GRIBI Associates
Geological and Environmental Consulting Services

ENVIRONMENTAL
PROTECTION
98 NOV 17 PM 3:15

Residual PAH in soil not a health risk.
If IB-1 and IB-3 are due to offsite contamination, then water sample from 1349 should also be impacted, but water was not impacted.

November 16, 1998

UST Local Oversight Program
Alameda County Health Agency
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Attention: Eva Chu

* BC recommends to check chromatograms from tank removal

Subject: Report of Soil and Groundwater Investigation
1347 Park Street UST Site, Alameda, California
Alameda County Site ID 5511
GA Project No. 144-01-01

Chromatograms did not shed new light on case

GW at 1541 goes SE, generally. Maybe best to install MW near MB-1

Dear Ms. Chu;

Gribi Associates is pleased to submit this report on behalf of Mr. Jim Russi documenting a recently-completed soil and groundwater investigation at the 1347 Park Street underground storage tank (UST) site in Alameda, California (see Figure 1 and Figure 2). The investigation included the drilling and sampling of three soil borings immediately adjacent to a heating oil underground storage tank (UST) formerly located in the Park Street sidewalk at the project site. The purpose of the soil boring investigation was to assess soil and groundwater quality adjacent to the former UST in order to address regulatory site closure.

BACKGROUND

One 1,500-gallon heating oil UST, which apparently had been unused for a long time, was removed from the project site on November 1995. Following removal of the UST, the Alameda County Department of Environmental Health inspector noted holes in the tank and hydrocarbon odors and sheens in the excavation. Soil samples collected at about 11 feet in depth from the UST excavation sidewalls at each end of the tank contained elevated levels of diesel-range hydrocarbons, and one soil sample collected at about 14 feet in depth from the center of the UST excavation cavity contained no detectable hydrocarbons. The UST excavation cavity was overexcavated in early December 1995, and three of the four soil samples collected from the four excavation sidewalls at about 12 feet in depth contained elevated levels of diesel-range hydrocarbons. After completion of overexcavation activities, the excavation cavity was backfilled with clean imported fill material and re-surfaced to match existing grade.

On August 27, 1998, Gribi Associates submitted a workplan to Alameda County UST Local Oversight Program proposing the drilling and sampling of three hand auger borings adjacent to the former project site UST. Alameda County granted approval to implement the workplan on August 31, 1998.

LIMITATIONS

The services provided under this contract as described in this report include professional opinions and judgments based on data collected. These services have been provided according to generally accepted environmental protocol. The opinions and conclusions contained in this report are typically based on information obtained from:

1. Observations and measurements made by our field staff.
2. Contacts and discussions with regulatory agencies and others.
3. Review of available hydrogeologic data.

DESCRIPTION OF FIELD ACTIVITIES

The three soil borings were drilled and sampled by Mr. Jim Gribi on September 16, 1998.

Prefield Activities

Prior to beginning field activities, Gribi Associates marked proposed boring locations and notified Underground Services Alert (USA). In addition, Gribi Associates obtained a drilling permit from Alameda County Public Works Department and obtained an Excavation Permit and an Encroachment Permit from the City of Alameda. Copies of these permits are contained in Appendix A.

Location of Soil Borings

Locations of the investigative soil borings, IB-1, IB-2, and IB-3, are shown on Figure 2. IB-1 was sited immediately southeast from the former UST in the Park Street parking lane. IB-2 and IB-3 were sited in the project site basement, west and southwest, respectively, from the former UST.

Drilling and Sampling of Soil Borings

Investigative boring IB-1, located in the Park Street parking lane at about ground surface elevation, was drilled to a depth of about 13 feet below grade. Investigative borings IB-2 and IB-3, located in the project site basement approximately 8.5 feet below surface grade, were drilled to a depth of about three feet below the basement floor (approximately 11 feet below ground surface grade). All borings were drilled using hand auger equipment. During hand augering, retrieved soil cuttings were logged by Mr. Jim Gribi, a California-registered geologist. Boring logs for the three borings are contained in Appendix B. All hand auger and sampling equipment was thoroughly cleaned and

decontaminated between each sample collection by triple rinsing first with water, then with dilute tri-sodium phosphate solution, and finally with distilled water. Following completion, the investigative borings were grouted to match existing grade.

One soil sample was collected from IB-1 at a depth of about 8.5 feet below ground surface grade. Soil samples were collected from IB-2 and IB-3 at depths of 2.0 ft and 1.5 feet, respectively, below basement grade (approximately 10.5 feet and 10.0 feet, respectively, below ground surface grade). Each of the soil samples was collected using the following method: (1) Exposed soil was scraped away; (2) A clean 2-inch by 6-inch brass tube was completely filled with undisturbed soil, taking care to minimize excess void in the tube; (3) The tube was then quickly sealed with aluminum foil and plastic end caps, wrapped tightly with tape and labeled; and (4) The sealed tube was immediately placed in cold storage for transport to the laboratory.

A grab groundwater sample was collected from each of the three investigative borings using a clean disposable PVC bailer. Each water sample was collected in three 40-ml VOA vials and two half liter amber jars by completely filling each container from the bailer, and then tightly sealing each container with teflon-lined septum, making sure that no air bubbles were present. Each container was then labeled and immediately placed on ice for transport to the analytical laboratory.

Laboratory Analysis of Soil and Groundwater Samples

A total of three soil samples and three grab groundwater samples were analyzed for the following parameters:

USEPA 8015M Total Petroleum Hydrocarbons as Gasoline (TPH-G)
USEPA 8020/602 Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)
USEPA 8020/602 Methyl-t-butyl Ether (MTBE)
USEPA 8015M Total Petroleum Hydrocarbons as Diesel/Motor Oil (TPH-D/MO)

In addition to the above analyses, the soil sample from IB-1 was analyzed for the following parameters:

USEPA 8270 Polynuclear Aromatic Hydrocarbons (PNAs)

All laboratory analyses were conducted by Acculabs, Inc., a California-certified analytical laboratory, with two-week turn around on lab results.

RESULTS OF INVESTIGATION

General Subsurface Conditions

Subsurface soils in the three borings were similar, consisting primarily of reddish brown silty loose sands throughout. Grey green hydrocarbon staining, with moderate to strong hydrocarbon odors, was noted in soils from eight to 12 feet below ground surface grade in IB-1 and from just below the basement concrete slab (approximately nine feet below ground surface grade) to about two feet below the basement surface (about 10.5 feet below ground surface grade) in IB-1. No hydrocarbon odors or staining were noted in soil or groundwater samples from IB-2. Groundwater was encountered at about 11 feet below ground surface grade in IB-1, and at about 1.5 feet below the basement surface (10.0 feet below ground surface grade) in IB-2 and IB-3.

Results of Laboratory Analyses

Soil and water laboratory analytical results are summarized in Table 1. The laboratory data report for soil and water samples is contained in Appendix C.

Table 1
SUMMARY OF SOIL AND GROUNDWATER ANALYTICAL RESULTS
1347 Park Street UST Site

	Concentration (parts per million)						
	IB-1		*IB-2*		*IB-3*		
	SOIL 8.5 ft	*WATER (11 ft)*	*SOIL 10.5 ft*	*WATER (9.5 ft)*	*SOIL 10.0 ft*	*WATER (9.5 ft)*	*PRG*
TPH-D	**4,900**	**730**	<1.0	**0.12**	**3,500**	**65**	—
TPH-MO	**1,900**	**300**	<10	**0.97**	**1,400**	**30**	—
TPH-G	**200[1]**	**34[1]**	<1.0	<0.050	**140[1]**	**0.12**	—
Benzene	**0.11**	**0.012**	<0.0050	<0.0005	<0.10	<0.0005	1.4
Toluene	**0.25**	**0.029**	<0.0050	<0.0005	<0.10	<0.0005	880
Ethylbenzene	**0.60**	**0.047**	<0.0050	<0.0005	<0.10	<0.0005	230
Xylenes	**1.4**	**0.094**	<0.0050	<0.0005	**0.11**	<0.0005	320
MTBE	<1.0	<0.100	<0.050	<0.0050	<1.0	<0.0050	—
PNAs							
Napthalene	**7.4**	--	--	--	--	--	240
2-Methylnaphthalene	**28**	--	--	--	--	--	—
Acenaphthylene	<3.4	--	--	--	--	--	—
Acenaphthene	<3.4	--	--	--	--	--	110

Table 1
SUMMARY OF SOIL AND GROUNDWATER ANALYTICAL RESULTS
1347 Park Street UST Site

	Concentration (parts per million)						
	IB-1		*IB-2*		*IB-3*		
	SOIL 8.5 ft	*WATER (11 ft)*	*SOIL 10.5 ft*	*WATER (9.5 ft)*	*SOIL 10.0 ft*	*WATER (9.5 ft)*	*PRG*
Fluorene	<3.4	--	--	--	--	--	90
Phenanthrene	**8.3**	--	--	--	--	--	--
Anthracene	<3.4	--	--	--	--	--	5.7
Fluoranthene	<3.4	--	--	--	--	--	27,000
Pyrene	**5.0**	--	--	--	--	--	100
Benzo(a)anthracene	<3.4	--	--	--	--	--	2.6
Chrysene	**5.1**	--	--	--	--	--	7.2
Benzo(b)fluoranthene	<3.4	--	--	--	--	--	2.6
Benzo(k)fluoranthene	<3.4	--	--	--	--	--	26
Benzo(a)pyrene	<3.4	--	--	--	--	--	0.26
Indeno(1,2,3-cd)pyrene	<3.4	--	--	--	--	--	2.6
Dibenz(a,h)anthracene	<3.4	--	--	--	--	--	0.26
Benzo(g,h,i)perylene	<3.4	--	--	--	--	--	---

TPH-D = Total Petroleum Hydrocarbons as Diesel
TPH-MO = Total Petroleum Hydrocarbons as Motor Oil
TPH-G = Total Petroleum Hydrocarbons as Gasoline
MTBE = Methyl-t-butyl Ether
PNAs = Polynuclear aromatic hydrocarbons
PRG = Preliminary Remediation Goals for soil at industrial sites, established by USEPA, Region 9 (August 1, 1996). PRGs are chemical concentrations that correspond to fixed levels of human health and environmental risk (either one-in-one million cancer risk or a noncarcinogenic hazard quotient of one) for exposure in soil.
<0.10 = Not detected above the expressed value.
1 = Acculabs, Inc. laboratory report states " Product is not typical gasoline."
-- = Not analyzed for this analyte.
--- = No PRG listed.

