Inc# 4445

#### **Applied Geotechnology Inc.**

A Report Prepared For

GTE Northwest Incorporated 1800 41st Street, WA0104LB Everett, Washington 98201 5,5/4.

3	DEPARTMENT OF ECOLOGY NWRO/TCP TANK UNIT
-	INTERIM CLEANUP REPORT SITE CHARACTERIZATION FINAL CLEANUP REPORT
	AFFECTED MEDIA: SOIL GW INSPECTOR (INIT.) LU DATE 10/21/9.3

SEP 0 8 1993

CONTAMINATION ASSESSMENT REPORT GTE KIRKLAND SUPPORT CENTER GTE W.O. #2970-B1B-3C001AD KIRKLAND, WASHINGTON

AGI Project No. 15,169.130

by:

Jeffrey S. Thompson Engineering Geologist

John E. Newby, P. E.

President

EXPIRES 8/13/94

APPLIED GEOTECHNOLOGY INC. 300 120th Avenue N.E. Building 4, Suite 215 Bellevue, Washington 98005 206/453-8383

September 2, 1993

1/2

## Independent Action Report Update

Site Name: 8/E Vehicle Center
Inc. #: 4445 Date of Report: 9/2/93
County: <u>King</u> Date Report Rec'd: <u>9/8/93</u>
Reviewed by: <u>C. Madden</u> Comments (please include: free prod., tank info., media, contaminant migration, GW conc. trends, PCS treated/fate?):
All 6, Junde; Junderground of with seperato removed
4/93. (106 was CIP graviously)
16 not had lahole - bottom (1' diameter).
125 cy from this area stockpiled onsite.
No TAH detected in sangoles from CIP UST.
Waste no holos, but I stained soil.
50cy stockpiled - sample ND.
16 Pump area - 3' layer vi sually contaminated
_ soil; 75 cy PCS excavated, leaving 2-3'
area below utilities i building footings.
Lon taminated water surge assumed to
be from surface, 2MW's installed -8/5/93  visit - no gwin MW's. Rec's ->

Recommondations - check gw during we, winter season.

. . . .

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#### **Applied Geotechnology Inc.**

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- Figure 2 Gasoline Dispenser Excavation
- Figure 3 Sump and Monitoring Well Diagram

#### INTRODUCTION

#### DESCRIPTION OF PROJECT

This report presents Applied Geotechnology Inc.'s (AGI) assessment of potential hydrocarbon contamination originating from three underground storage tanks (USTs) and a gasoline dispenser at the GTE Kirkland Garage Facility (site) in Kirkland, Washington.

AGI prepared plans and specifications for tank removal and installation of a new UST system. The plans and specifications were distributed to prequalified contractors for bidding. A contract for tank removal and installation was awarded to O'Sullivan Petroleum Equipment Company (O'Sullivan) of Seattle, Washington.

#### PURPOSE AND SCOPE OF SERVICES

The purpose of our contamination assessment was to observe and document cleanup of contaminated soil or groundwater associated with the UST systems. Our scope of services consisted of the following:

- ▶ Monitor removal of the USTs and field screen soil samples from the tank cavities for the presence of fuel hydrocarbons.
- ▶ Collect representative soil samples and groundwater samples for chemical analysis.
- ▶ Submit soil and groundwater samples for analysis of petroleum hydro-
- ▶ Summarize the results of our findings in this contamination assessment report.

#### TANK REMOVAL ACTIVITIES

#### BACKGROUND

The site is located at 12055 Slater Avenue Northeast in Kirkland, and is occupied by several buildings. An office building lies on the north portion of the site and a vehicle maintenance garage is located on the south portion. A 12,000-gallon unleaded gasoline UST, a 500-gallon waste-oil UST, and an underground oil-water separator were located west of the garage. In addition, a gasoline dispenser was located on the north side of the garage. In March 1993, GTE informed AGI that an additional 8,000-gallon UST was located on site immediately west of the office building. Building locations and the former locations of the USTs, separator, and dispenser are shown on Figure 1, Site Plan.

We understand the 8,000-gallon UST was previously used to store unleaded gasoline. The tank had been previously decommissioned and filled with concrete. GTE required removal of the tank and its contents, along with any contaminated soil associated with the tank.

#### TANK REMOVAL AND SOIL EXCAVATION

#### 8,000-Gallon Gasoline UST

An AGI representative visited the site on April 9, 1993 to observe excavation of the 8,000-gallon gasoline UST located west of the office building. The tank was found to be in good condition. Our representative closely observed the excavation and collected soil samples for field screening. Samples were screened with an organic vapor meter equipped with a photoionization detector (OVM-PID) to evaluate the potential for hydrocarbon contamination in soil samples from the sides and bottom of the excavation.

Vapor screening indicated the presence of organic vapors slightly above background levels in soils from the sides and bottom of the excavation. The excavation was enlarged about 1 to 2 feet in all directions to remove contaminated soil, which was placed on plastic sheeting near the excavation. Soil samples were collected from the sides and bottom of the excavation and submitted to Analytical Technologies Inc. (ATI) for chemical analysis of total petroleum hydrocarbons (TPH).

TPH concentrations were not detected in any of the samples from the excavation. The results of laboratory analysis of soil samples are summarized in Table 1. Copies of original laboratory reports are included in the appendix.

#### 12,000-Gallon Gasoline UST

The 12,000-gallon unleaded gasoline UST was exposed by excavation on April 14, 1993, and the fuel and vent lines and other associated piping were disconnected from the tank. A trackhoe was used to excavate the tank, but could not remove it from the excavation; subsequently, arrangements were made to bring a crane on site to remove the tank the following morning.

A storm on the morning of April 15, 1993 resulted in approximately 2,200 gallons of rainwater collecting in the bottom of the excavation. The rainwater was pumped into a Baker Tank for temporary storage on site so the UST could be removed.

The UST was tested and judged inert by both Sound Testing of Seattle, Washington and AGI. Upon removal, the UST was found to contain a single hole, approximately 1 inch in diameter, located on the bottom of the tank beneath the fill port. The tank was in otherwise good condition, and a protective tar-burlap coating on its outside surface appeared to be intact.

Field screening of soil samples from the bottom and sides of the excavation indicated the presence of organic vapors above background levels in soil samples from the north and east sides, and from the north portion of the excavation bottom. The excavation was enlarged in order to excavate the remaining contaminated soils. Approximately 125 cubic yards of contaminated soil was removed and temporarily stockpiled on site. Soil samples were collected from the tank cavity sides and bottom and from the soil stockpile. Soil samples were submitted to ATI for chemical analysis.

Laboratory results are summarized in Table 2. TPH concentrations were either not detected or were below Washington State Model Toxics Control Act Method A cleanup levels (WAC 173-340, 1991). Sample S1 from the north portion of the excavation bottom contained motor-oil range hydrocarbons at a concentration of 86 milligrams per kilogram (mg/kg). Petroleum hydrocarbons were not indicated in the composite stockpile sample, likely due to mixing of contaminated soil with cleaner soil during excavation and stockpiling. For additional information, refer to the laboratory report in the appendix.

#### 500-Gallon Waste-Oil UST

The 500-gallon waste-oil UST was removed on April 16, 1993. After the overlying soil was removed, the tank was examined and found to contain approximately 1 foot of sludge. The sludge was removed by Coastal Tank of Seattle, Washington and transported off site. The tank was tested and judged inert by both Sound Testing of Seattle, Washington and AGI. Upon removal, the waste-oil tank was found to be in good condition. The tank had no holes, and a protective tar-burlap coating on its outside surface appeared intact.

The sides and bottom of the waste-oil tank excavation appeared stained, and field screening of soil samples from these locations indicated the presence of organic vapors. The excavation was enlarged to remove the stained soil. Approximately 50 cubic yards of contaminated soil was removed from the waste-oil UST excavation and temporarily stockpiled on site. Soil samples were collected from the excavation sides and bottom and from the soil stockpile. A single composite soil sample was also collected from unexcavated soils surrounding an adjacent oil-water separator and the associated piping. Soil samples were submitted to ATI for chemical analysis.

Laboratory results are summarized in Table 2. TPH concentrations were not detected in soil samples collected from the excavation, soil stockpile, or near the oil-water separator. For additional information, refer to the laboratory report in the appendix.

#### Gasoline Dispenser Removal

The unleaded gasoline dispenser, formerly located in an alcove on the north side of the garage, was removed on April 26, 1993. Our representative closely observed removal of the dispenser, associated piping, and concrete support slab. Hydrocarbon odors and stained soils directly beneath and adjacent to the support slab were noted after the slab was removed.

Soil beneath the dispenser was excavated to a depth of 4 to 5 feet below ground surface (bgs), and approximately 1 foot into native silt, where field observations and headspace readings indicated no organic vapors above background levels. An approximately 3-foot-thick layer of visually contaminated soil extended south beneath the building foundation and alcove walls, and horizontally away from the dispenser location. The excavation was enlarged outside the building in an attempt to define the horizontal limits of the contaminated soil layer.

The north side of the excavation encountered buried utilities, including electrical conduit, air and water pipes, and a storm sewer line. Test pits were excavated around the buried utilities to help evaluate the extent of contaminated soil. A total of approximately 75 cubic yards of contaminated soil was excavated north of the garage and around the dispenser; however, a zone of soil approximately 2 to 3 feet thick remains below the buried utilities and building footings. Excavated soils were separated into "clean" and "contaminated" stockpiles based on headspace screening. Soil samples were collected from the stockpiles and at the edges and bottom of the excavation, and submitted to ATI for analysis. Test pit and soil sample locations are shown on Figure 2.

Results of sample analyses are shown in Table 3. Except for the soil sample collected below the building footings and the "contaminated" soil stockpile, hydrocarbon concentrations were either not detected or were below state cleanup levels. For additional information, refer to the laboratory report in the appendix.

Some seepage with a hydrocarbon-like sheen was observed entering the excavation from beneath the building. The seepage is attributed to surface water percolating down through the soil and spreading laterally above the silt layer. Seepage that collected in the excavation was sampled (sample DS9) and analyzed, and found to contain petroleum hydrocarbons in concentrations exceeding state cleanup levels for groundwater (WAC 173-340, 1991). Test results for sample DS9 are presented in Table 3. Approximately 2,500 gallons of water were pumped from the excavation into an above-ground tank over a period of several weeks and disposed of by Coastal Tank Cleaning. However, seepage still appeared contaminated, likely due to petroleum hydrocarbons leaching from remaining contaminated soil, particularly beneath the building.

A sump and pump were installed in the excavation to control migration of seepage, especially along the storm sewer pipe bedding. Two 8-foot-deep monitoring wells were installed through the pipe bedding immediately east and west of the excavated area, as shown on Figure 2. The excavated area was backfilled with pea gravel and covered with concrete pavement. A diagram showing the relative positions of the sump, monitoring wells, and sewer line is shown on Figure 3, Sump and Monitoring Well Diagram.

After backfilling, water was pumped from the sump to an above-ground storage tank for temporary storage. The pump operated sporadically as seepage collected in sufficient volumes to start the pump. During a site visit on August 5, 1993, approximately 75 gallons of water was observed in the storage tank; no water was observed in the monitoring wells, and the pump was not running. Lack of water in the monitoring wells likely indicates low recharge of the perched groundwater. However, groundwater levels may rise during the relatively wet winter months.

#### SOIL DISPOSAL

Between 300 and 400 cubic yards of hydrocarbon-contaminated soil was removed from the site during excavation of the three USTs, oil-water separator, and gasoline dispenser. Volume estimates of soils removed from UST and gasoline dispenser excavations are as follows:

▶ 8,000-gallon UST: 50 to 75 cubic yards

▶ 12,000-gallon UST: 125 to 150 cubic yards

▶ 550-gallon UST: 50 to 75 cubic yards

▶ Gasoline dispenser: 75 to 100 cubic yards

Approximately 200 cubic yards of soil was designated as contaminated, based either on field observations and headspace screening or on chemical analysis. Contaminated soil was transported off site and treated to within state cleanup levels by Rem-Tech of Spokane, Washington.

#### CONCLUSIONS AND RECOMMENDATIONS

An 8,000-gallon unleaded gasoline UST, a 12,000-gallon unleaded gasoline UST, and a 500-gallon waste-oil UST were excavated and removed from the site. Contaminated soils in excess of cleanup levels were excavated and transported off site. Contaminated soils were also encountered during removal of the gasoline dispenser located in an alcove on the north side of the garage. The contaminated soil around the dispenser was removed except below buried utilities and building foundations. Perched water in the vicinity of the dispenser also contained petroleum hydrocarbons, but it appears most of the water has been pumped out and there is little recharge. The extent of the hydrocarbons in groundwater appears to be limited primarily to the excavation area around the dispenser.

Remaining contaminated soil and perched groundwater around the former dispenser appear limited in depth by a silt layer approximately 4 feet bgs. Our observations and the results of chemical analysis indicate the lateral extent of contamination appears to be within about 20 feet of the former dispenser location. In our opinion, the contaminated soil and perched groundwater do not pose an immediate threat to human health or the environment, but should be controlled or monitored if not removed to state cleanup levels.

We recommend perched groundwater levels be checked again during the following wet winter season. If the perched groundwater has recharged, a water sample should be collected and analyzed. The results of analysis can be used to evaluate requirements for further action. If contamination remains in the perched groundwater, a minimum of periodic monitoring will likely be required to verify that contamination is not migrating off site.

#### LIMITATIONS

This report has been prepared exclusively for GTE Northwest Incorporated and its other consultants for this project only. Our analyses, conclusions, and recommendations are based on conditions encountered at the time of our field investigation and our experience and judgement. AGI cannot be responsible for interpretation by others of the data contained herein.

Our work has been performed in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the area. No other warranty, express or implied, is made.

#### REFERENCES

Washington Administrative Code (WAC 173-340), State of Washington Model Toxics Control Act Cleanup Regulation, amended February 1991, 133 p.

#### DISTRIBUTION

3 Copies

GTE Northwest Incorporated 1800 41st Street, WA0104LB Everett, Washington 98206

Attention: Mr. D. Scott Kindle

1 Copy

GTE Northwest Incorporated 1800 41st Street, WA0105SS Everett, Washington 98206

Attention: Mr. Bill Westwood

Quality Assurance/Technical Review by:

Glen M. Bobnick, P.E.

Senior Engineer

JST/JEN/jlh

Table 1
TPH Concentrations in Soil
8,000—Gallon UST Excavation
GTE/Kirkland Tank Installation
Kirkland, Washington

Sample Number	Sample Location	Date Sampled	Gasoline	VTPH-ID Diesel (mg/kg)	Motor Oil (mg/kg)
S1 S2 S3 S4	Bottom of excavation North & east sides of excavation South & west sides of excavation Soil stockpile	04/10/93 04/10/93 04/10/93 04/10/93	ND ND ND ND	ND ND ND ND	ND ND ND ND
Laboratory Det	tection Limits	20	50	100	
State Cleanup	Levels <sup>a</sup>		100	200	200

#### Notes:

 a) Method A suggested cleanup level for residential soil promulgated under Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation.

mg/kg - Milligrams per kilogram.

ND - Not detected.

TPH - Total petroleum hydrocarbons.

Table 2
TPH Concentrations in Soil
12,000-Gallon and 500-Gallon UST Excavations
GTE/Kirkland Tank Installation
Kirkland, Washington

Sample Number	Sample Location	Date Sampled	Gasoline (mg/kg)	WTPH-ID Diesel (mg/kg)	Motor Oil (mg/kg)
12,000 Gallo	on Unleaded Gasoline UST Excavati	<u>on</u>	ļ		
S1	North portion of excavation bottom	04/15/93	ND	ND	86
S2	South portion of excavation bottom	04/15/93	ND	ND	ND
S3	North & east sides	04/16/93	ND	ND	ND
S4	South & west sides	04/15/93	ND	ND	ND
<b>S</b> 5	Soil stockpile	04/15/93	ND	ND	ND
500-Gallon	Waste-Oil UST Excavation				
SS1	Bottom of excavation	04/16/93	ND	ND	ND
SS2	North & east sides of excavation	04/16/93	ND	NÒ	ND
SS3	South & west sides of excavation	04/16/93	ND ND	ND	ND
SS4	Soil stockpile	04/16/93	ND ND	ND	ND
SS5	Beneath oil—water separator and associated piping	04/16/93	ND	ND	ND
Laboratory De	etection Limits	20	50	100	
State Cleanup	Levels •	100	200	200	

#### Notes:

 a) Method A suggested cleanup level for residential soil promulgated under Washington Administrative Code Chapter 173—340, Model Toxics Control Act Cleanup Regulation.
 mg/kg — Milligrams per kilogram.

ND - Not detected.

TPH - Total petroleum hydrocarbons.

Table 3
TPH and BETX Concentrations in Soil and Groundwater
Gasoline Dispenser Excavation
GTE/Kirkland Tank Installation
Kirkland, Washington

				E	PA Test Met	hods	
				BETX 50	Total	WTPH-G	
Sample I.D.	Matrix	Sample Location	Benzene	Ethylbenzen	e Toluene	Xylenes	Gasoline
			<u>(mg/kg)</u>	<u>(mg/kg)</u>	<u>(mg/kg)</u>	<u>(mg/kg)</u>	<u>(mg/kg)</u>
DS1	Soil	Bottom of excavation, inside alcove	NA	` NA	NA	· NA	ND
DS2	Soil	Beneath building & alcove wall	NA	NA	NA	NA	5,900
DS3	Soil	Bottom of excavation, 15' east of former dispenser location	ND	ND	ND	ND	ND
DS4	Soil	Bottom of excavation, 17' north of former dispenser location	ND	ND	ND	ND	ND
DS5	Soil	Bottom of excavation, 15' west of former dispenser location	ND	ND	ND	NÐ	ND
DS6	Soil	Bottom of excavation, 15' northwest of former dispenser location	ND	ND	ND	0.17	ND
DS7	Soil	Contaminated soil stockpile	ND	6.6	13	72	2,500
DS8	Soil	"Clean" soil stockpile	NA NA	NA	NA	NA	ND
			<u>(μg/L)</u>	<u>(µg/L)</u>	<u>(μg/L)</u>	<u>(µg/L)</u>	<u>(μg/L)</u>
DS9	Water	Bottom of excavation	31	ND	41	18.0	2,700
aboratory Dete	ction Limit	Soil	0.028-0.59	0.028-0.59	0.028-0.59	0.028-0.59	6-7
	onor, millio	Water	2.5	2.5	2.5	2.5	100
State Cleanup I	_evels <sup>a</sup>	Soil	0.5	20	40	20	100
•		Water	5	30	40	20	1,000

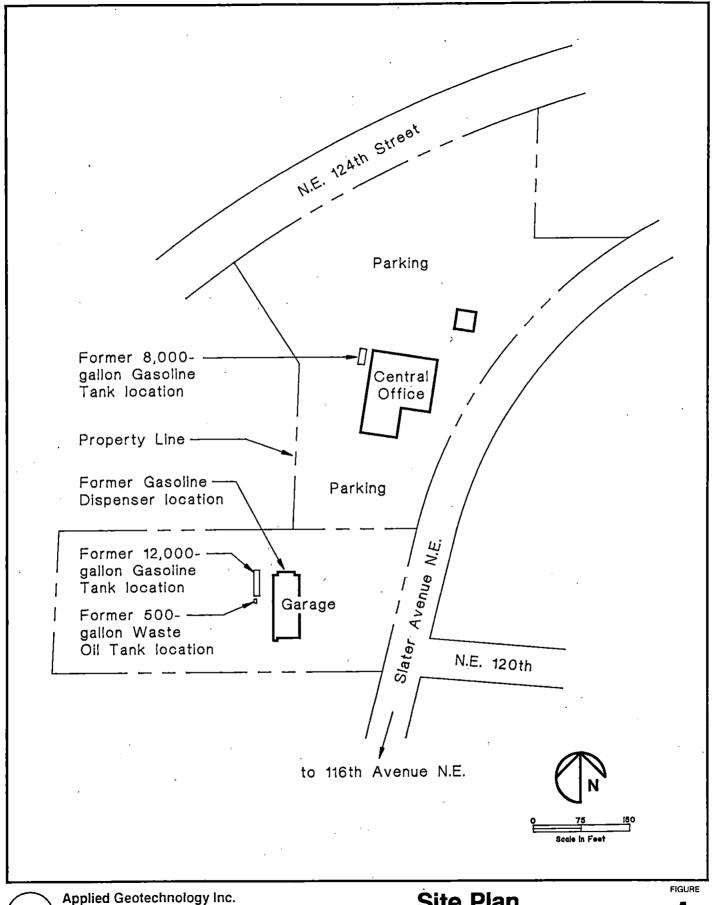
#### Notes:

NA - Not analyzed.

ND - Not detected.

TPH - Total petroleum hydrocarbons.

a) Method A suggested cleanup level for residential soil and groundwater promulgated under Washington Administrative Code Chapter 173-340, State of Washington Model Toxics Control Act Cleanup Regulation.



