BP OIL

BP Oil Company
Environmental Resources Management
Building 13 Suite N
295 SW 41st Street
Renton Washington 98055-4931
(206) 251-0667

June 2, 1994

Mr. Ben Amoah-Forson
Washington Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

RE: BP OIL FACILITY #11046
33800 First Avenue South
Federal Way, Washington

Attached please find our **SUBSURFACE CHARACTERIZATION REPORT DATED MAY, 1994** for the above referenced facility.

If you have any questions, please call me at (206) 251-8209.

Respectfully,

Peter J. DeSantis
Environmental Engineer

PJD:mu ERM11046

cc: Larry Silva, Tosco Northwest Company, 601 Union Street, Suite 2500, Seattle, WA 98101

K. V. Lew, RZA-AGRA Inc., 11335 NE 122nd Way, Suite 100, Kirkland, WA 98034-6918

Site File

SUBSURFACE CHARACTERIZATION REPORT

BP SERVICE STATION No. 11046

33800 First Avenue South
Federal Way, Washington

Prepared for

BP Oil Company

11-09259-00

May, 1994

RZA AGRA, Inc.
Engineering & Environmental Services

AGRA
Earth & Environmental Group

RZA AGRA, Inc.
Engineering & Environmental Services

11335 NE 122nd Way
Suite 100
Kirkland, WA 98034-6918
(206) 820-4669
FAX (206) 821-3914

27 May 1994

11-09259-00

BP Oil Company
295 S.W. 41st Street
Building 13, Suite N
Renton, Washington 98055

Attention Mr Scott Hooton

Subject: Subsurface Characterization Report
BP Service Station Number 11046
33800 First Avenue South
Federal Way, Washington

Dear Mr Hooton:

We are pleased to present the enclosed report which documents our recent characterization activities at the subject site Analytical tests were performed on soil samples collected during the advancement of five soil borings during this phase of work Included with this report are copies of the boring logs, copies of the laboratory reports, the location of all water wells within one-quarter mile of the site and a completed sensitive receptor survey This phase of work was completed under B P. Contract Number G147020.

We appreciate this opportunity to be of continued service to BP Oil Company. Please contact us if you have questions regarding this report, or other phases of this project

Respectfully submitted,
RZA AGRA, Inc

Eric L. Smith
Environmental Geologist

Sean W. Donnan, P.G.
Associate

Subsurface Characterization Report

Service Station No. 11046

33800 First Avenue South

Federal Way, Washington

Prepared for

BP Oil Company E R M

Northwest Division

295 S W 41st Street

Building 13, Suite N

Renton, Washington 98055

Prepared by,

RZA AGRA, Inc.

11335 N E. 122nd Way, Suite 100

Kirkland, Washington 98034-6918

May 1994

11-09259-00

TABLE OF CONTENTS

11-09259-00

1.0 SUMMARY

The following report documents subsurface characterization procedures conducted at Service Station No 11046 during December of 1993 The purpose of this work was to provide information regarding the presence or absence of petroleum hydrocarbons in soil and groundwater beneath the subject site A brief summary of our findings and the work performed is presented below The main body of the report should be consulted for a more detailed discussion of our findings

- The subject site is occupied by BP Oil Branded Service Station No 11046. The service station only serves automotive gasolines and does not perform automotive repair on location

- One public water supply well exists approximately ¼ mile south of the subject site No private water wells are located within ¼ mile of the site

- Five soil borings were advanced to characterize soil and groundwater at the subject site with respect to the presence of petroleum hydrocarbons The borings did not encounter groundwater to a depth of 45 feet, therefore, no monitoring wells were installed The borings were abandoned using bentonite chips

- Soils encountered during drilling consisted of dense to very dense gravelly sand and sandy gravel These soils are interpreted as overconsolidated glacial till

- Screening of soil sample head space with an organic vapor meter (OVM) indicated the presence of petroleum hydrocarbons in boring B-5 Borings B-1 through B-4 did not show any indications of petroleum hydrocarbons

- Chemical analysis of selected soil samples from boring B-5 indicated detectable concentrations of petroleum hydrocarbons Diesel was detected in boring B-3 All other samples were below detection limits for petroleum hydrocarbons

- Detectable levels of lead were observed in borings B-1, B-2, B-3, and B-5 These concentrations were all well below MTCA Method A cleanup levels (of 250 ppm) for lead in soil

2.0 SCOPE OF WORK

The scope of work for this project consisted of advancing five borings to a depth of approximately 45 feet Since no groundwater was encountered in these borings, no monitoring wells were installed and the borings were abandoned and backfilled with bentonite chips to the full depth explored The borings were continuously logged by a geologist from our firm Continuous split spoon samples were collected from each boring to facilitate lithologic interpretation and to provide samples for chemical analysis The soil samples were sent to B P 's contract laboratory (Analytical Laboratories of Renton, Washington) for analysis for petroleum hydrocarbons and lead

3.0 REGIONAL GEOLOGY/HYDROGEOLOGY

The project site lies within the Puget Sound Lowland, which is a major structural and topographic linear depression that trends north-south between the Olympic Mountains on the west and the Cascade Mountain Range on the east This depression has been subsequently filled with glacially derived sediments during several episodes of glacial advance and retreat Early sediments were overridden by later glacial advances creating deposits referred to as overconsolidated till These overconsolidated till deposits generally consist of very dense, silty fine to medium sand with varying amounts of gravel Lenses of outwash sandy gravels are also common in the local stratigraphy

4.0 SITE CONDITIONS

The subject site is located at the southeast corner of First Avenue South and SW 338th in Federal Way, Washington (Figure 1) The site is generally square with approximately 200 feet of frontage along both First Avenue South and 338th The site is currently occupied by a retail service station building and four pump islands to the east of the station. Four underground storage tanks of 10,000-gallon capacity are located south of the station building, their contents limited to automotive gasolines Figure 3 represents general land use in the vicinity of the site

5.0 SUBSURFACE EXPLORATION

The subsurface exploration of this site consisted of advancing five borings to an approximate depth of 45 feet These borings were continuously sampled using a split spoon sampler Soil samples were collected continuously for the purpose of lithologic interpretation The approximate locations of the borings, pump islands, USTs, and site structures are shown on the Site and Exploration Plan (Figure 2) Subsurface exploration procedures are included in Appendix A Detailed lithologic descriptions of the soils encountered during drilling, sample intervals, and headspace concentrations are indicated on the boring logs which are also included in Appendix A

5.1 Subsurface Conditions

In general, the soils encountered during drilling on this site consisted of interlayered lenses of gravelly sand and sandy gravel with varying amounts of silt These soils vary from medium to very dense No groundwater was observed in the borings on this site

5.2 Soil Analytical Results

Soil samples collected from the five borings were analyzed for

- Gasoline range (C_1 - C_{12}) petroleum hydrocarbons by Washington State Department of Ecology (Ecology) Method WTPH-G
- Diesel range (C_{13} - C_{24}) petroleum hydrocarbons by Ecology Method WTPH-D
- Motor oil range (C_{25} - C_{34}) petroleum hydrocarbons by Ecology Method WTPH-D extended
- Total lead by EPA Method 6010
- Volatile aromatic hydrocarbons benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020

The laboratory testing procedures are documented in Appendix B The analytical test results of the selected soil samples indicate that borings B-1, B-2, and B-4 did not exhibit petroleum hydrocarbons above the laboratory method detection limits The soil sample from boring B-3 exhibited a diesel concentration of 14 ppm Soil sample S-6 from a depth of 15 feet from boring B-5 exhibited BTEX, WTPH-G and WTPH-D concentrations of 1 8, 25, 62, 140 (BTEX), 1,200 (WTPH-G), and 260 (WTPH-D), respectively Boring B-1, B-2, B-3, and B-5 exhibited detectable total lead concentrations, but all were well below MTCA Method A cleanup levels Boring B-4 did not exhibit lead in concentrations above the laboratory method detection limit The analytical results for these soil samples are summarized on Table 1 The laboratory reports and chain-of-custody documents are included in Appendix B

6.0 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL

All of the quality assurance/quality control (QA/QC) data associated with the soil and groundwater samples collected during this phase of work were within acceptable parameters as defined in the EPA document "Test Methods for Evaluating Solid Waste" (SW-846) A detailed discussion of the QA/QC program and procedures is included with the laboratory reports and chain-of-custody documents in Appendix B

We appreciate the opportunity to be of continued service to BP Oil Company Should you have any questions regarding this report or other aspects of this project, please do not hesitate to call at your earliest convenience

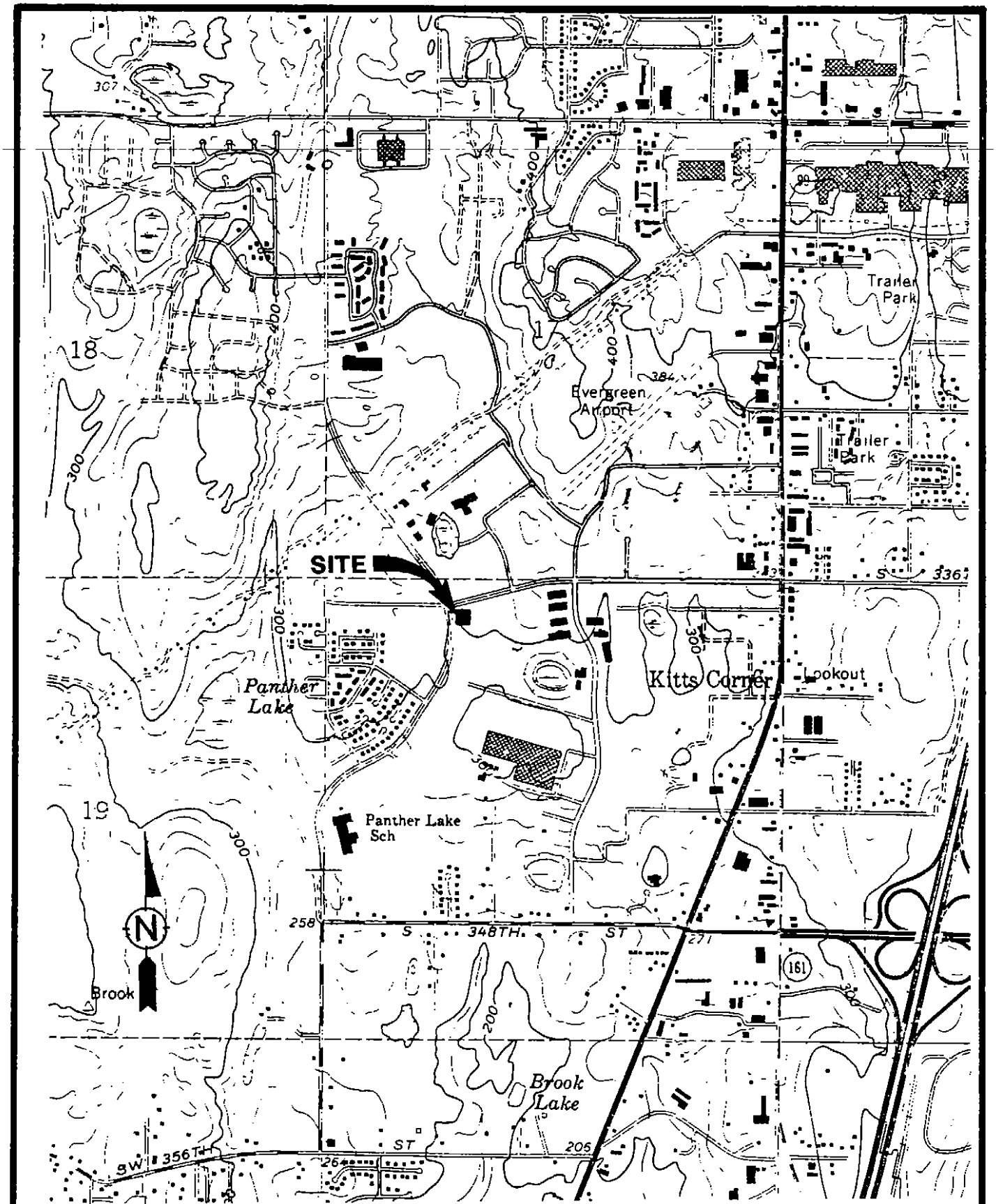
Respectfully submitted,

RZA AGRA, Inc

Eric L Smith
Staff Geologist

Sean W Donnan, P G
Associate

ELS/SWD/lad



MAP BASED ON DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY MAP DATED 1961, PHOTOREVISED 1981

RZA-AGRA
ENGINEERING & ENVIRONMENTAL SERVICES

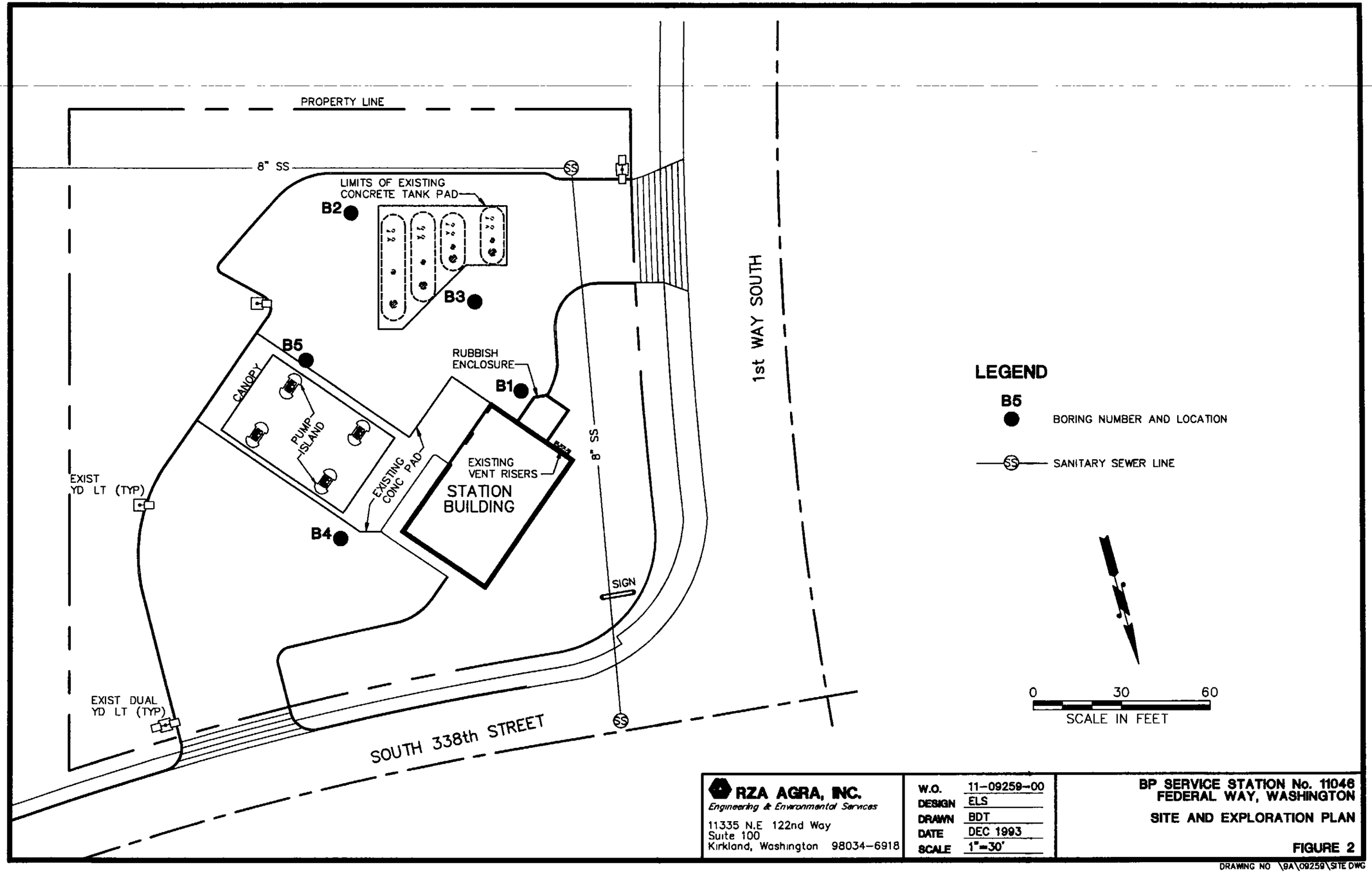
11335 N E 122nd Way
Suite 100
Kirkland, Washington
98034-6918

WO	1109259
DESIGN	ELS
DRAWN	DMW
DATE	DEC 1993
SCALE	N.T.S.

BP SERVICE STATION No. 11046
FEDERAL WAY, WASHINGTON

LOCATION MAP

FIGURE 1



RZA AGRA, INC.
Engineering & Environmental Services
11335 N.E 122nd Way
Suite 100
Kirkland, Washington 98034-6918

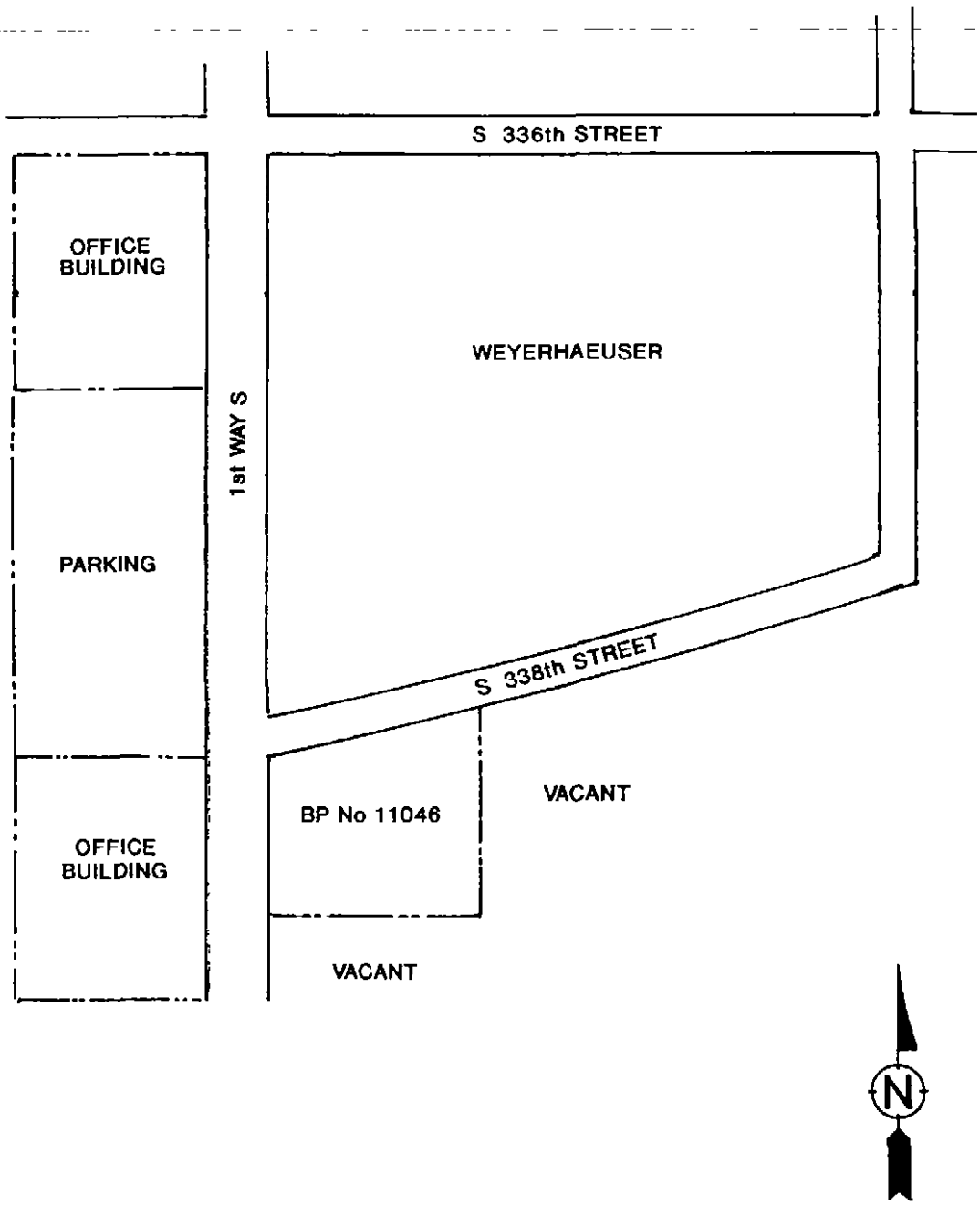
W.O.	11-09259-00
DESIGN	ELS
DRAWN	BDT
DATE	DEC 1993
SCALE	1"=30'

BP SERVICE STATION No. 11046
FEDERAL WAY, WASHINGTON

SITE AND EXPLORATION PLAN

FIGURE 2

DRAWING NO \9A\09259\SITE DWG



RZA-AGRA
ENGINEERING & ENVIRONMENTAL SERVICES

11335 N E 122nd Way
Suite 100
Kirkland, Washington
98034-6918

WO	1109259
DESIGN	ELS
DRAWN	DMW
DATE	JAN 1994
SCALE	1"=200'

BP SERVICE STATION No.11046
FEDERAL WAY, WASHINGTON

LAND USE MAP

FIGURE 3

Table 1: Summary of Analytical Test Results: Soil
BP Service Station No. 11046
33800 First Avenue South
Federal Way, Washington
RZA AGRA, Inc. Project No. 11-09259-00

Sample Number	Benzene (ppm)	Toluene (ppm)	Ethyl Benzene (ppm)	Total Xylenes (ppm)	WTPH-G (ppm)	WTPH-D		Total Lead (ppm)
						Diesel (ppm)	Motor Oil (ppm)	
B-1/S-18	<0.027	<0.027	<0.027	<0.027	<5	<11	<43	4.6
B-1/S-17	<0.026	<0.026	<0.026	<0.026	<5	<10	<42	1.8
B-3/S-17	<0.027	<0.027	<0.027	<0.027	<5	14	<44	1.9
B-4/S-3	<0 027	<0.027	<0.027	<0.027	<5	<11	<43	<1 6
B-4/S-18	<0.027	<0.027	<0.027	<0 027	<5	<11	<43	<1.6
B-5/S-6	1.8	25	62	140	1,200	260	<43	<1.6
B-5/S-18	<0.026	0.086	<0.026	<0.026	<5	<11	<42	2.1

Notes:

Benzene, Toulene, Ethylbenzene and Total Xylenes (BTEX) were analyzed by EPA Method 8020
WTPH-G = Total Petroleum Hydrocarbons, gasoline range, by Ecology Method WTPH-G.
WTPH-D = Total Petroleum Hydrocarbons, diesel range, by Ecology Method WTPH-D (diesel range = C12-C24, motor oil range = C24-C34)
Total Lead analyzed by EPA Method 6010
All concentration are expressed in parts per million (ppm).