CONCLUSIONS

Soil and groundwater samples from investigative boring IB-2, located west from the former project site UST, contained no significant levels of diesel-range hydrocarbons. Both field screening and laboratory analytical results from investigative borings IB-1 and IB-3 showed detectable levels of diesel- and motor oil-range hydrocarbons in soil and groundwater immediately southeast to

southwest from the former heating oil UST. However, results of PNA analysis for the IB-1 soil sample, which showed low levels of some PNA compounds, seem to indicate that residual hydrocarbons present in subsurface soils adjacent to the former project site UST pose no significant risk to public health and the environment.

Laboratory chromatograms from IB-1 and IB-3 soil and water samples, which are included in the laboratory report contained in Appendix C, show separate diesel- and motor oil-range hydrocarbon peaks, and the chromatogram from the IB-2 water sample shows only a motor oil-range hydrocarbon peak. Thus, it appears that offsite sources have contributed to hydrocarbons encountered beneath the project site. The project site is located in a commercial area of Alameda, with at least one identified UST located in the Park Street sidewalk immediately north from the project site. In addition, numerous buried utilities are present in Park Street immediately adjacent to the former UST, including a buried sewer line, which apparently services the project site and is connected to a floor drain in the project site basement, running along the north side of the former project site UST excavation cavity.

We appreciate the opportunity to present this report for your review. Please call if you have questions or require additional information.

Very truly yours,

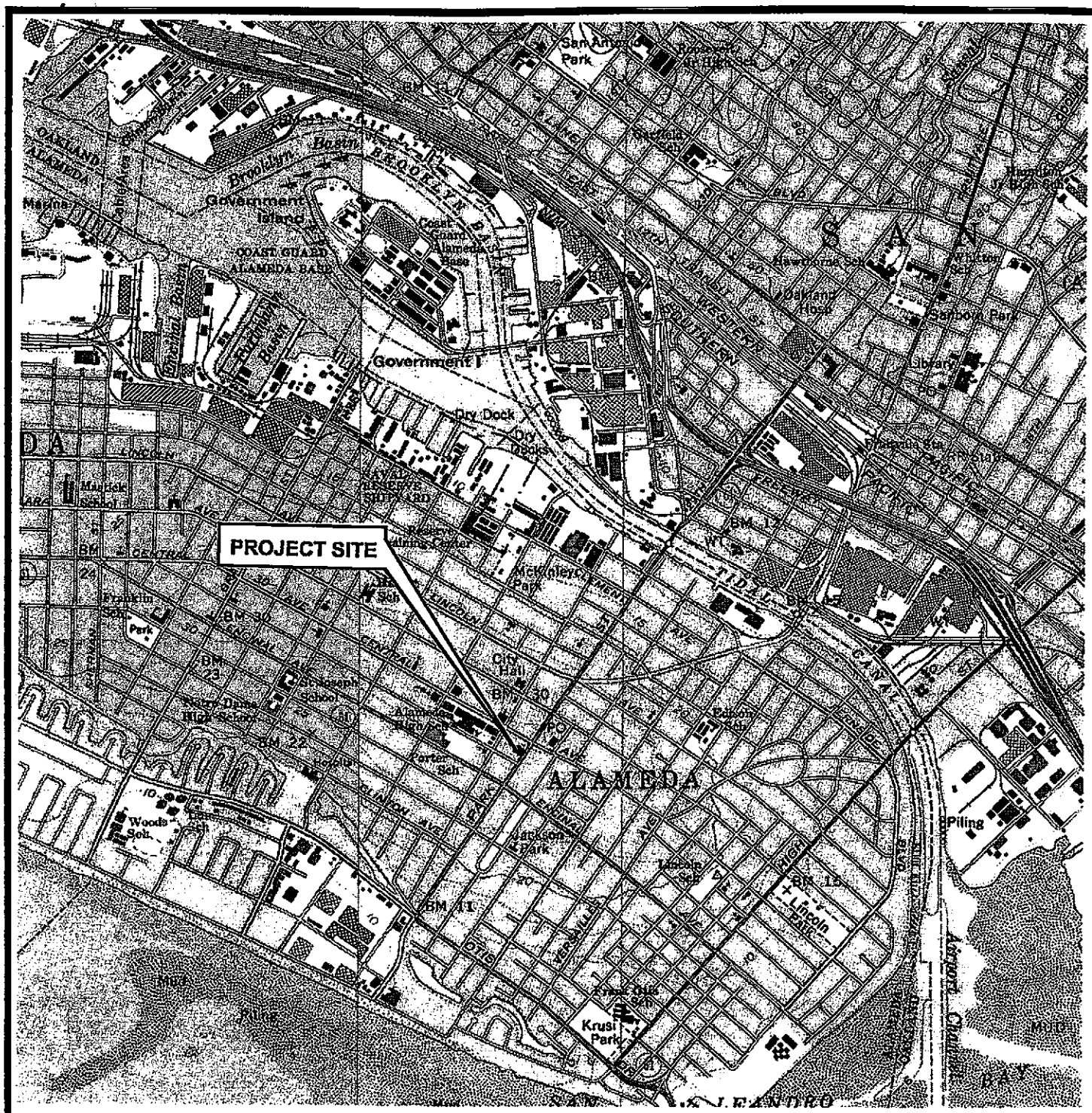
James E. Gribi
Registered Geologist
California No. 5843

REGISTERED GEOLOGIST
JAMES E. GRIBI
No. 5843
STATE OF CALIFORNIA

JEG/ct

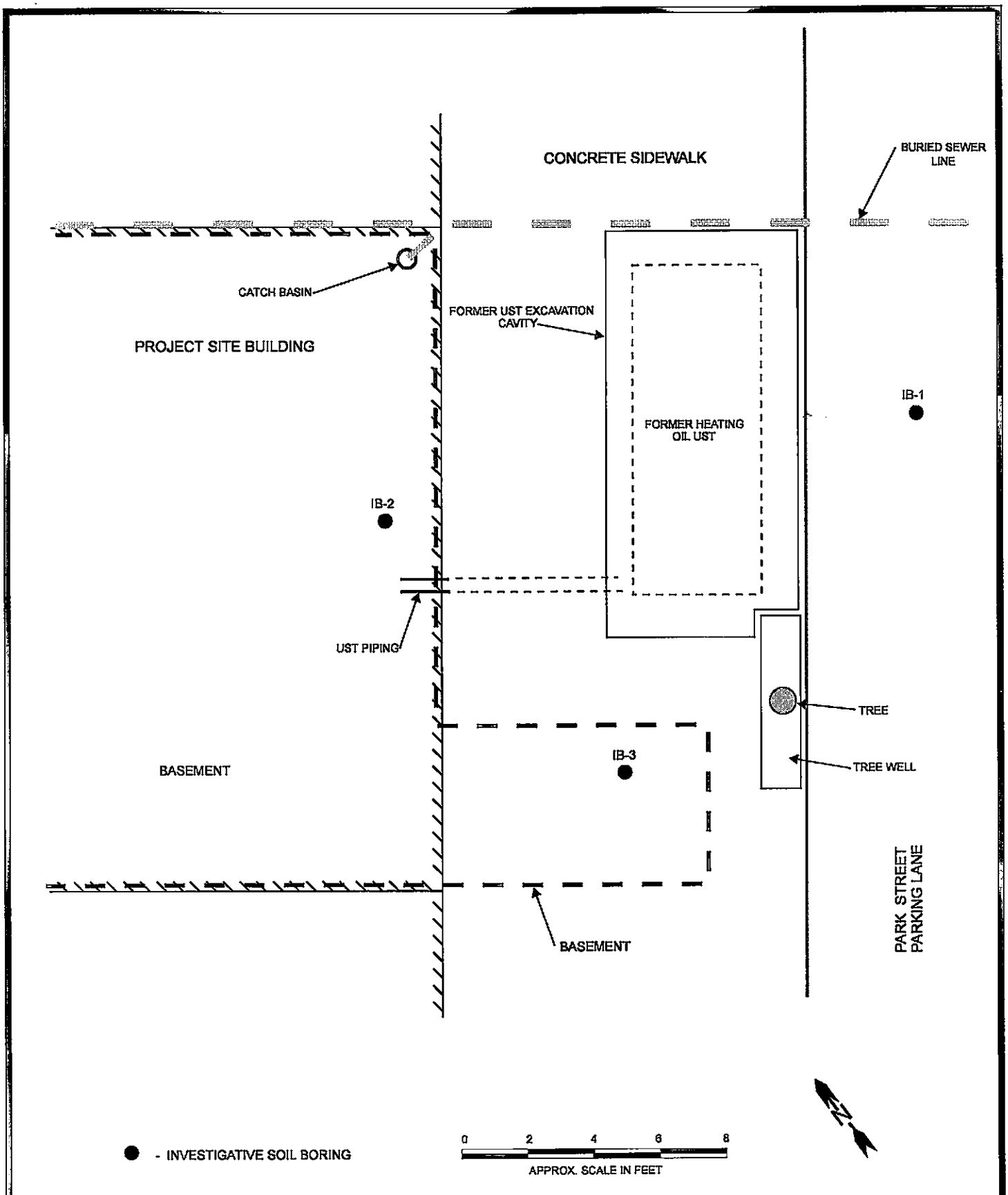
GA-23/Russi.rpl

c Jim Russi



TOPOGRAPHY FROM USGS OAKLAND, EAST, CALIFORNIA
7.5-MINUTE QUADRANGLE MAPS, (TOPO! 1997).

DESIGNED BY:	CHECKED BY:	**SITE VICINITY MAP**	DATE: 11/14/98	FIGURE: 1
DRAWN BY: JG	SCALE: 1:24,000	1347 PARK STREET UST SITE ALAMEDA, CALIFORNIA	**GRIBI Associates**	
PROJECT NO: 144-01-01				



DESIGNED BY:	CHECKED BY:	**SITE PLAN**	DATE: 11/16/98	FIGURE: 2
DRAWN BY: JG	SCALE:	1347 PARK STREET ALAMEDA, CALIFORNIA	**GRIBI Associates**	
PROJECT NO: 144-01-01				

APPENDIX A

CITY AND COUNTY PERMITS

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-6575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1347 PARK Street
ALAMEDA CA

California Coordinates Source _____ ft. Accuracy ± ___ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name Jim Russi
Address 428 YORKSHIRE RD Phone 510/532-2100
City Alameda CA Zip 94501

APPLICANT
Name JIM GRIBI RG #5843
GRIBI ASSOCIATES Fax 707/864-5543
Address 881 VANDAGE AVE Phone same
City SUISUN CA Zip 94585

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☒
Monitoring	☐	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☐
Cable	☐	Other	☒ Hand Auger		

DRILLER'S LICENSE NO. Not Applicable

WELL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter _____ in. Depth _____ ft.
Surface Seal Depth ___ ft. Number _____

GEOTECHNICAL PROJECTS
Number of Borings 3 Maximum
Hole Diameter 3¼ in. Depth 13 ft.