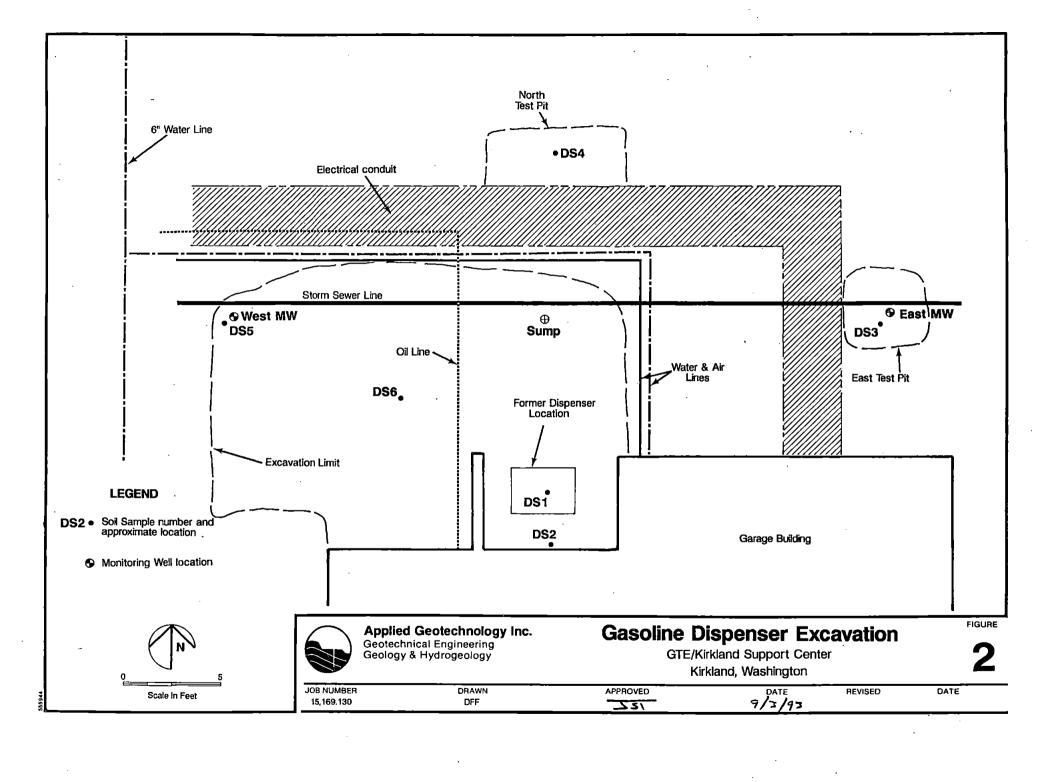


Geotechnical Engineering Geology & Hydrogeology

### **Site Plan**

GTE/Kirkland Garage Facility Kirkland, Washington

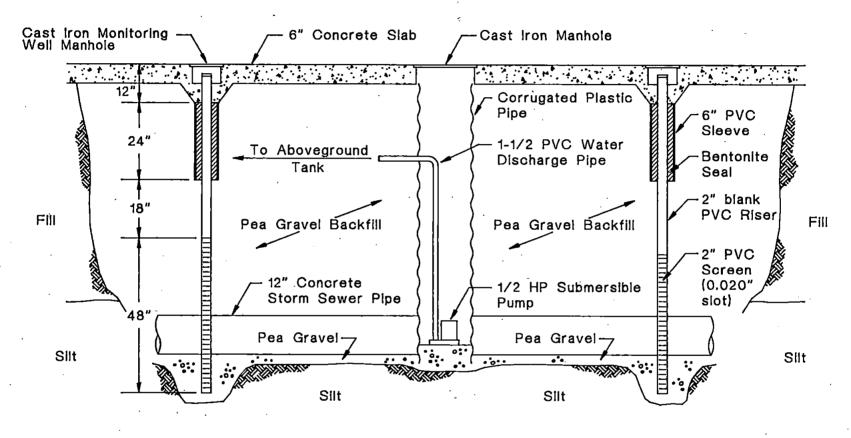
DRAWN APPROVED DATE REVISED DATE JOB NUMBER JFL 12/ 21 Jun. 93 15,169.130



WEST MONITORING WELL

SUMP

EAST MONITORING WELL



Not to Scale



Applied Geotechnology Inc. Geotechnical Engineering

**Sump and Monitoring Well Diagram** 

GTE/Kirkland Garage Facility

Kirkland, Washington

DATE

FIGURE

JOB NUMBER 15,169.130 DRAWN JFL

APPROVED 251

DATE

REVISED

#### QUALITY ASSURANCE REPORT

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - Tank Removal

Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. - Renton, WA

Lab Number: 9304-098

Sample No.: S1, S2, S3, S4

Matrix:

Soil

#### QUALITY ASSURANCE SUMMARY

All data are of known and acceptable quality.

#### ANALYTICAL METHODS

Parameter	<u>Technique</u>	<u>Method</u>		
TPH-HCID	GC/FID	WA WTPH-HCID		
Moisture	Gravimetric	CLP SOW ILM01.0		

#### TIMELINESS

Parameter	Date Sampled	Date <u>Extracted</u>	Date <u>Analyzed</u>	Time Until Extraction	Time Until <u>Analysis</u>
TPH-HCID	4/10/93	4/14/93	4/14/93	4 (14)	4 (21)

Numbers in parentheses indicate recommended holding times in days for soil.

All samples were extracted and analyzed within recommended holding times for soil.

#### Detectability and Comparability

TPH-HCID analyses performed without sample dilution. Sample results are comparable.

#### FUEL HYDROCARBON CHEMISTRY

WA WTPH-HCID: Petroleum hydrocarbons were not detected at or above the reporting limits for "gasoline", "diesel", or "heavy oil".

#### QUALITY ASSURANCE REPORT

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - Tank Removal

Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. - Renton, WA

Lab Number: 9304-098

Sample No.: S1, S2, S3, S4

#### FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

Trip Blank: None collected.

#### LAB QUALITY CONTROL SAMPLES

Reagent Blank: No analytes were detected at or above their method

reporting limits by WA WTPH-HCID.

Matrix Spikes: Matrix spikes are not required by WA WTPH-HCID.

Blank Spike: Blank spikes are not required by WA WTPH-HCID.

Duplicates: Sample/sample duplicate relative percent difference (RPD)

data are within ATI's control limit criteria for mois-

ture.

Surrogates: All surrogate spike percent recoveries are within ATI's

control limit criteria for WA WTPH-HCID.

#### SIGNATURES

Prepared by Onnette John Date 5/3/93

Checked by Katherine Bombonae Date 5/3/93



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

... \_. ...... , \_.... , .... , .... , .... , .... ,

ATI I.D. # 9304-098

April 26, 1993

RECEIVED

APR 27 1993

APPLIED GEOTECHNOLOGY INC.

Applied Geotechnology, Inc. P.O. Box 3885 Bellevue WA 98009

Attention : Glen Bobnick

Project Number: 15169.130

Project Name : GTE/Kirkland - Tank Removal

Dear Mr. Bobnick:

On April 12, 1993, Analytical Technologies, Inc. (ATI), received four 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,

Donna M. McKinney
Senior Project Manager

DMM/hal/hbb/elf

Enclosure

SEP 0 8 1992



#### SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15169.130

PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9304-098-1 9304-098-2 9304-098-3 9304-098-4	S1 S2 S3 S4	04/10/93 04/10/93 04/10/93 04/10/93	SOIL SOIL SOIL

---- TOTALS ----

# SAMPLES MATRIX SOIL

#### 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 SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15169.130

PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL

<b>-</b>   <b>A</b> ]	NALYSIS	TECHNIQUE	REFERENCE	LAB
H	YDROCARBON IDENTIFICATION	GC/FID	WA DOE WTPH-HCID	R
, <b>M</b> 0	OISTURE	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



## HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : N/A PROJECT # : 15169.130 DATE RECEIVED : N/A

PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL DATE EXTRACTED : 04/14/93 CLIENT I.D. : METHOD BLANK DATE ANALYZED : 04/14/93

SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

#### KESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 109 50 - 150



## HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/10/93
PROJECT # : 15169.130 DATE RECEIVED : 04/12/93
PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL DATE EXTRACTED : 04/14/93
CLIENT I.D. : S1 DATE ANALYZED : 04/14/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

\_\_\_\_\_\_

RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL

106

50 - 150



## HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/10/93
PROJECT # : 15169.130 DATE RECEIVED : 04/12/93
PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL DATE EXTRACTED : 04/14/33
CLIENT I.D. : S2 DATE ANALYZED : 04/14/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

#### RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/Kg BY WA DOE WTPH-HCID.

'PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 107 50 - 150



## HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/10/93
PROJECT # : 15169.130 DATE RECEIVED : 04/12/93
PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL DATE EXTRACTED : 04/14/93
CLIENT I.D. : S3 DATE ANALYZED : 04/14/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

The solid like south of the live of the solid like the solid like

#### RESULTS

FASOLINE CONCENTRATION LESS THAN 20 mg/kg by WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/Kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

**D-TERPHENYL** 104 50 - 150



## HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/10/93
PROJECT # : 15169.130 DATE RECEIVED : 04/12/93
PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL DATE EXTRACTED : 04/14/93
CLIENT I.D. : S4 DATE ANALYZED : 04/14/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

#### RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/Kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 111 50 - 150



#### GENERAL CHEMISTRY ANALYSIS

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15169.130

MATRIX : SOIL

PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL

DATE ANALYZED

MOISTURE

04/16/93



#### GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL PROJECT # : 15169.130
PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE	
9304-098-1	S1	10	
9304-098-2	S2	9.3	
9304-098-3	S3	9.2	
9304-098-4	S4	10	



## GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

PROJECT # : 15169.130

PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD		SPIKE ADDED	% REC
MOISTURE	9304-098-4	10	9.8	2	N/A	N/A	N/A

Average Result

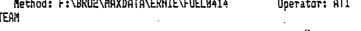
Blank

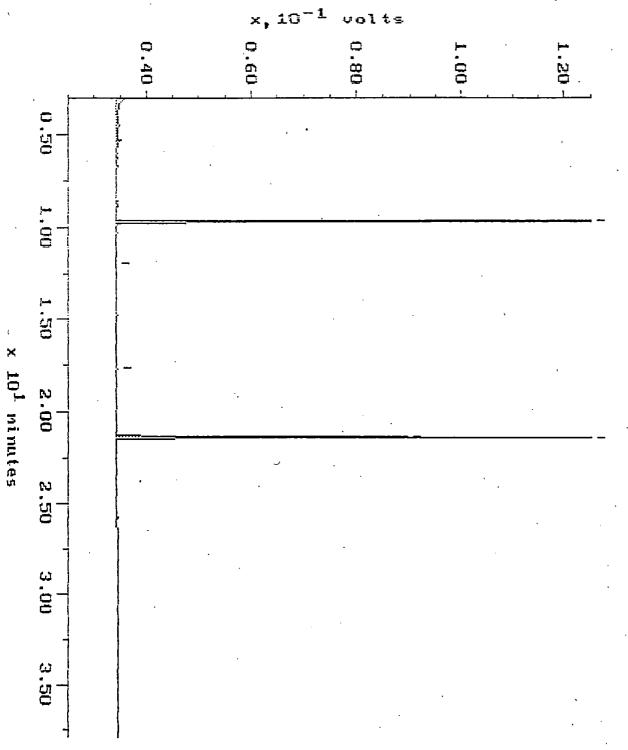
# WA DOE WTPH-HCID

Channel: ERNIE
Method: F:\BRO2\MAXDATA\ERNIE\FUEL8414

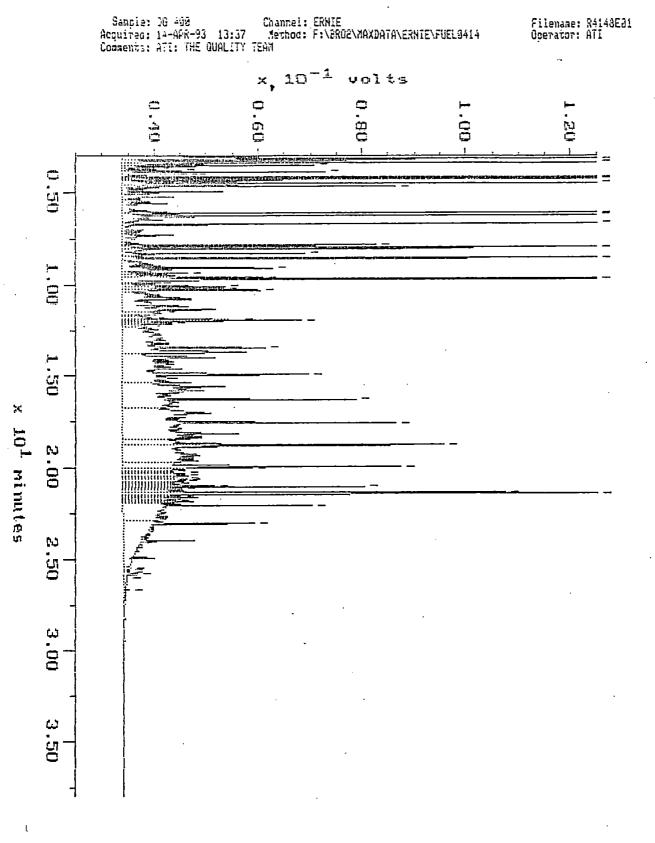
Filename: R4148E94 Operator: ATI

Sample: SRB 4-14 Characteristics Characteristics Comments: ATI: THE QUALITY TEAM





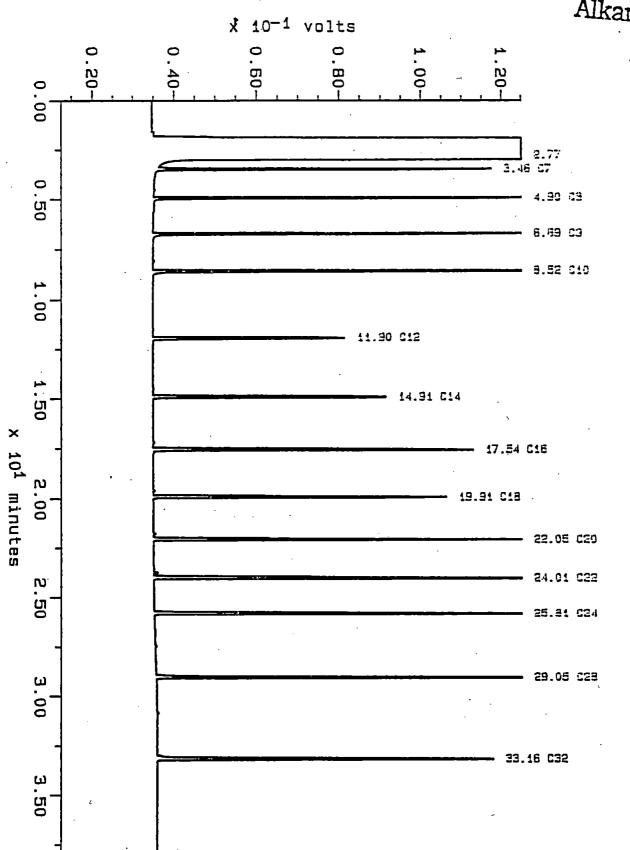
## Continuing Calibration



Sample: ALKANE Channel: EENIE
Acquired: 24-HAR-93 22:39 Method: F:\ERC2\MAXCATA\EENIE\FUEL3324
Inj Vol: 1.00

Filename: R3249593 Operator: ATI

Alkane





$\cup$	151	CHAIN-OF-CUSTOD									
Date	4/8/93	Page	of	1							

PROJECT INFORMATION						Laboratory Number: 9304-098																															
Project Manager: 6/en Bobnick					ANALYSIS REQUEST															Tx																	
Project Name: 6 TE / Hirkland - Task Reminal				I	PET	RO	LEU	M	ORGANIC COMPOUNDS P								PES	ESTS/PCB's METALS									1.74	LEACHING TESTS					OTHER				
Project Number: 15/69.130 (Expanded SOW)				HY	JH □																	7	_	_	1	1	3	-		_	-	-	Т	П	_	Z	
Project Number: 15/69.130 (Expanded SOW) Site Location: WA Sampled By: 51				무	9-He	J-Hc	HS	418.1	7 7	100	)20N	400	270 0	310 H	040 F	NS-		40	50 0	-SW	elect	otal L	gani	N J	iority	NS-	FSP	F	F	TCLP.	5					JMB	
DISPOSAL INFORMATION					S	St	St	peci	418.1 State:	Talog	To To	1 - BE	3CM	CM	胞	hen			ם ל	CH	Her	ed m	ead	сLе	etals	Poll	DWS - Metals	- Me	Vol	Ser	Pes	TCLP - Metals					ERC
☐ Lab Disposal (return if not indicated)					State:	ate:	TPH-D State:	TPH Special Instructions	e	8015M	8020 Aromatic VOCS	8020M - BETX only	8240 GCMS Volatiles	8270 GCMS Semivol.	8310 HPLC PAHs	ols	DWS - Volatiles and Semivol.	oct/E	8140 OF Pesticides	8150 OC Herbicides	DWS - Herb/pest	Selected metals: list	Total Lead (Wa)	Organic Lead (Ca)	TCL Metals (23)	Priority Poll. Metals (13)	als	MFSP - Metals (Wa)	TCLP - Volatiles (ZHE)	TCLP - Semivolatiles	- Pesticides	als					NUMBER OF CONTAINERS
Disposal Method:					V			struc		led v		S S	latile	mivo	RS		and	200	ides	cides	:   3	S: list		a)		tals (		(Wa)	(Ž	atiles	es						ONT
Disposed by:	Disposed by: Disposal Date:							tions		5	3 "	1	S	, <u> </u>			Sem		1							(13)		12	匝	0,			1				AINE
	ORMATION																Jivol.											j									RS
⊠SW-846 □CLP																												1									
SAMPLE ID	DATE	TIME		LAB ID	1			_		$\perp$	$\perp$		L			Ц	4	$\perp$			1		L	L		L		L	L	L	L		1	_	$\sqcup$	Ц	_
51	1/10/93	10115	Soil	1	K						ľ						1	$\perp$		_	L	L				L		L	L				1	L	$\sqcup$		1
SZ		1050		2	X																							L	L				$\perp$			Ц	1
53		1055		3	K																						L		L				1				1
54	1	1100	+	LI	K				1																		L		L	L			1			Ш	1
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4																															L	L				Ш	
																													L		_						
	3																																				
LAB INFORMATION SAMPLE REC						PΤ	,			RELINQUISHED BY: 1.									RELINQUISHED BY: 2.									RELINQUISHED BY: 3.									
Lab Name: ATI		Tot	al Number of C	containers:		Signature;								,	Time 500	e:	: Signature: Time:									Signature: Time:											
Lab Address: 560 Nachus Ave Chain of Custody Seals: Y/N/N					/NA		V			Printed Name: Date:							e: .	Printed Name: Date:									Printed Name: Date:										
Via: Courier	VITE I VII					/Cold: V./V						Company:							Company:							1	Company:										
Turn Around Time: ✓ Standard □ 24 hr. □ 48 hr. □ 72 hr							1 v	vk.		RECEIVED BY: 1.									RECEIVED BY: 2.								RECEIVED BY: 3							3.			
PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DA					DAT	Signature: Rulin 9:55 Signature:									Signature: Time:									Signature: Time:													
Special Instructions:																Print	Printed Name: Date:																				
						Company: Co									Company:									Company:													

AGI OFFICES: Bellevue: (206) 453-8383

Tacoma: (206) 383-4380 Portland: (503) 222-2820 Pleasanton: (415) 460-5495 DISTRIBUTION: White, Canary to Analytical Laboratory; Pink to AGI Project Files; Gold to AGI Disposal Files

Rev. 4/92

# PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. - Renton, WA

Lab Number: 9304-167

Sample No.: S1, S2, S3, S4, S5

Matrix: Soil

### QUALITY ASSURANCE SUMMARY

All data are of known and acceptable quality.

### ANALYTICAL METHODS

<u>Parameter</u>	Technique	<u>Method</u>
TPH-HCID TPH-D	GC/FID GC/FID	WA WTPH-HCID WA WTPH-D
Moisture	Gravimetric	CLP SOW ILMO1.0

#### TIMELINESS

<u>Parameter</u>	Date Sampled	Date <u>Extracted</u>	Date <u>Analyzed</u>	Time Until Extraction	Time Until Analysis
TPH-HCID	4/15/93	, ,	4/17/93	1 (14)	2 (21)
TPH-D	4/15/93		4/20/93	5 (14)	5 (30)

Numbers in parentheses indicate recommended holding times in days for soil.

All samples were extracted and analyzed within recommended holding times for soil.

# PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. - Renton, WA

Lab Number: 9304-167

Sample No.: S1, S2, S3, S4, S5

#### Detectability and Comparability

All analyses were performed without sample dilution. Sample results are comparable.

#### FUEL HYDROCARBON CHEMISTRY

WA WTPH-HCID: Identification of petroleum hydrocarbons greater than C24 were

supported by chromatogram for sample S1.

WA WTPH-D: The detection of petroleum hydrocarbons in the range expected

for motor oil and heavier is supported by chromatogram for

sample S1.

### FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

Trip Blank: None collected.

### LAB QUALITY CONTROL SAMPLES

Reagent Blank: No analytes were detected at or above their reporting

limits by the following methods:

WA WTPH-HCID WA WTPH-D

Matrix Spikes: Matrix spike percent recovery and relative percent

difference (RPD) are within ATI's control limit criteria for WA WTPH-D. Matrix spikes are not required by WA

WTPH-HCID.

PROJECT	AND	CAMPT.F	TMEODM	MOTTO
PRULITI	ANU	SAMPLE	INCURR	

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. - Renton, WA

Lab Number: 9304-167

Sample No.: S1, S2, S3, S4, S5

Blank Spike: Blank spike percent recovery is within ATI's control

limit criteria for WA WTPH-D. Blank spikes are not

required by WA WTPH-HCID.

Duplicates: Sample/sample duplicate relative percent difference (RPD)

data is within ATI's control limit criteria for the

following methods:

WA WTPH-D

CLP SOW ILMO1.0

Surrogates: All surrogate spike percent recoveries are within ATI's

control limit criteria for the following methods:

WA WTPH-HCID WA WTPH-D

**SIGNATURES** 

Checked by dath cline Fourbonain Date 5/4/93

560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

Karen L. Mixon, Laboratory Manager

ATI I.D. # 9304-167

April 28, 1993

Applied Geotechnology, Inc. P.O. Box 3885 Bellevue WA 98009

RECEIVED

APR 2 9 1993

APPLIED GEOTECHNOLUGY HAC.

