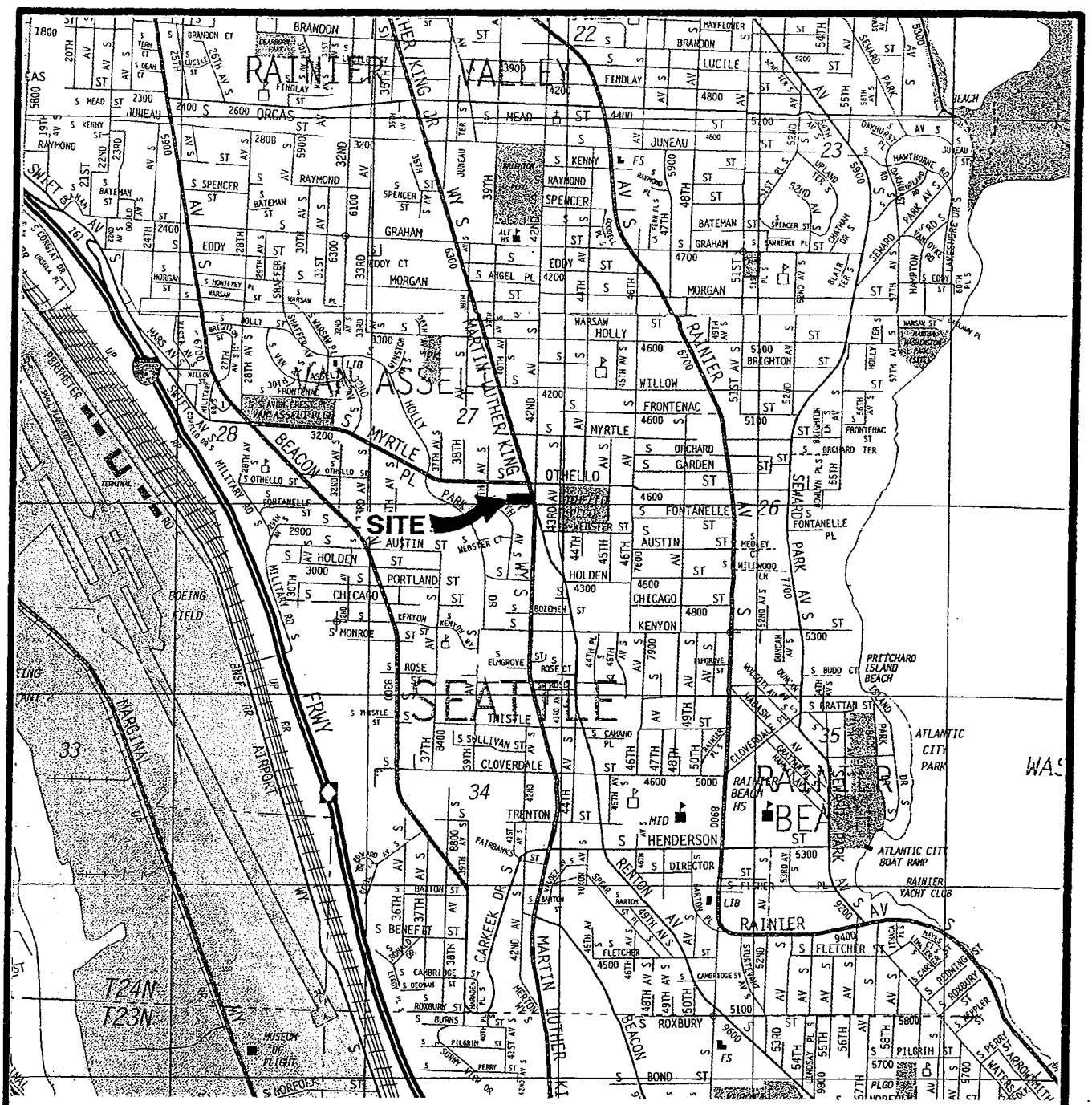
[4]B=benzene, E=ethybenzene, T=toluene, X=xylenes, MTBE=methyl tert butyl ether. BETX analyzed by EPA Method 8021B.

[5]Analyzed by Ecology Method NWTPH-Gx.

[6]Analyzed by Ecology Method NWTPH-Dx with a silica gel cleanup.

[7]Model Toxics Control Act Method A in effect as of August 15, 2001.

bgs = below ground surface
mg/kg = milligrams per kilogram
mg/l = milligrams per liter
Shading indicates a concentration exceeding the MTCA Method A cleanup level.
Chemical analyses conducted by CCI Analytical of Bothell, Washington. The laboratory report is presented in Appendix C.



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Geo Engineers

VICINITY MAP

FIGURE 1

10/14/02 r"

LJB:SYF 07/29/02

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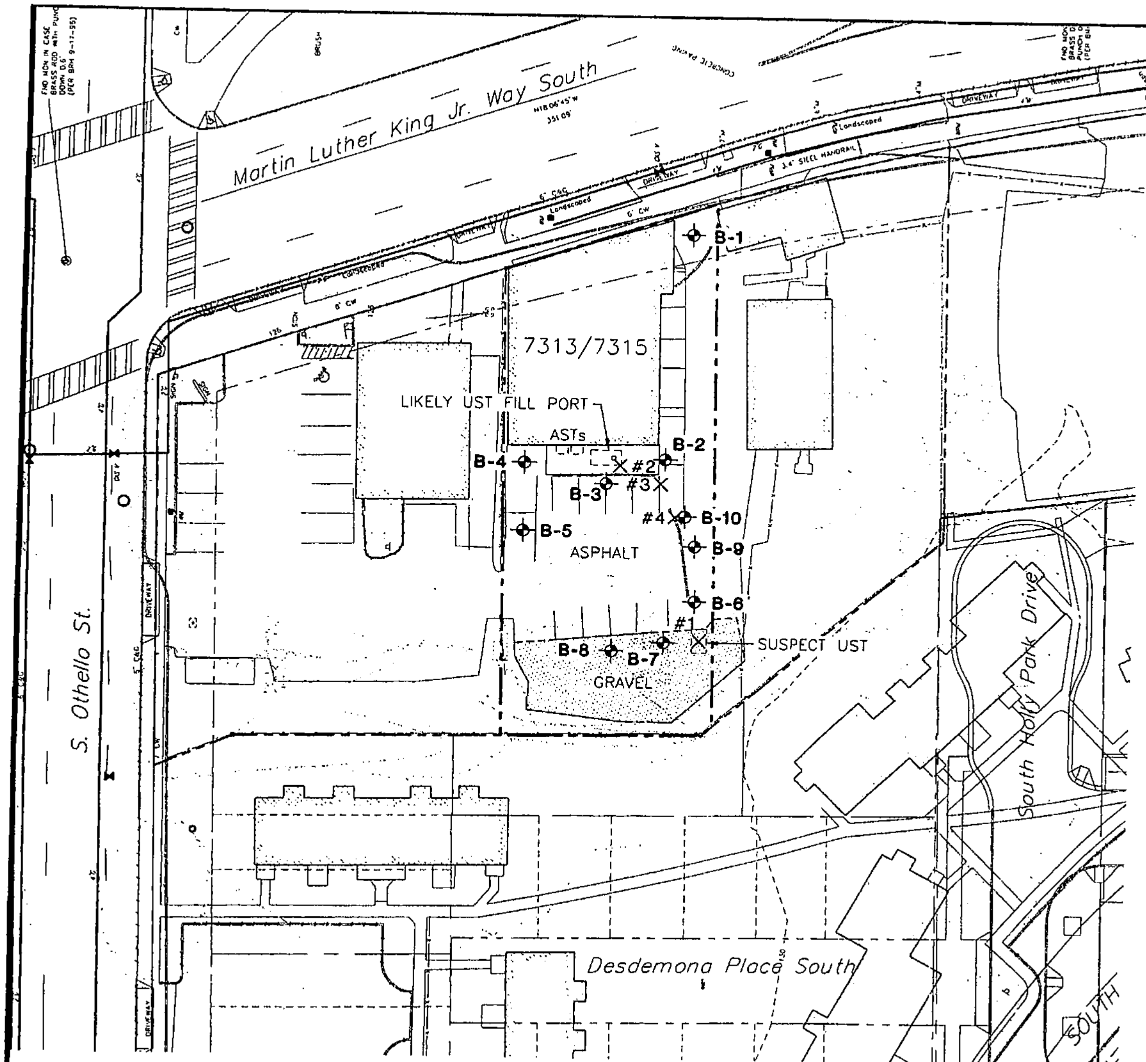

Notes: 1. The locations of all features shown are approximate.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Reference: Undated CAD file "hp3_survey" provided May 2002.

GeoEngineers

SITE PLAN, 7313/7315 MLK JR. WAY SOUTH

FIGURE 2

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APPENDIX A
APOLLO GEOPHYSICS REPORT

APOLLO GEOPHYSICS CORPORATION

Engineering, Hydro-Geology, Environmental & Construction

Monday, July 29, 2002

Lisa Bona
GeoEngineers, Inc.
2924 Colby Avenue
Everett, Washington 98201-4011

AGC's File No.: **02.3027**

Re: **UST Locate**
Seattle Housing Authority - New Holly Phase III
Seattle, Washington

Dear Ms. Bona,

This letter reports the results of geophysical exploration for potential Underground Storage Tanks (USTs) at the above referenced site. The site is located at 7313 & 7315 Martin Luther King Way South in Seattle, Washington. A one-person field crew from **APOLLO GEOPHYSICS** completed the geophysical field program on Friday, July 19, 2002.

We investigated the site with an Electromagnetic (EM) instrument, which locates buried metal objects. We traversed the site with the EM instrument on approximate 5-foot line spacings, which produced target areas for the Ground Penetrating Radar (GPR). We further investigated the target areas using GPR, which enabled us to identify the targets as potential USTs. Ground Penetrating Radar established a relative depth, size and ground projection of the object (i.e. to determine if the object was indicative or was not indicative of a UST). Small objects in the near surface, 1 to 2 feet, will respond the same as a larger object (UST) at depth.

RESULTS OF THE GEOPHYSICAL SURVEY

We traversed the site with the EM instrument to locate any potential USTs. Several EM target locations were identified for further investigation with the GPR Instrument. The approximate locations of the EM targets are presented on the Site Plan in Figure 1. A few parking stalls were occupied by parked cars and were not accessible to the EM or GPR instruments.

Two of the EM targets, EM Targets #1 and #2, were identified as potential USTs after being traversed with the GPR Instrument. We recommend these areas for direct exploration.

EM Targets #3 and #4 did not have signatures similar to a UST and appear to be debris and/or pipes. We recommend these areas to be verified with direct exploration.

The GPR images for target areas #1 and #2 are presented in Figures 2 through 5. All EM target areas and recommended direct exploration locations were marked in the field with environmentally degradable paint. Suspected utility pipes, demolition debris, etc., were not marked in the field.

The 'GPR Imagery' presented in Figures 2 through 5 have a horizontal and vertical scale of approximately 1 inch equals 4 feet. With regard to the estimated vertical scale, the normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship. Therefore it should be expected that the vertical scale is an estimate only and may vary from the shown scale.

ELECTROMAGNETIC

The electromagnetic, or EM device, transmits and receives an electromagnetic signal. The EM signal is transmitted through the ground, which in turn radiates a signal that is dependent on the ground conductivity and which is also received at the receiver. The two signals, the transmitted and ground response EM waves, are balanced for a zero response in the instrument. When the ground conditions change, for example, when the transmitted signal encounters buried metal, the balance or null point changes, and the instrument responds with an audible signal. Depending on the size of the metal object, the penetration is up to 10 feet

in depth. The EM survey was limited in areas, where reinforcing steel was present in concrete or immediately adjacent to any above ground metal objects on the site.

GROUND PENETRATING RADAR

APOLLO GEOPHYSICS uses a PE1000 with either a 450 or 110 MHz antenna for shallow UST Locates. The radar antenna transmits an electromagnetic step-pulse at a frequency of 450/110 MHz at a selected stack rate of 32/64. When the signal encounters a change in electrical properties/permittivity, a portion of the signal energy is reflected back to the surface. The character of the reflection is used to define the source of the reflection. The reflected signal is received by the antenna, processed by a DSP radar processor with signal gain control and the raw data is recorded by the outboard 80486 computer with 16 MB RAM & 300 MB Hard Drive. The radar data is displayed by the computer on a 16.5 cm Color Active Matrix LCD VGA screen in real-time. The radar displays the data in real-time, which enables us to review the data in the field for on the spot evaluation. The recorded raw data, as recorded by the computer, is then later processed to remove unwanted peripheral effects by proprietary GPR software.

A typical circular UST will produce, in cross-section, a hyperbolic reflection. A traverse parallel to the centerline of the UST will show a horizontal (if there is no velocity or elevation change along the traverse) reflection, with a partial hyperbolic signature at both ends of the UST. The hyperbolic signature is the result of "seeing" the tank before the center of the antenna is over the tank.

WARRANTY OF SERVICES

Electromagnetic methods may define UST's constructed of non-ferrous metals, but not fiberglass or plastic materials. Ground Penetrating Radar may define fiberglass or plastic UST's or drums provided they fall within the exploration grid of the GPR.

All geophysical information presented is based upon geophysical measurements made by generally accepted methods and field procedures and **APOLLO GEOPHYSICS'** interpretation of these data. The geophysical results are, therefore, interpretative in nature and are considered to be a reasonably accurate presentation of existing conditions within the limitations of the methods employed. Services performed by **APOLLO GEOPHYSICS** under this agreement are conducted in a manner consistent with, but no less than, that level of care

skill ordinarily exercised by members of the profession currently practicing under similar conditions. We cannot guarantee the accuracy or correctness of any interpretation, and we shall not be liable or responsible for any loss, cost, damages or expenses incurred or sustained by the Client resulting from any interpretation made by any of our officers, agents or employees. No other warranty, expressed or implied, is made. **APOLLO GEOPHYSICS** recognizes that subsurface conditions may vary from those encountered at the location where geophysical or other explorations are made. The data interpretations and recommendations made by **APOLLO GEOPHYSICS** are based solely on the information available to them at the time of performance; and **APOLLO GEOPHYSICS** shall not be responsible for the interpretation, by others, of the information developed.

We trust this will complete your requirements for this project and look forward to working with you on future projects. If you have any further questions or need further assistance, please don't hesitate to call.

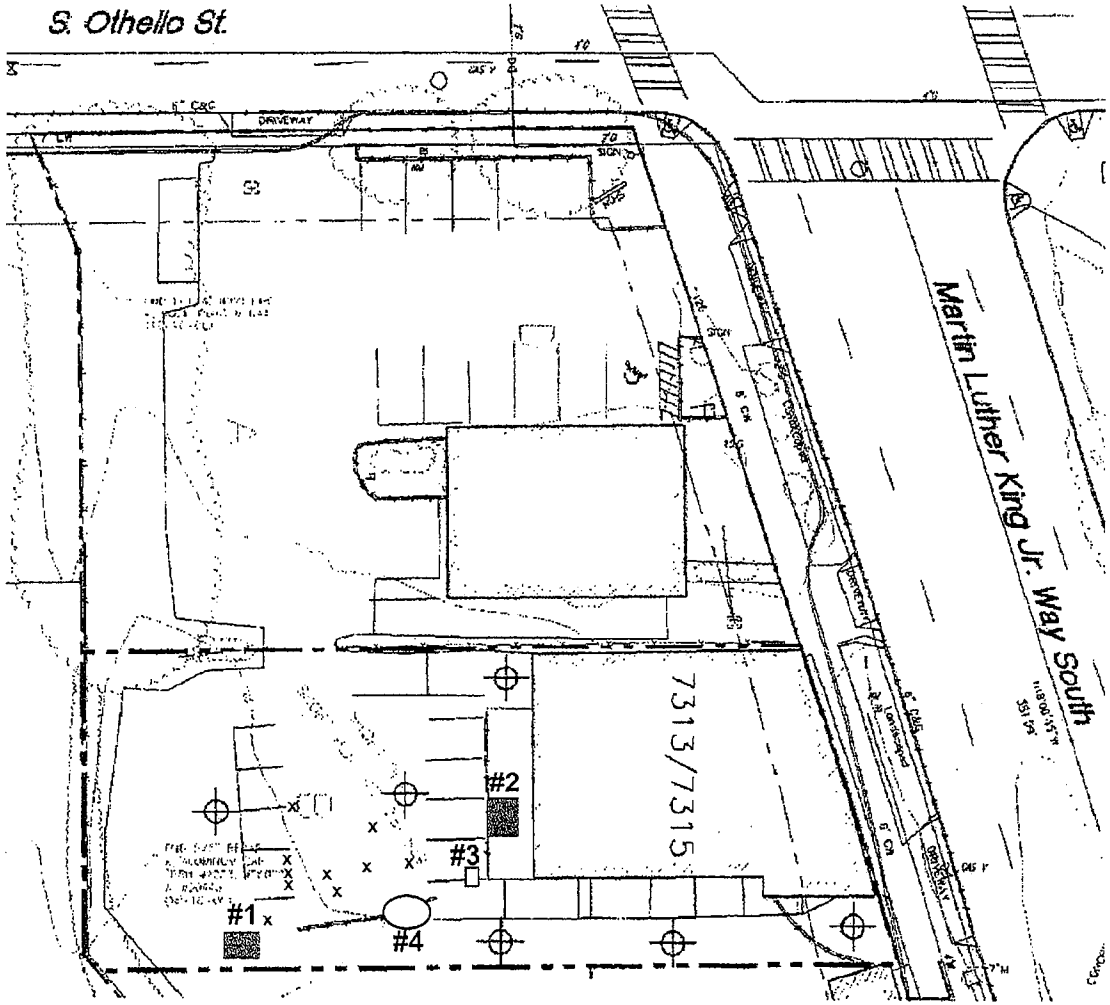
Sincerely,

APOLLO GEOPHYSICS CORPORATION

Lynn M. Ringstad, RG, CEG
Senior Geologist/Geophysicist

Matthew C. Ringstad
Senior Geophysicist

Site Plan



LEGEND

- Approximate location of suspected UST
- Approximate location of Anomaly
- x Approximate location of small EM Target

Note: Site Plan created from a faxed copy of an undated site plan by GeoEngineers, Inc., titled, "7313/7315 MLK JR. Way South." The locations of all features shown are approximate.

0 40 80

Approximate Scale 1" = 40'

APOLLO GEOPHYSICS CORPORATION

ENGINEERING, GEOLOGY, ENVIRONMENTAL
CONSTRUCTION & MINING

Seattle Housing Authority
New Holly Phase III
Seattle, Washington

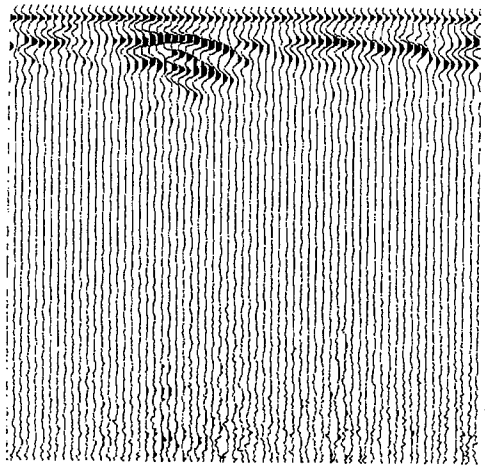
FIGURE 1

FILE NO. 02.3027

DATE July 2002

GPR Imagery - Target #1

North South



top of
suspected UST

limits of
suspected UST

0 4 8

Approximate Scale 1" = 4'

NOTE: The normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted, that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship.