ESTIMATED STARTING DATE 9-4-98
ESTIMATED COMPLETION DATE 9-4-98

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

APPLICANT'S SIGNATURE _____ DATE 9-2-98

FOR OFFICE USE

PERMIT NUMBER 98WR377
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date.

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

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

(D.) GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

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

F. WELL DESTRUCTION
See attached

G. SPECIAL CONDITIONS

APPROVED A. Kan DATE 9/2/98

CITY OF ALAMEDA
ENGINEERING OFFICE
2250 Central Ave., Room 250
Alameda, CA 94501 748-4614 or 748-4518

ENCROACHMENT PERM Permit No: EN98-073
STATUS: APPROVED
Applied : 09/11/98
Approved : 09/11/98

JOB ADDRESS : 1347 PARK ST
Parcel number : 071 -0204-009-04
OWNER : RUSSI JAMES F & ARLEEN M TRS
428 YORKSHIRE RD
ALAMEDA CA 94501
APPLICANT : GRIBI ASSOC.(J.GRIBI)
884 VINTAGE AVE
SUISUN, CA 94585
707-864-5543
JOB DESCRIPTION: 2 METERED SPACES/2 SIGNS 9/16
Project Desc. : 2 METERED SPACES/2 SIGNS 9/16

Fee description	Units	Fee/Unit	Ext fee	Date
PERMIT FILING FEE		1.00	32.00	
ENCROACHMENT - METERS	13.50		13.50	
"NO PARKING" SIGNS	2.00		2.00	

*** Fees Required ***

Account No.	
224-37330	
4240-33410	
TOTAL THIS DATE	
Fees:	47.50
Adjustments:	.00
Total Fees:	47.50

*** Fees Collected & Credits ***

Receipt No.	Date	Payment
R9804281	09/11/98	13.50
R9804281	09/11/98	2.00
	*********	15.50
Total Credits:		32.00
Total Payments:		15.50
Balance Due:		.00

CALL 748-4614 OR 748-4518 FOR INSPECTION.

NOTE: ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT OF WAY MUST HAVE BARRICADES WITH FLASHERS FOR NIGHT TIME PROTECTION.

THIS IS TO CERTIFY THAT THE ABOVE WORK HAS BEEN COMPLETED TO MY SATISFACTION AND APPROVAL.

Date_____

_____
INSPECTOR

CALL 748-4614 OR 748-4518 FOR INSPECTION

CITY OF ALAMEDA
ENGINEERING OFFICE
2250 Central Ave., Room 250
Alameda, CA 94501 748-4614 or 748-4518

EXCAVATION PERMIT

Permit No: EX98-102
STATUS: APPROVED
Applied : 09/02/98
Approved : 09/11/98

JOB ADDRESS : 1347 PARK ST
Parcel number : 071 -0204-009-04
OWNER : RUSSI JAMES F & ARLEEN M TRS
428 YURKSHIRE RD
ALAMEDA CA 94501
APPLICANT : GRIBI ASSOC.(J.GRIBI)
884 VINTAGE AVE
SUISUN, CA 94585
707-864-5543
JOB DESCRIPTION: BOARING FOR SAMPLES FROM TANK
Project Desc. : BOARING FOR SAMPLES FROM TANK

Fee description	Units	Fee/Unit	Ext fee	Date
FILING FEE		31.12	1.00	
ADDITIONAL MICROFICHE FEE	2.98		2.98	
EXCAVATION PERMIT FEE.....>	54.70		54.70	
TOTAL			88.80	

*** Fees Required *** *** Fees Collected & Credits ***

Account No.	Receipt No.	Date	Payment
001-300-4240-3792	R9804280	09/11/98	2.98
001-300-4210-3370	R9804280	09/11/98	54.70
001-300-4240-3745	R9804280	09/11/98	13.18
001-300-4240-3790	R9804280	09/11/98	5.28
510-300-9409-3790	R9804280	09/11/98	8.44
001-300-4240-3792	R9804280	09/11/98	4.22
TOTAL THIS DATE		*********	88.80

Fees:	88.80		
Adjustments:	.00	Total Credits:	.00
Total Fees:	88.80	Total Payments:	88.80
		Balance Due:	.00

CALL 748-4614 OR 748-4518 FOR INSPECTION.

NOTE: ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT OF WAY MUST HAVE BARRICADES WITH FLASHERS FOR NIGHT TIME PROTECTION.

THIS IS TO CERTIFY THAT THE ABOVE WORK HAS BEEN COMPLETED TO MY SATISFACTION AND APPROVAL.

Date_____

_____
INSPECTOR

CALL 748-4614 OR 748-4518 FOR INSPECTION

APPENDIX B

SOIL BORING LOGS

LOG OF BORING

GRIBI Associates

SHEET _1_ OF _1_

BORING NUMBER : **IB-1**

BORING LOCATION:
SOUTHEAST OF FORMER UST

BORING TYPE: INVESTIGATIVE BORING

PROJECT NAME:
1347 PARK STREET UST SITE

PROJECT NUMBER: 144-01-01

START DATE: 09/16/98

COMPLETION DATE: 09/16/98

DRILLING CONTRACTOR :

DRILLING METHOD: HAND AUGER

BOREHOLE DIAMETER: 3-1/4 INCHES

BORING TOTAL DEPTH: 13 FEET

COMPLETION METHOD: GROUTED

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	RECOVERY	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL	PIEZOMETER/ WELL INSTALLATION
							0.0 - 1.0 Ft. Asphalt and base rock.	
						SM	1.0 - 2.0 Ft. Brown silty SAND, fine, loose, moist to wet, no hydrocarbon odors or staining.	
5						SM	2.0 - 8.0 Ft. Reddish buff SAND, silty, fine to medium grained, moist, no hydrocarbon odors or staining.	
	IB-1.1	8.5 FT						
10						SM	8.0 - 12.0 Ft. Grey green silty SAND, fine to medium grained, loose, moist, moderate to strong hydrocarbon odors.	
						SM	12.0 - 13.0 Ft. Reddish buff silty SAND, fine to medium grained, loose, wet, no hydrocarbon odors or staining.	
15							TOTAL DEPTH: 13 FEET GROUNDWATER DEPTH: APPROX. 11 FEET	
20								

LOG OF BORING

GRIBI Associates

SHEET _1_ OF _1_

BORING NUMBER : **IB-2**

BORING LOCATION:
NORTHWEST OF FORMER UST

BORING TYPE: INVESTIGATIVE BORING

PROJECT NAME:
1347 PARK STREET UST SITE

PROJECT NUMBER: 144-01-01

START DATE: 09/16/98

COMPLETION DATE: 09/16/98

DRILLING CONTRACTOR :

DRILLING METHOD: HAND AUGER

BOREHOLE DIAMETER: 3-1/4 INCHES

BORING TOTAL DEPTH: 11.5 FEET

COMPLETION METHOD: GROUTED

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	RECOVERY	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL	PIEZOMETER\ WELL INSTALLATION
5							BASEMENT DOWN TO 8.5 FT BELOW SURFACE GRADE	
10	IB-2.1	10.5 FT					8.5 - 9.0 Ft. Concrete and base rock.	
						SM	9.0 - 11.5 Ft. Reddish buff silty SAND, fine to medium grained, loose, moist to wet, no hydrocarbon odors or staining.	
15							TOTAL DEPTH: 11.5 FEET GROUNDWATER DEPTH: APPROX. 10 FEET	
20								

LOG OF BORING

GRIBI Associates

SHEET _1_ OF _1_

BORING NUMBER : **IB-3**

BORING LOCATION:
SOUTHWEST OF FORMER UST

BORING TYPE: INVESTIGATIVE BORING

PROJECT NAME:
1347 PARK STREET UST SITE

PROJECT NUMBER: 144-01-01

START DATE: 09/16/98

COMPLETION DATE: 09/16/98

DRILLING CONTRACTOR :

DRILLING METHOD: HAND AUGER

BOREHOLE DIAMETER: 3-1/4 INCHES

BORING TOTAL DEPTH: 12.0 FEET

COMPLETION METHOD: GROUTED

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	RECOVERY	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL	PIEZOMETER\ WELL INSTALLATION
5							BASEMENT DOWN TO 8.5 FT BELOW SURFACE GRADE	
10	IB-3.1	10.0 FT					8.5 - 9.0 Ft. Concrete and base rock.	
						SM	9.0 - 10.5 Ft. Grey green silty SAND, fine to medium grained, loose, moist to wet, moderate hydrocarbon odors.	
						SM	10.5 - 12.0 Ft. Reddish buff silty SAND, fine to medium grained, loose, wet, no hydrocarbon odors or staining.	
15							TOTAL DEPTH: 12.0 FEET GROUNDWATER DEPTH: APPROX. 10 FEET	
20								

APPENDIX C

LABORATORY DATA REPORT

Acculabs Inc.

Formerly West Laboratory

Davis

1046 Olive Drive, Suite 2, Davis CA 95616 ■ 530-757-0920 ■ Fax 753-6091

Sample Log 19039
October 05, 1998

Jim Gribi
Gribi Associates
884 Vintage
Suisun, CA 94585

Subject : 3 Water and 3 Soil samples
Project Name : Russi Site
Project Number : 144-01-01

Dear Mr. Gribi,

Chemical analysis on the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. USEPA protocols for sample storage and preservation were followed.

Acculabs - Davis is certified by the State of Arizona (AZ0583) and the State of California (# 1346). If you have any questions regarding procedures or results, please call me at 530-757-0920.

Sincerely,

Tom Kwoka

Tom Kwoka

Acculabs Inc.