APPENDIX A

SUBSURFACE EXPLORATION PROCEDURES AND BORING LOGS

APPENDIX A

SUBSURFACE EXPLORATION PROCEDURES AND BORING LOGS

The field exploration program conducted for this study consisted of advancing five borings utilizing an Ingersoll Rand AP-1000 percussion Hammer drill rig advancing a 6-inch outside diameter casing Locations of the explorations are presented on Figure 2 During the drilling process, samples were obtained continuously. The borings were advanced and logged under the supervision of an experienced engineer or geologist from our firm

Characterization of Soils

Soils samples were obtained using the Standard Penetration Test Procedure as described in ASTM:D-1586. The testing and sampling consisted of driving a split barrel sampler a distance of up to 30 inches into the soil below the auger bit with a 140-pound hammer, free falling a distance of 30 inches. The number of blows for each 6-inch interval is recorded and the number of blows required to drive the sampler the final 12 inches is considered the Standard Penetration Resistance ("N") or the blow count, which is represented on the boring logs in this appendix If a total of 50 blows is recorded within a 6-inch interval, the blow count is recorded as 50 blows for the actual number of inches of penetration and is considered refusal The blow count, or "N" value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils The high gravel, cobble, and boulder content of some fluvial and glacial soils often yields anonymously high blow counts due to oversized material The soil samples retrieved from the split-spoon sampler were classified in the field and a representative portion placed in laboratory-prepared, air-tight glass containers

Soil Sampling Procedures

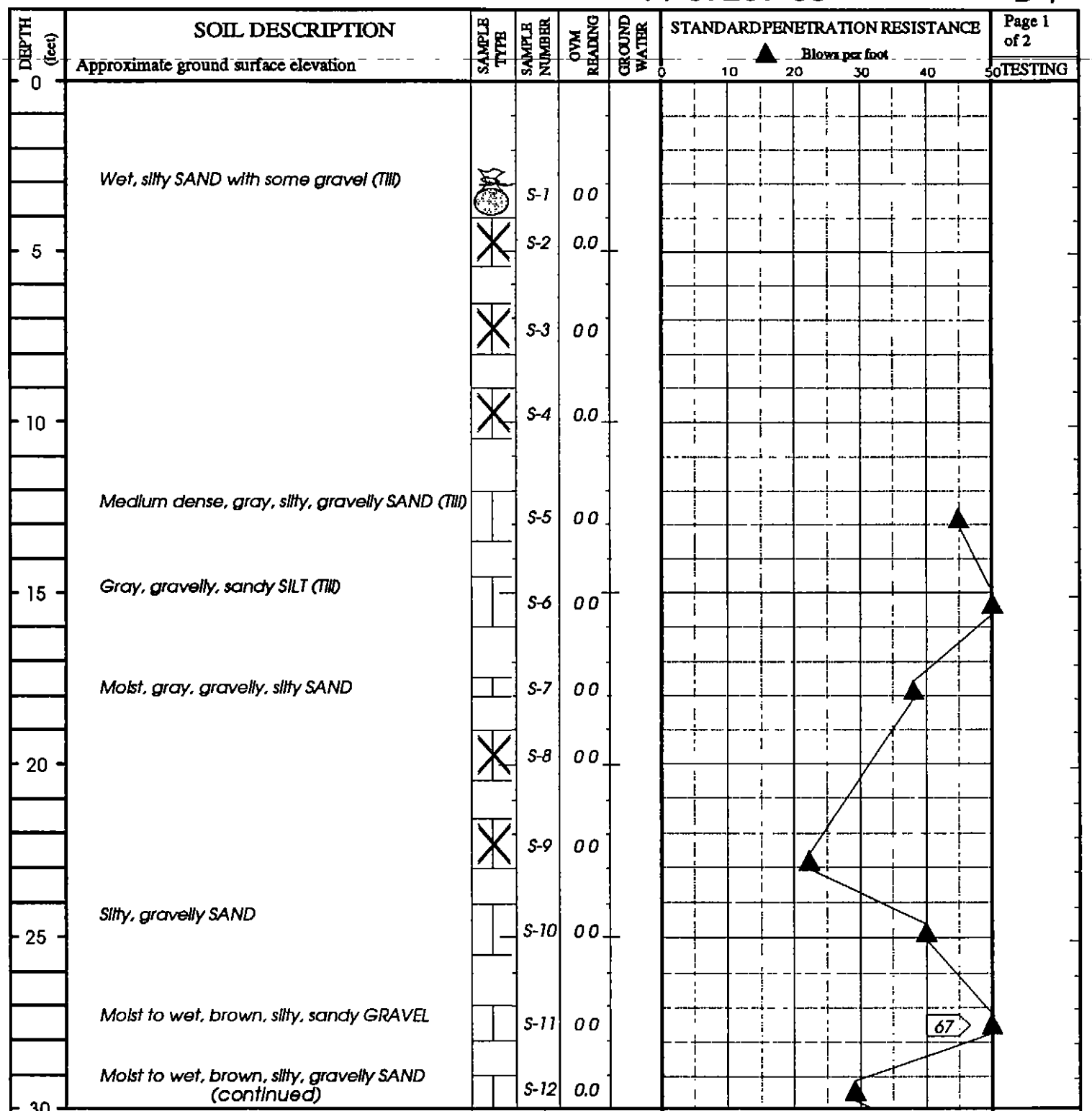
The soil samples were recovered at each interval using procedures designed to minimize the risk of cross contamination Prior to the drilling of the boring, the drilling equipment and sample tools were cleaned using a steam cleaner Between each sampling attempt, the sampling tools were scrubbed with a stiff brush and a detergent solution consisting of Liquinox and warm water, and then rinsed with potable water and liberal quantities of distilled water The samples were classified in the field and immediately transferred to laboratory treated glass jars, and tightly sealed with a teflon-lined threaded cap Samples were screened for the presence of volatile organic compounds in the field with an organic vapor meter (OVM) and several samples were selected for laboratory analysis Samples were stored and transported in a chilled ice chest throughout the field program. Selected soil samples were subsequently transferred to an analytical laboratory under subcontract to our firm, in accordance with RZA AGRA, Inc chain-of- custody procedures

The boring logs presented in this appendix are based on the drilling action, visual inspection of the samples secured, laboratory results, and field logs. The various types of soils are indicated, as well as the depths where soils or characteristics of the soils changed It should be noted that these changes may have been gradual, and as such, the soil contact elevations are interpreted Subsurface water conditions are evaluated by observing the moisture condition of the samples, the free water on the sample rods, and in well measurements

Field Headspace Measurements

Each soil sample was screened for the presence of volatile organic compounds to facilitate selecting an appropriate soil sample to submit for chemical analysis This involved placing approximately 6 ounces of sampled soil directly into a sealable plastic bag The sample was then shaken vigorously for approximately 15 seconds and a head space reading was taken after plunging the probe of the OVM detector through the plastic bag. Field head space analysis was performed on each sample utilizing a Model 580B OVM The highest digital readout value displayed by the instrument was recorded for each sample. This value indicates the total vapor concentration of volatilized organic compounds These compounds include numerous constituents of petroleum hydrocarbons However, the OVM is not capable of determining the species of these compounds or their concentrations in the soil samples. Consequently, it should be considered merely a screening tool that aids in detecting the presence of volatile soil contaminants. Results of field analysis are presented on the boring logs in this appendix

PROJECT: *BP #11046* W.O. *11-09259-00* BORING NO. *B-1*



LEGEND

2-inch OD split-spoon sample

Grab sample

Sample not recovered

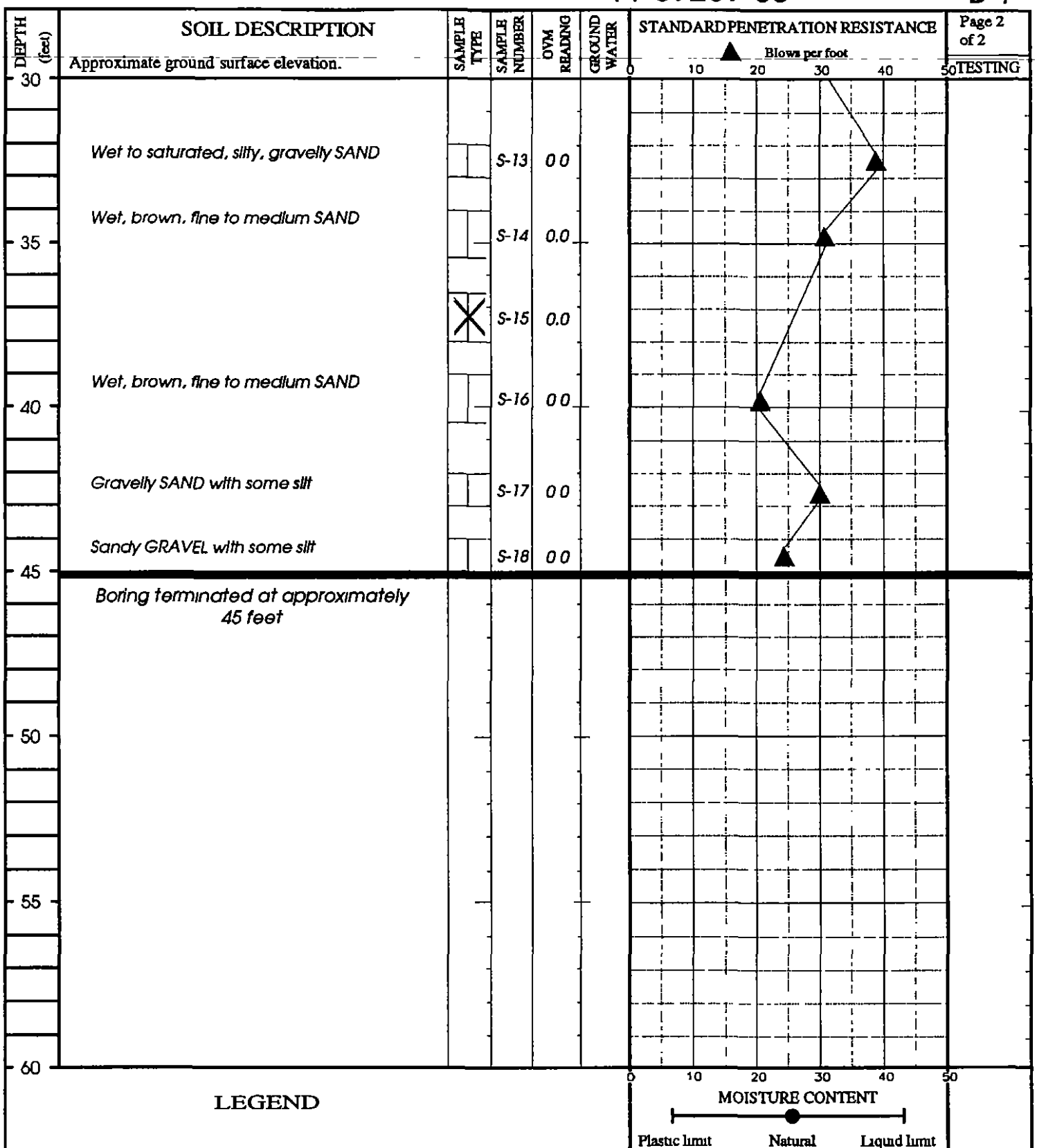
RZA AGRA, Inc
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started *29 November 1993* Drilling completed *29 November 1993* Logged by *ELS*

PROJECT: *BP #11046*

W.O. *11-09259-00* BORING NO. *B-1*



LEGEND

2-inch OD split-spoon sample

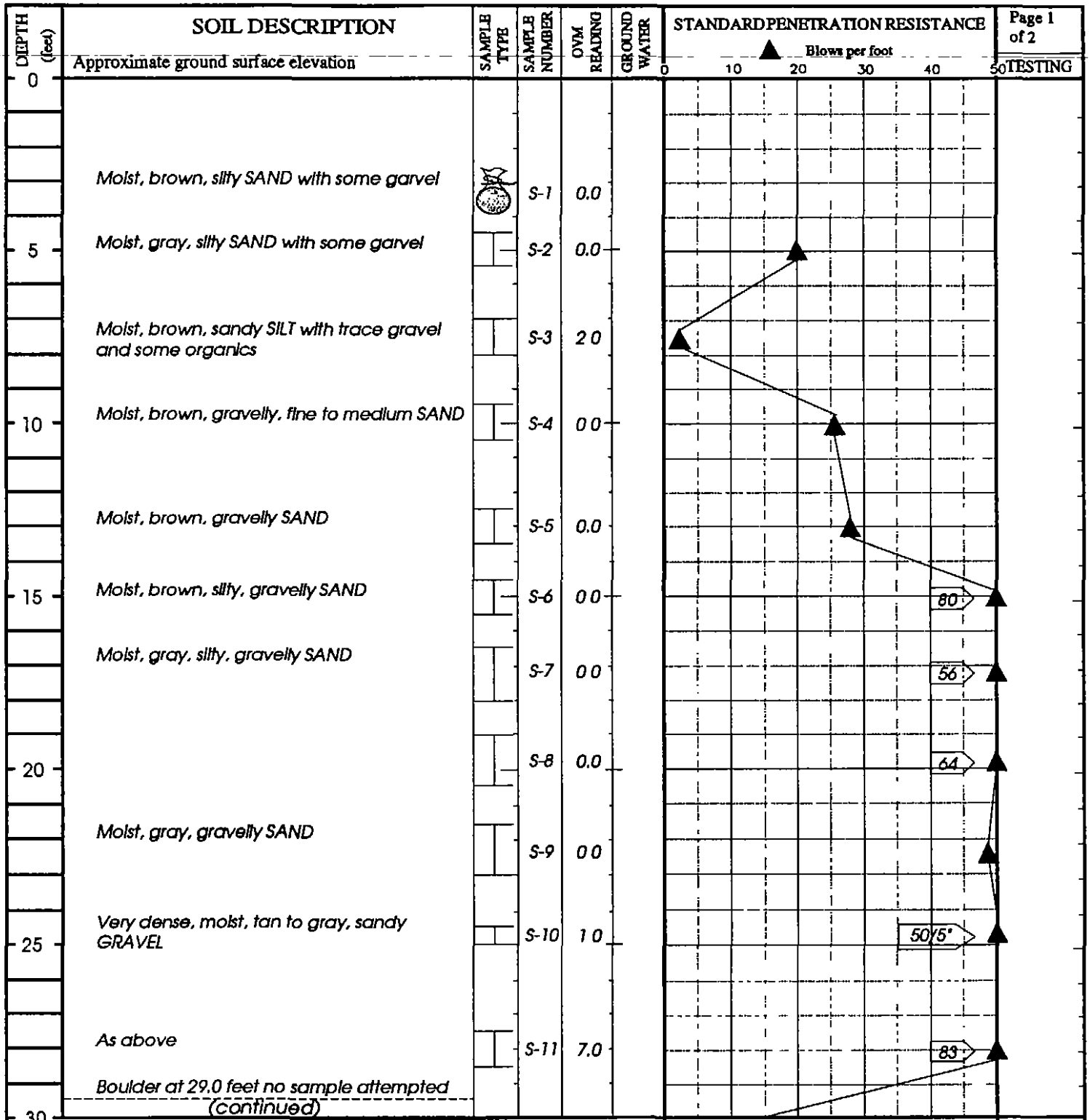
Sample not recovered

RZA AGRA, Inc
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *29 November 1993* Drilling completed: *29 November 1993* Logged by: *ELS*

PROJECT: *BP #11046* W.O. *11-09259-00* BORING NO. *B-2*



LEGEND

2-inch OD split-spoon sample

Grab sample

RZA AGRA, Inc
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started. *29 November 1993* Drilling completed *30 November 1993* Logged by *ELS*

PROJECT: *BP #11046* W.O. *11-09259-00* BORING NO. *B-2*

Page 2 of 2

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation	SAMPLE TYPE	SAMPLE NUMBER	OVM READING	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows per foot	TESTING
30	*Medium dense, damp, gray, GRAVEL with some medium sand*		S-12	0.0			
	Very dense, moist, tan, fine SAND with trace gravel		S-13	0.0		57	
35	*Grades with some gravel to gravelly*		S-14	0.0		61	
	Grades to gravelly		S-15	0.0		61	
40	*Very dense, dmp, tan to gray, medium, sandy GRAVEL*		S-16	0.0		51	
	Very dense, damp, tan, medium SAND with some gravel		S-17	0.0		52	
45	*Medium dense, damp, tan, medium GRAVEL with trace sand*	X	S-18	0.0			
	Boring terminated at approximately 45.5 feet						
50							
55							
60							

0 10 20 30 40 50

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

LEGEND

I 2-inch OD split-spoon sample

X Sample not recovered

RZA AGRA, Inc
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started *29 November 1993* Drilling completed *30 November 1993* Logged by *ELS*