APOLLO GEOPHYSICS CORPORATION

ENGINEERING, GEOLOGY, ENVIRONMENTAL
CONSTRUCTION & MINING

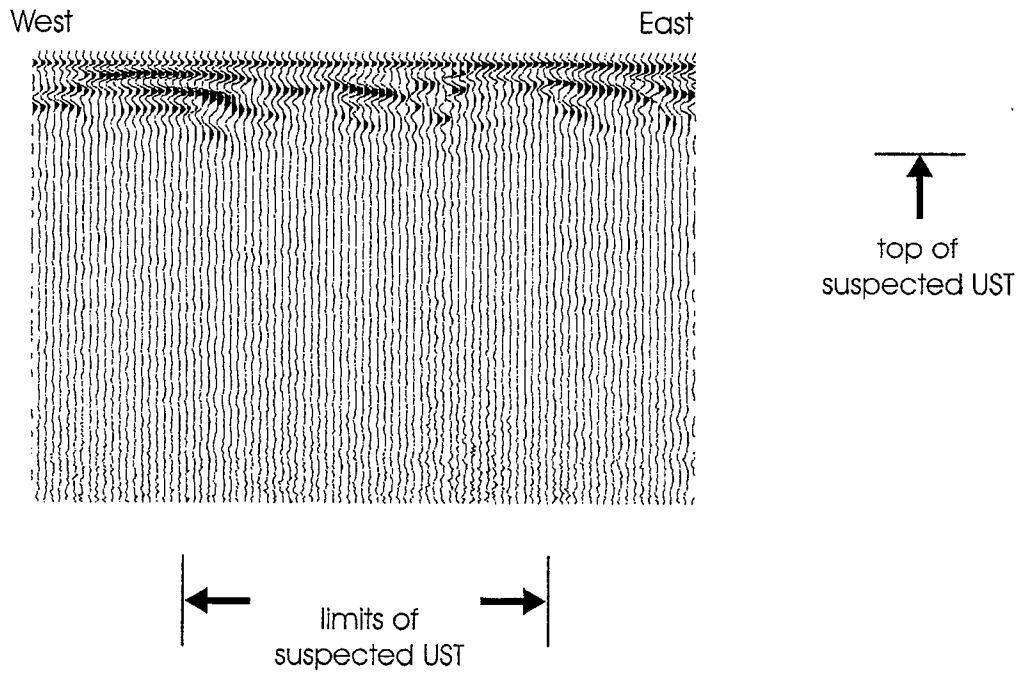
Seattle Housing Authority
New Holly Phase III
Seattle, Washington

FIGURE 2

FILE NO. 02.3027

DATE July 2002

GPR Imagery - Target #1



0 4 8

Approximate Scale 1" = 4'

NOTE: The normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted, that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship.

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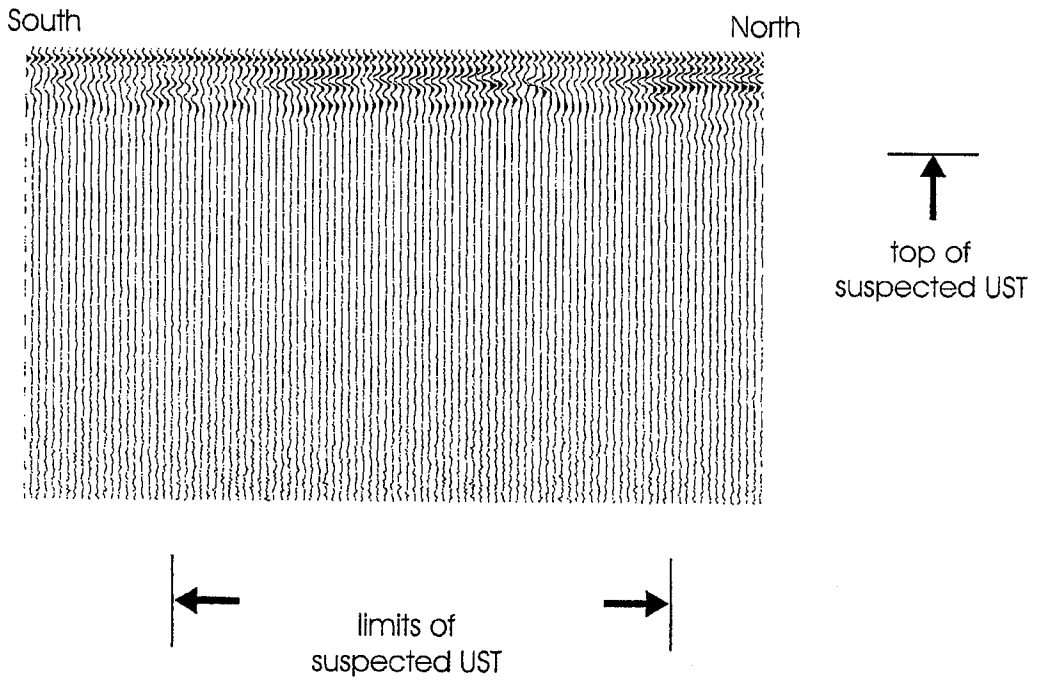
New Holly Phase III
Seattle, Washington

FIGURE 3

FILE NO. 02.3027

DATE July 2002

GPR Imagery - Target #2



0 4 8

Approximate Scale 1" = 4'

NOTE: The normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted, that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship.

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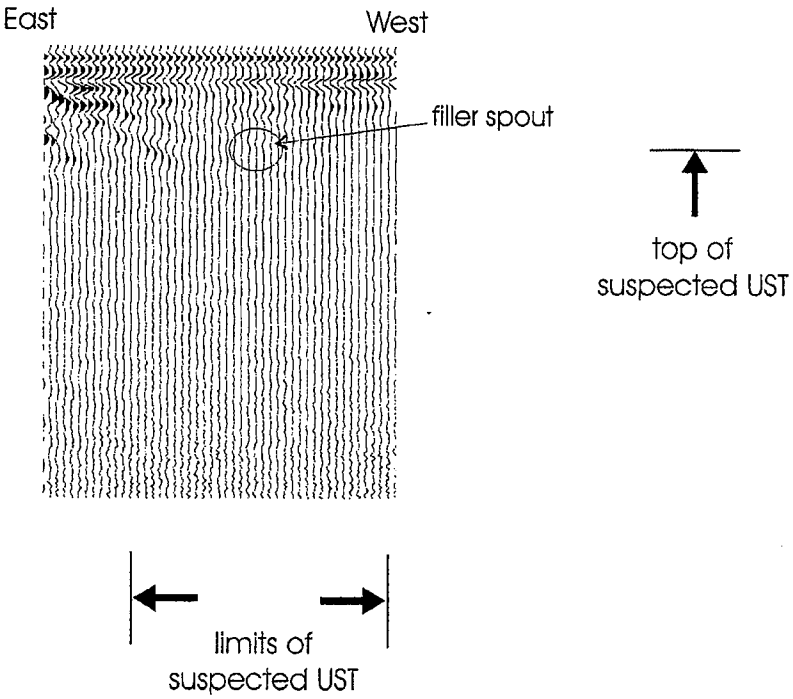
Seattle Housing Authority
New Holly Phase III
Seattle, Washington

FIGURE 4

FILE NO. 02.3027

DATE July 2002

GPR Imagery - Target #2



0 4 8

Approximate Scale 1" = 4'

NOTE: The normal relationship between radar time and actual depth for the Northwest Region is approximately 4 to 4.5 nanoseconds per foot. It should be noted, that this relationship holds true in a general sense. Variations of water content, silt content and other factors, such as the presence of concrete flooring, may also change this relationship.

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Seattle Housing Authority
New Holly Phase III
Seattle, Washington

FIGURE
5

FILE NO.
02.3027

DATE
July 2002

APPENDIX B
FIELD EXPLORATION PROGRAM

APPENDIX B

FIELD EXPLORATION PROGRAM

GENERAL

Subsurface conditions were explored by completing ten direct-push borings (B-1 through B-10) at the 7313/7315 MLK property on July 19, 2002. A representative from our staff selected the locations for borings, observed and classified the soils encountered, and prepared a detailed log of each boring. The soils were classified in accordance with the system described in Figure B-1. An explanation of the boring log symbols is presented in Figure B-2. The boring logs are presented in Figures B-3 through B-12.

SOIL SAMPLING

Continuous soil cores were collected during exploration using direct-push drilling equipment owned and operated by ESN Northwest, Inc. of Lacey, Washington. Soil samples were collected using a 3- or 4-foot long split barrel sampler. The sampler was hydraulically driven into the soil. Upon retrieval, the sampler was opened and GeoEngineers' representative logged the soils in general accordance with the Unified Soil Classification System (ASTM D-2488-90). Discrete soil samples were removed from portions of each core and transferred to glass jars (supplied by the analytical laboratory), labeled and stored in an iced cooler pending delivery to the laboratory. The soils were classified according to the system described in Figure B-1.

FIELD SCREENING METHODS

Our representative conducted field screening on each of the soil samples obtained from the borings. Field screening results can be used as a general guideline to delineate areas of potential petroleum-related contamination in soils. In addition, screening results are often used as a basis for selecting soil samples for chemical analysis. The screening methods employed included: (1) visual examination; (2) screening for combustible vapors; and (3) water sheen testing.

Visual screening consists of observing the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons such as motor oil, or when hydrocarbon concentrations are high. Sheen screening and headspace vapor screening are more sensitive screening methods that can be somewhat effective in differentiating soil that may have petroleum-based products at concentrations higher than cleanup levels from soil that may be in compliance with cleanup levels.

Water sheen testing involves placing soil in water and observing the water surface for signs of sheen. The results of water sheen testing on soil samples from the borings are presented on the boring logs. Sheens are classified as follows:

No Sheen (NS)	No visible sheen on water surface.
Slight Sheen (SS)	Light colorless film, spotty to globular; spread is irregular, not rapid; areas of no sheen remain; film dissipates rapidly.

Moderate Sheen (MS)	Light to heavy film, may have some color or iridescence, globular to stringy, spread is irregular to flowing; few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy colorful film with iridescence; stringy, spread is rapid; sheen flows off the sample; most of water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of the Bacharach TLV Sniffer (combustible gas indicator) is inserted in the bag, and the device measures the concentration of combustible vapors present within the sample bag headspace. The TLV measures combustible vapor concentrations in parts per million (ppm) and has a range of significance of 100 to 10,000 ppm in this application. The results of headspace vapor screening are presented on the boring logs.

GROUNDWATER SAMPLING

A grab groundwater sample was obtained from boring B-2 by ESN and GeoEngineers using a peristaltic pump and new flexible tubing on July 19, 2002. The water sample was transferred directly into laboratory–prepared containers and kept in an iced cooler pending transport to the analytical laboratory. Sample containers were filled completely to minimize headspace.

SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE GRAINED SOILS More Than 50% Retained on No. 200 Sieve	GRAVEL More Than 50% of Coarse Fraction Retained on No. 4 Sieve	CLEAN GRAVEL	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
			GP	POORLY-GRADED GRAVEL
		GRAVEL WITH FINES	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	SAND More Than 50% of Coarse Fraction Passes No. 4 Sieve	CLEAN SAND	SW	WELL-GRADED SAND, FINE TO COARSE SAND
			SP	POORLY-GRADED SAND
		SAND WITH FINES	SM	SILTY SAND
			SC	CLAYEY SAND
FINE GRAINED SOILS More Than 50% Passes No. 200 Sieve	SILT AND CLAY Liquid Limit Less Than 50	INORGANIC	ML	SILT
			CL	CLAY
		ORGANIC	OL	ORGANIC SILT, ORGANIC CLAY
	SILT AND CLAY Liquid Limit 50 or More	INORGANIC	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
			CH	CLAY OF HIGH PLASTICITY, FAT CLAY
		ORGANIC	OH	ORGANIC CLAY, ORGANIC SILT
HIGHLY ORGANIC SOILS			PT	PEAT

NOTES:

1. Field classification is based on visual examination of soil in general accordance with ASTM D2488-93.
2. Soil classification using laboratory tests is in general accordance with ASTM D2487-98.
3. Descriptions of soil density or consistency are based on interpretation of blow count data, visual appearance of soils, and/or test data.

SOIL MOISTURE MODIFIERS:

Dry - Absence of moisture, dusty, dry to the touch

Moist - Damp, but no visible water

Wet - Visible free water or saturated, usually soil is obtained from below water table

GeoEngineers

SOIL CLASSIFICATION SYSTEM

FIGURE B-1

LABORATORY TESTS

AL	Atterberg limits
CA	Chemical analysis
CP	Compaction
CS	Consolidation
DS	Direct shear
GS	Grain size
%F	Percent fines
HA	Hydrometer analysis
SK	Permeability
SM	Moisture content
MD	Moisture and density
ST	Swelling test
TX	Triaxial compression
UC	Unconfined compression

FIELD SCREENING TESTS

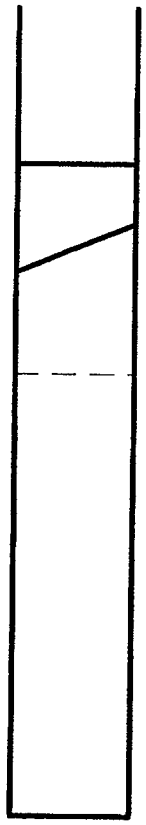
Visual Sheen Test Classifications

NS	No Visible Sheen
SS	Slight sheen
MS	Moderate sheen
HS	Heavy sheen
--	Not tested

Vapor Measurements

TLV	TLV™ sniffer
PID	Photo ionization detector
FID	Flame ionization detector
OVA	Organic vapor analyzer
--	Not tested

SOIL GRAPHICS



SM Soil Group Symbol (See Note 2)

Distinct Contact Between Soil Strata

Gradual or Approximate Location of Change Between Soil Strata

Approximate Location of Change Within a Soil Strata

Measured ground water level

Ground water encountered during drilling

Perched water encountered during drilling

Measured Free Product

Bottom of Boring

BLOW-COUNT

Blows required to drive sampler 6 inches using a -pound hammer falling -inches — 15

Blows required to drive sampler 6 inches using a 140-pound hammer falling 30-inches — 15

"P" indicates sampler pushed against with weight of hammer or against weight of drill rig

SAMPLE GRAPHICS

Location of sampling interval with relatively undisturbed recovery

Location of sampling interval with disturbed recovery

Location of sampling interval with no recovery

Location of sample obtained in general accordance with Standard Penetration Test (ASTM D-1586) procedures

Location of SPT sampling attempt with no recovery

NOTES:

1. The reader must refer to the discussion in the report text, the Key to Log Symbols and the exploration logs for a proper understanding of subsurface conditions.
2. Soil classification system is summarized in Figure B-1.

0241-012-00 KEY_TO_SYMBOLS P:\0\0241012\00\FINALS\0241012C.GPJ GEIV2.GDT 10/16/02

KEY TO LOG SYMBOLS

GeoEngineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-2
Sheet 1 of 1

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	10	Surface Elevation (ft)		Groundwater Level (ft. bgs)	
Datum/ System					

Depth feet	SAMPLES: Interval	SAMPLES: Testing	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV(ppm)	NOTES
0							AC	4 inches of asphalt concrete			
							SM	Gray silty fine sand (dense, moist)	NS	<100	
5		CA					ML	Orangish brown silty with sand (stiff, moist)	NS	<100	
							ML	Dark gray silt (very stiff, moist)	NS	<100	
10											

Note: See Figure B-2 for explanation of symbols

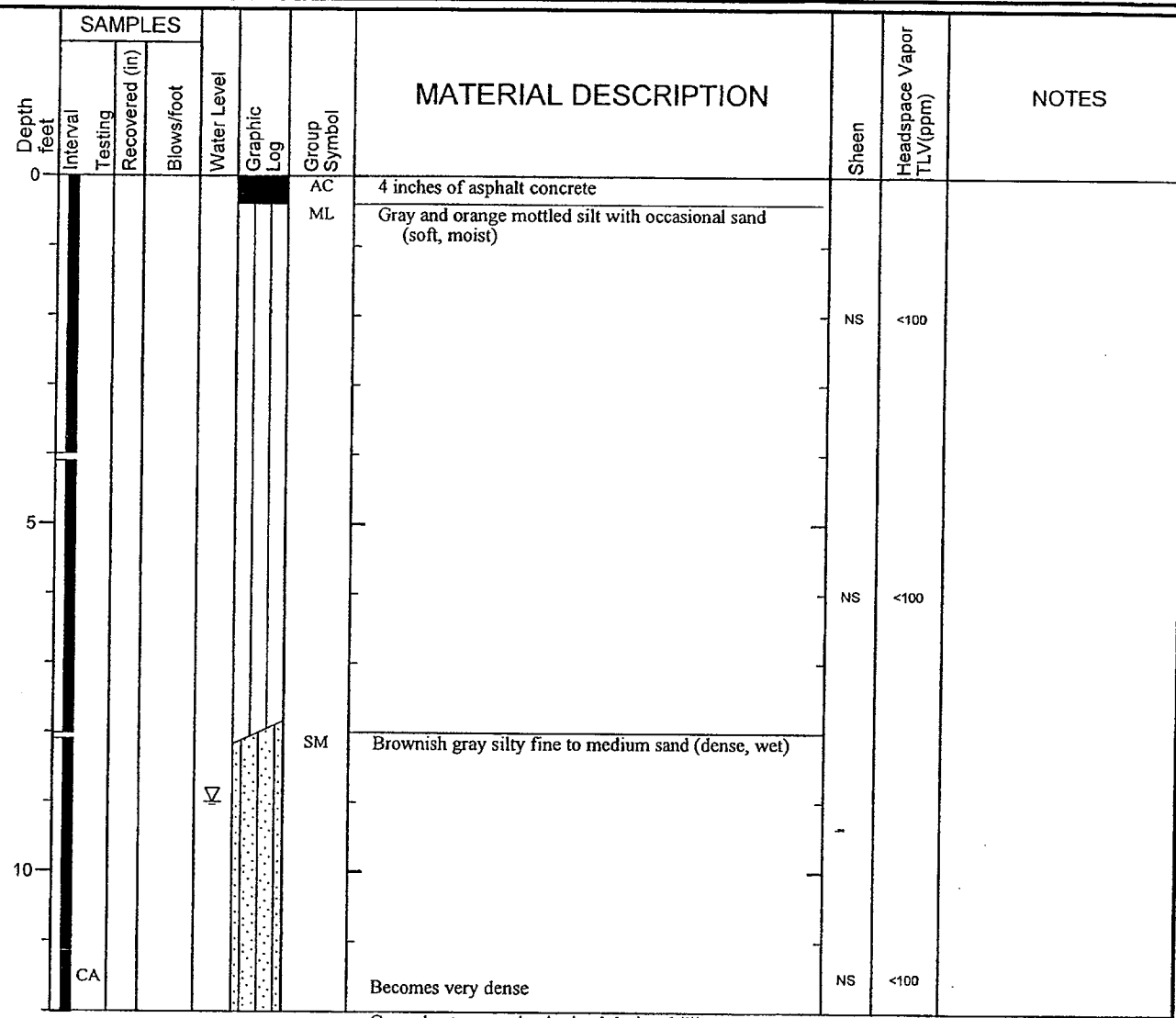
LOG OF BORING B-1

Geo Engineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-3
Sheet 1 of 1

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	12	Surface Elevation (ft)		Groundwater Level (ft. bgs)	9
Datum/ System					