Formerly West Laboratory

Davis **1046 Olive Drive, Suite 2, Davis CA 95616 ■ 530-757-0920 ■ Fax 753-6091**

Subject : 3 Water and 3 Soil samples
Project Name : Russi Site
Project Number : 144-01-01

Sample Log 19039
October 05, 1998

Case Narrative

PNA's by 8270C

SAmple extract would not concentrate to the normal final volume of 2.0 ml and was brought to 10 ml (1:5 dilution). At this level there was a lot of interference from non-target organics causing surrogates 5 and 6 to have high recoveries.

Stewart Podolsky

Acculabs Inc. *Formerly West Laboratory*

Davis 1046 Olive Drive, Suite 2, Davis CA 95616 ■ 530-757-0920 ■ Fax 753-6091

Sample Log 19039
October 05, 1998

PNAs by 8270C

Sample Name : **IB-1.1 (8.5')**

Project Name	: Russi Site	Date Analyzed	: 10/02/98
Project Number	: 144-01-01	Date Received	: 09/17/98
Sample Date	: 09/16/98	Dilution	: 1:5
Date Extracted	: 09/29/98	Sample Matrix	: Soil
Extr. Method	: EPA 3550	Lab Number	: 19039-01
QC Batch	: BS980907		

Parameter	MRL	Measured Conc.	Units
Naphthalene	**3.4**	**7.4**	mg/Kg
2-Methylnaphthalene	**3.4**	**28**	mg/Kg
Acenaphthylene	3.4	<3.4	mg/Kg
Acenaphthene	3.4	<3.4	mg/Kg
Fluorene	3.4	<3.4	mg/Kg
Phenanthrene	**3.4**	**8.3**	mg/Kg
Anthracene	3.4	<3.4	mg/Kg
Fluoranthene	3.4	<3.4	mg/Kg
Pyrene	**3.4**	**5.0**	mg/Kg
Benzo(a)anthracene	3.4	<3.4	mg/Kg
Chrysene	**3.4**	**5.1**	mg/Kg
Benzo(b)fluoranthene	3.4	<3.4	mg/Kg
Benzo(k)fluoranthene	3.4	<3.4	mg/Kg
Benzo(a)pyrene	3.4	<3.4	mg/Kg
Indeno(1,2,3-c,d)pyrene	3.4	<3.4	mg/Kg
Dibenz(a,h)anthracene	3.4	<3.4	mg/Kg
Benzo(g,h,i)perylene	3.4	<3.4	mg/Kg
2-Fluorophenol		81	% Recovery
Phenol-d5		77	% Recovery
Nitrobenzene-d5		117	% Recovery
2-Fluorobiphenyl		106	% Recovery
2,4,6-Tribromophenol		131	% Recovery
Terphenyl-d14		147	% Recovery

MRL = Method Reporting Limit

Conc. = Concentration

E = Concentration exceeded calibration range.

Approved By : Tom Kwoka

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Formerly West Laboratory

Davis/Sacramento 1046 Olive Drive, Suite 2, Davis CA 95616 ■ 530-757-0920 ■ Fax 753-6091

September 21, 1998
Sample Log 19039

MTBE (Methyl-t-butyl ether) By EPA Method 8020/602

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Received : 09/17/98
Matrix : Soil

SAMPLE	Date Analyzed	(MRL) mg/kg	Measured Value mg/kg
IB-1.1 (8.5')	09/23/98	(1.0)	<1.0
IB-2.1 (2.0/10.5')	09/18/98	(.050)	<.050
IB-3.1 (1.5/10.0')	09/23/98	(1.0)	<1.0

Approved By:

Stewart Podolsky
Senior Chemist

Acculabs Inc. *Formerly West Laboratory*

Davis/Sacramento 1046 Olive Drive, Suite 2, Davis CA 95616 ■ 530-757-0920 ■ Fax 753-6091

September 21, 1998
Sample Log 19039

MTBE (Methyl-t-butyl ether) By EPA Method 8020/602

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Received : 09/17/98
Matrix : Water

SAMPLE	Date Analyzed	(MRL) ug/L	Measured Value ug/L
IB-1W	09/18/98	(100)	<100
IB-2W	09/21/98	(5.0)	<5.0
IB-3W	09/18/98	(5.0)	<5.0

Approved By:

Stewart Podolsky
Senior Chemist

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Sample Log 19039

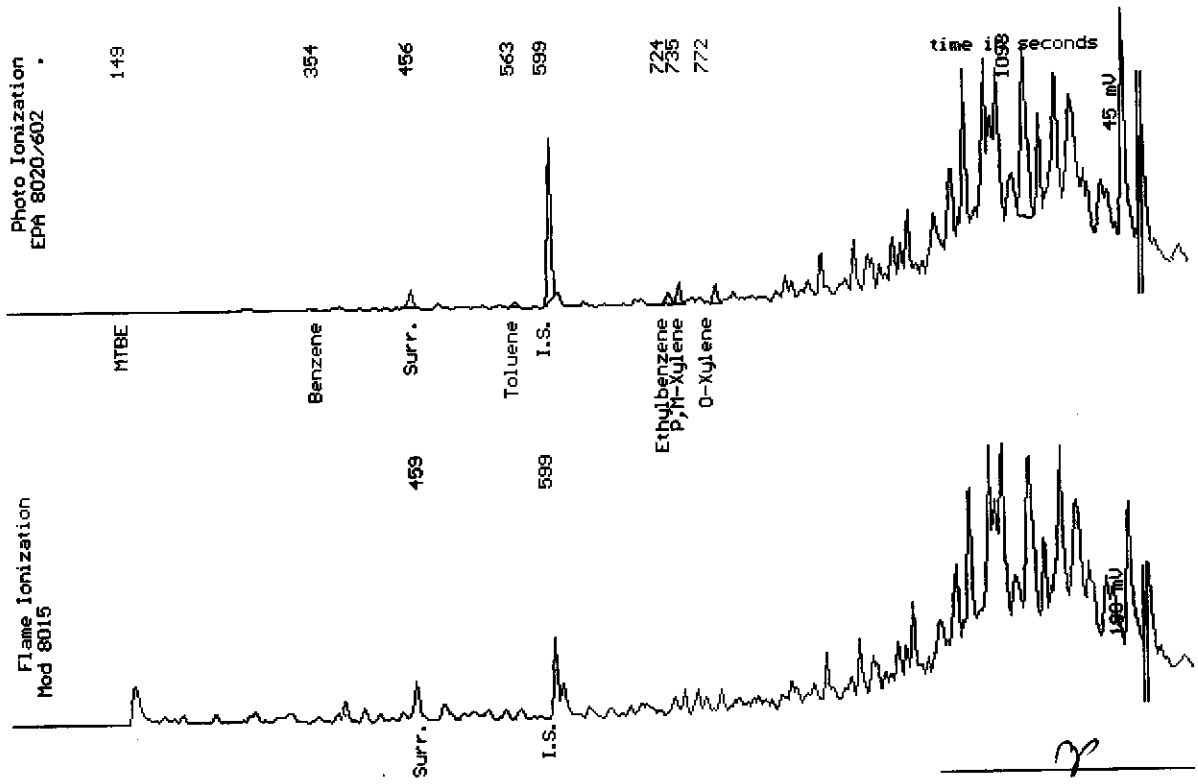
19039-01

Sample: **IB-1.1 (8.5')**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Dilution : 1:20 Run Log : 4177F
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.10)	.11
Toluene	(.10)	.25
Ethylbenzene	(.10)	.60
Total Xylenes	(.10)	1.4
TPH as Gasoline	(20)	200 *
Surrogate Recovery		103 %

* Product is not typical gasoline.



Date Analyzed: 09-23-98
Column : 0.53mm ID X 60m Restek Rtx-1701

Stewart Podolsky
Senior Chemist

Acculabs Inc.

Formerly West Laboratory

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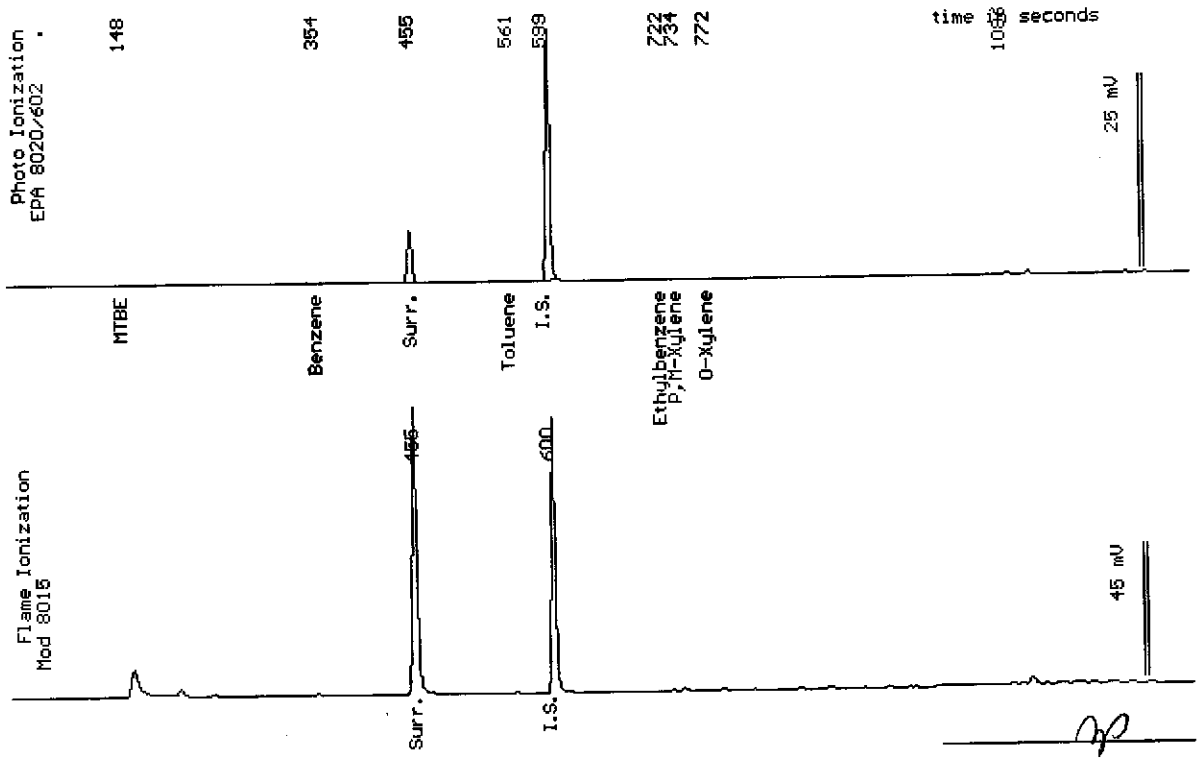
Sample Log 19039