Attention: Glen Bobnick

Project Number : 15,169.130

Project Name : GTE/Kirkland

Dear Mr. Bobnick:

On April 16, 1993, Analytical Technologies, Inc. (ATI), received five 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,

Donna M. McKini Senior Project Manager

DMM/hal/ff

Enclosure



### ANALYTICAL SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130

PROJECT NAME : GTE/KIRKLAND

ANALYSIS	TECHNIQUE	REFERENCE	LAB
HYDROCARBON IDENTIFICATION	GC/FID	WA DOE WTPH-HCID	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-D	R
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R

ATI - Renton

SD = ATI - San Diego PHX = ATI - Phoenix

PNR = ATI - Pensacola

FC = ATI - Fort Collins

SUB = Subcontract



# HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : N/A
PROJECT # : 15,169.130 DATE RECEIVED : N/A
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/1

DATE EXTRACTED : 04/16/93 DATE ANALYZED : 04/17/93 CLIENT I.D. : METHOD BLANK

UNITS SAMPLE MATRIX : SOIL : mq/Kq : WA DOE WTPH-HCID DILUTION FACTOR: 1

METHOD RESULTS ARE CORRECTED FOR MOISTURE CONTENT

## RESULTS

- GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/kg BY WA DOE WTPH-HCID.

> SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 50 - 150 134



### SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130

PROJECT NAME : GTE/KIRKLAND

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9304-167-1 9304-167-2 9304-167-3	S1 S2 S3	04/15/93 04/15/93 04/16/93	SOIL SOIL SOIL
9304-167-4 9304-167-5	S4 S5	04/15/93 04/15/93	SOIL

---- TOTALS ----

MATRIX # SAMPLES -----SOIL 5

#### 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.



ATI I.D. # 9304-167-1

# HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/15/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/16/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : S1 DATE ANALYZED : 04/17/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

\_\_\_\_\_\_

RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/Kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 QUALITATIVELY IDENTIFIED BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 103 50 - 150



ATI I.D. # 9304-167-2

# HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/15/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/16/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : S2 DATE ANALYZED : 04/17/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

-----

RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/kg by WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL

99

50 - 150



O-TERPHENYL

ATI I.D. # 9304-167-3

# HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/16/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/16/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : S3 DATE ANALYZED : 04/17/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

\_\_\_\_\_\_

### RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

116 50 - 150



O-TERPHENYL

ATI I.D. # 9304-167-4

# HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/15/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/16/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : S4 DATE ANALYZED : 04/17/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY

98

50 - 150



ATI I.C. # 9304-167-5

# HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/15/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/16/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : S5 DATE ANALYZED : 04/17/93

SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/Kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 111 50 - 150



O-TERPHENYL

ATI I.D. # 9304-167

50 - 150

# TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND DATE SAMPLED : N/A
DATE RECEIVED : N/A DATE SAMPLED DATE EXTRACTED : 04/20/93 DATE ANALYZED : 04/20/93 UNITS : mg/Kg CLIENT I.D. : METHOD BLANK SAMPLE MATRIX : SOIL DILUTION FACTOR: 1 : WA DOE WTPH-D METHOD RESULTS ARE CORRECTED FOR MOISTURE CONTENT RESULT <40 FUEL HYDROCARBONS C24 - C34 HYDROCARBON RANGE HYDROCARBON QUANTITATION USING MOTOR OIL LIMITS SURROGATE PERCENT RECOVERY

85



ATI I.D. # 9304-167-1

# TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

: APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/15/93 CLIENT PROJECT # : 15,169.130 DATE RECEIVED : 04/16/93 DATE EXTRACTED : 04/20/93 PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 04/20/93 CLIENT I.D. : S1 SAMPLE MATRIX : SOIL UNITS : mg/Kg DILUTION FACTOR: 1 METHOD : WA DOE WTPH-D RESULTS ARE CORRECTED FOR MOISTURE CONTENT 86 FUEL HYDROCARBONS HYDROCARBON RANGE C24 - C34 MOTOR OIL HYDROCARBON QUANTITATION USING

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 87 50 - 150



# TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9304-167-1
PROJECT # : 15,169.130 DATE EXTRACTED : 04/20/93
PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 04/20/93
METHOD : WA DOE WTPH-D UNITS : mg/Kg

SAMPLE MATRIX : SOIL

COMPOUND		SAMPLE RESULT			% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD		
						•••				
DIESEL		36	36	0	200	217	90	226	95	4
	CONT	ROL LIMI	TS				% REC			RPD
DIESEL								131		20
	SURR	OGATE RE	COVERIES		SPIKE		DUP.	SPIKE	LIMIT	S
O-TERPHEN	ΥI				93		98		50 -	150



# TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE

PROJECT # : 15,169.130 DATE EXTRACTED : 04/20/93
PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 04/20/93
METHOD : WA DOE WTPH-D UNITS : mg/Kg

SAMPLE MATRIX : SOIL

	•							
COMPOUND		SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
DIESEL		<10	200	197	99	N/A	N/A	N/A
	CONTROL LIMITS				% REC	! <b>.</b>		RPD
DIESEL					69 -	122		20
	SURROGATE RECOVER	IES	SPIKE		DUP.	SPIKE	LIMIT	's
O-TERPHEN	YL	•	100		N/A		50 -	150



# GENERAL CHEMISTRY ANALYSIS

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

MATRIX : SOIL

PARAMETER

DATE ANALYZED

04/16/93

MOISTURE



# GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL PROJECT # : 15,169.130 UNITS : %

			_
ATI I.D. #	CLIENT I.D.	MOISTURE	
•			_
9304-167-1	S1	19	
9304-167-2	S2	27	
,9304-167-3	S3	16	
9304-167-4	S4	25	
9304-167-5	S5	18	



# GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND UNITS : %

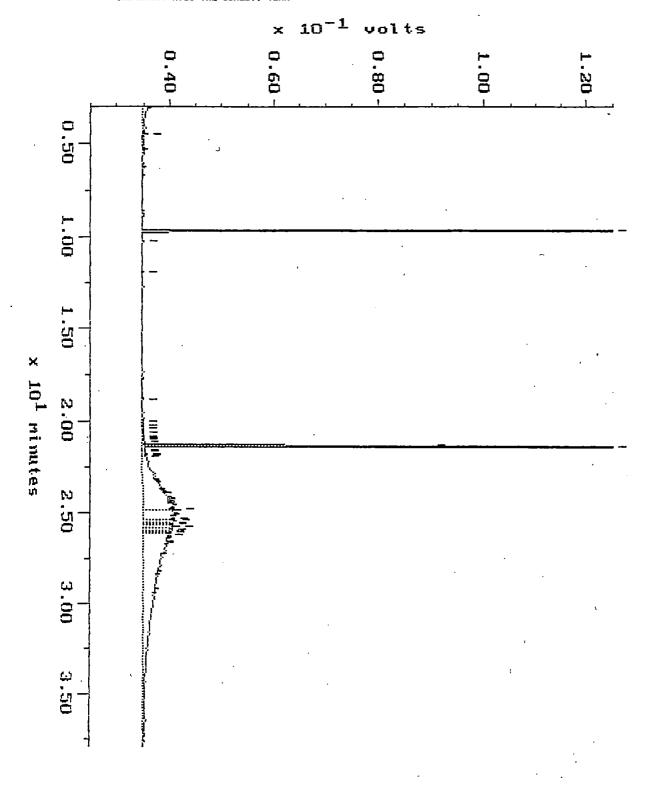
PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	9304-166-5	12	12	. 0	N/A	N/A	N/A

% Recovery = (Spike Sample Result - Sample Result) Spike Concentration RPD (Relative % Difference) = (Sample Result - Duplicate Result)

Average Result

# WA DOE WTPH-HCID

Sample: 9304-167-1 Cha Acquired: 17-APR-93 5:48 Ma Comments: ATI: THE QUALITY TEAM Channel: ERNIE
Method: F:\BRO2\MAXDATA\ERNIE\FUEL0416 Filename: R4168R10 Operator: ATI

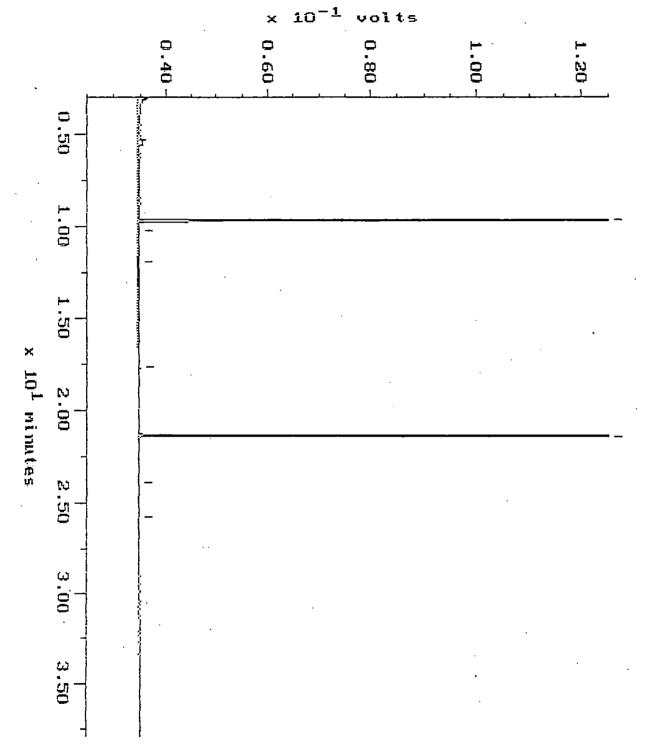


# WA DOE WTPH-HCID

Filename: R4168R03 Operator: ATI

Sample: SRB 4-16 Cha Acquired: 17-APR-93 0:19 Me Comments: ATI: THE QUALITY TEAM

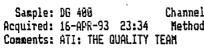
Channel: ERNIE
Method: F:\BRO2\MAXDATA\ERNIE\FUEL0416

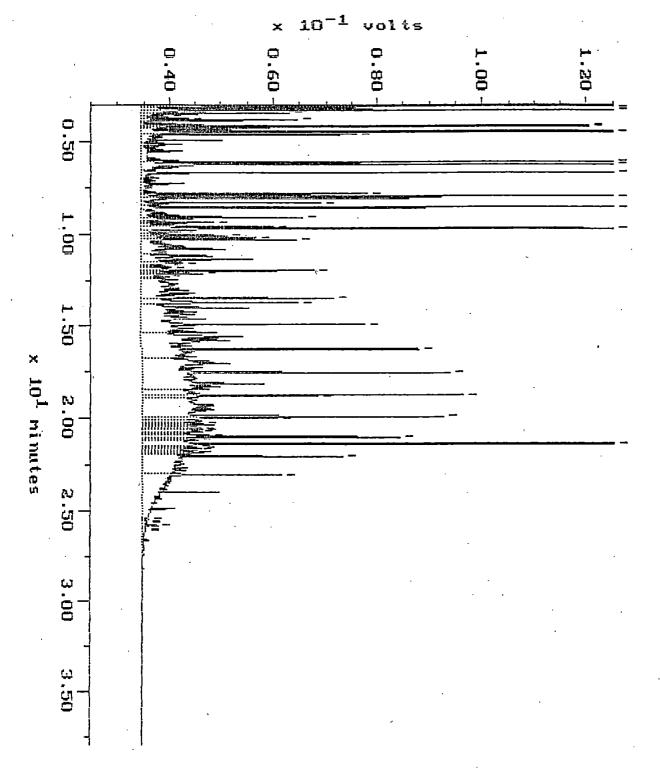


# Continuing Calibration

Channel: ERNIE
Method: F:\BRO2\MAXDATA\ERNIE\FUEL0416

Filename: R4168R02 Operator: ATI

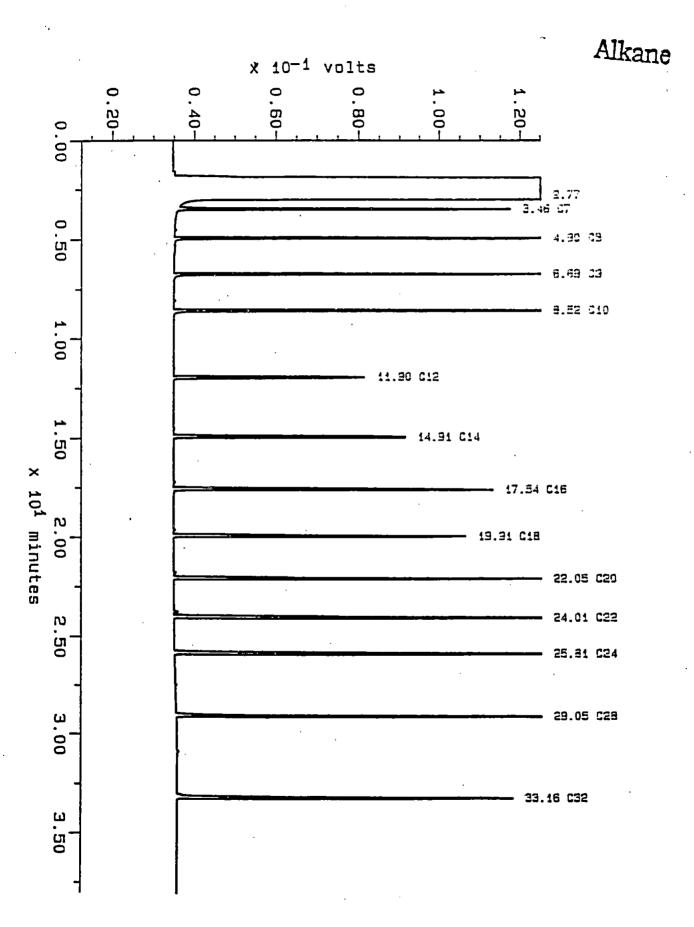




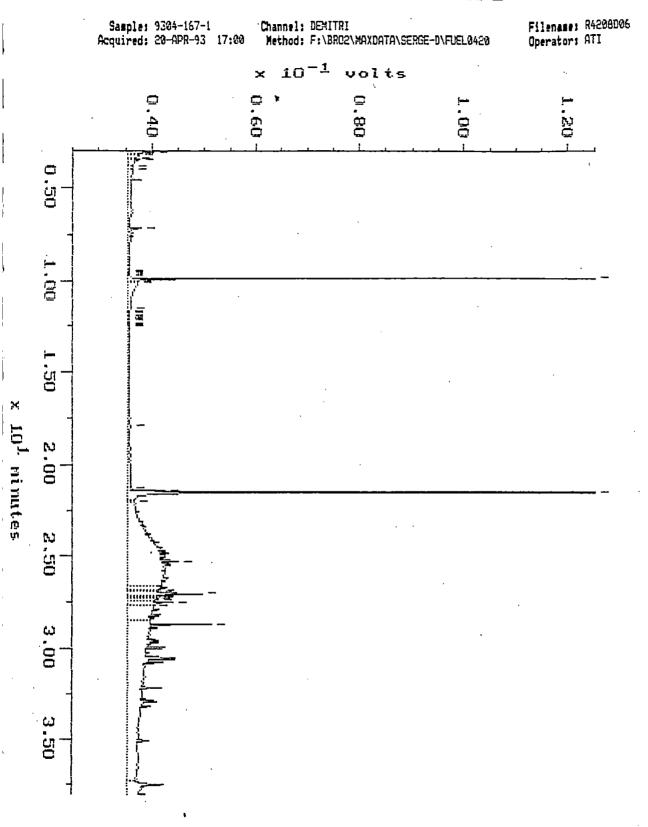
Sample: ALXANE Acquired: 24-HAR-93 RE: 09 Inj Vol: 1.90

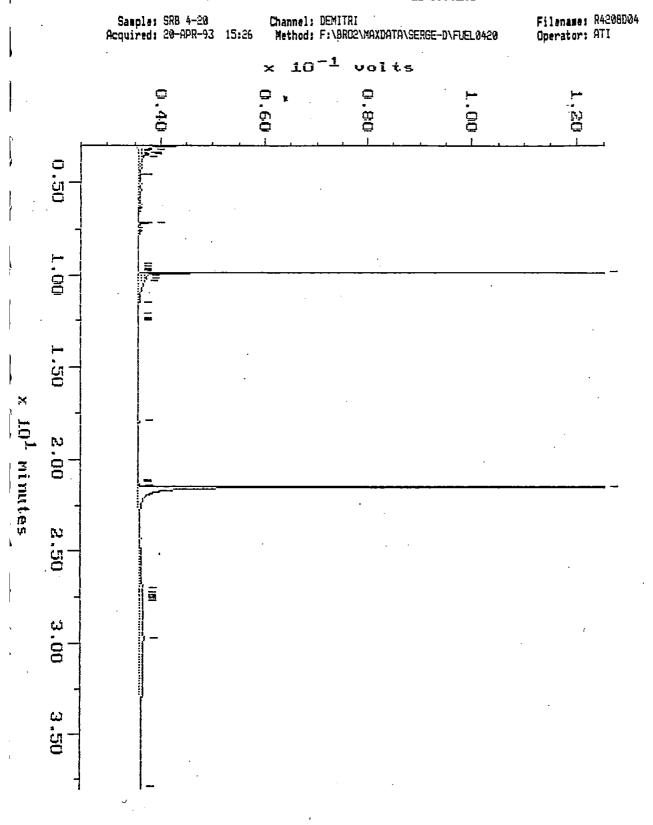
Channel: ERNIE
Method: 7:\2RC2\MAXEATA\ERNIE\FUEL\3224

Filename: 83249E03 Operator: ATI

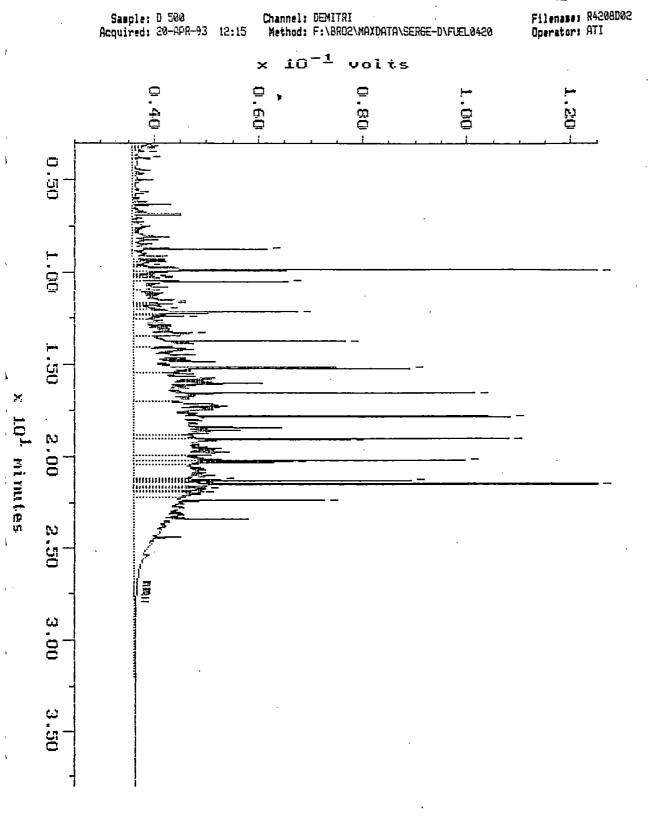


# WA DOE WTPH-D

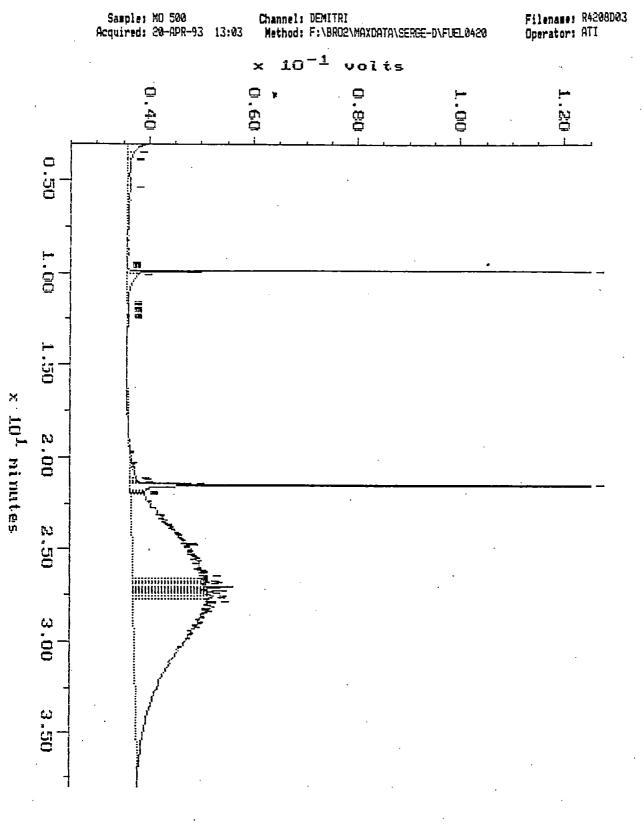




# Continuing Calibration



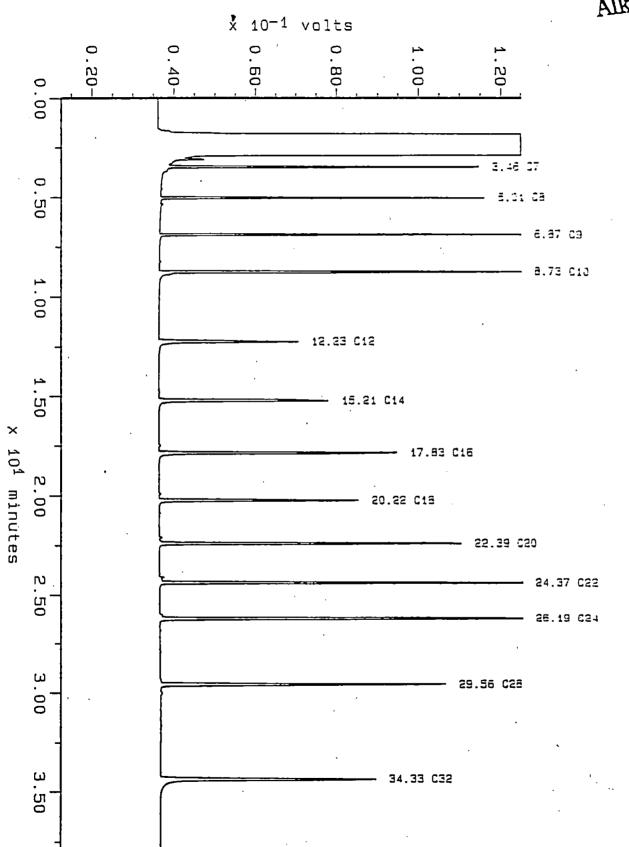
# Continuing Calibration



Sample: ALKANE Channel: DEMITRI Filename: R418
Acquired: 16-AFR-93 16:56 Method: F:\BRC2\MAXCATA\SERGE-B\FUEL0416 Operator: ATI
Inj Vol: 1.00

Filename: R41688222

Alkane



CHAII	N-OF-(	ST	ODY

Date _	- 4/	16/	93	Page	<u> </u>	of	
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LAB INFORMATION	SAMPLE RECEIPT		RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.	
Lab Name: ATT	Total Number of Containers:	₹ .	Signature: 0900	Signature: Time:	Signature: Time:	
Lab Address: 560 Naches Ave	Chain of Custody Seals?: Y/N/NA	<u>y</u>	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:	
Reston WA	Intact?: Y/N/NA	'	Jett /homoson 4/16/	3		
Via: Courier	Received in Good Condition/Cold:	٨	Company:	Company:	Company:	
Turn Around Time: ☐ Standard ☐	24 hr. (🛂 48 hr.) 🗆 72 hr. 🔲 1 v		RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: 3.	
PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA			Sonature Time: 255p	Signature; Time;	Signature: Time:	
Special Instructions: * MOTOR OIL QUANT TENTINGES			Printed Name: Date: V. PENNICK 4/16/93	Printed Name: Date:	Printed Name: Date:	
			Company: ATT-WA	Company:	Company:	

AGI OFFICES: Bellevue: (206) 453-8383 Portland: (503) 222-2820 Tacoma: (206) 383-4380 Pleasanton: (415) 460-5495

DISTRIBUTION: White, Canary to Analytical Laboratory; Pink to AGI Project Files; Gold to AGI Disposal Files

Rev, 12/91

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. (ATI) - Renton, WA

Lab Number: 9303-130

Sample No.: SS1

Matrix: Soil

# QUALITY ASSURANCE SUMMARY

All data are of known and acceptable quality.