Note: See Figure B-2 for explanation of symbols

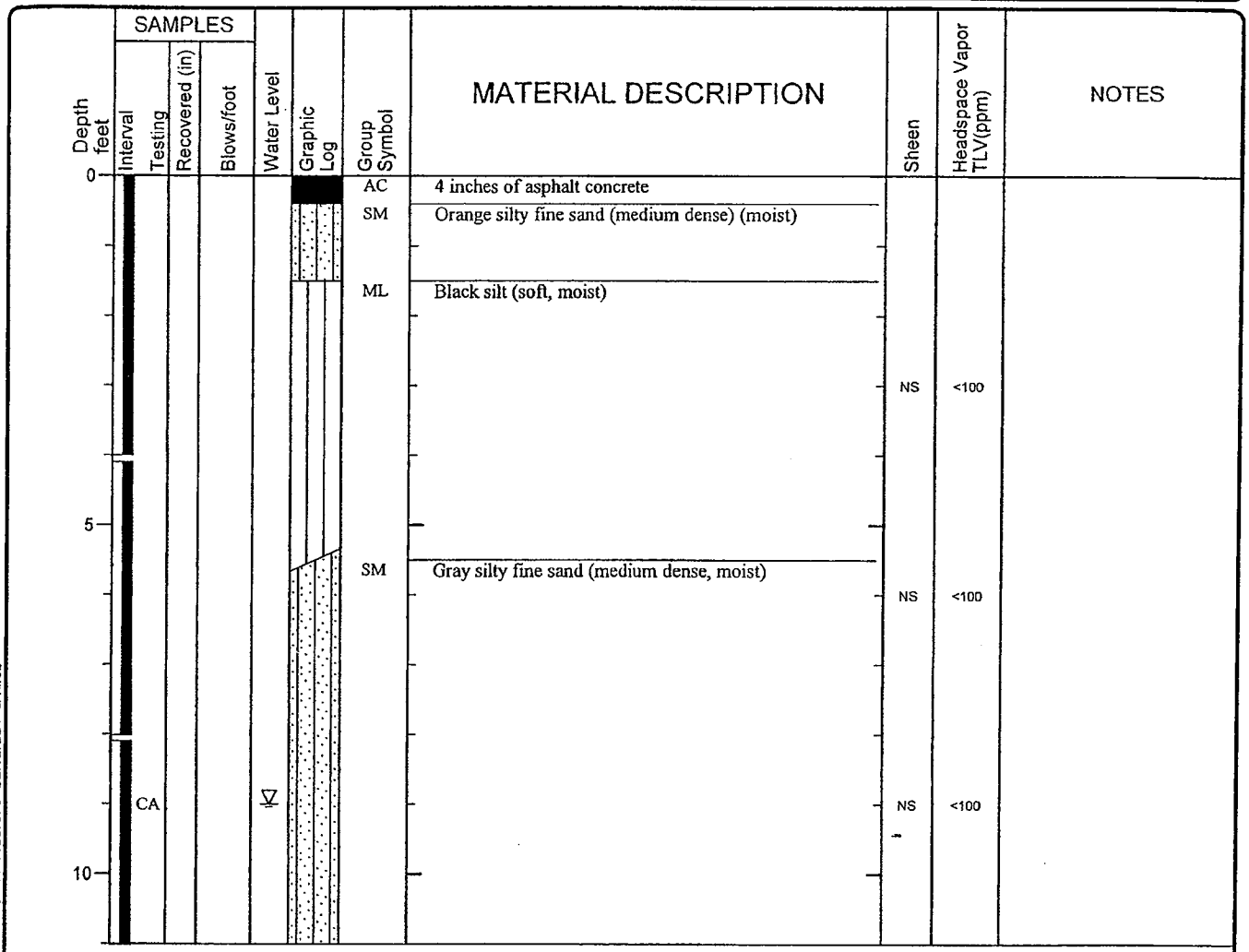
LOG OF BORING B-2

Geo Engineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-4
Sheet 1 of 1

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	11	Surface Elevation (ft)		Groundwater Level (ft. bgs)	9
Datum/ System					



Note: See Figure B-2 for explanation of symbols

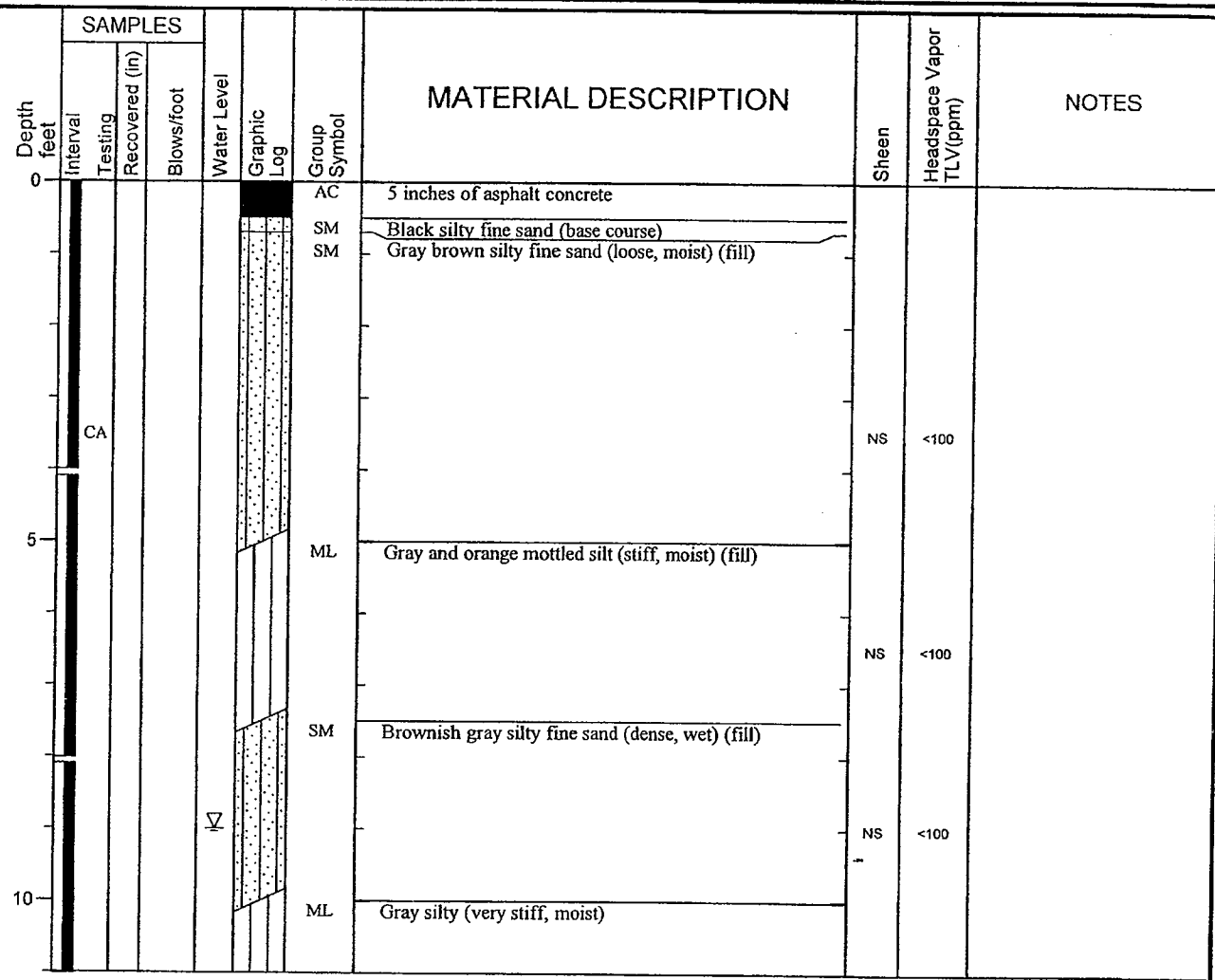
LOG OF BORING B-3

Geo Engineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-5
Sheet 1 of 1

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	11	Surface Elevation (ft)		Groundwater Level (ft. bgs)	9
Datum/ System					



Note: See Figure B-2 for explanation of symbols

LOG OF BORING B-4

GeoEngineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-6
Sheet 1 of 1

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	11	Surface Elevation (ft)		Groundwater Level (ft. bgs)	8.5
Datum/ System					

Depth feet	SAMPLES: Interval	SAMPLES: Testing	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV(ppm)	NOTES
0							SOD	3 inches of sod			
							SM	Silty fine sand (loose, dry) (topsoil)			
							SM	Gray and orange mottled silty fine sand with occasional gravel (loose, moist) (fill)	NS	<100	
5		CA			▽		SM	Brown silty fine sand (loose, moist)	NS	<100	
							ML	Black silt (soft, moist)			
10								Grades to stiff and wet	NS	<100	

Note: See Figure B-2 for explanation of symbols

LOG OF BORING B-5

Geo Engineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-7
Sheet 1 of 1

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	11	Surface Elevation (ft)		Groundwater Level (ft. bgs)	
Datum/ System					

Depth feet	SAMPLES Interval	Testing	Recovered (in)	Blows/foot	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV(ppm)	NOTES
0							AC	3 inches of asphalt concrete			
							SM	Gray silty fine sand with gravel (loose, dry) (fill and base course)			
							SM	Gray and brown silty fine sand (medium dense, moist) (fill)			
							SM	Gray silty fine sand (dense, moist) (fill)			
		CA							MS	<100	
5											
							ML	Brown silt (stiff, moist)			
		CA							NS	<100	
								Grades to very stiff			
10									NS	<100	

Note: See Figure B-2 for explanation of symbols

LOG OF BORING B-6

GeoEngineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-8
Sheet 1 of 1

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	11	Surface Elevation (ft)		Groundwater Level (ft. bgs)	
Datum/ System					

Depth feet	SAMPLES Interval	Testing	Recovered (in)	Blows/foot	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV(ppm)	NOTES
0							GP	3 inches of fine to coarse gravel (dense, dry) (fill)			
							SM	Brown fine sand with occasional gravel (dense, moist) (fill)			
							SM	Gray and orange mottled silty fine sand (medium dense, moist) (fill)			
		CA					ML	Brownish and gray silt (stiff, moist)	SS	<100	
5							ML	Brown silt (very stiff, moist)			
									NS	<100	
10									NS	<100	

Note: See Figure B-2 for explanation of symbols

LOG OF BORING B-7

Geo Engineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-9
Sheet 1 of 1

0241-012-00 GEI ENVBORING 2.1.0 W:\EVERETT\PROJECTS\0241012\00\FINALS\0241012C.GPJ GEIV2.GDT 8/19/02

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	4	Surface Elevation (ft)		Groundwater Level (ft. bgs)	
Datum/ System					

Depth feet	SAMPLES: Interval	SAMPLES: Testing	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV(ppm)	NOTES
0							GP	3 inches of fine to coarse gravel (dense, dry) (fill) Gray fine gravel with sand and silt (loose, moist) (fill and base course)			
							ML	Gray silt (stiff, moist)	NS	<100	

Note: See Figure B-2 for explanation of symbols

LOG OF BORING B-8

GeoEngineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-10
Sheet 1 of 1

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	4	Surface Elevation (ft)		Groundwater Level (ft. bgs)	
Datum/ System					

Depth feet	SAMPLES: Interval Testing	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV(ppm)	NOTES
0	CA					AC	4 inches asphalt concrete			
						GP	Gray fine gravel with sand and silt (loose, moist) (fill and base course)			
						SM	Gray silty fine sand (loose, moist) (fill)	SS	<100	

Note: See Figure B-2 for explanation of symbols

LOG OF BORING B-9

Geo Engineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-11
Sheet 1 of 1

Date(s) Drilled	07/19/02	Logged By	TMC	Checked By	LJB
Drilling Contractor	ESN	Drilling Method	Direct-push	Sampling Methods	Split-barrel sampler
Auger Data		Hammer Data		Drilling Equipment	Truck-mounted Stratoprobe
Total Depth (ft)	4	Surface Elevation (ft)		Groundwater Level (ft. bgs)	
Datum/ System					

Depth feet	SAMPLES: Interval	SAMPLES: Testing	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV(ppm)	NOTES
0							AC	4 inches of asphalt concrete			
							GP	Gray fine gravel with silt and sand (dense, moist) (fill and base course)			
							ML	Gray and orange mottled silt with occasional sand (stiff, moist) (fill)			
		CA							NS	<100	

Note: See Figure B-2 for explanation of symbols

LOG OF BORING B-10

Geo Engineers

Project: 7313/7315 Martin Luther King Jr. Way
Project Location: Seattle, Washington
Project Number: 0241-012-00

Figure: B-12
Sheet 1 of 1

APPENDIX C
CHEMICAL ANALYTICAL DATA

APPENDIX C

CHEMICAL ANALYTICAL DATA

SAMPLES

Chain-of-custody procedures were followed during the transport of the field samples to the accredited analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results and quality control records are included in this appendix.

ANALYTICAL DATA REVIEW

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report. Any data quality exceptions documented by the accredited laboratory were reviewed by GeoEngineers and are addressed in the data quality exception section of this appendix.

DATA QUALITY EXCEPTION SUMMARY

No significant data quality exceptions were noted in the laboratory report or during our review. Therefore, it is our opinion that the analytical data are of acceptable quality for their intended use.

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 7/29/02
CCIL JOB #: 207088
CCIL SAMPLE #: 2
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-1-6 7/19/02 1148

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
HCID-GAS RANGE	NWTPH-HCID	ND	20	1	MG/KG GAS	7/24/02	AIB
HCID-DIESEL RANGE	NWTPH-HCID	ND	50	1	MG/KG DSL	7/24/02	AIB
HCID-OIL RANGE	NWTPH-HCID	ND	100	1	MG/KG OIL	7/24/02	AIB

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY: _____

8620 Holly Drive • Everett, WA 98208 • 425 356-2600 • FAX 425 356-2626 • Seattle 206 292-9059

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 7/29/02
CCIL JOB #: 207088
CCIL SAMPLE #: 6
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-2-11.5 7/19/02 1226

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
HCID-GAS RANGE	NWTPH-HCID	ND	20	1	MG/KG GAS	7/25/02	AIB
HCID-DIESEL RANGE	NWTPH-HCID	ND	50	1	MG/KG DSL	7/25/02	AIB
HCID-OIL RANGE	NWTPH-HCID	ND	100	1	MG/KG OIL	7/25/02	AIB

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY: _____

8620 Holly Drive • Everett, WA 98208 • 425 356-2600 • FAX 425 356-2626 • Seattle 206 292-9059

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 8/5/02
CCIL JOB #: 207088
CCIL SAMPLE #: 7
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-2-W 7/19/02 1245

REPORT AMENDED TO INCLUDE ADDITIONAL PARAMETER

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
HCID-GAS RANGE	NWTPH-HCID	ND	0.25	1	MG/L GAS	7/26/02	AIB
HCID-DIESEL RANGE	NWTPH-HCID	ND	0.63	1	MG/L DSL	7/26/02	AIB
HCID-OIL RANGE	NWTPH-HCID	>0.63	0.63	1	MG/L OIL	7/26/02	AIB
H-DIESEL RANGE	NWTPH-DX	ND	130	1	UG/L	8/5/02	CMH
TPH-OIL RANGE	NWTPH-DX	810	250	1	UG/L	8/5/02	CMH

NOTES: CHROMATOGRAM INDICATES SAMPLE CONTAINS PRODUCT WHICH IS LIKELY LIGHT OIL
NWTPH-DX ANALYSIS PERFORMED OUTSIDE OF HOLD TIME

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY: CW

8620 Holly Drive • Everett, WA 98208 • 425 356-2600 • FAX 425 356-2626 • Seattle 206 292-9059

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 7/29/02
CCIL JOB #: 207088
CCIL SAMPLE #: 10
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-3-9 7/19/02 1333

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
HCID-GAS RANGE	NWTPH-HCID	ND	20	1	MG/KG GAS	7/26/02	AIB
HCID-DIESEL RANGE	NWTPH-HCID	ND	50	1	MG/KG DSL	7/26/02	AIB
HCID-OIL RANGE	NWTPH-HCID	ND	100	1	MG/KG OIL	7/26/02	AIB

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY: 

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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 7/29/02
CCIL JOB #: 207088
CCIL SAMPLE #: 11
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-4-3.5 7/19/02 1402

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
HCID-GAS RANGE	NWTPH-HCID	ND	20	1	MG/KG GAS	7/25/02	AIB
HCID-DIESEL RANGE	NWTPH-HCID	ND	50	1	MG/KG DSL	7/25/02	AIB
HCID-OIL RANGE	NWTPH-HCID	ND	100	1	MG/KG OIL	7/25/02	AIB

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY: CW

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CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 7/29/02
CCIL JOB #: 207088
CCIL SAMPLE #: 15
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-5-7.5 7/19/02 1432

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
HCID-GAS RANGE	NWTPH-HCID	ND	20	1	MG/KG GAS	7/25/02	AIB
HCID-DIESEL RANGE	NWTPH-HCID	ND	50	1	MG/KG DSL	7/25/02	AIB
HCID-OIL RANGE	NWTPH-HCID	ND	100	1	MG/KG OIL	7/25/02	AIB

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY: _____

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CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 7/29/02
CCIL JOB #: 207088
CCIL SAMPLE #: 17
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-6-3.5 7/19/02 1520

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-VOLATILE RANGE	NWTPH-GX	ND	50	10	MG/KG	7/23/02	LAH
MTBE***	EPA-8021	ND	1.0	10	MG/KG	7/23/02	LAH
BENZENE	EPA-8021	ND	0.3	10	MG/KG	7/23/02	LAH
TOLUENE	EPA-8021	ND	0.5	10	MG/KG	7/23/02	LAH
ETHYLBENZENE	EPA-8021	ND	0.5	10	MG/KG	7/23/02	LAH
LENES	EPA-8021	ND	2.0	10	MG/KG	7/23/02	LAH
TPH-DIESEL RANGE	NWTPH-DX	7200	250	10	MG/KG	7/24/02	AIB
TPH-OIL RANGE	NWTPH-DX	ND	500	10	MG/KG	7/24/02	AIB

NOTES: CHROMATOGRAM INDICATES SAMPLE CONTAINS PRODUCT WHICH IS LIKELY DIESEL#2
VOLATILE RANGE REPORTING LIMIT RAISED DUE TO SEMI VOLATILE RANGE INTERFERENCE

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ANY POSITIVE MTBE RESULT SHOULD BE CONFIRMED BY GC/MS ANALYSIS

APPROVED BY: _____

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CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 8/5/02
CCIL JOB #: 207088
CCIL SAMPLE #: 18
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-6-7.5 7/19/02 1530