19039-02

Sample: **IB-2.1 (2.0/10.5')**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Dilution : 1:1 Run Log : 4177D
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		98 %



Date Analyzed: 09-18-98
Column : 0.53mm ID X 60m Restek Rtx-1701

Stewart Podolsky
Senior Chemist

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Sample Log 19039

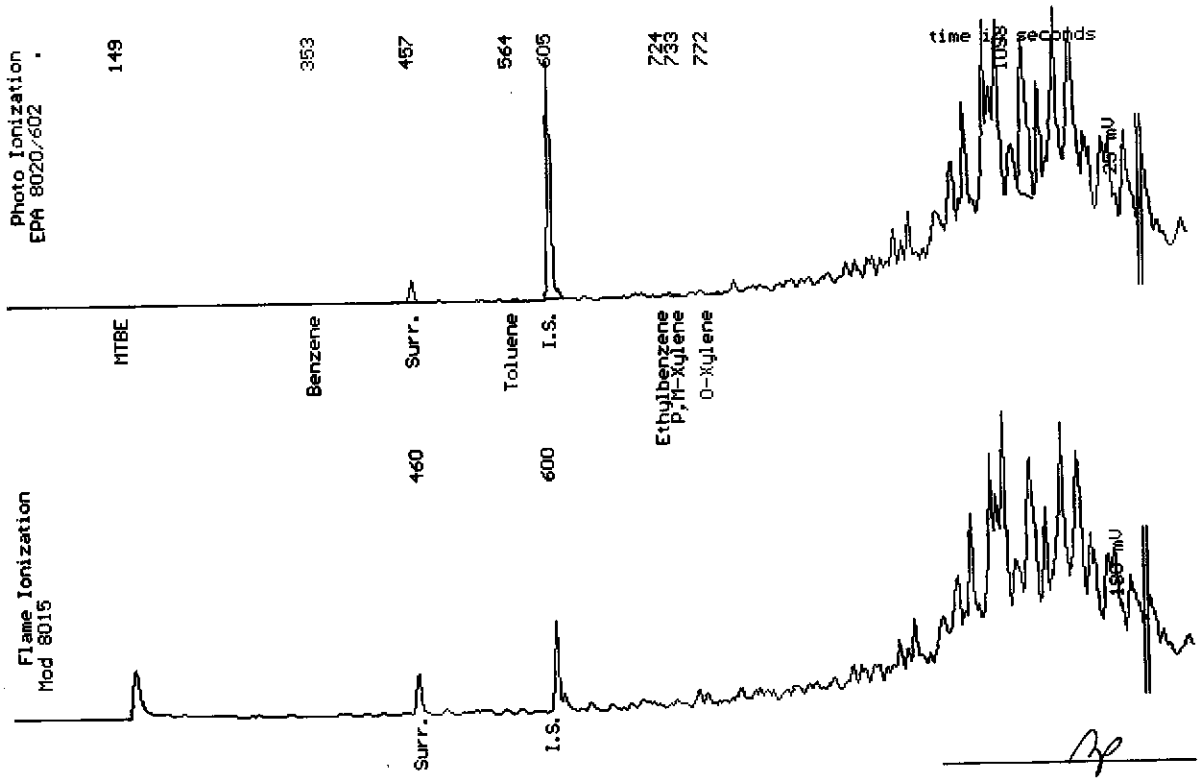
19039-03

Sample: IB-3.1 (1.5/10.0')

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Dilution : 1:20 Run Log : 4177F
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.10)	<.10
Toluene	(.10)	<.10
Ethylbenzene	(.10)	<.10
Total Xylenes	(.10)	.11
TPH as Gasoline	(20)	140 *
Surrogate Recovery		80 %

* Product is not typical gasoline.



Date Analyzed: 09-23-98
Column : 0.53mm ID X 60m Restek Rtx-1701

Stewart Podolsky
Senior Chemist

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Sample Log 19039

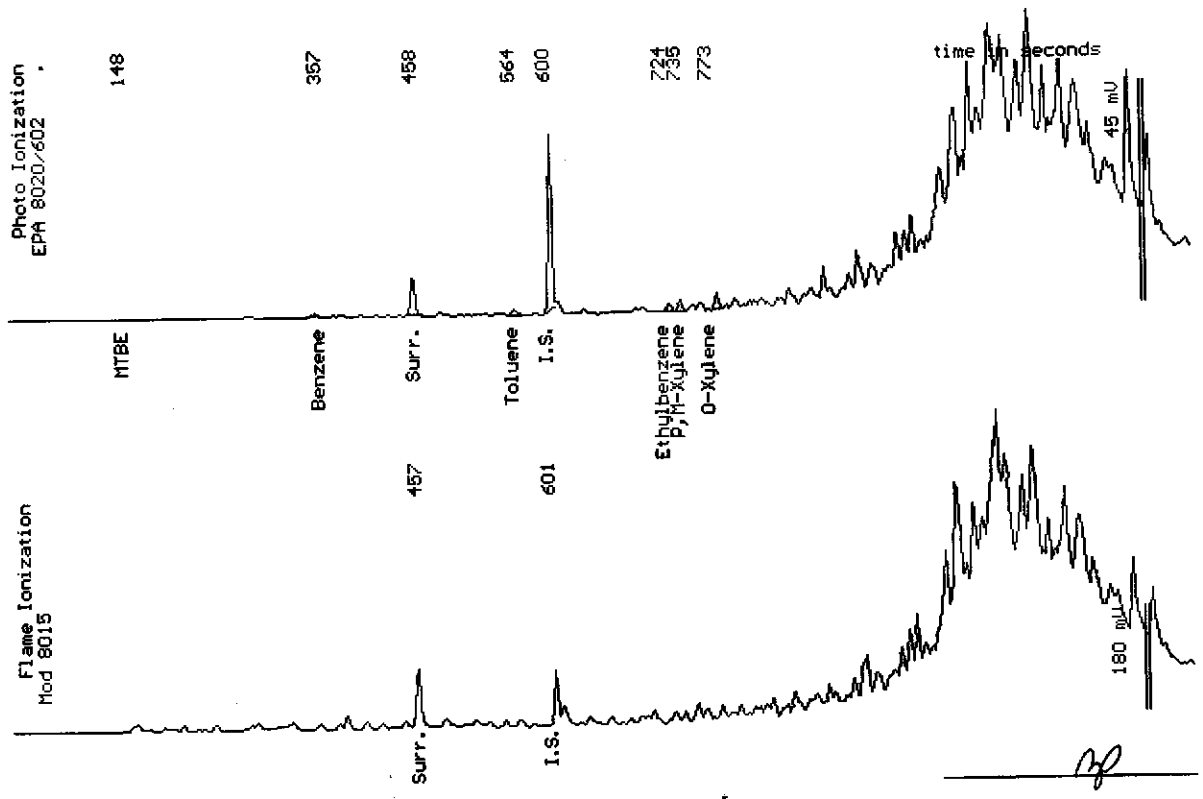
19039-04

Sample: **IB-1W**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Dilution : 1:20 Run Log : 4177D
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(10)	12
Toluene	(10)	29
Ethylbenzene	(10)	47
Total Xylenes	(10)	94
TPH as Gasoline	(1000)	34000 *
Surrogate Recovery		116 %

* Product is not typical gasoline.



Date Analyzed: 09-18-98
Column : 0.53mm ID X 60m Restek Rtx-1701

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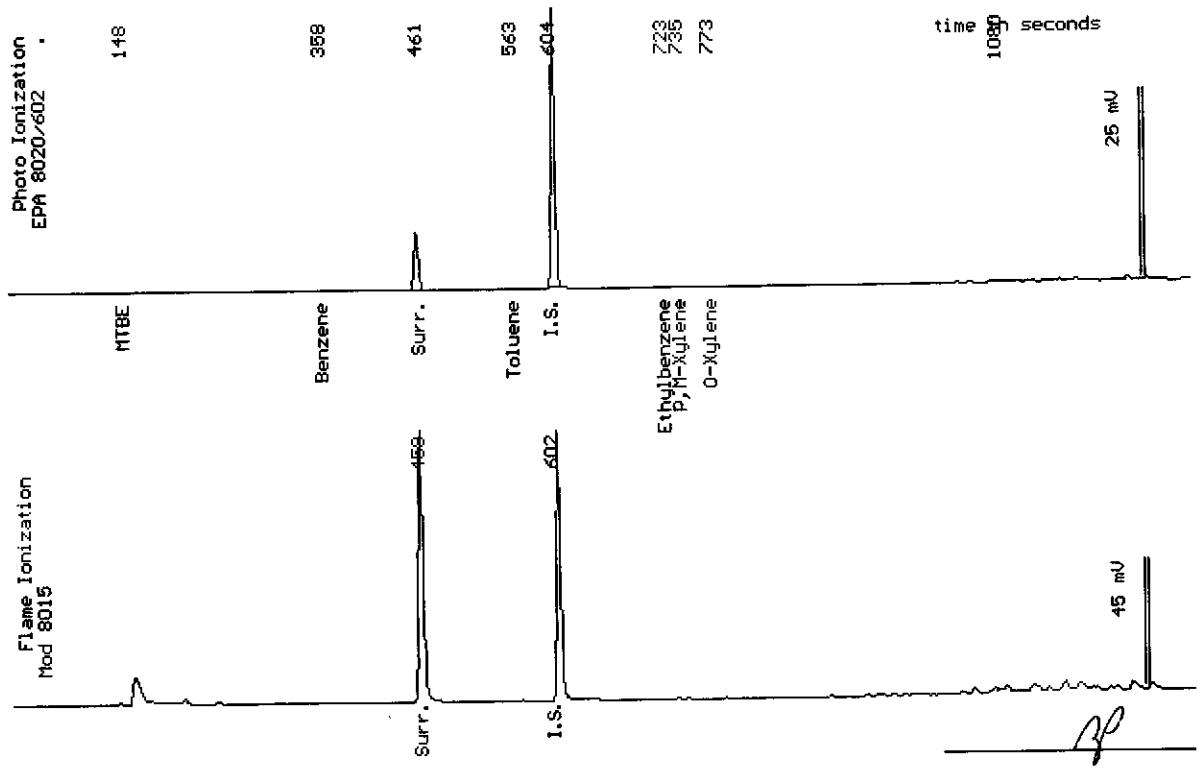
Sample Log 19039