#### ANALYTICAL METHODS

<u>Parameter</u>	Technique	Method
Fuel Hydrocarbons	GC/FID Gravimetric	EPA 8015 Modified CLP SOW ILM01.0

#### TIMELINESS

<u>Parameter</u>	Date Sampled	Date Extracted	Date <u>Analyzed</u>	Time Until <u>Extraction</u>	Time Until <u>Analysis</u>
Fuel Hydrocarbons Moisture	3/10/93 3/10/93	3/15/93 NA	3/16/93 3/15/93	5 (14) NA	6 (14) 5 (NA)

### NA - Not Applicable

Numbers in parentheses indicate recommended holding times in days for soils.

All samples were extracted and analyzed within recommended holding times for soils.

### DETECTABILITY AND COMPARABILITY

All samples were analyzed undiluted. All sample results are comparable.

### FUEL HYDROCARBON CHEMISTRY

No analytes were detected at or above the method reporting limits (MRL) by EPA 8015 Modified.

PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. (ATI) - Renton, WA

Lab Number: 9303-130

Sample No.: SS1

Matrix:

Soil

FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

Trip Blank: None collected.

LAB QUALITY CONTROL SAMPLES

Reagent Blank: No analytes were detected at or above the MRL in the

reagent blank for EPA 8015 Modified.

Matrix Spikes: Matrix spike (MS) and matrix spike duplicate (MSD)

percent recoveries are within ATI's control limit

criteria for EPA 8015 Modified.

Duplicates: Sample/sample duplicate relative percent difference (RPD)

is within ATI's control limit criterion for Method CLP

SOW ILMO1.0.

EPA 8015 Modified: For sample/sample duplicate, analyte was not detected in either sample or sample duplicate.

The reproducibility for this method is considered to be acceptable. MS/MSD RPD is within ATI's control limit for

this method.

Blank Spike: Blank spike percent recovery is within ATI's control

limit criterion for EPA 8015 Modified.

Surrogates: All surrogate percent recoveries for EPA 8015 Modified

are within ATI's control limit criteria.

**SIGNATURES** 

Prepared by Magta dim Da

Date 04/30/93

Checked by Karleyne Bourbon

Date 4/30/93



March 23, 1993

RECEIVED

MAR 2 4 1993

APPLIED GEOTECHNOLOGY INC.

Applied Geotechnology, Inc. P.O. Box 3885
Bellevue WA 98009

Attention: Glen Bobnick

Project Number: 15169.129

Project Name : GTE - Kirkland Tank Removal

Dear Mr. Bobnick:

On March 11, 1993, Analytical Technologies, Inc. (ATI), received one sample for analysis. The sample was 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,

Donna M. McKinney Senior Project Manager

DMM/hal/ff

Enclosure

### SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15169.129

PROJECT NAME : GTE - KIRKLAND TANK REMOVAL

ATI #	CLIENT	DESCRIPTION	DATE	SAMPLED	MATRIX
1	SS1		03/10		SOIL

---- TOTALS ----

MATRIX # SAMPLES
----SOIL 1

# 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 SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15169.129

PROJECT NAME : GTE - KIRKLAND TANK REMOVAL

•			
- 'ANALYSIS	TECHNIQUE	REFERENCE	LAB
FUEL HYDROCARBONS	GC/FID	EPA 8015 MODIFIED	R.
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R

R = ATI - RentonSD = ATI - San Diag

SD = ATI - San Diego

PHX = ATI - Phoenix PNR = ATI - Pensacola

FC = ATI - Fort Collins

SUB = Subcontract



O-TERPHENYL

ATI I.D. # 9303-130

52 - 143

94

# FUEL HYDROCARBONS DATA SUMMARY

PROJECT NAME : GTE - KIRKLAND TANK REMOVAL CLIENT I.D. : METHOD BLANK SAMPLE MATRIX : SOIL	DATE RECEIVED : N/A
COMPOUND	RESULT
FUEL HYDROCARBONS HYDROCARBON RANGE HYDROCARBON QUANTITATION USING	<5 C7 - C12 GASOLINE
FUEL HYDROCARBONS HYDROCARBON RANGE HYDROCARBON QUANTITATION USING	<25 C12 - C24 DIESEL
SURROGATE PERCENT RECOVERY	LIMITS



O-TERPHENYL

ATI I.D. # 9303-130-1

52 - 143

# FUEL HYDROCARBONS DATA SUMMARY

PROJECT NAME : GTE - KIRKLAND TANK REMOVAL CLIENT I.D. : SS1	DATE RECEIVED : 03/11/93 DATE EXTRACTED : 03/15/93 DATE ANALYZED : 03/16/93 UNITS : mg/Kg
COMPOUND	RESULT
FUEL HYDROCARBONS HYDROCARBON RANGE HYDROCARBON QUANTITATION USING FUEL HYDROCARBONS HYDROCARBON RANGE	<6 C7 - C12 GASOLINE <31 C12 - C24
HYDROCARBON QUANTITATION USING	DIESEL
SURROGATE PERCENT RECOVERY	LIMITS

90



### FUEL HYDROCARBONS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9303-147-6
PROJECT # : 15169.129 DATE EXTRACTED : 03/15/93
PROJECT NAME : GTE - KIRKLAND TANK REMOVAL DATE ANALYZED : 03/16/93
METHOD : 8015 (MODIFIED) UNITS : mg/Kg
SAMPLE MATRIX : SOIL

SAMPLE DUP. SPIKE SPIKED % SPIKED %
COMPOUND RESULT RESULT RPD ADDED RESULT REC. RESULT REC. LPD

FUEL
HYDROCARBONS
(DIESEL) <25 <25 NC 500 493 99 487 97 1

CONTROL LIMITS

% REC.

DUP. SPIKE

RPD

20

SURROGATE RECOVERIES

LIMITS

O-TERPHENYL

DIESEL

100

SPIKE

100

52 - 143



N/A

**52 - 143** 

### FUEL HYDROCARBONS QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE CLIENT PROJECT # : 15169.129 DATE EXTRACTED : 03/15/93

PROJECT NAME : GTE - KIRKLAND TANK REMOVAL DATE ANALYZED : 03/16/93 : 8015 (MODIFIED) UNITS : mg/Kg

SAMPLE MATRIX : SOIL

METHOD

O-TERPHENYL

	•						<b></b>	
COMPOUND		SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
FUEL HYDRO (DIESEL)	OCARBONS	<25	500	501	100	N/A	N/A	N/A
•	CONTROL LIMITS				% REC			RPD
DIESEL					67 -	135		20
	SURROGATE RECOVER	IES	SPIKE		DUP.	SPIKE	LIMIT	S

104



### GENERAL CHEMISTRY ANALYSIS

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15169.129
PROJECT NAME : GTE - KIRKLAND TANK REMOVAL

MATRIX : SOIL

PARAMETER

DATE ANALYZED

MOISTURE

03/15/93



### GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL PROJECT # : 15169.129

PROJECT NAME : GTE - KIRKLAND TANK REMOVAL UNITS : %

MOISTURE

ATI I.D. # CLIENT I.D.

9303-130-1. SS1 19



## GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

PROJECT # : 15169.129

PROJECT NAME : GTE - KIRKLAND TANK REMOVAL UNITS : %

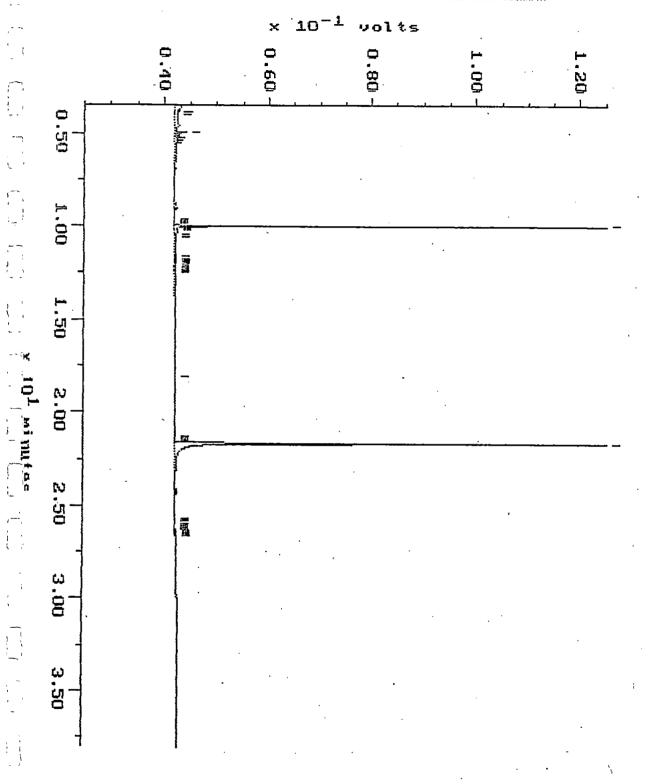
PARAMETER	ATI I.D.	 RESULT	 SPIKED RESULT	ADDED	% REC
MOISTURE	9303-124-13		N/A	N/A	N/A

Recovery = (Spike Sample Result - Sample Result)

Spike Concentration

## EPA 8015 Modified

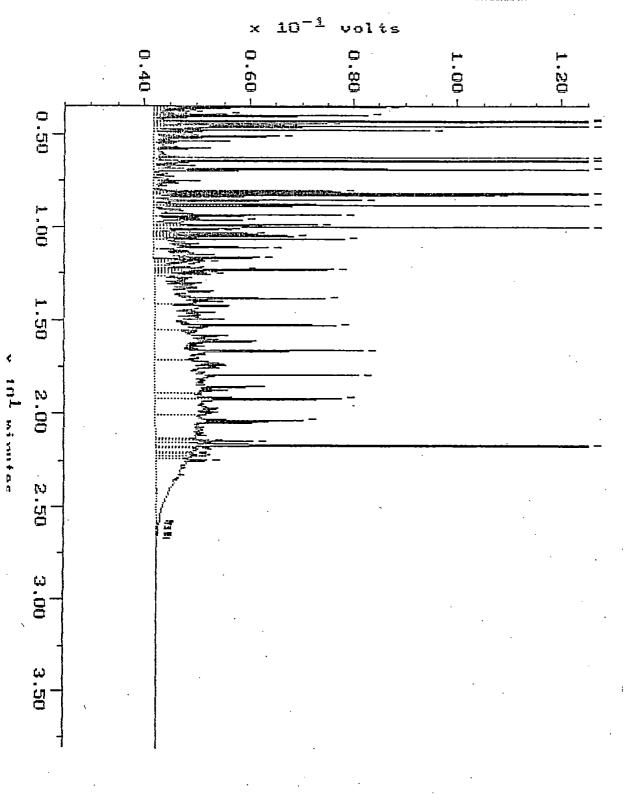
Sample: SRB 3-15 Channel: FRED Fi Acquired: 16-MAR-93 3:19 Method: F:\RRO2\MAXDATA\FRED\FUEL0315 O; Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY Filename: R3158F14 Operator: ATI



## Continuing Calibration

Filename: R3158F02 Operator: ATI

Sample: DG 400 Channel: FRED Fi
Acquired: 15-MAR-93 17:42 Method: F:\BKO2\MAXDATA\FRED\FUEL0315 Op
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY

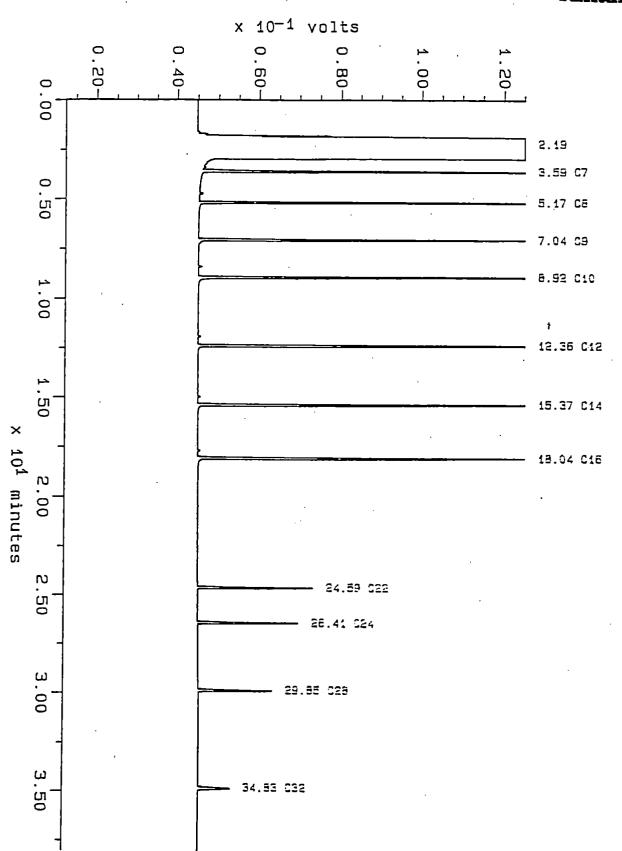


Sample: ALKANE Acquired: 11-JAN-93 13:01 Inj Vol: 1.00

Channel: FRED
Method: M:\BRO2\MAXDATA\FRED\FUEL0111

Filename: 0111FR04 Operator: ATI

## Alkane





СНА	IN-O	F-Cus	STODY
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		/	6.35
Date	3/10/	<u>93</u> Page	of

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Tacoma: (206) 383-4380 Pleasanton: (415) 460-5495

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Rev. 12/91

### QUALITY ASSURANCE REPORT

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 1

15,169.130

Lab Name:

Analytical Technologies, Inc. - Renton, WA

Lab Number:

9304-166

Sample No.:

SS1, SS2, SS3, SS4, SS5

Matrix:

Soil

### QUALITY ASSURANCE SUMMARY

All data are of known and acceptable quality.

### ANALYTICAL METHODS

<u>Parameter</u>	<u>Technique</u>	<u>method</u>
TPH-HCID	GC/FID	WA WTPH-HCID
Moisture	Gravimetric	CLP SOW ILM01.0

### TIMELINESS

<u>Parameter</u>	Date Sampled	Date Extracted	Date <u>Analyzed</u>	Time Until Extraction	Time Until <u>Analysis</u>
TPH-HCID	4/16/93	4/16/93	4/17/93	<1 (14)	1 (21)

Numbers in parentheses indicate recommended holding times in days for soil.

All samples were extracted and analyzed within recommended holding times for soil.

### Detectability and Comparability

TPH-HCID analyses performed without sample dilution. Sample results are comparable.

### FUEL HYDROCARBON CHEMISTRY

WA WTPH-HCID: Petroleum hydrocarbons were not detected at or above the reporting limits for "gasoline", "diesel", or "heavy oil".

### QUALITY ASSURANCE REPORT

### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. - Renton, WA

Lab Number: 9304-166

Sample No.: SS1, SS2, SS3, SS4, SS5

### FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

Trip Blank: None collected.

### LAB QUALITY CONTROL SAMPLES

Reagent Blank: No analytes were detected at or above their method

reporting limits by WA WTPH-HCID.

Matrix Spikes: Matrix spikes are not required by WA WTPH-HCID.

Blank Spike: Blank spikes are not required by WA WTPH-HCID.

Duplicates: Sample/sample duplicate relative percent difference (RPD)

data are within ATI's control limit criteria for mois-

ture.

Surrogates: All surrogate spike percent recoveries are within ATI's

control limit criteria for WA WTPH-HCID.

### SIGNATURES

Prepared by Amntte Johnson Date 5/3/93

Checked by Katherine Bourba ais Date 8/3/93

560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

Karen L. Mixon, Laboratory Manager

ATI I.D. # 9304-166

RECEIVED

APR 2 8 1993

APPLIED GEOTECHNOLOGY INC.

April 26, 1993

Applied Geotechnology, Inc. P.O. Box 3885 Bellevue WA 98009

Attention: Glen Bobnick

Project Number : 15,169.130

Project Name : GTE/Kirkland

Dear Mr. Bobnick:

On April 16, 1993, Analytical Technologies, Inc. (ATI), received five 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,

DIMCCICLY,

Donna M. McKinney

Senior Project Manager

DMM/hal/elf

Enclosure



#### SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9304-166-1 9304-166-2 9304-166-3 9304-166-4 9304-166-5	SS1 SS2 SS3 SS4 SS5	04/16/93 04/16/93 04/16/93 04/16/93 04/16/93	SOIL SOIL SOIL SOIL

---- TOTALS ----

MATRIX # SAMPLES
----SOIL 5

### 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 SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND

	ANALYSIS	TECHNIQUE	REFERENCE	LAB
	HYDROCARBON IDENTIFICATION	GC/FID	WA DOE WTPH-HCID	R
1	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



### HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : N/A
PROJECT # : 15,169.130 DATE RECEIVED : N/A
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : METHOD BLANK DATE ANALYZED : 04/17/93

SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/Kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

> LIMITS SURROGATE PERCENT RECOVERY

134 50 - 150 O-TERPHENYL



### HYDROCARBON IDENTIFICATION DATA SUMMARY

: APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/16/93 : 15,169.130 DATE RECEIVED : 04/16/93 : GTE/KIRKLAND DATE EXTRACTED : 04/16/93 CLIENT PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 04/17/93 CLIENT I.D. : SS1 UNITS : mg/Kg

SAMPLE MATRIX : SOIL METHOD : WA DOE WTPH-HCID DILUTION FACTOR: 1

RESULTS

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/kg BY WA DOE WTPH-HCID.

> SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 114 50 - 150



### HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/16/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/16/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : SS2 DATE ANALYZED : 04/17/23
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

\_\_\_\_\_\_

RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/Kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 110 50 - 150



### HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/16/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/16/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : SS3 DATE ANALYZED : 04/17/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

SAMPLE MATRIX : SOIL UNITS : mg/Kg
METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

\_\_\_\_\_\_

### RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/Kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/kg by WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 111 50 - 150



### HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/16/93
PROJECT # : 15,169.130 DATE RFCEIVED : 04/16/3
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : SS4 DATE ANALYZED : 04/17/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

#### RESULTS

GASOLINE CONCENTRATION LESS THAN 20 mg/kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg BY WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/kg by WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL

113

50 - 150



### HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/16/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/16/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/16/93
CLIENT I.D. : SS5 DATE ANALYZED : 04/17/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-HCID DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

\_\_\_\_\_\_

### RESULTS

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GASOLINE CONCENTRATION LESS THAN 20 mg/kg BY WA DOE WTPH-HCID.

DIESEL CONCENTRATION LESS THAN 50 mg/kg by WA DOE WTPH-HCID.

PETROLEUM HYDROCARBONS >C24 CONCENTRATION LESS THAN 100 mg/Kg BY WA DOE WTPH-HCID.