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-DIESEL RANGE	NWTPH-DX	39	25	1	MG/KG	7/31/02	CMH
TPH-OIL RANGE	NWTPH-DX	ND	50	1	MG/KG	7/31/02	CMH

NOTE: CHROMATOGRAM INDICATES SAMPLE CONTAINS PRODUCT WHICH IS LIKELY DIESEL #2

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY: _____

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CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 7/29/02
CCIL JOB #: 207088
CCIL SAMPLE #: 20
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-7-3.5 7/19/02 1455

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-VOLATILE RANGE	NWTPH-GX	ND	5	2	MG/KG	7/24/02	LAH
MTBE***	EPA-8021	ND	0.2	2	MG/KG	7/24/02	LAH
BENZENE	EPA-8021	ND	0.06	2	MG/KG	7/24/02	LAH
TOLUENE	EPA-8021	ND	0.1	2	MG/KG	7/24/02	LAH
ETHYLBENZENE	EPA-8021	ND	0.1	2	MG/KG	7/24/02	LAH
'LENES	EPA-8021	ND	0.4	2	MG/KG	7/24/02	LAH
TPH-DIESEL RANGE	NWTPH-DX	280	25	1	MG/KG	7/24/02	AIB
TPH-OIL RANGE	NWTPH-DX	ND	50	1	MG/KG	7/24/02	AIB

NOTES: CHROMATOGRAM INDICATES SAMPLE CONTAINS PRODUCT WHICH IS LIKELY DIESEL#2
VOLATILE RANGE REPORTING LIMIT RAISED DUE TO SEMI VOLATILE RANGE INTERFERENCE

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ANY POSITIVE MTBE RESULT SHOULD BE CONFIRMED BY GC/MS ANALYSIS

APPROVED BY: _____

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CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 7/29/02
CCIL JOB #: 207088
CCIL SAMPLE #: 24
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-9-3.5 7/19/02 1559

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-VOLATILE RANGE	NWTPH-GX	ND	20	4	MG/KG	7/24/02	LAH
MTBE***	EPA-8021	ND	0.4	4	MG/KG	7/24/02	LAH
BENZENE	EPA-8021	ND	0.12	4	MG/KG	7/24/02	LAH
TOLUENE	EPA-8021	ND	0.2	4	MG/KG	7/24/02	LAH
ETHYLBENZENE	EPA-8021	ND	0.2	4	MG/KG	7/24/02	LAH
'LENES	EPA-8021	ND	0.8	4	MG/KG	7/24/02	LAH
TPH-DIESEL RANGE	NWTPH-DX	3000	130	5	MG/KG	7/24/02	AIB
TPH-OIL RANGE	NWTPH-DX	ND	250	5	MG/KG	7/24/02	AIB

NOTES: CHROMATOGRAM INDICATES SAMPLE CONTAINS PRODUCT WHICH IS LIKELY DIESEL#2
VOLATILE RANGE REPORTING LIMIT RAISED DUE TO SEMI VOLATILE RANGE INTERFERENCE

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ANY POSITIVE MTBE RESULT SHOULD BE CONFIRMED BY GC/MS ANALYSIS

APPROVED BY: 

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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 8/5/02
CCIL JOB #: 207088
CCIL SAMPLE #: 25
DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00
CLIENT SAMPLE ID: B-10-3.5 7/19/02 1410

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-DIESEL RANGE	NWTPH-DX	ND	25	1	MG/KG	7/31/02	CMH
TPH-OIL RANGE	NWTPH-DX	ND	50	1	MG/KG	7/31/02	CMH

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY: _____

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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 8/5/02
CCIL JOB #: 207088

DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00

REPORT AMENDED TO INCLUDE ADDITIONAL PARAMETER

QUALITY CONTROL RESULTS

		SURROGATE RECOVERY	SPIKE	
CCIL SAMPLE ID	ANALYTE	SUR ID	AMOUNT	% RECV
207088-02	NWTPH-HCID	BCB	50 PPM	134
207088-02	NWTPH-HCID	C25	10 PPM	98
207088-06	NWTPH-HCID	BCB	50 PPM	131
207088-06	NWTPH-HCID	C25	10 PPM	87
207088-07	NWTPH-HCID	BCB	1.3 PPM	100
207088-07	NWTPH-HCID	C25	0.25 PPM	94
207088-07 (CONCENTRATE)	NWTPH-HCID	C25	0.25 PPM	89
207088-07	NWTPH-DX	C25	100 PPB	86
207088-10	NWTPH-HCID	BCB	50 PPM	144
207088-10	NWTPH-HCID	C25	10 PPM	123
207088-11	NWTPH-HCID	BCB	50 PPM	145
207088-11	NWTPH-HCID	C25	10 PPM	139
207088-15	NWTPH-HCID	BCB	50 PPM	127
207088-15	NWTPH-HCID	C25	10 PPM	115
207088-17	NWTPH-GX	TFT	.5 PPM	*
207088-17	EPA-8021	TFT	.5 PPM	*
207088-17	NWTPH-DX	C25	5 PPM	88
207088-18	NWTPH-DX	C25	5 PPM	87
207088-20	NWTPH-GX	TFT	.5 PPM	89
207088-20	EPA-8021	TFT	.5 PPM	85
207088-20	NWTPH-DX	C25	5 PPM	91
207088-24	NWTPH-GX	TFT	.5 PPM	87
207088-24	EPA-8021	TFT	.5 PPM	75
207088-24	NWTPH-DX	C25	5 PPM	68
207088-25	NWTPH-DX	C25	5 PPM	70

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CERTIFICATE OF ANALYSIS

CLIENT: GEOENGINEERS, INC
2924 COLBY AVE.
EVERETT, WA 98201

DATE: 8/5/02
CCIL JOB #: 207088

DATE RECEIVED: 7/22/02
WDOE ACCREDITATION #: C142

CLIENT CONTACT: LISA BONA

CLIENT PROJECT ID: 0241-012-00

REPORT AMENDED TO INCLUDE ADDITIONAL PARAMETER

QUALITY CONTROL RESULTS

BLANK AND DUPLICATE RESULTS

METHOD	BLK RESULT	ASSOC SMPLS	DUP RESULT	ORIG RESULT	%RDP	ASSOC SMPLS
NWTPH-HCID(GAS)	ND(<20)	207088-02, 06, 10, 11, 15	ND(<20)	ND(<20)	****	SAME
NWTPH-HCID(DSL)	ND(<50)	207088-02, 06, 10, 11, 15	ND(<50)	ND(<50)	****	SAME
NWTPH-HCID(OIL)	ND(<100)	207088-02, 06, 10, 11, 15	>100	>100	****	SAME
NWTPH-HCID(GAS)	ND(<0.25)	207088-07	ND(<0.25)	ND(<0.25)	****	SAME
NWTPH-HCID(DSL)	ND(<0.63)	207088-07	ND(<0.63)	ND(<0.63)	****	SAME
WTPH-HCID(OIL)	ND(<0.63)	207088-07	>0.63	>0.63	****	SAME
NWTPH-GX (GAS)	ND(<3)	207088-17, 20, 24	ND(<3)	ND(<3)	****	SAME
EPA-8021(MTBE)	ND(<0.1)	207088-17, 20, 24	ND(<0.1)	ND(<0.1)	****	SAME
EPA-8021(BENZENE)	ND(<0.03)	207088-17, 20, 24	ND(<0.03)	ND(<0.03)	****	SAME
EPA-8021(TOLUENE)	ND(<0.05)	207088-17, 20, 24	ND(<0.05)	ND(<0.05)	****	SAME
EPA-8021(ETHYLBENZ)	ND(<0.05)	207088-17, 20, 24	ND(<0.05)	ND(<0.05)	****	SAME
EPA-8021(XYLENE)	ND(<0.2)	207088-17, 20, 24	ND(<0.2)	ND(<0.2)	****	SAME
NWTPH-DX (DSL)	ND(<25)	207088-17, 20, 24	ND(<25)	ND(<25)	****	SAME
NWTPH-DX (OIL)	ND(<50)	207088-17, 20, 24	ND(<50)	ND(<50)	****	SAME
NWTPH-DX (DSL)	ND(<130)	207088-7				
NWTPH-DX (OIL)	ND(<250)	207088-7				
NWTPH-DX (DSL)	ND(<25)	207088-18, 25	220	220	0	SAME
NWTPH-DX (OIL)	ND(<50)	207088-18, 25	ND(<50)	60	****	SAME

SPIKE/ SPIKE DUPLICATE RESULTS

METHOD	SPIKE ID	ASSOCIATED SAMPLES	SPIKE AMOUNT	DILUTION FACTOR	% SPIKE RECOVERY	% SPIKE DUP RECOVERY	REL % DIFF
EPA-8021	MTBE	207088-02, 06, 10, 11, 15	2 PPM	1	103	N/A	N/A
EPA-8021	BENZENE	207088-02, 06, 10, 11, 15	1 PPM	1	92	N/A	N/A
EPA-8021	TOLUENE	207088-02, 06, 10, 11, 15	1 PPM	1	94	N/A	N/A
EPA-8021	ETHYLBENZENE	207088-02, 06, 10, 11, 15	1 PPM	1	104	N/A	N/A
EPA-8021	XYLENE	207088-02, 06, 10, 11, 15	3 PPM	1	99	N/A	N/A
NWTPH-DX	DIESEL	207088-18, 25	1300 PPB	1	81	76	7

* SURROGATE DILUTED OUT OF CALIBRATION RANGE

**** %RPD NOT REPORTED FOR VALUES <X5 THE REPORTING LIMIT

APPROVED BY: _____

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External Standard Report

Data File Name	: D:\HPCHEM\4\DATA\42072401\016F1501.D		
Operator	: AB	Page Number	: 1
In. ument	: DIESEL #2	Vial Number	: 16
Sample Name	: 207088-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 15
Acquired on	: 24 Jul 02 10:27 PM	Instrument Method	: 4NWHCID.MTH
Report Created on	: 25 Jul 02 01:45 PM	Analysis Method	: 4NWHCID.MTH
Last Recalib on	: 16 APR 02 01:45 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\HPCHEM\4\DATA\42072401\016F1501.D

Ret Time	Area	Type	Width	Ref#	mg/l	Name	
10.702	150251	MM T	0.025	1	66.957	Bromochlorobenzene surrogate	134%
22.011	49508	MM T	0.026	1	9.783	nC-25 surrogate	98%

User Modified

G < 20 mg/kg

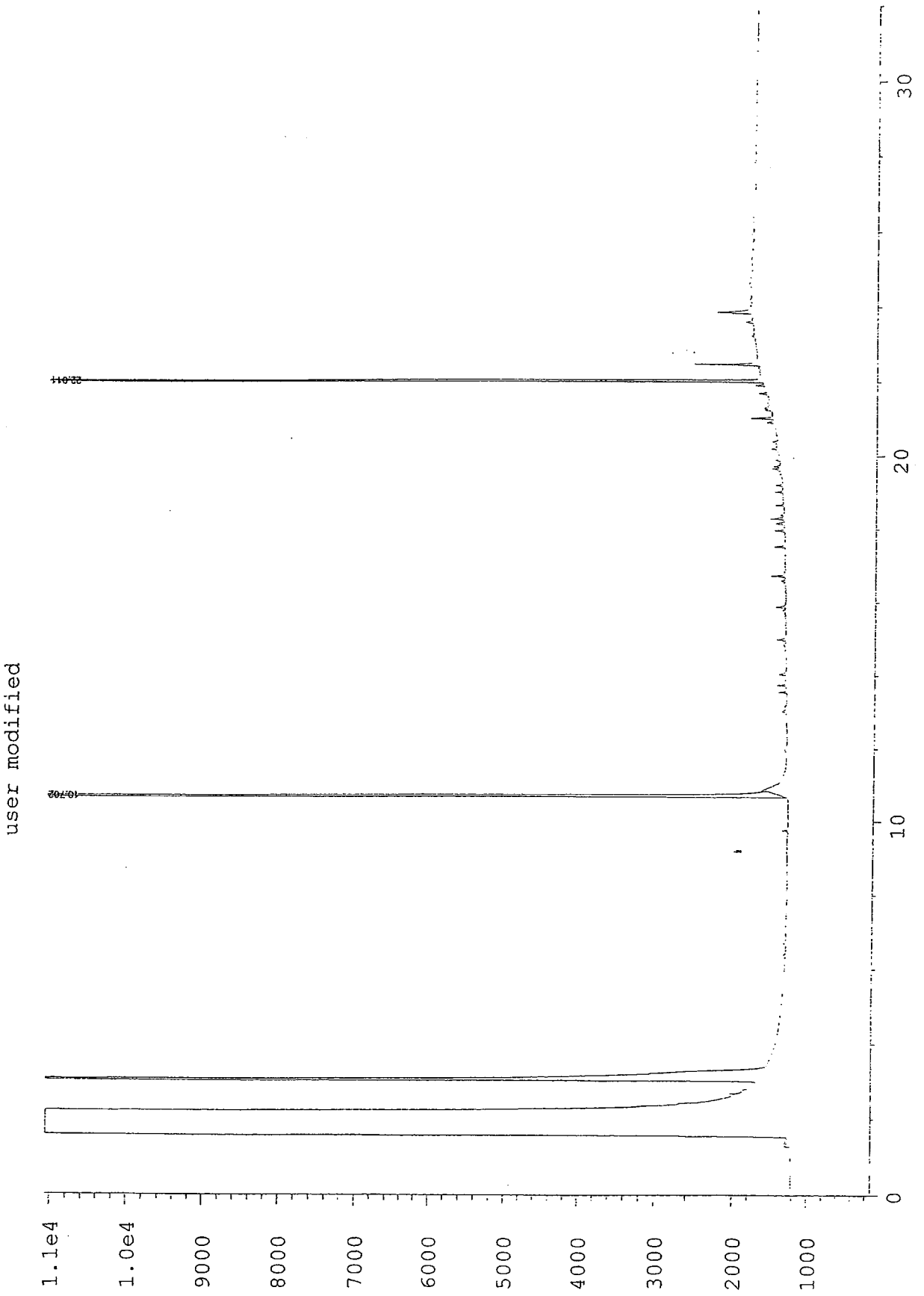
D < 50

MO < 100

07/26/02 AB

7-29-02

Sig. 1 in D:\HPCHEM\4\DATA\42072401\016F1501.D



External Standard Report

Data File Name	: D:\HPCHEM\4\DATA\42072501\017F0501.D		
Operator	: AB	Page Number	: 1
Instrument	: DIESEL #2	Vial Number	: 17
Sample Name	: 207088-6	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 25 Jul 02 10:36 AM	Instrument Method:	4NWHCID.MTH
Report Created on:	25 Jul 02 01:36 PM	Analysis Method	: 4NWHCID.MTH
Last Recalib on	: 16 APR 02 01:45 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\HPCHEM\4\DATA\42072501\017F0501.D

Ret Time	Area	Type	Width	Ref#	mg/l	Name	
10.691	146501	MM T	0.025	1	65.286	Bromochlorobenzene surrogate	131%
22.015	43976	MM T	0.025	1	8.690	nC-25 surrogate	87%

User Modified

G < 20 mg/kg

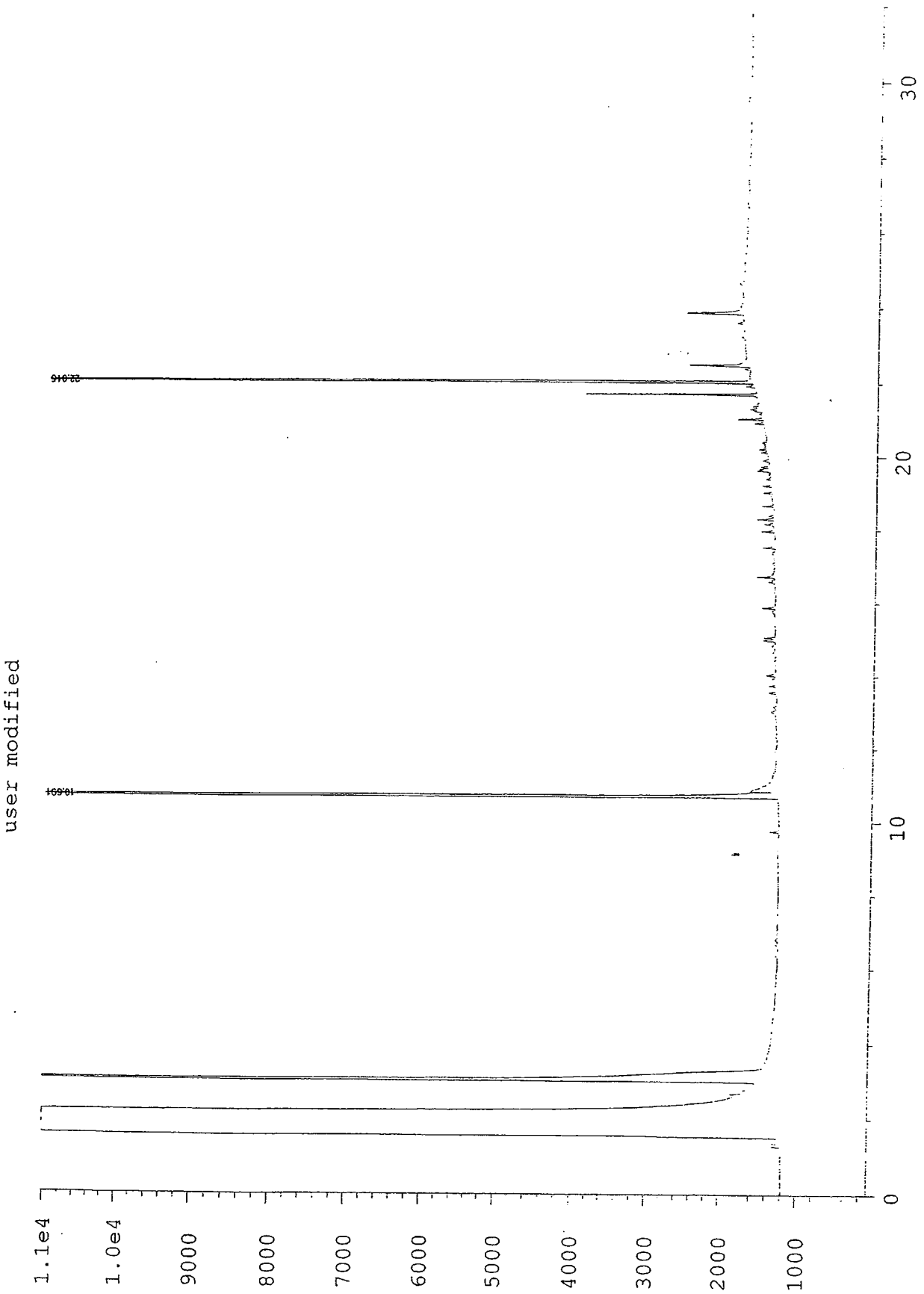
D < 50

MO < 100

07/26/02 AB

7-29-02

Sig. 1 in D:\HPCHEM\4\DATA\42072501\017F0501.D



External Standard Report

Data File Name	: D:\HPCHEM\1\DATA\12072501\008F3501.D		
Operator	: AB	Page Number	: 1
Instrument	: DIESEL #1	Vial Number	: 8
Sample Name	: 207088-7 10ML	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 35
Acquired on	: 26 Jul 02 06:37 PM	Instrument Method:	NWTPHCID.MTH
Report Created on:	29 Jul 02 09:46 AM	Analysis Method	: NWTPHCID.MTH
Last Recalib on	: 24 APR 02 05:42 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\HPCHEM\1\DATA\12072501\008F3501.D