19039-05

Sample: **IB-2W**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Dilution : 1:1 Run Log : 4177E
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	<.50
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	<50
Surrogate Recovery		99 %



Date Analyzed: 09-21-98
Column : 0.53mm ID X 60m Restek Rtx-1701

Steuart Podolsky
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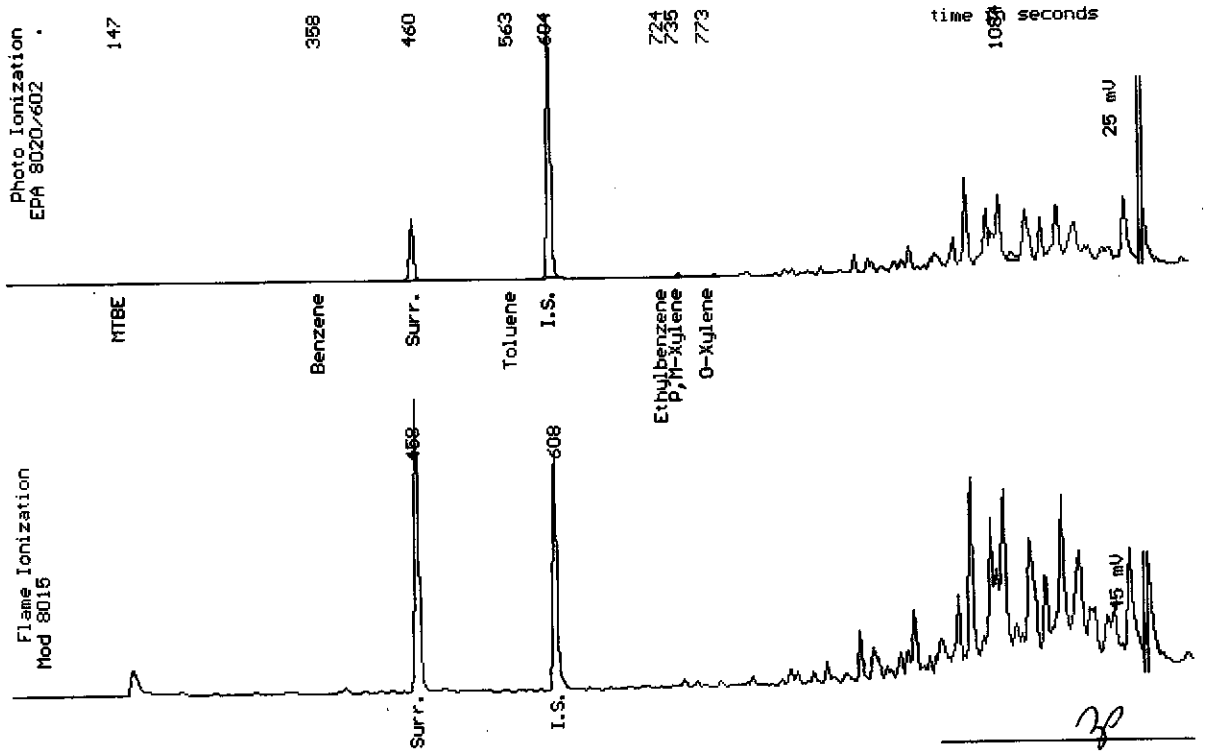
Sample Log 19039

19039-06

Sample: **IB-3W**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Dilution : 1:1 Run Log : 4177D
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	<.50
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	120
Surrogate Recovery		101 %



Date Analyzed: 09-18-98
Column : 0.53mm ID X 60m Restek Rtx-1701

Stewart Podolsky
Senior Chemist

Acculabs Inc.

September 21, 1998
Sample Log 19039

QC Report for EPA 8020 & Modified EPA 8015
Run Log : 4177D
From : Russi Site (Proj. # 144-01-01)
Sample(s) Received : 09/17/98

Parameter	Matrix Spike % Recovery	Matrix Spike Duplicate % Recovery	RPD *
Benzene	100	100	0
Ethylbenzene	99	103	4
TPH as Gasoline	112	113	1

* RPD = Relative Percent Difference

Parameter	Laboratory Control Sample % Recovery
Benzene	99
Ethylbenzene	100
Gasoline	113

Parameter	Method Blank
Benzene	<0.005 mg/Kg
Toluene	<0.005 mg/Kg
Ethylbenzene	<0.005 mg/Kg
Total Xylenes	<0.005 mg/Kg
TPH as Gasoline	<1.0 mg/kg

Stewart Podolsky
Senior Chemist

Acculabs Inc.

September 23, 1998
Sample Log 19039

QC Report for EPA 8020 & Modified EPA 8015
Run Log : 4177F (Methanol Extracts)
From : Russi Site (Proj. # 144-01-01)
Sample(s) Received : 09/17/98

Parameter	Laboratory Control Spike % Recovery	Duplicate % Recovery	RPD *
Benzene	100	100	0
Ethylbenzene	102	103	1
TPH as Gasoline	128	130	2

Parameter	Method Blank
Benzene	<0.10mg/Kg
Toluene	<0.10mg/Kg
Ethylbenzene	<0.10mg/Kg
Total Xylenes	<0.10mg/Kg
TPH as Gasoline	< 20mg/Kg

Stewart Podolsky
Senior Chemist

Acculabs Inc.

September 21, 1998
Sample Log 19039

QC Report for EPA 602 & Modified EPA 8015
Run Log : 4177A
From : Russi Site (Proj. # 144-01-01)
Sample(s) Received : 09/17/98

Parameter	Matrix Spike % Recovery	Matrix Spike Duplicate % Recovery	RPD *
Benzene	101	107	6
Ethylbenzene	103	107	4

No gasoline spike recovery due to high gas in spiked sample.

* RPD = Relative Percent Difference

Parameter	Laboratory Control Sample % Recovery
Benzene	98
Ethylbenzene	100
Gasoline	110

Parameter	Method Blank
Benzene	<0.50 ug/L
Toluene	<0.50 ug/L
Ethylbenzene	<0.50 ug/L
Total Xylenes	<0.50 ug/L
TPH as Gasoline	<50 ug/L

Stewart Podolsky
Senior Chemist

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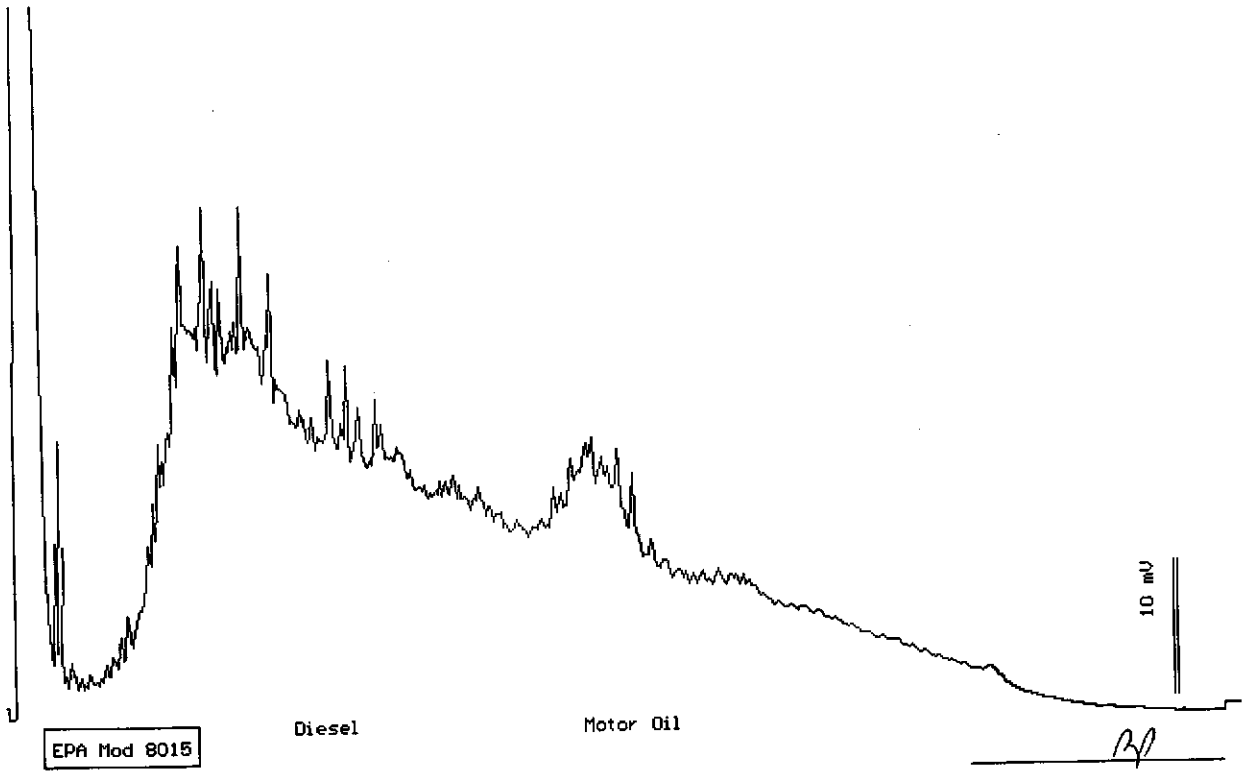
Sample Log 19039

19039-01

Sample: **IB-1.1 (8.5')**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Extracted: 09/18/98 QC Batch : DS980903
Dilution : 1:125 Run Log : 7418A
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
TPH as Diesel	(130)	4900
TPH as Motor Oil	(250)	1900



Date: 09-19-98 Time: 03:48:26
Column : 0.53mm ID X 15m DB1 (J&W Scientific)