PROJECT: *BP #11046* W.O. *11-09259-00* BORING NO. *B-3*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM READING	GROUND WATER
0	*Paving*				
	Medium dense to dense, damp, dark gray, gravelly, fine SAND		S-1	0.0	
5	*Dense, moist, dark gray, fine SAND with trace gravel*		S-2	0.0	
	Haedspace sample retrieved from cuttings		S-3	0.0	
10	*Medium dense to dense, damp, tan to gray, silty, gravelly SAND*		S-4	0.0	
15	*Dense, damp, gray, medium to coarse GRAVEL with trace sand and silt*		S-5	0.0	
	Very dense, moist to wet, gray, gravelly, silty SAND		S-6	0.0	
20	*Dense, moist, brown, medium, sandy GRAVEL*		S-7	0.0	
			S-8	0.0	
25	*Grades to very dense with one wet horizon at approximately 24.7 to 24.9 feet*		S-9	0.0	
	Dense, wet, tan, fine SAND with trace silt and gravel		S-10	0.0	
	Grades to moist, gravelly with some coarse sand (continued)		S-11	0.0	
30					

STANDARD PENETRATION RESISTANCE
Blows per foot
0 10 20 30 40 50

Page 1 of 2

TESTING

64

58

0 10 20 30 40 50
MOISTURE CONTENT
Plastic limit Natural Liquid limit

LEGEND

2-inch OD split-spoon sample

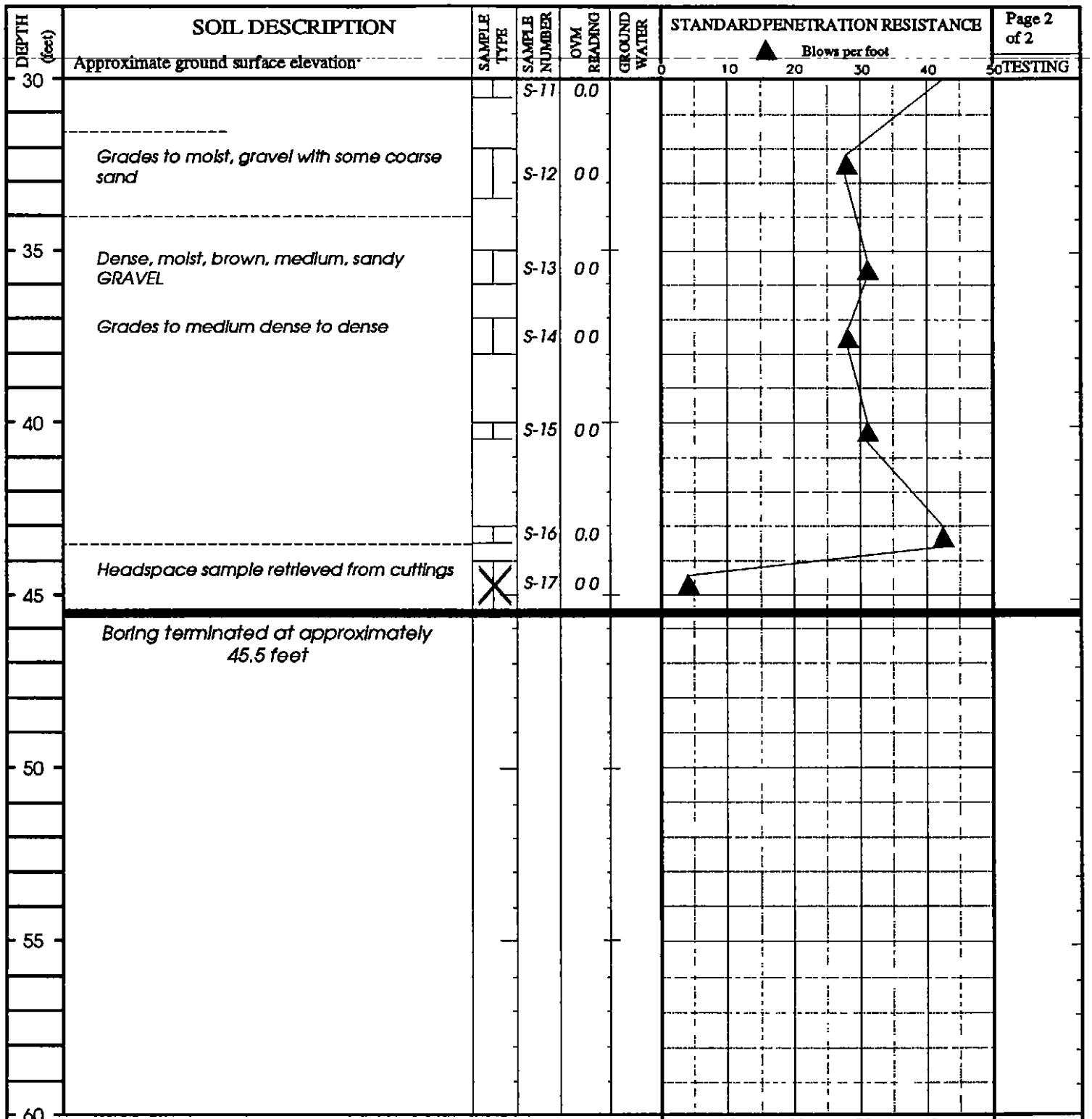
Grab sample

Sample not recovered

RZA AGRA, Inc
Engineering & Environmental Services
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started *30 November 1993* Drilling completed *30 November 1993* Logged by. *ELS*

PROJECT: *BP #11046* W.O. *11-09259-00* BORING NO. *B-3*



LEGEND

2-inch OD split-spoon sample

Sample not recovered

RZA AGRA, Inc
Engineering & Environmental Services
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started *30 November 1993* Drilling completed *30 November 1993* Logged by *ELS*

PROJECT: *BP #11046* W.O. *11-09259-00* BORING NO. *B-4*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM READING	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows per foot	TESTING
0	*Paving*						
	Dense, moist, tan, medium, sandy GRAVEL		S-1	13			
5	*Headspace sample retrieved from cuttings*		S-2	19			
	Very dense, damp, gray, silty, gravelly SAND		S-3	39		63	
10	*Grades to mottled gray*		S-4	27		71	
			S-5	21		54	
15	*Grades to dense, less mottled*		S-6	20			
	Grades with relatively little mottling		S-7	19			
20	*Grades to very dense, headspace sample retrieved from cuttings*		S-8	17		50/4"	
	Grades to slightly mottled, relatively more gravel		S-9	16		54	
25	*Medium dense, damp, tan, medium GRAVEL*		S-10	11			
	Very dense, moist, tan, gravelly, fine SAND		S-11	12		60	
	Very dense, damp, tan, medium GRAVEL with trace medium sand (continued)		S-12	14		50/4"	
30							

Page 1 of 2

0 10 20 30 40 50

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

LEGEND

2-inch OD split-spoon sample

Grab sample

RZA AGRA, Inc
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *02 Decmeber 1993* Drilling completed: *02 December 1993* Logged by: *ELS*

PROJECT: *BP #11046* W.O. *11-09259-00* BORING NO. *B-4*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation	SAMPLE TYPE	SAMPLE NUMBER	OVM READING	GROUND WATER	STANDARD PENETRATION RESISTANCE ▲ Blows per foot	Page 2 of 2 TESTING
30						0 10 20 30 40 50	
	Grades to sandy		S-13	14		50/6"	
35	*Grades to dense*		S-14	9			
	Grades to very dense		S-15	8		73	
40	*Grades to dense, trace to some sand*		S-16	15			
	Grades to very dense, sandy		S-17	23		53	
45			S-18	20		50/5"	
	Boring terminated at approximately 45.5 feet						
50							
55							
60						0 10 20 30 40 50	

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

LEGEND

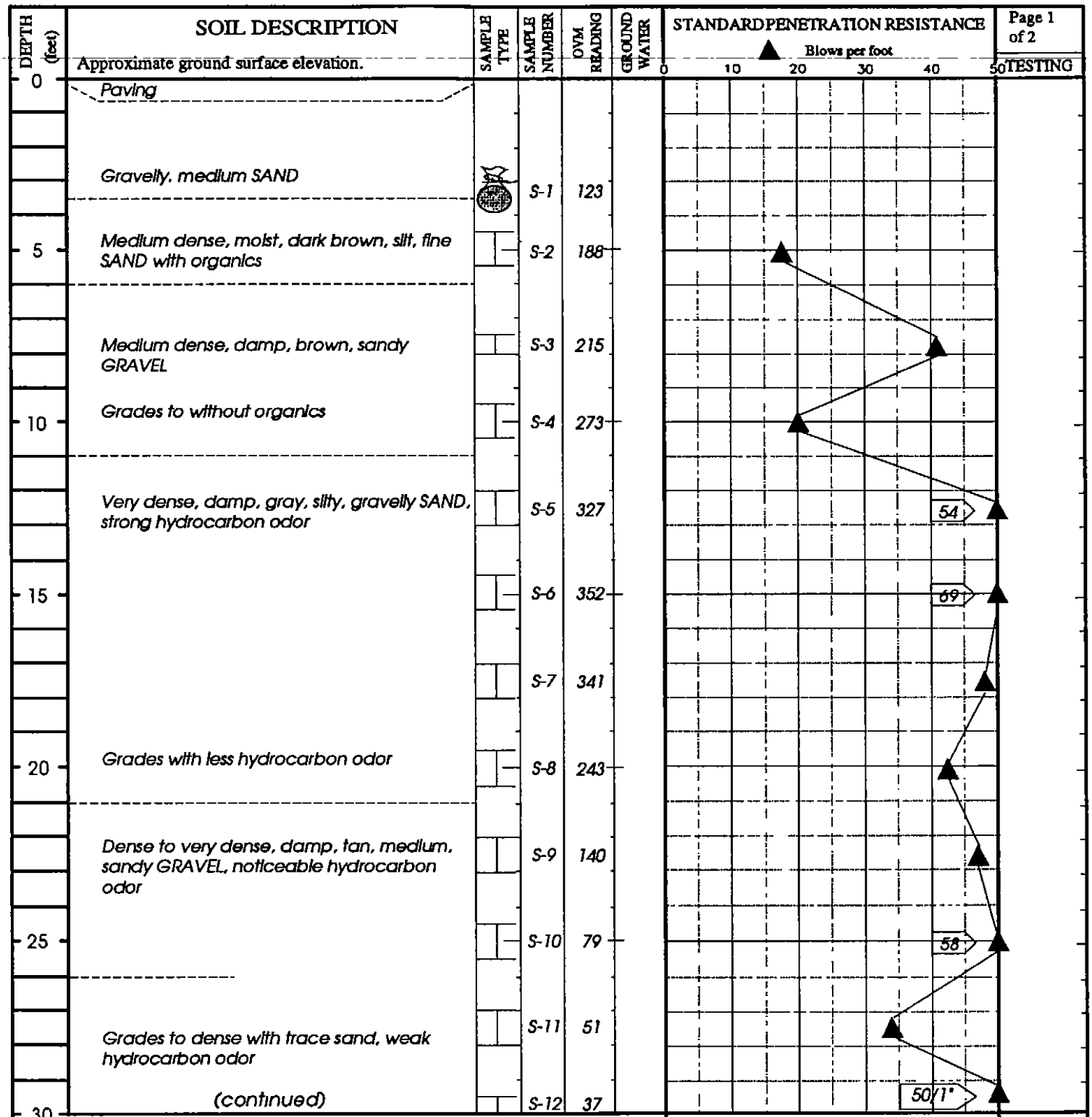
I 2-inch OD split-spoon sample

RZA AGRA, Inc
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started *02 December 1993* Drilling completed *02 December 1993* Logged by *ELS*

PROJECT: *BP #11046* W.O. *11-09259-00* BORING NO. *B-5*



LEGEND

2-inch OD split-spoon sample

Grab sample

RZA AGRA, Inc
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started. *02 Decmeber 1993* Drilling completed. *02 December 1993* Logged by *ELS*

PROJECT: *BP #11046* W.O. *11-09259-00* BORING NO. *B-5*

Page 2 of 2

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation:	SAMPLE TYPE	SAMPLE NUMBER	OVM READING	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows per foot 0 10 20 30 40 50	TESTING
30	*Headspace sample retrieved from cuttings*		S-13	46			
35	*Very dense, moist, brown, sandy GRAVEL*		S-14	57		53	
	Grades to gravelly SAND		S-15	62		57	
40	*Grades to sandy GRAVEL*		S-16	65		50/5"	
			S-17	62		69	
45	*As above, grades to dense*		S-18	82			
	Boring terminated at approximately 45.5 feet						
50							
55							
60							

0 10 20 30 40 50

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

LEGEND

2-inch OD split-spoon sample

RZA AGRA, Inc
Engineering & Environmental Services

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started *02 December 1993* Drilling completed *02 December 1993* Logged by *ELS*

APPENDIX B

LABORATORY TESTING PROCEDURES AND ANALYTICAL CERTIFICATES

APPENDIX B

Laboratory Testing Procedure

Soil samples were selected from each exploration for analytical testing for a variety of analytes commonly associated with petroleum hydrocarbons fuel and waste oil. Analyses were performed by Analytical Technologies, Inc of Renton, Washington under contract to BP Oil A brief description of each of the laboratory tests conducted is given below The described test methods include designated Washington State Department of Ecology methods and standard EPA procedures

WTPH-G

WTPH-G adapts EPA SW-846 Methods 5030 and 8015 Soil samples analyzed with these methods are extracted with methanol. Quantification is conducted utilizing a gas chromatograph (GC) coupled with a flame ionization detector (FID) The extract may be introduced to the GC by either direct injection or the purge and trap technique (EPA Method 5030) Groundwater samples must be introduced by Method 5030. The sample is held in a hollow "sparge" tube A purified, inert gas (helium) is bubbled through the sample, which efficiently extracts the purgeable organic analytes from the aqueous phase into the vapor phase. The vapor phase is then passed through a sorbent trap where the analytes are collected After the extraction is complete, the trap is backflushed and heated, which effectively desorbs the purgeable analytes from the trap and flushes them onto the gas chromatograph column Analysis is primarily restricted to petroleum hydrocarbons in the C_7 to C_{12} (gasoline) range

WTPH-G analysis may be completed simultaneously with the analysis for BTEX by EPA Method 8020 by placing the PID and FID detectors in series on a single gas chromatograph column

WTPH-D - Extended

WTPH-D extended adapts EPA SW-846 Methods 3540/3550 and 8000/8015 and covers the quantitative analysis of diesel in soil. Analytes are extracted by mixing the soil sample with methylene chloride in a sonicator The extract can be filtered, diluted, or concentrated, as appropriate Analysis of the extract is conducted utilizing a gas chromatograph coupled with a flame ionization detector (FID).

Analytes are extracted from water samples by mixing the sample with methylene chloride in a separator funnel The methylene chloride extract can be diluted or concentrated as necessary The remainder of the analysis is the same as that used for soil Analysis is primarily restricted to petroleum hydrocarbons in the C_{12} to C_{24} (diesel) range and the C_{25} - C_{33} (oil) range.

Aromatic Volatile Organics by EPA Method 8020

Method 8020 is used to determine the concentration of various aromatic volatile organic compounds including benzene, toluene, ethylbenzene, ortho, meta and para-xylene (BTEX), chlorobenzene, dichlorobenzenes, pyridine, and styrene

Analytes are extracted from soil samples by mixing the sample with methanol The sample and solvent are thoroughly mixed utilizing a sonicator The extract is separated from the sample and introduced to the gas chromatograph (GC) by either direct injection or purge and trap (EPA Method 5030) Analysis utilizes a GC coupled with a photoionization detector (PID) The PID is specific for analysis of aromatic hydrocarbons

Analytes are extracted from water samples and injected using a purge-and-trap technique The sample is held in a hollow "sparge" tube A purified, inert gas (helium) is bubbled through the sample, which efficiently extracts the purgeable organic analytes from the aqueous phase to the vapor phase The gaseous mixture is then passed through a sorbent trap where the analytes are collected After the extraction is complete, the trap is backflushed and heated, which effectively desorbs the purgeable analytes from the trap and flushes them onto the gas chromatograph column Analytes are quantified with a photoionization detector (PID).

Total Lead by EPA Method 6010

Soil samples are digested in concentrated nitric acid The resulting extract is analyzed by inductively coupled plasma.

Quality Control

A quality assurance program is designed to assess the adherence of the analytical laboratory's procedures to standards established by state and/or federal regulations RZA AGRA implements quality control on its projects through establishing company goals and implementing standard company policies When selecting subcontractors, RZA AGRA examines the subcontractor's quality assurance program to assess if the data/services they provide also conform to the standard of quality we demand In terms of laboratories, RZA AGRA insists on a quality control package which demonstrates reliability, accuracy, and reproducibility These standards can be documented by the laboratory through a variety of methods including surrogates, blanks, duplicate samples, and matrix spikes

Surrogates are utilized to identify a standard of laboratory performance on individual samples Samples, blanks, and standards are spiked with surrogate compounds prior to preparation and analysis. During analysis, the concentration of the surrogate compound is measured, and the percent recoveries are calculated This provides a measure of the laboratory's accuracy For the purpose of this study, all associated surrogate recoveries were within an acceptable range

Blanks are artificial samples created by the laboratory, or by the sampler, designed to determine the existence and magnitude of potential contamination problems introduced during sampling or laboratory procedures. Should a blank analysis indicate contamination does exist, all data associated with the sample and/or set of samples must be evaluated to determine the origin and extent and to establish a course of action All blanks associated with this project exhibited no indications of cross-contamination

Duplicates are replicates taken from the same sample and analyzed to demonstrate the reproducibility of an analytical method, as well as provide a measure of the random error associated with the sample results The most significant sources of random errors are sampling and analytical procedures There are two primary types of duplicates field duplicates obtained during sampling, and laboratory duplicates Both types of duplicates are utilized to measure the degree of precision Laboratory duplicates were used in this investigation All duplicate results were within acceptable parameters of the laboratory's quality control standards

Matrix spikes are samples to which a known amount of analyte is added prior to beginning an analytical procedure. These samples are utilized to determine a measure of precision and accuracy of an analytical method on various sample matrices It should be noted that the data provided by this quality control method cannot be used as the sole criteria to evaluate the precision/accuracy of individual samples. Matrix spikes must be used in conjunction with all quality control data in order to provide a meaningful measure of the precision and accuracy of an analytical method All matrix spike results were within acceptable quality control parameters

Analytical Technologies, Inc
560 Naches Avenue, S W , Suite 101 Renton WA 98055 (206) 228-8335
Karen L Mixon, Laboratory Manager

ATI I.D. # 9312-051

December 20, 1993

RZA AGRA, Inc.
11335 N.E. 122nd Way
Suite 100
Kirkland WA 98034-6918

Attention : Eric Smith

Project Number : BP #11046 G147020

Project Name : BP #11046/33800 First Ave

Dear Mr. Smith:

On December 3, 1993, Analytical Technologies, Inc. (ATI), received 81 samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