Ret Time	Area	Type	Width	Ref#	ug/ml	Name
10.613	114120	MM T	0.025	1	50.209	Bromochlorobenzene 100%
21.762	47933	MM T	0.026	1	9.384	Pentacosane 94%

User Modified

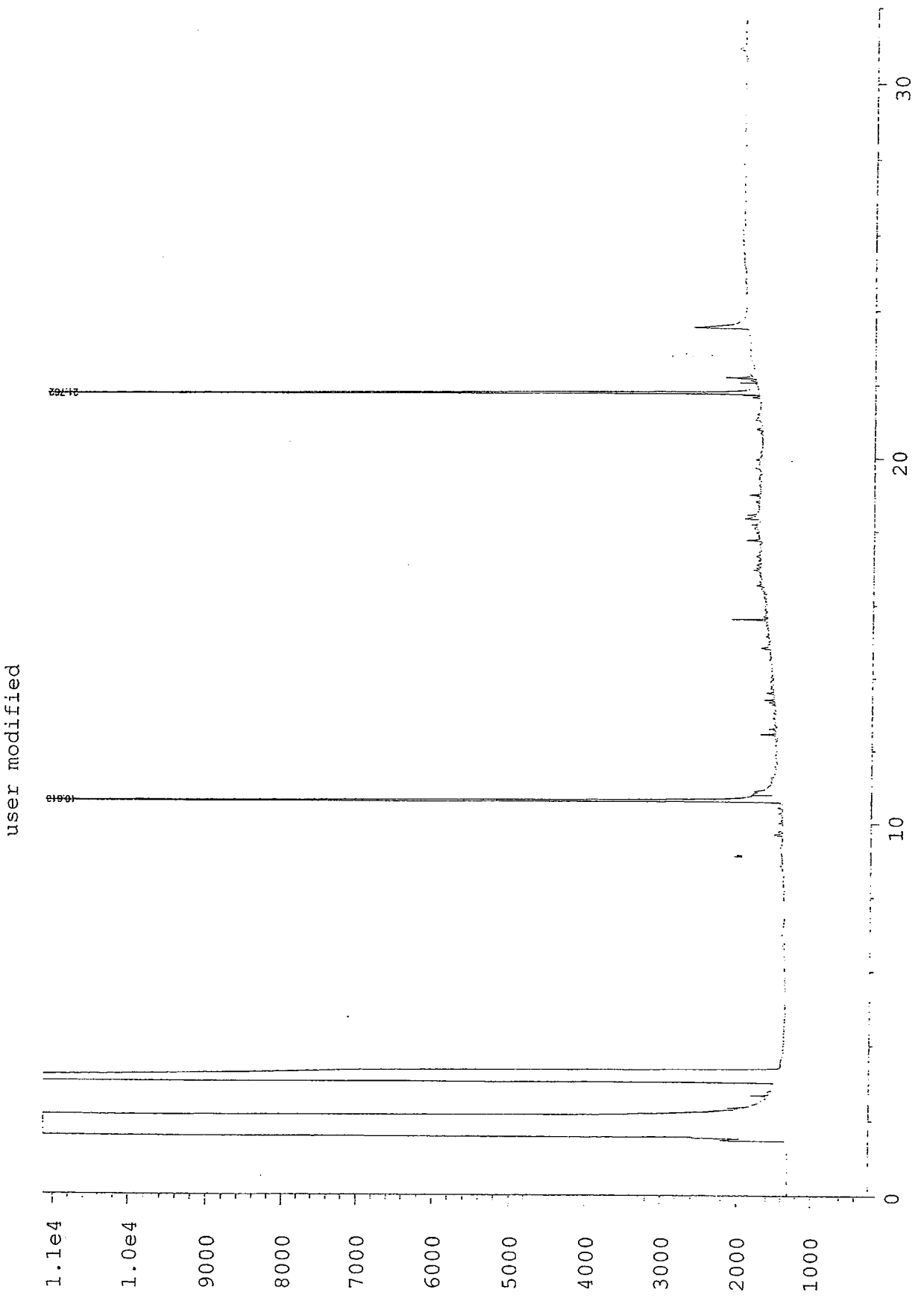
G < 0.25 mg/L

D < 0.63 ↓

07/29/02 AB

7-29-02

Sig. 1 in D:\HPCHEM\1\DATA\12072501\008F3501.D



External Standard Report

Data File Name	: D:\HPCHEM\1\DATA\12072501\011F3501.D		
Operator	: AB	Page Number	: 1
Instrument	: DIESEL #1	Vial Number	: 11
Sample Name	: 207088-7 1ML	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 35
Acquired on	: 26 Jul 02 08:53 PM	Instrument Method:	NWTPHCID.MTH
Report Created on:	29 Jul 02 09:49 AM	Analysis Method	: NWTPHCID.MTH
Last Recalib on	: 24 APR 02 05:42 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\HPCHEM\1\DATA\12072501\011F3501.D

Ret Time	Area	Type	Width	Ref#	ug/ml	Name
10.651	1101912	MM T	0.036	1	484.803	Bromochlorobenzene
21.784	457287	MM T	0.030	1	89.528	Pentacosane 89%

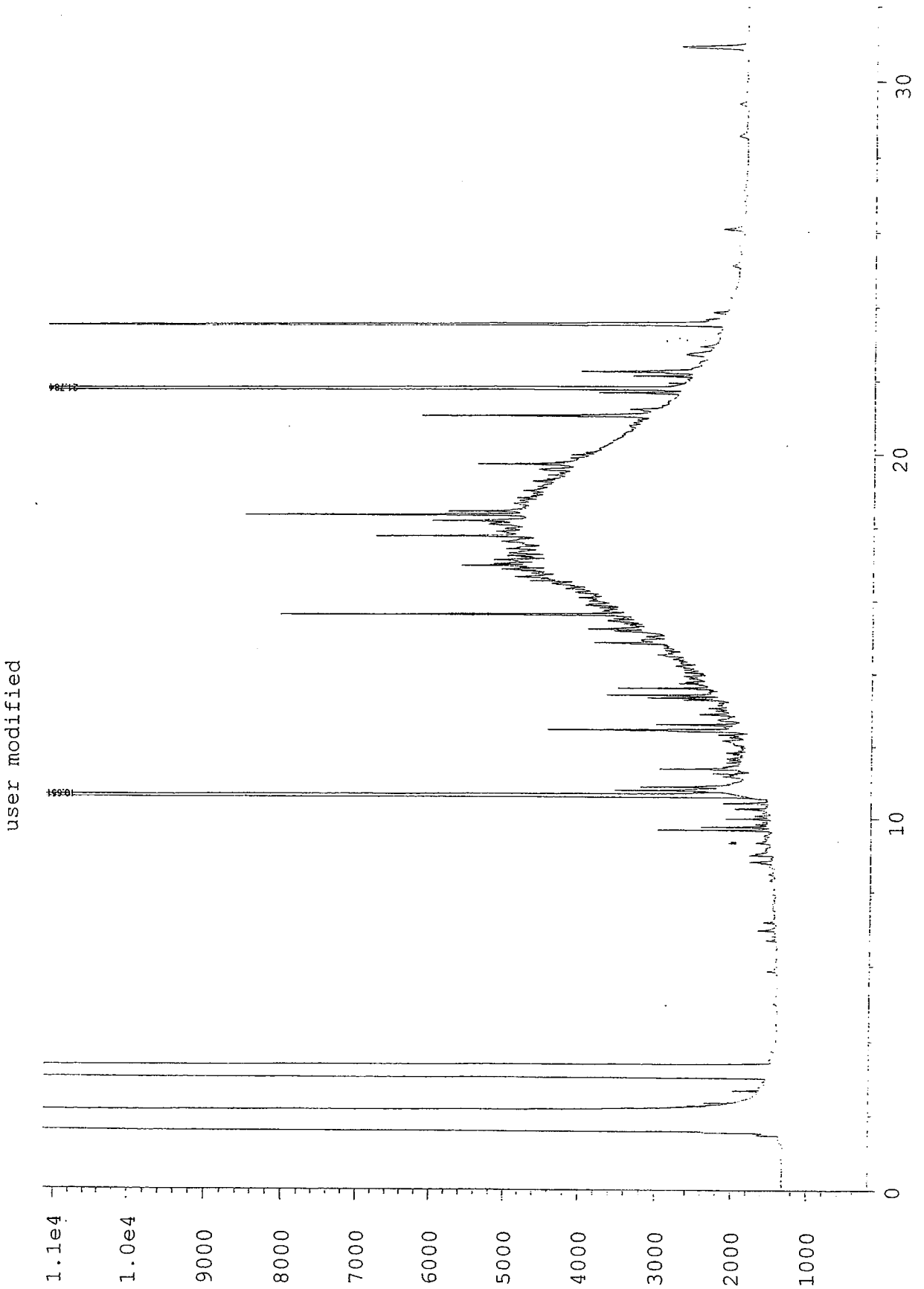
User Modified

MO > 0.63 mg/L Light Transformer Oil or similar product

07/29/02 AB

7-29-02

Sig. 1 in D:\HPCHEM\1\DATA\12072501\011F3501.D



External Standard Report

Data File Name : D:\HPCHEM\1\DATA\12080501\007F0901.D
Operator : AB
Instrument : DIESEL #1
Sample Name : 207088-7 H2O
Run Time Bar Code:
Acquired on : 05 Aug 02 11:54 AM
Report Created on: 05 Aug 02 01:29 PM
Last Recalib on : 17 JUL 02 11:16 AM
Multiplier : 1

Page Number : 1
Vial Number : 7
Injection Number : 1
Sequence Line : 9
Instrument Method: TDMO0602.MTH
Analysis Method : TRNF0702.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\1\DATA\12080501\007F0901.D

Ret Time	Area	Type	Width	Ref#	ug/ml	Name
14.201	1184128	MM	2.558	1	324.928	NW TRANSFORMER OIL
21.830	116171	MM T	0.029	1	34.473	nC-25 surrogate ÷ 40 x 100 = 86%

User Modified

$T = 324.928 \text{ mg/L} \times \frac{1 \text{ mL}}{400 \text{ mL}} = 0.81 \text{ mg/L}$

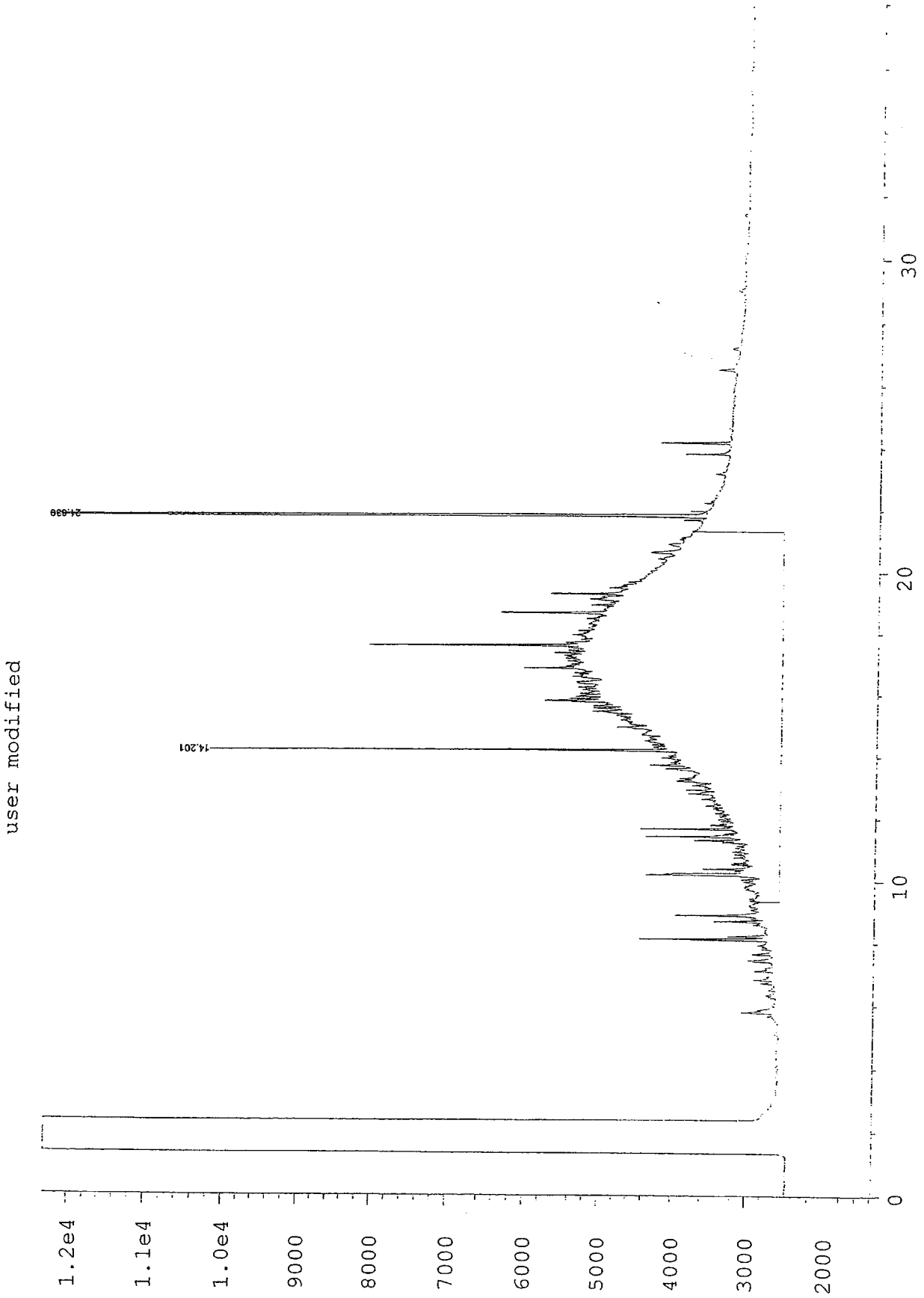
Light Oil product.

Analysis requested and extraction performed out of hold time.

8.5.02

8.5.02 CN

Sig. 1 in D:\HPCHEM\1\DATA\12080501\007F0901.D



External Standard Report

Data File Name : D:\HPCHEM\4\DATA\42072601\008F1901.D
Operator : AB
Instrument : DIESEL #2
Sample Name : 207088-10 RX
Run Time Bar Code:
Acquired on : 26 Jul 02 07:33 PM
Report Created on: 29 Jul 02 08:52 AM
Last Recalib on : 16 APR 02 01:45 PM
Multiplier : 1

Page Number : 1
Vial Number : 8
Injection Number : 1
Sequence Line : 19
Instrument Method: 4NWHCID.MTH
Analysis Method : 4NWHCID.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\4\DATA\42072601\008F1901.D

Ret Time	Area	Type	Width	Ref#	mg/l	Name
10.678	161679	MM T	0.026	1	72.050	Bromochlorobenzene surrogate 144%
22.005	62233	MM T	0.026	1	12.298	nC-25 surrogate 123%

User Modified

G < 20 mg/kg

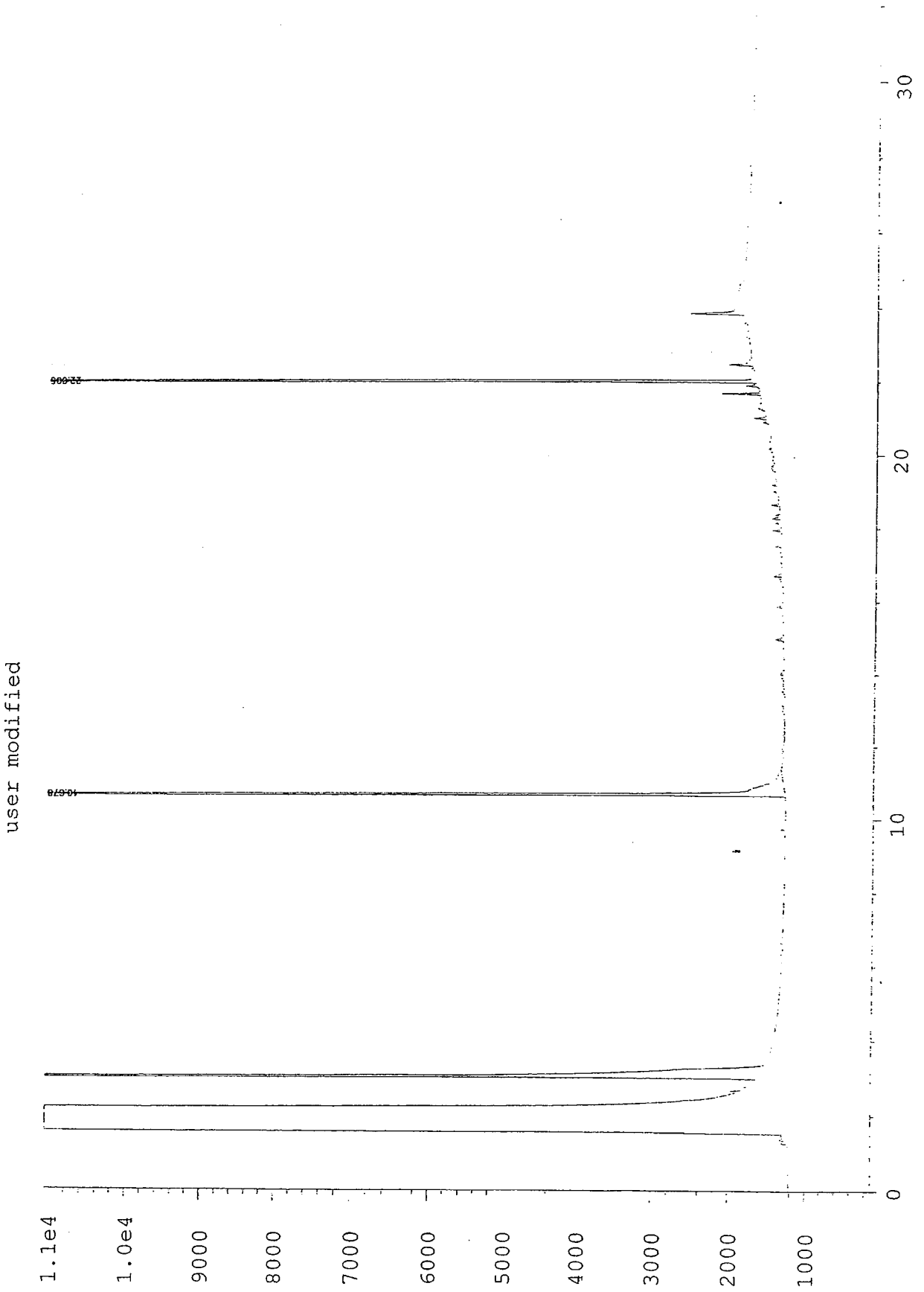
D < 50

MO < 100

07/29/02 AB

7-29-02

Sig. 1 in D:\HPCHEM\4\DATA\42072601\008F1901.D



External Standard Report

Data File Name : D:\HPCHEM\4\DATA\42072501\013F1001.D
Operator : AB
Instrument : DIESEL #2
Sample Name : 207088-11 RX
Run Time Bar Code:
Acquired on : 25 Jul 02 03:35 PM
Report Created on: 25 Jul 02 04:28 PM
Last Recalib on : 16 APR 02 01:45 PM
Multiplier : 1