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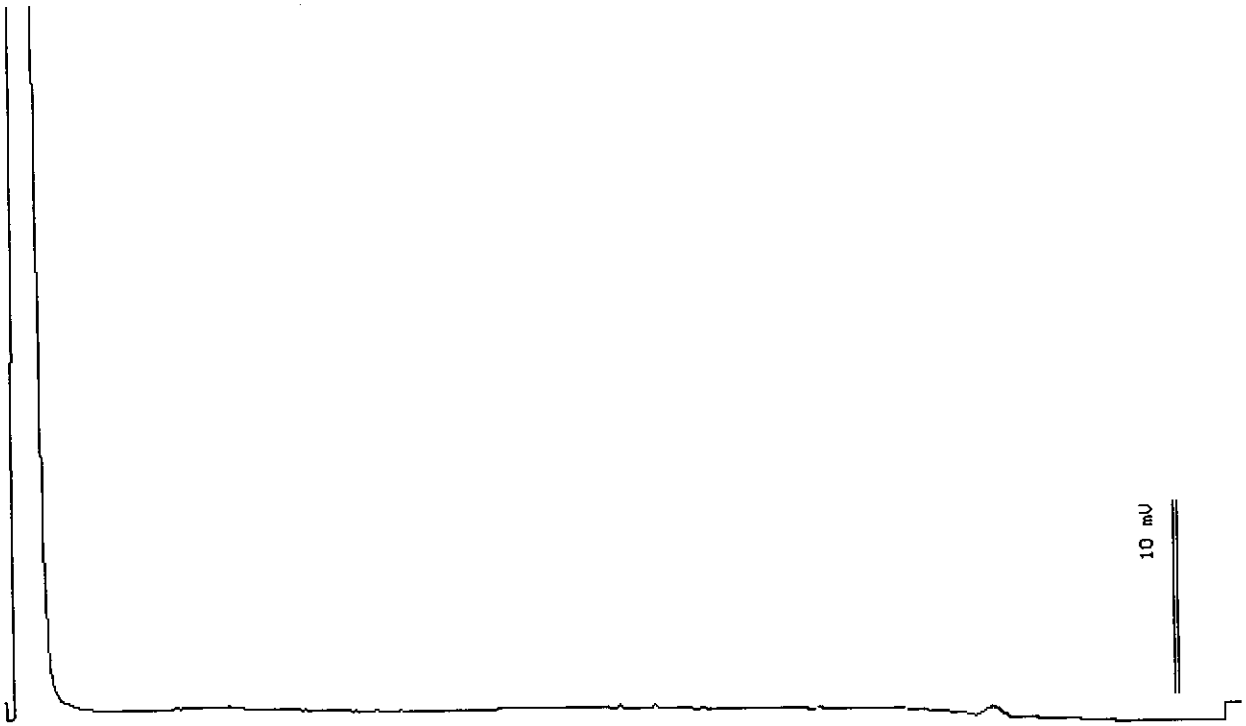
Sample Log 19039

19039-02

Sample: **IB-2.1 (2.0/10.5')**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Extracted: 09/18/98 QC Batch : DS980903
Dilution : 1:1 Run Log : 7418A
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
TPH as Diesel	(1.0)	<1.0
TPH as Motor Oil	(10)	<10



EPA Mod 8015

Date: 09-19-98 Time: 03:14:13
Column : 0.53mm ID X 15m DB1 (J&W Scientific)

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Senior Chemist

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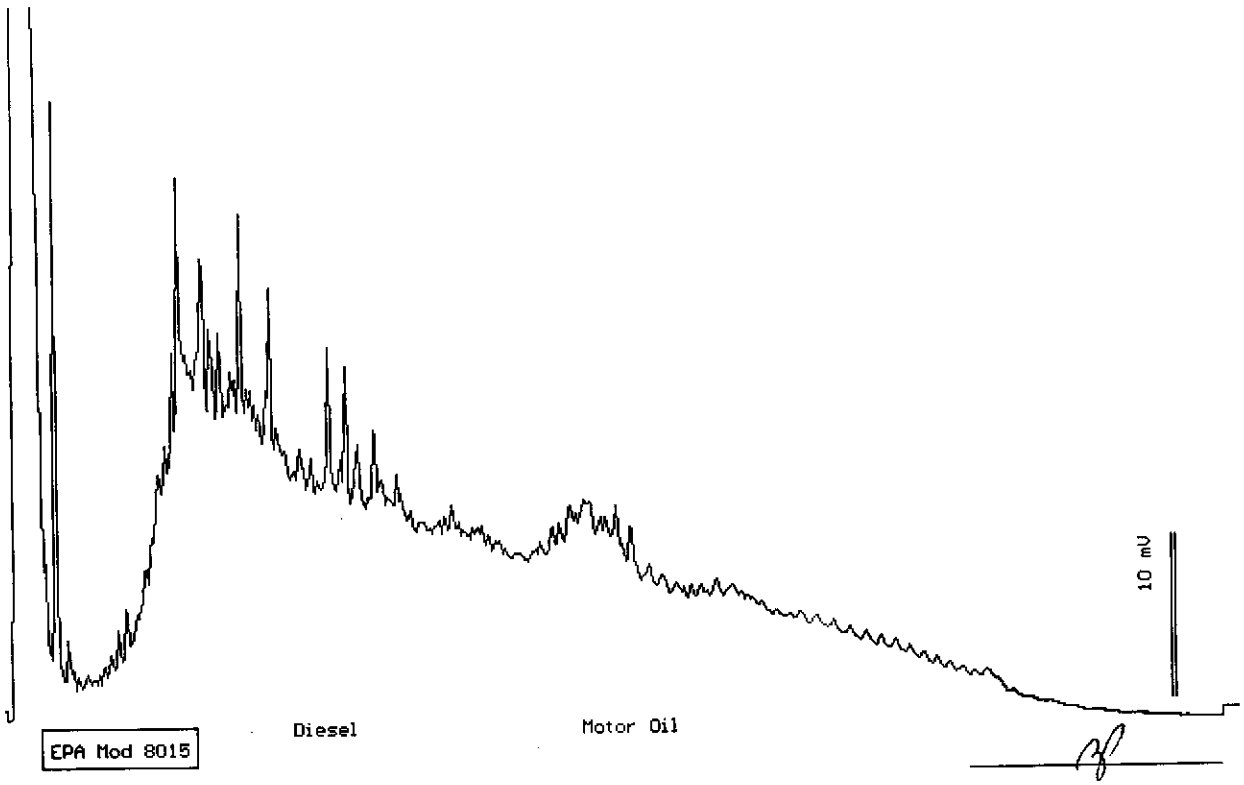
Sample Log 19039

19039-03

Sample: **IB-3.1 (1.5/10.0')**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Extracted: 09/18/98 QC Batch : DS980903
Dilution : 1:125 Run Log : 7418A
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
TPH as Diesel	(130)	3500
TPH as Motor Oil	(250)	1400



Date: 09-19-98 Time: 04:22:15
Column : 0.53mm ID X 15m DB1 (J&W Scientific)

Stewart Podolsky
Senior Chemist

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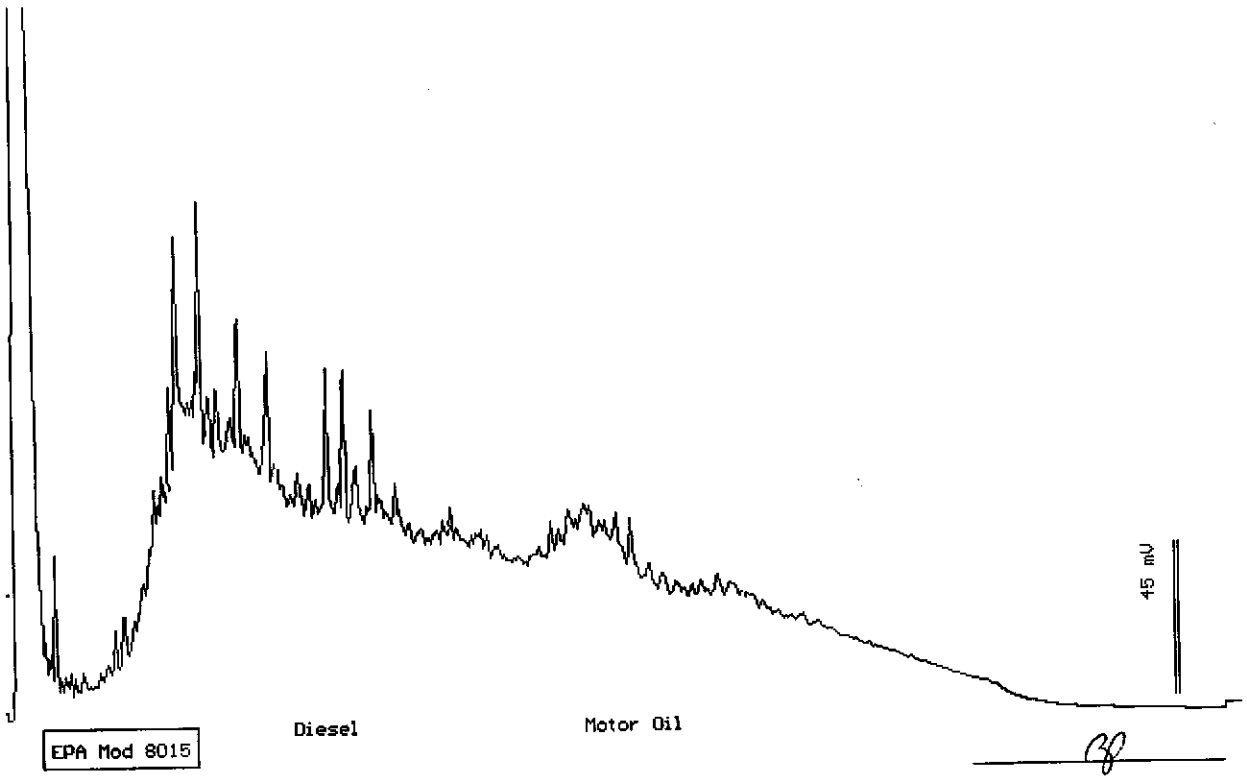
Sample Log 19039

19039-04

Sample: **IB-1W**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Extracted: 09/21/98 QC Batch : DW980903
Dilution : 1:118 Run Log : 7418C
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
TPH as Diesel	(5900)	730000
TPH as Motor Oil	(12000)	300000



Date: 09-22-98 Time: 17:37:58
Column : 0.53mm ID X 15m DB1 (J&W Scientific)