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 112 50 - 150



### GENERAL CHEMISTRY ANALYSIS

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

DATE ANALYZED

MOISTURE

04/16/93



### GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND MATRIX : SOIL

UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE	
9304-166-1	SS1	16	
9304-166-2	SS2	18	,
9304-166-3	SS3	16	•
9304-166-4	SS4	18	
9304-166-5	SS5	12	



## GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

PROJECT # : 15,169.130

PROJECT NAME : GTE/KIRKLAND UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT		RPD	SPIKED	SPIKE ADDED	% REC
MOISTURE	9304-166-5	12	12	0	N/A	N/A	N/A

% Recovery = (Spike Sample Result - Sample Result)

Spike Concentration

RRD (Relative & Difference) - (Sample Result - Result)

RPD (Relative % Difference) = (Sample Result - Duplicate Result)

----- x 100

Average Result

### Blank

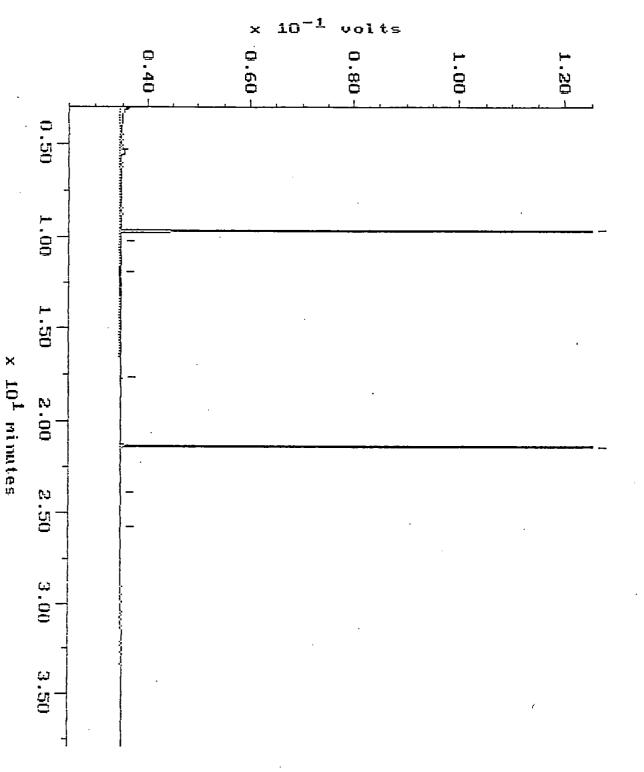
# WA DOE WTPH-HCID

Channel: ERNIE
Method: F:\BRO2\MAXDATA\ERNIE\FUEL0416

Filename: R4168R03

Operator: ATI

Sample: SRB 4-16 Cha Acquired: 17-APR-93 0:19 Me Comments: ATI: THE QUALITY TEAM



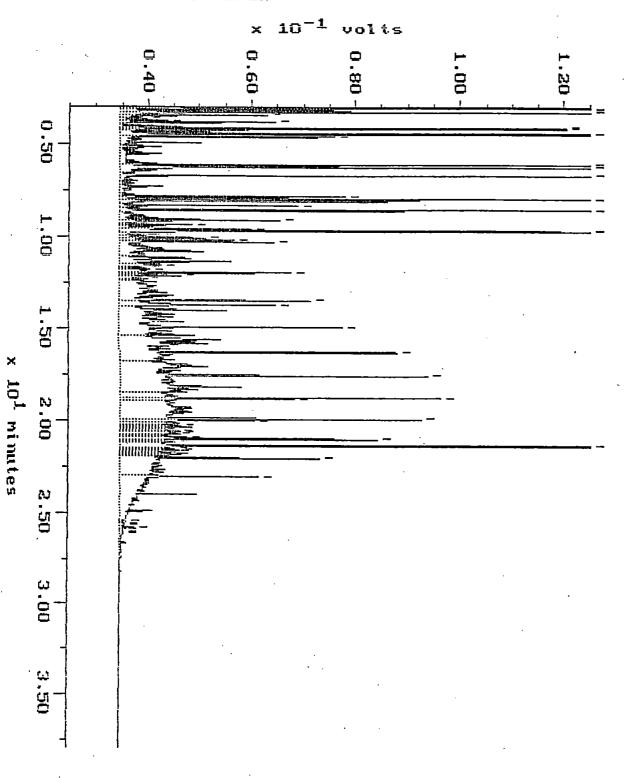
## Continuing Calibration

Channel: ERNIE
Method: F:\BRO2\MAXDATA\ERNIE\FUEL0416

Filename: R4168R02

Operator: ATI

Sample: DG 400 Cha Acquired: 16-APR-93 23:34 Ma Comments: ATI: THE QUALITY TEAM



Sample: ALXANE Acquired: 24-HAR-93 82:09 Inj Vol: 1.00

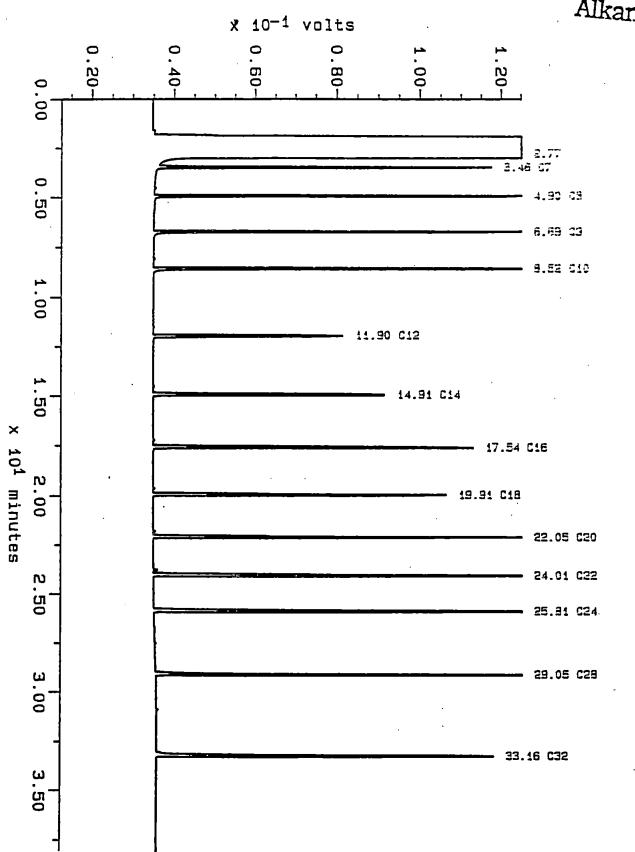
Channel: ERNIE

Method: 7: \EAC2\MAXEATA\EFN1E\FUEL0224

Filename: 83248603

Operator: ATI

Alkane





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AGI OFFICES: Bellevue: (206) 453-8383 Portland: (503) 222-2820

Tacoma: (206) 383-4380 Pleasanton: (415) 460-5495 DISTRIBUTION: White, Canary to Analytical Laboratory; Pink to AGI Project Files; Gold to AGI Disposal Files
Rev. 4/92

### QUALITY ASSURANCE REPORT

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies Inc. - Renton, WA

Lab Number: 9304-268
Sample No.: DS1, DS2

Matrix: Soil

### QUALITY ASSURANCE SUMMARY

All data are of known and acceptable quality.

### ANALYTICAL METHODS

Parameter	<u>Technique</u>	Method
TPH-Gasoline	GC/FID	WTPH-G
Moisture	Gravimetric	CLP SOW ILM01.0

#### TIMELINESS

Parameter	Date <u>Sampled</u>	Date <u>Extracted</u>	Date Analyzed	Time Until Extraction	Time Until <u>Analysis</u>
TPH-G	4/27/93	• •	4/29/93	1 (14)	1 (21)
Moisture	4/27/93		4/28/93	N/A	1

Numbers in parentheses indicate recommended holding times in days for soil. N/A - Not applicable.

All samples were extracted and analyzed within recommended holding times for soil.

### **DETECTABILITY AND COMPARABILITY**

Analyses were performed without sample dilution.

### **CHROMATOGRAPHY**

The detection of fuel hydrocarbons quantified between toluene and dodecane is supported by chromatogram for sample DS2.

#### **OUALITY ASSURANCE REPORT**

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies Inc. - Renton, WA

Lab Number: 9304-268 Sample No.: DS1, DS2

### FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

Trip Blank: None collected.

#### LAB QUALITY CONTROL SAMPLES

Reagent Blank: No analytes were detected at or above their reporting

limits by method WTPH-G.

Matrix Spikes: Matrix spike percent recovery for WTPH-G in sample DS2 is

out of ATI's control limit criteria due to high levels of hydrocarbons in the sample. Relative percent difference (RPD) are within ATI's control limit criteria for method WTPH-G. Results are not compromised; data qualification

is not recommended.

Blank Spike: Blank spike percent recovery is within ATI's control

limit criteria for method WTPH-G.

Duplicates: Sample/sample duplicate relative percent difference (RPD)

data are within ATI's control limit criteria for the

following methods:

WTPH-G

CLP SOW ILMO1.0.

Surrogates: All surrogate spike percent recoveries are within ATI's

control limit criteria for method WTPH-G.

### SIGNATURES

Prepared by Amette Johnson Date 6/4/93

Checked by Katherine Bourbonain Date 6/7/93



560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

Karen L. Mixon, Laboratory Manager

MAY - 5 1993

APPLIED GEOTECHNOLOGY INC

ATI I.D. # 9304-268

May 4, 1993

Applied Geotechnology, Inc. P.O. Box 3885 Bellevue WA 98009

Attention: Glen Bobnick

Project Number: 15,169.130

Project Name : GTE/Kirkland

Dear Mr. Bobnick:

On April 28, 1993, Analytical Technologies, Inc. (ATI), received two 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,

Donna M. McKinney /

Senior Project Manager

DMM/hal/hbb

Enclosure



### SAMPLE CROSS REFERENCE SHEET

CLIENT

: APPLIED GEOTECHNOLOGY, INC.

PROJECT #

: 15,169.130

PROJECT NAME : GTE/KIRKLAND

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9304-268-1	DS1	04/27/93	SOIL
9304-268-2	DS2	04/27/93	SOIL

---- TOTALS ----

MATRIX # SAMPLES SOIL

### 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 SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

ANALYSIS	TECHNIQUE	REFERENCE	LAB
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-G	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



TRIFLUOROTOLUENE

ATI I.D. # 9304-268

50 - 150

96

### TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY



ATI I.D. # 9304-268-1

### TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/27/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/28/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/28/93
CLIENT I.D. : DS1 DATE ANALYZED : 04/29/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg
METHOD : WA DOE WTPH-G DILUTION FACTOR : 1
RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUND RESULT

FUEL HYDROCARBONS <7
HYDROCARBON RANGE TOLUENE TO DODECANE
HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

TRIFLUOROTOLUENE

81

50 - 150



ATI I.D. # 9304-268-2

### TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/27/93 PROJECT # : 15,169.130 DATE RECEIVED : 04/28/93 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : DS2 DATE EXTRACTED : 04/28/93 DATE ANALYZED : 04/29/93 UNITS : mg/Kg SAMPLE MATRIX : SOIL METHOD : WA DOE WTPH-G DILUTION FACTOR: 1 RESULTS ARE CORRECTED FOR MOISTURE CONTENT RESULT

5900 FUEL HYDROCARBONS

TOLUENE TO DODECANE HYDROCARBON RANGE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

142 50 - 150 TRIFLUOROTOLUENE



### TOTAL PETROLEUM HYDROCARBÓNS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9304-271-1
PROJECT # : 15,169.130 DATE EXTRACTED : 04/28/93
PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 04/29/93
METHOD : WA DOE WTPH-G UNITS : mg/Kg

SAMPLE MATRIX : SOIL

COMPOUND		SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD	
GASOLINE		19.6	20.4	4	N/A	N/A	N/A	N/A	N/A	N/A	
CONTROL LIMITS							% REC		RPD		
GASOLINE							N/A			20	
SURROGATE RECOVERIES					SAMPLE		SAMPL	E DUP.	LIMITS		
TRIFLUOROTOLUENE					69		73		50 -	150	



## TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT: APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. #: 9304-268-2 PROJECT #: 15,169.130 DATE EXTRACTED: 04/28/93

PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 04/29/93
METHOD : WA DOE WTPH-G UNITS : mg/Kg

SAMPLE MATRIX : SOIL

1										
COMPOUND		SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE		5010	4850	3	50.0	5560	G	4800	G	15
1	CONT	ROL LIMI	TS				% REC	•		RPD
GASOLINE							50 -	112		20
	SURRO	GATE RE	COVERIES		SPIKE		DUP.	SPIKE	LIMIŢ	'S
TRIFLUORO	TOLUE	NE			138		116		50 -	150

G = Out of limits due to high levels of target analytes in sample.



## TOTAL PETROLEUM HYDROCARBON OUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE

PROJECT # : 15,169.130 DATE EXTRACTED : 04/28/93
| PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 04/29/93
| METHOD : WA DOE WTPH-G UNITS : mg/Kg

SAMPLE MATRIX : SOIL

				•				
COMPOUND		SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE		<5.00	50.0	51.5	104	N/A	N/A	N/A
	CONTROL LIMITS				% REC			RPD
GASOLINE					- 80 -	119		20
	SURROGATE RECOVER	IES	SPIKE		DUP.	SPIKE	LIMIT	S
TRIFLUORO	TOLUENE		94		N/A		50 -	150



### GENERAL CHEMISTRY ANALYSIS

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130

MATRIX : SOIL

PROJECT NAME : GTE/KIRKLAND

DATE ANALYZED

MOISTURE

04/28/93



### GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

MATRIX : SOIL

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE	·
i			
9304-268-1	DS1	25	
9304-268-2	DS2	15	



### GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 MATRIX : SOIL

PROJECT NAME : GTE/KIRKLAND UNITS : %

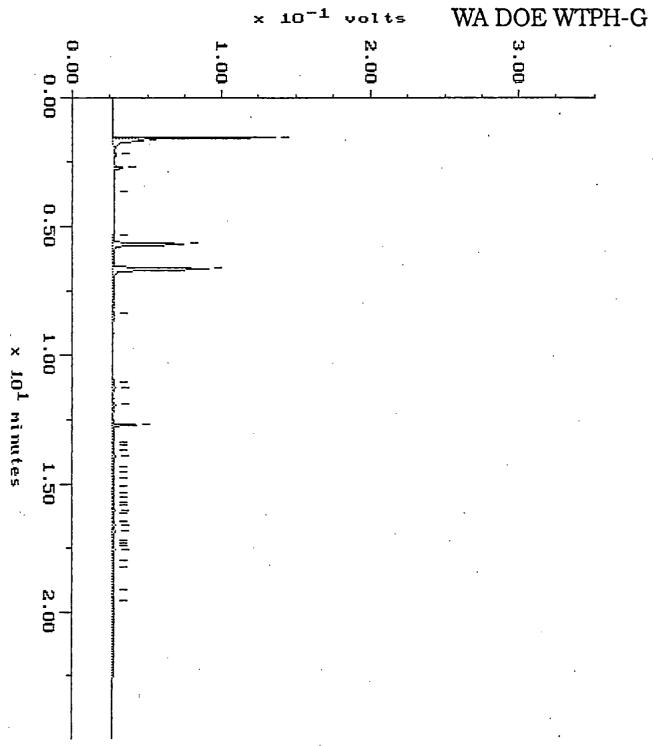
					<b>-</b>		. <b></b>	_
PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC	
MOISTURE	9304-268-2	<b>1</b> 5	15	0	N/A	N/A	N/A	•

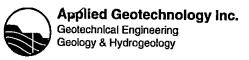
% Recovery = (Spike Sample Result - Sample Result) Spike Concentration RPD (Relative % Difference) = (Sample Result - Duplicate Result) Average Result

Sample: 9304-268-1 Channel: FID
Acquired: 29-APR-93 9:42 Method: F:\BRO2\MAXDATA\GLAD\042993GS
Comments: ATI : A COMMITMENT TO QUALITY

Filename: R4299604 Operator: ATI







_	- 4	,
CHAIN-	OF-Cvd	STODY

Date 4/27/13 Page 1 of 1 PROJECT INFORMATION Laboratory Number: Project Manager: Glec Boboick **ANALYSIS REQUEST** Project Name: 6TE/Kirkland - UST Upgrade PETROLEUM LEACHING HYDROCARBONS ORGANIC COMPOUNDS PESTS/PCBs METALS ' OTHER **TESTS** Project Number: 15169. 130 Site Location: Kirkland WA Sampled By: 351 DISPOSAL INFORMATION NUMBER OF CONTAINERS ☐ Lab Disposal (return if not indicated) Disposal Method: 8080 OC Pest/PCBs 8020M - BETX only 8140 OP Pesticides 8240 GCMS Volatil 8310 HPLC PAHs Disposed by: \_\_\_\_\_ Disposal Date:\_ 8080M PCBs only State: 8040 Phenols QC INFORMATION (check one) T√SW-846 □CLP □Screening □AGI Std. □Special TPHG **SAMPLE ID** DATE TIME | MATRIX | LAB ID 1600 DS 1 75Z 1605 **RELINQUISHED BY: 1. RELINQUISHED BY: 2.** LAB INFORMATION SAMPLE RECEIPT **RELINQUISHED BY: 3.** Lab Name: ATT **Total Number of Containers:** Signature: Signature: Lab Address: 560 Naches Ave Chain of Custody Seals?: Y/N/NA Date: Printed Name: Date: Printed Name: Date: Jeff Thougson 4/77/93 Intact?: Y/N/NA Company: Company: Company: Courier Received in Good Condition/Cold: RECEIVED BY: RECEIVED BY: 2. **RECEIVED BY:** Time: Signature: Signature: Time: PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA Special Instructions: Printed Name: Printed Name: Date:

AGI OFFICES: Bellevue: (206) 453-8383

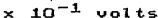
Portland: (503) 222-2820

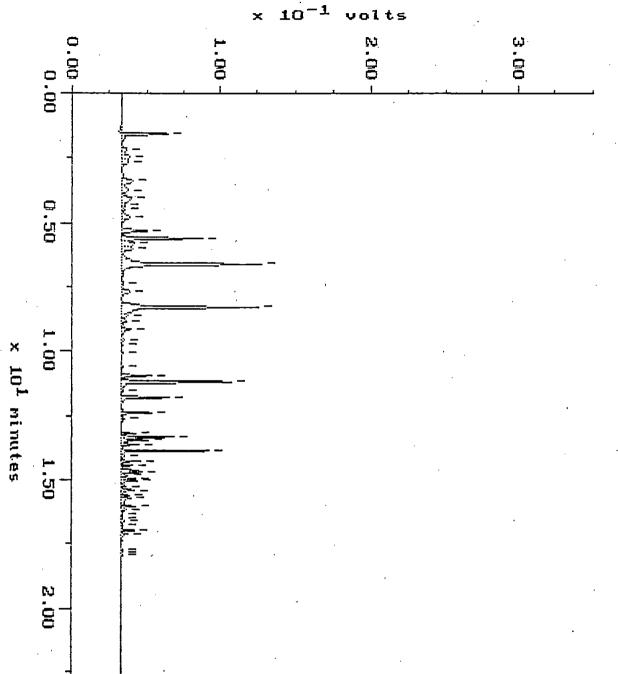
Tacoma: (206) 383-4380 Pleasanton: (415) 460-5495 DISTRIBUTION: White, Canary to Analytical Laboratory; Pink to AGI Project Files; Gold to AGI Disposal Files

Rev. 12/91

Continuing Calibration
Channel: JEROME-FID
-93 9:00 Method: F:\BRO2\MAXDATA\JEROME\042993JR Sample: STD-C G Acquired: 29-APR-93 9:00

Filename: R4299J31 Operator:



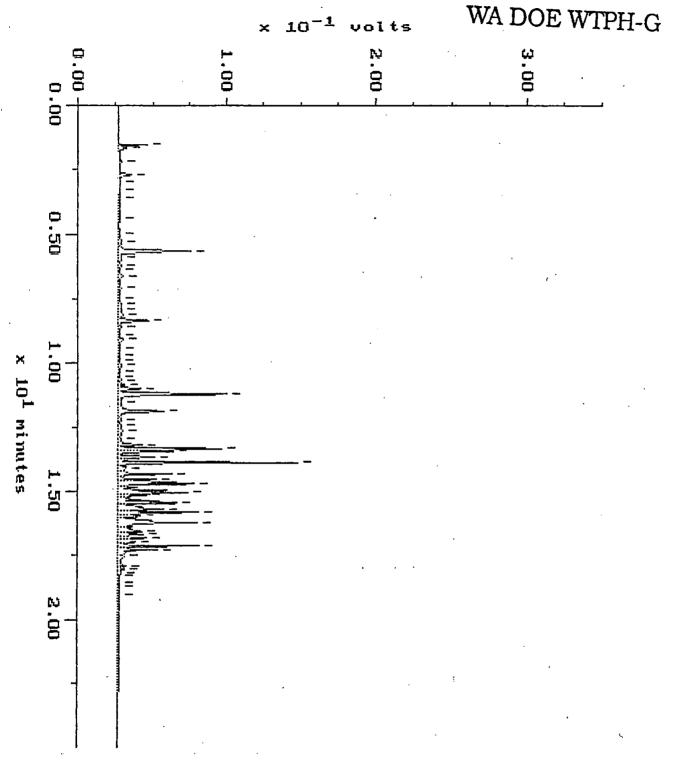


WA DOE WIPH
Filename: R4
Operator: Sample: SRB 4-28 Acquired: 29-APR-93 14:11 Channel: JEROME-FID
Method: F:\BRO2\MAXDATA\JEROME\042993JR Blank 10-1 volts 00.0 7 3.00 2.00 0.50x 10<sup>1</sup> minutes 1.50 2,00

Channel: FID
Method: F:\BRO2\MAXDATA\GLAD\042993GS

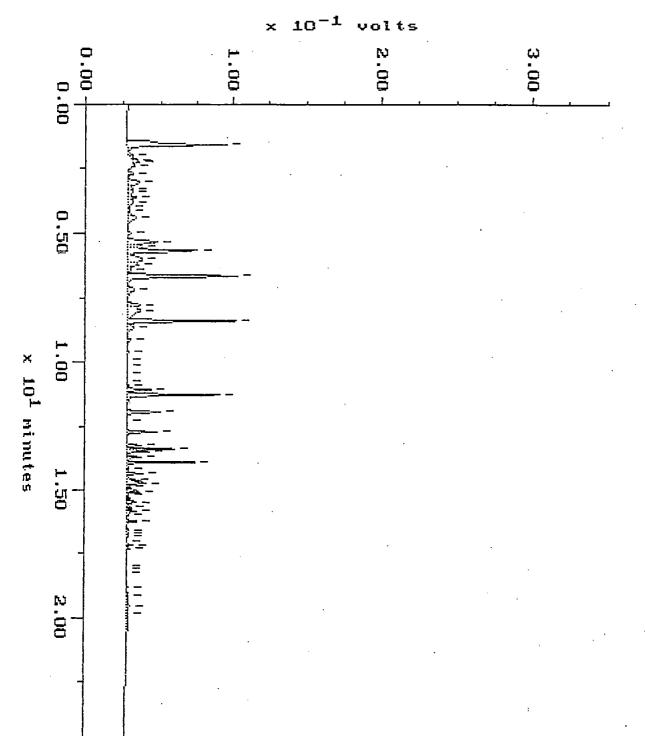
Filename: R4299613 Operator: ATI

Sample: 9304-268-2 DIL Channel: FI Acquired: 29-APR-93 14:38 Method: F: Dilution: 1 : 50.000 Commitment TO QUALITY



Sample: STD-C 6 CONTINUING Calibration
Acquired: 29-APR-93 8:14 Method: F:\BRO2\MAXDATA\GLAD\0429936S
Comments: ATI: A COMMITMENT TO QUALITY

Filename: R4299601 Operator: ATI



### QUALITY ASSURANCE REPORT

### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies Inc. - Renton, WA

Lab Number: 9304-304

Sample No.: DS-3, DS-4, DS-5, DS-6, DS-7

Matrix:

Soil

### QUALITY ASSURANCE SUMMARY

All data are of known and acceptable quality.