Page Number : 1
Vial Number : 13
Injection Number : 1
Sequence Line : 10
Instrument Method: 4NWHCID.MTH
Analysis Method : 4NWHCID.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\4\DATA\42072501\013F1001.D

Ret Time	Area	Type	Width	Ref#	mg/l	Name
10.686	163306	MM T	0.025	1	72.774	Bromochlorobenzene surrogate 145%
22.014	70285	MM T	0.026	1	13.889	nC-25 surrogate 139%

User Modified

G < 20 mg/kg

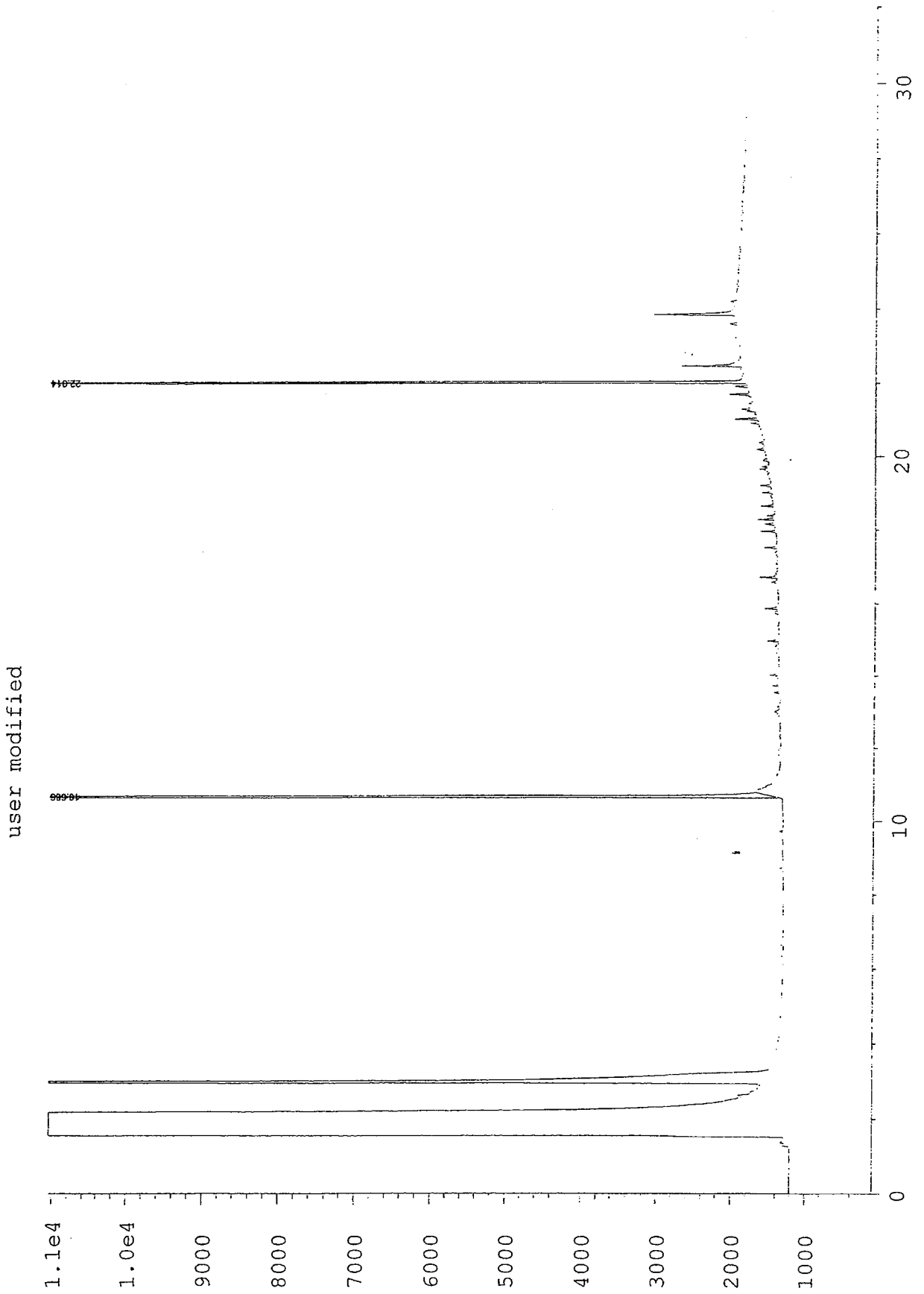
D < 50

MO < 100

07/26/02 AB

7-29-02

Sig. 1 in D:\HPCHEM\4\DATA\42072501\013F1001.D



External Standard Report

Data File Name : D:\HPCHEM\4\DATA\42072501\020F0501.D
Operator : AB
Instrument : DIESEL #2
Sample Name : 207088-15
Run Time Bar Code:
Acquired on : 25 Jul 02 01:00 PM
Report Created on: 25 Jul 02 02:27 PM
Last Recalib on : 16 APR 02 01:45 PM
Multiplier : 1

Page Number : 1
Vial Number : 20
Injection Number : 1
Sequence Line : 5
Instrument Method: 4NWHCID.MTH
Analysis Method : 4NWHCID.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\4\DATA\42072501\020F0501.D

Ret Time	Area	Type	Width	Ref#	mg/l	Name
10.691	142819	MM T	0.025	1	63.645	Bromochlorobenzene surrogate 127%
22.015	58108	MM T	0.026	1	11.483	nC-25 surrogate 115%

User Modified

G < 20 mg/kg

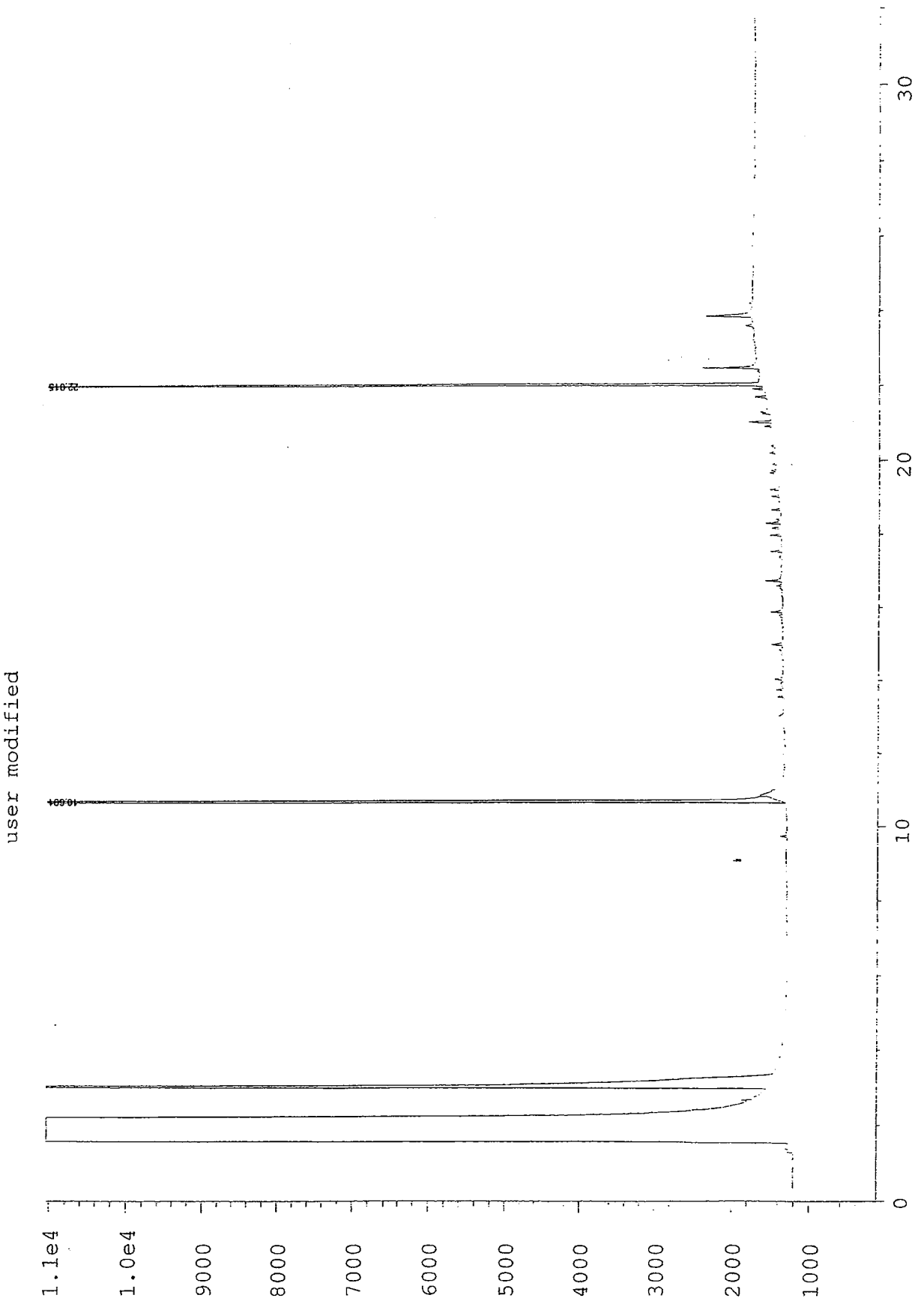
D < 50

MO < 100

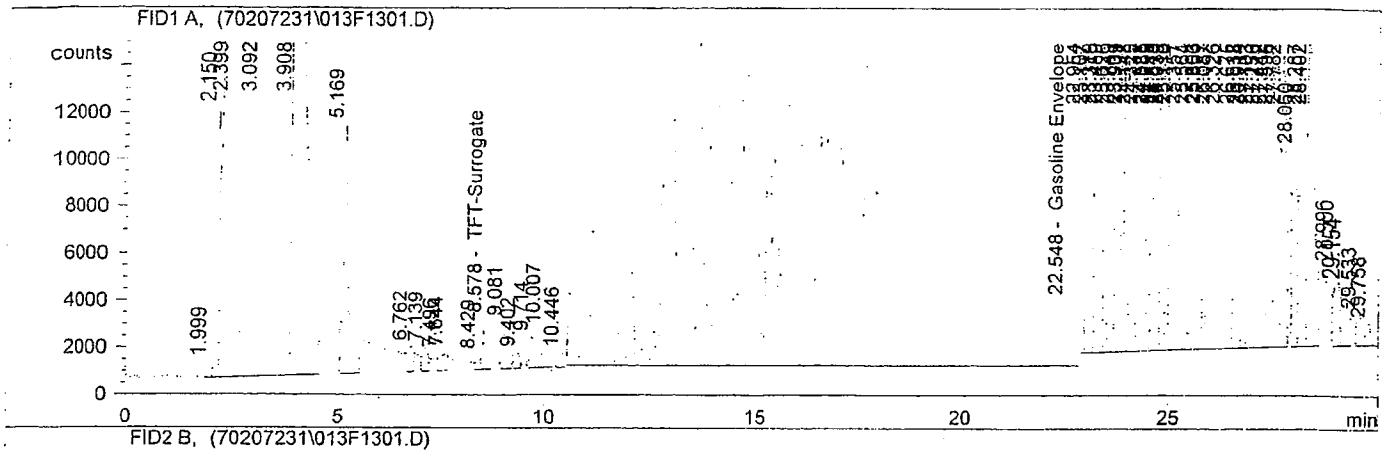
07/26/02 AB

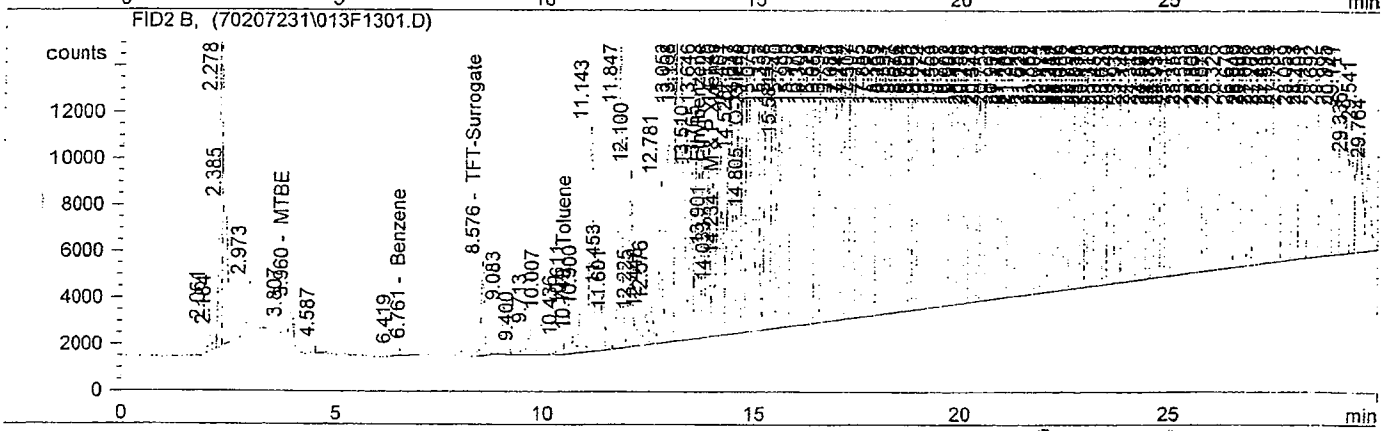
2-19-02

Sig. 1 in D:\HPCHEM\4\DATA\42072501\020F0501.D



Data file : D:\HPCHEM\2\DATA\70207231\013F1301.D
Gas/BTEX 2 Report Created on 7/24/02 10:08:15 AM
Injection Date & Time: Tue, 23. Jul. 2002 5:16:40 PM
Sample Name : 207088-17 10UL
Acq Operator : LAH
Acq. Method : 70GB0602.M
Analysis Method : D:\HPCHEM\5\METHODS\70GB0602.M
FID1 A equivalent to FID analysis.
FID2 B equivalent to PID analysis.





Dry wt. = 12.14g

Ret.	Compound Name	Area	Amount ug/L
8.578	TFT-Surrogate	13725.987	1.140*
22.548	Gasoline Envelope	17352096.000	2313.179

semi volatile range product

$$Gas < 100\ mg/L \times \frac{5mL}{0.01mL} \times \frac{0.01L}{12.14} < 50\ mg/kg$$

↑ Lowest visible std

Ret.	Compound Name	Area	Amount ug/L
3.960	MTBE	8134.343	0.231
6.761	Benzene	4940.290	0.048
8.576	TFT-Surrogate	22934.965	0.649*
10.749	Toluene	3710.522	0.039
13.901	Ethylbenzene	37769.074	0.444
14.234	M & P Xylenes	23897.568	0.215
14.805	O-Xylene	123826.797	1.658

* low due to dilution

MTBE < 1.0 mg/kg B < 0.3 mg/kg T, E < 0.5 mg/kg X < 2.0 mg/kg

Note: Reporting Limit Raised due to Semi Volatile range interference

7-24-02 LH

External Standard Report

Data File Name : D:\HPCHEM\4\DATA\42072401\011F1001.D
Operator : AB
Instrument : DIESEL #2
Sample Name : 207088-17 X10
Run Time Bar Code:
Acquired on : 24 Jul 02 04:28 PM
Report Created on: 25 Jul 02 08:41 AM
Last Recalib on : 11 JUN 02 02:49 PM
Multiplier : 1

Page Number : 1
Vial Number : 11
Injection Number : 1
Sequence Line : 10
Instrument Method: 4DXTB602.MTH
Analysis Method : 4DXTB602.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\4\DATA\42072401\011F1001.D

Ret Time	Area	Type	Width	Ref#	ug/ml	Name
15.470	6730457	MM	1.467	1	1832.412	TPH-Dsl envelope
21.323	82465	MM R	0.415	1	36.395	MOTOR OIL
22.112	5158	MM T	0.030	1	0.877	nC-25 surrogate 1 x 100 = 88%
25.869	25019	MM	2.510	1	5.243	MOTOR OIL {2}

User Modified

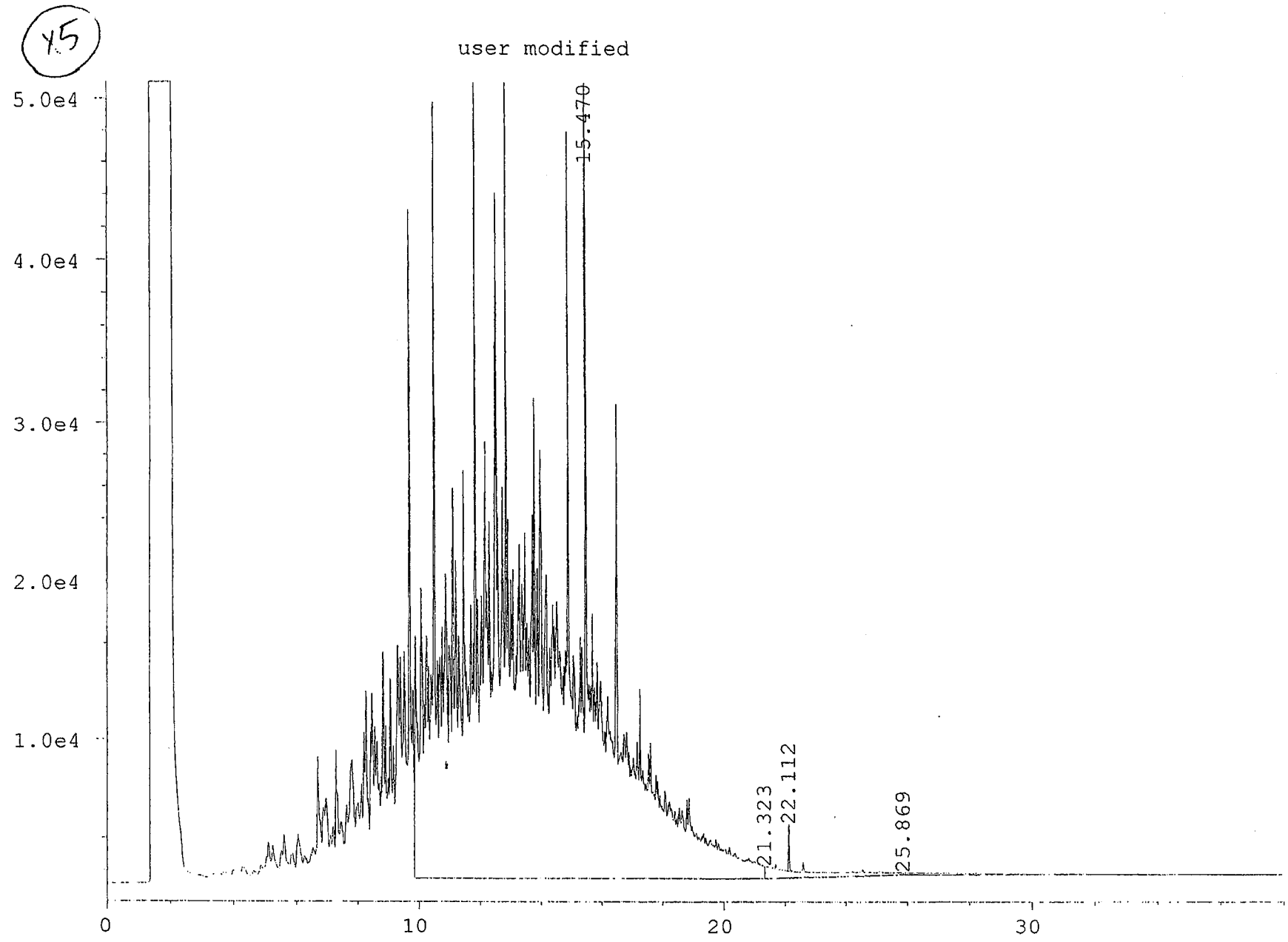
Dry Wt = 25.53 g

$D = 1832.412\ \mu g/mL \times \frac{10\ mL}{25.53\ g} \times 10 = 7200\ mg/kg$ Diesel #2