Steuart Podolsky
Senior Chemist

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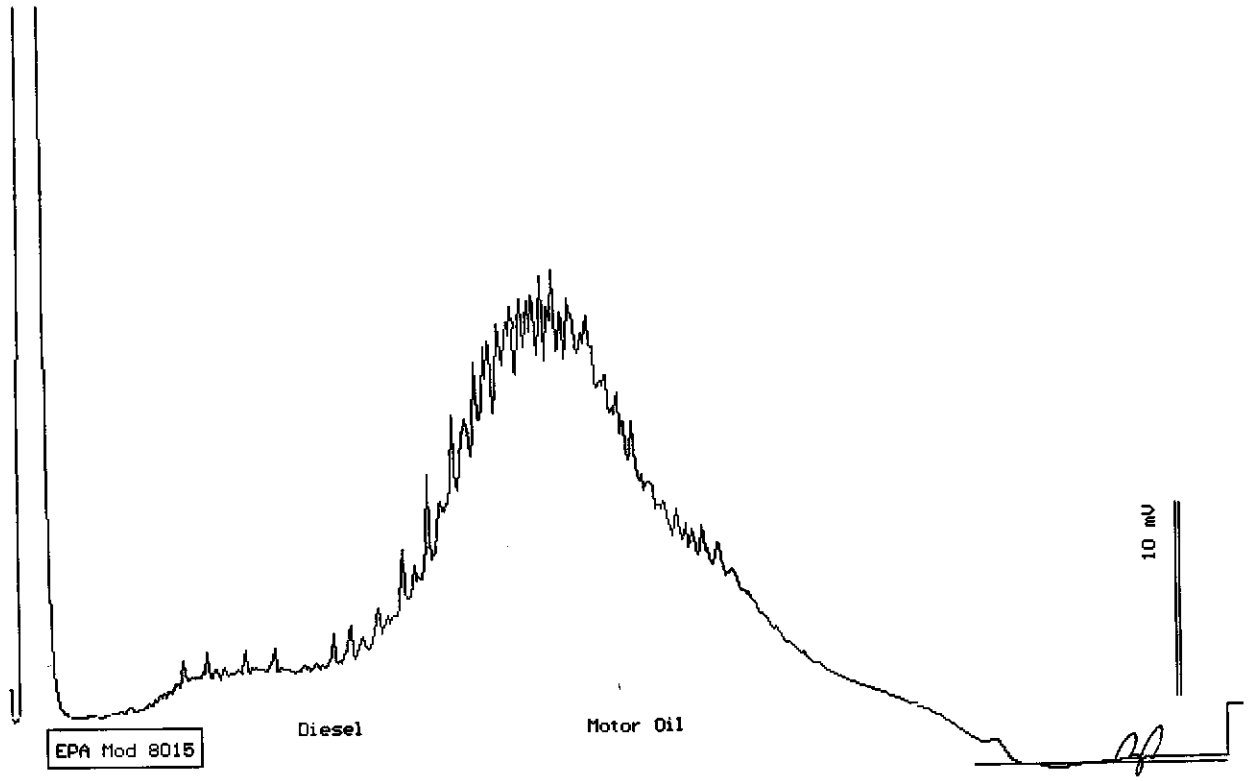
Sample Log 19039

19039-05

Sample: **IB-2W**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Extracted: 09/21/98 QC Batch : DW980903
Dilution : 1:1 Run Log : 7418C
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
TPH as Diesel	(50)	120
TPH as Motor Oil	(100)	970



Date: 09-22-98 Time: 18:12:30
Column : 0.53mm ID X 15m DB1 (J&W Scientific)

Steuart Podolsky
Senior Chemist

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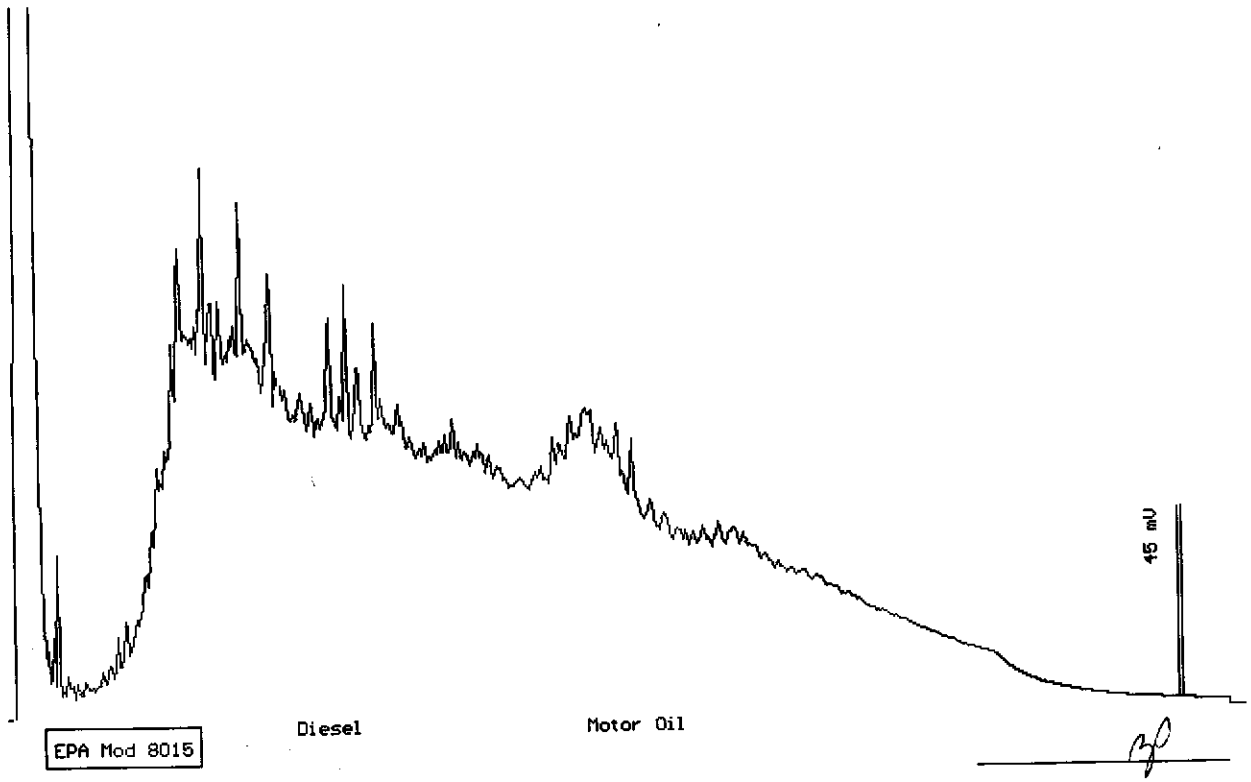
Sample Log 19039

19039-06

Sample: **IB-3W**

From : Russi Site (Proj. # 144-01-01)
Sampled : 09/16/98
Extracted: 09/21/98 QC Batch : DW980903
Dilution : 1:10 Run Log : 7418D
Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
TPH as Diesel	(500)	65000
TPH as Motor Oil	(1000)	30000



Date: 09-23-98 Time: 09:34:47
Column : 0.53mm ID X 15m DB1 (J&W Scientific)

Stewart Podolsky
Senior Chemist

Acculabs Inc. September 21, 1998

QC Report
TPH Diesel by 8015 Mod

QC Batch: DS980903 Matrix: Soil

Spike and Spike Duplicate Results

Parameter	Matrix Spike (%Rec)	Matrix Spike Dup. (%Rec)	RPD %
TPH as Diesel	NC	NC	NC

* Possible matrix interference. See LCS data below.

Laboratory Control Spike

Parameter	Laboratory Control Spike (%Rec)
TPH as Diesel	100

Method Blank

Parameter	MDL(mg/Kg)	Measured Value(mg/Kg)
TPH as Diesel	(1.0)	<1.0
TPH as Motor Oil	(2.0)	<2.0

Stewart Podolsky
Senior Chemist

Acculabs Inc. September 23, 1998

QC Report
TPH Diesel/Motor Oil by 8015 Mod

QC Batch DW980903 Matrix: Water

Spike and Spike Duplicate Results

Parameter	Matrix Spike (%Rec)	Matrix Spike Dup. (%Rec)	RPD %
TPH as Diesel	Not enough sample for spiking. See duplicate LCS Data.		

Laboratory Control Spike

Parameter	Laboratory Control Spike (%Rec)	Laboratory Control Spike Dup. (%Rec)	RPD %
TPH as Diesel	91	91	0

Method Blank

Parameter	MDL(ug/L)	Measured Value(ug/L)
TPH as Diesel	(50)	<50
TPH as Motor Oil	(100)	<100

Stewart Podolsky
Senior Chemist

aqualab inc

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[ ] 710 E. Evans Blvd. Tucson AZ 85713 520-884-5811 Fax 884-5812
[ ] 2020 W. Lone Cactus Dr. Phoenix AZ 85027 602-780-4800 Fax 780-7695
[ ] 992 Spice Islands Dr. Sparks NV 89431 702-355-0202 Fax 355-0817
[ ] 75 Suttle St. Durango CO 81301 970-247-4220 Fax 247-4227

Lab Number: 19039
Report Due Date:

Client: GRIBI ASSOCIATES		PUBLIC WATER SUPPLY INFORMATION	
Address: 864 VINTAGE AVE		System Name	
City, State & Zip: SUISUN CA 94585		PWS No.	Report to State/EPA Y N
Contact: JIM		POE No.	DWR No.
Phone: 707/864-5543	Project Name: RUSSEL SITE	Collection Point	
Fax: " "	Project Number: 141-01-01	Collector's Name	
P.O. Number:	Fax Results: (Y) N	Page: 1 of 1	Location (City)

SAMPLE TYPE CODES

DW = drinking water; WW = waste water; MW = monitoring well; HW = hazardous waste; TB = travel blank; SD = solid; SO = soil; SL = sludge

Compliance Monitoring Y N

TURNAROUND TIME REQUESTED

(Standard) RUSH Special

Lab Director Approval

CLIENT'S SAMPLE ID/LOCATION	Date	Time	Sample Type	Containers	Analyses Requested: TPH-G/BTEX/MTBE	Analyses Requested: TPH-D/MO	
1B-1.1 (8.5')	9/16		S	1	X	X	01
1B-2.1 (2.0/10.5')	"		S	1	X	X	02
1B-3.1 (1.5/10.0')	"		S	1	X	X	03
1B-1W	"		W	5	X	X	04
1B-2W	"		W	5	X	X	05
1B-3W	"		W	6	X	X	06

Instructions/Comments/Special Requirements:

SAMPLE RECEIPT	Date	Time	Samples Relinquished By	Samples Received By
Received Cold Y N	9/17/98	15:50		
Custody Seals Y N	9/17/98	1695		
Seals Intact Y N				
No. of Containers				

aqualab's terms are: Net 40 (Payment must be received by the date shown on the invoice or any discount is void)

c:\excel\forms\chain.xls