### ANALYTICAL METHODS

<u>Parameter</u>	<u>Technique</u>	Method
BETX	GC/PID	EPA 8020
TPH-Gasoline	GC/FID	. WTPH-G
Moisture	Gravimetric	CLP SOW ILMO1.0

#### TIMELINESS

<u>Parameter</u>	Date <u>Sampled</u>	Date Extracted	Date <u>Analyzed</u>	Time Until Extraction	Time Until Analysis
BETX	4/29/93	5/03/93	5/03/93	4	4 (14)
TPH-G	4/29/93	5/03/93	5/03/93	4 (14)	<1 (21)
Moisture	4/29/93	N/A	4/30/93	N/A	1,

Numbers in parentheses indicate recommended holding times in days for soil. N/A - Not applicable.

All samples were extracted and analyzed within recommended holding times for soil.

#### **QUALITY ASSURANCE REPORT**

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies Inc. - Renton, WA

Lab Number: 9304-304

Sample No.: DS-3, DS-4, DS-5, DS-6, DS-7

### DETECTABILITY AND COMPARABILITY

Analyses were performed without sample dilution except for the following:

BETX: Sample DS-7 was diluted 20 fold. TPH-G: Sample DS-7 was diluted 20 fold.

Sample dilution was required in above noted analyses because several analyte concentrations were above the calibration range. Sample dilution elevates reporting limits for undetected compounds therefore exercise caution when comparing sample results reported near reporting limits.

### CHROMATOGRAPHY

The detection of fuel hydrocarbons quantified between toluene and dodecane is supported by chromatogram for sample DS-7.

#### FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

Trip Blank: None collected.

### LAB QUALITY CONTROL SAMPLES

Reagent Blank: No analytes were detected at or above their reporting

limits by the following methods:

EPA 8020 WTPH-G

### QUALITY ASSURANCE REPORT

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PRUJECT	ANI	SAMPLE	INFURMATIU	м

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies Inc. - Renton, WA

Lab Number: 9304-304

Sample No.: DS-3, DS-4, DS-5, DS-6, DS-7

Matrix Spikes: Matrix

Matrix spike percent recoveries and relative percent difference (RPDs) are within ATI's control limit criteria

for the following methods:

WTPH-G

EPA 8020: Matrix spike data was not supplied. Results are not compromised; data qualification is not recommend-

ed.

Blank Spike: All blank spike percent recoveries are within ATI's

control limit criteria for the following methods:

EPA 8020 WTPH-G

Duplicates: Sample/sample duplicate relative percent difference (RPD)

data are within ATI's control limit criteria for the

following methods:

WTPH-G

CLP SOW ILMO1.0.

Surrogates: All surrogate spike percent recoveries are within ATI's

control limit criteria for the following methods:

EPA 8020

WTPH-G

#### **SIGNATURES**

Prepared by Annette Johnson air Date 6/7/93

Checked by Katherene Bourbon air Date 6/7/93

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

MAY 2 0 1993

APPLIED GEUTECHNOLOGY INC

ATI I.D. # 9304-304

May 18, 1993

Applied Geotechnology, Inc. P.O. Box 3885 Bellevue WA 98009

Attention: Glen Bobnick

Project Number: 15,169.130

Project Name : GTE/Kirkland

Dear Mr. Bobnick:

On April 30, 1993, Analytical Technologies, Inc. (ATI), received five 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,

Donna M. McKinney

Senior Project Manager

DMM/hal/ff

Enclosure



### SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9304-304-1 9304-304-2 9304-304-3 9304-304-4 9304-304-5	DS-3 DS-4 DS-5 DS-6 DS-7	04/29/93 04/29/93 04/29/93 04/30/93 04/30/93	SOIL SOIL SOIL SOIL

---- TOTALS ----

MATRIX # SAMPLES
SOIL 5

### 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 SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-G	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



CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : METHOD BLANK SAMPLE MATRIX : SOIL EPA METHOD : 8020 (BETX) RESULTS ARE CORRECTED FOR MOISTURE CONTENT	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	: N/A : N/A : 04/30/93 : 05/03/93 : mg/Kg : 1
COMPOUND	RESULT	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.025 <0.025 <0.025 <0.025	
SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	93	52 - 116



CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : METHOD BLANK SAMPLE MATRIX : SOIL EPA METHOD : 8020 (BETX) RESULTS ARE CORRECTED FOR MOISTURE CONTENT	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	
COMPOUND	RESULT	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.025 <0.025 <0.025 <0.025	
SURROGATE PERCENT RECOVERY	•	LIMITS
BROMOFLUOROBENZENE	88	52 - 116



CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : DS-3 SAMPLE MATRIX : SOIL EPA METHOD : 8020 (BETX) RESULTS ARE CORRECTED FOR MOISTURE CONTENT	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	: 04/29/93 : 04/30/93 : 05/03/93 : 05/03/93 : mg/Kg : 1
COMPOUND	RESULT	<b></b>
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.028 <0.028 <0.028 <0.028	
SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	80	52 - 116



CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : DS-4 SAMPLE MATRIX : SOIL EPA METHOD : 8020 (BETX) RESULTS ARE CORRECTED FOR MOISTURE CONTENT	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	: 04/29/93 : 04/30/93 : 04/30/93 : 05/02/93 : mg/Kg : 1
COMPOUND	RESULT	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.030 <0.030 <0.030 <0.030	
SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	81	52 - 116



CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : DS-5 SAMPLE MATRIX : SOIL EPA METHOD : 8020 (BETX) RESULTS ARE CORRECTED FOR MOISTURE CONTENT	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	: 04/29/93 : 04/30/93 : 04/30/93 : 05/02/93 : mg/Kg
COMPOUND	RESULT	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.028 <0.028 <0.028 <0.028	
SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	83	52 - 116



## VOLATILE ORGANIC ANALYSIS DATA SUMMARY

: 04/30/93 : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED CLIENT : 04/30/93 : 15,169.130 DATE RECEIVED PROJECT # PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/30/93 : 05/03/93 : DS-6 DATE ANALYZED CLIENT I.D. UNITS : mg/Kg -- SAMPLE MATRIX : SOIL EPA METHOD : 8020 (BETX) DILUTION FACTOR: 1 RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUND	RESULT				
BENZENE ETHYLBENZENE TOLUENE	<0.030 <0.030 <0.030				
SURROGATE PERCENT RECOVERY	0.17	LIMITS			

•		
BROMOFLUOROBENZENE	83	52 - 116



CLIENT : APPLIED GEOTECHNOLOGY, INC.  PROJECT # : 15,169.130  PROJECT NAME : GTE/KIRKLAND  CLIENT I.D. : DS-7  SAMPLE MATRIX : SOIL  EPA METHOD : 8020 (BETX)  RESULTS ARE CORRECTED FOR MOISTURE CONTENT	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	: 04/30/93 : 04/30/93 : 04/30/93 : 05/02/93 : mg/Kg : 20
COMPOUND	RESULT	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.59 6.6 13 72	
SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	98	52 - 116



### VOLATILE ORGANIC ANALYSIS QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE CLIENT

DATE EXTRACTED: 04/30/93 PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/03/93 : mg/Kg

EPA METHOD : 8020 (BETX) UNITS

SAMPLE MATRIX : SOIL

•			•				
COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
BENZENE TOLUENE TOTAL XYLENES	<0.025 <0.025 <0.025	1.00 1.00 2.00	0.978 1.06 2.16	98 106 108	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A
CONTROL LIMITS				% REC			RPD
BENZENE TOLUENE TOTAL XYLENES				75 -	115 110 109		20 20 20
SURROGATE RECOVERIES		SPIKE		DUP.	SPIKE	LIMIT	S
BROMOFLUOROBENZENE		97 <sup>-</sup>		N/A		52 -	116



### VOLATILE ORGANIC ANALYSIS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE

 PROJECT #
 : 15,169.130
 DATE EXTRACTED : 05/03/93

 PROJECT NAME : GTE/KIRKLAND
 DATE ANALYZED : 05/03/93

 EPA METHOD : 8020 (BETX)
 UNITS : mg/Kg

- SAMPLE MATRIX : SOIL

C							
COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
BENZENE TOLUENE TOTAL XYLENES	<0.025 <0.025 <0.025	1.00 1.00 2.00	0.986 1.00 1.97	99 100 99	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A
CONTROL LIMITS				% REC	•		RPD
BENZENE TOLUENE TOTAL XYLENES				75 -	115 110 109		20 20 20
SURROGATE RECOVERIES		SPIKE		DUP.	SPIKE	LIMIT	s
BROMOFLUOROBENZENE		96		N/A		52 -	116



## TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : N/A
PROJECT # : 15,169.130 DATE RECEIVED : N/A

PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/30/93 CLIENT I.D. : METHOD BLANK DATE ANALYZED : 05/03/93 SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-G DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUND RESULT

FUEL HYDROCARBONS <5
HYDROCARBON RANGE TOLUENE TO DODECANE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 91 50 - 150



FUEL HYDROCARBONS

ATI I.D. # 9304-304

## TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : N/A PROJECT # : 15,169.130 DATE RECEIVED : N/A

PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 05/03/93
CLIENT I.D. : METHOD BLANK DATE ANALYZED : 05/03/93

SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-G DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOSIND

HYDROCARBON RANGE TOLUENE TO DODECANE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 99 50 - 150



### TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/29/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/30/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 05/03/93
CLIENT I.D. : DS-3 DATE ANALYZED : 05/03/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg
METHOD : WA DOE WTPH-G DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUND RESULT

FUEL HYDROCARBONS <6

HYDROCARBON RANGE TOLUENE TO DODECANE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 71 50 - 150



## TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/29/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/30/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/30/93
CLIENT I.D. : DS-4 DATE ANALYZED : 05/02/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-G DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

\_\_\_\_\_\_

COMPOUND RESULT

FUEL HYDROCARBONS <6

HYDROCARBON RANGE TOLUENE TO DODECANE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 73 50 - 150



### TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

DATE SAMPLED : 04/29/93
DATE RECEIVED : 04/30/93
DATE EXTRACTED : 04/30/93 CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/02/93 CLIENT I.D. : DS-5 SAMPLE MATRIX : SOIL UNITS : mg/Kg METHOD : WA DOE WTPH-G DILUTION FACTOR: 1 RESULTS ARE CORRECTED FOR MOISTURE CONTENT COMPOUND <6 - FUEL HYDROCARBONS

HYDROCARBON RANGE TOLUENE TO DODECANE

GASOLINE - HYDROCARBON QUANTITATION USING

LIMITS SURROGATE PERCENT RECOVERY

50 - 150 75 TRIFLUOROTOLUENE



### TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/30/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/30/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/30/93
CLIENT I.D. : DS-6 DATE ANALYZED : 05/03/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg

METHOD : WA DOE WTPH-G DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUND RESULT

\_\_\_\_\_

FUEL HYDROCARBONS <6

HYDROCARBON RANGE TOLUENE TO DODECANE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 75 50 - 150



## TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/30/93
PROJECT # : 15,169.130 DATE RECEIVED : 04/30/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 04/30/93
CLIENT I.D. : DS-7 DATE ANALYZED : 05/02/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg
METHOD : WA DOE WTPH-G DILUTION FACTOR : 20

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUND RESULT

FUEL HYDROCARBONS 2500

HYDROCARBON RANGE TOLUENE TO DODECANE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 94 50 - 150



## TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9304-295-3
PROJECT # : 15,169.130 DATE EXTRACTED : 04/30/93
PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/02/93
METHOD : WA DOE WTPH-G UNITS : mg/Kg

SAMPLE MATRIX : SOIL

COMPOUND		SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE		<5.0	<5.0	NC	N/A	N/A	N/A	N/A	N/A	N/A
CONTROL LIMITS							% REC	•		RPD
GASOLINE							N/A			20
	SURRO	OGATE RE	COVERIES		SAMPLE		SAMPL	E DUP.	LIMIT	S
TRIFLUOROTOLUENE			75		76		50 -	150		

NC = Not Calculable.



## TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9304-295-1 PROJECT # : 15,169.130 DATE EXTRACTED : 04/30/93

PROJECT # : 15,169.130 DATE EXTRACTED : 04/30/93
PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/02/93

METHOD : WA DOE WTPH-G UNITS : mg/Kg

SAMPLE MATRIX : SOIL

COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE	<5.0	<5.0	NC	50.0	47.6	95	52.7	105	10
CONTROL LIMITS					% REC	•		RPD	
GASOLINE						50 -	112		20
SUI	RROGATE RE	COVERIES		SPIKE		DUP.	SPIKE	LIMIT	'S
TRIFILIOROTOLIENE			71		73	•	50 -	150	



## TOTAL PETROLEUM HYDROCARBONS OUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9304-320-2
PROJECT # : 15,169.130 DATE EXTRACTED : 05/03/93
PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/04/93
METHOD : WA DOE WTPH-G UNITS : mg/Kg

SAMPLE MATRIX : SOIL

COMPOUND		SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
		<del></del>								
GASOLINE		<5.0	<5.0	NC	50.0	39.4	79	38.9	<b>7</b> 8	1
CONTROL LIMITS					% REC	•		RPD		
GASOLINE							50 -	112		20
	SURRO	GATE RE	COVERIES		SPIKE		DUP.	SPIKE	LIMIT	S
TRIFLUORO'	TOLUEI	NE			84		85		50 <b>-</b> .	150

NC = Not Calculable.



#### TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT

: APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE : 15,169.130 DATE EXTRACTED : 04/30/93 PROJECT # : 15,169.130 DATE ANALYZED : 05/03/93 PROJECT NAME : GTE/KIRKLAND : WA DOE WTPH-G UNITS : mg/Kg METHOD

SAMPLE MATRIX : SOIL

							<b></b>	
COMPOUND		SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE		<5.0	50.0	48.0	96	N/A	N/A	N/A
	CONTROL LIMITS				% REC	•		RPD
GASOLINE				•	80 -	119		20
	SURROGATE RECOVER	IES	SAMPLE		SAMPL	E DUP.	LIMIT	S
TRIFLUORO'	TOLUENE	89		N/A		50 -	150	



#### TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE PROJECT # : 15,169.130 DATE EXTRACTED : 05/03/93 DATE ANALYZED : 05/03/93 PROJECT NAME : GTE/KIRKLAND : WA DOE WTPH-G : mg/Kg UNITS METHOD

SAMPLE MATRIX : SOIL

COMPOUND		SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE		<5.0	50.0	50.4	101	N/A	N/A	N/A
	CONTROL LIMITS				% REC			RPD
GASOLINE					80 -	119		20
	SURROGATE RECOVER	IES	SPIKE		DUP.	SPIKE	LIMIT	'S
TRIFLUORO	TOLUENE		103		N/A		50 -	150



#### GENERAL CHEMISTRY ANALYSIS

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 MATRIX : SOIL

PROJECT NAME : GTE/KIRKLAND

DATE ANALYZED

04/30/93 MOISTURE



#### GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE	
9304-304-1	DS-3	11	
9304-304-2	DS-4	· 18	
9304-304-3	DS-5	11	•
9304-304-4	DS-6	16	
9304-304-5	DS-7	15	



# GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

PROJECT # : 15,169.130

PROJECT NAME : GTE/KIRKLAND UNITS : %

								-
	ATI I.D.		DUP			SPIKE	% REC	_
MOISTURE	9304-313-1	7.9	7.9	0 .	N/A	N/A	N/A	

% Recovery = (Spike Sample Result - Sample Result)

Spike Concentration

RPD (Relative % Difference) = (Sample Result - Duplicate Result)

----- x 100

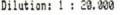
Average Result

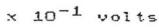
# WA DOE WTPH-G

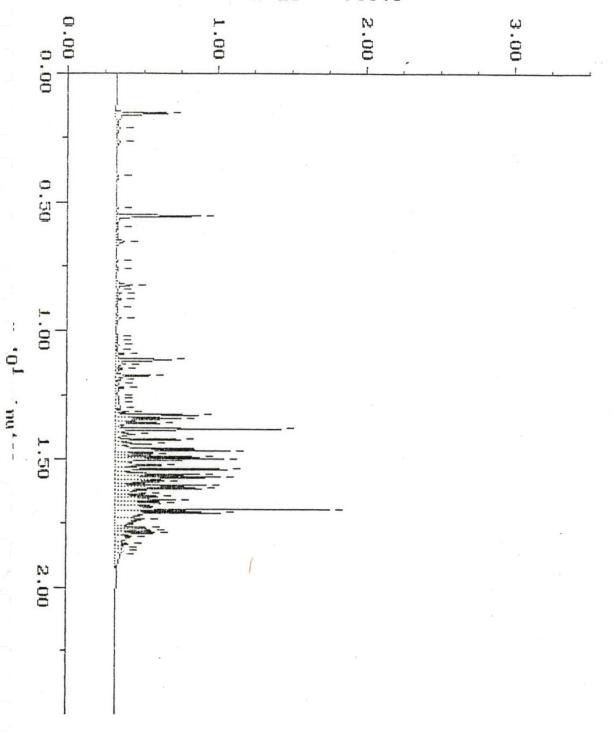
Sample: 9304-304-5 DIL Acquired: 02-MAY-93 19:36 Dilution: 1 : 20.000

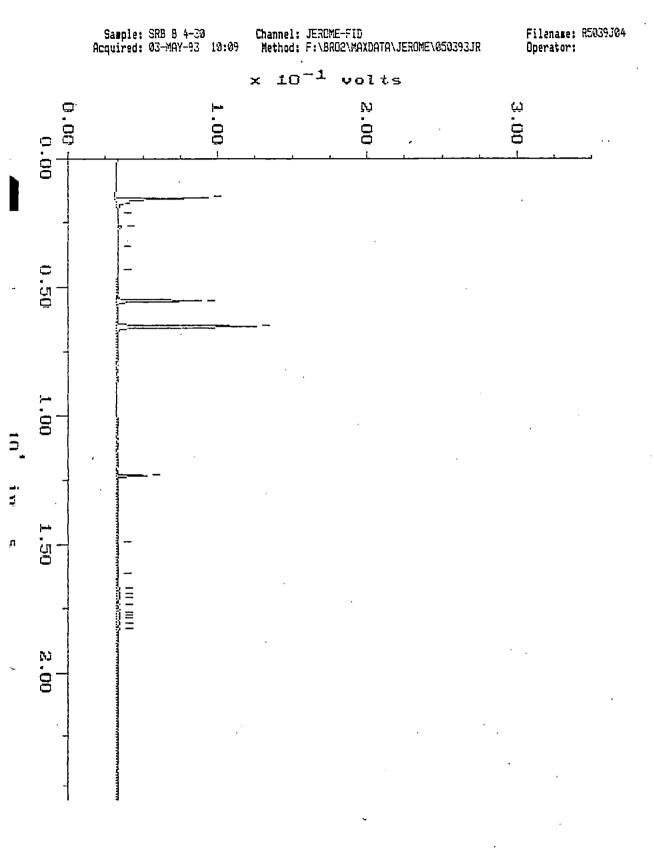
Channel: JEROME-FID
Method: F:\BRO2\MAXDATA\JEROME\050293JR

Filename: R5029J14 Operator:







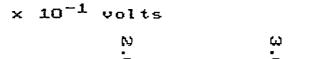


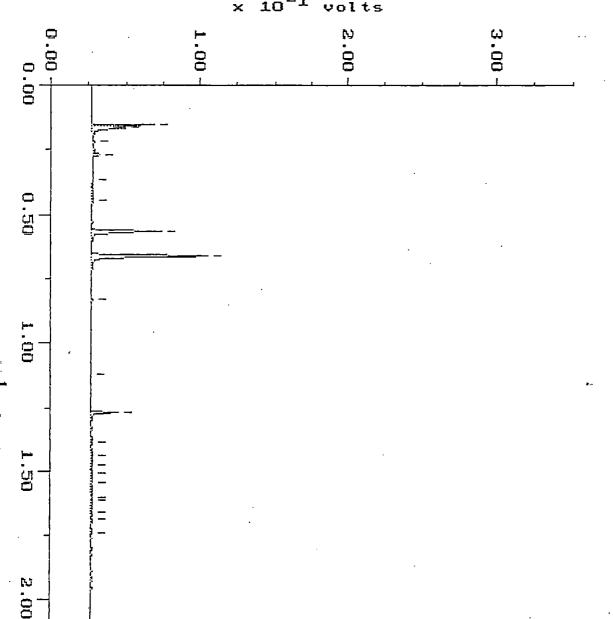
### WA DOE WTPH-G

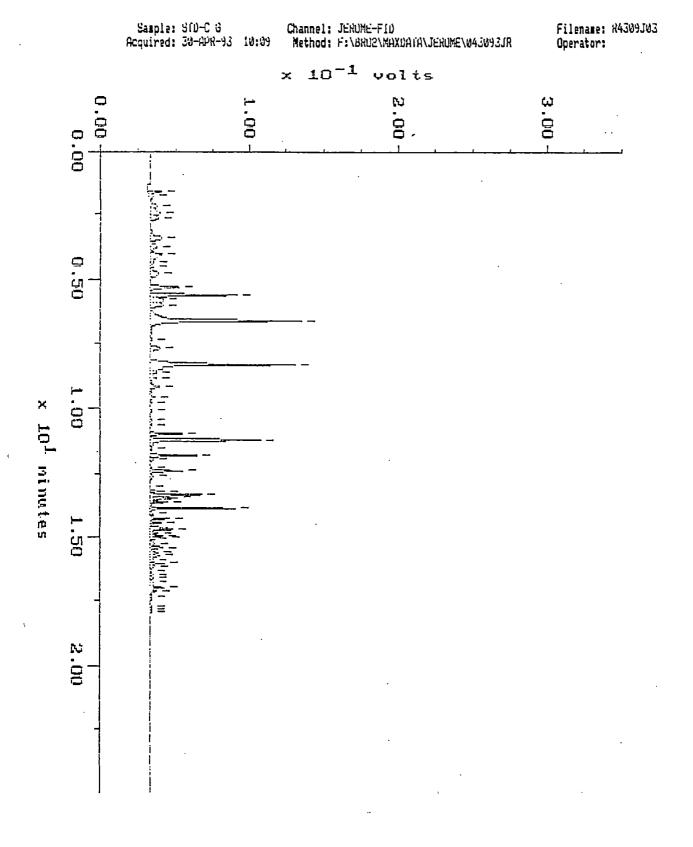
## Blank

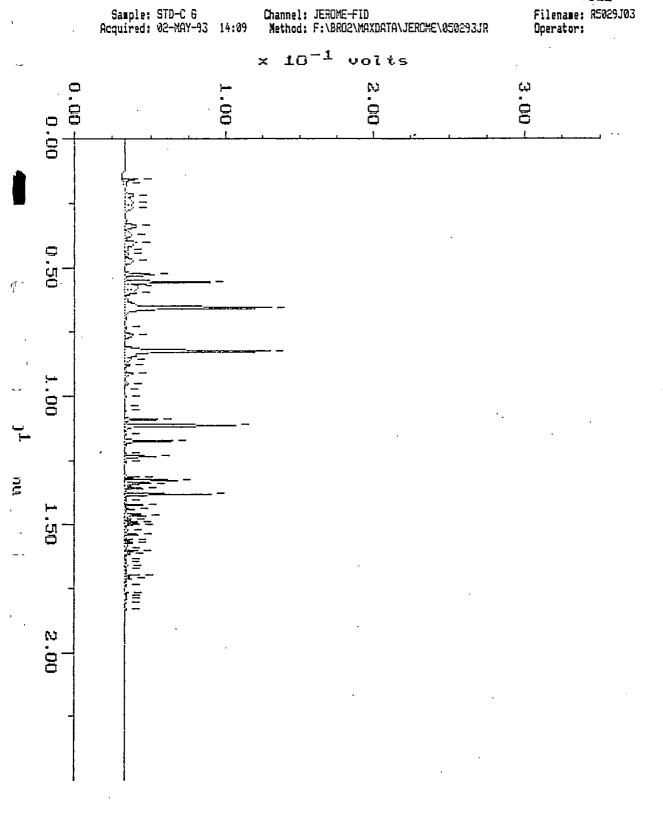
Filename: R5039619 Operator: ATI

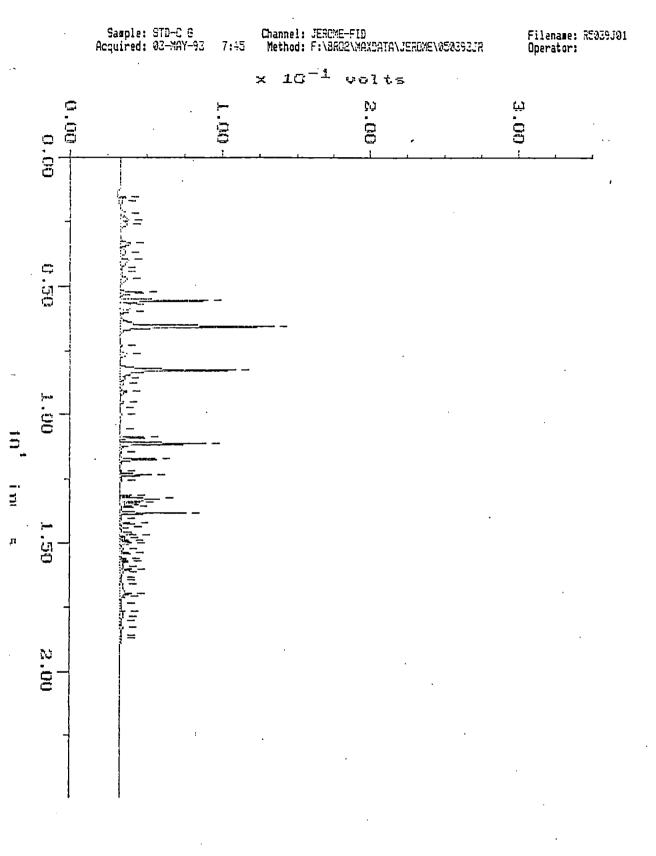
Sample: SRB-A 5-3 Channel: FID
Acquired: 03-MAY-93 20:56 Method: F:\BRO2\MAXDATA\GLAD\050393GS
Comments: ATI: A COMMITMENT TO QUALITY



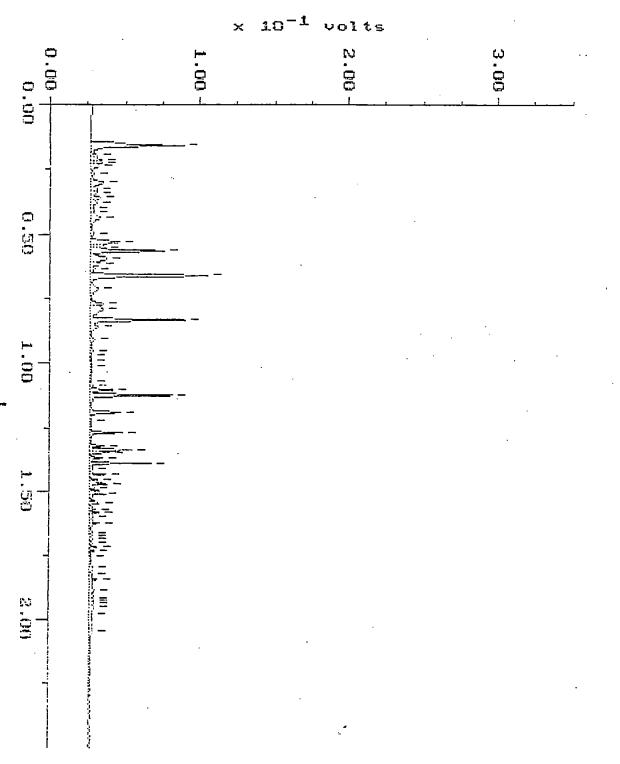


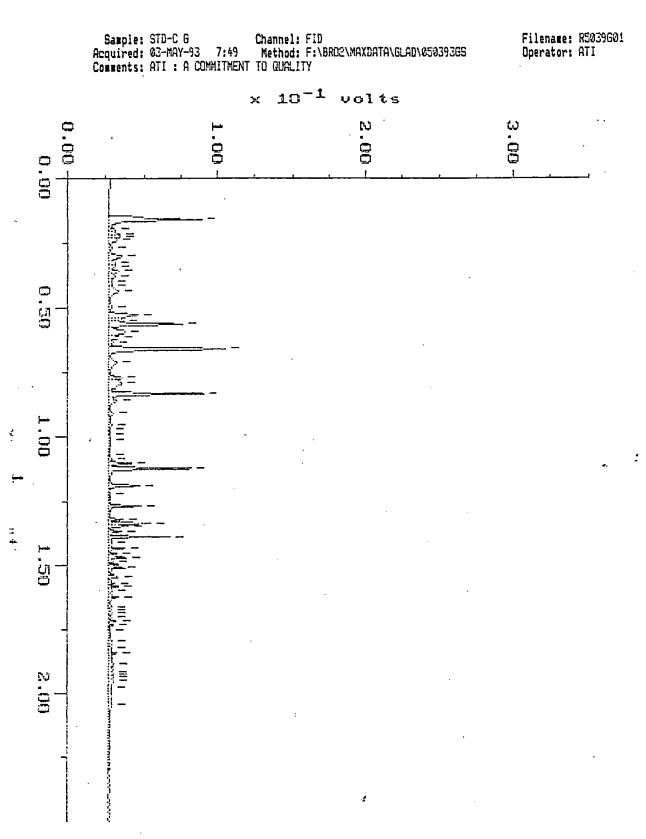


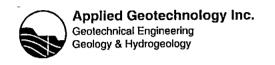




Sample: STD-C G Channel: FID
Acquired: 03-MAY-93 7:49 Method: F:\BRO2\MAXDATA\GLAD\050393GS
Comments: ATI : A COMMITMENT TO QUALITY Filename: R5039G01 Operator: ATI







Date	4-30-93	<sub>Page</sub> /	of ·
Date		raye	U <i></i>

PROJECT INFORMATION Laboratory Number: 9304 - 304																																	
Project Manager: GLEN BOBNICK													Α	NA	LY	SIS	S F	EC	UE	EST	•												_
Project Name: GTE/KIEKLAND - UST UTCIADE		PET	ΠO	LEL	M		ORG	AN	ic c	ON	1PO	·UN	DS	PE	ST	S/P	CB	,	LEACHING METALS TESTS			0	THE	R									
Project Number: 15,169,130	HY	DK		AHE	NON	5	7		7		Τ	ī		7	_[					7		Π	<u> </u>		寸		Ť	-	$\neg$	$\neg$	Τ	-	-
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QC INFORMATION (check one)	State:	State:	State:	TPH Special Instructions	418.1 State:		8010 Halogenated VOCs	8020M - BETY only	8240 GCMS Volatiles	SMS	8310 HPLC PAHS	le no	DWS - Volatiles and Semivol.	8080 OC Pest/PCBs	8080M PCBs only	8140 OP Pesticides	뷝	DWS - Herb/pest	Selected metals	Organic Lead (Ca)	TCI Metals (23)	Priority Poll. Metals (13)	DWS - Metals	MFSP - Metals (Wa)	TCLP - Volatiles	TCLP - Semivolatiles	TCLP - Pesticides	TCLP - Metals		HEADSPACE		NUMBER OF CONTAINERS	1
□SW-846 □CLP □Screening □AGI Std. □Special	무	면 구	皇	S	- :	S S	휘		9 9	5 5 Q	트	효	S.	Ŏ O	ĕ	읽		ا ي		יבון ה <u>ק</u>	Ž	j j	ŝ	SP.	٩	٩	یٰ	إذ	, Į,	η		JMB	
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#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130
Lab Name: Analytical Technologies Inc. - Renton, WA

Lab Number: 9305-017 Sample No.: DS-8

Matrix: Soil

#### QUALITY ASSURANCE SUMMARY

All data are of known and acceptable quality.

#### ANALYTICAL METHODS

<u>Method</u> <u>Technique</u> Parameter

WTPH-G GC/FID TPH-Gasoline

CLP SOW ILM01.0 Gravimetric Moisture

#### TIMELINESS

Parameter	Date Sampled	Date <u>Extracted</u>	Date Analyzed	Time Until Extraction	Time Until <u>Analysis</u>
TPH-G	5/02/93		5/05/93	2 (14)	1 (21)
Moisture	5/02/93		5/05/93	N/A	3

Numbers in parentheses indicate recommended holding times in days for soil. N/A - Not applicable.

All samples were extracted and analyzed within recommended holding times for soil.

#### DETECTABILITY AND COMPARABILITY

Analyses were performed without sample dilution.

#### FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

Trip Blank: None collected.

Page 1 of 2

#### PROJECT AND SAMPLE INFORMATION Project Name: GTE/Kirkland - UST Upgrade Project No.: 15,169.130 Analytical Technologies Inc. - Renton, WA Lab Name: Lab Number: 9305-017 Sample No.: DS-8 LAB QUALITY CONTROL SAMPLES No analytes were detected at or above their reporting Reagent Blank: limits by method WTPH-G. Matrix spike percent recovery and relative percent Matrix Spikes: difference (RPD) are within ATI's control limit criteria for method WTPH-G. Blank spike percent recovery is within ATI's control Blank Spike: limit criteria for method WTPH-G. Sample/sample duplicate relative percent difference (RPD) Duplicates: data are within ATI's control limit criteria for the following methods: WTPH-G CLP SOW ILMO1.0. All surrogate spike percent recoveries are within ATI's Surrogates: control limit criteria for method WTPH-G. SIGNATURES

Prepared by

Checked by



May 14, 1993

RECEIVED

MAY 1 8 1993

Applied Geotechnology, Inc. P.O. Box 3885 Bellevue WA 98009 APPLIED GEOTECHNOLOGY INC.

Attention: Glen Bobnick

Project Number: 15,169.130

Project Name : GTE/Kirkland

Dear Mr. Bobnick:

On May 3, 1993, Analytical Technologies, Inc. (ATI), received one sample for analysis. The sample was 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,

Donna M. McKinney

Senior Project Manager

DMM/hal/ff

Enclosure



#### SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
•			
9305-017-1	DS-8	05/02/93	SOIL

---- TOTALS ----

MATRIX # SAMPLES
SOIL 1

### 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 SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

ANALYSIS	TECHNIQUE	REFERENCE	LAB	
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-G	R	
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R	

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

SUB = Subcontract



## TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : N/A
PROJECT # : 15,169.130 DATE RECEIVED : N/A
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 05/04/93
CLIENT I.D. : METHOD BLANK DATE ANALYZED : 05/04/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg
METHOD : WA DOE WTPH-G DILUTION FACTOR : 1
RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUND RESULT

FUEL HYDROCARBONS <5

HYDROCARBONS
HYDROCARBON RANGE
HYDROCARBON QUANTITATION USING
TOLUENE TO DODECANE
GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 96 50 - 150



ATI I.D. # 9305-017-1

### TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 05/02/93
PROJECT # : 15,169.130 DATE RECEIVED : 05/03/93
PROJECT NAME : GTE/KIRKLAND DATE EXTRACTED : 05/04/93
CLIENT I.D. : DS-8 DATE ANALYZED : 05/05/93
SAMPLE MATRIX : SOIL UNITS : mg/Kg
METHOD : WA DOE WTPH-G DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

\_\_\_\_\_\_

COMPOUND RESULT

FUEL HYDROCARBONS <6

HYDROCARBON RANGE TOLUENE TO DODECANE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 79 50 - 150



# TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9304-312-2
PROJECT # : 15,169.130 DATE EXTRACTED : 05/04/93
PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/05/93
METHOD : WA DOE WTPH-G UNITS : mg/Kg

SAMPLE MATRIX : SOIL

COMPOUND		SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE		<5.00	<5.00	NC	50.0	49.3	99	45.7	91	8
	CONT	ROL LIMI	TS				% REC	•		RPD
GASOLINE							50 -	112		20
SURROGATE RECOVERIES					SPIKE		DUP.	SPIKE	LIMIT	'S
TRIFLUOROTOLUENE					79		76		50 -	150



#### TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

LIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE

PROJECT # : 15,169.130 DATE EXTRACTED : 05/04/93
PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/04/93
METHOD : WA DOE WTPH-G UNITS : mg/Kg

;AMPLE MATRIX : SOIL

COMPOUND		SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
ASOLINE		<5.00	50.0	49.9	100	N/A	N/A	N/A
	CONTROL LIMITS				% REC			RPD
;ASOLINE					80 -	119		20
	SURROGATE RECOVER	IES	SPIKE		DUP.	SPIKE	LIMIT	'S
RIFLUOROTOLUENE			89		N/A		50 -	150



#### GENERAL CHEMISTRY ANALYSIS

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND

DATE ANALYZED

MOISTURE

05/05/93



#### GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL PROJECT # : 15,169.130

UNITS : % PROJECT NAME : GTE/KIRKLAND

ATI I.D. # CLIENT I.D.

9305-017-1 DS-8

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# GENERAL CHEMISTRY ANALYSIS OUALITY CONTROL DATA

- CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

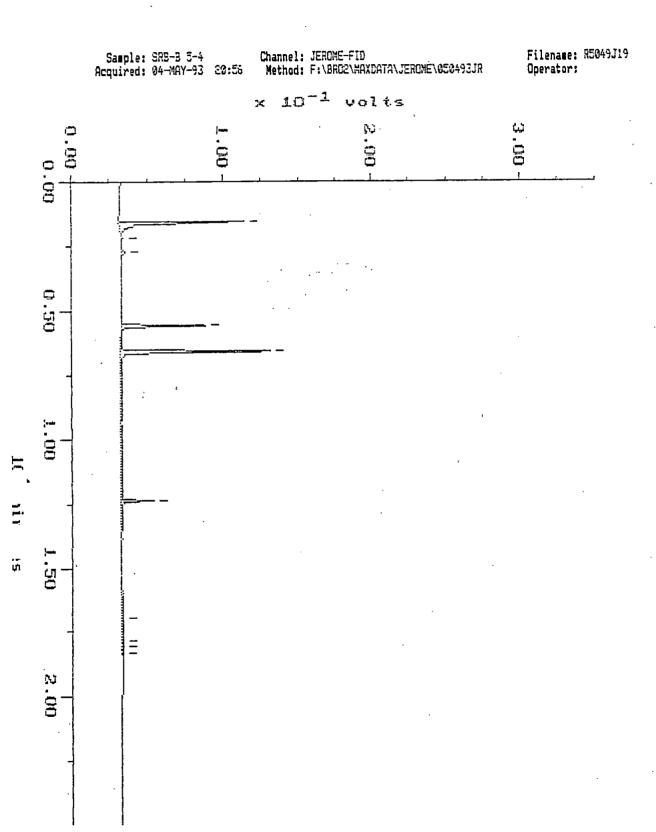
PROJECT NAME : GTE/KIRKLAND UNITS : %

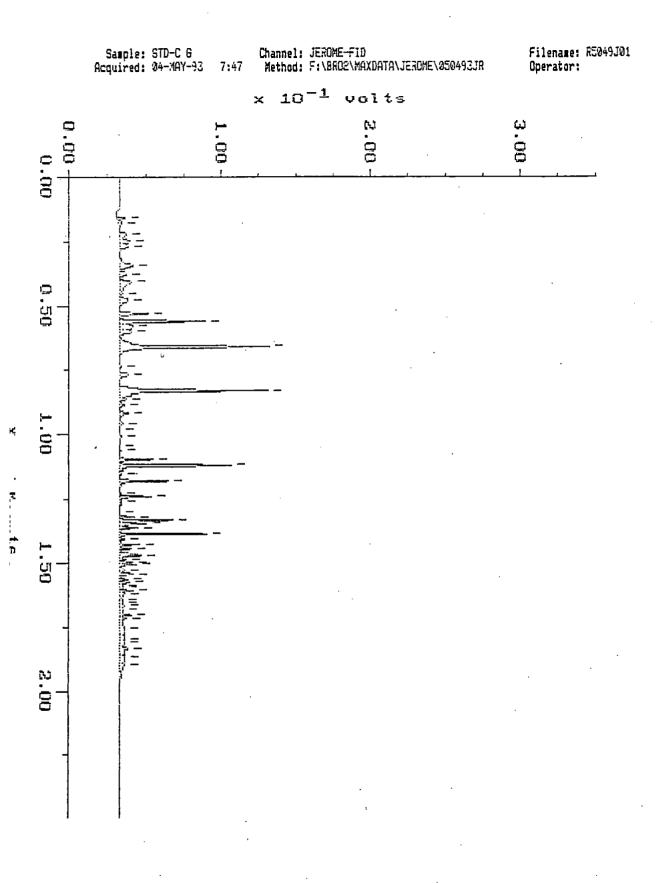
PARAMETER	ATI I.D.		DUP	•		SPIKE	% REC
MOISTURE	9305-009-1	18	19	5	N/A	N/A	N/A

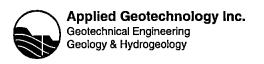
% Recovery = (Spike Sample Result - Sample Result)
----- x 100
Spike Concentration

RPD (Relative % Difference) = (Sample Result - Duplicate Result)

Average Result







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Date 5/2/93 Page / of /\_\_\_