$ND < 100\ \mu g/mL \times \frac{10\ mL}{25.53\ g} \times 10 < 500\ mg/kg$

07/25/02 AB

7.29.02


Y5
user modified
5.0e4
4.0e4
3.0e4
2.0e4
1.0e4
15.470
21.323
22.112
25.869
0
10
20
30
Sig. 1 in D:\HPCHEM\4\DATA\42072401\011F1001.D

External Standard Report

Data File Name : D:\HPCHEM\1\DATA\12073001\038F2201.D
Operator : AB
Instrument : DIESEL #1
Sample Name : 207088-18
Run Time Bar Code:
Acquired on : 31 Jul 02 07:57 PM
Report Created on: 05 Aug 02 11:11 AM
Last Recalib on : 17 JUL 02 09:06 AM
Multiplier : 1

Page Number : 1
Vial Number : 38
Injection Number : 1
Sequence Line : 22
Instrument Method: TDMO0602.MTH
Analysis Method : TPHD0602.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\1\DATA\12073001\038F2201.D

Ret Time	Area	Type	Width	Ref#	mg/l	Name
15.233	284378	MM	1.350	1	97.867	Diesel #2
21.813	26302	MM T	0.028	1	8.666	nC-25 surrogate ÷10x100 = 87%

Jser Modified

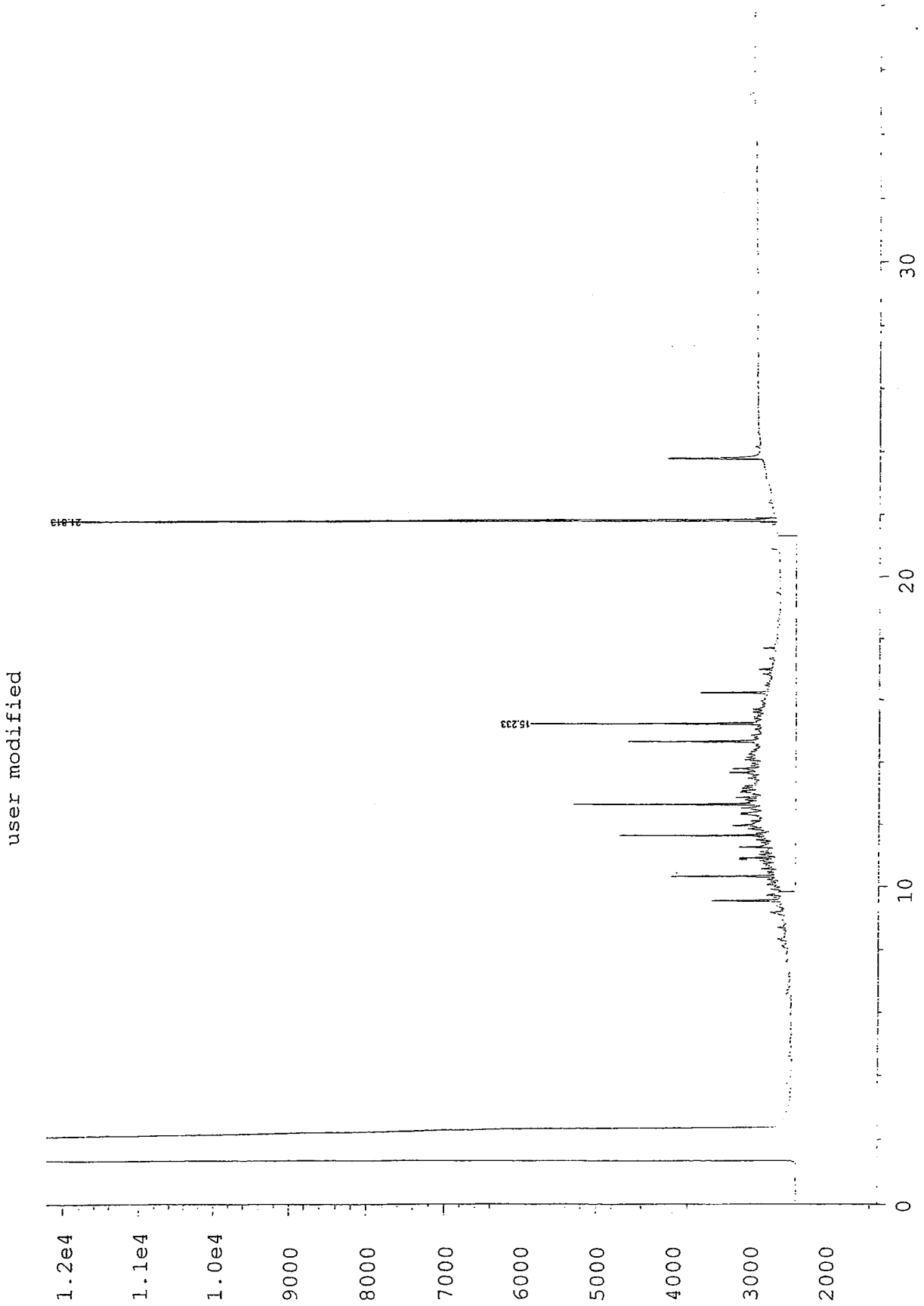
$D = 97.867\ mg/L \times \frac{10\ mL}{25.37\ g} = 39\ mg/kg$

Diesel Fuel

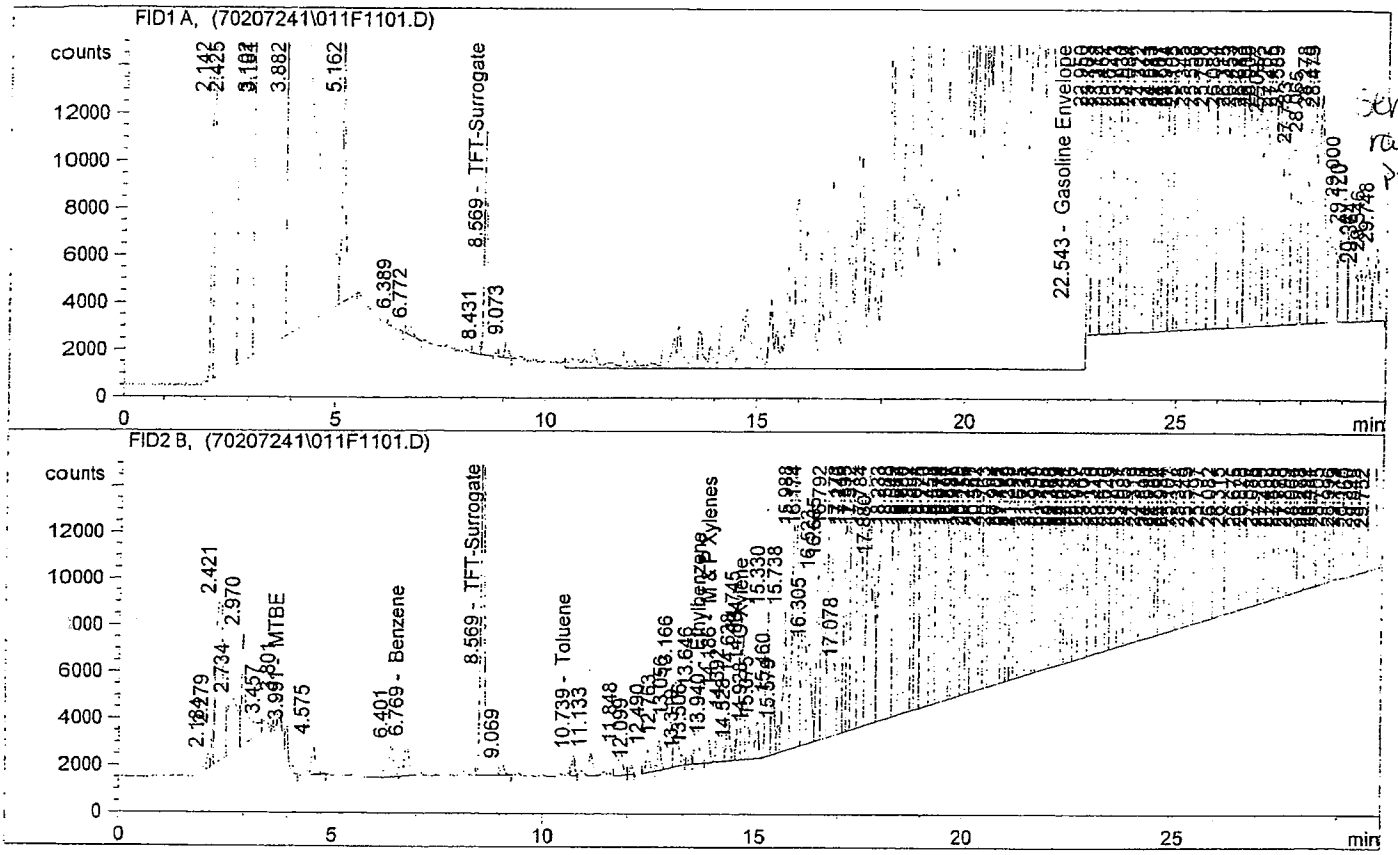
8.5.02

8.5.02 CKI

Sig. 1 in D:\HPCHEM\1\DATA\12073001\038F2201.D



Data file : D:\HPCHEM\2\DATA\70207241\011F1101.D
Gas/BTEX 2 Report Created on 7/26/02 3:02:39 PM
Injection Date & Time: Wed, 24. Jul. 2002 3:40:33 PM
Sample Name : 207088-20 RR 50
Acq Operator : LAH
Acq. Method : 70GB0602.M
Analysis Method : D:\HPCHEM\5\METHODS\70GB0602.M
FID1 A equivalent to FID analysis.
FID2 B equivalent to PID analysis.



semivolatile range product

Ret.	Compound Name	Area	Amount ug/L
8.569	TFT-Surrogate	53364.137	4.431
22.543	Gasoline Envelope	5081563.000	673.173

X2 = 8.862 ÷ 10 X 100 = 89%

Gas < 50ug/L $\times \frac{5mL}{0.05mL} \times \frac{0.01L}{10.0g}$ < 5mg/kg

Ret.	Compound Name	Area	Amount ug/L
3.991	MTBE	1909.647	0.054
6.769	Benzene	11172.710	0.109
8.569	TFT-Surrogate	116893.070	4.254
10.739	Toluene	4098.305	0.043
13.940	Ethylbenzene	5586.087	0.066
14.186	M & P Xylenes	19677.689	0.177
14.928	O-Xylene	7293.930	0.090

85%

MTBE < 0.2mg/kg B < 0.06mg/kg TE < 0.1mg/kg X < 0.4mg/kg

Note Reporting Limit raised due to semivolatile range interference

7-26-02 LH

External Standard Report

Data File Name : D:\HPCHEM\4\DATA\42072401\012F1001.D
Operator : AB
Instrument : DIESEL #2
Sample Name : 207088-20
Run Time Bar Code:
Acquired on : 24 Jul 02 05:11 PM
Report Created on: 25 Jul 02 08:43 AM
Last Recalib on : 11 JUN 02 02:49 PM
Multiplier : 1

Page Number : 1
Vial Number : 12
Injection Number : 1
Sequence Line : 10
Instrument Method: 4DXTB602.MTH
Analysis Method : 4DXTB602.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\4\DATA\42072401\012F1001.D

Ret Time	Area	Type	Width	Ref#	ug/ml	Name
15.464	2819198	MM	1.356	1	767.043	TPH-Dsl envelope
21.323	242382	MM R	0.169	1	114.532	MOTOR OIL
22.115	39127	MM T	0.028	1	9.139	nC-25 surrogate/10x100 = 91%
26.927	136372	MM	3.567	1	28.579	MOTOR OIL {2}

User Modified

$\bar{x}_{MO} = 71.555$

Dry Wt = 27.32g

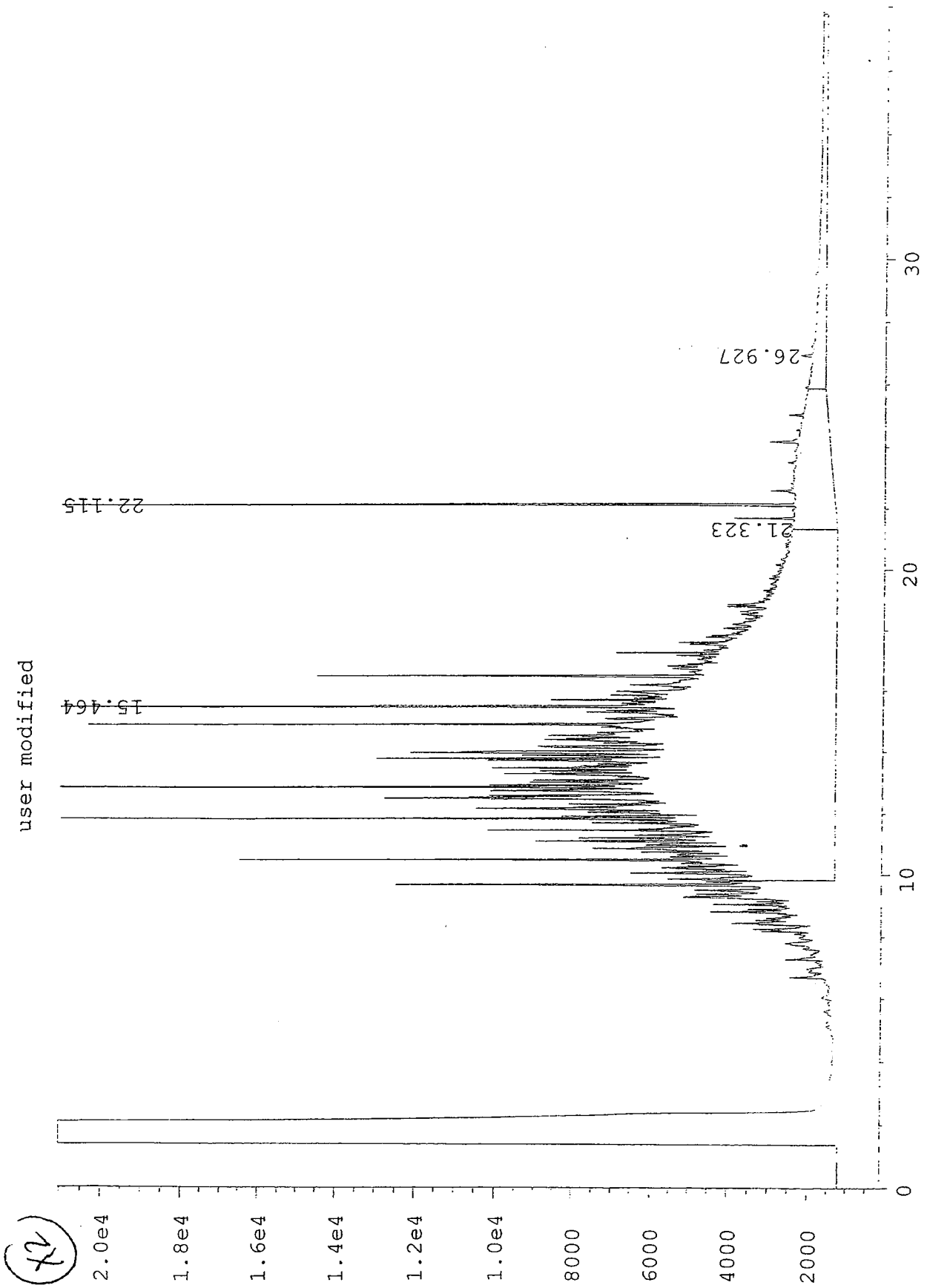
$D = 767.043\ \mu g/mL \times \frac{10\ mL}{27.32\ g} = 280\ mg/kg$ Diesel #2

$MO < 50\ mg/kg$

07/25/02 AB

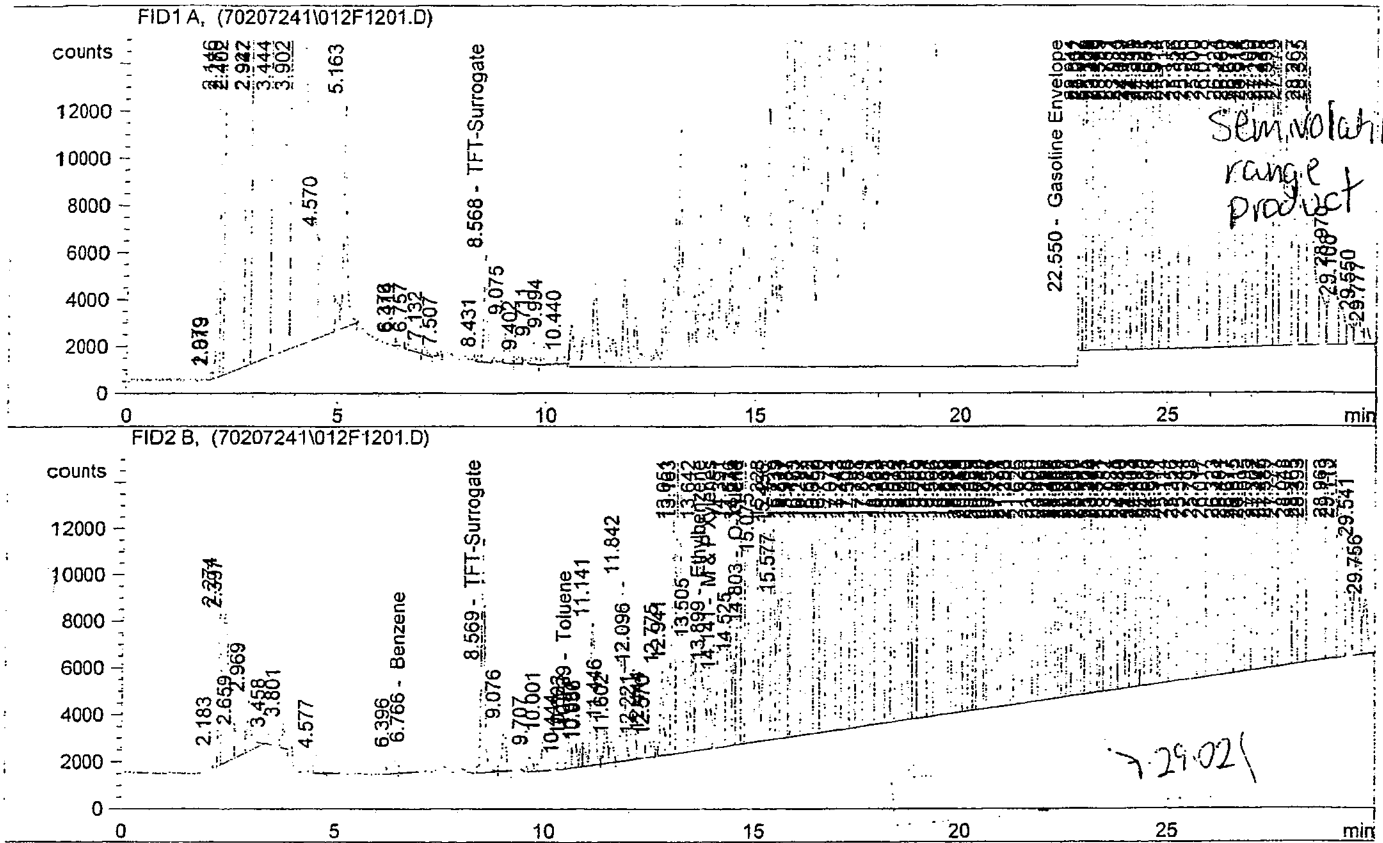
7-29-02

Sig. 1 in D:\HPCHEM\4\DATA\42072401\012F1001.D



Data file : D:\HPCHEM\2\DATA\70207241\012F1201.D

Gas/BTEX 2 Report Created on 7/26/02 3:03:25 PM
Injection Date & Time: Wed, 24. Jul. 2002 4:16:33 PM
Sample Name : 207088-24 RR 25
Acq Operator : LAH
Acq. Method : 70GB0602.M
Analysis Method : D:\HPCHEM\5\METHODS\70GB0602.M
FID1 A equivalent to FID analysis.
FID2 B equivalent to PID analysis.