Diana Spence

Diana Spence
Project Manager

DS/hal/elf

Enclosure

Analytical Technologies, Inc

ATI I.D. # 9312-051

SAMPLE CROSS REFERENCE SHEET

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9312-051-1	B-4 S-1	12/01/93	SOIL
9312-051-2	B-4 S-2	12/01/93	SOIL
9312-051-3	B-4 S-3	12/01/93	SOIL
9312-051-4	B-4 S-4	12/01/93	SOIL
9312-051-5	B-4 S-5	12/01/93	SOIL
9312-051-6	B-4 S-6	12/01/93	SOIL
9312-051-7	B-4 S-7	12/01/93	SOIL
9312-051-8	B-4 S-8	12/01/93	SOIL
9312-051-9	B-4 S-9	12/01/93	SOIL
9312-051-10	B-4 S-10	12/01/93	SOIL
9312-051-11	B-4 S-11	12/01/93	SOIL
9312-051-12	B-4 S-12	12/01/93	SOIL
9312-051-13	B-4 S-13	12/01/93	SOIL
9312-051-14	B-4 S-14	12/01/93	SOIL
9312-051-15	B-4 S-15	12/01/93	SOIL
9312-051-16	B-4 S-16	12/01/93	SOIL
9312-051-17	B-4 S-17	12/01/93	SOIL
9312-051-18	B-4 S-18	12/01/93	SOIL
9312-051-19	B-5 S-1	12/01/93	SOIL
9312-051-20	B-5 S-2	12/01/93	SOIL
9312-051-21	B-5 S-3	12/01/93	SOIL
9312-051-22	B-5 S-4	12/01/93	SOIL
9312-051-23	B-5 S-5	12/01/93	SOIL
9312-051-24	B-5 S-6	12/01/93	SOIL
9312-051-25	B-5 S-7	12/01/93	SOIL
9312-051-26	B-5 S-8	12/01/93	SOIL
9312-051-27	B-5 S-9	12/01/93	SOIL
9312-051-28	B-5 S-10	12/01/93	SOIL
9312-051-29	B-5 S-11	12/01/93	SOIL
9312-051-30	B-5 S-12	12/01/93	SOIL
9312-051-31	B-5 S-14	12/01/93	SOIL
9312-051-32	B-5 S-15	12/01/93	SOIL
9312-051-33	B-5 S-16	12/01/93	SOIL
9312-051-34	B-5 S-17	12/01/93	SOIL
9312-051-35	B-5 S-18	12/01/93	SOIL
9312-051-36	C1	12/01/93	SOIL
9312-051-37	B-1 S-1	11/29/93	SOIL
9312-051-38	B-1 S-5	11/29/93	SOIL

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Analytical Technologies, Inc

ATI I.D. # 9312-051

SAMPLE CROSS REFERENCE SHEET
CONTINUED

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9312-051-39	B-1 S-6	11/29/93	SOIL
9312-051-40	B-1 S-7	11/29/93	SOIL
9312-051-41	B-1 S-10	11/29/93	SOIL
9312-051-42	B-1 S-11	11/29/93	SOIL
9312-051-43	B-1 S-12	11/29/93	SOIL
9312-051-44	B-1 S-13	11/29/93	SOIL
9312-051-45	B-1 S-14	11/29/93	SOIL
9312-051-46	B-1 S-16	11/29/93	SOIL
9312-051-47	B-1 S-17	11/29/93	SOIL
9312-051-48	B-1 S-18	11/29/93	SOIL
9312-051-49	B-2 S-1	11/29/93	SOIL
9312-051-50	B-2 S-2	11/29/93	SOIL
9312-051-51	B-2 S-3	11/29/93	SOIL
9312-051-52	B-2 S-4	11/29/93	SOIL
9312-051-53	B-2 S-5	11/29/93	SOIL
9312-051-54	B-2 S-6	11/29/93	SOIL
9312-051-55	B-2 S-7	11/29/93	SOIL
9312-051-56	B-2 S-9	11/29/93	SOIL
9312-051-57	B-2 S-10	11/30/93	SOIL
9312-051-58	B-2 S-11	11/30/93	SOIL
9312-051-59	B-2 S-12	11/30/93	SOIL
9312-051-60	B-2 S-13	11/30/93	SOIL
9312-051-61	B-2 S-14	11/30/93	SOIL
9312-051-62	B-2 S-15	11/30/93	SOIL
9312-051-63	B-2 S-16	11/30/93	SOIL
9312-051-64	B-2 S-17	11/30/93	SOIL
9312-051-66	B-3 S-1	11/30/93	SOIL
9312-051-67	B-3 S-2	11/30/93	SOIL
9312-051-68	B-3 S-3	11/30/93	SOIL
9312-051-69	B-3 S-4	11/30/93	SOIL
9312-051-70	B-3 S-6	11/30/93	SOIL
9312-051-71	B-3 S-7	11/30/93	SOIL
9312-051-72	B-3 S-8	11/30/93	SOIL
9312-051-73	B-3 S-9	11/30/93	SOIL
9312-051-74	B-3 S-10	11/30/93	SOIL
9312-051-75	B-3 S-11	11/30/93	SOIL

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Analytical Technologies, Inc

ATI I.D. # 9312-051

SAMPLE CROSS REFERENCE SHEET
CONTINUED

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9312-051-76	B-3 S-12	11/30/93	SOIL
9312-051-77	B-3 S-13	11/30/93	SOIL
9312-051-78	B-3 S-14	11/30/93	SOIL
9312-051-79	B-3 S-15	11/30/93	SOIL
9312-051-80	B-3 S-16	11/30/93	SOIL
9312-051-81	B-3 S-17	11/30/93	SOIL
9312-051-82	B-1 S-3	11/29/93	SOIL

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	81

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc

ATI I.D. # 9312-051

ANALYTICAL SCHEDULE

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-G	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-D	R
LEAD	ICAP	EPA 6010	R
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R

R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

Analytical Technologies, Inc

ATI I.D. # 9312-051

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: N/A
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: N/A
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/03/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 12/03/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
BENZENE	<0.025
ETHYLBENZENE	<0.025
TOLUENE	<0.025
TOTAL XYLENES	<0.025
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	110	52 - 116
TRIFLUOROTOLUENE	107	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: N/A
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: N/A
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
BENZENE	<0.025
ETHYLBENZENE	<0.025
TOLUENE	<0.025
TOTAL XYLENES	<0.025
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	108	52 - 116
TRIFLUOROTOLUENE	102	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-3

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 12/01/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/03/93
CLIENT I.D.	: B-4 S-3	DATE ANALYZED	: 12/04/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
BENZENE	<0.027
ETHYLBENZENE	<0.027
TOLUENE	<0.027
TOTAL XYLENES	<0.027
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	101	52 - 116
TRIFLUOROTOLUENE	88	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-18

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 12/01/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/03/93
CLIENT I.D.	: B-4 S-18	DATE ANALYZED	: 12/04/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
BENZENE	<0.027
ETHYLBENZENE	<0.027
TOLUENE	<0.027
TOTAL XYLENES	<0.027
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	55	52 - 116
TRIFLUOROTOLUENE	78	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-24

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 12/01/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/03/93
CLIENT I.D.	: B-5 S-6	DATE ANALYZED	: 12/04/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 50

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
BENZENE	1.8
ETHYLBENZENE	25
TOLUENE	62
TOTAL XYLENES	140
FUEL HYDROCARBONS	1200
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	80	52 - 116
TRIFLUOROTOLUENE	98	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-35

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 12/01/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/03/93
CLIENT I.D.	: B-5 S-18	DATE ANALYZED	: 12/04/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
BENZENE	<0.026
ETHYLBENZENE	<0.026
TOLUENE	0.086
TOTAL XYLENES	<0.026
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	100	52 - 116
TRIFLUOROTOLUENE	86	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-48

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 11/29/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/03/93
CLIENT I.D.	: B-1 S-18	DATE ANALYZED	: 12/04/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
BENZENE	<0.027
ETHYLBENZENE	<0.027
TOLUENE	<0.027
TOTAL XYLENES	<0.027
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	103	52 - 116
TRIFLUOROTOLUENE	90	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-64

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 11/30/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: B-2 S-17	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
BENZENE	<0.026
ETHYLBENZENE	<0.026
TOLUENE	<0.026
TOTAL XYLENES	<0.026
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	105	52 - 116
TRIFLUOROTOLUENE	94	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-81

BETX - GASOLINE
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 11/30/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/03/93
CLIENT I.D.	: B-3 S-17	DATE ANALYZED	: 12/04/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
BENZENE	<0.027
ETHYLBENZENE	<0.027
TOLUENE	<0.027
TOTAL XYLENES	<0.027
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	99	52 - 116
TRIFLUOROTOLUENE	90	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT	: RZA AGRA, INC.	SAMPLE I.D. #	: BLANK
PROJECT #	: BP #11046 G147020	DATE EXTRACTED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE ANALYZED	: 12/03/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE	<0.0250	1.00	0.957	96	0.966	97	1
TOLUENE	<0.0250	1.00	0.982	98	0.969	97	1
TOTAL XYLENES	<0.0250	2.00	1.99	100	1.96	98	2
GASOLINE	<5.00	50.0	57.7	115	56.7	113	2

CONTROL LIMITS	% REC.	RPD
BENZENE	63 - 115	20
TOLUENE	75 - 110	20
TOTAL XYLENES	79 - 109	20
GASOLINE	80 - 119	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
BROMOFLUOROBENZENE	108	106	52 - 116
TRIFLUOROTOLUENE	95	103	50 - 150

AnalyticalTechnologies,Inc

ATI I.D. # 9312-051

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE
SAMPLE MATRIX : SOIL
METHOD : WA DOE WTPH-G/8020(BETX)

SAMPLE I.D. # : BLANK
DATE EXTRACTED : 12/06/93
DATE ANALYZED : 12/06/93
UNITS : mg/Kg

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE	<0.0250	1.00	0.994	99	N/A	N/A	N/A
TOLUENE	<0.0250	1.00	0.970	97	N/A	N/A	N/A
TOTAL XYLENES	<0.0250	2.00	1.93	97	N/A	N/A	N/A
GASOLINE	<5.00	50.0	58.8	118	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
BENZENE	63 - 115	20
TOLUENE	75 - 110	20
TOTAL XYLENES	79 - 109	20
GASOLINE	80 - 119	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
BROMOFLUOROBENZENE	103	N/A	52 - 116
TRIFLUOROTOLUENE	103	N/A	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT	: RZA AGRA, INC.	SAMPLE I.D. #	: 9312-061-5
PROJECT #	: BP #11046 G147020	DATE EXTRACTED	: 12/06/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE ANALYZED	: 12/07/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-G/8020(BETX)		

COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE	<5.00	<5.00	NC	N/A	N/A	N/A	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
GASOLINE	N/A	20

SURROGATE RECOVERIES	SAMPLE	SAMPLE DUP.	LIMITS
TRIFLUOROTOLUENE	80	76	50 - 150

NC = Not Calculable.

Analytical Technologies, Inc

ATI I.D. # 9312-051

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE
SAMPLE MATRIX : SOIL
METHOD : WA DOE WTPH-G/8020(BETX)

SAMPLE I.D. # : 9312-051-81
DATE EXTRACTED : 12/03/93
DATE ANALYZED : 12/04/93
UNITS : mg/Kg

COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
BENZENE	<0.0250	N/A	N/A	1.00	0.738	74	0.723	72	2
TOLUENE	<0.0250	N/A	N/A	1.00	0.792	79	0.772	77	3
TOTAL XYLENES	<0.0250	N/A	N/A	2.00	1.69	85	1.66	83	2
GASOLINE	<5.00	<5.00	NC	50.0	46.6	93	46.7	93	0

CONTROL LIMITS	% REC.	RPD
BENZENE	35 - 113	20
TOLUENE	43 - 107	20
TOTAL XYLENES	46 - 114	20
GASOLINE	50 - 112	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
BROMOFLUOROBENZENE	98	98	52 - 116
TRIFLUOROTOLUENE	95	93	50 - 150

NC = Not Calculable.

Analytical Technologies, Inc

ATI I.D. # 9312-051

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE
SAMPLE MATRIX : SOIL
METHOD : WA DOE WTPH-G/8020(BETX)

SAMPLE I.D. # : 9312-053-67
DATE EXTRACTED : 12/06/93
DATE ANALYZED : 12/06/93
UNITS : mg/Kg

COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
BENZENE	<0.0250	N/A	N/A	1.00	0.913	91	0.896	90	2
TOLUENE	<0.0250	N/A	N/A	1.00	0.952	95	0.943	94	1
TOTAL XYLENES	<0.0250	N/A	N/A	2.00	1.89	95	1.91	96	1
GASOLINE	<5.00	<5.00	NC	50.0	55.1	110	53.8	108	2

CONTROL LIMITS	% REC.	RPD
BENZENE	35 - 113	20
TOLUENE	43 - 107	20
TOTAL XYLENES	46 - 114	20
GASOLINE	50 - 112	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
BROMOFLUOROBENZENE	96	99	52 - 116
TRIFLUOROTOLUENE	98	79	50 - 150

NC = Not Calculable.

Analytical Technologies, Inc

ATI I.D. # 9312-051

TOTAL PETROLEUM HYDROCARBONS
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: N/A
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: N/A
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	<10
HYDROCARBON RANGE	C12 - C24
HYDROCARBON QUANTITATION USING	DIESEL
FUEL HYDROCARBONS	<40
HYDROCARBON RANGE	C24 - C34
HYDROCARBON QUANTITATION USING	MOTOR OIL

SURROGATE PERCENT RECOVERY		LIMITS
O-TERPHENYL	100	50 - 150

AnalyticalTechnologies,Inc

ATI I.D. # 9312-051-3

TOTAL PETROLEUM HYDROCARBONS
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 12/01/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: B-4 S-3	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	<11
HYDROCARBON RANGE	C12 - C24
HYDROCARBON QUANTITATION USING	DIESEL
FUEL HYDROCARBONS	<43
HYDROCARBON RANGE	C24 - C34
HYDROCARBON QUANTITATION USING	MOTOR OIL

SURROGATE PERCENT RECOVERY		LIMITS
O-TERPHENYL	81	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-18

TOTAL PETROLEUM HYDROCARBONS
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 12/01/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: B-4 S-18	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	<11
HYDROCARBON RANGE	C12 - C24
HYDROCARBON QUANTITATION USING	DIESEL
FUEL HYDROCARBONS	<43
HYDROCARBON RANGE	C24 - C34
HYDROCARBON QUANTITATION USING	MOTOR OIL

SURROGATE PERCENT RECOVERY		LIMITS
O-TERPHENYL	84	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-24

TOTAL PETROLEUM HYDROCARBONS
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 12/01/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: B-5 S-6	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	260
HYDROCARBON RANGE	C12 - C24
HYDROCARBON QUANTITATION USING	DIESEL
FUEL HYDROCARBONS	<43
HYDROCARBON RANGE	C24 - C34
HYDROCARBON QUANTITATION USING	MOTOR OIL

SURROGATE PERCENT RECOVERY		LIMITS
O-TERPHENYL	83	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-35

TOTAL PETROLEUM HYDROCARBONS
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 12/01/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: B-5 S-18	DATE ANALYZED	: 12/07/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	<11
HYDROCARBON RANGE	C12 - C24
HYDROCARBON QUANTITATION USING	DIESEL
FUEL HYDROCARBONS	<42
HYDROCARBON RANGE	C24 - C34
HYDROCARBON QUANTITATION USING	MOTOR OIL

SURROGATE PERCENT RECOVERY		LIMITS
O-TERPHENYL	80	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-48

TOTAL PETROLEUM HYDROCARBONS
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 11/29/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: B-1 S-18	DATE ANALYZED	: 12/07/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	<11
HYDROCARBON RANGE	C12 - C24
HYDROCARBON QUANTITATION USING	DIESEL
FUEL HYDROCARBONS	<43
HYDROCARBON RANGE	C24 - C34
HYDROCARBON QUANTITATION USING	MOTOR OIL

SURROGATE PERCENT RECOVERY		LIMITS
O-TERPHENYL	83	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-64

TOTAL PETROLEUM HYDROCARBONS
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 11/30/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: B-2 S-17	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	<10
HYDROCARBON RANGE	C12 - C24
HYDROCARBON QUANTITATION USING	DIESEL
FUEL HYDROCARBONS	<42
HYDROCARBON RANGE	C24 - C34
HYDROCARBON QUANTITATION USING	MOTOR OIL

SURROGATE PERCENT RECOVERY		LIMITS
O-TERPHENYL	88	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051-81

TOTAL PETROLEUM HYDROCARBONS
DATA SUMMARY

CLIENT	: RZA AGRA, INC.	DATE SAMPLED	: 11/30/93
PROJECT #	: BP #11046 G147020	DATE RECEIVED	: 12/03/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE EXTRACTED	: 12/06/93
CLIENT I.D.	: B-3 S-17	DATE ANALYZED	: 12/07/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	14
HYDROCARBON RANGE	C12 - C24
HYDROCARBON QUANTITATION USING	DIESEL
FUEL HYDROCARBONS	<44
HYDROCARBON RANGE	C24 - C34
HYDROCARBON QUANTITATION USING	MOTOR OIL

SURROGATE PERCENT RECOVERY		LIMITS
O-TERPHENYL	84	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051

TOTAL PETROLEUM HYDROCARBONS
QUALITY CONTROL DATA

CLIENT	: RZA AGRA, INC.	SAMPLE I.D. #	: BLANK
PROJECT #	: BP #11046 G147020	DATE EXTRACTED	: 12/06/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
DIESEL	<10.0	200	180	90	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
DIESEL	69 - 122	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
O-TERPHENYL	97	N/A	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051

TOTAL PETROLEUM HYDROCARBONS
QUALITY CONTROL DATA

CLIENT	: RZA AGRA, INC.	SAMPLE I.D. #	: 9312-061-5
PROJECT #	: BP #11046 G147020	DATE EXTRACTED	: 12/06/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D		

COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
DIESEL	13.2	12.9	2	N/A	N/A	N/A	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
DIESEL	N/A	20

SURROGATE RECOVERIES	SAMPLE	SAMPLE DUP.	LIMITS
O-TERPHENYL	87	86	50 - 150

Analytical Technologies, Inc

ATI I.D. # 9312-051

TOTAL PETROLEUM HYDROCARBONS
QUALITY CONTROL DATA

CLIENT	: RZA AGRA, INC.	SAMPLE I.D. #	: 9312-053-33
PROJECT #	: BP #11046 G147020	DATE EXTRACTED	: 12/06/93
PROJECT NAME	: BP #11046/33800 FIRST AVE	DATE ANALYZED	: 12/06/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: WA DOE WTPH-D		

COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
DIESEL	<10.0	<10.0	NC	200	195	98	185	93	5

CONTROL LIMITS	% REC.	RPD
DIESEL	63 - 131	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
O-TERPHENYL	109	91	50 - 150

NC = Not Calculable.