PROJECT INFORMATION				La	abo	rate	ory	Nu	mb	er:		93	<del>2</del>	)5	- (	ŌΪ	7					-												
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Project Name: GTE/KIRKLA Project Number: 15,169,13 Site Location: KIRKLAND	<del>fu</del> D				PET	RO	LEU	JM	٦	RG.	ΔNI	c c	OME	POL	INDS					Т-			TAL				LEA	CH	ING		отн	FR	$\top$	٦
Project Number:	<u> </u>			HY	DR	OC/	\RB ⊣	NOI 2 4	SΟ			$\overline{}$		$\overline{}$	1					_	<u>-</u> -				σĪ	<u> </u>		EST		╂			<del> </del>	ᅴ
Site Location: KIRKLAND	_ Sam	pled By: 💆	<u>-G</u>	맫	трн-с	핅	밁	18 2		2020	1020	240	270 (	3101	040 V	080	1080	6 6	150	elect	otal L	rgan	۲ ×	ri  -  -	§	띩		֡֝֟֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓		, .			1 8	
DISPOSAL INFORMA					S 2	TPH-D State:	peci k	Sta	8010 Halogenated VUCS	8020 Aromatic VOCs	8020M - BETX only	8240 GCMS Volatiles	8270 GCMS Semivol.	8310 HPLC PAHs	DWS - Volatiles and Semivol.	8080 OC Pest/PCBs	8080M PCBs only	8140 OP Pesticides	8150 OC Herbicides	Selected metals: list	Total Lead (Wa)	Organic Lead (Ca)	TCL Metals (23)	Priority Poll. Metals (13)	DWS - Metals	MFSP - Metals (Wa)	<u>.</u>		TCLP - Metals	,			NOMBEH OF CONTAINERS	8
Lab Disposal (return if not ind	dicated	)		State:	ate:	ate:			jena	atio	;;	SVo	S Se	PA	ols littles	est/F	Bs or	estic	erbic	etals	(Wa	ad (C	(23		8	tais	atiles	Semivolati	lals	1			}	<u>რ</u>
Disposal Method:					_		struc		led v		을	Vatile	mivo	동	and	lg g	η, V	ides	sides	list		ia)		tals		æ  a	Volatiles (ZHE)	Semivolatiles	3				Ş	<u>}</u>
Disposed by: Dispose	al Date	e:			WA		tions			] []		Š	<u>~</u>		Sen	' "							,	Ξ	- {	ŀ	֓֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞֓֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞֡֞֞֞	"		,			Alve	Ž
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LAB INFORMATION		SAMI	PLE REC	EIF	די				RI	ELI	NG	UIS	SHI	ED	BY:	1.	F	REL	INC	וטג	SH	ED	в	<b>'</b> : '	2.	R	EĻ	INC	וטנ	SH	ED	BY	· 3.	
Lab Name: ATI	Total	Number of C	ontainers:				1		Sign	natur	b: 12	7		-	4	Fime:	s	ignati	ure:					Tim	ne;	Si	gnatı	ıre:					Time:	:
Lab Address: TRENTON	Chair	of Custody	Seals: Y/N	'nΑ			Y		_									rinted	i Nam	e:				Da	ite:	P	inted	Naп	ne:			-	Date:	-
	Intact	:?: Y/N/NA					Y		<u>L</u>	(4	AUS	7F-/	150	N)	5	<u>z/9</u>	3									Ļ						_		
Via: AGI courier	Rece	ived in Good	Condition/0	Cold	: [		Y		Cor	mpan	y: 	40	íΙ		•	<u>,</u>	C	ompa	any:							Lc	ompa	іпу:						
Turn Around Time: X Standard □	24 hr.	□ 48 hr.	. 🗆 72 h	ır.		1 y	vk.		RE	ECI	ΞIV	ED	В	<b>/:</b> _		1.	F	REC	Έľ	/EC	B	<b>Y</b> :			2.	R	EC	Eľ	VΕ	) B	Y:		3.	i.
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AGI OFFICES: Bellevue: (206) 453-8383 Portland: (503) 222-2820

Tacoma: (206) 383-4380 Pleasanton: (415) 460-5495 DISTRIBUTION: White, Canary to Analytical Laboratory; Pink to AGI Project Files; Gold to AGI Disposal Files

Rev. 4/92

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. - Renton, Washington

Lab Number: 9305-045 Sample No.: DS-9

Matrix: Water

#### **QUALITY ASSURANCE SUMMARY**

All data are of known and acceptable quality.

#### ANALYTICAL METHODS

Parameter	Technique	<u>Method</u>
BETX	GC/PID	EPA 8020
TPH-G	GC/FID	WTPH-G

#### TIMELINESS

Parameter	Date Sampled	Date <u>Extracted</u>	Date <u>Analyzed</u>	Time Until Extraction	Time Until <u>Analysis</u>
BETX	5/05/93 E/05/93	•	5/07/93	N/A	2 (14)
TPH-G	5/05/93	N/A	5/07/93	N/A	2 (14)

#### N/A - Not applicable.

Numbers in parentheses indicate recommended holding times in days for water. All samples were extracted and analyzed within recommended holding times for water.

#### DETECTABILITY AND COMPARABILITY

Sample DS-9 was diluted 5 fold for analysis EPA 8020 and WTPH-G because several analyte concentrations were above the calibration range. Sample dilution elevates reporting limits for undetected compounds therefore exercise caution when comparing sample results reported near reporting limits.

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. - Renton, Washington

Lab Number: 9305-045 Sample No.: DS-9

#### CHROMATOGRAPHY

The detection of fuel hydrocarbons quantified between toluene and dodecane is supported by chromatogram for sample DS-9.

#### FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

Trip Blank: None collected.

#### LAB QUALITY CONTROL SAMPLES

Method Blank: No analytes were detected at or above their reporting

limits by the following methods:

EPA 8020 WTPH-G

Matrix Spikes: All matrix spike percent recoveries and relative percent

differences (RPDs) are within ATI's control limit

criteria for the following methods:

EPA 8020 WTPH-G

Blank Spikes: All blank spike percent recoveries are within ATI's

control limit criteria for the following methods:

EPA 8020 WTPH-G

#### PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Project No.: 15,169.130

Lab Name: Analytical Technologies, Inc. - Renton, Washington

Lab Number: 9305-045 Sample No.: DS-9

Duplicates: Sample/sample duplicate relative percent difference (RPD)

data are within ATI's control limit criteria for the

method WTPH-G.

Surrogates: All surrogate spike percent recoveries are within ATI's

control limit criteria for the following methods:

EPA 8020 WTPH-G

SIGNA	TURES
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Prepared by	anotte Johnson	Date 6/4/93	
Checked by	Katherine Bourbongies	Date _ 4(7193	

560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

Karen L. Mixon, Laboratory Manager

MAY 20 1993

APPLIED GEOTECHNOLOGY INC

ATI I.D. # 9305-045

May 18, 1993

Applied Geotechnology, Inc. P.O. Box 3885 Bellevue WA 98009

Attention : Glen Bobnick

Project Number: 15,169.130

Project Name : GTE/Kirkland

Dear Mr. Bobnick:

On May 6, 1993, Analytical Technologies, Inc. (ATI), received one sample for analysis. The sample was 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,

Donna M. McKinney / Senior Project Manager

DMM/hal/dmc

Enclosure



#### SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND

CLIENT DESCRIPTION

9305-045-1 DS-9

05/05/93

WATER

---- TOTALS ----

# SAMPLES WATER

#### 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 SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130

PROJECT NAME : GTE/KIRKLAND

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-G	R

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

#### BETX - GASOLINE DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : METHOD BLANK SAMPLE MATRIX : WATER METHOD : WA DOE WTPH-G - 8020 (BETX)	DATE SAMPLED : N/A  DATE RECEIVED : N/A  DATE EXTRACTED : N/A  DATE ANALYZED : 05/06/93  UNITS : ug/L  DILUTION FACTOR : 1
COMPOUNDS	RESULTS
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES  FUEL HYDROCARBONS HYDROCARBON RANGE HYDROCARBON QUANTITATION USING	<0.5 <0.5 <0.5 <0.5 <100 TOLUENE TO DODECANE GASOLINE
SURROGATE PERCENT RECOVERY	LIMITS
BROMOFLUOROBENZENE	. 99 76 - 120 94 50 - 150



#### BETX - GASOLINE DATA SUMMARY

CLIENT I.D. : METHOD BLANK SAMPLE MATRIX : WATER METHOD : WA DOE WTPH-G - 8020 (BETX)	DATE RECEIVED : N/A DATE EXTRACTED : N/A DATE ANALYZED : 05/07/93 UNITS : ug/L DILUTION FACTOR : 1
COMPOUNDS	PESIII.TS
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.5 <0.5
FUEL HYDROCARBONS HYDROCARBON RANGE HYDROCARBON QUANTITATION USING	<100 TOLUENE TO DODECANE GASOLINE
SURROGATE PERCENT RECOVERY	LIMITS
BROMOFLUOROBENZENE TRIFLUOROTOLUENE	101 76 - 120 94 50 - 150



#### ATI I.D. # 9305-045-1

#### BETX - GASOLINE DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : DS-9 SAMPLE MATRIX : WATER METHOD : WA DOE WTPH-G - 8020 (BETX)	DATE SAMPLED : 05/05/93 DATE RECEIVED : 05/06/93 DATE EXTRACTED : N/A DATE ANALYZED : 05/07/93 UNITS : ug/L DILUTION FACTOR : 5
COMPOUNDS	RESULTS
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	. 31 <2.5 41 . 180
FUEL HYDROCARBONS HYDROCARBON RANGE HYDROCARBON QUANTITATION USING	2700 TOLUENE TO DODECANE GASOLINE
SURROGATE PERCENT RECOVERY	LIMITS
BROMOFLUOROBENZENE	. 105 76 - 120 86 50 - 150



#### BETX - GASOLINE QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9305-034-3 CLIENT

DATE EXTRACTED : N/A : 15,169.130 PROJECT #

DATE ANALYZED : 05/06/93 PROJECT NAME : GTE/KIRKLAND

: ug/L SAMPLE MATRIX : WATER UNITS

: WA DOE WTPH-G - 8020 (BETX) METHOD

				•					
COMPOUNDS	SAMPLE RESULT	DUP. SAMPLE RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE TOLUENE TOTAL XYLENES GASOLINE	<0.500 1.23 7.74 375	N/A N/A N/A 425	N/A N/A N/A 13	20.0 20.0 40.0 1000	19.8 22.4 49.5 1510	99 106 104 114	19.5 22.0 48.1 1460	98 104 101 109	2 2 3 3
CONTROL	LIMITS	·				% REC.			RPD
BENZENE TOLUENE TOTAL XYLENES GASOLINE						77 - 1 72 - 1 80 - 1 58 - 1	10		20 20 20 20
SURROGAT	E RECOVE	RIES		SPIKE		DUP. S	PIKE	LIMITS	}
BROMOFLUOROBEN TRIFLUOROTOLUE				103 95		102 89		76 - 1 50 - 1	.20 .50



#### BETX - GASOLINE QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. CLIENT

SAMPLE I.D. #

: BLANK SPIKE

METHOD

DATE EXTRACTED : N/A DATE ANALYZED : 05/06/93

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND

UNITS

: uq/L

SAMPLE MATRIX : WATER

: WA DOE WTPH-G - 8020 (BETX)

						<b></b>	
COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE TOLUENE TOTAL XYLENES GASOLINE	<0.500 <0.500 <0.500 <100	20.0 20.0 40.0 1000	20.9 21.9 42.9 958	105 110 107 96	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A
CONTROL LIMITS				% REC.			RPD
BENZENE TOLUENE TOTAL XYLENES GASOLINE				80 - 1 78 - 1 80 - 1 75 - 1	.11 .14	· .`	20 20 20 20
SURROGATE RECOVERIE	S .	SPIKE		DUP. S	PIKE	LIMITS	}
BROMOFLUOROBENZENE TRIFLUOROTOLUENE		100 95	,	N/A N/A			.20 .50



# BETX - GASOLINE QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE

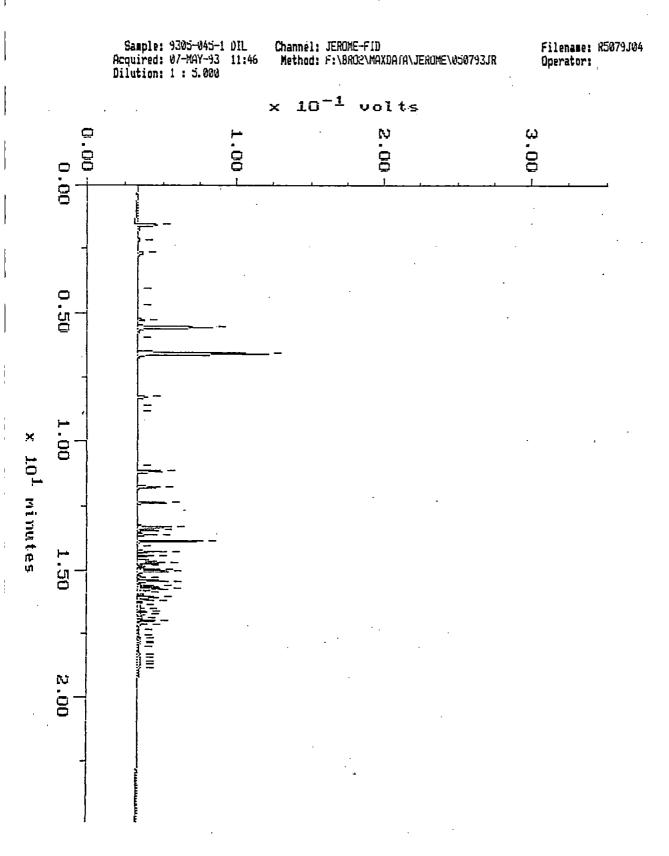
PROJECT # : 15,169.130 DATE EXTRACTED : N/A

PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/07/93
SAMPLE MATRIX : WATER UNITS : ug/L

METHOD : WA DOE WTPH-G - 8020 (BETX)

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE TOLUENE TOTAL XYLENES GASOLINE	<0.500 <0.500 <0.500 <100	20.0 20.0 40.0 1000	18.2 19.5 42.6 942	91 98 107 94	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A
CONTROL LIMITS				% REC.			RPD
BENZENE TOLUENE TOTAL XYLENES GASOLINE			80 - 1 78 - 1 80 - 1 75 - 1	.11 .14		20 20 20 20	
SURROGATE RECOVERI	ES	SPIKE		DUP. S	SPIKE	LIMITS	5
BROMOFLUOROBENZENE TRIFLUOROTOLUENE		105 90		N/A N/A		76 - 1 50 - 1	

# WA DOE WTPH-G



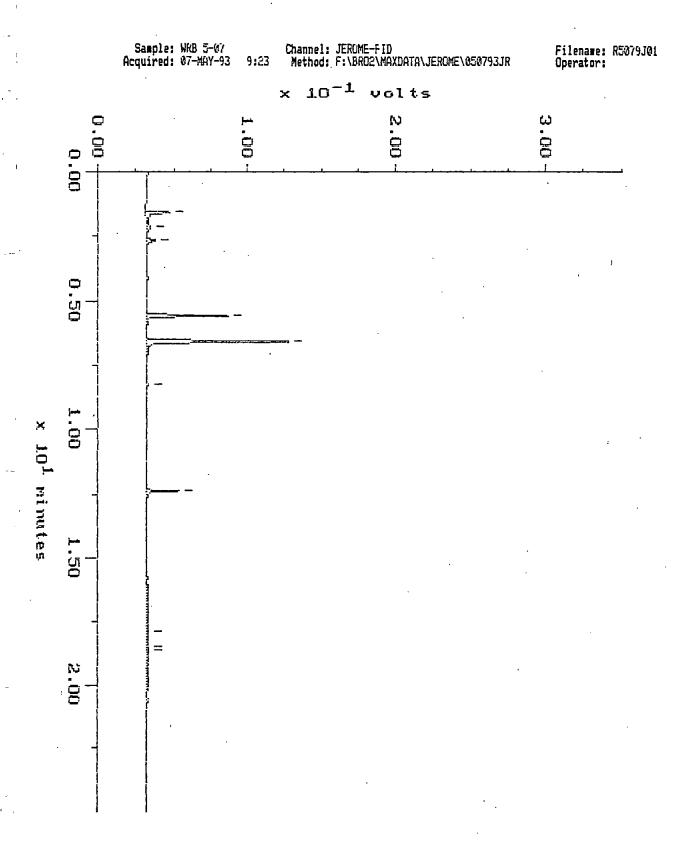
DE WTPH-G.
Channel: JERCYSFID

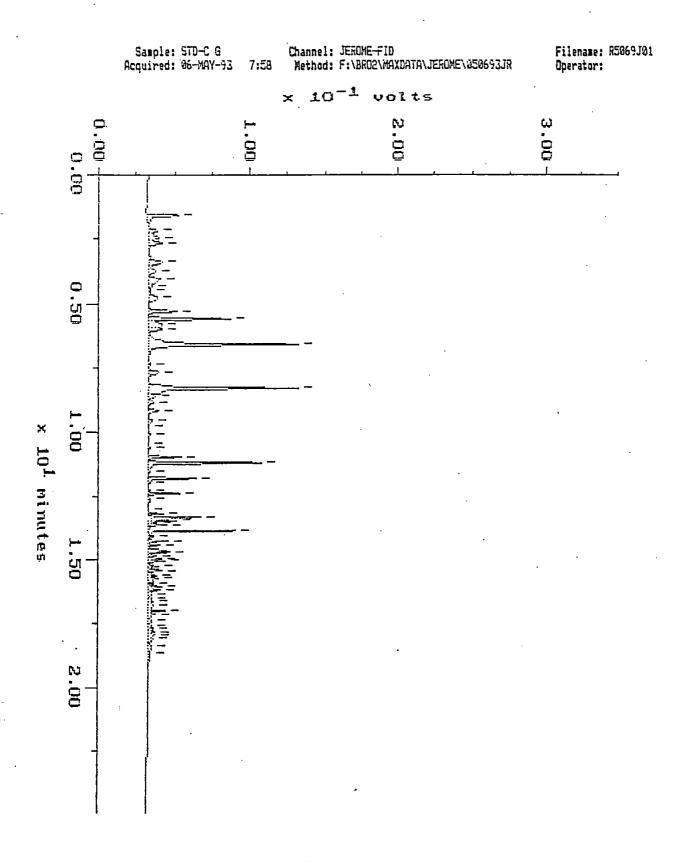
Method: F:\BRCZ\MAXDATA\JERCME\@E@S93JR Sample: WRE I-06 Acquired: 05-197-93 Filename: SECS9JO3 Operator: × 10-1 volts 00.00 - 00.00 3.00 -1.00 1,50 2,00

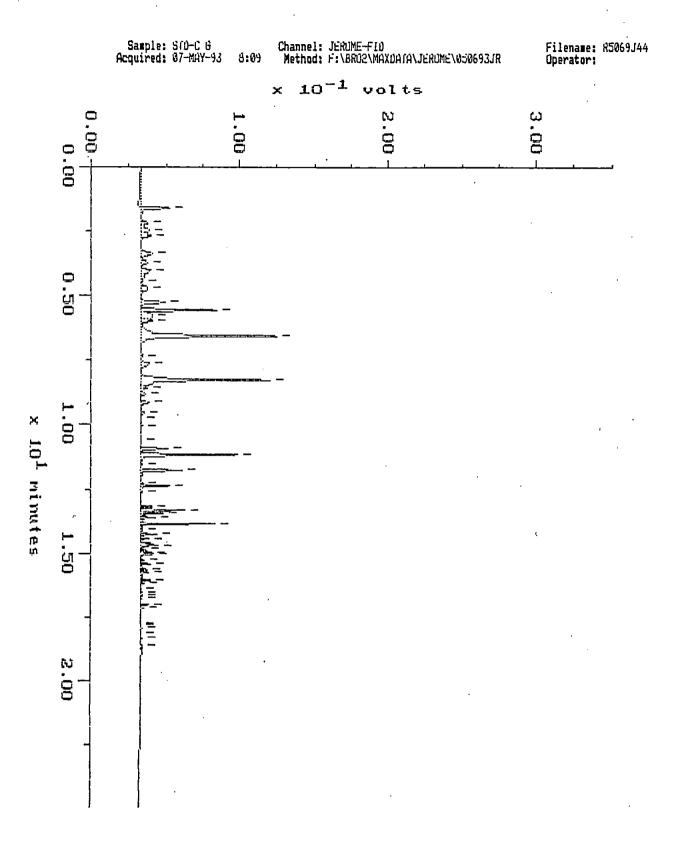
Blank

## WA DOE WTPH-G

# Blank







# Applied Geotechnology Inc. Geotechnical Engineering Geology & Hydrogeology

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PROJECT INFORMATION			Laboratory Number: 9305 - で名5														$\Box$																
Project Manager: GLEN BOBNICK				ANALYSIS REQUEST																													
Project Name: GTF / KIRICLAND Project Number: 15169/130 Site Location: KIRICLAND Sampled By: LGC DISPOSAL INFORMATION			IIV.	ETI	ROL	EUN	A NIC	NS ORGANIC COMPOUNDS PE							ESTS/PCB's METALS										ACI		3	ОТІ	$\top$	$\Box$			
Project Number:				JHC ⊒								1 1		1				က္ဆ				÷	Z	<del>l -                                   </del>			╗┼	T		+	z		
Site Location: KIRKL	4ND	Sam	pled By: 💪	<u>.6c</u>	TPH-ID	TPH-G State:	1PH-0	TPH Special Instructions	8015M	8010 Halogenated VOCs	8020 Aromatic VOCs	8240 GCMS Volatiles	8270 GCMS Semivol.	8310 HPLC PAHs	DWS - Volatiles and Semivol.	8080 OC Pest/PCBs	8080M PCBs only	8140 OP Pesticides	DWS - Herb/pest	Selected metals: list	Total Lead (Wa)	Organic Lead (Ca)	Priority Poll. Metals (13)	DWS - Metals	MFSP - Metals (Wa)	TCLP -	TCLP - Semivolatiles	다.	TCI P - Metals				NUMBER OF CONTAINERS
DISPOSAL INFORMATION		ွ	ည္	State:	Sta		ialog	0   E		N N		)   ()	i K	PQ		Her	ed m	ead	c Le	Po	Me.	-Me	<u>`</u>	Ser	Pe	2				뙤			
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Disposed by: Disposal Date:				i l		tions	The second	000	<u>ه</u>	Š	\ 		Sen								[13]			Ē	"					1	<u>¥</u>		
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DS-9	5/5/93	1045	WATER	1					K	$\bot \bot$				$\coprod$				_	_				$\downarrow$	_			$\sqcup$	$\dashv$	4	$\bot$	Ш	- 1	3
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