Ret.	Compound Name	Area	Amount ug/L
8.568	TFT-Surrogate	26155.465	2.172 x4=8.688 ÷10 x100=87%
22.550	Gasoline Envelope	15694567.000	2091.644

Gas < 100ug/L x 5mL / 0.025mL x 0.01L < 20mg/kg

Ret.	Compound Name	Area	Amount ug/L
0.000	MTBE	0.000	0.000
6.766	Benzene	8597.687	0.084
8.569	TFT-Surrogate	57265.191	1.874 75%
10.739	Toluene	7974.599	0.083
13.899	Ethylbenzene	20449.754	0.240
14.141	M & P Xylenes	62652.055	0.563
14.803	O-Xylene	86305.656	1.083

MTBE < 0.4mg/kg B < 0.12mg/kg T, E < 0.2mg/kg X < 0.8mg/kg

[illegible] 7-31-02

Data File Name : D:\HPCHEM\4\DATA\42072401\013F1001.D
Operator : AB
Instrument : DIESEL #2
Sample Name : 207088-24 X5
Run Time Bar Code:
Acquired on : 24 Jul 02 05:55 PM
Report Created on: 25 Jul 02 08:45 AM
Last Recalib on : 11 JUN 02 02:49 PM
Multiplier : 1

Page Number : 1
Vial Number : 13
Injection Number : 1
Sequence Line : 10
Instrument Method: 4DX
Analysis Method : 4DX
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\4\DATA\42072401\013F1001.D

Ret Time	Area	Type	Width	Ref#	ug/ml	Name
12.479	5148825	MM	1.727	1	1401.599	TPH-Dsl envelope
21.315	85664	MM R	0.287	1	37.807	MOTOR OIL
22.111	7974	MM T	0.029	1	1.356	nC-25 surrogate/2 X100=
25.880	12612	MM	2.476	1	2.643	MOTOR OIL (2)

User Modified

Dry Wt

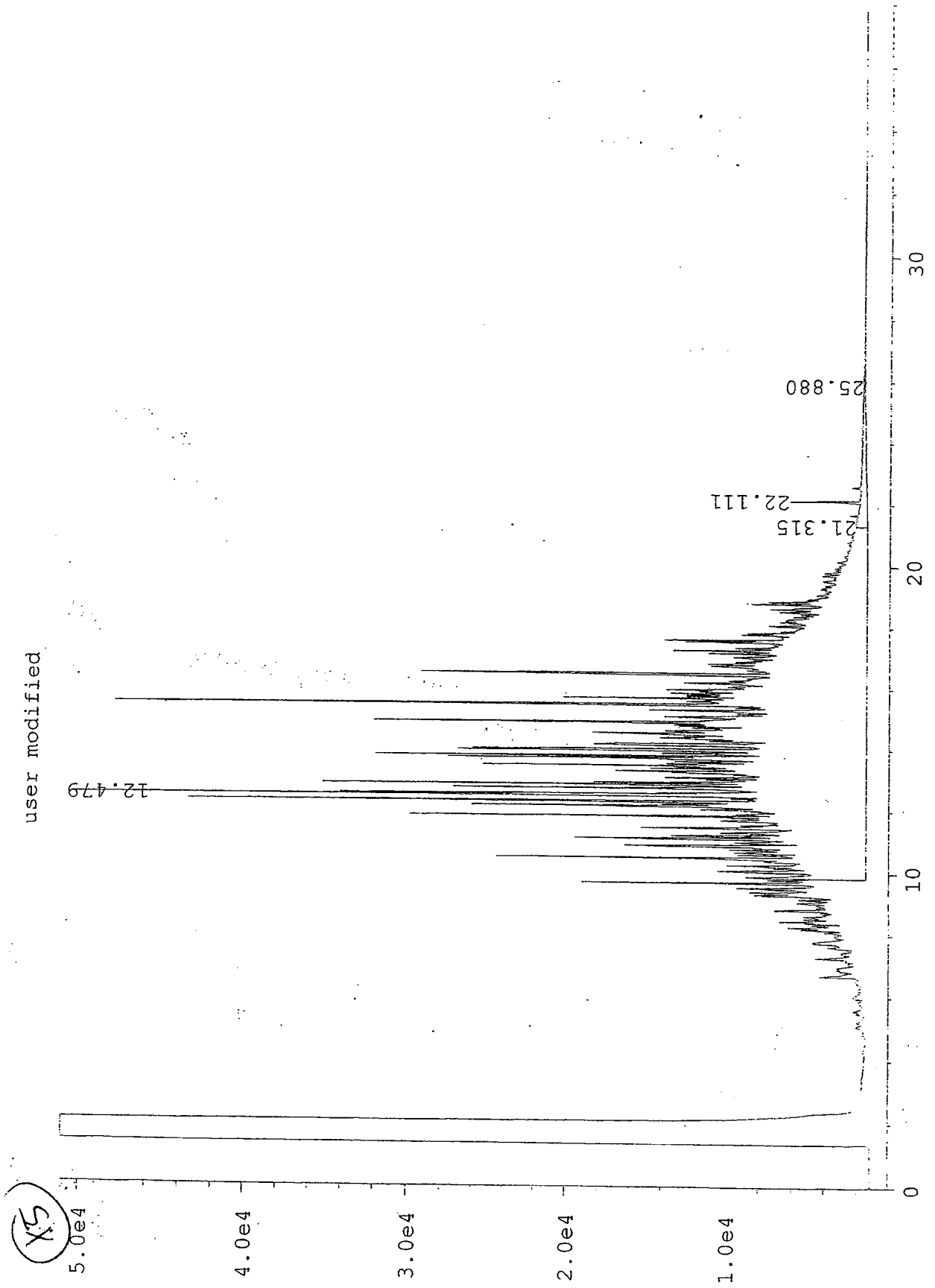
$D = 1401.599\ \mu g/ml \times \frac{10\ ml}{23.30\ g} \times 5 = 3000\ mg/kg$ Diesel #

ND < 50 mg/kg x 5 < 250 mg/kg

07/25/02 AB

7-29-02

Sig. 1 in D:\HPCHEM\4\DATA\42072401\013F1001.D



External Standard Report

Data File Name : D:\HPCHEM\1\DATA\12073001\039F2201.D
C rator : AB
Instrument : DIESEL #1
Sample Name : 207088-25
Run Time Bar Code:
Acquired on : 31 Jul 02 08:41 PM
Report Created on: 05 Aug 02 11:13 AM
Last Recalib on : 25 APR 02 09:20 AM
Multiplier : 1

Page Number : 1
Vial Number : 39
Injection Number : 1
Sequence Line : 22
Instrument Method: TDMO0602.MTH
Analysis Method : TDMO0602.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\1\DATA\12073001\039F2201.D

Ret Time	Area	Type	Width	Ref#	ug/ml	Name
15.233	89928	MM	2.755	1	47.738	Diesel #2
21.323	50951	MM R	0.045	1	29.160	Motor Oil
21.814	32715	MM T	0.029	1	70% 6.978	nC-25 surrogate
35.220	56946	MM	5.777	1	34.817	Motor Oil (2)

$\bar{x} = 81.989$

User Modified

Dry Wt. = 24.68g

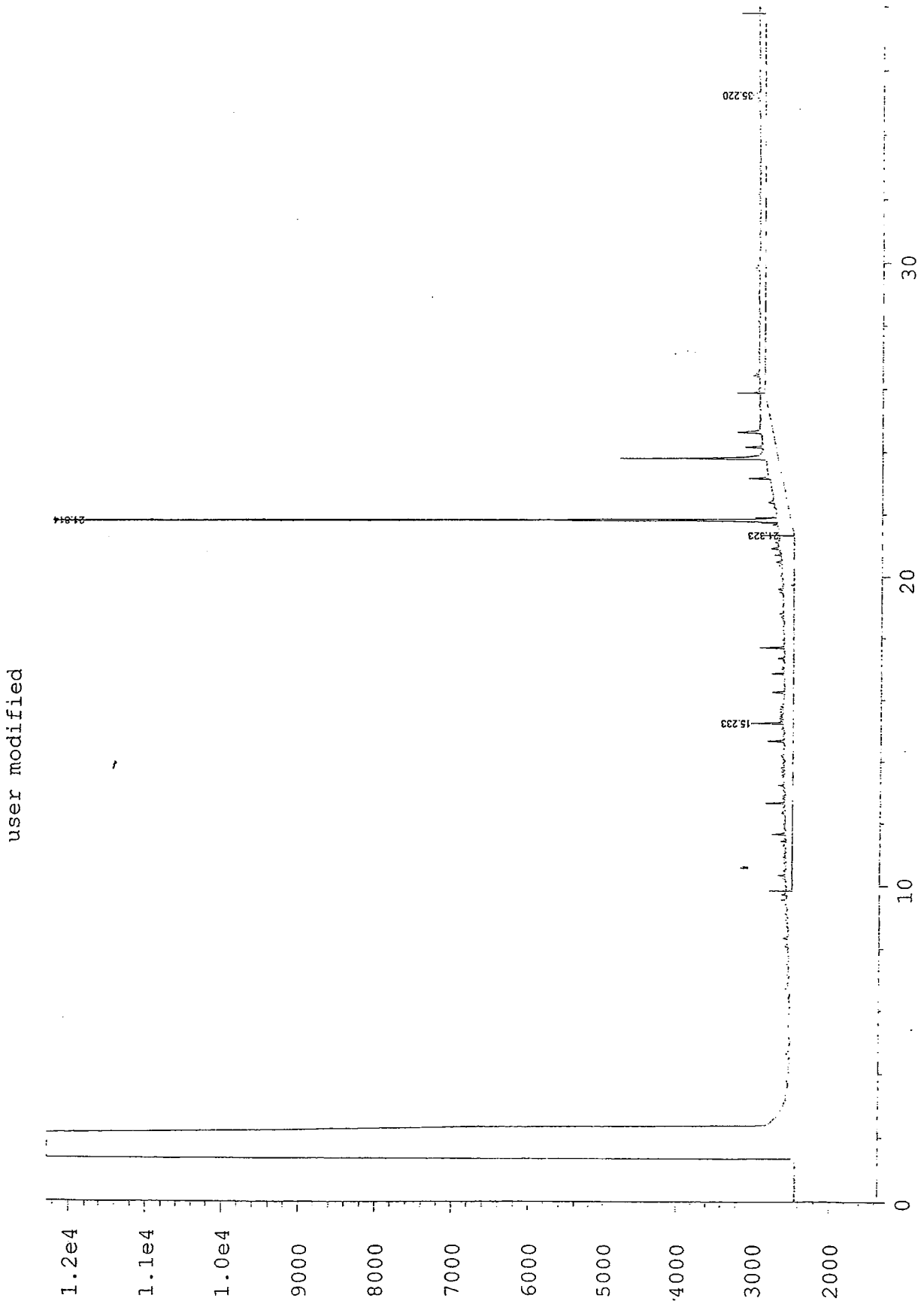
D = <25mg/kg

MO = <50mg/kg

8.5.02

8.5.02 CM

Sig. 1 in D:\HPCHEM\1\DATA\12073001\039F2201.D



CHAIN OF CUSTODY RECORD

GEOENGINEERS, INC.
8410 154TH AVENUE N.E.
REDMOND, WASHINGTON 98052
(425) 861-6000

Geo Engineers

DATE 7/22/02
PAGE 1 OF 3
LAB CCI
LAB NO. 425356-2600

PROJECT NAME/LOCATION Seattle Housing Authority
PROJECT NUMBER 0241-012-00
PROJECT MANAGER LISA BONA
SAMPLED BY TODD COLOCINO

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED					NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	BETX (8021B)	NWTPH-Gx	NWTPH Dx	NW HCID		(Preserved, filtered, etc.)
-1	B-1-3	7/19/02	1145	S	2						
-2	B-1-6	7/19/02	1148	S	2				/		
-3	B-1-9	7/19/02	1152	S	2						
-4	B-2-2		1200	S	2						
-5	B-2-6		1222	S	2						
-6	B-2-11.5		1226	S	2			X	/	Add'l TPHDx for Lisa	
-7	B-2-W		1245	W	5						3 VOA's 2 L
-8	B-3-3		1310	S	2						
-9	B-3-6		1325	S	2						
-10	B-3-9		1333	S	2				/		
-11	B-4-3.5		1402	S	2				/		

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME Todd Colocino	GEI	PRINTED NAME		PRINTED NAME	
DATE 7/22/02	TIME 0750	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE Lucy Hopkins	CCIHL	SIGNATURE		SIGNATURE	
PRINTED NAME Lucy Hopkins		PRINTED NAME		PRINTED NAME	
DATE 7-22-02	TIME 3:10pm	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

CHAIN OF CUSTODY RECORD

GEOENGINEERS, INC.
8410 154TH AVENUE N.E.
REDMOND, WASHINGTON 98052
(425) 861-6000

Geo Engineers

DATE 7/22/02
PAGE 2 OF 3
LAB CCI
LAB NO. 425-356-2600

PROJECT NAME/LOCATION Seattle Housing Authority
PROJECT NUMBER 0241-012-00
PROJECT MANAGER LISA BONA
SAMPLED BY TODD COLOCINO

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED											NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	BETX (8021B)	NWTPH-Gx	NWTPH-Dx	NWHCID								(Preserved, filtered, etc.)
-12	B-4-6.5	7/19/02	1410	S	2												
-13	B-4-9		1414	S	2												
-14	B-5-3.5		1425	S	2												
-15	B-5-7.5		1432	S	2				/								
-16	B-5-10.5		1440	S	2												
-17	B-6-3.5		1520	S	3	/	/	/									
18	B-6-7.5		1530	S	2	—	—	X	— Added 7/29/02 per Lisa								
19	B-6-10		1534	S	2												
20	B-7-3.5		1455	S	2	/	/	/									
21	B-7-7.5		1500	S	2												
22	B-7-10.5		1516	S	2	X											

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE Todd Colocino		SIGNATURE		SIGNATURE	
PRINTED NAME Todd Colocino		PRINTED NAME		PRINTED NAME	
DATE 7/22/02 TIME 0750		DATE TIME		DATE TIME	
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE Lucy Hoelscher		SIGNATURE		SIGNATURE	
PRINTED NAME Lucy Hoelscher		PRINTED NAME		PRINTED NAME	
DATE 7-22-02 TIME 2:45pm		DATE TIME		DATE TIME	

ADDITIONAL COMMENTS:

CHAIN OF CUSTODY RECORD

GEOENGINEERS, INC.
8410 154TH AVENUE N.E.
REDMOND, WASHINGTON 98052
(425) 861-6000

Geo Engineers

DATE 7/22/02
PAGE 3 OF 3
LAB CC1
LAB NO. 435356-2600

PROJECT NAME/LOCATION 7315 MLK Way, Seattle
PROJECT NUMBER 0241-012-00
PROJECT MANAGER LISA BONA
SAMPLED BY TODD COLOCINO

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED					NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	BETX (8021B)	NW TPH-Gx	NWTPH-Dx	HCID		(Preserved, filtered, etc.)
23	B-8-3.5	7/19/02	1552	S	1						
24	B-9-3.5	"	1559	S	1	/	/	/			
25	B-10-3.5	↓	1410	S	1			X	-	Add'l 7/29/02 per Lisa	

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME	Todd Colocino	PRINTED NAME		PRINTED NAME	
DATE 7/22/02	TIME 0750	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE	Lucy Hoelscher	SIGNATURE		SIGNATURE	
PRINTED NAME	Lucy Hoelscher	PRINTED NAME		PRINTED NAME	
DATE 7-22-02	TIME 2:45 pm	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

APPENDIX D
REPORT LIMITATIONS AND GUIDELINES FOR USE

APPENDIX D

REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This Appendix provides information to help you manage your risks with respect to the use of this report.

ENVIRONMENTAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report has been prepared for the exclusive use of Seattle Housing Authority, their authorized agents and regulatory agencies. This report may be made available to the current site owners for review. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except Seattle Housing Authority should rely on this environmental report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

THIS ENVIRONMENTAL REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

This report has been prepared for the 7313/7315 Martin Luther King Jr. Way South property in Seattle, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

RELIANCE CONDITIONS FOR THIRD PARTIES

Our report was prepared for the exclusive use of Seattle Housing Authority. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

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[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

ENVIRONMENTAL REGULATIONS ARE ALWAYS EVOLVING

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

UNCERTAINTY MAY REMAIN EVEN AFTER THIS PHASE II ESA IS COMPLETED

No ESA can wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely-spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

SUBSURFACE CONDITIONS CAN CHANGE

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

SOIL AND GROUNDWATER END USE

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

MOST ENVIRONMENTAL FINDINGS ARE PROFESSIONAL OPINIONS

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface

conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

DO NOT REDRAW THE EXPLORATION LOGS

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

READ THESE PROVISIONS CLOSELY

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

GEOTECHNICAL, GEOLOGIC AND GEOENVIRONMENTAL REPORTS SHOULD NOT BE INTERCHANGED

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

BIOLOGICAL POLLUTANTS

GeoEngineers' Scope of Work specifically excludes the investigation, detection, or assessment of the presence of Biological Compounds which are Pollutants in or around any structure. Accordingly, this report includes no interpretations, recommendations, findings, or conclusions for the purpose of detecting, assessing, or abating Biological Pollutants. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.