Analytical Technologies, Inc

ATI I.D. # 9312-051

METALS ANALYSIS

CLIENT : RZA AGRA, INC. MATRIX : SOIL
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE

ELEMENT	DATE PREPARED	DATE ANALYZED
LEAD	12/10/93	12/13/93

Analytical Technologies, Inc

ATI I.D. # 9312-051

METALS ANALYSIS
DATA SUMMARY

CLIENT : RZA AGRA, INC. MATRIX : SOIL
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE UNITS : mg/Kg
RESULTS ARE CORRECTED FOR MOISTURE CONTENT

ATI I.D. #	CLIENT I.D.	LEAD
9312-051-3	B-4 S-3	<1.6
9312-051-18	B-4 S-18	<1.6
9312-051-24	B-5 S-6	<1.6
9312-051-35	B-5 S-18	2.1
9312-051-48	B-1 S-18	4.6
9312-051-64	B-2 S-17	1.8
9312-051-81	B-3 S-17	1.9
METHOD BLANK	-	<1.5

AnalyticalTechnologies,Inc

ATI I.D. # 9312-051

METALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : RZA AGRA, INC.
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE

MATRIX : SOIL
UNITS : mg/Kg

ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
LEAD	BLANK	<1.5	N/A	N/A	43.4	50.0	87
LEAD	9312-051-3	<1.6	<1.6	NC	46.9	52.5	89

NC = Not Calculable.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Sample Result} - \text{Duplicate Result})|}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc

ATI I.D. # 9312-051

GENERAL CHEMISTRY ANALYSIS

CLIENT : RZA AGRA, INC. MATRIX : SOIL
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE

PARAMETER	DATE ANALYZED
MOISTURE	12/06/93

Analytical Technologies, Inc

ATI I.D. # 9312-051

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : RZA AGRA, INC. MATRIX : SOIL
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE
9312-051-3	B-4 S-3	7.4
9312-051-18	B-4 S-18	7.7
9312-051-24	B-5 S-6	7.8
9312-051-35	B-5 S-18	5.5
9312-051-48	B-1 S-18	6.1
9312-051-64	B-2 S-17	4.4
9312-051-81	B-3 S-17	8.7

Analytical Technologies, Inc

ATI I.D. # 9312-051

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : RZA AGRA, INC. MATRIX : SOIL
PROJECT # : BP #11046 G147020
PROJECT NAME : BP #11046/33800 FIRST AVE UNITS : %

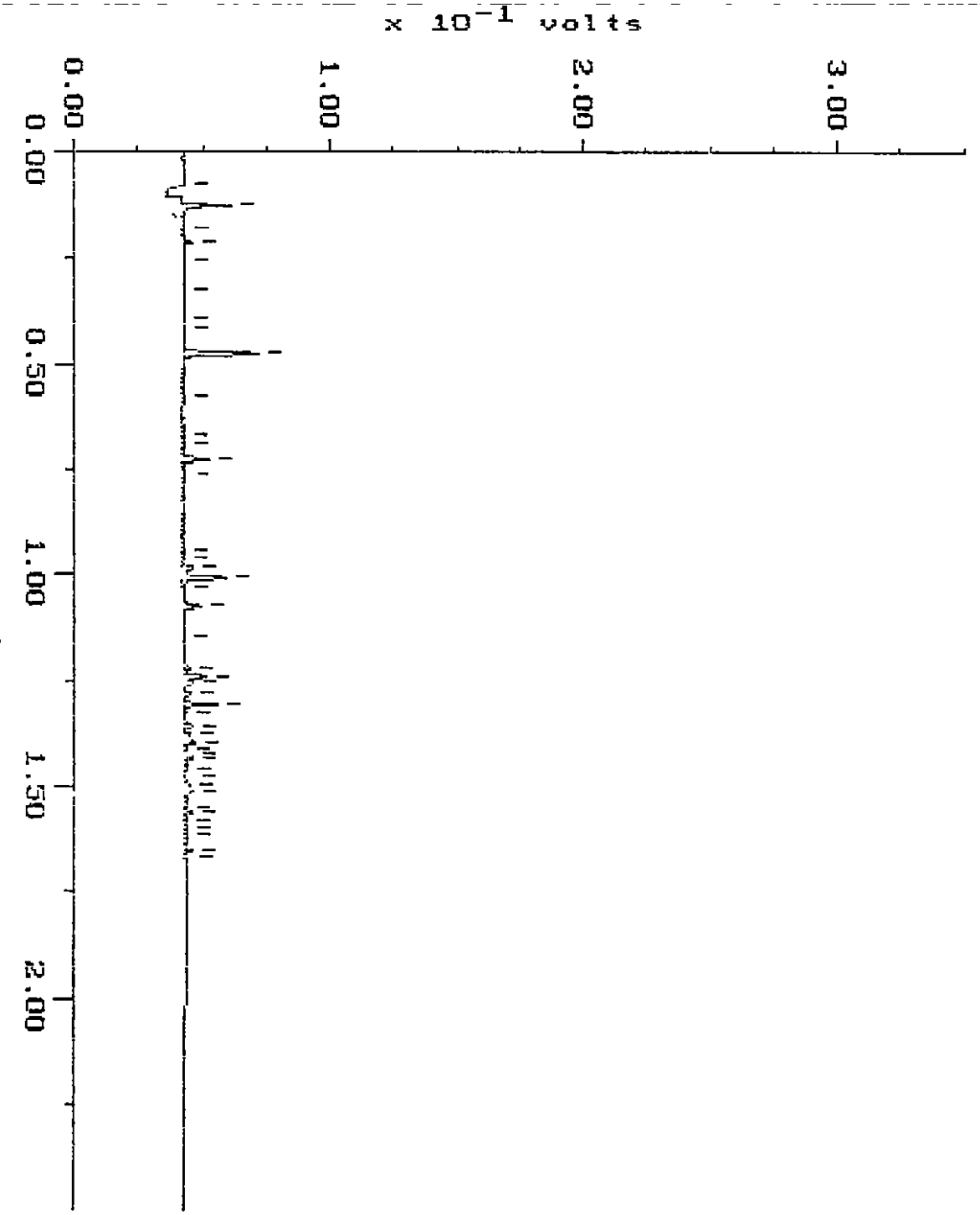
PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	9312-051-81	8.7	8.7	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Sample Result} - \text{Duplicate Result})|}{\text{Average Result}} \times 100$$

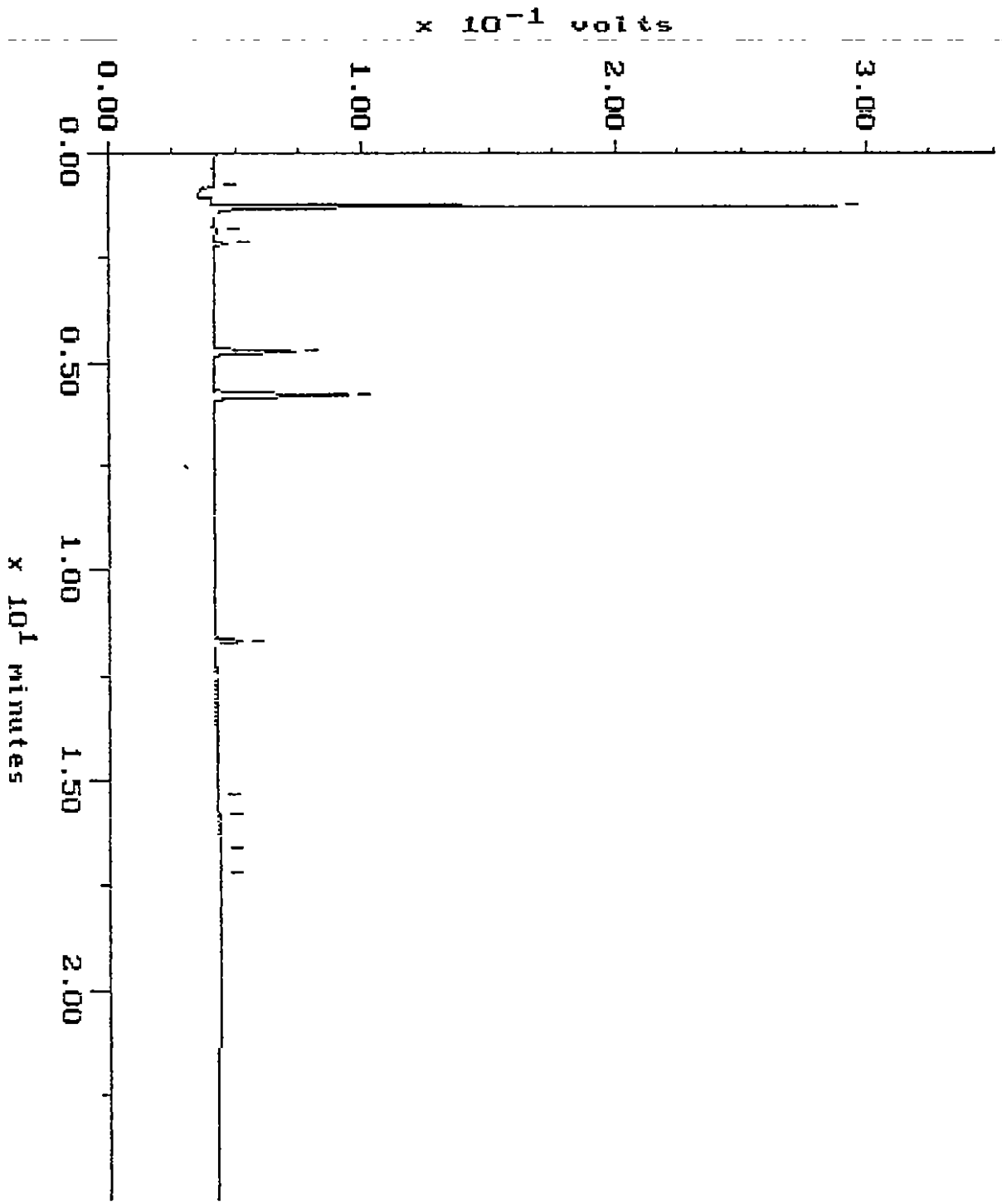
WA DOE WTPH-G

Sample: 9312-051-24 DIL Channel: JEROME-FID Filename: RC049J14
Acquired: 04-DEC-93 22:04 Method: F:\BRO2\MAXDATA\JEROME\120493JR Operator:
Dilution: 1 : 50.000



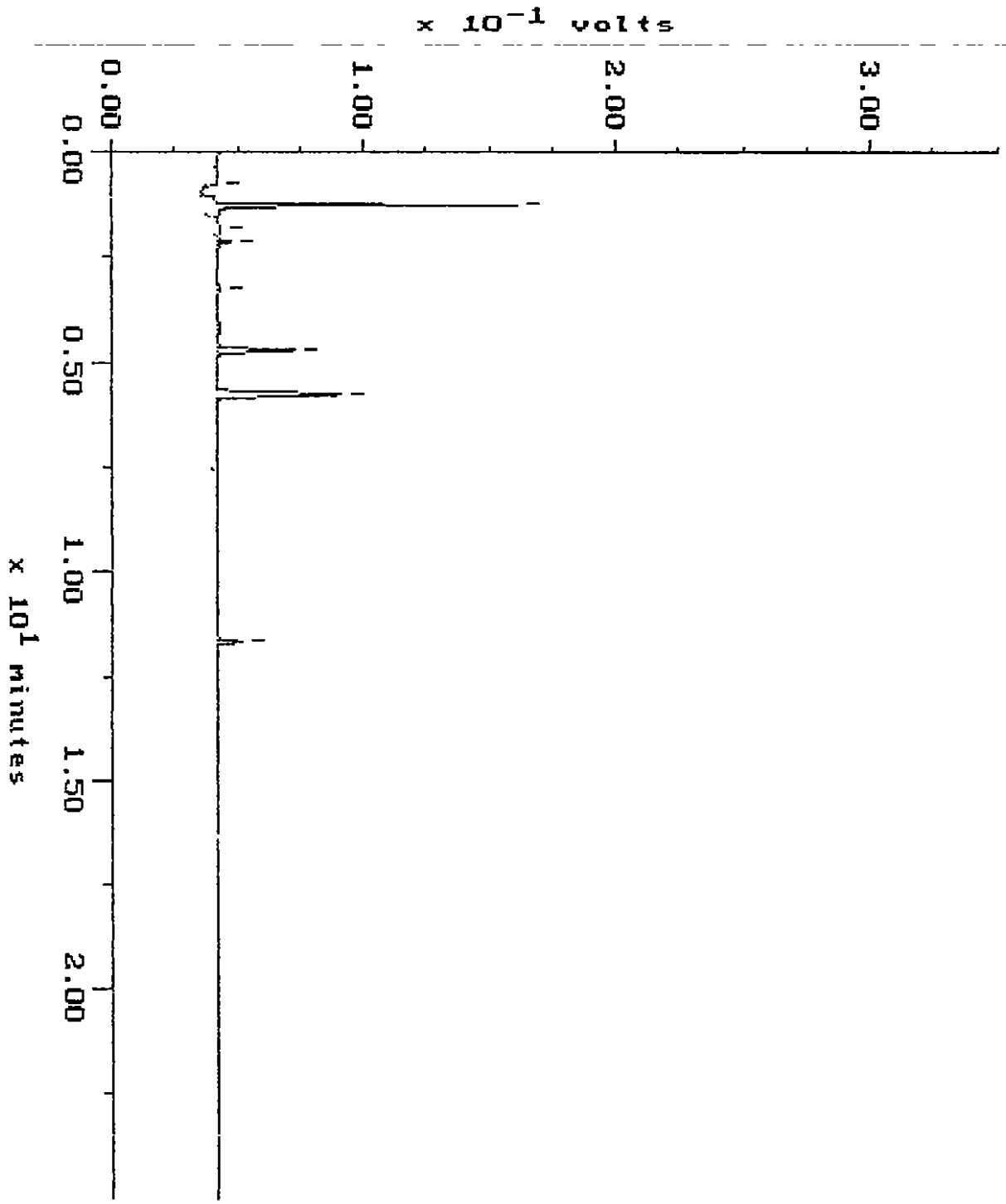
WA DOE WTPH-G Blank

Sample: SRB-B 12-3 Channel: JEROME-FID Filename: RC039J05
Acquired: 03-DEC-93 21:35 Method: F:\BRO2\MAXDATA\JEROME\120393JR Operator:



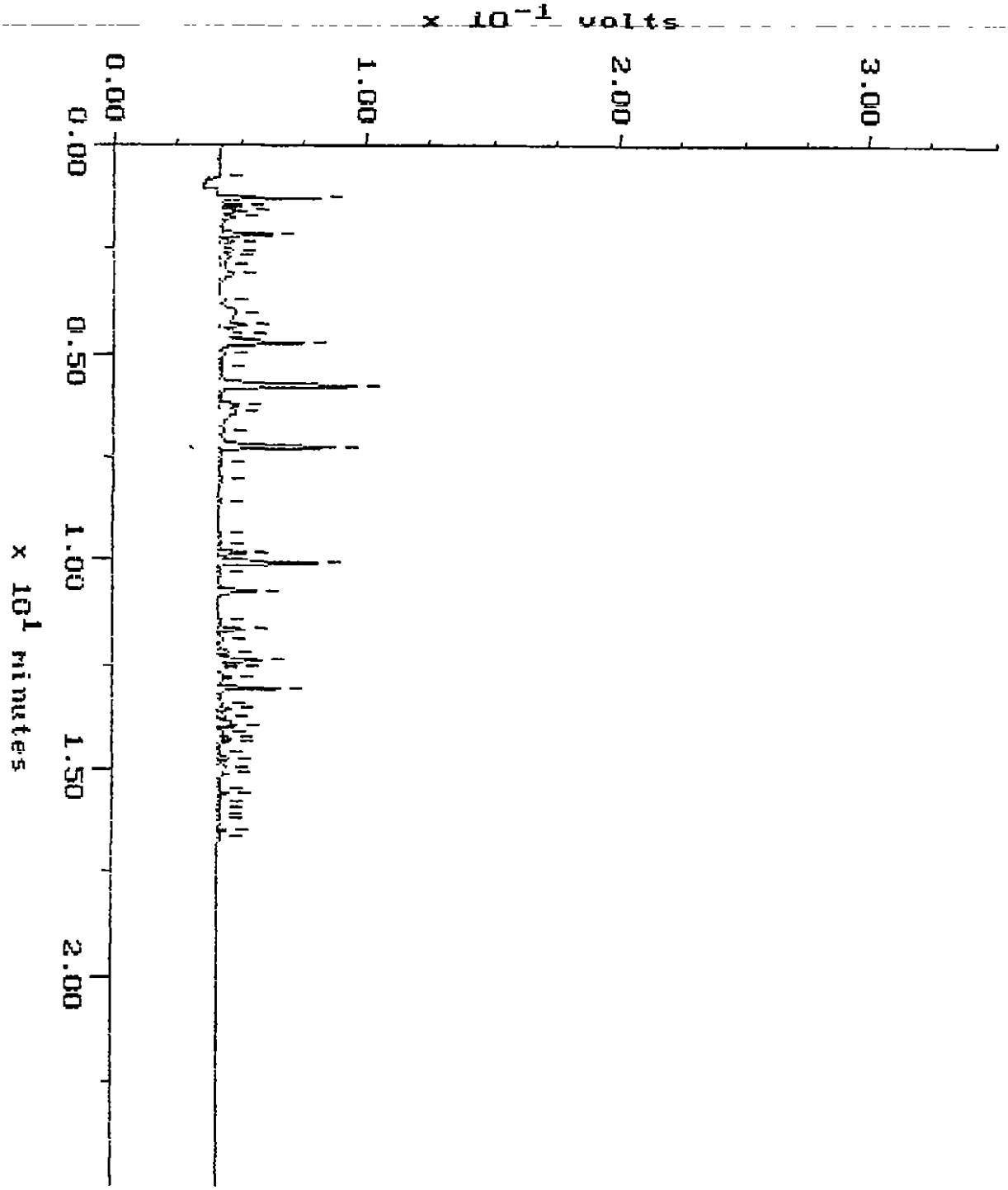
WA DOE WTPH-G Blank

Sample: SRB-A 12-6 Channel: JEROME-FID Filename: RC069J04
Acquired: 06-DEC-93 17:47 Method: F:\BRD2\MAXDATA\JEROME\120693JR Operator:



Continuing Calibration

Sample: STD C G
Acquired: 03-DEC-93 19:39
Channel: JEROME-FID
Method: F:\BRO2\MAXDATA\JEROME\120393JR
Filename: RC039J01
Operator:

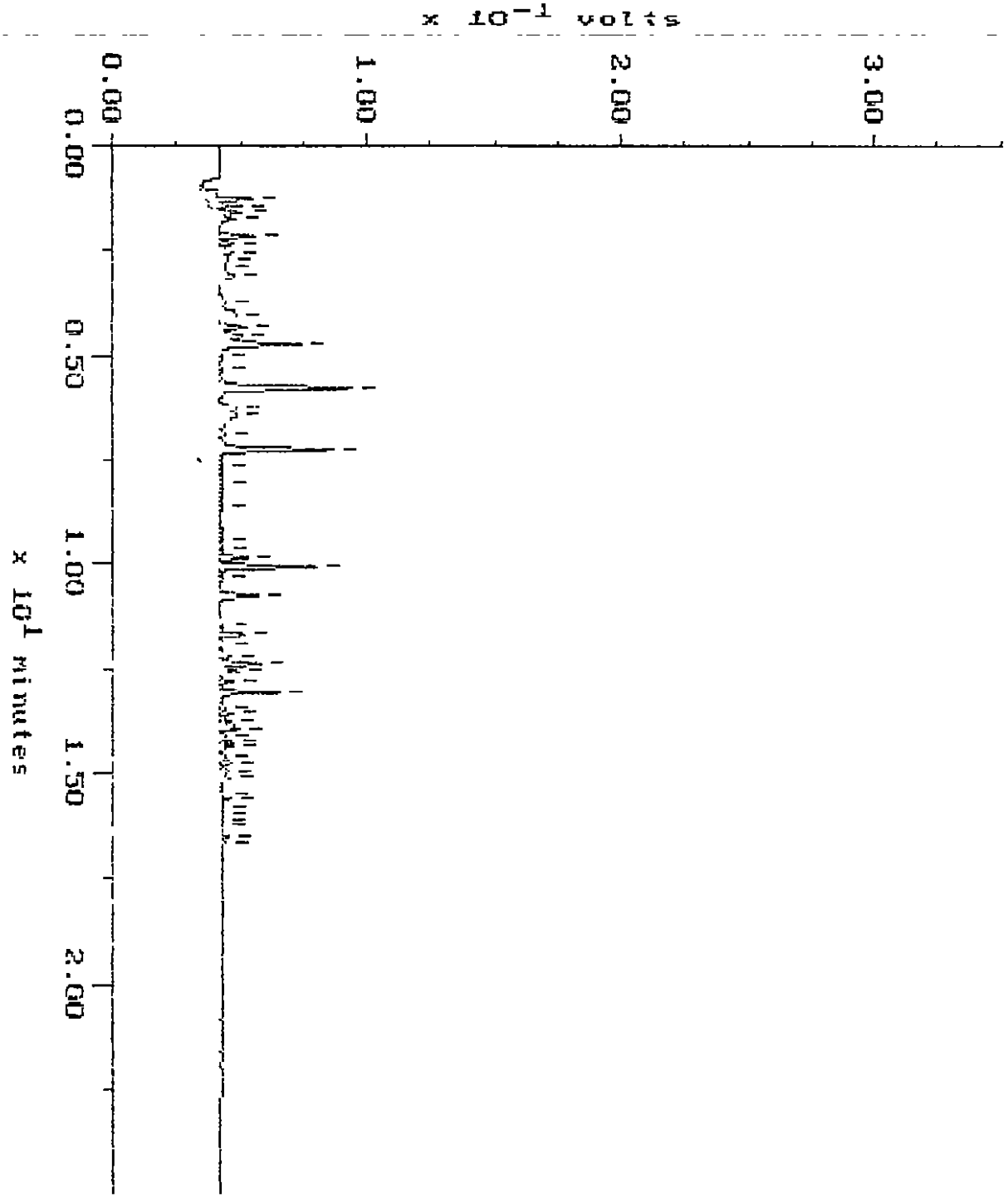


Continuing Calibration

Sample: STD-C G
Acquired: 04-DEC-93 14:13

Channel: JEROME-FID
Method: F:\BRO2\MAXDATA\JEROME\120493JR

Filename: RC049J01
Operator:

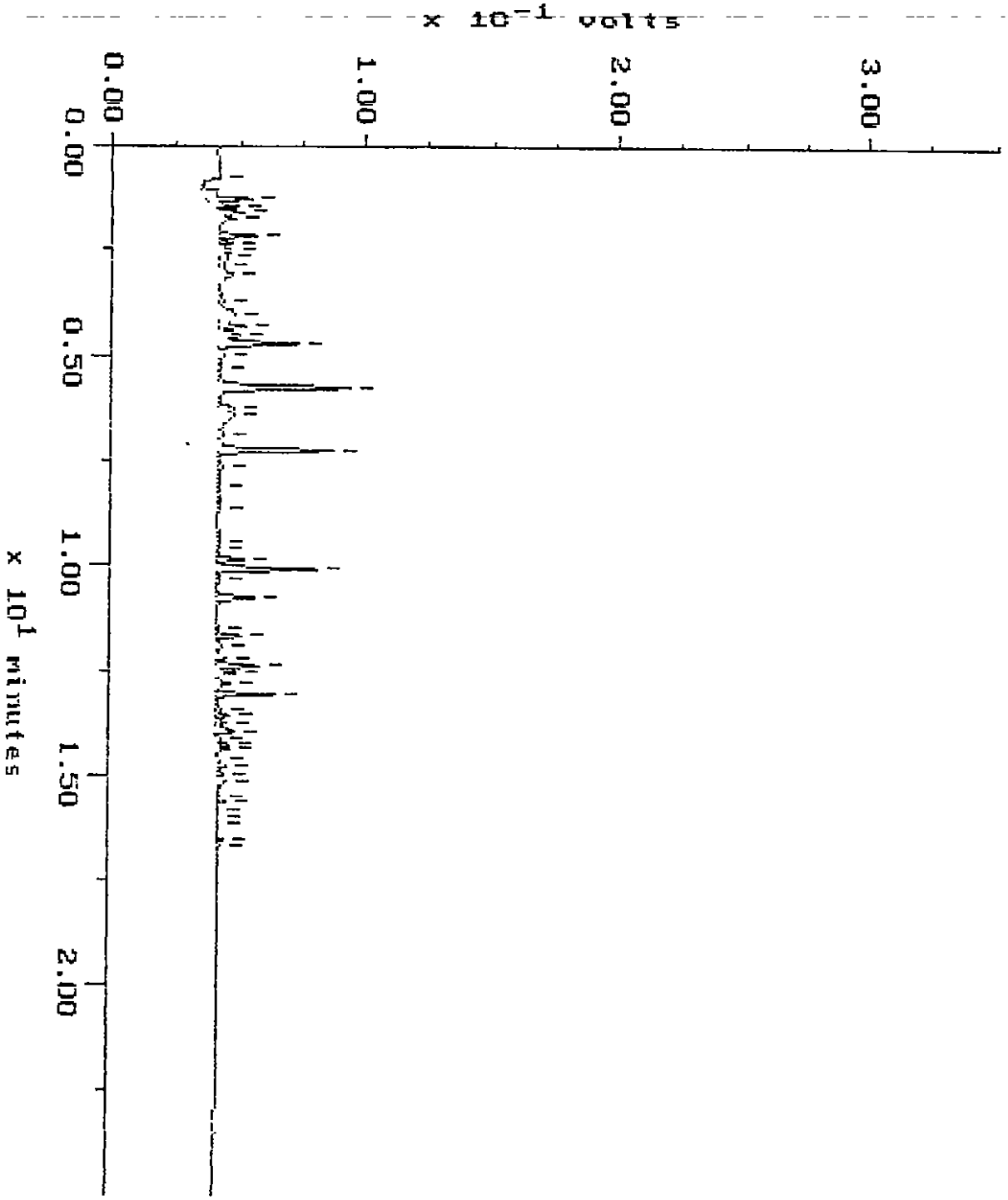


Continuing Calibration

Sample: STD-C G
Acquired: 06-DEC-93 10:30

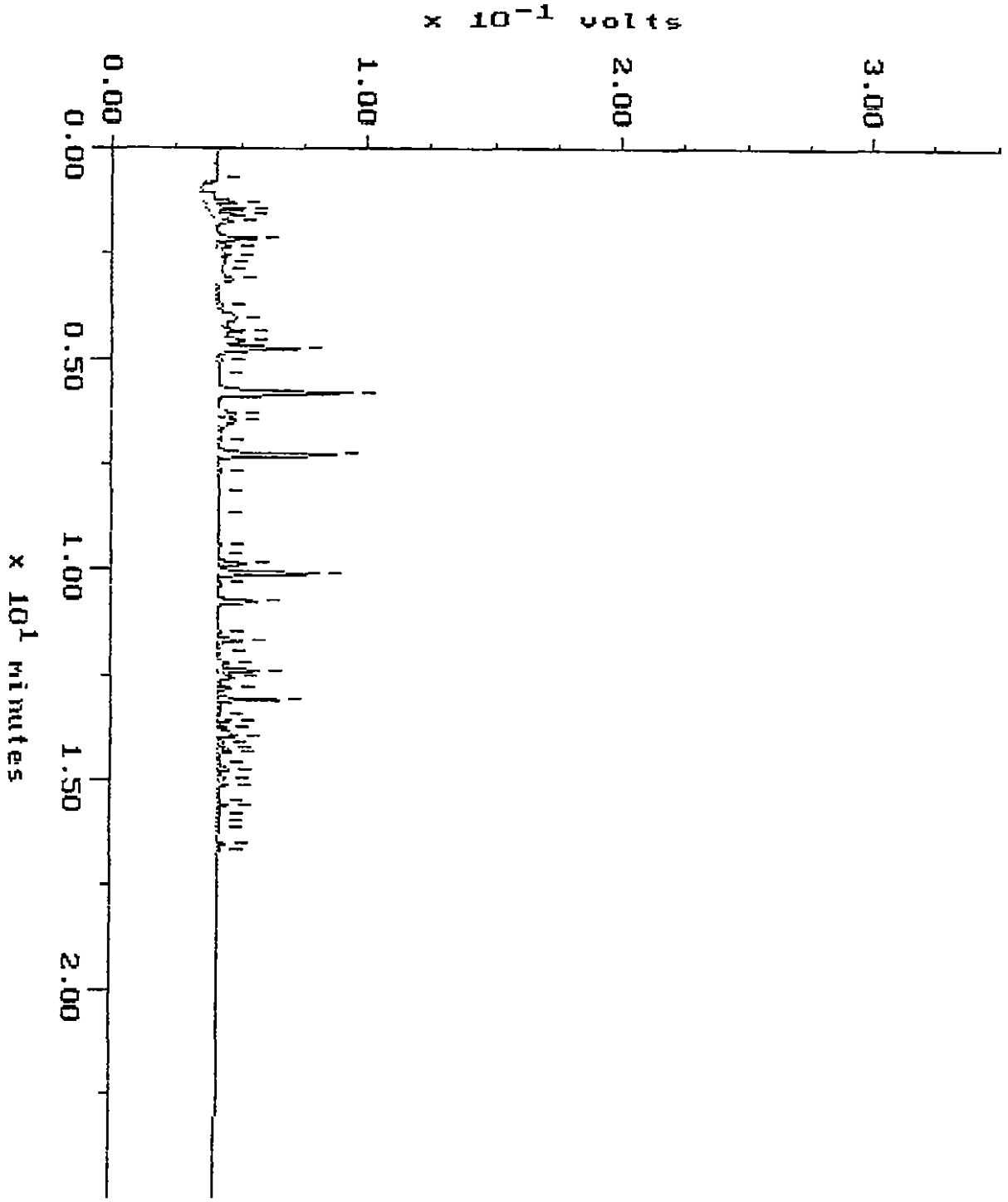
Channel: JEROME-FID
Method: F:\BRD2\MAXDATA\JEROME\120693JR

Filename: RC069J01
Operator:



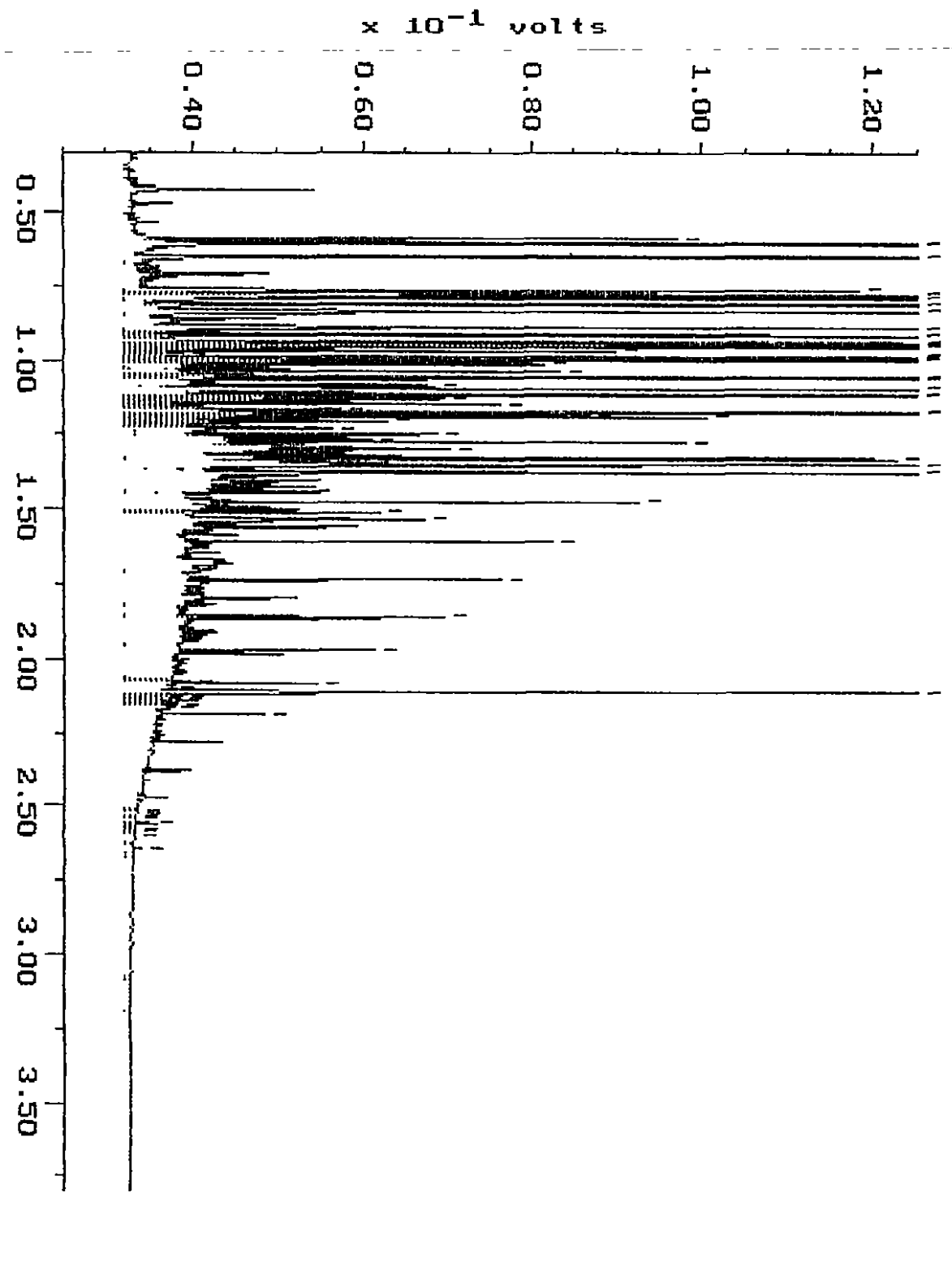
Continuing Calibration

Sample: STD-C 6
Acquired: 07-DEC-93 8:08
Channel: JEROME-FID
Method: F:\BRO2\MAXDATA\JEROME\120793JR
Filename: RC079J01
Operator:



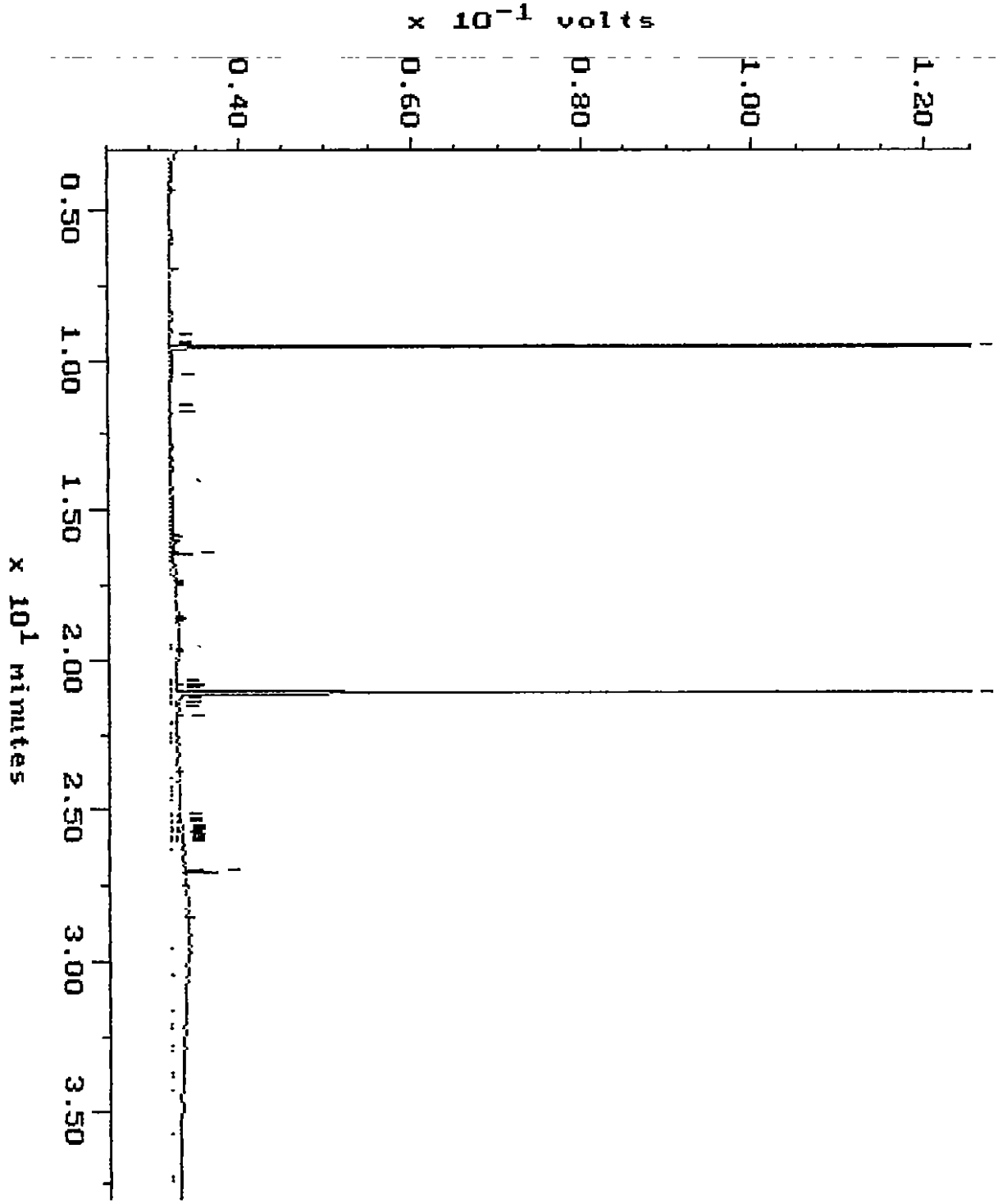
WA DOE WTPH-D

Sample: 9312-051-24 Channel: WILMA Filename: RC068W19
Acquired: 06-DEC-93 23:13 Method: F:\BRO2\MAXDATA\WILMA\FUEL1206 Operator: BRO



WA DOE WTPH-D

Sample: 9312-051-81 Channel: WILMA Filename: RC068W22
Acquired: 07-DEC-93 1:38 Method: F:\BRO2\MAXDATA\WILMA\FUEL1266 Operator: BRO

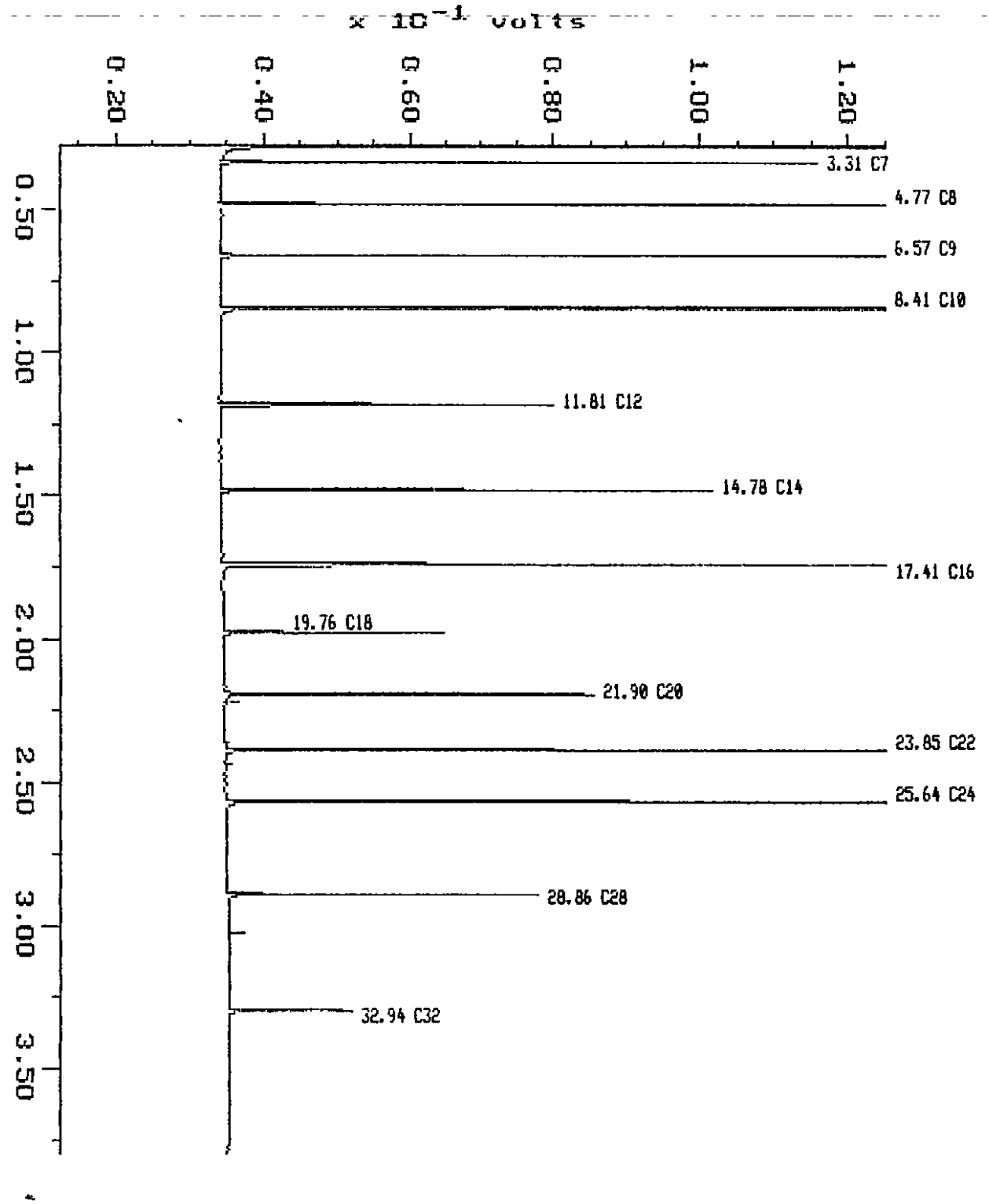


Alkane

Sample: ALKANE
Acquired: 08-NOV-93 11:11
Inj Vol: 1.00

Channel: WILMA
Method: F:\BRO2\MAXDATA\WILMA\FUEL1108

Filename: RB088W02
Operator: BRO

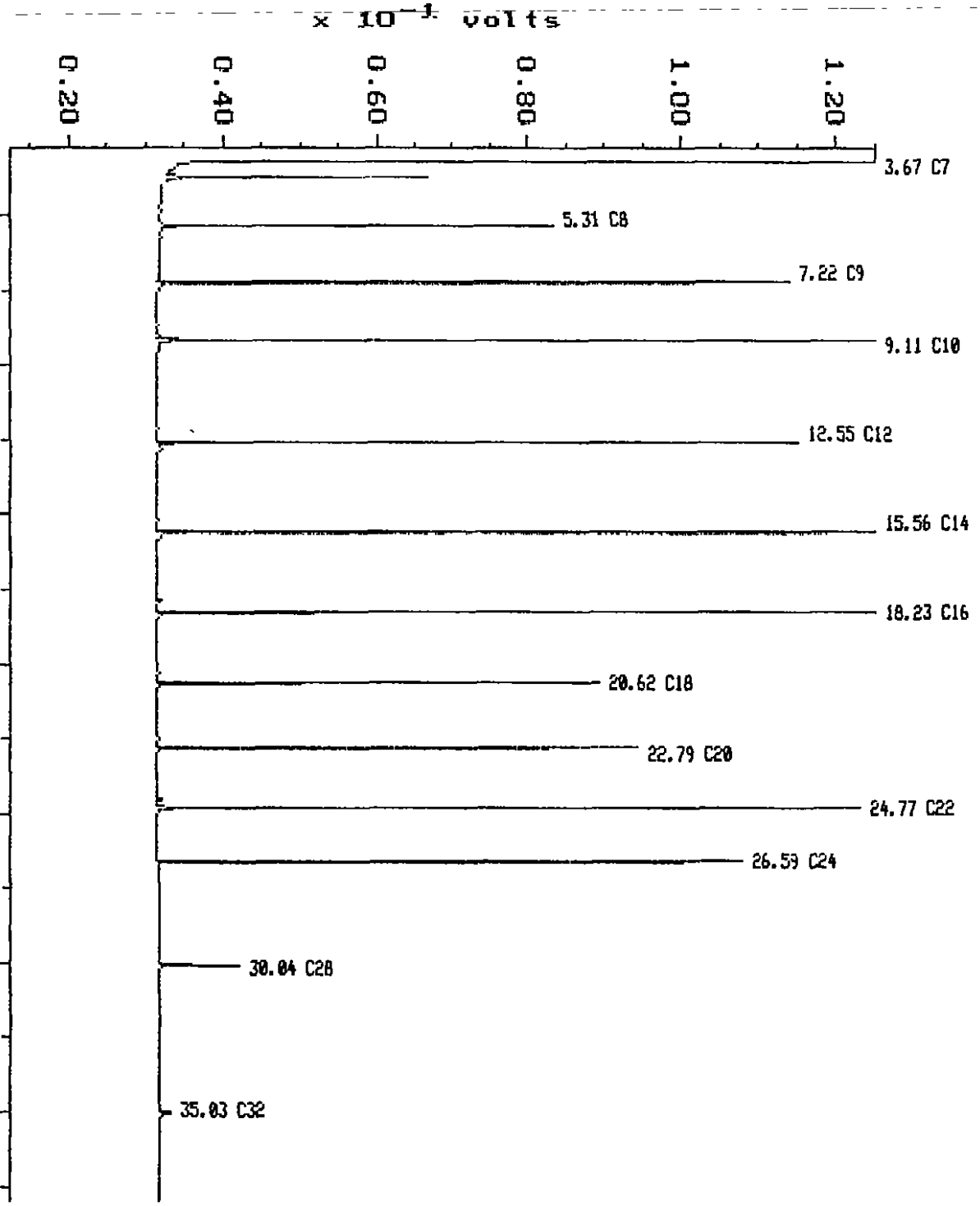


Alkane

Sample: ALKANE
Acquired: 08-NOV-93 12:57
Inj Vol: 1.00

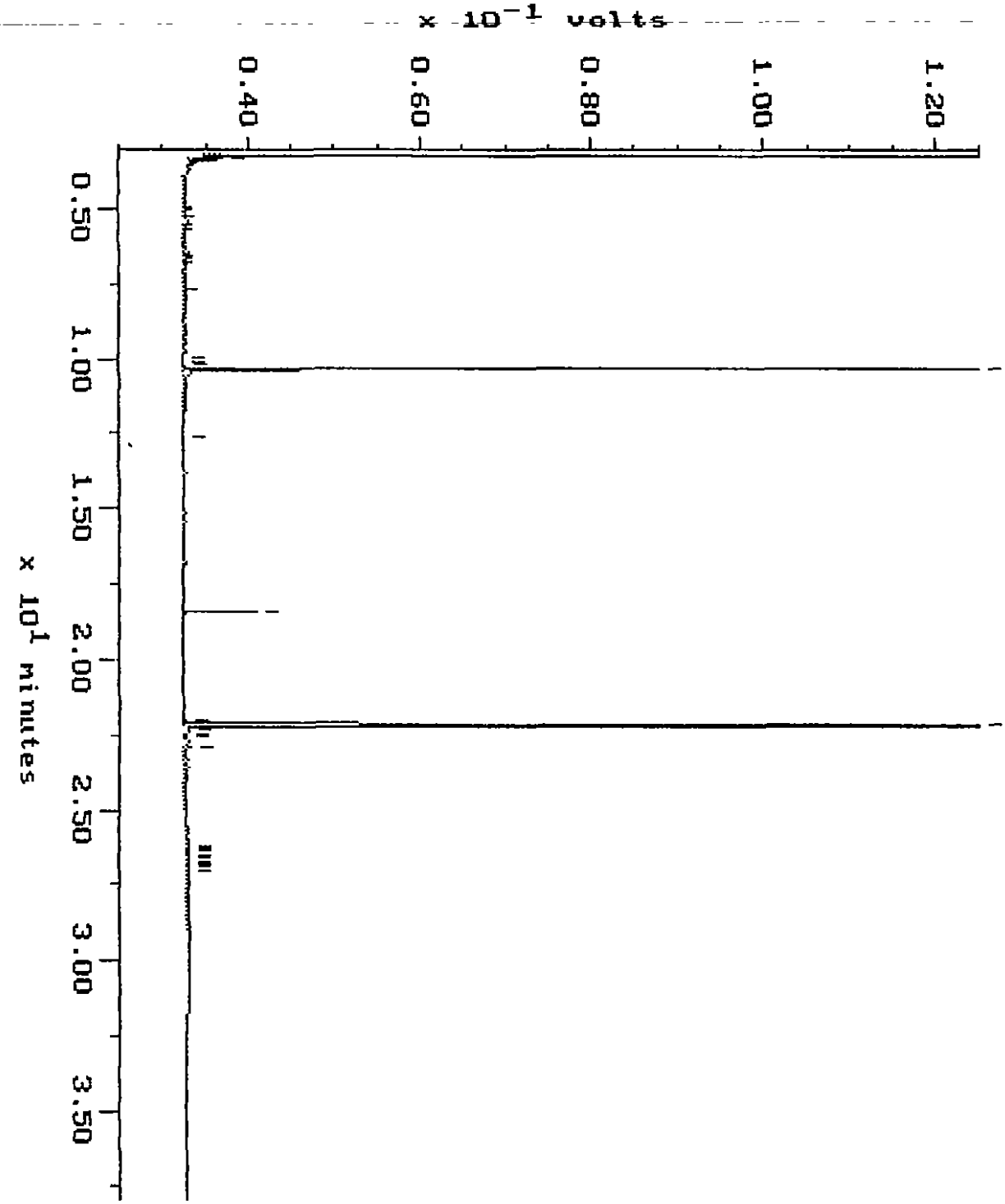
Channel: NANCY
Method: F:\BRO2\MAXDATA\NANCY\FUEL1108

Filename: R0008B02
Operator: ATI



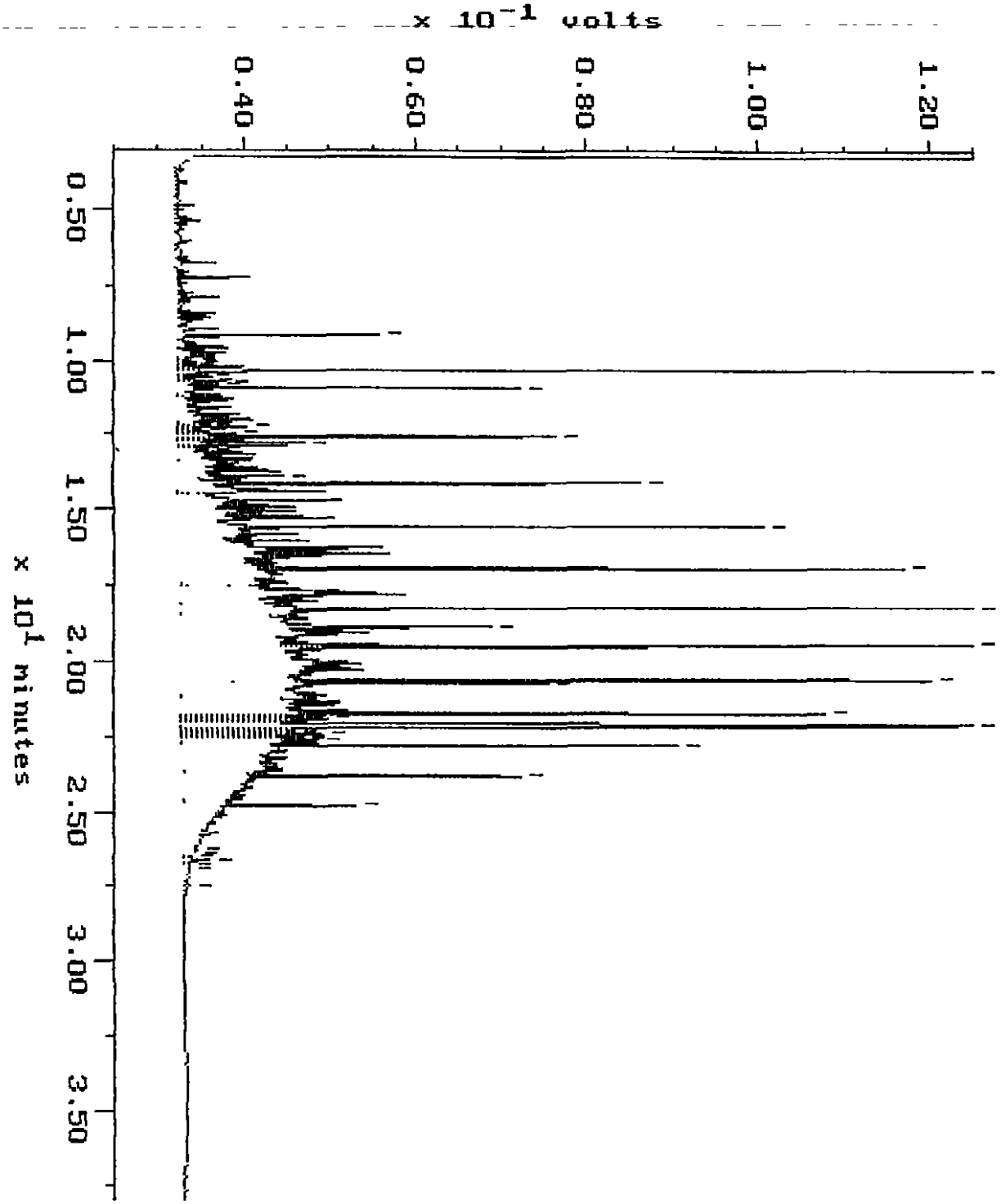
Blank

Sample: SRB 11-26 Channel: NANCY Filename: RC068N05
Acquired: 06-DEC-93 12:28 Method: F:\BRO2\MAXDATA\NANCY\FUEL1206 Operator: ATI
Comments: ATI RUSH FUELS:PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



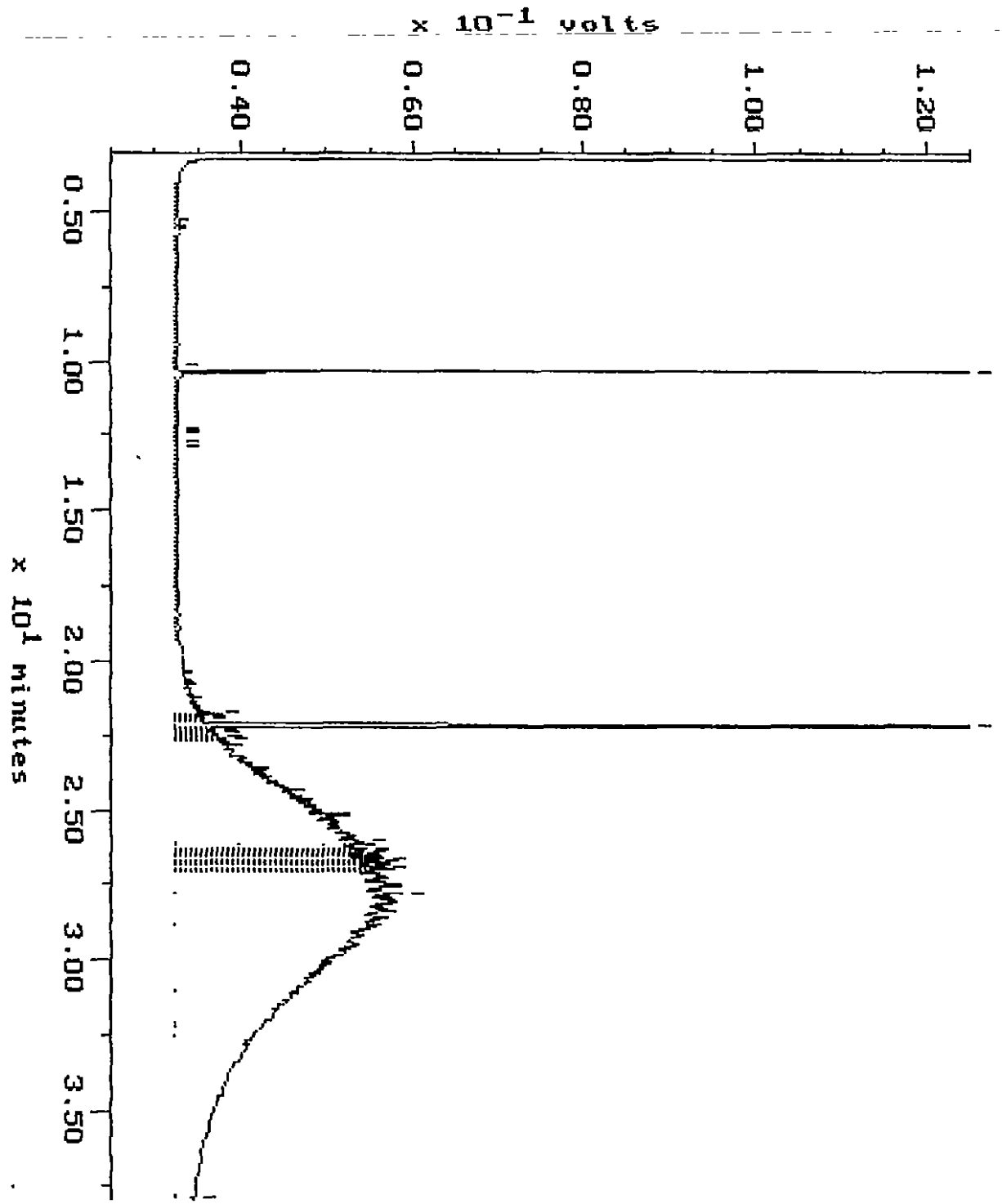
Continuing Calibration

Sample: D 500 Channel: NANCY Filename: RC068N03
Acquired: 06-DEC-93 10:55 Method: F:\BRD2\MAXDATA\NANCY\FUEL1206 Operator: ATI
Comments: ATI RUSH FUELS:PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



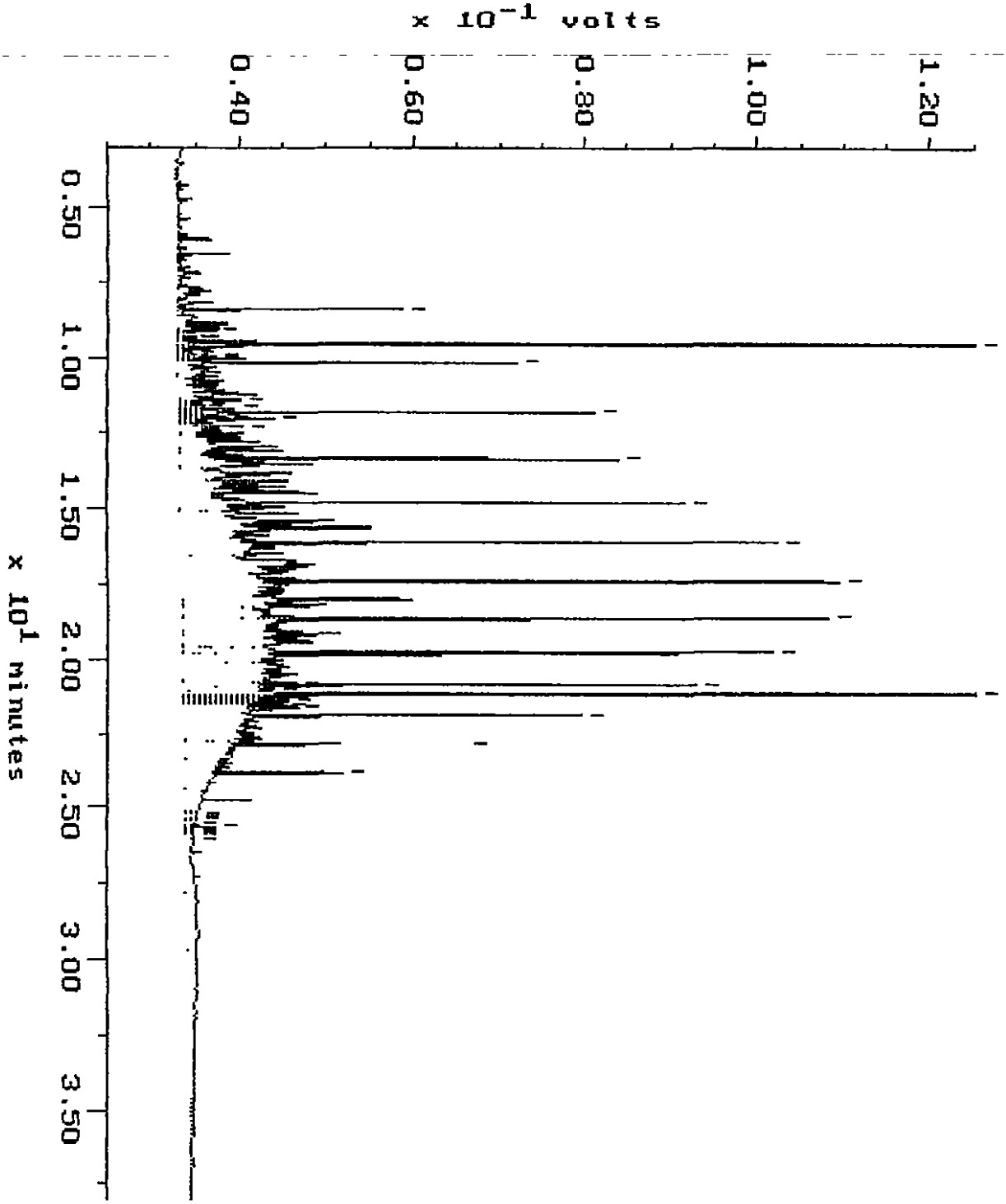
Containing Calibration

Sample: MO 500 Channel: NANCY Filename: RC068N04
Acquired: 06-DEC-93 11:42 Method: F:\BRO2\MAXDATA\NANCY\FUEL1206 Operator: ATI
Comments: ATI RUSH FUELS:PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE

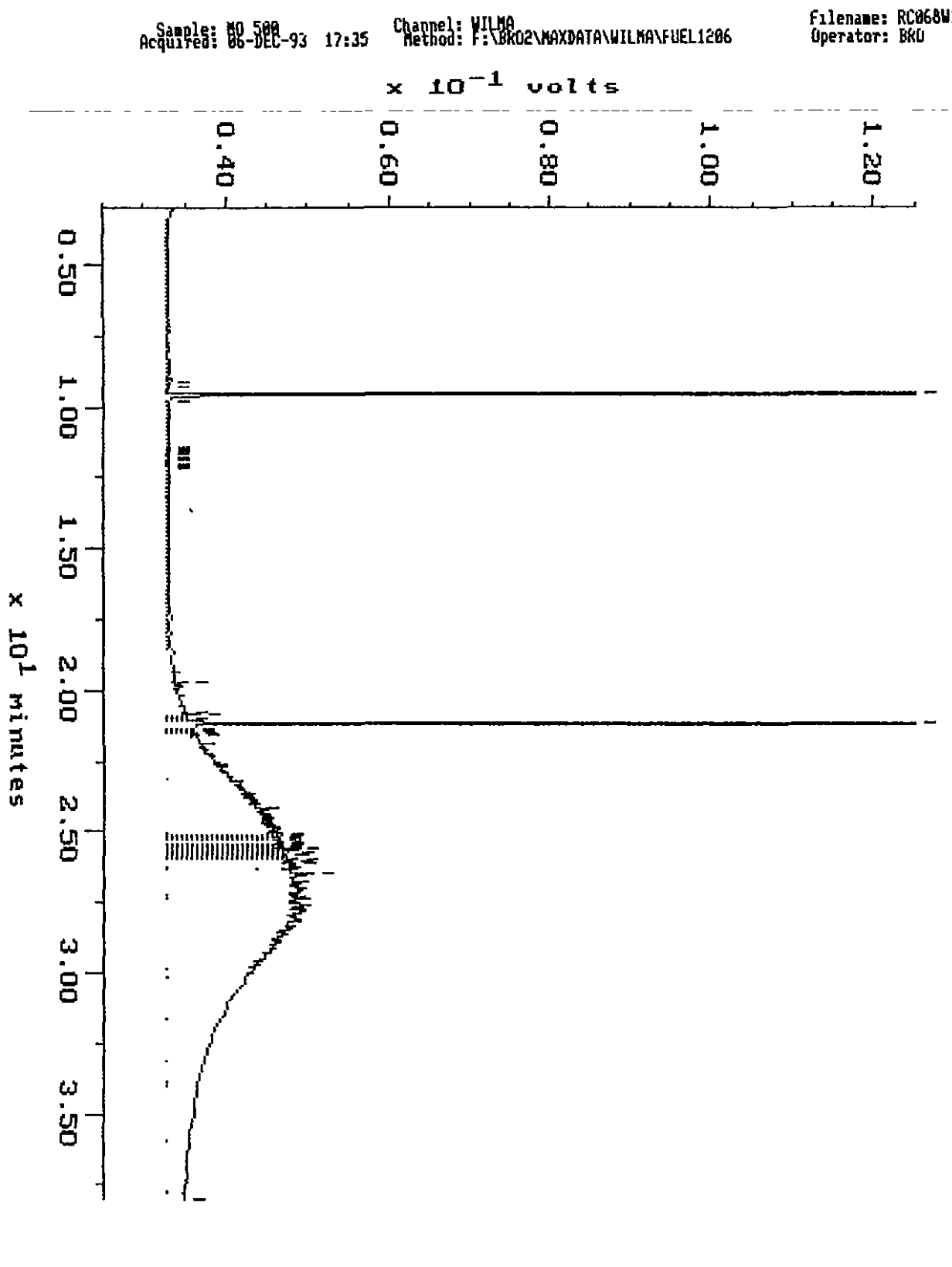


Continuing Calibration

Sample: D-500 Channel: WILMA Filename: 8C068W11
Acquired: 06-DEC-93 16:47 Method: F:\BRO2\MAXDATA\WILMA\FUEL1206 Operator: BKB



Continuing Calibration



9312-051

CHAIN OF CUSTODY

No. 053155

Page 1 of 1

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
R2A AGRA	11335 NE 122nd WAY	KIRKLAND	WA	98034

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11046	FIRST AVE S. & 358TH / FEDERAL WAY	11-09259-0

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
~~[illegible]~~ ~~[illegible]~~ AN ERIC SMITH	206 820 4669	206 821 3914	G 147020

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO
SCOTT HOOTEN	16400 SOUTHCENTER PKWY	575-4077	394-5280

LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER	FAX NO
DIANA SPENCE	200 NAMES AVE SW RENTON	228 8335	363-1142

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
BRUCE WIENZLER	[signature]	12.3.93	GRD COURIER

TAT ☑ 24 Hours ☐ 48 Hours ☐ 1 Week ☐ Standard 2 Weeks

AIRBILL NUMBER

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE / COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH G BTEX	TPH D	BONS MOD						HOLD	COMMENTS
B-4 S-1	12.1.93 0835	S	1	8oz	1									X	1
B-4 S-2	0848				2										2
B-4 S-3	0913				3	X	X	X							3
B-4 S-4	0923				4										4
B-4 S-5	0940				5										5
B-4 S-6	0952				6										6
B-4 S-7	1001				7										7
B-4 S-8	1007				8										8
B-4 S-9	1021				9										9
B-4 S-10	1032				10										10
B-4 S-11	1045				11										11
B-4 S-12	1057				12										12

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature] R2A AGRA	12.3.93	1200	[signature]	12/3/93	4.30

ADDITIONAL COMMENTS

CLV 16722

Distribution White - Original (with Data) Yellow - BP Pink - Lab Blue - Consultant Field Staff

9312-051 2

CHAIN OF CUSTODY

No. 053156 Page 1 of 2

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
RZA AGRA	11335 NE 122nd WAY	KIRKLAND	WA	98034

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11046	FIRST AVE S. & 338TH / FEDERAL WAY	11-09259-0

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
~~SEAN DONNAN~~ ERIC SMITH	206 820-4669	206 821 3914	~~FF~~ C 147020

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO
SCOTT HOOTEN	16400 SOUTHCENTER PKWY	575-4077	394-5280

LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER	FAX NO
DIANA SPENCE	560 NAILES AVE SW/RENTON	228 8335	363 1742

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
BRUCE CUNNINGHAM		12.3.93	GRD COURIER

TAT ☐ 24 Hours ☐ 48 Hours ☐ 1 Week ☒ Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL)	PRESERVATIVE LAB SAMPLE #	TPH G/BTEX	TPH D	BOIL GRAV	COMMENTS
B-4 S-13	12.1.93 / 1123	S	1	B02	13				X
B-4 S-14	1142				14				
B-4 S-15	1152				15				
B-4 S-16	1202				16				
B-4 S-17	1216				17				
B-4 S-18	1284				18	X	X	X	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
RZA AGRA	12.3.93	1200		12/3/93	1600
				0	

ADDITIONAL COMMENTS

CLV 16722

Distribution White - Original (with Data) Yellow - BP Pink - Lab Blue - Consultant Field Staff

9312-051 3

CHAIN OF CUSTODY

No. 053153 Page 8 of 9

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
RZA AGRA	11335 NE 122nd WAY	KIRKLAND	WA	98034

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11046	FIRST AVE SOUTH & 338TH / FEDERAL WAY	11-09259-0

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
~~SEAN DOWNEY~~ ERIC SMITH	820-4669 (206)	821-3914 (206)	G 147020

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO
SCOTT HOOTEN	16400 SOUTHCENTER PKWY	575-4477	394-5200

LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER	FAX NO
DIANA SPENCE	5600 NACHES AVE SW/RENTON	228-8335	363-1742

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
BRUCE GUENZLER	B W.	12.3.93	GRD COURIER

TAT ☒ 24 Hours ☐ 48 Hours ☐ 1 Week ☒ Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH6 BTEX	TPHD	BOSS MOD	HOLD	COMMENTS
B-5 S-1	12.1.93 1532	S	1	8oz	19				X	
B-5 S-2	1540				20					
B-5 S-3	1550				21					
B-5 S-4	1605		1		22					
B-5 S-5	1620				23					
B-5 S-6	1640				24	X	X	X		
B-5 S-7	1645				25					
B-5 S-8	1650				26					
B-5 S-9	1703				27					
B-5 S-10	1713				28					
B-5 S-11	1729				29					
B-5 S-12	1734				30					

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
B W. / RZA AGRA	12.3.93	1200		12/3/93	1600

ADDITIONAL COMMENTS

CLV-16722

Distribution White - Original (with Data) Yellow - BP Pink - Lab Blue - Consultant Field Staff

9312-05

CHAIN OF CUSTODY

No. 053154

Page 1 of 2

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
R2A AGRA	11335 NE 122nd WAY	KIRKLAND	WA	98034

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11046	FIRST AVE S. & 338TH / FEDERAL WAY	11-09259-0

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
~~SEAN DONNAN~~ ERIC SMITH	206 820 4609	206 821 3914	G 147020

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO
SCOTT HOOTEN	16400 SOUTHCENTER PKWY	575-4077	394-5280

LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER	FAX NO
DIANA SPENCE	5600 MAPLE AVE SW / RENTON	228-8335	364-~~8~~1740

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
BRUCE UMENZLER	B W.	12.3.93	GAL COURIER

TAT: ☒ 24 Hours ☐ 48 Hours ☐ 1 Week ☐ Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO	CONTAINERS TYPE (VOL)	PRESERVATIVE LAB SAMPLE #	TPH D	TPH G BTEX	BTEX MTBE							COMMENTS
B-5 S-14	12-1-93 / 1758	S	1	BOZ	31									X	NO # 15
B-5 S-15	1809				32										
B-5 S-16	1825				33										
B-5 S-17	1838				34										
B-5 S-18	1850				35	X	X	X						X	
C1	12/11/93/630	S			36										

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
B W. / R2A AGRA	12.3.93	1200		12/3/93	1600

ADDITIONAL COMMENTS

CLV-16722

Distribution: White - Original (with Data); Yellow - BP; Pink - Lab; Blue - Consultant Field Staff

9312-051

CHAIN OF CUSTODY

No. 053170 Page 1 of 9

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
RZA AGRA	11335 NE 122nd WAY STE 100	KIRKLAND	WA	98034

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11046	1ST AVE S & S 338th / FEDERAL WAY	11-09259-0

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
ERIC SMITH	820 4669	821 3914	G 147020

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO
SCOTT HOOTEN	16400 SOUTHCENTER PKWY	575-4077	394-5280

LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER	FAX NO
DANA SPEALE	5500 MARKET AVE SW/RENTON	228 8335	363-1742

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
ERIC SMITH	Eric Smith	12/3/93	

TAT ☐ 24 Hours ☐ 48 Hours ☐ 1 Week ☐ Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO	CONTAINERS TYPE (VOL)	PRESERVATIVE LAB SAMPLE #	TPH 8015	TPH D	BTEX 8020							HOLD	COMMENTS
B-1 S-1	11/29-93/0400	S	1	802	37										X	
B-1 S-5	0940		2		38											
~~B-1 S-6 12/3/93~~	~~0945~~				~~39~~											
B-1 S-7	0950				40											
B-1 S-10	1030				41											
B-1 S-11	1040				42											
B-1 S-12	1310				43											
B-1 S-13	1320				44											
B-1 S-14	1330				45											
B-1 S-16	1350				46											
B-1 S-17	1400				47											
B-1 S-18	1410				48	X	X	X								

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Eric Smith RZA AGRA	12/3/93	12:00	Joni Carroll/ATT	12/3/93	4pm

ADDITIONAL COMMENTS

CLV-16722

Distribution White - Original (with Data) Yellow - BP Pink - Lab Blue - Consultant Field Staff

~~4312-052~~ 6

CHAIN OF CUSTODY

No. 053169 Page 2 of 9

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
R2A AGRA	11335 NE 122nd WAY STE 100	KIRKLAND	WA	98034

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11046	1st Ave S. & 338th / FEDERAL WAY	11-7259-0

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
ERIC SMITH	820 4669	821 3914	G 147070

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO
SCOTT HOOTEN	16400 SOUTHCENTER PKWY	575-4077	394-5280

LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER	FAX NO
DIANA SPENCE	560 NAILES AVE SW / RENTON	228-8335	363-1742

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
ERIC SMITH ~~[illegible]~~	[signature]	12/3/93	

TAT ☐ 24 Hours ☐ 48 Hours ☐ 1 Week ☐ Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE / COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO	CONTAINERS TYPE (VOL)	PRESERVATIVE LAB SAMPLE #	COMMENTS
B-2 S-1 1600	11.24.93	S	1	8oz	49	
B-2 S-2 1610					50	
B-2 S-3 1620					51	
B-2 S-4 1630					52	
B-2 S-5 1640					53	
B-2 S-6 1650					54	
B-2 S-7 1700					55	
~~B-2 S-8~~						NO SAMPLE
B-2 S-9 1700					56	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature] (R2A AGRA)	12/3/93	12:00	[signature] / ATT	12/3/93	4pm

ADDITIONAL COMMENTS

CLV 16722

Distribution White - Original (with Data) Yellow - BP Pink - Lab Blue - Consultant Field Staff

9312-052

CHAIN OF CUSTODY

No 053157 Page 7 of 9

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
RZA AGRA	11335 NE 122nd WAY STE 100	KIRKLAND	WA	98034

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11046	1st AVE S. & 338TH FEDERAL WAY	11-09259-0

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
ERIC SMITH	820 4669	821 3914	G 147020

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO.
SCOTT HOOTEN	16400 SOUTHCENTER PKWY	575-4077	394-5280

LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER	FAX NO.
DIANA SPENCE	5500 NACHES AVE SW/RENTON	228 8235	363 1742

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
BRUCE GUENZLER	[signature]	12.3.93	GRD COURIER

AIRBILL NUMBER:

TAT ☐ 24 Hours ☐ 48 Hours ☐ 1 Week ☐ Standard 2 Weeks

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE / COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH G BTEX	TPH D	8015 MOD							HOLD	COMMENTS
B-2 S-10	12-3-93 0835	S	1	8oz	57										X	
B-2 S-11	0846	↓	↓	↓	58										↓	
B-2 S-12	0905				59											
B-2 S-13	0922				60											
B-2 S-14	0932				61											
B-2 S-15	0945				62											
B-2 S-16	0956				63											
B-2 S-17	1011				64											
B-2 S-18	1021				65	X	X	X	no jar recv'd 12/3/93							

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
[signature] / RZA AGRA	12.3.93	1200	Toni Carroll	12/3/93	4pm	

CLV-16722

Distribution: White - Original (with Data) Yellow - BP Pink - Lab Blue - Consultant Field Staff

9312-052

9

CHAIN OF CUSTODY

No. 053168

Page 5 of 9

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
RZA AGRA	11335 NE 122 WAY STE 100	KIRKLAND	WA	98034

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
11046	FIRST AVE S / 338TH / FEDERAL WAY	11-9259-0

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
ERIC SMITH	820 4669	821 3914	G 147020

BP CONTACT	BP ADDRESS	PHONE NUMBER	FAX NO
SCOTT HOOTEN	16400 SOUTHCENTER PARKWAY	575-4077	394-5280

LAB CONTACT	LABORATORY ADDRESS	PHONE NUMBER	FAX NO.
DIANA SPENCE	560 MAINES AVE SW/RENTON	228-8335	363-1742

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
BRUCE COMENZLER		12.3.93	GSD COURIER

TAT ☐ 24 Hours ☐ 48 Hours ☐ 1 Week ☐ Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH G BTEX	TPH D	BTEX MOD	HOLD	COMMENTS
B-3 S-13	11/30 1104	S	1	80z	77				X	
B-3 S-14	1623	"	"	"	78					
B-3 S-15	1632	"	"	"	79					
B-3 S-16	1646	"	"	"	80				✓	
B-3 S-17	1702	✓	✓	✓	81	X	X	X	X	
B-3 S-3 12131938	11/29 970				82					

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
B. C. / RZA AGRA	12.3.93	1200	[illegible]	12/3/93	[illegible]

ADDITIONAL COMMENTS

QLV 16722

Distribution White - Original (with Data)
Yellow - BP
Pink - Lab
Blue - Consultant Field Staff

APPENDIX C

POTENTIAL RECEPTORS CHECKLIST

POTENTIAL RECEPTORS SURVEY

Site # 11046
Address 33800 1st Avenue South
City/State Federal Way Washington
County King
Quadrangle (Lat/Long) _____

I. Provide information regarding the following potential receptors:

A. Is this site classified as a sensitive area? (Y/(N)/NA)
If yes, give brief explanation of classification.
_____

B. Is a public water supply well within 3 miles of UST system? ((Y)/N)
If yes*, Distance 1/2 mile Direction NE
Average Production Rate U/K

C. Is a public water supply well intake within 3 miles of UST system? (Y/(N))
If yes*, Distance _____ Direction _____

D. Is a private water supply well within 0.5 miles of UST system? (Y/(N))
If yes*, Distance _____ Direction _____

E. Is a basement or subsurface foundation within 100 feet of UST system? (Y/(N))
If yes*, Distance _____ Direction _____

F. Is a school within 1000 feet of UST system? (Y/(N))
If yes*, Distance _____ Direction _____

G. Is a storm sewer within 50 feet of UST system? (Y/(N))
If yes, Distance _____ Direction _____
Depth _____

H. Is a sanitary sewer within 50 feet of UST system? ((Y)/N)
If yes, Distance 20' Direction South
Depth 10'

I. Is a septic system leach field within 50 feet of UST system? (Y/(N))
If yes, Distance _____ Direction _____

J. Is a water line main within 50 feet of UST system? (Y/(N))
If yes, Distance _____ Direction _____
Depth _____

K. Is a natural gas line main within 50 feet of UST system? (Y/(N))
If yes, Distance _____ Direction _____
Depth _____

L. Is a buried telephone/television cable main within 50 feet of UST system? (Y/(N))
If yes, Distance _____ Direction _____
Depth _____

* List only the feature closest to the UST system.

M. Is a buried electrical cable main within 50 feet of UST system? (Y/(N))
If yes, Distance _____ Direction _____
Depth _____

N. Is a subway within 1000 feet of UST system? (Y/(N))
If yes, Distance _____ Direction _____
Depth _____

O. Is the bedrock area prone to dissolution along joints or fractures within 100 feet of the UST system? (Y/(N))

P. Is there a fault or known fracture within 100 feet? (Y/(N))

II. Surface Body of Water

Is there a surface body of water located within 1000 feet? ((Y)/N)
If yes, provide the following information.

Name Panther Lake
Type Lake
Distance and direction from site 1/2 mile West

III. Describe type of local water supply:

Public X
- Supplier's Name Federal Way Water and Sewer
- Supplier's Source Wells
- Source distance and direction from site 1 well 1/4 mile NE of site
- Intake distance and direction from site _____

Private _____

IV. Aquifer Classification (include a brief explanation for classification)

X Class I: Special Groundwaters
Irreplaceable Drinking Water Source
Ecologically Vital

____ Class II: Current and Potential Drinking Water Source

____ Class III: Not Potential Source of Drinking Water

Is this a sole source aquifer? Yes X No ____
Depth to aquifer U/K

V. Describe monitoring wells, if any
Number _____
Free Product (Y/N) Well(s) _____

VI. Signature of Preparer [signature]

Company RZA AGRA

Date 1/10/95

PRS